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## **Measurement Protocol**

|                    |                                               |
|--------------------|-----------------------------------------------|
| Measurement Object | WIFI 2G_802.11n_HT 40 MCS0 EVS WB 128kbps_CH6 |
| Description        | HMD_2322#N159V                                |

|                        |                    |
|------------------------|--------------------|
| Project                | TIA-5050 (2018-01) |
| Report Generation Date | 2024/2/6 10:33     |
| Responsible Person     | audio              |

## Status Overview

| SMD                                           | Status | Single Value Description           | Single Value | Object                                              |
|-----------------------------------------------|--------|------------------------------------|--------------|-----------------------------------------------------|
| Overall Receive Delay WB                      | Done   | Delay (Cross) [ms]                 | 183.5        | WIFI 2G_802.11n_HT 40<br>MCS0 EVS WB<br>128kbps_CH6 |
| 5.1a Receive Volume Control Performance 8N WB | Not Ok | Corrected Speech Level [dB[SPL]]   | 17.44        | WIFI 2G_802.11n_HT 40<br>MCS0 EVS WB<br>128kbps_CH6 |
| 5.1b Receive Volume Control Performance 2N WB | Ok     | Corrected Speech Level [dB[SPL]]   | 11.23        | WIFI 2G_802.11n_HT 40<br>MCS0 EVS WB<br>128kbps_CH6 |
| 5.2 RCV Distortion and Noise - 250 Hz WB      | Ok     | Distortion (Noise) [dB],<br>0.0 dB | 26.38        | WIFI 2G_802.11n_HT 40<br>MCS0 EVS WB<br>128kbps_CH6 |
| 5.2 RCV Distortion and Noise - 315 Hz WB      | Ok     | Distortion (Noise) [dB],<br>0.0 dB | 27.42        | WIFI 2G_802.11n_HT 40<br>MCS0 EVS WB<br>128kbps_CH6 |
| 5.2 RCV Distortion and Noise - 400 Hz WB      | Ok     | Distortion (Noise) [dB],<br>0.0 dB | 28.47        | WIFI 2G_802.11n_HT 40<br>MCS0 EVS WB<br>128kbps_CH6 |
| 5.2 RCV Distortion and Noise - 500 Hz WB      | Ok     | Distortion (Noise) [dB],<br>0.0 dB | 29.74        | WIFI 2G_802.11n_HT 40<br>MCS0 EVS WB<br>128kbps_CH6 |
| 5.2 RCV Distortion and Noise - 630 Hz WB      | Ok     | Distortion (Noise) [dB],<br>0.0 dB | 34.35        | WIFI 2G_802.11n_HT 40<br>MCS0 EVS WB<br>128kbps_CH6 |
| 5.2 RCV Distortion and Noise - 800 Hz WB      | Ok     | Distortion (Noise) [dB],<br>0.0 dB | 33.15        | WIFI 2G_802.11n_HT 40<br>MCS0 EVS WB<br>128kbps_CH6 |
| 5.2 RCV Distortion and Noise - 1000 Hz WB     | Ok     | Distortion (Noise) [dB],<br>0.0 dB | 40.02        | WIFI 2G_802.11n_HT 40<br>MCS0 EVS WB<br>128kbps_CH6 |
| 5.2 RCV Distortion and Noise - 1250 Hz WB     | Ok     | Distortion (Noise) [dB],<br>0.0 dB | 27.99        | WIFI 2G_802.11n_HT 40<br>MCS0 EVS WB<br>128kbps_CH6 |
| 5.2 RCV Distortion and Noise - 1600 Hz WB     | Ok     | Distortion (Noise) [dB],<br>0.0 dB | 22.56        | WIFI 2G_802.11n_HT 40<br>MCS0 EVS WB<br>128kbps_CH6 |
| 5.2 RCV Distortion and Noise - 2000 Hz WB     | Ok     | Distortion (Noise) [dB],<br>0.0 dB | 34.01        | WIFI 2G_802.11n_HT 40<br>MCS0 EVS WB<br>128kbps_CH6 |
| 5.2 RCV Distortion and Noise - 2500 Hz WB     | Ok     | Distortion (Noise) [dB],<br>0.0 dB | 31.44        | WIFI 2G_802.11n_HT 40<br>MCS0 EVS WB<br>128kbps_CH6 |
| 5.2 RCV Distortion and Noise - 3150 Hz WB     | Ok     | Distortion (Noise) [dB],<br>0.0 dB | 37.23        | WIFI 2G_802.11n_HT 40<br>MCS0 EVS WB<br>128kbps_CH6 |
| 5.2 RCV Distortion and Noise - 4000 Hz WB     | Ok     | Distortion (Noise) [dB],<br>0.0 dB | 31.22        | WIFI 2G_802.11n_HT 40<br>MCS0 EVS WB<br>128kbps_CH6 |
| 5.2 RCV Distortion and Noise -                | Ok     | Distortion (Noise) [dB],           | 27.29        | WIFI 2G_802.11n_HT 40                               |

|                                                             |        |                                                      |       |                                                     |
|-------------------------------------------------------------|--------|------------------------------------------------------|-------|-----------------------------------------------------|
| 5000 Hz WB                                                  |        | 0.0 dB                                               |       | MCS0 EVS WB<br>128kbps_CH6                          |
| Report - Receive Distortion and Noise (Conversational Gain) | Ok     | Minimum SDNR [dB],<br>(occured at 1600Hz)            | 22.56 | WIFI 2G_802.11n_HT 40<br>MCS0 EVS WB<br>128kbps_CH6 |
| 5.2 RCV Distortion and Noise - 250 Hz WB                    | Ok     | Distortion (Noise) [dB],<br>0.0 dB                   | 28.32 | WIFI 2G_802.11n_HT 40<br>MCS0 EVS WB<br>128kbps_CH6 |
| 5.2 RCV Distortion and Noise - 315 Hz WB                    | Ok     | Distortion (Noise) [dB],<br>0.0 dB                   | 26.82 | WIFI 2G_802.11n_HT 40<br>MCS0 EVS WB<br>128kbps_CH6 |
| 5.2 RCV Distortion and Noise - 400 Hz WB                    | Ok     | Distortion (Noise) [dB],<br>0.0 dB                   | 27.68 | WIFI 2G_802.11n_HT 40<br>MCS0 EVS WB<br>128kbps_CH6 |
| 5.2 RCV Distortion and Noise - 500 Hz WB                    | Ok     | Distortion (Noise) [dB],<br>0.0 dB                   | 28.22 | WIFI 2G_802.11n_HT 40<br>MCS0 EVS WB<br>128kbps_CH6 |
| 5.2 RCV Distortion and Noise - 630 Hz WB                    | Ok     | Distortion (Noise) [dB],<br>0.0 dB                   | 25.44 | WIFI 2G_802.11n_HT 40<br>MCS0 EVS WB<br>128kbps_CH6 |
| 5.2 RCV Distortion and Noise - 800 Hz WB                    | Ok     | Distortion (Noise) [dB],<br>0.0 dB                   | 32.77 | WIFI 2G_802.11n_HT 40<br>MCS0 EVS WB<br>128kbps_CH6 |
| 5.2 RCV Distortion and Noise - 1000 Hz WB                   | Ok     | Distortion (Noise) [dB],<br>0.0 dB                   | 31.00 | WIFI 2G_802.11n_HT 40<br>MCS0 EVS WB<br>128kbps_CH6 |
| 5.2 RCV Distortion and Noise - 1250 Hz WB                   | Ok     | Distortion (Noise) [dB],<br>0.0 dB                   | 28.02 | WIFI 2G_802.11n_HT 40<br>MCS0 EVS WB<br>128kbps_CH6 |
| 5.2 RCV Distortion and Noise - 1600 Hz WB                   | Ok     | Distortion (Noise) [dB],<br>0.0 dB                   | 30.72 | WIFI 2G_802.11n_HT 40<br>MCS0 EVS WB<br>128kbps_CH6 |
| 5.2 RCV Distortion and Noise - 2000 Hz WB                   | Ok     | Distortion (Noise) [dB],<br>0.0 dB                   | 27.27 | WIFI 2G_802.11n_HT 40<br>MCS0 EVS WB<br>128kbps_CH6 |
| 5.2 RCV Distortion and Noise - 2500 Hz WB                   | Ok     | Distortion (Noise) [dB],<br>0.0 dB                   | 40.37 | WIFI 2G_802.11n_HT 40<br>MCS0 EVS WB<br>128kbps_CH6 |
| 5.2 RCV Distortion and Noise - 3150 Hz WB                   | Ok     | Distortion (Noise) [dB],<br>0.0 dB                   | 29.78 | WIFI 2G_802.11n_HT 40<br>MCS0 EVS WB<br>128kbps_CH6 |
| 5.2 RCV Distortion and Noise - 4000 Hz WB                   | Ok     | Distortion (Noise) [dB],<br>0.0 dB                   | 26.07 | WIFI 2G_802.11n_HT 40<br>MCS0 EVS WB<br>128kbps_CH6 |
| 5.2 RCV Distortion and Noise - 5000 Hz WB                   | Ok     | Distortion (Noise) [dB],<br>0.0 dB                   | 25.08 | WIFI 2G_802.11n_HT 40<br>MCS0 EVS WB<br>128kbps_CH6 |
| Report - Receive Distortion and Noise (Conversational Gain) | Ok     | Minimum SDNR [dB],<br>(occured at 5000Hz)            | 25.08 | WIFI 2G_802.11n_HT 40<br>MCS0 EVS WB<br>128kbps_CH6 |
| 5.3 Frequency Response 8N FF                                | Ok     | Min. dist. to tolerance<br>scheme [dB], 4870.0<br>Hz | 0.84  | WIFI 2G_802.11n_HT 40<br>MCS0 EVS WB<br>128kbps_CH6 |
| 5.3 Frequency Response 8N                                   | Not Ok | Min. dist. to tolerance                              | -1.88 | WIFI 2G_802.11n_HT 40                               |

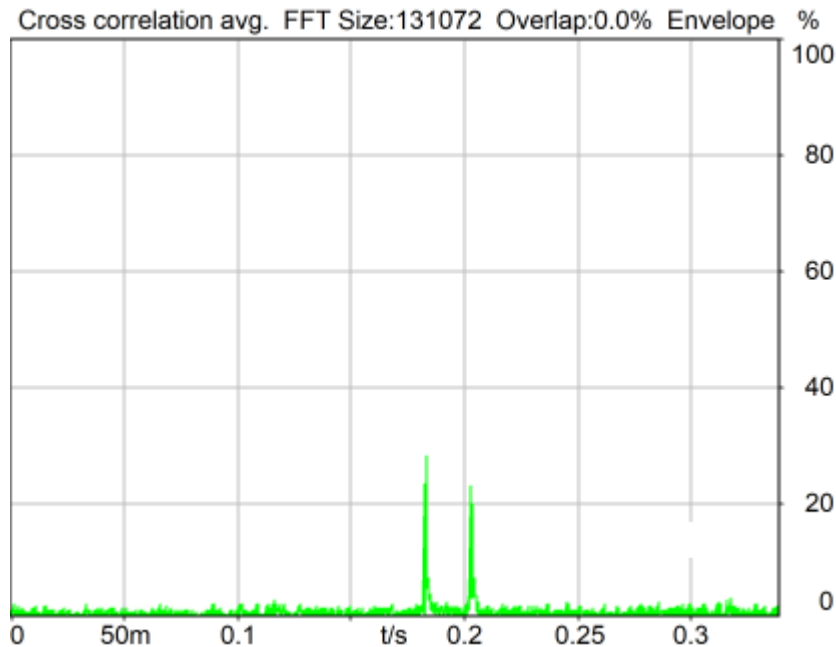
|                                 |        |                                                   |       |                                                     |
|---------------------------------|--------|---------------------------------------------------|-------|-----------------------------------------------------|
| DF                              |        | scheme [dB], 4369.4 Hz                            |       | MCS0 EVS WB<br>128kbps_CH6                          |
| 5.3 Frequency Response 2N<br>FF | Ok     | Min. dist. to tolerance<br>scheme [dB], 5443.6 Hz | 0.57  | WIFI 2G_802.11n_HT 40<br>MCS0 EVS WB<br>128kbps_CH6 |
| 5.3 Frequency Response 2N<br>DF | Not Ok | Min. dist. to tolerance<br>scheme [dB], 205.7 Hz  | -0.83 | WIFI 2G_802.11n_HT 40<br>MCS0 EVS WB<br>128kbps_CH6 |

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|                                                             |    |
|-------------------------------------------------------------|----|
| Overall Receive Delay WB                                    | 6  |
| 5.1a Receive Volume Control Performance 8N WB               | 8  |
| 5.1b Receive Volume Control Performance 2N WB               | 10 |
| 5.2 RCV Distortion and Noise - 250 Hz WB                    | 11 |
| 5.2 RCV Distortion and Noise - 315 Hz WB                    | 14 |
| 5.2 RCV Distortion and Noise - 400 Hz WB                    | 16 |
| 5.2 RCV Distortion and Noise - 500 Hz WB                    | 18 |
| 5.2 RCV Distortion and Noise - 630 Hz WB                    | 20 |
| 5.2 RCV Distortion and Noise - 800 Hz WB                    | 22 |
| 5.2 RCV Distortion and Noise - 1000 Hz WB                   | 24 |
| 5.2 RCV Distortion and Noise - 1250 Hz WB                   | 27 |
| 5.2 RCV Distortion and Noise - 1600 Hz WB                   | 29 |
| 5.2 RCV Distortion and Noise - 2000 Hz WB                   | 31 |
| 5.2 RCV Distortion and Noise - 2500 Hz WB                   | 33 |
| 5.2 RCV Distortion and Noise - 3150 Hz WB                   | 35 |
| 5.2 RCV Distortion and Noise - 4000 Hz WB                   | 37 |
| 5.2 RCV Distortion and Noise - 5000 Hz WB                   | 40 |
| Report - Receive Distortion and Noise (Conversational Gain) | 42 |
| 5.2 RCV Distortion and Noise - 250 Hz WB                    | 42 |
| 5.2 RCV Distortion and Noise - 315 Hz WB                    | 45 |
| 5.2 RCV Distortion and Noise - 400 Hz WB                    | 47 |
| 5.2 RCV Distortion and Noise - 500 Hz WB                    | 49 |
| 5.2 RCV Distortion and Noise - 630 Hz WB                    | 51 |
| 5.2 RCV Distortion and Noise - 800 Hz WB                    | 53 |
| 5.2 RCV Distortion and Noise - 1000 Hz WB                   | 55 |
| 5.2 RCV Distortion and Noise - 1250 Hz WB                   | 58 |
| 5.2 RCV Distortion and Noise - 1600 Hz WB                   | 60 |
| 5.2 RCV Distortion and Noise - 2000 Hz WB                   | 62 |
| 5.2 RCV Distortion and Noise - 2500 Hz WB                   | 64 |
| 5.2 RCV Distortion and Noise - 3150 Hz WB                   | 66 |
| 5.2 RCV Distortion and Noise - 4000 Hz WB                   | 68 |
| 5.2 RCV Distortion and Noise - 5000 Hz WB                   | 71 |
| Report - Receive Distortion and Noise (Conversational Gain) | 73 |
| 5.3 Frequency Response 8N FF                                | 73 |
| 5.3 Frequency Response 8N DF                                | 76 |
| 5.3 Frequency Response 2N FF                                | 78 |
| 5.3 Frequency Response 2N DF                                | 80 |

## Overall Receive Delay WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ Preparation - Delay measurement



Delay (Cross): 183.5 ms

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Unmodified HEAD acoustics Measurement Descriptor

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)

Database Version: 40\_HAC\_Suite\_Rev03

### Source: csswb1b\_r1s.dat

WIDEBAND Composite Source Signal RCV P.501 (1 bursts) at Channel 2

Pause 0.5 s +

voiced signal + 8000 Hz band limited random noise 1.0 s +

Pause till end of file

Signal level (ch2): -14.7 dBm0 (corresponds to approx. -16.0 dBm0 for a 350 ms CSS considering 101 ms Pause) from 0.5s to 1.544s for 4-k FFT, Hanning window,

75 % overlap in frequency range of 100 to 8000 Hz

### Calibration

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))

Output ch.1: 0.00 dB

Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

### HHP IV Settings (Setting: STD:(0,0,0) rel AHP)

Rotation Delta A 0.0 °

|                |         |                          |       |
|----------------|---------|--------------------------|-------|
| MECRP Delta Ye | 0.0 mm  | Rotation Delta C         | 0.0 ° |
| MECRP Delta Ze | 0.0 mm  | Rotation Delta B         | 5.0 ° |
| Delta Xe       | 0.0 mm  | Delta A                  | 0.0 ° |
| Delta Ye       | 0.0 mm  | Delta C                  | 0.0 ° |
| Delta Ze       | 0.0 mm  | Delta B                  | 0.0 ° |
| Ym             | -7.9 mm | Ear Type 3.3 Coordinates |       |

Mounting: Right Ear  
Force to apply: 8.0 N, Force reached: 8.0 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                   |                |                 |            |
|-------------------|----------------|-----------------|------------|
| Range start       | 550.00 ms      | Range length    | 1950.00 ms |
| DRP/ERP Ch.1:     | Off            | DRP/ERP Ch.2:   | Off        |
| Frequency base    | Transformation |                 |            |
| FFT size          | 131072         | Overlap         | 0 %        |
| Window function.  | Hanning        | Smooth          | Off        |
| Delayed channel   | None           |                 |            |
| Valid range start | -1228.79 ms    | Valid range end | 1228.81 ms |

**Special Features**

Show source signal Source ch.2 Store to variable D\_RCV\_WB

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

**labCORE Routing**

Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker  
Out Channel 2 -> Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In  
In Channel 1 <- Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out  
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

**Analog In Mainboard Settings (Analog In 1/2)**

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

**Analog Out Mainboard Settings (Analog Out 1/2)**

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

**Microphone Settings (Mic Amp. (Slot 6))****Channel In 1 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 2 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 3 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 4 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**BEQ Settings (BEQ Filter 1)**

Block mode Bypass

**Artificial Head Settings (HATS 1 (HMS II.3))**

|          |          |            |          |
|----------|----------|------------|----------|
| Ser. Nr. | 12306613 | Pinna Type | Type 3.3 |
|----------|----------|------------|----------|

**HIB Settings**

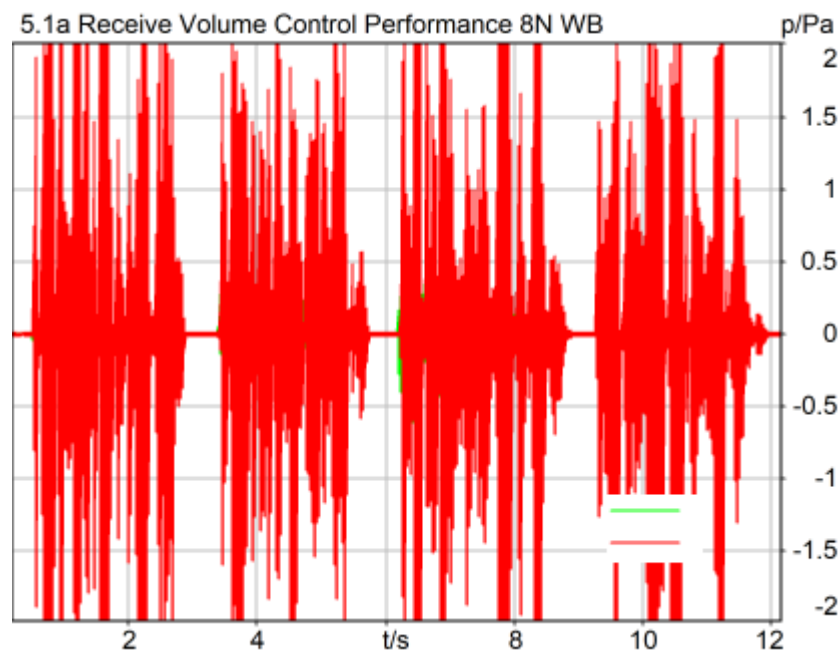
|          |                    |           |          |
|----------|--------------------|-----------|----------|
| HIB Name | 60020095           | Serial    | 60020095 |
| HIB Mode | Mobile Measurement | Impedance | 32 Ohm   |

Gain out 1 -40.00 dB  
Gain in 1 0.00 dB  
Mic 1 Power Supply Off

Gain out 2 0.00 dB  
Gain in 2 0.00 dB  
Mic 2 Power Supply Off

## 5.1a Receive Volume Control Performance 8N WB

TIA-5050 (2018-01) \ Measurements \ Wideband



### Correction

X - 70

Speech Level RCV: 87.44 dB[SPL], Act.: 85.32%

Corrected Speech Level: 17.44 dB[SPL] Not Ok

### Not Ok

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### Limits

|       | lower         |
|-------|---------------|
| Run 1 | 18.00 dB20uPa |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)  
Database Version: 40\_HAC\_Suite\_Rev03

### Calibration

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))  
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                 |                |                     |                 |
|-----------------|----------------|---------------------|-----------------|
| Direction       | Out 2 -> In 2  |                     |                 |
| Range start     | 200.00 ms      | Range length        | 12000.00 ms     |
| Use FIR Filter  | Ch2            | FIR filter          | drp2ff_ieee1652 |
| Bandpass filter | Super Wideband | Margin (15.9dB nom) |                 |
| 15.90 dB        |                |                     |                 |

**Special Features**

Show source signal Source ch.2  
Compensate delay 183.5000 ms (D\_RCV\_WB, Delay (Cross))

**Hardware Config Settings**

Used Setting HEAD 2G3G labCORE NetSim

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

**labCORE Routing**

Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker  
Out Channel 2 -> Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In  
In Channel 1 <- Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out  
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

**Analog In Mainboard Settings (Analog In 1/2)**

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

**Analog Out Mainboard Settings (Analog Out 1/2)**

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

**Microphone Settings (Mic Amp. (Slot 6))****Channel In 1 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 2 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 3 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 4 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**BEQ Settings (BEQ Filter 1)**

Block mode Bypass

**Artificial Head Settings (HATS 1 (HMS II.3))**

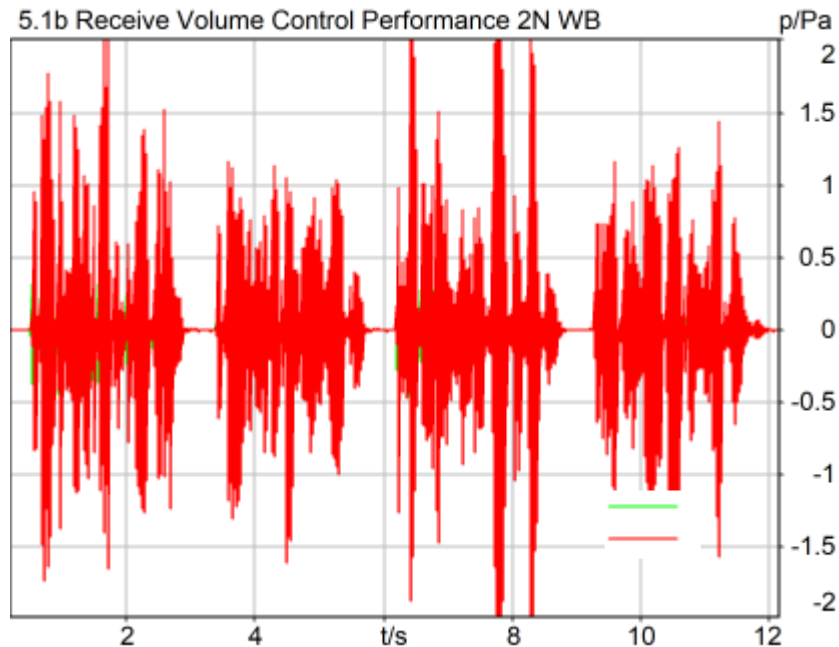
|          |          |            |          |
|----------|----------|------------|----------|
| Ser. Nr. | 12306613 | Pinna Type | Type 3.3 |
|----------|----------|------------|----------|

**HIB Settings**

|                    |                    |                    |          |
|--------------------|--------------------|--------------------|----------|
| HIB Name           | 60020095           | Serial             | 60020095 |
| HIB Mode           | Mobile Measurement | Impedance          | 32 Ohm   |
| Gain out 1         | -40.00 dB          | Gain out 2         | 0.00 dB  |
| Gain in 1          | 0.00 dB            | Gain in 2          | 0.00 dB  |
| Mic 1 Power Supply | Off                | Mic 2 Power Supply | Off      |

## 5.1b Receive Volume Control Performance 2N WB

TIA-5050 (2018-01) \ Measurements \ Wideband



### Correction

X - 70

Speech Level RCV: 81.23 dB[SPL], Act.: 85.30%

Corrected Speech Level: 11.23 dB[SPL] Ok

Ok

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### Limits

|       | lower        |
|-------|--------------|
| Run 1 | 6.00 dB20uPa |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)

Database Version: 40\_HAC\_Suite\_Rev03

### Calibration

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))

Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

### Output Equalization/Filter

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                 |                |                     |                 |
|-----------------|----------------|---------------------|-----------------|
| Direction       | Out 2 -> In 2  |                     |                 |
| Range start     | 200.00 ms      | Range length        | 12000.00 ms     |
| Use FIR Filter  | Ch2            | FIR filter          | drp2ff_ieee1652 |
| Bandpass filter | Super Wideband | Margin (15.9dB nom) |                 |
| 15.90 dB        |                |                     |                 |

**Special Features**

Show source signal Source ch.2  
Compensate delay 183.5000 ms (D\_RCV\_WB, Delay (Cross))

**Hardware Config Settings**

Used Setting HEAD 2G3G labCORE NetSim

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

**labCORE Routing**

Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker  
Out Channel 2 -> Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In  
In Channel 1 <- Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out  
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

**Analog In Mainboard Settings (Analog In 1/2)**

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

**Analog Out Mainboard Settings (Analog Out 1/2)**

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

**Microphone Settings (Mic Amp. (Slot 6))****Channel In 1 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 2 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 3 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 4 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**BEQ Settings (BEQ Filter 1)**

Block mode Bypass

**Artificial Head Settings (HATS 1 (HMS II.3))**

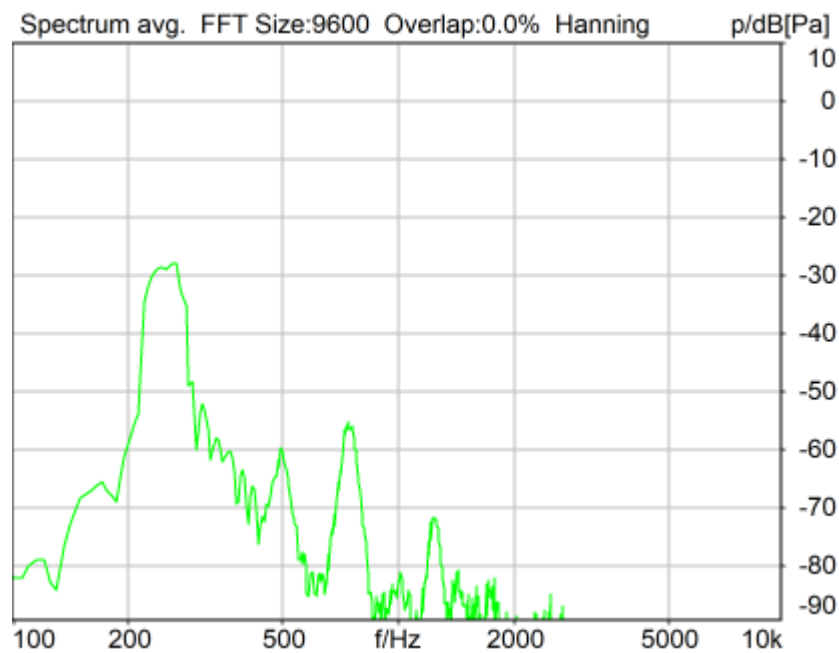
|          |          |            |          |
|----------|----------|------------|----------|
| Ser. Nr. | 12306613 | Pinna Type | Type 3.3 |
|----------|----------|------------|----------|

**HIB Settings**

|                        |                    |                        |          |
|------------------------|--------------------|------------------------|----------|
| HIB Name               | 60020095           | Serial                 | 60020095 |
| HIB Mode               | Mobile Measurement | Impedance              | 32 Ohm   |
| Gain out 1             | -40.00 dB          | Gain out 2             | 0.00 dB  |
| Gain in 1              | 0.00 dB            | Gain in 2              | 0.00 dB  |
| Mic 1 Power Supply Off |                    | Mic 2 Power Supply Off |          |

## 5.2 RCV Distortion and Noise - 250 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 8N



Distortion (Noise) RCV (packed): 26.38 dB (4.80%) Ok

**Ok**

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Unmodified HEAD acoustics Measurement Descriptor

#### Limits

|       | lower    |
|-------|----------|
| Run 1 | 20.00 dB |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)

Database Version: 40\_HAC\_Suite\_Rev03

Source: act\_rpn\_b250ms\_250hz\_sr20dbm0\_v02.dat.dat

Level adj. Ch1 -90.0 dB

#### Calibration

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))

Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

#### HHP IV Settings (Setting: STD:(0,0,0) rel AHP)

|                |         |                  |                 |
|----------------|---------|------------------|-----------------|
| MECRP Delta Ye | 0.0 mm  | Rotation Delta A | 0.0 °           |
| MECRP Delta Ze | 0.0 mm  | Rotation Delta C | 0.0 °           |
| Delta Xe       | 0.0 mm  | Rotation Delta B | 5.0 °           |
| Delta Ye       | 0.0 mm  | Delta A          | 0.0 °           |
| Delta Ze       | 0.0 mm  | Delta C          | 0.0 °           |
| Ym             | -7.9 mm | Delta B          | 0.0 °           |
|                |         | Ear Type         | 3.3 Coordinates |

Mounting: Right Ear

---

Force to apply: 8.0 N, Force reached: 8.0 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                   |                |                   |                 |
|-------------------|----------------|-------------------|-----------------|
| Direction         | Out 2 -> In 2  |                   |                 |
| Range start       | 13550.00 ms    | Range length      | 200.00 ms       |
| Number of seq.    | 10             | Sequence length   | 400.00 ms       |
| Use FIR Filter    | Ch2            | FIR filter        | drp2ff_ieee1652 |
| DRP/ERP Ch.1:     | Off            | DRP/ERP Ch.2:     | Off             |
| Frequency base    | Transformation |                   |                 |
| FFT size          | 9600           | Overlap           | 0 %             |
| Window function.  | Hanning        | Smooth            | Off             |
| dB weighting      | A Weighting    |                   |                 |
| Stimulus min.     | 190.0 Hz       | Stimulus max.     | 315.0 Hz        |
| Analysis min.     | 20.0 Hz        | Analysis max.     | 185.0 Hz        |
| Analysis (2) min. | 320.0 Hz       | Analysis (2) max. | 20000.0 Hz      |

**Special Features**

Compensate delay 183.5000 ms (D\_RCV\_WB, Delay (Cross))  
Store to variable RCVWB10\_250Hz

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

**labCORE Routing**

Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker  
Out Channel 2 -> Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In  
In Channel 1 <- Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out  
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

**Analog In Mainboard Settings (Analog In 1/2)**

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

**Analog Out Mainboard Settings (Analog Out 1/2)**

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

**Microphone Settings (Mic Amp. (Slot 6))****Channel In 1 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 2 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 3 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 4 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**BEQ Settings (BEQ Filter 1)**

Block mode Bypass

**Artificial Head Settings (HATS 1 (HMS II.3))**

|          |          |            |          |
|----------|----------|------------|----------|
| Ser. Nr. | 12306613 | Pinna Type | Type 3.3 |
|----------|----------|------------|----------|

**HIB Settings**

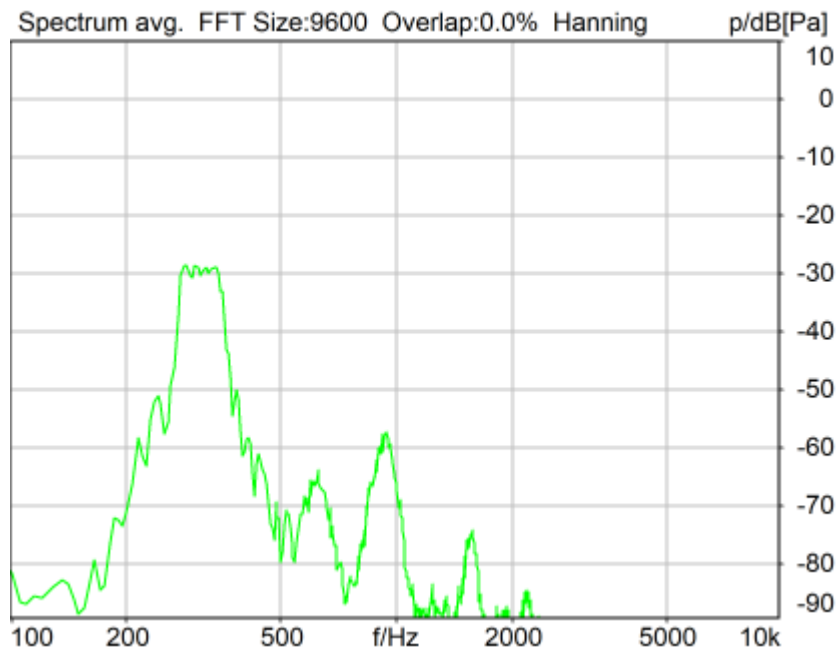
|            |                    |            |          |
|------------|--------------------|------------|----------|
| HIB Name   | 60020095           | Serial     | 60020095 |
| HIB Mode   | Mobile Measurement | Impedance  | 32 Ohm   |
| Gain out 1 | -40.00 dB          | Gain out 2 | 0.00 dB  |
| Gain in 1  | 0.00 dB            | Gain in 2  | 0.00 dB  |

Mic 1 Power Supply Off

Mic 2 Power Supply Off

## 5.2 RCV Distortion and Noise - 315 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 8N



Distortion (Noise) RCV (packed): 27.42 dB (4.26%) Ok

Ok

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Unmodified HEAD acoustics Measurement Descriptor

### Limits

|       | lower    |
|-------|----------|
| Run 1 | 20.00 dB |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)  
Database Version: 40\_HAC\_Suite\_Rev03

Source: act\_rpn\_b250ms\_315hz\_sr20dbm0\_v02.dat  
Level adj. Ch1 -90.0 dB

### Calibration

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))  
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

HHP IV Settings (Setting: STD:(0,0,0) rel AHP)

Rotation Delta A 0.0 °

|                |         |                          |       |
|----------------|---------|--------------------------|-------|
| MECRP Delta Ye | 0.0 mm  | Rotation Delta C         | 0.0 ° |
| MECRP Delta Ze | 0.0 mm  | Rotation Delta B         | 5.0 ° |
| Delta Xe       | 0.0 mm  | Delta A                  | 0.0 ° |
| Delta Ye       | 0.0 mm  | Delta C                  | 0.0 ° |
| Delta Ze       | 0.0 mm  | Delta B                  | 0.0 ° |
| Ym             | -7.9 mm | Ear Type 3.3 Coordinates |       |

Mounting: Right Ear  
Force to apply: 8.0 N, Force reached: 8.0 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                   |                |                   |                 |
|-------------------|----------------|-------------------|-----------------|
| Direction         | Out 2 -> In 2  |                   |                 |
| Range start       | 13550.00 ms    | Range length      | 200.00 ms       |
| Number of seq.    | 10             | Sequence length   | 400.00 ms       |
| Use FIR Filter    | Ch2            | FIR filter        | drp2ff_ieee1652 |
| DRP/ERP Ch.1:     | Off            | DRP/ERP Ch.2:     | Off             |
| Frequency base    | Transformation |                   |                 |
| FFT size          | 9600           | Overlap           | 0 %             |
| Window function.  | Hanning        | Smooth            | Off             |
| dB weighting      | A Weighting    |                   |                 |
| Stimulus min.     | 245.0 Hz       | Stimulus max.     | 390.0 Hz        |
| Analysis min.     | 20.0 Hz        | Analysis max.     | 240.0 Hz        |
| Analysis (2) min. | 395.0 Hz       | Analysis (2) max. | 20000.0 Hz      |

**Special Features**

Compensate delay 183.5000 ms (D\_RCV\_WB, Delay (Cross))  
Store to variable RCVWB10\_315Hz

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

**labCORE Routing**

Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker  
Out Channel 2 -> Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In  
In Channel 1 <- Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out  
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

**Analog In Mainboard Settings (Analog In 1/2)**

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

**Analog Out Mainboard Settings (Analog Out 1/2)**

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

**Microphone Settings (Mic Amp. (Slot 6))****Channel In 1 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 2 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 3 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 4 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**BEQ Settings (BEQ Filter 1)**

Block mode Bypass

## Artificial Head Settings (HATS 1 (HMS II.3))

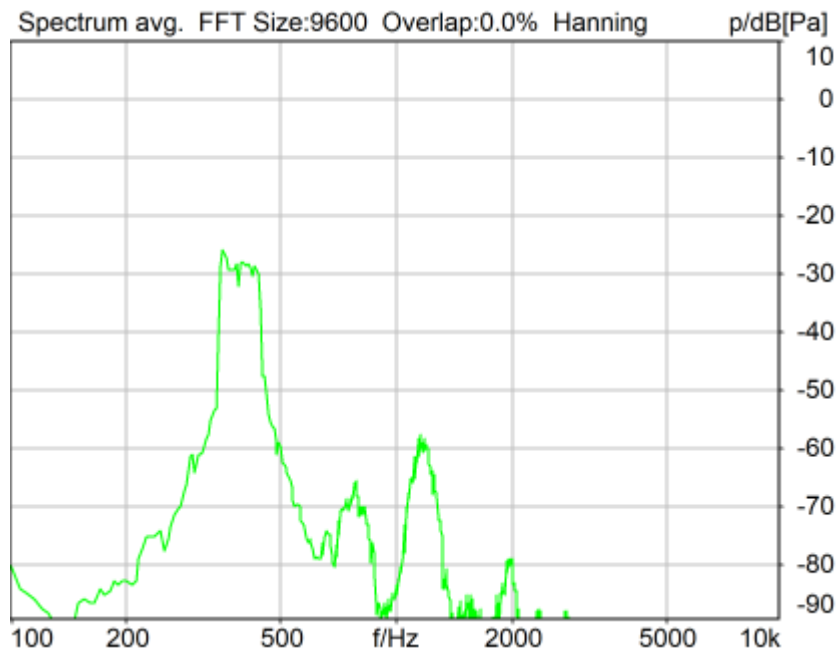
|          |          |            |          |
|----------|----------|------------|----------|
| Ser. Nr. | 12306613 | Pinna Type | Type 3.3 |
|----------|----------|------------|----------|

## HIB Settings

|                        |                    |                        |          |
|------------------------|--------------------|------------------------|----------|
| HIB Name               | 60020095           | Serial                 | 60020095 |
| HIB Mode               | Mobile Measurement | Impedance              | 32 Ohm   |
| Gain out 1             | -40.00 dB          | Gain out 2             | 0.00 dB  |
| Gain in 1              | 0.00 dB            | Gain in 2              | 0.00 dB  |
| Mic 1 Power Supply Off |                    | Mic 2 Power Supply Off |          |

## 5.2 RCV Distortion and Noise - 400 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 8N



Distortion (Noise) RCV (packed): 28.47 dB (3.77%) Ok

Ok

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Unmodified HEAD acoustics Measurement Descriptor

## Limits

|       |          |
|-------|----------|
|       | lower    |
| Run 1 | 20.00 dB |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)

Database Version: 40\_HAC\_Suite\_Rev03

Source: act\_rpn\_b250ms\_400hz\_sr20dbm0\_v02.dat

Level adj. Ch1 -90.0 dB

**Calibration**

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))

Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

**HHP IV Settings (Setting: STD:(0,0,0) rel AHP)**

|                |         |                          |       |
|----------------|---------|--------------------------|-------|
| MECRP Delta Ye | 0.0 mm  | Rotation Delta A         | 0.0 ° |
| MECRP Delta Ze | 0.0 mm  | Rotation Delta C         | 0.0 ° |
| Delta Xe       | 0.0 mm  | Rotation Delta B         | 5.0 ° |
| Delta Ye       | 0.0 mm  | Delta A                  | 0.0 ° |
| Delta Ze       | 0.0 mm  | Delta C                  | 0.0 ° |
| Ym             | -7.9 mm | Delta B                  | 0.0 ° |
|                |         | Ear Type 3.3 Coordinates |       |

Mounting: Right Ear

Force to apply: 8.0 N, Force reached: 8.0 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                   |                |                   |                 |
|-------------------|----------------|-------------------|-----------------|
| Direction         | Out 2 -> In 2  |                   |                 |
| Range start       | 13550.00 ms    | Range length      | 200.00 ms       |
| Number of seq.    | 10             | Sequence length   | 400.00 ms       |
| Use FIR Filter    | Ch2            | FIR filter        | drp2ff_ieee1652 |
| DRP/ERP Ch.1:     | Off            | DRP/ERP Ch.2:     | Off             |
| Frequency base    | Transformation |                   |                 |
| FFT size          | 9600           | Overlap           | 0 %             |
| Window function.  | Hanning        | Smooth            | Off             |
| dB weighting      | A Weighting    |                   |                 |
| Stimulus min.     | 320.0 Hz       | Stimulus max.     | 480.0 Hz        |
| Analysis min.     | 20.0 Hz        | Analysis max.     | 315.0 Hz        |
| Analysis (2) min. | 485.0 Hz       | Analysis (2) max. | 20000.0 Hz      |

**Special Features**

Compensate delay 183.5000 ms (D\_RCV\_WB, Delay (Cross))

Store to variable RCVWB10\_400Hz

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

**labCORE Routing**

|                  |                                                                          |
|------------------|--------------------------------------------------------------------------|
| Out Channel 1 -> | Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker                      |
| Out Channel 2 -> | Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In                           |
| In Channel 1 <-  | Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out                        |
| In Channel 2 <-  | BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right |

**Analog In Mainboard Settings (Analog In 1/2)**

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

**Analog Out Mainboard Settings (Analog Out 1/2)**

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

**Microphone Settings (Mic Amp. (Slot 6))****Channel In 1 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 2 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 3 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

Channel In 4 Settings

Range 114 dB[SPL] @ 12.5 mV/Pa Highpass Off  
Polarisation Voltage 200V Supply Voltage  $\pm 60V$

-----  
BEQ Settings (BEQ Filter 1)

Block mode Bypass

-----  
Artificial Head Settings (HATS 1 (HMS II.3))

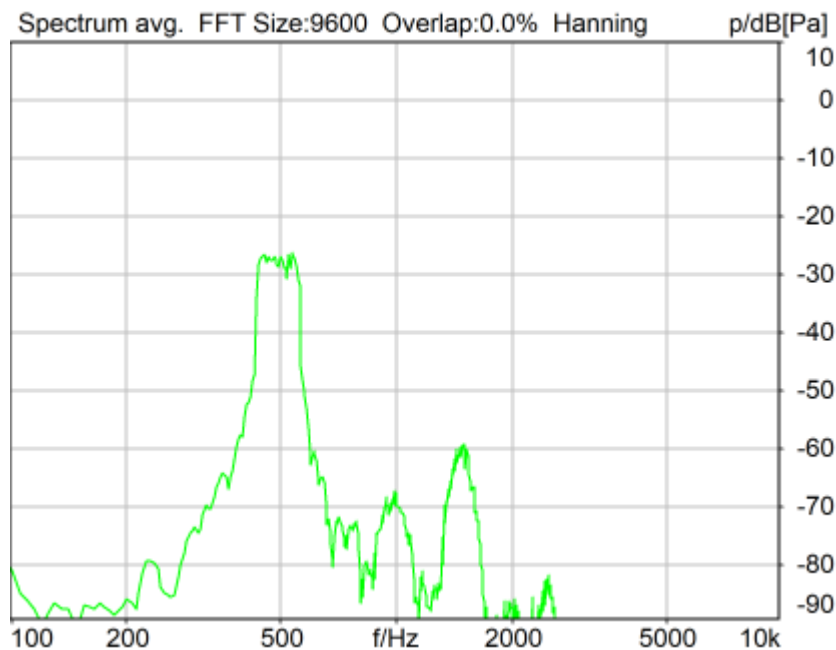
Ser. Nr. 12306613 Pinna Type Type 3.3

**HIB Settings**

|                        |                    |                        |          |
|------------------------|--------------------|------------------------|----------|
| HIB Name               | 60020095           | Serial                 | 60020095 |
| HIB Mode               | Mobile Measurement | Impedance              | 32 Ohm   |
| Gain out 1             | -40.00 dB          | Gain out 2             | 0.00 dB  |
| Gain in 1              | 0.00 dB            | Gain in 2              | 0.00 dB  |
| Mic 1 Power Supply Off |                    | Mic 2 Power Supply Off |          |

## 5.2 RCV Distortion and Noise - 500 Hz WB

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Distortion (Noise) RCV (packed): 29.74 dB (3.26%) Ok

**Ok**

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Unmodified HEAD acoustics Measurement Descriptor

**Limits**

|       |              |
|-------|--------------|
|       | <b>lower</b> |
| Run 1 | 20.00 dB     |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)  
Database Version: 40\_HAC\_Suite\_Rev03**Source: act\_rpn\_b250ms\_500hz\_sr20dbm0\_v02.dat**

Level adj. Ch1 -90.0 dB

**Calibration**

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))

Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

**HHP IV Settings (Setting: STD:(0,0,0) rel AHP)**

|                |         |                          |       |
|----------------|---------|--------------------------|-------|
| MECRP Delta Ye | 0.0 mm  | Rotation Delta A         | 0.0 ° |
| MECRP Delta Ze | 0.0 mm  | Rotation Delta C         | 0.0 ° |
| Delta Xe       | 0.0 mm  | Rotation Delta B         | 5.0 ° |
| Delta Ye       | 0.0 mm  | Delta A                  | 0.0 ° |
| Delta Ze       | 0.0 mm  | Delta C                  | 0.0 ° |
| Ym             | -7.9 mm | Delta B                  | 0.0 ° |
|                |         | Ear Type 3.3 Coordinates |       |

Mounting: Right Ear

Force to apply: 8.0 N, Force reached: 8.0 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                   |                |                   |                 |
|-------------------|----------------|-------------------|-----------------|
| Direction         | Out 2 -> In 2  |                   |                 |
| Range start       | 13550.00 ms    | Range length      | 200.00 ms       |
| Number of seq.    | 10             | Sequence length   | 400.00 ms       |
| Use FIR Filter    | Ch2            | FIR filter        | drp2ff_ieee1652 |
| DRP/ERP Ch.1:     | Off            | DRP/ERP Ch.2:     | Off             |
| Frequency base    | Transformation |                   |                 |
| FFT size          | 9600           | Overlap           | 0 %             |
| Window function.  | Hanning        | Smooth            | Off             |
| dB weighting      | A Weighting    |                   |                 |
| Stimulus min.     | 410.0 Hz       | Stimulus max.     | 595.0 Hz        |
| Analysis min.     | 20.0 Hz        | Analysis max.     | 405.0 Hz        |
| Analysis (2) min. | 600.0 Hz       | Analysis (2) max. | 20000.0 Hz      |

**Special Features**

Compensate delay 183.5000 ms (D\_RCV\_WB, Delay (Cross))

Store to variable RCVWB10\_500Hz

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

**labCORE Routing**

|                  |                                                                          |
|------------------|--------------------------------------------------------------------------|
| Out Channel 1 -> | Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker                      |
| Out Channel 2 -> | Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In                           |
| In Channel 1 <-  | Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out                        |
| In Channel 2 <-  | BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right |

**Analog In Mainboard Settings (Analog In 1/2)**

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

**Analog Out Mainboard Settings (Analog Out 1/2)**

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

**Microphone Settings (Mic Amp. (Slot 6))**

Channel In 1 Settings

|                       |                          |                |      |
|-----------------------|--------------------------|----------------|------|
| Range                 | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage  | 200V                     | Supply Voltage | ±60V |
| Channel In 2 Settings |                          |                |      |
| Range                 | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage  | 200V                     | Supply Voltage | ±60V |
| Channel In 3 Settings |                          |                |      |
| Range                 | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage  | 200V                     | Supply Voltage | ±60V |
| Channel In 4 Settings |                          |                |      |
| Range                 | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage  | 200V                     | Supply Voltage | ±60V |

-----  
BEQ Settings (BEQ Filter 1)  
Block mode      Bypass  
-----

Artificial Head Settings (HATS 1 (HMS II.3))

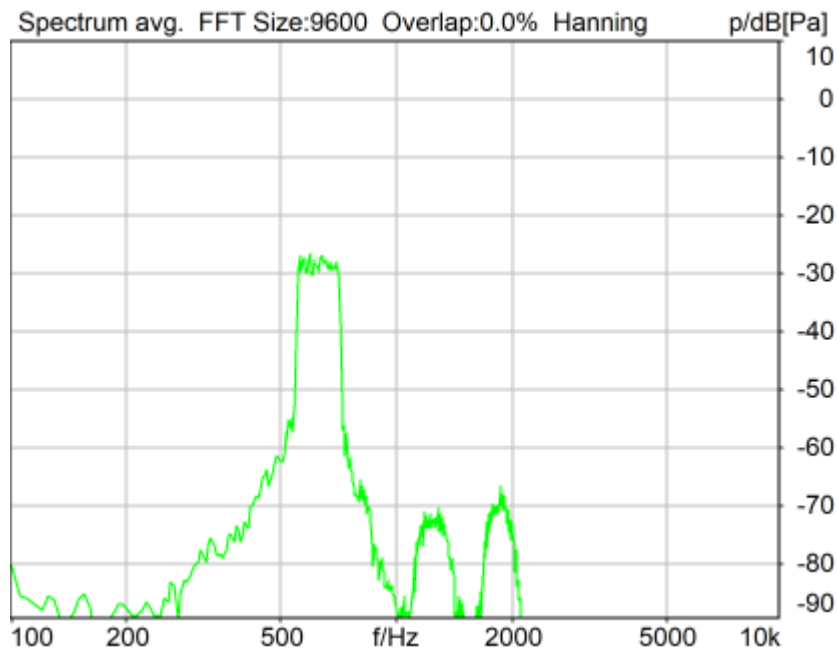
|          |          |            |          |
|----------|----------|------------|----------|
| Ser. Nr. | 12306613 | Pinna Type | Type 3.3 |
|----------|----------|------------|----------|

#### HIB Settings

|                    |                    |                    |          |
|--------------------|--------------------|--------------------|----------|
| HIB Name           | 60020095           | Serial             | 60020095 |
| HIB Mode           | Mobile Measurement | Impedance          | 32 Ohm   |
| Gain out 1         | -40.00 dB          | Gain out 2         | 0.00 dB  |
| Gain in 1          | 0.00 dB            | Gain in 2          | 0.00 dB  |
| Mic 1 Power Supply | Off                | Mic 2 Power Supply | Off      |

## 5.2 RCV Distortion and Noise - 630 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 8N



Distortion (Noise) RCV (packed): 34.35 dB (1.92%) Ok

Ok

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Unmodified HEAD acoustics Measurement Descriptor

**Limits**

|       | lower    |
|-------|----------|
| Run 1 | 20.00 dB |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)  
Database Version: 40\_HAC\_Suite\_Rev03**Source:** act\_rpn\_b250ms\_630hz\_sr20dbm0\_v02.dat

Level adj. Ch1 -90.0 dB

**Calibration**

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))

Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

**HHP IV Settings (Setting: STD:(0,0,0) rel AHP)**

|                |         |                  |                 |
|----------------|---------|------------------|-----------------|
| MECRP Delta Ye | 0.0 mm  | Rotation Delta A | 0.0 °           |
| MECRP Delta Ze | 0.0 mm  | Rotation Delta C | 0.0 °           |
| Delta Xe       | 0.0 mm  | Rotation Delta B | 5.0 °           |
| Delta Ye       | 0.0 mm  | Delta A          | 0.0 °           |
| Delta Ze       | 0.0 mm  | Delta C          | 0.0 °           |
| Ym             | -7.9 mm | Delta B          | 0.0 °           |
|                |         | Ear Type         | 3.3 Coordinates |

Mounting: Right Ear

Force to apply: 8.0 N, Force reached: 8.0 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                   |                |                   |                 |
|-------------------|----------------|-------------------|-----------------|
| Direction         | Out 2 -> In 2  |                   |                 |
| Range start       | 13550.00 ms    | Range length      | 200.00 ms       |
| Number of seq.    | 10             | Sequence length   | 400.00 ms       |
| Use FIR Filter    | Ch2            | FIR filter        | drp2ff_ieee1652 |
| DRP/ERP Ch.1:     | Off            | DRP/ERP Ch.2:     | Off             |
| Frequency base    | Transformation |                   |                 |
| FFT size          | 9600           | Overlap           | 0 %             |
| Window function.  | Hanning        | Smooth            | Off             |
| dB weighting      | A Weighting    |                   |                 |
| Stimulus min.     | 525.0 Hz       | Stimulus max.     | 745.0 Hz        |
| Analysis min.     | 20.0 Hz        | Analysis max.     | 520.0 Hz        |
| Analysis (2) min. | 750.0 Hz       | Analysis (2) max. | 20000.0 Hz      |

**Special Features**

Compensate delay 183.5000 ms (D\_RCV\_WB, Delay (Cross))

Store to variable RCVWB10\_630Hz

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

**labCORE Routing**

|                  |                                                                          |
|------------------|--------------------------------------------------------------------------|
| Out Channel 1 -> | Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker                      |
| Out Channel 2 -> | Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In                           |
| In Channel 1 <-  | Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out                        |
| In Channel 2 <-  | BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right |

Analog In Mainboard Settings (Analog In 1/2)

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

-----  
Analog Out Mainboard Settings (Analog Out 1/2)

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

-----  
Microphone Settings (Mic Amp. (Slot 6))

## Channel In 1 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

## Channel In 2 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

## Channel In 3 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

## Channel In 4 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

-----  
BEQ Settings (BEQ Filter 1)

|            |        |
|------------|--------|
| Block mode | Bypass |
|------------|--------|

-----  
Artificial Head Settings (HATS 1 (HMS II.3))

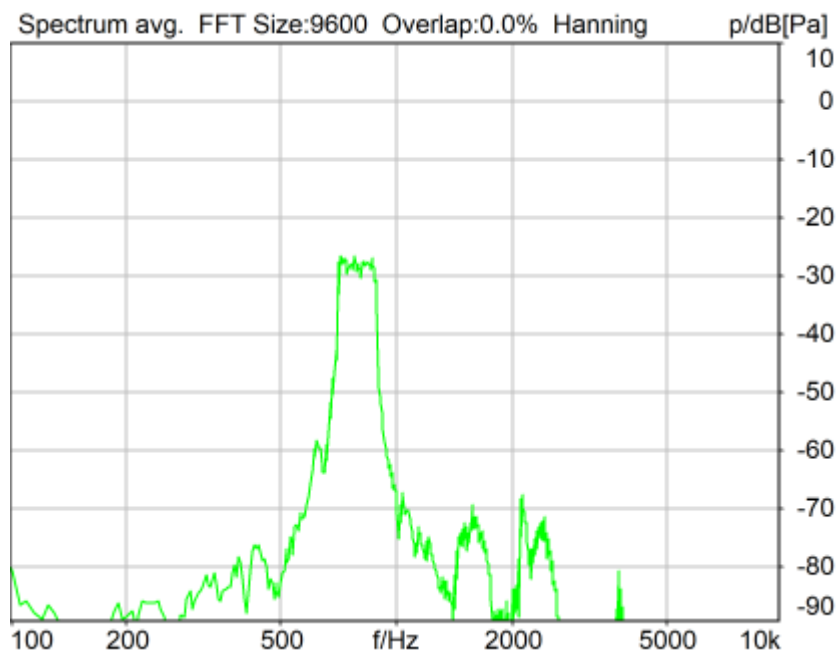
|          |          |            |          |
|----------|----------|------------|----------|
| Ser. Nr. | 12306613 | Pinna Type | Type 3.3 |
|----------|----------|------------|----------|

**HIB Settings**

|                    |                    |                    |          |
|--------------------|--------------------|--------------------|----------|
| HIB Name           | 60020095           | Serial             | 60020095 |
| HIB Mode           | Mobile Measurement | Impedance          | 32 Ohm   |
| Gain out 1         | -40.00 dB          | Gain out 2         | 0.00 dB  |
| Gain in 1          | 0.00 dB            | Gain in 2          | 0.00 dB  |
| Mic 1 Power Supply | Off                | Mic 2 Power Supply | Off      |

## 5.2 RCV Distortion and Noise - 800 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 8N



Distortion (Noise) RCV (packed): 33.15 dB (2.20%) Ok

**Ok**

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Unmodified HEAD acoustics Measurement Descriptor

**Limits**

|       | lower    |
|-------|----------|
| Run 1 | 20.00 dB |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)

Database Version: 40\_HAC\_Suite\_Rev03

**Source: act\_rpn\_b250ms\_800hz\_sr20dbm0\_v02.dat**

Level adj. Ch1 -90.0 dB

**Calibration**

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))

Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

**HHP IV Settings (Setting: STD:(0,0,0) rel AHP)**

|                          |         |                  |       |
|--------------------------|---------|------------------|-------|
| MECRP Delta Ye           | 0.0 mm  | Rotation Delta A | 0.0 ° |
| MECRP Delta Ze           | 0.0 mm  | Rotation Delta C | 0.0 ° |
| Delta Xe                 | 0.0 mm  | Rotation Delta B | 5.0 ° |
| Delta Ye                 | 0.0 mm  | Delta A          | 0.0 ° |
| Delta Ze                 | 0.0 mm  | Delta C          | 0.0 ° |
| Ym                       | -7.9 mm | Delta B          | 0.0 ° |
| Ear Type 3.3 Coordinates |         |                  |       |

Mounting: Right Ear

Force to apply: 8.0 N, Force reached: 8.0 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                   |                |                   |                 |
|-------------------|----------------|-------------------|-----------------|
| Direction         | Out 2 -> In 2  | Range length      | 200.00 ms       |
| Range start       | 13550.00 ms    | Sequence length   | 400.00 ms       |
| Number of seq.    | 10             | FIR filter        | drp2ff_ieee1652 |
| Use FIR Filter    | Ch2            | DRP/ERP Ch.2:     | Off             |
| DRP/ERP Ch.1:     | Off            | Frequency base    | Transformation  |
| Frequency base    | Transformation | FFT size          | 9600            |
| FFT size          | 9600           | Overlap           | 0 %             |
| Window function.  | Hanning        | Smooth            | Off             |
| dB weighting      | A Weighting    | Stimulus max.     | 925.0 Hz        |
| Stimulus min.     | 675.0 Hz       | Analysis max.     | 670.0 Hz        |
| Analysis min.     | 20.0 Hz        | Analysis (2) max. | 20000.0 Hz      |
| Analysis (2) min. | 930.0 Hz       |                   |                 |

**Special Features**

Compensate delay 183.5000 ms (D\_RCV\_WB, Delay (Cross))

Store to variable RCVWB10\_800Hz

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

-----

## labCORE Routing

Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker  
Out Channel 2 -> Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In  
In Channel 1 <- Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out  
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

-----  
Analog In Mainboard Settings (Analog In 1/2)

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

-----  
Analog Out Mainboard Settings (Analog Out 1/2)

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

-----  
Microphone Settings (Mic Amp. (Slot 6))

## Channel In 1 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

## Channel In 2 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

## Channel In 3 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

## Channel In 4 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

-----  
BEQ Settings (BEQ Filter 1)

|            |        |
|------------|--------|
| Block mode | Bypass |
|------------|--------|

-----  
Artificial Head Settings (HATS 1 (HMS II.3))

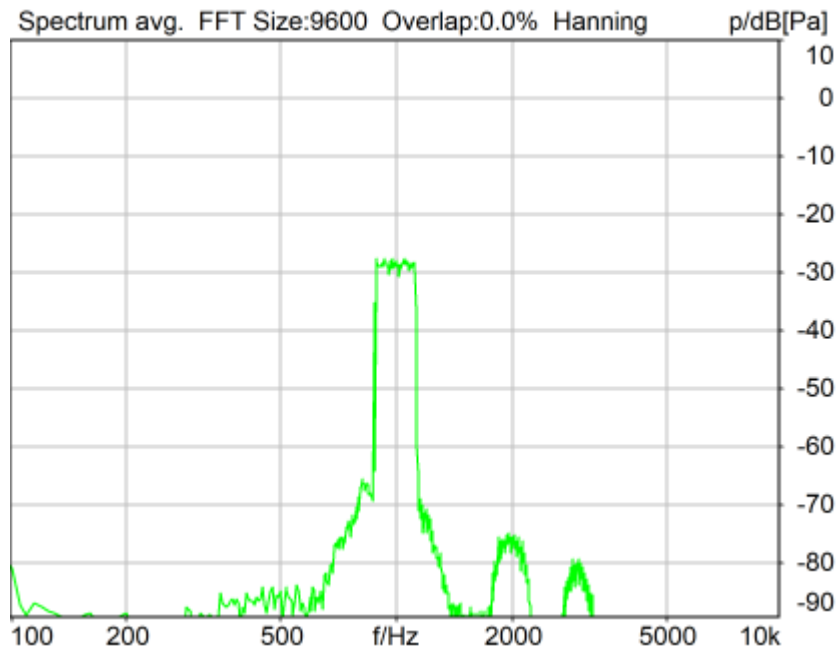
|          |          |            |          |
|----------|----------|------------|----------|
| Ser. Nr. | 12306613 | Pinna Type | Type 3.3 |
|----------|----------|------------|----------|

**HIB Settings**

|                    |                    |                    |          |
|--------------------|--------------------|--------------------|----------|
| HIB Name           | 60020095           | Serial             | 60020095 |
| HIB Mode           | Mobile Measurement | Impedance          | 32 Ohm   |
| Gain out 1         | -40.00 dB          | Gain out 2         | 0.00 dB  |
| Gain in 1          | 0.00 dB            | Gain in 2          | 0.00 dB  |
| Mic 1 Power Supply | Off                | Mic 2 Power Supply | Off      |

## **5.2 RCV Distortion and Noise - 1000 Hz WB**

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 8N



Distortion (Noise) RCV (packed): 40.02 dB (1.00%) Ok

Ok

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Unmodified HEAD acoustics Measurement Descriptor

#### Limits

|       | lower    |
|-------|----------|
| Run 1 | 20.00 dB |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)

Database Version: 40\_HAC\_Suite\_Rev03

Source: act\_rpn\_b250ms\_1000hz\_sr20dbm0\_v02.dat

Level adj. Ch1 -90.0 dB

#### Calibration

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))

Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

#### HHP IV Settings (Setting: STD:(0,0,0) rel AHP)

|                |         |                          |       |
|----------------|---------|--------------------------|-------|
| MECRP Delta Ye | 0.0 mm  | Rotation Delta A         | 0.0 ° |
| MECRP Delta Ze | 0.0 mm  | Rotation Delta C         | 0.0 ° |
| Delta Xe       | 0.0 mm  | Rotation Delta B         | 5.0 ° |
| Delta Ye       | 0.0 mm  | Delta A                  | 0.0 ° |
| Delta Ze       | 0.0 mm  | Delta C                  | 0.0 ° |
| Ym             | -7.9 mm | Delta B                  | 0.0 ° |
|                |         | Ear Type 3.3 Coordinates |       |

Mounting: Right Ear

Force to apply: 8.0 N, Force reached: 8.0 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                   |                |                   |                 |
|-------------------|----------------|-------------------|-----------------|
| Direction         | Out 2 -> In 2  |                   |                 |
| Range start       | 13550.00 ms    | Range length      | 200.00 ms       |
| Number of seq.    | 10             | Sequence length   | 400.00 ms       |
| Use FIR Filter    | Ch2            | FIR filter        | drp2ff_ieee1652 |
| DRP/ERP Ch.1:     | Off            | DRP/ERP Ch.2:     | Off             |
| Frequency base    | Transformation |                   |                 |
| FFT size          | 9600           | Overlap           | 0 %             |
| Window function.  | Hanning        | Smooth            | Off             |
| dB weighting      | A Weighting    |                   |                 |
| Stimulus min.     | 855.0 Hz       | Stimulus max.     | 1155.0 Hz       |
| Analysis min.     | 20.0 Hz        | Analysis max.     | 850.0 Hz        |
| Analysis (2) min. | 1160.0 Hz      | Analysis (2) max. | 20000.0 Hz      |

**Special Features**

Compensate delay 183.5000 ms (D\_RCV\_WB, Delay (Cross))  
Store to variable RCVWB10\_1000Hz

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

**labCORE Routing**

Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker  
Out Channel 2 -> Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In  
In Channel 1 <- Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out  
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

**Analog In Mainboard Settings (Analog In 1/2)**

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

**Analog Out Mainboard Settings (Analog Out 1/2)**

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

**Microphone Settings (Mic Amp. (Slot 6))****Channel In 1 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 2 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 3 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 4 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**BEQ Settings (BEQ Filter 1)**

Block mode Bypass

**Artificial Head Settings (HATS 1 (HMS II.3))**

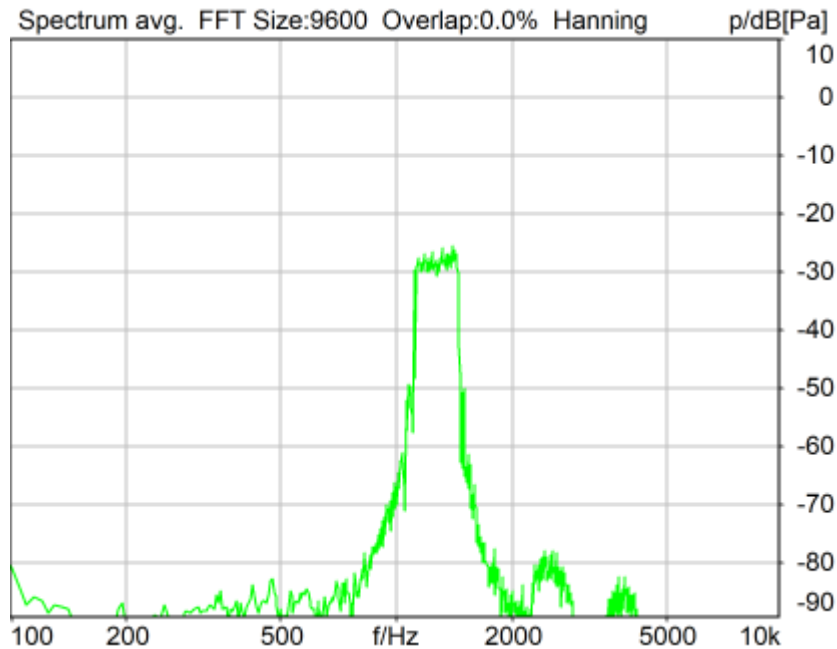
|          |          |            |          |
|----------|----------|------------|----------|
| Ser. Nr. | 12306613 | Pinna Type | Type 3.3 |
|----------|----------|------------|----------|

**HIB Settings**

|                    |                    |                    |          |
|--------------------|--------------------|--------------------|----------|
| HIB Name           | 60020095           | Serial             | 60020095 |
| HIB Mode           | Mobile Measurement | Impedance          | 32 Ohm   |
| Gain out 1         | -40.00 dB          | Gain out 2         | 0.00 dB  |
| Gain in 1          | 0.00 dB            | Gain in 2          | 0.00 dB  |
| Mic 1 Power Supply | Off                | Mic 2 Power Supply | Off      |

## 5.2 RCV Distortion and Noise - 1250 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 8N



Distortion (Noise) RCV (packed): 27.99 dB (3.98%) Ok

Ok

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Unmodified HEAD acoustics Measurement Descriptor

### Limits

|       | lower    |
|-------|----------|
| Run 1 | 20.00 dB |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)

Database Version: 40\_HAC\_Suite\_Rev03

Source: act\_rpn\_b250ms\_1250hz\_sr20dbm0\_v02.dat

Level adj. Ch1 -90.0 dB

### Calibration

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))

Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

HHP IV Settings (Setting: STD:(0,0,0) rel AHP)

|                |        |                  |       |
|----------------|--------|------------------|-------|
| MECRP Delta Ye | 0.0 mm | Rotation Delta A | 0.0 ° |
|                |        | Rotation Delta C | 0.0 ° |

|                |         |                          |       |
|----------------|---------|--------------------------|-------|
| MECRP Delta Ze | 0.0 mm  | Rotation Delta B         | 5.0 ° |
| Delta Xe       | 0.0 mm  | Delta A                  | 0.0 ° |
| Delta Ye       | 0.0 mm  | Delta C                  | 0.0 ° |
| Delta Ze       | 0.0 mm  | Delta B                  | 0.0 ° |
| Ym             | -7.9 mm | Ear Type 3.3 Coordinates |       |

Mounting: Right Ear  
Force to apply: 8.0 N, Force reached: 8.0 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                   |                |                   |                 |
|-------------------|----------------|-------------------|-----------------|
| Direction         | Out 2 -> In 2  |                   |                 |
| Range start       | 13550.00 ms    | Range length      | 200.00 ms       |
| Number of seq.    | 10             | Sequence length   | 400.00 ms       |
| Use FIR Filter    | Ch2            | FIR filter        | drp2ff_ieee1652 |
| DRP/ERP Ch.1:     | Off            | DRP/ERP Ch.2:     | Off             |
| Frequency base    | Transformation |                   |                 |
| FFT size          | 9600           | Overlap           | 0 %             |
| Window function.  | Hanning        | Smooth            | Off             |
| dB weighting      | A Weighting    |                   |                 |
| Stimulus min.     | 1085.0 Hz      | Stimulus max.     | 1450.0 Hz       |
| Analysis min.     | 20.0 Hz        | Analysis max.     | 1080.0 Hz       |
| Analysis (2) min. | 1455.0 Hz      | Analysis (2) max. | 20000.0 Hz      |

**Special Features**

Compensate delay 183.5000 ms (D\_RCV\_WB, Delay (Cross))  
Store to variable RCVWB10\_1250Hz

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

**labCORE Routing**

Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker  
Out Channel 2 -> Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In  
In Channel 1 <- Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out  
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

**Analog In Mainboard Settings (Analog In 1/2)**

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

**Analog Out Mainboard Settings (Analog Out 1/2)**

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

**Microphone Settings (Mic Amp. (Slot 6))****Channel In 1 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 2 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 3 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 4 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**BEQ Settings (BEQ Filter 1)**

Block mode Bypass

**Artificial Head Settings (HATS 1 (HMS II.3))**

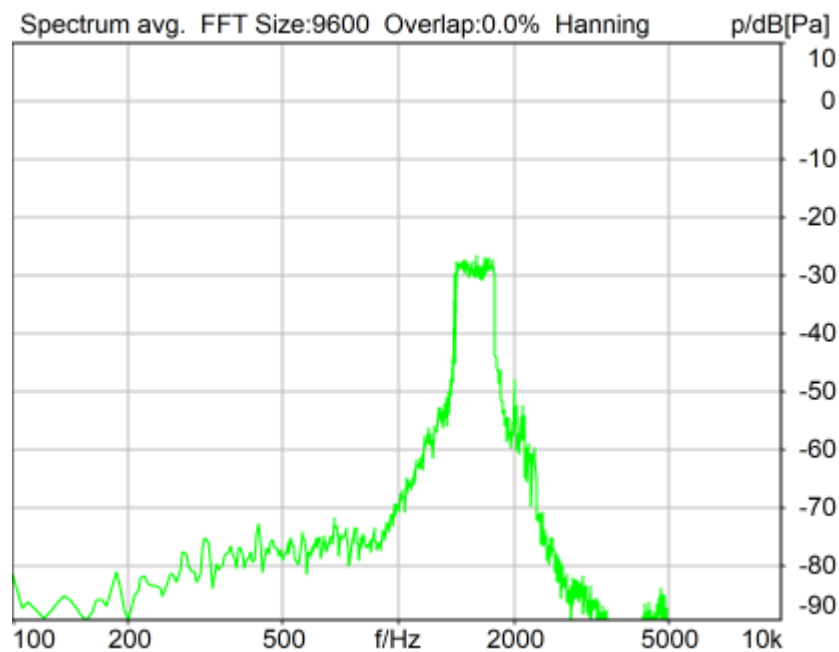
Ser. Nr. 12306613 Pinna Type Type 3.3

**HIB Settings**

|                        |                    |                        |          |
|------------------------|--------------------|------------------------|----------|
| HIB Name               | 60020095           | Serial                 | 60020095 |
| HIB Mode               | Mobile Measurement | Impedance              | 32 Ohm   |
| Gain out 1             | -40.00 dB          | Gain out 2             | 0.00 dB  |
| Gain in 1              | 0.00 dB            | Gain in 2              | 0.00 dB  |
| Mic 1 Power Supply Off |                    | Mic 2 Power Supply Off |          |

## 5.2 RCV Distortion and Noise - 1600 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 8N



Distortion (Noise) RCV (packed): 22.56 dB (7.45%) Ok

**Ok**

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Unmodified HEAD acoustics Measurement Descriptor

**Limits**

|       |              |
|-------|--------------|
|       | <b>lower</b> |
| Run 1 | 20.00 dB     |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)

Database Version: 40\_HAC\_Suite\_Rev03

Source: act\_rpn\_b250ms\_1600hz\_sr20dbm0\_v02.dat

Level adj. Ch1 -90.0 dB

**Calibration**

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))

Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

**HHP IV Settings (Setting: STD:(0,0,0) rel AHP)**

|                |         |                          |       |
|----------------|---------|--------------------------|-------|
| MECRP Delta Ye | 0.0 mm  | Rotation Delta A         | 0.0 ° |
| MECRP Delta Ze | 0.0 mm  | Rotation Delta C         | 0.0 ° |
| Delta Xe       | 0.0 mm  | Rotation Delta B         | 5.0 ° |
| Delta Ye       | 0.0 mm  | Delta A                  | 0.0 ° |
| Delta Ze       | 0.0 mm  | Delta C                  | 0.0 ° |
| Ym             | -7.9 mm | Delta B                  | 0.0 ° |
|                |         | Ear Type 3.3 Coordinates |       |

Mounting: Right Ear

Force to apply: 8.0 N, Force reached: 8.0 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                   |                |                   |                 |
|-------------------|----------------|-------------------|-----------------|
| Direction         | Out 2 -> In 2  |                   |                 |
| Range start       | 13550.00 ms    | Range length      | 200.00 ms       |
| Number of seq.    | 10             | Sequence length   | 400.00 ms       |
| Use FIR Filter    | Ch2            | FIR filter        | drp2ff_ieee1652 |
| DRP/ERP Ch.1:     | Off            | DRP/ERP Ch.2:     | Off             |
| Frequency base    | Transformation |                   |                 |
| FFT size          | 9600           | Overlap           | 0 %             |
| Window function.  | Hanning        | Smooth            | Off             |
| dB weighting      | A Weighting    |                   |                 |
| Stimulus min.     | 1375.0 Hz      | Stimulus max.     | 1815.0 Hz       |
| Analysis min.     | 20.0 Hz        | Analysis max.     | 1370.0 Hz       |
| Analysis (2) min. | 1820.0 Hz      | Analysis (2) max. | 20000.0 Hz      |

**Special Features**

Compensate delay 183.5000 ms (D\_RCV\_WB, Delay (Cross))

Store to variable RCVWB10\_1600Hz

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

**labCORE Routing**

|                  |                                                                          |
|------------------|--------------------------------------------------------------------------|
| Out Channel 1 -> | Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker                      |
| Out Channel 2 -> | Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In                           |
| In Channel 1 <-  | Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out                        |
| In Channel 2 <-  | BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right |

**Analogue In Mainboard Settings (Analog In 1/2)**

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

**Analogue Out Mainboard Settings (Analog Out 1/2)**

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

**Microphone Settings (Mic Amp. (Slot 6))****Channel In 1 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 2 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 3 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

Channel In 4 Settings

Range 114 dB[SPL] @ 12.5 mV/Pa Highpass Off  
Polarisation Voltage 200V Supply Voltage ±60V

BEQ Settings (BEQ Filter 1)

Block mode Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

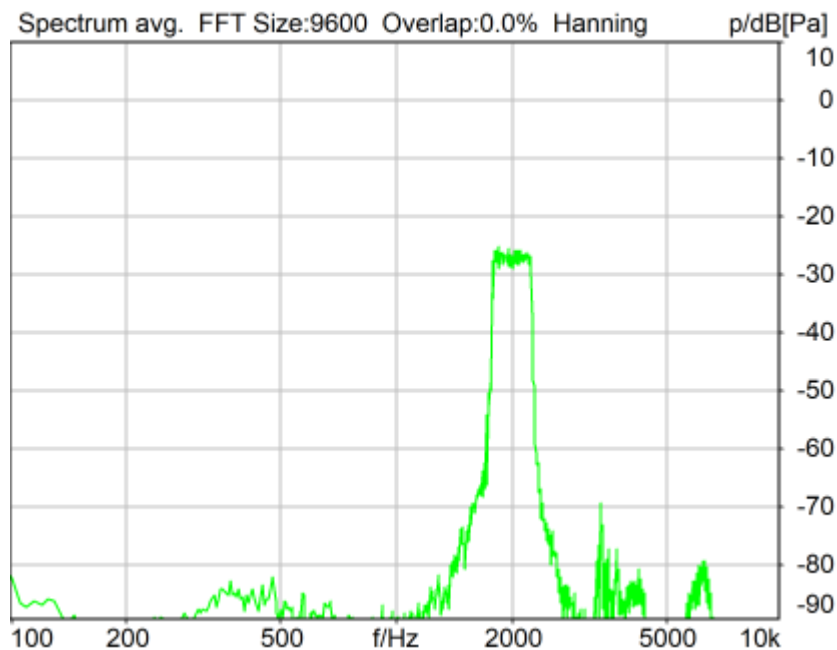
Ser. Nr. 12306613 Pinna Type Type 3.3

HIB Settings

HIB Name 60020095 Serial 60020095  
HIB Mode Mobile Measurement Impedance 32 Ohm  
Gain out 1 -40.00 dB Gain out 2 0.00 dB  
Gain in 1 0.00 dB Gain in 2 0.00 dB  
Mic 1 Power Supply Off Mic 2 Power Supply Off

## 5.2 RCV Distortion and Noise - 2000 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 8N



Distortion (Noise) RCV (packed): 34.01 dB (1.99%) Ok

Ok

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Unmodified HEAD acoustics Measurement Descriptor

Limits

|       |          |
|-------|----------|
|       | lower    |
| Run 1 | 20.00 dB |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)  
Database Version: 40\_HAC\_Suite\_Rev03**Source: act\_rpn\_b250ms\_2000hz\_sr20dbm0\_v02.dat**

Level adj. Ch1 -90.0 dB

**Calibration**

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))

Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

**HHP IV Settings (Setting: STD:(0,0,0) rel AHP)**

|                |         |                          |       |
|----------------|---------|--------------------------|-------|
| MECRP Delta Ye | 0.0 mm  | Rotation Delta A         | 0.0 ° |
| MECRP Delta Ze | 0.0 mm  | Rotation Delta C         | 0.0 ° |
| Delta Xe       | 0.0 mm  | Rotation Delta B         | 5.0 ° |
| Delta Ye       | 0.0 mm  | Delta A                  | 0.0 ° |
| Delta Ze       | 0.0 mm  | Delta C                  | 0.0 ° |
| Ym             | -7.9 mm | Delta B                  | 0.0 ° |
|                |         | Ear Type 3.3 Coordinates |       |

Mounting: Right Ear

Force to apply: 8.0 N, Force reached: 8.0 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                   |                |                   |                 |
|-------------------|----------------|-------------------|-----------------|
| Direction         | Out 2 -> In 2  |                   |                 |
| Range start       | 13550.00 ms    | Range length      | 200.00 ms       |
| Number of seq.    | 10             | Sequence length   | 400.00 ms       |
| Use FIR Filter    | Ch2            | FIR filter        | drp2ff_ieee1652 |
| DRP/ERP Ch.1:     | Off            | DRP/ERP Ch.2:     | Off             |
| Frequency base    | Transformation |                   |                 |
| FFT size          | 9600           | Overlap           | 0 %             |
| Window function.  | Hanning        | Smooth            | Off             |
| dB weighting      | A Weighting    |                   |                 |
| Stimulus min.     | 1745.0 Hz      | Stimulus max.     | 2275.0 Hz       |
| Analysis min.     | 20.0 Hz        | Analysis max.     | 1740.0 Hz       |
| Analysis (2) min. | 2280.0 Hz      | Analysis (2) max. | 20000.0 Hz      |

**Special Features**

Compensate delay 183.5000 ms (D\_RCV\_WB, Delay (Cross))

Store to variable RCVWB10\_2000Hz

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

**labCORE Routing**

|                  |                                                                          |
|------------------|--------------------------------------------------------------------------|
| Out Channel 1 -> | Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker                      |
| Out Channel 2 -> | Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In                           |
| In Channel 1 <-  | Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out                        |
| In Channel 2 <-  | BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right |

**Analog In Mainboard Settings (Analog In 1/2)**

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

**Analog Out Mainboard Settings (Analog Out 1/2)**

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

**Microphone Settings (Mic Amp. (Slot 6))**

Channel In 1 Settings

|                       |                          |                |      |
|-----------------------|--------------------------|----------------|------|
| Range                 | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage  | 200V                     | Supply Voltage | ±60V |
| Channel In 2 Settings |                          |                |      |
| Range                 | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage  | 200V                     | Supply Voltage | ±60V |
| Channel In 3 Settings |                          |                |      |
| Range                 | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage  | 200V                     | Supply Voltage | ±60V |
| Channel In 4 Settings |                          |                |      |
| Range                 | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage  | 200V                     | Supply Voltage | ±60V |

-----  
BEQ Settings (BEQ Filter 1)  
Block mode      Bypass  
-----

Artificial Head Settings (HATS 1 (HMS II.3))

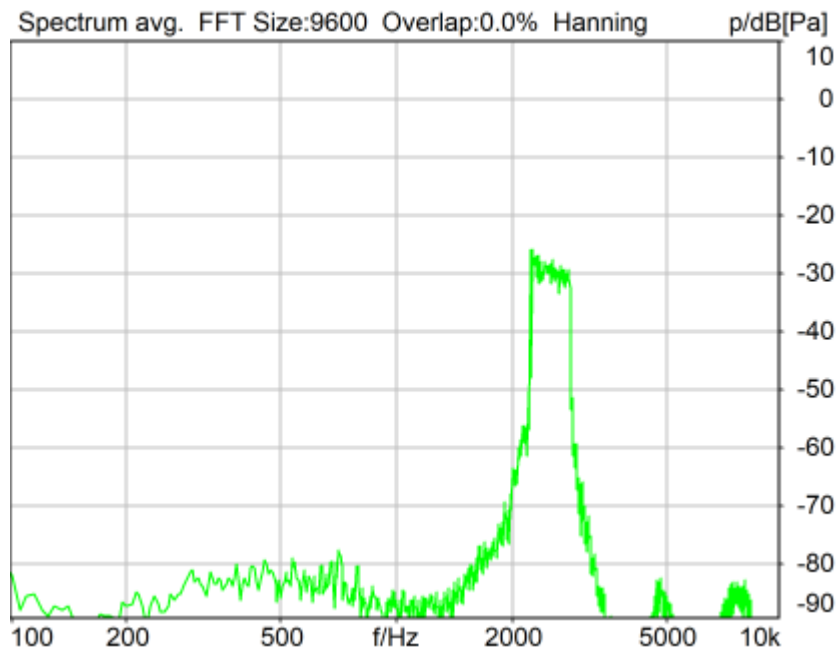
|          |          |            |          |
|----------|----------|------------|----------|
| Ser. Nr. | 12306613 | Pinna Type | Type 3.3 |
|----------|----------|------------|----------|

#### HIB Settings

|                    |                    |                    |          |
|--------------------|--------------------|--------------------|----------|
| HIB Name           | 60020095           | Serial             | 60020095 |
| HIB Mode           | Mobile Measurement | Impedance          | 32 Ohm   |
| Gain out 1         | -40.00 dB          | Gain out 2         | 0.00 dB  |
| Gain in 1          | 0.00 dB            | Gain in 2          | 0.00 dB  |
| Mic 1 Power Supply | Off                | Mic 2 Power Supply | Off      |

## 5.2 RCV Distortion and Noise - 2500 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 8N



Distortion (Noise) RCV (packed): 31.44 dB (2.68%) Ok

Ok

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Unmodified HEAD acoustics Measurement Descriptor

**Limits**

|       | lower    |
|-------|----------|
| Run 1 | 20.00 dB |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)  
Database Version: 40\_HAC\_Suite\_Rev03**Source:** act\_rpn\_b250ms\_2500hz\_sr20dbm0\_v02.dat

Level adj. Ch1 -90.0 dB

**Calibration**

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))

Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

**HHP IV Settings (Setting: STD:(0,0,0) rel AHP)**

|                |         |                  |                 |
|----------------|---------|------------------|-----------------|
| MECRP Delta Ye | 0.0 mm  | Rotation Delta A | 0.0 °           |
| MECRP Delta Ze | 0.0 mm  | Rotation Delta C | 0.0 °           |
| Delta Xe       | 0.0 mm  | Rotation Delta B | 5.0 °           |
| Delta Ye       | 0.0 mm  | Delta A          | 0.0 °           |
| Delta Ze       | 0.0 mm  | Delta C          | 0.0 °           |
| Ym             | -7.9 mm | Delta B          | 0.0 °           |
|                |         | Ear Type         | 3.3 Coordinates |

Mounting: Right Ear

Force to apply: 8.0 N, Force reached: 8.0 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                   |                |                   |                 |
|-------------------|----------------|-------------------|-----------------|
| Direction         | Out 2 -> In 2  |                   |                 |
| Range start       | 13550.00 ms    | Range length      | 200.00 ms       |
| Number of seq.    | 10             | Sequence length   | 400.00 ms       |
| Use FIR Filter    | Ch2            | FIR filter        | drp2ff_ieee1652 |
| DRP/ERP Ch.1:     | Off            | DRP/ERP Ch.2:     | Off             |
| Frequency base    | Transformation |                   |                 |
| FFT size          | 9600           | Overlap           | 0 %             |
| Window function.  | Hanning        | Smooth            | Off             |
| dB weighting      | A Weighting    |                   |                 |
| Stimulus min.     | 2205.0 Hz      | Stimulus max.     | 2855.0 Hz       |
| Analysis min.     | 20.0 Hz        | Analysis max.     | 2200.0 Hz       |
| Analysis (2) min. | 2860.0 Hz      | Analysis (2) max. | 20000.0 Hz      |

**Special Features**

Compensate delay 183.5000 ms (D\_RCV\_WB, Delay (Cross))

Store to variable RCVWB10\_2500Hz

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

**labCORE Routing**

|                  |                                                                          |
|------------------|--------------------------------------------------------------------------|
| Out Channel 1 -> | Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker                      |
| Out Channel 2 -> | Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In                           |
| In Channel 1 <-  | Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out                        |
| In Channel 2 <-  | BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right |

Analog In Mainboard Settings (Analog In 1/2)

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

-----  
Analog Out Mainboard Settings (Analog Out 1/2)

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

-----  
Microphone Settings (Mic Amp. (Slot 6))

## Channel In 1 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

## Channel In 2 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

## Channel In 3 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

## Channel In 4 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

-----  
BEQ Settings (BEQ Filter 1)

|            |        |
|------------|--------|
| Block mode | Bypass |
|------------|--------|

-----  
Artificial Head Settings (HATS 1 (HMS II.3))

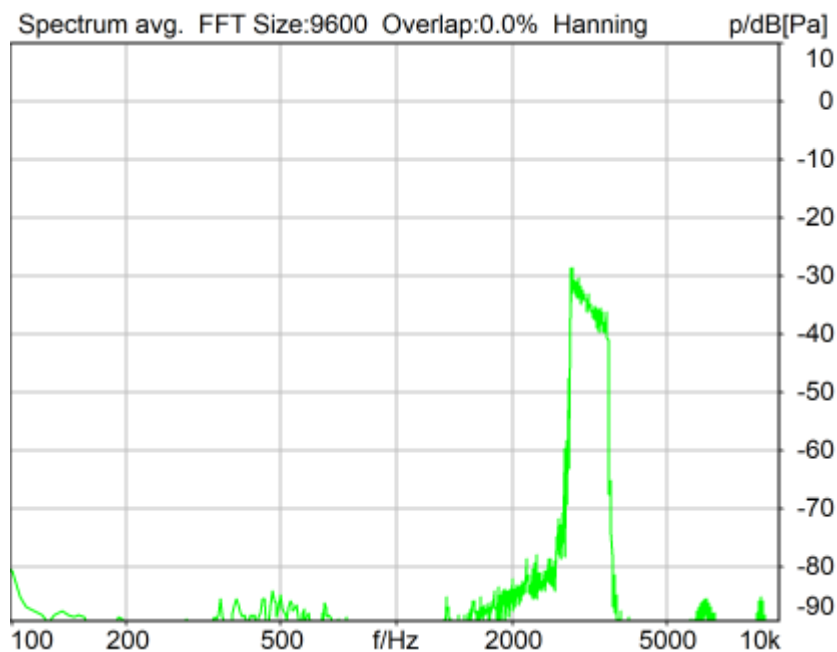
|          |          |            |          |
|----------|----------|------------|----------|
| Ser. Nr. | 12306613 | Pinna Type | Type 3.3 |
|----------|----------|------------|----------|

**HIB Settings**

|                    |                    |                    |          |
|--------------------|--------------------|--------------------|----------|
| HIB Name           | 60020095           | Serial             | 60020095 |
| HIB Mode           | Mobile Measurement | Impedance          | 32 Ohm   |
| Gain out 1         | -40.00 dB          | Gain out 2         | 0.00 dB  |
| Gain in 1          | 0.00 dB            | Gain in 2          | 0.00 dB  |
| Mic 1 Power Supply | Off                | Mic 2 Power Supply | Off      |

## **5.2 RCV Distortion and Noise - 3150 Hz WB**

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 8N



Distortion (Noise) RCV (packed): 37.23 dB (1.37%) Ok

**Ok**

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Unmodified HEAD acoustics Measurement Descriptor

**Limits**

|       | lower    |
|-------|----------|
| Run 1 | 20.00 dB |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)

Database Version: 40\_HAC\_Suite\_Rev03

**Source: act\_rpn\_b250ms\_3150hz\_sr20dbm0\_v02.dat**

Level adj. Ch1 -90.0 dB

**Calibration**

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))

Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

**HHP IV Settings (Setting: STD:(0,0,0) rel AHP)**

|                          |         |                  |       |
|--------------------------|---------|------------------|-------|
| MECRP Delta Ye           | 0.0 mm  | Rotation Delta A | 0.0 ° |
| MECRP Delta Ze           | 0.0 mm  | Rotation Delta C | 0.0 ° |
| Delta Xe                 | 0.0 mm  | Rotation Delta B | 5.0 ° |
| Delta Ye                 | 0.0 mm  | Delta A          | 0.0 ° |
| Delta Ze                 | 0.0 mm  | Delta C          | 0.0 ° |
| Ym                       | -7.9 mm | Delta B          | 0.0 ° |
| Ear Type 3.3 Coordinates |         |                  |       |

Mounting: Right Ear

Force to apply: 8.0 N, Force reached: 8.0 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                   |                |                   |                 |
|-------------------|----------------|-------------------|-----------------|
| Direction         | Out 2 -> In 2  | Range length      | 200.00 ms       |
| Range start       | 13550.00 ms    | Sequence length   | 400.00 ms       |
| Number of seq.    | 10             | FIR filter        | drp2ff_ieee1652 |
| Use FIR Filter    | Ch2            | DRP/ERP Ch.2:     | Off             |
| DRP/ERP Ch.1:     | Off            | Frequency base    | Transformation  |
| Frequency base    | Transformation | FFT size          | 9600            |
| FFT size          | 9600           | Overlap           | 0 %             |
| Window function.  | Hanning        | Smooth            | Off             |
| dB weighting      | A Weighting    | Stimulus max.     | 3585.0 Hz       |
| Stimulus min.     | 2785.0 Hz      | Analysis max.     | 2780.0 Hz       |
| Analysis min.     | 20.0 Hz        | Analysis (2) max. | 20000.0 Hz      |
| Analysis (2) min. | 3590.0 Hz      |                   |                 |

**Special Features**

Compensate delay 183.5000 ms (D\_RCV\_WB, Delay (Cross))

Store to variable RCVWB10\_3150Hz

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

-----

## labCORE Routing

Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker  
Out Channel 2 -> Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In  
In Channel 1 <- Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out  
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

-----  
Analog In Mainboard Settings (Analog In 1/2)

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

-----  
Analog Out Mainboard Settings (Analog Out 1/2)

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

-----  
Microphone Settings (Mic Amp. (Slot 6))

## Channel In 1 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

## Channel In 2 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

## Channel In 3 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

## Channel In 4 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

-----  
BEQ Settings (BEQ Filter 1)

|            |        |
|------------|--------|
| Block mode | Bypass |
|------------|--------|

-----  
Artificial Head Settings (HATS 1 (HMS II.3))

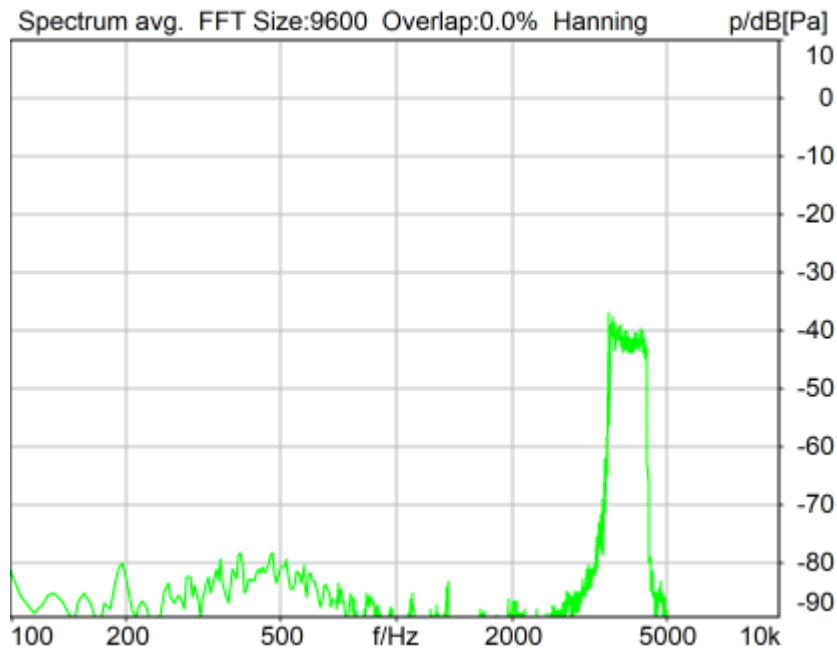
|          |          |            |          |
|----------|----------|------------|----------|
| Ser. Nr. | 12306613 | Pinna Type | Type 3.3 |
|----------|----------|------------|----------|

**HIB Settings**

|                    |                    |                    |          |
|--------------------|--------------------|--------------------|----------|
| HIB Name           | 60020095           | Serial             | 60020095 |
| HIB Mode           | Mobile Measurement | Impedance          | 32 Ohm   |
| Gain out 1         | -40.00 dB          | Gain out 2         | 0.00 dB  |
| Gain in 1          | 0.00 dB            | Gain in 2          | 0.00 dB  |
| Mic 1 Power Supply | Off                | Mic 2 Power Supply | Off      |

**5.2 RCV Distortion and Noise - 4000 Hz WB**

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 8N



Distortion (Noise) RCV (packed): 31.22 dB (2.75%) Ok

**Ok**

2024/1/19 18:52 ACQUA 5.1.200

Unmodified HEAD acoustics Measurement Descriptor

#### Limits

|       |              |
|-------|--------------|
|       | <b>lower</b> |
| Run 1 | 20.00 dB     |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)

Database Version: 40\_HAC\_Suite\_Rev03

**Source: act\_rpn\_b250ms\_4000hz\_sr20dbm0\_v02.dat**

Level adj. Ch1 -90.0 dB

#### Calibration

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))

Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

#### HHP IV Settings (Setting: STD:(0,0,0) rel AHP)

|                |         |                          |       |
|----------------|---------|--------------------------|-------|
| MECRP Delta Ye | 0.0 mm  | Rotation Delta A         | 0.0 ° |
| MECRP Delta Ze | 0.0 mm  | Rotation Delta C         | 0.0 ° |
| Delta Xe       | 0.0 mm  | Rotation Delta B         | 5.0 ° |
| Delta Ye       | 0.0 mm  | Delta A                  | 0.0 ° |
| Delta Ze       | 0.0 mm  | Delta C                  | 0.0 ° |
| Ym             | -7.9 mm | Delta B                  | 0.0 ° |
|                |         | Ear Type 3.3 Coordinates |       |

Mounting: Right Ear

Force to apply: 8.0 N, Force reached: 8.0 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                   |                |                   |                 |
|-------------------|----------------|-------------------|-----------------|
| Direction         | Out 2 -> In 2  |                   |                 |
| Range start       | 13550.00 ms    | Range length      | 200.00 ms       |
| Number of seq.    | 10             | Sequence length   | 400.00 ms       |
| Use FIR Filter    | Ch2            | FIR filter        | drp2ff_ieee1652 |
| DRP/ERP Ch.1:     | Off            | DRP/ERP Ch.2:     | Off             |
| Frequency base    | Transformation |                   |                 |
| FFT size          | 9600           | Overlap           | 0 %             |
| Window function.  | Hanning        | Smooth            | Off             |
| dB weighting      | A Weighting    |                   |                 |
| Stimulus min.     | 3515.0 Hz      | Stimulus max.     | 4500.0 Hz       |
| Analysis min.     | 20.0 Hz        | Analysis max.     | 3510.0 Hz       |
| Analysis (2) min. | 4505.0 Hz      | Analysis (2) max. | 20000.0 Hz      |

**Special Features**

Compensate delay 183.5000 ms (D\_RCV\_WB, Delay (Cross))  
Store to variable RCVWB10\_4000Hz

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

**labCORE Routing**

Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker  
Out Channel 2 -> Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In  
In Channel 1 <- Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out  
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

**Analog In Mainboard Settings (Analog In 1/2)**

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

**Analog Out Mainboard Settings (Analog Out 1/2)**

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

**Microphone Settings (Mic Amp. (Slot 6))****Channel In 1 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 2 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 3 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 4 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**BEQ Settings (BEQ Filter 1)**

Block mode Bypass

**Artificial Head Settings (HATS 1 (HMS II.3))**

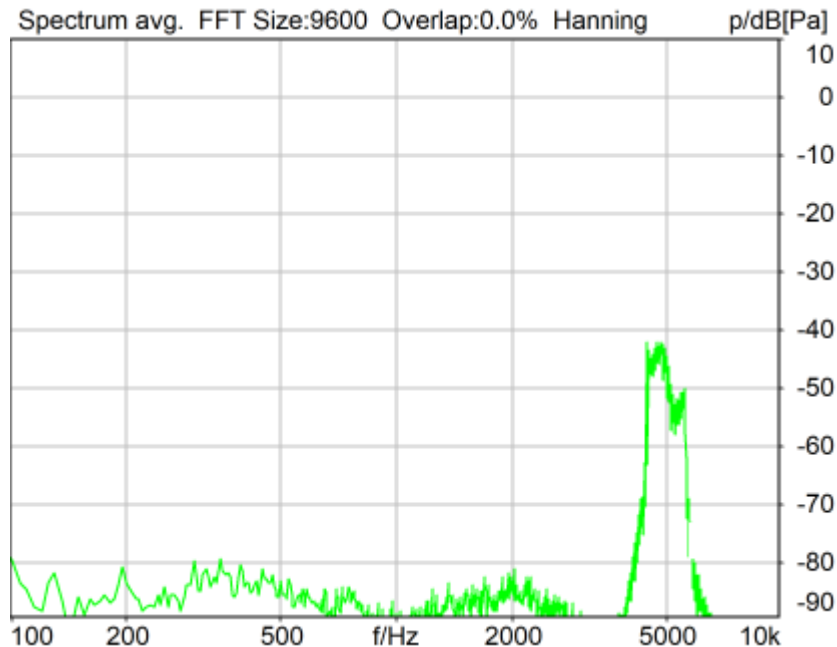
|          |          |            |          |
|----------|----------|------------|----------|
| Ser. Nr. | 12306613 | Pinna Type | Type 3.3 |
|----------|----------|------------|----------|

**HIB Settings**

|                    |                    |                    |          |
|--------------------|--------------------|--------------------|----------|
| HIB Name           | 60020095           | Serial             | 60020095 |
| HIB Mode           | Mobile Measurement | Impedance          | 32 Ohm   |
| Gain out 1         | -40.00 dB          | Gain out 2         | 0.00 dB  |
| Gain in 1          | 0.00 dB            | Gain in 2          | 0.00 dB  |
| Mic 1 Power Supply | Off                | Mic 2 Power Supply | Off      |

## 5.2 RCV Distortion and Noise - 5000 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 8N



Distortion (Noise) RCV (packed): 27.29 dB (4.32%) Ok

Ok

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Unmodified HEAD acoustics Measurement Descriptor

### Limits

|       |          |
|-------|----------|
|       | lower    |
| Run 1 | 20.00 dB |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)

Database Version: 40\_HAC\_Suite\_Rev03

Source: act\_rpn\_b250ms\_5000hz\_sr20dbm0\_v02.dat

Level adj. Ch1 -90.0 dB

### Calibration

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))

Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

HHP IV Settings (Setting: STD:(0,0,0) rel AHP)

MECRP Delta Ye 0.0 mm      Rotation Delta A 0.0 °  
Rotation Delta C 0.0 °

|                |         |                          |       |
|----------------|---------|--------------------------|-------|
| MECRP Delta Ze | 0.0 mm  | Rotation Delta B         | 5.0 ° |
| Delta Xe       | 0.0 mm  | Delta A                  | 0.0 ° |
| Delta Ye       | 0.0 mm  | Delta C                  | 0.0 ° |
| Delta Ze       | 0.0 mm  | Delta B                  | 0.0 ° |
| Ym             | -7.9 mm | Ear Type 3.3 Coordinates |       |

Mounting: Right Ear  
Force to apply: 8.0 N, Force reached: 8.0 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                   |                |                   |                 |
|-------------------|----------------|-------------------|-----------------|
| Direction         | Out 2 -> In 2  |                   |                 |
| Range start       | 13550.00 ms    | Range length      | 200.00 ms       |
| Number of seq.    | 10             | Sequence length   | 400.00 ms       |
| Use FIR Filter    | Ch2            | FIR filter        | drp2ff_ieee1652 |
| DRP/ERP Ch.1:     | Off            | DRP/ERP Ch.2:     | Off             |
| Frequency base    | Transformation |                   |                 |
| FFT size          | 9600           | Overlap           | 0 %             |
| Window function.  | Hanning        | Smooth            | Off             |
| dB weighting      | A Weighting    |                   |                 |
| Stimulus min.     | 4430.0 Hz      | Stimulus max.     | 5660.0 Hz       |
| Analysis min.     | 20.0 Hz        | Analysis max.     | 4425.0 Hz       |
| Analysis (2) min. | 5665.0 Hz      | Analysis (2) max. | 20000.0 Hz      |

**Special Features**

Compensate delay 183.5000 ms (D\_RCV\_WB, Delay (Cross))  
Store to variable RCVWB10\_5000Hz

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

**labCORE Routing**

Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker  
Out Channel 2 -> Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In  
In Channel 1 <- Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out  
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

**Analog In Mainboard Settings (Analog In 1/2)**

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

**Analog Out Mainboard Settings (Analog Out 1/2)**

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

**Microphone Settings (Mic Amp. (Slot 6))****Channel In 1 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 2 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 3 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 4 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**BEQ Settings (BEQ Filter 1)**

Block mode Bypass

**Artificial Head Settings (HATS 1 (HMS II.3))**

---

|          |          |            |          |
|----------|----------|------------|----------|
| Ser. Nr. | 12306613 | Pinna Type | Type 3.3 |
|----------|----------|------------|----------|

**HIB Settings**

|                        |                    |                        |          |
|------------------------|--------------------|------------------------|----------|
| HIB Name               | 60020095           | Serial                 | 60020095 |
| HIB Mode               | Mobile Measurement | Impedance              | 32 Ohm   |
| Gain out 1             | -40.00 dB          | Gain out 2             | 0.00 dB  |
| Gain in 1              | 0.00 dB            | Gain in 2              | 0.00 dB  |
| Mic 1 Power Supply Off |                    | Mic 2 Power Supply Off |          |

**Report - Receive Distortion and Noise (Conversational Gain)**

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 8N

| Region | Frequency | SDNR     |
|--------|-----------|----------|
| 1      | 250Hz     | 26.38 dB |
| 2      | 315Hz     | 27.42 dB |
| 3      | 400Hz     | 28.47 dB |
| 4      | 500Hz     | 29.74 dB |
| 5      | 630Hz     | 34.35 dB |
| 6      | 800Hz     | 33.15 dB |
| 7      | 1000Hz    | 40.02 dB |
| 8      | 1250Hz    | 27.99 dB |
| 9      | 1600Hz    | 22.56 dB |
| 10     | 2000Hz    | 34.01 dB |
| 11     | 2500Hz    | 31.44 dB |
| 12     | 3150Hz    | 37.23 dB |
| 13     | 4000Hz    | 31.22 dB |
| 14     | 5000Hz    | 27.29 dB |

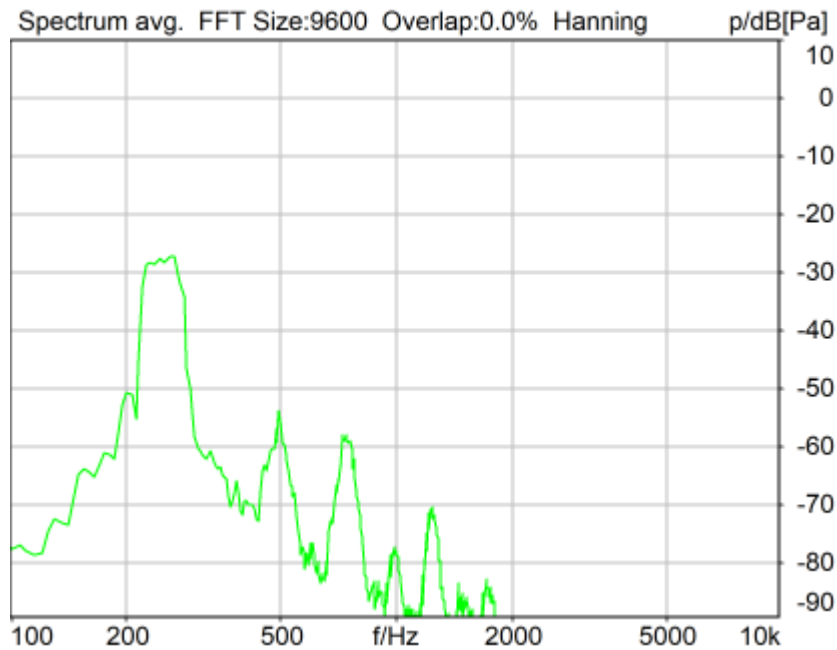
All SDNRs were greater than 20.0 dB, requirement was met.

Smallest SDNR was 22.56dB at 1600Hz.

