



# HAC Receive Volume Control Test Report

## For

**Applicant Name:** FOXX Development Inc.  
**Address:** 3480 Preston Ridge Road, Suite500, Alpharetta, GA 30005, USA  
**EUT Name:** Smart Phone  
**Brand Name:** MIRO, FOXX, FOXXD, AIRVOICE, FOXXD HTH  
**Model Number:** S69 Pro

## Issued By

**Company Name:** BTF Testing Lab (Shenzhen) Co., Ltd.  
**Address:** 101/201/301, Building 1, Block 2, Tantou Industrial Park, Tantou Community, Songgang Subdistrict, Bao'an District, Shenzhen, China

**Report Number:** BTF250827R00303  
**Test Standards:** ANSI C63.19:2019 FCC 47 CFR §20.19 TIA-5050:2018  
**FCC ID:** 2AQRM-S69PRO

**Test Conclusion:** Pass  
**Test Date:** 2025-07-15 to 2025-11-12  
**Date of Issue:** 2025-11-16

**Tested By:** Kris. Li  
**Date:** 2025-11-16  
**Reviewed By:** Amenda Zhong

**Reviewed By:** Amenda Zhong / Project Engineer  
**Date:** 2025-11-16

**Approved By:** Ryan CJ  
**Date:** 2025-11-16



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| Revision History |                                                                                                     |                   |
|------------------|-----------------------------------------------------------------------------------------------------|-------------------|
| Version          | Issue Date                                                                                          | Revisions Content |
| Rev_V0           | 2025-11-16                                                                                          | Original          |
|                  |                                                                                                     |                   |
| Note:            | Once the revision has been made, then previous versions reports are replaced by the latest version. |                   |

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## 1. Introduction

### 1.1 Identification of Testing Laboratory

|               |                                                                                                                                    |
|---------------|------------------------------------------------------------------------------------------------------------------------------------|
| Company Name: | BTF Testing Lab (Shenzhen) Co., Ltd.                                                                                               |
| Address:      | 101/201/301, Building 1, Block 2, Tantou Industrial Park, Tantou Community, Songgang Subdistrict, Bao'an District, Shenzhen, China |
| Phone Number: | +86-0755-23146130                                                                                                                  |
| Fax Number:   | +86-0755-23146130                                                                                                                  |

### 1.2 Identification of the Responsible Testing Location

|                         |                                                                                                                                                                                                                   |
|-------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Test Location:          | BTF Testing Lab (Shenzhen) Co., Ltd.                                                                                                                                                                              |
| Address:                | 101/201/301, Building 1, Block 2, Tantou Industrial Park, Tantou Community, Songgang Subdistrict, Bao'an District, Shenzhen, China                                                                                |
| Description:            | All measurement facilities used to collect the measurement data are located at 101/201/301, Building 1, Block 2, Tantou Industrial Park, Tantou Community, Songgang Subdistrict, Bao'an District, Shenzhen, China |
| FCC Registration Number | 518915                                                                                                                                                                                                            |
| Designation Number      | CN1409                                                                                                                                                                                                            |

### 1.3 Laboratory Condition

|                            |                    |
|----------------------------|--------------------|
| Ambient Temperature:       | 18°C to 25°C       |
| Ambient Relative Humidity: | 32% to 49%         |
| Ambient Pressure:          | 100 kPa to 102 kPa |

### 1.4 Announcement

- (1) The test report reference to the report template version v0.
- (2) The test report is invalid if not marked with the signatures of the persons responsible for preparing, reviewing and approving the test report.
- (3) The test report is invalid if there is any evidence and/or falsification.
- (4) This document may not be altered or revised in any way unless done so by BTF and all revisions are duly noted in the revisions section.
- (5) Content of the test report, in part or in full, cannot be used for publicity and/or promotional purposes without prior written approval from the laboratory.
- (6) The laboratory is only responsible for the data released by the laboratory, except for the part provided by the applicant.