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**5.2 RCV Distortion and Noise - 250 Hz WB**

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 2N



Distortion (Noise) RCV (packed): 28.32 dB (3.84%) Ok

Ok

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Unmodified HEAD acoustics Measurement Descriptor

#### Limits

|       | lower    |
|-------|----------|
| Run 1 | 20.00 dB |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)

Database Version: 40\_HAC\_Suite\_Rev03

Source: act\_rpn\_b250ms\_250hz\_sr20dbm0\_v02.dat.dat

Level adj. Ch1 -90.0 dB

#### Calibration

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))

Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

#### HHP IV Settings (Setting: STD:(0,0,0) rel AHP)

|                |         |                          |       |
|----------------|---------|--------------------------|-------|
| MECRP Delta Ye | 0.0 mm  | Rotation Delta A         | 0.0 ° |
| MECRP Delta Ze | 0.0 mm  | Rotation Delta C         | 0.0 ° |
| Delta Xe       | 0.0 mm  | Rotation Delta B         | 5.0 ° |
| Delta Ye       | 0.0 mm  | Delta A                  | 0.0 ° |
| Delta Ze       | 0.0 mm  | Delta C                  | 0.0 ° |
| Ym             | -5.4 mm | Delta B                  | 0.0 ° |
|                |         | Ear Type 3.3 Coordinates |       |

Mounting: Right Ear

Force to apply: 2.0 N, Force reached: 2.0 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                   |                |                   |                 |
|-------------------|----------------|-------------------|-----------------|
| Direction         | Out 2 -> In 2  |                   |                 |
| Range start       | 13550.00 ms    | Range length      | 200.00 ms       |
| Number of seq.    | 10             | Sequence length   | 400.00 ms       |
| Use FIR Filter    | Ch2            | FIR filter        | drp2ff_ieee1652 |
| DRP/ERP Ch.1:     | Off            | DRP/ERP Ch.2:     | Off             |
| Frequency base    | Transformation |                   |                 |
| FFT size          | 9600           | Overlap           | 0 %             |
| Window function.  | Hanning        | Smooth            | Off             |
| dB weighting      | A Weighting    |                   |                 |
| Stimulus min.     | 190.0 Hz       | Stimulus max.     | 315.0 Hz        |
| Analysis min.     | 20.0 Hz        | Analysis max.     | 185.0 Hz        |
| Analysis (2) min. | 320.0 Hz       | Analysis (2) max. | 20000.0 Hz      |

**Special Features**

Compensate delay 183.5000 ms (D\_RCV\_WB, Delay (Cross))  
Store to variable RCVWB10\_250Hz

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

**labCORE Routing**

Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker  
Out Channel 2 -> Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In  
In Channel 1 <- Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out  
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

**Analog In Mainboard Settings (Analog In 1/2)**

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

**Analog Out Mainboard Settings (Analog Out 1/2)**

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

**Microphone Settings (Mic Amp. (Slot 6))****Channel In 1 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 2 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 3 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 4 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**BEQ Settings (BEQ Filter 1)**

Block mode Bypass

**Artificial Head Settings (HATS 1 (HMS II.3))**

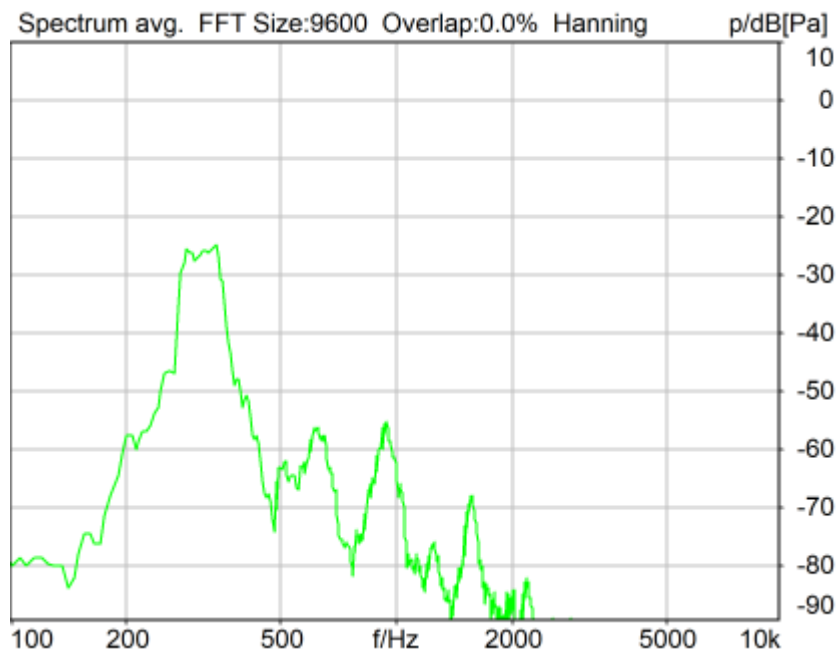
|          |          |            |          |
|----------|----------|------------|----------|
| Ser. Nr. | 12306613 | Pinna Type | Type 3.3 |
|----------|----------|------------|----------|

**HIB Settings**

|                    |                    |                    |          |
|--------------------|--------------------|--------------------|----------|
| HIB Name           | 60020095           | Serial             | 60020095 |
| HIB Mode           | Mobile Measurement | Impedance          | 32 Ohm   |
| Gain out 1         | -40.00 dB          | Gain out 2         | 0.00 dB  |
| Gain in 1          | 0.00 dB            | Gain in 2          | 0.00 dB  |
| Mic 1 Power Supply | Off                | Mic 2 Power Supply | Off      |

## 5.2 RCV Distortion and Noise - 315 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 2N



Distortion (Noise) RCV (packed): 26.82 dB (4.56%) Ok

Ok

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Unmodified HEAD acoustics Measurement Descriptor

### Limits

|       | lower    |
|-------|----------|
| Run 1 | 20.00 dB |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)

Database Version: 40\_HAC\_Suite\_Rev03

Source: act\_rpn\_b250ms\_315hz\_sr20dbm0\_v02.dat

Level adj. Ch1 -90.0 dB

### Calibration

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))

Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

HHP IV Settings (Setting: STD:(0,0,0) rel AHP)

MECRP Delta Ye 0.0 mm      Rotation Delta A 0.0 °  
Rotation Delta C 0.0 °

|                |         |                          |       |
|----------------|---------|--------------------------|-------|
| MECRP Delta Ze | 0.0 mm  | Rotation Delta B         | 5.0 ° |
| Delta Xe       | 0.0 mm  | Delta A                  | 0.0 ° |
| Delta Ye       | 0.0 mm  | Delta C                  | 0.0 ° |
| Delta Ze       | 0.0 mm  | Delta B                  | 0.0 ° |
| Ym             | -5.4 mm | Ear Type 3.3 Coordinates |       |

Mounting: Right Ear  
Force to apply: 2.0 N, Force reached: 2.0 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                   |                |                   |                 |
|-------------------|----------------|-------------------|-----------------|
| Direction         | Out 2 -> In 2  |                   |                 |
| Range start       | 13550.00 ms    | Range length      | 200.00 ms       |
| Number of seq.    | 10             | Sequence length   | 400.00 ms       |
| Use FIR Filter    | Ch2            | FIR filter        | drp2ff_ieee1652 |
| DRP/ERP Ch.1:     | Off            | DRP/ERP Ch.2:     | Off             |
| Frequency base    | Transformation |                   |                 |
| FFT size          | 9600           | Overlap           | 0 %             |
| Window function.  | Hanning        | Smooth            | Off             |
| dB weighting      | A Weighting    |                   |                 |
| Stimulus min.     | 245.0 Hz       | Stimulus max.     | 390.0 Hz        |
| Analysis min.     | 20.0 Hz        | Analysis max.     | 240.0 Hz        |
| Analysis (2) min. | 395.0 Hz       | Analysis (2) max. | 20000.0 Hz      |

**Special Features**

Compensate delay 183.5000 ms (D\_RCV\_WB, Delay (Cross))  
Store to variable RCVWB10\_315Hz

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

**labCORE Routing**

Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker  
Out Channel 2 -> Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In  
In Channel 1 <- Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out  
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

**Analog In Mainboard Settings (Analog In 1/2)**

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

**Analog Out Mainboard Settings (Analog Out 1/2)**

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

**Microphone Settings (Mic Amp. (Slot 6))****Channel In 1 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 2 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 3 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 4 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**BEQ Settings (BEQ Filter 1)**

Block mode Bypass

**Artificial Head Settings (HATS 1 (HMS II.3))**

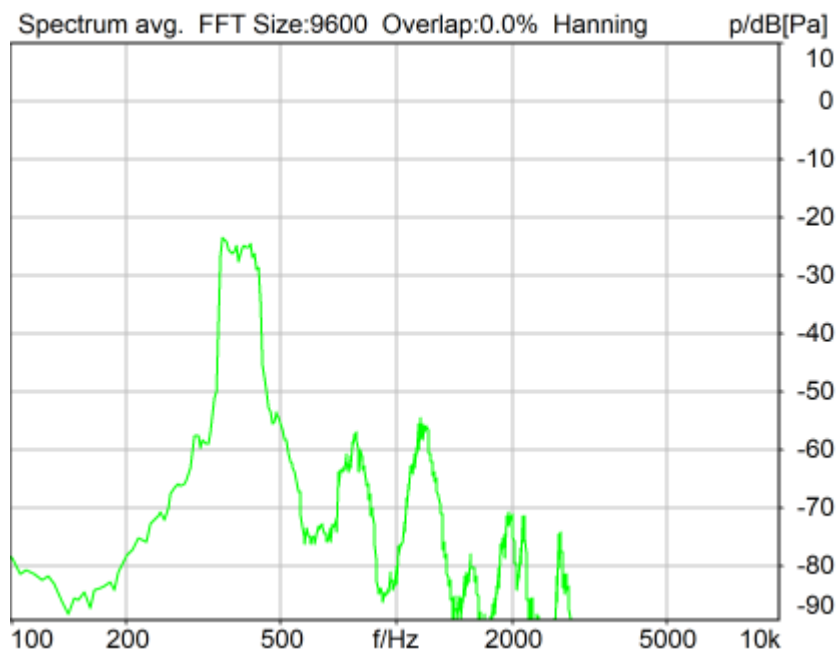
Ser. Nr. 12306613 Pinna Type Type 3.3

#### HIB Settings

|                        |                    |                        |          |
|------------------------|--------------------|------------------------|----------|
| HIB Name               | 60020095           | Serial                 | 60020095 |
| HIB Mode               | Mobile Measurement | Impedance              | 32 Ohm   |
| Gain out 1             | -40.00 dB          | Gain out 2             | 0.00 dB  |
| Gain in 1              | 0.00 dB            | Gain in 2              | 0.00 dB  |
| Mic 1 Power Supply Off |                    | Mic 2 Power Supply Off |          |

## 5.2 RCV Distortion and Noise - 400 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 2N



Distortion (Noise) RCV (packed): 27.68 dB (4.13%) Ok

Ok

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Unmodified HEAD acoustics Measurement Descriptor

#### Limits

|       |          |
|-------|----------|
|       | lower    |
| Run 1 | 20.00 dB |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)

Database Version: 40\_HAC\_Suite\_Rev03

Source: act\_rpn\_b250ms\_400hz\_sr20dbm0\_v02.dat

Level adj. Ch1 -90.0 dB

**Calibration**

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))

Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

**HHP IV Settings (Setting: STD:(0,0,0) rel AHP)**

|                |         |                          |       |
|----------------|---------|--------------------------|-------|
| MECRP Delta Ye | 0.0 mm  | Rotation Delta A         | 0.0 ° |
| MECRP Delta Ze | 0.0 mm  | Rotation Delta C         | 0.0 ° |
| Delta Xe       | 0.0 mm  | Rotation Delta B         | 5.0 ° |
| Delta Ye       | 0.0 mm  | Delta A                  | 0.0 ° |
| Delta Ze       | 0.0 mm  | Delta C                  | 0.0 ° |
| Ym             | -5.4 mm | Delta B                  | 0.0 ° |
|                |         | Ear Type 3.3 Coordinates |       |

Mounting: Right Ear

Force to apply: 2.0 N, Force reached: 2.0 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                   |                |                   |                 |
|-------------------|----------------|-------------------|-----------------|
| Direction         | Out 2 -> In 2  |                   |                 |
| Range start       | 13550.00 ms    | Range length      | 200.00 ms       |
| Number of seq.    | 10             | Sequence length   | 400.00 ms       |
| Use FIR Filter    | Ch2            | FIR filter        | drp2ff_ieee1652 |
| DRP/ERP Ch.1:     | Off            | DRP/ERP Ch.2:     | Off             |
| Frequency base    | Transformation |                   |                 |
| FFT size          | 9600           | Overlap           | 0 %             |
| Window function.  | Hanning        | Smooth            | Off             |
| dB weighting      | A Weighting    |                   |                 |
| Stimulus min.     | 320.0 Hz       | Stimulus max.     | 480.0 Hz        |
| Analysis min.     | 20.0 Hz        | Analysis max.     | 315.0 Hz        |
| Analysis (2) min. | 485.0 Hz       | Analysis (2) max. | 20000.0 Hz      |

**Special Features**

Compensate delay 183.5000 ms (D\_RCV\_WB, Delay (Cross))

Store to variable RCVWB10\_400Hz

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

**labCORE Routing**

|                  |                                                                          |
|------------------|--------------------------------------------------------------------------|
| Out Channel 1 -> | Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker                      |
| Out Channel 2 -> | Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In                           |
| In Channel 1 <-  | Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out                        |
| In Channel 2 <-  | BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right |

**Analogue In Mainboard Settings (Analog In 1/2)**

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

**Analogue Out Mainboard Settings (Analog Out 1/2)**

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

**Microphone Settings (Mic Amp. (Slot 6))****Channel In 1 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 2 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 3 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

Channel In 4 Settings

Range 114 dB[SPL] @ 12.5 mV/Pa Highpass Off  
Polarisation Voltage 200V Supply Voltage ±60V

-----  
BEQ Settings (BEQ Filter 1)

Block mode Bypass

-----  
Artificial Head Settings (HATS 1 (HMS II.3))

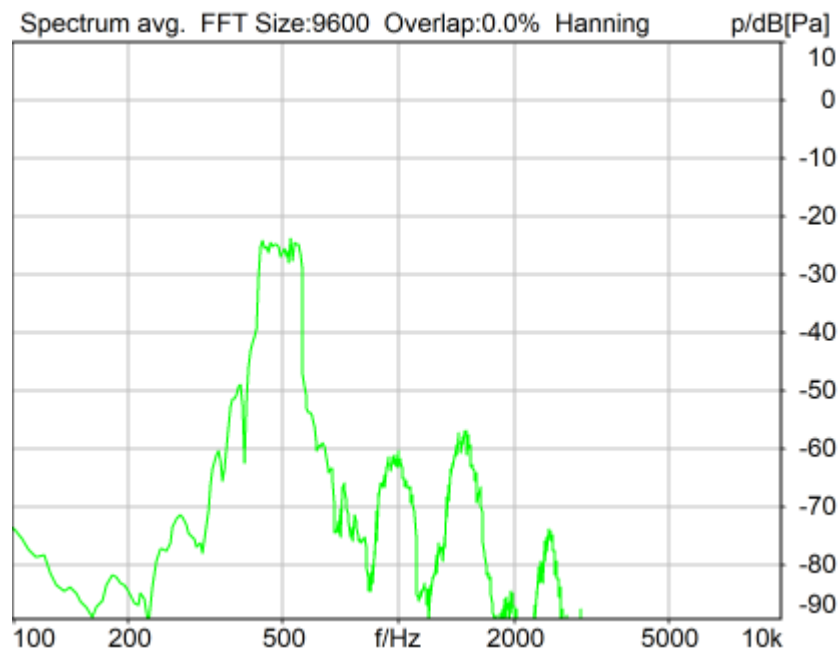
Ser. Nr. 12306613 Pinna Type Type 3.3

**HIB Settings**

|                        |                    |                        |          |
|------------------------|--------------------|------------------------|----------|
| HIB Name               | 60020095           | Serial                 | 60020095 |
| HIB Mode               | Mobile Measurement | Impedance              | 32 Ohm   |
| Gain out 1             | -40.00 dB          | Gain out 2             | 0.00 dB  |
| Gain in 1              | 0.00 dB            | Gain in 2              | 0.00 dB  |
| Mic 1 Power Supply Off |                    | Mic 2 Power Supply Off |          |

## 5.2 RCV Distortion and Noise - 500 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 2N



Distortion (Noise) RCV (packed): 28.22 dB (3.88%) Ok

**Ok**

2024/1/19 19:13 ACQUA 5.1.200

Unmodified HEAD acoustics Measurement Descriptor

**Limits**

|       |              |
|-------|--------------|
|       | <b>lower</b> |
| Run 1 | 20.00 dB     |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)  
Database Version: 40\_HAC\_Suite\_Rev03

Source: act\_rpn\_b250ms\_500hz\_sr20dbm0\_v02.dat

Level adj. Ch1 -90.0 dB

**Calibration**

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))

Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

**HHP IV Settings (Setting: STD:(0,0,0) rel AHP)**

|                |         |                          |       |
|----------------|---------|--------------------------|-------|
| MECRP Delta Ye | 0.0 mm  | Rotation Delta A         | 0.0 ° |
| MECRP Delta Ze | 0.0 mm  | Rotation Delta C         | 0.0 ° |
| Delta Xe       | 0.0 mm  | Rotation Delta B         | 5.0 ° |
| Delta Ye       | 0.0 mm  | Delta A                  | 0.0 ° |
| Delta Ze       | 0.0 mm  | Delta C                  | 0.0 ° |
| Ym             | -5.4 mm | Delta B                  | 0.0 ° |
|                |         | Ear Type 3.3 Coordinates |       |

Mounting: Right Ear

Force to apply: 2.0 N, Force reached: 2.0 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                   |                |                   |                 |
|-------------------|----------------|-------------------|-----------------|
| Direction         | Out 2 -> In 2  |                   |                 |
| Range start       | 13550.00 ms    | Range length      | 200.00 ms       |
| Number of seq.    | 10             | Sequence length   | 400.00 ms       |
| Use FIR Filter    | Ch2            | FIR filter        | drp2ff_ieee1652 |
| DRP/ERP Ch.1:     | Off            | DRP/ERP Ch.2:     | Off             |
| Frequency base    | Transformation |                   |                 |
| FFT size          | 9600           | Overlap           | 0 %             |
| Window function.  | Hanning        | Smooth            | Off             |
| dB weighting      | A Weighting    |                   |                 |
| Stimulus min.     | 410.0 Hz       | Stimulus max.     | 595.0 Hz        |
| Analysis min.     | 20.0 Hz        | Analysis max.     | 405.0 Hz        |
| Analysis (2) min. | 600.0 Hz       | Analysis (2) max. | 20000.0 Hz      |

**Special Features**

Compensate delay 183.5000 ms (D\_RCV\_WB, Delay (Cross))

Store to variable RCVWB10\_500Hz

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

**labCORE Routing**

|                  |                                                                          |
|------------------|--------------------------------------------------------------------------|
| Out Channel 1 -> | Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker                      |
| Out Channel 2 -> | Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In                           |
| In Channel 1 <-  | Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out                        |
| In Channel 2 <-  | BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right |

**Analog In Mainboard Settings (Analog In 1/2)**

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

**Analog Out Mainboard Settings (Analog Out 1/2)**

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

**Microphone Settings (Mic Amp. (Slot 6))**

Channel In 1 Settings

|                       |                          |                |      |
|-----------------------|--------------------------|----------------|------|
| Range                 | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage  | 200V                     | Supply Voltage | ±60V |
| Channel In 2 Settings |                          |                |      |
| Range                 | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage  | 200V                     | Supply Voltage | ±60V |
| Channel In 3 Settings |                          |                |      |
| Range                 | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage  | 200V                     | Supply Voltage | ±60V |
| Channel In 4 Settings |                          |                |      |
| Range                 | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage  | 200V                     | Supply Voltage | ±60V |

-----  
BEQ Settings (BEQ Filter 1)  
Block mode      Bypass  
-----

Artificial Head Settings (HATS 1 (HMS II.3))

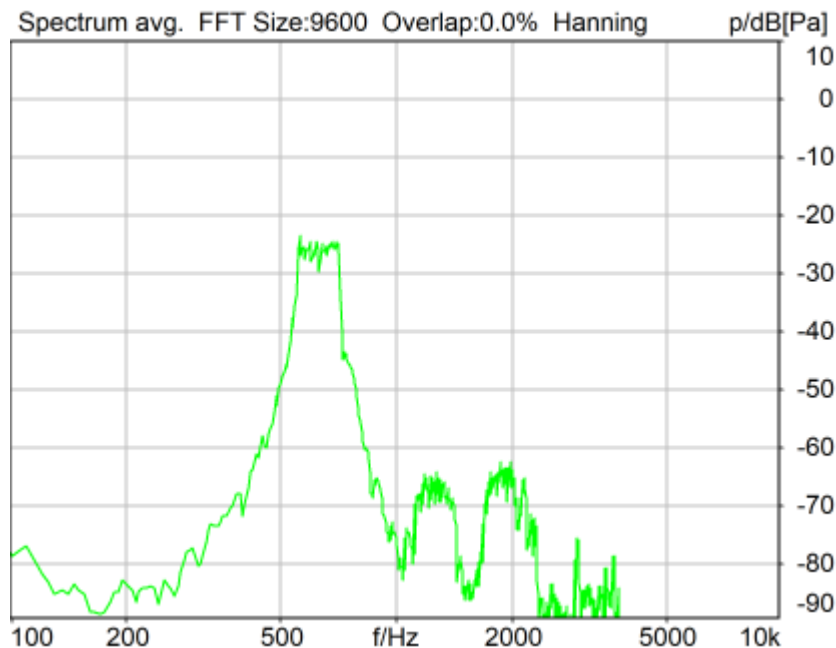
|          |          |            |          |
|----------|----------|------------|----------|
| Ser. Nr. | 12306613 | Pinna Type | Type 3.3 |
|----------|----------|------------|----------|

#### HIB Settings

|                    |                    |                    |          |
|--------------------|--------------------|--------------------|----------|
| HIB Name           | 60020095           | Serial             | 60020095 |
| HIB Mode           | Mobile Measurement | Impedance          | 32 Ohm   |
| Gain out 1         | -40.00 dB          | Gain out 2         | 0.00 dB  |
| Gain in 1          | 0.00 dB            | Gain in 2          | 0.00 dB  |
| Mic 1 Power Supply | Off                | Mic 2 Power Supply | Off      |

## 5.2 RCV Distortion and Noise - 630 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 2N



Distortion (Noise) RCV (packed): 25.44 dB (5.34%) Ok

Ok

2024/1/19 19:13 ACQUA 5.1.200

Unmodified HEAD acoustics Measurement Descriptor

**Limits**

|       | lower    |
|-------|----------|
| Run 1 | 20.00 dB |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)  
Database Version: 40\_HAC\_Suite\_Rev03**Source:** act\_rpn\_b250ms\_630hz\_sr20dbm0\_v02.dat

Level adj. Ch1 -90.0 dB

**Calibration**

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))

Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

**HHP IV Settings (Setting: STD:(0,0,0) rel AHP)**

|                |         |                  |                 |
|----------------|---------|------------------|-----------------|
| MECRP Delta Ye | 0.0 mm  | Rotation Delta A | 0.0 °           |
| MECRP Delta Ze | 0.0 mm  | Rotation Delta C | 0.0 °           |
| Delta Xe       | 0.0 mm  | Rotation Delta B | 5.0 °           |
| Delta Ye       | 0.0 mm  | Delta A          | 0.0 °           |
| Delta Ze       | 0.0 mm  | Delta C          | 0.0 °           |
| Ym             | -5.4 mm | Delta B          | 0.0 °           |
|                |         | Ear Type         | 3.3 Coordinates |

Mounting: Right Ear

Force to apply: 2.0 N, Force reached: 2.0 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                   |                |                   |                 |
|-------------------|----------------|-------------------|-----------------|
| Direction         | Out 2 -> In 2  |                   |                 |
| Range start       | 13550.00 ms    | Range length      | 200.00 ms       |
| Number of seq.    | 10             | Sequence length   | 400.00 ms       |
| Use FIR Filter    | Ch2            | FIR filter        | drp2ff_ieee1652 |
| DRP/ERP Ch.1:     | Off            | DRP/ERP Ch.2:     | Off             |
| Frequency base    | Transformation |                   |                 |
| FFT size          | 9600           | Overlap           | 0 %             |
| Window function.  | Hanning        | Smooth            | Off             |
| dB weighting      | A Weighting    |                   |                 |
| Stimulus min.     | 525.0 Hz       | Stimulus max.     | 745.0 Hz        |
| Analysis min.     | 20.0 Hz        | Analysis max.     | 520.0 Hz        |
| Analysis (2) min. | 750.0 Hz       | Analysis (2) max. | 20000.0 Hz      |

**Special Features**

Compensate delay 183.5000 ms (D\_RCV\_WB, Delay (Cross))

Store to variable RCVWB10\_630Hz

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

**labCORE Routing**

|                  |                                                                          |
|------------------|--------------------------------------------------------------------------|
| Out Channel 1 -> | Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker                      |
| Out Channel 2 -> | Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In                           |
| In Channel 1 <-  | Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out                        |
| In Channel 2 <-  | BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right |

Analog In Mainboard Settings (Analog In 1/2)

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

-----  
Analog Out Mainboard Settings (Analog Out 1/2)

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

-----  
Microphone Settings (Mic Amp. (Slot 6))

## Channel In 1 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

## Channel In 2 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

## Channel In 3 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

## Channel In 4 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

-----  
BEQ Settings (BEQ Filter 1)

|            |        |
|------------|--------|
| Block mode | Bypass |
|------------|--------|

-----  
Artificial Head Settings (HATS 1 (HMS II.3))

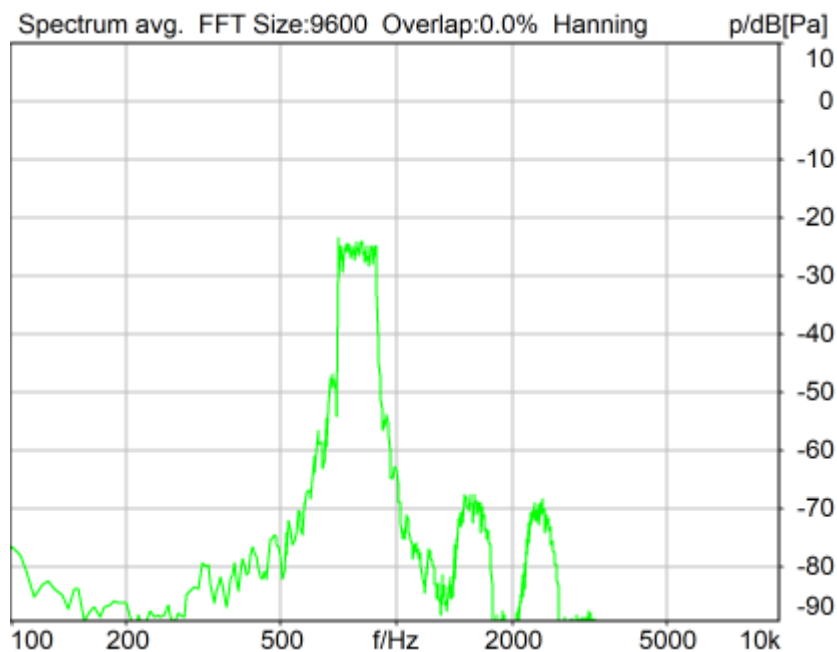
|          |          |            |          |
|----------|----------|------------|----------|
| Ser. Nr. | 12306613 | Pinna Type | Type 3.3 |
|----------|----------|------------|----------|

**HIB Settings**

|                    |                    |                    |          |
|--------------------|--------------------|--------------------|----------|
| HIB Name           | 60020095           | Serial             | 60020095 |
| HIB Mode           | Mobile Measurement | Impedance          | 32 Ohm   |
| Gain out 1         | -40.00 dB          | Gain out 2         | 0.00 dB  |
| Gain in 1          | 0.00 dB            | Gain in 2          | 0.00 dB  |
| Mic 1 Power Supply | Off                | Mic 2 Power Supply | Off      |

## 5.2 RCV Distortion and Noise - 800 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 2N



Distortion (Noise) RCV (packed): 32.77 dB (2.30%) Ok

**Ok**

2024/1/19 19:14 ACQUA 5.1.200

Unmodified HEAD acoustics Measurement Descriptor

**Limits**

|       | lower    |
|-------|----------|
| Run 1 | 20.00 dB |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)

Database Version: 40\_HAC\_Suite\_Rev03

**Source: act\_rpn\_b250ms\_800hz\_sr20dbm0\_v02.dat**

Level adj. Ch1 -90.0 dB

**Calibration**

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))

Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

**HHP IV Settings (Setting: STD:(0,0,0) rel AHP)**

|                          |         |                  |       |
|--------------------------|---------|------------------|-------|
| MECRP Delta Ye           | 0.0 mm  | Rotation Delta A | 0.0 ° |
| MECRP Delta Ze           | 0.0 mm  | Rotation Delta C | 0.0 ° |
| Delta Xe                 | 0.0 mm  | Rotation Delta B | 5.0 ° |
| Delta Ye                 | 0.0 mm  | Delta A          | 0.0 ° |
| Delta Ze                 | 0.0 mm  | Delta C          | 0.0 ° |
| Ym                       | -5.4 mm | Delta B          | 0.0 ° |
| Ear Type 3.3 Coordinates |         |                  |       |

Mounting: Right Ear

Force to apply: 2.0 N, Force reached: 2.0 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                   |                |                   |                 |
|-------------------|----------------|-------------------|-----------------|
| Direction         | Out 2 -> In 2  | Range length      | 200.00 ms       |
| Range start       | 13550.00 ms    | Sequence length   | 400.00 ms       |
| Number of seq.    | 10             | FIR filter        | drp2ff_ieee1652 |
| Use FIR Filter    | Ch2            | DRP/ERP Ch.2:     | Off             |
| DRP/ERP Ch.1:     | Off            | Frequency base    | Transformation  |
| Frequency base    | Transformation | FFT size          | 9600            |
| FFT size          | 9600           | Overlap           | 0 %             |
| Window function.  | Hanning        | Smooth            | Off             |
| dB weighting      | A Weighting    | Stimulus max.     | 925.0 Hz        |
| Stimulus min.     | 675.0 Hz       | Analysis max.     | 670.0 Hz        |
| Analysis min.     | 20.0 Hz        | Analysis (2) max. | 20000.0 Hz      |
| Analysis (2) min. | 930.0 Hz       |                   |                 |

**Special Features**

Compensate delay 183.5000 ms (D\_RCV\_WB, Delay (Cross))

Store to variable RCVWB10\_800Hz

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

-----

## labCORE Routing

Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker  
Out Channel 2 -> Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In  
In Channel 1 <- Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out  
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

-----  
Analog In Mainboard Settings (Analog In 1/2)

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

-----  
Analog Out Mainboard Settings (Analog Out 1/2)

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

-----  
Microphone Settings (Mic Amp. (Slot 6))

## Channel In 1 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

## Channel In 2 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

## Channel In 3 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

## Channel In 4 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

-----  
BEQ Settings (BEQ Filter 1)

|            |        |
|------------|--------|
| Block mode | Bypass |
|------------|--------|

-----  
Artificial Head Settings (HATS 1 (HMS II.3))

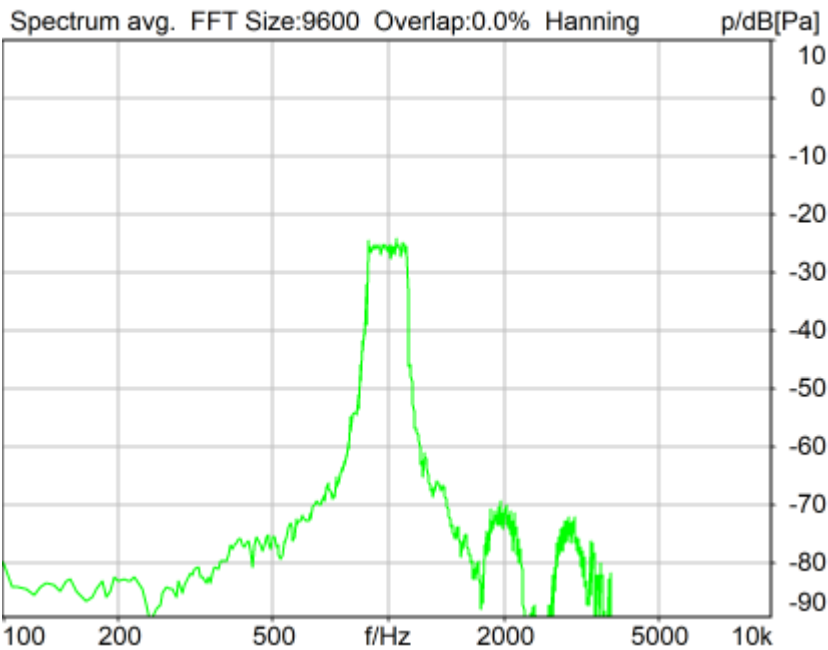
|          |          |            |          |
|----------|----------|------------|----------|
| Ser. Nr. | 12306613 | Pinna Type | Type 3.3 |
|----------|----------|------------|----------|

**HIB Settings**

|                    |                    |                    |          |
|--------------------|--------------------|--------------------|----------|
| HIB Name           | 60020095           | Serial             | 60020095 |
| HIB Mode           | Mobile Measurement | Impedance          | 32 Ohm   |
| Gain out 1         | -40.00 dB          | Gain out 2         | 0.00 dB  |
| Gain in 1          | 0.00 dB            | Gain in 2          | 0.00 dB  |
| Mic 1 Power Supply | Off                | Mic 2 Power Supply | Off      |

## **5.2 RCV Distortion and Noise - 1000 Hz WB**

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 2N



Distortion (Noise) RCV (packed): 31.00 dB (2.82%) Ok

Ok

2024/1/19 19:14 ACQUA 5.1.200  
Unmodified HEAD acoustics Measurement Descriptor

| Limits |          |
|--------|----------|
|        | lower    |
| Run 1  | 20.00 dB |

Meas. Setting      off

Underlying Standard: TIA-5050 (2018-01)  
Database Version: 40\_HAC\_Suite\_Rev03

Source: act\_rpn\_b250ms\_1000hz\_sr20dbm0\_v02.dat  
Level adj. Ch1      -90.0 dB

Calibration  
Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))  
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

HHP IV Settings (Setting: STD:(0,0,0) rel AHP)

|                          |         |                  |       |
|--------------------------|---------|------------------|-------|
| MECRP Delta Ye           | 0.0 mm  | Rotation Delta A | 0.0 ° |
| MECRP Delta Ze           | 0.0 mm  | Rotation Delta C | 0.0 ° |
| Delta Xe                 | 0.0 mm  | Rotation Delta B | 5.0 ° |
| Delta Ye                 | 0.0 mm  | Delta A          | 0.0 ° |
| Delta Ze                 | 0.0 mm  | Delta C          | 0.0 ° |
| Ym                       | -5.4 mm | Delta B          | 0.0 ° |
| Ear Type 3.3 Coordinates |         |                  |       |

Mounting: Right Ear  
Force to apply: 2.0 N, Force reached: 2.0 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                   |                |                   |                 |
|-------------------|----------------|-------------------|-----------------|
| Direction         | Out 2 -> In 2  |                   |                 |
| Range start       | 13550.00 ms    | Range length      | 200.00 ms       |
| Number of seq.    | 10             | Sequence length   | 400.00 ms       |
| Use FIR Filter    | Ch2            | FIR filter        | drp2ff_ieee1652 |
| DRP/ERP Ch.1:     | Off            | DRP/ERP Ch.2:     | Off             |
| Frequency base    | Transformation |                   |                 |
| FFT size          | 9600           | Overlap           | 0 %             |
| Window function.  | Hanning        | Smooth            | Off             |
| dB weighting      | A Weighting    |                   |                 |
| Stimulus min.     | 855.0 Hz       | Stimulus max.     | 1155.0 Hz       |
| Analysis min.     | 20.0 Hz        | Analysis max.     | 850.0 Hz        |
| Analysis (2) min. | 1160.0 Hz      | Analysis (2) max. | 20000.0 Hz      |

**Special Features**

Compensate delay 183.5000 ms (D\_RCV\_WB, Delay (Cross))  
Store to variable RCVWB10\_1000Hz

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

**labCORE Routing**

Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker  
Out Channel 2 -> Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In  
In Channel 1 <- Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out  
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

**Analog In Mainboard Settings (Analog In 1/2)**

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

**Analog Out Mainboard Settings (Analog Out 1/2)**

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

**Microphone Settings (Mic Amp. (Slot 6))****Channel In 1 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 2 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 3 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 4 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**BEQ Settings (BEQ Filter 1)**

Block mode Bypass

**Artificial Head Settings (HATS 1 (HMS II.3))**

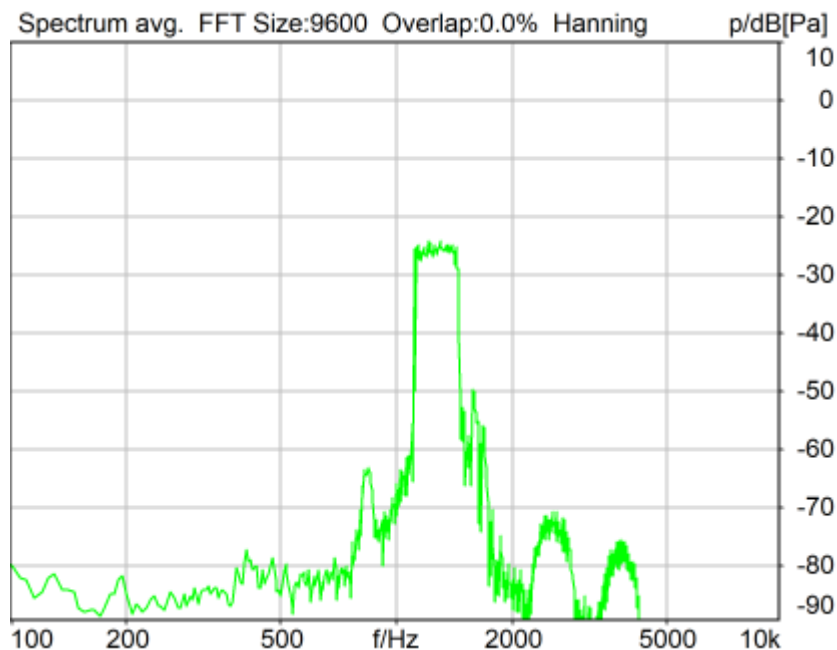
|          |          |            |          |
|----------|----------|------------|----------|
| Ser. Nr. | 12306613 | Pinna Type | Type 3.3 |
|----------|----------|------------|----------|

**HIB Settings**

|                    |                    |                    |          |
|--------------------|--------------------|--------------------|----------|
| HIB Name           | 60020095           | Serial             | 60020095 |
| HIB Mode           | Mobile Measurement | Impedance          | 32 Ohm   |
| Gain out 1         | -40.00 dB          | Gain out 2         | 0.00 dB  |
| Gain in 1          | 0.00 dB            | Gain in 2          | 0.00 dB  |
| Mic 1 Power Supply | Off                | Mic 2 Power Supply | Off      |

## 5.2 RCV Distortion and Noise - 1250 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 2N



Distortion (Noise) RCV (packed): 28.02 dB (3.97%) Ok

Ok

2024/1/19 19:14 ACQUA 5.1.200

Unmodified HEAD acoustics Measurement Descriptor

### Limits

|       | lower    |
|-------|----------|
| Run 1 | 20.00 dB |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)

Database Version: 40\_HAC\_Suite\_Rev03

Source: act\_rpn\_b250ms\_1250hz\_sr20dbm0\_v02.dat

Level adj. Ch1 -90.0 dB

### Calibration

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))

Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

HHP IV Settings (Setting: STD:(0,0,0) rel AHP)

|                |        |                  |       |
|----------------|--------|------------------|-------|
| MECRP Delta Ye | 0.0 mm | Rotation Delta A | 0.0 ° |
|                |        | Rotation Delta C | 0.0 ° |

|                |         |                          |       |
|----------------|---------|--------------------------|-------|
| MECRP Delta Ze | 0.0 mm  | Rotation Delta B         | 5.0 ° |
| Delta Xe       | 0.0 mm  | Delta A                  | 0.0 ° |
| Delta Ye       | 0.0 mm  | Delta C                  | 0.0 ° |
| Delta Ze       | 0.0 mm  | Delta B                  | 0.0 ° |
| Ym             | -5.4 mm | Ear Type 3.3 Coordinates |       |

Mounting: Right Ear  
Force to apply: 2.0 N, Force reached: 2.0 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                   |                |                   |                 |
|-------------------|----------------|-------------------|-----------------|
| Direction         | Out 2 -> In 2  |                   |                 |
| Range start       | 13550.00 ms    | Range length      | 200.00 ms       |
| Number of seq.    | 10             | Sequence length   | 400.00 ms       |
| Use FIR Filter    | Ch2            | FIR filter        | drp2ff_ieee1652 |
| DRP/ERP Ch.1:     | Off            | DRP/ERP Ch.2:     | Off             |
| Frequency base    | Transformation |                   |                 |
| FFT size          | 9600           | Overlap           | 0 %             |
| Window function.  | Hanning        | Smooth            | Off             |
| dB weighting      | A Weighting    |                   |                 |
| Stimulus min.     | 1085.0 Hz      | Stimulus max.     | 1450.0 Hz       |
| Analysis min.     | 20.0 Hz        | Analysis max.     | 1080.0 Hz       |
| Analysis (2) min. | 1455.0 Hz      | Analysis (2) max. | 20000.0 Hz      |

**Special Features**

Compensate delay 183.5000 ms (D\_RCV\_WB, Delay (Cross))  
Store to variable RCVWB10\_1250Hz

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

**labCORE Routing**

Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker  
Out Channel 2 -> Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In  
In Channel 1 <- Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out  
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

**Analog In Mainboard Settings (Analog In 1/2)**

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

**Analog Out Mainboard Settings (Analog Out 1/2)**

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

**Microphone Settings (Mic Amp. (Slot 6))****Channel In 1 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 2 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 3 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 4 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**BEQ Settings (BEQ Filter 1)**

Block mode Bypass

**Artificial Head Settings (HATS 1 (HMS II.3))**

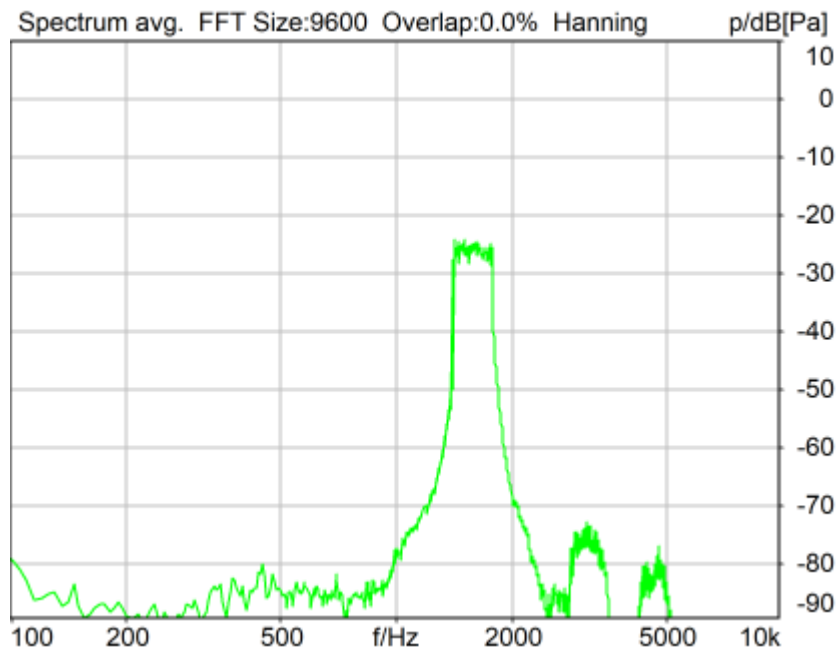
Ser. Nr. 12306613 Pinna Type Type 3.3

#### HIB Settings

|                        |                    |                        |          |
|------------------------|--------------------|------------------------|----------|
| HIB Name               | 60020095           | Serial                 | 60020095 |
| HIB Mode               | Mobile Measurement | Impedance              | 32 Ohm   |
| Gain out 1             | -40.00 dB          | Gain out 2             | 0.00 dB  |
| Gain in 1              | 0.00 dB            | Gain in 2              | 0.00 dB  |
| Mic 1 Power Supply Off |                    | Mic 2 Power Supply Off |          |

## 5.2 RCV Distortion and Noise - 1600 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 2N



Distortion (Noise) RCV (packed): 30.72 dB (2.91%) Ok

**Ok**

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Unmodified HEAD acoustics Measurement Descriptor

#### Limits

|       |              |
|-------|--------------|
|       | <b>lower</b> |
| Run 1 | 20.00 dB     |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)

Database Version: 40\_HAC\_Suite\_Rev03

Source: act\_rpn\_b250ms\_1600hz\_sr20dbm0\_v02.dat

Level adj. Ch1 -90.0 dB

**Calibration**

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))

Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

**HHP IV Settings (Setting: STD:(0,0,0) rel AHP)**

|                |         |                          |       |
|----------------|---------|--------------------------|-------|
| MECRP Delta Ye | 0.0 mm  | Rotation Delta A         | 0.0 ° |
| MECRP Delta Ze | 0.0 mm  | Rotation Delta C         | 0.0 ° |
| Delta Xe       | 0.0 mm  | Rotation Delta B         | 5.0 ° |
| Delta Ye       | 0.0 mm  | Delta A                  | 0.0 ° |
| Delta Ze       | 0.0 mm  | Delta C                  | 0.0 ° |
| Ym             | -5.4 mm | Delta B                  | 0.0 ° |
|                |         | Ear Type 3.3 Coordinates |       |

Mounting: Right Ear

Force to apply: 2.0 N, Force reached: 2.0 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                   |                |                   |                 |
|-------------------|----------------|-------------------|-----------------|
| Direction         | Out 2 -> In 2  |                   |                 |
| Range start       | 13550.00 ms    | Range length      | 200.00 ms       |
| Number of seq.    | 10             | Sequence length   | 400.00 ms       |
| Use FIR Filter    | Ch2            | FIR filter        | drp2ff_ieee1652 |
| DRP/ERP Ch.1:     | Off            | DRP/ERP Ch.2:     | Off             |
| Frequency base    | Transformation |                   |                 |
| FFT size          | 9600           | Overlap           | 0 %             |
| Window function.  | Hanning        | Smooth            | Off             |
| dB weighting      | A Weighting    |                   |                 |
| Stimulus min.     | 1375.0 Hz      | Stimulus max.     | 1815.0 Hz       |
| Analysis min.     | 20.0 Hz        | Analysis max.     | 1370.0 Hz       |
| Analysis (2) min. | 1820.0 Hz      | Analysis (2) max. | 20000.0 Hz      |

**Special Features**

Compensate delay 183.5000 ms (D\_RCV\_WB, Delay (Cross))

Store to variable RCVWB10\_1600Hz

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

**labCORE Routing**

|                  |                                                                          |
|------------------|--------------------------------------------------------------------------|
| Out Channel 1 -> | Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker                      |
| Out Channel 2 -> | Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In                           |
| In Channel 1 <-  | Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out                        |
| In Channel 2 <-  | BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right |

**Analogue In Mainboard Settings (Analog In 1/2)**

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

**Analogue Out Mainboard Settings (Analog Out 1/2)**

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

**Microphone Settings (Mic Amp. (Slot 6))****Channel In 1 Settings**

|                          |                          |                |      |
|--------------------------|--------------------------|----------------|------|
| Range                    | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage200V |                          | Supply Voltage | ±60V |

**Channel In 2 Settings**

|                          |                          |                |      |
|--------------------------|--------------------------|----------------|------|
| Range                    | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage200V |                          | Supply Voltage | ±60V |

**Channel In 3 Settings**

|                          |                          |                |      |
|--------------------------|--------------------------|----------------|------|
| Range                    | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage200V |                          | Supply Voltage | ±60V |

Channel In 4 Settings

Range 114 dB[SPL] @ 12.5 mV/Pa Highpass Off  
Polarisation Voltage 200V Supply Voltage  $\pm 60V$

-----  
BEQ Settings (BEQ Filter 1)

Block mode Bypass

-----  
Artificial Head Settings (HATS 1 (HMS II.3))

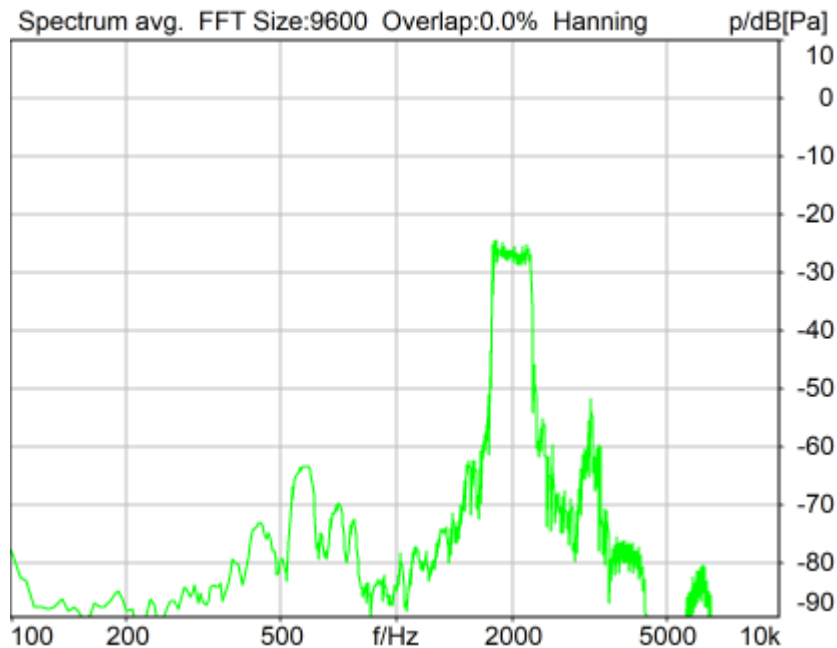
Ser. Nr. 12306613 Pinna Type Type 3.3

**HIB Settings**

|                        |                    |                        |          |
|------------------------|--------------------|------------------------|----------|
| HIB Name               | 60020095           | Serial                 | 60020095 |
| HIB Mode               | Mobile Measurement | Impedance              | 32 Ohm   |
| Gain out 1             | -40.00 dB          | Gain out 2             | 0.00 dB  |
| Gain in 1              | 0.00 dB            | Gain in 2              | 0.00 dB  |
| Mic 1 Power Supply Off |                    | Mic 2 Power Supply Off |          |

## 5.2 RCV Distortion and Noise - 2000 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 2N



Distortion (Noise) RCV (packed): 27.27 dB (4.33%) Ok

**Ok**

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Unmodified HEAD acoustics Measurement Descriptor

**Limits**

|       | lower    |
|-------|----------|
| Run 1 | 20.00 dB |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)  
Database Version: 40\_HAC\_Suite\_Rev03**Source: act\_rpn\_b250ms\_2000hz\_sr20dbm0\_v02.dat**

Level adj. Ch1 -90.0 dB

**Calibration**

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))

Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

**HHP IV Settings (Setting: STD:(0,0,0) rel AHP)**

|                |         |                          |       |
|----------------|---------|--------------------------|-------|
| MECRP Delta Ye | 0.0 mm  | Rotation Delta A         | 0.0 ° |
| MECRP Delta Ze | 0.0 mm  | Rotation Delta C         | 0.0 ° |
| Delta Xe       | 0.0 mm  | Rotation Delta B         | 5.0 ° |
| Delta Ye       | 0.0 mm  | Delta A                  | 0.0 ° |
| Delta Ze       | 0.0 mm  | Delta C                  | 0.0 ° |
| Ym             | -5.4 mm | Delta B                  | 0.0 ° |
|                |         | Ear Type 3.3 Coordinates |       |

Mounting: Right Ear

Force to apply: 2.0 N, Force reached: 2.0 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                   |                |                   |                 |
|-------------------|----------------|-------------------|-----------------|
| Direction         | Out 2 -> In 2  |                   |                 |
| Range start       | 13550.00 ms    | Range length      | 200.00 ms       |
| Number of seq.    | 10             | Sequence length   | 400.00 ms       |
| Use FIR Filter    | Ch2            | FIR filter        | drp2ff_ieee1652 |
| DRP/ERP Ch.1:     | Off            | DRP/ERP Ch.2:     | Off             |
| Frequency base    | Transformation |                   |                 |
| FFT size          | 9600           | Overlap           | 0 %             |
| Window function.  | Hanning        | Smooth            | Off             |
| dB weighting      | A Weighting    |                   |                 |
| Stimulus min.     | 1745.0 Hz      | Stimulus max.     | 2275.0 Hz       |
| Analysis min.     | 20.0 Hz        | Analysis max.     | 1740.0 Hz       |
| Analysis (2) min. | 2280.0 Hz      | Analysis (2) max. | 20000.0 Hz      |

**Special Features**

Compensate delay 183.5000 ms (D\_RCV\_WB, Delay (Cross))

Store to variable RCVWB10\_2000Hz

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

**labCORE Routing**

|                  |                                                                          |
|------------------|--------------------------------------------------------------------------|
| Out Channel 1 -> | Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker                      |
| Out Channel 2 -> | Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In                           |
| In Channel 1 <=  | Analog In 1/2 In 1 <= Radio Tester 1 (CMW500) Out                        |
| In Channel 2 <=  | BEQ Filter 1 R <= Mic Amp. (Slot 6) In 2 <= HATS 1 (HMS II.3) Mic. Right |

**Analog In Mainboard Settings (Analog In 1/2)**

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

**Analog Out Mainboard Settings (Analog Out 1/2)**

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

**Microphone Settings (Mic Amp. (Slot 6))**

Channel In 1 Settings

|                       |                          |                |      |
|-----------------------|--------------------------|----------------|------|
| Range                 | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage  | 200V                     | Supply Voltage | ±60V |
| Channel In 2 Settings |                          |                |      |
| Range                 | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage  | 200V                     | Supply Voltage | ±60V |
| Channel In 3 Settings |                          |                |      |
| Range                 | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage  | 200V                     | Supply Voltage | ±60V |
| Channel In 4 Settings |                          |                |      |
| Range                 | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage  | 200V                     | Supply Voltage | ±60V |

-----  
BEQ Settings (BEQ Filter 1)  
Block mode      Bypass  
-----

Artificial Head Settings (HATS 1 (HMS II.3))

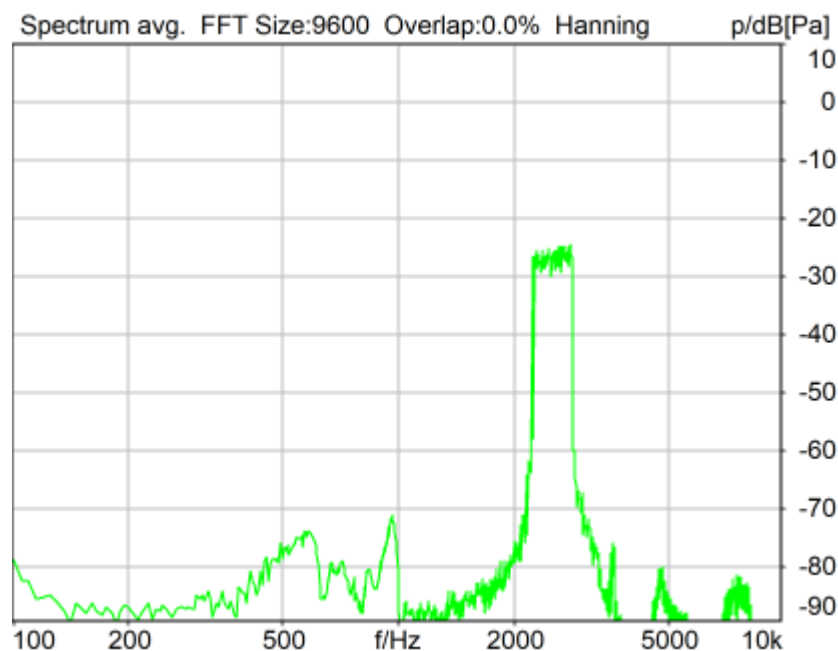
|          |          |            |          |
|----------|----------|------------|----------|
| Ser. Nr. | 12306613 | Pinna Type | Type 3.3 |
|----------|----------|------------|----------|

#### HIB Settings

|                    |                    |                    |          |
|--------------------|--------------------|--------------------|----------|
| HIB Name           | 60020095           | Serial             | 60020095 |
| HIB Mode           | Mobile Measurement | Impedance          | 32 Ohm   |
| Gain out 1         | -40.00 dB          | Gain out 2         | 0.00 dB  |
| Gain in 1          | 0.00 dB            | Gain in 2          | 0.00 dB  |
| Mic 1 Power Supply | Off                | Mic 2 Power Supply | Off      |

## 5.2 RCV Distortion and Noise - 2500 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 2N



Distortion (Noise) RCV (packed): 40.37 dB (0.96%) Ok

Ok

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Unmodified HEAD acoustics Measurement Descriptor

**Limits**

|       | lower    |
|-------|----------|
| Run 1 | 20.00 dB |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)  
Database Version: 40\_HAC\_Suite\_Rev03**Source:** act\_rpn\_b250ms\_2500hz\_sr20dbm0\_v02.dat

Level adj. Ch1 -90.0 dB

**Calibration**

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))

Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

**HHP IV Settings (Setting: STD:(0,0,0) rel AHP)**

|                |         |                  |                 |
|----------------|---------|------------------|-----------------|
| MECRP Delta Ye | 0.0 mm  | Rotation Delta A | 0.0 °           |
| MECRP Delta Ze | 0.0 mm  | Rotation Delta C | 0.0 °           |
| Delta Xe       | 0.0 mm  | Rotation Delta B | 5.0 °           |
| Delta Ye       | 0.0 mm  | Delta A          | 0.0 °           |
| Delta Ze       | 0.0 mm  | Delta C          | 0.0 °           |
| Ym             | -5.4 mm | Delta B          | 0.0 °           |
|                |         | Ear Type         | 3.3 Coordinates |

Mounting: Right Ear

Force to apply: 2.0 N, Force reached: 2.0 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                   |                |                   |                 |
|-------------------|----------------|-------------------|-----------------|
| Direction         | Out 2 -> In 2  |                   |                 |
| Range start       | 13550.00 ms    | Range length      | 200.00 ms       |
| Number of seq.    | 10             | Sequence length   | 400.00 ms       |
| Use FIR Filter    | Ch2            | FIR filter        | drp2ff_ieee1652 |
| DRP/ERP Ch.1:     | Off            | DRP/ERP Ch.2:     | Off             |
| Frequency base    | Transformation |                   |                 |
| FFT size          | 9600           | Overlap           | 0 %             |
| Window function.  | Hanning        | Smooth            | Off             |
| dB weighting      | A Weighting    |                   |                 |
| Stimulus min.     | 2205.0 Hz      | Stimulus max.     | 2855.0 Hz       |
| Analysis min.     | 20.0 Hz        | Analysis max.     | 2200.0 Hz       |
| Analysis (2) min. | 2860.0 Hz      | Analysis (2) max. | 20000.0 Hz      |

**Special Features**

Compensate delay 183.5000 ms (D\_RCV\_WB, Delay (Cross))

Store to variable RCVWB10\_2500Hz

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

**labCORE Routing**

|                  |                                                                          |
|------------------|--------------------------------------------------------------------------|
| Out Channel 1 -> | Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker                      |
| Out Channel 2 -> | Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In                           |
| In Channel 1 <-  | Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out                        |
| In Channel 2 <-  | BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right |

Analog In Mainboard Settings (Analog In 1/2)

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

-----  
Analog Out Mainboard Settings (Analog Out 1/2)

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

-----  
Microphone Settings (Mic Amp. (Slot 6))

## Channel In 1 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

## Channel In 2 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

## Channel In 3 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

## Channel In 4 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

-----  
BEQ Settings (BEQ Filter 1)

|            |        |
|------------|--------|
| Block mode | Bypass |
|------------|--------|

-----  
Artificial Head Settings (HATS 1 (HMS II.3))

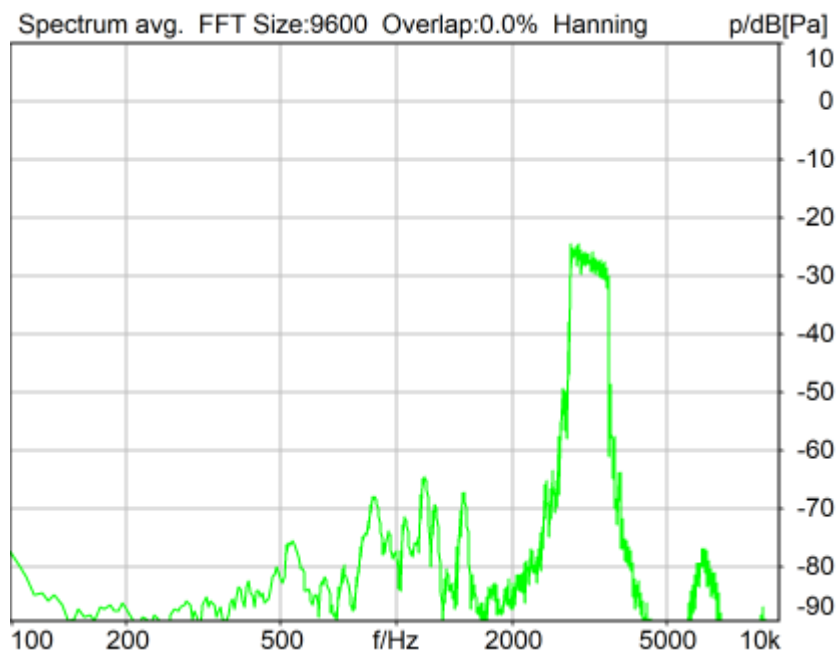
|          |          |            |          |
|----------|----------|------------|----------|
| Ser. Nr. | 12306613 | Pinna Type | Type 3.3 |
|----------|----------|------------|----------|

**HIB Settings**

|                    |                    |                    |          |
|--------------------|--------------------|--------------------|----------|
| HIB Name           | 60020095           | Serial             | 60020095 |
| HIB Mode           | Mobile Measurement | Impedance          | 32 Ohm   |
| Gain out 1         | -40.00 dB          | Gain out 2         | 0.00 dB  |
| Gain in 1          | 0.00 dB            | Gain in 2          | 0.00 dB  |
| Mic 1 Power Supply | Off                | Mic 2 Power Supply | Off      |

## **5.2 RCV Distortion and Noise - 3150 Hz WB**

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 2N



Distortion (Noise) RCV (packed): 29.78 dB (3.24%) Ok

**Ok**

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Unmodified HEAD acoustics Measurement Descriptor

**Limits**

|       | lower    |
|-------|----------|
| Run 1 | 20.00 dB |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)

Database Version: 40\_HAC\_Suite\_Rev03

**Source: act\_rpn\_b250ms\_3150hz\_sr20dbm0\_v02.dat**

Level adj. Ch1 -90.0 dB

**Calibration**

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))

Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

**HHP IV Settings (Setting: STD:(0,0,0) rel AHP)**

|                          |         |                  |       |
|--------------------------|---------|------------------|-------|
| MECRP Delta Ye           | 0.0 mm  | Rotation Delta A | 0.0 ° |
| MECRP Delta Ze           | 0.0 mm  | Rotation Delta C | 0.0 ° |
| Delta Xe                 | 0.0 mm  | Rotation Delta B | 5.0 ° |
| Delta Ye                 | 0.0 mm  | Delta A          | 0.0 ° |
| Delta Ze                 | 0.0 mm  | Delta C          | 0.0 ° |
| Ym                       | -5.4 mm | Delta B          | 0.0 ° |
| Ear Type 3.3 Coordinates |         |                  |       |

Mounting: Right Ear

Force to apply: 2.0 N, Force reached: 2.0 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                   |                |                   |                 |
|-------------------|----------------|-------------------|-----------------|
| Direction         | Out 2 -> In 2  | Range length      | 200.00 ms       |
| Range start       | 13550.00 ms    | Sequence length   | 400.00 ms       |
| Number of seq.    | 10             | FIR filter        | drp2ff_ieee1652 |
| Use FIR Filter    | Ch2            | DRP/ERP Ch.2:     | Off             |
| DRP/ERP Ch.1:     | Off            | Frequency base    | Transformation  |
| Frequency base    | Transformation | FFT size          | 9600            |
| FFT size          | 9600           | Overlap           | 0 %             |
| Window function.  | Hanning        | Smooth            | Off             |
| dB weighting      | A Weighting    | Stimulus max.     | 3585.0 Hz       |
| Stimulus min.     | 2785.0 Hz      | Analysis max.     | 2780.0 Hz       |
| Analysis min.     | 20.0 Hz        | Analysis (2) max. | 20000.0 Hz      |
| Analysis (2) min. | 3590.0 Hz      |                   |                 |

**Special Features**

Compensate delay 183.5000 ms (D\_RCV\_WB, Delay (Cross))

Store to variable RCVWB10\_3150Hz

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

-----

## labCORE Routing

Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker  
Out Channel 2 -> Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In  
In Channel 1 <- Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out  
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

-----  
Analog In Mainboard Settings (Analog In 1/2)

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

-----  
Analog Out Mainboard Settings (Analog Out 1/2)

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

-----  
Microphone Settings (Mic Amp. (Slot 6))

## Channel In 1 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

## Channel In 2 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

## Channel In 3 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

## Channel In 4 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

-----  
BEQ Settings (BEQ Filter 1)

|            |        |
|------------|--------|
| Block mode | Bypass |
|------------|--------|

-----  
Artificial Head Settings (HATS 1 (HMS II.3))

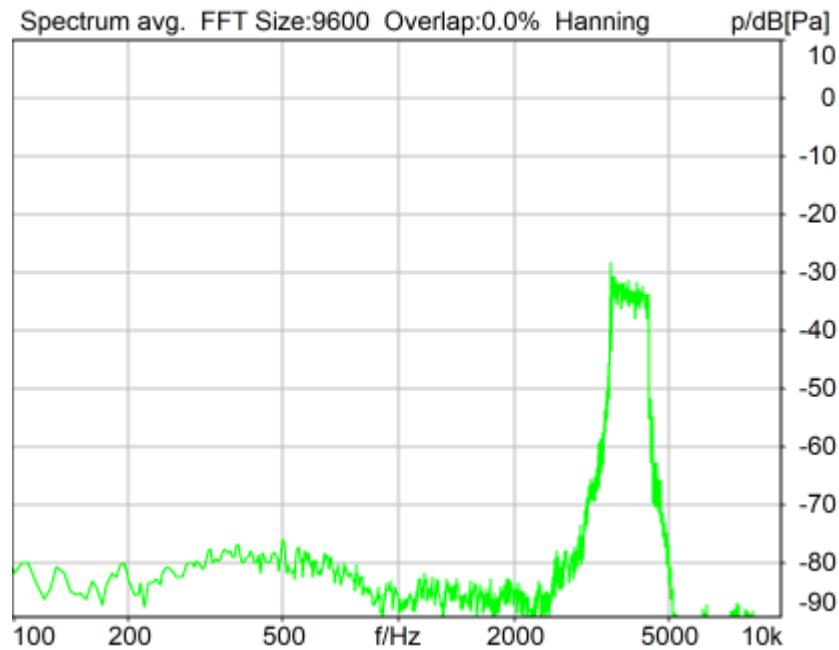
|          |          |            |          |
|----------|----------|------------|----------|
| Ser. Nr. | 12306613 | Pinna Type | Type 3.3 |
|----------|----------|------------|----------|

**HIB Settings**

|                        |                    |                        |          |
|------------------------|--------------------|------------------------|----------|
| HIB Name               | 60020095           | Serial                 | 60020095 |
| HIB Mode               | Mobile Measurement | Impedance              | 32 Ohm   |
| Gain out 1             | -40.00 dB          | Gain out 2             | 0.00 dB  |
| Gain in 1              | 0.00 dB            | Gain in 2              | 0.00 dB  |
| Mic 1 Power Supply Off |                    | Mic 2 Power Supply Off |          |

## **5.2 RCV Distortion and Noise - 4000 Hz WB**

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 2N



Distortion (Noise) RCV (packed): 26.07 dB (4.97%) Ok

**Ok**

2024/1/19 19:17 ACQUA 5.1.200

Unmodified HEAD acoustics Measurement Descriptor

#### Limits

|       | lower    |
|-------|----------|
| Run 1 | 20.00 dB |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)

Database Version: 40\_HAC\_Suite\_Rev03

**Source: act\_rpn\_b250ms\_4000hz\_sr20dbm0\_v02.dat**

Level adj. Ch1 -90.0 dB

#### Calibration

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))

Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

#### HHP IV Settings (Setting: STD:(0,0,0) rel AHP)

|                |         |                          |       |
|----------------|---------|--------------------------|-------|
| MECRP Delta Ye | 0.0 mm  | Rotation Delta A         | 0.0 ° |
| MECRP Delta Ze | 0.0 mm  | Rotation Delta C         | 0.0 ° |
| Delta Xe       | 0.0 mm  | Rotation Delta B         | 5.0 ° |
| Delta Ye       | 0.0 mm  | Delta A                  | 0.0 ° |
| Delta Ze       | 0.0 mm  | Delta C                  | 0.0 ° |
| Ym             | -5.4 mm | Delta B                  | 0.0 ° |
|                |         | Ear Type 3.3 Coordinates |       |

Mounting: Right Ear

Force to apply: 2.0 N, Force reached: 2.0 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                   |                |                   |                 |
|-------------------|----------------|-------------------|-----------------|
| Direction         | Out 2 -> In 2  |                   |                 |
| Range start       | 13550.00 ms    | Range length      | 200.00 ms       |
| Number of seq.    | 10             | Sequence length   | 400.00 ms       |
| Use FIR Filter    | Ch2            | FIR filter        | drp2ff_ieee1652 |
| DRP/ERP Ch.1:     | Off            | DRP/ERP Ch.2:     | Off             |
| Frequency base    | Transformation |                   |                 |
| FFT size          | 9600           | Overlap           | 0 %             |
| Window function.  | Hanning        | Smooth            | Off             |
| dB weighting      | A Weighting    |                   |                 |
| Stimulus min.     | 3515.0 Hz      | Stimulus max.     | 4500.0 Hz       |
| Analysis min.     | 20.0 Hz        | Analysis max.     | 3510.0 Hz       |
| Analysis (2) min. | 4505.0 Hz      | Analysis (2) max. | 20000.0 Hz      |

**Special Features**

Compensate delay 183.5000 ms (D\_RCV\_WB, Delay (Cross))  
Store to variable RCVWB10\_4000Hz

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

**labCORE Routing**

Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker  
Out Channel 2 -> Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In  
In Channel 1 <- Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out  
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

**Analog In Mainboard Settings (Analog In 1/2)**

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

**Analog Out Mainboard Settings (Analog Out 1/2)**

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

**Microphone Settings (Mic Amp. (Slot 6))****Channel In 1 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 2 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 3 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 4 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**BEQ Settings (BEQ Filter 1)**

Block mode Bypass

**Artificial Head Settings (HATS 1 (HMS II.3))**

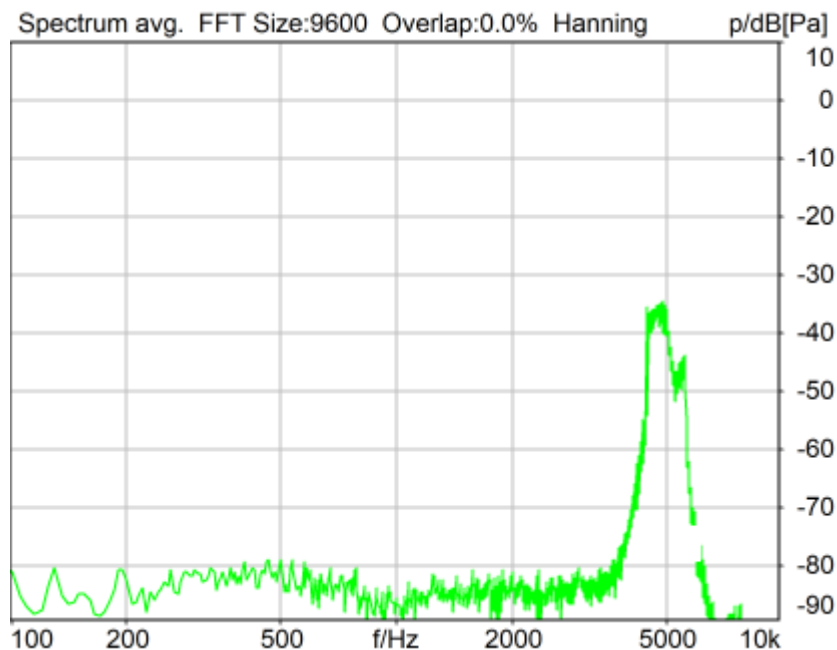
|          |          |            |          |
|----------|----------|------------|----------|
| Ser. Nr. | 12306613 | Pinna Type | Type 3.3 |
|----------|----------|------------|----------|

**HIB Settings**

|                    |                    |                    |          |
|--------------------|--------------------|--------------------|----------|
| HIB Name           | 60020095           | Serial             | 60020095 |
| HIB Mode           | Mobile Measurement | Impedance          | 32 Ohm   |
| Gain out 1         | -40.00 dB          | Gain out 2         | 0.00 dB  |
| Gain in 1          | 0.00 dB            | Gain in 2          | 0.00 dB  |
| Mic 1 Power Supply | Off                | Mic 2 Power Supply | Off      |

## 5.2 RCV Distortion and Noise - 5000 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 2N



Distortion (Noise) RCV (packed): 25.08 dB (5.57%) Ok

Ok

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Unmodified HEAD acoustics Measurement Descriptor

### Limits

|       |          |
|-------|----------|
|       | lower    |
| Run 1 | 20.00 dB |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)

Database Version: 40\_HAC\_Suite\_Rev03

Source: act\_rpn\_b250ms\_5000hz\_sr20dbm0\_v02.dat

Level adj. Ch1 -90.0 dB

### Calibration

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))

Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

HHP IV Settings (Setting: STD:(0,0,0) rel AHP)

MECRP Delta Ye 0.0 mm      Rotation Delta A 0.0 °  
Rotation Delta C 0.0 °

|                |         |                          |       |
|----------------|---------|--------------------------|-------|
| MECRP Delta Ze | 0.0 mm  | Rotation Delta B         | 5.0 ° |
| Delta Xe       | 0.0 mm  | Delta A                  | 0.0 ° |
| Delta Ye       | 0.0 mm  | Delta C                  | 0.0 ° |
| Delta Ze       | 0.0 mm  | Delta B                  | 0.0 ° |
| Ym             | -5.4 mm | Ear Type 3.3 Coordinates |       |

Mounting: Right Ear  
Force to apply: 2.0 N, Force reached: 2.0 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                   |                |                   |                 |
|-------------------|----------------|-------------------|-----------------|
| Direction         | Out 2 -> In 2  |                   |                 |
| Range start       | 13550.00 ms    | Range length      | 200.00 ms       |
| Number of seq.    | 10             | Sequence length   | 400.00 ms       |
| Use FIR Filter    | Ch2            | FIR filter        | drp2ff_ieee1652 |
| DRP/ERP Ch.1:     | Off            | DRP/ERP Ch.2:     | Off             |
| Frequency base    | Transformation |                   |                 |
| FFT size          | 9600           | Overlap           | 0 %             |
| Window function.  | Hanning        | Smooth            | Off             |
| dB weighting      | A Weighting    |                   |                 |
| Stimulus min.     | 4430.0 Hz      | Stimulus max.     | 5660.0 Hz       |
| Analysis min.     | 20.0 Hz        | Analysis max.     | 4425.0 Hz       |
| Analysis (2) min. | 5665.0 Hz      | Analysis (2) max. | 20000.0 Hz      |

**Special Features**

Compensate delay 183.5000 ms (D\_RCV\_WB, Delay (Cross))  
Store to variable RCVWB10\_5000Hz

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

**labCORE Routing**

Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker  
Out Channel 2 -> Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In  
In Channel 1 <- Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out  
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

**Analog In Mainboard Settings (Analog In 1/2)**

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

**Analog Out Mainboard Settings (Analog Out 1/2)**

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

**Microphone Settings (Mic Amp. (Slot 6))****Channel In 1 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 2 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 3 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 4 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**BEQ Settings (BEQ Filter 1)**

Block mode Bypass

**Artificial Head Settings (HATS 1 (HMS II.3))**

---

|          |          |            |          |
|----------|----------|------------|----------|
| Ser. Nr. | 12306613 | Pinna Type | Type 3.3 |
|----------|----------|------------|----------|

**HIB Settings**

|                        |                    |                        |          |
|------------------------|--------------------|------------------------|----------|
| HIB Name               | 60020095           | Serial                 | 60020095 |
| HIB Mode               | Mobile Measurement | Impedance              | 32 Ohm   |
| Gain out 1             | -40.00 dB          | Gain out 2             | 0.00 dB  |
| Gain in 1              | 0.00 dB            | Gain in 2              | 0.00 dB  |
| Mic 1 Power Supply Off |                    | Mic 2 Power Supply Off |          |

**Report - Receive Distortion and Noise (Conversational Gain)**

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 2N

| Region | Frequency | SDNR     |
|--------|-----------|----------|
| 1      | 250Hz     | 28.32 dB |
| 2      | 315Hz     | 26.82 dB |
| 3      | 400Hz     | 27.68 dB |
| 4      | 500Hz     | 28.22 dB |
| 5      | 630Hz     | 25.44 dB |
| 6      | 800Hz     | 32.77 dB |
| 7      | 1000Hz    | 31.00 dB |
| 8      | 1250Hz    | 28.02 dB |
| 9      | 1600Hz    | 30.72 dB |
| 10     | 2000Hz    | 27.27 dB |
| 11     | 2500Hz    | 40.37 dB |
| 12     | 3150Hz    | 29.78 dB |
| 13     | 4000Hz    | 26.07 dB |
| 14     | 5000Hz    | 25.08 dB |

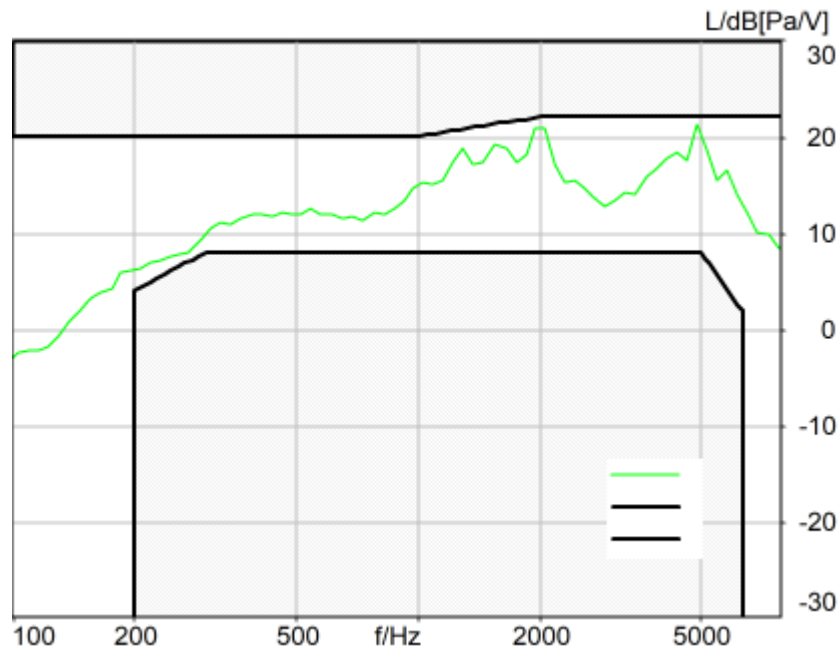
All SDNRs were greater than 20.0 dB, requirement was met.

Smallest SDNR was 25.08dB at 5000Hz.

2024/1/19 19:17 ACQUA

**5.3 Frequency Response 8N FF**

TIA-5050 (2018-01) \ Measurements \ Wideband



Absolute minimal distance  
0.84 dB at 4870.0 Hz Ok

Ok

2024/1/19 20:00 ACQUA 5.1.200

Unmodified HEAD acoustics Measurement Descriptor

#### Limits

|       | lower              |
|-------|--------------------|
| Run 1 | Fit into tolerance |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)

Database Version: 40\_HAC\_Suite\_Rev03

**Source: respmaleieee269\_wb\_r20\_v01.dat**

Level adj. Ch1 -90.0 dB

WIDEBAND IEEE-269-2010 Real Speech Signal at Channel 2

Pause 0.5 s +

Real Speech (english, male speaker) 11.5 s, Active Speech Level: -22,2 dBV, margin 15.9 dB +

Pause till end of file

Signal level (ch2): -22,2 dBV Active Speech Level, margin 15.9 dB

Signal taken from "IEEE\_269-2010\_Male\_mono\_48\_kHz.wav"

Alteration:

0.2 s Pause added at the beginning of the file.

0.8 s Pause added at the and of the file.

filtered with 8.0 kHz low-pass filter

signal level changed

#### Calibration

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))  
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

**HHP IV Settings (Setting: STD:(0,0,0) rel AHP)**

|                |         |                          |       |
|----------------|---------|--------------------------|-------|
| MECRP Delta Ye | 0.0 mm  | Rotation Delta A         | 0.0 ° |
| MECRP Delta Ze | 0.0 mm  | Rotation Delta C         | 0.0 ° |
| Delta Xe       | 0.0 mm  | Rotation Delta B         | 5.0 ° |
| Delta Ye       | 0.0 mm  | Delta A                  | 0.0 ° |
| Delta Ze       | 0.0 mm  | Delta C                  | 0.0 ° |
| Ym             | -4.8 mm | Delta B                  | 0.0 ° |
|                |         | Ear Type 3.3 Coordinates |       |

Mounting: Right Ear  
Force to apply: 8.0 N, Force reached: 8.0 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                  |                               |                     |                 |
|------------------|-------------------------------|---------------------|-----------------|
| Direction        | Out 2 -> In 2                 |                     |                 |
| Range start      | 500.00 ms                     | Range length        | 11500.00 ms     |
| Use FIR Filter   | Ch2                           | FIR filter          | drp2ff_ieee1652 |
| DRP/ERP Ch.1:    | Off                           | DRP/ERP Ch.2:       | Off             |
| Frequency base   | 12th octave                   | DIN Row             | Row A           |
| Method           | FFT                           |                     |                 |
| FFT size         | 4096                          | Overlap             | 75 %            |
| Window function. | Hanning                       |                     |                 |
| Reference file   | r521_rcv_frq_spee269_hawb.fft |                     |                 |
| Tol. scheme file | 521_rcv_frq_man_hawb.tol      | Min. freq. for tol. | 100.0 Hz        |
| Auto adjust      | Centrate                      | Max. freq. for tol. | 8000.0 Hz       |

**Special Features**

Compensate delay 183.5000 ms (D\_RCV\_WB, Delay (Cross))

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

**labCORE Routing**

|                  |                                                                          |
|------------------|--------------------------------------------------------------------------|
| Out Channel 1 -> | Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker                      |
| Out Channel 2 -> | Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In                           |
| In Channel 1 <-  | Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out                        |
| In Channel 2 <-  | BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right |

**Analog In Mainboard Settings (Analog In 1/2)**

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

**Analog Out Mainboard Settings (Analog Out 1/2)**

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

**Microphone Settings (Mic Amp. (Slot 6))****Channel In 1 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 2 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 3 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 4 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

BEQ Settings (BEQ Filter 1)

Block mode Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

Ser. Nr. 12306613

Pinna Type

Type 3.3

### HIB Settings

HIB Name 60020095

Serial

60020095

HIB Mode Mobile Measurement

Impedance

32 Ohm

Gain out 1 -40.00 dB

Gain out 2

0.00 dB

Gain in 1 0.00 dB

Gain in 2

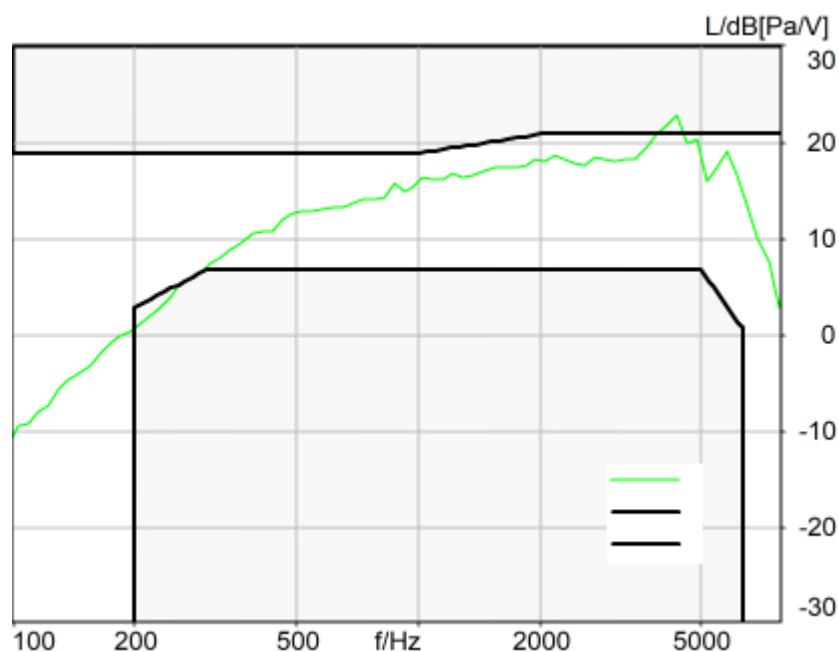
0.00 dB

Mic 1 Power Supply Off

Mic 2 Power Supply Off

## 5.3 Frequency Response 8N DF

TIA-5050 (2018-01) \ Measurements \ Wideband



Absolute minimal distance

-1.88 dB at 4369.4 Hz Not Ok

**Not Ok**

2024/1/19 20:00 ACQUA 5.1.200

Unmodified HEAD acoustics Measurement Descriptor

### Limits

|       |                    |
|-------|--------------------|
|       | lower              |
| Run 1 | Fit into tolerance |

Meas. Setting

off

Underlying Standard: TIA-5050 (2018-01)  
Database Version: 40\_HAC\_Suite\_Rev03

**Source: respmaleieee269\_wb\_r20\_v01.dat**

Level adj. Ch1 -90.0 dB

WIDEBAND IEEE-269-2010 Real Speech Signal at Channel 2

Pause 0.5 s +

Real Speech (english, male speaker) 11.5 s, Active Speech Level: -22,2 dBV, margin 15.9 dB +

Pause till end of file

Signal level (ch2): -22,2 dBV Active Speech Level, margin 15.9 dB

Signal taken from "IEEE\_269-2010\_Male\_mono\_48\_kHz.wav"

Alteration:

0.2 s Pause added at the beginning of the file.

0.8 s Pause added at the end of the file.

filtered with 8.0 kHz low-pass filter

signal level changed

**Calibration**

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))

Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

**HHP IV Settings (Setting: STD:(0,0,0) rel AHP)**

|                |         |                          |       |
|----------------|---------|--------------------------|-------|
| MECRP Delta Ye | 0.0 mm  | Rotation Delta A         | 0.0 ° |
| MECRP Delta Ze | 0.0 mm  | Rotation Delta C         | 0.0 ° |
| Delta Xe       | 0.0 mm  | Rotation Delta B         | 5.0 ° |
| Delta Ye       | 0.0 mm  | Delta A                  | 0.0 ° |
| Delta Ze       | 0.0 mm  | Delta C                  | 0.0 ° |
| Ym             | -4.8 mm | Delta B                  | 0.0 ° |
|                |         | Ear Type 3.3 Coordinates |       |

Mounting: Right Ear

Force to apply: 8.0 N, Force reached: 7.9 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                  |                               |                     |                 |
|------------------|-------------------------------|---------------------|-----------------|
| Direction        | Out 2 -> In 2                 |                     |                 |
| Range start      | 500.00 ms                     | Range length        | 11500.00 ms     |
| Use FIR Filter   | Ch2                           | FIR filter          | drp2df_ieee1652 |
| DRP/ERP Ch.1:    | Off                           | DRP/ERP Ch.2:       | Off             |
| Frequency base   | 12th octave                   | DIN Row             | Row A           |
| Method           | FFT                           |                     |                 |
| FFT size         | 4096                          | Overlap             | 75 %            |
| Window function. | Hanning                       |                     |                 |
| Reference file   | r521_rcv_frq_spee269_hawb.fft |                     |                 |
| Tol. scheme file | 521_rcv_frq_man_hawb.tol      | Min. freq. for tol. | 100.0 Hz        |
| Auto adjust      | Centrate                      | Max. freq. for tol. | 8000.0 Hz       |

**Special Features**

Compensate delay 183.5000 ms (D\_RCV\_WB, Delay (Cross))

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

**labCORE Routing**

|                  |                                                                          |
|------------------|--------------------------------------------------------------------------|
| Out Channel 1 -> | Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker                      |
| Out Channel 2 -> | Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In                           |
| In Channel 1 <=  | Analog In 1/2 In 1 <= Radio Tester 1 (CMW500) Out                        |
| In Channel 2 <=  | BEQ Filter 1 R <= Mic Amp. (Slot 6) In 2 <= HATS 1 (HMS II.3) Mic. Right |

## Analog In Mainboard Settings (Analog In 1/2)

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

## Analog Out Mainboard Settings (Analog Out 1/2)

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

## Microphone Settings (Mic Amp. (Slot 6))

## Channel In 1 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

## Channel In 2 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

## Channel In 3 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

## Channel In 4 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

## BEQ Settings (BEQ Filter 1)

|            |        |
|------------|--------|
| Block mode | Bypass |
|------------|--------|

## Artificial Head Settings (HATS 1 (HMS II.3))

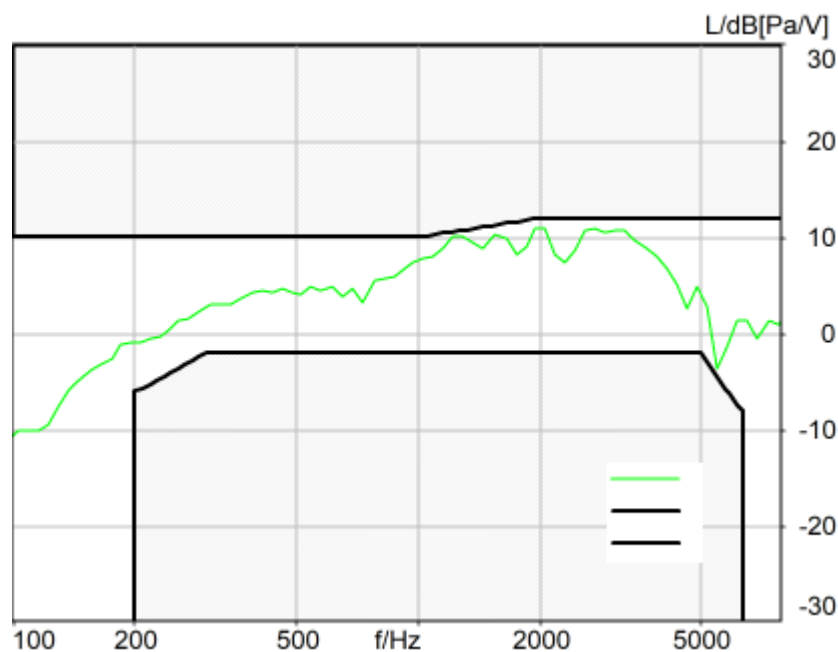
|          |          |            |          |
|----------|----------|------------|----------|
| Ser. Nr. | 12306613 | Pinna Type | Type 3.3 |
|----------|----------|------------|----------|

## HIB Settings

|                    |                    |                    |          |
|--------------------|--------------------|--------------------|----------|
| HIB Name           | 60020095           | Serial             | 60020095 |
| HIB Mode           | Mobile Measurement | Impedance          | 32 Ohm   |
| Gain out 1         | -40.00 dB          | Gain out 2         | 0.00 dB  |
| Gain in 1          | 0.00 dB            | Gain in 2          | 0.00 dB  |
| Mic 1 Power Supply | Off                | Mic 2 Power Supply | Off      |

## 5.3 Frequency Response 2N FF

TIA-5050 (2018-01) \ Measurements \ Wideband



Absolute minimal distance

0.57 dB at 5443.6 Hz Ok

**Ok**

2024/1/19 19:18 ACQUA 5.1.200

Unmodified HEAD acoustics Measurement Descriptor

**Limits**

|       | lower              |
|-------|--------------------|
| Run 1 | Fit into tolerance |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)

Database Version: 40\_HAC\_Suite\_Rev03

**Source: respmaleieee269\_wb\_r20\_v01.dat**

Level adj. Ch1 -90.0 dB

WIDEBAND IEEE-269-2010 Real Speech Signal at Channel 2

Pause 0.5 s +

Real Speech (english, male speaker) 11.5 s, Active Speech Level: -22,2 dBV, margin 15.9 dB +

Pause till end of file

Signal level (ch2): -22,2 dBV Active Speech Level, margin 15.9 dB

Signal taken from "IEEE\_269-2010\_Male\_mono\_48\_kHz.wav"

Alteration:

0.2 s Pause added at the beginning of the file.

0.8 s Pause added at the end of the file.

filtered with 8.0 kHz low-pass filter

signal level changed

**Calibration**

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))

Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

**HHP IV Settings (Setting: STD:(0,0,0) rel AHP)**

|                |         |                          |       |
|----------------|---------|--------------------------|-------|
| MECRP Delta Ye | 0.0 mm  | Rotation Delta A         | 0.0 ° |
| MECRP Delta Ze | 0.0 mm  | Rotation Delta C         | 0.0 ° |
| Delta Xe       | 0.0 mm  | Rotation Delta B         | 5.0 ° |
| Delta Ye       | 0.0 mm  | Delta A                  | 0.0 ° |
| Delta Ze       | 0.0 mm  | Delta C                  | 0.0 ° |
| Ym             | -5.4 mm | Delta B                  | 0.0 ° |
|                |         | Ear Type 3.3 Coordinates |       |

Mounting: Right Ear

Force to apply: 2.0 N, Force reached: 2.0 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                |               |               |                 |
|----------------|---------------|---------------|-----------------|
| Direction      | Out 2 -> In 2 | Range length  | 11500.00 ms     |
| Range start    | 500.00 ms     | FIR filter    | drp2ff_ieee1652 |
| Use FIR Filter | Ch2           | DRP/ERP Ch.2: | Off             |
| DRP/ERP Ch.1:  | Off           | DIN Row       | Row A           |
| Frequency base | 12th octave   |               |                 |
| Method         | FFT           |               |                 |

|                  |                               |                     |           |
|------------------|-------------------------------|---------------------|-----------|
| FFT size         | 4096                          | Overlap             | 75 %      |
| Window function. | Hanning                       |                     |           |
| Reference file   | r521_rcv_frq_spee269_hawb.fft |                     |           |
| Tol. scheme file | 521_rcv_frq_man_hawb.tol      | Min. freq. for tol. | 100.0 Hz  |
| Auto adjust      | Centrate                      | Max. freq. for tol. | 8000.0 Hz |

**Special Features**

Compensate delay 183.5000 ms (D\_RCV\_WB, Delay (Cross))

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

**labCORE Routing**

Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker  
Out Channel 2 -> Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In  
In Channel 1 <- Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out  
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

**Analog In Mainboard Settings (Analog In 1/2)**

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

**Analog Out Mainboard Settings (Analog Out 1/2)**

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

**Microphone Settings (Mic Amp. (Slot 6))****Channel In 1 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 2 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 3 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 4 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**BEQ Settings (BEQ Filter 1)**

Block mode Bypass

**Artificial Head Settings (HATS 1 (HMS II.3))**

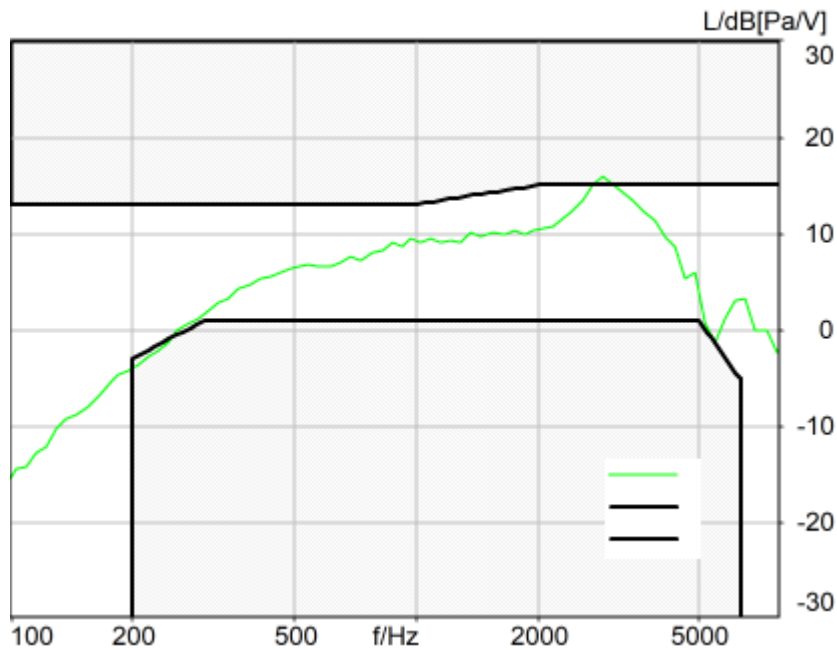
|          |          |            |          |
|----------|----------|------------|----------|
| Ser. Nr. | 12306613 | Pinna Type | Type 3.3 |
|----------|----------|------------|----------|

**HIB Settings**

|                    |                    |                    |          |
|--------------------|--------------------|--------------------|----------|
| HIB Name           | 60020095           | Serial             | 60020095 |
| HIB Mode           | Mobile Measurement | Impedance          | 32 Ohm   |
| Gain out 1         | -40.00 dB          | Gain out 2         | 0.00 dB  |
| Gain in 1          | 0.00 dB            | Gain in 2          | 0.00 dB  |
| Mic 1 Power Supply | Off                | Mic 2 Power Supply | Off      |

## 5.3 Frequency Response 2N DF

TIA-5050 (2018-01) \ Measurements \ Wideband



Absolute minimal distance  
-0.83 dB at 205.7 Hz Not Ok

## Not Ok

2024/1/19 19:18 ACQUA 5.1.200

Unmodified HEAD acoustics Measurement Descriptor

### Limits

|       | lower              |
|-------|--------------------|
| Run 1 | Fit into tolerance |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)

Database Version: 40\_HAC\_Suite\_Rev03

**Source:** respmaleieeee269\_wb\_r20\_v01.dat

Level adj. Ch1 -90.0 dB

WIDEBAND IEEE-269-2010 Real Speech Signal at Channel 2

Pause 0.5 s +

Real Speech (english, male speaker) 11.5 s, Active Speech Level: -22,2 dBV, margin 15.9 dB +

Pause till end of file

Signal level (ch2): -22,2 dBV Active Speech Level, margin 15.9 dB

Signal taken from "IEEE\_269-2010\_Male\_mono\_48\_kHz.wav"

Alteration:

0.2 s Pause added at the beginning of the file.

0.8 s Pause added at the and of the file.

filtered with 8.0 kHz low-pass filter

signal level changed

### Calibration

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))  
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

**HHP IV Settings (Setting: STD:(0,0,0) rel AHP)**

|                |         |                          |       |
|----------------|---------|--------------------------|-------|
| MECRP Delta Ye | 0.0 mm  | Rotation Delta A         | 0.0 ° |
| MECRP Delta Ze | 0.0 mm  | Rotation Delta C         | 0.0 ° |
| Delta Xe       | 0.0 mm  | Rotation Delta B         | 5.0 ° |
| Delta Ye       | 0.0 mm  | Delta A                  | 0.0 ° |
| Delta Ze       | 0.0 mm  | Delta C                  | 0.0 ° |
| Ym             | -5.4 mm | Delta B                  | 0.0 ° |
|                |         | Ear Type 3.3 Coordinates |       |

Mounting: Right Ear  
Force to apply: 2.0 N, Force reached: 2.0 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                  |                               |                     |                 |
|------------------|-------------------------------|---------------------|-----------------|
| Direction        | Out 2 -> In 2                 |                     |                 |
| Range start      | 500.00 ms                     | Range length        | 11500.00 ms     |
| Use FIR Filter   | Ch2                           | FIR filter          | drp2df_ieee1652 |
| DRP/ERP Ch.1:    | Off                           | DRP/ERP Ch.2:       | Off             |
| Frequency base   | 12th octave                   | DIN Row             | Row A           |
| Method           | FFT                           |                     |                 |
| FFT size         | 4096                          | Overlap             | 75 %            |
| Window function. | Hanning                       |                     |                 |
| Reference file   | r521_rcv_frq_spee269_hawb.fft |                     |                 |
| Tol. scheme file | 521_rcv_frq_man_hawb.tol      | Min. freq. for tol. | 100.0 Hz        |
| Auto adjust      | Centrate                      | Max. freq. for tol. | 8000.0 Hz       |

**Special Features**

Compensate delay 183.5000 ms (D\_RCV\_WB, Delay (Cross))

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

**labCORE Routing**

|                  |                                                                          |
|------------------|--------------------------------------------------------------------------|
| Out Channel 1 -> | Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker                      |
| Out Channel 2 -> | Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In                           |
| In Channel 1 <-  | Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out                        |
| In Channel 2 <-  | BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right |

**Analog In Mainboard Settings (Analog In 1/2)**

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

**Analog Out Mainboard Settings (Analog Out 1/2)**

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

**Microphone Settings (Mic Amp. (Slot 6))**

|                       |                          |                |      |
|-----------------------|--------------------------|----------------|------|
| Channel In 1 Settings |                          |                |      |
| Range                 | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage  | 200V                     | Supply Voltage | ±60V |
| Channel In 2 Settings |                          |                |      |
| Range                 | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage  | 200V                     | Supply Voltage | ±60V |
| Channel In 3 Settings |                          |                |      |
| Range                 | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage  | 200V                     | Supply Voltage | ±60V |
| Channel In 4 Settings |                          |                |      |
| Range                 | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage  | 200V                     | Supply Voltage | ±60V |

BEQ Settings (BEQ Filter 1)  
Block mode      Bypass  
-----

Artificial Head Settings (HATS 1 (HMS II.3))

|          |          |            |          |
|----------|----------|------------|----------|
| Ser. Nr. | 12306613 | Pinna Type | Type 3.3 |
|----------|----------|------------|----------|

**HIB Settings**

|                    |                    |                    |          |
|--------------------|--------------------|--------------------|----------|
| HIB Name           | 60020095           | Serial             | 60020095 |
| HIB Mode           | Mobile Measurement | Impedance          | 32 Ohm   |
| Gain out 1         | -40.00 dB          | Gain out 2         | 0.00 dB  |
| Gain in 1          | 0.00 dB            | Gain in 2          | 0.00 dB  |
| Mic 1 Power Supply | Off                | Mic 2 Power Supply | Off      |

---

## **Measurement Protocol**

|                    |                                         |
|--------------------|-----------------------------------------|
| Measurement Object | WIFI 5G_802.11a 6M EVS NB 24.4kbps_CH40 |
| Description        | HMD_2322#N159V                          |

|                        |                    |
|------------------------|--------------------|
| Project                | TIA-5050 (2018-01) |
| Report Generation Date | 2024/2/6 10:33     |
| Responsible Person     | audio              |

## Status Overview

| SMD                                                         | Status | Single Value Description                  | Single Value | Object                                     |
|-------------------------------------------------------------|--------|-------------------------------------------|--------------|--------------------------------------------|
| Overall Receive Delay NB                                    | Done   | Delay (Cross) [ms]                        | 203.9        | WIFI 5G_802.11a 6M<br>EVS NB 24.4kbps_CH40 |
| 5.1a Receive Volume Control Performance 8N NB               | Not Ok | Corrected Speech Level [dB[SPL]]          | 17.25        | WIFI 5G_802.11a 6M<br>EVS NB 24.4kbps_CH40 |
| 5.1b Receive Volume Control Performance 2N NB               | Ok     | Corrected Speech Level [dB[SPL]]          | 11.59        | WIFI 5G_802.11a 6M<br>EVS NB 24.4kbps_CH40 |
| 5.2 RCV Distortion and Noise - 400 Hz NB                    | Ok     | Distortion (Noise) [dB],<br>0.0 dB        | 26.37        | WIFI 5G_802.11a 6M<br>EVS NB 24.4kbps_CH40 |
| 5.2 RCV Distortion and Noise - 500 Hz NB                    | Ok     | Distortion (Noise) [dB],<br>0.0 dB        | 28.68        | WIFI 5G_802.11a 6M<br>EVS NB 24.4kbps_CH40 |
| 5.2 RCV Distortion and Noise - 630 Hz NB                    | Ok     | Distortion (Noise) [dB],<br>0.0 dB        | 27.01        | WIFI 5G_802.11a 6M<br>EVS NB 24.4kbps_CH40 |
| 5.2 RCV Distortion and Noise - 800 Hz NB                    | Ok     | Distortion (Noise) [dB],<br>0.0 dB        | 28.58        | WIFI 5G_802.11a 6M<br>EVS NB 24.4kbps_CH40 |
| 5.2 RCV Distortion and Noise - 1000 Hz NB                   | Ok     | Distortion (Noise) [dB],<br>0.0 dB        | 26.21        | WIFI 5G_802.11a 6M<br>EVS NB 24.4kbps_CH40 |
| 5.2 RCV Distortion and Noise - 1250 Hz NB                   | Ok     | Distortion (Noise) [dB],<br>0.0 dB        | 23.68        | WIFI 5G_802.11a 6M<br>EVS NB 24.4kbps_CH40 |
| 5.2 RCV Distortion and Noise - 1600 Hz NB                   | Ok     | Distortion (Noise) [dB],<br>0.0 dB        | 29.82        | WIFI 5G_802.11a 6M<br>EVS NB 24.4kbps_CH40 |
| 5.2 RCV Distortion and Noise - 2000 Hz NB                   | Ok     | Distortion (Noise) [dB],<br>0.0 dB        | 25.63        | WIFI 5G_802.11a 6M<br>EVS NB 24.4kbps_CH40 |
| 5.2 RCV Distortion and Noise - 2500 Hz NB                   | Ok     | Distortion (Noise) [dB],<br>0.0 dB        | 32.51        | WIFI 5G_802.11a 6M<br>EVS NB 24.4kbps_CH40 |
| 5.2 RCV Distortion and Noise - 3150 Hz NB                   | Ok     | Distortion (Noise) [dB],<br>0.0 dB        | 31.10        | WIFI 5G_802.11a 6M<br>EVS NB 24.4kbps_CH40 |
| Report - Receive Distortion and Noise (Conversational Gain) | Ok     | Minimum SDNR [dB],<br>(occured at 1250Hz) | 23.68        | WIFI 5G_802.11a 6M<br>EVS NB 24.4kbps_CH40 |
| 5.2 RCV Distortion and Noise - 400 Hz NB                    | Ok     | Distortion (Noise) [dB],<br>0.0 dB        | 28.26        | WIFI 5G_802.11a 6M<br>EVS NB 24.4kbps_CH40 |
| 5.2 RCV Distortion and Noise - 500 Hz NB                    | Ok     | Distortion (Noise) [dB],<br>0.0 dB        | 28.43        | WIFI 5G_802.11a 6M<br>EVS NB 24.4kbps_CH40 |
| 5.2 RCV Distortion and Noise - 630 Hz NB                    | Ok     | Distortion (Noise) [dB],<br>0.0 dB        | 26.19        | WIFI 5G_802.11a 6M<br>EVS NB 24.4kbps_CH40 |
| 5.2 RCV Distortion and Noise - 800 Hz NB                    | Ok     | Distortion (Noise) [dB],<br>0.0 dB        | 27.68        | WIFI 5G_802.11a 6M<br>EVS NB 24.4kbps_CH40 |
| 5.2 RCV Distortion and Noise - 1000 Hz NB                   | Ok     | Distortion (Noise) [dB],<br>0.0 dB        | 25.59        | WIFI 5G_802.11a 6M<br>EVS NB 24.4kbps_CH40 |
| 5.2 RCV Distortion and Noise - 1250 Hz NB                   | Ok     | Distortion (Noise) [dB],<br>0.0 dB        | 20.88        | WIFI 5G_802.11a 6M<br>EVS NB 24.4kbps_CH40 |
| 5.2 RCV Distortion and Noise - 1600 Hz NB                   | Ok     | Distortion (Noise) [dB],<br>0.0 dB        | 29.35        | WIFI 5G_802.11a 6M<br>EVS NB 24.4kbps_CH40 |
| 5.2 RCV Distortion and Noise - 2000 Hz NB                   | Ok     | Distortion (Noise) [dB],<br>0.0 dB        | 32.62        | WIFI 5G_802.11a 6M<br>EVS NB 24.4kbps_CH40 |
| 5.2 RCV Distortion and Noise - 2500 Hz NB                   | Ok     | Distortion (Noise) [dB],<br>0.0 dB        | 28.15        | WIFI 5G_802.11a 6M<br>EVS NB 24.4kbps_CH40 |

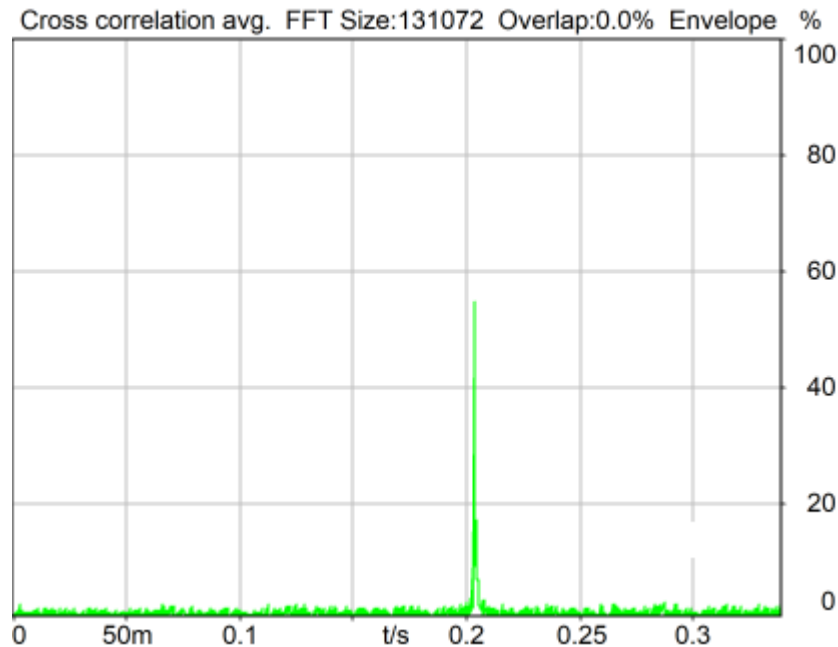
|                                                             |    |                                                |       |                                         |
|-------------------------------------------------------------|----|------------------------------------------------|-------|-----------------------------------------|
| 5.2 RCV Distortion and Noise - 3150 Hz NB                   | Ok | Distortion (Noise) [dB], 0.0 dB                | 31.22 | WIFI 5G_802.11a 6M EVS NB 24.4kbps_CH40 |
| Report - Receive Distortion and Noise (Conversational Gain) | Ok | Minimum SDNR [dB], (occured at 1250Hz)         | 20.88 | WIFI 5G_802.11a 6M EVS NB 24.4kbps_CH40 |
| 5.3 Frequency Response 8N FF HANB                           | Ok | Min. dist. to tolerance scheme [dB], 1285.9 Hz | 1.34  | WIFI 5G_802.11a 6M EVS NB 24.4kbps_CH40 |
| 5.3 Frequency Response 8N DF HANB                           | Ok | Min. dist. to tolerance scheme [dB], 2057.5 Hz | 0.17  | WIFI 5G_802.11a 6M EVS NB 24.4kbps_CH40 |
| 5.3 Frequency Response 2N FF HANB                           | Ok | Min. dist. to tolerance scheme [dB], 3882.4 Hz | 0.31  | WIFI 5G_802.11a 6M EVS NB 24.4kbps_CH40 |
| 5.3 Frequency Response 2N DF HANB                           | Ok | Min. dist. to tolerance scheme [dB], 649.1 Hz  | 0.74  | WIFI 5G_802.11a 6M EVS NB 24.4kbps_CH40 |

---

|                                                             |    |
|-------------------------------------------------------------|----|
| Overall Receive Delay NB                                    | 5  |
| 5.1a Receive Volume Control Performance 8N NB               | 7  |
| 5.1b Receive Volume Control Performance 2N NB               | 9  |
| 5.2 RCV Distortion and Noise - 400 Hz NB                    | 10 |
| 5.2 RCV Distortion and Noise - 500 Hz NB                    | 13 |
| 5.2 RCV Distortion and Noise - 630 Hz NB                    | 15 |
| 5.2 RCV Distortion and Noise - 800 Hz NB                    | 17 |
| 5.2 RCV Distortion and Noise - 1000 Hz NB                   | 19 |
| 5.2 RCV Distortion and Noise - 1250 Hz NB                   | 21 |
| 5.2 RCV Distortion and Noise - 1600 Hz NB                   | 23 |
| 5.2 RCV Distortion and Noise - 2000 Hz NB                   | 26 |
| 5.2 RCV Distortion and Noise - 2500 Hz NB                   | 28 |
| 5.2 RCV Distortion and Noise - 3150 Hz NB                   | 30 |
| Report - Receive Distortion and Noise (Conversational Gain) | 32 |
| 5.2 RCV Distortion and Noise - 400 Hz NB                    | 32 |
| 5.2 RCV Distortion and Noise - 500 Hz NB                    | 35 |
| 5.2 RCV Distortion and Noise - 630 Hz NB                    | 37 |
| 5.2 RCV Distortion and Noise - 800 Hz NB                    | 39 |
| 5.2 RCV Distortion and Noise - 1000 Hz NB                   | 41 |
| 5.2 RCV Distortion and Noise - 1250 Hz NB                   | 43 |
| 5.2 RCV Distortion and Noise - 1600 Hz NB                   | 45 |
| 5.2 RCV Distortion and Noise - 2000 Hz NB                   | 48 |
| 5.2 RCV Distortion and Noise - 2500 Hz NB                   | 50 |
| 5.2 RCV Distortion and Noise - 3150 Hz NB                   | 52 |
| Report - Receive Distortion and Noise (Conversational Gain) | 54 |
| 5.3 Frequency Response 8N FF HANB                           | 54 |
| 5.3 Frequency Response 8N DF HANB                           | 57 |
| 5.3 Frequency Response 2N FF HANB                           | 59 |
| 5.3 Frequency Response 2N DF HANB                           | 61 |

## Overall Receive Delay NB

TIA-5050 (2018-01) \ Measurements \ Narrowband \ Preparation - Delay measurement



Delay (Cross): 203.9 ms

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Unmodified HEAD acoustics Measurement Descriptor

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)

Database Version: 40\_HAC\_Suite\_Rev03

### **Source: cssnb1b\_r1s.dat**

Level adj. Ch1 -90.0 dB

CSSnb1b\_R1s.dat - CS-signal with special 1s random noise

NARROWBAND Composite Source Signal RCV P.501 (1 burst) at Channel 2

Pause 0.5 s +

voiced signal + 4000 Hz band limited random noise 1.0 s +

Pause till end of file

Signal level (ch2): -14.7 dBm0 (corresponds to approx. -16.0 dBm0 for a 350 ms CSS considering 101 ms Pause) from 0.5s to 1.544s for 4-k FFT, Hanning window,

75 % overlap in frequency range of 100 to 4000 Hz

### **Calibration**

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))

Output ch.1: 0.00 dB

Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

**HHP IV Settings (Setting: STD:(0,0,0) rel AHP)**

|                          |         |                  |       |
|--------------------------|---------|------------------|-------|
| MECRP Delta Ye           | 0.0 mm  | Rotation Delta A | 0.0 ° |
| MECRP Delta Ze           | 0.0 mm  | Rotation Delta C | 0.0 ° |
| Delta Xe                 | 0.0 mm  | Rotation Delta B | 5.0 ° |
| Delta Ye                 | 0.0 mm  | Delta A          | 0.0 ° |
| Delta Ze                 | 0.0 mm  | Delta C          | 0.0 ° |
| Ym                       | -4.6 mm | Delta B          | 0.0 ° |
| Ear Type 3.3 Coordinates |         |                  |       |

Mounting: Right Ear

Force to apply: 8.0 N, Force reached: 7.9 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                   |                |                 |            |
|-------------------|----------------|-----------------|------------|
| Range start       | 550.00 ms      | Range length    | 1950.00 ms |
| DRP/ERP Ch.1:     | Off            | DRP/ERP Ch.2:   | Off        |
| Frequency base    | Transformation |                 |            |
| FFT size          | 131072         | Overlap         | 0 %        |
| Window function.  | Hanning        | Smooth          | Off        |
| Delayed channel   | None           |                 |            |
| Valid range start | -1228.79 ms    | Valid range end | 1228.81 ms |

**Special Features**

Show source signal Source ch.2 Store to variable D\_RCV\_NB

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

**labCORE Routing**

Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker  
Out Channel 2 -> Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In  
In Channel 1 <- Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out  
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

**Analog In Mainboard Settings (Analog In 1/2)**

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

**Analog Out Mainboard Settings (Analog Out 1/2)**

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

**Microphone Settings (Mic Amp. (Slot 6))****Channel In 1 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 2 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 3 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 4 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**BEQ Settings (BEQ Filter 1)**

Block mode Bypass

**Artificial Head Settings (HATS 1 (HMS II.3))**

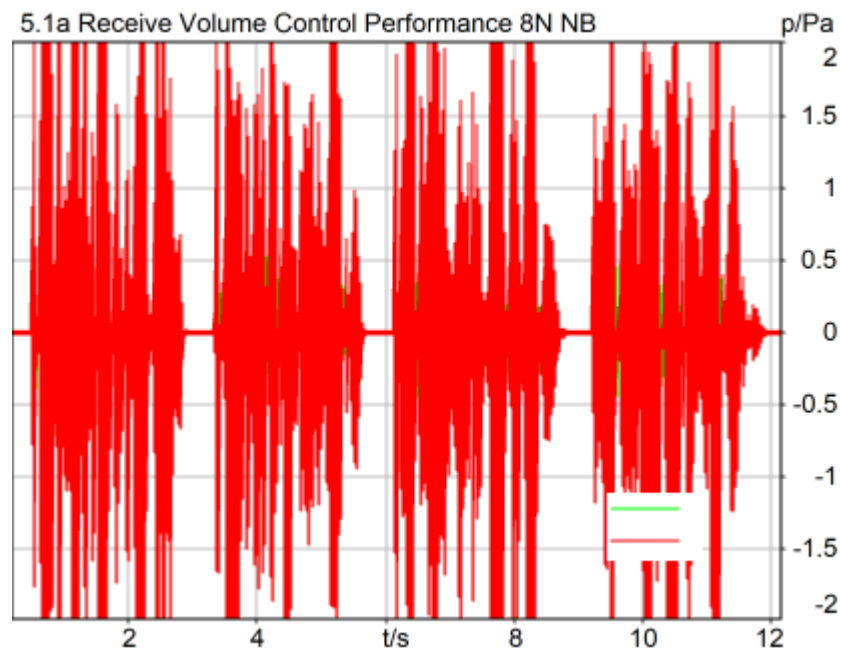
|          |          |            |          |
|----------|----------|------------|----------|
| Ser. Nr. | 12306613 | Pinna Type | Type 3.3 |
|----------|----------|------------|----------|

**HIB Settings**

|                    |                    |                    |          |
|--------------------|--------------------|--------------------|----------|
| HIB Name           | 60020095           | Serial             | 60020095 |
| HIB Mode           | Mobile Measurement | Impedance          | 32 Ohm   |
| Gain out 1         | -40.00 dB          | Gain out 2         | 0.00 dB  |
| Gain in 1          | 0.00 dB            | Gain in 2          | 0.00 dB  |
| Mic 1 Power Supply | Off                | Mic 2 Power Supply | Off      |

## 5.1a Receive Volume Control Performance 8N NB

TIA-5050 (2018-01) \ Measurements \ Narrowband



### Correction

X - 70

Speech Level RCV: 87.25 dB[SPL], Act.: 86.19%

Corrected Speech Level: 17.25 dB[SPL] Not Ok

### Not Ok

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#### Limits

|       | lower         |
|-------|---------------|
| Run 1 | 18.00 dB20uPa |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)

Database Version: 40\_HAC\_Suite\_Rev03

**Calibration**

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))

Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

Direction Out 2 -&gt; In 2

Range start 200.00 ms

Range length 12000.00 ms

Use FIR Filter Ch2

FIR filter drp2ff\_ieee1652

Bandpass filter Narrow Band  
15.90 dB

Margin (15.9dB nom)

**Special Features**

Show source signal Source ch.2

Compensate delay 203.9000 ms (D\_RCV\_NB, Delay (Cross))

**Hardware Config Settings**

Used Setting HEAD 2G3G labCORE NetSim

**labCORE Settings**

labCORE Serial 77000207

Nickname

Firmware 3.4.17

Sync Source Internal

Clock Pitch 0.00 ppm

**labCORE Routing**

Out Channel 1 -&gt; Power Amp. (Slot 10) 1 -&gt; HATS 1 (HMS II.3) Speaker

Out Channel 2 -&gt; Analog Out 1/2 2 -&gt; Radio Tester 1 (CMW500) In

In Channel 1 &lt;- Analog In 1/2 In 1 &lt;- Radio Tester 1 (CMW500) Out

In Channel 2 &lt;- BEQ Filter 1 R &lt;- Mic Amp. (Slot 6) In 2 &lt;- HATS 1 (HMS II.3) Mic. Right

**Analog In Mainboard Settings (Analog In 1/2)**

Range Ch. 1 0.00 dB

Ch. 0 Float On

Range Ch. 2 0.00 dB

Ch. 1 Float On

**Analog Out Mainboard Settings (Analog Out 1/2)**

Range Ch. 1 0.00 dB

Range Ch. 2 0.00 dB

**Microphone Settings (Mic Amp. (Slot 6))****Channel In 1 Settings**

Range 114 dB[SPL] @ 12.5 mV/Pa

Highpass Off

Polarisation Voltage200V

Supply Voltage ±60V

**Channel In 2 Settings**

Range 114 dB[SPL] @ 12.5 mV/Pa

Highpass 20Hz

Polarisation Voltage200V

Supply Voltage ±60V

**Channel In 3 Settings**

Range 114 dB[SPL] @ 12.5 mV/Pa

Highpass Off

Polarisation Voltage200V

Supply Voltage ±60V

**Channel In 4 Settings**

Range 114 dB[SPL] @ 12.5 mV/Pa

Highpass Off

Polarisation Voltage200V

Supply Voltage ±60V

**BEQ Settings (BEQ Filter 1)**

Block mode Bypass

**Artificial Head Settings (HATS 1 (HMS II.3))**

Ser. Nr. 12306613

Pinna Type Type 3.3

**HIB Settings**

HIB Name 60020095

Serial 60020095

HIB Mode Mobile Measurement

Impedance 32 Ohm

Gain out 1 -40.00 dB

Gain out 2 0.00 dB

Gain in 1 0.00 dB

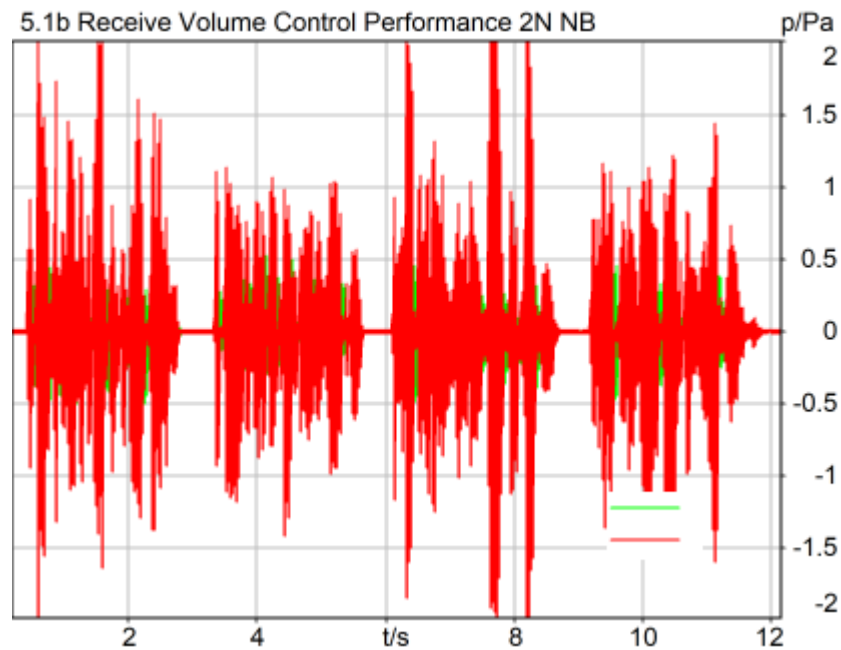
Gain in 2 0.00 dB

Mic 1 Power Supply Off

Mic 2 Power Supply Off

## 5.1b Receive Volume Control Performance 2N NB

TIA-5050 (2018-01) \ Measurements \ Narrowband



### Correction

X - 70

Speech Level RCV: 81.59 dB[SPL], Act.: 85.97%

Corrected Speech Level: 11.59 dB[SPL] Ok

Ok

2024/1/22 23:46 ACQUA 5.1.200

### Limits

|       | lower        |
|-------|--------------|
| Run 1 | 6.00 dB20uPa |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)  
Database Version: 40\_HAC\_Suite\_Rev03

### Calibration

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))  
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                 |               |                     |                 |
|-----------------|---------------|---------------------|-----------------|
| Direction       | Out 2 -> In 2 |                     |                 |
| Range start     | 200.00 ms     | Range length        | 12000.00 ms     |
| Use FIR Filter  | Ch2           | FIR filter          | drp2ff_ieee1652 |
| Bandpass filter | Narrow Band   | Margin (15.9dB nom) |                 |
| 15.90 dB        |               |                     |                 |

**Special Features**

Show source signal Source ch.2  
Compensate delay 203.9000 ms (D\_RCV\_NB, Delay (Cross))

**Hardware Config Settings**

Used Setting HEAD 2G3G labCORE NetSim

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

**labCORE Routing**

Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker  
Out Channel 2 -> Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In  
In Channel 1 <- Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out  
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

**Analog In Mainboard Settings (Analog In 1/2)**

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

**Analog Out Mainboard Settings (Analog Out 1/2)**

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

**Microphone Settings (Mic Amp. (Slot 6))****Channel In 1 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 2 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 3 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 4 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**BEQ Settings (BEQ Filter 1)**

Block mode Bypass

**Artificial Head Settings (HATS 1 (HMS II.3))**

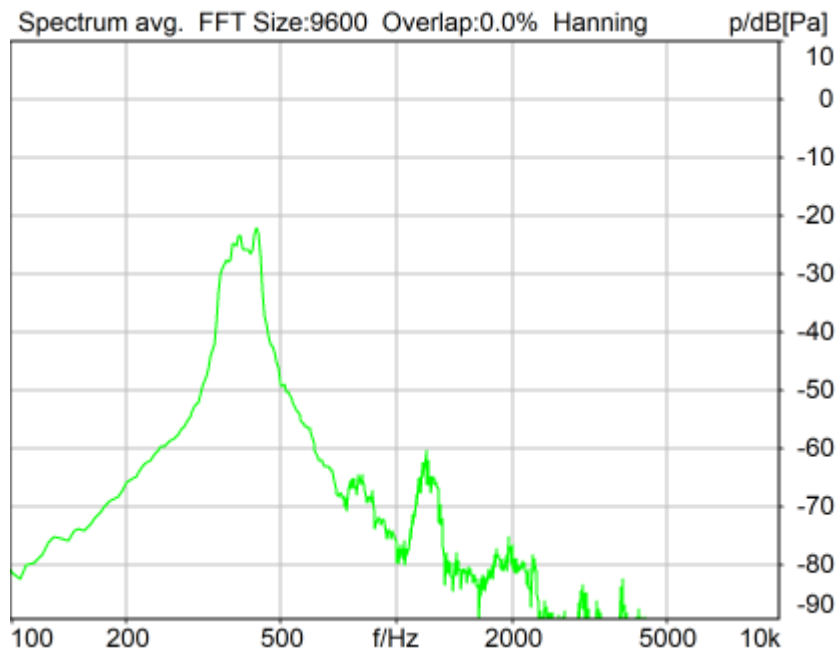
|          |          |            |          |
|----------|----------|------------|----------|
| Ser. Nr. | 12306613 | Pinna Type | Type 3.3 |
|----------|----------|------------|----------|

**HIB Settings**

|                        |                    |                        |          |
|------------------------|--------------------|------------------------|----------|
| HIB Name               | 60020095           | Serial                 | 60020095 |
| HIB Mode               | Mobile Measurement | Impedance              | 32 Ohm   |
| Gain out 1             | -40.00 dB          | Gain out 2             | 0.00 dB  |
| Gain in 1              | 0.00 dB            | Gain in 2              | 0.00 dB  |
| Mic 1 Power Supply Off |                    | Mic 2 Power Supply Off |          |

## 5.2 RCV Distortion and Noise - 400 Hz NB

TIA-5050 (2018-01) \ Measurements \ Narrowband \ 5.2 Receive Distortion and Noise 8N



Distortion (Noise) RCV (packed): 26.37 dB (4.80%) Ok

Ok

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Unmodified HEAD acoustics Measurement Descriptor

### Limits

|       | lower    |
|-------|----------|
| Run 1 | 20.00 dB |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)

Database Version: 40\_HAC\_Suite\_Rev03

Source: act\_rpn\_b250ms\_400hz\_sr20dbm0\_v02.dat

Level adj. Ch1 -90.0 dB

### Calibration

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))

Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

### HHP IV Settings (Setting: STD:(0,0,0) rel AHP)

|                |        |                  |       |
|----------------|--------|------------------|-------|
| MECRP Delta Ye | 0.0 mm | Rotation Delta A | 0.0 ° |
| MECRP Delta Ze | 0.0 mm | Rotation Delta C | 0.0 ° |
| Delta Xe       | 0.0 mm | Rotation Delta B | 5.0 ° |
| Delta Ye       | 0.0 mm | Delta A          | 0.0 ° |
|                |        | Delta C          | 0.0 ° |

|          |         |          |                 |
|----------|---------|----------|-----------------|
| Delta Ze | 0.0 mm  | Delta B  | 0.0 °           |
| Ym       | -4.6 mm | Ear Type | 3.3 Coordinates |

Mounting: Right Ear  
Force to apply: 8.0 N, Force reached: 7.9 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                   |                |                   |                 |
|-------------------|----------------|-------------------|-----------------|
| Direction         | Out 2 -> In 2  |                   |                 |
| Range start       | 13550.00 ms    | Range length      | 200.00 ms       |
| Number of seq.    | 10             | Sequence length   | 400.00 ms       |
| Use FIR Filter    | Ch2            | FIR filter        | drp2ff_ieee1652 |
| DRP/ERP Ch.1:     | Off            | DRP/ERP Ch.2:     | Off             |
| Frequency base    | Transformation |                   |                 |
| FFT size          | 9600           | Overlap           | 0 %             |
| Window function.  | Hanning        | Smooth            | Off             |
| dB weighting      | A Weighting    |                   |                 |
| Stimulus min.     | 320.0 Hz       | Stimulus max.     | 480.0 Hz        |
| Analysis min.     | 20.0 Hz        | Analysis max.     | 315.0 Hz        |
| Analysis (2) min. | 485.0 Hz       | Analysis (2) max. | 20000.0 Hz      |

**Special Features**

Compensate delay 203.9000 ms (D\_RCV\_NB, Delay (Cross))  
Store to variable RCVNB10\_400Hz

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

**labCORE Routing**

Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker  
Out Channel 2 -> Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In  
In Channel 1 <- Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out  
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

**Analog In Mainboard Settings (Analog In 1/2)**

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

**Analog Out Mainboard Settings (Analog Out 1/2)**

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

**Microphone Settings (Mic Amp. (Slot 6))****Channel In 1 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 2 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 3 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 4 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**BEQ Settings (BEQ Filter 1)**

Block mode Bypass

**Artificial Head Settings (HATS 1 (HMS II.3))**

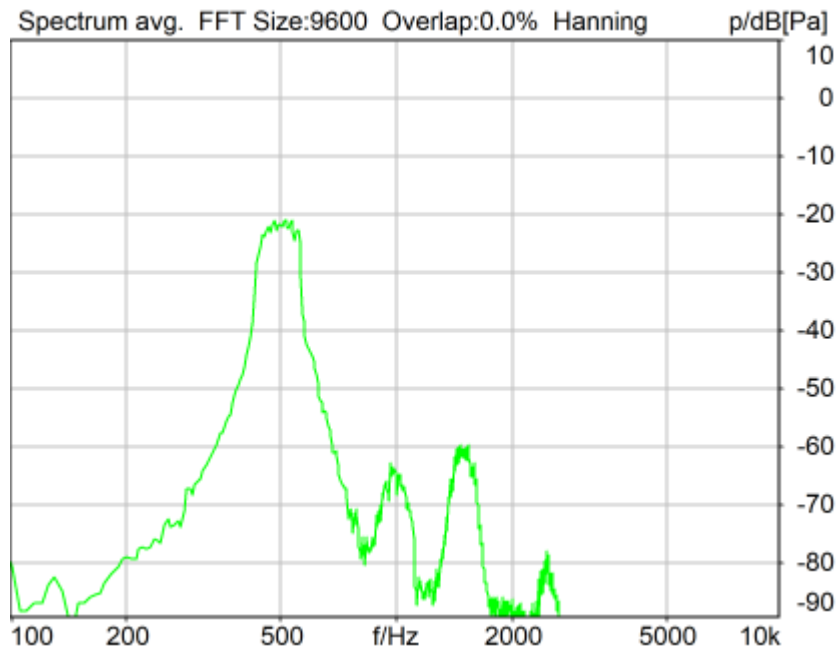
|          |          |            |          |
|----------|----------|------------|----------|
| Ser. Nr. | 12306613 | Pinna Type | Type 3.3 |
|----------|----------|------------|----------|

**HIB Settings**

|                    |                    |                    |          |
|--------------------|--------------------|--------------------|----------|
| HIB Name           | 60020095           | Serial             | 60020095 |
| HIB Mode           | Mobile Measurement | Impedance          | 32 Ohm   |
| Gain out 1         | -40.00 dB          | Gain out 2         | 0.00 dB  |
| Gain in 1          | 0.00 dB            | Gain in 2          | 0.00 dB  |
| Mic 1 Power Supply | Off                | Mic 2 Power Supply | Off      |

## 5.2 RCV Distortion and Noise - 500 Hz NB

TIA-5050 (2018-01) \ Measurements \ Narrowband \ 5.2 Receive Distortion and Noise 8N



Distortion (Noise) RCV (packed): 28.68 dB (3.68%) Ok

Ok

2024/1/19 22:42 ACQUA 5.1.200

Unmodified HEAD acoustics Measurement Descriptor

### Limits

|       |          |
|-------|----------|
|       | lower    |
| Run 1 | 20.00 dB |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)

Database Version: 40\_HAC\_Suite\_Rev03

Source: act\_rpn\_b250ms\_500hz\_sr20dbm0\_v02.dat

Level adj. Ch1 -90.0 dB

### Calibration

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))

Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

**HHP IV Settings (Setting: STD:(0,0,0) rel AHP)**

|                          |         |                  |       |
|--------------------------|---------|------------------|-------|
| MECRP Delta Ye           | 0.0 mm  | Rotation Delta A | 0.0 ° |
| MECRP Delta Ze           | 0.0 mm  | Rotation Delta C | 0.0 ° |
| Delta Xe                 | 0.0 mm  | Rotation Delta B | 5.0 ° |
| Delta Ye                 | 0.0 mm  | Delta A          | 0.0 ° |
| Delta Ze                 | 0.0 mm  | Delta C          | 0.0 ° |
| Ym                       | -4.6 mm | Delta B          | 0.0 ° |
| Ear Type 3.3 Coordinates |         |                  |       |

Mounting: Right Ear

Force to apply: 8.0 N, Force reached: 7.9 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                   |                |                   |                 |
|-------------------|----------------|-------------------|-----------------|
| Direction         | Out 2 -> In 2  |                   |                 |
| Range start       | 13550.00 ms    | Range length      | 200.00 ms       |
| Number of seq.    | 10             | Sequence length   | 400.00 ms       |
| Use FIR Filter    | Ch2            | FIR filter        | drp2ff_ieee1652 |
| DRP/ERP Ch.1:     | Off            | DRP/ERP Ch.2:     | Off             |
| Frequency base    | Transformation |                   |                 |
| FFT size          | 9600           | Overlap           | 0 %             |
| Window function.  | Hanning        | Smooth            | Off             |
| dB weighting      | A Weighting    |                   |                 |
| Stimulus min.     | 410.0 Hz       | Stimulus max.     | 595.0 Hz        |
| Analysis min.     | 20.0 Hz        | Analysis max.     | 405.0 Hz        |
| Analysis (2) min. | 600.0 Hz       | Analysis (2) max. | 20000.0 Hz      |

**Special Features**

Compensate delay 203.9000 ms (D\_RCV\_NB, Delay (Cross))

Store to variable RCVNB10\_500Hz

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

**labCORE Routing**

|                  |                                                                          |
|------------------|--------------------------------------------------------------------------|
| Out Channel 1 -> | Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker                      |
| Out Channel 2 -> | Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In                           |
| In Channel 1 <-  | Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out                        |
| In Channel 2 <-  | BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right |

**Analog In Mainboard Settings (Analog In 1/2)**

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

**Analog Out Mainboard Settings (Analog Out 1/2)**

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

**Microphone Settings (Mic Amp. (Slot 6))****Channel In 1 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 2 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 3 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 4 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

BEQ Settings (BEQ Filter 1)  
Block mode Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

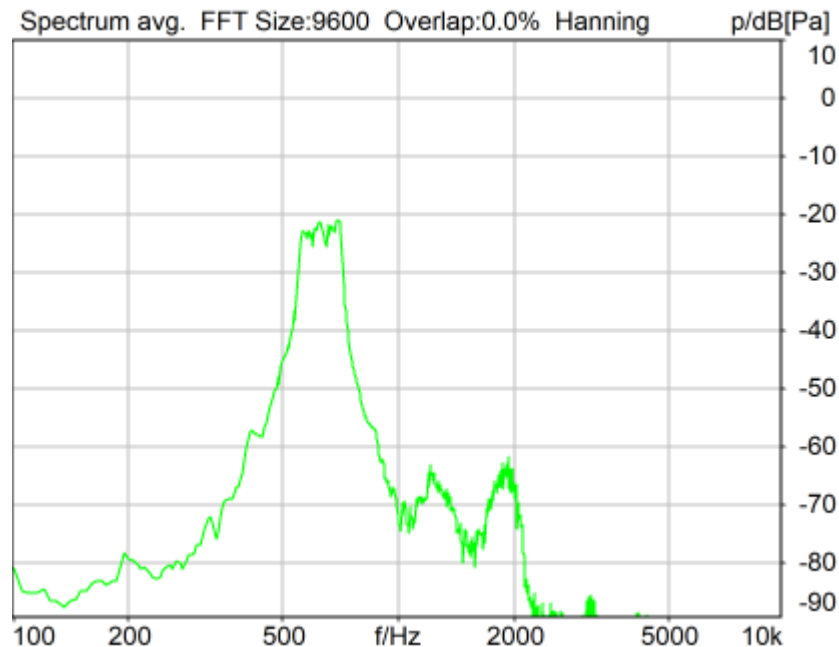
Ser. Nr. 12306613 Pinna Type Type 3.3

#### HIB Settings

|                        |                    |                        |          |
|------------------------|--------------------|------------------------|----------|
| HIB Name               | 60020095           | Serial                 | 60020095 |
| HIB Mode               | Mobile Measurement | Impedance              | 32 Ohm   |
| Gain out 1             | -40.00 dB          | Gain out 2             | 0.00 dB  |
| Gain in 1              | 0.00 dB            | Gain in 2              | 0.00 dB  |
| Mic 1 Power Supply Off |                    | Mic 2 Power Supply Off |          |

## 5.2 RCV Distortion and Noise - 630 Hz NB

TIA-5050 (2018-01) \ Measurements \ Narrowband \ 5.2 Receive Distortion and Noise 8N



Distortion (Noise) RCV (packed): 27.01 dB (4.46%) Ok

Ok

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Unmodified HEAD acoustics Measurement Descriptor

#### Limits

|       |          |
|-------|----------|
|       | lower    |
| Run 1 | 20.00 dB |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)  
Database Version: 40\_HAC\_Suite\_Rev03

**Source: act\_rpn\_b250ms\_630hz\_sr20dbm0\_v02.dat**

Level adj. Ch1 -90.0 dB

**Calibration**

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))

Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

**HHP IV Settings (Setting: STD:(0,0,0) rel AHP)**

|                          |         |                  |       |
|--------------------------|---------|------------------|-------|
| MECRP Delta Ye           | 0.0 mm  | Rotation Delta A | 0.0 ° |
| MECRP Delta Ze           | 0.0 mm  | Rotation Delta C | 0.0 ° |
| Delta Xe                 | 0.0 mm  | Rotation Delta B | 5.0 ° |
| Delta Ye                 | 0.0 mm  | Delta A          | 0.0 ° |
| Delta Ze                 | 0.0 mm  | Delta C          | 0.0 ° |
| Ym                       | -4.6 mm | Delta B          | 0.0 ° |
| Ear Type 3.3 Coordinates |         |                  |       |

Mounting: Right Ear

Force to apply: 8.0 N, Force reached: 7.9 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                   |                |                   |                 |
|-------------------|----------------|-------------------|-----------------|
| Direction         | Out 2 -> In 2  |                   |                 |
| Range start       | 13550.00 ms    | Range length      | 200.00 ms       |
| Number of seq.    | 10             | Sequence length   | 400.00 ms       |
| Use FIR Filter    | Ch2            | FIR filter        | drp2ff_ieee1652 |
| DRP/ERP Ch.1:     | Off            | DRP/ERP Ch.2:     | Off             |
| Frequency base    | Transformation |                   |                 |
| FFT size          | 9600           | Overlap           | 0 %             |
| Window function.  | Hanning        | Smooth            | Off             |
| dB weighting      | A Weighting    |                   |                 |
| Stimulus min.     | 525.0 Hz       | Stimulus max.     | 745.0 Hz        |
| Analysis min.     | 20.0 Hz        | Analysis max.     | 520.0 Hz        |
| Analysis (2) min. | 750.0 Hz       | Analysis (2) max. | 20000.0 Hz      |

**Special Features**

Compensate delay 203.9000 ms (D\_RCV\_NB, Delay (Cross))

Store to variable RCVNB10\_630Hz

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

**labCORE Routing**

|                  |                                                                          |
|------------------|--------------------------------------------------------------------------|
| Out Channel 1 -> | Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker                      |
| Out Channel 2 -> | Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In                           |
| In Channel 1 <-  | Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out                        |
| In Channel 2 <-  | BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right |

**Analog In Mainboard Settings (Analog In 1/2)**

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

**Analog Out Mainboard Settings (Analog Out 1/2)**

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

**Microphone Settings (Mic Amp. (Slot 6))**

|                       |                          |                |      |
|-----------------------|--------------------------|----------------|------|
| Channel In 1 Settings |                          |                |      |
| Range                 | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage  | 200V                     | Supply Voltage | ±60V |
| Channel In 2 Settings |                          |                |      |
| Range                 | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |

|                       |                          |                |      |
|-----------------------|--------------------------|----------------|------|
| Polarisation Voltage  | 200V                     | Supply Voltage | ±60V |
| Channel In 3 Settings |                          |                |      |
| Range                 | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage  | 200V                     | Supply Voltage | ±60V |
| Channel In 4 Settings |                          |                |      |
| Range                 | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage  | 200V                     | Supply Voltage | ±60V |

-----  
BEQ Settings (BEQ Filter 1)  
Block mode Bypass  
-----

Artificial Head Settings (HATS 1 (HMS II.3))

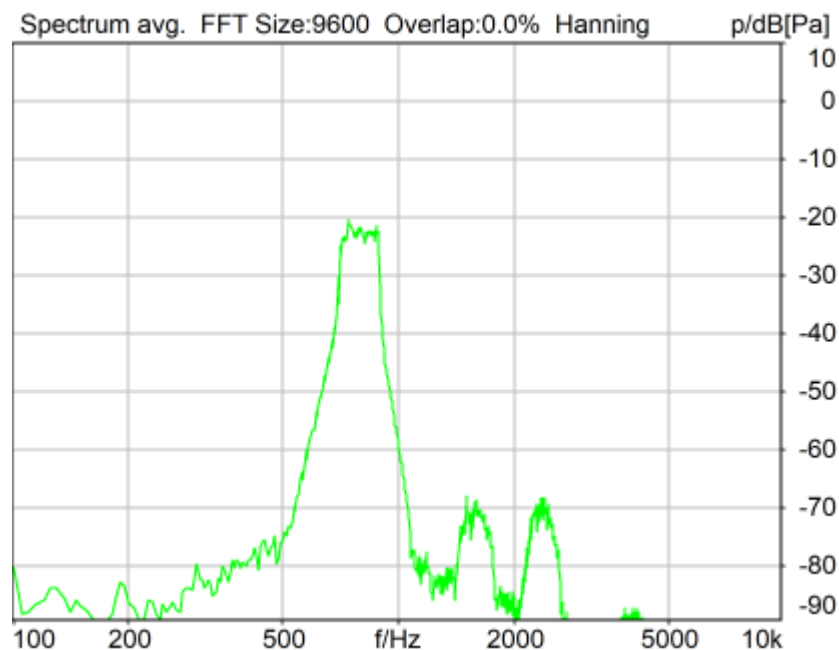
|          |          |            |          |
|----------|----------|------------|----------|
| Ser. Nr. | 12306613 | Pinna Type | Type 3.3 |
|----------|----------|------------|----------|

#### HIB Settings

|                    |                    |                    |          |
|--------------------|--------------------|--------------------|----------|
| HIB Name           | 60020095           | Serial             | 60020095 |
| HIB Mode           | Mobile Measurement | Impedance          | 32 Ohm   |
| Gain out 1         | -40.00 dB          | Gain out 2         | 0.00 dB  |
| Gain in 1          | 0.00 dB            | Gain in 2          | 0.00 dB  |
| Mic 1 Power Supply | Off                | Mic 2 Power Supply | Off      |

## 5.2 RCV Distortion and Noise - 800 Hz NB

TIA-5050 (2018-01) \ Measurements \ Narrowband \ 5.2 Receive Distortion and Noise 8N



Distortion (Noise) RCV (packed): 28.58 dB (3.72%) Ok

Ok

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Unmodified HEAD acoustics Measurement Descriptor

Limits

|       |              |
|-------|--------------|
|       | <b>lower</b> |
| Run 1 | 20.00 dB     |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)

Database Version: 40\_HAC\_Suite\_Rev03

**Source:** act\_rpn\_b250ms\_800hz\_sr20dbm0\_v02.dat

Level adj. Ch1 -90.0 dB

**Calibration**

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))

Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

**HHP IV Settings (Setting: STD:(0,0,0) rel AHP)**

|                          |         |                  |       |
|--------------------------|---------|------------------|-------|
| MECRP Delta Ye           | 0.0 mm  | Rotation Delta A | 0.0 ° |
| MECRP Delta Ze           | 0.0 mm  | Rotation Delta C | 0.0 ° |
| Delta Xe                 | 0.0 mm  | Rotation Delta B | 5.0 ° |
| Delta Ye                 | 0.0 mm  | Delta A          | 0.0 ° |
| Delta Ze                 | 0.0 mm  | Delta C          | 0.0 ° |
| Ym                       | -4.6 mm | Delta B          | 0.0 ° |
| Ear Type 3.3 Coordinates |         |                  |       |

Mounting: Right Ear

Force to apply: 8.0 N, Force reached: 7.9 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                   |                |                   |                 |
|-------------------|----------------|-------------------|-----------------|
| Direction         | Out 2 -> In 2  |                   |                 |
| Range start       | 13550.00 ms    | Range length      | 200.00 ms       |
| Number of seq.    | 10             | Sequence length   | 400.00 ms       |
| Use FIR Filter    | Ch2            | FIR filter        | drp2ff_ieee1652 |
| DRP/ERP Ch.1:     | Off            | DRP/ERP Ch.2:     | Off             |
| Frequency base    | Transformation |                   |                 |
| FFT size          | 9600           | Overlap           | 0 %             |
| Window function.  | Hanning        | Smooth            | Off             |
| dB weighting      | A Weighting    |                   |                 |
| Stimulus min.     | 675.0 Hz       | Stimulus max.     | 925.0 Hz        |
| Analysis min.     | 20.0 Hz        | Analysis max.     | 670.0 Hz        |
| Analysis (2) min. | 930.0 Hz       | Analysis (2) max. | 20000.0 Hz      |

**Special Features**

Compensate delay 203.9000 ms (D\_RCV\_NB, Delay (Cross))

Store to variable RCVNB10\_800Hz

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

**labCORE Routing**

|                  |                                                                          |
|------------------|--------------------------------------------------------------------------|
| Out Channel 1 -> | Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker                      |
| Out Channel 2 -> | Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In                           |
| In Channel 1 <-  | Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out                        |
| In Channel 2 <-  | BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right |

Analog In Mainboard Settings (Analog In 1/2)

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

Analog Out Mainboard Settings (Analog Out 1/2)

Range Ch. 1 0.00 dB Range Ch. 2 0.00 dB

-----  
Microphone Settings (Mic Amp. (Slot 6))

## Channel In 1 Settings

Range 114 dB[SPL] @ 12.5 mV/Pa Highpass Off  
Polarisation Voltage 200V Supply Voltage ±60V

## Channel In 2 Settings

Range 114 dB[SPL] @ 12.5 mV/Pa Highpass 20Hz  
Polarisation Voltage 200V Supply Voltage ±60V

## Channel In 3 Settings

Range 114 dB[SPL] @ 12.5 mV/Pa Highpass Off  
Polarisation Voltage 200V Supply Voltage ±60V

## Channel In 4 Settings

Range 114 dB[SPL] @ 12.5 mV/Pa Highpass Off  
Polarisation Voltage 200V Supply Voltage ±60V

-----  
BEQ Settings (BEQ Filter 1)

Block mode Bypass

-----  
Artificial Head Settings (HATS 1 (HMS II.3))

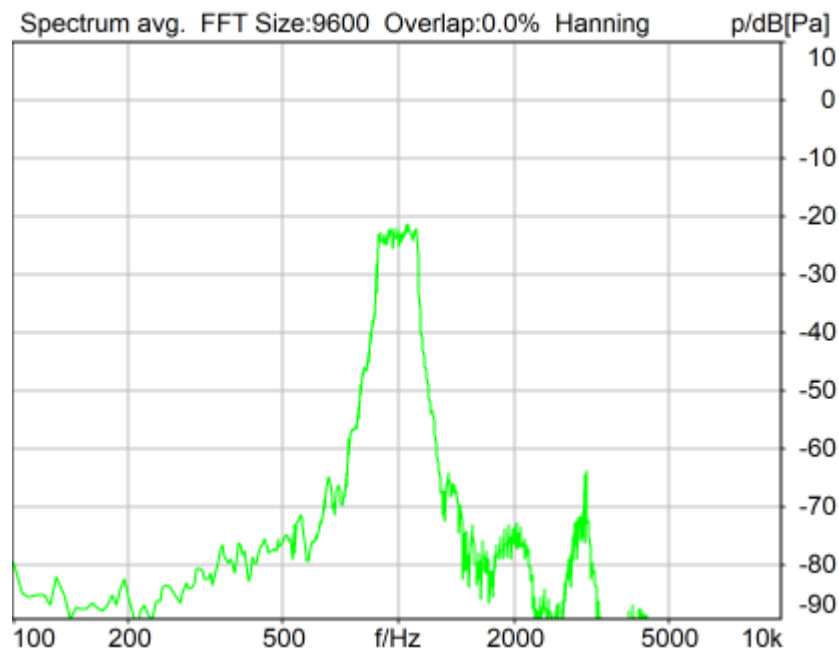
Ser. Nr. 12306613 Pinna Type Type 3.3

**HIB Settings**

|                    |                    |                    |          |
|--------------------|--------------------|--------------------|----------|
| HIB Name           | 60020095           | Serial             | 60020095 |
| HIB Mode           | Mobile Measurement | Impedance          | 32 Ohm   |
| Gain out 1         | -40.00 dB          | Gain out 2         | 0.00 dB  |
| Gain in 1          | 0.00 dB            | Gain in 2          | 0.00 dB  |
| Mic 1 Power Supply | Off                | Mic 2 Power Supply | Off      |

## **5.2 RCV Distortion and Noise - 1000 Hz NB**

TIA-5050 (2018-01) \ Measurements \ Narrowband \ 5.2 Receive Distortion and Noise 8N



Distortion (Noise) RCV (packed): 26.21 dB (4.89%) Ok

**Ok**

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Unmodified HEAD acoustics Measurement Descriptor

**Limits**

|       | lower    |
|-------|----------|
| Run 1 | 20.00 dB |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)

Database Version: 40\_HAC\_Suite\_Rev03

**Source: act\_rpn\_b250ms\_1000hz\_sr20dbm0\_v02.dat**

Level adj. Ch1 -90.0 dB

**Calibration**

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))

Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

**HHP IV Settings (Setting: STD:(0,0,0) rel AHP)**

|                |         |                          |       |
|----------------|---------|--------------------------|-------|
| MECRP Delta Ye | 0.0 mm  | Rotation Delta A         | 0.0 ° |
| MECRP Delta Ze | 0.0 mm  | Rotation Delta C         | 0.0 ° |
| Delta Xe       | 0.0 mm  | Rotation Delta B         | 5.0 ° |
| Delta Ye       | 0.0 mm  | Delta A                  | 0.0 ° |
| Delta Ze       | 0.0 mm  | Delta C                  | 0.0 ° |
| Ym             | -4.6 mm | Delta B                  | 0.0 ° |
|                |         | Ear Type 3.3 Coordinates |       |

Mounting: Right Ear

Force to apply: 8.0 N, Force reached: 7.9 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                   |                |                   |                 |
|-------------------|----------------|-------------------|-----------------|
| Direction         | Out 2 -> In 2  |                   |                 |
| Range start       | 13550.00 ms    | Range length      | 200.00 ms       |
| Number of seq.    | 10             | Sequence length   | 400.00 ms       |
| Use FIR Filter    | Ch2            | FIR filter        | drp2ff_ieee1652 |
| DRP/ERP Ch.1:     | Off            | DRP/ERP Ch.2:     | Off             |
| Frequency base    | Transformation |                   |                 |
| FFT size          | 9600           | Overlap           | 0 %             |
| Window function.  | Hanning        | Smooth            | Off             |
| dB weighting      | A Weighting    |                   |                 |
| Stimulus min.     | 855.0 Hz       | Stimulus max.     | 1155.0 Hz       |
| Analysis min.     | 20.0 Hz        | Analysis max.     | 850.0 Hz        |
| Analysis (2) min. | 1160.0 Hz      | Analysis (2) max. | 20000.0 Hz      |

**Special Features**

Compensate delay 203.9000 ms (D\_RCV\_NB, Delay (Cross))

Store to variable RCVNB10\_1000Hz

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

-----

labCORE Routing

Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker  
Out Channel 2 -> Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In  
In Channel 1 <- Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out  
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

-----  
Analog In Mainboard Settings (Analog In 1/2)

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

-----  
Analog Out Mainboard Settings (Analog Out 1/2)

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

-----  
Microphone Settings (Mic Amp. (Slot 6))

## Channel In 1 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

## Channel In 2 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

## Channel In 3 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

## Channel In 4 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

-----  
BEQ Settings (BEQ Filter 1)

|            |        |
|------------|--------|
| Block mode | Bypass |
|------------|--------|

-----  
Artificial Head Settings (HATS 1 (HMS II.3))

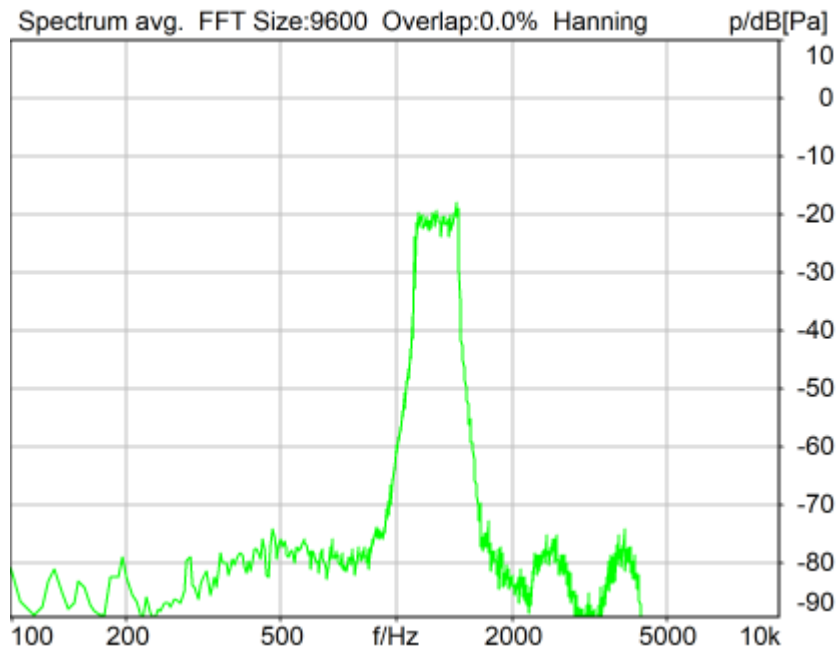
|          |          |            |          |
|----------|----------|------------|----------|
| Ser. Nr. | 12306613 | Pinna Type | Type 3.3 |
|----------|----------|------------|----------|

**HIB Settings**

|                    |                    |                    |          |
|--------------------|--------------------|--------------------|----------|
| HIB Name           | 60020095           | Serial             | 60020095 |
| HIB Mode           | Mobile Measurement | Impedance          | 32 Ohm   |
| Gain out 1         | -40.00 dB          | Gain out 2         | 0.00 dB  |
| Gain in 1          | 0.00 dB            | Gain in 2          | 0.00 dB  |
| Mic 1 Power Supply | Off                | Mic 2 Power Supply | Off      |

**5.2 RCV Distortion and Noise - 1250 Hz NB**

TIA-5050 (2018-01) \ Measurements \ Narrowband \ 5.2 Receive Distortion and Noise 8N



Distortion (Noise) RCV (packed): 23.68 dB (6.54%) Ok

**Ok**

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Unmodified HEAD acoustics Measurement Descriptor

#### Limits

|       | lower    |
|-------|----------|
| Run 1 | 20.00 dB |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)

Database Version: 40\_HAC\_Suite\_Rev03

**Source:** act\_rpn\_b250ms\_1250hz\_sr20dbm0\_v02.dat

Level adj. Ch1 -90.0 dB

#### Calibration

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))

Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

#### HHP IV Settings (Setting: STD:(0,0,0) rel AHP)

|                |         |                          |       |
|----------------|---------|--------------------------|-------|
| MECRP Delta Ye | 0.0 mm  | Rotation Delta A         | 0.0 ° |
| MECRP Delta Ze | 0.0 mm  | Rotation Delta C         | 0.0 ° |
| Delta Xe       | 0.0 mm  | Rotation Delta B         | 5.0 ° |
| Delta Ye       | 0.0 mm  | Delta A                  | 0.0 ° |
| Delta Ze       | 0.0 mm  | Delta C                  | 0.0 ° |
| Ym             | -4.6 mm | Delta B                  | 0.0 ° |
|                |         | Ear Type 3.3 Coordinates |       |

Mounting: Right Ear

Force to apply: 8.0 N, Force reached: 7.9 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                   |                |                   |                 |
|-------------------|----------------|-------------------|-----------------|
| Direction         | Out 2 -> In 2  |                   |                 |
| Range start       | 13550.00 ms    | Range length      | 200.00 ms       |
| Number of seq.    | 10             | Sequence length   | 400.00 ms       |
| Use FIR Filter    | Ch2            | FIR filter        | drp2ff_ieee1652 |
| DRP/ERP Ch.1:     | Off            | DRP/ERP Ch.2:     | Off             |
| Frequency base    | Transformation |                   |                 |
| FFT size          | 9600           | Overlap           | 0 %             |
| Window function.  | Hanning        | Smooth            | Off             |
| dB weighting      | A Weighting    |                   |                 |
| Stimulus min.     | 1085.0 Hz      | Stimulus max.     | 1450.0 Hz       |
| Analysis min.     | 20.0 Hz        | Analysis max.     | 1080.0 Hz       |
| Analysis (2) min. | 1455.0 Hz      | Analysis (2) max. | 20000.0 Hz      |

**Special Features**

Compensate delay 203.9000 ms (D\_RCV\_NB, Delay (Cross))  
Store to variable RCVNB10\_1250Hz

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

**labCORE Routing**

Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker  
Out Channel 2 -> Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In  
In Channel 1 <- Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out  
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

**Analog In Mainboard Settings (Analog In 1/2)**

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

**Analog Out Mainboard Settings (Analog Out 1/2)**

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

**Microphone Settings (Mic Amp. (Slot 6))****Channel In 1 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 2 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 3 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 4 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**BEQ Settings (BEQ Filter 1)**

Block mode Bypass

**Artificial Head Settings (HATS 1 (HMS II.3))**

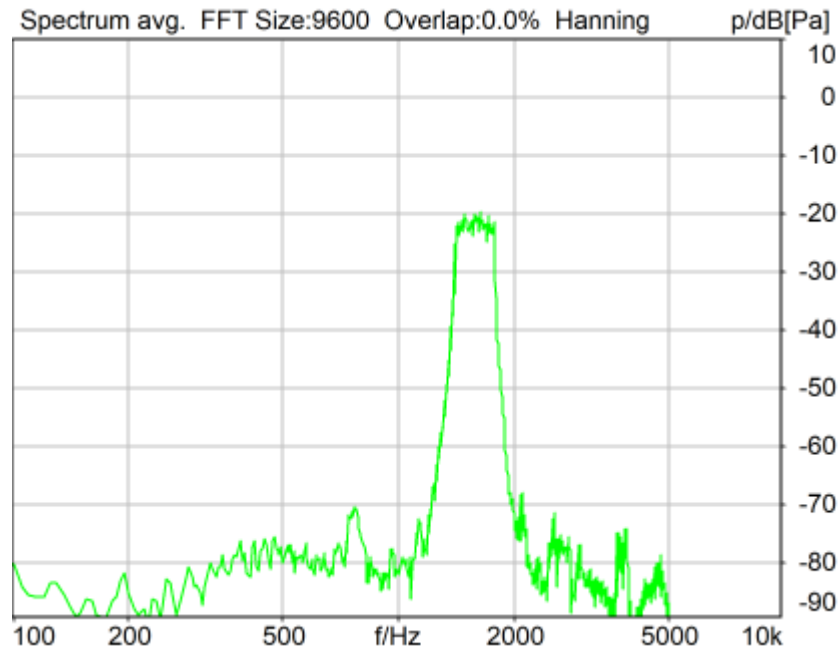
|          |          |            |          |
|----------|----------|------------|----------|
| Ser. Nr. | 12306613 | Pinna Type | Type 3.3 |
|----------|----------|------------|----------|

**HIB Settings**

|                    |                    |                    |          |
|--------------------|--------------------|--------------------|----------|
| HIB Name           | 60020095           | Serial             | 60020095 |
| HIB Mode           | Mobile Measurement | Impedance          | 32 Ohm   |
| Gain out 1         | -40.00 dB          | Gain out 2         | 0.00 dB  |
| Gain in 1          | 0.00 dB            | Gain in 2          | 0.00 dB  |
| Mic 1 Power Supply | Off                | Mic 2 Power Supply | Off      |

## 5.2 RCV Distortion and Noise - 1600 Hz NB

TIA-5050 (2018-01) \ Measurements \ Narrowband \ 5.2 Receive Distortion and Noise 8N



Distortion (Noise) RCV (packed): 29.82 dB (3.23%) Ok

Ok

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Unmodified HEAD acoustics Measurement Descriptor

### Limits

|       | lower    |
|-------|----------|
| Run 1 | 20.00 dB |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)

Database Version: 40\_HAC\_Suite\_Rev03

Source: act\_rpn\_b250ms\_1600hz\_sr20dbm0\_v02.dat

Level adj. Ch1 -90.0 dB

### Calibration

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))

Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

HHP IV Settings (Setting: STD:(0,0,0) rel AHP)

|                |        |                  |       |
|----------------|--------|------------------|-------|
| MECRP Delta Ye | 0.0 mm | Rotation Delta A | 0.0 ° |
|                |        | Rotation Delta C | 0.0 ° |

|                |         |                          |       |
|----------------|---------|--------------------------|-------|
| MECRP Delta Ze | 0.0 mm  | Rotation Delta B         | 5.0 ° |
| Delta Xe       | 0.0 mm  | Delta A                  | 0.0 ° |
| Delta Ye       | 0.0 mm  | Delta C                  | 0.0 ° |
| Delta Ze       | 0.0 mm  | Delta B                  | 0.0 ° |
| Ym             | -4.6 mm | Ear Type 3.3 Coordinates |       |

Mounting: Right Ear  
Force to apply: 8.0 N, Force reached: 7.9 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                   |                |                   |                 |
|-------------------|----------------|-------------------|-----------------|
| Direction         | Out 2 -> In 2  |                   |                 |
| Range start       | 13550.00 ms    | Range length      | 200.00 ms       |
| Number of seq.    | 10             | Sequence length   | 400.00 ms       |
| Use FIR Filter    | Ch2            | FIR filter        | drp2ff_ieee1652 |
| DRP/ERP Ch.1:     | Off            | DRP/ERP Ch.2:     | Off             |
| Frequency base    | Transformation |                   |                 |
| FFT size          | 9600           | Overlap           | 0 %             |
| Window function.  | Hanning        | Smooth            | Off             |
| dB weighting      | A Weighting    |                   |                 |
| Stimulus min.     | 1375.0 Hz      | Stimulus max.     | 1815.0 Hz       |
| Analysis min.     | 20.0 Hz        | Analysis max.     | 1370.0 Hz       |
| Analysis (2) min. | 1820.0 Hz      | Analysis (2) max. | 20000.0 Hz      |

**Special Features**

Compensate delay 203.9000 ms (D\_RCV\_NB, Delay (Cross))  
Store to variable RCVNB10\_1600Hz

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

**labCORE Routing**

Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker  
Out Channel 2 -> Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In  
In Channel 1 <- Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out  
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

**Analog In Mainboard Settings (Analog In 1/2)**

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

**Analog Out Mainboard Settings (Analog Out 1/2)**

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

**Microphone Settings (Mic Amp. (Slot 6))****Channel In 1 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 2 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 3 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 4 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**BEQ Settings (BEQ Filter 1)**

Block mode Bypass

**Artificial Head Settings (HATS 1 (HMS II.3))**

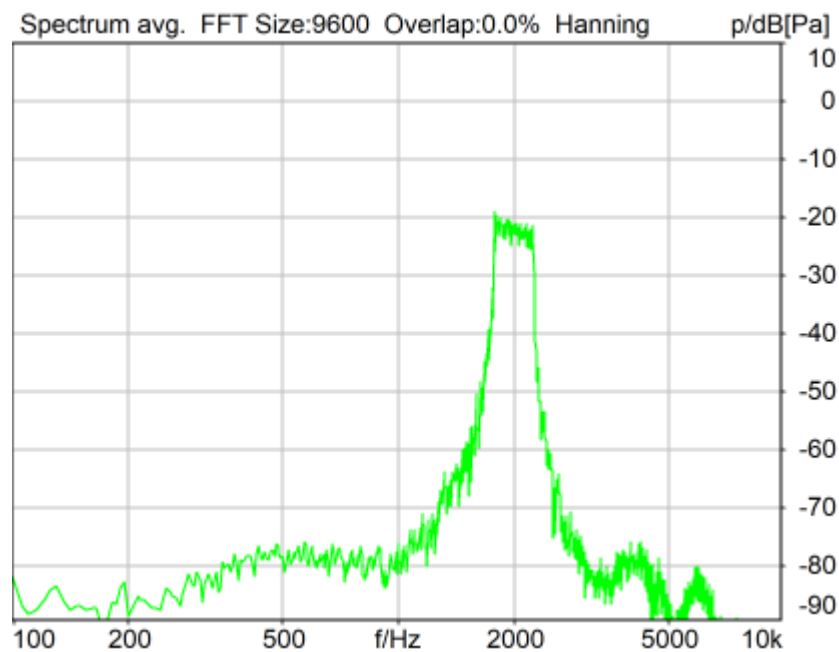
Ser. Nr. 12306613 Pinna Type Type 3.3

#### HIB Settings

|                        |                    |                        |          |
|------------------------|--------------------|------------------------|----------|
| HIB Name               | 60020095           | Serial                 | 60020095 |
| HIB Mode               | Mobile Measurement | Impedance              | 32 Ohm   |
| Gain out 1             | -40.00 dB          | Gain out 2             | 0.00 dB  |
| Gain in 1              | 0.00 dB            | Gain in 2              | 0.00 dB  |
| Mic 1 Power Supply Off |                    | Mic 2 Power Supply Off |          |

## 5.2 RCV Distortion and Noise - 2000 Hz NB

TIA-5050 (2018-01) \ Measurements \ Narrowband \ 5.2 Receive Distortion and Noise 8N



Distortion (Noise) RCV (packed): 25.63 dB (5.23%) Ok

**Ok**

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Unmodified HEAD acoustics Measurement Descriptor

#### Limits

|       |          |
|-------|----------|
|       | lower    |
| Run 1 | 20.00 dB |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)

Database Version: 40\_HAC\_Suite\_Rev03

Source: act\_rpn\_b250ms\_2000hz\_sr20dbm0\_v02.dat

Level adj. Ch1 -90.0 dB

**Calibration**

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))

Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

**HHP IV Settings (Setting: STD:(0,0,0) rel AHP)**

|                |         |                          |       |
|----------------|---------|--------------------------|-------|
| MECRP Delta Ye | 0.0 mm  | Rotation Delta A         | 0.0 ° |
| MECRP Delta Ze | 0.0 mm  | Rotation Delta C         | 0.0 ° |
| Delta Xe       | 0.0 mm  | Rotation Delta B         | 5.0 ° |
| Delta Ye       | 0.0 mm  | Delta A                  | 0.0 ° |
| Delta Ze       | 0.0 mm  | Delta C                  | 0.0 ° |
| Ym             | -4.6 mm | Delta B                  | 0.0 ° |
|                |         | Ear Type 3.3 Coordinates |       |

Mounting: Right Ear

Force to apply: 8.0 N, Force reached: 7.9 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                   |                |                   |                 |
|-------------------|----------------|-------------------|-----------------|
| Direction         | Out 2 -> In 2  |                   |                 |
| Range start       | 13550.00 ms    | Range length      | 200.00 ms       |
| Number of seq.    | 10             | Sequence length   | 400.00 ms       |
| Use FIR Filter    | Ch2            | FIR filter        | drp2ff_ieee1652 |
| DRP/ERP Ch.1:     | Off            | DRP/ERP Ch.2:     | Off             |
| Frequency base    | Transformation |                   |                 |
| FFT size          | 9600           | Overlap           | 0 %             |
| Window function.  | Hanning        | Smooth            | Off             |
| dB weighting      | A Weighting    |                   |                 |
| Stimulus min.     | 1745.0 Hz      | Stimulus max.     | 2275.0 Hz       |
| Analysis min.     | 20.0 Hz        | Analysis max.     | 1740.0 Hz       |
| Analysis (2) min. | 2280.0 Hz      | Analysis (2) max. | 20000.0 Hz      |

**Special Features**

Compensate delay 203.9000 ms (D\_RCV\_NB, Delay (Cross))

Store to variable RCVNB10\_2000Hz

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

**labCORE Routing**

|                  |                                                                          |
|------------------|--------------------------------------------------------------------------|
| Out Channel 1 -> | Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker                      |
| Out Channel 2 -> | Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In                           |
| In Channel 1 <-  | Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out                        |
| In Channel 2 <-  | BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right |

**Analogue In Mainboard Settings (Analog In 1/2)**

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

**Analogue Out Mainboard Settings (Analog Out 1/2)**

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

**Microphone Settings (Mic Amp. (Slot 6))****Channel In 1 Settings**

|                          |                          |                |      |
|--------------------------|--------------------------|----------------|------|
| Range                    | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage200V |                          | Supply Voltage | ±60V |

**Channel In 2 Settings**

|                          |                          |                |      |
|--------------------------|--------------------------|----------------|------|
| Range                    | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage200V |                          | Supply Voltage | ±60V |

**Channel In 3 Settings**

|                          |                          |                |      |
|--------------------------|--------------------------|----------------|------|
| Range                    | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage200V |                          | Supply Voltage | ±60V |

Channel In 4 Settings

Range 114 dB[SPL] @ 12.5 mV/Pa Highpass Off  
Polarisation Voltage 200V Supply Voltage ±60V

BEQ Settings (BEQ Filter 1)

Block mode Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

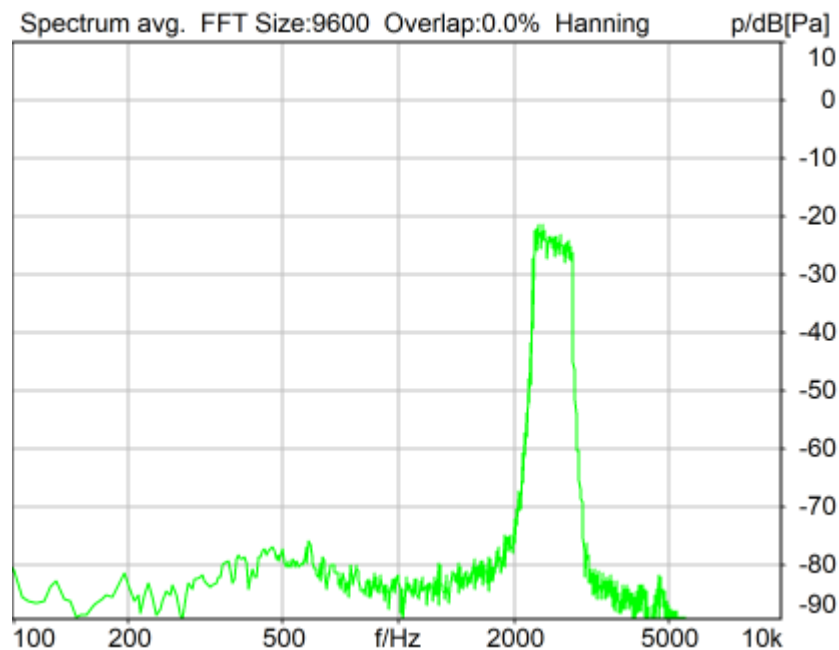
Ser. Nr. 12306613 Pinna Type Type 3.3

HIB Settings

HIB Name 60020095 Serial 60020095  
HIB Mode Mobile Measurement Impedance 32 Ohm  
Gain out 1 -40.00 dB Gain out 2 0.00 dB  
Gain in 1 0.00 dB Gain in 2 0.00 dB  
Mic 1 Power Supply Off Mic 2 Power Supply Off

## 5.2 RCV Distortion and Noise - 2500 Hz NB

TIA-5050 (2018-01) \ Measurements \ Narrowband \ 5.2 Receive Distortion and Noise 8N



Distortion (Noise) RCV (packed): 32.51 dB (2.37%) Ok

Ok

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Unmodified HEAD acoustics Measurement Descriptor

Limits

|       | lower    |
|-------|----------|
| Run 1 | 20.00 dB |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)  
Database Version: 40\_HAC\_Suite\_Rev03**Source: act\_rpn\_b250ms\_2500hz\_sr20dbm0\_v02.dat**

Level adj. Ch1 -90.0 dB

**Calibration**

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))

Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

**HHP IV Settings (Setting: STD:(0,0,0) rel AHP)**

|                |         |                          |       |
|----------------|---------|--------------------------|-------|
| MECRP Delta Ye | 0.0 mm  | Rotation Delta A         | 0.0 ° |
| MECRP Delta Ze | 0.0 mm  | Rotation Delta C         | 0.0 ° |
| Delta Xe       | 0.0 mm  | Rotation Delta B         | 5.0 ° |
| Delta Ye       | 0.0 mm  | Delta A                  | 0.0 ° |
| Delta Ze       | 0.0 mm  | Delta C                  | 0.0 ° |
| Ym             | -4.6 mm | Delta B                  | 0.0 ° |
|                |         | Ear Type 3.3 Coordinates |       |

Mounting: Right Ear

Force to apply: 8.0 N, Force reached: 7.9 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                   |                |                   |                 |
|-------------------|----------------|-------------------|-----------------|
| Direction         | Out 2 -> In 2  |                   |                 |
| Range start       | 13550.00 ms    | Range length      | 200.00 ms       |
| Number of seq.    | 10             | Sequence length   | 400.00 ms       |
| Use FIR Filter    | Ch2            | FIR filter        | drp2ff_ieee1652 |
| DRP/ERP Ch.1:     | Off            | DRP/ERP Ch.2:     | Off             |
| Frequency base    | Transformation |                   |                 |
| FFT size          | 9600           | Overlap           | 0 %             |
| Window function.  | Hanning        | Smooth            | Off             |
| dB weighting      | A Weighting    |                   |                 |
| Stimulus min.     | 2205.0 Hz      | Stimulus max.     | 2855.0 Hz       |
| Analysis min.     | 20.0 Hz        | Analysis max.     | 2200.0 Hz       |
| Analysis (2) min. | 2860.0 Hz      | Analysis (2) max. | 20000.0 Hz      |

**Special Features**

Compensate delay 203.9000 ms (D\_RCV\_NB, Delay (Cross))

Store to variable RCVNB10\_2500Hz

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

**labCORE Routing**

|                  |                                                                          |
|------------------|--------------------------------------------------------------------------|
| Out Channel 1 -> | Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker                      |
| Out Channel 2 -> | Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In                           |
| In Channel 1 <-  | Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out                        |
| In Channel 2 <-  | BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right |

**Analog In Mainboard Settings (Analog In 1/2)**

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

**Analog Out Mainboard Settings (Analog Out 1/2)**

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

**Microphone Settings (Mic Amp. (Slot 6))**

Channel In 1 Settings

|                       |                          |                |      |
|-----------------------|--------------------------|----------------|------|
| Range                 | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage  | 200V                     | Supply Voltage | ±60V |
| Channel In 2 Settings |                          |                |      |
| Range                 | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage  | 200V                     | Supply Voltage | ±60V |
| Channel In 3 Settings |                          |                |      |
| Range                 | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage  | 200V                     | Supply Voltage | ±60V |
| Channel In 4 Settings |                          |                |      |
| Range                 | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage  | 200V                     | Supply Voltage | ±60V |

-----  
BEQ Settings (BEQ Filter 1)  
Block mode      Bypass  
-----

Artificial Head Settings (HATS 1 (HMS II.3))

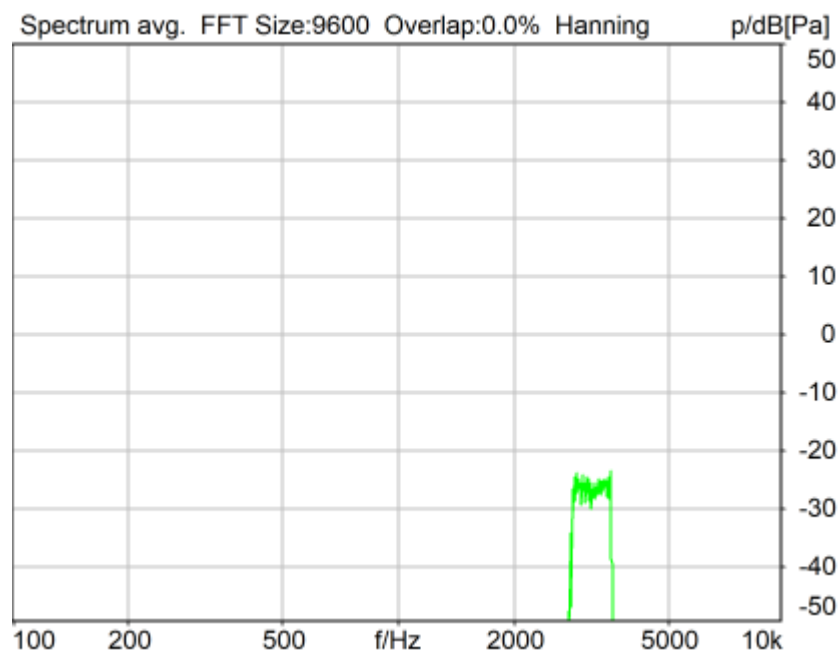
|          |          |            |          |
|----------|----------|------------|----------|
| Ser. Nr. | 12306613 | Pinna Type | Type 3.3 |
|----------|----------|------------|----------|

#### HIB Settings

|                    |                    |                    |          |
|--------------------|--------------------|--------------------|----------|
| HIB Name           | 60020095           | Serial             | 60020095 |
| HIB Mode           | Mobile Measurement | Impedance          | 32 Ohm   |
| Gain out 1         | -40.00 dB          | Gain out 2         | 0.00 dB  |
| Gain in 1          | 0.00 dB            | Gain in 2          | 0.00 dB  |
| Mic 1 Power Supply | Off                | Mic 2 Power Supply | Off      |

## 5.2 RCV Distortion and Noise - 3150 Hz NB

TIA-5050 (2018-01) \ Measurements \ Narrowband \ 5.2 Receive Distortion and Noise 8N



Distortion (Noise) RCV (packed): 31.10 dB (2.78%) Ok

Ok

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Unmodified HEAD acoustics Measurement Descriptor

**Limits**

|       | lower    |
|-------|----------|
| Run 1 | 20.00 dB |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)  
Database Version: 40\_HAC\_Suite\_Rev03**Source:** act\_rpn\_b250ms\_3150hz\_sr20dbm0\_v02.dat

Level adj. Ch1 -90.0 dB

**Calibration**

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))

Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

**HHP IV Settings (Setting: STD:(0,0,0) rel AHP)**

|                |         |                          |       |
|----------------|---------|--------------------------|-------|
| MECRP Delta Ye | 0.0 mm  | Rotation Delta A         | 0.0 ° |
| MECRP Delta Ze | 0.0 mm  | Rotation Delta C         | 0.0 ° |
| Delta Xe       | 0.0 mm  | Rotation Delta B         | 5.0 ° |
| Delta Ye       | 0.0 mm  | Delta A                  | 0.0 ° |
| Delta Ze       | 0.0 mm  | Delta C                  | 0.0 ° |
| Ym             | -4.6 mm | Delta B                  | 0.0 ° |
|                |         | Ear Type 3.3 Coordinates |       |

Mounting: Right Ear

Force to apply: 8.0 N, Force reached: 7.9 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                   |                |                   |                 |
|-------------------|----------------|-------------------|-----------------|
| Direction         | Out 2 -> In 2  |                   |                 |
| Range start       | 13550.00 ms    | Range length      | 200.00 ms       |
| Number of seq.    | 10             | Sequence length   | 400.00 ms       |
| Use FIR Filter    | Ch2            | FIR filter        | drp2ff_ieee1652 |
| DRP/ERP Ch.1:     | Off            | DRP/ERP Ch.2:     | Off             |
| Frequency base    | Transformation |                   |                 |
| FFT size          | 9600           | Overlap           | 0 %             |
| Window function.  | Hanning        | Smooth            | Off             |
| dB weighting      | A Weighting    |                   |                 |
| Stimulus min.     | 2785.0 Hz      | Stimulus max.     | 3585.0 Hz       |
| Analysis min.     | 20.0 Hz        | Analysis max.     | 2780.0 Hz       |
| Analysis (2) min. | 3590.0 Hz      | Analysis (2) max. | 20000.0 Hz      |

**Special Features**

Compensate delay 203.9000 ms (D\_RCV\_NB, Delay (Cross))

Store to variable RCVNB10\_3150Hz

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

-----

**labCORE Routing**

|                  |                                                                          |
|------------------|--------------------------------------------------------------------------|
| Out Channel 1 -> | Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker                      |
| Out Channel 2 -> | Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In                           |
| In Channel 1 <-  | Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out                        |
| In Channel 2 <-  | BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right |

-----

Analog In Mainboard Settings (Analog In 1/2)

Range Ch. 1      0.00 dB                      Ch. 0 Float      On  
Range Ch. 2      0.00 dB                      Ch. 1 Float      On

-----  
Analog Out Mainboard Settings (Analog Out 1/2)

Range Ch. 1      0.00 dB                      Range Ch. 2      0.00 dB

-----  
Microphone Settings (Mic Amp. (Slot 6))

## Channel In 1 Settings

Range              114 dB[SPL] @ 12.5 mV/Pa      Highpass      Off  
Polarisation Voltage200V                      Supply Voltage      ±60V

## Channel In 2 Settings

Range              114 dB[SPL] @ 12.5 mV/Pa      Highpass      20Hz  
Polarisation Voltage200V                      Supply Voltage      ±60V

## Channel In 3 Settings

Range              114 dB[SPL] @ 12.5 mV/Pa      Highpass      Off  
Polarisation Voltage200V                      Supply Voltage      ±60V

## Channel In 4 Settings

Range              114 dB[SPL] @ 12.5 mV/Pa      Highpass      Off  
Polarisation Voltage200V                      Supply Voltage      ±60V

-----  
BEQ Settings (BEQ Filter 1)

Block mode      Bypass

-----  
Artificial Head Settings (HATS 1 (HMS II.3))

Ser. Nr.              12306613                      Pinna Type      Type 3.3

**HIB Settings**

|                        |                    |                        |          |
|------------------------|--------------------|------------------------|----------|
| HIB Name               | 60020095           | Serial                 | 60020095 |
| HIB Mode               | Mobile Measurement | Impedance              | 32 Ohm   |
| Gain out 1             | -40.00 dB          | Gain out 2             | 0.00 dB  |
| Gain in 1              | 0.00 dB            | Gain in 2              | 0.00 dB  |
| Mic 1 Power Supply Off |                    | Mic 2 Power Supply Off |          |

## **Report - Receive Distortion and Noise (Conversational Gain)**

TIA-5050 (2018-01) \ Measurements \ Narrowband \ 5.2 Receive Distortion and Noise 8N

| Region | Frequency | SDNR     |
|--------|-----------|----------|
| 1      | 400Hz     | 26.37 dB |
| 2      | 500Hz     | 28.68 dB |
| 3      | 630Hz     | 27.01 dB |
| 4      | 800Hz     | 28.58 dB |
| 5      | 1000Hz    | 26.21 dB |
| 6      | 1250Hz    | 23.68 dB |
| 7      | 1600Hz    | 29.82 dB |
| 8      | 2000Hz    | 25.63 dB |
| 9      | 2500Hz    | 32.51 dB |
| 10     | 3150Hz    | 31.10 dB |

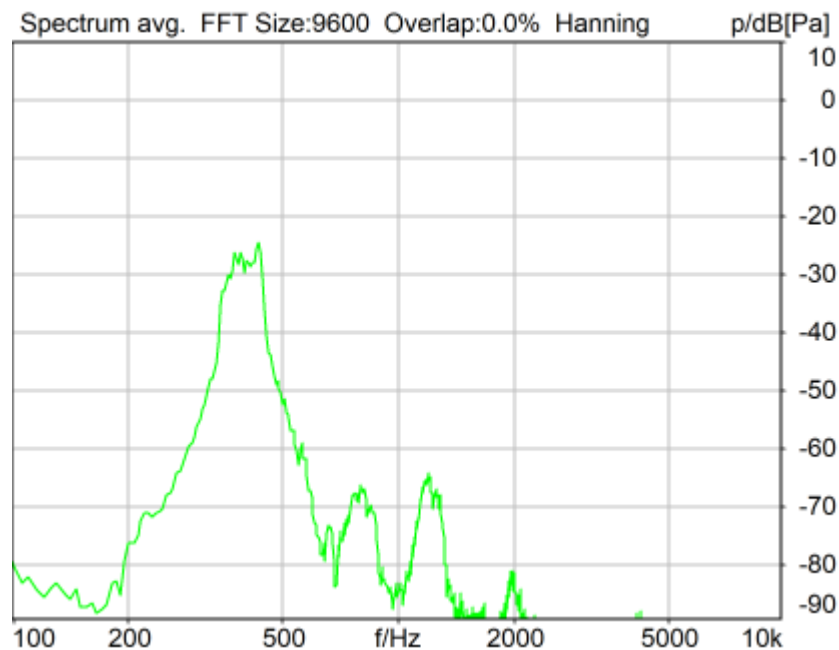
All SDNRs were greater than 20.0 dB, requirement was met.

Smallest SDNR was 23.68dB at 1250Hz.

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## 5.2 RCV Distortion and Noise - 400 Hz NB

TIA-5050 (2018-01) \ Measurements \ Narrowband \ 5.2 Receive Distortion and Noise 2N



Distortion (Noise) RCV (packed): 28.26 dB (3.86%) Ok

**Ok**

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Unmodified HEAD acoustics Measurement Descriptor

### Limits

|       | lower    |
|-------|----------|
| Run 1 | 20.00 dB |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)

Database Version: 40\_HAC\_Suite\_Rev03

Source: act\_rpn\_b250ms\_400hz\_sr20dbm0\_v02.dat

Level adj. Ch1 -90.0 dB

### Calibration

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))

Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

HHP IV Settings (Setting: STD:(0,0,0) rel AHP)

Rotation Delta A 0.0 °

|                |         |                          |       |
|----------------|---------|--------------------------|-------|
| MECRP Delta Ye | 0.0 mm  | Rotation Delta C         | 0.0 ° |
| MECRP Delta Ze | 0.0 mm  | Rotation Delta B         | 5.0 ° |
| Delta Xe       | 0.0 mm  | Delta A                  | 0.0 ° |
| Delta Ye       | 0.0 mm  | Delta C                  | 0.0 ° |
| Delta Ze       | 0.0 mm  | Delta B                  | 0.0 ° |
| Ym             | -1.3 mm | Ear Type 3.3 Coordinates |       |

Mounting: Right Ear  
Force to apply: 2.0 N, Force reached: 2.0 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                   |                |                   |                 |
|-------------------|----------------|-------------------|-----------------|
| Direction         | Out 2 -> In 2  |                   |                 |
| Range start       | 13550.00 ms    | Range length      | 200.00 ms       |
| Number of seq.    | 10             | Sequence length   | 400.00 ms       |
| Use FIR Filter    | Ch2            | FIR filter        | drp2ff_ieee1652 |
| DRP/ERP Ch.1:     | Off            | DRP/ERP Ch.2:     | Off             |
| Frequency base    | Transformation |                   |                 |
| FFT size          | 9600           | Overlap           | 0 %             |
| Window function.  | Hanning        | Smooth            | Off             |
| dB weighting      | A Weighting    |                   |                 |
| Stimulus min.     | 320.0 Hz       | Stimulus max.     | 480.0 Hz        |
| Analysis min.     | 20.0 Hz        | Analysis max.     | 315.0 Hz        |
| Analysis (2) min. | 485.0 Hz       | Analysis (2) max. | 20000.0 Hz      |

**Special Features**

Compensate delay 203.9000 ms (D\_RCV\_NB, Delay (Cross))  
Store to variable RCVNB10\_400Hz

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

**labCORE Routing**

Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker  
Out Channel 2 -> Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In  
In Channel 1 <- Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out  
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

**Analog In Mainboard Settings (Analog In 1/2)**

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

**Analog Out Mainboard Settings (Analog Out 1/2)**

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

**Microphone Settings (Mic Amp. (Slot 6))****Channel In 1 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 2 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 3 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 4 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**BEQ Settings (BEQ Filter 1)**

Block mode Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

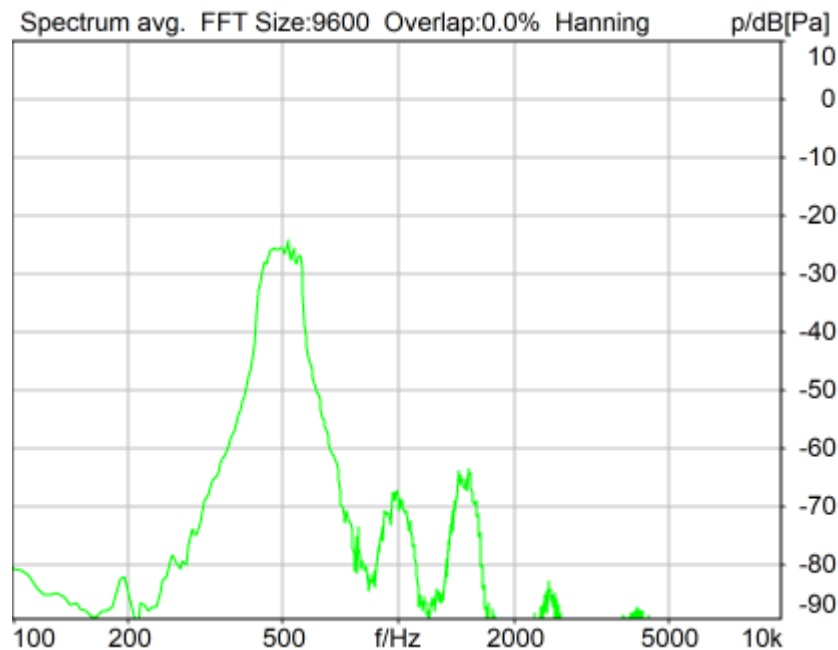
Ser. Nr. 12306613 Pinna Type Type 3.3

**HIB Settings**

|                        |                    |                        |          |
|------------------------|--------------------|------------------------|----------|
| HIB Name               | 60020095           | Serial                 | 60020095 |
| HIB Mode               | Mobile Measurement | Impedance              | 32 Ohm   |
| Gain out 1             | -40.00 dB          | Gain out 2             | 0.00 dB  |
| Gain in 1              | 0.00 dB            | Gain in 2              | 0.00 dB  |
| Mic 1 Power Supply Off |                    | Mic 2 Power Supply Off |          |

## 5.2 RCV Distortion and Noise - 500 Hz NB

TIA-5050 (2018-01) \ Measurements \ Narrowband \ 5.2 Receive Distortion and Noise 2N



Distortion (Noise) RCV (packed): 28.43 dB (3.79%) Ok

**Ok**

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Unmodified HEAD acoustics Measurement Descriptor

**Limits**

|       | lower    |
|-------|----------|
| Run 1 | 20.00 dB |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)

Database Version: 40\_HAC\_Suite\_Rev03

Source: act\_rpn\_b250ms\_500hz\_sr20dbm0\_v02.dat

Level adj. Ch1 -90.0 dB

**Calibration**

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))

Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

**HHP IV Settings (Setting: STD:(0,0,0) rel AHP)**

|                |         |                          |       |
|----------------|---------|--------------------------|-------|
| MECRP Delta Ye | 0.0 mm  | Rotation Delta A         | 0.0 ° |
| MECRP Delta Ze | 0.0 mm  | Rotation Delta C         | 0.0 ° |
| Delta Xe       | 0.0 mm  | Rotation Delta B         | 5.0 ° |
| Delta Ye       | 0.0 mm  | Delta A                  | 0.0 ° |
| Delta Ze       | 0.0 mm  | Delta C                  | 0.0 ° |
| Ym             | -1.3 mm | Delta B                  | 0.0 ° |
|                |         | Ear Type 3.3 Coordinates |       |

Mounting: Right Ear

Force to apply: 2.0 N, Force reached: 2.0 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                   |                |                   |                 |
|-------------------|----------------|-------------------|-----------------|
| Direction         | Out 2 -> In 2  |                   |                 |
| Range start       | 13550.00 ms    | Range length      | 200.00 ms       |
| Number of seq.    | 10             | Sequence length   | 400.00 ms       |
| Use FIR Filter    | Ch2            | FIR filter        | drp2ff_ieee1652 |
| DRP/ERP Ch.1:     | Off            | DRP/ERP Ch.2:     | Off             |
| Frequency base    | Transformation |                   |                 |
| FFT size          | 9600           | Overlap           | 0 %             |
| Window function.  | Hanning        | Smooth            | Off             |
| dB weighting      | A Weighting    |                   |                 |
| Stimulus min.     | 410.0 Hz       | Stimulus max.     | 595.0 Hz        |
| Analysis min.     | 20.0 Hz        | Analysis max.     | 405.0 Hz        |
| Analysis (2) min. | 600.0 Hz       | Analysis (2) max. | 20000.0 Hz      |

**Special Features**

Compensate delay 203.9000 ms (D\_RCV\_NB, Delay (Cross))

Store to variable RCVNB10\_500Hz

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

**labCORE Routing**

|                  |                                                                          |
|------------------|--------------------------------------------------------------------------|
| Out Channel 1 -> | Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker                      |
| Out Channel 2 -> | Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In                           |
| In Channel 1 <-  | Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out                        |
| In Channel 2 <-  | BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right |

**Analogue In Mainboard Settings (Analog In 1/2)**

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

**Analogue Out Mainboard Settings (Analog Out 1/2)**

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

**Microphone Settings (Mic Amp. (Slot 6))****Channel In 1 Settings**

|                          |                          |                |      |
|--------------------------|--------------------------|----------------|------|
| Range                    | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage200V |                          | Supply Voltage | ±60V |

**Channel In 2 Settings**

|                          |                          |                |      |
|--------------------------|--------------------------|----------------|------|
| Range                    | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage200V |                          | Supply Voltage | ±60V |

**Channel In 3 Settings**

|                          |                          |                |      |
|--------------------------|--------------------------|----------------|------|
| Range                    | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage200V |                          | Supply Voltage | ±60V |

Channel In 4 Settings

Range 114 dB[SPL] @ 12.5 mV/Pa Highpass Off  
Polarisation Voltage 200V Supply Voltage ±60V

BEQ Settings (BEQ Filter 1)

Block mode Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

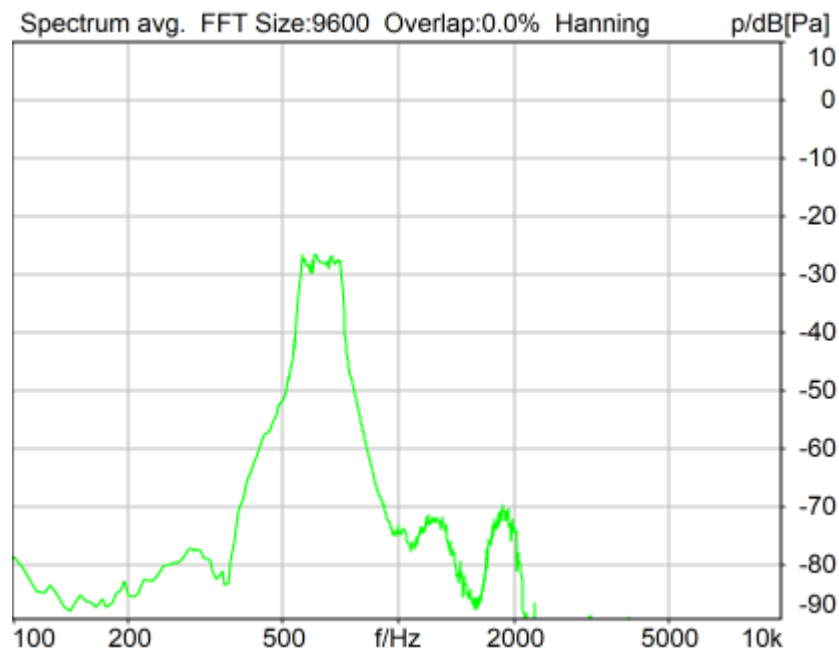
Ser. Nr. 12306613 Pinna Type Type 3.3

HIB Settings

HIB Name 60020095 Serial 60020095  
HIB Mode Mobile Measurement Impedance 32 Ohm  
Gain out 1 -40.00 dB Gain out 2 0.00 dB  
Gain in 1 0.00 dB Gain in 2 0.00 dB  
Mic 1 Power Supply Off Mic 2 Power Supply Off

## 5.2 RCV Distortion and Noise - 630 Hz NB

TIA-5050 (2018-01) \ Measurements \ Narrowband \ 5.2 Receive Distortion and Noise 2N



Distortion (Noise) RCV (packed): 26.19 dB (4.91%) Ok

Ok

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Unmodified HEAD acoustics Measurement Descriptor

Limits

|       |          |
|-------|----------|
|       | lower    |
| Run 1 | 20.00 dB |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)  
Database Version: 40\_HAC\_Suite\_Rev03**Source: act\_rpn\_b250ms\_630hz\_sr20dbm0\_v02.dat**

Level adj. Ch1 -90.0 dB

**Calibration**

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))

Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

**HHP IV Settings (Setting: STD:(0,0,0) rel AHP)**

|                |         |                          |       |
|----------------|---------|--------------------------|-------|
| MECRP Delta Ye | 0.0 mm  | Rotation Delta A         | 0.0 ° |
| MECRP Delta Ze | 0.0 mm  | Rotation Delta C         | 0.0 ° |
| Delta Xe       | 0.0 mm  | Rotation Delta B         | 5.0 ° |
| Delta Ye       | 0.0 mm  | Delta A                  | 0.0 ° |
| Delta Ze       | 0.0 mm  | Delta C                  | 0.0 ° |
| Ym             | -1.3 mm | Delta B                  | 0.0 ° |
|                |         | Ear Type 3.3 Coordinates |       |

Mounting: Right Ear

Force to apply: 2.0 N, Force reached: 2.0 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                   |                |                   |                 |
|-------------------|----------------|-------------------|-----------------|
| Direction         | Out 2 -> In 2  |                   |                 |
| Range start       | 13550.00 ms    | Range length      | 200.00 ms       |
| Number of seq.    | 10             | Sequence length   | 400.00 ms       |
| Use FIR Filter    | Ch2            | FIR filter        | drp2ff_ieee1652 |
| DRP/ERP Ch.1:     | Off            | DRP/ERP Ch.2:     | Off             |
| Frequency base    | Transformation |                   |                 |
| FFT size          | 9600           | Overlap           | 0 %             |
| Window function.  | Hanning        | Smooth            | Off             |
| dB weighting      | A Weighting    |                   |                 |
| Stimulus min.     | 525.0 Hz       | Stimulus max.     | 745.0 Hz        |
| Analysis min.     | 20.0 Hz        | Analysis max.     | 520.0 Hz        |
| Analysis (2) min. | 750.0 Hz       | Analysis (2) max. | 20000.0 Hz      |

**Special Features**

Compensate delay 203.9000 ms (D\_RCV\_NB, Delay (Cross))

Store to variable RCVNB10\_630Hz

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

**labCORE Routing**

|                  |                                                                          |
|------------------|--------------------------------------------------------------------------|
| Out Channel 1 -> | Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker                      |
| Out Channel 2 -> | Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In                           |
| In Channel 1 <=  | Analog In 1/2 In 1 <= Radio Tester 1 (CMW500) Out                        |
| In Channel 2 <=  | BEQ Filter 1 R <= Mic Amp. (Slot 6) In 2 <= HATS 1 (HMS II.3) Mic. Right |

**Analog In Mainboard Settings (Analog In 1/2)**

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

**Analog Out Mainboard Settings (Analog Out 1/2)**

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

**Microphone Settings (Mic Amp. (Slot 6))**

Channel In 1 Settings

|                       |                          |                |      |
|-----------------------|--------------------------|----------------|------|
| Range                 | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage  | 200V                     | Supply Voltage | ±60V |
| Channel In 2 Settings |                          |                |      |
| Range                 | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage  | 200V                     | Supply Voltage | ±60V |
| Channel In 3 Settings |                          |                |      |
| Range                 | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage  | 200V                     | Supply Voltage | ±60V |
| Channel In 4 Settings |                          |                |      |
| Range                 | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage  | 200V                     | Supply Voltage | ±60V |

-----  
BEQ Settings (BEQ Filter 1)  
Block mode      Bypass  
-----

Artificial Head Settings (HATS 1 (HMS II.3))

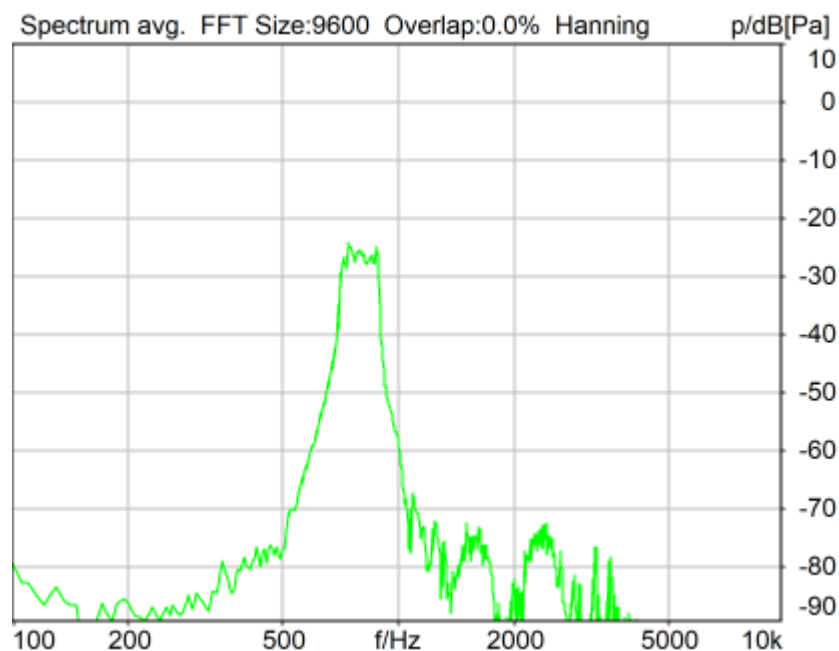
|          |          |            |          |
|----------|----------|------------|----------|
| Ser. Nr. | 12306613 | Pinna Type | Type 3.3 |
|----------|----------|------------|----------|

#### HIB Settings

|                    |                    |                    |          |
|--------------------|--------------------|--------------------|----------|
| HIB Name           | 60020095           | Serial             | 60020095 |
| HIB Mode           | Mobile Measurement | Impedance          | 32 Ohm   |
| Gain out 1         | -40.00 dB          | Gain out 2         | 0.00 dB  |
| Gain in 1          | 0.00 dB            | Gain in 2          | 0.00 dB  |
| Mic 1 Power Supply | Off                | Mic 2 Power Supply | Off      |

## 5.2 RCV Distortion and Noise - 800 Hz NB

TIA-5050 (2018-01) \ Measurements \ Narrowband \ 5.2 Receive Distortion and Noise 2N



Distortion (Noise) RCV (packed): 27.68 dB (4.13%) Ok

Ok

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Unmodified HEAD acoustics Measurement Descriptor

**Limits**

|       | lower    |
|-------|----------|
| Run 1 | 20.00 dB |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)  
Database Version: 40\_HAC\_Suite\_Rev03**Source:** act\_rpn\_b250ms\_800hz\_sr20dbm0\_v02.dat

Level adj. Ch1 -90.0 dB

**Calibration**

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))

Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

**HHP IV Settings (Setting: STD:(0,0,0) rel AHP)**

|                |         |                  |                 |
|----------------|---------|------------------|-----------------|
| MECRP Delta Ye | 0.0 mm  | Rotation Delta A | 0.0 °           |
| MECRP Delta Ze | 0.0 mm  | Rotation Delta C | 0.0 °           |
| Delta Xe       | 0.0 mm  | Rotation Delta B | 5.0 °           |
| Delta Ye       | 0.0 mm  | Delta A          | 0.0 °           |
| Delta Ze       | 0.0 mm  | Delta C          | 0.0 °           |
| Ym             | -1.3 mm | Delta B          | 0.0 °           |
|                |         | Ear Type         | 3.3 Coordinates |

Mounting: Right Ear

Force to apply: 2.0 N, Force reached: 2.0 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                   |                |                   |                 |
|-------------------|----------------|-------------------|-----------------|
| Direction         | Out 2 -> In 2  |                   |                 |
| Range start       | 13550.00 ms    | Range length      | 200.00 ms       |
| Number of seq.    | 10             | Sequence length   | 400.00 ms       |
| Use FIR Filter    | Ch2            | FIR filter        | drp2ff_ieee1652 |
| DRP/ERP Ch.1:     | Off            | DRP/ERP Ch.2:     | Off             |
| Frequency base    | Transformation |                   |                 |
| FFT size          | 9600           | Overlap           | 0 %             |
| Window function.  | Hanning        | Smooth            | Off             |
| dB weighting      | A Weighting    |                   |                 |
| Stimulus min.     | 675.0 Hz       | Stimulus max.     | 925.0 Hz        |
| Analysis min.     | 20.0 Hz        | Analysis max.     | 670.0 Hz        |
| Analysis (2) min. | 930.0 Hz       | Analysis (2) max. | 20000.0 Hz      |

**Special Features**

Compensate delay 203.9000 ms (D\_RCV\_NB, Delay (Cross))

Store to variable RCVNB10\_800Hz

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

-----

**labCORE Routing**

|                  |                                                                          |
|------------------|--------------------------------------------------------------------------|
| Out Channel 1 -> | Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker                      |
| Out Channel 2 -> | Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In                           |
| In Channel 1 <-  | Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out                        |
| In Channel 2 <-  | BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right |

-----

Analog In Mainboard Settings (Analog In 1/2)

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

-----  
Analog Out Mainboard Settings (Analog Out 1/2)

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

-----  
Microphone Settings (Mic Amp. (Slot 6))

## Channel In 1 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

## Channel In 2 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

## Channel In 3 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

## Channel In 4 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

-----  
BEQ Settings (BEQ Filter 1)

|            |        |
|------------|--------|
| Block mode | Bypass |
|------------|--------|

-----  
Artificial Head Settings (HATS 1 (HMS II.3))

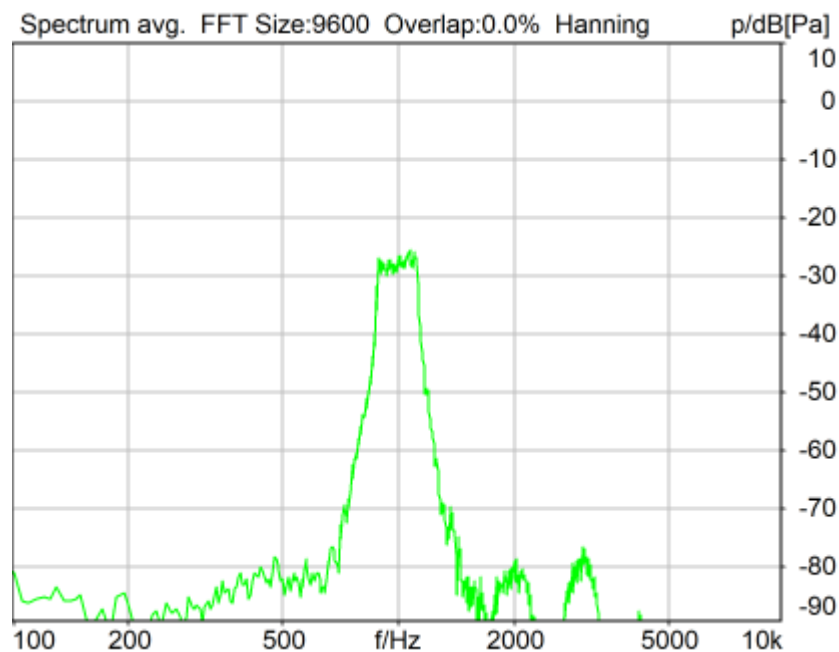
|          |          |            |          |
|----------|----------|------------|----------|
| Ser. Nr. | 12306613 | Pinna Type | Type 3.3 |
|----------|----------|------------|----------|

**HIB Settings**

|                    |                    |                    |          |
|--------------------|--------------------|--------------------|----------|
| HIB Name           | 60020095           | Serial             | 60020095 |
| HIB Mode           | Mobile Measurement | Impedance          | 32 Ohm   |
| Gain out 1         | -40.00 dB          | Gain out 2         | 0.00 dB  |
| Gain in 1          | 0.00 dB            | Gain in 2          | 0.00 dB  |
| Mic 1 Power Supply | Off                | Mic 2 Power Supply | Off      |

## **5.2 RCV Distortion and Noise - 1000 Hz NB**

TIA-5050 (2018-01) \ Measurements \ Narrowband \ 5.2 Receive Distortion and Noise 2N



Distortion (Noise) RCV (packed): 25.59 dB (5.26%) Ok

**Ok**

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Unmodified HEAD acoustics Measurement Descriptor

**Limits**

|       | lower    |
|-------|----------|
| Run 1 | 20.00 dB |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)

Database Version: 40\_HAC\_Suite\_Rev03

**Source: act\_rpn\_b250ms\_1000hz\_sr20dbm0\_v02.dat**

Level adj. Ch1 -90.0 dB

**Calibration**

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))

Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

**HHP IV Settings (Setting: STD:(0,0,0) rel AHP)**

|                          |         |                  |       |
|--------------------------|---------|------------------|-------|
| MECRP Delta Ye           | 0.0 mm  | Rotation Delta A | 0.0 ° |
| MECRP Delta Ze           | 0.0 mm  | Rotation Delta C | 0.0 ° |
| Delta Xe                 | 0.0 mm  | Rotation Delta B | 5.0 ° |
| Delta Ye                 | 0.0 mm  | Delta A          | 0.0 ° |
| Delta Ze                 | 0.0 mm  | Delta C          | 0.0 ° |
| Ym                       | -1.3 mm | Delta B          | 0.0 ° |
| Ear Type 3.3 Coordinates |         |                  |       |

Mounting: Right Ear

Force to apply: 2.0 N, Force reached: 2.0 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                   |                |                   |                 |
|-------------------|----------------|-------------------|-----------------|
| Direction         | Out 2 -> In 2  | Range length      | 200.00 ms       |
| Range start       | 13550.00 ms    | Sequence length   | 400.00 ms       |
| Number of seq.    | 10             | FIR filter        | drp2ff_ieee1652 |
| Use FIR Filter    | Ch2            | DRP/ERP Ch.2:     | Off             |
| DRP/ERP Ch.1:     | Off            | Frequency base    | Transformation  |
| Frequency base    | Transformation | FFT size          | 9600            |
| FFT size          | 9600           | Overlap           | 0 %             |
| Window function.  | Hanning        | Smooth            | Off             |
| dB weighting      | A Weighting    | Stimulus max.     | 1155.0 Hz       |
| Stimulus min.     | 855.0 Hz       | Analysis max.     | 850.0 Hz        |
| Analysis min.     | 20.0 Hz        | Analysis (2) max. | 20000.0 Hz      |
| Analysis (2) min. | 1160.0 Hz      |                   |                 |

**Special Features**

Compensate delay 203.9000 ms (D\_RCV\_NB, Delay (Cross))

Store to variable RCVNB10\_1000Hz

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

-----

## labCORE Routing

Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker  
Out Channel 2 -> Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In  
In Channel 1 <- Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out  
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

-----  
Analog In Mainboard Settings (Analog In 1/2)

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

-----  
Analog Out Mainboard Settings (Analog Out 1/2)

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

-----  
Microphone Settings (Mic Amp. (Slot 6))

## Channel In 1 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

## Channel In 2 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

## Channel In 3 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

## Channel In 4 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

-----  
BEQ Settings (BEQ Filter 1)

|            |        |
|------------|--------|
| Block mode | Bypass |
|------------|--------|

-----  
Artificial Head Settings (HATS 1 (HMS II.3))

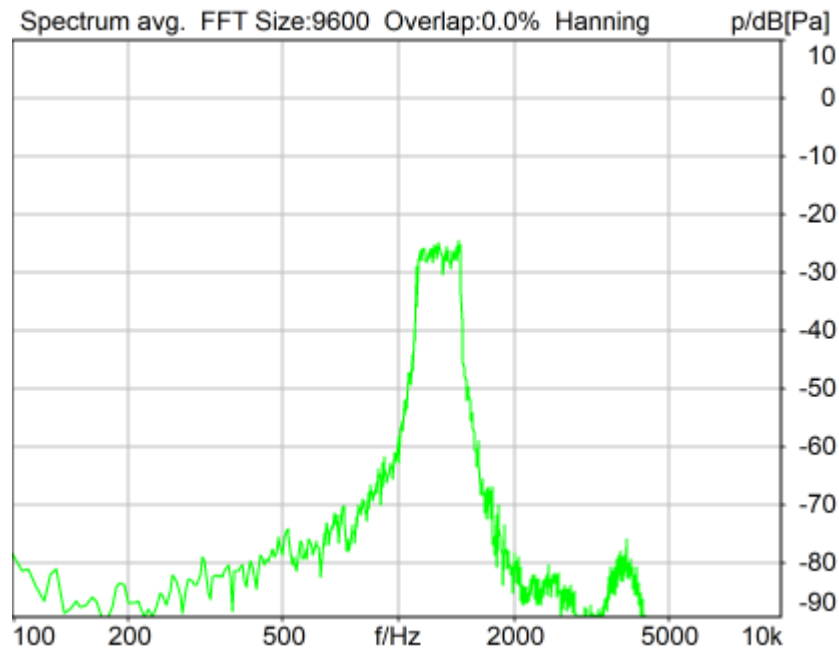
|          |          |            |          |
|----------|----------|------------|----------|
| Ser. Nr. | 12306613 | Pinna Type | Type 3.3 |
|----------|----------|------------|----------|

**HIB Settings**

|                    |                    |                    |          |
|--------------------|--------------------|--------------------|----------|
| HIB Name           | 60020095           | Serial             | 60020095 |
| HIB Mode           | Mobile Measurement | Impedance          | 32 Ohm   |
| Gain out 1         | -40.00 dB          | Gain out 2         | 0.00 dB  |
| Gain in 1          | 0.00 dB            | Gain in 2          | 0.00 dB  |
| Mic 1 Power Supply | Off                | Mic 2 Power Supply | Off      |

**5.2 RCV Distortion and Noise - 1250 Hz NB**

TIA-5050 (2018-01) \ Measurements \ Narrowband \ 5.2 Receive Distortion and Noise 2N



Distortion (Noise) RCV (packed): 20.88 dB (9.04%) Ok

**Ok**

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Unmodified HEAD acoustics Measurement Descriptor

#### Limits

|       | lower    |
|-------|----------|
| Run 1 | 20.00 dB |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)

Database Version: 40\_HAC\_Suite\_Rev03

**Source:** act\_rpn\_b250ms\_1250hz\_sr20dbm0\_v02.dat

Level adj. Ch1 -90.0 dB

#### Calibration

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))

Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

#### HHP IV Settings (Setting: STD:(0,0,0) rel AHP)

|                |         |                          |       |
|----------------|---------|--------------------------|-------|
| MECRP Delta Ye | 0.0 mm  | Rotation Delta A         | 0.0 ° |
| MECRP Delta Ze | 0.0 mm  | Rotation Delta C         | 0.0 ° |
| Delta Xe       | 0.0 mm  | Rotation Delta B         | 5.0 ° |
| Delta Ye       | 0.0 mm  | Delta A                  | 0.0 ° |
| Delta Ze       | 0.0 mm  | Delta C                  | 0.0 ° |
| Ym             | -1.3 mm | Delta B                  | 0.0 ° |
|                |         | Ear Type 3.3 Coordinates |       |

Mounting: Right Ear

Force to apply: 2.0 N, Force reached: 2.0 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                   |                |                   |                 |
|-------------------|----------------|-------------------|-----------------|
| Direction         | Out 2 -> In 2  |                   |                 |
| Range start       | 13550.00 ms    | Range length      | 200.00 ms       |
| Number of seq.    | 10             | Sequence length   | 400.00 ms       |
| Use FIR Filter    | Ch2            | FIR filter        | drp2ff_ieee1652 |
| DRP/ERP Ch.1:     | Off            | DRP/ERP Ch.2:     | Off             |
| Frequency base    | Transformation |                   |                 |
| FFT size          | 9600           | Overlap           | 0 %             |
| Window function.  | Hanning        | Smooth            | Off             |
| dB weighting      | A Weighting    |                   |                 |
| Stimulus min.     | 1085.0 Hz      | Stimulus max.     | 1450.0 Hz       |
| Analysis min.     | 20.0 Hz        | Analysis max.     | 1080.0 Hz       |
| Analysis (2) min. | 1455.0 Hz      | Analysis (2) max. | 20000.0 Hz      |

**Special Features**

Compensate delay 203.9000 ms (D\_RCV\_NB, Delay (Cross))  
Store to variable RCVNB10\_1250Hz

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

**labCORE Routing**

Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker  
Out Channel 2 -> Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In  
In Channel 1 <- Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out  
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

**Analog In Mainboard Settings (Analog In 1/2)**

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

**Analog Out Mainboard Settings (Analog Out 1/2)**

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

**Microphone Settings (Mic Amp. (Slot 6))****Channel In 1 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 2 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 3 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 4 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**BEQ Settings (BEQ Filter 1)**

Block mode Bypass

**Artificial Head Settings (HATS 1 (HMS II.3))**

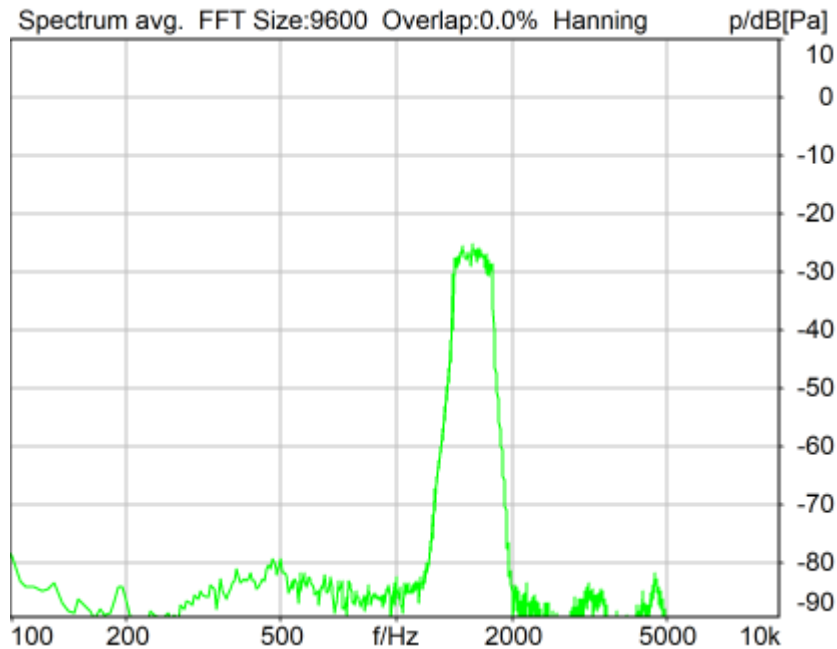
|          |          |            |          |
|----------|----------|------------|----------|
| Ser. Nr. | 12306613 | Pinna Type | Type 3.3 |
|----------|----------|------------|----------|

**HIB Settings**

|                    |                    |                    |          |
|--------------------|--------------------|--------------------|----------|
| HIB Name           | 60020095           | Serial             | 60020095 |
| HIB Mode           | Mobile Measurement | Impedance          | 32 Ohm   |
| Gain out 1         | -40.00 dB          | Gain out 2         | 0.00 dB  |
| Gain in 1          | 0.00 dB            | Gain in 2          | 0.00 dB  |
| Mic 1 Power Supply | Off                | Mic 2 Power Supply | Off      |

## 5.2 RCV Distortion and Noise - 1600 Hz NB

TIA-5050 (2018-01) \ Measurements \ Narrowband \ 5.2 Receive Distortion and Noise 2N



Distortion (Noise) RCV (packed): 29.35 dB (3.41%) Ok

Ok

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Unmodified HEAD acoustics Measurement Descriptor

### Limits

|       | lower    |
|-------|----------|
| Run 1 | 20.00 dB |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)

Database Version: 40\_HAC\_Suite\_Rev03

Source: act\_rpn\_b250ms\_1600hz\_sr20dbm0\_v02.dat

Level adj. Ch1 -90.0 dB

### Calibration

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))

Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

HHP IV Settings (Setting: STD:(0,0,0) rel AHP)

|                |        |                  |       |
|----------------|--------|------------------|-------|
| MECRP Delta Ye | 0.0 mm | Rotation Delta A | 0.0 ° |
|                |        | Rotation Delta C | 0.0 ° |

|                |         |                          |       |
|----------------|---------|--------------------------|-------|
| MECRP Delta Ze | 0.0 mm  | Rotation Delta B         | 5.0 ° |
| Delta Xe       | 0.0 mm  | Delta A                  | 0.0 ° |
| Delta Ye       | 0.0 mm  | Delta C                  | 0.0 ° |
| Delta Ze       | 0.0 mm  | Delta B                  | 0.0 ° |
| Ym             | -1.3 mm | Ear Type 3.3 Coordinates |       |

Mounting: Right Ear  
Force to apply: 2.0 N, Force reached: 2.0 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                   |                |                   |                 |
|-------------------|----------------|-------------------|-----------------|
| Direction         | Out 2 -> In 2  |                   |                 |
| Range start       | 13550.00 ms    | Range length      | 200.00 ms       |
| Number of seq.    | 10             | Sequence length   | 400.00 ms       |
| Use FIR Filter    | Ch2            | FIR filter        | drp2ff_ieee1652 |
| DRP/ERP Ch.1:     | Off            | DRP/ERP Ch.2:     | Off             |
| Frequency base    | Transformation |                   |                 |
| FFT size          | 9600           | Overlap           | 0 %             |
| Window function.  | Hanning        | Smooth            | Off             |
| dB weighting      | A Weighting    |                   |                 |
| Stimulus min.     | 1375.0 Hz      | Stimulus max.     | 1815.0 Hz       |
| Analysis min.     | 20.0 Hz        | Analysis max.     | 1370.0 Hz       |
| Analysis (2) min. | 1820.0 Hz      | Analysis (2) max. | 20000.0 Hz      |

**Special Features**

Compensate delay 203.9000 ms (D\_RCV\_NB, Delay (Cross))  
Store to variable RCVNB10\_1600Hz

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

**labCORE Routing**

Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker  
Out Channel 2 -> Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In  
In Channel 1 <- Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out  
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

**Analog In Mainboard Settings (Analog In 1/2)**

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

**Analog Out Mainboard Settings (Analog Out 1/2)**

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

**Microphone Settings (Mic Amp. (Slot 6))****Channel In 1 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 2 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 3 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 4 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**BEQ Settings (BEQ Filter 1)**

Block mode Bypass

**Artificial Head Settings (HATS 1 (HMS II.3))**

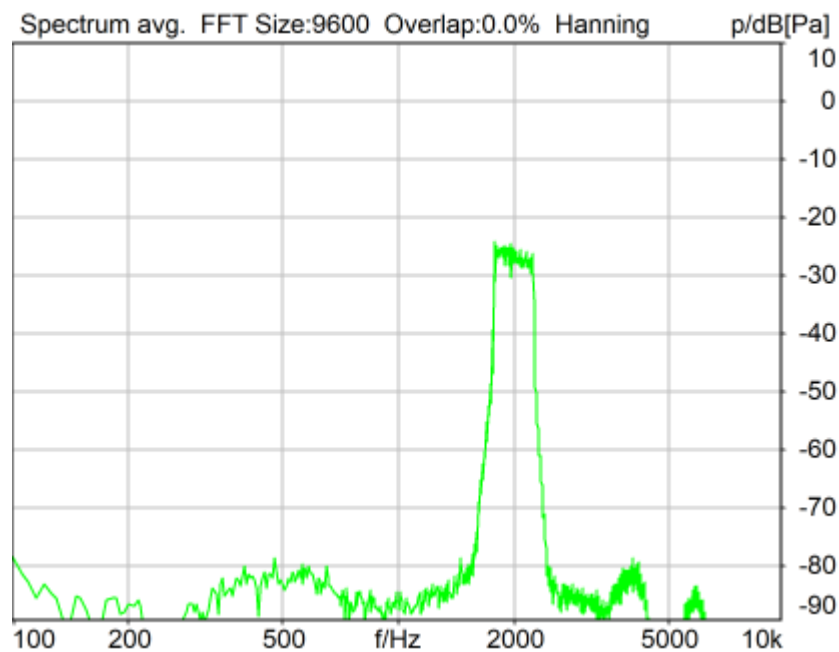
Ser. Nr. 12306613 Pinna Type Type 3.3

#### HIB Settings

|                        |                    |                        |          |
|------------------------|--------------------|------------------------|----------|
| HIB Name               | 60020095           | Serial                 | 60020095 |
| HIB Mode               | Mobile Measurement | Impedance              | 32 Ohm   |
| Gain out 1             | -40.00 dB          | Gain out 2             | 0.00 dB  |
| Gain in 1              | 0.00 dB            | Gain in 2              | 0.00 dB  |
| Mic 1 Power Supply Off |                    | Mic 2 Power Supply Off |          |

## 5.2 RCV Distortion and Noise - 2000 Hz NB

TIA-5050 (2018-01) \ Measurements \ Narrowband \ 5.2 Receive Distortion and Noise 2N



Distortion (Noise) RCV (packed): 32.62 dB (2.34%) Ok

**Ok**

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Unmodified HEAD acoustics Measurement Descriptor

#### Limits

|       |          |
|-------|----------|
|       | lower    |
| Run 1 | 20.00 dB |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)

Database Version: 40\_HAC\_Suite\_Rev03

Source: act\_rpn\_b250ms\_2000hz\_sr20dbm0\_v02.dat

Level adj. Ch1 -90.0 dB

**Calibration**

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))

Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

**HHP IV Settings (Setting: STD:(0,0,0) rel AHP)**

|                |         |                          |       |
|----------------|---------|--------------------------|-------|
| MECRP Delta Ye | 0.0 mm  | Rotation Delta A         | 0.0 ° |
| MECRP Delta Ze | 0.0 mm  | Rotation Delta C         | 0.0 ° |
| Delta Xe       | 0.0 mm  | Rotation Delta B         | 5.0 ° |
| Delta Ye       | 0.0 mm  | Delta A                  | 0.0 ° |
| Delta Ze       | 0.0 mm  | Delta C                  | 0.0 ° |
| Ym             | -1.3 mm | Delta B                  | 0.0 ° |
|                |         | Ear Type 3.3 Coordinates |       |

Mounting: Right Ear

Force to apply: 2.0 N, Force reached: 2.0 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                   |                |                   |                 |
|-------------------|----------------|-------------------|-----------------|
| Direction         | Out 2 -> In 2  |                   |                 |
| Range start       | 13550.00 ms    | Range length      | 200.00 ms       |
| Number of seq.    | 10             | Sequence length   | 400.00 ms       |
| Use FIR Filter    | Ch2            | FIR filter        | drp2ff_ieee1652 |
| DRP/ERP Ch.1:     | Off            | DRP/ERP Ch.2:     | Off             |
| Frequency base    | Transformation |                   |                 |
| FFT size          | 9600           | Overlap           | 0 %             |
| Window function.  | Hanning        | Smooth            | Off             |
| dB weighting      | A Weighting    |                   |                 |
| Stimulus min.     | 1745.0 Hz      | Stimulus max.     | 2275.0 Hz       |
| Analysis min.     | 20.0 Hz        | Analysis max.     | 1740.0 Hz       |
| Analysis (2) min. | 2280.0 Hz      | Analysis (2) max. | 20000.0 Hz      |

**Special Features**

Compensate delay 203.9000 ms (D\_RCV\_NB, Delay (Cross))

Store to variable RCVNB10\_2000Hz

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

**labCORE Routing**

|                  |                                                                          |
|------------------|--------------------------------------------------------------------------|
| Out Channel 1 -> | Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker                      |
| Out Channel 2 -> | Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In                           |
| In Channel 1 <-  | Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out                        |
| In Channel 2 <-  | BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right |

**Analogue In Mainboard Settings (Analog In 1/2)**

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

**Analogue Out Mainboard Settings (Analog Out 1/2)**

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

**Microphone Settings (Mic Amp. (Slot 6))****Channel In 1 Settings**

|                          |                          |                |      |
|--------------------------|--------------------------|----------------|------|
| Range                    | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage200V |                          | Supply Voltage | ±60V |

**Channel In 2 Settings**

|                          |                          |                |      |
|--------------------------|--------------------------|----------------|------|
| Range                    | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage200V |                          | Supply Voltage | ±60V |

**Channel In 3 Settings**

|                          |                          |                |      |
|--------------------------|--------------------------|----------------|------|
| Range                    | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage200V |                          | Supply Voltage | ±60V |

Channel In 4 Settings

Range 114 dB[SPL] @ 12.5 mV/Pa Highpass Off  
Polarisation Voltage 200V Supply Voltage ±60V

BEQ Settings (BEQ Filter 1)

Block mode Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

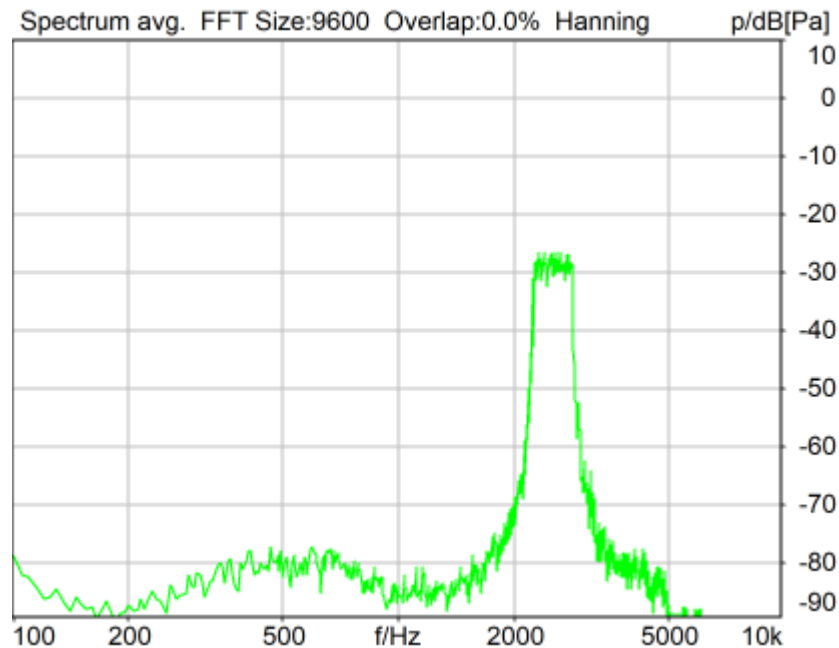
Ser. Nr. 12306613 Pinna Type Type 3.3

HIB Settings

HIB Name 60020095 Serial 60020095  
HIB Mode Mobile Measurement Impedance 32 Ohm  
Gain out 1 -40.00 dB Gain out 2 0.00 dB  
Gain in 1 0.00 dB Gain in 2 0.00 dB  
Mic 1 Power Supply Off Mic 2 Power Supply Off

## 5.2 RCV Distortion and Noise - 2500 Hz NB

TIA-5050 (2018-01) \ Measurements \ Narrowband \ 5.2 Receive Distortion and Noise 2N



Distortion (Noise) RCV (packed): 28.15 dB (3.91%) Ok

Ok

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Unmodified HEAD acoustics Measurement Descriptor

Limits

|       | lower    |
|-------|----------|
| Run 1 | 20.00 dB |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)  
Database Version: 40\_HAC\_Suite\_Rev03**Source: act\_rpn\_b250ms\_2500hz\_sr20dbm0\_v02.dat**

Level adj. Ch1 -90.0 dB

**Calibration**

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))

Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

**HHP IV Settings (Setting: STD:(0,0,0) rel AHP)**

|                |         |                          |       |
|----------------|---------|--------------------------|-------|
| MECRP Delta Ye | 0.0 mm  | Rotation Delta A         | 0.0 ° |
| MECRP Delta Ze | 0.0 mm  | Rotation Delta C         | 0.0 ° |
| Delta Xe       | 0.0 mm  | Rotation Delta B         | 5.0 ° |
| Delta Ye       | 0.0 mm  | Delta A                  | 0.0 ° |
| Delta Ze       | 0.0 mm  | Delta C                  | 0.0 ° |
| Ym             | -1.3 mm | Delta B                  | 0.0 ° |
|                |         | Ear Type 3.3 Coordinates |       |

Mounting: Right Ear

Force to apply: 2.0 N, Force reached: 2.0 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                   |                |                   |                 |
|-------------------|----------------|-------------------|-----------------|
| Direction         | Out 2 -> In 2  |                   |                 |
| Range start       | 13550.00 ms    | Range length      | 200.00 ms       |
| Number of seq.    | 10             | Sequence length   | 400.00 ms       |
| Use FIR Filter    | Ch2            | FIR filter        | drp2ff_ieee1652 |
| DRP/ERP Ch.1:     | Off            | DRP/ERP Ch.2:     | Off             |
| Frequency base    | Transformation |                   |                 |
| FFT size          | 9600           | Overlap           | 0 %             |
| Window function.  | Hanning        | Smooth            | Off             |
| dB weighting      | A Weighting    |                   |                 |
| Stimulus min.     | 2205.0 Hz      | Stimulus max.     | 2855.0 Hz       |
| Analysis min.     | 20.0 Hz        | Analysis max.     | 2200.0 Hz       |
| Analysis (2) min. | 2860.0 Hz      | Analysis (2) max. | 20000.0 Hz      |

**Special Features**

Compensate delay 203.9000 ms (D\_RCV\_NB, Delay (Cross))

Store to variable RCVNB10\_2500Hz

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

**labCORE Routing**

|                  |                                                                          |
|------------------|--------------------------------------------------------------------------|
| Out Channel 1 -> | Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker                      |
| Out Channel 2 -> | Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In                           |
| In Channel 1 <-  | Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out                        |
| In Channel 2 <-  | BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right |

**Analog In Mainboard Settings (Analog In 1/2)**

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

**Analog Out Mainboard Settings (Analog Out 1/2)**

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

**Microphone Settings (Mic Amp. (Slot 6))**

Channel In 1 Settings

|                       |                          |                |      |
|-----------------------|--------------------------|----------------|------|
| Range                 | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage  | 200V                     | Supply Voltage | ±60V |
| Channel In 2 Settings |                          |                |      |
| Range                 | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage  | 200V                     | Supply Voltage | ±60V |
| Channel In 3 Settings |                          |                |      |
| Range                 | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage  | 200V                     | Supply Voltage | ±60V |
| Channel In 4 Settings |                          |                |      |
| Range                 | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage  | 200V                     | Supply Voltage | ±60V |

-----  
BEQ Settings (BEQ Filter 1)  
Block mode      Bypass  
-----

Artificial Head Settings (HATS 1 (HMS II.3))

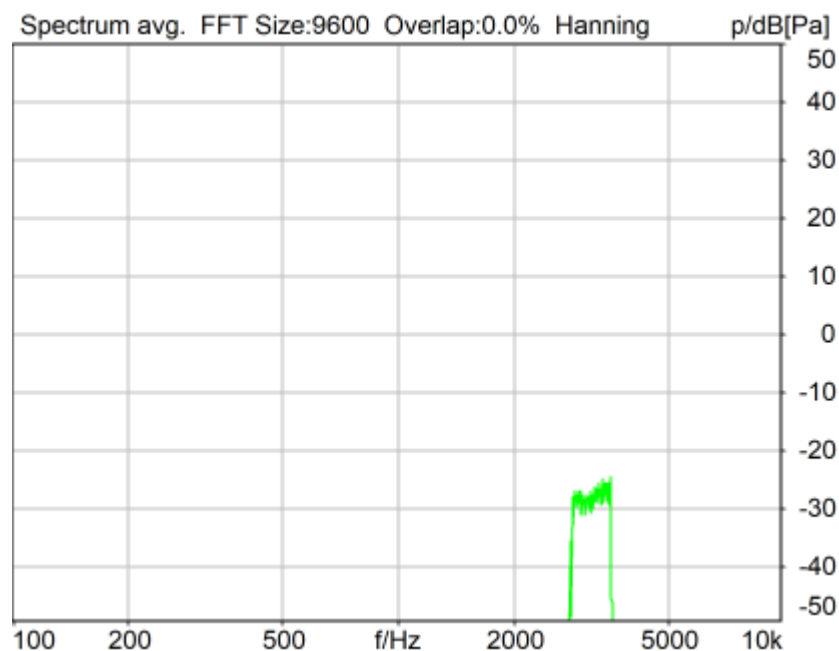
|          |          |            |          |
|----------|----------|------------|----------|
| Ser. Nr. | 12306613 | Pinna Type | Type 3.3 |
|----------|----------|------------|----------|

#### HIB Settings

|                    |                    |                    |          |
|--------------------|--------------------|--------------------|----------|
| HIB Name           | 60020095           | Serial             | 60020095 |
| HIB Mode           | Mobile Measurement | Impedance          | 32 Ohm   |
| Gain out 1         | -40.00 dB          | Gain out 2         | 0.00 dB  |
| Gain in 1          | 0.00 dB            | Gain in 2          | 0.00 dB  |
| Mic 1 Power Supply | Off                | Mic 2 Power Supply | Off      |

## 5.2 RCV Distortion and Noise - 3150 Hz NB

TIA-5050 (2018-01) \ Measurements \ Narrowband \ 5.2 Receive Distortion and Noise 2N



Distortion (Noise) RCV (packed): 31.22 dB (2.75%) Ok

Ok

2024/1/19 23:13 ACQUA 5.1.200

Unmodified HEAD acoustics Measurement Descriptor

**Limits**

|       | lower    |
|-------|----------|
| Run 1 | 20.00 dB |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)  
Database Version: 40\_HAC\_Suite\_Rev03**Source:** act\_rpn\_b250ms\_3150hz\_sr20dbm0\_v02.dat

Level adj. Ch1 -90.0 dB

**Calibration**

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))

Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

**HHP IV Settings (Setting: STD:(0,0,0) rel AHP)**

|                |         |                  |                 |
|----------------|---------|------------------|-----------------|
| MECRP Delta Ye | 0.0 mm  | Rotation Delta A | 0.0 °           |
| MECRP Delta Ze | 0.0 mm  | Rotation Delta C | 0.0 °           |
| Delta Xe       | 0.0 mm  | Rotation Delta B | 5.0 °           |
| Delta Ye       | 0.0 mm  | Delta A          | 0.0 °           |
| Delta Ze       | 0.0 mm  | Delta C          | 0.0 °           |
| Ym             | -1.3 mm | Delta B          | 0.0 °           |
|                |         | Ear Type         | 3.3 Coordinates |

Mounting: Right Ear

Force to apply: 2.0 N, Force reached: 2.0 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                   |                |                   |                 |
|-------------------|----------------|-------------------|-----------------|
| Direction         | Out 2 -> In 2  |                   |                 |
| Range start       | 13550.00 ms    | Range length      | 200.00 ms       |
| Number of seq.    | 10             | Sequence length   | 400.00 ms       |
| Use FIR Filter    | Ch2            | FIR filter        | drp2ff_ieee1652 |
| DRP/ERP Ch.1:     | Off            | DRP/ERP Ch.2:     | Off             |
| Frequency base    | Transformation |                   |                 |
| FFT size          | 9600           | Overlap           | 0 %             |
| Window function.  | Hanning        | Smooth            | Off             |
| dB weighting      | A Weighting    |                   |                 |
| Stimulus min.     | 2785.0 Hz      | Stimulus max.     | 3585.0 Hz       |
| Analysis min.     | 20.0 Hz        | Analysis max.     | 2780.0 Hz       |
| Analysis (2) min. | 3590.0 Hz      | Analysis (2) max. | 20000.0 Hz      |

**Special Features**

Compensate delay 203.9000 ms (D\_RCV\_NB, Delay (Cross))

Store to variable RCVNB10\_3150Hz

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

-----

**labCORE Routing**

|                  |                                                                          |
|------------------|--------------------------------------------------------------------------|
| Out Channel 1 -> | Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker                      |
| Out Channel 2 -> | Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In                           |
| In Channel 1 <-  | Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out                        |
| In Channel 2 <-  | BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right |

-----

Analog In Mainboard Settings (Analog In 1/2)

Range Ch. 1      0.00 dB                      Ch. 0 Float      On  
Range Ch. 2      0.00 dB                      Ch. 1 Float      On

-----  
Analog Out Mainboard Settings (Analog Out 1/2)

Range Ch. 1      0.00 dB                      Range Ch. 2      0.00 dB

-----  
Microphone Settings (Mic Amp. (Slot 6))

## Channel In 1 Settings

Range              114 dB[SPL] @ 12.5 mV/Pa      Highpass      Off  
Polarisation Voltage200V                      Supply Voltage      ±60V

## Channel In 2 Settings

Range              114 dB[SPL] @ 12.5 mV/Pa      Highpass      20Hz  
Polarisation Voltage200V                      Supply Voltage      ±60V

## Channel In 3 Settings

Range              114 dB[SPL] @ 12.5 mV/Pa      Highpass      Off  
Polarisation Voltage200V                      Supply Voltage      ±60V

## Channel In 4 Settings

Range              114 dB[SPL] @ 12.5 mV/Pa      Highpass      Off  
Polarisation Voltage200V                      Supply Voltage      ±60V

-----  
BEQ Settings (BEQ Filter 1)

Block mode      Bypass

-----  
Artificial Head Settings (HATS 1 (HMS II.3))

Ser. Nr.              12306613                      Pinna Type      Type 3.3

**HIB Settings**

|                        |                    |                        |          |
|------------------------|--------------------|------------------------|----------|
| HIB Name               | 60020095           | Serial                 | 60020095 |
| HIB Mode               | Mobile Measurement | Impedance              | 32 Ohm   |
| Gain out 1             | -40.00 dB          | Gain out 2             | 0.00 dB  |
| Gain in 1              | 0.00 dB            | Gain in 2              | 0.00 dB  |
| Mic 1 Power Supply Off |                    | Mic 2 Power Supply Off |          |

## **Report - Receive Distortion and Noise (Conversational Gain)**

TIA-5050 (2018-01) \ Measurements \ Narrowband \ 5.2 Receive Distortion and Noise 2N

| Region | Frequency | SDNR     |
|--------|-----------|----------|
| 1      | 400Hz     | 28.26 dB |
| 2      | 500Hz     | 28.43 dB |
| 3      | 630Hz     | 26.19 dB |
| 4      | 800Hz     | 27.68 dB |
| 5      | 1000Hz    | 25.59 dB |
| 6      | 1250Hz    | 20.88 dB |
| 7      | 1600Hz    | 29.35 dB |
| 8      | 2000Hz    | 32.62 dB |
| 9      | 2500Hz    | 28.15 dB |
| 10     | 3150Hz    | 31.22 dB |

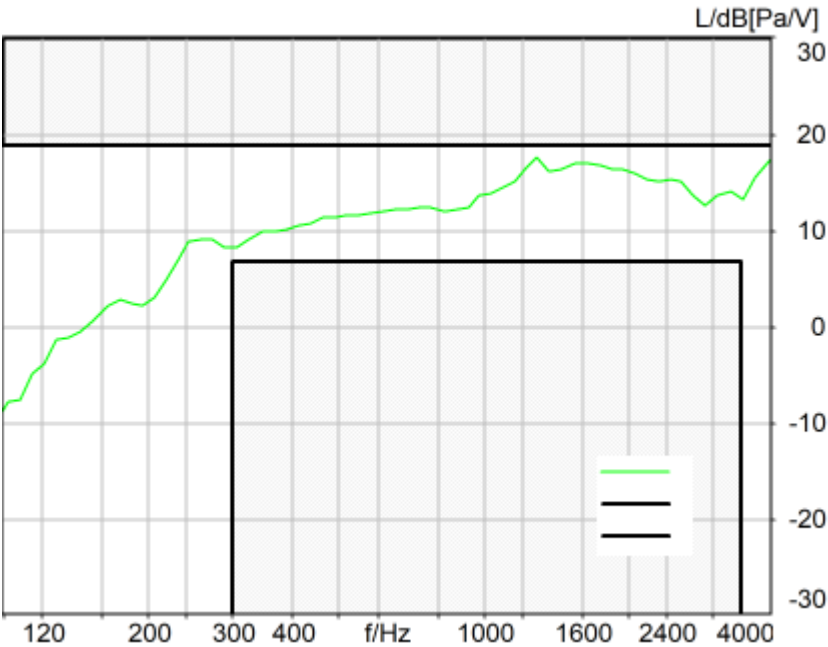
All SDNRs were greater than 20.0 dB, requirement was met.

Smallest SDNR was 20.88dB at 1250Hz.

2024/1/19 23:13 ACQUA

5.3 Frequency Response 8N FF HANB

TIA-5050 (2018-01) \ Measurements \ Narrowband



Absolute minimal distance  
1.34 dB at 1285.9 Hz Ok

Ok

2024/1/19 22:46 ACQUA 5.1.200  
Unmodified HEAD acoustics Measurement Descriptor

| Limits |                    |
|--------|--------------------|
|        | lower              |
| Run 1  | Fit into tolerance |

Meas. Setting      off

Underlying Standard: TIA-5050 (2018-01)  
Database Version: 40\_HAC\_Suite\_Rev03

Source: respmaleieee269\_nb\_r16.dat  
Level adj. Ch1      -90.0 dB      Level adj. Ch2      -4.0 dB  
NARROWBAND IEEE-269-2010 Real Speech Signal at Channel 2  
Pause 0.5 s      +  
Real Speech (english, male speaker) 11.5 s, Active Speech Level: -16 dBm0, margin 15.9 dB +  
Pause till end of file  
Signal level (ch1): -16 dBm0 Active Speech Level, margin 15.9 dB

Signal taken from "IEEE\_269-2010\_Male\_mono\_48\_kHz.wav"

Alteration:

0.2 s Pause added at the beginning of the file.

0.8 s Pause added at the end of the file.

filtered with 4.0 kHz low-pass filter

signal level changed

#### Calibration

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))

Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

#### HHP IV Settings (Setting: STD:(0,0,0) rel AHP)

|                |         |                          |       |
|----------------|---------|--------------------------|-------|
| MECRP Delta Ye | 0.0 mm  | Rotation Delta A         | 0.0 ° |
| MECRP Delta Ze | 0.0 mm  | Rotation Delta C         | 0.0 ° |
| Delta Xe       | 0.0 mm  | Rotation Delta B         | 5.0 ° |
| Delta Ye       | 0.0 mm  | Delta A                  | 0.0 ° |
| Delta Ze       | 0.0 mm  | Delta C                  | 0.0 ° |
| Ym             | -4.6 mm | Delta B                  | 0.0 ° |
|                |         | Ear Type 3.3 Coordinates |       |

Mounting: Right Ear

Force to apply: 8.0 N, Force reached: 7.9 N

#### Output Equalization/Filter

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

#### Analysis

|                  |                               |                     |                 |
|------------------|-------------------------------|---------------------|-----------------|
| Direction        | Out 2 -> In 2                 |                     |                 |
| Range start      | 500.00 ms                     | Range length        | 11500.00 ms     |
| Use FIR Filter   | Ch2                           | FIR filter          | drp2ff_ieee1652 |
| DRP/ERP Ch.1:    | Off                           | DRP/ERP Ch.2:       | Off             |
| Frequency base   | 12th octave                   | DIN Row             | Row A           |
| Method           | FFT                           |                     |                 |
| FFT size         | 4096                          | Overlap             | 75 %            |
| Window function. | Hanning                       |                     |                 |
| Reference file   | r521_rcv_frq_spee269_hanb.fft |                     |                 |
| Tol. scheme file | 521_rcv_frq_man_hanb.tol      | Min. freq. for tol. | 100.0 Hz        |
| Auto adjust      | Centrate                      | Max. freq. for tol. | 4000.0 Hz       |

#### Special Features

Compensate delay 203.9000 ms (D\_RCV\_NB, Delay (Cross))

#### labCORE Settings

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

#### labCORE Routing

|                  |                                                                          |
|------------------|--------------------------------------------------------------------------|
| Out Channel 1 -> | Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker                      |
| Out Channel 2 -> | Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In                           |
| In Channel 1 <-  | Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out                        |
| In Channel 2 <-  | BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right |

#### Analog In Mainboard Settings (Analog In 1/2)

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

#### Analog Out Mainboard Settings (Analog Out 1/2)

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

#### Microphone Settings (Mic Amp. (Slot 6))

##### Channel In 1 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

##### Channel In 2 Settings

|                       |                          |                |      |
|-----------------------|--------------------------|----------------|------|
| Range                 | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage  | 200V                     | Supply Voltage | ±60V |
| Channel In 3 Settings |                          |                |      |
| Range                 | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage  | 200V                     | Supply Voltage | ±60V |
| Channel In 4 Settings |                          |                |      |
| Range                 | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage  | 200V                     | Supply Voltage | ±60V |

-----  
BEQ Settings (BEQ Filter 1)  
Block mode        Bypass  
-----

Artificial Head Settings (HATS 1 (HMS II.3))

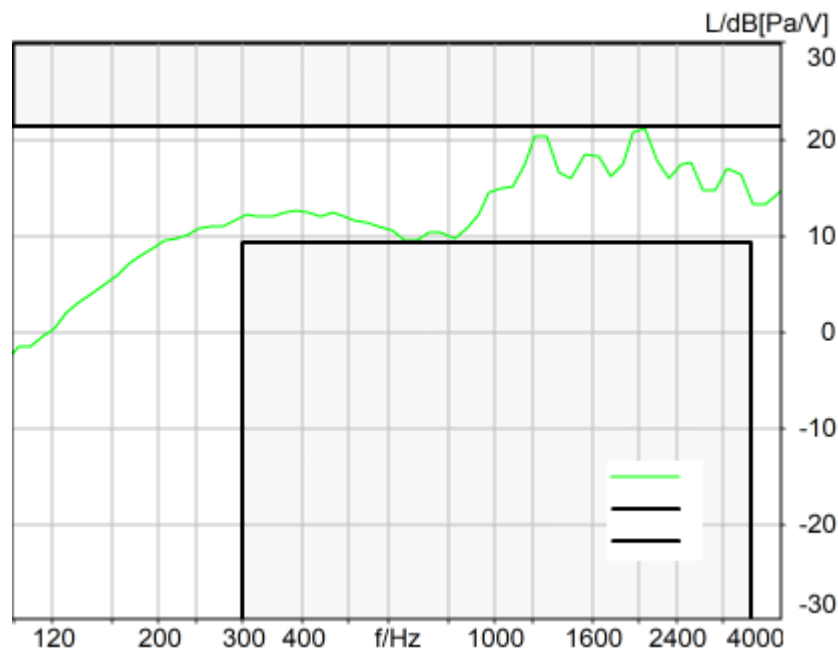
|          |          |            |          |
|----------|----------|------------|----------|
| Ser. Nr. | 12306613 | Pinna Type | Type 3.3 |
|----------|----------|------------|----------|

#### HIB Settings

|                    |                    |                    |          |
|--------------------|--------------------|--------------------|----------|
| HIB Name           | 60020095           | Serial             | 60020095 |
| HIB Mode           | Mobile Measurement | Impedance          | 32 Ohm   |
| Gain out 1         | -40.00 dB          | Gain out 2         | 0.00 dB  |
| Gain in 1          | 0.00 dB            | Gain in 2          | 0.00 dB  |
| Mic 1 Power Supply | Off                | Mic 2 Power Supply | Off      |

## 5.3 Frequency Response 8N DF HANB

TIA-5050 (2018-01) \ Measurements \ Narrowband



Absolute minimal distance  
0.17 dB at 2057.5 Hz Ok

**Ok**

2024/1/19 22:47 ACQUA 5.1.200

Unmodified HEAD acoustics Measurement Descriptor

**Limits**

|       | lower              |
|-------|--------------------|
| Run 1 | Fit into tolerance |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)  
Database Version: 40\_HAC\_Suite\_Rev03**Source: respmaleieee269\_nb\_r16.dat**

Level adj. Ch1 -90.0 dB Level adj. Ch2 -4.0 dB

NARROWBAND IEEE-269-2010 Real Speech Signal at Channel 2

Pause 0.5 s +

Real Speech (english, male speaker) 11.5 s, Active Speech Level: -16 dBm0, margin 15.9 dB +

Pause till end of file

Signal level (ch1): -16 dBm0 Active Speech Level, margin 15.9 dB

Signal taken from "IEEE\_269-2010\_Male\_mono\_48\_kHz.wav"

Alteration:

0.2 s Pause added at the beginning of the file.

0.8 s Pause added at the end of the file.

filtered with 4.0 kHz low-pass filter

signal level changed

**Calibration**

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))

Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

**HHP IV Settings (Setting: STD:(0,0,0) rel AHP)**

|                |         |                          |       |
|----------------|---------|--------------------------|-------|
| MECRP Delta Ye | 0.0 mm  | Rotation Delta A         | 0.0 ° |
| MECRP Delta Ze | 0.0 mm  | Rotation Delta C         | 0.0 ° |
| Delta Xe       | 0.0 mm  | Rotation Delta B         | 5.0 ° |
| Delta Ye       | 0.0 mm  | Delta A                  | 0.0 ° |
| Delta Ze       | 0.0 mm  | Delta C                  | 0.0 ° |
| Ym             | -4.6 mm | Delta B                  | 0.0 ° |
|                |         | Ear Type 3.3 Coordinates |       |

Mounting: Right Ear

Force to apply: 8.0 N, Force reached: 7.9 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                  |                               |                     |                 |
|------------------|-------------------------------|---------------------|-----------------|
| Direction        | Out 2 -> In 2                 |                     |                 |
| Range start      | 500.00 ms                     | Range length        | 11500.00 ms     |
| Use FIR Filter   | Ch2                           | FIR filter          | drp2df_ieee1652 |
| DRP/ERP Ch.1:    | Off                           | DRP/ERP Ch.2:       | Off             |
| Frequency base   | 12th octave                   | DIN Row             | Row A           |
| Method           | FFT                           |                     |                 |
| FFT size         | 4096                          | Overlap             | 75 %            |
| Window function. | Hanning                       |                     |                 |
| Reference file   | r521_rcv_frq_spee269_hanb.fft |                     |                 |
| Tol. scheme file | 521_rcv_frq_man_hanb.tol      | Min. freq. for tol. | 100.0 Hz        |
| Auto adjust      | Centrate                      | Max. freq. for tol. | 4000.0 Hz       |

**Special Features**

Compensate delay 203.9000 ms (D\_RCV\_NB, Delay (Cross))

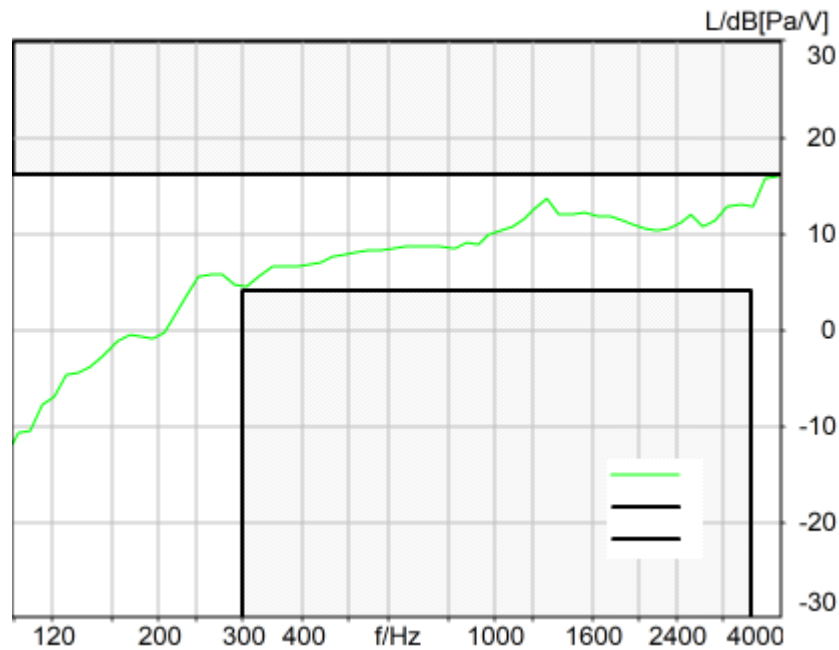
**labCORE Settings**

labCORE Serial 77000207 Nickname

|                                                |                                                                          |                    |          |
|------------------------------------------------|--------------------------------------------------------------------------|--------------------|----------|
| Firmware                                       | 3.4.17                                                                   | Sync Source        | Internal |
| Clock Pitch                                    | 0.00 ppm                                                                 |                    |          |
| -----                                          |                                                                          |                    |          |
| labCORE Routing                                |                                                                          |                    |          |
| Out Channel 1 ->                               | Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker                      |                    |          |
| Out Channel 2 ->                               | Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In                           |                    |          |
| In Channel 1 <-                                | Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out                        |                    |          |
| In Channel 2 <-                                | BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right |                    |          |
| -----                                          |                                                                          |                    |          |
| Analog In Mainboard Settings (Analog In 1/2)   |                                                                          |                    |          |
| Range Ch. 1                                    | 0.00 dB                                                                  | Ch. 0 Float        | On       |
| Range Ch. 2                                    | 0.00 dB                                                                  | Ch. 1 Float        | On       |
| -----                                          |                                                                          |                    |          |
| Analog Out Mainboard Settings (Analog Out 1/2) |                                                                          |                    |          |
| Range Ch. 1                                    | 0.00 dB                                                                  | Range Ch. 2        | 0.00 dB  |
| -----                                          |                                                                          |                    |          |
| Microphone Settings (Mic Amp. (Slot 6))        |                                                                          |                    |          |
| Channel In 1 Settings                          |                                                                          |                    |          |
| Range                                          | 114 dB[SPL] @ 12.5 mV/Pa                                                 | Highpass           | Off      |
| Polarisation Voltage                           | 200V                                                                     | Supply Voltage     | ±60V     |
| Channel In 2 Settings                          |                                                                          |                    |          |
| Range                                          | 114 dB[SPL] @ 12.5 mV/Pa                                                 | Highpass           | 20Hz     |
| Polarisation Voltage                           | 200V                                                                     | Supply Voltage     | ±60V     |
| Channel In 3 Settings                          |                                                                          |                    |          |
| Range                                          | 114 dB[SPL] @ 12.5 mV/Pa                                                 | Highpass           | Off      |
| Polarisation Voltage                           | 200V                                                                     | Supply Voltage     | ±60V     |
| Channel In 4 Settings                          |                                                                          |                    |          |
| Range                                          | 114 dB[SPL] @ 12.5 mV/Pa                                                 | Highpass           | Off      |
| Polarisation Voltage                           | 200V                                                                     | Supply Voltage     | ±60V     |
| -----                                          |                                                                          |                    |          |
| BEQ Settings (BEQ Filter 1)                    |                                                                          |                    |          |
| Block mode                                     | Bypass                                                                   |                    |          |
| -----                                          |                                                                          |                    |          |
| Artificial Head Settings (HATS 1 (HMS II.3))   |                                                                          |                    |          |
| Ser. Nr.                                       | 12306613                                                                 | Pinna Type         | Type 3.3 |
| -----                                          |                                                                          |                    |          |
| HIB Settings                                   |                                                                          |                    |          |
| HIB Name                                       | 60020095                                                                 | Serial             | 60020095 |
| HIB Mode                                       | Mobile Measurement                                                       | Impedance          | 32 Ohm   |
| Gain out 1                                     | -40.00 dB                                                                | Gain out 2         | 0.00 dB  |
| Gain in 1                                      | 0.00 dB                                                                  | Gain in 2          | 0.00 dB  |
| Mic 1 Power Supply                             | Off                                                                      | Mic 2 Power Supply | Off      |

## 5.3 Frequency Response 2N FF HANB

TIA-5050 (2018-01) \ Measurements \ Narrowband



Absolute minimal distance  
0.31 dB at 3882.4 Hz Ok

Ok

2024/1/19 23:13 ACQUA 5.1.200

Unmodified HEAD acoustics Measurement Descriptor

#### Limits

|       | lower              |
|-------|--------------------|
| Run 1 | Fit into tolerance |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)

Database Version: 40\_HAC\_Suite\_Rev03

**Source: respmaleieeee269\_nb\_r16.dat**

Level adj. Ch1 -90.0 dB Level adj. Ch2 -4.0 dB

NARROWBAND IEEE-269-2010 Real Speech Signal at Channel 2

Pause 0.5 s +

Real Speech (english, male speaker) 11.5 s, Active Speech Level: -16 dBm0, margin 15.9 dB +

Pause till end of file

Signal level (ch1): -16 dBm0 Active Speech Level, margin 15.9 dB

Signal taken from "IEEE\_269-2010\_Male\_mono\_48\_kHz.wav"

Alteration:

0.2 s Pause added at the beginning of the file.

0.8 s Pause added at the and of the file.

filtered with 4.0 kHz low-pass filter

signal level changed

#### Calibration

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))  
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

**HHP IV Settings (Setting: STD:(0,0,0) rel AHP)**

|                |         |                          |       |
|----------------|---------|--------------------------|-------|
| MECRP Delta Ye | 0.0 mm  | Rotation Delta A         | 0.0 ° |
| MECRP Delta Ze | 0.0 mm  | Rotation Delta C         | 0.0 ° |
| Delta Xe       | 0.0 mm  | Rotation Delta B         | 5.0 ° |
| Delta Ye       | 0.0 mm  | Delta A                  | 0.0 ° |
| Delta Ze       | 0.0 mm  | Delta C                  | 0.0 ° |
| Ym             | -1.3 mm | Delta B                  | 0.0 ° |
|                |         | Ear Type 3.3 Coordinates |       |

Mounting: Right Ear  
Force to apply: 2.0 N, Force reached: 2.0 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                  |                               |                     |                 |
|------------------|-------------------------------|---------------------|-----------------|
| Direction        | Out 2 -> In 2                 |                     |                 |
| Range start      | 500.00 ms                     | Range length        | 11500.00 ms     |
| Use FIR Filter   | Ch2                           | FIR filter          | drp2ff_ieee1652 |
| DRP/ERP Ch.1:    | Off                           | DRP/ERP Ch.2:       | Off             |
| Frequency base   | 12th octave                   | DIN Row             | Row A           |
| Method           | FFT                           |                     |                 |
| FFT size         | 4096                          | Overlap             | 75 %            |
| Window function. | Hanning                       |                     |                 |
| Reference file   | r521_rcv_frq_spee269_hanb.fft |                     |                 |
| Tol. scheme file | 521_rcv_frq_man_hanb.tol      | Min. freq. for tol. | 100.0 Hz        |
| Auto adjust      | Centrate                      | Max. freq. for tol. | 4000.0 Hz       |

**Special Features**

Compensate delay 203.9000 ms (D\_RCV\_NB, Delay (Cross))

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

**labCORE Routing**

|                  |                                                                          |
|------------------|--------------------------------------------------------------------------|
| Out Channel 1 -> | Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker                      |
| Out Channel 2 -> | Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In                           |
| In Channel 1 <-  | Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out                        |
| In Channel 2 <-  | BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right |

**Analog In Mainboard Settings (Analog In 1/2)**

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

**Analog Out Mainboard Settings (Analog Out 1/2)**

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

**Microphone Settings (Mic Amp. (Slot 6))**

|                       |                          |                |      |
|-----------------------|--------------------------|----------------|------|
| Channel In 1 Settings |                          |                |      |
| Range                 | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage  | 200V                     | Supply Voltage | ±60V |
| Channel In 2 Settings |                          |                |      |
| Range                 | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage  | 200V                     | Supply Voltage | ±60V |
| Channel In 3 Settings |                          |                |      |
| Range                 | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage  | 200V                     | Supply Voltage | ±60V |
| Channel In 4 Settings |                          |                |      |
| Range                 | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage  | 200V                     | Supply Voltage | ±60V |

BEQ Settings (BEQ Filter 1)

Block mode Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

Ser. Nr. 12306613

Pinna Type

Type 3.3

### HIB Settings

HIB Name 60020095

Serial

60020095

HIB Mode Mobile Measurement

Impedance

32 Ohm

Gain out 1 -40.00 dB

Gain out 2

0.00 dB

Gain in 1 0.00 dB

Gain in 2

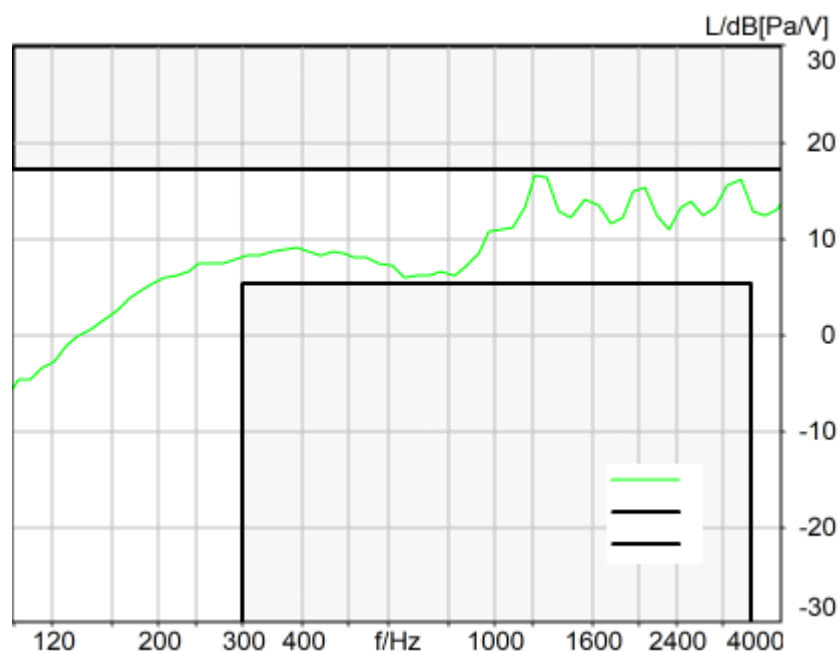
0.00 dB

Mic 1 Power Supply Off

Mic 2 Power Supply Off

## 5.3 Frequency Response 2N DF HANB

TIA-5050 (2018-01) \ Measurements \ Narrowband



Absolute minimal distance

0.74 dB at 649.1 Hz Ok

Ok

2024/1/19 23:13 ACQUA 5.1.200

Unmodified HEAD acoustics Measurement Descriptor

### Limits

|       |                    |
|-------|--------------------|
|       | lower              |
| Run 1 | Fit into tolerance |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)  
Database Version: 40\_HAC\_Suite\_Rev03

**Source: respmaleieee269\_nb\_r16.dat**

Level adj. Ch1 -90.0 dB Level adj. Ch2 -4.0 dB

NARROWBAND IEEE-269-2010 Real Speech Signal at Channel 2

Pause 0.5 s +

Real Speech (english, male speaker) 11.5 s, Active Speech Level: -16 dBm0, margin 15.9 dB +

Pause till end of file

Signal level (ch1): -16 dBm0 Active Speech Level, margin 15.9 dB

Signal taken from "IEEE\_269-2010\_Male\_mono\_48\_kHz.wav"

Alteration:

0.2 s Pause added at the beginning of the file.

0.8 s Pause added at the end of the file.

filtered with 4.0 kHz low-pass filter

signal level changed

**Calibration**

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))

Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

**HHP IV Settings (Setting: STD:(0,0,0) rel AHP)**

|                |         |                          |       |
|----------------|---------|--------------------------|-------|
| MECRP Delta Ye | 0.0 mm  | Rotation Delta A         | 0.0 ° |
| MECRP Delta Ze | 0.0 mm  | Rotation Delta C         | 0.0 ° |
| Delta Xe       | 0.0 mm  | Rotation Delta B         | 5.0 ° |
| Delta Ye       | 0.0 mm  | Delta A                  | 0.0 ° |
| Delta Ze       | 0.0 mm  | Delta C                  | 0.0 ° |
| Ym             | -1.3 mm | Delta B                  | 0.0 ° |
|                |         | Ear Type 3.3 Coordinates |       |

Mounting: Right Ear

Force to apply: 2.0 N, Force reached: 2.0 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                  |                               |                     |                 |
|------------------|-------------------------------|---------------------|-----------------|
| Direction        | Out 2 -> In 2                 |                     |                 |
| Range start      | 500.00 ms                     | Range length        | 11500.00 ms     |
| Use FIR Filter   | Ch2                           | FIR filter          | drp2df_ieee1652 |
| DRP/ERP Ch.1:    | Off                           | DRP/ERP Ch.2:       | Off             |
| Frequency base   | 12th octave                   | DIN Row             | Row A           |
| Method           | FFT                           |                     |                 |
| FFT size         | 4096                          | Overlap             | 75 %            |
| Window function. | Hanning                       |                     |                 |
| Reference file   | r521_rcv_frq_spee269_hanb.fft |                     |                 |
| Tol. scheme file | 521_rcv_frq_man_hanb.tol      | Min. freq. for tol. | 100.0 Hz        |
| Auto adjust      | Centrate                      | Max. freq. for tol. | 4000.0 Hz       |

**Special Features**

Compensate delay 203.9000 ms (D\_RCV\_NB, Delay (Cross))

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

**labCORE Routing**

|                  |                                                                          |
|------------------|--------------------------------------------------------------------------|
| Out Channel 1 -> | Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker                      |
| Out Channel 2 -> | Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In                           |
| In Channel 1 <-  | Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out                        |
| In Channel 2 <-  | BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right |

Analog In Mainboard Settings (Analog In 1/2)

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

-----

Analog Out Mainboard Settings (Analog Out 1/2)

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

-----

Microphone Settings (Mic Amp. (Slot 6))

Channel In 1 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

Channel In 2 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

Channel In 3 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

Channel In 4 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

-----

BEQ Settings (BEQ Filter 1)

|            |        |
|------------|--------|
| Block mode | Bypass |
|------------|--------|

-----

Artificial Head Settings (HATS 1 (HMS II.3))

|          |          |            |          |
|----------|----------|------------|----------|
| Ser. Nr. | 12306613 | Pinna Type | Type 3.3 |
|----------|----------|------------|----------|

**HIB Settings**

|                    |                    |                    |          |
|--------------------|--------------------|--------------------|----------|
| HIB Name           | 60020095           | Serial             | 60020095 |
| HIB Mode           | Mobile Measurement | Impedance          | 32 Ohm   |
| Gain out 1         | -40.00 dB          | Gain out 2         | 0.00 dB  |
| Gain in 1          | 0.00 dB            | Gain in 2          | 0.00 dB  |
| Mic 1 Power Supply | Off                | Mic 2 Power Supply | Off      |

---

## **Measurement Protocol**

|                    |                                        |
|--------------------|----------------------------------------|
| Measurement Object | WIFI 5G_802.11a 6M EVS WB 128kbps_CH40 |
| Description        | HMD_2322#N159V                         |

|                        |                    |
|------------------------|--------------------|
| Project                | TIA-5050 (2018-01) |
| Report Generation Date | 2024/2/6 10:34     |
| Responsible Person     | audio              |

## Status Overview

| SMD                                                         | Status | Single Value Description               | Single Value | Object                                 |
|-------------------------------------------------------------|--------|----------------------------------------|--------------|----------------------------------------|
| Overall Receive Delay WB                                    | Done   | Delay (Cross) [ms]                     | 203.2        | WIFI 5G_802.11a 6M EVS WB 128kbps_CH40 |
| 5.1a Receive Volume Control Performance 8N WB               | Not Ok | Corrected Speech Level [dB[SPL]]       | 17.34        | WIFI 5G_802.11a 6M EVS WB 128kbps_CH40 |
| 5.1b Receive Volume Control Performance 2N WB               | Ok     | Corrected Speech Level [dB[SPL]]       | 11.39        | WIFI 5G_802.11a 6M EVS WB 128kbps_CH40 |
| 5.2 RCV Distortion and Noise - 250 Hz WB                    | Ok     | Distortion (Noise) [dB], 0.0 dB        | 29.29        | WIFI 5G_802.11a 6M EVS WB 128kbps_CH40 |
| 5.2 RCV Distortion and Noise - 315 Hz WB                    | Ok     | Distortion (Noise) [dB], 0.0 dB        | 32.13        | WIFI 5G_802.11a 6M EVS WB 128kbps_CH40 |
| 5.2 RCV Distortion and Noise - 400 Hz WB                    | Ok     | Distortion (Noise) [dB], 0.0 dB        | 27.52        | WIFI 5G_802.11a 6M EVS WB 128kbps_CH40 |
| 5.2 RCV Distortion and Noise - 500 Hz WB                    | Ok     | Distortion (Noise) [dB], 0.0 dB        | 29.98        | WIFI 5G_802.11a 6M EVS WB 128kbps_CH40 |
| 5.2 RCV Distortion and Noise - 630 Hz WB                    | Ok     | Distortion (Noise) [dB], 0.0 dB        | 32.05        | WIFI 5G_802.11a 6M EVS WB 128kbps_CH40 |
| 5.2 RCV Distortion and Noise - 800 Hz WB                    | Ok     | Distortion (Noise) [dB], 0.0 dB        | 32.82        | WIFI 5G_802.11a 6M EVS WB 128kbps_CH40 |
| 5.2 RCV Distortion and Noise - 1000 Hz WB                   | Ok     | Distortion (Noise) [dB], 0.0 dB        | 31.33        | WIFI 5G_802.11a 6M EVS WB 128kbps_CH40 |
| 5.2 RCV Distortion and Noise - 1250 Hz WB                   | Ok     | Distortion (Noise) [dB], 0.0 dB        | 23.85        | WIFI 5G_802.11a 6M EVS WB 128kbps_CH40 |
| 5.2 RCV Distortion and Noise - 1600 Hz WB                   | Ok     | Distortion (Noise) [dB], 0.0 dB        | 27.61        | WIFI 5G_802.11a 6M EVS WB 128kbps_CH40 |
| 5.2 RCV Distortion and Noise - 2000 Hz WB                   | Ok     | Distortion (Noise) [dB], 0.0 dB        | 31.94        | WIFI 5G_802.11a 6M EVS WB 128kbps_CH40 |
| 5.2 RCV Distortion and Noise - 2500 Hz WB                   | Ok     | Distortion (Noise) [dB], 0.0 dB        | 34.12        | WIFI 5G_802.11a 6M EVS WB 128kbps_CH40 |
| 5.2 RCV Distortion and Noise - 3150 Hz WB                   | Ok     | Distortion (Noise) [dB], 0.0 dB        | 34.36        | WIFI 5G_802.11a 6M EVS WB 128kbps_CH40 |
| 5.2 RCV Distortion and Noise - 4000 Hz WB                   | Ok     | Distortion (Noise) [dB], 0.0 dB        | 34.90        | WIFI 5G_802.11a 6M EVS WB 128kbps_CH40 |
| 5.2 RCV Distortion and Noise - 5000 Hz WB                   | Ok     | Distortion (Noise) [dB], 0.0 dB        | 32.86        | WIFI 5G_802.11a 6M EVS WB 128kbps_CH40 |
| Report - Receive Distortion and Noise (Conversational Gain) | Ok     | Minimum SDNR [dB], (occured at 1250Hz) | 23.85        | WIFI 5G_802.11a 6M EVS WB 128kbps_CH40 |
| 5.2 RCV Distortion and Noise - 250 Hz WB                    | Ok     | Distortion (Noise) [dB], 0.0 dB        | 27.72        | WIFI 5G_802.11a 6M EVS WB 128kbps_CH40 |
| 5.2 RCV Distortion and Noise - 315 Hz WB                    | Ok     | Distortion (Noise) [dB], 0.0 dB        | 30.26        | WIFI 5G_802.11a 6M EVS WB 128kbps_CH40 |
| 5.2 RCV Distortion and Noise - 400 Hz WB                    | Ok     | Distortion (Noise) [dB], 0.0 dB        | 27.72        | WIFI 5G_802.11a 6M EVS WB 128kbps_CH40 |
| 5.2 RCV Distortion and Noise - 500 Hz WB                    | Ok     | Distortion (Noise) [dB], 0.0 dB        | 27.50        | WIFI 5G_802.11a 6M EVS WB 128kbps_CH40 |
| 5.2 RCV Distortion and Noise - 630 Hz WB                    | Ok     | Distortion (Noise) [dB], 0.0 dB        | 27.53        | WIFI 5G_802.11a 6M EVS WB 128kbps_CH40 |

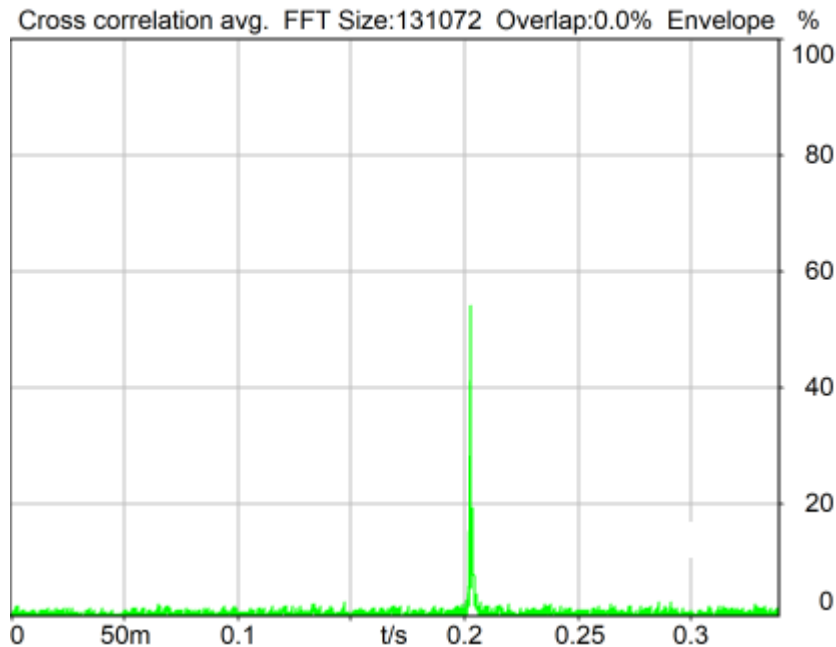
|                                                             |        |                                                |       |                                        |
|-------------------------------------------------------------|--------|------------------------------------------------|-------|----------------------------------------|
| 5.2 RCV Distortion and Noise - 800 Hz WB                    | Ok     | Distortion (Noise) [dB], 0.0 dB                | 29.56 | WIFI 5G_802.11a 6M EVS WB 128kbps_CH40 |
| 5.2 RCV Distortion and Noise - 1000 Hz WB                   | Ok     | Distortion (Noise) [dB], 0.0 dB                | 26.45 | WIFI 5G_802.11a 6M EVS WB 128kbps_CH40 |
| 5.2 RCV Distortion and Noise - 1250 Hz WB                   | Ok     | Distortion (Noise) [dB], 0.0 dB                | 21.83 | WIFI 5G_802.11a 6M EVS WB 128kbps_CH40 |
| 5.2 RCV Distortion and Noise - 1600 Hz WB                   | Ok     | Distortion (Noise) [dB], 0.0 dB                | 29.81 | WIFI 5G_802.11a 6M EVS WB 128kbps_CH40 |
| 5.2 RCV Distortion and Noise - 2000 Hz WB                   | Ok     | Distortion (Noise) [dB], 0.0 dB                | 33.63 | WIFI 5G_802.11a 6M EVS WB 128kbps_CH40 |
| 5.2 RCV Distortion and Noise - 2500 Hz WB                   | Ok     | Distortion (Noise) [dB], 0.0 dB                | 30.73 | WIFI 5G_802.11a 6M EVS WB 128kbps_CH40 |
| 5.2 RCV Distortion and Noise - 3150 Hz WB                   | Ok     | Distortion (Noise) [dB], 0.0 dB                | 34.49 | WIFI 5G_802.11a 6M EVS WB 128kbps_CH40 |
| 5.2 RCV Distortion and Noise - 4000 Hz WB                   | Ok     | Distortion (Noise) [dB], 0.0 dB                | 29.77 | WIFI 5G_802.11a 6M EVS WB 128kbps_CH40 |
| 5.2 RCV Distortion and Noise - 5000 Hz WB                   | Ok     | Distortion (Noise) [dB], 0.0 dB                | 33.49 | WIFI 5G_802.11a 6M EVS WB 128kbps_CH40 |
| Report - Receive Distortion and Noise (Conversational Gain) | Ok     | Minimum SDNR [dB], (occured at 1250Hz)         | 21.83 | WIFI 5G_802.11a 6M EVS WB 128kbps_CH40 |
| 5.3 Frequency Response 8N FF                                | Ok     | Min. dist. to tolerance scheme [dB], 2057.5 Hz | 1.40  | WIFI 5G_802.11a 6M EVS WB 128kbps_CH40 |
| 5.3 Frequency Response 8N DF                                | Not Ok | Min. dist. to tolerance scheme [dB], 4119.5 Hz | -1.36 | WIFI 5G_802.11a 6M EVS WB 128kbps_CH40 |
| 5.3 Frequency Response 2N FF                                | Ok     | Min. dist. to tolerance scheme [dB], 272.2 Hz  | 1.02  | WIFI 5G_802.11a 6M EVS WB 128kbps_CH40 |
| 5.3 Frequency Response 2N DF                                | Not Ok | Min. dist. to tolerance scheme [dB], 205.7 Hz  | -2.43 | WIFI 5G_802.11a 6M EVS WB 128kbps_CH40 |

---

|                                                             |    |
|-------------------------------------------------------------|----|
| Overall Receive Delay WB                                    | 5  |
| 5.1a Receive Volume Control Performance 8N WB               | 7  |
| 5.1b Receive Volume Control Performance 2N WB               | 9  |
| 5.2 RCV Distortion and Noise - 250 Hz WB                    | 10 |
| 5.2 RCV Distortion and Noise - 315 Hz WB                    | 13 |
| 5.2 RCV Distortion and Noise - 400 Hz WB                    | 15 |
| 5.2 RCV Distortion and Noise - 500 Hz WB                    | 17 |
| 5.2 RCV Distortion and Noise - 630 Hz WB                    | 19 |
| 5.2 RCV Distortion and Noise - 800 Hz WB                    | 21 |
| 5.2 RCV Distortion and Noise - 1000 Hz WB                   | 23 |
| 5.2 RCV Distortion and Noise - 1250 Hz WB                   | 26 |
| 5.2 RCV Distortion and Noise - 1600 Hz WB                   | 28 |
| 5.2 RCV Distortion and Noise - 2000 Hz WB                   | 30 |
| 5.2 RCV Distortion and Noise - 2500 Hz WB                   | 32 |
| 5.2 RCV Distortion and Noise - 3150 Hz WB                   | 34 |
| 5.2 RCV Distortion and Noise - 4000 Hz WB                   | 36 |
| 5.2 RCV Distortion and Noise - 5000 Hz WB                   | 39 |
| Report - Receive Distortion and Noise (Conversational Gain) | 41 |
| 5.2 RCV Distortion and Noise - 250 Hz WB                    | 41 |
| 5.2 RCV Distortion and Noise - 315 Hz WB                    | 44 |
| 5.2 RCV Distortion and Noise - 400 Hz WB                    | 46 |
| 5.2 RCV Distortion and Noise - 500 Hz WB                    | 48 |
| 5.2 RCV Distortion and Noise - 630 Hz WB                    | 50 |
| 5.2 RCV Distortion and Noise - 800 Hz WB                    | 52 |
| 5.2 RCV Distortion and Noise - 1000 Hz WB                   | 54 |
| 5.2 RCV Distortion and Noise - 1250 Hz WB                   | 57 |
| 5.2 RCV Distortion and Noise - 1600 Hz WB                   | 59 |
| 5.2 RCV Distortion and Noise - 2000 Hz WB                   | 61 |
| 5.2 RCV Distortion and Noise - 2500 Hz WB                   | 63 |
| 5.2 RCV Distortion and Noise - 3150 Hz WB                   | 65 |
| 5.2 RCV Distortion and Noise - 4000 Hz WB                   | 67 |
| 5.2 RCV Distortion and Noise - 5000 Hz WB                   | 70 |
| Report - Receive Distortion and Noise (Conversational Gain) | 72 |
| 5.3 Frequency Response 8N FF                                | 72 |
| 5.3 Frequency Response 8N DF                                | 75 |
| 5.3 Frequency Response 2N FF                                | 77 |
| 5.3 Frequency Response 2N DF                                | 79 |

## Overall Receive Delay WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ Preparation - Delay measurement



Delay (Cross): 203.2 ms

2024/1/19 22:48 ACQUA 5.1.200

Unmodified HEAD acoustics Measurement Descriptor

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)

Database Version: 40\_HAC\_Suite\_Rev03

### Source: csswb1b\_r1s.dat

WIDEBAND Composite Source Signal RCV P.501 (1 bursts) at Channel 2

Pause 0.5 s +

voiced signal + 8000 Hz band limited random noise 1.0 s +

Pause till end of file

Signal level (ch2): -14.7 dBm0 (corresponds to approx. -16.0 dBm0 for a 350 ms CSS considering 101 ms Pause) from 0.5s to 1.544s for 4-k FFT, Hanning window,

75 % overlap in frequency range of 100 to 8000 Hz

### Calibration

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))

Output ch.1: 0.00 dB

Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

### HHP IV Settings (Setting: STD:(0,0,0) rel AHP)

Rotation Delta A 0.0 °

|                |         |                          |       |
|----------------|---------|--------------------------|-------|
| MECRP Delta Ye | 0.0 mm  | Rotation Delta C         | 0.0 ° |
| MECRP Delta Ze | 0.0 mm  | Rotation Delta B         | 5.0 ° |
| Delta Xe       | 0.0 mm  | Delta A                  | 0.0 ° |
| Delta Ye       | 0.0 mm  | Delta C                  | 0.0 ° |
| Delta Ze       | 0.0 mm  | Delta B                  | 0.0 ° |
| Ym             | -4.6 mm | Ear Type 3.3 Coordinates |       |

Mounting: Right Ear  
Force to apply: 8.0 N, Force reached: 8.0 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                   |                |                 |            |
|-------------------|----------------|-----------------|------------|
| Range start       | 550.00 ms      | Range length    | 1950.00 ms |
| DRP/ERP Ch.1:     | Off            | DRP/ERP Ch.2:   | Off        |
| Frequency base    | Transformation |                 |            |
| FFT size          | 131072         | Overlap         | 0 %        |
| Window function.  | Hanning        | Smooth          | Off        |
| Delayed channel   | None           |                 |            |
| Valid range start | -1228.79 ms    | Valid range end | 1228.81 ms |

**Special Features**

Show source signal Source ch.2 Store to variable D\_RCV\_WB

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

**labCORE Routing**

Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker  
Out Channel 2 -> Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In  
In Channel 1 <- Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out  
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

**Analog In Mainboard Settings (Analog In 1/2)**

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

**Analog Out Mainboard Settings (Analog Out 1/2)**

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

**Microphone Settings (Mic Amp. (Slot 6))****Channel In 1 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 2 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 3 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 4 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**BEQ Settings (BEQ Filter 1)**

Block mode Bypass

**Artificial Head Settings (HATS 1 (HMS II.3))**

|          |          |            |          |
|----------|----------|------------|----------|
| Ser. Nr. | 12306613 | Pinna Type | Type 3.3 |
|----------|----------|------------|----------|

**HIB Settings**

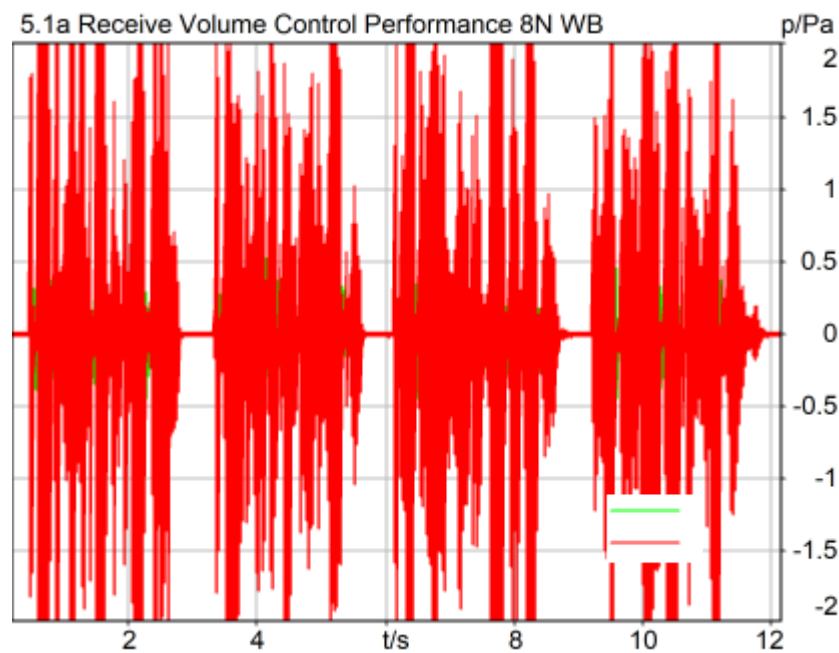
|          |                    |           |          |
|----------|--------------------|-----------|----------|
| HIB Name | 60020095           | Serial    | 60020095 |
| HIB Mode | Mobile Measurement | Impedance | 32 Ohm   |

Gain out 1 -40.00 dB  
Gain in 1 0.00 dB  
Mic 1 Power Supply Off

Gain out 2 0.00 dB  
Gain in 2 0.00 dB  
Mic 2 Power Supply Off

## 5.1a Receive Volume Control Performance 8N WB

TIA-5050 (2018-01) \ Measurements \ Wideband



### Correction

X - 70

Speech Level RCV: 87.34 dB[SPL], Act.: 85.91%

Corrected Speech Level: 17.34 dB[SPL] Not Ok

### Not Ok

2024/1/22 23:44 ACQUA 5.1.200

### Limits

|       | lower         |
|-------|---------------|
| Run 1 | 18.00 dB20uPa |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)  
Database Version: 40\_HAC\_Suite\_Rev03

### Calibration

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))  
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                 |                |                     |                 |
|-----------------|----------------|---------------------|-----------------|
| Direction       | Out 2 -> In 2  |                     |                 |
| Range start     | 200.00 ms      | Range length        | 12000.00 ms     |
| Use FIR Filter  | Ch2            | FIR filter          | drp2ff_ieee1652 |
| Bandpass filter | Super Wideband | Margin (15.9dB nom) |                 |
| 15.90 dB        |                |                     |                 |

**Special Features**

Show source signal Source ch.2  
Compensate delay 203.2000 ms (D\_RCV\_WB, Delay (Cross))

**Hardware Config Settings**

Used Setting HEAD 2G3G labCORE NetSim

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

**labCORE Routing**

Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker  
Out Channel 2 -> Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In  
In Channel 1 <- Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out  
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

**Analog In Mainboard Settings (Analog In 1/2)**

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

**Analog Out Mainboard Settings (Analog Out 1/2)**

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

**Microphone Settings (Mic Amp. (Slot 6))****Channel In 1 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 2 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 3 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 4 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**BEQ Settings (BEQ Filter 1)**

Block mode Bypass

**Artificial Head Settings (HATS 1 (HMS II.3))**

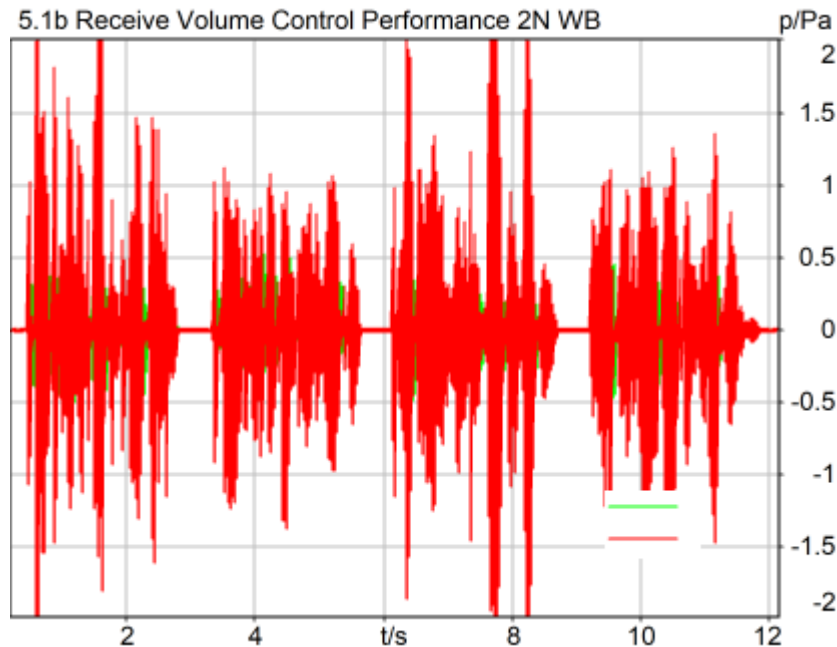
|          |          |            |          |
|----------|----------|------------|----------|
| Ser. Nr. | 12306613 | Pinna Type | Type 3.3 |
|----------|----------|------------|----------|

**HIB Settings**

|                    |                    |                    |          |
|--------------------|--------------------|--------------------|----------|
| HIB Name           | 60020095           | Serial             | 60020095 |
| HIB Mode           | Mobile Measurement | Impedance          | 32 Ohm   |
| Gain out 1         | -40.00 dB          | Gain out 2         | 0.00 dB  |
| Gain in 1          | 0.00 dB            | Gain in 2          | 0.00 dB  |
| Mic 1 Power Supply | Off                | Mic 2 Power Supply | Off      |

## 5.1b Receive Volume Control Performance 2N WB

TIA-5050 (2018-01) \ Measurements \ Wideband



### Correction

X - 70

Speech Level RCV: 81.39 dB[SPL], Act.: 85.93%

Corrected Speech Level: 11.39 dB[SPL] Ok

Ok

2024/1/22 23:45 ACQUA 5.1.200

### Limits

|       | lower        |
|-------|--------------|
| Run 1 | 6.00 dB20uPa |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)

Database Version: 40\_HAC\_Suite\_Rev03

### Calibration

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))

Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

### Output Equalization/Filter

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                 |                |                     |                 |
|-----------------|----------------|---------------------|-----------------|
| Direction       | Out 2 -> In 2  |                     |                 |
| Range start     | 200.00 ms      | Range length        | 12000.00 ms     |
| Use FIR Filter  | Ch2            | FIR filter          | drp2ff_ieee1652 |
| Bandpass filter | Super Wideband | Margin (15.9dB nom) |                 |
| 15.90 dB        |                |                     |                 |

**Special Features**

Show source signal Source ch.2  
Compensate delay 203.2000 ms (D\_RCV\_WB, Delay (Cross))

**Hardware Config Settings**

Used Setting HEAD 2G3G labCORE NetSim

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

**labCORE Routing**

Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker  
Out Channel 2 -> Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In  
In Channel 1 <- Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out  
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

**Analog In Mainboard Settings (Analog In 1/2)**

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

**Analog Out Mainboard Settings (Analog Out 1/2)**

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

**Microphone Settings (Mic Amp. (Slot 6))****Channel In 1 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 2 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 3 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 4 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**BEQ Settings (BEQ Filter 1)**

Block mode Bypass

**Artificial Head Settings (HATS 1 (HMS II.3))**

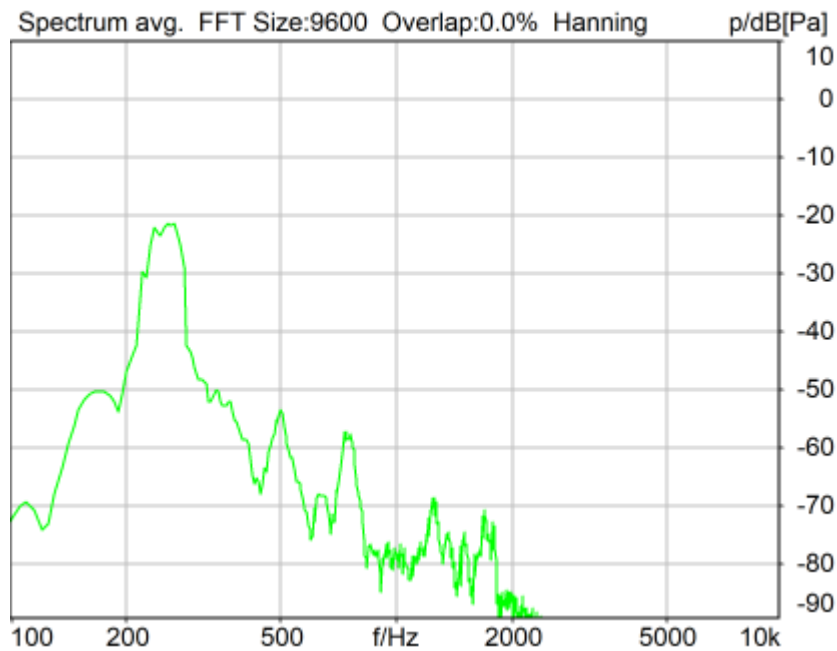
|          |          |            |          |
|----------|----------|------------|----------|
| Ser. Nr. | 12306613 | Pinna Type | Type 3.3 |
|----------|----------|------------|----------|

**HIB Settings**

|                        |                    |                        |          |
|------------------------|--------------------|------------------------|----------|
| HIB Name               | 60020095           | Serial                 | 60020095 |
| HIB Mode               | Mobile Measurement | Impedance              | 32 Ohm   |
| Gain out 1             | -40.00 dB          | Gain out 2             | 0.00 dB  |
| Gain in 1              | 0.00 dB            | Gain in 2              | 0.00 dB  |
| Mic 1 Power Supply Off |                    | Mic 2 Power Supply Off |          |

## **5.2 RCV Distortion and Noise - 250 Hz WB**

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 8N



Distortion (Noise) RCV (packed): 29.29 dB (3.43%) Ok

**Ok**

2024/1/19 22:49 ACQUA 5.1.200

Unmodified HEAD acoustics Measurement Descriptor

#### Limits

|       |              |
|-------|--------------|
|       | <b>lower</b> |
| Run 1 | 20.00 dB     |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)

Database Version: 40\_HAC\_Suite\_Rev03

Source: act\_rpn\_b250ms\_250hz\_sr20dbm0\_v02.dat.dat

Level adj. Ch1 -90.0 dB

#### Calibration

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))

Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

#### HHP IV Settings (Setting: STD:(0,0,0) rel AHP)

|                |         |                  |                 |
|----------------|---------|------------------|-----------------|
| MECRP Delta Ye | 0.0 mm  | Rotation Delta A | 0.0 °           |
| MECRP Delta Ze | 0.0 mm  | Rotation Delta C | 0.0 °           |
| Delta Xe       | 0.0 mm  | Rotation Delta B | 5.0 °           |
| Delta Ye       | 0.0 mm  | Delta A          | 0.0 °           |
| Delta Ze       | 0.0 mm  | Delta C          | 0.0 °           |
| Ym             | -4.6 mm | Delta B          | 0.0 °           |
|                |         | Ear Type         | 3.3 Coordinates |

Mounting: Right Ear

---

Force to apply: 8.0 N, Force reached: 8.0 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                   |                |                   |                 |
|-------------------|----------------|-------------------|-----------------|
| Direction         | Out 2 -> In 2  |                   |                 |
| Range start       | 13550.00 ms    | Range length      | 200.00 ms       |
| Number of seq.    | 10             | Sequence length   | 400.00 ms       |
| Use FIR Filter    | Ch2            | FIR filter        | drp2ff_ieee1652 |
| DRP/ERP Ch.1:     | Off            | DRP/ERP Ch.2:     | Off             |
| Frequency base    | Transformation |                   |                 |
| FFT size          | 9600           | Overlap           | 0 %             |
| Window function.  | Hanning        | Smooth            | Off             |
| dB weighting      | A Weighting    |                   |                 |
| Stimulus min.     | 190.0 Hz       | Stimulus max.     | 315.0 Hz        |
| Analysis min.     | 20.0 Hz        | Analysis max.     | 185.0 Hz        |
| Analysis (2) min. | 320.0 Hz       | Analysis (2) max. | 20000.0 Hz      |

**Special Features**

Compensate delay 203.2000 ms (D\_RCV\_WB, Delay (Cross))  
Store to variable RCVWB10\_250Hz

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

**labCORE Routing**

Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker  
Out Channel 2 -> Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In  
In Channel 1 <- Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out  
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

**Analog In Mainboard Settings (Analog In 1/2)**

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

**Analog Out Mainboard Settings (Analog Out 1/2)**

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

**Microphone Settings (Mic Amp. (Slot 6))****Channel In 1 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 2 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 3 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 4 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**BEQ Settings (BEQ Filter 1)**

Block mode Bypass

**Artificial Head Settings (HATS 1 (HMS II.3))**

|          |          |            |          |
|----------|----------|------------|----------|
| Ser. Nr. | 12306613 | Pinna Type | Type 3.3 |
|----------|----------|------------|----------|

**HIB Settings**

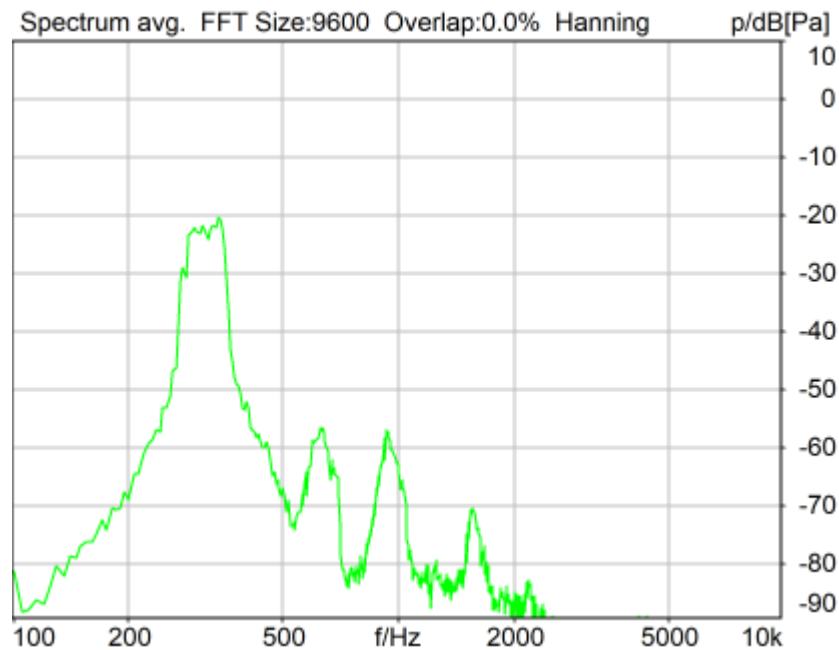
|            |                    |            |          |
|------------|--------------------|------------|----------|
| HIB Name   | 60020095           | Serial     | 60020095 |
| HIB Mode   | Mobile Measurement | Impedance  | 32 Ohm   |
| Gain out 1 | -40.00 dB          | Gain out 2 | 0.00 dB  |
| Gain in 1  | 0.00 dB            | Gain in 2  | 0.00 dB  |

Mic 1 Power Supply Off

Mic 2 Power Supply Off

## 5.2 RCV Distortion and Noise - 315 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 8N



Distortion (Noise) RCV (packed): 32.13 dB (2.48%) Ok

Ok

2024/1/19 22:50 ACQUA 5.1.200

Unmodified HEAD acoustics Measurement Descriptor

### Limits

|       | lower    |
|-------|----------|
| Run 1 | 20.00 dB |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)

Database Version: 40\_HAC\_Suite\_Rev03

Source: act\_rpn\_b250ms\_315hz\_sr20dbm0\_v02.dat

Level adj. Ch1 -90.0 dB

### Calibration

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))

Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

HHP IV Settings (Setting: STD:(0,0,0) rel AHP)

Rotation Delta A 0.0 °

|                |         |                          |       |
|----------------|---------|--------------------------|-------|
| MECRP Delta Ye | 0.0 mm  | Rotation Delta C         | 0.0 ° |
| MECRP Delta Ze | 0.0 mm  | Rotation Delta B         | 5.0 ° |
| Delta Xe       | 0.0 mm  | Delta A                  | 0.0 ° |
| Delta Ye       | 0.0 mm  | Delta C                  | 0.0 ° |
| Delta Ze       | 0.0 mm  | Delta B                  | 0.0 ° |
| Ym             | -4.6 mm | Ear Type 3.3 Coordinates |       |

Mounting: Right Ear  
Force to apply: 8.0 N, Force reached: 8.0 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                   |                |                   |                 |
|-------------------|----------------|-------------------|-----------------|
| Direction         | Out 2 -> In 2  |                   |                 |
| Range start       | 13550.00 ms    | Range length      | 200.00 ms       |
| Number of seq.    | 10             | Sequence length   | 400.00 ms       |
| Use FIR Filter    | Ch2            | FIR filter        | drp2ff_ieee1652 |
| DRP/ERP Ch.1:     | Off            | DRP/ERP Ch.2:     | Off             |
| Frequency base    | Transformation |                   |                 |
| FFT size          | 9600           | Overlap           | 0 %             |
| Window function.  | Hanning        | Smooth            | Off             |
| dB weighting      | A Weighting    |                   |                 |
| Stimulus min.     | 245.0 Hz       | Stimulus max.     | 390.0 Hz        |
| Analysis min.     | 20.0 Hz        | Analysis max.     | 240.0 Hz        |
| Analysis (2) min. | 395.0 Hz       | Analysis (2) max. | 20000.0 Hz      |

**Special Features**

Compensate delay 203.2000 ms (D\_RCV\_WB, Delay (Cross))  
Store to variable RCVWB10\_315Hz

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

**labCORE Routing**

Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker  
Out Channel 2 -> Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In  
In Channel 1 <- Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out  
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

**Analog In Mainboard Settings (Analog In 1/2)**

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

**Analog Out Mainboard Settings (Analog Out 1/2)**

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

**Microphone Settings (Mic Amp. (Slot 6))****Channel In 1 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 2 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 3 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 4 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**BEQ Settings (BEQ Filter 1)**

Block mode Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

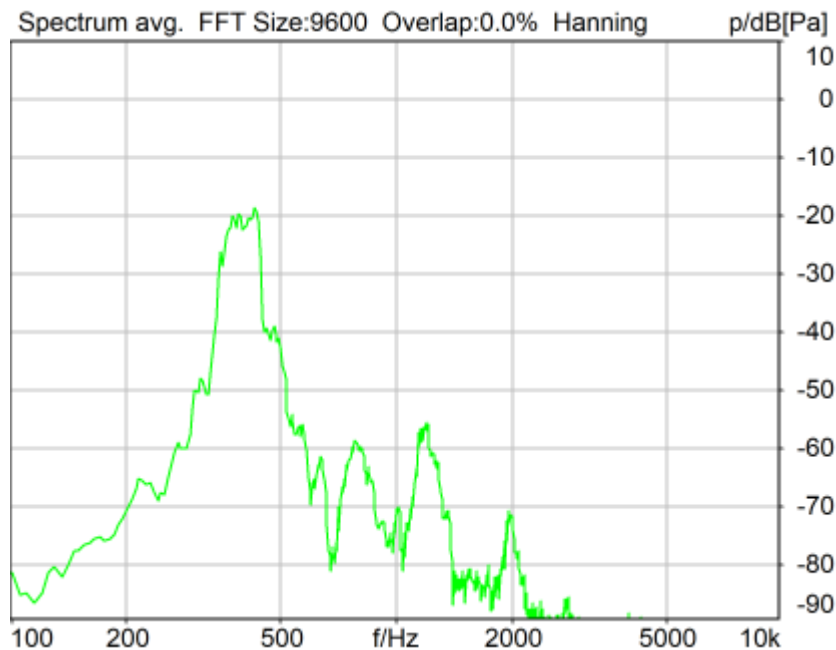
Ser. Nr. 12306613 Pinna Type Type 3.3

**HIB Settings**

|                        |                    |                        |          |
|------------------------|--------------------|------------------------|----------|
| HIB Name               | 60020095           | Serial                 | 60020095 |
| HIB Mode               | Mobile Measurement | Impedance              | 32 Ohm   |
| Gain out 1             | -40.00 dB          | Gain out 2             | 0.00 dB  |
| Gain in 1              | 0.00 dB            | Gain in 2              | 0.00 dB  |
| Mic 1 Power Supply Off |                    | Mic 2 Power Supply Off |          |

## 5.2 RCV Distortion and Noise - 400 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 8N



Distortion (Noise) RCV (packed): 27.52 dB (4.21%) Ok

**Ok**

2024/1/19 22:50 ACQUA 5.1.200

Unmodified HEAD acoustics Measurement Descriptor

**Limits**

|       | lower    |
|-------|----------|
| Run 1 | 20.00 dB |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)

Database Version: 40\_HAC\_Suite\_Rev03

Source: act\_rpn\_b250ms\_400hz\_sr20dbm0\_v02.dat

Level adj. Ch1 -90.0 dB

**Calibration**

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))

Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

**HHP IV Settings (Setting: STD:(0,0,0) rel AHP)**

|                |         |                          |       |
|----------------|---------|--------------------------|-------|
| MECRP Delta Ye | 0.0 mm  | Rotation Delta A         | 0.0 ° |
| MECRP Delta Ze | 0.0 mm  | Rotation Delta C         | 0.0 ° |
| Delta Xe       | 0.0 mm  | Rotation Delta B         | 5.0 ° |
| Delta Ye       | 0.0 mm  | Delta A                  | 0.0 ° |
| Delta Ze       | 0.0 mm  | Delta C                  | 0.0 ° |
| Ym             | -4.6 mm | Delta B                  | 0.0 ° |
|                |         | Ear Type 3.3 Coordinates |       |

Mounting: Right Ear

Force to apply: 8.0 N, Force reached: 8.0 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                   |                |                   |                 |
|-------------------|----------------|-------------------|-----------------|
| Direction         | Out 2 -> In 2  |                   |                 |
| Range start       | 13550.00 ms    | Range length      | 200.00 ms       |
| Number of seq.    | 10             | Sequence length   | 400.00 ms       |
| Use FIR Filter    | Ch2            | FIR filter        | drp2ff_ieee1652 |
| DRP/ERP Ch.1:     | Off            | DRP/ERP Ch.2:     | Off             |
| Frequency base    | Transformation |                   |                 |
| FFT size          | 9600           | Overlap           | 0 %             |
| Window function.  | Hanning        | Smooth            | Off             |
| dB weighting      | A Weighting    |                   |                 |
| Stimulus min.     | 320.0 Hz       | Stimulus max.     | 480.0 Hz        |
| Analysis min.     | 20.0 Hz        | Analysis max.     | 315.0 Hz        |
| Analysis (2) min. | 485.0 Hz       | Analysis (2) max. | 20000.0 Hz      |

**Special Features**

Compensate delay 203.2000 ms (D\_RCV\_WB, Delay (Cross))

Store to variable RCVWB10\_400Hz

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

**labCORE Routing**

|                  |                                                                          |
|------------------|--------------------------------------------------------------------------|
| Out Channel 1 -> | Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker                      |
| Out Channel 2 -> | Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In                           |
| In Channel 1 <-  | Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out                        |
| In Channel 2 <-  | BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right |

**Analogue In Mainboard Settings (Analog In 1/2)**

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

**Analogue Out Mainboard Settings (Analog Out 1/2)**

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

**Microphone Settings (Mic Amp. (Slot 6))****Channel In 1 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 2 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 3 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

Channel In 4 Settings

Range 114 dB[SPL] @ 12.5 mV/Pa Highpass Off  
Polarisation Voltage 200V Supply Voltage  $\pm 60V$

BEQ Settings (BEQ Filter 1)

Block mode Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

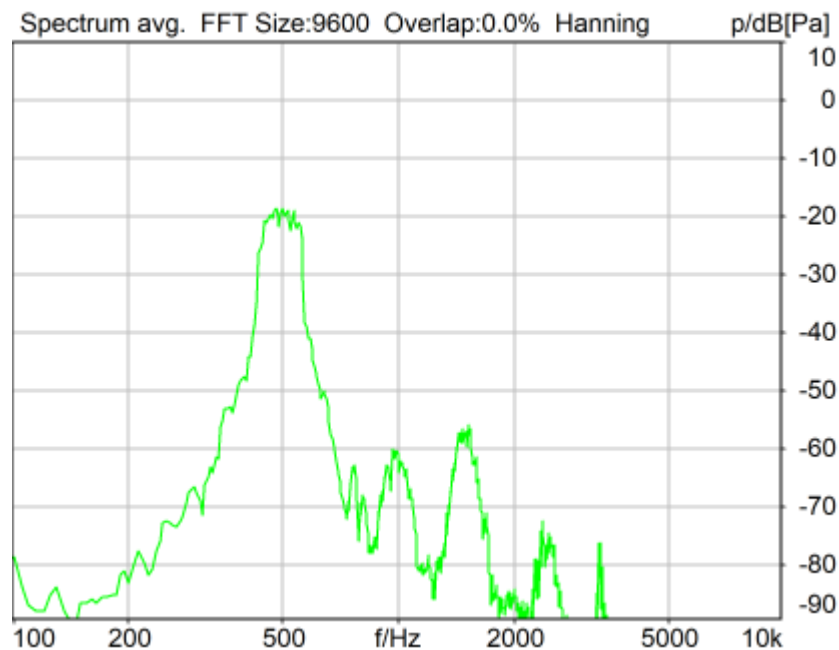
Ser. Nr. 12306613 Pinna Type Type 3.3

HIB Settings

HIB Name 60020095 Serial 60020095  
HIB Mode Mobile Measurement Impedance 32 Ohm  
Gain out 1 -40.00 dB Gain out 2 0.00 dB  
Gain in 1 0.00 dB Gain in 2 0.00 dB  
Mic 1 Power Supply Off Mic 2 Power Supply Off

## 5.2 RCV Distortion and Noise - 500 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 8N



Distortion (Noise) RCV (packed): 29.98 dB (3.17%) Ok

Ok

2024/1/19 22:50 ACQUA 5.1.200

Unmodified HEAD acoustics Measurement Descriptor

Limits

|       |          |
|-------|----------|
|       | lower    |
| Run 1 | 20.00 dB |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)  
Database Version: 40\_HAC\_Suite\_Rev03**Source: act\_rpn\_b250ms\_500hz\_sr20dbm0\_v02.dat**

Level adj. Ch1 -90.0 dB

**Calibration**

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))

Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

**HHP IV Settings (Setting: STD:(0,0,0) rel AHP)**

|                |         |                          |       |
|----------------|---------|--------------------------|-------|
| MECRP Delta Ye | 0.0 mm  | Rotation Delta A         | 0.0 ° |
| MECRP Delta Ze | 0.0 mm  | Rotation Delta C         | 0.0 ° |
| Delta Xe       | 0.0 mm  | Rotation Delta B         | 5.0 ° |
| Delta Ye       | 0.0 mm  | Delta A                  | 0.0 ° |
| Delta Ze       | 0.0 mm  | Delta C                  | 0.0 ° |
| Ym             | -4.6 mm | Delta B                  | 0.0 ° |
|                |         | Ear Type 3.3 Coordinates |       |

Mounting: Right Ear

Force to apply: 8.0 N, Force reached: 8.0 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                   |                |                   |                 |
|-------------------|----------------|-------------------|-----------------|
| Direction         | Out 2 -> In 2  |                   |                 |
| Range start       | 13550.00 ms    | Range length      | 200.00 ms       |
| Number of seq.    | 10             | Sequence length   | 400.00 ms       |
| Use FIR Filter    | Ch2            | FIR filter        | drp2ff_ieee1652 |
| DRP/ERP Ch.1:     | Off            | DRP/ERP Ch.2:     | Off             |
| Frequency base    | Transformation |                   |                 |
| FFT size          | 9600           | Overlap           | 0 %             |
| Window function.  | Hanning        | Smooth            | Off             |
| dB weighting      | A Weighting    |                   |                 |
| Stimulus min.     | 410.0 Hz       | Stimulus max.     | 595.0 Hz        |
| Analysis min.     | 20.0 Hz        | Analysis max.     | 405.0 Hz        |
| Analysis (2) min. | 600.0 Hz       | Analysis (2) max. | 20000.0 Hz      |

**Special Features**

Compensate delay 203.2000 ms (D\_RCV\_WB, Delay (Cross))

Store to variable RCVWB10\_500Hz

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

**labCORE Routing**

|                  |                                                                          |
|------------------|--------------------------------------------------------------------------|
| Out Channel 1 -> | Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker                      |
| Out Channel 2 -> | Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In                           |
| In Channel 1 <-  | Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out                        |
| In Channel 2 <-  | BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right |

**Analog In Mainboard Settings (Analog In 1/2)**

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

**Analog Out Mainboard Settings (Analog Out 1/2)**

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

**Microphone Settings (Mic Amp. (Slot 6))**

Channel In 1 Settings

|                       |                          |                |      |
|-----------------------|--------------------------|----------------|------|
| Range                 | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage  | 200V                     | Supply Voltage | ±60V |
| Channel In 2 Settings |                          |                |      |
| Range                 | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage  | 200V                     | Supply Voltage | ±60V |
| Channel In 3 Settings |                          |                |      |
| Range                 | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage  | 200V                     | Supply Voltage | ±60V |
| Channel In 4 Settings |                          |                |      |
| Range                 | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage  | 200V                     | Supply Voltage | ±60V |

-----  
BEQ Settings (BEQ Filter 1)  
Block mode      Bypass  
-----

Artificial Head Settings (HATS 1 (HMS II.3))

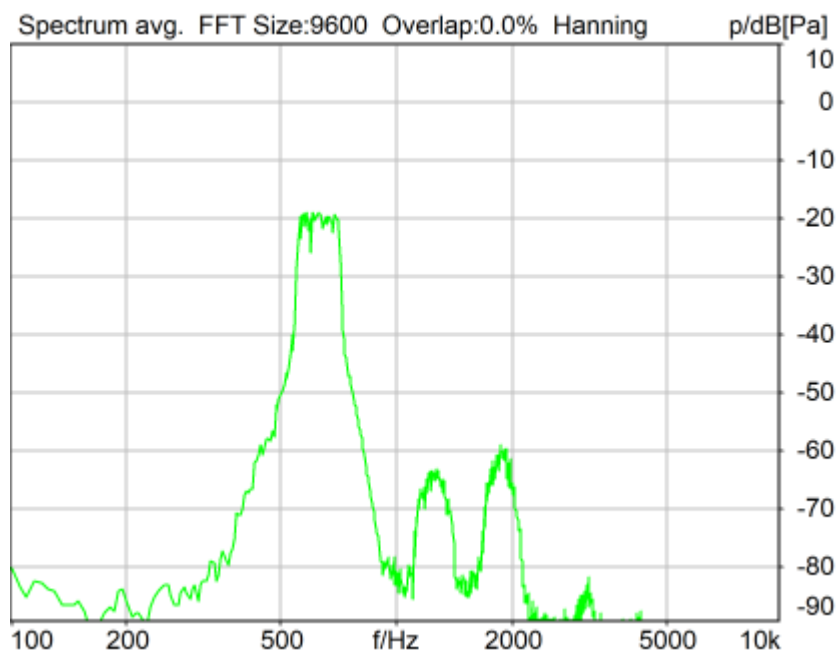
|          |          |            |          |
|----------|----------|------------|----------|
| Ser. Nr. | 12306613 | Pinna Type | Type 3.3 |
|----------|----------|------------|----------|

#### HIB Settings

|                    |                    |                    |          |
|--------------------|--------------------|--------------------|----------|
| HIB Name           | 60020095           | Serial             | 60020095 |
| HIB Mode           | Mobile Measurement | Impedance          | 32 Ohm   |
| Gain out 1         | -40.00 dB          | Gain out 2         | 0.00 dB  |
| Gain in 1          | 0.00 dB            | Gain in 2          | 0.00 dB  |
| Mic 1 Power Supply | Off                | Mic 2 Power Supply | Off      |

## 5.2 RCV Distortion and Noise - 630 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 8N



Distortion (Noise) RCV (packed): 32.05 dB (2.50%) Ok

**Ok**

2024/1/19 22:51 ACQUA 5.1.200

Unmodified HEAD acoustics Measurement Descriptor

**Limits**

|       | lower    |
|-------|----------|
| Run 1 | 20.00 dB |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)  
Database Version: 40\_HAC\_Suite\_Rev03**Source: act\_rpn\_b250ms\_630hz\_sr20dbm0\_v02.dat**

Level adj. Ch1 -90.0 dB

**Calibration**

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))

Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

**HHP IV Settings (Setting: STD:(0,0,0) rel AHP)**

|                |         |                          |       |
|----------------|---------|--------------------------|-------|
| MECRP Delta Ye | 0.0 mm  | Rotation Delta A         | 0.0 ° |
| MECRP Delta Ze | 0.0 mm  | Rotation Delta C         | 0.0 ° |
| Delta Xe       | 0.0 mm  | Rotation Delta B         | 5.0 ° |
| Delta Ye       | 0.0 mm  | Delta A                  | 0.0 ° |
| Delta Ze       | 0.0 mm  | Delta C                  | 0.0 ° |
| Ym             | -4.6 mm | Delta B                  | 0.0 ° |
|                |         | Ear Type 3.3 Coordinates |       |

Mounting: Right Ear

Force to apply: 8.0 N, Force reached: 8.0 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                   |                |                   |                 |
|-------------------|----------------|-------------------|-----------------|
| Direction         | Out 2 -> In 2  |                   |                 |
| Range start       | 13550.00 ms    | Range length      | 200.00 ms       |
| Number of seq.    | 10             | Sequence length   | 400.00 ms       |
| Use FIR Filter    | Ch2            | FIR filter        | drp2ff_ieee1652 |
| DRP/ERP Ch.1:     | Off            | DRP/ERP Ch.2:     | Off             |
| Frequency base    | Transformation |                   |                 |
| FFT size          | 9600           | Overlap           | 0 %             |
| Window function.  | Hanning        | Smooth            | Off             |
| dB weighting      | A Weighting    |                   |                 |
| Stimulus min.     | 525.0 Hz       | Stimulus max.     | 745.0 Hz        |
| Analysis min.     | 20.0 Hz        | Analysis max.     | 520.0 Hz        |
| Analysis (2) min. | 750.0 Hz       | Analysis (2) max. | 20000.0 Hz      |

**Special Features**

Compensate delay 203.2000 ms (D\_RCV\_WB, Delay (Cross))

Store to variable RCVWB10\_630Hz

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

-----

**labCORE Routing**

|                  |                                                                          |
|------------------|--------------------------------------------------------------------------|
| Out Channel 1 -> | Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker                      |
| Out Channel 2 -> | Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In                           |
| In Channel 1 <-  | Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out                        |
| In Channel 2 <-  | BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right |

-----

Analog In Mainboard Settings (Analog In 1/2)

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

-----  
Analog Out Mainboard Settings (Analog Out 1/2)

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

-----  
Microphone Settings (Mic Amp. (Slot 6))

## Channel In 1 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

## Channel In 2 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

## Channel In 3 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

## Channel In 4 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

-----  
BEQ Settings (BEQ Filter 1)

|            |        |
|------------|--------|
| Block mode | Bypass |
|------------|--------|

-----  
Artificial Head Settings (HATS 1 (HMS II.3))

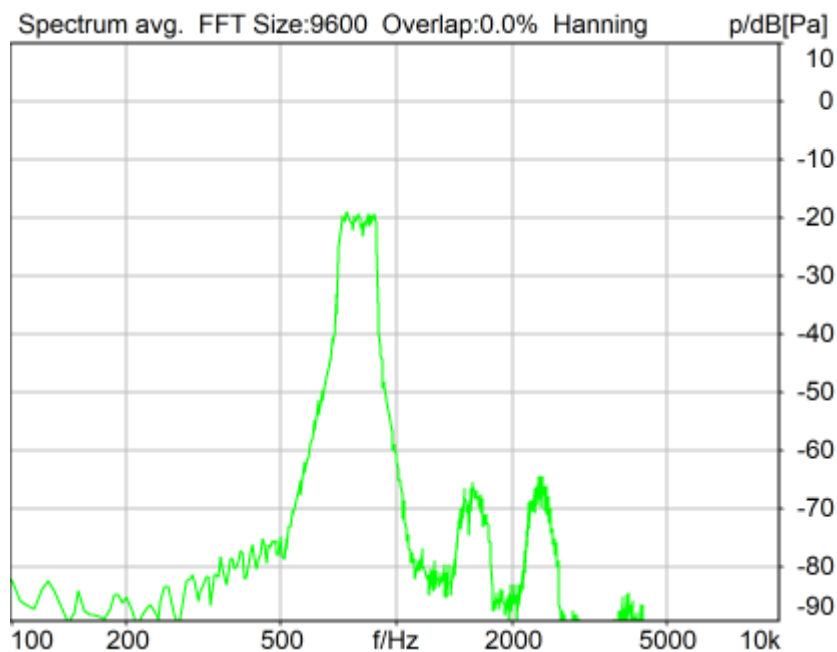
|          |          |            |          |
|----------|----------|------------|----------|
| Ser. Nr. | 12306613 | Pinna Type | Type 3.3 |
|----------|----------|------------|----------|

**HIB Settings**

|                    |                    |                    |          |
|--------------------|--------------------|--------------------|----------|
| HIB Name           | 60020095           | Serial             | 60020095 |
| HIB Mode           | Mobile Measurement | Impedance          | 32 Ohm   |
| Gain out 1         | -40.00 dB          | Gain out 2         | 0.00 dB  |
| Gain in 1          | 0.00 dB            | Gain in 2          | 0.00 dB  |
| Mic 1 Power Supply | Off                | Mic 2 Power Supply | Off      |

## **5.2 RCV Distortion and Noise - 800 Hz WB**

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 8N



Distortion (Noise) RCV (packed): 32.82 dB (2.29%) Ok

**Ok**

2024/1/19 22:51 ACQUA 5.1.200

Unmodified HEAD acoustics Measurement Descriptor

**Limits**

|       | lower    |
|-------|----------|
| Run 1 | 20.00 dB |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)

Database Version: 40\_HAC\_Suite\_Rev03

**Source: act\_rpn\_b250ms\_800hz\_sr20dbm0\_v02.dat**

Level adj. Ch1 -90.0 dB

**Calibration**

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))

Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

**HHP IV Settings (Setting: STD:(0,0,0) rel AHP)**

|                          |         |                  |       |
|--------------------------|---------|------------------|-------|
| MECRP Delta Ye           | 0.0 mm  | Rotation Delta A | 0.0 ° |
| MECRP Delta Ze           | 0.0 mm  | Rotation Delta C | 0.0 ° |
| Delta Xe                 | 0.0 mm  | Rotation Delta B | 5.0 ° |
| Delta Ye                 | 0.0 mm  | Delta A          | 0.0 ° |
| Delta Ze                 | 0.0 mm  | Delta C          | 0.0 ° |
| Ym                       | -4.6 mm | Delta B          | 0.0 ° |
| Ear Type 3.3 Coordinates |         |                  |       |

Mounting: Right Ear

Force to apply: 8.0 N, Force reached: 8.0 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                   |                |                   |                 |
|-------------------|----------------|-------------------|-----------------|
| Direction         | Out 2 -> In 2  | Range length      | 200.00 ms       |
| Range start       | 13550.00 ms    | Sequence length   | 400.00 ms       |
| Number of seq.    | 10             | FIR filter        | drp2ff_ieee1652 |
| Use FIR Filter    | Ch2            | DRP/ERP Ch.2:     | Off             |
| DRP/ERP Ch.1:     | Off            | Frequency base    | Transformation  |
| Frequency base    | Transformation | FFT size          | 9600            |
| FFT size          | 9600           | Overlap           | 0 %             |
| Window function.  | Hanning        | Smooth            | Off             |
| dB weighting      | A Weighting    | Stimulus max.     | 925.0 Hz        |
| Stimulus min.     | 675.0 Hz       | Analysis max.     | 670.0 Hz        |
| Analysis min.     | 20.0 Hz        | Analysis (2) max. | 20000.0 Hz      |
| Analysis (2) min. | 930.0 Hz       |                   |                 |

**Special Features**

Compensate delay 203.2000 ms (D\_RCV\_WB, Delay (Cross))

Store to variable RCVWB10\_800Hz

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

-----

## labCORE Routing

Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker  
Out Channel 2 -> Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In  
In Channel 1 <- Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out  
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

-----  
Analog In Mainboard Settings (Analog In 1/2)

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

-----  
Analog Out Mainboard Settings (Analog Out 1/2)

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

-----  
Microphone Settings (Mic Amp. (Slot 6))

## Channel In 1 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

## Channel In 2 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

## Channel In 3 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

## Channel In 4 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

-----  
BEQ Settings (BEQ Filter 1)

|            |        |
|------------|--------|
| Block mode | Bypass |
|------------|--------|

-----  
Artificial Head Settings (HATS 1 (HMS II.3))

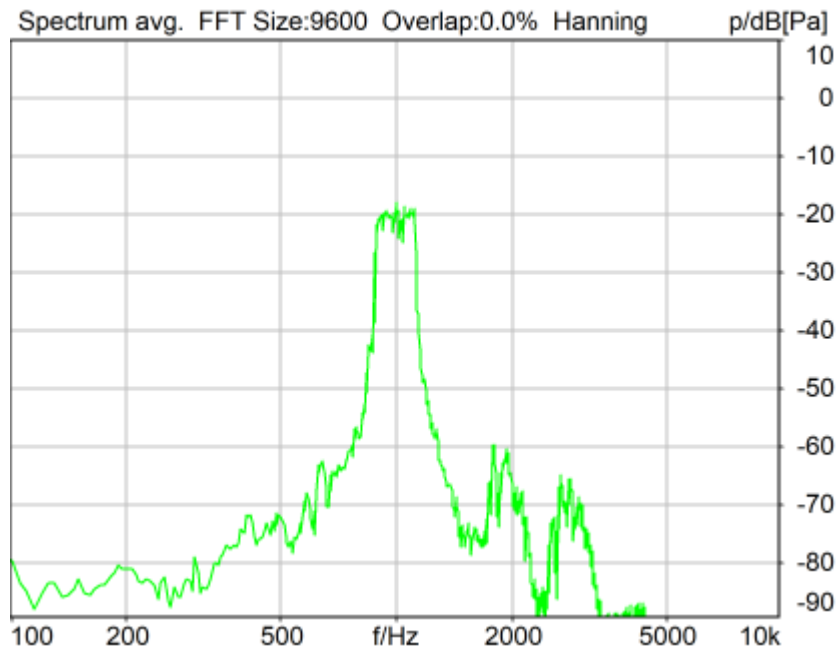
|          |          |            |          |
|----------|----------|------------|----------|
| Ser. Nr. | 12306613 | Pinna Type | Type 3.3 |
|----------|----------|------------|----------|

**HIB Settings**

|                    |                    |                    |          |
|--------------------|--------------------|--------------------|----------|
| HIB Name           | 60020095           | Serial             | 60020095 |
| HIB Mode           | Mobile Measurement | Impedance          | 32 Ohm   |
| Gain out 1         | -40.00 dB          | Gain out 2         | 0.00 dB  |
| Gain in 1          | 0.00 dB            | Gain in 2          | 0.00 dB  |
| Mic 1 Power Supply | Off                | Mic 2 Power Supply | Off      |

## **5.2 RCV Distortion and Noise - 1000 Hz WB**

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 8N



Distortion (Noise) RCV (packed): 31.33 dB (2.71%) Ok

**Ok**

2024/1/19 22:52 ACQUA 5.1.200

Unmodified HEAD acoustics Measurement Descriptor

#### Limits

|       | lower    |
|-------|----------|
| Run 1 | 20.00 dB |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)

Database Version: 40\_HAC\_Suite\_Rev03

**Source: act\_rpn\_b250ms\_1000hz\_sr20dbm0\_v02.dat**

Level adj. Ch1 -90.0 dB

#### Calibration

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))

Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

#### HHP IV Settings (Setting: STD:(0,0,0) rel AHP)

|                |         |                          |       |
|----------------|---------|--------------------------|-------|
| MECRP Delta Ye | 0.0 mm  | Rotation Delta A         | 0.0 ° |
| MECRP Delta Ze | 0.0 mm  | Rotation Delta C         | 0.0 ° |
| Delta Xe       | 0.0 mm  | Rotation Delta B         | 5.0 ° |
| Delta Ye       | 0.0 mm  | Delta A                  | 0.0 ° |
| Delta Ze       | 0.0 mm  | Delta C                  | 0.0 ° |
| Ym             | -4.6 mm | Delta B                  | 0.0 ° |
|                |         | Ear Type 3.3 Coordinates |       |

Mounting: Right Ear

Force to apply: 8.0 N, Force reached: 8.0 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                   |                |                   |                 |
|-------------------|----------------|-------------------|-----------------|
| Direction         | Out 2 -> In 2  |                   |                 |
| Range start       | 13550.00 ms    | Range length      | 200.00 ms       |
| Number of seq.    | 10             | Sequence length   | 400.00 ms       |
| Use FIR Filter    | Ch2            | FIR filter        | drp2ff_ieee1652 |
| DRP/ERP Ch.1:     | Off            | DRP/ERP Ch.2:     | Off             |
| Frequency base    | Transformation |                   |                 |
| FFT size          | 9600           | Overlap           | 0 %             |
| Window function.  | Hanning        | Smooth            | Off             |
| dB weighting      | A Weighting    |                   |                 |
| Stimulus min.     | 855.0 Hz       | Stimulus max.     | 1155.0 Hz       |
| Analysis min.     | 20.0 Hz        | Analysis max.     | 850.0 Hz        |
| Analysis (2) min. | 1160.0 Hz      | Analysis (2) max. | 20000.0 Hz      |

**Special Features**

Compensate delay 203.2000 ms (D\_RCV\_WB, Delay (Cross))  
Store to variable RCVWB10\_1000Hz

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

**labCORE Routing**

Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker  
Out Channel 2 -> Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In  
In Channel 1 <- Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out  
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

**Analog In Mainboard Settings (Analog In 1/2)**

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

**Analog Out Mainboard Settings (Analog Out 1/2)**

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

**Microphone Settings (Mic Amp. (Slot 6))****Channel In 1 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 2 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 3 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 4 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**BEQ Settings (BEQ Filter 1)**

Block mode Bypass

**Artificial Head Settings (HATS 1 (HMS II.3))**

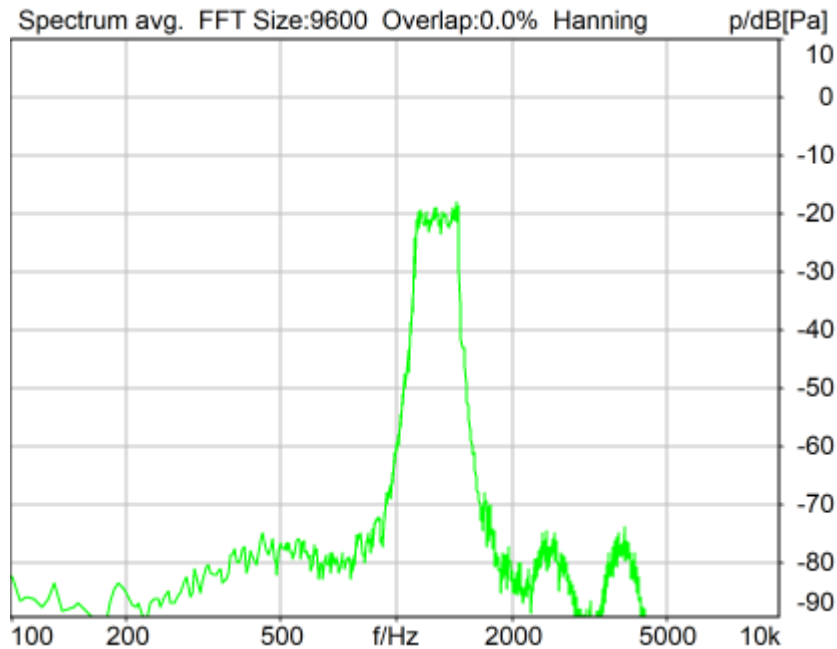
|          |          |            |          |
|----------|----------|------------|----------|
| Ser. Nr. | 12306613 | Pinna Type | Type 3.3 |
|----------|----------|------------|----------|

**HIB Settings**

|                    |                    |                    |          |
|--------------------|--------------------|--------------------|----------|
| HIB Name           | 60020095           | Serial             | 60020095 |
| HIB Mode           | Mobile Measurement | Impedance          | 32 Ohm   |
| Gain out 1         | -40.00 dB          | Gain out 2         | 0.00 dB  |
| Gain in 1          | 0.00 dB            | Gain in 2          | 0.00 dB  |
| Mic 1 Power Supply | Off                | Mic 2 Power Supply | Off      |

## 5.2 RCV Distortion and Noise - 1250 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 8N



Distortion (Noise) RCV (packed): 23.85 dB (6.42%) Ok

Ok

2024/1/19 22:52 ACQUA 5.1.200

Unmodified HEAD acoustics Measurement Descriptor

### Limits

|       | lower    |
|-------|----------|
| Run 1 | 20.00 dB |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)

Database Version: 40\_HAC\_Suite\_Rev03

Source: act\_rpn\_b250ms\_1250hz\_sr20dbm0\_v02.dat

Level adj. Ch1 -90.0 dB

### Calibration

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))

Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

HHP IV Settings (Setting: STD:(0,0,0) rel AHP)

|                |        |                  |       |
|----------------|--------|------------------|-------|
| MECRP Delta Ye | 0.0 mm | Rotation Delta A | 0.0 ° |
|                |        | Rotation Delta C | 0.0 ° |

|                |         |                          |       |
|----------------|---------|--------------------------|-------|
| MECRP Delta Ze | 0.0 mm  | Rotation Delta B         | 5.0 ° |
| Delta Xe       | 0.0 mm  | Delta A                  | 0.0 ° |
| Delta Ye       | 0.0 mm  | Delta C                  | 0.0 ° |
| Delta Ze       | 0.0 mm  | Delta B                  | 0.0 ° |
| Ym             | -4.6 mm | Ear Type 3.3 Coordinates |       |

Mounting: Right Ear  
Force to apply: 8.0 N, Force reached: 8.0 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                   |                |                   |                 |
|-------------------|----------------|-------------------|-----------------|
| Direction         | Out 2 -> In 2  |                   |                 |
| Range start       | 13550.00 ms    | Range length      | 200.00 ms       |
| Number of seq.    | 10             | Sequence length   | 400.00 ms       |
| Use FIR Filter    | Ch2            | FIR filter        | drp2ff_ieee1652 |
| DRP/ERP Ch.1:     | Off            | DRP/ERP Ch.2:     | Off             |
| Frequency base    | Transformation |                   |                 |
| FFT size          | 9600           | Overlap           | 0 %             |
| Window function.  | Hanning        | Smooth            | Off             |
| dB weighting      | A Weighting    |                   |                 |
| Stimulus min.     | 1085.0 Hz      | Stimulus max.     | 1450.0 Hz       |
| Analysis min.     | 20.0 Hz        | Analysis max.     | 1080.0 Hz       |
| Analysis (2) min. | 1455.0 Hz      | Analysis (2) max. | 20000.0 Hz      |

**Special Features**

Compensate delay 203.2000 ms (D\_RCV\_WB, Delay (Cross))  
Store to variable RCVWB10\_1250Hz

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

**labCORE Routing**

Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker  
Out Channel 2 -> Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In  
In Channel 1 <- Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out  
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

**Analog In Mainboard Settings (Analog In 1/2)**

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

**Analog Out Mainboard Settings (Analog Out 1/2)**

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

**Microphone Settings (Mic Amp. (Slot 6))****Channel In 1 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 2 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 3 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 4 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**BEQ Settings (BEQ Filter 1)**

Block mode Bypass

**Artificial Head Settings (HATS 1 (HMS II.3))**

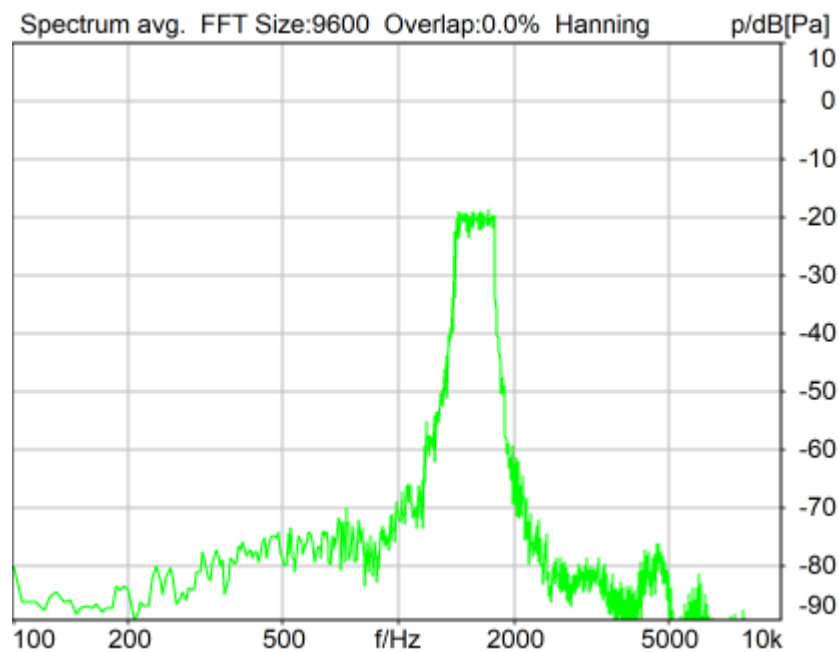
Ser. Nr. 12306613 Pinna Type Type 3.3

#### HIB Settings

|                        |                    |                        |          |
|------------------------|--------------------|------------------------|----------|
| HIB Name               | 60020095           | Serial                 | 60020095 |
| HIB Mode               | Mobile Measurement | Impedance              | 32 Ohm   |
| Gain out 1             | -40.00 dB          | Gain out 2             | 0.00 dB  |
| Gain in 1              | 0.00 dB            | Gain in 2              | 0.00 dB  |
| Mic 1 Power Supply Off |                    | Mic 2 Power Supply Off |          |

## 5.2 RCV Distortion and Noise - 1600 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 8N



Distortion (Noise) RCV (packed): 27.61 dB (4.16%) Ok

Ok

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Unmodified HEAD acoustics Measurement Descriptor

#### Limits

|       |          |
|-------|----------|
|       | lower    |
| Run 1 | 20.00 dB |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)

Database Version: 40\_HAC\_Suite\_Rev03

Source: act\_rpn\_b250ms\_1600hz\_sr20dbm0\_v02.dat

Level adj. Ch1 -90.0 dB

**Calibration**

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))

Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

**HHP IV Settings (Setting: STD:(0,0,0) rel AHP)**

|                |         |                          |       |
|----------------|---------|--------------------------|-------|
| MECRP Delta Ye | 0.0 mm  | Rotation Delta A         | 0.0 ° |
| MECRP Delta Ze | 0.0 mm  | Rotation Delta C         | 0.0 ° |
| Delta Xe       | 0.0 mm  | Rotation Delta B         | 5.0 ° |
| Delta Ye       | 0.0 mm  | Delta A                  | 0.0 ° |
| Delta Ze       | 0.0 mm  | Delta C                  | 0.0 ° |
| Ym             | -4.6 mm | Delta B                  | 0.0 ° |
|                |         | Ear Type 3.3 Coordinates |       |

Mounting: Right Ear

Force to apply: 8.0 N, Force reached: 8.0 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                   |                |                   |                 |
|-------------------|----------------|-------------------|-----------------|
| Direction         | Out 2 -> In 2  |                   |                 |
| Range start       | 13550.00 ms    | Range length      | 200.00 ms       |
| Number of seq.    | 10             | Sequence length   | 400.00 ms       |
| Use FIR Filter    | Ch2            | FIR filter        | drp2ff_ieee1652 |
| DRP/ERP Ch.1:     | Off            | DRP/ERP Ch.2:     | Off             |
| Frequency base    | Transformation |                   |                 |
| FFT size          | 9600           | Overlap           | 0 %             |
| Window function.  | Hanning        | Smooth            | Off             |
| dB weighting      | A Weighting    |                   |                 |
| Stimulus min.     | 1375.0 Hz      | Stimulus max.     | 1815.0 Hz       |
| Analysis min.     | 20.0 Hz        | Analysis max.     | 1370.0 Hz       |
| Analysis (2) min. | 1820.0 Hz      | Analysis (2) max. | 20000.0 Hz      |

**Special Features**

Compensate delay 203.2000 ms (D\_RCV\_WB, Delay (Cross))

Store to variable RCVWB10\_1600Hz

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

**labCORE Routing**

|                  |                                                                          |
|------------------|--------------------------------------------------------------------------|
| Out Channel 1 -> | Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker                      |
| Out Channel 2 -> | Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In                           |
| In Channel 1 <-  | Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out                        |
| In Channel 2 <-  | BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right |

**Analogue In Mainboard Settings (Analog In 1/2)**

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

**Analogue Out Mainboard Settings (Analog Out 1/2)**

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

**Microphone Settings (Mic Amp. (Slot 6))****Channel In 1 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 2 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 3 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

## Channel In 4 Settings

Range 114 dB[SPL] @ 12.5 mV/Pa Highpass Off  
Polarisation Voltage 200V Supply Voltage  $\pm 60V$

-----  
BEQ Settings (BEQ Filter 1)

Block mode Bypass

-----  
Artificial Head Settings (HATS 1 (HMS II.3))

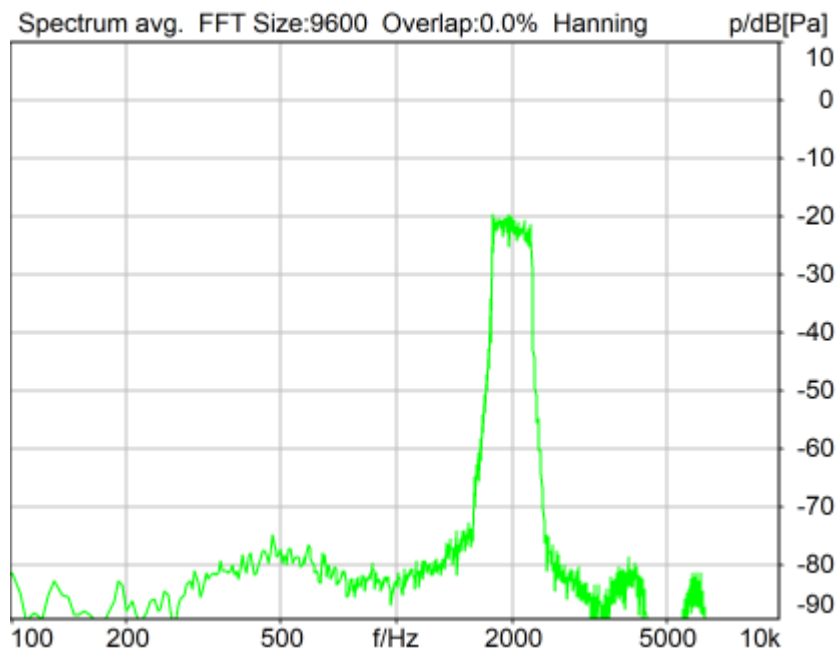
Ser. Nr. 12306613 Pinna Type Type 3.3

**HIB Settings**

|                    |                    |                    |          |
|--------------------|--------------------|--------------------|----------|
| HIB Name           | 60020095           | Serial             | 60020095 |
| HIB Mode           | Mobile Measurement | Impedance          | 32 Ohm   |
| Gain out 1         | -40.00 dB          | Gain out 2         | 0.00 dB  |
| Gain in 1          | 0.00 dB            | Gain in 2          | 0.00 dB  |
| Mic 1 Power Supply | Off                | Mic 2 Power Supply | Off      |

## 5.2 RCV Distortion and Noise - 2000 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 8N



Distortion (Noise) RCV (packed): 31.94 dB (2.53%) Ok

**Ok**

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Unmodified HEAD acoustics Measurement Descriptor

**Limits**

|       | lower    |
|-------|----------|
| Run 1 | 20.00 dB |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)  
Database Version: 40\_HAC\_Suite\_Rev03**Source: act\_rpn\_b250ms\_2000hz\_sr20dbm0\_v02.dat**

Level adj. Ch1 -90.0 dB

**Calibration**

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))

Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

**HHP IV Settings (Setting: STD:(0,0,0) rel AHP)**

|                |         |                          |       |
|----------------|---------|--------------------------|-------|
| MECRP Delta Ye | 0.0 mm  | Rotation Delta A         | 0.0 ° |
| MECRP Delta Ze | 0.0 mm  | Rotation Delta C         | 0.0 ° |
| Delta Xe       | 0.0 mm  | Rotation Delta B         | 5.0 ° |
| Delta Ye       | 0.0 mm  | Delta A                  | 0.0 ° |
| Delta Ze       | 0.0 mm  | Delta C                  | 0.0 ° |
| Ym             | -4.6 mm | Delta B                  | 0.0 ° |
|                |         | Ear Type 3.3 Coordinates |       |

Mounting: Right Ear

Force to apply: 8.0 N, Force reached: 8.0 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                   |                |                   |                 |
|-------------------|----------------|-------------------|-----------------|
| Direction         | Out 2 -> In 2  |                   |                 |
| Range start       | 13550.00 ms    | Range length      | 200.00 ms       |
| Number of seq.    | 10             | Sequence length   | 400.00 ms       |
| Use FIR Filter    | Ch2            | FIR filter        | drp2ff_ieee1652 |
| DRP/ERP Ch.1:     | Off            | DRP/ERP Ch.2:     | Off             |
| Frequency base    | Transformation |                   |                 |
| FFT size          | 9600           | Overlap           | 0 %             |
| Window function.  | Hanning        | Smooth            | Off             |
| dB weighting      | A Weighting    |                   |                 |
| Stimulus min.     | 1745.0 Hz      | Stimulus max.     | 2275.0 Hz       |
| Analysis min.     | 20.0 Hz        | Analysis max.     | 1740.0 Hz       |
| Analysis (2) min. | 2280.0 Hz      | Analysis (2) max. | 20000.0 Hz      |

**Special Features**

Compensate delay 203.2000 ms (D\_RCV\_WB, Delay (Cross))

Store to variable RCVWB10\_2000Hz

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

**labCORE Routing**

|                  |                                                                          |
|------------------|--------------------------------------------------------------------------|
| Out Channel 1 -> | Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker                      |
| Out Channel 2 -> | Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In                           |
| In Channel 1 <-  | Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out                        |
| In Channel 2 <-  | BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right |

**Analog In Mainboard Settings (Analog In 1/2)**

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

**Analog Out Mainboard Settings (Analog Out 1/2)**

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

**Microphone Settings (Mic Amp. (Slot 6))**

Channel In 1 Settings

|                       |                          |                |      |
|-----------------------|--------------------------|----------------|------|
| Range                 | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage  | 200V                     | Supply Voltage | ±60V |
| Channel In 2 Settings |                          |                |      |
| Range                 | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage  | 200V                     | Supply Voltage | ±60V |
| Channel In 3 Settings |                          |                |      |
| Range                 | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage  | 200V                     | Supply Voltage | ±60V |
| Channel In 4 Settings |                          |                |      |
| Range                 | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage  | 200V                     | Supply Voltage | ±60V |

-----  
BEQ Settings (BEQ Filter 1)  
Block mode      Bypass  
-----

Artificial Head Settings (HATS 1 (HMS II.3))

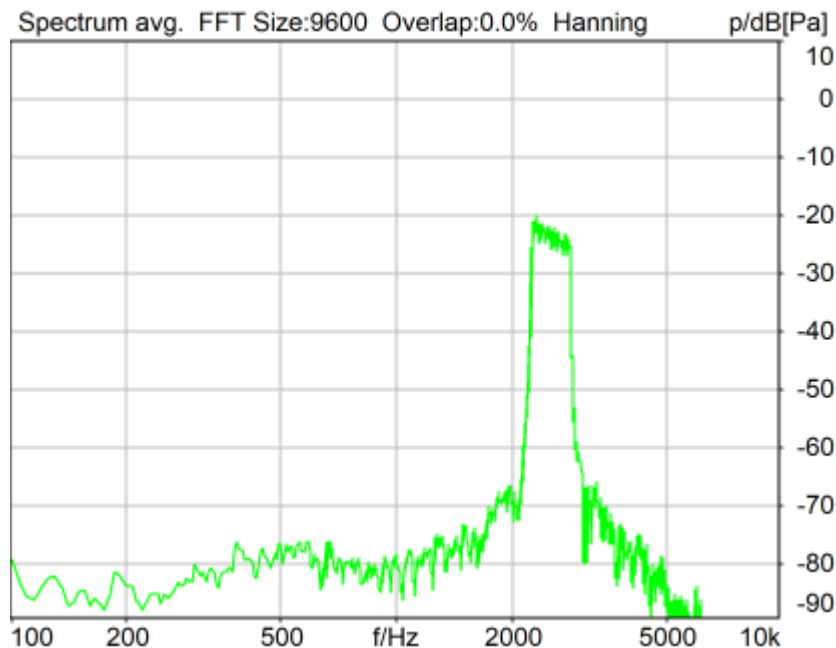
|          |          |            |          |
|----------|----------|------------|----------|
| Ser. Nr. | 12306613 | Pinna Type | Type 3.3 |
|----------|----------|------------|----------|

#### HIB Settings

|                    |                    |                    |          |
|--------------------|--------------------|--------------------|----------|
| HIB Name           | 60020095           | Serial             | 60020095 |
| HIB Mode           | Mobile Measurement | Impedance          | 32 Ohm   |
| Gain out 1         | -40.00 dB          | Gain out 2         | 0.00 dB  |
| Gain in 1          | 0.00 dB            | Gain in 2          | 0.00 dB  |
| Mic 1 Power Supply | Off                | Mic 2 Power Supply | Off      |

## 5.2 RCV Distortion and Noise - 2500 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 8N



Distortion (Noise) RCV (packed): 34.12 dB (1.97%) Ok

Ok

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Unmodified HEAD acoustics Measurement Descriptor

**Limits**

|       | lower    |
|-------|----------|
| Run 1 | 20.00 dB |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)  
Database Version: 40\_HAC\_Suite\_Rev03**Source:** act\_rpn\_b250ms\_2500hz\_sr20dbm0\_v02.dat

Level adj. Ch1 -90.0 dB

**Calibration**

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))

Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

**HHP IV Settings (Setting: STD:(0,0,0) rel AHP)**

|                |         |                  |                 |
|----------------|---------|------------------|-----------------|
| MECRP Delta Ye | 0.0 mm  | Rotation Delta A | 0.0 °           |
| MECRP Delta Ze | 0.0 mm  | Rotation Delta C | 0.0 °           |
| Delta Xe       | 0.0 mm  | Rotation Delta B | 5.0 °           |
| Delta Ye       | 0.0 mm  | Delta A          | 0.0 °           |
| Delta Ze       | 0.0 mm  | Delta C          | 0.0 °           |
| Ym             | -4.6 mm | Delta B          | 0.0 °           |
|                |         | Ear Type         | 3.3 Coordinates |

Mounting: Right Ear

Force to apply: 8.0 N, Force reached: 8.0 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                   |                |                   |                 |
|-------------------|----------------|-------------------|-----------------|
| Direction         | Out 2 -> In 2  |                   |                 |
| Range start       | 13550.00 ms    | Range length      | 200.00 ms       |
| Number of seq.    | 10             | Sequence length   | 400.00 ms       |
| Use FIR Filter    | Ch2            | FIR filter        | drp2ff_ieee1652 |
| DRP/ERP Ch.1:     | Off            | DRP/ERP Ch.2:     | Off             |
| Frequency base    | Transformation |                   |                 |
| FFT size          | 9600           | Overlap           | 0 %             |
| Window function.  | Hanning        | Smooth            | Off             |
| dB weighting      | A Weighting    |                   |                 |
| Stimulus min.     | 2205.0 Hz      | Stimulus max.     | 2855.0 Hz       |
| Analysis min.     | 20.0 Hz        | Analysis max.     | 2200.0 Hz       |
| Analysis (2) min. | 2860.0 Hz      | Analysis (2) max. | 20000.0 Hz      |

**Special Features**

Compensate delay 203.2000 ms (D\_RCV\_WB, Delay (Cross))

Store to variable RCVWB10\_2500Hz

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

**labCORE Routing**

|                  |                                                                          |
|------------------|--------------------------------------------------------------------------|
| Out Channel 1 -> | Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker                      |
| Out Channel 2 -> | Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In                           |
| In Channel 1 <-  | Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out                        |
| In Channel 2 <-  | BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right |

Analog In Mainboard Settings (Analog In 1/2)

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

-----  
Analog Out Mainboard Settings (Analog Out 1/2)

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

-----  
Microphone Settings (Mic Amp. (Slot 6))

## Channel In 1 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

## Channel In 2 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

## Channel In 3 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

## Channel In 4 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

-----  
BEQ Settings (BEQ Filter 1)

|            |        |
|------------|--------|
| Block mode | Bypass |
|------------|--------|

-----  
Artificial Head Settings (HATS 1 (HMS II.3))

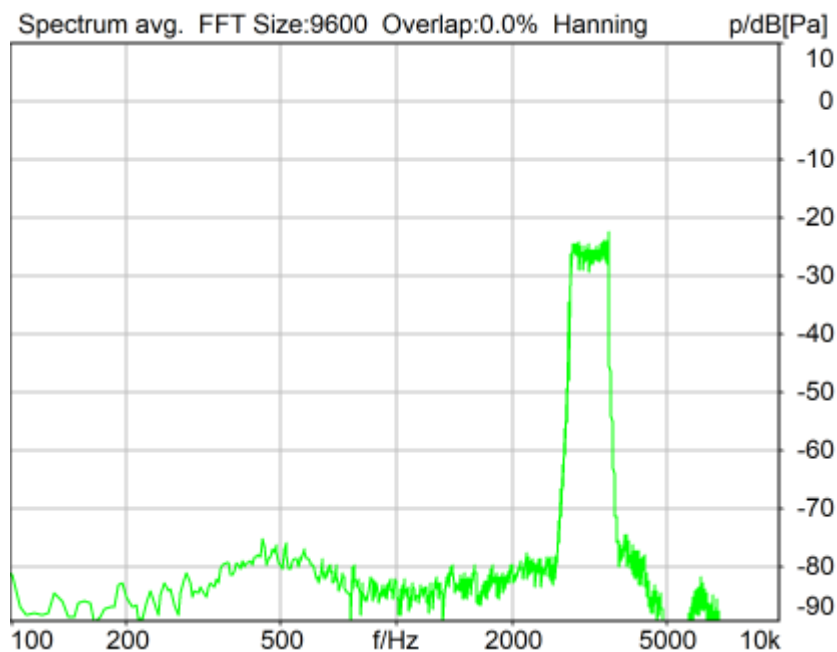
|          |          |            |          |
|----------|----------|------------|----------|
| Ser. Nr. | 12306613 | Pinna Type | Type 3.3 |
|----------|----------|------------|----------|

**HIB Settings**

|                    |                    |                    |          |
|--------------------|--------------------|--------------------|----------|
| HIB Name           | 60020095           | Serial             | 60020095 |
| HIB Mode           | Mobile Measurement | Impedance          | 32 Ohm   |
| Gain out 1         | -40.00 dB          | Gain out 2         | 0.00 dB  |
| Gain in 1          | 0.00 dB            | Gain in 2          | 0.00 dB  |
| Mic 1 Power Supply | Off                | Mic 2 Power Supply | Off      |

## **5.2 RCV Distortion and Noise - 3150 Hz WB**

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 8N



Distortion (Noise) RCV (packed): 34.36 dB (1.91%) Ok

**Ok**

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Unmodified HEAD acoustics Measurement Descriptor

**Limits**

|       | lower    |
|-------|----------|
| Run 1 | 20.00 dB |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)

Database Version: 40\_HAC\_Suite\_Rev03

**Source: act\_rpn\_b250ms\_3150hz\_sr20dbm0\_v02.dat**

Level adj. Ch1 -90.0 dB

**Calibration**

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))

Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

**HHP IV Settings (Setting: STD:(0,0,0) rel AHP)**

|                          |         |                  |       |
|--------------------------|---------|------------------|-------|
| MECRP Delta Ye           | 0.0 mm  | Rotation Delta A | 0.0 ° |
| MECRP Delta Ze           | 0.0 mm  | Rotation Delta C | 0.0 ° |
| Delta Xe                 | 0.0 mm  | Rotation Delta B | 5.0 ° |
| Delta Ye                 | 0.0 mm  | Delta A          | 0.0 ° |
| Delta Ze                 | 0.0 mm  | Delta C          | 0.0 ° |
| Ym                       | -4.6 mm | Delta B          | 0.0 ° |
| Ear Type 3.3 Coordinates |         |                  |       |

Mounting: Right Ear

Force to apply: 8.0 N, Force reached: 8.0 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                   |                |                   |                 |
|-------------------|----------------|-------------------|-----------------|
| Direction         | Out 2 -> In 2  | Range length      | 200.00 ms       |
| Range start       | 13550.00 ms    | Sequence length   | 400.00 ms       |
| Number of seq.    | 10             | FIR filter        | drp2ff_ieee1652 |
| Use FIR Filter    | Ch2            | DRP/ERP Ch.2:     | Off             |
| DRP/ERP Ch.1:     | Off            | Frequency base    | Transformation  |
| Frequency base    | Transformation | FFT size          | 9600            |
| FFT size          | 9600           | Overlap           | 0 %             |
| Window function.  | Hanning        | Smooth            | Off             |
| dB weighting      | A Weighting    | Stimulus max.     | 3585.0 Hz       |
| Stimulus min.     | 2785.0 Hz      | Analysis max.     | 2780.0 Hz       |
| Analysis min.     | 20.0 Hz        | Analysis (2) max. | 20000.0 Hz      |
| Analysis (2) min. | 3590.0 Hz      |                   |                 |

**Special Features**

Compensate delay 203.2000 ms (D\_RCV\_WB, Delay (Cross))

Store to variable RCVWB10\_3150Hz

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

-----

## labCORE Routing

Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker  
Out Channel 2 -> Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In  
In Channel 1 <- Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out  
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

-----  
Analog In Mainboard Settings (Analog In 1/2)

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

-----  
Analog Out Mainboard Settings (Analog Out 1/2)

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

-----  
Microphone Settings (Mic Amp. (Slot 6))

## Channel In 1 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

## Channel In 2 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

## Channel In 3 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

## Channel In 4 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

-----  
BEQ Settings (BEQ Filter 1)

|            |        |
|------------|--------|
| Block mode | Bypass |
|------------|--------|

-----  
Artificial Head Settings (HATS 1 (HMS II.3))

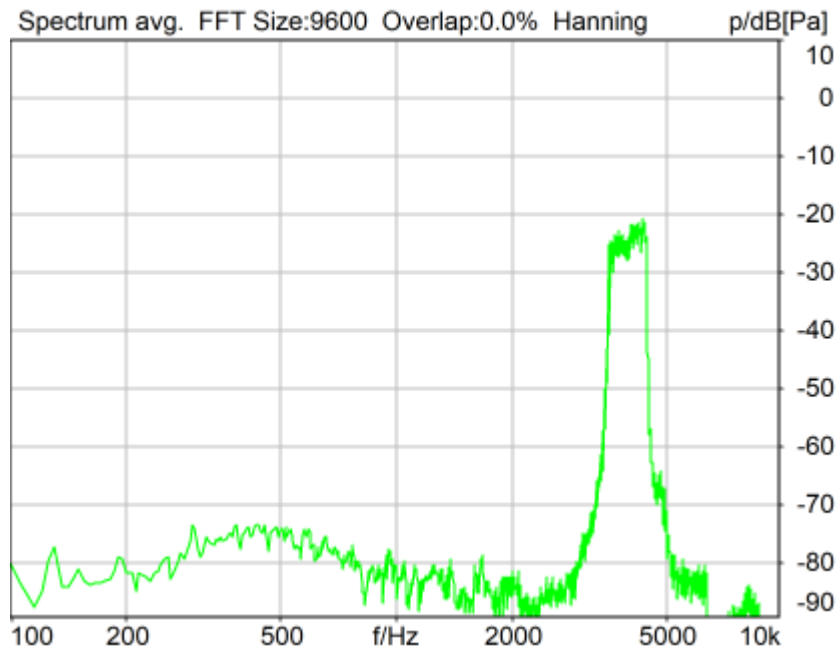
|          |          |            |          |
|----------|----------|------------|----------|
| Ser. Nr. | 12306613 | Pinna Type | Type 3.3 |
|----------|----------|------------|----------|

**HIB Settings**

|                    |                    |                    |          |
|--------------------|--------------------|--------------------|----------|
| HIB Name           | 60020095           | Serial             | 60020095 |
| HIB Mode           | Mobile Measurement | Impedance          | 32 Ohm   |
| Gain out 1         | -40.00 dB          | Gain out 2         | 0.00 dB  |
| Gain in 1          | 0.00 dB            | Gain in 2          | 0.00 dB  |
| Mic 1 Power Supply | Off                | Mic 2 Power Supply | Off      |

## **5.2 RCV Distortion and Noise - 4000 Hz WB**

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 8N



Distortion (Noise) RCV (packed): 34.90 dB (1.80%) Ok

**Ok**

2024/1/19 22:54 ACQUA 5.1.200

Unmodified HEAD acoustics Measurement Descriptor

#### Limits

|       | lower    |
|-------|----------|
| Run 1 | 20.00 dB |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)

Database Version: 40\_HAC\_Suite\_Rev03

**Source: act\_rpn\_b250ms\_4000hz\_sr20dbm0\_v02.dat**

Level adj. Ch1 -90.0 dB

#### Calibration

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))

Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

#### HHP IV Settings (Setting: STD:(0,0,0) rel AHP)

|                |         |                          |       |
|----------------|---------|--------------------------|-------|
| MECRP Delta Ye | 0.0 mm  | Rotation Delta A         | 0.0 ° |
| MECRP Delta Ze | 0.0 mm  | Rotation Delta C         | 0.0 ° |
| Delta Xe       | 0.0 mm  | Rotation Delta B         | 5.0 ° |
| Delta Ye       | 0.0 mm  | Delta A                  | 0.0 ° |
| Delta Ze       | 0.0 mm  | Delta C                  | 0.0 ° |
| Ym             | -4.6 mm | Delta B                  | 0.0 ° |
|                |         | Ear Type 3.3 Coordinates |       |

Mounting: Right Ear

Force to apply: 8.0 N, Force reached: 8.0 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                   |                |                   |                 |
|-------------------|----------------|-------------------|-----------------|
| Direction         | Out 2 -> In 2  |                   |                 |
| Range start       | 13550.00 ms    | Range length      | 200.00 ms       |
| Number of seq.    | 10             | Sequence length   | 400.00 ms       |
| Use FIR Filter    | Ch2            | FIR filter        | drp2ff_ieee1652 |
| DRP/ERP Ch.1:     | Off            | DRP/ERP Ch.2:     | Off             |
| Frequency base    | Transformation |                   |                 |
| FFT size          | 9600           | Overlap           | 0 %             |
| Window function.  | Hanning        | Smooth            | Off             |
| dB weighting      | A Weighting    |                   |                 |
| Stimulus min.     | 3515.0 Hz      | Stimulus max.     | 4500.0 Hz       |
| Analysis min.     | 20.0 Hz        | Analysis max.     | 3510.0 Hz       |
| Analysis (2) min. | 4505.0 Hz      | Analysis (2) max. | 20000.0 Hz      |

**Special Features**

Compensate delay 203.2000 ms (D\_RCV\_WB, Delay (Cross))  
Store to variable RCVWB10\_4000Hz

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

**labCORE Routing**

Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker  
Out Channel 2 -> Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In  
In Channel 1 <- Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out  
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

**Analog In Mainboard Settings (Analog In 1/2)**

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

**Analog Out Mainboard Settings (Analog Out 1/2)**

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

**Microphone Settings (Mic Amp. (Slot 6))****Channel In 1 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 2 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 3 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 4 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**BEQ Settings (BEQ Filter 1)**

Block mode Bypass

**Artificial Head Settings (HATS 1 (HMS II.3))**

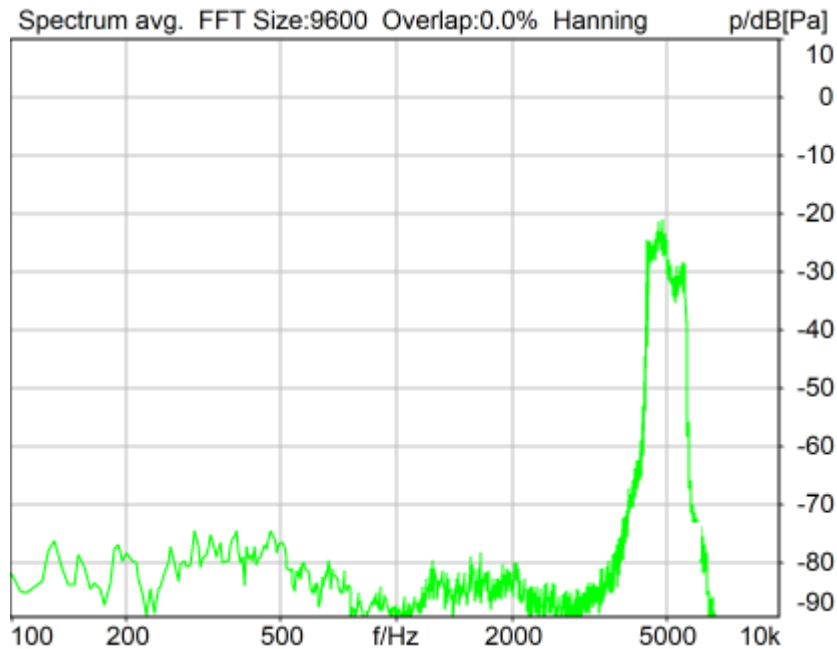
|          |          |            |          |
|----------|----------|------------|----------|
| Ser. Nr. | 12306613 | Pinna Type | Type 3.3 |
|----------|----------|------------|----------|

**HIB Settings**

|                    |                    |                    |          |
|--------------------|--------------------|--------------------|----------|
| HIB Name           | 60020095           | Serial             | 60020095 |
| HIB Mode           | Mobile Measurement | Impedance          | 32 Ohm   |
| Gain out 1         | -40.00 dB          | Gain out 2         | 0.00 dB  |
| Gain in 1          | 0.00 dB            | Gain in 2          | 0.00 dB  |
| Mic 1 Power Supply | Off                | Mic 2 Power Supply | Off      |

## 5.2 RCV Distortion and Noise - 5000 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 8N



Distortion (Noise) RCV (packed): 32.86 dB (2.28%) Ok

Ok

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Unmodified HEAD acoustics Measurement Descriptor

### Limits

|       |              |
|-------|--------------|
|       | <b>lower</b> |
| Run 1 | 20.00 dB     |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)

Database Version: 40\_HAC\_Suite\_Rev03

Source: act\_rpn\_b250ms\_5000hz\_sr20dbm0\_v02.dat

Level adj. Ch1 -90.0 dB

### Calibration

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))

Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

HHP IV Settings (Setting: STD:(0,0,0) rel AHP)

MECRP Delta Ye 0.0 mm      Rotation Delta A 0.0 °  
Rotation Delta C 0.0 °

|                |         |                          |       |
|----------------|---------|--------------------------|-------|
| MECRP Delta Ze | 0.0 mm  | Rotation Delta B         | 5.0 ° |
| Delta Xe       | 0.0 mm  | Delta A                  | 0.0 ° |
| Delta Ye       | 0.0 mm  | Delta C                  | 0.0 ° |
| Delta Ze       | 0.0 mm  | Delta B                  | 0.0 ° |
| Ym             | -4.6 mm | Ear Type 3.3 Coordinates |       |

Mounting: Right Ear  
Force to apply: 8.0 N, Force reached: 8.0 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                   |                |                   |                 |
|-------------------|----------------|-------------------|-----------------|
| Direction         | Out 2 -> In 2  |                   |                 |
| Range start       | 13550.00 ms    | Range length      | 200.00 ms       |
| Number of seq.    | 10             | Sequence length   | 400.00 ms       |
| Use FIR Filter    | Ch2            | FIR filter        | drp2ff_ieee1652 |
| DRP/ERP Ch.1:     | Off            | DRP/ERP Ch.2:     | Off             |
| Frequency base    | Transformation |                   |                 |
| FFT size          | 9600           | Overlap           | 0 %             |
| Window function.  | Hanning        | Smooth            | Off             |
| dB weighting      | A Weighting    |                   |                 |
| Stimulus min.     | 4430.0 Hz      | Stimulus max.     | 5660.0 Hz       |
| Analysis min.     | 20.0 Hz        | Analysis max.     | 4425.0 Hz       |
| Analysis (2) min. | 5665.0 Hz      | Analysis (2) max. | 20000.0 Hz      |

**Special Features**

Compensate delay 203.2000 ms (D\_RCV\_WB, Delay (Cross))  
Store to variable RCVWB10\_5000Hz

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

**labCORE Routing**

Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker  
Out Channel 2 -> Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In  
In Channel 1 <- Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out  
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

**Analog In Mainboard Settings (Analog In 1/2)**

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

**Analog Out Mainboard Settings (Analog Out 1/2)**

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

**Microphone Settings (Mic Amp. (Slot 6))****Channel In 1 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 2 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 3 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 4 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**BEQ Settings (BEQ Filter 1)**

Block mode Bypass

**Artificial Head Settings (HATS 1 (HMS II.3))**

---

|          |          |            |          |
|----------|----------|------------|----------|
| Ser. Nr. | 12306613 | Pinna Type | Type 3.3 |
|----------|----------|------------|----------|

**HIB Settings**

|                        |                    |                        |          |
|------------------------|--------------------|------------------------|----------|
| HIB Name               | 60020095           | Serial                 | 60020095 |
| HIB Mode               | Mobile Measurement | Impedance              | 32 Ohm   |
| Gain out 1             | -40.00 dB          | Gain out 2             | 0.00 dB  |
| Gain in 1              | 0.00 dB            | Gain in 2              | 0.00 dB  |
| Mic 1 Power Supply Off |                    | Mic 2 Power Supply Off |          |

**Report - Receive Distortion and Noise (Conversational Gain)**

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 8N

| Region | Frequency | SDNR     |
|--------|-----------|----------|
| 1      | 250Hz     | 29.29 dB |
| 2      | 315Hz     | 32.13 dB |
| 3      | 400Hz     | 27.52 dB |
| 4      | 500Hz     | 29.98 dB |
| 5      | 630Hz     | 32.05 dB |
| 6      | 800Hz     | 32.82 dB |
| 7      | 1000Hz    | 31.33 dB |
| 8      | 1250Hz    | 23.85 dB |
| 9      | 1600Hz    | 27.61 dB |
| 10     | 2000Hz    | 31.94 dB |
| 11     | 2500Hz    | 34.12 dB |
| 12     | 3150Hz    | 34.36 dB |
| 13     | 4000Hz    | 34.90 dB |
| 14     | 5000Hz    | 32.86 dB |

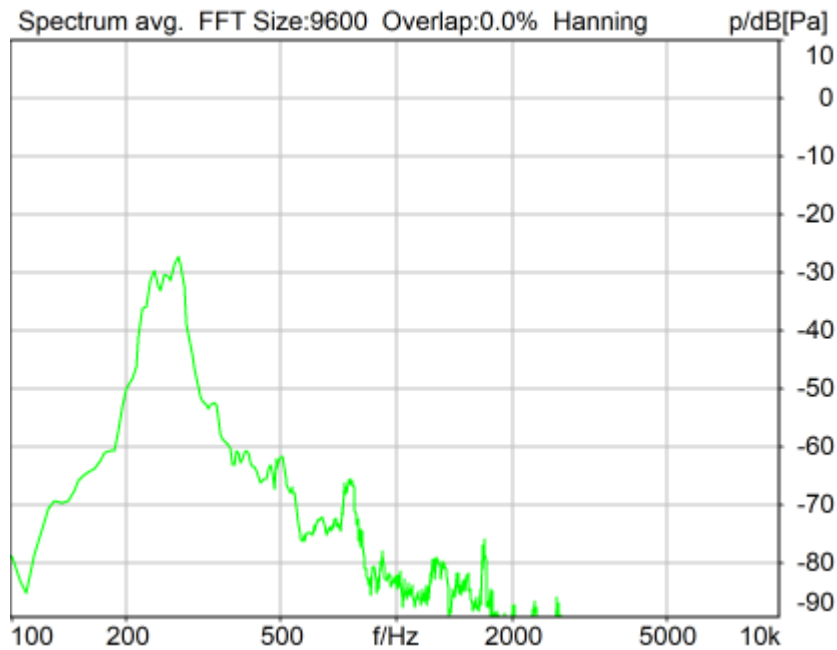
All SDNRs were greater than 20.0 dB, requirement was met.

Smallest SDNR was 23.85dB at 1250Hz.

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**5.2 RCV Distortion and Noise - 250 Hz WB**

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 2N



Distortion (Noise) RCV (packed): 27.72 dB (4.11%) Ok

**Ok**

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Unmodified HEAD acoustics Measurement Descriptor

#### Limits

|       | lower    |
|-------|----------|
| Run 1 | 20.00 dB |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)

Database Version: 40\_HAC\_Suite\_Rev03

**Source:** act\_rpn\_b250ms\_250hz\_sr20dbm0\_v02.dat.dat

Level adj. Ch1 -90.0 dB

#### Calibration

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))

Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

#### HHP IV Settings (Setting: STD:(0,0,0) rel AHP)

|                |         |                          |       |
|----------------|---------|--------------------------|-------|
| MECRP Delta Ye | 0.0 mm  | Rotation Delta A         | 0.0 ° |
| MECRP Delta Ze | 0.0 mm  | Rotation Delta C         | 0.0 ° |
| Delta Xe       | 0.0 mm  | Rotation Delta B         | 5.0 ° |
| Delta Ye       | 0.0 mm  | Delta A                  | 0.0 ° |
| Delta Ze       | 0.0 mm  | Delta C                  | 0.0 ° |
| Ym             | -1.3 mm | Delta B                  | 0.0 ° |
|                |         | Ear Type 3.3 Coordinates |       |

Mounting: Right Ear

Force to apply: 2.0 N, Force reached: 2.0 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                   |                |                   |                 |
|-------------------|----------------|-------------------|-----------------|
| Direction         | Out 2 -> In 2  |                   |                 |
| Range start       | 13550.00 ms    | Range length      | 200.00 ms       |
| Number of seq.    | 10             | Sequence length   | 400.00 ms       |
| Use FIR Filter    | Ch2            | FIR filter        | drp2ff_ieee1652 |
| DRP/ERP Ch.1:     | Off            | DRP/ERP Ch.2:     | Off             |
| Frequency base    | Transformation |                   |                 |
| FFT size          | 9600           | Overlap           | 0 %             |
| Window function.  | Hanning        | Smooth            | Off             |
| dB weighting      | A Weighting    |                   |                 |
| Stimulus min.     | 190.0 Hz       | Stimulus max.     | 315.0 Hz        |
| Analysis min.     | 20.0 Hz        | Analysis max.     | 185.0 Hz        |
| Analysis (2) min. | 320.0 Hz       | Analysis (2) max. | 20000.0 Hz      |

**Special Features**

Compensate delay 203.2000 ms (D\_RCV\_WB, Delay (Cross))  
Store to variable RCVWB10\_250Hz

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

**labCORE Routing**

Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker  
Out Channel 2 -> Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In  
In Channel 1 <- Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out  
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

**Analog In Mainboard Settings (Analog In 1/2)**

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

**Analog Out Mainboard Settings (Analog Out 1/2)**

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

**Microphone Settings (Mic Amp. (Slot 6))****Channel In 1 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 2 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 3 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 4 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**BEQ Settings (BEQ Filter 1)**

Block mode Bypass

**Artificial Head Settings (HATS 1 (HMS II.3))**

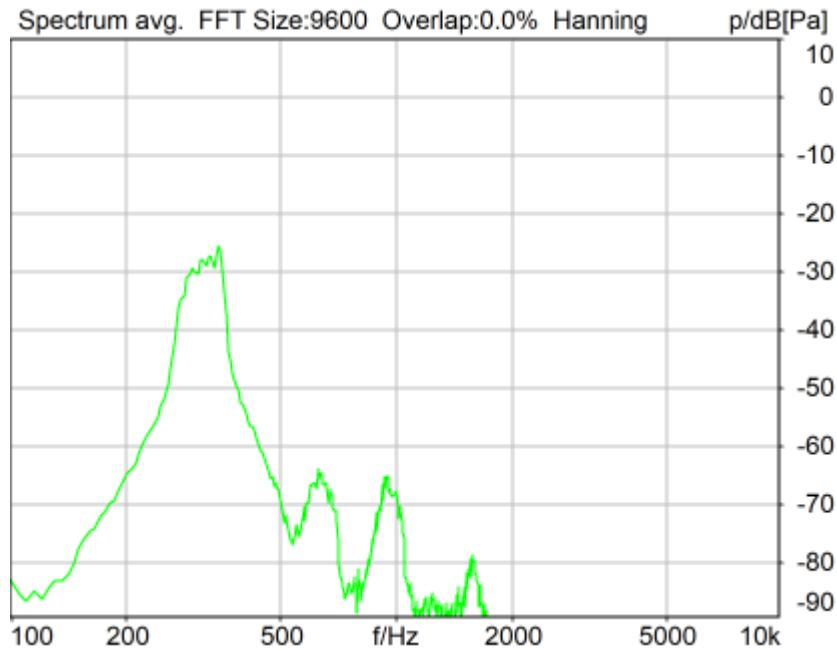
|          |          |            |          |
|----------|----------|------------|----------|
| Ser. Nr. | 12306613 | Pinna Type | Type 3.3 |
|----------|----------|------------|----------|

**HIB Settings**

|                    |                    |                    |          |
|--------------------|--------------------|--------------------|----------|
| HIB Name           | 60020095           | Serial             | 60020095 |
| HIB Mode           | Mobile Measurement | Impedance          | 32 Ohm   |
| Gain out 1         | -40.00 dB          | Gain out 2         | 0.00 dB  |
| Gain in 1          | 0.00 dB            | Gain in 2          | 0.00 dB  |
| Mic 1 Power Supply | Off                | Mic 2 Power Supply | Off      |

## 5.2 RCV Distortion and Noise - 315 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 2N



Distortion (Noise) RCV (packed): 30.26 dB (3.07%) Ok

Ok

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Unmodified HEAD acoustics Measurement Descriptor

### Limits

|       |          |
|-------|----------|
|       | lower    |
| Run 1 | 20.00 dB |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)

Database Version: 40\_HAC\_Suite\_Rev03

Source: act\_rpn\_b250ms\_315hz\_sr20dbm0\_v02.dat

Level adj. Ch1 -90.0 dB

### Calibration

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))

Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

HHP IV Settings (Setting: STD:(0,0,0) rel AHP)

MECRP Delta Ye 0.0 mm      Rotation Delta A 0.0 °  
Rotation Delta C 0.0 °

|                |         |                          |       |
|----------------|---------|--------------------------|-------|
| MECRP Delta Ze | 0.0 mm  | Rotation Delta B         | 5.0 ° |
| Delta Xe       | 0.0 mm  | Delta A                  | 0.0 ° |
| Delta Ye       | 0.0 mm  | Delta C                  | 0.0 ° |
| Delta Ze       | 0.0 mm  | Delta B                  | 0.0 ° |
| Ym             | -1.3 mm | Ear Type 3.3 Coordinates |       |

Mounting: Right Ear  
Force to apply: 2.0 N, Force reached: 2.0 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                   |                |                   |                 |
|-------------------|----------------|-------------------|-----------------|
| Direction         | Out 2 -> In 2  | Range length      | 200.00 ms       |
| Range start       | 13550.00 ms    | Sequence length   | 400.00 ms       |
| Number of seq.    | 10             | FIR filter        | drp2ff_ieee1652 |
| Use FIR Filter    | Ch2            | DRP/ERP Ch.2:     | Off             |
| DRP/ERP Ch.1:     | Off            |                   |                 |
| Frequency base    | Transformation |                   |                 |
| FFT size          | 9600           | Overlap           | 0 %             |
| Window function.  | Hanning        | Smooth            | Off             |
| dB weighting      | A Weighting    |                   |                 |
| Stimulus min.     | 245.0 Hz       | Stimulus max.     | 390.0 Hz        |
| Analysis min.     | 20.0 Hz        | Analysis max.     | 240.0 Hz        |
| Analysis (2) min. | 395.0 Hz       | Analysis (2) max. | 20000.0 Hz      |

**Special Features**

Compensate delay 203.2000 ms (D\_RCV\_WB, Delay (Cross))  
Store to variable RCVWB10\_315Hz

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

**labCORE Routing**

Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker  
Out Channel 2 -> Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In  
In Channel 1 <- Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out  
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

**Analog In Mainboard Settings (Analog In 1/2)**

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

**Analog Out Mainboard Settings (Analog Out 1/2)**

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

**Microphone Settings (Mic Amp. (Slot 6))****Channel In 1 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 2 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 3 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 4 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**BEQ Settings (BEQ Filter 1)**

Block mode Bypass

**Artificial Head Settings (HATS 1 (HMS II.3))**

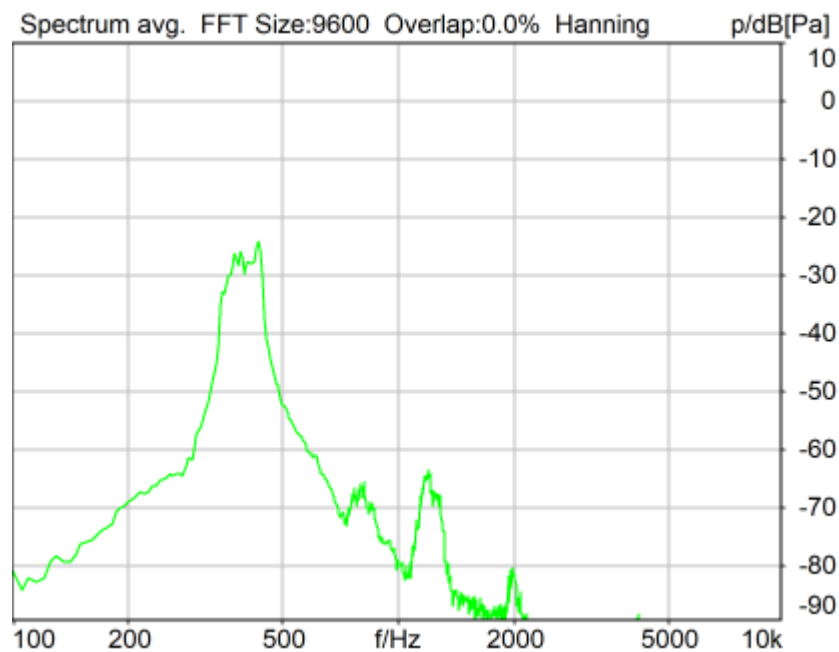
Ser. Nr. 12306613 Pinna Type Type 3.3

#### HIB Settings

|                        |                    |                        |          |
|------------------------|--------------------|------------------------|----------|
| HIB Name               | 60020095           | Serial                 | 60020095 |
| HIB Mode               | Mobile Measurement | Impedance              | 32 Ohm   |
| Gain out 1             | -40.00 dB          | Gain out 2             | 0.00 dB  |
| Gain in 1              | 0.00 dB            | Gain in 2              | 0.00 dB  |
| Mic 1 Power Supply Off |                    | Mic 2 Power Supply Off |          |

## 5.2 RCV Distortion and Noise - 400 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 2N



Distortion (Noise) RCV (packed): 27.72 dB (4.11%) Ok

**Ok**

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Unmodified HEAD acoustics Measurement Descriptor

#### Limits

|       |          |
|-------|----------|
|       | lower    |
| Run 1 | 20.00 dB |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)

Database Version: 40\_HAC\_Suite\_Rev03

Source: act\_rpn\_b250ms\_400hz\_sr20dbm0\_v02.dat

Level adj. Ch1 -90.0 dB

**Calibration**

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))

Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

**HHP IV Settings (Setting: STD:(0,0,0) rel AHP)**

|                |         |                          |       |
|----------------|---------|--------------------------|-------|
| MECRP Delta Ye | 0.0 mm  | Rotation Delta A         | 0.0 ° |
| MECRP Delta Ze | 0.0 mm  | Rotation Delta C         | 0.0 ° |
| Delta Xe       | 0.0 mm  | Rotation Delta B         | 5.0 ° |
| Delta Ye       | 0.0 mm  | Delta A                  | 0.0 ° |
| Delta Ze       | 0.0 mm  | Delta C                  | 0.0 ° |
| Ym             | -1.3 mm | Delta B                  | 0.0 ° |
|                |         | Ear Type 3.3 Coordinates |       |

Mounting: Right Ear

Force to apply: 2.0 N, Force reached: 2.0 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                   |                |                   |                 |
|-------------------|----------------|-------------------|-----------------|
| Direction         | Out 2 -> In 2  |                   |                 |
| Range start       | 13550.00 ms    | Range length      | 200.00 ms       |
| Number of seq.    | 10             | Sequence length   | 400.00 ms       |
| Use FIR Filter    | Ch2            | FIR filter        | drp2ff_ieee1652 |
| DRP/ERP Ch.1:     | Off            | DRP/ERP Ch.2:     | Off             |
| Frequency base    | Transformation |                   |                 |
| FFT size          | 9600           | Overlap           | 0 %             |
| Window function.  | Hanning        | Smooth            | Off             |
| dB weighting      | A Weighting    |                   |                 |
| Stimulus min.     | 320.0 Hz       | Stimulus max.     | 480.0 Hz        |
| Analysis min.     | 20.0 Hz        | Analysis max.     | 315.0 Hz        |
| Analysis (2) min. | 485.0 Hz       | Analysis (2) max. | 20000.0 Hz      |

**Special Features**

Compensate delay 203.2000 ms (D\_RCV\_WB, Delay (Cross))

Store to variable RCVWB10\_400Hz

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

**labCORE Routing**

|                  |                                                                          |
|------------------|--------------------------------------------------------------------------|
| Out Channel 1 -> | Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker                      |
| Out Channel 2 -> | Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In                           |
| In Channel 1 <-  | Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out                        |
| In Channel 2 <-  | BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right |

**Analogue In Mainboard Settings (Analog In 1/2)**

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

**Analogue Out Mainboard Settings (Analog Out 1/2)**

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

**Microphone Settings (Mic Amp. (Slot 6))****Channel In 1 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 2 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 3 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

Channel In 4 Settings

Range 114 dB[SPL] @ 12.5 mV/Pa Highpass Off  
Polarisation Voltage 200V Supply Voltage ±60V

BEQ Settings (BEQ Filter 1)

Block mode Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

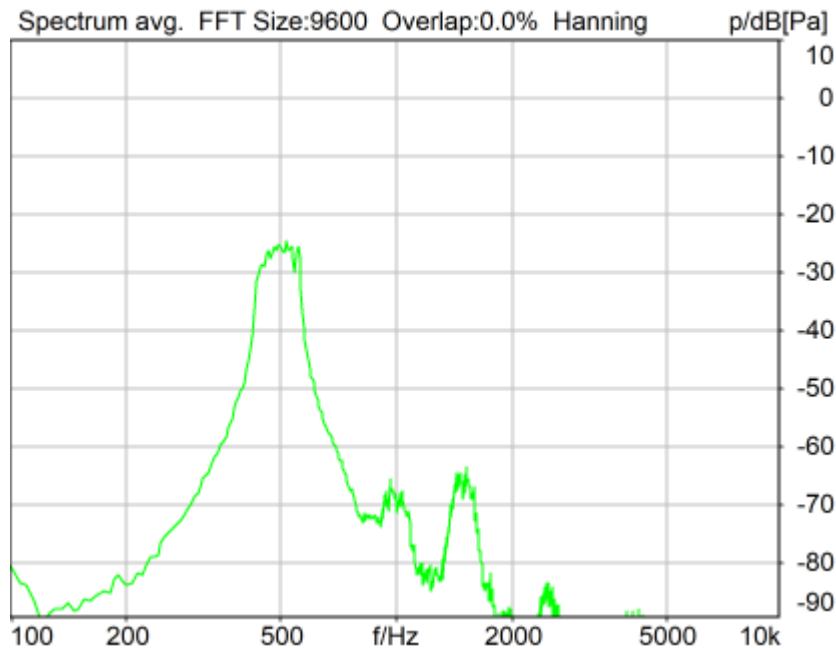
Ser. Nr. 12306613 Pinna Type Type 3.3

HIB Settings

HIB Name 60020095 Serial 60020095  
HIB Mode Mobile Measurement Impedance 32 Ohm  
Gain out 1 -40.00 dB Gain out 2 0.00 dB  
Gain in 1 0.00 dB Gain in 2 0.00 dB  
Mic 1 Power Supply Off Mic 2 Power Supply Off

## 5.2 RCV Distortion and Noise - 500 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 2N



Distortion (Noise) RCV (packed): 27.50 dB (4.22%) Ok

Ok

2024/1/19 22:59 ACQUA 5.1.200

Unmodified HEAD acoustics Measurement Descriptor

Limits

|       | lower    |
|-------|----------|
| Run 1 | 20.00 dB |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)  
Database Version: 40\_HAC\_Suite\_Rev03**Source: act\_rpn\_b250ms\_500hz\_sr20dbm0\_v02.dat**

Level adj. Ch1 -90.0 dB

**Calibration**

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))

Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

**HHP IV Settings (Setting: STD:(0,0,0) rel AHP)**

|                |         |                          |       |
|----------------|---------|--------------------------|-------|
| MECRP Delta Ye | 0.0 mm  | Rotation Delta A         | 0.0 ° |
| MECRP Delta Ze | 0.0 mm  | Rotation Delta C         | 0.0 ° |
| Delta Xe       | 0.0 mm  | Rotation Delta B         | 5.0 ° |
| Delta Ye       | 0.0 mm  | Delta A                  | 0.0 ° |
| Delta Ze       | 0.0 mm  | Delta C                  | 0.0 ° |
| Ym             | -1.3 mm | Delta B                  | 0.0 ° |
|                |         | Ear Type 3.3 Coordinates |       |

Mounting: Right Ear

Force to apply: 2.0 N, Force reached: 2.0 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                   |                |                   |                 |
|-------------------|----------------|-------------------|-----------------|
| Direction         | Out 2 -> In 2  |                   |                 |
| Range start       | 13550.00 ms    | Range length      | 200.00 ms       |
| Number of seq.    | 10             | Sequence length   | 400.00 ms       |
| Use FIR Filter    | Ch2            | FIR filter        | drp2ff_ieee1652 |
| DRP/ERP Ch.1:     | Off            | DRP/ERP Ch.2:     | Off             |
| Frequency base    | Transformation |                   |                 |
| FFT size          | 9600           | Overlap           | 0 %             |
| Window function.  | Hanning        | Smooth            | Off             |
| dB weighting      | A Weighting    |                   |                 |
| Stimulus min.     | 410.0 Hz       | Stimulus max.     | 595.0 Hz        |
| Analysis min.     | 20.0 Hz        | Analysis max.     | 405.0 Hz        |
| Analysis (2) min. | 600.0 Hz       | Analysis (2) max. | 20000.0 Hz      |

**Special Features**

Compensate delay 203.2000 ms (D\_RCV\_WB, Delay (Cross))

Store to variable RCVWB10\_500Hz

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

**labCORE Routing**

|                  |                                                                          |
|------------------|--------------------------------------------------------------------------|
| Out Channel 1 -> | Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker                      |
| Out Channel 2 -> | Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In                           |
| In Channel 1 <-  | Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out                        |
| In Channel 2 <-  | BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right |

**Analog In Mainboard Settings (Analog In 1/2)**

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

**Analog Out Mainboard Settings (Analog Out 1/2)**

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

**Microphone Settings (Mic Amp. (Slot 6))**

Channel In 1 Settings

|                       |                          |                |      |
|-----------------------|--------------------------|----------------|------|
| Range                 | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage  | 200V                     | Supply Voltage | ±60V |
| Channel In 2 Settings |                          |                |      |
| Range                 | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage  | 200V                     | Supply Voltage | ±60V |
| Channel In 3 Settings |                          |                |      |
| Range                 | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage  | 200V                     | Supply Voltage | ±60V |
| Channel In 4 Settings |                          |                |      |
| Range                 | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage  | 200V                     | Supply Voltage | ±60V |

-----  
BEQ Settings (BEQ Filter 1)  
Block mode      Bypass  
-----

Artificial Head Settings (HATS 1 (HMS II.3))

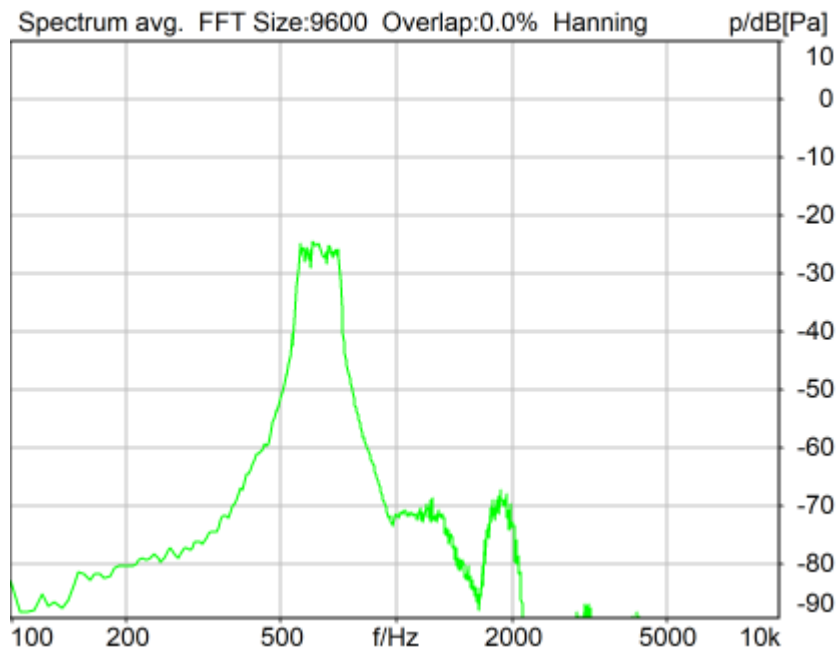
|          |          |            |          |
|----------|----------|------------|----------|
| Ser. Nr. | 12306613 | Pinna Type | Type 3.3 |
|----------|----------|------------|----------|

#### HIB Settings

|                    |                    |                    |          |
|--------------------|--------------------|--------------------|----------|
| HIB Name           | 60020095           | Serial             | 60020095 |
| HIB Mode           | Mobile Measurement | Impedance          | 32 Ohm   |
| Gain out 1         | -40.00 dB          | Gain out 2         | 0.00 dB  |
| Gain in 1          | 0.00 dB            | Gain in 2          | 0.00 dB  |
| Mic 1 Power Supply | Off                | Mic 2 Power Supply | Off      |

## 5.2 RCV Distortion and Noise - 630 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 2N



Distortion (Noise) RCV (packed): 27.53 dB (4.20%) Ok

Ok

2024/1/19 22:59 ACQUA 5.1.200

Unmodified HEAD acoustics Measurement Descriptor

**Limits**

|       | lower    |
|-------|----------|
| Run 1 | 20.00 dB |

Meas. Setting      off

Underlying Standard: TIA-5050 (2018-01)  
Database Version: 40\_HAC\_Suite\_Rev03**Source: act\_rpn\_b250ms\_630hz\_sr20dbm0\_v02.dat**

Level adj. Ch1      -90.0 dB

**Calibration**

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))

Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

**HHP IV Settings (Setting: STD:(0,0,0) rel AHP)**

|                |         |                          |       |
|----------------|---------|--------------------------|-------|
| MECRP Delta Ye | 0.0 mm  | Rotation Delta A         | 0.0 ° |
| MECRP Delta Ze | 0.0 mm  | Rotation Delta C         | 0.0 ° |
| Delta Xe       | 0.0 mm  | Rotation Delta B         | 5.0 ° |
| Delta Ye       | 0.0 mm  | Delta A                  | 0.0 ° |
| Delta Ze       | 0.0 mm  | Delta C                  | 0.0 ° |
| Ym             | -1.3 mm | Delta B                  | 0.0 ° |
|                |         | Ear Type 3.3 Coordinates |       |

Mounting: Right Ear

Force to apply: 2.0 N, Force reached: 2.0 N

**Output Equalization/Filter**

Mouth Eq. Ch.1:    HATS 1 (HMS II.3)

**Analysis**

|                   |                |                   |                 |
|-------------------|----------------|-------------------|-----------------|
| Direction         | Out 2 -> In 2  |                   |                 |
| Range start       | 13550.00 ms    | Range length      | 200.00 ms       |
| Number of seq.    | 10             | Sequence length   | 400.00 ms       |
| Use FIR Filter    | Ch2            | FIR filter        | drp2ff_ieee1652 |
| DRP/ERP Ch.1:     | Off            | DRP/ERP Ch.2:     | Off             |
| Frequency base    | Transformation |                   |                 |
| FFT size          | 9600           | Overlap           | 0 %             |
| Window function.  | Hanning        | Smooth            | Off             |
| dB weighting      | A Weighting    |                   |                 |
| Stimulus min.     | 525.0 Hz       | Stimulus max.     | 745.0 Hz        |
| Analysis min.     | 20.0 Hz        | Analysis max.     | 520.0 Hz        |
| Analysis (2) min. | 750.0 Hz       | Analysis (2) max. | 20000.0 Hz      |

**Special Features**

Compensate delay 203.2000 ms (D\_RCV\_WB, Delay (Cross))

Store to variable    RCVWB10\_630Hz

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

-----

**labCORE Routing**

|                  |                                                                          |
|------------------|--------------------------------------------------------------------------|
| Out Channel 1 -> | Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker                      |
| Out Channel 2 -> | Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In                           |
| In Channel 1 <-  | Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out                        |
| In Channel 2 <-  | BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right |

-----

Analog In Mainboard Settings (Analog In 1/2)

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

-----  
Analog Out Mainboard Settings (Analog Out 1/2)

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

-----  
Microphone Settings (Mic Amp. (Slot 6))

## Channel In 1 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

## Channel In 2 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

## Channel In 3 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

## Channel In 4 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

-----  
BEQ Settings (BEQ Filter 1)

|            |        |
|------------|--------|
| Block mode | Bypass |
|------------|--------|

-----  
Artificial Head Settings (HATS 1 (HMS II.3))

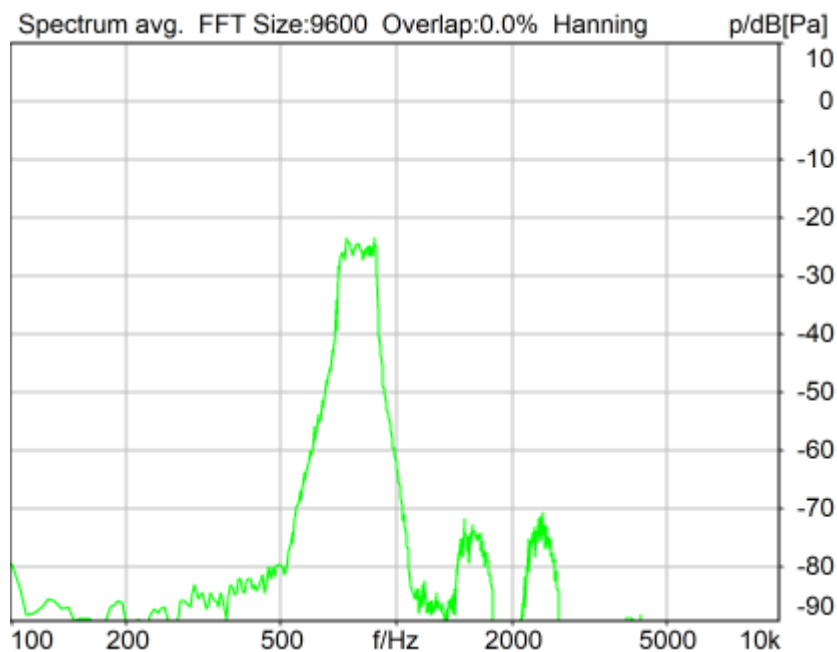
|          |          |            |          |
|----------|----------|------------|----------|
| Ser. Nr. | 12306613 | Pinna Type | Type 3.3 |
|----------|----------|------------|----------|

**HIB Settings**

|                    |                    |                    |          |
|--------------------|--------------------|--------------------|----------|
| HIB Name           | 60020095           | Serial             | 60020095 |
| HIB Mode           | Mobile Measurement | Impedance          | 32 Ohm   |
| Gain out 1         | -40.00 dB          | Gain out 2         | 0.00 dB  |
| Gain in 1          | 0.00 dB            | Gain in 2          | 0.00 dB  |
| Mic 1 Power Supply | Off                | Mic 2 Power Supply | Off      |

## 5.2 RCV Distortion and Noise - 800 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 2N



Distortion (Noise) RCV (packed): 29.56 dB (3.32%) Ok

**Ok**

2024/1/19 23:00 ACQUA 5.1.200

Unmodified HEAD acoustics Measurement Descriptor

**Limits**

|       | lower    |
|-------|----------|
| Run 1 | 20.00 dB |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)

Database Version: 40\_HAC\_Suite\_Rev03

**Source: act\_rpn\_b250ms\_800hz\_sr20dbm0\_v02.dat**

Level adj. Ch1 -90.0 dB

**Calibration**

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))

Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

**HHP IV Settings (Setting: STD:(0,0,0) rel AHP)**

|                          |         |                  |       |
|--------------------------|---------|------------------|-------|
| MECRP Delta Ye           | 0.0 mm  | Rotation Delta A | 0.0 ° |
| MECRP Delta Ze           | 0.0 mm  | Rotation Delta C | 0.0 ° |
| Delta Xe                 | 0.0 mm  | Rotation Delta B | 5.0 ° |
| Delta Ye                 | 0.0 mm  | Delta A          | 0.0 ° |
| Delta Ze                 | 0.0 mm  | Delta C          | 0.0 ° |
| Ym                       | -1.3 mm | Delta B          | 0.0 ° |
| Ear Type 3.3 Coordinates |         |                  |       |

Mounting: Right Ear

Force to apply: 2.0 N, Force reached: 2.0 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                   |                |                   |                 |
|-------------------|----------------|-------------------|-----------------|
| Direction         | Out 2 -> In 2  | Range length      | 200.00 ms       |
| Range start       | 13550.00 ms    | Sequence length   | 400.00 ms       |
| Number of seq.    | 10             | FIR filter        | drp2ff_ieee1652 |
| Use FIR Filter    | Ch2            | DRP/ERP Ch.2:     | Off             |
| DRP/ERP Ch.1:     | Off            | Frequency base    | Transformation  |
| Frequency base    | Transformation | FFT size          | 9600            |
| FFT size          | 9600           | Overlap           | 0 %             |
| Window function.  | Hanning        | Smooth            | Off             |
| dB weighting      | A Weighting    | Stimulus max.     | 925.0 Hz        |
| Stimulus min.     | 675.0 Hz       | Analysis max.     | 670.0 Hz        |
| Analysis min.     | 20.0 Hz        | Analysis (2) max. | 20000.0 Hz      |
| Analysis (2) min. | 930.0 Hz       |                   |                 |

**Special Features**

Compensate delay 203.2000 ms (D\_RCV\_WB, Delay (Cross))

Store to variable RCVWB10\_800Hz

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

-----

## labCORE Routing

Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker  
Out Channel 2 -> Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In  
In Channel 1 <- Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out  
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

-----  
Analog In Mainboard Settings (Analog In 1/2)

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

-----  
Analog Out Mainboard Settings (Analog Out 1/2)

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

-----  
Microphone Settings (Mic Amp. (Slot 6))

## Channel In 1 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

## Channel In 2 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

## Channel In 3 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

## Channel In 4 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

-----  
BEQ Settings (BEQ Filter 1)

|            |        |
|------------|--------|
| Block mode | Bypass |
|------------|--------|

-----  
Artificial Head Settings (HATS 1 (HMS II.3))

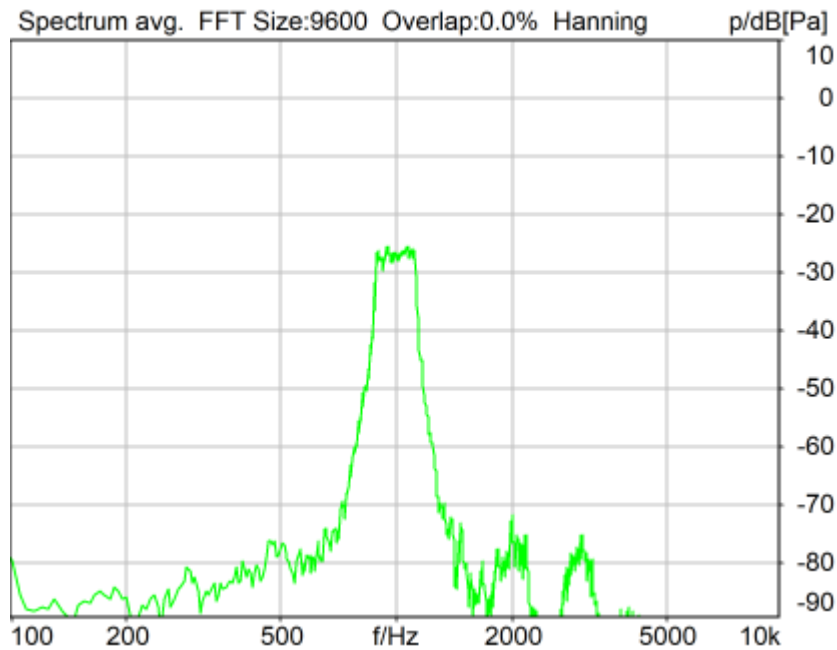
|          |          |            |          |
|----------|----------|------------|----------|
| Ser. Nr. | 12306613 | Pinna Type | Type 3.3 |
|----------|----------|------------|----------|

**HIB Settings**

|                    |                    |                    |          |
|--------------------|--------------------|--------------------|----------|
| HIB Name           | 60020095           | Serial             | 60020095 |
| HIB Mode           | Mobile Measurement | Impedance          | 32 Ohm   |
| Gain out 1         | -40.00 dB          | Gain out 2         | 0.00 dB  |
| Gain in 1          | 0.00 dB            | Gain in 2          | 0.00 dB  |
| Mic 1 Power Supply | Off                | Mic 2 Power Supply | Off      |

## **5.2 RCV Distortion and Noise - 1000 Hz WB**

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 2N



Distortion (Noise) RCV (packed): 26.45 dB (4.76%) Ok

Ok

2024/1/19 23:00 ACQUA 5.1.200

Unmodified HEAD acoustics Measurement Descriptor

#### Limits

|       | lower    |
|-------|----------|
| Run 1 | 20.00 dB |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)

Database Version: 40\_HAC\_Suite\_Rev03

Source: act\_rpn\_b250ms\_1000hz\_sr20dbm0\_v02.dat

Level adj. Ch1 -90.0 dB

#### Calibration

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))

Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

#### HHP IV Settings (Setting: STD:(0,0,0) rel AHP)

|                |         |                          |       |
|----------------|---------|--------------------------|-------|
| MECRP Delta Ye | 0.0 mm  | Rotation Delta A         | 0.0 ° |
| MECRP Delta Ze | 0.0 mm  | Rotation Delta C         | 0.0 ° |
| Delta Xe       | 0.0 mm  | Rotation Delta B         | 5.0 ° |
| Delta Ye       | 0.0 mm  | Delta A                  | 0.0 ° |
| Delta Ze       | 0.0 mm  | Delta C                  | 0.0 ° |
| Ym             | -1.3 mm | Delta B                  | 0.0 ° |
|                |         | Ear Type 3.3 Coordinates |       |

Mounting: Right Ear

Force to apply: 2.0 N, Force reached: 2.0 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                   |                |                   |                 |
|-------------------|----------------|-------------------|-----------------|
| Direction         | Out 2 -> In 2  |                   |                 |
| Range start       | 13550.00 ms    | Range length      | 200.00 ms       |
| Number of seq.    | 10             | Sequence length   | 400.00 ms       |
| Use FIR Filter    | Ch2            | FIR filter        | drp2ff_ieee1652 |
| DRP/ERP Ch.1:     | Off            | DRP/ERP Ch.2:     | Off             |
| Frequency base    | Transformation |                   |                 |
| FFT size          | 9600           | Overlap           | 0 %             |
| Window function.  | Hanning        | Smooth            | Off             |
| dB weighting      | A Weighting    |                   |                 |
| Stimulus min.     | 855.0 Hz       | Stimulus max.     | 1155.0 Hz       |
| Analysis min.     | 20.0 Hz        | Analysis max.     | 850.0 Hz        |
| Analysis (2) min. | 1160.0 Hz      | Analysis (2) max. | 20000.0 Hz      |

**Special Features**

Compensate delay 203.2000 ms (D\_RCV\_WB, Delay (Cross))  
Store to variable RCVWB10\_1000Hz

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

**labCORE Routing**

Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker  
Out Channel 2 -> Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In  
In Channel 1 <- Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out  
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

**Analog In Mainboard Settings (Analog In 1/2)**

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

**Analog Out Mainboard Settings (Analog Out 1/2)**

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

**Microphone Settings (Mic Amp. (Slot 6))****Channel In 1 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 2 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 3 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 4 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**BEQ Settings (BEQ Filter 1)**

Block mode Bypass

**Artificial Head Settings (HATS 1 (HMS II.3))**

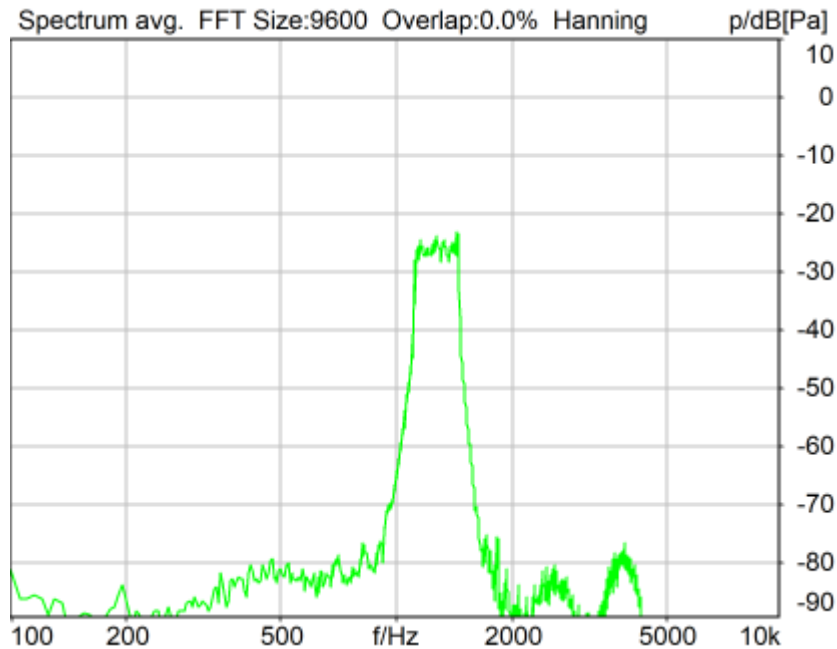
|          |          |            |          |
|----------|----------|------------|----------|
| Ser. Nr. | 12306613 | Pinna Type | Type 3.3 |
|----------|----------|------------|----------|

**HIB Settings**

|                    |                    |                    |          |
|--------------------|--------------------|--------------------|----------|
| HIB Name           | 60020095           | Serial             | 60020095 |
| HIB Mode           | Mobile Measurement | Impedance          | 32 Ohm   |
| Gain out 1         | -40.00 dB          | Gain out 2         | 0.00 dB  |
| Gain in 1          | 0.00 dB            | Gain in 2          | 0.00 dB  |
| Mic 1 Power Supply | Off                | Mic 2 Power Supply | Off      |

## 5.2 RCV Distortion and Noise - 1250 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 2N



Distortion (Noise) RCV (packed): 21.83 dB (8.10%) Ok

Ok

2024/1/19 23:01 ACQUA 5.1.200

Unmodified HEAD acoustics Measurement Descriptor

### Limits

|       |              |
|-------|--------------|
|       | <b>lower</b> |
| Run 1 | 20.00 dB     |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)

Database Version: 40\_HAC\_Suite\_Rev03

Source: act\_rpn\_b250ms\_1250hz\_sr20dbm0\_v02.dat

Level adj. Ch1 -90.0 dB

### Calibration

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))

Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

HHP IV Settings (Setting: STD:(0,0,0) rel AHP)

MECRP Delta Ye 0.0 mm      Rotation Delta A 0.0 °  
Rotation Delta C 0.0 °

|                |         |                          |       |
|----------------|---------|--------------------------|-------|
| MECRP Delta Ze | 0.0 mm  | Rotation Delta B         | 5.0 ° |
| Delta Xe       | 0.0 mm  | Delta A                  | 0.0 ° |
| Delta Ye       | 0.0 mm  | Delta C                  | 0.0 ° |
| Delta Ze       | 0.0 mm  | Delta B                  | 0.0 ° |
| Ym             | -1.3 mm | Ear Type 3.3 Coordinates |       |

Mounting: Right Ear  
Force to apply: 2.0 N, Force reached: 2.0 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                   |                |                   |                 |
|-------------------|----------------|-------------------|-----------------|
| Direction         | Out 2 -> In 2  |                   |                 |
| Range start       | 13550.00 ms    | Range length      | 200.00 ms       |
| Number of seq.    | 10             | Sequence length   | 400.00 ms       |
| Use FIR Filter    | Ch2            | FIR filter        | drp2ff_ieee1652 |
| DRP/ERP Ch.1:     | Off            | DRP/ERP Ch.2:     | Off             |
| Frequency base    | Transformation |                   |                 |
| FFT size          | 9600           | Overlap           | 0 %             |
| Window function.  | Hanning        | Smooth            | Off             |
| dB weighting      | A Weighting    |                   |                 |
| Stimulus min.     | 1085.0 Hz      | Stimulus max.     | 1450.0 Hz       |
| Analysis min.     | 20.0 Hz        | Analysis max.     | 1080.0 Hz       |
| Analysis (2) min. | 1455.0 Hz      | Analysis (2) max. | 20000.0 Hz      |

**Special Features**

Compensate delay 203.2000 ms (D\_RCV\_WB, Delay (Cross))  
Store to variable RCVWB10\_1250Hz

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

**labCORE Routing**

Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker  
Out Channel 2 -> Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In  
In Channel 1 <- Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out  
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

**Analog In Mainboard Settings (Analog In 1/2)**

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

**Analog Out Mainboard Settings (Analog Out 1/2)**

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

**Microphone Settings (Mic Amp. (Slot 6))****Channel In 1 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 2 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 3 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 4 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**BEQ Settings (BEQ Filter 1)**

Block mode Bypass

**Artificial Head Settings (HATS 1 (HMS II.3))**

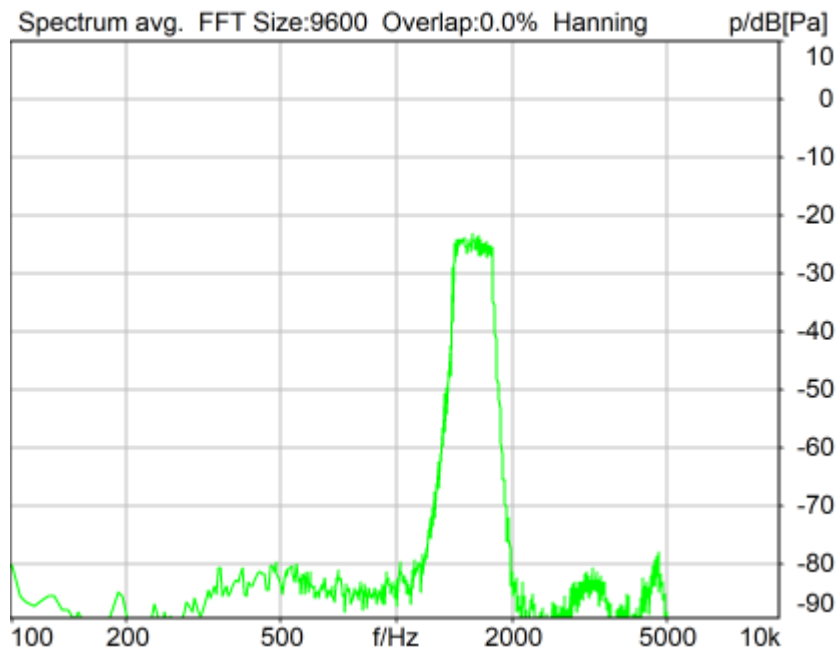
Ser. Nr. 12306613 Pinna Type Type 3.3

#### HIB Settings

|                        |                    |                        |          |
|------------------------|--------------------|------------------------|----------|
| HIB Name               | 60020095           | Serial                 | 60020095 |
| HIB Mode               | Mobile Measurement | Impedance              | 32 Ohm   |
| Gain out 1             | -40.00 dB          | Gain out 2             | 0.00 dB  |
| Gain in 1              | 0.00 dB            | Gain in 2              | 0.00 dB  |
| Mic 1 Power Supply Off |                    | Mic 2 Power Supply Off |          |

## 5.2 RCV Distortion and Noise - 1600 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 2N



Distortion (Noise) RCV (packed): 29.81 dB (3.23%) Ok

Ok

2024/1/19 23:01 ACQUA 5.1.200

Unmodified HEAD acoustics Measurement Descriptor

#### Limits

|       |          |
|-------|----------|
|       | lower    |
| Run 1 | 20.00 dB |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)

Database Version: 40\_HAC\_Suite\_Rev03

Source: act\_rpn\_b250ms\_1600hz\_sr20dbm0\_v02.dat

Level adj. Ch1 -90.0 dB

**Calibration**

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))

Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

**HHP IV Settings (Setting: STD:(0,0,0) rel AHP)**

|                |         |                          |       |
|----------------|---------|--------------------------|-------|
| MECRP Delta Ye | 0.0 mm  | Rotation Delta A         | 0.0 ° |
| MECRP Delta Ze | 0.0 mm  | Rotation Delta C         | 0.0 ° |
| Delta Xe       | 0.0 mm  | Rotation Delta B         | 5.0 ° |
| Delta Ye       | 0.0 mm  | Delta A                  | 0.0 ° |
| Delta Ze       | 0.0 mm  | Delta C                  | 0.0 ° |
| Ym             | -1.3 mm | Delta B                  | 0.0 ° |
|                |         | Ear Type 3.3 Coordinates |       |

Mounting: Right Ear

Force to apply: 2.0 N, Force reached: 2.0 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                   |                |                   |                 |
|-------------------|----------------|-------------------|-----------------|
| Direction         | Out 2 -> In 2  |                   |                 |
| Range start       | 13550.00 ms    | Range length      | 200.00 ms       |
| Number of seq.    | 10             | Sequence length   | 400.00 ms       |
| Use FIR Filter    | Ch2            | FIR filter        | drp2ff_ieee1652 |
| DRP/ERP Ch.1:     | Off            | DRP/ERP Ch.2:     | Off             |
| Frequency base    | Transformation |                   |                 |
| FFT size          | 9600           | Overlap           | 0 %             |
| Window function.  | Hanning        | Smooth            | Off             |
| dB weighting      | A Weighting    |                   |                 |
| Stimulus min.     | 1375.0 Hz      | Stimulus max.     | 1815.0 Hz       |
| Analysis min.     | 20.0 Hz        | Analysis max.     | 1370.0 Hz       |
| Analysis (2) min. | 1820.0 Hz      | Analysis (2) max. | 20000.0 Hz      |

**Special Features**

Compensate delay 203.2000 ms (D\_RCV\_WB, Delay (Cross))

Store to variable RCVWB10\_1600Hz

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

**labCORE Routing**

|                  |                                                                          |
|------------------|--------------------------------------------------------------------------|
| Out Channel 1 -> | Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker                      |
| Out Channel 2 -> | Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In                           |
| In Channel 1 <-  | Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out                        |
| In Channel 2 <-  | BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right |

**Analogue In Mainboard Settings (Analog In 1/2)**

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

**Analogue Out Mainboard Settings (Analog Out 1/2)**

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

**Microphone Settings (Mic Amp. (Slot 6))****Channel In 1 Settings**

|                          |                          |                |      |
|--------------------------|--------------------------|----------------|------|
| Range                    | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage200V |                          | Supply Voltage | ±60V |

**Channel In 2 Settings**

|                          |                          |                |      |
|--------------------------|--------------------------|----------------|------|
| Range                    | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage200V |                          | Supply Voltage | ±60V |

**Channel In 3 Settings**

|                          |                          |                |      |
|--------------------------|--------------------------|----------------|------|
| Range                    | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage200V |                          | Supply Voltage | ±60V |

## Channel In 4 Settings

Range 114 dB[SPL] @ 12.5 mV/Pa Highpass Off  
Polarisation Voltage 200V Supply Voltage  $\pm 60V$

-----  
BEQ Settings (BEQ Filter 1)

Block mode Bypass

-----  
Artificial Head Settings (HATS 1 (HMS II.3))

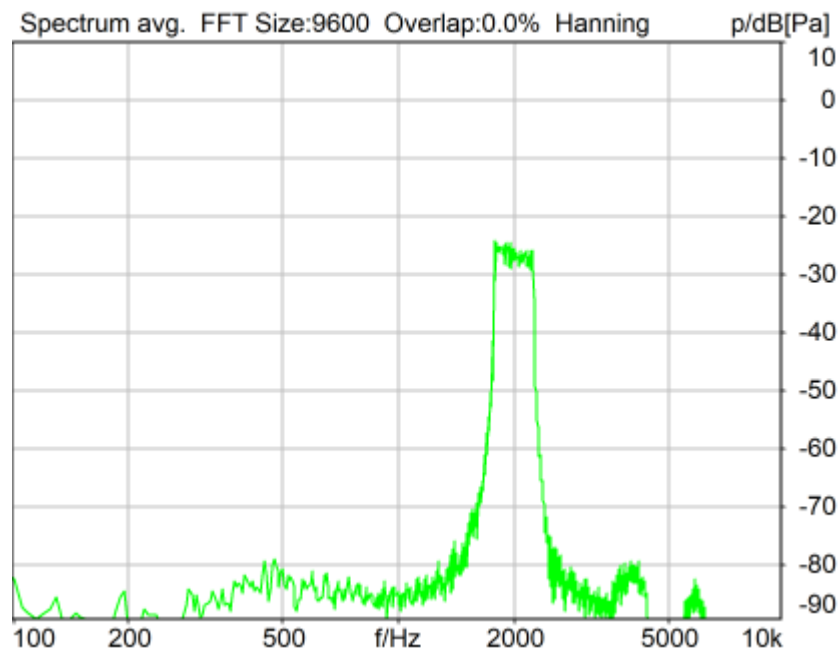
Ser. Nr. 12306613 Pinna Type Type 3.3

**HIB Settings**

|                    |                    |                    |          |
|--------------------|--------------------|--------------------|----------|
| HIB Name           | 60020095           | Serial             | 60020095 |
| HIB Mode           | Mobile Measurement | Impedance          | 32 Ohm   |
| Gain out 1         | -40.00 dB          | Gain out 2         | 0.00 dB  |
| Gain in 1          | 0.00 dB            | Gain in 2          | 0.00 dB  |
| Mic 1 Power Supply | Off                | Mic 2 Power Supply | Off      |

## 5.2 RCV Distortion and Noise - 2000 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 2N



Distortion (Noise) RCV (packed): 33.63 dB (2.08%) Ok

**Ok**

2024/1/19 23:03 ACQUA 5.1.200

Unmodified HEAD acoustics Measurement Descriptor

**Limits**

|       |              |
|-------|--------------|
|       | <b>lower</b> |
| Run 1 | 20.00 dB     |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)  
Database Version: 40\_HAC\_Suite\_Rev03**Source: act\_rpn\_b250ms\_2000hz\_sr20dbm0\_v02.dat**

Level adj. Ch1 -90.0 dB

**Calibration**

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))

Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

**HHP IV Settings (Setting: STD:(0,0,0) rel AHP)**

|                |         |                          |       |
|----------------|---------|--------------------------|-------|
| MECRP Delta Ye | 0.0 mm  | Rotation Delta A         | 0.0 ° |
| MECRP Delta Ze | 0.0 mm  | Rotation Delta C         | 0.0 ° |
| Delta Xe       | 0.0 mm  | Rotation Delta B         | 5.0 ° |
| Delta Ye       | 0.0 mm  | Delta A                  | 0.0 ° |
| Delta Ze       | 0.0 mm  | Delta C                  | 0.0 ° |
| Ym             | -1.3 mm | Delta B                  | 0.0 ° |
|                |         | Ear Type 3.3 Coordinates |       |

Mounting: Right Ear

Force to apply: 2.0 N, Force reached: 2.0 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                   |                |                   |                 |
|-------------------|----------------|-------------------|-----------------|
| Direction         | Out 2 -> In 2  |                   |                 |
| Range start       | 13550.00 ms    | Range length      | 200.00 ms       |
| Number of seq.    | 10             | Sequence length   | 400.00 ms       |
| Use FIR Filter    | Ch2            | FIR filter        | drp2ff_ieee1652 |
| DRP/ERP Ch.1:     | Off            | DRP/ERP Ch.2:     | Off             |
| Frequency base    | Transformation |                   |                 |
| FFT size          | 9600           | Overlap           | 0 %             |
| Window function.  | Hanning        | Smooth            | Off             |
| dB weighting      | A Weighting    |                   |                 |
| Stimulus min.     | 1745.0 Hz      | Stimulus max.     | 2275.0 Hz       |
| Analysis min.     | 20.0 Hz        | Analysis max.     | 1740.0 Hz       |
| Analysis (2) min. | 2280.0 Hz      | Analysis (2) max. | 20000.0 Hz      |

**Special Features**

Compensate delay 203.2000 ms (D\_RCV\_WB, Delay (Cross))

Store to variable RCVWB10\_2000Hz

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

**labCORE Routing**

|                  |                                                                          |
|------------------|--------------------------------------------------------------------------|
| Out Channel 1 -> | Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker                      |
| Out Channel 2 -> | Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In                           |
| In Channel 1 <-  | Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out                        |
| In Channel 2 <-  | BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right |

**Analog In Mainboard Settings (Analog In 1/2)**

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

**Analog Out Mainboard Settings (Analog Out 1/2)**

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

**Microphone Settings (Mic Amp. (Slot 6))**

Channel In 1 Settings

|                       |                          |                |      |
|-----------------------|--------------------------|----------------|------|
| Range                 | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage  | 200V                     | Supply Voltage | ±60V |
| Channel In 2 Settings |                          |                |      |
| Range                 | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage  | 200V                     | Supply Voltage | ±60V |
| Channel In 3 Settings |                          |                |      |
| Range                 | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage  | 200V                     | Supply Voltage | ±60V |
| Channel In 4 Settings |                          |                |      |
| Range                 | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage  | 200V                     | Supply Voltage | ±60V |

-----  
BEQ Settings (BEQ Filter 1)  
Block mode      Bypass  
-----

Artificial Head Settings (HATS 1 (HMS II.3))

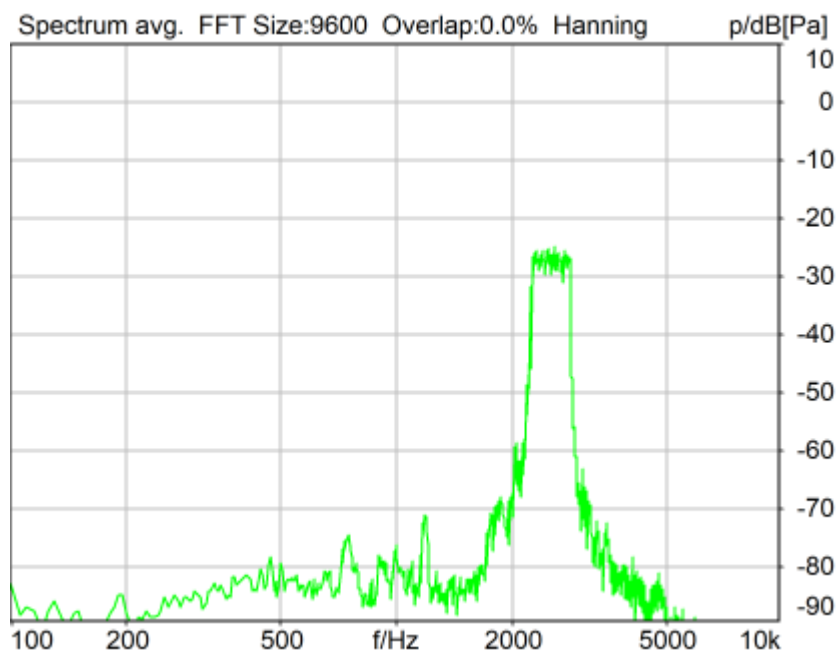
|          |          |            |          |
|----------|----------|------------|----------|
| Ser. Nr. | 12306613 | Pinna Type | Type 3.3 |
|----------|----------|------------|----------|

#### HIB Settings

|                    |                    |                    |          |
|--------------------|--------------------|--------------------|----------|
| HIB Name           | 60020095           | Serial             | 60020095 |
| HIB Mode           | Mobile Measurement | Impedance          | 32 Ohm   |
| Gain out 1         | -40.00 dB          | Gain out 2         | 0.00 dB  |
| Gain in 1          | 0.00 dB            | Gain in 2          | 0.00 dB  |
| Mic 1 Power Supply | Off                | Mic 2 Power Supply | Off      |

## 5.2 RCV Distortion and Noise - 2500 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 2N



Distortion (Noise) RCV (packed): 30.73 dB (2.91%) Ok

**Ok**

2024/1/19 23:03 ACQUA 5.1.200

Unmodified HEAD acoustics Measurement Descriptor

**Limits**

|       | lower    |
|-------|----------|
| Run 1 | 20.00 dB |

Meas. Setting      off

Underlying Standard: TIA-5050 (2018-01)  
Database Version: 40\_HAC\_Suite\_Rev03**Source:** act\_rpn\_b250ms\_2500hz\_sr20dbm0\_v02.dat

Level adj. Ch1      -90.0 dB

**Calibration**

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))

Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

**HHP IV Settings (Setting: STD:(0,0,0) rel AHP)**

|                |         |                          |       |
|----------------|---------|--------------------------|-------|
| MECRP Delta Ye | 0.0 mm  | Rotation Delta A         | 0.0 ° |
| MECRP Delta Ze | 0.0 mm  | Rotation Delta C         | 0.0 ° |
| Delta Xe       | 0.0 mm  | Rotation Delta B         | 5.0 ° |
| Delta Ye       | 0.0 mm  | Delta A                  | 0.0 ° |
| Delta Ze       | 0.0 mm  | Delta C                  | 0.0 ° |
| Ym             | -1.3 mm | Delta B                  | 0.0 ° |
|                |         | Ear Type 3.3 Coordinates |       |

Mounting: Right Ear

Force to apply: 2.0 N, Force reached: 2.0 N

**Output Equalization/Filter**

Mouth Eq. Ch.1:    HATS 1 (HMS II.3)

**Analysis**

|                   |                |                   |                 |
|-------------------|----------------|-------------------|-----------------|
| Direction         | Out 2 -> In 2  |                   |                 |
| Range start       | 13550.00 ms    | Range length      | 200.00 ms       |
| Number of seq.    | 10             | Sequence length   | 400.00 ms       |
| Use FIR Filter    | Ch2            | FIR filter        | drp2ff_ieee1652 |
| DRP/ERP Ch.1:     | Off            | DRP/ERP Ch.2:     | Off             |
| Frequency base    | Transformation |                   |                 |
| FFT size          | 9600           | Overlap           | 0 %             |
| Window function.  | Hanning        | Smooth            | Off             |
| dB weighting      | A Weighting    |                   |                 |
| Stimulus min.     | 2205.0 Hz      | Stimulus max.     | 2855.0 Hz       |
| Analysis min.     | 20.0 Hz        | Analysis max.     | 2200.0 Hz       |
| Analysis (2) min. | 2860.0 Hz      | Analysis (2) max. | 20000.0 Hz      |

**Special Features**

Compensate delay 203.2000 ms (D\_RCV\_WB, Delay (Cross))

Store to variable    RCVWB10\_2500Hz

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

-----

**labCORE Routing**

|                  |                                                                          |
|------------------|--------------------------------------------------------------------------|
| Out Channel 1 -> | Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker                      |
| Out Channel 2 -> | Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In                           |
| In Channel 1 <-  | Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out                        |
| In Channel 2 <-  | BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right |

-----

Analog In Mainboard Settings (Analog In 1/2)

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

-----  
Analog Out Mainboard Settings (Analog Out 1/2)

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

-----  
Microphone Settings (Mic Amp. (Slot 6))

## Channel In 1 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

## Channel In 2 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

## Channel In 3 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

## Channel In 4 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

-----  
BEQ Settings (BEQ Filter 1)

|            |        |
|------------|--------|
| Block mode | Bypass |
|------------|--------|

-----  
Artificial Head Settings (HATS 1 (HMS II.3))

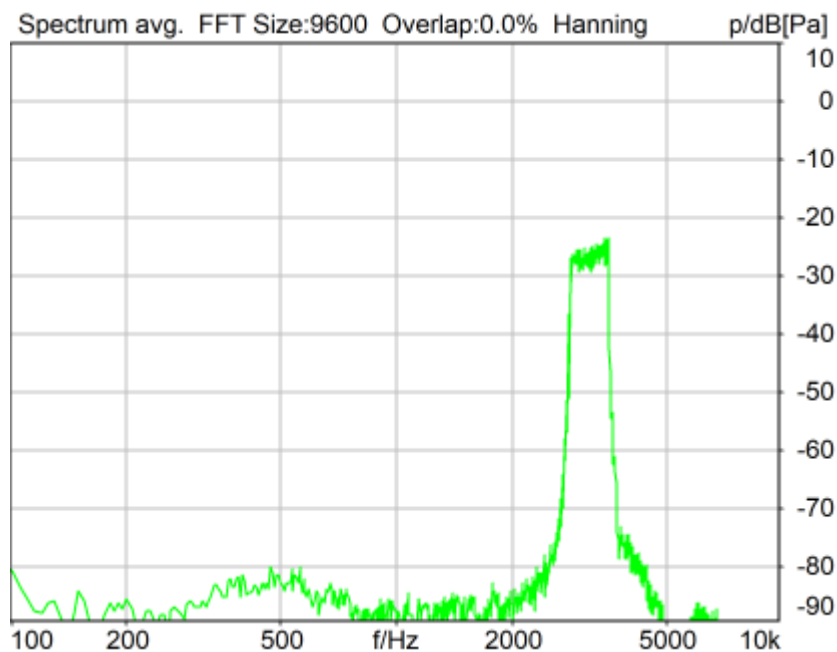
|          |          |            |          |
|----------|----------|------------|----------|
| Ser. Nr. | 12306613 | Pinna Type | Type 3.3 |
|----------|----------|------------|----------|

**HIB Settings**

|                    |                    |                    |          |
|--------------------|--------------------|--------------------|----------|
| HIB Name           | 60020095           | Serial             | 60020095 |
| HIB Mode           | Mobile Measurement | Impedance          | 32 Ohm   |
| Gain out 1         | -40.00 dB          | Gain out 2         | 0.00 dB  |
| Gain in 1          | 0.00 dB            | Gain in 2          | 0.00 dB  |
| Mic 1 Power Supply | Off                | Mic 2 Power Supply | Off      |

## **5.2 RCV Distortion and Noise - 3150 Hz WB**

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 2N



Distortion (Noise) RCV (packed): 34.49 dB (1.89%) Ok

**Ok**

2024/1/19 23:04 ACQUA 5.1.200

Unmodified HEAD acoustics Measurement Descriptor

**Limits**

|       | lower    |
|-------|----------|
| Run 1 | 20.00 dB |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)

Database Version: 40\_HAC\_Suite\_Rev03

**Source: act\_rpn\_b250ms\_3150hz\_sr20dbm0\_v02.dat**

Level adj. Ch1 -90.0 dB

**Calibration**

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))

Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

**HHP IV Settings (Setting: STD:(0,0,0) rel AHP)**

|                          |         |                  |       |
|--------------------------|---------|------------------|-------|
| MECRP Delta Ye           | 0.0 mm  | Rotation Delta A | 0.0 ° |
| MECRP Delta Ze           | 0.0 mm  | Rotation Delta C | 0.0 ° |
| Delta Xe                 | 0.0 mm  | Rotation Delta B | 5.0 ° |
| Delta Ye                 | 0.0 mm  | Delta A          | 0.0 ° |
| Delta Ze                 | 0.0 mm  | Delta C          | 0.0 ° |
| Ym                       | -1.3 mm | Delta B          | 0.0 ° |
| Ear Type 3.3 Coordinates |         |                  |       |

Mounting: Right Ear

Force to apply: 2.0 N, Force reached: 2.0 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                   |                |                   |                 |
|-------------------|----------------|-------------------|-----------------|
| Direction         | Out 2 -> In 2  | Range length      | 200.00 ms       |
| Range start       | 13550.00 ms    | Sequence length   | 400.00 ms       |
| Number of seq.    | 10             | FIR filter        | drp2ff_ieee1652 |
| Use FIR Filter    | Ch2            | DRP/ERP Ch.2:     | Off             |
| DRP/ERP Ch.1:     | Off            | Frequency base    | Transformation  |
| Frequency base    | Transformation | FFT size          | 9600            |
| FFT size          | 9600           | Overlap           | 0 %             |
| Window function.  | Hanning        | Smooth            | Off             |
| dB weighting      | A Weighting    | Stimulus max.     | 3585.0 Hz       |
| Stimulus min.     | 2785.0 Hz      | Analysis max.     | 2780.0 Hz       |
| Analysis min.     | 20.0 Hz        | Analysis (2) max. | 20000.0 Hz      |
| Analysis (2) min. | 3590.0 Hz      |                   |                 |

**Special Features**

Compensate delay 203.2000 ms (D\_RCV\_WB, Delay (Cross))

Store to variable RCVWB10\_3150Hz

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

-----

## labCORE Routing

Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker  
Out Channel 2 -> Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In  
In Channel 1 <- Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out  
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

-----  
Analog In Mainboard Settings (Analog In 1/2)

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

-----  
Analog Out Mainboard Settings (Analog Out 1/2)

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

-----  
Microphone Settings (Mic Amp. (Slot 6))

## Channel In 1 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

## Channel In 2 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

## Channel In 3 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

## Channel In 4 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

-----  
BEQ Settings (BEQ Filter 1)

|            |        |
|------------|--------|
| Block mode | Bypass |
|------------|--------|

-----  
Artificial Head Settings (HATS 1 (HMS II.3))

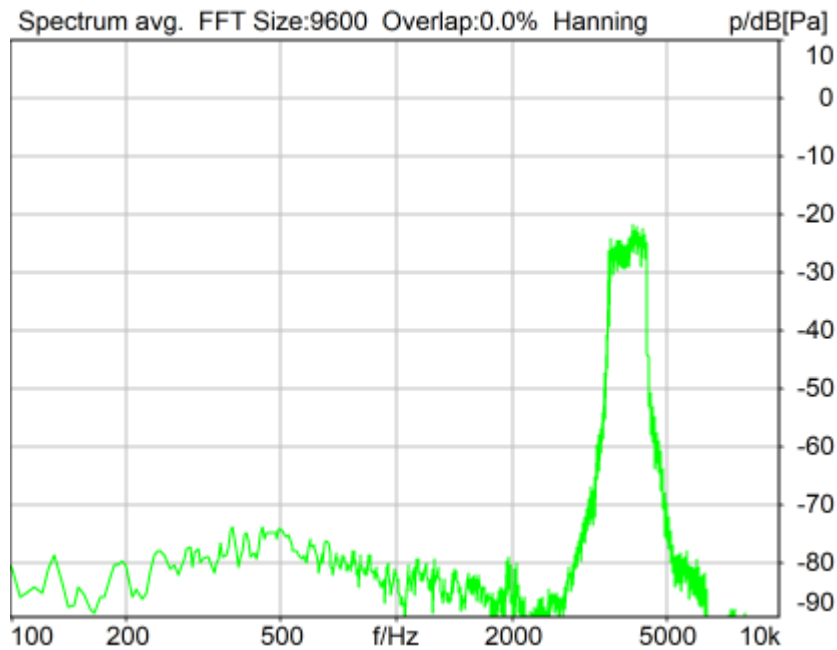
|          |          |            |          |
|----------|----------|------------|----------|
| Ser. Nr. | 12306613 | Pinna Type | Type 3.3 |
|----------|----------|------------|----------|

**HIB Settings**

|                    |                    |                    |          |
|--------------------|--------------------|--------------------|----------|
| HIB Name           | 60020095           | Serial             | 60020095 |
| HIB Mode           | Mobile Measurement | Impedance          | 32 Ohm   |
| Gain out 1         | -40.00 dB          | Gain out 2         | 0.00 dB  |
| Gain in 1          | 0.00 dB            | Gain in 2          | 0.00 dB  |
| Mic 1 Power Supply | Off                | Mic 2 Power Supply | Off      |

## **5.2 RCV Distortion and Noise - 4000 Hz WB**

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 2N



Distortion (Noise) RCV (packed): 29.77 dB (3.25%) Ok

**Ok**

2024/1/19 23:04 ACQUA 5.1.200

Unmodified HEAD acoustics Measurement Descriptor

#### Limits

|       | lower    |
|-------|----------|
| Run 1 | 20.00 dB |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)

Database Version: 40\_HAC\_Suite\_Rev03

**Source: act\_rpn\_b250ms\_4000hz\_sr20dbm0\_v02.dat**

Level adj. Ch1 -90.0 dB

#### Calibration

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))

Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

#### HHP IV Settings (Setting: STD:(0,0,0) rel AHP)

|                |         |                          |       |
|----------------|---------|--------------------------|-------|
| MECRP Delta Ye | 0.0 mm  | Rotation Delta A         | 0.0 ° |
| MECRP Delta Ze | 0.0 mm  | Rotation Delta C         | 0.0 ° |
| Delta Xe       | 0.0 mm  | Rotation Delta B         | 5.0 ° |
| Delta Ye       | 0.0 mm  | Delta A                  | 0.0 ° |
| Delta Ze       | 0.0 mm  | Delta C                  | 0.0 ° |
| Ym             | -1.3 mm | Delta B                  | 0.0 ° |
|                |         | Ear Type 3.3 Coordinates |       |

Mounting: Right Ear

Force to apply: 2.0 N, Force reached: 2.0 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                   |                |                   |                 |
|-------------------|----------------|-------------------|-----------------|
| Direction         | Out 2 -> In 2  |                   |                 |
| Range start       | 13550.00 ms    | Range length      | 200.00 ms       |
| Number of seq.    | 10             | Sequence length   | 400.00 ms       |
| Use FIR Filter    | Ch2            | FIR filter        | drp2ff_ieee1652 |
| DRP/ERP Ch.1:     | Off            | DRP/ERP Ch.2:     | Off             |
| Frequency base    | Transformation |                   |                 |
| FFT size          | 9600           | Overlap           | 0 %             |
| Window function.  | Hanning        | Smooth            | Off             |
| dB weighting      | A Weighting    |                   |                 |
| Stimulus min.     | 3515.0 Hz      | Stimulus max.     | 4500.0 Hz       |
| Analysis min.     | 20.0 Hz        | Analysis max.     | 3510.0 Hz       |
| Analysis (2) min. | 4505.0 Hz      | Analysis (2) max. | 20000.0 Hz      |

**Special Features**

Compensate delay 203.2000 ms (D\_RCV\_WB, Delay (Cross))  
Store to variable RCVWB10\_4000Hz

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

**labCORE Routing**

Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker  
Out Channel 2 -> Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In  
In Channel 1 <- Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out  
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

**Analog In Mainboard Settings (Analog In 1/2)**

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

**Analog Out Mainboard Settings (Analog Out 1/2)**

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

**Microphone Settings (Mic Amp. (Slot 6))****Channel In 1 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 2 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 3 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 4 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**BEQ Settings (BEQ Filter 1)**

Block mode Bypass

**Artificial Head Settings (HATS 1 (HMS II.3))**

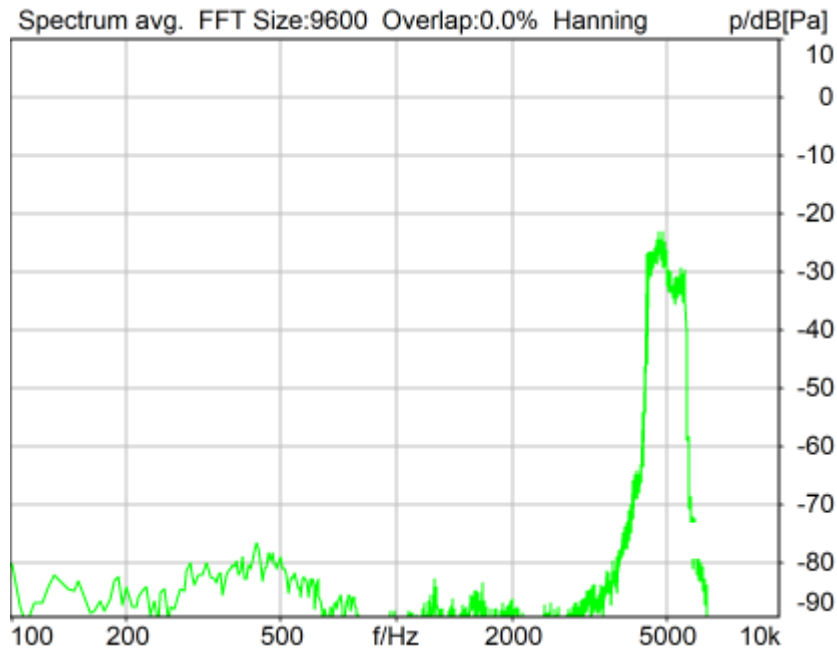
|          |          |            |          |
|----------|----------|------------|----------|
| Ser. Nr. | 12306613 | Pinna Type | Type 3.3 |
|----------|----------|------------|----------|

**HIB Settings**

|                    |                    |                    |          |
|--------------------|--------------------|--------------------|----------|
| HIB Name           | 60020095           | Serial             | 60020095 |
| HIB Mode           | Mobile Measurement | Impedance          | 32 Ohm   |
| Gain out 1         | -40.00 dB          | Gain out 2         | 0.00 dB  |
| Gain in 1          | 0.00 dB            | Gain in 2          | 0.00 dB  |
| Mic 1 Power Supply | Off                | Mic 2 Power Supply | Off      |

## 5.2 RCV Distortion and Noise - 5000 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 2N



Distortion (Noise) RCV (packed): 33.49 dB (2.12%) Ok

Ok

2024/1/19 23:05 ACQUA 5.1.200

Unmodified HEAD acoustics Measurement Descriptor

### Limits

|       |          |
|-------|----------|
|       | lower    |
| Run 1 | 20.00 dB |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)

Database Version: 40\_HAC\_Suite\_Rev03

Source: act\_rpn\_b250ms\_5000hz\_sr20dbm0\_v02.dat

Level adj. Ch1 -90.0 dB

### Calibration

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))

Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

HHP IV Settings (Setting: STD:(0,0,0) rel AHP)

MECRP Delta Ye 0.0 mm      Rotation Delta A 0.0 °  
Rotation Delta C 0.0 °

|                |         |                          |       |
|----------------|---------|--------------------------|-------|
| MECRP Delta Ze | 0.0 mm  | Rotation Delta B         | 5.0 ° |
| Delta Xe       | 0.0 mm  | Delta A                  | 0.0 ° |
| Delta Ye       | 0.0 mm  | Delta C                  | 0.0 ° |
| Delta Ze       | 0.0 mm  | Delta B                  | 0.0 ° |
| Ym             | -1.3 mm | Ear Type 3.3 Coordinates |       |

Mounting: Right Ear  
Force to apply: 2.0 N, Force reached: 2.0 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                   |                |                   |                 |
|-------------------|----------------|-------------------|-----------------|
| Direction         | Out 2 -> In 2  |                   |                 |
| Range start       | 13550.00 ms    | Range length      | 200.00 ms       |
| Number of seq.    | 10             | Sequence length   | 400.00 ms       |
| Use FIR Filter    | Ch2            | FIR filter        | drp2ff_ieee1652 |
| DRP/ERP Ch.1:     | Off            | DRP/ERP Ch.2:     | Off             |
| Frequency base    | Transformation |                   |                 |
| FFT size          | 9600           | Overlap           | 0 %             |
| Window function.  | Hanning        | Smooth            | Off             |
| dB weighting      | A Weighting    |                   |                 |
| Stimulus min.     | 4430.0 Hz      | Stimulus max.     | 5660.0 Hz       |
| Analysis min.     | 20.0 Hz        | Analysis max.     | 4425.0 Hz       |
| Analysis (2) min. | 5665.0 Hz      | Analysis (2) max. | 20000.0 Hz      |

**Special Features**

Compensate delay 203.2000 ms (D\_RCV\_WB, Delay (Cross))  
Store to variable RCVWB10\_5000Hz

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

**labCORE Routing**

Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker  
Out Channel 2 -> Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In  
In Channel 1 <- Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out  
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

**Analog In Mainboard Settings (Analog In 1/2)**

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

**Analog Out Mainboard Settings (Analog Out 1/2)**

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

**Microphone Settings (Mic Amp. (Slot 6))****Channel In 1 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 2 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 3 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 4 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**BEQ Settings (BEQ Filter 1)**

Block mode Bypass

**Artificial Head Settings (HATS 1 (HMS II.3))**

---

|          |          |            |          |
|----------|----------|------------|----------|
| Ser. Nr. | 12306613 | Pinna Type | Type 3.3 |
|----------|----------|------------|----------|

**HIB Settings**

|                        |                    |                        |          |
|------------------------|--------------------|------------------------|----------|
| HIB Name               | 60020095           | Serial                 | 60020095 |
| HIB Mode               | Mobile Measurement | Impedance              | 32 Ohm   |
| Gain out 1             | -40.00 dB          | Gain out 2             | 0.00 dB  |
| Gain in 1              | 0.00 dB            | Gain in 2              | 0.00 dB  |
| Mic 1 Power Supply Off |                    | Mic 2 Power Supply Off |          |

**Report - Receive Distortion and Noise (Conversational Gain)**

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 2N

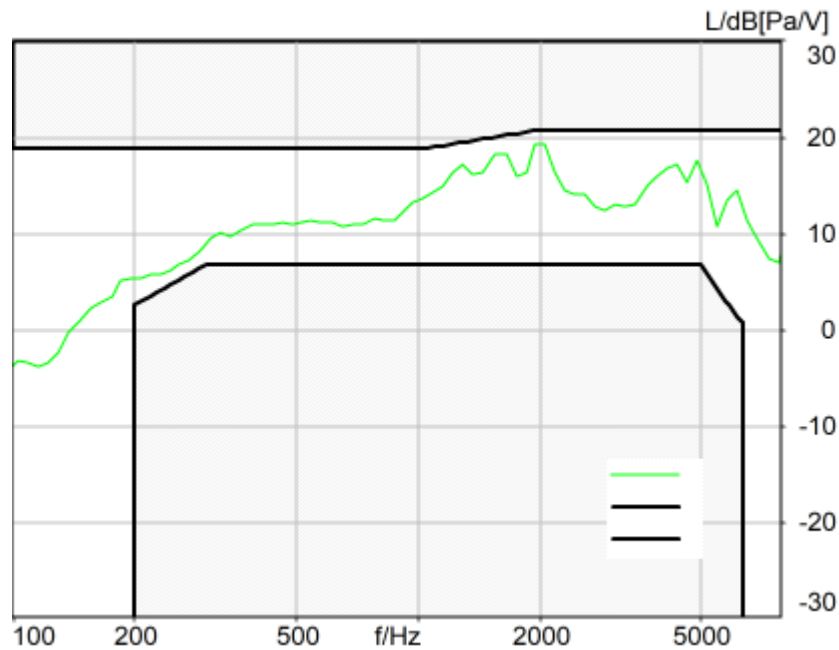
| Region | Frequency | SDNR     |
|--------|-----------|----------|
| 1      | 250Hz     | 27.72 dB |
| 2      | 315Hz     | 30.26 dB |
| 3      | 400Hz     | 27.72 dB |
| 4      | 500Hz     | 27.50 dB |
| 5      | 630Hz     | 27.53 dB |
| 6      | 800Hz     | 29.56 dB |
| 7      | 1000Hz    | 26.45 dB |
| 8      | 1250Hz    | 21.83 dB |
| 9      | 1600Hz    | 29.81 dB |
| 10     | 2000Hz    | 33.63 dB |
| 11     | 2500Hz    | 30.73 dB |
| 12     | 3150Hz    | 34.49 dB |
| 13     | 4000Hz    | 29.77 dB |
| 14     | 5000Hz    | 33.49 dB |

All SDNRs were greater than 20.0 dB, requirement was met.  
Smallest SDNR was 21.83dB at 1250Hz.

2024/1/19 23:05 ACQUA

**5.3 Frequency Response 8N FF**

TIA-5050 (2018-01) \ Measurements \ Wideband



Absolute minimal distance  
1.40 dB at 2057.5 Hz Ok

Ok

2024/1/19 22:55 ACQUA 5.1.200

Unmodified HEAD acoustics Measurement Descriptor

#### Limits

|       | lower              |
|-------|--------------------|
| Run 1 | Fit into tolerance |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)

Database Version: 40\_HAC\_Suite\_Rev03

**Source:** respmaleieeee269\_wb\_r20\_v01.dat

Level adj. Ch1 -90.0 dB

WIDEBAND IEEE-269-2010 Real Speech Signal at Channel 2

Pause 0.5 s +

Real Speech (english, male speaker) 11.5 s, Active Speech Level: -22,2 dBV, margin 15.9 dB +

Pause till end of file

Signal level (ch2): -22,2 dBV Active Speech Level, margin 15.9 dB

Signal taken from "IEEE\_269-2010\_Male\_mono\_48\_kHz.wav"

Alteration:

0.2 s Pause added at the beginning of the file.

0.8 s Pause added at the and of the file.

filtered with 8.0 kHz low-pass filter

signal level changed

#### Calibration

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))  
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

**HHP IV Settings (Setting: STD:(0,0,0) rel AHP)**

|                |         |                          |       |
|----------------|---------|--------------------------|-------|
| MECRP Delta Ye | 0.0 mm  | Rotation Delta A         | 0.0 ° |
| MECRP Delta Ze | 0.0 mm  | Rotation Delta C         | 0.0 ° |
| Delta Xe       | 0.0 mm  | Rotation Delta B         | 5.0 ° |
| Delta Ye       | 0.0 mm  | Delta A                  | 0.0 ° |
| Delta Ze       | 0.0 mm  | Delta C                  | 0.0 ° |
| Ym             | -4.6 mm | Delta B                  | 0.0 ° |
|                |         | Ear Type 3.3 Coordinates |       |

Mounting: Right Ear  
Force to apply: 8.0 N, Force reached: 8.0 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                  |                               |                     |                 |
|------------------|-------------------------------|---------------------|-----------------|
| Direction        | Out 2 -> In 2                 |                     |                 |
| Range start      | 500.00 ms                     | Range length        | 11500.00 ms     |
| Use FIR Filter   | Ch2                           | FIR filter          | drp2ff_ieee1652 |
| DRP/ERP Ch.1:    | Off                           | DRP/ERP Ch.2:       | Off             |
| Frequency base   | 12th octave                   | DIN Row             | Row A           |
| Method           | FFT                           |                     |                 |
| FFT size         | 4096                          | Overlap             | 75 %            |
| Window function. | Hanning                       |                     |                 |
| Reference file   | r521_rcv_frq_spee269_hawb.fft |                     |                 |
| Tol. scheme file | 521_rcv_frq_man_hawb.tol      | Min. freq. for tol. | 100.0 Hz        |
| Auto adjust      | Centrate                      | Max. freq. for tol. | 8000.0 Hz       |

**Special Features**

Compensate delay 203.2000 ms (D\_RCV\_WB, Delay (Cross))

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

**labCORE Routing**

|                  |                                                                          |
|------------------|--------------------------------------------------------------------------|
| Out Channel 1 -> | Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker                      |
| Out Channel 2 -> | Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In                           |
| In Channel 1 <-  | Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out                        |
| In Channel 2 <-  | BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right |

**Analog In Mainboard Settings (Analog In 1/2)**

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

**Analog Out Mainboard Settings (Analog Out 1/2)**

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

**Microphone Settings (Mic Amp. (Slot 6))****Channel In 1 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 2 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 3 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 4 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

BEQ Settings (BEQ Filter 1)  
Block mode Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

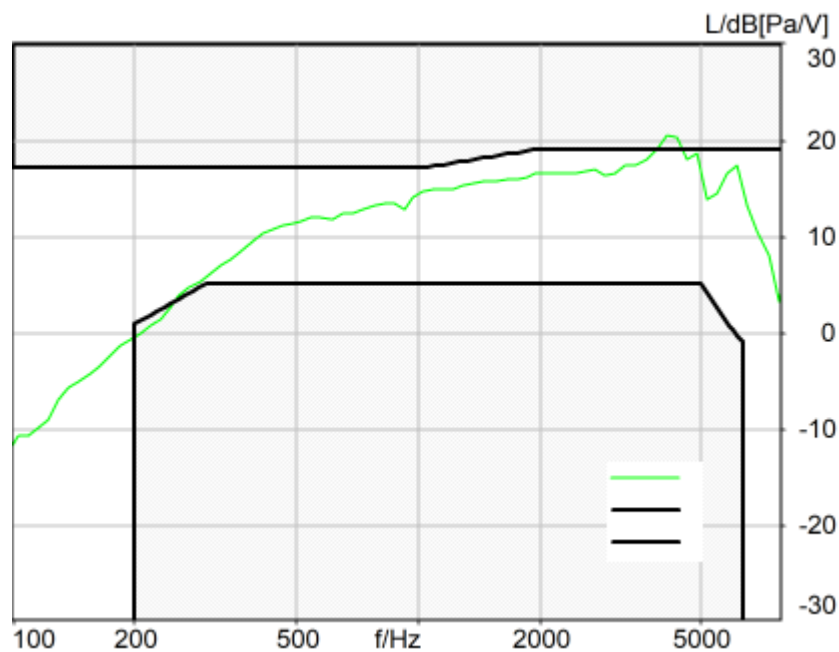
Ser. Nr. 12306613 Pinna Type Type 3.3

#### HIB Settings

|                        |                    |                        |          |
|------------------------|--------------------|------------------------|----------|
| HIB Name               | 60020095           | Serial                 | 60020095 |
| HIB Mode               | Mobile Measurement | Impedance              | 32 Ohm   |
| Gain out 1             | -40.00 dB          | Gain out 2             | 0.00 dB  |
| Gain in 1              | 0.00 dB            | Gain in 2              | 0.00 dB  |
| Mic 1 Power Supply Off |                    | Mic 2 Power Supply Off |          |

## 5.3 Frequency Response 8N DF

TIA-5050 (2018-01) \ Measurements \ Wideband



Absolute minimal distance  
-1.36 dB at 4119.5 Hz Not Ok

**Not Ok**

2024/1/19 22:56 ACQUA 5.1.200  
Unmodified HEAD acoustics Measurement Descriptor

#### Limits

|       |                    |
|-------|--------------------|
|       | lower              |
| Run 1 | Fit into tolerance |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)  
Database Version: 40\_HAC\_Suite\_Rev03

**Source: respmaleieee269\_wb\_r20\_v01.dat**

Level adj. Ch1 -90.0 dB

WIDEBAND IEEE-269-2010 Real Speech Signal at Channel 2

Pause 0.5 s +

Real Speech (english, male speaker) 11.5 s, Active Speech Level: -22,2 dBV, margin 15.9 dB +

Pause till end of file

Signal level (ch2): -22,2 dBV Active Speech Level, margin 15.9 dB

Signal taken from "IEEE\_269-2010\_Male\_mono\_48\_kHz.wav"

Alteration:

0.2 s Pause added at the beginning of the file.

0.8 s Pause added at the end of the file.

filtered with 8.0 kHz low-pass filter

signal level changed

**Calibration**

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))

Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

**HHP IV Settings (Setting: STD:(0,0,0) rel AHP)**

|                |         |                          |       |
|----------------|---------|--------------------------|-------|
| MECRP Delta Ye | 0.0 mm  | Rotation Delta A         | 0.0 ° |
| MECRP Delta Ze | 0.0 mm  | Rotation Delta C         | 0.0 ° |
| Delta Xe       | 0.0 mm  | Rotation Delta B         | 5.0 ° |
| Delta Ye       | 0.0 mm  | Delta A                  | 0.0 ° |
| Delta Ze       | 0.0 mm  | Delta C                  | 0.0 ° |
| Ym             | -4.6 mm | Delta B                  | 0.0 ° |
|                |         | Ear Type 3.3 Coordinates |       |

Mounting: Right Ear

Force to apply: 8.0 N, Force reached: 8.0 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                  |                               |                     |                 |
|------------------|-------------------------------|---------------------|-----------------|
| Direction        | Out 2 -> In 2                 |                     |                 |
| Range start      | 500.00 ms                     | Range length        | 11500.00 ms     |
| Use FIR Filter   | Ch2                           | FIR filter          | drp2df_ieee1652 |
| DRP/ERP Ch.1:    | Off                           | DRP/ERP Ch.2:       | Off             |
| Frequency base   | 12th octave                   | DIN Row             | Row A           |
| Method           | FFT                           |                     |                 |
| FFT size         | 4096                          | Overlap             | 75 %            |
| Window function. | Hanning                       |                     |                 |
| Reference file   | r521_rcv_frq_spee269_hawb.fft |                     |                 |
| Tol. scheme file | 521_rcv_frq_man_hawb.tol      | Min. freq. for tol. | 100.0 Hz        |
| Auto adjust      | Centrate                      | Max. freq. for tol. | 8000.0 Hz       |

**Special Features**

Compensate delay 203.2000 ms (D\_RCV\_WB, Delay (Cross))

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

**labCORE Routing**

|                  |                                                                          |
|------------------|--------------------------------------------------------------------------|
| Out Channel 1 -> | Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker                      |
| Out Channel 2 -> | Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In                           |
| In Channel 1 <-  | Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out                        |
| In Channel 2 <-  | BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right |

## Analog In Mainboard Settings (Analog In 1/2)

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

## Analog Out Mainboard Settings (Analog Out 1/2)

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

## Microphone Settings (Mic Amp. (Slot 6))

## Channel In 1 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

## Channel In 2 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

## Channel In 3 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

## Channel In 4 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

## BEQ Settings (BEQ Filter 1)

|            |        |
|------------|--------|
| Block mode | Bypass |
|------------|--------|

## Artificial Head Settings (HATS 1 (HMS II.3))

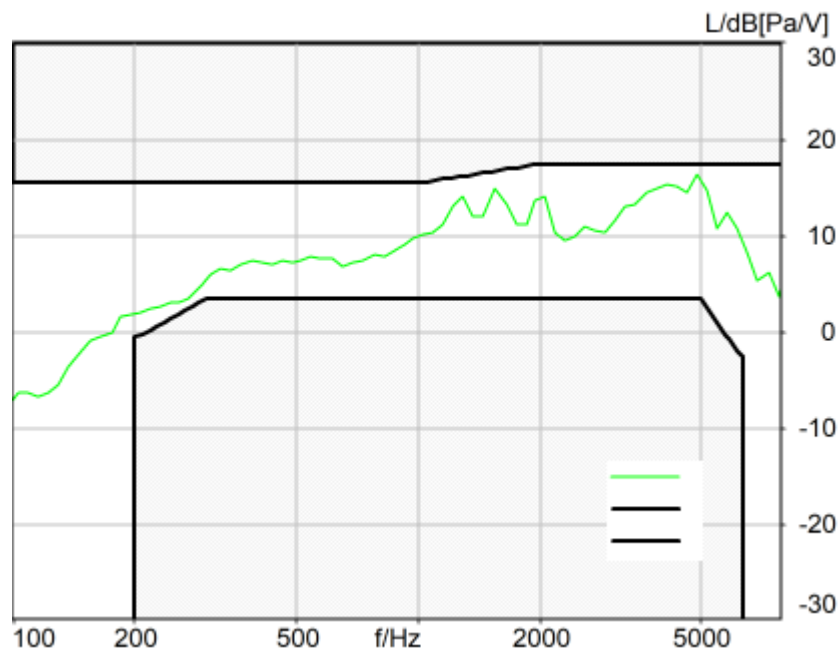
|          |          |            |          |
|----------|----------|------------|----------|
| Ser. Nr. | 12306613 | Pinna Type | Type 3.3 |
|----------|----------|------------|----------|

## HIB Settings

|                    |                    |                    |          |
|--------------------|--------------------|--------------------|----------|
| HIB Name           | 60020095           | Serial             | 60020095 |
| HIB Mode           | Mobile Measurement | Impedance          | 32 Ohm   |
| Gain out 1         | -40.00 dB          | Gain out 2         | 0.00 dB  |
| Gain in 1          | 0.00 dB            | Gain in 2          | 0.00 dB  |
| Mic 1 Power Supply | Off                | Mic 2 Power Supply | Off      |

## 5.3 Frequency Response 2N FF

TIA-5050 (2018-01) \ Measurements \ Wideband



Absolute minimal distance

1.02 dB at 272.2 Hz Ok

**Ok**

2024/1/19 23:05 ACQUA 5.1.200

Unmodified HEAD acoustics Measurement Descriptor

**Limits**

|       | lower              |
|-------|--------------------|
| Run 1 | Fit into tolerance |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)

Database Version: 40\_HAC\_Suite\_Rev03

**Source: respmaleieee269\_wb\_r20\_v01.dat**

Level adj. Ch1 -90.0 dB

WIDEBAND IEEE-269-2010 Real Speech Signal at Channel 2

Pause 0.5 s +

Real Speech (english, male speaker) 11.5 s, Active Speech Level: -22,2 dBV, margin 15.9 dB +

Pause till end of file

Signal level (ch2): -22,2 dBV Active Speech Level, margin 15.9 dB

Signal taken from "IEEE\_269-2010\_Male\_mono\_48\_kHz.wav"

Alteration:

0.2 s Pause added at the beginning of the file.

0.8 s Pause added at the end of the file.

filtered with 8.0 kHz low-pass filter

signal level changed

**Calibration**

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))

Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

**HHP IV Settings (Setting: STD:(0,0,0) rel AHP)**

|                |         |                          |       |
|----------------|---------|--------------------------|-------|
| MECRP Delta Ye | 0.0 mm  | Rotation Delta A         | 0.0 ° |
| MECRP Delta Ze | 0.0 mm  | Rotation Delta C         | 0.0 ° |
| Delta Xe       | 0.0 mm  | Rotation Delta B         | 5.0 ° |
| Delta Ye       | 0.0 mm  | Delta A                  | 0.0 ° |
| Delta Ze       | 0.0 mm  | Delta C                  | 0.0 ° |
| Ym             | -1.3 mm | Delta B                  | 0.0 ° |
|                |         | Ear Type 3.3 Coordinates |       |

Mounting: Right Ear

Force to apply: 2.0 N, Force reached: 2.0 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                |               |               |                 |
|----------------|---------------|---------------|-----------------|
| Direction      | Out 2 -> In 2 | Range length  | 11500.00 ms     |
| Range start    | 500.00 ms     | FIR filter    | drp2ff_ieee1652 |
| Use FIR Filter | Ch2           | DRP/ERP Ch.2: | Off             |
| DRP/ERP Ch.1:  | Off           | DIN Row       | Row A           |
| Frequency base | 12th octave   |               |                 |
| Method         | FFT           |               |                 |

|                  |                               |                     |           |
|------------------|-------------------------------|---------------------|-----------|
| FFT size         | 4096                          | Overlap             | 75 %      |
| Window function. | Hanning                       |                     |           |
| Reference file   | r521_rcv_frq_spee269_hawb.fft |                     |           |
| Tol. scheme file | 521_rcv_frq_man_hawb.tol      | Min. freq. for tol. | 100.0 Hz  |
| Auto adjust      | Centrate                      | Max. freq. for tol. | 8000.0 Hz |

**Special Features**

Compensate delay 203.2000 ms (D\_RCV\_WB, Delay (Cross))

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

**labCORE Routing**

Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker  
Out Channel 2 -> Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In  
In Channel 1 <- Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out  
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

**Analog In Mainboard Settings (Analog In 1/2)**

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

**Analog Out Mainboard Settings (Analog Out 1/2)**

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

**Microphone Settings (Mic Amp. (Slot 6))****Channel In 1 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 2 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 3 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 4 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**BEQ Settings (BEQ Filter 1)**

Block mode Bypass

**Artificial Head Settings (HATS 1 (HMS II.3))**

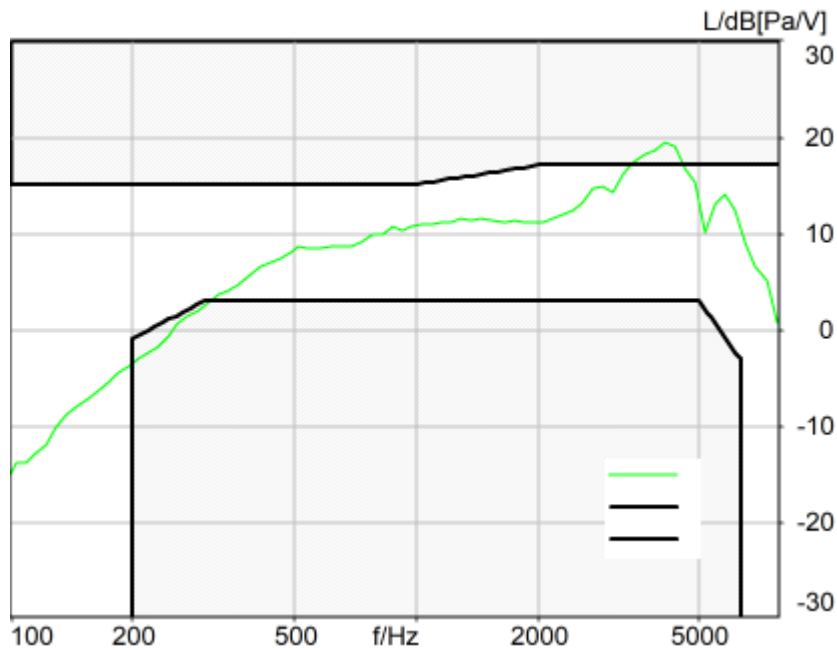
|          |          |            |          |
|----------|----------|------------|----------|
| Ser. Nr. | 12306613 | Pinna Type | Type 3.3 |
|----------|----------|------------|----------|

**HIB Settings**

|                    |                    |                    |          |
|--------------------|--------------------|--------------------|----------|
| HIB Name           | 60020095           | Serial             | 60020095 |
| HIB Mode           | Mobile Measurement | Impedance          | 32 Ohm   |
| Gain out 1         | -40.00 dB          | Gain out 2         | 0.00 dB  |
| Gain in 1          | 0.00 dB            | Gain in 2          | 0.00 dB  |
| Mic 1 Power Supply | Off                | Mic 2 Power Supply | Off      |

## 5.3 Frequency Response 2N DF

TIA-5050 (2018-01) \ Measurements \ Wideband



Absolute minimal distance  
-2.43 dB at 205.7 Hz Not Ok

## Not Ok

2024/1/19 23:06 ACQUA 5.1.200

Unmodified HEAD acoustics Measurement Descriptor

## Limits

|       | lower              |
|-------|--------------------|
| Run 1 | Fit into tolerance |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)

Database Version: 40\_HAC\_Suite\_Rev03

**Source:** respmaleieeee269\_wb\_r20\_v01.dat

Level adj. Ch1 -90.0 dB

WIDEBAND IEEE-269-2010 Real Speech Signal at Channel 2

Pause 0.5 s +

Real Speech (english, male speaker) 11.5 s, Active Speech Level: -22,2 dBV, margin 15.9 dB +

Pause till end of file

Signal level (ch2): -22,2 dBV Active Speech Level, margin 15.9 dB

Signal taken from "IEEE\_269-2010\_Male\_mono\_48\_kHz.wav"

Alteration:

0.2 s Pause added at the beginning of the file.

0.8 s Pause added at the and of the file.

filtered with 8.0 kHz low-pass filter

signal level changed

## Calibration

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))  
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

**HHP IV Settings (Setting: STD:(0,0,0) rel AHP)**

|                |         |                          |       |
|----------------|---------|--------------------------|-------|
| MECRP Delta Ye | 0.0 mm  | Rotation Delta A         | 0.0 ° |
| MECRP Delta Ze | 0.0 mm  | Rotation Delta C         | 0.0 ° |
| Delta Xe       | 0.0 mm  | Rotation Delta B         | 5.0 ° |
| Delta Ye       | 0.0 mm  | Delta A                  | 0.0 ° |
| Delta Ze       | 0.0 mm  | Delta C                  | 0.0 ° |
| Ym             | -1.3 mm | Delta B                  | 0.0 ° |
|                |         | Ear Type 3.3 Coordinates |       |

Mounting: Right Ear  
Force to apply: 2.0 N, Force reached: 2.0 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                  |                               |                     |                 |
|------------------|-------------------------------|---------------------|-----------------|
| Direction        | Out 2 -> In 2                 |                     |                 |
| Range start      | 500.00 ms                     | Range length        | 11500.00 ms     |
| Use FIR Filter   | Ch2                           | FIR filter          | drp2df_ieee1652 |
| DRP/ERP Ch.1:    | Off                           | DRP/ERP Ch.2:       | Off             |
| Frequency base   | 12th octave                   | DIN Row             | Row A           |
| Method           | FFT                           |                     |                 |
| FFT size         | 4096                          | Overlap             | 75 %            |
| Window function. | Hanning                       |                     |                 |
| Reference file   | r521_rcv_frq_spee269_hawb.fft |                     |                 |
| Tol. scheme file | 521_rcv_frq_man_hawb.tol      | Min. freq. for tol. | 100.0 Hz        |
| Auto adjust      | Centrate                      | Max. freq. for tol. | 8000.0 Hz       |

**Special Features**

Compensate delay 203.2000 ms (D\_RCV\_WB, Delay (Cross))

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

**labCORE Routing**

|                  |                                                                          |
|------------------|--------------------------------------------------------------------------|
| Out Channel 1 -> | Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker                      |
| Out Channel 2 -> | Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In                           |
| In Channel 1 <-  | Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out                        |
| In Channel 2 <-  | BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right |

**Analog In Mainboard Settings (Analog In 1/2)**

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

**Analog Out Mainboard Settings (Analog Out 1/2)**

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

**Microphone Settings (Mic Amp. (Slot 6))****Channel In 1 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 2 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 3 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 4 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

BEQ Settings (BEQ Filter 1)  
Block mode      Bypass  
-----

Artificial Head Settings (HATS 1 (HMS II.3))

|          |          |            |          |
|----------|----------|------------|----------|
| Ser. Nr. | 12306613 | Pinna Type | Type 3.3 |
|----------|----------|------------|----------|

**HIB Settings**

|                    |                    |                    |          |
|--------------------|--------------------|--------------------|----------|
| HIB Name           | 60020095           | Serial             | 60020095 |
| HIB Mode           | Mobile Measurement | Impedance          | 32 Ohm   |
| Gain out 1         | -40.00 dB          | Gain out 2         | 0.00 dB  |
| Gain in 1          | 0.00 dB            | Gain in 2          | 0.00 dB  |
| Mic 1 Power Supply | Off                | Mic 2 Power Supply | Off      |

---

## **Measurement Protocol**

|                    |                                                  |
|--------------------|--------------------------------------------------|
| Measurement Object | WIFI 5G_802.11ac-VHT80 MCS0_EVS NB 24.4kbps_CH42 |
| Project            | HMD_2322#N159V                                   |

|                        |                    |
|------------------------|--------------------|
| Project                | TIA-5050 (2018-01) |
| Report Generation Date | 2024/2/6 10:36     |
| Responsible Person     | audio              |

## Status Overview

| SMD                                                         | Status | Single Value Description                  | Single Value | Object                                                 |
|-------------------------------------------------------------|--------|-------------------------------------------|--------------|--------------------------------------------------------|
| Overall Receive Delay NB                                    | Done   | Delay (Cross) [ms]                        | 151.9        | WIFI 5G_802.11ac-VHT80<br>MCS0_EVS NB<br>24.4kbps_CH42 |
| 5.1a Receive Volume Control Performance 8N NB               | Not Ok | Corrected Speech Level [dB[SPL]]          | 17.43        | WIFI 5G_802.11ac-VHT80<br>MCS0_EVS NB<br>24.4kbps_CH42 |
| 5.1b Receive Volume Control Performance 2N NB               | Ok     | Corrected Speech Level [dB[SPL]]          | 12.78        | WIFI 5G_802.11ac-VHT80<br>MCS0_EVS NB<br>24.4kbps_CH42 |
| 5.2 RCV Distortion and Noise - 400 Hz NB                    | Ok     | Distortion (Noise) [dB],<br>0.0 dB        | 28.31        | WIFI 5G_802.11ac-VHT80<br>MCS0_EVS NB<br>24.4kbps_CH42 |
| 5.2 RCV Distortion and Noise - 500 Hz NB                    | Ok     | Distortion (Noise) [dB],<br>0.0 dB        | 29.05        | WIFI 5G_802.11ac-VHT80<br>MCS0_EVS NB<br>24.4kbps_CH42 |
| 5.2 RCV Distortion and Noise - 630 Hz NB                    | Ok     | Distortion (Noise) [dB],<br>0.0 dB        | 30.16        | WIFI 5G_802.11ac-VHT80<br>MCS0_EVS NB<br>24.4kbps_CH42 |
| 5.2 RCV Distortion and Noise - 800 Hz NB                    | Ok     | Distortion (Noise) [dB],<br>0.0 dB        | 28.48        | WIFI 5G_802.11ac-VHT80<br>MCS0_EVS NB<br>24.4kbps_CH42 |
| 5.2 RCV Distortion and Noise - 1000 Hz NB                   | Ok     | Distortion (Noise) [dB],<br>0.0 dB        | 29.36        | WIFI 5G_802.11ac-VHT80<br>MCS0_EVS NB<br>24.4kbps_CH42 |
| 5.2 RCV Distortion and Noise - 1250 Hz NB                   | Ok     | Distortion (Noise) [dB],<br>0.0 dB        | 24.81        | WIFI 5G_802.11ac-VHT80<br>MCS0_EVS NB<br>24.4kbps_CH42 |
| 5.2 RCV Distortion and Noise - 1600 Hz NB                   | Ok     | Distortion (Noise) [dB],<br>0.0 dB        | 27.96        | WIFI 5G_802.11ac-VHT80<br>MCS0_EVS NB<br>24.4kbps_CH42 |
| 5.2 RCV Distortion and Noise - 2000 Hz NB                   | Ok     | Distortion (Noise) [dB],<br>0.0 dB        | 41.85        | WIFI 5G_802.11ac-VHT80<br>MCS0_EVS NB<br>24.4kbps_CH42 |
| 5.2 RCV Distortion and Noise - 2500 Hz NB                   | Ok     | Distortion (Noise) [dB],<br>0.0 dB        | 28.20        | WIFI 5G_802.11ac-VHT80<br>MCS0_EVS NB<br>24.4kbps_CH42 |
| 5.2 RCV Distortion and Noise - 3150 Hz NB                   | Ok     | Distortion (Noise) [dB],<br>0.0 dB        | 33.96        | WIFI 5G_802.11ac-VHT80<br>MCS0_EVS NB<br>24.4kbps_CH42 |
| Report - Receive Distortion and Noise (Conversational Gain) | Ok     | Minimum SDNR [dB],<br>(occured at 1250Hz) | 24.81        | WIFI 5G_802.11ac-VHT80<br>MCS0_EVS NB<br>24.4kbps_CH42 |
| 5.2 RCV Distortion and Noise - 400 Hz NB                    | Ok     | Distortion (Noise) [dB],<br>0.0 dB        | 30.29        | WIFI 5G_802.11ac-VHT80<br>MCS0_EVS NB<br>24.4kbps_CH42 |
| 5.2 RCV Distortion and Noise - 500 Hz NB                    | Ok     | Distortion (Noise) [dB],<br>0.0 dB        | 30.01        | WIFI 5G_802.11ac-VHT80<br>MCS0_EVS NB<br>24.4kbps_CH42 |
| 5.2 RCV Distortion and Noise                                | Ok     | Distortion (Noise) [dB],                  | 32.23        | WIFI 5G_802.11ac-VHT80                                 |

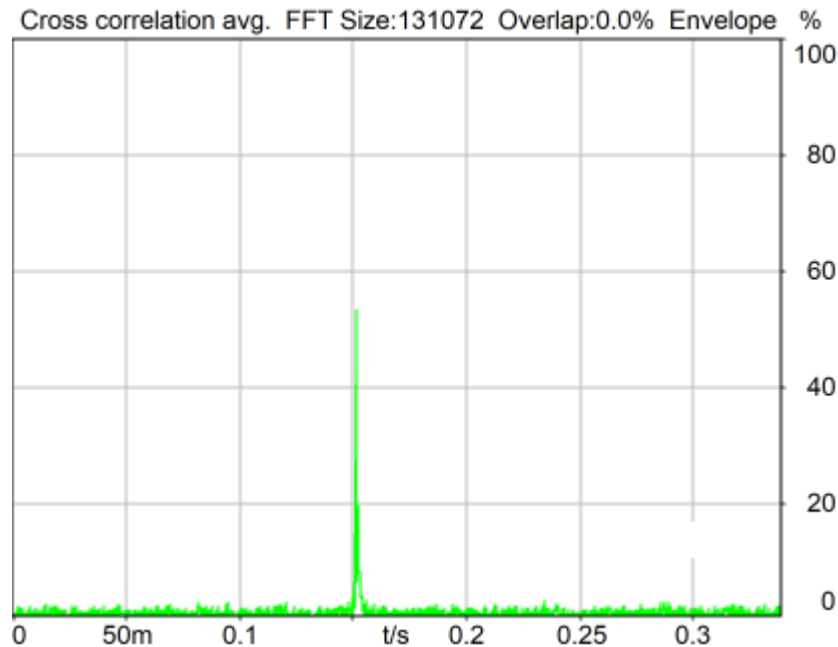
|                                                                   |        |                                                      |       |                                                        |
|-------------------------------------------------------------------|--------|------------------------------------------------------|-------|--------------------------------------------------------|
| - 630 Hz NB                                                       |        | 0.0 dB                                               |       | MCS0_EVS NB<br>24.4kbps_CH42                           |
| 5.2 RCV Distortion and Noise<br>- 800 Hz NB                       | Ok     | Distortion (Noise) [dB],<br>0.0 dB                   | 28.24 | WIFI 5G_802.11ac-VHT80<br>MCS0_EVS NB<br>24.4kbps_CH42 |
| 5.2 RCV Distortion and Noise<br>- 1000 Hz NB                      | Ok     | Distortion (Noise) [dB],<br>0.0 dB                   | 38.96 | WIFI 5G_802.11ac-VHT80<br>MCS0_EVS NB<br>24.4kbps_CH42 |
| 5.2 RCV Distortion and Noise<br>- 1250 Hz NB                      | Ok     | Distortion (Noise) [dB],<br>0.0 dB                   | 21.60 | WIFI 5G_802.11ac-VHT80<br>MCS0_EVS NB<br>24.4kbps_CH42 |
| 5.2 RCV Distortion and Noise<br>- 1600 Hz NB                      | Ok     | Distortion (Noise) [dB],<br>0.0 dB                   | 41.20 | WIFI 5G_802.11ac-VHT80<br>MCS0_EVS NB<br>24.4kbps_CH42 |
| 5.2 RCV Distortion and Noise<br>- 2000 Hz NB                      | Ok     | Distortion (Noise) [dB],<br>0.0 dB                   | 34.70 | WIFI 5G_802.11ac-VHT80<br>MCS0_EVS NB<br>24.4kbps_CH42 |
| 5.2 RCV Distortion and Noise<br>- 2500 Hz NB                      | Ok     | Distortion (Noise) [dB],<br>0.0 dB                   | 33.47 | WIFI 5G_802.11ac-VHT80<br>MCS0_EVS NB<br>24.4kbps_CH42 |
| 5.2 RCV Distortion and Noise<br>- 3150 Hz NB                      | Ok     | Distortion (Noise) [dB],<br>0.0 dB                   | 28.44 | WIFI 5G_802.11ac-VHT80<br>MCS0_EVS NB<br>24.4kbps_CH42 |
| Report - Receive Distortion<br>and Noise (Conversational<br>Gain) | Ok     | Minimum SDNR [dB],<br>(occured at 1250Hz)            | 21.60 | WIFI 5G_802.11ac-VHT80<br>MCS0_EVS NB<br>24.4kbps_CH42 |
| 5.3 Frequency Response 8N<br>FF HANB                              | Ok     | Min. dist. to tolerance<br>scheme [dB], 1547.5<br>Hz | 0.26  | WIFI 5G_802.11ac-VHT80<br>MCS0_EVS NB<br>24.4kbps_CH42 |
| 5.3 Frequency Response 2N<br>FF HANB                              | Ok     | Min. dist. to tolerance<br>scheme [dB], 1285.9<br>Hz | 0.26  | WIFI 5G_802.11ac-VHT80<br>MCS0_EVS NB<br>24.4kbps_CH42 |
| 5.3 Frequency Response 2N<br>DF HANB                              | Not Ok | Min. dist. to tolerance<br>scheme [dB], 3058.6<br>Hz | -0.08 | WIFI 5G_802.11ac-VHT80<br>MCS0_EVS NB<br>24.4kbps_CH42 |

---

|                                                             |    |
|-------------------------------------------------------------|----|
| Overall Receive Delay NB                                    | 5  |
| 5.1a Receive Volume Control Performance 8N NB               | 7  |
| 5.1b Receive Volume Control Performance 2N NB               | 9  |
| 5.2 RCV Distortion and Noise - 400 Hz NB                    | 11 |
| 5.2 RCV Distortion and Noise - 500 Hz NB                    | 13 |
| 5.2 RCV Distortion and Noise - 630 Hz NB                    | 15 |
| 5.2 RCV Distortion and Noise - 800 Hz NB                    | 17 |
| 5.2 RCV Distortion and Noise - 1000 Hz NB                   | 20 |
| 5.2 RCV Distortion and Noise - 1250 Hz NB                   | 22 |
| 5.2 RCV Distortion and Noise - 1600 Hz NB                   | 24 |
| 5.2 RCV Distortion and Noise - 2000 Hz NB                   | 26 |
| 5.2 RCV Distortion and Noise - 2500 Hz NB                   | 28 |
| 5.2 RCV Distortion and Noise - 3150 Hz NB                   | 30 |
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| 5.2 RCV Distortion and Noise - 400 Hz NB                    | 33 |
| 5.2 RCV Distortion and Noise - 500 Hz NB                    | 36 |
| 5.2 RCV Distortion and Noise - 630 Hz NB                    | 38 |
| 5.2 RCV Distortion and Noise - 800 Hz NB                    | 40 |
| 5.2 RCV Distortion and Noise - 1000 Hz NB                   | 42 |
| 5.2 RCV Distortion and Noise - 1250 Hz NB                   | 44 |
| 5.2 RCV Distortion and Noise - 1600 Hz NB                   | 46 |
| 5.2 RCV Distortion and Noise - 2000 Hz NB                   | 49 |
| 5.2 RCV Distortion and Noise - 2500 Hz NB                   | 51 |
| 5.2 RCV Distortion and Noise - 3150 Hz NB                   | 53 |
| Report - Receive Distortion and Noise (Conversational Gain) | 55 |
| 5.3 Frequency Response 8N FF HANB                           | 55 |
| 5.3 Frequency Response 2N FF HANB                           | 58 |
| 5.3 Frequency Response 2N DF HANB                           | 60 |

## Overall Receive Delay NB

TIA-5050 (2018-01) \ Measurements \ Narrowband \ Preparation - Delay measurement



Delay (Cross): 151.9 ms

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Unmodified HEAD acoustics Measurement Descriptor

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)

Database Version: 40\_HAC\_Suite\_Rev03

### **Source: cssnb1b\_r1s.dat**

Level adj. Ch1 -90.0 dB

CSSnb1b\_R1s.dat - CS-signal with special 1s random noise

NARROWBAND Composite Source Signal RCV P.501 (1 burst) at Channel 2

Pause 0.5 s +

voiced signal + 4000 Hz band limited random noise 1.0 s +

Pause till end of file

Signal level (ch2): -14.7 dBm0 (corresponds to approx. -16.0 dBm0 for a 350 ms CSS considering 101 ms Pause) from 0.5s to 1.544s for 4-k FFT, Hanning window,

75 % overlap in frequency range of 100 to 4000 Hz

### **Calibration**

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))

Output ch.1: 0.00 dB

Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

**HHP IV Settings (Setting: STD:(0,0,0) rel AHP)**

|                          |         |                  |       |
|--------------------------|---------|------------------|-------|
| MECRP Delta Ye           | 0.0 mm  | Rotation Delta A | 0.0 ° |
| MECRP Delta Ze           | 0.0 mm  | Rotation Delta C | 0.0 ° |
| Delta Xe                 | 0.0 mm  | Rotation Delta B | 5.0 ° |
| Delta Ye                 | 0.0 mm  | Delta A          | 0.0 ° |
| Delta Ze                 | 0.0 mm  | Delta C          | 0.0 ° |
| Ym                       | -4.1 mm | Delta B          | 0.0 ° |
| Ear Type 3.3 Coordinates |         |                  |       |

Mounting: Right Ear

Force to apply: 8.0 N, Force reached: 8.0 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                   |                |                 |            |
|-------------------|----------------|-----------------|------------|
| Range start       | 550.00 ms      | Range length    | 1950.00 ms |
| DRP/ERP Ch.1:     | Off            | DRP/ERP Ch.2:   | Off        |
| Frequency base    | Transformation |                 |            |
| FFT size          | 131072         | Overlap         | 0 %        |
| Window function.  | Hanning        | Smooth          | Off        |
| Delayed channel   | None           |                 |            |
| Valid range start | -1228.79 ms    | Valid range end | 1228.81 ms |

**Special Features**

Show source signal Source ch.2 Store to variable D\_RCV\_NB

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

**labCORE Routing**

Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker  
Out Channel 2 -> Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In  
In Channel 1 <- Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out  
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

**Analog In Mainboard Settings (Analog In 1/2)**

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

**Analog Out Mainboard Settings (Analog Out 1/2)**

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

**Microphone Settings (Mic Amp. (Slot 6))****Channel In 1 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 2 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 3 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 4 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**BEQ Settings (BEQ Filter 1)**

Block mode Bypass

**Artificial Head Settings (HATS 1 (HMS II.3))**

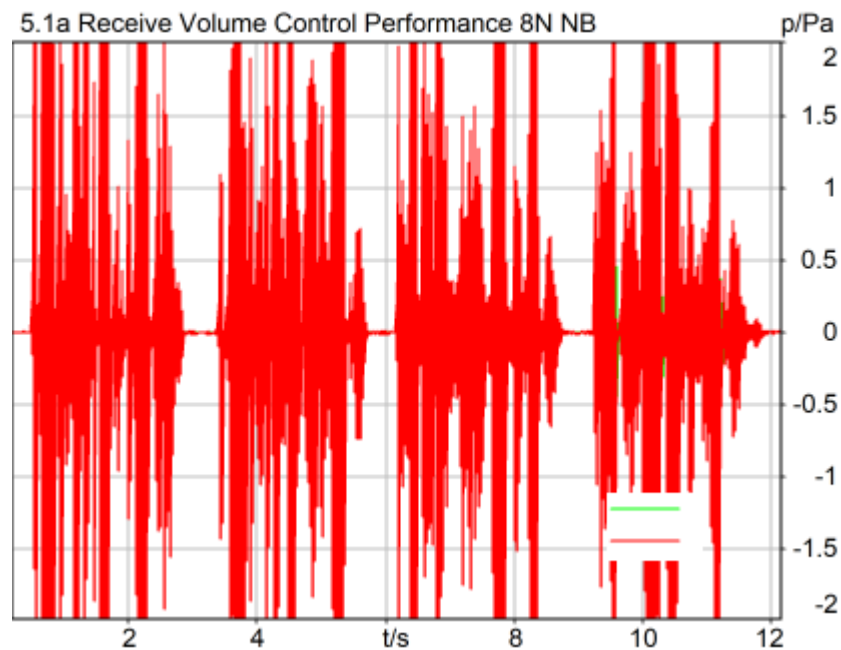
|          |          |            |          |
|----------|----------|------------|----------|
| Ser. Nr. | 12306613 | Pinna Type | Type 3.3 |
|----------|----------|------------|----------|

**HIB Settings**

|                    |                    |                    |          |
|--------------------|--------------------|--------------------|----------|
| HIB Name           | 60020095           | Serial             | 60020095 |
| HIB Mode           | Mobile Measurement | Impedance          | 32 Ohm   |
| Gain out 1         | -40.00 dB          | Gain out 2         | 0.00 dB  |
| Gain in 1          | 0.00 dB            | Gain in 2          | 0.00 dB  |
| Mic 1 Power Supply | Off                | Mic 2 Power Supply | Off      |

## 5.1a Receive Volume Control Performance 8N NB

TIA-5050 (2018-01) \ Measurements \ Narrowband



### Correction

X - 70

Speech Level RCV: 87.43 dB[SPL], Act.: 84.22%

Corrected Speech Level: 17.43 dB[SPL] Not Ok

### Not Ok

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### Limits

|       | lower         |
|-------|---------------|
| Run 1 | 18.00 dB20uPa |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)

Database Version: 40\_HAC\_Suite\_Rev03

**Calibration**

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))

Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

**HHP IV Settings (Setting: STD:(0,0,0) rel AHP)**

|                |         |                          |       |
|----------------|---------|--------------------------|-------|
| MECRP Delta Ye | 0.0 mm  | Rotation Delta A         | 0.0 ° |
| MECRP Delta Ze | 0.0 mm  | Rotation Delta C         | 0.0 ° |
| Delta Xe       | 0.0 mm  | Rotation Delta B         | 5.0 ° |
| Delta Ye       | 0.0 mm  | Delta A                  | 0.0 ° |
| Delta Ze       | 0.0 mm  | Delta C                  | 0.0 ° |
| Ym             | -4.1 mm | Delta B                  | 0.0 ° |
|                |         | Ear Type 3.3 Coordinates |       |

Mounting: Right Ear

Force to apply: 8.0 N, Force reached: 8.0 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                 |               |                     |                 |
|-----------------|---------------|---------------------|-----------------|
| Direction       | Out 2 -> In 2 |                     |                 |
| Range start     | 200.00 ms     | Range length        | 12000.00 ms     |
| Use FIR Filter  | Ch2           | FIR filter          | drp2ff_ieee1652 |
| Bandpass filter | Narrow Band   | Margin (15.9dB nom) |                 |
| 15.90 dB        |               |                     |                 |

**Special Features**

Show source signal Source ch.2

Compensate delay 151.9000 ms (D\_RCV\_NB, Delay (Cross))

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

**labCORE Routing**

|                  |                                                                          |
|------------------|--------------------------------------------------------------------------|
| Out Channel 1 -> | Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker                      |
| Out Channel 2 -> | Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In                           |
| In Channel 1 <-  | Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out                        |
| In Channel 2 <-  | BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right |

**Analog In Mainboard Settings (Analog In 1/2)**

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

**Analog Out Mainboard Settings (Analog Out 1/2)**

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

**Microphone Settings (Mic Amp. (Slot 6))****Channel In 1 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 2 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 3 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 4 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**BEQ Settings (BEQ Filter 1)**

Block mode Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

Ser. Nr. 12306613

Pinna Type

Type 3.3

#### HIB Settings

HIB Name 60020095

Serial

60020095

HIB Mode Mobile Measurement

Impedance

32 Ohm

Gain out 1 -40.00 dB

Gain out 2

0.00 dB

Gain in 1 0.00 dB

Gain in 2

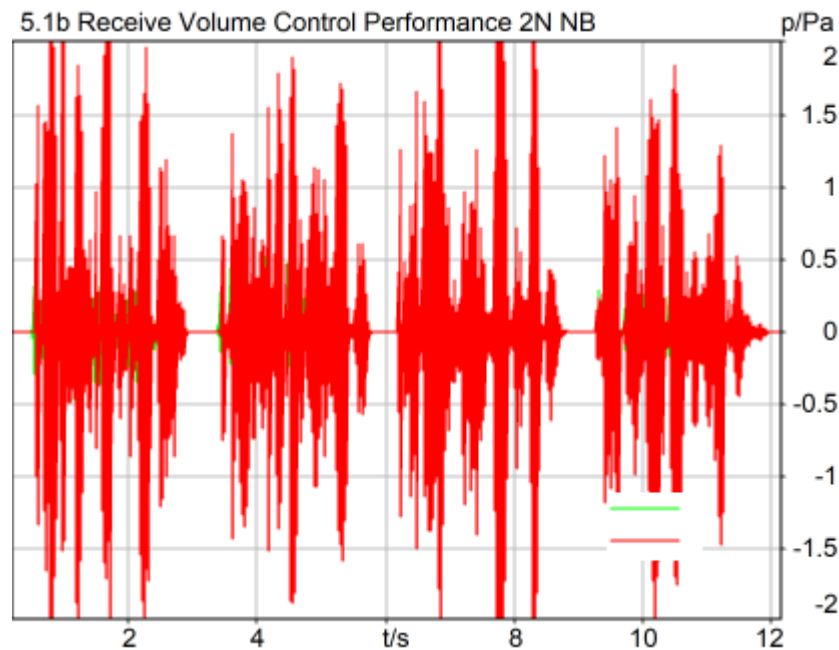
0.00 dB

Mic 1 Power Supply Off

Mic 2 Power Supply Off

## 5.1b Receive Volume Control Performance 2N NB

TIA-5050 (2018-01) \ Measurements \ Narrowband



### Correction

X - 70

Speech Level RCV: 82.78 dB[SPL], Act.: 83.87%

Corrected Speech Level: 12.78 dB[SPL] Ok

Ok

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#### Limits

|       |              |
|-------|--------------|
|       | lower        |
| Run 1 | 6.00 dB20uPa |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)  
Database Version: 40\_HAC\_Suite\_Rev03

**Calibration**

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))  
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

**HHP IV Settings (Setting: STD:(0,0,0) rel AHP)**

|                |         |                          |       |
|----------------|---------|--------------------------|-------|
| MECRP Delta Ye | 0.0 mm  | Rotation Delta A         | 0.0 ° |
| MECRP Delta Ze | 0.0 mm  | Rotation Delta C         | 0.0 ° |
| Delta Xe       | 0.0 mm  | Rotation Delta B         | 5.0 ° |
| Delta Ye       | 0.0 mm  | Delta A                  | 0.0 ° |
| Delta Ze       | 0.0 mm  | Delta C                  | 0.0 ° |
| Ym             | -0.6 mm | Delta B                  | 0.0 ° |
|                |         | Ear Type 3.3 Coordinates |       |

Mounting: Right Ear  
Force to apply: 2.0 N, Force reached: 2.0 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                 |               |                     |                 |
|-----------------|---------------|---------------------|-----------------|
| Direction       | Out 2 -> In 2 |                     |                 |
| Range start     | 200.00 ms     | Range length        | 12000.00 ms     |
| Use FIR Filter  | Ch2           | FIR filter          | drp2ff_ieee1652 |
| Bandpass filter | Narrow Band   | Margin (15.9dB nom) |                 |
| 15.90 dB        |               |                     |                 |

**Special Features**

Show source signal Source ch.2  
Compensate delay 151.9000 ms (D\_RCV\_NB, Delay (Cross))

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

**labCORE Routing**

Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker  
Out Channel 2 -> Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In  
In Channel 1 <- Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out  
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

**Analog In Mainboard Settings (Analog In 1/2)**

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

**Analog Out Mainboard Settings (Analog Out 1/2)**

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

**Microphone Settings (Mic Amp. (Slot 6))****Channel In 1 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 2 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 3 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 4 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

-----  
BEQ Settings (BEQ Filter 1)  
Block mode Bypass  
-----

Artificial Head Settings (HATS 1 (HMS II.3))

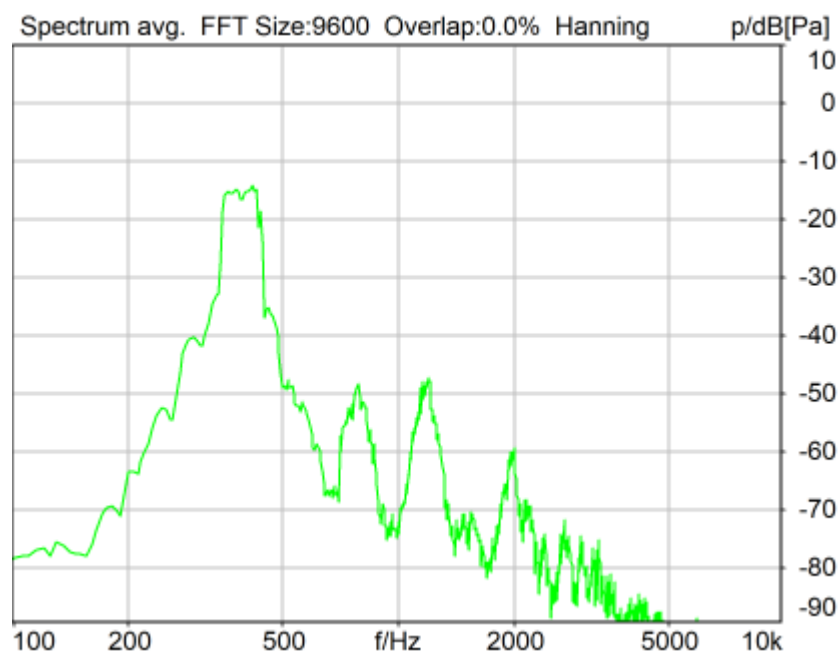
Ser. Nr. 12306613 Pinna Type Type 3.3

#### HIB Settings

|                        |                    |                        |          |
|------------------------|--------------------|------------------------|----------|
| HIB Name               | 60020095           | Serial                 | 60020095 |
| HIB Mode               | Mobile Measurement | Impedance              | 32 Ohm   |
| Gain out 1             | -40.00 dB          | Gain out 2             | 0.00 dB  |
| Gain in 1              | 0.00 dB            | Gain in 2              | 0.00 dB  |
| Mic 1 Power Supply Off |                    | Mic 2 Power Supply Off |          |

## 5.2 RCV Distortion and Noise - 400 Hz NB

TIA-5050 (2018-01) \ Measurements \ Narrowband \ 5.2 Receive Distortion and Noise 8N



Distortion (Noise) RCV (packed): 28.31 dB (3.84%) Ok

Ok

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Unmodified HEAD acoustics Measurement Descriptor

#### Limits

|       |          |
|-------|----------|
|       | lower    |
| Run 1 | 20.00 dB |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)

Database Version: 40\_HAC\_Suite\_Rev03

Source: act\_rpn\_b250ms\_400hz\_sr20dbm0\_v02.dat

Level adj. Ch1 -90.0 dB

**Calibration**

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))

Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

**HHP IV Settings (Setting: STD:(0,0,0) rel AHP)**

|                          |         |                  |       |
|--------------------------|---------|------------------|-------|
| MECRP Delta Ye           | 0.0 mm  | Rotation Delta A | 0.0 ° |
| MECRP Delta Ze           | 0.0 mm  | Rotation Delta C | 0.0 ° |
| Delta Xe                 | 0.0 mm  | Rotation Delta B | 5.0 ° |
| Delta Ye                 | 0.0 mm  | Delta A          | 0.0 ° |
| Delta Ze                 | 0.0 mm  | Delta C          | 0.0 ° |
| Ym                       | -4.1 mm | Delta B          | 0.0 ° |
| Ear Type 3.3 Coordinates |         |                  |       |

Mounting: Right Ear

Force to apply: 8.0 N, Force reached: 8.0 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                   |                |                   |                 |
|-------------------|----------------|-------------------|-----------------|
| Direction         | Out 2 -> In 2  |                   |                 |
| Range start       | 13550.00 ms    | Range length      | 200.00 ms       |
| Number of seq.    | 10             | Sequence length   | 400.00 ms       |
| Use FIR Filter    | Ch2            | FIR filter        | drp2ff_ieee1652 |
| DRP/ERP Ch.1:     | Off            | DRP/ERP Ch.2:     | Off             |
| Frequency base    | Transformation |                   |                 |
| FFT size          | 9600           | Overlap           | 0 %             |
| Window function.  | Hanning        | Smooth            | Off             |
| dB weighting      | A Weighting    |                   |                 |
| Stimulus min.     | 320.0 Hz       | Stimulus max.     | 480.0 Hz        |
| Analysis min.     | 20.0 Hz        | Analysis max.     | 315.0 Hz        |
| Analysis (2) min. | 485.0 Hz       | Analysis (2) max. | 20000.0 Hz      |

**Special Features**

Compensate delay 151.9000 ms (D\_RCV\_NB, Delay (Cross))

Store to variable RCVNB10\_400Hz

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

**labCORE Routing**

|                  |                                                                          |
|------------------|--------------------------------------------------------------------------|
| Out Channel 1 -> | Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker                      |
| Out Channel 2 -> | Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In                           |
| In Channel 1 <=  | Analog In 1/2 In 1 <= Radio Tester 1 (CMW500) Out                        |
| In Channel 2 <=  | BEQ Filter 1 R <= Mic Amp. (Slot 6) In 2 <= HATS 1 (HMS II.3) Mic. Right |

**Analog In Mainboard Settings (Analog In 1/2)**

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

**Analog Out Mainboard Settings (Analog Out 1/2)**

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

**Microphone Settings (Mic Amp. (Slot 6))****Channel In 1 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 2 Settings**

|                       |                          |                |      |
|-----------------------|--------------------------|----------------|------|
| Range                 | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage  | 200V                     | Supply Voltage | ±60V |
| Channel In 3 Settings |                          |                |      |
| Range                 | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage  | 200V                     | Supply Voltage | ±60V |
| Channel In 4 Settings |                          |                |      |
| Range                 | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage  | 200V                     | Supply Voltage | ±60V |

-----  
BEQ Settings (BEQ Filter 1)  
Block mode        Bypass  
-----

Artificial Head Settings (HATS 1 (HMS II.3))

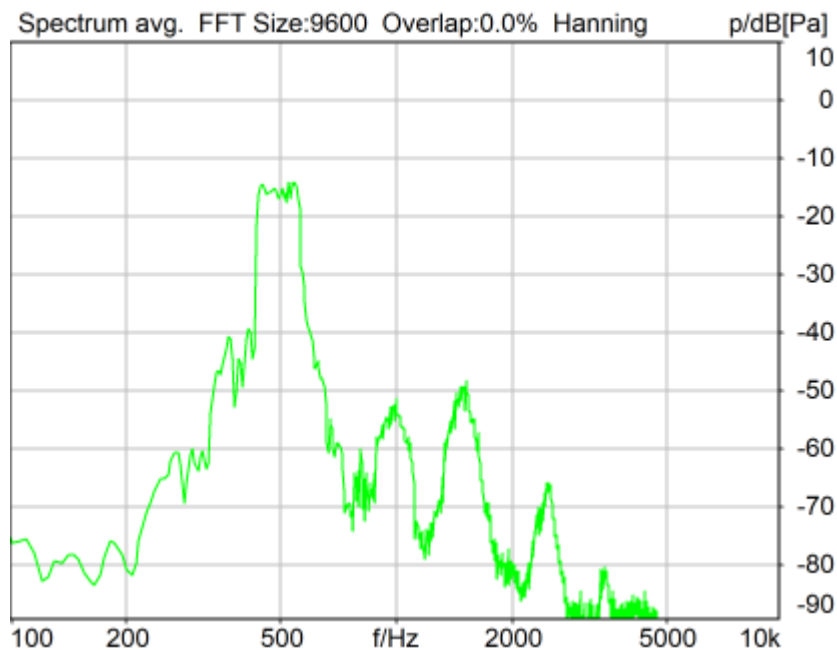
|          |          |            |          |
|----------|----------|------------|----------|
| Ser. Nr. | 12306613 | Pinna Type | Type 3.3 |
|----------|----------|------------|----------|

#### HIB Settings

|                    |                    |                    |          |
|--------------------|--------------------|--------------------|----------|
| HIB Name           | 60020095           | Serial             | 60020095 |
| HIB Mode           | Mobile Measurement | Impedance          | 32 Ohm   |
| Gain out 1         | -40.00 dB          | Gain out 2         | 0.00 dB  |
| Gain in 1          | 0.00 dB            | Gain in 2          | 0.00 dB  |
| Mic 1 Power Supply | Off                | Mic 2 Power Supply | Off      |

## 5.2 RCV Distortion and Noise - 500 Hz NB

TIA-5050 (2018-01) \ Measurements \ Narrowband \ 5.2 Receive Distortion and Noise 8N



Distortion (Noise) RCV (packed): 29.05 dB (3.53%) Ok

**Ok**

2024/1/20 10:17 ACQUA 5.1.200

Unmodified HEAD acoustics Measurement Descriptor

**Limits**

|       | lower    |
|-------|----------|
| Run 1 | 20.00 dB |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)  
Database Version: 40\_HAC\_Suite\_Rev03**Source:** act\_rpn\_b250ms\_500hz\_sr20dbm0\_v02.dat

Level adj. Ch1 -90.0 dB

**Calibration**

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))

Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

**HHP IV Settings (Setting: STD:(0,0,0) rel AHP)**

|                          |         |                  |       |
|--------------------------|---------|------------------|-------|
| MECRP Delta Ye           | 0.0 mm  | Rotation Delta A | 0.0 ° |
| MECRP Delta Ze           | 0.0 mm  | Rotation Delta C | 0.0 ° |
| Delta Xe                 | 0.0 mm  | Rotation Delta B | 5.0 ° |
| Delta Ye                 | 0.0 mm  | Delta A          | 0.0 ° |
| Delta Ze                 | 0.0 mm  | Delta C          | 0.0 ° |
| Ym                       | -4.1 mm | Delta B          | 0.0 ° |
| Ear Type 3.3 Coordinates |         |                  |       |

Mounting: Right Ear

Force to apply: 8.0 N, Force reached: 8.0 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                   |                |                   |                 |
|-------------------|----------------|-------------------|-----------------|
| Direction         | Out 2 -> In 2  |                   |                 |
| Range start       | 13550.00 ms    | Range length      | 200.00 ms       |
| Number of seq.    | 10             | Sequence length   | 400.00 ms       |
| Use FIR Filter    | Ch2            | FIR filter        | drp2ff_ieee1652 |
| DRP/ERP Ch.1:     | Off            | DRP/ERP Ch.2:     | Off             |
| Frequency base    | Transformation |                   |                 |
| FFT size          | 9600           | Overlap           | 0 %             |
| Window function.  | Hanning        | Smooth            | Off             |
| dB weighting      | A Weighting    |                   |                 |
| Stimulus min.     | 410.0 Hz       | Stimulus max.     | 595.0 Hz        |
| Analysis min.     | 20.0 Hz        | Analysis max.     | 405.0 Hz        |
| Analysis (2) min. | 600.0 Hz       | Analysis (2) max. | 20000.0 Hz      |

**Special Features**

Compensate delay 151.9000 ms (D\_RCV\_NB, Delay (Cross))

Store to variable RCVNB10\_500Hz

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

**labCORE Routing**

|                  |                                                                          |
|------------------|--------------------------------------------------------------------------|
| Out Channel 1 -> | Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker                      |
| Out Channel 2 -> | Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In                           |
| In Channel 1 <-  | Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out                        |
| In Channel 2 <-  | BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right |

**Analogue In Mainboard Settings (Analog In 1/2)**

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

## Analog Out Mainboard Settings (Analog Out 1/2)

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

-----  
Microphone Settings (Mic Amp. (Slot 6))

## Channel In 1 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

## Channel In 2 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

## Channel In 3 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

## Channel In 4 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

-----  
BEQ Settings (BEQ Filter 1)

|            |        |
|------------|--------|
| Block mode | Bypass |
|------------|--------|

-----  
Artificial Head Settings (HATS 1 (HMS II.3))

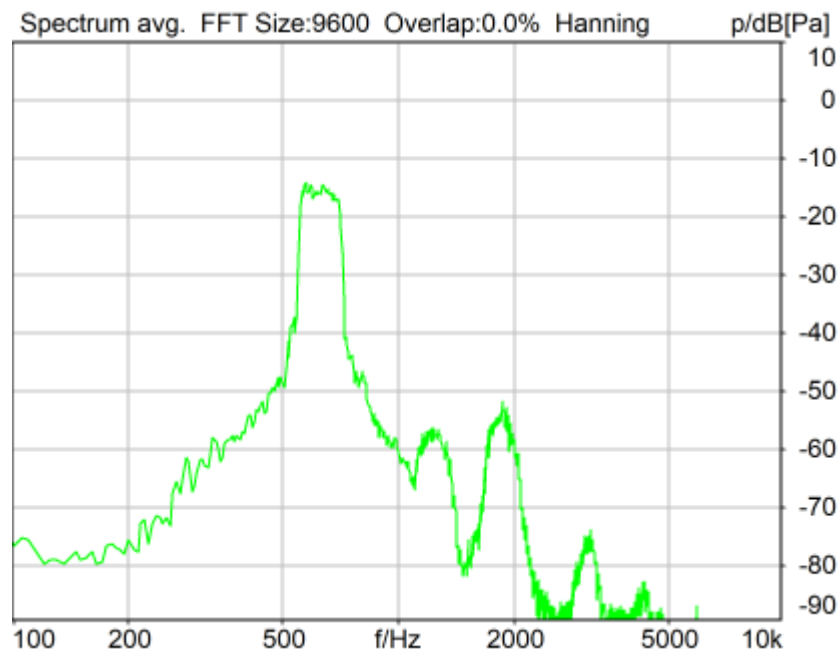
|          |          |            |          |
|----------|----------|------------|----------|
| Ser. Nr. | 12306613 | Pinna Type | Type 3.3 |
|----------|----------|------------|----------|

**HIB Settings**

|                    |                    |                    |          |
|--------------------|--------------------|--------------------|----------|
| HIB Name           | 60020095           | Serial             | 60020095 |
| HIB Mode           | Mobile Measurement | Impedance          | 32 Ohm   |
| Gain out 1         | -40.00 dB          | Gain out 2         | 0.00 dB  |
| Gain in 1          | 0.00 dB            | Gain in 2          | 0.00 dB  |
| Mic 1 Power Supply | Off                | Mic 2 Power Supply | Off      |

## 5.2 RCV Distortion and Noise - 630 Hz NB

TIA-5050 (2018-01) \ Measurements \ Narrowband \ 5.2 Receive Distortion and Noise 8N



Distortion (Noise) RCV (packed): 30.16 dB (3.10%) Ok

**Ok**

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Unmodified HEAD acoustics Measurement Descriptor

**Limits**

|       | lower    |
|-------|----------|
| Run 1 | 20.00 dB |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)

Database Version: 40\_HAC\_Suite\_Rev03

**Source: act\_rpn\_b250ms\_630hz\_sr20dbm0\_v02.dat**

Level adj. Ch1 -90.0 dB

**Calibration**

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))

Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

**HHP IV Settings (Setting: STD:(0,0,0) rel AHP)**

|                |         |                          |       |
|----------------|---------|--------------------------|-------|
| MECRP Delta Ye | 0.0 mm  | Rotation Delta A         | 0.0 ° |
| MECRP Delta Ze | 0.0 mm  | Rotation Delta C         | 0.0 ° |
| Delta Xe       | 0.0 mm  | Rotation Delta B         | 5.0 ° |
| Delta Ye       | 0.0 mm  | Delta A                  | 0.0 ° |
| Delta Ze       | 0.0 mm  | Delta C                  | 0.0 ° |
| Ym             | -4.1 mm | Delta B                  | 0.0 ° |
|                |         | Ear Type 3.3 Coordinates |       |

Mounting: Right Ear

Force to apply: 8.0 N, Force reached: 8.0 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                   |                |                   |                 |
|-------------------|----------------|-------------------|-----------------|
| Direction         | Out 2 -> In 2  |                   |                 |
| Range start       | 13550.00 ms    | Range length      | 200.00 ms       |
| Number of seq.    | 10             | Sequence length   | 400.00 ms       |
| Use FIR Filter    | Ch2            | FIR filter        | drp2ff_ieee1652 |
| DRP/ERP Ch.1:     | Off            | DRP/ERP Ch.2:     | Off             |
| Frequency base    | Transformation |                   |                 |
| FFT size          | 9600           | Overlap           | 0 %             |
| Window function.  | Hanning        | Smooth            | Off             |
| dB weighting      | A Weighting    |                   |                 |
| Stimulus min.     | 525.0 Hz       | Stimulus max.     | 745.0 Hz        |
| Analysis min.     | 20.0 Hz        | Analysis max.     | 520.0 Hz        |
| Analysis (2) min. | 750.0 Hz       | Analysis (2) max. | 20000.0 Hz      |

**Special Features**

Compensate delay 151.9000 ms (D\_RCV\_NB, Delay (Cross))

Store to variable RCVNB10\_630Hz

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

labCORE Routing

Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker  
Out Channel 2 -> Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In  
In Channel 1 <- Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out  
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

-----  
Analog In Mainboard Settings (Analog In 1/2)

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

-----  
Analog Out Mainboard Settings (Analog Out 1/2)

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

-----  
Microphone Settings (Mic Amp. (Slot 6))

## Channel In 1 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

## Channel In 2 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

## Channel In 3 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

## Channel In 4 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

-----  
BEQ Settings (BEQ Filter 1)

|            |        |
|------------|--------|
| Block mode | Bypass |
|------------|--------|

-----  
Artificial Head Settings (HATS 1 (HMS II.3))

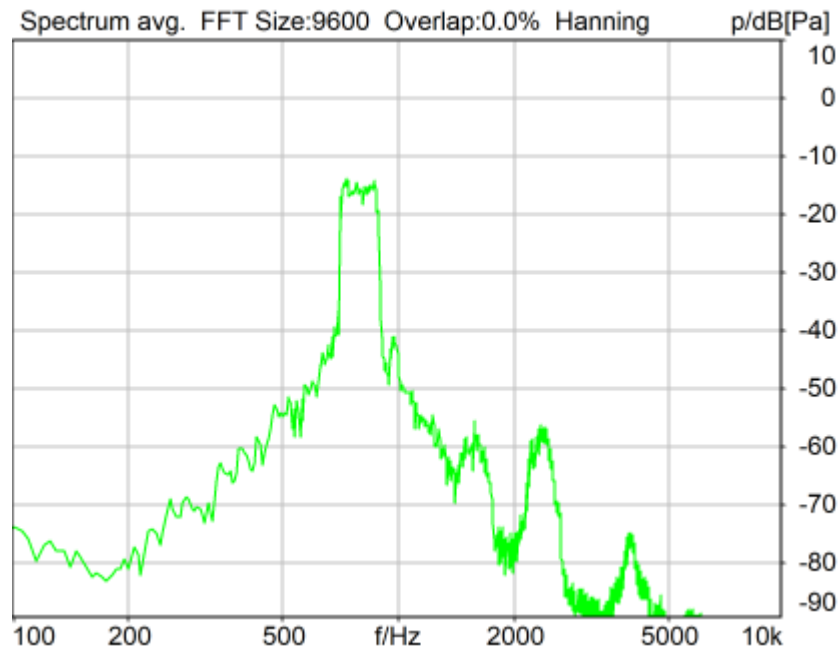
|          |          |            |          |
|----------|----------|------------|----------|
| Ser. Nr. | 12306613 | Pinna Type | Type 3.3 |
|----------|----------|------------|----------|

**HIB Settings**

|                    |                    |                    |          |
|--------------------|--------------------|--------------------|----------|
| HIB Name           | 60020095           | Serial             | 60020095 |
| HIB Mode           | Mobile Measurement | Impedance          | 32 Ohm   |
| Gain out 1         | -40.00 dB          | Gain out 2         | 0.00 dB  |
| Gain in 1          | 0.00 dB            | Gain in 2          | 0.00 dB  |
| Mic 1 Power Supply | Off                | Mic 2 Power Supply | Off      |

## **5.2 RCV Distortion and Noise - 800 Hz NB**

TIA-5050 (2018-01) \ Measurements \ Narrowband \ 5.2 Receive Distortion and Noise 8N



Distortion (Noise) RCV (packed): 28.48 dB (3.77%) Ok

**Ok**

2024/1/20 10:18 ACQUA 5.1.200

Unmodified HEAD acoustics Measurement Descriptor

#### Limits

|       | lower    |
|-------|----------|
| Run 1 | 20.00 dB |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)

Database Version: 40\_HAC\_Suite\_Rev03

**Source:** act\_rpn\_b250ms\_800hz\_sr20dbm0\_v02.dat

Level adj. Ch1 -90.0 dB

#### Calibration

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))

Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

#### HHP IV Settings (Setting: STD:(0,0,0) rel AHP)

|                |         |                          |       |
|----------------|---------|--------------------------|-------|
| MECRP Delta Ye | 0.0 mm  | Rotation Delta A         | 0.0 ° |
| MECRP Delta Ze | 0.0 mm  | Rotation Delta C         | 0.0 ° |
| Delta Xe       | 0.0 mm  | Rotation Delta B         | 5.0 ° |
| Delta Ye       | 0.0 mm  | Delta A                  | 0.0 ° |
| Delta Ze       | 0.0 mm  | Delta C                  | 0.0 ° |
| Ym             | -4.1 mm | Delta B                  | 0.0 ° |
|                |         | Ear Type 3.3 Coordinates |       |

Mounting: Right Ear

Force to apply: 8.0 N, Force reached: 8.0 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                   |                |                   |                 |
|-------------------|----------------|-------------------|-----------------|
| Direction         | Out 2 -> In 2  |                   |                 |
| Range start       | 13550.00 ms    | Range length      | 200.00 ms       |
| Number of seq.    | 10             | Sequence length   | 400.00 ms       |
| Use FIR Filter    | Ch2            | FIR filter        | drp2ff_ieee1652 |
| DRP/ERP Ch.1:     | Off            | DRP/ERP Ch.2:     | Off             |
| Frequency base    | Transformation |                   |                 |
| FFT size          | 9600           | Overlap           | 0 %             |
| Window function.  | Hanning        | Smooth            | Off             |
| dB weighting      | A Weighting    |                   |                 |
| Stimulus min.     | 675.0 Hz       | Stimulus max.     | 925.0 Hz        |
| Analysis min.     | 20.0 Hz        | Analysis max.     | 670.0 Hz        |
| Analysis (2) min. | 930.0 Hz       | Analysis (2) max. | 20000.0 Hz      |

**Special Features**

Compensate delay 151.9000 ms (D\_RCV\_NB, Delay (Cross))  
Store to variable RCVNB10\_800Hz

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

**labCORE Routing**

Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker  
Out Channel 2 -> Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In  
In Channel 1 <- Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out  
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

**Analog In Mainboard Settings (Analog In 1/2)**

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

**Analog Out Mainboard Settings (Analog Out 1/2)**

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

**Microphone Settings (Mic Amp. (Slot 6))****Channel In 1 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 2 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 3 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 4 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**BEQ Settings (BEQ Filter 1)**

Block mode Bypass

**Artificial Head Settings (HATS 1 (HMS II.3))**

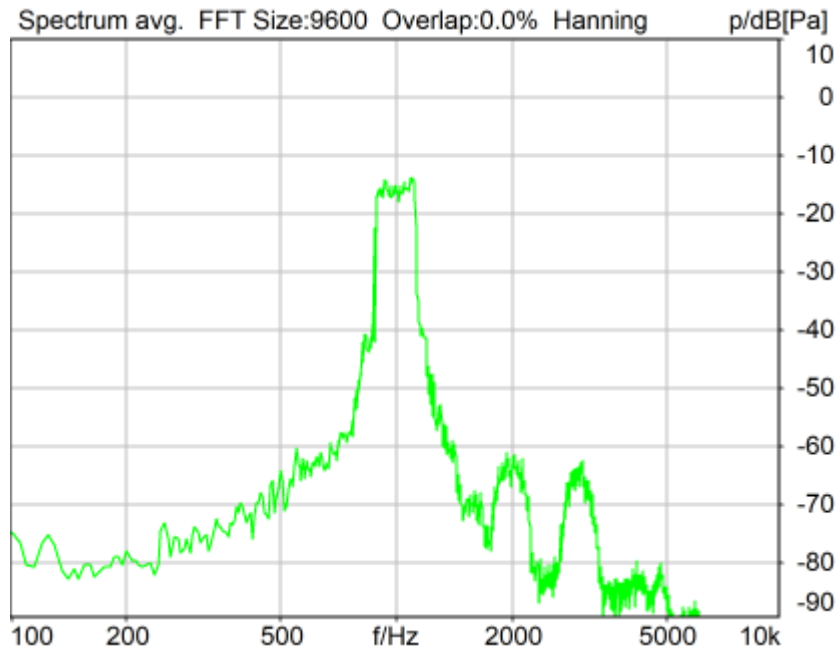
|          |          |            |          |
|----------|----------|------------|----------|
| Ser. Nr. | 12306613 | Pinna Type | Type 3.3 |
|----------|----------|------------|----------|

**HIB Settings**

|                    |                    |                    |          |
|--------------------|--------------------|--------------------|----------|
| HIB Name           | 60020095           | Serial             | 60020095 |
| HIB Mode           | Mobile Measurement | Impedance          | 32 Ohm   |
| Gain out 1         | -40.00 dB          | Gain out 2         | 0.00 dB  |
| Gain in 1          | 0.00 dB            | Gain in 2          | 0.00 dB  |
| Mic 1 Power Supply | Off                | Mic 2 Power Supply | Off      |

## 5.2 RCV Distortion and Noise - 1000 Hz NB

TIA-5050 (2018-01) \ Measurements \ Narrowband \ 5.2 Receive Distortion and Noise 8N



Distortion (Noise) RCV (packed): 29.36 dB (3.40%) Ok

Ok

2024/1/20 10:18 ACQUA 5.1.200

Unmodified HEAD acoustics Measurement Descriptor

### Limits

|       | lower    |
|-------|----------|
| Run 1 | 20.00 dB |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)

Database Version: 40\_HAC\_Suite\_Rev03

Source: act\_rpn\_b250ms\_1000hz\_sr20dbm0\_v02.dat

Level adj. Ch1 -90.0 dB

### Calibration

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))

Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

HHP IV Settings (Setting: STD:(0,0,0) rel AHP)

|                |        |                  |       |
|----------------|--------|------------------|-------|
| MECRP Delta Ye | 0.0 mm | Rotation Delta A | 0.0 ° |
|                |        | Rotation Delta C | 0.0 ° |

|                |         |                          |       |
|----------------|---------|--------------------------|-------|
| MECRP Delta Ze | 0.0 mm  | Rotation Delta B         | 5.0 ° |
| Delta Xe       | 0.0 mm  | Delta A                  | 0.0 ° |
| Delta Ye       | 0.0 mm  | Delta C                  | 0.0 ° |
| Delta Ze       | 0.0 mm  | Delta B                  | 0.0 ° |
| Ym             | -4.1 mm | Ear Type 3.3 Coordinates |       |

Mounting: Right Ear  
Force to apply: 8.0 N, Force reached: 8.0 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                   |                |                   |                 |
|-------------------|----------------|-------------------|-----------------|
| Direction         | Out 2 -> In 2  |                   |                 |
| Range start       | 13550.00 ms    | Range length      | 200.00 ms       |
| Number of seq.    | 10             | Sequence length   | 400.00 ms       |
| Use FIR Filter    | Ch2            | FIR filter        | drp2ff_ieee1652 |
| DRP/ERP Ch.1:     | Off            | DRP/ERP Ch.2:     | Off             |
| Frequency base    | Transformation |                   |                 |
| FFT size          | 9600           | Overlap           | 0 %             |
| Window function.  | Hanning        | Smooth            | Off             |
| dB weighting      | A Weighting    |                   |                 |
| Stimulus min.     | 855.0 Hz       | Stimulus max.     | 1155.0 Hz       |
| Analysis min.     | 20.0 Hz        | Analysis max.     | 850.0 Hz        |
| Analysis (2) min. | 1160.0 Hz      | Analysis (2) max. | 20000.0 Hz      |

**Special Features**

Compensate delay 151.9000 ms (D\_RCV\_NB, Delay (Cross))  
Store to variable RCVNB10\_1000Hz

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

**labCORE Routing**

Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker  
Out Channel 2 -> Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In  
In Channel 1 <- Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out  
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

**Analog In Mainboard Settings (Analog In 1/2)**

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

**Analog Out Mainboard Settings (Analog Out 1/2)**

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

**Microphone Settings (Mic Amp. (Slot 6))****Channel In 1 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 2 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 3 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 4 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**BEQ Settings (BEQ Filter 1)**

Block mode Bypass

**Artificial Head Settings (HATS 1 (HMS II.3))**

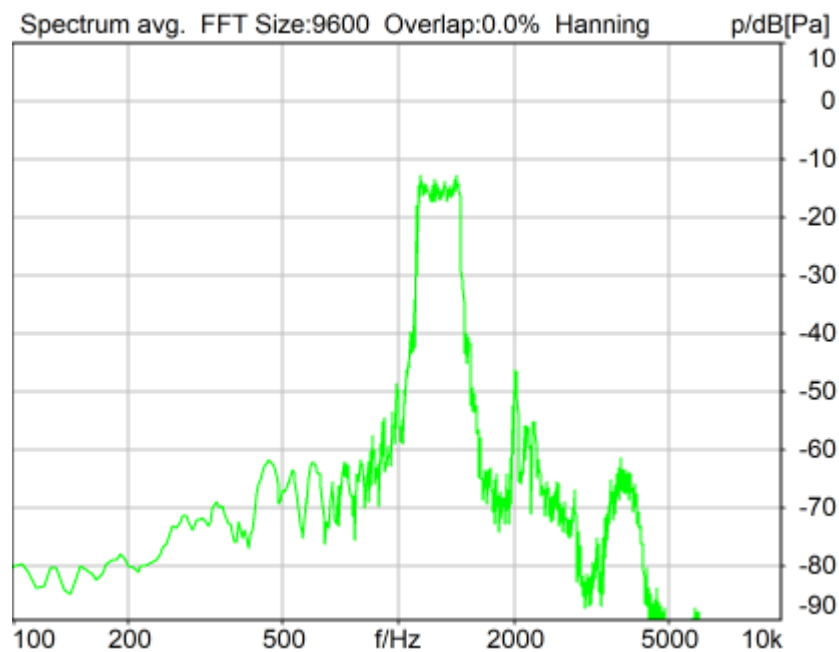
Ser. Nr. 12306613 Pinna Type Type 3.3

#### HIB Settings

|                        |                    |                        |          |
|------------------------|--------------------|------------------------|----------|
| HIB Name               | 60020095           | Serial                 | 60020095 |
| HIB Mode               | Mobile Measurement | Impedance              | 32 Ohm   |
| Gain out 1             | -40.00 dB          | Gain out 2             | 0.00 dB  |
| Gain in 1              | 0.00 dB            | Gain in 2              | 0.00 dB  |
| Mic 1 Power Supply Off |                    | Mic 2 Power Supply Off |          |

## 5.2 RCV Distortion and Noise - 1250 Hz NB

TIA-5050 (2018-01) \ Measurements \ Narrowband \ 5.2 Receive Distortion and Noise 8N



Distortion (Noise) RCV (packed): 24.81 dB (5.75%) Ok

**Ok**

2024/1/20 10:22 ACQUA 5.1.200

Unmodified HEAD acoustics Measurement Descriptor

#### Limits

|       |              |
|-------|--------------|
|       | <b>lower</b> |
| Run 1 | 20.00 dB     |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)  
Database Version: 40\_HAC\_Suite\_Rev03

Source: act\_rpn\_b250ms\_1250hz\_sr20dbm0\_v02.dat

Level adj. Ch1 -90.0 dB

**Calibration**

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))

Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

**HHP IV Settings (Setting: STD:(0,0,0) rel AHP)**

|                |         |                          |       |
|----------------|---------|--------------------------|-------|
| MECRP Delta Ye | 0.0 mm  | Rotation Delta A         | 0.0 ° |
| MECRP Delta Ze | 0.0 mm  | Rotation Delta C         | 0.0 ° |
| Delta Xe       | 0.0 mm  | Rotation Delta B         | 5.0 ° |
| Delta Ye       | 0.0 mm  | Delta A                  | 0.0 ° |
| Delta Ze       | 0.0 mm  | Delta C                  | 0.0 ° |
| Ym             | -4.1 mm | Delta B                  | 0.0 ° |
|                |         | Ear Type 3.3 Coordinates |       |

Mounting: Right Ear

Force to apply: 8.0 N, Force reached: 8.0 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                   |                |                   |                 |
|-------------------|----------------|-------------------|-----------------|
| Direction         | Out 2 -> In 2  |                   |                 |
| Range start       | 13550.00 ms    | Range length      | 200.00 ms       |
| Number of seq.    | 10             | Sequence length   | 400.00 ms       |
| Use FIR Filter    | Ch2            | FIR filter        | drp2ff_ieee1652 |
| DRP/ERP Ch.1:     | Off            | DRP/ERP Ch.2:     | Off             |
| Frequency base    | Transformation |                   |                 |
| FFT size          | 9600           | Overlap           | 0 %             |
| Window function.  | Hanning        | Smooth            | Off             |
| dB weighting      | A Weighting    |                   |                 |
| Stimulus min.     | 1085.0 Hz      | Stimulus max.     | 1450.0 Hz       |
| Analysis min.     | 20.0 Hz        | Analysis max.     | 1080.0 Hz       |
| Analysis (2) min. | 1455.0 Hz      | Analysis (2) max. | 20000.0 Hz      |

**Special Features**

Compensate delay 151.9000 ms (D\_RCV\_NB, Delay (Cross))

Store to variable RCVNB10\_1250Hz

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

**labCORE Routing**

|                  |                                                                          |
|------------------|--------------------------------------------------------------------------|
| Out Channel 1 -> | Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker                      |
| Out Channel 2 -> | Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In                           |
| In Channel 1 <-  | Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out                        |
| In Channel 2 <-  | BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right |

**Analogue In Mainboard Settings (Analog In 1/2)**

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

**Analogue Out Mainboard Settings (Analog Out 1/2)**

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

**Microphone Settings (Mic Amp. (Slot 6))****Channel In 1 Settings**

|                          |                          |                |      |
|--------------------------|--------------------------|----------------|------|
| Range                    | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage200V |                          | Supply Voltage | ±60V |

**Channel In 2 Settings**

|                          |                          |                |      |
|--------------------------|--------------------------|----------------|------|
| Range                    | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage200V |                          | Supply Voltage | ±60V |

**Channel In 3 Settings**

|                          |                          |                |      |
|--------------------------|--------------------------|----------------|------|
| Range                    | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage200V |                          | Supply Voltage | ±60V |

Channel In 4 Settings

Range 114 dB[SPL] @ 12.5 mV/Pa Highpass Off  
Polarisation Voltage 200V Supply Voltage ±60V

BEQ Settings (BEQ Filter 1)

Block mode Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

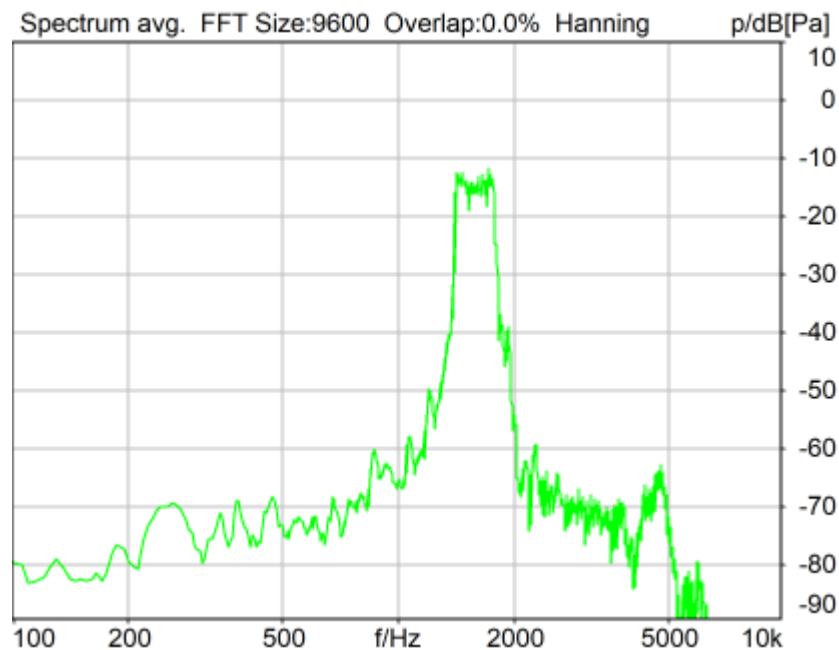
Ser. Nr. 12306613 Pinna Type Type 3.3

HIB Settings

HIB Name 60020095 Serial 60020095  
HIB Mode Mobile Measurement Impedance 32 Ohm  
Gain out 1 -40.00 dB Gain out 2 0.00 dB  
Gain in 1 0.00 dB Gain in 2 0.00 dB  
Mic 1 Power Supply Off Mic 2 Power Supply Off

## 5.2 RCV Distortion and Noise - 1600 Hz NB

TIA-5050 (2018-01) \ Measurements \ Narrowband \ 5.2 Receive Distortion and Noise 8N



Distortion (Noise) RCV (packed): 27.96 dB (4.00%) Ok

Ok

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Unmodified HEAD acoustics Measurement Descriptor

Limits

|       | lower    |
|-------|----------|
| Run 1 | 20.00 dB |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)

Database Version: 40\_HAC\_Suite\_Rev03

**Source: act\_rpn\_b250ms\_1600hz\_sr20dbm0\_v02.dat**

Level adj. Ch1 -90.0 dB

**Calibration**

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))

Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

**HHP IV Settings (Setting: STD:(0,0,0) rel AHP)**

|                |         |                          |       |
|----------------|---------|--------------------------|-------|
| MECRP Delta Ye | 0.0 mm  | Rotation Delta A         | 0.0 ° |
| MECRP Delta Ze | 0.0 mm  | Rotation Delta C         | 0.0 ° |
| Delta Xe       | 0.0 mm  | Rotation Delta B         | 5.0 ° |
| Delta Ye       | 0.0 mm  | Delta A                  | 0.0 ° |
| Delta Ze       | 0.0 mm  | Delta C                  | 0.0 ° |
| Ym             | -4.1 mm | Delta B                  | 0.0 ° |
|                |         | Ear Type 3.3 Coordinates |       |

Mounting: Right Ear

Force to apply: 8.0 N, Force reached: 8.0 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                   |                |                   |                 |
|-------------------|----------------|-------------------|-----------------|
| Direction         | Out 2 -> In 2  |                   |                 |
| Range start       | 13550.00 ms    | Range length      | 200.00 ms       |
| Number of seq.    | 10             | Sequence length   | 400.00 ms       |
| Use FIR Filter    | Ch2            | FIR filter        | drp2ff_ieee1652 |
| DRP/ERP Ch.1:     | Off            | DRP/ERP Ch.2:     | Off             |
| Frequency base    | Transformation |                   |                 |
| FFT size          | 9600           | Overlap           | 0 %             |
| Window function.  | Hanning        | Smooth            | Off             |
| dB weighting      | A Weighting    |                   |                 |
| Stimulus min.     | 1375.0 Hz      | Stimulus max.     | 1815.0 Hz       |
| Analysis min.     | 20.0 Hz        | Analysis max.     | 1370.0 Hz       |
| Analysis (2) min. | 1820.0 Hz      | Analysis (2) max. | 20000.0 Hz      |

**Special Features**

Compensate delay 151.9000 ms (D\_RCV\_NB, Delay (Cross))

Store to variable RCVNB10\_1600Hz

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

**labCORE Routing**

|                  |                                                                          |
|------------------|--------------------------------------------------------------------------|
| Out Channel 1 -> | Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker                      |
| Out Channel 2 -> | Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In                           |
| In Channel 1 <-  | Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out                        |
| In Channel 2 <-  | BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right |

**Analog In Mainboard Settings (Analog In 1/2)**

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

**Analog Out Mainboard Settings (Analog Out 1/2)**

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

**Microphone Settings (Mic Amp. (Slot 6))**

Channel In 1 Settings

|                       |                          |                |      |
|-----------------------|--------------------------|----------------|------|
| Range                 | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage  | 200V                     | Supply Voltage | ±60V |
| Channel In 2 Settings |                          |                |      |
| Range                 | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage  | 200V                     | Supply Voltage | ±60V |
| Channel In 3 Settings |                          |                |      |
| Range                 | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage  | 200V                     | Supply Voltage | ±60V |
| Channel In 4 Settings |                          |                |      |
| Range                 | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage  | 200V                     | Supply Voltage | ±60V |

-----  
BEQ Settings (BEQ Filter 1)  
Block mode      Bypass  
-----

Artificial Head Settings (HATS 1 (HMS II.3))

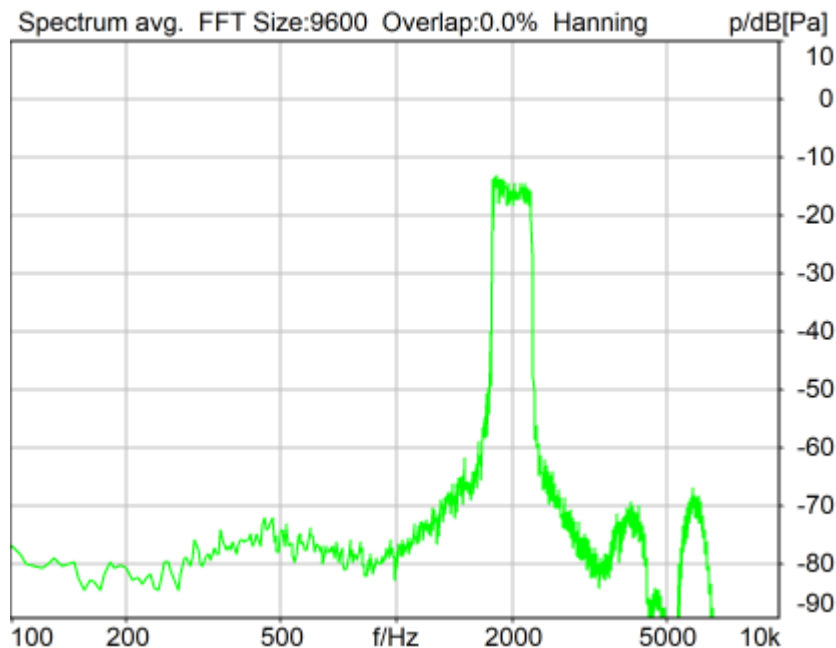
|          |          |            |          |
|----------|----------|------------|----------|
| Ser. Nr. | 12306613 | Pinna Type | Type 3.3 |
|----------|----------|------------|----------|

#### HIB Settings

|                    |                    |                    |          |
|--------------------|--------------------|--------------------|----------|
| HIB Name           | 60020095           | Serial             | 60020095 |
| HIB Mode           | Mobile Measurement | Impedance          | 32 Ohm   |
| Gain out 1         | -40.00 dB          | Gain out 2         | 0.00 dB  |
| Gain in 1          | 0.00 dB            | Gain in 2          | 0.00 dB  |
| Mic 1 Power Supply | Off                | Mic 2 Power Supply | Off      |

## 5.2 RCV Distortion and Noise - 2000 Hz NB

TIA-5050 (2018-01) \ Measurements \ Narrowband \ 5.2 Receive Distortion and Noise 8N



Distortion (Noise) RCV (packed): 41.85 dB (0.81%) Ok

**Ok**

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Unmodified HEAD acoustics Measurement Descriptor

**Limits**

|       | lower    |
|-------|----------|
| Run 1 | 20.00 dB |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)  
Database Version: 40\_HAC\_Suite\_Rev03**Source:** act\_rpn\_b250ms\_2000hz\_sr20dbm0\_v02.dat

Level adj. Ch1 -90.0 dB

**Calibration**

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))

Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

**HHP IV Settings (Setting: STD:(0,0,0) rel AHP)**

|                |         |                          |       |
|----------------|---------|--------------------------|-------|
| MECRP Delta Ye | 0.0 mm  | Rotation Delta A         | 0.0 ° |
| MECRP Delta Ze | 0.0 mm  | Rotation Delta C         | 0.0 ° |
| Delta Xe       | 0.0 mm  | Rotation Delta B         | 5.0 ° |
| Delta Ye       | 0.0 mm  | Delta A                  | 0.0 ° |
| Delta Ze       | 0.0 mm  | Delta C                  | 0.0 ° |
| Ym             | -4.1 mm | Delta B                  | 0.0 ° |
|                |         | Ear Type 3.3 Coordinates |       |

Mounting: Right Ear

Force to apply: 8.0 N, Force reached: 8.0 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                   |                |                   |                 |
|-------------------|----------------|-------------------|-----------------|
| Direction         | Out 2 -> In 2  |                   |                 |
| Range start       | 13550.00 ms    | Range length      | 200.00 ms       |
| Number of seq.    | 10             | Sequence length   | 400.00 ms       |
| Use FIR Filter    | Ch2            | FIR filter        | drp2ff_ieee1652 |
| DRP/ERP Ch.1:     | Off            | DRP/ERP Ch.2:     | Off             |
| Frequency base    | Transformation |                   |                 |
| FFT size          | 9600           | Overlap           | 0 %             |
| Window function.  | Hanning        | Smooth            | Off             |
| dB weighting      | A Weighting    |                   |                 |
| Stimulus min.     | 1745.0 Hz      | Stimulus max.     | 2275.0 Hz       |
| Analysis min.     | 20.0 Hz        | Analysis max.     | 1740.0 Hz       |
| Analysis (2) min. | 2280.0 Hz      | Analysis (2) max. | 20000.0 Hz      |

**Special Features**

Compensate delay 151.9000 ms (D\_RCV\_NB, Delay (Cross))

Store to variable RCVNB10\_2000Hz

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

**labCORE Routing**

|                  |                                                                          |
|------------------|--------------------------------------------------------------------------|
| Out Channel 1 -> | Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker                      |
| Out Channel 2 -> | Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In                           |
| In Channel 1 <-  | Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out                        |
| In Channel 2 <-  | BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right |

Analog In Mainboard Settings (Analog In 1/2)

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

-----  
Analog Out Mainboard Settings (Analog Out 1/2)

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

-----  
Microphone Settings (Mic Amp. (Slot 6))

## Channel In 1 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

## Channel In 2 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

## Channel In 3 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

## Channel In 4 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

-----  
BEQ Settings (BEQ Filter 1)

|            |        |
|------------|--------|
| Block mode | Bypass |
|------------|--------|

-----  
Artificial Head Settings (HATS 1 (HMS II.3))

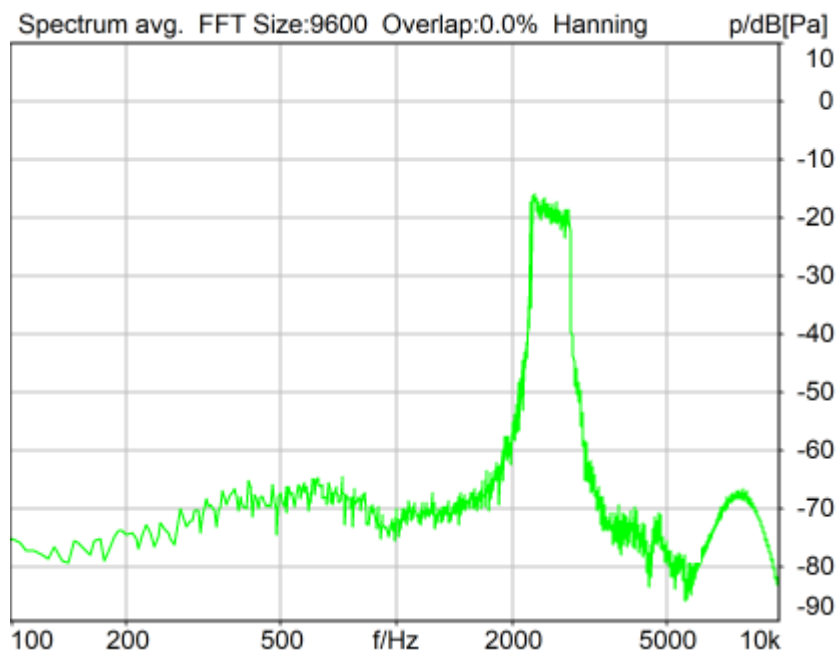
|          |          |            |          |
|----------|----------|------------|----------|
| Ser. Nr. | 12306613 | Pinna Type | Type 3.3 |
|----------|----------|------------|----------|

**HIB Settings**

|                    |                    |                    |          |
|--------------------|--------------------|--------------------|----------|
| HIB Name           | 60020095           | Serial             | 60020095 |
| HIB Mode           | Mobile Measurement | Impedance          | 32 Ohm   |
| Gain out 1         | -40.00 dB          | Gain out 2         | 0.00 dB  |
| Gain in 1          | 0.00 dB            | Gain in 2          | 0.00 dB  |
| Mic 1 Power Supply | Off                | Mic 2 Power Supply | Off      |

## **5.2 RCV Distortion and Noise - 2500 Hz NB**

TIA-5050 (2018-01) \ Measurements \ Narrowband \ 5.2 Receive Distortion and Noise 8N



Distortion (Noise) RCV (packed): 28.20 dB (3.89%) Ok

**Ok**

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Unmodified HEAD acoustics Measurement Descriptor

**Limits**

|       | lower    |
|-------|----------|
| Run 1 | 20.00 dB |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)

Database Version: 40\_HAC\_Suite\_Rev03

**Source: act\_rpn\_b250ms\_2500hz\_sr20dbm0\_v02.dat**

Level adj. Ch1 -90.0 dB

**Calibration**

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))

Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

**HHP IV Settings (Setting: STD:(0,0,0) rel AHP)**

|                          |         |                  |       |
|--------------------------|---------|------------------|-------|
| MECRP Delta Ye           | 0.0 mm  | Rotation Delta A | 0.0 ° |
| MECRP Delta Ze           | 0.0 mm  | Rotation Delta C | 0.0 ° |
| Delta Xe                 | 0.0 mm  | Rotation Delta B | 5.0 ° |
| Delta Ye                 | 0.0 mm  | Delta A          | 0.0 ° |
| Delta Ze                 | 0.0 mm  | Delta C          | 0.0 ° |
| Ym                       | -4.1 mm | Delta B          | 0.0 ° |
| Ear Type 3.3 Coordinates |         |                  |       |

Mounting: Right Ear

Force to apply: 8.0 N, Force reached: 8.0 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                   |                |                   |                 |
|-------------------|----------------|-------------------|-----------------|
| Direction         | Out 2 -> In 2  | Range length      | 200.00 ms       |
| Range start       | 13550.00 ms    | Sequence length   | 400.00 ms       |
| Number of seq.    | 10             | FIR filter        | drp2ff_ieee1652 |
| Use FIR Filter    | Ch2            | DRP/ERP Ch.2:     | Off             |
| DRP/ERP Ch.1:     | Off            | Frequency base    | Transformation  |
| Frequency base    | Transformation | FFT size          | 9600            |
| FFT size          | 9600           | Overlap           | 0 %             |
| Window function.  | Hanning        | Smooth            | Off             |
| dB weighting      | A Weighting    | Stimulus max.     | 2855.0 Hz       |
| Stimulus min.     | 2205.0 Hz      | Analysis max.     | 2200.0 Hz       |
| Analysis min.     | 20.0 Hz        | Analysis (2) max. | 20000.0 Hz      |
| Analysis (2) min. | 2860.0 Hz      |                   |                 |

**Special Features**

Compensate delay 151.9000 ms (D\_RCV\_NB, Delay (Cross))

Store to variable RCVNB10\_2500Hz

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

-----

## labCORE Routing

Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker  
Out Channel 2 -> Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In  
In Channel 1 <- Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out  
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

-----  
Analog In Mainboard Settings (Analog In 1/2)

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

-----  
Analog Out Mainboard Settings (Analog Out 1/2)

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

-----  
Microphone Settings (Mic Amp. (Slot 6))

## Channel In 1 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

## Channel In 2 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

## Channel In 3 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

## Channel In 4 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

-----  
BEQ Settings (BEQ Filter 1)

|            |        |
|------------|--------|
| Block mode | Bypass |
|------------|--------|

-----  
Artificial Head Settings (HATS 1 (HMS II.3))

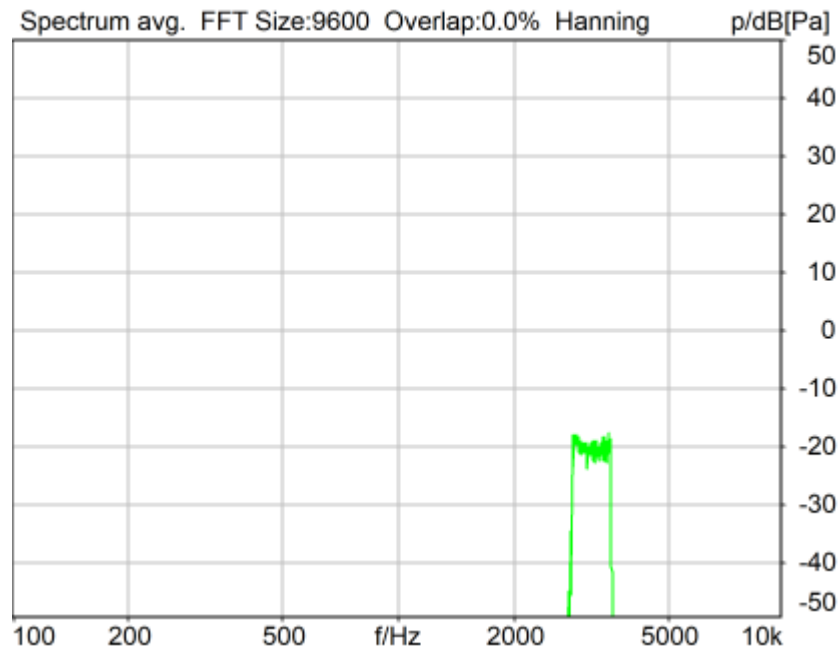
|          |          |            |          |
|----------|----------|------------|----------|
| Ser. Nr. | 12306613 | Pinna Type | Type 3.3 |
|----------|----------|------------|----------|

**HIB Settings**

|                    |                    |                    |          |
|--------------------|--------------------|--------------------|----------|
| HIB Name           | 60020095           | Serial             | 60020095 |
| HIB Mode           | Mobile Measurement | Impedance          | 32 Ohm   |
| Gain out 1         | -40.00 dB          | Gain out 2         | 0.00 dB  |
| Gain in 1          | 0.00 dB            | Gain in 2          | 0.00 dB  |
| Mic 1 Power Supply | Off                | Mic 2 Power Supply | Off      |

**5.2 RCV Distortion and Noise - 3150 Hz NB**

TIA-5050 (2018-01) \ Measurements \ Narrowband \ 5.2 Receive Distortion and Noise 8N



Distortion (Noise) RCV (packed): 33.96 dB (2.00%) Ok

**Ok**

2024/1/20 10:20 ACQUA 5.1.200

Unmodified HEAD acoustics Measurement Descriptor

#### Limits

|       | lower    |
|-------|----------|
| Run 1 | 20.00 dB |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)

Database Version: 40\_HAC\_Suite\_Rev03

**Source: act\_rpn\_b250ms\_3150hz\_sr20dbm0\_v02.dat**

Level adj. Ch1 -90.0 dB

#### Calibration

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))

Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

#### HHP IV Settings (Setting: STD:(0,0,0) rel AHP)

|                |         |                          |       |
|----------------|---------|--------------------------|-------|
| MECRP Delta Ye | 0.0 mm  | Rotation Delta A         | 0.0 ° |
| MECRP Delta Ze | 0.0 mm  | Rotation Delta C         | 0.0 ° |
| Delta Xe       | 0.0 mm  | Rotation Delta B         | 5.0 ° |
| Delta Ye       | 0.0 mm  | Delta A                  | 0.0 ° |
| Delta Ze       | 0.0 mm  | Delta C                  | 0.0 ° |
| Ym             | -4.1 mm | Delta B                  | 0.0 ° |
|                |         | Ear Type 3.3 Coordinates |       |

Mounting: Right Ear

Force to apply: 8.0 N, Force reached: 8.0 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                   |                |                   |                 |
|-------------------|----------------|-------------------|-----------------|
| Direction         | Out 2 -> In 2  |                   |                 |
| Range start       | 13550.00 ms    | Range length      | 200.00 ms       |
| Number of seq.    | 10             | Sequence length   | 400.00 ms       |
| Use FIR Filter    | Ch2            | FIR filter        | drp2ff_ieee1652 |
| DRP/ERP Ch.1:     | Off            | DRP/ERP Ch.2:     | Off             |
| Frequency base    | Transformation |                   |                 |
| FFT size          | 9600           | Overlap           | 0 %             |
| Window function.  | Hanning        | Smooth            | Off             |
| dB weighting      | A Weighting    |                   |                 |
| Stimulus min.     | 2785.0 Hz      | Stimulus max.     | 3585.0 Hz       |
| Analysis min.     | 20.0 Hz        | Analysis max.     | 2780.0 Hz       |
| Analysis (2) min. | 3590.0 Hz      | Analysis (2) max. | 20000.0 Hz      |

**Special Features**

Compensate delay 151.9000 ms (D\_RCV\_NB, Delay (Cross))  
Store to variable RCVNB10\_3150Hz

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

**labCORE Routing**

Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker  
Out Channel 2 -> Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In  
In Channel 1 <- Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out  
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

**Analog In Mainboard Settings (Analog In 1/2)**

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

**Analog Out Mainboard Settings (Analog Out 1/2)**

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

**Microphone Settings (Mic Amp. (Slot 6))****Channel In 1 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 2 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 3 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 4 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**BEQ Settings (BEQ Filter 1)**

Block mode Bypass

**Artificial Head Settings (HATS 1 (HMS II.3))**

|          |          |            |          |
|----------|----------|------------|----------|
| Ser. Nr. | 12306613 | Pinna Type | Type 3.3 |
|----------|----------|------------|----------|

**HIB Settings**

|                    |                    |                    |          |
|--------------------|--------------------|--------------------|----------|
| HIB Name           | 60020095           | Serial             | 60020095 |
| HIB Mode           | Mobile Measurement | Impedance          | 32 Ohm   |
| Gain out 1         | -40.00 dB          | Gain out 2         | 0.00 dB  |
| Gain in 1          | 0.00 dB            | Gain in 2          | 0.00 dB  |
| Mic 1 Power Supply | Off                | Mic 2 Power Supply | Off      |

## **Report - Receive Distortion and Noise (Conversational Gain)**

TIA-5050 (2018-01) \ Measurements \ Narrowband \ 5.2 Receive Distortion and Noise 8N

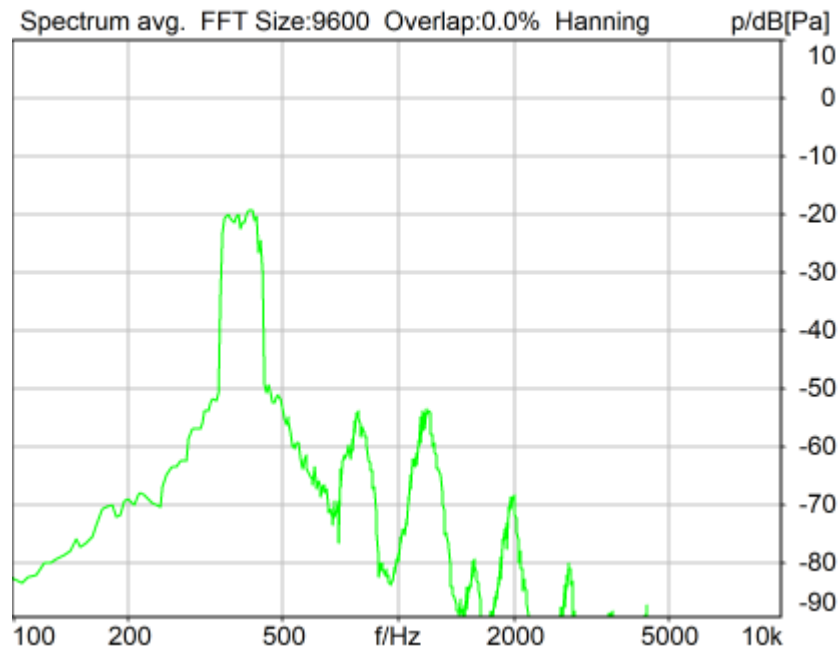
| Region | Frequency | SDNR     |
|--------|-----------|----------|
| 1      | 400Hz     | 28.31 dB |
| 2      | 500Hz     | 29.05 dB |
| 3      | 630Hz     | 30.16 dB |
| 4      | 800Hz     | 28.48 dB |
| 5      | 1000Hz    | 29.36 dB |
| 6      | 1600Hz    | 27.96 dB |
| 7      | 2000Hz    | 41.85 dB |
| 8      | 2500Hz    | 28.20 dB |
| 9      | 3150Hz    | 33.96 dB |
| 10     | 1250Hz    | 24.81 dB |

All SDNRs were greater than 20.0 dB, requirement was met.  
Smallest SDNR was 24.81dB at 1250Hz.

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## **5.2 RCV Distortion and Noise - 400 Hz NB**

TIA-5050 (2018-01) \ Measurements \ Narrowband \ 5.2 Receive Distortion and Noise 2N



Distortion (Noise) RCV (packed): 30.29 dB (3.06%) Ok

Ok

2024/1/20 10:30 ACQUA 5.1.200

Unmodified HEAD acoustics Measurement Descriptor

#### Limits

|       | lower    |
|-------|----------|
| Run 1 | 20.00 dB |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)

Database Version: 40\_HAC\_Suite\_Rev03

Source: act\_rpn\_b250ms\_400hz\_sr20dbm0\_v02.dat

Level adj. Ch1 -90.0 dB

#### Calibration

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))

Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

#### HHP IV Settings (Setting: STD:(0,0,0) rel AHP)

|                |         |                          |       |
|----------------|---------|--------------------------|-------|
| MECRP Delta Ye | 0.0 mm  | Rotation Delta A         | 0.0 ° |
| MECRP Delta Ze | 0.0 mm  | Rotation Delta C         | 0.0 ° |
| Delta Xe       | 0.0 mm  | Rotation Delta B         | 5.0 ° |
| Delta Ye       | 0.0 mm  | Delta A                  | 0.0 ° |
| Delta Ze       | 0.0 mm  | Delta C                  | 0.0 ° |
| Ym             | -0.6 mm | Delta B                  | 0.0 ° |
|                |         | Ear Type 3.3 Coordinates |       |

Mounting: Right Ear

Force to apply: 2.0 N, Force reached: 2.0 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                   |                |                   |                 |
|-------------------|----------------|-------------------|-----------------|
| Direction         | Out 2 -> In 2  |                   |                 |
| Range start       | 13550.00 ms    | Range length      | 200.00 ms       |
| Number of seq.    | 10             | Sequence length   | 400.00 ms       |
| Use FIR Filter    | Ch2            | FIR filter        | drp2ff_ieee1652 |
| DRP/ERP Ch.1:     | Off            | DRP/ERP Ch.2:     | Off             |
| Frequency base    | Transformation |                   |                 |
| FFT size          | 9600           | Overlap           | 0 %             |
| Window function.  | Hanning        | Smooth            | Off             |
| dB weighting      | A Weighting    |                   |                 |
| Stimulus min.     | 320.0 Hz       | Stimulus max.     | 480.0 Hz        |
| Analysis min.     | 20.0 Hz        | Analysis max.     | 315.0 Hz        |
| Analysis (2) min. | 485.0 Hz       | Analysis (2) max. | 20000.0 Hz      |

**Special Features**

Compensate delay 151.9000 ms (D\_RCV\_NB, Delay (Cross))  
Store to variable RCVNB10\_400Hz

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

**labCORE Routing**

Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker  
Out Channel 2 -> Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In  
In Channel 1 <- Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out  
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

**Analog In Mainboard Settings (Analog In 1/2)**

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

**Analog Out Mainboard Settings (Analog Out 1/2)**

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

**Microphone Settings (Mic Amp. (Slot 6))****Channel In 1 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 2 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 3 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 4 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**BEQ Settings (BEQ Filter 1)**

Block mode Bypass

**Artificial Head Settings (HATS 1 (HMS II.3))**

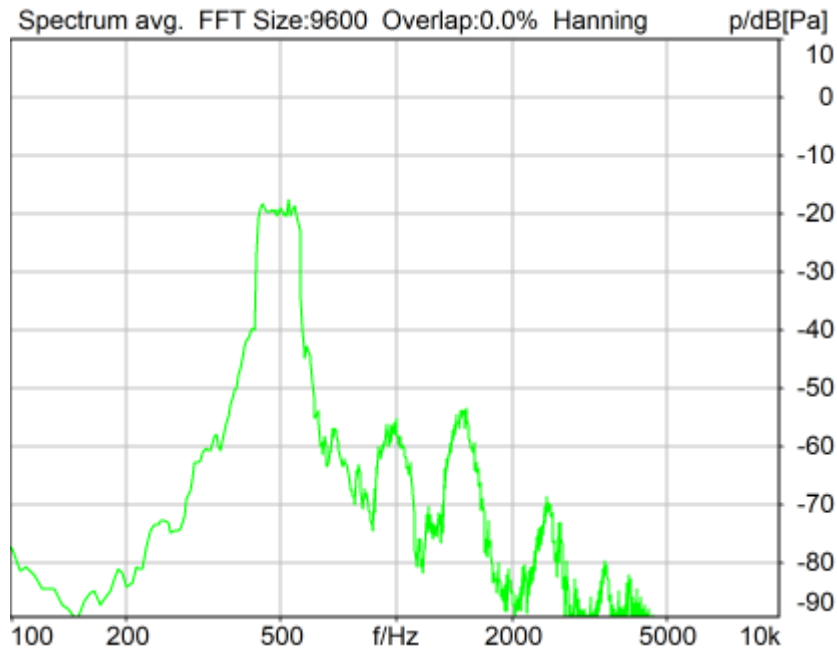
|          |          |            |          |
|----------|----------|------------|----------|
| Ser. Nr. | 12306613 | Pinna Type | Type 3.3 |
|----------|----------|------------|----------|

**HIB Settings**

|                    |                    |                    |          |
|--------------------|--------------------|--------------------|----------|
| HIB Name           | 60020095           | Serial             | 60020095 |
| HIB Mode           | Mobile Measurement | Impedance          | 32 Ohm   |
| Gain out 1         | -40.00 dB          | Gain out 2         | 0.00 dB  |
| Gain in 1          | 0.00 dB            | Gain in 2          | 0.00 dB  |
| Mic 1 Power Supply | Off                | Mic 2 Power Supply | Off      |

## 5.2 RCV Distortion and Noise - 500 Hz NB

TIA-5050 (2018-01) \ Measurements \ Narrowband \ 5.2 Receive Distortion and Noise 2N



Distortion (Noise) RCV (packed): 30.01 dB (3.16%) Ok

Ok

2024/1/20 10:31 ACQUA 5.1.200

Unmodified HEAD acoustics Measurement Descriptor

### Limits

|       |          |
|-------|----------|
|       | lower    |
| Run 1 | 20.00 dB |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)

Database Version: 40\_HAC\_Suite\_Rev03

Source: act\_rpn\_b250ms\_500hz\_sr20dbm0\_v02.dat

Level adj. Ch1 -90.0 dB

### Calibration

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))

Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

HHP IV Settings (Setting: STD:(0,0,0) rel AHP)

|                |        |                  |       |
|----------------|--------|------------------|-------|
| MECRP Delta Ye | 0.0 mm | Rotation Delta A | 0.0 ° |
|                |        | Rotation Delta C | 0.0 ° |

|                |         |                          |       |
|----------------|---------|--------------------------|-------|
| MECRP Delta Ze | 0.0 mm  | Rotation Delta B         | 5.0 ° |
| Delta Xe       | 0.0 mm  | Delta A                  | 0.0 ° |
| Delta Ye       | 0.0 mm  | Delta C                  | 0.0 ° |
| Delta Ze       | 0.0 mm  | Delta B                  | 0.0 ° |
| Ym             | -0.6 mm | Ear Type 3.3 Coordinates |       |

Mounting: Right Ear  
Force to apply: 2.0 N, Force reached: 2.0 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                   |                |                   |                 |
|-------------------|----------------|-------------------|-----------------|
| Direction         | Out 2 -> In 2  |                   |                 |
| Range start       | 13550.00 ms    | Range length      | 200.00 ms       |
| Number of seq.    | 10             | Sequence length   | 400.00 ms       |
| Use FIR Filter    | Ch2            | FIR filter        | drp2ff_ieee1652 |
| DRP/ERP Ch.1:     | Off            | DRP/ERP Ch.2:     | Off             |
| Frequency base    | Transformation |                   |                 |
| FFT size          | 9600           | Overlap           | 0 %             |
| Window function.  | Hanning        | Smooth            | Off             |
| dB weighting      | A Weighting    |                   |                 |
| Stimulus min.     | 410.0 Hz       | Stimulus max.     | 595.0 Hz        |
| Analysis min.     | 20.0 Hz        | Analysis max.     | 405.0 Hz        |
| Analysis (2) min. | 600.0 Hz       | Analysis (2) max. | 20000.0 Hz      |

**Special Features**

Compensate delay 151.9000 ms (D\_RCV\_NB, Delay (Cross))  
Store to variable RCVNB10\_500Hz

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

**labCORE Routing**

Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker  
Out Channel 2 -> Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In  
In Channel 1 <- Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out  
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

**Analog In Mainboard Settings (Analog In 1/2)**

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

**Analog Out Mainboard Settings (Analog Out 1/2)**

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

**Microphone Settings (Mic Amp. (Slot 6))****Channel In 1 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 2 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 3 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 4 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**BEQ Settings (BEQ Filter 1)**

Block mode Bypass

**Artificial Head Settings (HATS 1 (HMS II.3))**

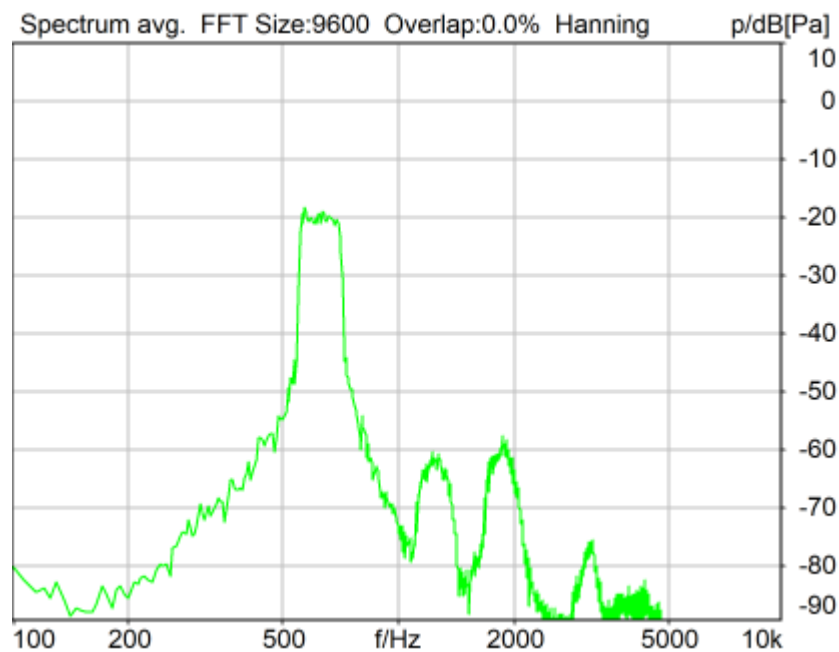
Ser. Nr. 12306613 Pinna Type Type 3.3

#### HIB Settings

|                        |                    |                        |          |
|------------------------|--------------------|------------------------|----------|
| HIB Name               | 60020095           | Serial                 | 60020095 |
| HIB Mode               | Mobile Measurement | Impedance              | 32 Ohm   |
| Gain out 1             | -40.00 dB          | Gain out 2             | 0.00 dB  |
| Gain in 1              | 0.00 dB            | Gain in 2              | 0.00 dB  |
| Mic 1 Power Supply Off |                    | Mic 2 Power Supply Off |          |

## 5.2 RCV Distortion and Noise - 630 Hz NB

TIA-5050 (2018-01) \ Measurements \ Narrowband \ 5.2 Receive Distortion and Noise 2N



Distortion (Noise) RCV (packed): 32.23 dB (2.45%) Ok

**Ok**

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Unmodified HEAD acoustics Measurement Descriptor

#### Limits

|       |          |
|-------|----------|
|       | lower    |
| Run 1 | 20.00 dB |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)

Database Version: 40\_HAC\_Suite\_Rev03

Source: act\_rpn\_b250ms\_630hz\_sr20dbm0\_v02.dat

Level adj. Ch1 -90.0 dB

**Calibration**

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))

Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

**HHP IV Settings (Setting: STD:(0,0,0) rel AHP)**

|                |         |                          |       |
|----------------|---------|--------------------------|-------|
| MECRP Delta Ye | 0.0 mm  | Rotation Delta A         | 0.0 ° |
| MECRP Delta Ze | 0.0 mm  | Rotation Delta C         | 0.0 ° |
| Delta Xe       | 0.0 mm  | Rotation Delta B         | 5.0 ° |
| Delta Ye       | 0.0 mm  | Delta A                  | 0.0 ° |
| Delta Ze       | 0.0 mm  | Delta C                  | 0.0 ° |
| Ym             | -0.6 mm | Delta B                  | 0.0 ° |
|                |         | Ear Type 3.3 Coordinates |       |

Mounting: Right Ear

Force to apply: 2.0 N, Force reached: 2.0 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                   |                |                   |                 |
|-------------------|----------------|-------------------|-----------------|
| Direction         | Out 2 -> In 2  |                   |                 |
| Range start       | 13550.00 ms    | Range length      | 200.00 ms       |
| Number of seq.    | 10             | Sequence length   | 400.00 ms       |
| Use FIR Filter    | Ch2            | FIR filter        | drp2ff_ieee1652 |
| DRP/ERP Ch.1:     | Off            | DRP/ERP Ch.2:     | Off             |
| Frequency base    | Transformation |                   |                 |
| FFT size          | 9600           | Overlap           | 0 %             |
| Window function.  | Hanning        | Smooth            | Off             |
| dB weighting      | A Weighting    |                   |                 |
| Stimulus min.     | 525.0 Hz       | Stimulus max.     | 745.0 Hz        |
| Analysis min.     | 20.0 Hz        | Analysis max.     | 520.0 Hz        |
| Analysis (2) min. | 750.0 Hz       | Analysis (2) max. | 20000.0 Hz      |

**Special Features**

Compensate delay 151.9000 ms (D\_RCV\_NB, Delay (Cross))

Store to variable RCVNB10\_630Hz

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

**labCORE Routing**

|                  |                                                                          |
|------------------|--------------------------------------------------------------------------|
| Out Channel 1 -> | Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker                      |
| Out Channel 2 -> | Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In                           |
| In Channel 1 <-  | Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out                        |
| In Channel 2 <-  | BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right |

**Analogue In Mainboard Settings (Analog In 1/2)**

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

**Analogue Out Mainboard Settings (Analog Out 1/2)**

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

**Microphone Settings (Mic Amp. (Slot 6))****Channel In 1 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 2 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 3 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

Channel In 4 Settings

Range 114 dB[SPL] @ 12.5 mV/Pa Highpass Off  
Polarisation Voltage 200V Supply Voltage ±60V

BEQ Settings (BEQ Filter 1)

Block mode Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

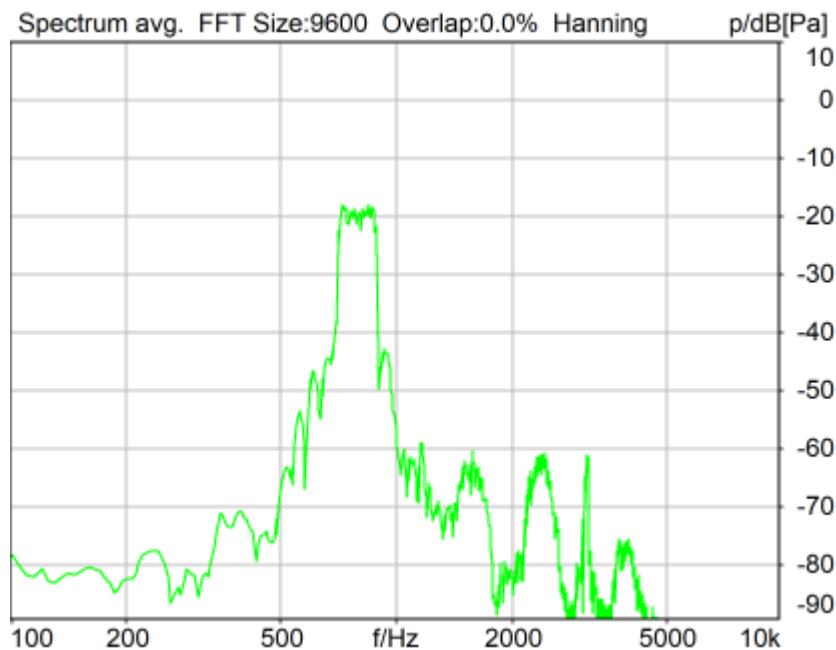
Ser. Nr. 12306613 Pinna Type Type 3.3

HIB Settings

HIB Name 60020095 Serial 60020095  
HIB Mode Mobile Measurement Impedance 32 Ohm  
Gain out 1 -40.00 dB Gain out 2 0.00 dB  
Gain in 1 0.00 dB Gain in 2 0.00 dB  
Mic 1 Power Supply Off Mic 2 Power Supply Off

## 5.2 RCV Distortion and Noise - 800 Hz NB

TIA-5050 (2018-01) \ Measurements \ Narrowband \ 5.2 Receive Distortion and Noise 2N



Distortion (Noise) RCV (packed): 28.24 dB (3.87%) Ok

Ok

2024/1/20 10:31 ACQUA 5.1.200

Unmodified HEAD acoustics Measurement Descriptor

Limits

|       | lower    |
|-------|----------|
| Run 1 | 20.00 dB |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)  
Database Version: 40\_HAC\_Suite\_Rev03**Source: act\_rpn\_b250ms\_800hz\_sr20dbm0\_v02.dat**

Level adj. Ch1 -90.0 dB

**Calibration**

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))

Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

**HHP IV Settings (Setting: STD:(0,0,0) rel AHP)**

|                |         |                          |       |
|----------------|---------|--------------------------|-------|
| MECRP Delta Ye | 0.0 mm  | Rotation Delta A         | 0.0 ° |
| MECRP Delta Ze | 0.0 mm  | Rotation Delta C         | 0.0 ° |
| Delta Xe       | 0.0 mm  | Rotation Delta B         | 5.0 ° |
| Delta Ye       | 0.0 mm  | Delta A                  | 0.0 ° |
| Delta Ze       | 0.0 mm  | Delta C                  | 0.0 ° |
| Ym             | -0.6 mm | Delta B                  | 0.0 ° |
|                |         | Ear Type 3.3 Coordinates |       |

Mounting: Right Ear

Force to apply: 2.0 N, Force reached: 2.0 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                   |                |                   |                 |
|-------------------|----------------|-------------------|-----------------|
| Direction         | Out 2 -> In 2  |                   |                 |
| Range start       | 13550.00 ms    | Range length      | 200.00 ms       |
| Number of seq.    | 10             | Sequence length   | 400.00 ms       |
| Use FIR Filter    | Ch2            | FIR filter        | drp2ff_ieee1652 |
| DRP/ERP Ch.1:     | Off            | DRP/ERP Ch.2:     | Off             |
| Frequency base    | Transformation |                   |                 |
| FFT size          | 9600           | Overlap           | 0 %             |
| Window function.  | Hanning        | Smooth            | Off             |
| dB weighting      | A Weighting    |                   |                 |
| Stimulus min.     | 675.0 Hz       | Stimulus max.     | 925.0 Hz        |
| Analysis min.     | 20.0 Hz        | Analysis max.     | 670.0 Hz        |
| Analysis (2) min. | 930.0 Hz       | Analysis (2) max. | 20000.0 Hz      |

**Special Features**

Compensate delay 151.9000 ms (D\_RCV\_NB, Delay (Cross))

Store to variable RCVNB10\_800Hz

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

**labCORE Routing**

|                  |                                                                          |
|------------------|--------------------------------------------------------------------------|
| Out Channel 1 -> | Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker                      |
| Out Channel 2 -> | Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In                           |
| In Channel 1 <-  | Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out                        |
| In Channel 2 <-  | BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right |

**Analog In Mainboard Settings (Analog In 1/2)**

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

**Analog Out Mainboard Settings (Analog Out 1/2)**

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

**Microphone Settings (Mic Amp. (Slot 6))**

Channel In 1 Settings

|                       |                          |                |      |
|-----------------------|--------------------------|----------------|------|
| Range                 | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage  | 200V                     | Supply Voltage | ±60V |
| Channel In 2 Settings |                          |                |      |
| Range                 | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage  | 200V                     | Supply Voltage | ±60V |
| Channel In 3 Settings |                          |                |      |
| Range                 | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage  | 200V                     | Supply Voltage | ±60V |
| Channel In 4 Settings |                          |                |      |
| Range                 | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage  | 200V                     | Supply Voltage | ±60V |

-----  
BEQ Settings (BEQ Filter 1)  
Block mode      Bypass  
-----

Artificial Head Settings (HATS 1 (HMS II.3))

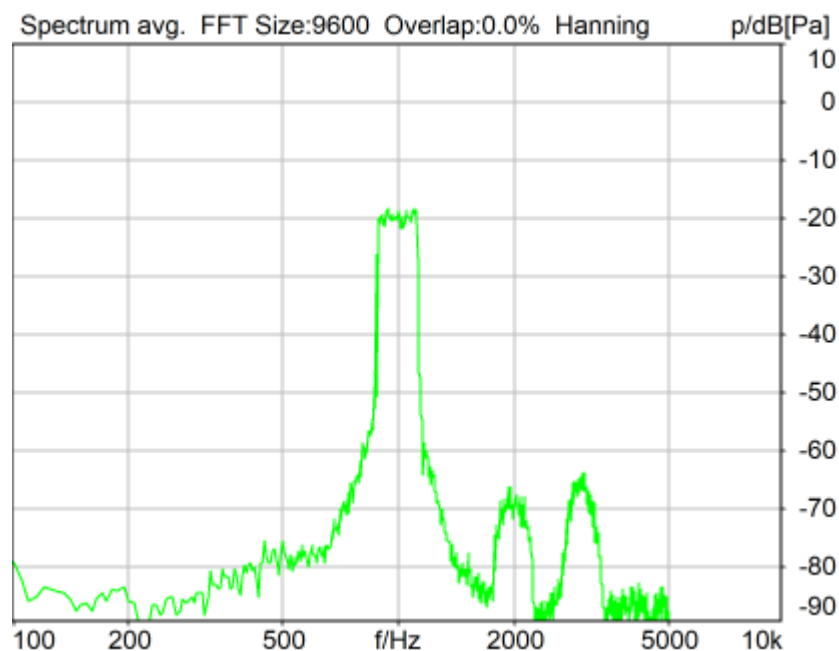
|          |          |            |          |
|----------|----------|------------|----------|
| Ser. Nr. | 12306613 | Pinna Type | Type 3.3 |
|----------|----------|------------|----------|

#### HIB Settings

|                    |                    |                    |          |
|--------------------|--------------------|--------------------|----------|
| HIB Name           | 60020095           | Serial             | 60020095 |
| HIB Mode           | Mobile Measurement | Impedance          | 32 Ohm   |
| Gain out 1         | -40.00 dB          | Gain out 2         | 0.00 dB  |
| Gain in 1          | 0.00 dB            | Gain in 2          | 0.00 dB  |
| Mic 1 Power Supply | Off                | Mic 2 Power Supply | Off      |

## 5.2 RCV Distortion and Noise - 1000 Hz NB

TIA-5050 (2018-01) \ Measurements \ Narrowband \ 5.2 Receive Distortion and Noise 2N



Distortion (Noise) RCV (packed): 38.96 dB (1.13%) Ok

**Ok**

2024/1/20 10:32 ACQUA 5.1.200

Unmodified HEAD acoustics Measurement Descriptor

**Limits**

|       | lower    |
|-------|----------|
| Run 1 | 20.00 dB |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)  
Database Version: 40\_HAC\_Suite\_Rev03**Source:** act\_rpn\_b250ms\_1000hz\_sr20dbm0\_v02.dat

Level adj. Ch1 -90.0 dB

**Calibration**

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))

Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

**HHP IV Settings (Setting: STD:(0,0,0) rel AHP)**

|                |         |                  |                 |
|----------------|---------|------------------|-----------------|
| MECRP Delta Ye | 0.0 mm  | Rotation Delta A | 0.0 °           |
| MECRP Delta Ze | 0.0 mm  | Rotation Delta C | 0.0 °           |
| Delta Xe       | 0.0 mm  | Rotation Delta B | 5.0 °           |
| Delta Ye       | 0.0 mm  | Delta A          | 0.0 °           |
| Delta Ze       | 0.0 mm  | Delta C          | 0.0 °           |
| Ym             | -0.6 mm | Delta B          | 0.0 °           |
|                |         | Ear Type         | 3.3 Coordinates |

Mounting: Right Ear

Force to apply: 2.0 N, Force reached: 2.0 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                   |                |                   |                 |
|-------------------|----------------|-------------------|-----------------|
| Direction         | Out 2 -> In 2  |                   |                 |
| Range start       | 13550.00 ms    | Range length      | 200.00 ms       |
| Number of seq.    | 10             | Sequence length   | 400.00 ms       |
| Use FIR Filter    | Ch2            | FIR filter        | drp2ff_ieee1652 |
| DRP/ERP Ch.1:     | Off            | DRP/ERP Ch.2:     | Off             |
| Frequency base    | Transformation |                   |                 |
| FFT size          | 9600           | Overlap           | 0 %             |
| Window function.  | Hanning        | Smooth            | Off             |
| dB weighting      | A Weighting    |                   |                 |
| Stimulus min.     | 855.0 Hz       | Stimulus max.     | 1155.0 Hz       |
| Analysis min.     | 20.0 Hz        | Analysis max.     | 850.0 Hz        |
| Analysis (2) min. | 1160.0 Hz      | Analysis (2) max. | 20000.0 Hz      |

**Special Features**

Compensate delay 151.9000 ms (D\_RCV\_NB, Delay (Cross))

Store to variable RCVNB10\_1000Hz

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

-----

**labCORE Routing**

|                  |                                                                          |
|------------------|--------------------------------------------------------------------------|
| Out Channel 1 -> | Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker                      |
| Out Channel 2 -> | Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In                           |
| In Channel 1 <-  | Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out                        |
| In Channel 2 <-  | BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right |

-----

Analog In Mainboard Settings (Analog In 1/2)

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

-----  
Analog Out Mainboard Settings (Analog Out 1/2)

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

-----  
Microphone Settings (Mic Amp. (Slot 6))

## Channel In 1 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

## Channel In 2 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

## Channel In 3 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

## Channel In 4 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

-----  
BEQ Settings (BEQ Filter 1)

|            |        |
|------------|--------|
| Block mode | Bypass |
|------------|--------|

-----  
Artificial Head Settings (HATS 1 (HMS II.3))

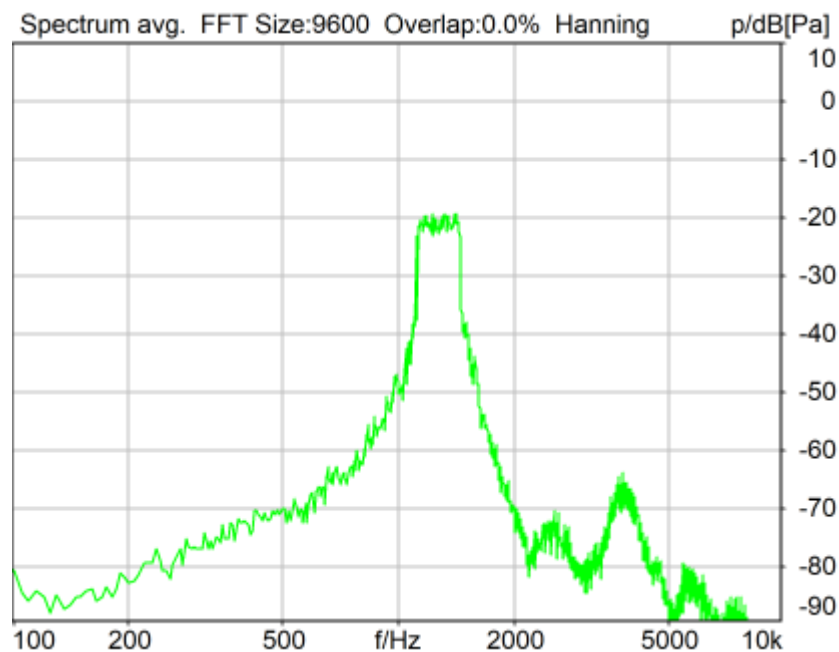
|          |          |            |          |
|----------|----------|------------|----------|
| Ser. Nr. | 12306613 | Pinna Type | Type 3.3 |
|----------|----------|------------|----------|

**HIB Settings**

|                    |                    |                    |          |
|--------------------|--------------------|--------------------|----------|
| HIB Name           | 60020095           | Serial             | 60020095 |
| HIB Mode           | Mobile Measurement | Impedance          | 32 Ohm   |
| Gain out 1         | -40.00 dB          | Gain out 2         | 0.00 dB  |
| Gain in 1          | 0.00 dB            | Gain in 2          | 0.00 dB  |
| Mic 1 Power Supply | Off                | Mic 2 Power Supply | Off      |

## **5.2 RCV Distortion and Noise - 1250 Hz NB**

TIA-5050 (2018-01) \ Measurements \ Narrowband \ 5.2 Receive Distortion and Noise 2N



Distortion (Noise) RCV (packed): 21.60 dB (8.32%) Ok

**Ok**

2024/1/20 10:32 ACQUA 5.1.200

Unmodified HEAD acoustics Measurement Descriptor

**Limits**

|       | lower    |
|-------|----------|
| Run 1 | 20.00 dB |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)

Database Version: 40\_HAC\_Suite\_Rev03

**Source: act\_rpn\_b250ms\_1250hz\_sr20dbm0\_v02.dat**

Level adj. Ch1 -90.0 dB

**Calibration**

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))

Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

**HHP IV Settings (Setting: STD:(0,0,0) rel AHP)**

|                          |         |                  |       |
|--------------------------|---------|------------------|-------|
| MECRP Delta Ye           | 0.0 mm  | Rotation Delta A | 0.0 ° |
| MECRP Delta Ze           | 0.0 mm  | Rotation Delta C | 0.0 ° |
| Delta Xe                 | 0.0 mm  | Rotation Delta B | 5.0 ° |
| Delta Ye                 | 0.0 mm  | Delta A          | 0.0 ° |
| Delta Ze                 | 0.0 mm  | Delta C          | 0.0 ° |
| Ym                       | -0.6 mm | Delta B          | 0.0 ° |
| Ear Type 3.3 Coordinates |         |                  |       |

Mounting: Right Ear

Force to apply: 2.0 N, Force reached: 2.0 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                   |                |                   |                 |
|-------------------|----------------|-------------------|-----------------|
| Direction         | Out 2 -> In 2  | Range length      | 200.00 ms       |
| Range start       | 13550.00 ms    | Sequence length   | 400.00 ms       |
| Number of seq.    | 10             | FIR filter        | drp2ff_ieee1652 |
| Use FIR Filter    | Ch2            | DRP/ERP Ch.2:     | Off             |
| DRP/ERP Ch.1:     | Off            | Frequency base    | Transformation  |
| Frequency base    | Transformation | FFT size          | 9600            |
| FFT size          | 9600           | Overlap           | 0 %             |
| Window function.  | Hanning        | Smooth            | Off             |
| dB weighting      | A Weighting    | Stimulus max.     | 1450.0 Hz       |
| Stimulus min.     | 1085.0 Hz      | Analysis max.     | 1080.0 Hz       |
| Analysis min.     | 20.0 Hz        | Analysis (2) max. | 20000.0 Hz      |
| Analysis (2) min. | 1455.0 Hz      |                   |                 |

**Special Features**

Compensate delay 151.9000 ms (D\_RCV\_NB, Delay (Cross))

Store to variable RCVNB10\_1250Hz

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

-----

## labCORE Routing

Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker  
Out Channel 2 -> Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In  
In Channel 1 <- Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out  
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

-----  
Analog In Mainboard Settings (Analog In 1/2)

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

-----  
Analog Out Mainboard Settings (Analog Out 1/2)

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

-----  
Microphone Settings (Mic Amp. (Slot 6))

## Channel In 1 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

## Channel In 2 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

## Channel In 3 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

## Channel In 4 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

-----  
BEQ Settings (BEQ Filter 1)

|            |        |
|------------|--------|
| Block mode | Bypass |
|------------|--------|

-----  
Artificial Head Settings (HATS 1 (HMS II.3))

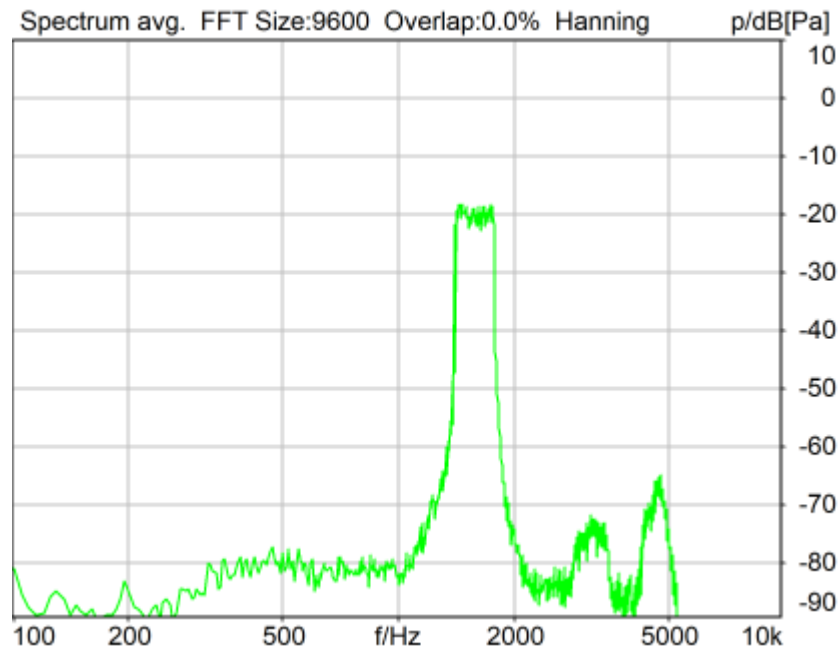
|          |          |            |          |
|----------|----------|------------|----------|
| Ser. Nr. | 12306613 | Pinna Type | Type 3.3 |
|----------|----------|------------|----------|

**HIB Settings**

|                    |                    |                    |          |
|--------------------|--------------------|--------------------|----------|
| HIB Name           | 60020095           | Serial             | 60020095 |
| HIB Mode           | Mobile Measurement | Impedance          | 32 Ohm   |
| Gain out 1         | -40.00 dB          | Gain out 2         | 0.00 dB  |
| Gain in 1          | 0.00 dB            | Gain in 2          | 0.00 dB  |
| Mic 1 Power Supply | Off                | Mic 2 Power Supply | Off      |

## **5.2 RCV Distortion and Noise - 1600 Hz NB**

TIA-5050 (2018-01) \ Measurements \ Narrowband \ 5.2 Receive Distortion and Noise 2N



Distortion (Noise) RCV (packed): 41.20 dB (0.87%) Ok

**Ok**

2024/1/20 10:33 ACQUA 5.1.200

Unmodified HEAD acoustics Measurement Descriptor

#### Limits

|       | lower    |
|-------|----------|
| Run 1 | 20.00 dB |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)

Database Version: 40\_HAC\_Suite\_Rev03

**Source:** act\_rpn\_b250ms\_1600hz\_sr20dbm0\_v02.dat

Level adj. Ch1 -90.0 dB

#### Calibration

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))

Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

#### HHP IV Settings (Setting: STD:(0,0,0) rel AHP)

|                |         |                          |       |
|----------------|---------|--------------------------|-------|
| MECRP Delta Ye | 0.0 mm  | Rotation Delta A         | 0.0 ° |
| MECRP Delta Ze | 0.0 mm  | Rotation Delta C         | 0.0 ° |
| Delta Xe       | 0.0 mm  | Rotation Delta B         | 5.0 ° |
| Delta Ye       | 0.0 mm  | Delta A                  | 0.0 ° |
| Delta Ze       | 0.0 mm  | Delta C                  | 0.0 ° |
| Ym             | -0.6 mm | Delta B                  | 0.0 ° |
|                |         | Ear Type 3.3 Coordinates |       |

Mounting: Right Ear

Force to apply: 2.0 N, Force reached: 2.0 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                   |                |                   |                 |
|-------------------|----------------|-------------------|-----------------|
| Direction         | Out 2 -> In 2  |                   |                 |
| Range start       | 13550.00 ms    | Range length      | 200.00 ms       |
| Number of seq.    | 10             | Sequence length   | 400.00 ms       |
| Use FIR Filter    | Ch2            | FIR filter        | drp2ff_ieee1652 |
| DRP/ERP Ch.1:     | Off            | DRP/ERP Ch.2:     | Off             |
| Frequency base    | Transformation |                   |                 |
| FFT size          | 9600           | Overlap           | 0 %             |
| Window function.  | Hanning        | Smooth            | Off             |
| dB weighting      | A Weighting    |                   |                 |
| Stimulus min.     | 1375.0 Hz      | Stimulus max.     | 1815.0 Hz       |
| Analysis min.     | 20.0 Hz        | Analysis max.     | 1370.0 Hz       |
| Analysis (2) min. | 1820.0 Hz      | Analysis (2) max. | 20000.0 Hz      |

**Special Features**

Compensate delay 151.9000 ms (D\_RCV\_NB, Delay (Cross))  
Store to variable RCVNB10\_1600Hz

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

**labCORE Routing**

Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker  
Out Channel 2 -> Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In  
In Channel 1 <- Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out  
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

**Analog In Mainboard Settings (Analog In 1/2)**

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

**Analog Out Mainboard Settings (Analog Out 1/2)**

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

**Microphone Settings (Mic Amp. (Slot 6))****Channel In 1 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 2 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 3 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 4 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**BEQ Settings (BEQ Filter 1)**

Block mode Bypass

**Artificial Head Settings (HATS 1 (HMS II.3))**

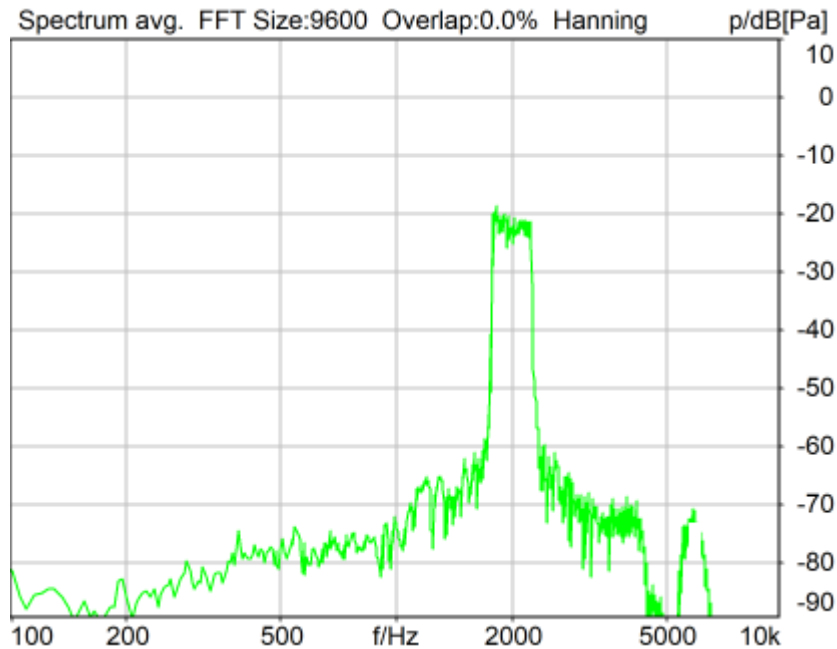
|          |          |            |          |
|----------|----------|------------|----------|
| Ser. Nr. | 12306613 | Pinna Type | Type 3.3 |
|----------|----------|------------|----------|

**HIB Settings**

|                    |                    |                    |          |
|--------------------|--------------------|--------------------|----------|
| HIB Name           | 60020095           | Serial             | 60020095 |
| HIB Mode           | Mobile Measurement | Impedance          | 32 Ohm   |
| Gain out 1         | -40.00 dB          | Gain out 2         | 0.00 dB  |
| Gain in 1          | 0.00 dB            | Gain in 2          | 0.00 dB  |
| Mic 1 Power Supply | Off                | Mic 2 Power Supply | Off      |

## 5.2 RCV Distortion and Noise - 2000 Hz NB

TIA-5050 (2018-01) \ Measurements \ Narrowband \ 5.2 Receive Distortion and Noise 2N



Distortion (Noise) RCV (packed): 34.70 dB (1.84%) Ok

Ok

2024/1/20 10:33 ACQUA 5.1.200

Unmodified HEAD acoustics Measurement Descriptor

### Limits

|       | lower    |
|-------|----------|
| Run 1 | 20.00 dB |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)

Database Version: 40\_HAC\_Suite\_Rev03

Source: act\_rpn\_b250ms\_2000hz\_sr20dbm0\_v02.dat

Level adj. Ch1 -90.0 dB

### Calibration

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))

Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

HHP IV Settings (Setting: STD:(0,0,0) rel AHP)

|                |        |                  |       |
|----------------|--------|------------------|-------|
| MECRP Delta Ye | 0.0 mm | Rotation Delta A | 0.0 ° |
|                |        | Rotation Delta C | 0.0 ° |

|                |         |                          |       |
|----------------|---------|--------------------------|-------|
| MECRP Delta Ze | 0.0 mm  | Rotation Delta B         | 5.0 ° |
| Delta Xe       | 0.0 mm  | Delta A                  | 0.0 ° |
| Delta Ye       | 0.0 mm  | Delta C                  | 0.0 ° |
| Delta Ze       | 0.0 mm  | Delta B                  | 0.0 ° |
| Ym             | -0.6 mm | Ear Type 3.3 Coordinates |       |

Mounting: Right Ear  
Force to apply: 2.0 N, Force reached: 2.0 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                   |                |                   |                 |
|-------------------|----------------|-------------------|-----------------|
| Direction         | Out 2 -> In 2  |                   |                 |
| Range start       | 13550.00 ms    | Range length      | 200.00 ms       |
| Number of seq.    | 10             | Sequence length   | 400.00 ms       |
| Use FIR Filter    | Ch2            | FIR filter        | drp2ff_ieee1652 |
| DRP/ERP Ch.1:     | Off            | DRP/ERP Ch.2:     | Off             |
| Frequency base    | Transformation |                   |                 |
| FFT size          | 9600           | Overlap           | 0 %             |
| Window function.  | Hanning        | Smooth            | Off             |
| dB weighting      | A Weighting    |                   |                 |
| Stimulus min.     | 1745.0 Hz      | Stimulus max.     | 2275.0 Hz       |
| Analysis min.     | 20.0 Hz        | Analysis max.     | 1740.0 Hz       |
| Analysis (2) min. | 2280.0 Hz      | Analysis (2) max. | 20000.0 Hz      |

**Special Features**

Compensate delay 151.9000 ms (D\_RCV\_NB, Delay (Cross))  
Store to variable RCVNB10\_2000Hz

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

**labCORE Routing**

Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker  
Out Channel 2 -> Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In  
In Channel 1 <- Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out  
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

**Analog In Mainboard Settings (Analog In 1/2)**

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

**Analog Out Mainboard Settings (Analog Out 1/2)**

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

**Microphone Settings (Mic Amp. (Slot 6))****Channel In 1 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 2 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 3 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 4 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**BEQ Settings (BEQ Filter 1)**

Block mode Bypass

**Artificial Head Settings (HATS 1 (HMS II.3))**

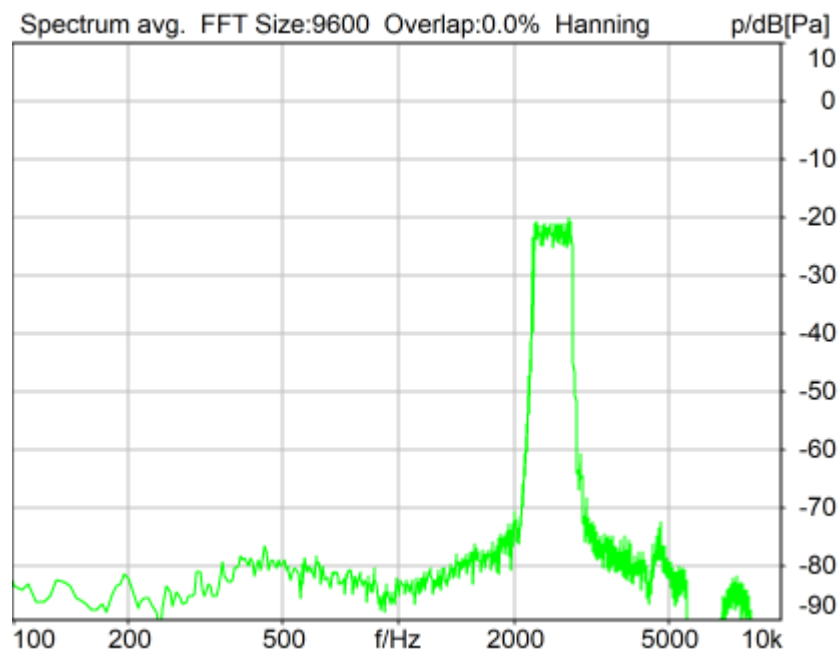
Ser. Nr. 12306613 Pinna Type Type 3.3

#### HIB Settings

|                        |                    |                        |          |
|------------------------|--------------------|------------------------|----------|
| HIB Name               | 60020095           | Serial                 | 60020095 |
| HIB Mode               | Mobile Measurement | Impedance              | 32 Ohm   |
| Gain out 1             | -40.00 dB          | Gain out 2             | 0.00 dB  |
| Gain in 1              | 0.00 dB            | Gain in 2              | 0.00 dB  |
| Mic 1 Power Supply Off |                    | Mic 2 Power Supply Off |          |

## 5.2 RCV Distortion and Noise - 2500 Hz NB

TIA-5050 (2018-01) \ Measurements \ Narrowband \ 5.2 Receive Distortion and Noise 2N



Distortion (Noise) RCV (packed): 33.47 dB (2.12%) Ok

**Ok**

2024/1/20 10:34 ACQUA 5.1.200

Unmodified HEAD acoustics Measurement Descriptor

#### Limits

|       |          |
|-------|----------|
|       | lower    |
| Run 1 | 20.00 dB |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)

Database Version: 40\_HAC\_Suite\_Rev03

Source: act\_rpn\_b250ms\_2500hz\_sr20dbm0\_v02.dat

Level adj. Ch1 -90.0 dB

**Calibration**

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))

Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

**HHP IV Settings (Setting: STD:(0,0,0) rel AHP)**

|                |         |                          |       |
|----------------|---------|--------------------------|-------|
| MECRP Delta Ye | 0.0 mm  | Rotation Delta A         | 0.0 ° |
| MECRP Delta Ze | 0.0 mm  | Rotation Delta C         | 0.0 ° |
| Delta Xe       | 0.0 mm  | Rotation Delta B         | 5.0 ° |
| Delta Ye       | 0.0 mm  | Delta A                  | 0.0 ° |
| Delta Ze       | 0.0 mm  | Delta C                  | 0.0 ° |
| Ym             | -0.6 mm | Delta B                  | 0.0 ° |
|                |         | Ear Type 3.3 Coordinates |       |

Mounting: Right Ear

Force to apply: 2.0 N, Force reached: 2.0 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                   |                |                   |                 |
|-------------------|----------------|-------------------|-----------------|
| Direction         | Out 2 -> In 2  |                   |                 |
| Range start       | 13550.00 ms    | Range length      | 200.00 ms       |
| Number of seq.    | 10             | Sequence length   | 400.00 ms       |
| Use FIR Filter    | Ch2            | FIR filter        | drp2ff_ieee1652 |
| DRP/ERP Ch.1:     | Off            | DRP/ERP Ch.2:     | Off             |
| Frequency base    | Transformation |                   |                 |
| FFT size          | 9600           | Overlap           | 0 %             |
| Window function.  | Hanning        | Smooth            | Off             |
| dB weighting      | A Weighting    |                   |                 |
| Stimulus min.     | 2205.0 Hz      | Stimulus max.     | 2855.0 Hz       |
| Analysis min.     | 20.0 Hz        | Analysis max.     | 2200.0 Hz       |
| Analysis (2) min. | 2860.0 Hz      | Analysis (2) max. | 20000.0 Hz      |

**Special Features**

Compensate delay 151.9000 ms (D\_RCV\_NB, Delay (Cross))

Store to variable RCVNB10\_2500Hz

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

**labCORE Routing**

|                  |                                                                          |
|------------------|--------------------------------------------------------------------------|
| Out Channel 1 -> | Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker                      |
| Out Channel 2 -> | Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In                           |
| In Channel 1 <-  | Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out                        |
| In Channel 2 <-  | BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right |

**Analogue In Mainboard Settings (Analog In 1/2)**

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

**Analogue Out Mainboard Settings (Analog Out 1/2)**

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

**Microphone Settings (Mic Amp. (Slot 6))****Channel In 1 Settings**

|                          |                          |                |      |
|--------------------------|--------------------------|----------------|------|
| Range                    | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage200V |                          | Supply Voltage | ±60V |

**Channel In 2 Settings**

|                          |                          |                |      |
|--------------------------|--------------------------|----------------|------|
| Range                    | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage200V |                          | Supply Voltage | ±60V |

**Channel In 3 Settings**

|                          |                          |                |      |
|--------------------------|--------------------------|----------------|------|
| Range                    | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage200V |                          | Supply Voltage | ±60V |

Channel In 4 Settings

Range 114 dB[SPL] @ 12.5 mV/Pa Highpass Off  
Polarisation Voltage 200V Supply Voltage ±60V

-----  
BEQ Settings (BEQ Filter 1)

Block mode Bypass

-----  
Artificial Head Settings (HATS 1 (HMS II.3))

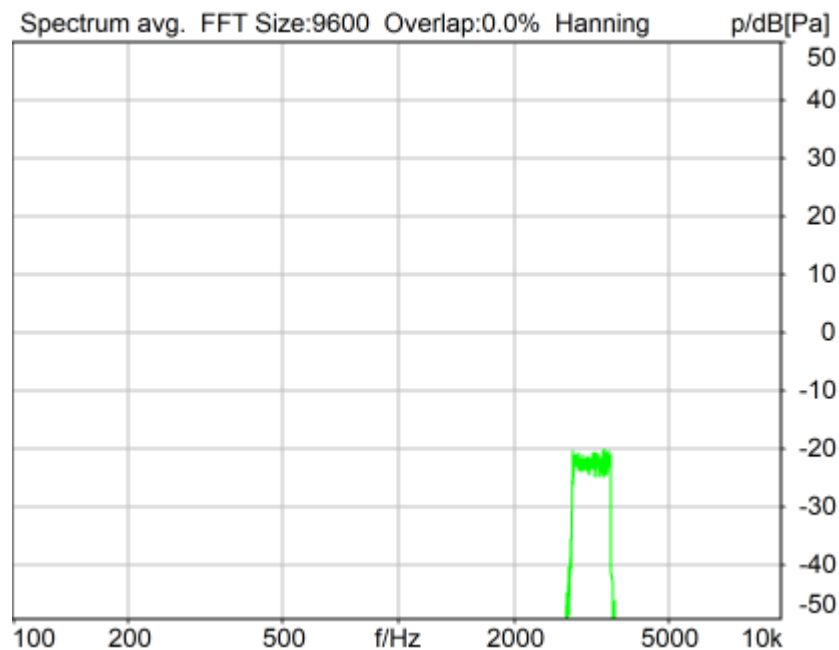
Ser. Nr. 12306613 Pinna Type Type 3.3

**HIB Settings**

|                    |                    |                    |          |
|--------------------|--------------------|--------------------|----------|
| HIB Name           | 60020095           | Serial             | 60020095 |
| HIB Mode           | Mobile Measurement | Impedance          | 32 Ohm   |
| Gain out 1         | -40.00 dB          | Gain out 2         | 0.00 dB  |
| Gain in 1          | 0.00 dB            | Gain in 2          | 0.00 dB  |
| Mic 1 Power Supply | Off                | Mic 2 Power Supply | Off      |

## 5.2 RCV Distortion and Noise - 3150 Hz NB

TIA-5050 (2018-01) \ Measurements \ Narrowband \ 5.2 Receive Distortion and Noise 2N



Distortion (Noise) RCV (packed): 28.44 dB (3.78%) Ok

**Ok**

2024/1/20 10:34 ACQUA 5.1.200

Unmodified HEAD acoustics Measurement Descriptor

**Limits**

|       |          |
|-------|----------|
|       | lower    |
| Run 1 | 20.00 dB |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)  
Database Version: 40\_HAC\_Suite\_Rev03**Source: act\_rpn\_b250ms\_3150hz\_sr20dbm0\_v02.dat**

Level adj. Ch1 -90.0 dB

**Calibration**

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))

Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

**HHP IV Settings (Setting: STD:(0,0,0) rel AHP)**

|                |         |                          |       |
|----------------|---------|--------------------------|-------|
| MECRP Delta Ye | 0.0 mm  | Rotation Delta A         | 0.0 ° |
| MECRP Delta Ze | 0.0 mm  | Rotation Delta C         | 0.0 ° |
| Delta Xe       | 0.0 mm  | Rotation Delta B         | 5.0 ° |
| Delta Ye       | 0.0 mm  | Delta A                  | 0.0 ° |
| Delta Ze       | 0.0 mm  | Delta C                  | 0.0 ° |
| Ym             | -0.6 mm | Delta B                  | 0.0 ° |
|                |         | Ear Type 3.3 Coordinates |       |

Mounting: Right Ear

Force to apply: 2.0 N, Force reached: 2.0 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                   |                |                   |                 |
|-------------------|----------------|-------------------|-----------------|
| Direction         | Out 2 -> In 2  |                   |                 |
| Range start       | 13550.00 ms    | Range length      | 200.00 ms       |
| Number of seq.    | 10             | Sequence length   | 400.00 ms       |
| Use FIR Filter    | Ch2            | FIR filter        | drp2ff_ieee1652 |
| DRP/ERP Ch.1:     | Off            | DRP/ERP Ch.2:     | Off             |
| Frequency base    | Transformation |                   |                 |
| FFT size          | 9600           | Overlap           | 0 %             |
| Window function.  | Hanning        | Smooth            | Off             |
| dB weighting      | A Weighting    |                   |                 |
| Stimulus min.     | 2785.0 Hz      | Stimulus max.     | 3585.0 Hz       |
| Analysis min.     | 20.0 Hz        | Analysis max.     | 2780.0 Hz       |
| Analysis (2) min. | 3590.0 Hz      | Analysis (2) max. | 20000.0 Hz      |

**Special Features**

Compensate delay 151.9000 ms (D\_RCV\_NB, Delay (Cross))

Store to variable RCVNB10\_3150Hz

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

**labCORE Routing**

|                  |                                                                          |
|------------------|--------------------------------------------------------------------------|
| Out Channel 1 -> | Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker                      |
| Out Channel 2 -> | Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In                           |
| In Channel 1 <-  | Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out                        |
| In Channel 2 <-  | BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right |

**Analog In Mainboard Settings (Analog In 1/2)**

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

**Analog Out Mainboard Settings (Analog Out 1/2)**

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

**Microphone Settings (Mic Amp. (Slot 6))**

Channel In 1 Settings

Range 114 dB[SPL] @ 12.5 mV/Pa Highpass Off  
Polarisation Voltage200V Supply Voltage ±60V  
Channel In 2 Settings  
Range 114 dB[SPL] @ 12.5 mV/Pa Highpass 20Hz  
Polarisation Voltage200V Supply Voltage ±60V  
Channel In 3 Settings  
Range 114 dB[SPL] @ 12.5 mV/Pa Highpass Off  
Polarisation Voltage200V Supply Voltage ±60V  
Channel In 4 Settings  
Range 114 dB[SPL] @ 12.5 mV/Pa Highpass Off  
Polarisation Voltage200V Supply Voltage ±60V

-----  
BEQ Settings (BEQ Filter 1)  
Block mode Bypass  
-----

Artificial Head Settings (HATS 1 (HMS II.3))

Ser. Nr. 12306613 Pinna Type Type 3.3

#### HIB Settings

HIB Name 60020095 Serial 60020095  
HIB Mode Mobile Measurement Impedance 32 Ohm  
Gain out 1 -40.00 dB Gain out 2 0.00 dB  
Gain in 1 0.00 dB Gain in 2 0.00 dB  
Mic 1 Power Supply Off Mic 2 Power Supply Off

## Report - Receive Distortion and Noise (Conversational Gain)

TIA-5050 (2018-01) \ Measurements \ Narrowband \ 5.2 Receive Distortion and Noise 2N

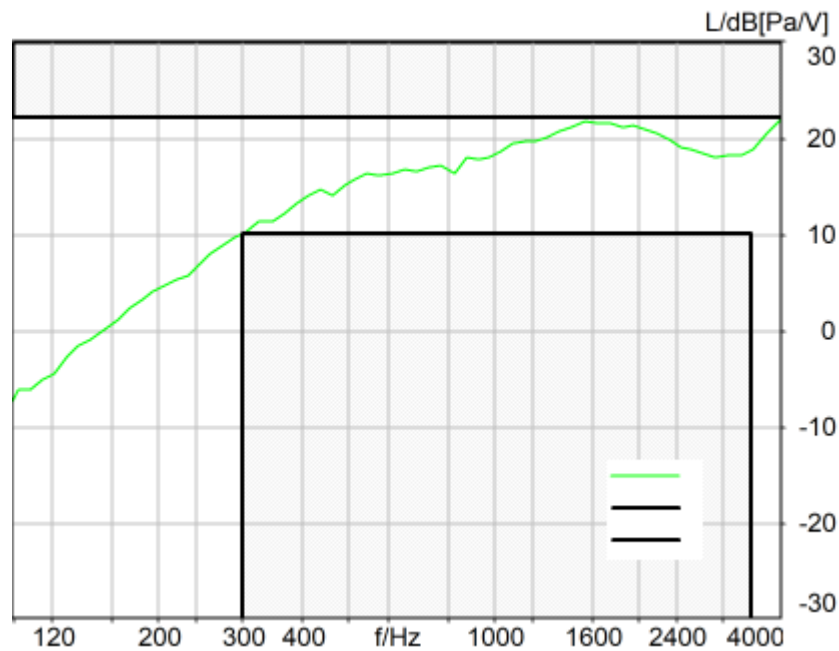
| Region | Frequency | SDNR     |
|--------|-----------|----------|
| 1      | 400Hz     | 30.29 dB |
| 2      | 500Hz     | 30.01 dB |
| 3      | 630Hz     | 32.23 dB |
| 4      | 800Hz     | 28.24 dB |
| 5      | 1000Hz    | 38.96 dB |
| 6      | 1250Hz    | 21.60 dB |
| 7      | 1600Hz    | 41.20 dB |
| 8      | 2000Hz    | 34.70 dB |
| 9      | 2500Hz    | 33.47 dB |
| 10     | 3150Hz    | 28.44 dB |

All SDNRs were greater than 20.0 dB, requirement was met.  
Smallest SDNR was 21.60dB at 1250Hz.

2024/1/20 10:34 ACQUA

## 5.3 Frequency Response 8N FF HANB

TIA-5050 (2018-01) \ Measurements \ Narrowband



Absolute minimal distance  
0.26 dB at 1547.5 Hz Ok

Ok

2024/1/20 10:22 ACQUA 5.1.200

Unmodified HEAD acoustics Measurement Descriptor

Limits

|       |                    |
|-------|--------------------|
|       | lower              |
| Run 1 | Fit into tolerance |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)  
Database Version: 40\_HAC\_Suite\_Rev03

Source: respmaleieee269\_nb\_r16.dat

Level adj. Ch1 -90.0 dB Level adj. Ch2 -4.0 dB

NARROWBAND IEEE-269-2010 Real Speech Signal at Channel 2

Pause 0.5 s +

Real Speech (english, male speaker) 11.5 s, Active Speech Level: -16 dBm0, margin 15.9 dB +

Pause till end of file

Signal level (ch1): -16 dBm0 Active Speech Level, margin 15.9 dB

Signal taken from "IEEE\_269-2010\_Male\_mono\_48\_kHz.wav"

Alteration:

0.2 s Pause added at the beginning of the file.

0.8 s Pause added at the end of the file.

filtered with 4.0 kHz low-pass filter

signal level changed

**Calibration**

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))

Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

**HHP IV Settings (Setting: STD:(0,0,0) rel AHP)**

|                          |         |                  |       |
|--------------------------|---------|------------------|-------|
| MECRP Delta Ye           | 0.0 mm  | Rotation Delta A | 0.0 ° |
| MECRP Delta Ze           | 0.0 mm  | Rotation Delta C | 0.0 ° |
| Delta Xe                 | 0.0 mm  | Rotation Delta B | 5.0 ° |
| Delta Ye                 | 0.0 mm  | Delta A          | 0.0 ° |
| Delta Ze                 | 0.0 mm  | Delta C          | 0.0 ° |
| Ym                       | -4.1 mm | Delta B          | 0.0 ° |
| Ear Type 3.3 Coordinates |         |                  |       |

Mounting: Right Ear

Force to apply: 8.0 N, Force reached: 8.0 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                  |                               |                     |                 |
|------------------|-------------------------------|---------------------|-----------------|
| Direction        | Out 2 -> In 2                 |                     |                 |
| Range start      | 500.00 ms                     | Range length        | 11500.00 ms     |
| Use FIR Filter   | Ch2                           | FIR filter          | drp2ff_ieee1652 |
| DRP/ERP Ch.1:    | Off                           | DRP/ERP Ch.2:       | Off             |
| Frequency base   | 12th octave                   | DIN Row             | Row A           |
| Method           | FFT                           |                     |                 |
| FFT size         | 4096                          | Overlap             | 75 %            |
| Window function. | Hanning                       |                     |                 |
| Reference file   | r521_rcv_frq_spee269_hanb.fft |                     |                 |
| Tol. scheme file | 521_rcv_frq_man_hanb.tol      | Min. freq. for tol. | 100.0 Hz        |
| Auto adjust      | Centrate                      | Max. freq. for tol. | 4000.0 Hz       |

**Special Features**

Compensate delay 151.9000 ms (D\_RCV\_NB, Delay (Cross))

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

**labCORE Routing**

|                  |                                                                          |
|------------------|--------------------------------------------------------------------------|
| Out Channel 1 -> | Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker                      |
| Out Channel 2 -> | Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In                           |
| In Channel 1 <-  | Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out                        |
| In Channel 2 <-  | BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right |

**Analog In Mainboard Settings (Analog In 1/2)**

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

**Analog Out Mainboard Settings (Analog Out 1/2)**

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

**Microphone Settings (Mic Amp. (Slot 6))****Channel In 1 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 2 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 3 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 4 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

-----  
BEQ Settings (BEQ Filter 1)  
Block mode Bypass  
-----

Artificial Head Settings (HATS 1 (HMS II.3))

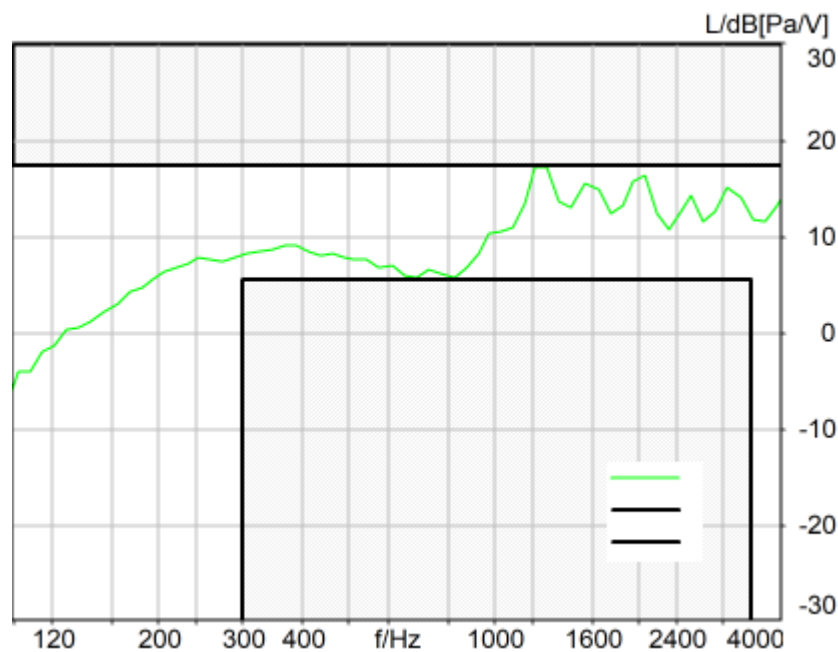
Ser. Nr. 12306613 Pinna Type Type 3.3

#### HIB Settings

|                        |                    |                        |          |
|------------------------|--------------------|------------------------|----------|
| HIB Name               | 60020095           | Serial                 | 60020095 |
| HIB Mode               | Mobile Measurement | Impedance              | 32 Ohm   |
| Gain out 1             | -40.00 dB          | Gain out 2             | 0.00 dB  |
| Gain in 1              | 0.00 dB            | Gain in 2              | 0.00 dB  |
| Mic 1 Power Supply Off |                    | Mic 2 Power Supply Off |          |

## 5.3 Frequency Response 2N FF HANB

TIA-5050 (2018-01) \ Measurements \ Narrowband



Absolute minimal distance

0.26 dB at 1285.9 Hz Ok

Ok

2024/1/20 10:35 ACQUA 5.1.200

Unmodified HEAD acoustics Measurement Descriptor

#### Limits

|       |                    |
|-------|--------------------|
|       | lower              |
| Run 1 | Fit into tolerance |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)  
Database Version: 40\_HAC\_Suite\_Rev03**Source: respmaleieee269\_nb\_r16.dat**

Level adj. Ch1 -90.0 dB Level adj. Ch2 -4.0 dB

NARROWBAND IEEE-269-2010 Real Speech Signal at Channel 2

Pause 0.5 s +

Real Speech (english, male speaker) 11.5 s, Active Speech Level: -16 dBm0, margin 15.9 dB +

Pause till end of file

Signal level (ch1): -16 dBm0 Active Speech Level, margin 15.9 dB

Signal taken from "IEEE\_269-2010\_Male\_mono\_48\_kHz.wav"

Alteration:

0.2 s Pause added at the beginning of the file.

0.8 s Pause added at the end of the file.

filtered with 4.0 kHz low-pass filter

signal level changed

**Calibration**

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))

Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

**HHP IV Settings (Setting: STD:(0,0,0) rel AHP)**

|                |         |                          |       |
|----------------|---------|--------------------------|-------|
| MECRP Delta Ye | 0.0 mm  | Rotation Delta A         | 0.0 ° |
| MECRP Delta Ze | 0.0 mm  | Rotation Delta C         | 0.0 ° |
| Delta Xe       | 0.0 mm  | Rotation Delta B         | 5.0 ° |
| Delta Ye       | 0.0 mm  | Delta A                  | 0.0 ° |
| Delta Ze       | 0.0 mm  | Delta C                  | 0.0 ° |
| Ym             | -0.6 mm | Delta B                  | 0.0 ° |
|                |         | Ear Type 3.3 Coordinates |       |

Mounting: Right Ear

Force to apply: 2.0 N, Force reached: 2.0 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                  |                               |                     |                 |
|------------------|-------------------------------|---------------------|-----------------|
| Direction        | Out 2 -> In 2                 |                     |                 |
| Range start      | 500.00 ms                     | Range length        | 11500.00 ms     |
| Use FIR Filter   | Ch2                           | FIR filter          | drp2ff_ieee1652 |
| DRP/ERP Ch.1:    | Off                           | DRP/ERP Ch.2:       | Off             |
| Frequency base   | 12th octave                   | DIN Row             | Row A           |
| Method           | FFT                           |                     |                 |
| FFT size         | 4096                          | Overlap             | 75 %            |
| Window function. | Hanning                       |                     |                 |
| Reference file   | r521_rcv_frq_spee269_hanb.fft |                     |                 |
| Tol. scheme file | 521_rcv_frq_man_hanb.tol      | Min. freq. for tol. | 100.0 Hz        |
| Auto adjust      | Centrate                      | Max. freq. for tol. | 4000.0 Hz       |

**Special Features**

Compensate delay 151.9000 ms (D\_RCV\_NB, Delay (Cross))

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

-----

**labCORE Routing**

|                  |                                                                          |
|------------------|--------------------------------------------------------------------------|
| Out Channel 1 -> | Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker                      |
| Out Channel 2 -> | Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In                           |
| In Channel 1 <-  | Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out                        |
| In Channel 2 <-  | BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right |

-----  
Analog In Mainboard Settings (Analog In 1/2)

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

-----  
Analog Out Mainboard Settings (Analog Out 1/2)

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

-----  
Microphone Settings (Mic Amp. (Slot 6))

## Channel In 1 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

## Channel In 2 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

## Channel In 3 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

## Channel In 4 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

-----  
BEQ Settings (BEQ Filter 1)

|            |        |
|------------|--------|
| Block mode | Bypass |
|------------|--------|

-----  
Artificial Head Settings (HATS 1 (HMS II.3))

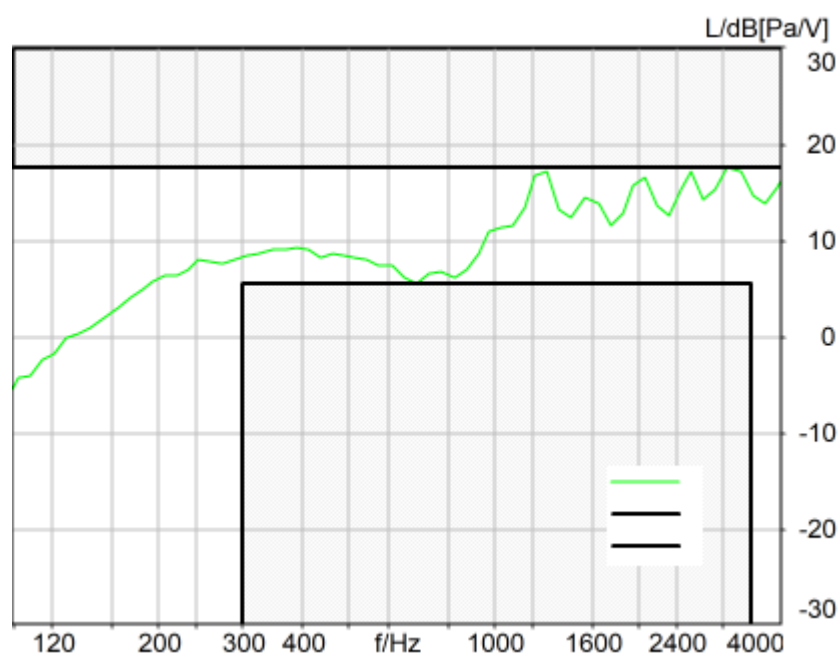
|          |          |            |          |
|----------|----------|------------|----------|
| Ser. Nr. | 12306613 | Pinna Type | Type 3.3 |
|----------|----------|------------|----------|

**HIB Settings**

|                    |                    |                    |          |
|--------------------|--------------------|--------------------|----------|
| HIB Name           | 60020095           | Serial             | 60020095 |
| HIB Mode           | Mobile Measurement | Impedance          | 32 Ohm   |
| Gain out 1         | -40.00 dB          | Gain out 2         | 0.00 dB  |
| Gain in 1          | 0.00 dB            | Gain in 2          | 0.00 dB  |
| Mic 1 Power Supply | Off                | Mic 2 Power Supply | Off      |

## **5.3 Frequency Response 2N DF HANB**

TIA-5050 (2018-01) \ Measurements \ Narrowband



Absolute minimal distance  
-0.08 dB at 3058.6 Hz Not Ok

## Not Ok

2024/1/20 10:42 ACQUA 5.1.200

Unmodified HEAD acoustics Measurement Descriptor

### Limits

|       | lower              |
|-------|--------------------|
| Run 1 | Fit into tolerance |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)

Database Version: 40\_HAC\_Suite\_Rev03

### Source: respmaleieee269\_nb\_r16.dat

Level adj. Ch1 -90.0 dB Level adj. Ch2 -4.0 dB

NARROWBAND IEEE-269-2010 Real Speech Signal at Channel 2

Pause 0.5 s +

Real Speech (english, male speaker) 11.5 s, Active Speech Level: -16 dBm0, margin 15.9 dB +

Pause till end of file

Signal level (ch1): -16 dBm0 Active Speech Level, margin 15.9 dB

Signal taken from "IEEE\_269-2010\_Male\_mono\_48\_kHz.wav"

Alteration:

0.2 s Pause added at the beginning of the file.

0.8 s Pause added at the end of the file.

filtered with 4.0 kHz low-pass filter

signal level changed

### Calibration

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))

Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

### HHP IV Settings (Setting: STD:(0,0,0) rel AHP)

|                |         |                          |       |
|----------------|---------|--------------------------|-------|
| MECRP Delta Ye | 0.0 mm  | Rotation Delta A         | 0.0 ° |
| MECRP Delta Ze | 0.0 mm  | Rotation Delta C         | 0.0 ° |
| Delta Xe       | 0.0 mm  | Rotation Delta B         | 5.0 ° |
| Delta Ye       | 0.0 mm  | Delta A                  | 0.0 ° |
| Delta Ze       | 0.0 mm  | Delta C                  | 0.0 ° |
| Ym             | -0.6 mm | Delta B                  | 0.0 ° |
|                |         | Ear Type 3.3 Coordinates |       |

Mounting: Right Ear

Force to apply: 2.0 N, Force reached: 2.0 N

### Output Equalization/Filter

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

### Analysis

Direction Out 2 -> In 2

Range start 500.00 ms

Use FIR Filter Ch2

DRP/ERP Ch.1: Off

Range length 11500.00 ms

FIR filter drp2df\_ieee1652

DRP/ERP Ch.2: Off

|                  |                               |                     |           |
|------------------|-------------------------------|---------------------|-----------|
| Frequency base   | 12th octave                   | DIN Row             | Row A     |
| Method           | FFT                           |                     |           |
| FFT size         | 4096                          | Overlap             | 75 %      |
| Window function. | Hanning                       |                     |           |
| Reference file   | r521_rcv_frq_spee269_hanb.fft |                     |           |
| Tol. scheme file | 521_rcv_frq_man_hanb.tol      | Min. freq. for tol. | 100.0 Hz  |
| Auto adjust      | Centrate                      | Max. freq. for tol. | 4000.0 Hz |

**Special Features**

Compensate delay 151.9000 ms (D\_RCV\_NB, Delay (Cross))

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

**labCORE Routing**

Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker  
Out Channel 2 -> Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In  
In Channel 1 <- Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out  
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

**Analog In Mainboard Settings (Analog In 1/2)**

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

**Analog Out Mainboard Settings (Analog Out 1/2)**

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

**Microphone Settings (Mic Amp. (Slot 6))****Channel In 1 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 2 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 3 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 4 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**BEQ Settings (BEQ Filter 1)**

Block mode Bypass

**Artificial Head Settings (HATS 1 (HMS II.3))**

|          |          |            |          |
|----------|----------|------------|----------|
| Ser. Nr. | 12306613 | Pinna Type | Type 3.3 |
|----------|----------|------------|----------|

**HIB Settings**

|                    |                    |                    |          |
|--------------------|--------------------|--------------------|----------|
| HIB Name           | 60020095           | Serial             | 60020095 |
| HIB Mode           | Mobile Measurement | Impedance          | 32 Ohm   |
| Gain out 1         | -40.00 dB          | Gain out 2         | 0.00 dB  |
| Gain in 1          | 0.00 dB            | Gain in 2          | 0.00 dB  |
| Mic 1 Power Supply | Off                | Mic 2 Power Supply | Off      |

---

## **Measurement Protocol**

|                    |                                                 |
|--------------------|-------------------------------------------------|
| Measurement Object | WIFI 5G_802.11ac-VHT80 MSC0_EVS WB 128kbps_CH42 |
| Project            | HMD_2322#N159V                                  |

|                        |                    |
|------------------------|--------------------|
| Project                | TIA-5050 (2018-01) |
| Report Generation Date | 2024/2/6 10:37     |
| Responsible Person     | audio              |

## Status Overview

| SMD                                           | Status | Single Value Description           | Single Value | Object                                                |
|-----------------------------------------------|--------|------------------------------------|--------------|-------------------------------------------------------|
| Overall Receive Delay WB                      | Done   | Delay (Cross) [ms]                 | 148.0        | WIFI 5G_802.11ac-VHT80<br>MSC0_EVS WB<br>128kbps_CH42 |
| 5.1a Receive Volume Control Performance 8N WB | Not Ok | Corrected Speech Level [dB[SPL]]   | 17.25        | WIFI 5G_802.11ac-VHT80<br>MSC0_EVS WB<br>128kbps_CH42 |
| 5.1b Receive Volume Control Performance 2N WB | Ok     | Corrected Speech Level [dB[SPL]]   | 13.03        | WIFI 5G_802.11ac-VHT80<br>MSC0_EVS WB<br>128kbps_CH42 |
| 5.2 RCV Distortion and Noise - 250 Hz WB      | Ok     | Distortion (Noise) [dB],<br>0.0 dB | 30.25        | WIFI 5G_802.11ac-VHT80<br>MSC0_EVS WB<br>128kbps_CH42 |
| 5.2 RCV Distortion and Noise - 315 Hz WB      | Ok     | Distortion (Noise) [dB],<br>0.0 dB | 30.72        | WIFI 5G_802.11ac-VHT80<br>MSC0_EVS WB<br>128kbps_CH42 |
| 5.2 RCV Distortion and Noise - 400 Hz WB      | Ok     | Distortion (Noise) [dB],<br>0.0 dB | 29.99        | WIFI 5G_802.11ac-VHT80<br>MSC0_EVS WB<br>128kbps_CH42 |
| 5.2 RCV Distortion and Noise - 500 Hz WB      | Ok     | Distortion (Noise) [dB],<br>0.0 dB | 30.43        | WIFI 5G_802.11ac-VHT80<br>MSC0_EVS WB<br>128kbps_CH42 |
| 5.2 RCV Distortion and Noise - 630 Hz WB      | Ok     | Distortion (Noise) [dB],<br>0.0 dB | 30.87        | WIFI 5G_802.11ac-VHT80<br>MSC0_EVS WB<br>128kbps_CH42 |
| 5.2 RCV Distortion and Noise - 800 Hz WB      | Ok     | Distortion (Noise) [dB],<br>0.0 dB | 33.32        | WIFI 5G_802.11ac-VHT80<br>MSC0_EVS WB<br>128kbps_CH42 |
| 5.2 RCV Distortion and Noise - 1000 Hz WB     | Ok     | Distortion (Noise) [dB],<br>0.0 dB | 38.21        | WIFI 5G_802.11ac-VHT80<br>MSC0_EVS WB<br>128kbps_CH42 |
| 5.2 RCV Distortion and Noise - 1250 Hz WB     | Ok     | Distortion (Noise) [dB],<br>0.0 dB | 22.51        | WIFI 5G_802.11ac-VHT80<br>MSC0_EVS WB<br>128kbps_CH42 |
| 5.2 RCV Distortion and Noise - 1600 Hz WB     | Ok     | Distortion (Noise) [dB],<br>0.0 dB | 23.99        | WIFI 5G_802.11ac-VHT80<br>MSC0_EVS WB<br>128kbps_CH42 |
| 5.2 RCV Distortion and Noise - 2000 Hz WB     | Ok     | Distortion (Noise) [dB],<br>0.0 dB | 41.68        | WIFI 5G_802.11ac-VHT80<br>MSC0_EVS WB<br>128kbps_CH42 |
| 5.2 RCV Distortion and Noise - 2500 Hz WB     | Ok     | Distortion (Noise) [dB],<br>0.0 dB | 29.43        | WIFI 5G_802.11ac-VHT80<br>MSC0_EVS WB<br>128kbps_CH42 |
| 5.2 RCV Distortion and Noise - 3150 Hz WB     | Ok     | Distortion (Noise) [dB],<br>0.0 dB | 35.60        | WIFI 5G_802.11ac-VHT80<br>MSC0_EVS WB<br>128kbps_CH42 |
| 5.2 RCV Distortion and Noise - 4000 Hz WB     | Ok     | Distortion (Noise) [dB],<br>0.0 dB | 34.25        | WIFI 5G_802.11ac-VHT80<br>MSC0_EVS WB<br>128kbps_CH42 |
| 5.2 RCV Distortion and Noise                  | Ok     | Distortion (Noise) [dB],           | 36.97        | WIFI 5G_802.11ac-VHT80                                |

|                                                             |        |                                                      |       |                                                       |
|-------------------------------------------------------------|--------|------------------------------------------------------|-------|-------------------------------------------------------|
| - 5000 Hz WB                                                |        | 0.0 dB                                               |       | MSC0_EVS WB<br>128kbps_CH42                           |
| Report - Receive Distortion and Noise (Conversational Gain) | Ok     | Minimum SDNR [dB],<br>(occured at 1250Hz)            | 22.51 | WIFI 5G_802.11ac-VHT80<br>MSC0_EVS WB<br>128kbps_CH42 |
| 5.2 RCV Distortion and Noise<br>- 250 Hz WB                 | Ok     | Distortion (Noise) [dB],<br>0.0 dB                   | 29.98 | WIFI 5G_802.11ac-VHT80<br>MSC0_EVS WB<br>128kbps_CH42 |
| 5.2 RCV Distortion and Noise<br>- 315 Hz WB                 | Ok     | Distortion (Noise) [dB],<br>0.0 dB                   | 30.10 | WIFI 5G_802.11ac-VHT80<br>MSC0_EVS WB<br>128kbps_CH42 |
| 5.2 RCV Distortion and Noise<br>- 400 Hz WB                 | Ok     | Distortion (Noise) [dB],<br>0.0 dB                   | 28.74 | WIFI 5G_802.11ac-VHT80<br>MSC0_EVS WB<br>128kbps_CH42 |
| 5.2 RCV Distortion and Noise<br>- 500 Hz WB                 | Ok     | Distortion (Noise) [dB],<br>0.0 dB                   | 29.68 | WIFI 5G_802.11ac-VHT80<br>MSC0_EVS WB<br>128kbps_CH42 |
| 5.2 RCV Distortion and Noise<br>- 630 Hz WB                 | Ok     | Distortion (Noise) [dB],<br>0.0 dB                   | 30.88 | WIFI 5G_802.11ac-VHT80<br>MSC0_EVS WB<br>128kbps_CH42 |
| 5.2 RCV Distortion and Noise<br>- 800 Hz WB                 | Ok     | Distortion (Noise) [dB],<br>0.0 dB                   | 27.51 | WIFI 5G_802.11ac-VHT80<br>MSC0_EVS WB<br>128kbps_CH42 |
| 5.2 RCV Distortion and Noise<br>- 1000 Hz WB                | Ok     | Distortion (Noise) [dB],<br>0.0 dB                   | 30.92 | WIFI 5G_802.11ac-VHT80<br>MSC0_EVS WB<br>128kbps_CH42 |
| 5.2 RCV Distortion and Noise<br>- 1250 Hz WB                | Ok     | Distortion (Noise) [dB],<br>0.0 dB                   | 25.46 | WIFI 5G_802.11ac-VHT80<br>MSC0_EVS WB<br>128kbps_CH42 |
| 5.2 RCV Distortion and Noise<br>- 1600 Hz WB                | Ok     | Distortion (Noise) [dB],<br>0.0 dB                   | 32.43 | WIFI 5G_802.11ac-VHT80<br>MSC0_EVS WB<br>128kbps_CH42 |
| 5.2 RCV Distortion and Noise<br>- 2000 Hz WB                | Ok     | Distortion (Noise) [dB],<br>0.0 dB                   | 31.42 | WIFI 5G_802.11ac-VHT80<br>MSC0_EVS WB<br>128kbps_CH42 |
| 5.2 RCV Distortion and Noise<br>- 2500 Hz WB                | Ok     | Distortion (Noise) [dB],<br>0.0 dB                   | 31.15 | WIFI 5G_802.11ac-VHT80<br>MSC0_EVS WB<br>128kbps_CH42 |
| 5.2 RCV Distortion and Noise<br>- 3150 Hz WB                | Ok     | Distortion (Noise) [dB],<br>0.0 dB                   | 35.29 | WIFI 5G_802.11ac-VHT80<br>MSC0_EVS WB<br>128kbps_CH42 |
| 5.2 RCV Distortion and Noise<br>- 4000 Hz WB                | Ok     | Distortion (Noise) [dB],<br>0.0 dB                   | 34.40 | WIFI 5G_802.11ac-VHT80<br>MSC0_EVS WB<br>128kbps_CH42 |
| 5.2 RCV Distortion and Noise<br>- 5000 Hz WB                | Ok     | Distortion (Noise) [dB],<br>0.0 dB                   | 35.57 | WIFI 5G_802.11ac-VHT80<br>MSC0_EVS WB<br>128kbps_CH42 |
| Report - Receive Distortion and Noise (Conversational Gain) | Ok     | Minimum SDNR [dB],<br>(occured at 1250Hz)            | 25.46 | WIFI 5G_802.11ac-VHT80<br>MSC0_EVS WB<br>128kbps_CH42 |
| 5.3 Frequency Response 8N<br>FF                             | Ok     | Min. dist. to tolerance<br>scheme [dB], 4369.4<br>Hz | 0.10  | WIFI 5G_802.11ac-VHT80<br>MSC0_EVS WB<br>128kbps_CH42 |
| 5.3 Frequency Response 8N                                   | Not Ok | Min. dist. to tolerance                              | -1.80 | WIFI 5G_802.11ac-VHT80                                |

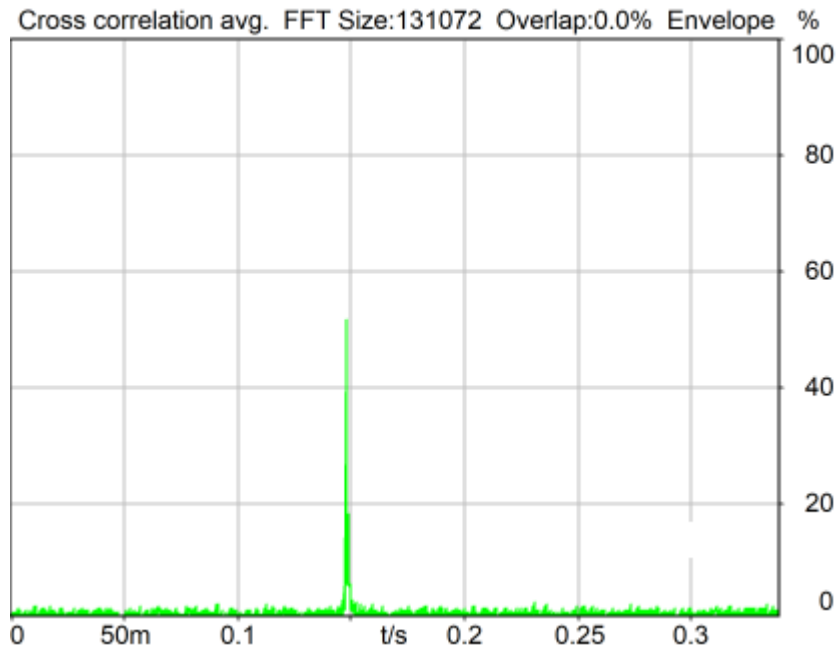
|                                 |    |                                                  |      |                                                       |
|---------------------------------|----|--------------------------------------------------|------|-------------------------------------------------------|
| DF                              |    | scheme [dB], 4369.4 Hz                           |      | MSC0_EVS WB<br>128kbps_CH42                           |
| 5.3 Frequency Response 2N<br>FF | Ok | Min. dist. to tolerance<br>scheme [dB], 823.9 Hz | 0.08 | WIFI 5G_802.11ac-VHT80<br>MSC0_EVS WB<br>128kbps_CH42 |

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|                                                             |    |
|-------------------------------------------------------------|----|
| Overall Receive Delay WB                                    | 6  |
| 5.1a Receive Volume Control Performance 8N WB               | 8  |
| 5.1b Receive Volume Control Performance 2N WB               | 10 |
| 5.2 RCV Distortion and Noise - 250 Hz WB                    | 12 |
| 5.2 RCV Distortion and Noise - 315 Hz WB                    | 14 |
| 5.2 RCV Distortion and Noise - 400 Hz WB                    | 16 |
| 5.2 RCV Distortion and Noise - 500 Hz WB                    | 18 |
| 5.2 RCV Distortion and Noise - 630 Hz WB                    | 20 |
| 5.2 RCV Distortion and Noise - 800 Hz WB                    | 23 |
| 5.2 RCV Distortion and Noise - 1000 Hz WB                   | 25 |
| 5.2 RCV Distortion and Noise - 1250 Hz WB                   | 27 |
| 5.2 RCV Distortion and Noise - 1600 Hz WB                   | 29 |
| 5.2 RCV Distortion and Noise - 2000 Hz WB                   | 31 |
| 5.2 RCV Distortion and Noise - 2500 Hz WB                   | 33 |
| 5.2 RCV Distortion and Noise - 3150 Hz WB                   | 36 |
| 5.2 RCV Distortion and Noise - 4000 Hz WB                   | 38 |
| 5.2 RCV Distortion and Noise - 5000 Hz WB                   | 40 |
| Report - Receive Distortion and Noise (Conversational Gain) | 42 |
| 5.2 RCV Distortion and Noise - 250 Hz WB                    | 43 |
| 5.2 RCV Distortion and Noise - 315 Hz WB                    | 45 |
| 5.2 RCV Distortion and Noise - 400 Hz WB                    | 47 |
| 5.2 RCV Distortion and Noise - 500 Hz WB                    | 49 |
| 5.2 RCV Distortion and Noise - 630 Hz WB                    | 51 |
| 5.2 RCV Distortion and Noise - 800 Hz WB                    | 53 |
| 5.2 RCV Distortion and Noise - 1000 Hz WB                   | 56 |
| 5.2 RCV Distortion and Noise - 1250 Hz WB                   | 58 |
| 5.2 RCV Distortion and Noise - 1600 Hz WB                   | 60 |
| 5.2 RCV Distortion and Noise - 2000 Hz WB                   | 62 |
| 5.2 RCV Distortion and Noise - 2500 Hz WB                   | 64 |
| 5.2 RCV Distortion and Noise - 3150 Hz WB                   | 66 |
| 5.2 RCV Distortion and Noise - 4000 Hz WB                   | 69 |
| 5.2 RCV Distortion and Noise - 5000 Hz WB                   | 71 |
| Report - Receive Distortion and Noise (Conversational Gain) | 73 |
| 5.3 Frequency Response 8N FF                                | 73 |
| 5.3 Frequency Response 8N DF                                | 76 |
| 5.3 Frequency Response 2N FF                                | 78 |

## Overall Receive Delay WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ Preparation - Delay measurement



Delay (Cross): 148.0 ms

2024/1/20 9:59 ACQUA 5.1.200

Unmodified HEAD acoustics Measurement Descriptor

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)

Database Version: 40\_HAC\_Suite\_Rev03

### Source: csswb1b\_r1s.dat

WIDEBAND Composite Source Signal RCV P.501 (1 bursts) at Channel 2

Pause 0.5 s +

voiced signal + 8000 Hz band limited random noise 1.0 s +

Pause till end of file

Signal level (ch2): -14.7 dBm0 (corresponds to approx. -16.0 dBm0 for a 350 ms CSS considering 101 ms Pause) from 0.5s to 1.544s for 4-k FFT, Hanning window,

75 % overlap in frequency range of 100 to 8000 Hz

### Calibration

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))

Output ch.1: 0.00 dB

Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

### HHP IV Settings (Setting: STD:(0,0,0) rel AHP)

Rotation Delta A 0.0 °

|                |         |                          |       |
|----------------|---------|--------------------------|-------|
| MECRP Delta Ye | 0.0 mm  | Rotation Delta C         | 0.0 ° |
| MECRP Delta Ze | 0.0 mm  | Rotation Delta B         | 5.0 ° |
| Delta Xe       | 0.0 mm  | Delta A                  | 0.0 ° |
| Delta Ye       | 0.0 mm  | Delta C                  | 0.0 ° |
| Delta Ze       | 0.0 mm  | Delta B                  | 0.0 ° |
| Ym             | -4.0 mm | Ear Type 3.3 Coordinates |       |

Mounting: Right Ear  
Force to apply: 8.0 N, Force reached: 8.1 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                   |                |                 |            |
|-------------------|----------------|-----------------|------------|
| Range start       | 550.00 ms      | Range length    | 1950.00 ms |
| DRP/ERP Ch.1:     | Off            | DRP/ERP Ch.2:   | Off        |
| Frequency base    | Transformation |                 |            |
| FFT size          | 131072         | Overlap         | 0 %        |
| Window function.  | Hanning        | Smooth          | Off        |
| Delayed channel   | None           |                 |            |
| Valid range start | -1228.79 ms    | Valid range end | 1228.81 ms |

**Special Features**

Show source signal Source ch.2 Store to variable D\_RCV\_WB

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

**labCORE Routing**

Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker  
Out Channel 2 -> Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In  
In Channel 1 <- Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out  
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

**Analog In Mainboard Settings (Analog In 1/2)**

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

**Analog Out Mainboard Settings (Analog Out 1/2)**

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

**Microphone Settings (Mic Amp. (Slot 6))****Channel In 1 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 2 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 3 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 4 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**BEQ Settings (BEQ Filter 1)**

Block mode Bypass

**Artificial Head Settings (HATS 1 (HMS II.3))**

|          |          |            |          |
|----------|----------|------------|----------|
| Ser. Nr. | 12306613 | Pinna Type | Type 3.3 |
|----------|----------|------------|----------|

**HIB Settings**

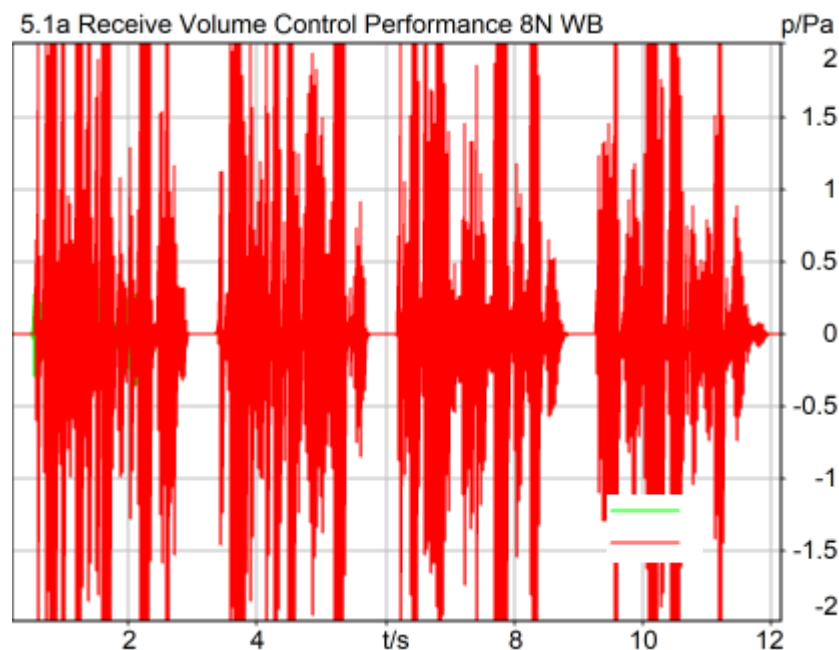
|          |                    |           |          |
|----------|--------------------|-----------|----------|
| HIB Name | 60020095           | Serial    | 60020095 |
| HIB Mode | Mobile Measurement | Impedance | 32 Ohm   |

Gain out 1 -40.00 dB  
Gain in 1 0.00 dB  
Mic 1 Power Supply Off

Gain out 2 0.00 dB  
Gain in 2 0.00 dB  
Mic 2 Power Supply Off

## 5.1a Receive Volume Control Performance 8N WB

TIA-5050 (2018-01) \ Measurements \ Wideband



### Correction

X - 70

Speech Level RCV: 87.25 dB[SPL], Act.: 84.59%

Corrected Speech Level: 17.25 dB[SPL] Not Ok

### Not Ok

2024/1/20 10:01 ACQUA 5.1.200

### Limits

|       | lower         |
|-------|---------------|
| Run 1 | 18.00 dB20uPa |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)  
Database Version: 40\_HAC\_Suite\_Rev03

### Calibration

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))  
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

**HHP IV Settings (Setting: STD:(0,0,0) rel AHP)**

|                |         |                          |       |
|----------------|---------|--------------------------|-------|
| MECRP Delta Ye | 0.0 mm  | Rotation Delta A         | 0.0 ° |
| MECRP Delta Ze | 0.0 mm  | Rotation Delta C         | 0.0 ° |
| Delta Xe       | 0.0 mm  | Rotation Delta B         | 5.0 ° |
| Delta Ye       | 0.0 mm  | Delta A                  | 0.0 ° |
| Delta Ze       | 0.0 mm  | Delta C                  | 0.0 ° |
| Ym             | -4.1 mm | Delta B                  | 0.0 ° |
|                |         | Ear Type 3.3 Coordinates |       |

Mounting: Right Ear  
Force to apply: 8.0 N, Force reached: 7.9 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                 |                |                     |                 |
|-----------------|----------------|---------------------|-----------------|
| Direction       | Out 2 -> In 2  |                     |                 |
| Range start     | 200.00 ms      | Range length        | 12000.00 ms     |
| Use FIR Filter  | Ch2            | FIR filter          | drp2ff_ieee1652 |
| Bandpass filter | Super Wideband | Margin (15.9dB nom) |                 |
| 15.90 dB        |                |                     |                 |

**Special Features**

Show source signal Source ch.2  
Compensate delay 148.0000 ms (D\_RCV\_WB, Delay (Cross))

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

**labCORE Routing**

Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker  
Out Channel 2 -> Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In  
In Channel 1 <- Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out  
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

**Analog In Mainboard Settings (Analog In 1/2)**

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

**Analog Out Mainboard Settings (Analog Out 1/2)**

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

**Microphone Settings (Mic Amp. (Slot 6))****Channel In 1 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 2 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 3 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 4 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**BEQ Settings (BEQ Filter 1)**

Block mode Bypass

**Artificial Head Settings (HATS 1 (HMS II.3))**

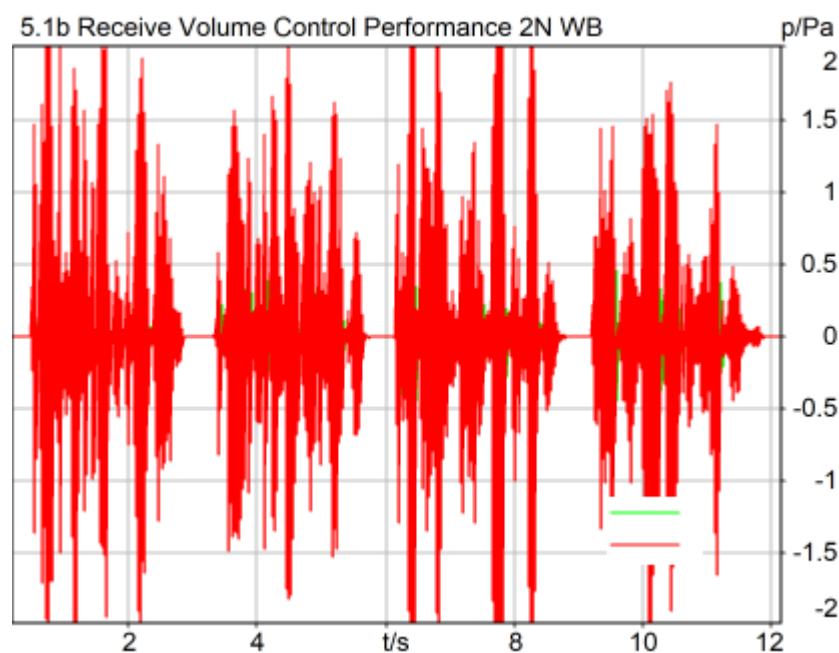
|          |          |            |          |
|----------|----------|------------|----------|
| Ser. Nr. | 12306613 | Pinna Type | Type 3.3 |
|----------|----------|------------|----------|

### HIB Settings

|                    |                    |                    |          |
|--------------------|--------------------|--------------------|----------|
| HIB Name           | 60020095           | Serial             | 60020095 |
| HIB Mode           | Mobile Measurement | Impedance          | 32 Ohm   |
| Gain out 1         | -40.00 dB          | Gain out 2         | 0.00 dB  |
| Gain in 1          | 0.00 dB            | Gain in 2          | 0.00 dB  |
| Mic 1 Power Supply | Off                | Mic 2 Power Supply | Off      |

## 5.1b Receive Volume Control Performance 2N WB

TIA-5050 (2018-01) \ Measurements \ Wideband



### Correction

X - 70

Speech Level RCV: 83.03 dB[SPL], Act.: 84.79%

Corrected Speech Level: 13.03 dB[SPL] Ok

Ok

2024/1/20 9:49 ACQUA 5.1.200

### Limits

|       |              |
|-------|--------------|
|       | lower        |
| Run 1 | 6.00 dB20uPa |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)  
Database Version: 40\_HAC\_Suite\_Rev03

**Calibration**

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))  
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

**HHP IV Settings (Setting: STD:(0,0,0) rel AHP)**

|                |         |                          |       |
|----------------|---------|--------------------------|-------|
| MECRP Delta Ye | 0.0 mm  | Rotation Delta A         | 0.0 ° |
| MECRP Delta Ze | 0.0 mm  | Rotation Delta C         | 0.0 ° |
| Delta Xe       | 0.0 mm  | Rotation Delta B         | 5.0 ° |
| Delta Ye       | 0.0 mm  | Delta A                  | 0.0 ° |
| Delta Ze       | 0.0 mm  | Delta C                  | 0.0 ° |
| Ym             | -0.3 mm | Delta B                  | 0.0 ° |
|                |         | Ear Type 3.3 Coordinates |       |

Mounting: Right Ear  
Force to apply: 2.0 N, Force reached: 1.9 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                 |                |                     |                 |
|-----------------|----------------|---------------------|-----------------|
| Direction       | Out 2 -> In 2  |                     |                 |
| Range start     | 200.00 ms      | Range length        | 12000.00 ms     |
| Use FIR Filter  | Ch2            | FIR filter          | drp2ff_ieee1652 |
| Bandpass filter | Super Wideband | Margin (15.9dB nom) |                 |
| 15.90 dB        |                |                     |                 |

**Special Features**

Show source signal Source ch.2  
Compensate delay 202.1000 ms (D\_RCV\_WB, Delay (Cross))

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

**labCORE Routing**

Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker  
Out Channel 2 -> Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In  
In Channel 1 <- Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out  
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

**Analog In Mainboard Settings (Analog In 1/2)**

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

**Analog Out Mainboard Settings (Analog Out 1/2)**

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

**Microphone Settings (Mic Amp. (Slot 6))****Channel In 1 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 2 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 3 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 4 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**BEQ Settings (BEQ Filter 1)**

Block mode Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

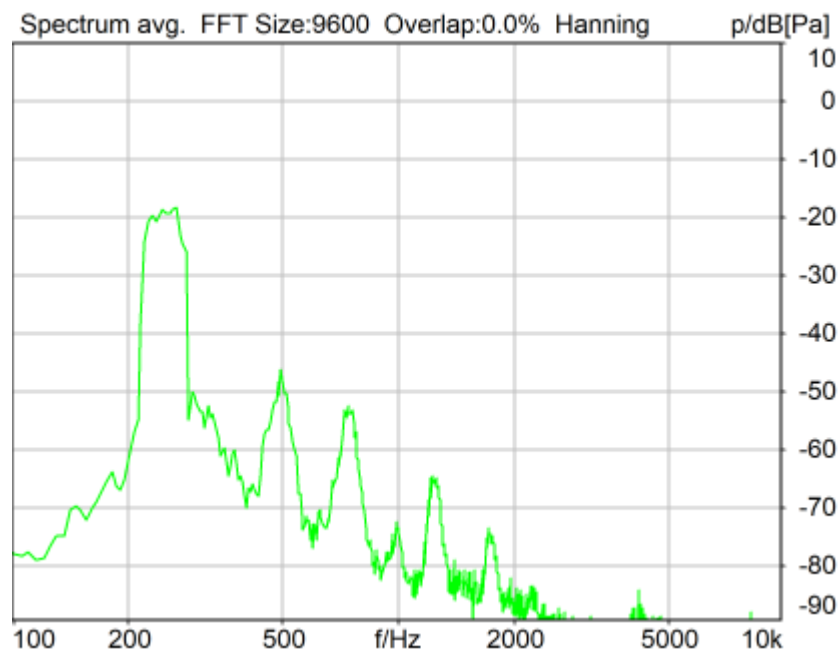
Ser. Nr. 12306613 Pinna Type Type 3.3

#### HIB Settings

|                        |                    |                        |          |
|------------------------|--------------------|------------------------|----------|
| HIB Name               | 60020095           | Serial                 | 60020095 |
| HIB Mode               | Mobile Measurement | Impedance              | 32 Ohm   |
| Gain out 1             | -40.00 dB          | Gain out 2             | 0.00 dB  |
| Gain in 1              | 0.00 dB            | Gain in 2              | 0.00 dB  |
| Mic 1 Power Supply Off |                    | Mic 2 Power Supply Off |          |

## 5.2 RCV Distortion and Noise - 250 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 8N



Distortion (Noise) RCV (packed): 30.25 dB (3.07%) Ok

Ok

2024/1/20 10:02 ACQUA 5.1.200

Unmodified HEAD acoustics Measurement Descriptor

#### Limits

|       | lower    |
|-------|----------|
| Run 1 | 20.00 dB |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)

Database Version: 40\_HAC\_Suite\_Rev03

Source: act\_rpn\_b250ms\_250hz\_sr20dbm0\_v02.dat.dat

Level adj. Ch1 -90.0 dB

**Calibration**

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))

Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

**HHP IV Settings (Setting: STD:(0,0,0) rel AHP)**

|                |         |                          |       |
|----------------|---------|--------------------------|-------|
| MECRP Delta Ye | 0.0 mm  | Rotation Delta A         | 0.0 ° |
| MECRP Delta Ze | 0.0 mm  | Rotation Delta C         | 0.0 ° |
| Delta Xe       | 0.0 mm  | Rotation Delta B         | 5.0 ° |
| Delta Ye       | 0.0 mm  | Delta A                  | 0.0 ° |
| Delta Ze       | 0.0 mm  | Delta C                  | 0.0 ° |
| Ym             | -4.1 mm | Delta B                  | 0.0 ° |
|                |         | Ear Type 3.3 Coordinates |       |

Mounting: Right Ear

Force to apply: 8.0 N, Force reached: 7.9 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                   |                |                   |                 |
|-------------------|----------------|-------------------|-----------------|
| Direction         | Out 2 -> In 2  |                   |                 |
| Range start       | 13550.00 ms    | Range length      | 200.00 ms       |
| Number of seq.    | 10             | Sequence length   | 400.00 ms       |
| Use FIR Filter    | Ch2            | FIR filter        | drp2ff_ieee1652 |
| DRP/ERP Ch.1:     | Off            | DRP/ERP Ch.2:     | Off             |
| Frequency base    | Transformation |                   |                 |
| FFT size          | 9600           | Overlap           | 0 %             |
| Window function.  | Hanning        | Smooth            | Off             |
| dB weighting      | A Weighting    |                   |                 |
| Stimulus min.     | 190.0 Hz       | Stimulus max.     | 315.0 Hz        |
| Analysis min.     | 20.0 Hz        | Analysis max.     | 185.0 Hz        |
| Analysis (2) min. | 320.0 Hz       | Analysis (2) max. | 20000.0 Hz      |

**Special Features**

Compensate delay 148.0000 ms (D\_RCV\_WB, Delay (Cross))

Store to variable RCVWB10\_250Hz

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

**labCORE Routing**

Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker  
Out Channel 2 -> Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In  
In Channel 1 <- Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out  
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

**Analog In Mainboard Settings (Analog In 1/2)**

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

**Analog Out Mainboard Settings (Analog Out 1/2)**

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

**Microphone Settings (Mic Amp. (Slot 6))****Channel In 1 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 2 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 3 Settings**

|                       |                          |                |      |
|-----------------------|--------------------------|----------------|------|
| Range                 | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage  | 200V                     | Supply Voltage | ±60V |
| Channel In 4 Settings |                          |                |      |
| Range                 | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage  | 200V                     | Supply Voltage | ±60V |

-----  
BEQ Settings (BEQ Filter 1)  
Block mode        Bypass  
-----

Artificial Head Settings (HATS 1 (HMS II.3))

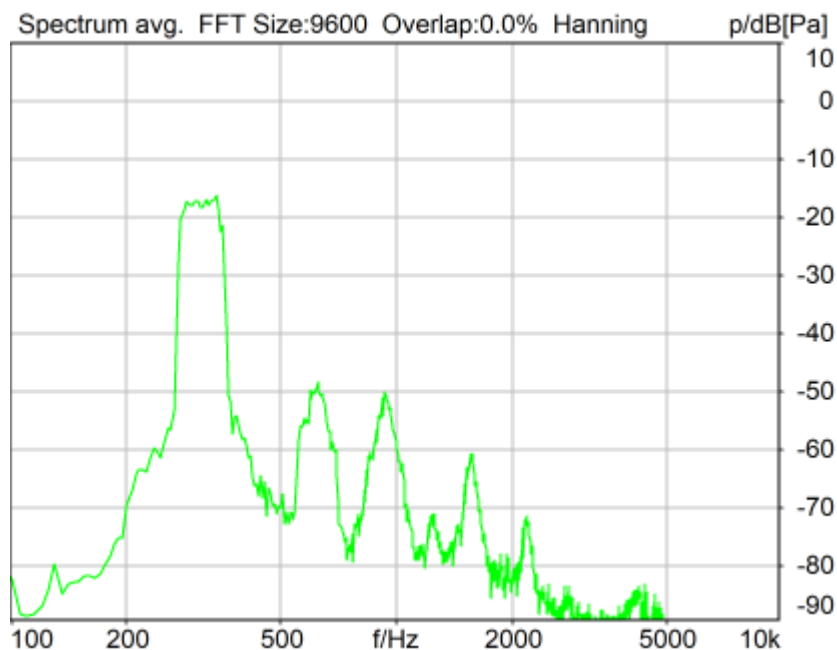
|          |          |            |          |
|----------|----------|------------|----------|
| Ser. Nr. | 12306613 | Pinna Type | Type 3.3 |
|----------|----------|------------|----------|

#### HIB Settings

|                    |                    |                    |          |
|--------------------|--------------------|--------------------|----------|
| HIB Name           | 60020095           | Serial             | 60020095 |
| HIB Mode           | Mobile Measurement | Impedance          | 32 Ohm   |
| Gain out 1         | -40.00 dB          | Gain out 2         | 0.00 dB  |
| Gain in 1          | 0.00 dB            | Gain in 2          | 0.00 dB  |
| Mic 1 Power Supply | Off                | Mic 2 Power Supply | Off      |

## 5.2 RCV Distortion and Noise - 315 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 8N



Distortion (Noise) RCV (packed): 30.72 dB (2.91%) Ok

Ok

2024/1/20 10:02 ACQUA 5.1.200

Unmodified HEAD acoustics Measurement Descriptor

#### Limits

|  |       |
|--|-------|
|  | lower |
|--|-------|

|       |          |
|-------|----------|
| Run 1 | 20.00 dB |
|-------|----------|

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)  
Database Version: 40\_HAC\_Suite\_Rev03Source: act\_rpn\_b250ms\_315hz\_sr20dbm0\_v02.dat  
Level adj. Ch1 -90.0 dB**Calibration**Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))  
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))**HHP IV Settings (Setting: STD:(0,0,0) rel AHP)**

|                          |         |                  |       |
|--------------------------|---------|------------------|-------|
| MECRP Delta Ye           | 0.0 mm  | Rotation Delta A | 0.0 ° |
| MECRP Delta Ze           | 0.0 mm  | Rotation Delta C | 0.0 ° |
| Delta Xe                 | 0.0 mm  | Rotation Delta B | 5.0 ° |
| Delta Ye                 | 0.0 mm  | Delta A          | 0.0 ° |
| Delta Ze                 | 0.0 mm  | Delta C          | 0.0 ° |
| Ym                       | -4.1 mm | Delta B          | 0.0 ° |
| Ear Type 3.3 Coordinates |         |                  |       |

Mounting: Right Ear  
Force to apply: 8.0 N, Force reached: 7.9 N**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                   |                |                   |                 |
|-------------------|----------------|-------------------|-----------------|
| Direction         | Out 2 -> In 2  |                   |                 |
| Range start       | 13550.00 ms    | Range length      | 200.00 ms       |
| Number of seq.    | 10             | Sequence length   | 400.00 ms       |
| Use FIR Filter    | Ch2            | FIR filter        | drp2ff_ieee1652 |
| DRP/ERP Ch.1:     | Off            | DRP/ERP Ch.2:     | Off             |
| Frequency base    | Transformation |                   |                 |
| FFT size          | 9600           | Overlap           | 0 %             |
| Window function.  | Hanning        | Smooth            | Off             |
| dB weighting      | A Weighting    |                   |                 |
| Stimulus min.     | 245.0 Hz       | Stimulus max.     | 390.0 Hz        |
| Analysis min.     | 20.0 Hz        | Analysis max.     | 240.0 Hz        |
| Analysis (2) min. | 395.0 Hz       | Analysis (2) max. | 20000.0 Hz      |

**Special Features**Compensate delay 148.0000 ms (D\_RCV\_WB, Delay (Cross))  
Store to variable RCVWB10\_315Hz**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

**labCORE Routing**Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker  
Out Channel 2 -> Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In  
In Channel 1 <- Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out  
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right**Analog In Mainboard Settings (Analog In 1/2)**

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

**Analog Out Mainboard Settings (Analog Out 1/2)**

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

-----  
Microphone Settings (Mic Amp. (Slot 6))

## Channel In 1 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

## Channel In 2 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

## Channel In 3 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

## Channel In 4 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

-----  
BEQ Settings (BEQ Filter 1)

|            |        |
|------------|--------|
| Block mode | Bypass |
|------------|--------|

-----  
Artificial Head Settings (HATS 1 (HMS II.3))

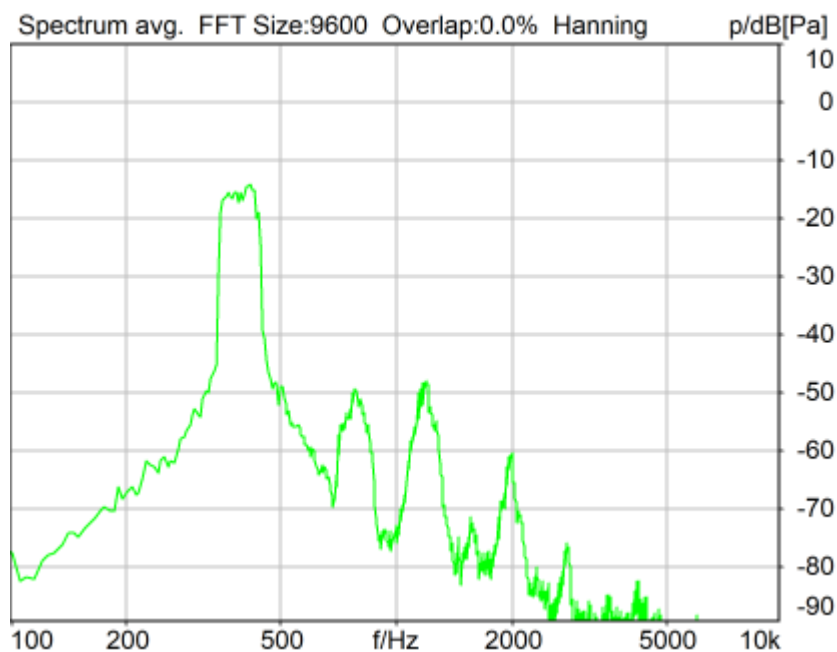
|          |          |            |          |
|----------|----------|------------|----------|
| Ser. Nr. | 12306613 | Pinna Type | Type 3.3 |
|----------|----------|------------|----------|

**HIB Settings**

|                    |                    |                    |          |
|--------------------|--------------------|--------------------|----------|
| HIB Name           | 60020095           | Serial             | 60020095 |
| HIB Mode           | Mobile Measurement | Impedance          | 32 Ohm   |
| Gain out 1         | -40.00 dB          | Gain out 2         | 0.00 dB  |
| Gain in 1          | 0.00 dB            | Gain in 2          | 0.00 dB  |
| Mic 1 Power Supply | Off                | Mic 2 Power Supply | Off      |

## **5.2 RCV Distortion and Noise - 400 Hz WB**

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 8N



Distortion (Noise) RCV (packed): 29.99 dB (3.17%) Ok

Ok

2024/1/20 10:03 ACQUA 5.1.200

Unmodified HEAD acoustics Measurement Descriptor

**Limits**

|       | lower    |
|-------|----------|
| Run 1 | 20.00 dB |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)

Database Version: 40\_HAC\_Suite\_Rev03

**Source: act\_rpn\_b250ms\_400hz\_sr20dbm0\_v02.dat**

Level adj. Ch1 -90.0 dB

**Calibration**

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))

Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

**HHP IV Settings (Setting: STD:(0,0,0) rel AHP)**

|                |         |                          |       |
|----------------|---------|--------------------------|-------|
| MECRP Delta Ye | 0.0 mm  | Rotation Delta A         | 0.0 ° |
| MECRP Delta Ze | 0.0 mm  | Rotation Delta C         | 0.0 ° |
| Delta Xe       | 0.0 mm  | Rotation Delta B         | 5.0 ° |
| Delta Ye       | 0.0 mm  | Delta A                  | 0.0 ° |
| Delta Ze       | 0.0 mm  | Delta C                  | 0.0 ° |
| Delta B        | 0.0 mm  | Delta B                  | 0.0 ° |
| Ym             | -4.1 mm | Ear Type 3.3 Coordinates |       |

Mounting: Right Ear

Force to apply: 8.0 N, Force reached: 7.9 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                   |                |                   |                 |
|-------------------|----------------|-------------------|-----------------|
| Direction         | Out 2 -> In 2  |                   |                 |
| Range start       | 13550.00 ms    | Range length      | 200.00 ms       |
| Number of seq.    | 10             | Sequence length   | 400.00 ms       |
| Use FIR Filter    | Ch2            | FIR filter        | drp2ff_ieee1652 |
| DRP/ERP Ch.1:     | Off            | DRP/ERP Ch.2:     | Off             |
| Frequency base    | Transformation |                   |                 |
| FFT size          | 9600           | Overlap           | 0 %             |
| Window function.  | Hanning        | Smooth            | Off             |
| dB weighting      | A Weighting    |                   |                 |
| Stimulus min.     | 320.0 Hz       | Stimulus max.     | 480.0 Hz        |
| Analysis min.     | 20.0 Hz        | Analysis max.     | 315.0 Hz        |
| Analysis (2) min. | 485.0 Hz       | Analysis (2) max. | 20000.0 Hz      |

**Special Features**

Compensate delay 148.0000 ms (D\_RCV\_WB, Delay (Cross))

Store to variable RCVWB10\_400Hz

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

-----

**labCORE Routing**

|                  |                                                     |
|------------------|-----------------------------------------------------|
| Out Channel 1 -> | Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker |
| Out Channel 2 -> | Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In      |
| In Channel 1 <-  | Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out   |

---

In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

-----  
Analog In Mainboard Settings (Analog In 1/2)

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

-----  
Analog Out Mainboard Settings (Analog Out 1/2)

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

-----  
Microphone Settings (Mic Amp. (Slot 6))

Channel In 1 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

Channel In 2 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

Channel In 3 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

Channel In 4 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

-----  
BEQ Settings (BEQ Filter 1)

|            |        |
|------------|--------|
| Block mode | Bypass |
|------------|--------|

-----  
Artificial Head Settings (HATS 1 (HMS II.3))

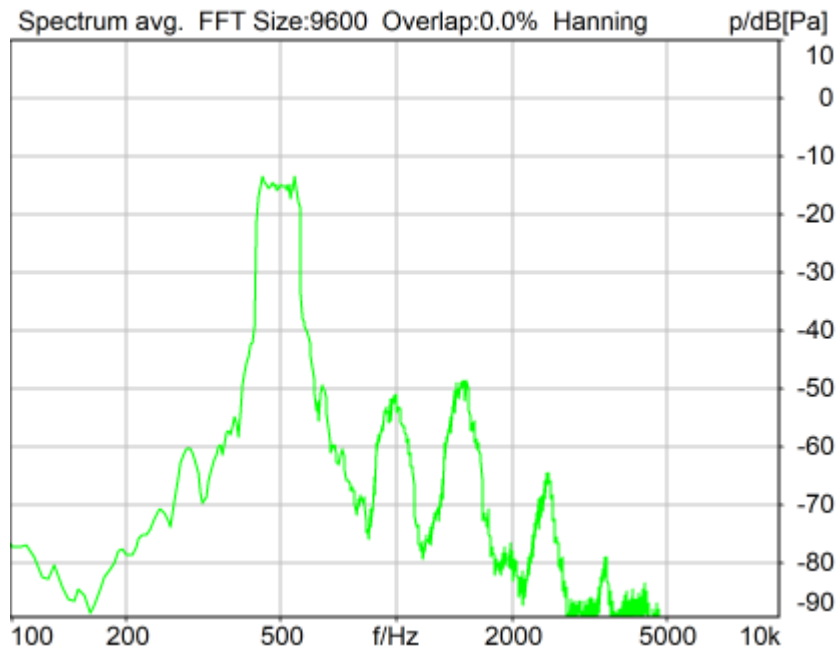
|          |          |            |          |
|----------|----------|------------|----------|
| Ser. Nr. | 12306613 | Pinna Type | Type 3.3 |
|----------|----------|------------|----------|

**HIB Settings**

|                    |                    |                    |          |
|--------------------|--------------------|--------------------|----------|
| HIB Name           | 60020095           | Serial             | 60020095 |
| HIB Mode           | Mobile Measurement | Impedance          | 32 Ohm   |
| Gain out 1         | -40.00 dB          | Gain out 2         | 0.00 dB  |
| Gain in 1          | 0.00 dB            | Gain in 2          | 0.00 dB  |
| Mic 1 Power Supply | Off                | Mic 2 Power Supply | Off      |

## **5.2 RCV Distortion and Noise - 500 Hz WB**

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 8N



Distortion (Noise) RCV (packed): 30.43 dB (3.01%) Ok

**Ok**

2024/1/20 10:03 ACQUA 5.1.200

Unmodified HEAD acoustics Measurement Descriptor

#### Limits

|       | lower    |
|-------|----------|
| Run 1 | 20.00 dB |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)

Database Version: 40\_HAC\_Suite\_Rev03

**Source:** act\_rpn\_b250ms\_500hz\_sr20dbm0\_v02.dat

Level adj. Ch1 -90.0 dB

#### Calibration

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))

Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

#### HHP IV Settings (Setting: STD:(0,0,0) rel AHP)

|                |         |                          |       |
|----------------|---------|--------------------------|-------|
| MECRP Delta Ye | 0.0 mm  | Rotation Delta A         | 0.0 ° |
| MECRP Delta Ze | 0.0 mm  | Rotation Delta C         | 0.0 ° |
| Delta Xe       | 0.0 mm  | Rotation Delta B         | 5.0 ° |
| Delta Ye       | 0.0 mm  | Delta A                  | 0.0 ° |
| Delta Ze       | 0.0 mm  | Delta C                  | 0.0 ° |
| Ym             | -4.1 mm | Delta B                  | 0.0 ° |
|                |         | Ear Type 3.3 Coordinates |       |

Mounting: Right Ear

Force to apply: 8.0 N, Force reached: 7.9 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                   |                |                   |                 |
|-------------------|----------------|-------------------|-----------------|
| Direction         | Out 2 -> In 2  |                   |                 |
| Range start       | 13550.00 ms    | Range length      | 200.00 ms       |
| Number of seq.    | 10             | Sequence length   | 400.00 ms       |
| Use FIR Filter    | Ch2            | FIR filter        | drp2ff_ieee1652 |
| DRP/ERP Ch.1:     | Off            | DRP/ERP Ch.2:     | Off             |
| Frequency base    | Transformation |                   |                 |
| FFT size          | 9600           | Overlap           | 0 %             |
| Window function.  | Hanning        | Smooth            | Off             |
| dB weighting      | A Weighting    |                   |                 |
| Stimulus min.     | 410.0 Hz       | Stimulus max.     | 595.0 Hz        |
| Analysis min.     | 20.0 Hz        | Analysis max.     | 405.0 Hz        |
| Analysis (2) min. | 600.0 Hz       | Analysis (2) max. | 20000.0 Hz      |

**Special Features**

Compensate delay 148.0000 ms (D\_RCV\_WB, Delay (Cross))  
Store to variable RCVWB10\_500Hz

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

**labCORE Routing**

Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker  
Out Channel 2 -> Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In  
In Channel 1 <- Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out  
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

**Analog In Mainboard Settings (Analog In 1/2)**

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

**Analog Out Mainboard Settings (Analog Out 1/2)**

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

**Microphone Settings (Mic Amp. (Slot 6))****Channel In 1 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 2 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 3 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 4 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**BEQ Settings (BEQ Filter 1)**

Block mode Bypass

**Artificial Head Settings (HATS 1 (HMS II.3))**

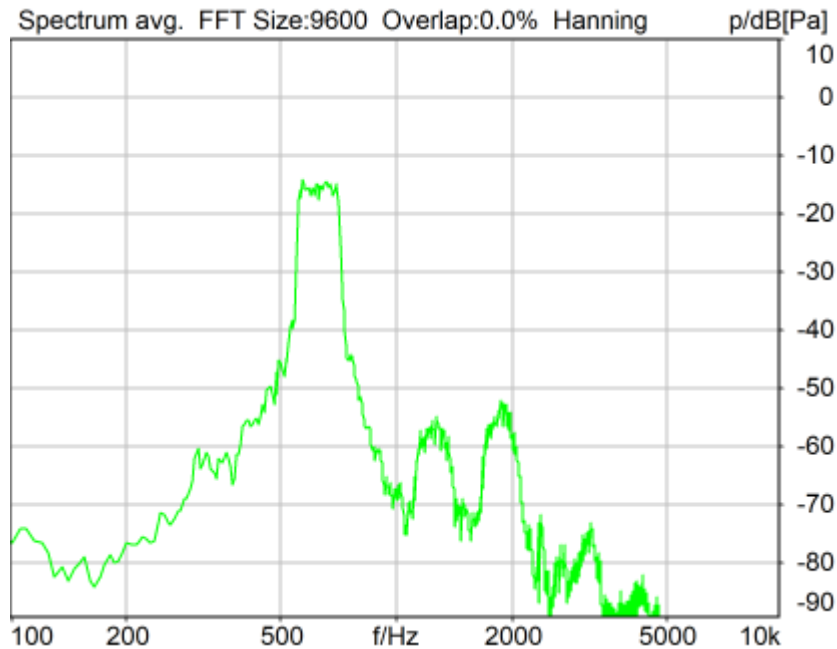
|          |          |            |          |
|----------|----------|------------|----------|
| Ser. Nr. | 12306613 | Pinna Type | Type 3.3 |
|----------|----------|------------|----------|

**HIB Settings**

|                    |                    |                    |          |
|--------------------|--------------------|--------------------|----------|
| HIB Name           | 60020095           | Serial             | 60020095 |
| HIB Mode           | Mobile Measurement | Impedance          | 32 Ohm   |
| Gain out 1         | -40.00 dB          | Gain out 2         | 0.00 dB  |
| Gain in 1          | 0.00 dB            | Gain in 2          | 0.00 dB  |
| Mic 1 Power Supply | Off                | Mic 2 Power Supply | Off      |

## 5.2 RCV Distortion and Noise - 630 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 8N



Distortion (Noise) RCV (packed): 30.87 dB (2.86%) Ok

Ok

2024/1/20 10:04 ACQUA 5.1.200

Unmodified HEAD acoustics Measurement Descriptor

### Limits

|       | lower    |
|-------|----------|
| Run 1 | 20.00 dB |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)

Database Version: 40\_HAC\_Suite\_Rev03

Source: act\_rpn\_b250ms\_630hz\_sr20dbm0\_v02.dat

Level adj. Ch1 -90.0 dB

### Calibration

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))

Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

HHP IV Settings (Setting: STD:(0,0,0) rel AHP)

|                |        |                  |       |
|----------------|--------|------------------|-------|
| MECRP Delta Ye | 0.0 mm | Rotation Delta A | 0.0 ° |
|                |        | Rotation Delta C | 0.0 ° |

|                |         |                          |       |
|----------------|---------|--------------------------|-------|
| MECRP Delta Ze | 0.0 mm  | Rotation Delta B         | 5.0 ° |
| Delta Xe       | 0.0 mm  | Delta A                  | 0.0 ° |
| Delta Ye       | 0.0 mm  | Delta C                  | 0.0 ° |
| Delta Ze       | 0.0 mm  | Delta B                  | 0.0 ° |
| Ym             | -4.1 mm | Ear Type 3.3 Coordinates |       |

Mounting: Right Ear  
Force to apply: 8.0 N, Force reached: 7.9 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                   |                |                   |                 |
|-------------------|----------------|-------------------|-----------------|
| Direction         | Out 2 -> In 2  |                   |                 |
| Range start       | 13550.00 ms    | Range length      | 200.00 ms       |
| Number of seq.    | 10             | Sequence length   | 400.00 ms       |
| Use FIR Filter    | Ch2            | FIR filter        | drp2ff_ieee1652 |
| DRP/ERP Ch.1:     | Off            | DRP/ERP Ch.2:     | Off             |
| Frequency base    | Transformation |                   |                 |
| FFT size          | 9600           | Overlap           | 0 %             |
| Window function.  | Hanning        | Smooth            | Off             |
| dB weighting      | A Weighting    |                   |                 |
| Stimulus min.     | 525.0 Hz       | Stimulus max.     | 745.0 Hz        |
| Analysis min.     | 20.0 Hz        | Analysis max.     | 520.0 Hz        |
| Analysis (2) min. | 750.0 Hz       | Analysis (2) max. | 20000.0 Hz      |

**Special Features**

Compensate delay 148.0000 ms (D\_RCV\_WB, Delay (Cross))  
Store to variable RCVWB10\_630Hz

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

**labCORE Routing**

Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker  
Out Channel 2 -> Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In  
In Channel 1 <- Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out  
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

**Analog In Mainboard Settings (Analog In 1/2)**

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

**Analog Out Mainboard Settings (Analog Out 1/2)**

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

**Microphone Settings (Mic Amp. (Slot 6))****Channel In 1 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 2 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 3 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 4 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**BEQ Settings (BEQ Filter 1)**

Block mode Bypass

**Artificial Head Settings (HATS 1 (HMS II.3))**

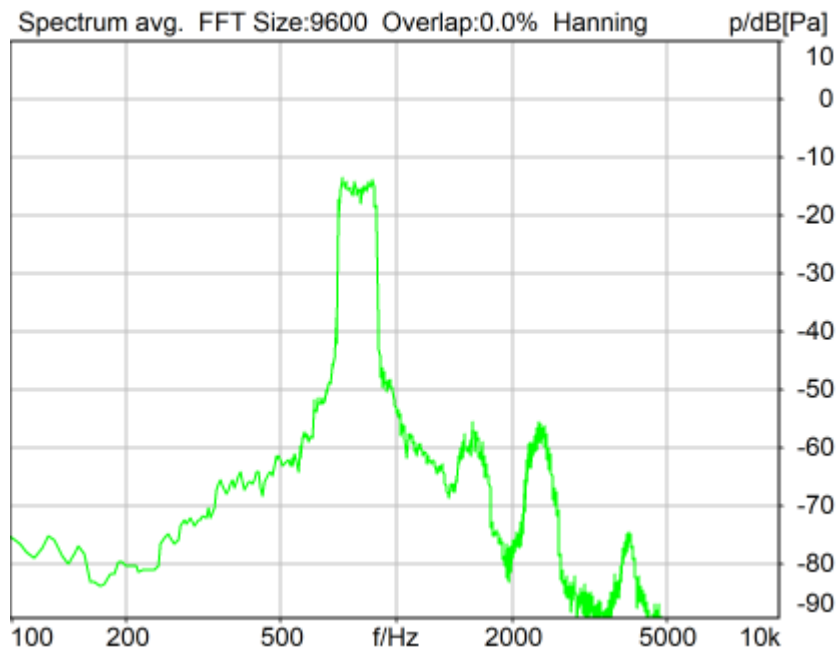
Ser. Nr. 12306613 Pinna Type Type 3.3

#### HIB Settings

|                        |                    |                        |          |
|------------------------|--------------------|------------------------|----------|
| HIB Name               | 60020095           | Serial                 | 60020095 |
| HIB Mode               | Mobile Measurement | Impedance              | 32 Ohm   |
| Gain out 1             | -40.00 dB          | Gain out 2             | 0.00 dB  |
| Gain in 1              | 0.00 dB            | Gain in 2              | 0.00 dB  |
| Mic 1 Power Supply Off |                    | Mic 2 Power Supply Off |          |

## 5.2 RCV Distortion and Noise - 800 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 8N



Distortion (Noise) RCV (packed): 33.32 dB (2.16%) Ok

Ok

2024/1/20 10:04 ACQUA 5.1.200

Unmodified HEAD acoustics Measurement Descriptor

#### Limits

|       |          |
|-------|----------|
|       | lower    |
| Run 1 | 20.00 dB |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)

Database Version: 40\_HAC\_Suite\_Rev03

Source: act\_rpn\_b250ms\_800hz\_sr20dbm0\_v02.dat

Level adj. Ch1 -90.0 dB

**Calibration**

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))

Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

**HHP IV Settings (Setting: STD:(0,0,0) rel AHP)**

|                |         |                          |       |
|----------------|---------|--------------------------|-------|
| MECRP Delta Ye | 0.0 mm  | Rotation Delta A         | 0.0 ° |
| MECRP Delta Ze | 0.0 mm  | Rotation Delta C         | 0.0 ° |
| Delta Xe       | 0.0 mm  | Rotation Delta B         | 5.0 ° |
| Delta Ye       | 0.0 mm  | Delta A                  | 0.0 ° |
| Delta Ze       | 0.0 mm  | Delta C                  | 0.0 ° |
| Ym             | -4.1 mm | Delta B                  | 0.0 ° |
|                |         | Ear Type 3.3 Coordinates |       |

Mounting: Right Ear

Force to apply: 8.0 N, Force reached: 7.9 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                   |                |                   |                 |
|-------------------|----------------|-------------------|-----------------|
| Direction         | Out 2 -> In 2  |                   |                 |
| Range start       | 13550.00 ms    | Range length      | 200.00 ms       |
| Number of seq.    | 10             | Sequence length   | 400.00 ms       |
| Use FIR Filter    | Ch2            | FIR filter        | drp2ff_ieee1652 |
| DRP/ERP Ch.1:     | Off            | DRP/ERP Ch.2:     | Off             |
| Frequency base    | Transformation |                   |                 |
| FFT size          | 9600           | Overlap           | 0 %             |
| Window function.  | Hanning        | Smooth            | Off             |
| dB weighting      | A Weighting    |                   |                 |
| Stimulus min.     | 675.0 Hz       | Stimulus max.     | 925.0 Hz        |
| Analysis min.     | 20.0 Hz        | Analysis max.     | 670.0 Hz        |
| Analysis (2) min. | 930.0 Hz       | Analysis (2) max. | 20000.0 Hz      |

**Special Features**

Compensate delay 148.0000 ms (D\_RCV\_WB, Delay (Cross))

Store to variable RCVWB10\_800Hz

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

**labCORE Routing**

|                  |                                                                          |
|------------------|--------------------------------------------------------------------------|
| Out Channel 1 -> | Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker                      |
| Out Channel 2 -> | Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In                           |
| In Channel 1 <-  | Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out                        |
| In Channel 2 <-  | BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right |

**Analogue In Mainboard Settings (Analog In 1/2)**

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

**Analogue Out Mainboard Settings (Analog Out 1/2)**

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

**Microphone Settings (Mic Amp. (Slot 6))****Channel In 1 Settings**

|                          |                          |                |      |
|--------------------------|--------------------------|----------------|------|
| Range                    | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage200V |                          | Supply Voltage | ±60V |

**Channel In 2 Settings**

|                          |                          |                |      |
|--------------------------|--------------------------|----------------|------|
| Range                    | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage200V |                          | Supply Voltage | ±60V |

**Channel In 3 Settings**

|                          |                          |                |      |
|--------------------------|--------------------------|----------------|------|
| Range                    | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage200V |                          | Supply Voltage | ±60V |

Channel In 4 Settings

Range 114 dB[SPL] @ 12.5 mV/Pa Highpass Off  
Polarisation Voltage 200V Supply Voltage ±60V

BEQ Settings (BEQ Filter 1)

Block mode Bypass

Artificial Head Settings (HATS 1 (HMS II.3))

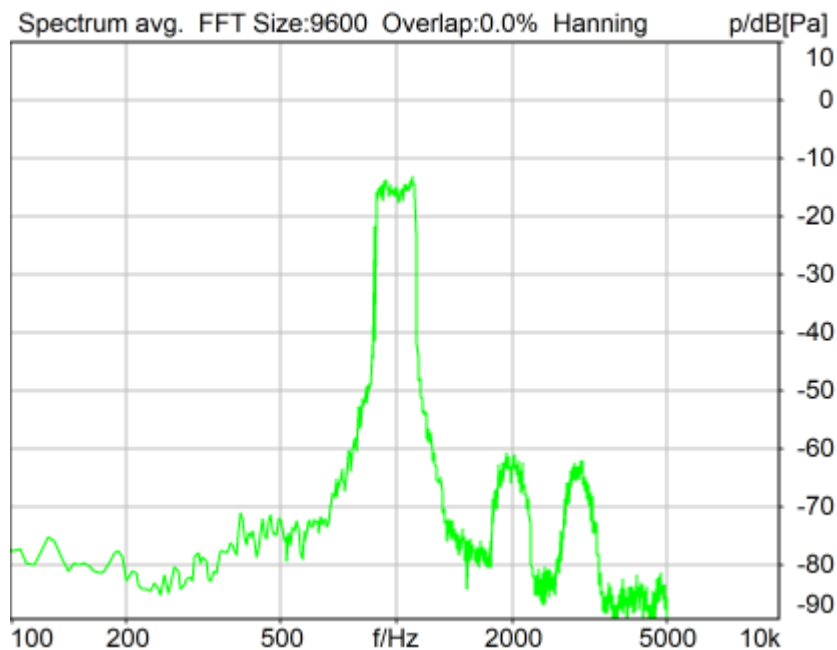
Ser. Nr. 12306613 Pinna Type Type 3.3

HIB Settings

HIB Name 60020095 Serial 60020095  
HIB Mode Mobile Measurement Impedance 32 Ohm  
Gain out 1 -40.00 dB Gain out 2 0.00 dB  
Gain in 1 0.00 dB Gain in 2 0.00 dB  
Mic 1 Power Supply Off Mic 2 Power Supply Off

## 5.2 RCV Distortion and Noise - 1000 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 8N



Distortion (Noise) RCV (packed): 38.21 dB (1.23%) Ok

Ok

2024/1/20 10:04 ACQUA 5.1.200

Unmodified HEAD acoustics Measurement Descriptor

Limits

|       |          |
|-------|----------|
|       | lower    |
| Run 1 | 20.00 dB |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)  
Database Version: 40\_HAC\_Suite\_Rev03**Source:** act\_rpn\_b250ms\_1000hz\_sr20dbm0\_v02.dat

Level adj. Ch1 -90.0 dB

**Calibration**

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))

Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

**HHP IV Settings (Setting: STD:(0,0,0) rel AHP)**

|                |         |                          |       |
|----------------|---------|--------------------------|-------|
| MECRP Delta Ye | 0.0 mm  | Rotation Delta A         | 0.0 ° |
| MECRP Delta Ze | 0.0 mm  | Rotation Delta C         | 0.0 ° |
| Delta Xe       | 0.0 mm  | Rotation Delta B         | 5.0 ° |
| Delta Ye       | 0.0 mm  | Delta A                  | 0.0 ° |
| Delta Ze       | 0.0 mm  | Delta C                  | 0.0 ° |
| Ym             | -4.1 mm | Delta B                  | 0.0 ° |
|                |         | Ear Type 3.3 Coordinates |       |

Mounting: Right Ear

Force to apply: 8.0 N, Force reached: 8.1 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                   |                |                   |                 |
|-------------------|----------------|-------------------|-----------------|
| Direction         | Out 2 -> In 2  |                   |                 |
| Range start       | 13550.00 ms    | Range length      | 200.00 ms       |
| Number of seq.    | 10             | Sequence length   | 400.00 ms       |
| Use FIR Filter    | Ch2            | FIR filter        | drp2ff_ieee1652 |
| DRP/ERP Ch.1:     | Off            | DRP/ERP Ch.2:     | Off             |
| Frequency base    | Transformation |                   |                 |
| FFT size          | 9600           | Overlap           | 0 %             |
| Window function.  | Hanning        | Smooth            | Off             |
| dB weighting      | A Weighting    |                   |                 |
| Stimulus min.     | 855.0 Hz       | Stimulus max.     | 1155.0 Hz       |
| Analysis min.     | 20.0 Hz        | Analysis max.     | 850.0 Hz        |
| Analysis (2) min. | 1160.0 Hz      | Analysis (2) max. | 20000.0 Hz      |

**Special Features**

Compensate delay 148.0000 ms (D\_RCV\_WB, Delay (Cross))

Store to variable RCVWB10\_1000Hz

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

**labCORE Routing**

|                  |                                                                          |
|------------------|--------------------------------------------------------------------------|
| Out Channel 1 -> | Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker                      |
| Out Channel 2 -> | Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In                           |
| In Channel 1 <=  | Analog In 1/2 In 1 <= Radio Tester 1 (CMW500) Out                        |
| In Channel 2 <=  | BEQ Filter 1 R <= Mic Amp. (Slot 6) In 2 <= HATS 1 (HMS II.3) Mic. Right |

**Analog In Mainboard Settings (Analog In 1/2)**

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

**Analog Out Mainboard Settings (Analog Out 1/2)**

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

**Microphone Settings (Mic Amp. (Slot 6))**

Channel In 1 Settings

|                       |                          |                |      |
|-----------------------|--------------------------|----------------|------|
| Range                 | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage  | 200V                     | Supply Voltage | ±60V |
| Channel In 2 Settings |                          |                |      |
| Range                 | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage  | 200V                     | Supply Voltage | ±60V |
| Channel In 3 Settings |                          |                |      |
| Range                 | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage  | 200V                     | Supply Voltage | ±60V |
| Channel In 4 Settings |                          |                |      |
| Range                 | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage  | 200V                     | Supply Voltage | ±60V |

-----  
BEQ Settings (BEQ Filter 1)  
Block mode      Bypass  
-----

Artificial Head Settings (HATS 1 (HMS II.3))

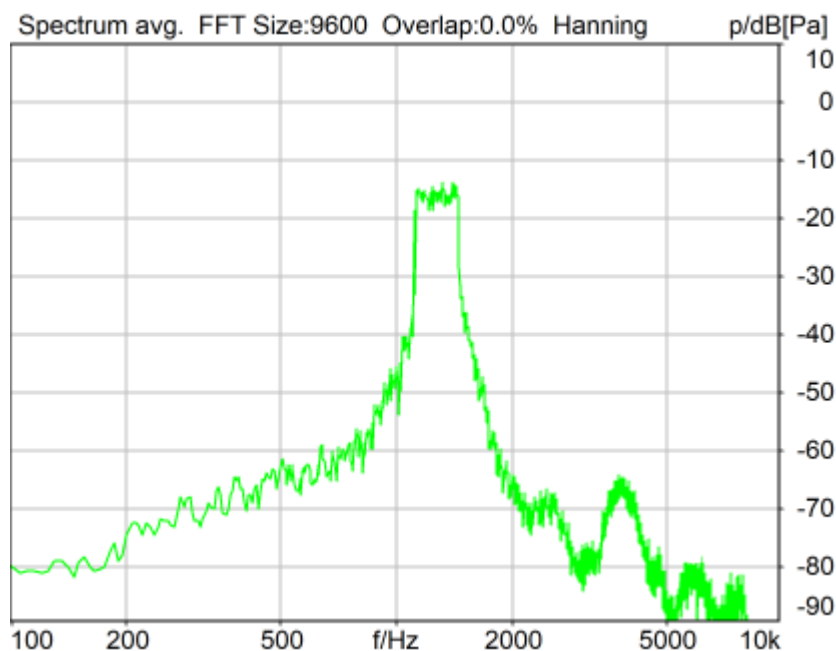
|          |          |            |          |
|----------|----------|------------|----------|
| Ser. Nr. | 12306613 | Pinna Type | Type 3.3 |
|----------|----------|------------|----------|

#### HIB Settings

|                    |                    |                    |          |
|--------------------|--------------------|--------------------|----------|
| HIB Name           | 60020095           | Serial             | 60020095 |
| HIB Mode           | Mobile Measurement | Impedance          | 32 Ohm   |
| Gain out 1         | -40.00 dB          | Gain out 2         | 0.00 dB  |
| Gain in 1          | 0.00 dB            | Gain in 2          | 0.00 dB  |
| Mic 1 Power Supply | Off                | Mic 2 Power Supply | Off      |

## 5.2 RCV Distortion and Noise - 1250 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 8N



Distortion (Noise) RCV (packed): 22.51 dB (7.49%) Ok

**Ok**

2024/1/20 10:05 ACQUA 5.1.200

Unmodified HEAD acoustics Measurement Descriptor

**Limits**

|       | lower    |
|-------|----------|
| Run 1 | 20.00 dB |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)  
Database Version: 40\_HAC\_Suite\_Rev03**Source:** act\_rpn\_b250ms\_1250hz\_sr20dbm0\_v02.dat

Level adj. Ch1 -90.0 dB

**Calibration**

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))

Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

**HHP IV Settings (Setting: STD:(0,0,0) rel AHP)**

|                |         |                          |       |
|----------------|---------|--------------------------|-------|
| MECRP Delta Ye | 0.0 mm  | Rotation Delta A         | 0.0 ° |
| MECRP Delta Ze | 0.0 mm  | Rotation Delta C         | 0.0 ° |
| Delta Xe       | 0.0 mm  | Rotation Delta B         | 5.0 ° |
| Delta Ye       | 0.0 mm  | Delta A                  | 0.0 ° |
| Delta Ze       | 0.0 mm  | Delta C                  | 0.0 ° |
| Ym             | -4.1 mm | Delta B                  | 0.0 ° |
|                |         | Ear Type 3.3 Coordinates |       |

Mounting: Right Ear

Force to apply: 8.0 N, Force reached: 8.1 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                   |                |                   |                 |
|-------------------|----------------|-------------------|-----------------|
| Direction         | Out 2 -> In 2  |                   |                 |
| Range start       | 13550.00 ms    | Range length      | 200.00 ms       |
| Number of seq.    | 10             | Sequence length   | 400.00 ms       |
| Use FIR Filter    | Ch2            | FIR filter        | drp2ff_ieee1652 |
| DRP/ERP Ch.1:     | Off            | DRP/ERP Ch.2:     | Off             |
| Frequency base    | Transformation |                   |                 |
| FFT size          | 9600           | Overlap           | 0 %             |
| Window function.  | Hanning        | Smooth            | Off             |
| dB weighting      | A Weighting    |                   |                 |
| Stimulus min.     | 1085.0 Hz      | Stimulus max.     | 1450.0 Hz       |
| Analysis min.     | 20.0 Hz        | Analysis max.     | 1080.0 Hz       |
| Analysis (2) min. | 1455.0 Hz      | Analysis (2) max. | 20000.0 Hz      |

**Special Features**

Compensate delay 148.0000 ms (D\_RCV\_WB, Delay (Cross))

Store to variable RCVWB10\_1250Hz

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

**labCORE Routing**

|                  |                                                                          |
|------------------|--------------------------------------------------------------------------|
| Out Channel 1 -> | Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker                      |
| Out Channel 2 -> | Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In                           |
| In Channel 1 <-  | Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out                        |
| In Channel 2 <-  | BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right |

Analog In Mainboard Settings (Analog In 1/2)

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

-----  
Analog Out Mainboard Settings (Analog Out 1/2)

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

-----  
Microphone Settings (Mic Amp. (Slot 6))

## Channel In 1 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

## Channel In 2 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

## Channel In 3 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

## Channel In 4 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

-----  
BEQ Settings (BEQ Filter 1)

|            |        |
|------------|--------|
| Block mode | Bypass |
|------------|--------|

-----  
Artificial Head Settings (HATS 1 (HMS II.3))

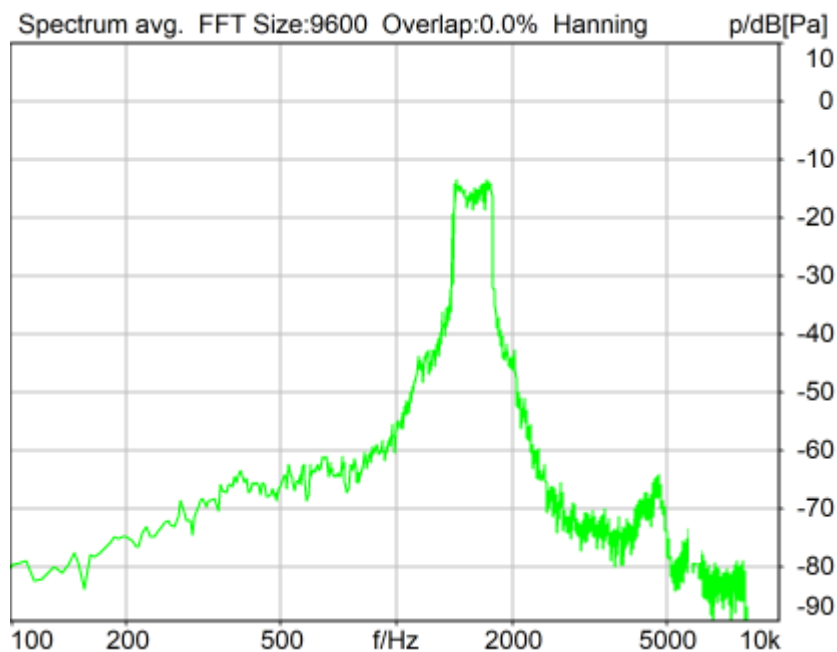
|          |          |            |          |
|----------|----------|------------|----------|
| Ser. Nr. | 12306613 | Pinna Type | Type 3.3 |
|----------|----------|------------|----------|

**HIB Settings**

|                    |                    |                    |          |
|--------------------|--------------------|--------------------|----------|
| HIB Name           | 60020095           | Serial             | 60020095 |
| HIB Mode           | Mobile Measurement | Impedance          | 32 Ohm   |
| Gain out 1         | -40.00 dB          | Gain out 2         | 0.00 dB  |
| Gain in 1          | 0.00 dB            | Gain in 2          | 0.00 dB  |
| Mic 1 Power Supply | Off                | Mic 2 Power Supply | Off      |

## 5.2 RCV Distortion and Noise - 1600 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 8N



Distortion (Noise) RCV (packed): 23.99 dB (6.31%) Ok

**Ok**

2024/1/20 10:05 ACQUA 5.1.200

Unmodified HEAD acoustics Measurement Descriptor

**Limits**

|       | lower    |
|-------|----------|
| Run 1 | 20.00 dB |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)

Database Version: 40\_HAC\_Suite\_Rev03

**Source:** act\_rpn\_b250ms\_1600hz\_sr20dbm0\_v02.dat

Level adj. Ch1 -90.0 dB

**Calibration**

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))

Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

**HHP IV Settings (Setting: STD:(0,0,0) rel AHP)**

|                          |         |                  |       |
|--------------------------|---------|------------------|-------|
| MECRP Delta Ye           | 0.0 mm  | Rotation Delta A | 0.0 ° |
| MECRP Delta Ze           | 0.0 mm  | Rotation Delta C | 0.0 ° |
| Delta Xe                 | 0.0 mm  | Rotation Delta B | 5.0 ° |
| Delta Ye                 | 0.0 mm  | Delta A          | 0.0 ° |
| Delta Ze                 | 0.0 mm  | Delta C          | 0.0 ° |
| Ym                       | -4.1 mm | Delta B          | 0.0 ° |
| Ear Type 3.3 Coordinates |         |                  |       |

Mounting: Right Ear

Force to apply: 8.0 N, Force reached: 8.1 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                   |                |                   |                 |
|-------------------|----------------|-------------------|-----------------|
| Direction         | Out 2 -> In 2  | Range length      | 200.00 ms       |
| Range start       | 13550.00 ms    | Sequence length   | 400.00 ms       |
| Number of seq.    | 10             | FIR filter        | drp2ff_ieee1652 |
| Use FIR Filter    | Ch2            | DRP/ERP Ch.2:     | Off             |
| DRP/ERP Ch.1:     | Off            | Frequency base    | Transformation  |
| Frequency base    | Transformation | FFT size          | 9600            |
| FFT size          | 9600           | Overlap           | 0 %             |
| Window function.  | Hanning        | Smooth            | Off             |
| dB weighting      | A Weighting    | Stimulus max.     | 1815.0 Hz       |
| Stimulus min.     | 1375.0 Hz      | Analysis max.     | 1370.0 Hz       |
| Analysis min.     | 20.0 Hz        | Analysis (2) max. | 20000.0 Hz      |
| Analysis (2) min. | 1820.0 Hz      |                   |                 |

**Special Features**

Compensate delay 148.0000 ms (D\_RCV\_WB, Delay (Cross))

Store to variable RCVWB10\_1600Hz

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

-----

## labCORE Routing

Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker  
Out Channel 2 -> Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In  
In Channel 1 <- Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out  
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

-----  
Analog In Mainboard Settings (Analog In 1/2)

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

-----  
Analog Out Mainboard Settings (Analog Out 1/2)

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

-----  
Microphone Settings (Mic Amp. (Slot 6))

## Channel In 1 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

## Channel In 2 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

## Channel In 3 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

## Channel In 4 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

-----  
BEQ Settings (BEQ Filter 1)

|            |        |
|------------|--------|
| Block mode | Bypass |
|------------|--------|

-----  
Artificial Head Settings (HATS 1 (HMS II.3))

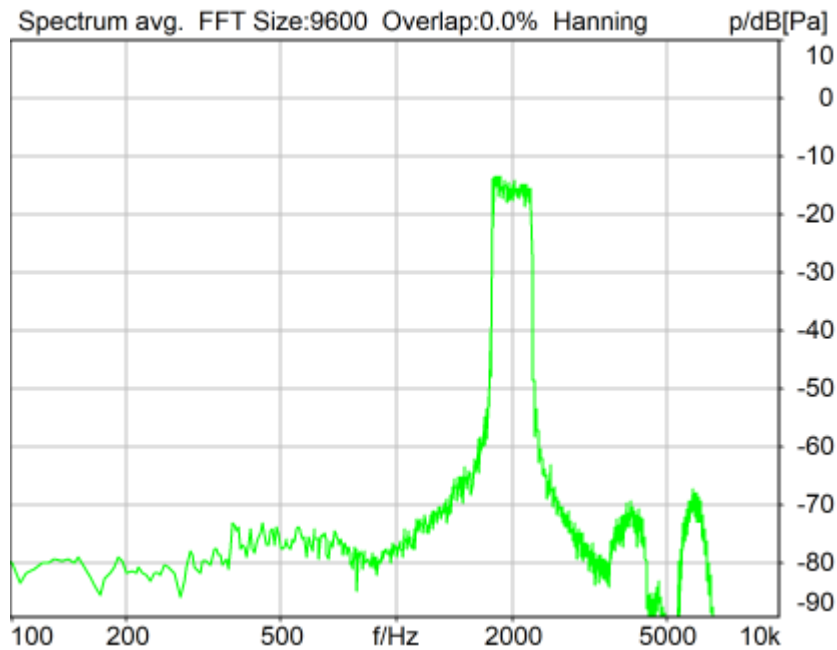
|          |          |            |          |
|----------|----------|------------|----------|
| Ser. Nr. | 12306613 | Pinna Type | Type 3.3 |
|----------|----------|------------|----------|

**HIB Settings**

|                    |                    |                    |          |
|--------------------|--------------------|--------------------|----------|
| HIB Name           | 60020095           | Serial             | 60020095 |
| HIB Mode           | Mobile Measurement | Impedance          | 32 Ohm   |
| Gain out 1         | -40.00 dB          | Gain out 2         | 0.00 dB  |
| Gain in 1          | 0.00 dB            | Gain in 2          | 0.00 dB  |
| Mic 1 Power Supply | Off                | Mic 2 Power Supply | Off      |

## **5.2 RCV Distortion and Noise - 2000 Hz WB**

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 8N



Distortion (Noise) RCV (packed): 41.68 dB (0.82%) Ok

**Ok**

2024/1/20 10:06 ACQUA 5.1.200

Unmodified HEAD acoustics Measurement Descriptor

#### Limits

|       | lower    |
|-------|----------|
| Run 1 | 20.00 dB |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)

Database Version: 40\_HAC\_Suite\_Rev03

**Source:** act\_rpn\_b250ms\_2000hz\_sr20dbm0\_v02.dat

Level adj. Ch1 -90.0 dB

#### Calibration

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))

Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

#### HHP IV Settings (Setting: STD:(0,0,0) rel AHP)

|                |         |                          |       |
|----------------|---------|--------------------------|-------|
| MECRP Delta Ye | 0.0 mm  | Rotation Delta A         | 0.0 ° |
| MECRP Delta Ze | 0.0 mm  | Rotation Delta C         | 0.0 ° |
| Delta Xe       | 0.0 mm  | Rotation Delta B         | 5.0 ° |
| Delta Ye       | 0.0 mm  | Delta A                  | 0.0 ° |
| Delta Ze       | 0.0 mm  | Delta C                  | 0.0 ° |
| Ym             | -4.1 mm | Delta B                  | 0.0 ° |
|                |         | Ear Type 3.3 Coordinates |       |

Mounting: Right Ear

Force to apply: 8.0 N, Force reached: 8.1 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                   |                |                   |                 |
|-------------------|----------------|-------------------|-----------------|
| Direction         | Out 2 -> In 2  |                   |                 |
| Range start       | 13550.00 ms    | Range length      | 200.00 ms       |
| Number of seq.    | 10             | Sequence length   | 400.00 ms       |
| Use FIR Filter    | Ch2            | FIR filter        | drp2ff_ieee1652 |
| DRP/ERP Ch.1:     | Off            | DRP/ERP Ch.2:     | Off             |
| Frequency base    | Transformation |                   |                 |
| FFT size          | 9600           | Overlap           | 0 %             |
| Window function.  | Hanning        | Smooth            | Off             |
| dB weighting      | A Weighting    |                   |                 |
| Stimulus min.     | 1745.0 Hz      | Stimulus max.     | 2275.0 Hz       |
| Analysis min.     | 20.0 Hz        | Analysis max.     | 1740.0 Hz       |
| Analysis (2) min. | 2280.0 Hz      | Analysis (2) max. | 20000.0 Hz      |

**Special Features**

Compensate delay 148.0000 ms (D\_RCV\_WB, Delay (Cross))  
Store to variable RCVWB10\_2000Hz

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

**labCORE Routing**

Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker  
Out Channel 2 -> Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In  
In Channel 1 <- Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out  
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

**Analog In Mainboard Settings (Analog In 1/2)**

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

**Analog Out Mainboard Settings (Analog Out 1/2)**

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

**Microphone Settings (Mic Amp. (Slot 6))****Channel In 1 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 2 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 3 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 4 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**BEQ Settings (BEQ Filter 1)**

Block mode Bypass

**Artificial Head Settings (HATS 1 (HMS II.3))**

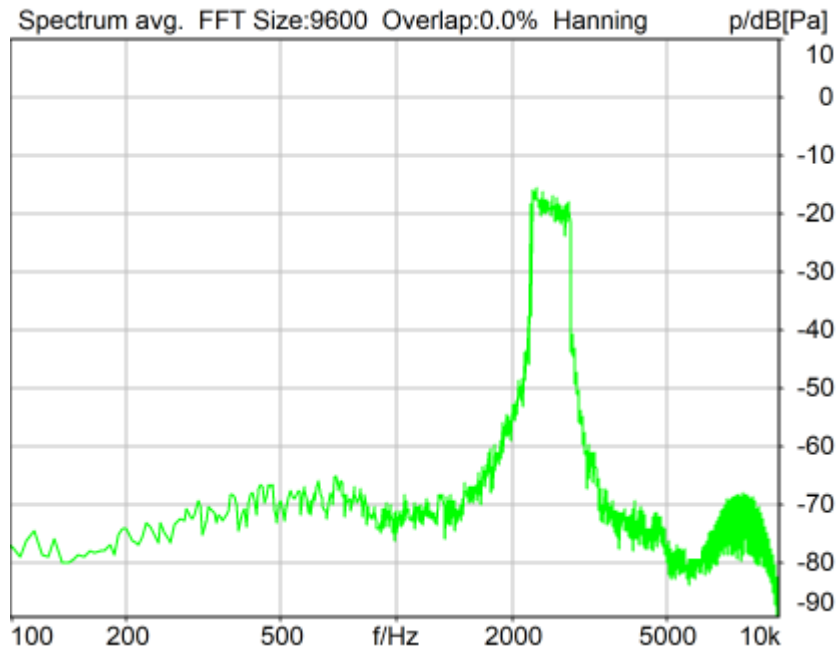
|          |          |            |          |
|----------|----------|------------|----------|
| Ser. Nr. | 12306613 | Pinna Type | Type 3.3 |
|----------|----------|------------|----------|

**HIB Settings**

|                    |                    |                    |          |
|--------------------|--------------------|--------------------|----------|
| HIB Name           | 60020095           | Serial             | 60020095 |
| HIB Mode           | Mobile Measurement | Impedance          | 32 Ohm   |
| Gain out 1         | -40.00 dB          | Gain out 2         | 0.00 dB  |
| Gain in 1          | 0.00 dB            | Gain in 2          | 0.00 dB  |
| Mic 1 Power Supply | Off                | Mic 2 Power Supply | Off      |

## 5.2 RCV Distortion and Noise - 2500 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 8N



Distortion (Noise) RCV (packed): 29.43 dB (3.38%) Ok

Ok

2024/1/20 10:06 ACQUA 5.1.200

Unmodified HEAD acoustics Measurement Descriptor

### Limits

|       |              |
|-------|--------------|
|       | <b>lower</b> |
| Run 1 | 20.00 dB     |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)

Database Version: 40\_HAC\_Suite\_Rev03

Source: act\_rpn\_b250ms\_2500hz\_sr20dbm0\_v02.dat

Level adj. Ch1 -90.0 dB

### Calibration

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))

Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

HHP IV Settings (Setting: STD:(0,0,0) rel AHP)

|                |        |                  |       |
|----------------|--------|------------------|-------|
| MECRP Delta Ye | 0.0 mm | Rotation Delta A | 0.0 ° |
|                |        | Rotation Delta C | 0.0 ° |

|                |         |                          |       |
|----------------|---------|--------------------------|-------|
| MECRP Delta Ze | 0.0 mm  | Rotation Delta B         | 5.0 ° |
| Delta Xe       | 0.0 mm  | Delta A                  | 0.0 ° |
| Delta Ye       | 0.0 mm  | Delta C                  | 0.0 ° |
| Delta Ze       | 0.0 mm  | Delta B                  | 0.0 ° |
| Ym             | -4.1 mm | Ear Type 3.3 Coordinates |       |

Mounting: Right Ear  
Force to apply: 8.0 N, Force reached: 8.0 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                   |                |                   |                 |
|-------------------|----------------|-------------------|-----------------|
| Direction         | Out 2 -> In 2  |                   |                 |
| Range start       | 13550.00 ms    | Range length      | 200.00 ms       |
| Number of seq.    | 10             | Sequence length   | 400.00 ms       |
| Use FIR Filter    | Ch2            | FIR filter        | drp2ff_ieee1652 |
| DRP/ERP Ch.1:     | Off            | DRP/ERP Ch.2:     | Off             |
| Frequency base    | Transformation |                   |                 |
| FFT size          | 9600           | Overlap           | 0 %             |
| Window function.  | Hanning        | Smooth            | Off             |
| dB weighting      | A Weighting    |                   |                 |
| Stimulus min.     | 2205.0 Hz      | Stimulus max.     | 2855.0 Hz       |
| Analysis min.     | 20.0 Hz        | Analysis max.     | 2200.0 Hz       |
| Analysis (2) min. | 2860.0 Hz      | Analysis (2) max. | 20000.0 Hz      |

**Special Features**

Compensate delay 148.0000 ms (D\_RCV\_WB, Delay (Cross))  
Store to variable RCVWB10\_2500Hz

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

**labCORE Routing**

Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker  
Out Channel 2 -> Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In  
In Channel 1 <- Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out  
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

**Analog In Mainboard Settings (Analog In 1/2)**

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

**Analog Out Mainboard Settings (Analog Out 1/2)**

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

**Microphone Settings (Mic Amp. (Slot 6))****Channel In 1 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 2 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 3 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 4 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**BEQ Settings (BEQ Filter 1)**

Block mode Bypass

**Artificial Head Settings (HATS 1 (HMS II.3))**

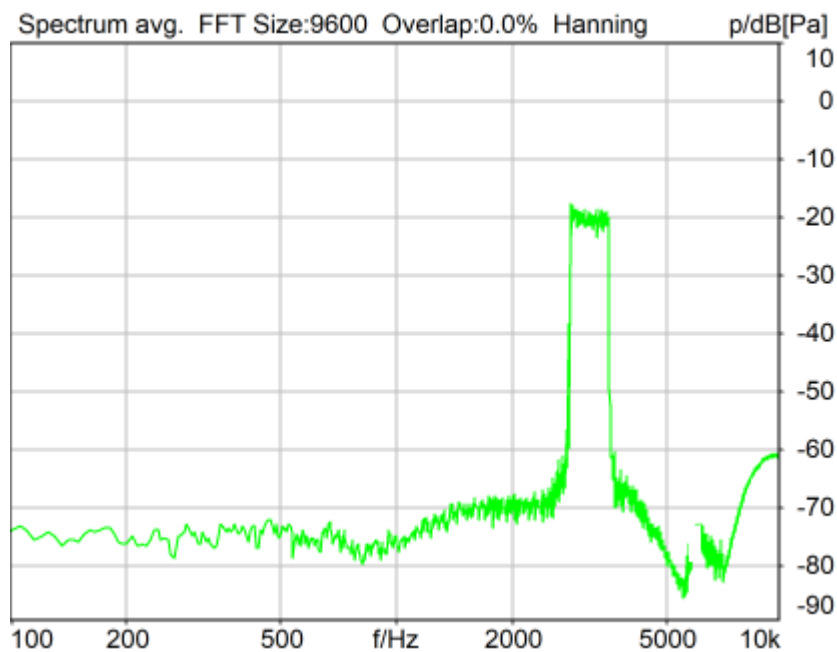
Ser. Nr. 12306613 Pinna Type Type 3.3

#### HIB Settings

|                        |                    |                        |          |
|------------------------|--------------------|------------------------|----------|
| HIB Name               | 60020095           | Serial                 | 60020095 |
| HIB Mode               | Mobile Measurement | Impedance              | 32 Ohm   |
| Gain out 1             | -40.00 dB          | Gain out 2             | 0.00 dB  |
| Gain in 1              | 0.00 dB            | Gain in 2              | 0.00 dB  |
| Mic 1 Power Supply Off |                    | Mic 2 Power Supply Off |          |

## 5.2 RCV Distortion and Noise - 3150 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 8N



Distortion (Noise) RCV (packed): 35.60 dB (1.66%) Ok

**Ok**

2024/1/20 10:07 ACQUA 5.1.200

Unmodified HEAD acoustics Measurement Descriptor

#### Limits

|       |              |
|-------|--------------|
|       | <b>lower</b> |
| Run 1 | 20.00 dB     |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)

Database Version: 40\_HAC\_Suite\_Rev03

Source: act\_rpn\_b250ms\_3150hz\_sr20dbm0\_v02.dat

Level adj. Ch1 -90.0 dB

**Calibration**

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))

Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

**HHP IV Settings (Setting: STD:(0,0,0) rel AHP)**

|                |         |                          |       |
|----------------|---------|--------------------------|-------|
| MECRP Delta Ye | 0.0 mm  | Rotation Delta A         | 0.0 ° |
| MECRP Delta Ze | 0.0 mm  | Rotation Delta C         | 0.0 ° |
| Delta Xe       | 0.0 mm  | Rotation Delta B         | 5.0 ° |
| Delta Ye       | 0.0 mm  | Delta A                  | 0.0 ° |
| Delta Ze       | 0.0 mm  | Delta C                  | 0.0 ° |
| Ym             | -4.1 mm | Delta B                  | 0.0 ° |
|                |         | Ear Type 3.3 Coordinates |       |

Mounting: Right Ear

Force to apply: 8.0 N, Force reached: 8.1 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                   |                |                   |                 |
|-------------------|----------------|-------------------|-----------------|
| Direction         | Out 2 -> In 2  |                   |                 |
| Range start       | 13550.00 ms    | Range length      | 200.00 ms       |
| Number of seq.    | 10             | Sequence length   | 400.00 ms       |
| Use FIR Filter    | Ch2            | FIR filter        | drp2ff_ieee1652 |
| DRP/ERP Ch.1:     | Off            | DRP/ERP Ch.2:     | Off             |
| Frequency base    | Transformation |                   |                 |
| FFT size          | 9600           | Overlap           | 0 %             |
| Window function.  | Hanning        | Smooth            | Off             |
| dB weighting      | A Weighting    |                   |                 |
| Stimulus min.     | 2785.0 Hz      | Stimulus max.     | 3585.0 Hz       |
| Analysis min.     | 20.0 Hz        | Analysis max.     | 2780.0 Hz       |
| Analysis (2) min. | 3590.0 Hz      | Analysis (2) max. | 20000.0 Hz      |

**Special Features**

Compensate delay 148.0000 ms (D\_RCV\_WB, Delay (Cross))

Store to variable RCVWB10\_3150Hz

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

**labCORE Routing**

|                  |                                                                          |
|------------------|--------------------------------------------------------------------------|
| Out Channel 1 -> | Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker                      |
| Out Channel 2 -> | Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In                           |
| In Channel 1 <-  | Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out                        |
| In Channel 2 <-  | BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right |

**Analogue In Mainboard Settings (Analog In 1/2)**

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

**Analogue Out Mainboard Settings (Analog Out 1/2)**

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

**Microphone Settings (Mic Amp. (Slot 6))****Channel In 1 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 2 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 3 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

Channel In 4 Settings

Range 114 dB[SPL] @ 12.5 mV/Pa Highpass Off  
Polarisation Voltage 200V Supply Voltage ±60V

-----  
BEQ Settings (BEQ Filter 1)

Block mode Bypass

-----  
Artificial Head Settings (HATS 1 (HMS II.3))

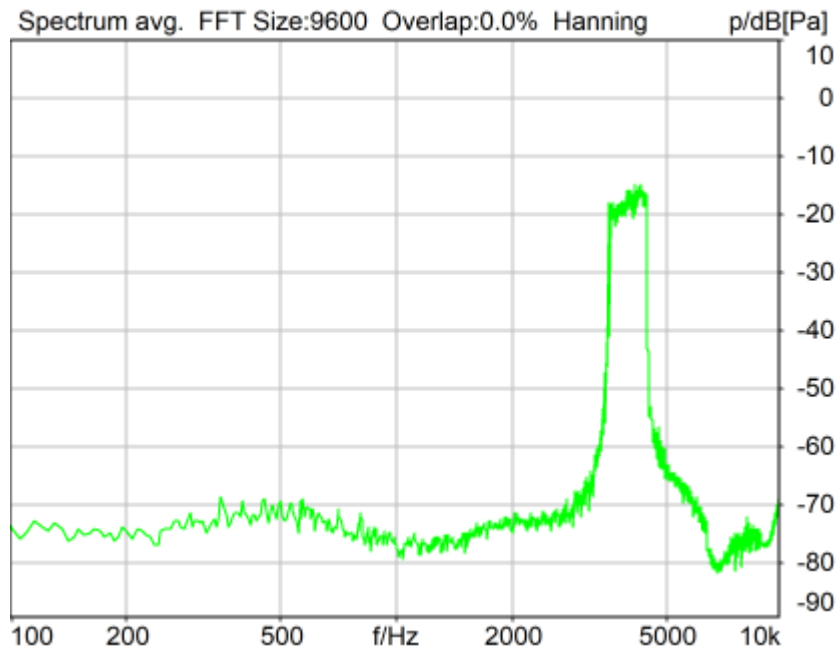
Ser. Nr. 12306613 Pinna Type Type 3.3

**HIB Settings**

|                    |                    |                    |          |
|--------------------|--------------------|--------------------|----------|
| HIB Name           | 60020095           | Serial             | 60020095 |
| HIB Mode           | Mobile Measurement | Impedance          | 32 Ohm   |
| Gain out 1         | -40.00 dB          | Gain out 2         | 0.00 dB  |
| Gain in 1          | 0.00 dB            | Gain in 2          | 0.00 dB  |
| Mic 1 Power Supply | Off                | Mic 2 Power Supply | Off      |

## 5.2 RCV Distortion and Noise - 4000 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 8N



Distortion (Noise) RCV (packed): 34.25 dB (1.94%) Ok

**Ok**

2024/1/20 10:07 ACQUA 5.1.200

Unmodified HEAD acoustics Measurement Descriptor

**Limits**

|       | lower    |
|-------|----------|
| Run 1 | 20.00 dB |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)  
Database Version: 40\_HAC\_Suite\_Rev03**Source: act\_rpn\_b250ms\_4000hz\_sr20dbm0\_v02.dat**

Level adj. Ch1 -90.0 dB

**Calibration**

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))

Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

**HHP IV Settings (Setting: STD:(0,0,0) rel AHP)**

|                |         |                          |       |
|----------------|---------|--------------------------|-------|
| MECRP Delta Ye | 0.0 mm  | Rotation Delta A         | 0.0 ° |
| MECRP Delta Ze | 0.0 mm  | Rotation Delta C         | 0.0 ° |
| Delta Xe       | 0.0 mm  | Rotation Delta B         | 5.0 ° |
| Delta Ye       | 0.0 mm  | Delta A                  | 0.0 ° |
| Delta Ze       | 0.0 mm  | Delta C                  | 0.0 ° |
| Ym             | -4.1 mm | Delta B                  | 0.0 ° |
|                |         | Ear Type 3.3 Coordinates |       |

Mounting: Right Ear

Force to apply: 8.0 N, Force reached: 8.0 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                   |                |                   |                 |
|-------------------|----------------|-------------------|-----------------|
| Direction         | Out 2 -> In 2  |                   |                 |
| Range start       | 13550.00 ms    | Range length      | 200.00 ms       |
| Number of seq.    | 10             | Sequence length   | 400.00 ms       |
| Use FIR Filter    | Ch2            | FIR filter        | drp2ff_ieee1652 |
| DRP/ERP Ch.1:     | Off            | DRP/ERP Ch.2:     | Off             |
| Frequency base    | Transformation |                   |                 |
| FFT size          | 9600           | Overlap           | 0 %             |
| Window function.  | Hanning        | Smooth            | Off             |
| dB weighting      | A Weighting    |                   |                 |
| Stimulus min.     | 3515.0 Hz      | Stimulus max.     | 4500.0 Hz       |
| Analysis min.     | 20.0 Hz        | Analysis max.     | 3510.0 Hz       |
| Analysis (2) min. | 4505.0 Hz      | Analysis (2) max. | 20000.0 Hz      |

**Special Features**

Compensate delay 148.0000 ms (D\_RCV\_WB, Delay (Cross))

Store to variable RCVWB10\_4000Hz

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

**labCORE Routing**

|                  |                                                                          |
|------------------|--------------------------------------------------------------------------|
| Out Channel 1 -> | Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker                      |
| Out Channel 2 -> | Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In                           |
| In Channel 1 <-  | Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out                        |
| In Channel 2 <-  | BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right |

**Analog In Mainboard Settings (Analog In 1/2)**

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

**Analog Out Mainboard Settings (Analog Out 1/2)**

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

**Microphone Settings (Mic Amp. (Slot 6))**

Channel In 1 Settings

|                       |                          |                |      |
|-----------------------|--------------------------|----------------|------|
| Range                 | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage  | 200V                     | Supply Voltage | ±60V |
| Channel In 2 Settings |                          |                |      |
| Range                 | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage  | 200V                     | Supply Voltage | ±60V |
| Channel In 3 Settings |                          |                |      |
| Range                 | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage  | 200V                     | Supply Voltage | ±60V |
| Channel In 4 Settings |                          |                |      |
| Range                 | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage  | 200V                     | Supply Voltage | ±60V |

-----  
BEQ Settings (BEQ Filter 1)  
Block mode      Bypass  
-----

Artificial Head Settings (HATS 1 (HMS II.3))

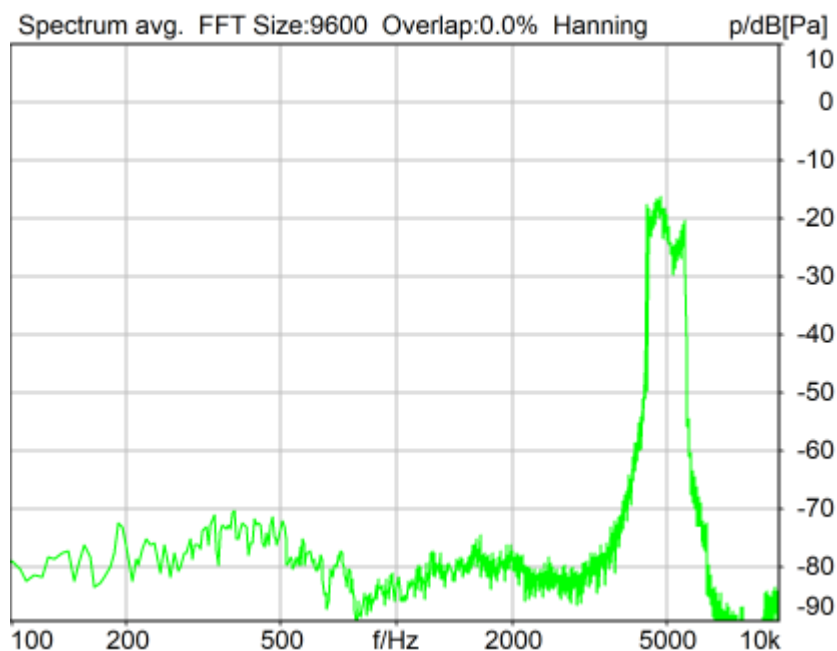
|          |          |            |          |
|----------|----------|------------|----------|
| Ser. Nr. | 12306613 | Pinna Type | Type 3.3 |
|----------|----------|------------|----------|

#### HIB Settings

|                    |                    |                    |          |
|--------------------|--------------------|--------------------|----------|
| HIB Name           | 60020095           | Serial             | 60020095 |
| HIB Mode           | Mobile Measurement | Impedance          | 32 Ohm   |
| Gain out 1         | -40.00 dB          | Gain out 2         | 0.00 dB  |
| Gain in 1          | 0.00 dB            | Gain in 2          | 0.00 dB  |
| Mic 1 Power Supply | Off                | Mic 2 Power Supply | Off      |

## 5.2 RCV Distortion and Noise - 5000 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 8N



Distortion (Noise) RCV (packed): 36.97 dB (1.42%) Ok

**Ok**

2024/1/20 10:07 ACQUA 5.1.200

Unmodified HEAD acoustics Measurement Descriptor

**Limits**

|       | lower    |
|-------|----------|
| Run 1 | 20.00 dB |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)  
Database Version: 40\_HAC\_Suite\_Rev03**Source:** act\_rpn\_b250ms\_5000hz\_sr20dbm0\_v02.dat

Level adj. Ch1 -90.0 dB

**Calibration**

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))

Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

**HHP IV Settings (Setting: STD:(0,0,0) rel AHP)**

|                |         |                          |       |
|----------------|---------|--------------------------|-------|
| MECRP Delta Ye | 0.0 mm  | Rotation Delta A         | 0.0 ° |
| MECRP Delta Ze | 0.0 mm  | Rotation Delta C         | 0.0 ° |
| Delta Xe       | 0.0 mm  | Rotation Delta B         | 5.0 ° |
| Delta Ye       | 0.0 mm  | Delta A                  | 0.0 ° |
| Delta Ze       | 0.0 mm  | Delta C                  | 0.0 ° |
| Ym             | -4.1 mm | Delta B                  | 0.0 ° |
|                |         | Ear Type 3.3 Coordinates |       |

Mounting: Right Ear

Force to apply: 8.0 N, Force reached: 8.0 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                   |                |                   |                 |
|-------------------|----------------|-------------------|-----------------|
| Direction         | Out 2 -> In 2  |                   |                 |
| Range start       | 13550.00 ms    | Range length      | 200.00 ms       |
| Number of seq.    | 10             | Sequence length   | 400.00 ms       |
| Use FIR Filter    | Ch2            | FIR filter        | drp2ff_ieee1652 |
| DRP/ERP Ch.1:     | Off            | DRP/ERP Ch.2:     | Off             |
| Frequency base    | Transformation |                   |                 |
| FFT size          | 9600           | Overlap           | 0 %             |
| Window function.  | Hanning        | Smooth            | Off             |
| dB weighting      | A Weighting    |                   |                 |
| Stimulus min.     | 4430.0 Hz      | Stimulus max.     | 5660.0 Hz       |
| Analysis min.     | 20.0 Hz        | Analysis max.     | 4425.0 Hz       |
| Analysis (2) min. | 5665.0 Hz      | Analysis (2) max. | 20000.0 Hz      |

**Special Features**

Compensate delay 148.0000 ms (D\_RCV\_WB, Delay (Cross))

Store to variable RCVWB10\_5000Hz

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

-----

**labCORE Routing**

|                  |                                                                          |
|------------------|--------------------------------------------------------------------------|
| Out Channel 1 -> | Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker                      |
| Out Channel 2 -> | Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In                           |
| In Channel 1 <-  | Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out                        |
| In Channel 2 <-  | BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right |

-----

Analog In Mainboard Settings (Analog In 1/2)

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

-----  
Analog Out Mainboard Settings (Analog Out 1/2)

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

-----  
Microphone Settings (Mic Amp. (Slot 6))

## Channel In 1 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

## Channel In 2 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

## Channel In 3 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

## Channel In 4 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

-----  
BEQ Settings (BEQ Filter 1)

|            |        |
|------------|--------|
| Block mode | Bypass |
|------------|--------|

-----  
Artificial Head Settings (HATS 1 (HMS II.3))

|          |          |            |          |
|----------|----------|------------|----------|
| Ser. Nr. | 12306613 | Pinna Type | Type 3.3 |
|----------|----------|------------|----------|

**HIB Settings**

|                    |                    |                    |          |
|--------------------|--------------------|--------------------|----------|
| HIB Name           | 60020095           | Serial             | 60020095 |
| HIB Mode           | Mobile Measurement | Impedance          | 32 Ohm   |
| Gain out 1         | -40.00 dB          | Gain out 2         | 0.00 dB  |
| Gain in 1          | 0.00 dB            | Gain in 2          | 0.00 dB  |
| Mic 1 Power Supply | Off                | Mic 2 Power Supply | Off      |

## **Report - Receive Distortion and Noise (Conversational Gain)**

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 8N

| Region | Frequency | SDNR     |
|--------|-----------|----------|
| 1      | 250Hz     | 30.25 dB |
| 2      | 315Hz     | 30.72 dB |
| 3      | 400Hz     | 29.99 dB |
| 4      | 500Hz     | 30.43 dB |
| 5      | 630Hz     | 30.87 dB |
| 6      | 800Hz     | 33.32 dB |
| 7      | 1000Hz    | 38.21 dB |
| 8      | 1250Hz    | 22.51 dB |
| 9      | 1600Hz    | 23.99 dB |
| 10     | 2000Hz    | 41.68 dB |
| 11     | 2500Hz    | 29.43 dB |
| 12     | 3150Hz    | 35.60 dB |
| 13     | 4000Hz    | 34.25 dB |
| 14     | 5000Hz    | 36.97 dB |

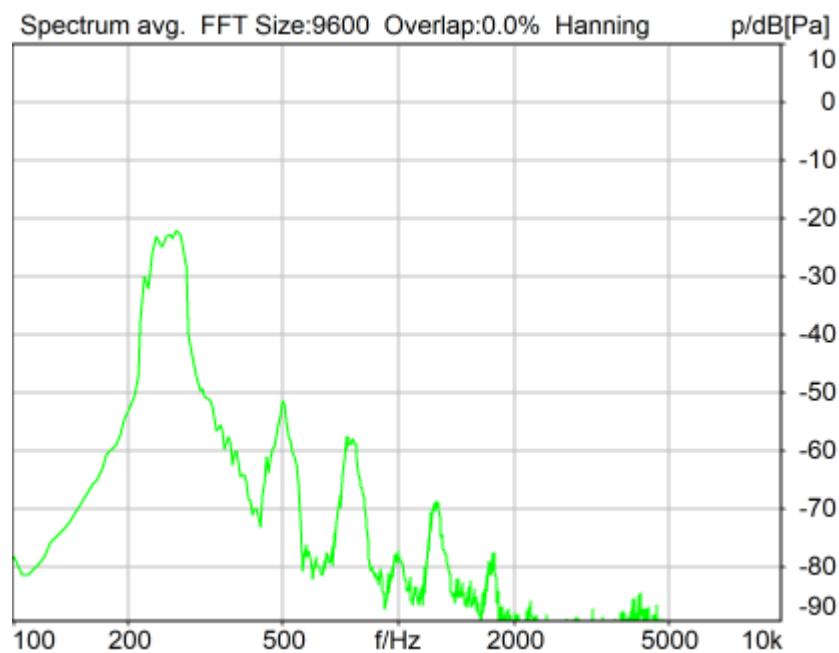
All SDNRs were greater than 20.0 dB, requirement was met.

Smallest SDNR was 22.51dB at 1250Hz.

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## 5.2 RCV Distortion and Noise - 250 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 2N



Distortion (Noise) RCV (packed): 29.98 dB (3.17%) Ok

Ok

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Unmodified HEAD acoustics Measurement Descriptor

### Limits

|       | lower    |
|-------|----------|
| Run 1 | 20.00 dB |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)  
Database Version: 40\_HAC\_Suite\_Rev03

Source: act\_rpn\_b250ms\_250hz\_sr20dbm0\_v02.dat.dat  
Level adj. Ch1 -90.0 dB

**Calibration**

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))

Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

**HHP IV Settings (Setting: STD:(0,0,0) rel AHP)**

|                          |         |                  |       |
|--------------------------|---------|------------------|-------|
| MECRP Delta Ye           | 0.0 mm  | Rotation Delta A | 0.0 ° |
| MECRP Delta Ze           | 0.0 mm  | Rotation Delta C | 0.0 ° |
| Delta Xe                 | 0.0 mm  | Rotation Delta B | 5.0 ° |
| Delta Ye                 | 0.0 mm  | Delta A          | 0.0 ° |
| Delta Ze                 | 0.0 mm  | Delta C          | 0.0 ° |
| Ym                       | -0.3 mm | Delta B          | 0.0 ° |
| Ear Type 3.3 Coordinates |         |                  |       |

Mounting: Right Ear

Force to apply: 2.0 N, Force reached: 1.9 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                   |                |                   |                 |
|-------------------|----------------|-------------------|-----------------|
| Direction         | Out 2 -> In 2  |                   |                 |
| Range start       | 13550.00 ms    | Range length      | 200.00 ms       |
| Number of seq.    | 10             | Sequence length   | 400.00 ms       |
| Use FIR Filter    | Ch2            | FIR filter        | drp2ff_ieee1652 |
| DRP/ERP Ch.1:     | Off            | DRP/ERP Ch.2:     | Off             |
| Frequency base    | Transformation |                   |                 |
| FFT size          | 9600           | Overlap           | 0 %             |
| Window function.  | Hanning        | Smooth            | Off             |
| dB weighting      | A Weighting    |                   |                 |
| Stimulus min.     | 190.0 Hz       | Stimulus max.     | 315.0 Hz        |
| Analysis min.     | 20.0 Hz        | Analysis max.     | 185.0 Hz        |
| Analysis (2) min. | 320.0 Hz       | Analysis (2) max. | 20000.0 Hz      |

**Special Features**

Compensate delay 202.1000 ms (D\_RCV\_WB, Delay (Cross))

Store to variable RCVWB10\_250Hz

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

**labCORE Routing**

|                  |                                                                          |
|------------------|--------------------------------------------------------------------------|
| Out Channel 1 -> | Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker                      |
| Out Channel 2 -> | Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In                           |
| In Channel 1 <-  | Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out                        |
| In Channel 2 <-  | BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right |

**Analog In Mainboard Settings (Analog In 1/2)**

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

**Analog Out Mainboard Settings (Analog Out 1/2)**

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

**Microphone Settings (Mic Amp. (Slot 6))****Channel In 1 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 2 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 3 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 4 Settings**

Range 114 dB[SPL] @ 12.5 mV/Pa Highpass Off  
Polarisation Voltage 200V Supply Voltage ±60V

-----  
BEQ Settings (BEQ Filter 1)  
Block mode Bypass  
-----

Artificial Head Settings (HATS 1 (HMS II.3))

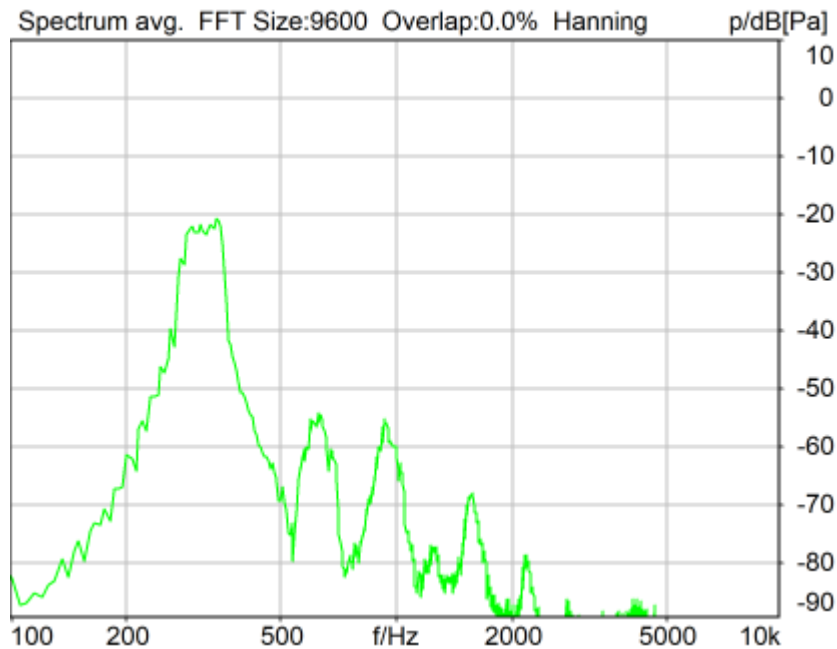
Ser. Nr. 12306613 Pinna Type Type 3.3

#### HIB Settings

|                        |                    |                        |          |
|------------------------|--------------------|------------------------|----------|
| HIB Name               | 60020095           | Serial                 | 60020095 |
| HIB Mode               | Mobile Measurement | Impedance              | 32 Ohm   |
| Gain out 1             | -40.00 dB          | Gain out 2             | 0.00 dB  |
| Gain in 1              | 0.00 dB            | Gain in 2              | 0.00 dB  |
| Mic 1 Power Supply Off |                    | Mic 2 Power Supply Off |          |

## 5.2 RCV Distortion and Noise - 315 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 2N



Distortion (Noise) RCV (packed): 30.10 dB (3.13%) Ok

**Ok**

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Unmodified HEAD acoustics Measurement Descriptor

#### Limits

|       |          |
|-------|----------|
|       | lower    |
| Run 1 | 20.00 dB |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)  
Database Version: 40\_HAC\_Suite\_Rev03

Source: act\_rpn\_b250ms\_315hz\_sr20dbm0\_v02.dat  
Level adj. Ch1 -90.0 dB

**Calibration**

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))  
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

**HHP IV Settings (Setting: STD:(0,0,0) rel AHP)**

|                |         |                          |       |
|----------------|---------|--------------------------|-------|
| MECRP Delta Ye | 0.0 mm  | Rotation Delta A         | 0.0 ° |
| MECRP Delta Ze | 0.0 mm  | Rotation Delta C         | 0.0 ° |
| Delta Xe       | 0.0 mm  | Rotation Delta B         | 5.0 ° |
| Delta Ye       | 0.0 mm  | Delta A                  | 0.0 ° |
| Delta Ze       | 0.0 mm  | Delta C                  | 0.0 ° |
| Ym             | -0.3 mm | Delta B                  | 0.0 ° |
|                |         | Ear Type 3.3 Coordinates |       |

Mounting: Right Ear  
Force to apply: 2.0 N, Force reached: 1.9 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                   |                |                   |                 |
|-------------------|----------------|-------------------|-----------------|
| Direction         | Out 2 -> In 2  |                   |                 |
| Range start       | 13550.00 ms    | Range length      | 200.00 ms       |
| Number of seq.    | 10             | Sequence length   | 400.00 ms       |
| Use FIR Filter    | Ch2            | FIR filter        | drp2ff_ieee1652 |
| DRP/ERP Ch.1:     | Off            | DRP/ERP Ch.2:     | Off             |
| Frequency base    | Transformation |                   |                 |
| FFT size          | 9600           | Overlap           | 0 %             |
| Window function.  | Hanning        | Smooth            | Off             |
| dB weighting      | A Weighting    |                   |                 |
| Stimulus min.     | 245.0 Hz       | Stimulus max.     | 390.0 Hz        |
| Analysis min.     | 20.0 Hz        | Analysis max.     | 240.0 Hz        |
| Analysis (2) min. | 395.0 Hz       | Analysis (2) max. | 20000.0 Hz      |

**Special Features**

Compensate delay 202.1000 ms (D\_RCV\_WB, Delay (Cross))  
Store to variable RCVWB10\_315Hz

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

**labCORE Routing**

Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker  
Out Channel 2 -> Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In  
In Channel 1 <- Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out  
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

**Analog In Mainboard Settings (Analog In 1/2)**

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

**Analog Out Mainboard Settings (Analog Out 1/2)**

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

**Microphone Settings (Mic Amp. (Slot 6))**

Channel In 1 Settings  
Range 114 dB[SPL] @ 12.5 mV/Pa Highpass Off

|                       |                          |                |      |
|-----------------------|--------------------------|----------------|------|
| Polarisation Voltage  | 200V                     | Supply Voltage | ±60V |
| Channel In 2 Settings |                          |                |      |
| Range                 | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage  | 200V                     | Supply Voltage | ±60V |
| Channel In 3 Settings |                          |                |      |
| Range                 | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage  | 200V                     | Supply Voltage | ±60V |
| Channel In 4 Settings |                          |                |      |
| Range                 | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage  | 200V                     | Supply Voltage | ±60V |

-----  
BEQ Settings (BEQ Filter 1)  
Block mode      Bypass  
-----

Artificial Head Settings (HATS 1 (HMS II.3))

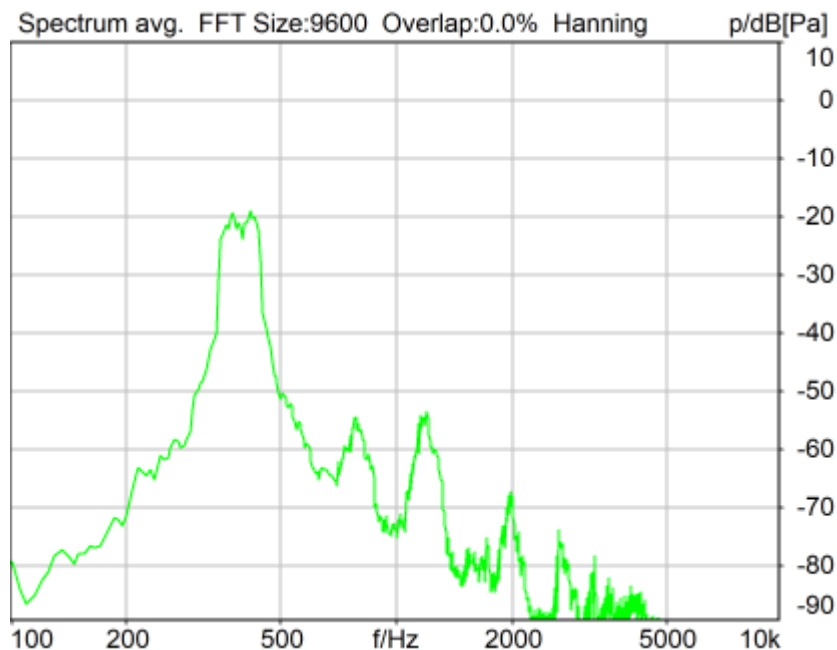
|          |          |            |          |
|----------|----------|------------|----------|
| Ser. Nr. | 12306613 | Pinna Type | Type 3.3 |
|----------|----------|------------|----------|

#### HIB Settings

|                    |                    |                    |          |
|--------------------|--------------------|--------------------|----------|
| HIB Name           | 60020095           | Serial             | 60020095 |
| HIB Mode           | Mobile Measurement | Impedance          | 32 Ohm   |
| Gain out 1         | -40.00 dB          | Gain out 2         | 0.00 dB  |
| Gain in 1          | 0.00 dB            | Gain in 2          | 0.00 dB  |
| Mic 1 Power Supply | Off                | Mic 2 Power Supply | Off      |

## 5.2 RCV Distortion and Noise - 400 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 2N



Distortion (Noise) RCV (packed): 28.74 dB (3.66%) Ok

Ok

2024/1/20 9:51 ACQUA 5.1.200

Unmodified HEAD acoustics Measurement Descriptor

**Limits**

|       | lower    |
|-------|----------|
| Run 1 | 20.00 dB |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)  
Database Version: 40\_HAC\_Suite\_Rev03**Source: act\_rpn\_b250ms\_400hz\_sr20dbm0\_v02.dat**

Level adj. Ch1 -90.0 dB

**Calibration**

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))

Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

**HHP IV Settings (Setting: STD:(0,0,0) rel AHP)**

|                |         |                          |       |
|----------------|---------|--------------------------|-------|
| MECRP Delta Ye | 0.0 mm  | Rotation Delta A         | 0.0 ° |
| MECRP Delta Ze | 0.0 mm  | Rotation Delta C         | 0.0 ° |
| Delta Xe       | 0.0 mm  | Rotation Delta B         | 5.0 ° |
| Delta Ye       | 0.0 mm  | Delta A                  | 0.0 ° |
| Delta Ze       | 0.0 mm  | Delta C                  | 0.0 ° |
| Ym             | -0.3 mm | Delta B                  | 0.0 ° |
|                |         | Ear Type 3.3 Coordinates |       |

Mounting: Right Ear

Force to apply: 2.0 N, Force reached: 1.9 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                   |                |                   |                 |
|-------------------|----------------|-------------------|-----------------|
| Direction         | Out 2 -> In 2  |                   |                 |
| Range start       | 13550.00 ms    | Range length      | 200.00 ms       |
| Number of seq.    | 10             | Sequence length   | 400.00 ms       |
| Use FIR Filter    | Ch2            | FIR filter        | drp2ff_ieee1652 |
| DRP/ERP Ch.1:     | Off            | DRP/ERP Ch.2:     | Off             |
| Frequency base    | Transformation |                   |                 |
| FFT size          | 9600           | Overlap           | 0 %             |
| Window function.  | Hanning        | Smooth            | Off             |
| dB weighting      | A Weighting    |                   |                 |
| Stimulus min.     | 320.0 Hz       | Stimulus max.     | 480.0 Hz        |
| Analysis min.     | 20.0 Hz        | Analysis max.     | 315.0 Hz        |
| Analysis (2) min. | 485.0 Hz       | Analysis (2) max. | 20000.0 Hz      |

**Special Features**

Compensate delay 202.1000 ms (D\_RCV\_WB, Delay (Cross))

Store to variable RCVWB10\_400Hz

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

**labCORE Routing**

|                  |                                                                          |
|------------------|--------------------------------------------------------------------------|
| Out Channel 1 -> | Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker                      |
| Out Channel 2 -> | Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In                           |
| In Channel 1 <-  | Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out                        |
| In Channel 2 <-  | BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right |

Analog In Mainboard Settings (Analog In 1/2)

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
|-------------|---------|-------------|----|

Range Ch. 2 0.00 dB Ch. 1 Float On

-----  
Analog Out Mainboard Settings (Analog Out 1/2)

Range Ch. 1 0.00 dB Range Ch. 2 0.00 dB

-----  
Microphone Settings (Mic Amp. (Slot 6))

Channel In 1 Settings

Range 114 dB[SPL] @ 12.5 mV/Pa Highpass Off  
Polarisation Voltage 200V Supply Voltage ±60V

Channel In 2 Settings

Range 114 dB[SPL] @ 12.5 mV/Pa Highpass 20Hz  
Polarisation Voltage 200V Supply Voltage ±60V

Channel In 3 Settings

Range 114 dB[SPL] @ 12.5 mV/Pa Highpass Off  
Polarisation Voltage 200V Supply Voltage ±60V

Channel In 4 Settings

Range 114 dB[SPL] @ 12.5 mV/Pa Highpass Off  
Polarisation Voltage 200V Supply Voltage ±60V

-----  
BEQ Settings (BEQ Filter 1)

Block mode Bypass

-----  
Artificial Head Settings (HATS 1 (HMS II.3))

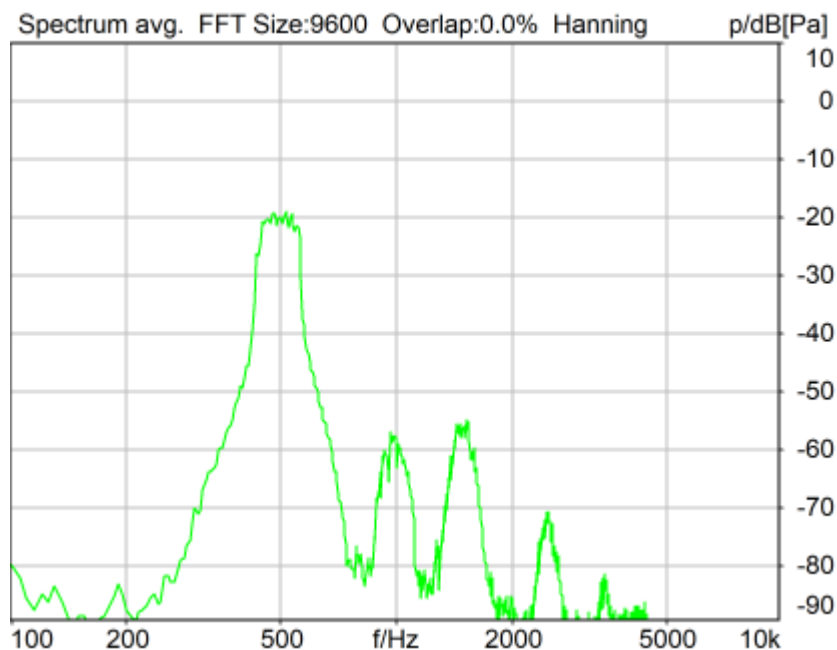
Ser. Nr. 12306613 Pinna Type Type 3.3

#### HIB Settings

|                    |                    |                    |          |
|--------------------|--------------------|--------------------|----------|
| HIB Name           | 60020095           | Serial             | 60020095 |
| HIB Mode           | Mobile Measurement | Impedance          | 32 Ohm   |
| Gain out 1         | -40.00 dB          | Gain out 2         | 0.00 dB  |
| Gain in 1          | 0.00 dB            | Gain in 2          | 0.00 dB  |
| Mic 1 Power Supply | Off                | Mic 2 Power Supply | Off      |

## 5.2 RCV Distortion and Noise - 500 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 2N



Distortion (Noise) RCV (packed): 29.68 dB (3.28%) Ok

**Ok**

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Unmodified HEAD acoustics Measurement Descriptor

**Limits**

|       | lower    |
|-------|----------|
| Run 1 | 20.00 dB |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)

Database Version: 40\_HAC\_Suite\_Rev03

**Source: act\_rpn\_b250ms\_500hz\_sr20dbm0\_v02.dat**

Level adj. Ch1 -90.0 dB

**Calibration**

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))

Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

**HHP IV Settings (Setting: STD:(0,0,0) rel AHP)**

|                |         |                          |       |
|----------------|---------|--------------------------|-------|
| MECRP Delta Ye | 0.0 mm  | Rotation Delta A         | 0.0 ° |
| MECRP Delta Ze | 0.0 mm  | Rotation Delta C         | 0.0 ° |
| Delta Xe       | 0.0 mm  | Rotation Delta B         | 5.0 ° |
| Delta Ye       | 0.0 mm  | Delta A                  | 0.0 ° |
| Delta Ze       | 0.0 mm  | Delta C                  | 0.0 ° |
| Ym             | -0.3 mm | Delta B                  | 0.0 ° |
|                |         | Ear Type 3.3 Coordinates |       |

Mounting: Right Ear

Force to apply: 2.0 N, Force reached: 1.9 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                   |                |                   |                 |
|-------------------|----------------|-------------------|-----------------|
| Direction         | Out 2 -> In 2  | Range length      | 200.00 ms       |
| Range start       | 13550.00 ms    | Sequence length   | 400.00 ms       |
| Number of seq.    | 10             | FIR filter        | drp2ff_ieee1652 |
| Use FIR Filter    | Ch2            | DRP/ERP Ch.2:     | Off             |
| DRP/ERP Ch.1:     | Off            | Frequency base    | Transformation  |
| Frequency base    | Transformation | FFT size          | 9600            |
| FFT size          | 9600           | Overlap           | 0 %             |
| Window function.  | Hanning        | Smooth            | Off             |
| dB weighting      | A Weighting    | Stimulus max.     | 595.0 Hz        |
| Stimulus min.     | 410.0 Hz       | Analysis max.     | 405.0 Hz        |
| Analysis min.     | 20.0 Hz        | Analysis (2) max. | 20000.0 Hz      |
| Analysis (2) min. | 600.0 Hz       |                   |                 |

**Special Features**

Compensate delay 202.1000 ms (D\_RCV\_WB, Delay (Cross))

Store to variable RCVWB10\_500Hz

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

-----

## labCORE Routing

Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker  
Out Channel 2 -> Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In  
In Channel 1 <- Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out  
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

-----  
Analog In Mainboard Settings (Analog In 1/2)

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

-----  
Analog Out Mainboard Settings (Analog Out 1/2)

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

-----  
Microphone Settings (Mic Amp. (Slot 6))

## Channel In 1 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

## Channel In 2 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

## Channel In 3 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

## Channel In 4 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

-----  
BEQ Settings (BEQ Filter 1)

|            |        |
|------------|--------|
| Block mode | Bypass |
|------------|--------|

-----  
Artificial Head Settings (HATS 1 (HMS II.3))

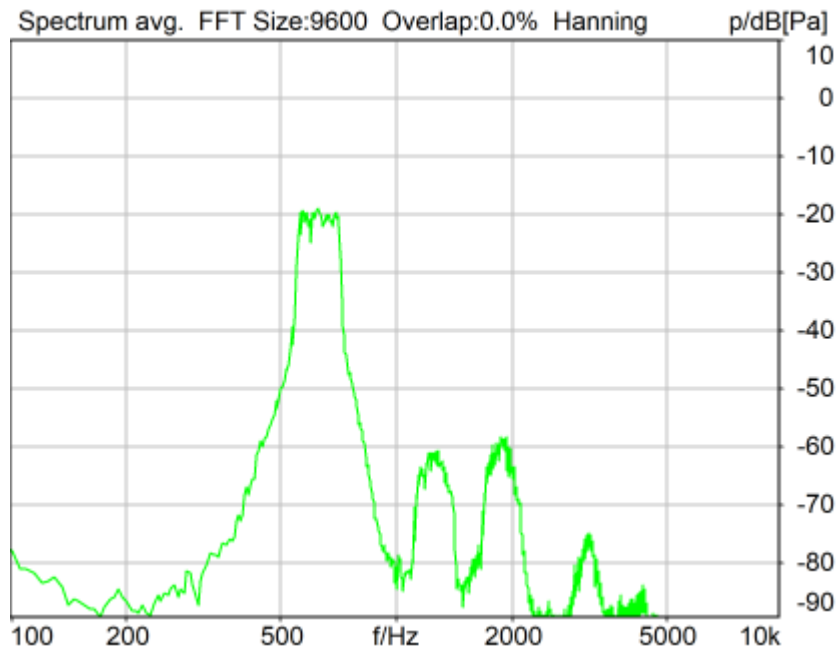
|          |          |            |          |
|----------|----------|------------|----------|
| Ser. Nr. | 12306613 | Pinna Type | Type 3.3 |
|----------|----------|------------|----------|

**HIB Settings**

|                    |                    |                    |          |
|--------------------|--------------------|--------------------|----------|
| HIB Name           | 60020095           | Serial             | 60020095 |
| HIB Mode           | Mobile Measurement | Impedance          | 32 Ohm   |
| Gain out 1         | -40.00 dB          | Gain out 2         | 0.00 dB  |
| Gain in 1          | 0.00 dB            | Gain in 2          | 0.00 dB  |
| Mic 1 Power Supply | Off                | Mic 2 Power Supply | Off      |

## **5.2 RCV Distortion and Noise - 630 Hz WB**

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 2N



Distortion (Noise) RCV (packed): 30.88 dB (2.86%) Ok

**Ok**

2024/1/20 9:52 ACQUA 5.1.200

Unmodified HEAD acoustics Measurement Descriptor

#### Limits

|       | lower    |
|-------|----------|
| Run 1 | 20.00 dB |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)

Database Version: 40\_HAC\_Suite\_Rev03

**Source:** act\_rpn\_b250ms\_630hz\_sr20dbm0\_v02.dat

Level adj. Ch1 -90.0 dB

#### Calibration

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))

Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

#### HHP IV Settings (Setting: STD:(0,0,0) rel AHP)

|                |         |                          |       |
|----------------|---------|--------------------------|-------|
| MECRP Delta Ye | 0.0 mm  | Rotation Delta A         | 0.0 ° |
| MECRP Delta Ze | 0.0 mm  | Rotation Delta C         | 0.0 ° |
| Delta Xe       | 0.0 mm  | Rotation Delta B         | 5.0 ° |
| Delta Ye       | 0.0 mm  | Delta A                  | 0.0 ° |
| Delta Ze       | 0.0 mm  | Delta C                  | 0.0 ° |
| Ym             | -0.3 mm | Delta B                  | 0.0 ° |
|                |         | Ear Type 3.3 Coordinates |       |

Mounting: Right Ear

Force to apply: 2.0 N, Force reached: 1.9 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                   |                |                   |                 |
|-------------------|----------------|-------------------|-----------------|
| Direction         | Out 2 -> In 2  |                   |                 |
| Range start       | 13550.00 ms    | Range length      | 200.00 ms       |
| Number of seq.    | 10             | Sequence length   | 400.00 ms       |
| Use FIR Filter    | Ch2            | FIR filter        | drp2ff_ieee1652 |
| DRP/ERP Ch.1:     | Off            | DRP/ERP Ch.2:     | Off             |
| Frequency base    | Transformation |                   |                 |
| FFT size          | 9600           | Overlap           | 0 %             |
| Window function.  | Hanning        | Smooth            | Off             |
| dB weighting      | A Weighting    |                   |                 |
| Stimulus min.     | 525.0 Hz       | Stimulus max.     | 745.0 Hz        |
| Analysis min.     | 20.0 Hz        | Analysis max.     | 520.0 Hz        |
| Analysis (2) min. | 750.0 Hz       | Analysis (2) max. | 20000.0 Hz      |

**Special Features**

Compensate delay 202.1000 ms (D\_RCV\_WB, Delay (Cross))  
Store to variable RCVWB10\_630Hz

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

**labCORE Routing**

Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker  
Out Channel 2 -> Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In  
In Channel 1 <- Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out  
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

**Analog In Mainboard Settings (Analog In 1/2)**

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

**Analog Out Mainboard Settings (Analog Out 1/2)**

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

**Microphone Settings (Mic Amp. (Slot 6))****Channel In 1 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 2 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 3 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 4 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**BEQ Settings (BEQ Filter 1)**

Block mode Bypass

**Artificial Head Settings (HATS 1 (HMS II.3))**

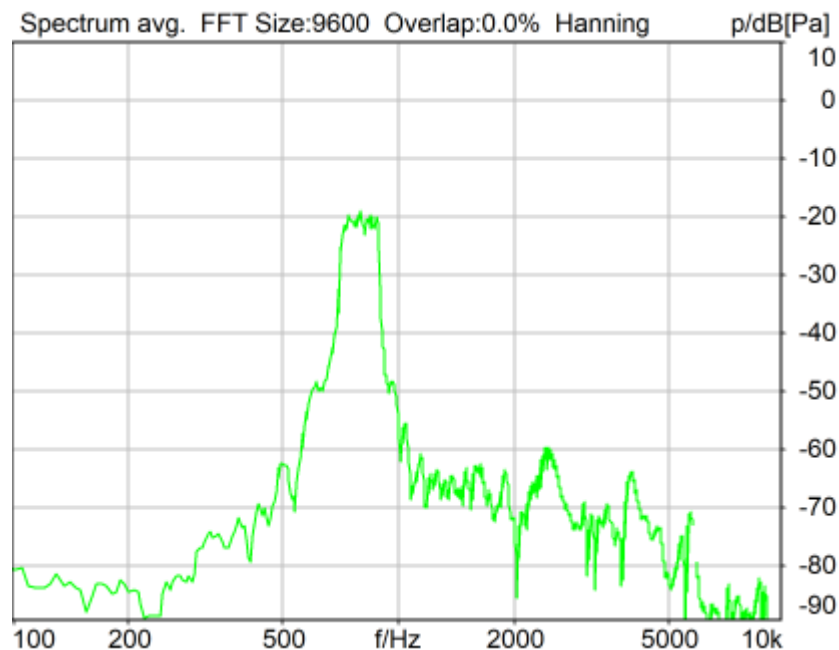
|          |          |            |          |
|----------|----------|------------|----------|
| Ser. Nr. | 12306613 | Pinna Type | Type 3.3 |
|----------|----------|------------|----------|

**HIB Settings**

|                    |                    |                    |          |
|--------------------|--------------------|--------------------|----------|
| HIB Name           | 60020095           | Serial             | 60020095 |
| HIB Mode           | Mobile Measurement | Impedance          | 32 Ohm   |
| Gain out 1         | -40.00 dB          | Gain out 2         | 0.00 dB  |
| Gain in 1          | 0.00 dB            | Gain in 2          | 0.00 dB  |
| Mic 1 Power Supply | Off                | Mic 2 Power Supply | Off      |

## 5.2 RCV Distortion and Noise - 800 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 2N



Distortion (Noise) RCV (packed): 27.51 dB (4.21%) Ok

Ok

2024/1/20 9:52 ACQUA 5.1.200

Unmodified HEAD acoustics Measurement Descriptor

### Limits

|       | lower    |
|-------|----------|
| Run 1 | 20.00 dB |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)

Database Version: 40\_HAC\_Suite\_Rev03

Source: act\_rpn\_b250ms\_800hz\_sr20dbm0\_v02.dat

Level adj. Ch1 -90.0 dB

### Calibration

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))

Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

HHP IV Settings (Setting: STD:(0,0,0) rel AHP)

|                |        |                  |       |
|----------------|--------|------------------|-------|
| MECRP Delta Ye | 0.0 mm | Rotation Delta A | 0.0 ° |
|                |        | Rotation Delta C | 0.0 ° |

|                |         |                          |       |
|----------------|---------|--------------------------|-------|
| MECRP Delta Ze | 0.0 mm  | Rotation Delta B         | 5.0 ° |
| Delta Xe       | 0.0 mm  | Delta A                  | 0.0 ° |
| Delta Ye       | 0.0 mm  | Delta C                  | 0.0 ° |
| Delta Ze       | 0.0 mm  | Delta B                  | 0.0 ° |
| Ym             | -0.3 mm | Ear Type 3.3 Coordinates |       |

Mounting: Right Ear  
Force to apply: 2.0 N, Force reached: 1.9 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                   |                |                   |                 |
|-------------------|----------------|-------------------|-----------------|
| Direction         | Out 2 -> In 2  |                   |                 |
| Range start       | 13550.00 ms    | Range length      | 200.00 ms       |
| Number of seq.    | 10             | Sequence length   | 400.00 ms       |
| Use FIR Filter    | Ch2            | FIR filter        | drp2ff_ieee1652 |
| DRP/ERP Ch.1:     | Off            | DRP/ERP Ch.2:     | Off             |
| Frequency base    | Transformation |                   |                 |
| FFT size          | 9600           | Overlap           | 0 %             |
| Window function.  | Hanning        | Smooth            | Off             |
| dB weighting      | A Weighting    |                   |                 |
| Stimulus min.     | 675.0 Hz       | Stimulus max.     | 925.0 Hz        |
| Analysis min.     | 20.0 Hz        | Analysis max.     | 670.0 Hz        |
| Analysis (2) min. | 930.0 Hz       | Analysis (2) max. | 20000.0 Hz      |

**Special Features**

Compensate delay 202.1000 ms (D\_RCV\_WB, Delay (Cross))  
Store to variable RCVWB10\_800Hz

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

**labCORE Routing**

Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker  
Out Channel 2 -> Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In  
In Channel 1 <- Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out  
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

**Analog In Mainboard Settings (Analog In 1/2)**

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

**Analog Out Mainboard Settings (Analog Out 1/2)**

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

**Microphone Settings (Mic Amp. (Slot 6))****Channel In 1 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 2 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 3 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 4 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**BEQ Settings (BEQ Filter 1)**

Block mode Bypass

**Artificial Head Settings (HATS 1 (HMS II.3))**

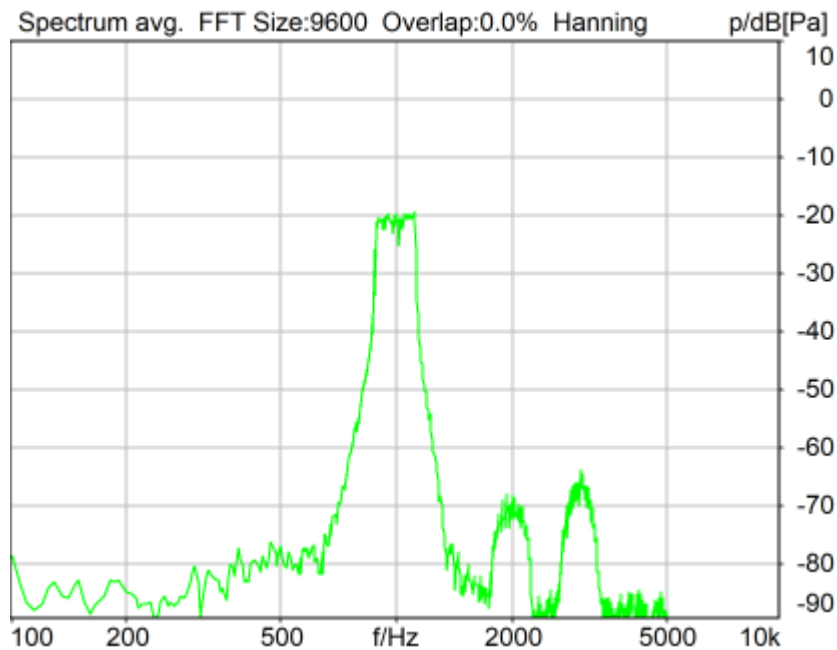
Ser. Nr. 12306613 Pinna Type Type 3.3

#### HIB Settings

|                        |                    |                        |          |
|------------------------|--------------------|------------------------|----------|
| HIB Name               | 60020095           | Serial                 | 60020095 |
| HIB Mode               | Mobile Measurement | Impedance              | 32 Ohm   |
| Gain out 1             | -40.00 dB          | Gain out 2             | 0.00 dB  |
| Gain in 1              | 0.00 dB            | Gain in 2              | 0.00 dB  |
| Mic 1 Power Supply Off |                    | Mic 2 Power Supply Off |          |

## 5.2 RCV Distortion and Noise - 1000 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 2N



Distortion (Noise) RCV (packed): 30.92 dB (2.84%) Ok

Ok

2024/1/20 9:52 ACQUA 5.1.200

Unmodified HEAD acoustics Measurement Descriptor

#### Limits

|       |          |
|-------|----------|
|       | lower    |
| Run 1 | 20.00 dB |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)

Database Version: 40\_HAC\_Suite\_Rev03

Source: act\_rpn\_b250ms\_1000hz\_sr20dbm0\_v02.dat

Level adj. Ch1 -90.0 dB

**Calibration**

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))

Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

**HHP IV Settings (Setting: STD:(0,0,0) rel AHP)**

|                |         |                          |       |
|----------------|---------|--------------------------|-------|
| MECRP Delta Ye | 0.0 mm  | Rotation Delta A         | 0.0 ° |
| MECRP Delta Ze | 0.0 mm  | Rotation Delta C         | 0.0 ° |
| Delta Xe       | 0.0 mm  | Rotation Delta B         | 5.0 ° |
| Delta Ye       | 0.0 mm  | Delta A                  | 0.0 ° |
| Delta Ze       | 0.0 mm  | Delta C                  | 0.0 ° |
| Ym             | -0.3 mm | Delta B                  | 0.0 ° |
|                |         | Ear Type 3.3 Coordinates |       |

Mounting: Right Ear

Force to apply: 2.0 N, Force reached: 1.9 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                   |                |                   |                 |
|-------------------|----------------|-------------------|-----------------|
| Direction         | Out 2 -> In 2  |                   |                 |
| Range start       | 13550.00 ms    | Range length      | 200.00 ms       |
| Number of seq.    | 10             | Sequence length   | 400.00 ms       |
| Use FIR Filter    | Ch2            | FIR filter        | drp2ff_ieee1652 |
| DRP/ERP Ch.1:     | Off            | DRP/ERP Ch.2:     | Off             |
| Frequency base    | Transformation |                   |                 |
| FFT size          | 9600           | Overlap           | 0 %             |
| Window function.  | Hanning        | Smooth            | Off             |
| dB weighting      | A Weighting    |                   |                 |
| Stimulus min.     | 855.0 Hz       | Stimulus max.     | 1155.0 Hz       |
| Analysis min.     | 20.0 Hz        | Analysis max.     | 850.0 Hz        |
| Analysis (2) min. | 1160.0 Hz      | Analysis (2) max. | 20000.0 Hz      |

**Special Features**

Compensate delay 202.1000 ms (D\_RCV\_WB, Delay (Cross))

Store to variable RCVWB10\_1000Hz

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

**labCORE Routing**

|                  |                                                                          |
|------------------|--------------------------------------------------------------------------|
| Out Channel 1 -> | Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker                      |
| Out Channel 2 -> | Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In                           |
| In Channel 1 <-  | Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out                        |
| In Channel 2 <-  | BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right |

**Analogue In Mainboard Settings (Analog In 1/2)**

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

**Analogue Out Mainboard Settings (Analog Out 1/2)**

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

**Microphone Settings (Mic Amp. (Slot 6))****Channel In 1 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 2 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 3 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

Channel In 4 Settings

Range 114 dB[SPL] @ 12.5 mV/Pa Highpass Off  
Polarisation Voltage200V Supply Voltage ±60V

-----  
BEQ Settings (BEQ Filter 1)

Block mode Bypass

-----  
Artificial Head Settings (HATS 1 (HMS II.3))

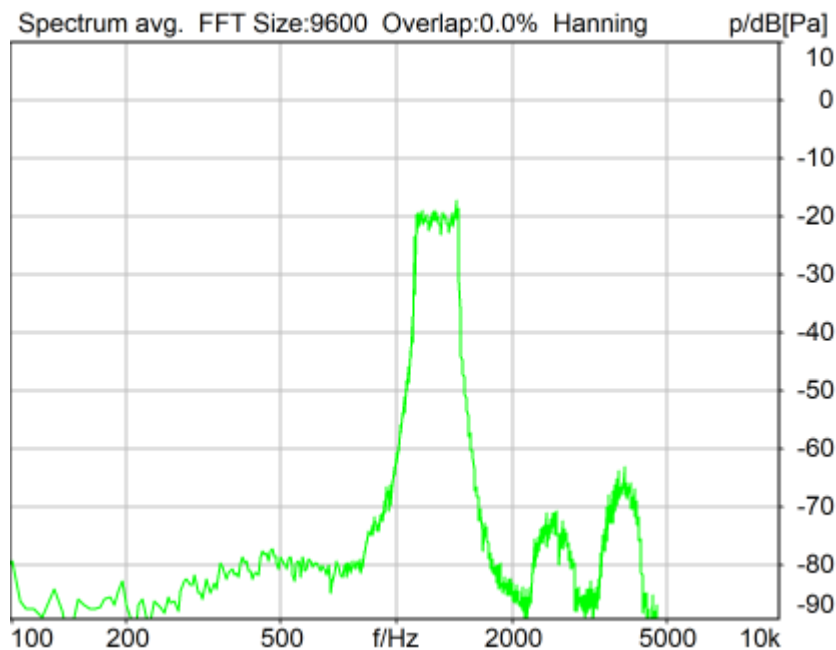
Ser. Nr. 12306613 Pinna Type Type 3.3

**HIB Settings**

|                        |                    |                        |          |
|------------------------|--------------------|------------------------|----------|
| HIB Name               | 60020095           | Serial                 | 60020095 |
| HIB Mode               | Mobile Measurement | Impedance              | 32 Ohm   |
| Gain out 1             | -40.00 dB          | Gain out 2             | 0.00 dB  |
| Gain in 1              | 0.00 dB            | Gain in 2              | 0.00 dB  |
| Mic 1 Power Supply Off |                    | Mic 2 Power Supply Off |          |

## 5.2 RCV Distortion and Noise - 1250 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 2N



Distortion (Noise) RCV (packed): 25.46 dB (5.33%) Ok

**Ok**

2024/1/20 9:53 ACQUA 5.1.200

Unmodified HEAD acoustics Measurement Descriptor

**Limits**

|       | lower    |
|-------|----------|
| Run 1 | 20.00 dB |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)  
Database Version: 40\_HAC\_Suite\_Rev03**Source:** act\_rpn\_b250ms\_1250hz\_sr20dbm0\_v02.dat

Level adj. Ch1 -90.0 dB

**Calibration**

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))

Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

**HHP IV Settings (Setting: STD:(0,0,0) rel AHP)**

|                |         |                          |       |
|----------------|---------|--------------------------|-------|
| MECRP Delta Ye | 0.0 mm  | Rotation Delta A         | 0.0 ° |
| MECRP Delta Ze | 0.0 mm  | Rotation Delta C         | 0.0 ° |
| Delta Xe       | 0.0 mm  | Rotation Delta B         | 5.0 ° |
| Delta Ye       | 0.0 mm  | Delta A                  | 0.0 ° |
| Delta Ze       | 0.0 mm  | Delta C                  | 0.0 ° |
| Ym             | -0.3 mm | Delta B                  | 0.0 ° |
|                |         | Ear Type 3.3 Coordinates |       |

Mounting: Right Ear

Force to apply: 2.0 N, Force reached: 1.9 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                   |                |                   |                 |
|-------------------|----------------|-------------------|-----------------|
| Direction         | Out 2 -> In 2  |                   |                 |
| Range start       | 13550.00 ms    | Range length      | 200.00 ms       |
| Number of seq.    | 10             | Sequence length   | 400.00 ms       |
| Use FIR Filter    | Ch2            | FIR filter        | drp2ff_ieee1652 |
| DRP/ERP Ch.1:     | Off            | DRP/ERP Ch.2:     | Off             |
| Frequency base    | Transformation |                   |                 |
| FFT size          | 9600           | Overlap           | 0 %             |
| Window function.  | Hanning        | Smooth            | Off             |
| dB weighting      | A Weighting    |                   |                 |
| Stimulus min.     | 1085.0 Hz      | Stimulus max.     | 1450.0 Hz       |
| Analysis min.     | 20.0 Hz        | Analysis max.     | 1080.0 Hz       |
| Analysis (2) min. | 1455.0 Hz      | Analysis (2) max. | 20000.0 Hz      |

**Special Features**

Compensate delay 202.1000 ms (D\_RCV\_WB, Delay (Cross))

Store to variable RCVWB10\_1250Hz

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

**labCORE Routing**

|                  |                                                                          |
|------------------|--------------------------------------------------------------------------|
| Out Channel 1 -> | Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker                      |
| Out Channel 2 -> | Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In                           |
| In Channel 1 <-  | Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out                        |
| In Channel 2 <-  | BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right |

**Analog In Mainboard Settings (Analog In 1/2)**

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

**Analog Out Mainboard Settings (Analog Out 1/2)**

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

**Microphone Settings (Mic Amp. (Slot 6))**

Channel In 1 Settings

|                       |                          |                |      |
|-----------------------|--------------------------|----------------|------|
| Range                 | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage  | 200V                     | Supply Voltage | ±60V |
| Channel In 2 Settings |                          |                |      |
| Range                 | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage  | 200V                     | Supply Voltage | ±60V |
| Channel In 3 Settings |                          |                |      |
| Range                 | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage  | 200V                     | Supply Voltage | ±60V |
| Channel In 4 Settings |                          |                |      |
| Range                 | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage  | 200V                     | Supply Voltage | ±60V |

-----  
BEQ Settings (BEQ Filter 1)  
Block mode      Bypass  
-----

Artificial Head Settings (HATS 1 (HMS II.3))

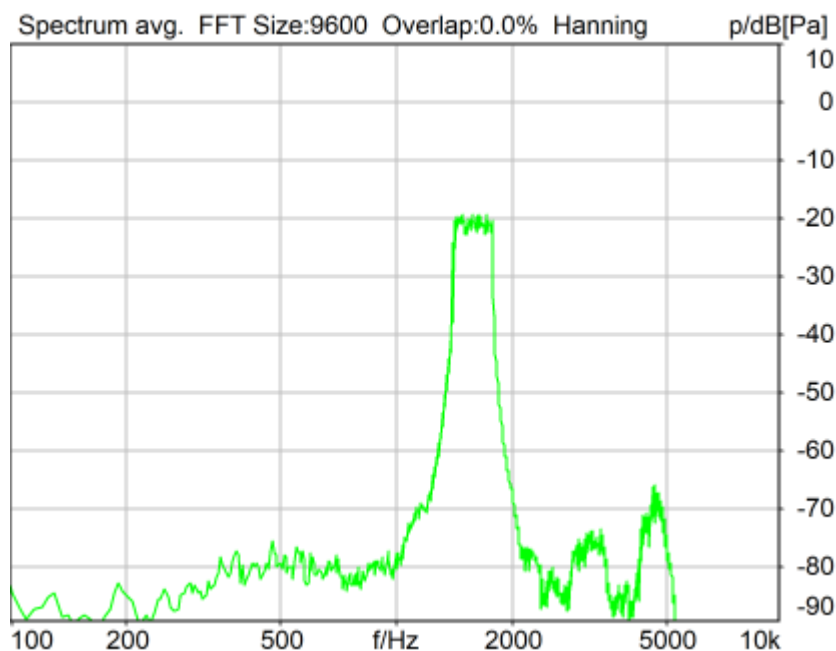
|          |          |            |          |
|----------|----------|------------|----------|
| Ser. Nr. | 12306613 | Pinna Type | Type 3.3 |
|----------|----------|------------|----------|

#### HIB Settings

|                    |                    |                    |          |
|--------------------|--------------------|--------------------|----------|
| HIB Name           | 60020095           | Serial             | 60020095 |
| HIB Mode           | Mobile Measurement | Impedance          | 32 Ohm   |
| Gain out 1         | -40.00 dB          | Gain out 2         | 0.00 dB  |
| Gain in 1          | 0.00 dB            | Gain in 2          | 0.00 dB  |
| Mic 1 Power Supply | Off                | Mic 2 Power Supply | Off      |

## 5.2 RCV Distortion and Noise - 1600 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 2N



Distortion (Noise) RCV (packed): 32.43 dB (2.39%) Ok

Ok

2024/1/20 9:53 ACQUA 5.1.200

Unmodified HEAD acoustics Measurement Descriptor

**Limits**

|       | lower    |
|-------|----------|
| Run 1 | 20.00 dB |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)  
Database Version: 40\_HAC\_Suite\_Rev03**Source:** act\_rpn\_b250ms\_1600hz\_sr20dbm0\_v02.dat

Level adj. Ch1 -90.0 dB

**Calibration**

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))

Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

**HHP IV Settings (Setting: STD:(0,0,0) rel AHP)**

|                |         |                          |       |
|----------------|---------|--------------------------|-------|
| MECRP Delta Ye | 0.0 mm  | Rotation Delta A         | 0.0 ° |
| MECRP Delta Ze | 0.0 mm  | Rotation Delta C         | 0.0 ° |
| Delta Xe       | 0.0 mm  | Rotation Delta B         | 5.0 ° |
| Delta Ye       | 0.0 mm  | Delta A                  | 0.0 ° |
| Delta Ze       | 0.0 mm  | Delta C                  | 0.0 ° |
| Ym             | -0.3 mm | Delta B                  | 0.0 ° |
|                |         | Ear Type 3.3 Coordinates |       |

Mounting: Right Ear

Force to apply: 2.0 N, Force reached: 1.9 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                   |                |                   |                 |
|-------------------|----------------|-------------------|-----------------|
| Direction         | Out 2 -> In 2  |                   |                 |
| Range start       | 13550.00 ms    | Range length      | 200.00 ms       |
| Number of seq.    | 10             | Sequence length   | 400.00 ms       |
| Use FIR Filter    | Ch2            | FIR filter        | drp2ff_ieee1652 |
| DRP/ERP Ch.1:     | Off            | DRP/ERP Ch.2:     | Off             |
| Frequency base    | Transformation |                   |                 |
| FFT size          | 9600           | Overlap           | 0 %             |
| Window function.  | Hanning        | Smooth            | Off             |
| dB weighting      | A Weighting    |                   |                 |
| Stimulus min.     | 1375.0 Hz      | Stimulus max.     | 1815.0 Hz       |
| Analysis min.     | 20.0 Hz        | Analysis max.     | 1370.0 Hz       |
| Analysis (2) min. | 1820.0 Hz      | Analysis (2) max. | 20000.0 Hz      |

**Special Features**

Compensate delay 202.1000 ms (D\_RCV\_WB, Delay (Cross))

Store to variable RCVWB10\_1600Hz

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

-----

**labCORE Routing**

|                  |                                                                          |
|------------------|--------------------------------------------------------------------------|
| Out Channel 1 -> | Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker                      |
| Out Channel 2 -> | Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In                           |
| In Channel 1 <-  | Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out                        |
| In Channel 2 <-  | BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right |

-----

Analog In Mainboard Settings (Analog In 1/2)

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

-----  
Analog Out Mainboard Settings (Analog Out 1/2)

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

-----  
Microphone Settings (Mic Amp. (Slot 6))

## Channel In 1 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

## Channel In 2 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

## Channel In 3 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

## Channel In 4 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

-----  
BEQ Settings (BEQ Filter 1)

|            |        |
|------------|--------|
| Block mode | Bypass |
|------------|--------|

-----  
Artificial Head Settings (HATS 1 (HMS II.3))

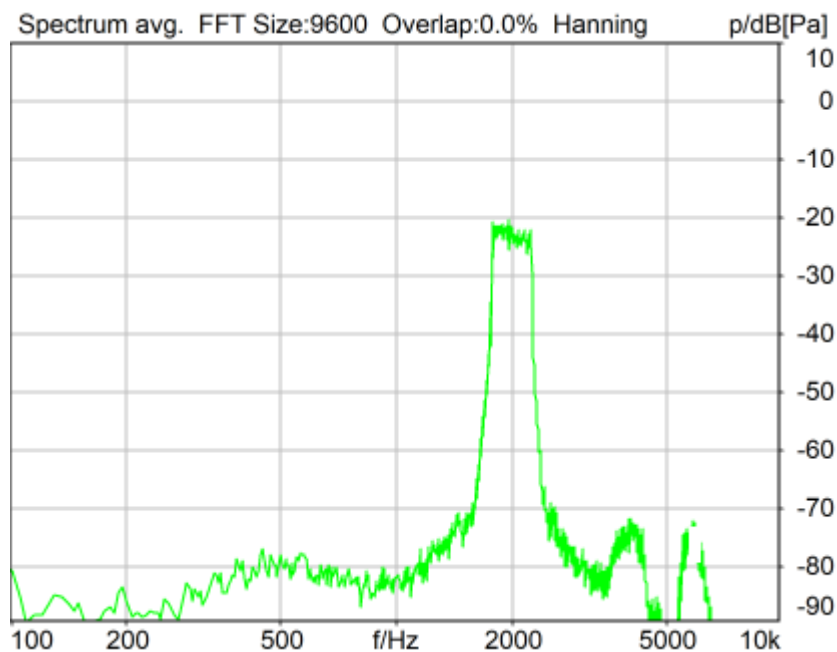
|          |          |            |          |
|----------|----------|------------|----------|
| Ser. Nr. | 12306613 | Pinna Type | Type 3.3 |
|----------|----------|------------|----------|

**HIB Settings**

|                    |                    |                    |          |
|--------------------|--------------------|--------------------|----------|
| HIB Name           | 60020095           | Serial             | 60020095 |
| HIB Mode           | Mobile Measurement | Impedance          | 32 Ohm   |
| Gain out 1         | -40.00 dB          | Gain out 2         | 0.00 dB  |
| Gain in 1          | 0.00 dB            | Gain in 2          | 0.00 dB  |
| Mic 1 Power Supply | Off                | Mic 2 Power Supply | Off      |

## **5.2 RCV Distortion and Noise - 2000 Hz WB**

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 2N



Distortion (Noise) RCV (packed): 31.42 dB (2.69%) Ok

**Ok**

2024/1/20 9:54 ACQUA 5.1.200

Unmodified HEAD acoustics Measurement Descriptor

**Limits**

|       | lower    |
|-------|----------|
| Run 1 | 20.00 dB |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)

Database Version: 40\_HAC\_Suite\_Rev03

**Source: act\_rpn\_b250ms\_2000hz\_sr20dbm0\_v02.dat**

Level adj. Ch1 -90.0 dB

**Calibration**

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))

Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

**HHP IV Settings (Setting: STD:(0,0,0) rel AHP)**

|                          |         |                  |       |
|--------------------------|---------|------------------|-------|
| MECRP Delta Ye           | 0.0 mm  | Rotation Delta A | 0.0 ° |
| MECRP Delta Ze           | 0.0 mm  | Rotation Delta C | 0.0 ° |
| Delta Xe                 | 0.0 mm  | Rotation Delta B | 5.0 ° |
| Delta Ye                 | 0.0 mm  | Delta A          | 0.0 ° |
| Delta Ze                 | 0.0 mm  | Delta C          | 0.0 ° |
| Ym                       | -0.3 mm | Delta B          | 0.0 ° |
| Ear Type 3.3 Coordinates |         |                  |       |

Mounting: Right Ear

Force to apply: 2.0 N, Force reached: 1.9 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                   |                |                   |                 |
|-------------------|----------------|-------------------|-----------------|
| Direction         | Out 2 -> In 2  | Range length      | 200.00 ms       |
| Range start       | 13550.00 ms    | Sequence length   | 400.00 ms       |
| Number of seq.    | 10             | FIR filter        | drp2ff_ieee1652 |
| Use FIR Filter    | Ch2            | DRP/ERP Ch.2:     | Off             |
| DRP/ERP Ch.1:     | Off            | Frequency base    | Transformation  |
| Frequency base    | Transformation | FFT size          | 9600            |
| FFT size          | 9600           | Overlap           | 0 %             |
| Window function.  | Hanning        | Smooth            | Off             |
| dB weighting      | A Weighting    | Stimulus max.     | 2275.0 Hz       |
| Stimulus min.     | 1745.0 Hz      | Analysis max.     | 1740.0 Hz       |
| Analysis min.     | 20.0 Hz        | Analysis (2) max. | 20000.0 Hz      |
| Analysis (2) min. | 2280.0 Hz      |                   |                 |

**Special Features**

Compensate delay 202.1000 ms (D\_RCV\_WB, Delay (Cross))

Store to variable RCVWB10\_2000Hz

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

-----

## labCORE Routing

Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker  
Out Channel 2 -> Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In  
In Channel 1 <- Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out  
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

-----  
Analog In Mainboard Settings (Analog In 1/2)

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

-----  
Analog Out Mainboard Settings (Analog Out 1/2)

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

-----  
Microphone Settings (Mic Amp. (Slot 6))

## Channel In 1 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

## Channel In 2 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

## Channel In 3 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

## Channel In 4 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

-----  
BEQ Settings (BEQ Filter 1)

|            |        |
|------------|--------|
| Block mode | Bypass |
|------------|--------|

-----  
Artificial Head Settings (HATS 1 (HMS II.3))

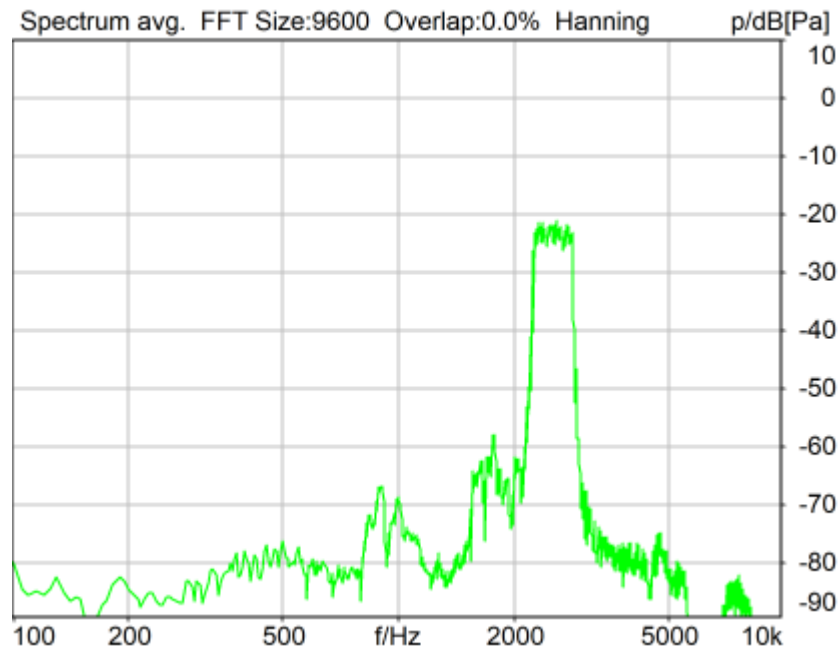
|          |          |            |          |
|----------|----------|------------|----------|
| Ser. Nr. | 12306613 | Pinna Type | Type 3.3 |
|----------|----------|------------|----------|

**HIB Settings**

|                    |                    |                    |          |
|--------------------|--------------------|--------------------|----------|
| HIB Name           | 60020095           | Serial             | 60020095 |
| HIB Mode           | Mobile Measurement | Impedance          | 32 Ohm   |
| Gain out 1         | -40.00 dB          | Gain out 2         | 0.00 dB  |
| Gain in 1          | 0.00 dB            | Gain in 2          | 0.00 dB  |
| Mic 1 Power Supply | Off                | Mic 2 Power Supply | Off      |

## **5.2 RCV Distortion and Noise - 2500 Hz WB**

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 2N



Distortion (Noise) RCV (packed): 31.15 dB (2.77%) Ok

**Ok**

2024/1/20 9:54 ACQUA 5.1.200

Unmodified HEAD acoustics Measurement Descriptor

#### Limits

|       | lower    |
|-------|----------|
| Run 1 | 20.00 dB |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)

Database Version: 40\_HAC\_Suite\_Rev03

**Source: act\_rpn\_b250ms\_2500hz\_sr20dbm0\_v02.dat**

Level adj. Ch1 -90.0 dB

#### Calibration

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))

Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

#### HHP IV Settings (Setting: STD:(0,0,0) rel AHP)

|                |         |                          |       |
|----------------|---------|--------------------------|-------|
| MECRP Delta Ye | 0.0 mm  | Rotation Delta A         | 0.0 ° |
| MECRP Delta Ze | 0.0 mm  | Rotation Delta C         | 0.0 ° |
| Delta Xe       | 0.0 mm  | Rotation Delta B         | 5.0 ° |
| Delta Ye       | 0.0 mm  | Delta A                  | 0.0 ° |
| Delta Ze       | 0.0 mm  | Delta C                  | 0.0 ° |
| Ym             | -0.3 mm | Delta B                  | 0.0 ° |
|                |         | Ear Type 3.3 Coordinates |       |

Mounting: Right Ear

Force to apply: 2.0 N, Force reached: 1.9 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                   |                |                   |                 |
|-------------------|----------------|-------------------|-----------------|
| Direction         | Out 2 -> In 2  |                   |                 |
| Range start       | 13550.00 ms    | Range length      | 200.00 ms       |
| Number of seq.    | 10             | Sequence length   | 400.00 ms       |
| Use FIR Filter    | Ch2            | FIR filter        | drp2ff_ieee1652 |
| DRP/ERP Ch.1:     | Off            | DRP/ERP Ch.2:     | Off             |
| Frequency base    | Transformation |                   |                 |
| FFT size          | 9600           | Overlap           | 0 %             |
| Window function.  | Hanning        | Smooth            | Off             |
| dB weighting      | A Weighting    |                   |                 |
| Stimulus min.     | 2205.0 Hz      | Stimulus max.     | 2855.0 Hz       |
| Analysis min.     | 20.0 Hz        | Analysis max.     | 2200.0 Hz       |
| Analysis (2) min. | 2860.0 Hz      | Analysis (2) max. | 20000.0 Hz      |

**Special Features**

Compensate delay 202.1000 ms (D\_RCV\_WB, Delay (Cross))  
Store to variable RCVWB10\_2500Hz

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

**labCORE Routing**

Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker  
Out Channel 2 -> Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In  
In Channel 1 <- Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out  
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

**Analog In Mainboard Settings (Analog In 1/2)**

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

**Analog Out Mainboard Settings (Analog Out 1/2)**

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

**Microphone Settings (Mic Amp. (Slot 6))****Channel In 1 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 2 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 3 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 4 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**BEQ Settings (BEQ Filter 1)**

Block mode Bypass

**Artificial Head Settings (HATS 1 (HMS II.3))**

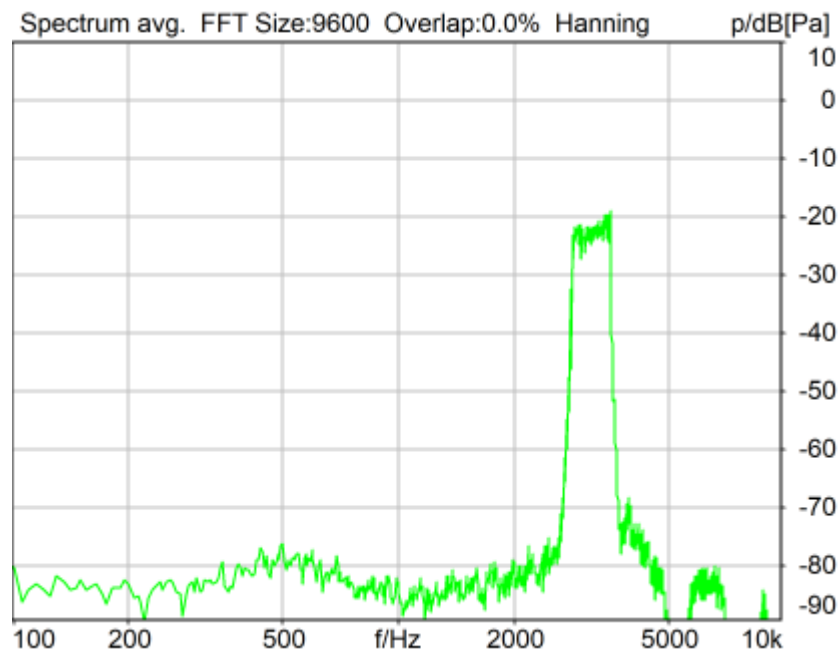
|          |          |            |          |
|----------|----------|------------|----------|
| Ser. Nr. | 12306613 | Pinna Type | Type 3.3 |
|----------|----------|------------|----------|

**HIB Settings**

|                    |                    |                    |          |
|--------------------|--------------------|--------------------|----------|
| HIB Name           | 60020095           | Serial             | 60020095 |
| HIB Mode           | Mobile Measurement | Impedance          | 32 Ohm   |
| Gain out 1         | -40.00 dB          | Gain out 2         | 0.00 dB  |
| Gain in 1          | 0.00 dB            | Gain in 2          | 0.00 dB  |
| Mic 1 Power Supply | Off                | Mic 2 Power Supply | Off      |

## 5.2 RCV Distortion and Noise - 3150 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 2N



Distortion (Noise) RCV (packed): 35.29 dB (1.72%) Ok

Ok

2024/1/20 9:55 ACQUA 5.1.200

Unmodified HEAD acoustics Measurement Descriptor

### Limits

|       | lower    |
|-------|----------|
| Run 1 | 20.00 dB |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)

Database Version: 40\_HAC\_Suite\_Rev03

Source: act\_rpn\_b250ms\_3150hz\_sr20dbm0\_v02.dat

Level adj. Ch1 -90.0 dB

### Calibration

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))

Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

HHP IV Settings (Setting: STD:(0,0,0) rel AHP)

|                |        |                  |       |
|----------------|--------|------------------|-------|
| MECRP Delta Ye | 0.0 mm | Rotation Delta A | 0.0 ° |
|                |        | Rotation Delta C | 0.0 ° |

|                |         |                          |       |
|----------------|---------|--------------------------|-------|
| MECRP Delta Ze | 0.0 mm  | Rotation Delta B         | 5.0 ° |
| Delta Xe       | 0.0 mm  | Delta A                  | 0.0 ° |
| Delta Ye       | 0.0 mm  | Delta C                  | 0.0 ° |
| Delta Ze       | 0.0 mm  | Delta B                  | 0.0 ° |
| Ym             | -0.3 mm | Ear Type 3.3 Coordinates |       |

Mounting: Right Ear  
Force to apply: 2.0 N, Force reached: 1.9 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                   |                |                   |                 |
|-------------------|----------------|-------------------|-----------------|
| Direction         | Out 2 -> In 2  |                   |                 |
| Range start       | 13550.00 ms    | Range length      | 200.00 ms       |
| Number of seq.    | 10             | Sequence length   | 400.00 ms       |
| Use FIR Filter    | Ch2            | FIR filter        | drp2ff_ieee1652 |
| DRP/ERP Ch.1:     | Off            | DRP/ERP Ch.2:     | Off             |
| Frequency base    | Transformation |                   |                 |
| FFT size          | 9600           | Overlap           | 0 %             |
| Window function.  | Hanning        | Smooth            | Off             |
| dB weighting      | A Weighting    |                   |                 |
| Stimulus min.     | 2785.0 Hz      | Stimulus max.     | 3585.0 Hz       |
| Analysis min.     | 20.0 Hz        | Analysis max.     | 2780.0 Hz       |
| Analysis (2) min. | 3590.0 Hz      | Analysis (2) max. | 20000.0 Hz      |

**Special Features**

Compensate delay 202.1000 ms (D\_RCV\_WB, Delay (Cross))  
Store to variable RCVWB10\_3150Hz

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

**labCORE Routing**

Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker  
Out Channel 2 -> Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In  
In Channel 1 <- Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out  
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

**Analog In Mainboard Settings (Analog In 1/2)**

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

**Analog Out Mainboard Settings (Analog Out 1/2)**

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

**Microphone Settings (Mic Amp. (Slot 6))****Channel In 1 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 2 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 3 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 4 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**BEQ Settings (BEQ Filter 1)**

Block mode Bypass

**Artificial Head Settings (HATS 1 (HMS II.3))**

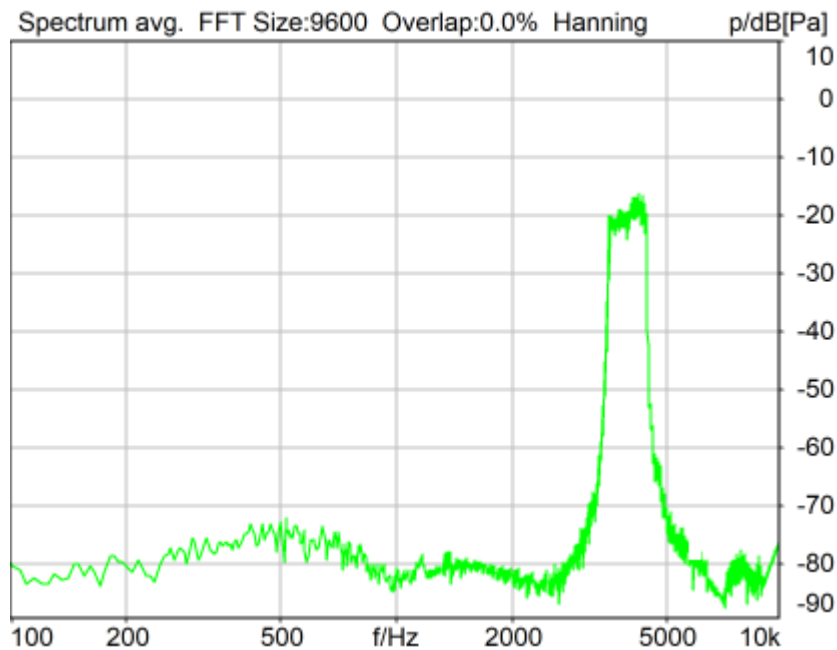
Ser. Nr. 12306613 Pinna Type Type 3.3

#### HIB Settings

|                        |                    |                        |          |
|------------------------|--------------------|------------------------|----------|
| HIB Name               | 60020095           | Serial                 | 60020095 |
| HIB Mode               | Mobile Measurement | Impedance              | 32 Ohm   |
| Gain out 1             | -40.00 dB          | Gain out 2             | 0.00 dB  |
| Gain in 1              | 0.00 dB            | Gain in 2              | 0.00 dB  |
| Mic 1 Power Supply Off |                    | Mic 2 Power Supply Off |          |

## 5.2 RCV Distortion and Noise - 4000 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 2N



Distortion (Noise) RCV (packed): 34.40 dB (1.91%) Ok

**Ok**

2024/1/20 9:55 ACQUA 5.1.200

Unmodified HEAD acoustics Measurement Descriptor

#### Limits

|       |          |
|-------|----------|
|       | lower    |
| Run 1 | 20.00 dB |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)

Database Version: 40\_HAC\_Suite\_Rev03

Source: act\_rpn\_b250ms\_4000hz\_sr20dbm0\_v02.dat

Level adj. Ch1 -90.0 dB

**Calibration**

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))

Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

**HHP IV Settings (Setting: STD:(0,0,0) rel AHP)**

|                |         |                          |       |
|----------------|---------|--------------------------|-------|
| MECRP Delta Ye | 0.0 mm  | Rotation Delta A         | 0.0 ° |
| MECRP Delta Ze | 0.0 mm  | Rotation Delta C         | 0.0 ° |
| Delta Xe       | 0.0 mm  | Rotation Delta B         | 5.0 ° |
| Delta Ye       | 0.0 mm  | Delta A                  | 0.0 ° |
| Delta Ze       | 0.0 mm  | Delta C                  | 0.0 ° |
| Ym             | -0.3 mm | Delta B                  | 0.0 ° |
|                |         | Ear Type 3.3 Coordinates |       |

Mounting: Right Ear

Force to apply: 2.0 N, Force reached: 1.9 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                   |                |                   |                 |
|-------------------|----------------|-------------------|-----------------|
| Direction         | Out 2 -> In 2  |                   |                 |
| Range start       | 13550.00 ms    | Range length      | 200.00 ms       |
| Number of seq.    | 10             | Sequence length   | 400.00 ms       |
| Use FIR Filter    | Ch2            | FIR filter        | drp2ff_ieee1652 |
| DRP/ERP Ch.1:     | Off            | DRP/ERP Ch.2:     | Off             |
| Frequency base    | Transformation |                   |                 |
| FFT size          | 9600           | Overlap           | 0 %             |
| Window function.  | Hanning        | Smooth            | Off             |
| dB weighting      | A Weighting    |                   |                 |
| Stimulus min.     | 3515.0 Hz      | Stimulus max.     | 4500.0 Hz       |
| Analysis min.     | 20.0 Hz        | Analysis max.     | 3510.0 Hz       |
| Analysis (2) min. | 4505.0 Hz      | Analysis (2) max. | 20000.0 Hz      |

**Special Features**

Compensate delay 202.1000 ms (D\_RCV\_WB, Delay (Cross))

Store to variable RCVWB10\_4000Hz

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

**labCORE Routing**

|                  |                                                                          |
|------------------|--------------------------------------------------------------------------|
| Out Channel 1 -> | Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker                      |
| Out Channel 2 -> | Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In                           |
| In Channel 1 <-  | Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out                        |
| In Channel 2 <-  | BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right |

**Analog In Mainboard Settings (Analog In 1/2)**

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

**Analog Out Mainboard Settings (Analog Out 1/2)**

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

**Microphone Settings (Mic Amp. (Slot 6))****Channel In 1 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 2 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 3 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

Channel In 4 Settings

Range 114 dB[SPL] @ 12.5 mV/Pa Highpass Off  
Polarisation Voltage 200V Supply Voltage  $\pm 60V$

-----  
BEQ Settings (BEQ Filter 1)

Block mode Bypass

-----  
Artificial Head Settings (HATS 1 (HMS II.3))

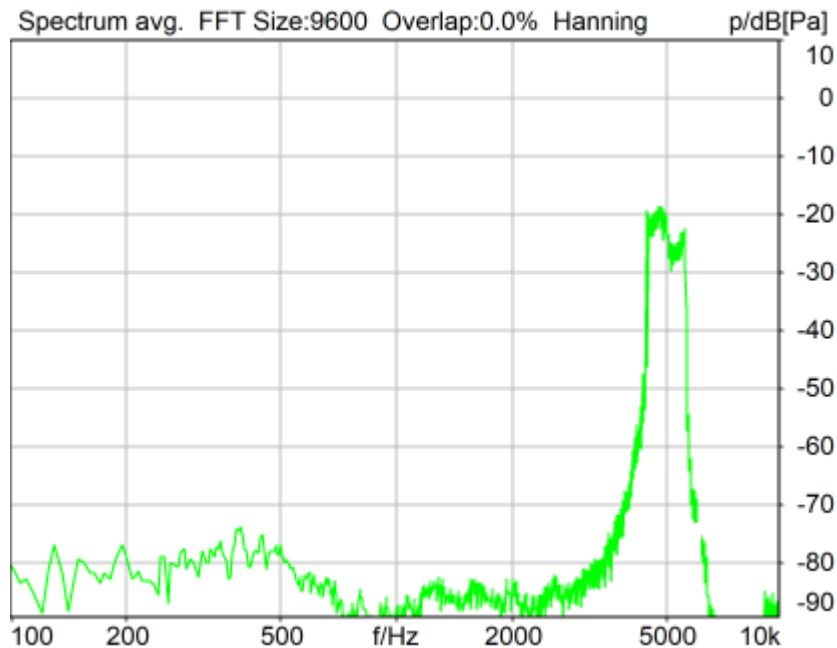
Ser. Nr. 12306613 Pinna Type Type 3.3

HIB Settings

|                    |                    |                    |          |
|--------------------|--------------------|--------------------|----------|
| HIB Name           | 60020095           | Serial             | 60020095 |
| HIB Mode           | Mobile Measurement | Impedance          | 32 Ohm   |
| Gain out 1         | -40.00 dB          | Gain out 2         | 0.00 dB  |
| Gain in 1          | 0.00 dB            | Gain in 2          | 0.00 dB  |
| Mic 1 Power Supply | Off                | Mic 2 Power Supply | Off      |

## 5.2 RCV Distortion and Noise - 5000 Hz WB

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 2N



Distortion (Noise) RCV (packed): 35.57 dB (1.67%) Ok

Ok

2024/1/20 9:55 ACQUA 5.1.200

Unmodified HEAD acoustics Measurement Descriptor

Limits

|       |          |
|-------|----------|
|       | lower    |
| Run 1 | 20.00 dB |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)  
Database Version: 40\_HAC\_Suite\_Rev03**Source: act\_rpn\_b250ms\_5000hz\_sr20dbm0\_v02.dat**

Level adj. Ch1 -90.0 dB

**Calibration**

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))

Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

**HHP IV Settings (Setting: STD:(0,0,0) rel AHP)**

|                |         |                          |       |
|----------------|---------|--------------------------|-------|
| MECRP Delta Ye | 0.0 mm  | Rotation Delta A         | 0.0 ° |
| MECRP Delta Ze | 0.0 mm  | Rotation Delta C         | 0.0 ° |
| Delta Xe       | 0.0 mm  | Rotation Delta B         | 5.0 ° |
| Delta Ye       | 0.0 mm  | Delta A                  | 0.0 ° |
| Delta Ze       | 0.0 mm  | Delta C                  | 0.0 ° |
| Ym             | -0.3 mm | Delta B                  | 0.0 ° |
|                |         | Ear Type 3.3 Coordinates |       |

Mounting: Right Ear

Force to apply: 2.0 N, Force reached: 1.9 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                   |                |                   |                 |
|-------------------|----------------|-------------------|-----------------|
| Direction         | Out 2 -> In 2  |                   |                 |
| Range start       | 13550.00 ms    | Range length      | 200.00 ms       |
| Number of seq.    | 10             | Sequence length   | 400.00 ms       |
| Use FIR Filter    | Ch2            | FIR filter        | drp2ff_ieee1652 |
| DRP/ERP Ch.1:     | Off            | DRP/ERP Ch.2:     | Off             |
| Frequency base    | Transformation |                   |                 |
| FFT size          | 9600           | Overlap           | 0 %             |
| Window function.  | Hanning        | Smooth            | Off             |
| dB weighting      | A Weighting    |                   |                 |
| Stimulus min.     | 4430.0 Hz      | Stimulus max.     | 5660.0 Hz       |
| Analysis min.     | 20.0 Hz        | Analysis max.     | 4425.0 Hz       |
| Analysis (2) min. | 5665.0 Hz      | Analysis (2) max. | 20000.0 Hz      |

**Special Features**

Compensate delay 202.1000 ms (D\_RCV\_WB, Delay (Cross))

Store to variable RCVWB10\_5000Hz

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

**labCORE Routing**

Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker  
Out Channel 2 -> Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In  
In Channel 1 <- Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out  
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

**Analog In Mainboard Settings (Analog In 1/2)**

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

**Analog Out Mainboard Settings (Analog Out 1/2)**

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

**Microphone Settings (Mic Amp. (Slot 6))**

Channel In 1 Settings

Range 114 dB[SPL] @ 12.5 mV/Pa Highpass Off  
Polarisation Voltage200V Supply Voltage ±60V  
Channel In 2 Settings  
Range 114 dB[SPL] @ 12.5 mV/Pa Highpass 20Hz  
Polarisation Voltage200V Supply Voltage ±60V  
Channel In 3 Settings  
Range 114 dB[SPL] @ 12.5 mV/Pa Highpass Off  
Polarisation Voltage200V Supply Voltage ±60V  
Channel In 4 Settings  
Range 114 dB[SPL] @ 12.5 mV/Pa Highpass Off  
Polarisation Voltage200V Supply Voltage ±60V

-----  
BEQ Settings (BEQ Filter 1)  
Block mode Bypass  
-----

Artificial Head Settings (HATS 1 (HMS II.3))

Ser. Nr. 12306613 Pinna Type Type 3.3

#### HIB Settings

HIB Name 60020095 Serial 60020095  
HIB Mode Mobile Measurement Impedance 32 Ohm  
Gain out 1 -40.00 dB Gain out 2 0.00 dB  
Gain in 1 0.00 dB Gain in 2 0.00 dB  
Mic 1 Power Supply Off Mic 2 Power Supply Off

## Report - Receive Distortion and Noise (Conversational Gain)

TIA-5050 (2018-01) \ Measurements \ Wideband \ 5.2 Receive Distortion and Noise 2N

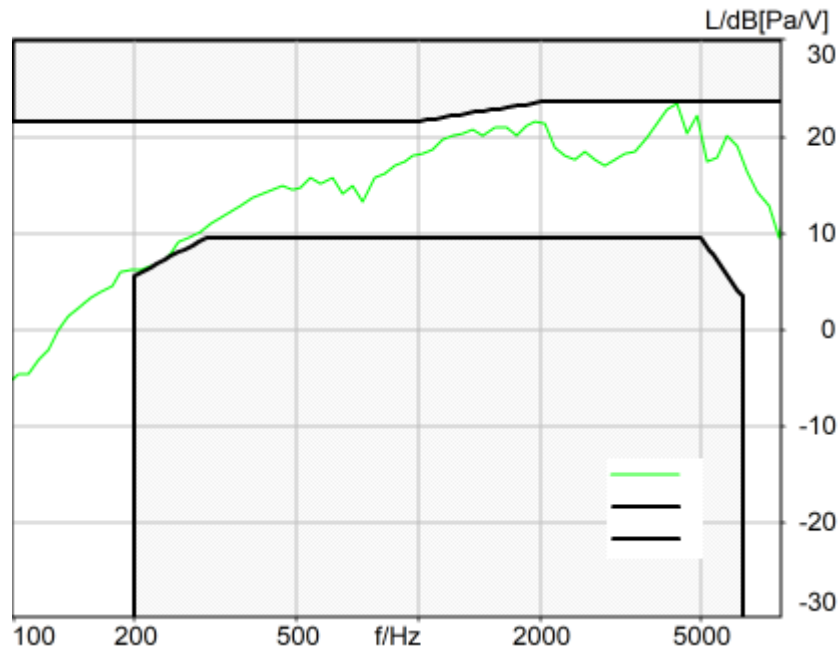
| Region | Frequency | SDNR     |
|--------|-----------|----------|
| 1      | 250Hz     | 29.98 dB |
| 2      | 315Hz     | 30.10 dB |
| 3      | 400Hz     | 28.74 dB |
| 4      | 500Hz     | 29.68 dB |
| 5      | 630Hz     | 30.88 dB |
| 6      | 800Hz     | 27.51 dB |
| 7      | 1000Hz    | 30.92 dB |
| 8      | 1250Hz    | 25.46 dB |
| 9      | 1600Hz    | 32.43 dB |
| 10     | 2000Hz    | 31.42 dB |
| 11     | 2500Hz    | 31.15 dB |
| 12     | 3150Hz    | 35.29 dB |
| 13     | 4000Hz    | 34.40 dB |
| 14     | 5000Hz    | 35.57 dB |

All SDNRs were greater than 20.0 dB, requirement was met.

Smallest SDNR was 25.46dB at 1250Hz.

## 5.3 Frequency Response 8N FF

TIA-5050 (2018-01) \ Measurements \ Wideband



Absolute minimal distance  
0.10 dB at 4369.4 Hz Ok

**Ok**

2024/1/20 10:08 ACQUA 5.1.200

Unmodified HEAD acoustics Measurement Descriptor

### Limits

|       | lower              |
|-------|--------------------|
| Run 1 | Fit into tolerance |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)  
Database Version: 40\_HAC\_Suite\_Rev03

**Source: respmaleieee269\_wb\_r20\_v01.dat**

Level adj. Ch1 -90.0 dB

WIDEBAND IEEE-269-2010 Real Speech Signal at Channel 2

Pause 0.5 s +

Real Speech (english, male speaker) 11.5 s, Active Speech Level: -22,2 dBV, margin 15.9 dB +

Pause till end of file

Signal level (ch2): -22,2 dBV Active Speech Level, margin 15.9 dB

Signal taken from "IEEE\_269-2010\_Male\_mono\_48\_kHz.wav"

Alteration:

0.2 s Pause added at the beginning of the file.

0.8 s Pause added at the end of the file.

filtered with 8.0 kHz low-pass filter

signal level changed

#### Calibration

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))

Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

#### HHP IV Settings (Setting: STD:(0,0,0) rel AHP)

|                |         |                          |       |
|----------------|---------|--------------------------|-------|
| MECRP Delta Ye | 0.0 mm  | Rotation Delta A         | 0.0 ° |
| MECRP Delta Ze | 0.0 mm  | Rotation Delta C         | 0.0 ° |
| Delta Xe       | 0.0 mm  | Rotation Delta B         | 5.0 ° |
| Delta Ye       | 0.0 mm  | Delta A                  | 0.0 ° |
| Delta Ze       | 0.0 mm  | Delta C                  | 0.0 ° |
| Ym             | -4.1 mm | Delta B                  | 0.0 ° |
|                |         | Ear Type 3.3 Coordinates |       |

Mounting: Right Ear

Force to apply: 8.0 N, Force reached: 8.0 N

#### Output Equalization/Filter

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

#### Analysis

|                  |                               |                     |                 |
|------------------|-------------------------------|---------------------|-----------------|
| Direction        | Out 2 -> In 2                 |                     |                 |
| Range start      | 500.00 ms                     | Range length        | 11500.00 ms     |
| Use FIR Filter   | Ch2                           | FIR filter          | drp2ff_ieee1652 |
| DRP/ERP Ch.1:    | Off                           | DRP/ERP Ch.2:       | Off             |
| Frequency base   | 12th octave                   | DIN Row             | Row A           |
| Method           | FFT                           |                     |                 |
| FFT size         | 4096                          | Overlap             | 75 %            |
| Window function. | Hanning                       |                     |                 |
| Reference file   | r521_rcv_frq_spee269_hawb.fft |                     |                 |
| Tol. scheme file | 521_rcv_frq_man_hawb.tol      | Min. freq. for tol. | 100.0 Hz        |
| Auto adjust      | Centrate                      | Max. freq. for tol. | 8000.0 Hz       |

#### Special Features

Compensate delay 148.0000 ms (D\_RCV\_WB, Delay (Cross))

#### labCORE Settings

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

#### labCORE Routing

|                  |                                                                          |
|------------------|--------------------------------------------------------------------------|
| Out Channel 1 -> | Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker                      |
| Out Channel 2 -> | Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In                           |
| In Channel 1 <-  | Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out                        |
| In Channel 2 <-  | BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right |

#### Analog In Mainboard Settings (Analog In 1/2)

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

#### Analog Out Mainboard Settings (Analog Out 1/2)

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

#### Microphone Settings (Mic Amp. (Slot 6))

##### Channel In 1 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

##### Channel In 2 Settings

|       |                          |          |      |
|-------|--------------------------|----------|------|
| Range | 114 dB[SPL] @ 12.5 mV/Pa | Highpass | 20Hz |
|-------|--------------------------|----------|------|

|                       |                          |                |      |
|-----------------------|--------------------------|----------------|------|
| Polarisation Voltage  | 200V                     | Supply Voltage | ±60V |
| Channel In 3 Settings |                          |                |      |
| Range                 | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage  | 200V                     | Supply Voltage | ±60V |
| Channel In 4 Settings |                          |                |      |
| Range                 | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage  | 200V                     | Supply Voltage | ±60V |

-----  
BEQ Settings (BEQ Filter 1)  
Block mode Bypass  
-----

Artificial Head Settings (HATS 1 (HMS II.3))

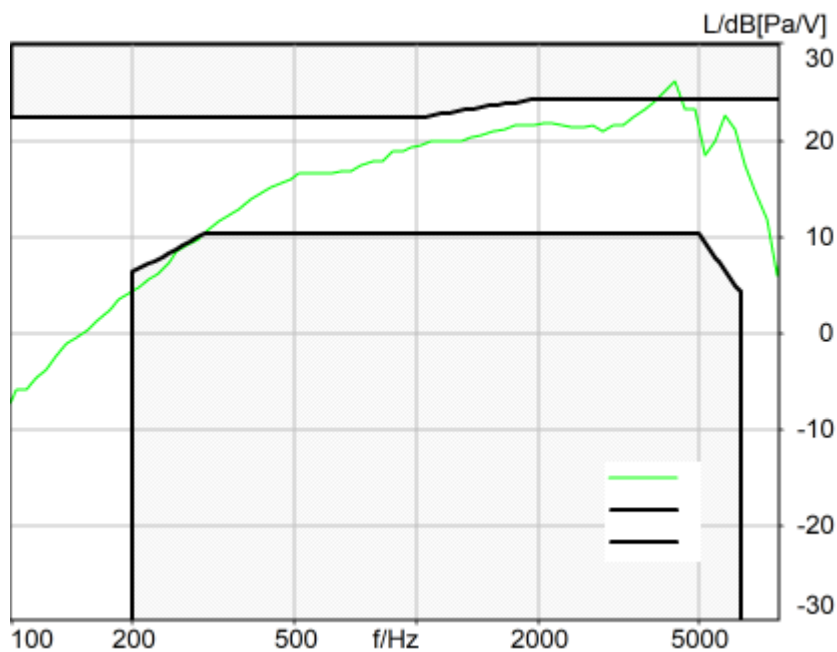
|          |          |            |          |
|----------|----------|------------|----------|
| Ser. Nr. | 12306613 | Pinna Type | Type 3.3 |
|----------|----------|------------|----------|

#### HIB Settings

|                    |                    |                    |          |
|--------------------|--------------------|--------------------|----------|
| HIB Name           | 60020095           | Serial             | 60020095 |
| HIB Mode           | Mobile Measurement | Impedance          | 32 Ohm   |
| Gain out 1         | -40.00 dB          | Gain out 2         | 0.00 dB  |
| Gain in 1          | 0.00 dB            | Gain in 2          | 0.00 dB  |
| Mic 1 Power Supply | Off                | Mic 2 Power Supply | Off      |

## 5.3 Frequency Response 8N DF

TIA-5050 (2018-01) \ Measurements \ Wideband



Absolute minimal distance  
-1.80 dB at 4369.4 Hz Not Ok

**Not Ok**

2024/1/20 10:08 ACQUA 5.1.200  
Unmodified HEAD acoustics Measurement Descriptor

**Limits**

|       | lower              |
|-------|--------------------|
| Run 1 | Fit into tolerance |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)  
Database Version: 40\_HAC\_Suite\_Rev03**Source: respmaleieeee269\_wb\_r20\_v01.dat**

Level adj. Ch1 -90.0 dB

WIDEBAND IEEE-269-2010 Real Speech Signal at Channel 2

Pause 0.5 s +

Real Speech (english, male speaker) 11.5 s, Active Speech Level: -22,2 dBV, margin 15.9 dB +

Pause till end of file

Signal level (ch2): -22,2 dBV Active Speech Level, margin 15.9 dB

Signal taken from "IEEE\_269-2010\_Male\_mono\_48\_kHz.wav"

Alteration:

0.2 s Pause added at the beginning of the file.

0.8 s Pause added at the end of the file.

filtered with 8.0 kHz low-pass filter

signal level changed

**Calibration**

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))

Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

**HHP IV Settings (Setting: STD:(0,0,0) rel AHP)**

|                |         |                          |       |
|----------------|---------|--------------------------|-------|
| MECRP Delta Ye | 0.0 mm  | Rotation Delta A         | 0.0 ° |
| MECRP Delta Ze | 0.0 mm  | Rotation Delta C         | 0.0 ° |
| Delta Xe       | 0.0 mm  | Rotation Delta B         | 5.0 ° |
| Delta Ye       | 0.0 mm  | Delta A                  | 0.0 ° |
| Delta Ze       | 0.0 mm  | Delta C                  | 0.0 ° |
| Ym             | -4.1 mm | Delta B                  | 0.0 ° |
|                |         | Ear Type 3.3 Coordinates |       |

Mounting: Right Ear

Force to apply: 8.0 N, Force reached: 8.1 N

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                  |                               |                     |                 |
|------------------|-------------------------------|---------------------|-----------------|
| Direction        | Out 2 -> In 2                 |                     |                 |
| Range start      | 500.00 ms                     | Range length        | 11500.00 ms     |
| Use FIR Filter   | Ch2                           | FIR filter          | drp2df_ieee1652 |
| DRP/ERP Ch.1:    | Off                           | DRP/ERP Ch.2:       | Off             |
| Frequency base   | 12th octave                   | DIN Row             | Row A           |
| Method           | FFT                           |                     |                 |
| FFT size         | 4096                          | Overlap             | 75 %            |
| Window function. | Hanning                       |                     |                 |
| Reference file   | r521_rcv_frq_spee269_hawb.fft |                     |                 |
| Tol. scheme file | 521_rcv_frq_man_hawb.tol      | Min. freq. for tol. | 100.0 Hz        |
| Auto adjust      | Centrate                      | Max. freq. for tol. | 8000.0 Hz       |

**Special Features**

Compensate delay 148.0000 ms (D\_RCV\_WB, Delay (Cross))

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |

---

Clock Pitch 0.00 ppm

---

labCORE Routing

Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker  
Out Channel 2 -> Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In  
In Channel 1 <- Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out  
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

---

Analog In Mainboard Settings (Analog In 1/2)

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

---

Analog Out Mainboard Settings (Analog Out 1/2)

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

---

Microphone Settings (Mic Amp. (Slot 6))

## Channel In 1 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

## Channel In 2 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

## Channel In 3 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

## Channel In 4 Settings

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

---

BEQ Settings (BEQ Filter 1)

|            |        |
|------------|--------|
| Block mode | Bypass |
|------------|--------|

---

Artificial Head Settings (HATS 1 (HMS II.3))

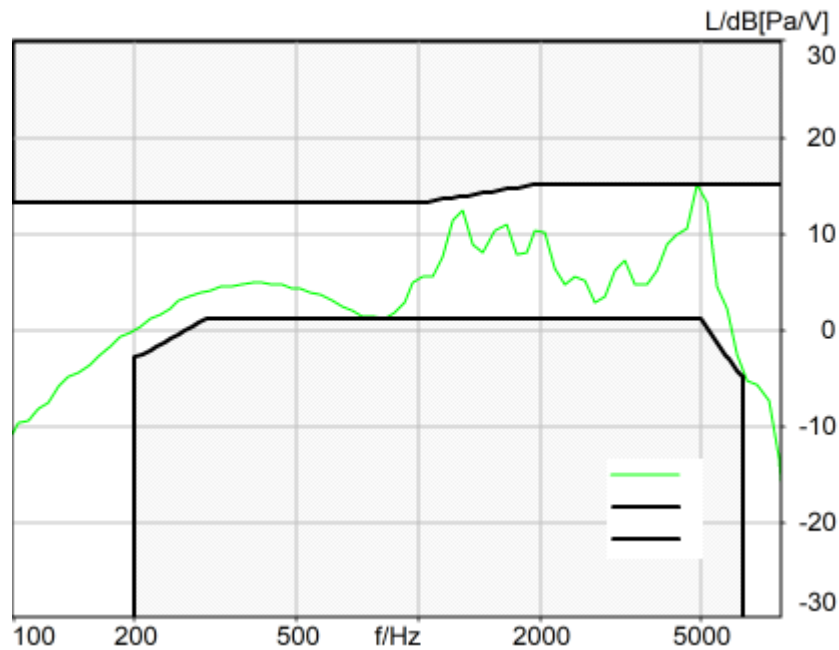
|          |          |            |          |
|----------|----------|------------|----------|
| Ser. Nr. | 12306613 | Pinna Type | Type 3.3 |
|----------|----------|------------|----------|

**HIB Settings**

|                    |                    |                    |          |
|--------------------|--------------------|--------------------|----------|
| HIB Name           | 60020095           | Serial             | 60020095 |
| HIB Mode           | Mobile Measurement | Impedance          | 32 Ohm   |
| Gain out 1         | -40.00 dB          | Gain out 2         | 0.00 dB  |
| Gain in 1          | 0.00 dB            | Gain in 2          | 0.00 dB  |
| Mic 1 Power Supply | Off                | Mic 2 Power Supply | Off      |

## **5.3 Frequency Response 2N FF**

TIA-5050 (2018-01) \ Measurements \ Wideband



Absolute minimal distance  
0.08 dB at 823.9 Hz Ok

Ok

2024/1/22 17:35 ACQUA 5.1.200

Unmodified HEAD acoustics Measurement Descriptor

#### Limits

|       | lower              |
|-------|--------------------|
| Run 1 | Fit into tolerance |

Meas. Setting off

Underlying Standard: TIA-5050 (2018-01)

Database Version: 40\_HAC\_Suite\_Rev03

**Source: respmaleieeee269\_wb\_r20\_v01.dat**

Level adj. Ch1 -90.0 dB

WIDEBAND IEEE-269-2010 Real Speech Signal at Channel 2

Pause 0.5 s +

Real Speech (english, male speaker) 11.5 s, Active Speech Level: -22,2 dBV, margin 15.9 dB +

Pause till end of file

Signal level (ch2): -22,2 dBV Active Speech Level, margin 15.9 dB

Signal taken from "IEEE\_269-2010\_Male\_mono\_48\_kHz.wav"

Alteration:

0.2 s Pause added at the beginning of the file.

0.8 s Pause added at the and of the file.

filtered with 8.0 kHz low-pass filter

signal level changed

#### Calibration

Input ch.2: 0.49 dB 2023/11/1 (HATS 1 (HMS II.3))  
Output ch.2: 0.00 dB 2023/6/27 (Radio Tester 1 (CMW500))

**Output Equalization/Filter**

Mouth Eq. Ch.1: HATS 1 (HMS II.3)

**Analysis**

|                  |                               |                     |                 |
|------------------|-------------------------------|---------------------|-----------------|
| Direction        | Out 2 -> In 2                 |                     |                 |
| Range start      | 500.00 ms                     | Range length        | 11500.00 ms     |
| Use FIR Filter   | Ch2                           | FIR filter          | drp2ff_ieee1652 |
| DRP/ERP Ch.1:    | Off                           | DRP/ERP Ch.2:       | Off             |
| Frequency base   | 12th octave                   | DIN Row             | Row A           |
| Method           | FFT                           |                     |                 |
| FFT size         | 4096                          | Overlap             | 75 %            |
| Window function. | Hanning                       |                     |                 |
| Reference file   | r521_rcv_frq_spee269_hawb.fft |                     |                 |
| Tol. scheme file | 521_rcv_frq_man_hawb.tol      | Min. freq. for tol. | 100.0 Hz        |
| Auto adjust      | Centrate                      | Max. freq. for tol. | 8000.0 Hz       |

**Special Features**

Compensate delay 148.0000 ms (D\_RCV\_WB, Delay (Cross))

**Hardware Config Settings**

Used Setting HEAD 2G3G labCORE NetSim

**labCORE Settings**

|                |          |             |          |
|----------------|----------|-------------|----------|
| labCORE Serial | 77000207 | Nickname    |          |
| Firmware       | 3.4.17   | Sync Source | Internal |
| Clock Pitch    | 0.00 ppm |             |          |

**labCORE Routing**

Out Channel 1 -> Power Amp. (Slot 10) 1 -> HATS 1 (HMS II.3) Speaker  
Out Channel 2 -> Analog Out 1/2 2 -> Radio Tester 1 (CMW500) In  
In Channel 1 <- Analog In 1/2 In 1 <- Radio Tester 1 (CMW500) Out  
In Channel 2 <- BEQ Filter 1 R <- Mic Amp. (Slot 6) In 2 <- HATS 1 (HMS II.3) Mic. Right

**Analog In Mainboard Settings (Analog In 1/2)**

|             |         |             |    |
|-------------|---------|-------------|----|
| Range Ch. 1 | 0.00 dB | Ch. 0 Float | On |
| Range Ch. 2 | 0.00 dB | Ch. 1 Float | On |

**Analog Out Mainboard Settings (Analog Out 1/2)**

|             |         |             |         |
|-------------|---------|-------------|---------|
| Range Ch. 1 | 0.00 dB | Range Ch. 2 | 0.00 dB |
|-------------|---------|-------------|---------|

**Microphone Settings (Mic Amp. (Slot 6))****Channel In 1 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 2 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | 20Hz |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 3 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**Channel In 4 Settings**

|                      |                          |                |      |
|----------------------|--------------------------|----------------|------|
| Range                | 114 dB[SPL] @ 12.5 mV/Pa | Highpass       | Off  |
| Polarisation Voltage | 200V                     | Supply Voltage | ±60V |

**BEQ Settings (BEQ Filter 1)**

Block mode Bypass

**Artificial Head Settings (HATS 1 (HMS II.3))**

|          |          |            |          |
|----------|----------|------------|----------|
| Ser. Nr. | 12306613 | Pinna Type | Type 3.3 |
|----------|----------|------------|----------|

**HIB Settings**

|          |                    |           |          |
|----------|--------------------|-----------|----------|
| HIB Name | 60020095           | Serial    | 60020095 |
| HIB Mode | Mobile Measurement | Impedance | 32 Ohm   |

---

Gain out 1        -40.00 dB  
Gain in 1         0.00 dB  
Mic 1 Power Supply Off

Gain out 2        0.00 dB  
Gain in 2         0.00 dB  
Mic 2 Power Supply Off