## 2. Product Information

### 2.1 Application Information

|               |                                                              |
|---------------|--------------------------------------------------------------|
| Company Name: | FOXX Development Inc.                                        |
| Address:      | 3480 Preston Ridge Road, Suite500, Alpharetta, GA 30005, USA |

### 2.2 Manufacturer Information

|               |                                                              |
|---------------|--------------------------------------------------------------|
| Company Name: | FOXX Development Inc.                                        |
| Address:      | 3480 Preston Ridge Road, Suite500, Alpharetta, GA 30005, USA |

### 2.3 Factory Information

|               |                                                              |
|---------------|--------------------------------------------------------------|
| Company Name: | FOXX Development Inc.                                        |
| Address:      | 3480 Preston Ridge Road, Suite500, Alpharetta, GA 30005, USA |

### 2.4 General Description of Equipment under Test (EUT)

|                                           |             |
|-------------------------------------------|-------------|
| EUT Name                                  | Smart Phone |
| Under Test Model Name                     | S69 Pro     |
| Series Model Name                         | N/A         |
| Description of Model name differentiation | N/A         |
| Hardware Version                          | N/A         |
| Software and Firmware Version             | N/A         |
| Dimensions (Approx.)                      | 171*76*9mm  |
| Weight (Approx.)                          | 192g        |

## 2.5 Equipment under Test Ancillary Equipment

|                       |               |                           |
|-----------------------|---------------|---------------------------|
| Ancillary Equipment 1 | Battery       |                           |
|                       | Model No.     | S69 Pro                   |
|                       | Serial No.    | N/A                       |
|                       | Capacity      | Typical capacity: 5000mAh |
|                       | Rated Voltage | 3.87V                     |

## 2.6 Technical Information

|                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|-----------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Network and Wireless connectivity | 2G Network GSM/GPRS/EGPRS 850/1900<br>3G Network WCDMA/HSDPA/HSUPA Band 2/4/5<br>4G Network FDD LTE Band 2/4/5/7/12/25/26/66/71 TDD LTE Band 40/41<br>5G Network FDD NR N2/5/7/25/66/71 TDD NR N40/41/77/78<br>NSA LTE Band 2+NR N71, LTE Band 66+NR N71, LTE Band 2+NR N77,<br>LTE Band 2+NR N41, LTE Band 66+NR N41<br>2.4G WIFI 802.11b, 802.11g, 802.11n(HT20/40)<br>5G WIFI 802.11a, 802.11n(HT20/40), 802.11ac(VHT20/40/80)<br>BT (EDR+BLE) |
|-----------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

### 3. Summary of Test Results

#### 3.1 Test Standards

| No. | Identity            | Document Title                                                                                                                 |
|-----|---------------------|--------------------------------------------------------------------------------------------------------------------------------|
| 1   | ANSI C63.19-2019    | American National Standard for Methods of Measurement of Compatibility between Wireless Communication Devices and Hearing Aids |
| 2   | FCC 47 CFR §20.19   | Hearing Aid Compatible Mobile Headsets                                                                                         |
| 3   | TIA-5050:2018       | Telecommunications Communications Products Receive Volume Control Requirements for Wireless (Mobile) Devices                   |
| 4   | KDB285076 D05v01    | HACWaiverDA23-914                                                                                                              |
| 5   | KDB285076 D04v02    | Volume Control                                                                                                                 |
| 6   | KDB285076 D01v06r04 | HAC Guidance                                                                                                                   |

#### 3.2 Air Interfaces / Bands Indicating Operating Modes

| Air Interface | Band            | Type | Simultaneous Transmitter | Name of Service |
|---------------|-----------------|------|--------------------------|-----------------|
| GSM           | 850             | VO   | WLAN & BT                | CMRS Voice      |
|               | 1900            | VO   | WLAN & BT                | CMRS Voice      |
|               | GPRS/EGPRS      | VD   | N/A                      | N/A             |
| WCDMA         | Band II         | VO   | WLAN & BT                | CMRS Voice      |
|               | Band IV         | VO   | WLAN & BT                | CMRS Voice      |
|               | Band V          | VO   | WLAN & BT                | CMRS Voice      |
|               | HSPA            | VD   | N/A                      | N/A             |
| LTE           | Band 2          | VD   | WLAN & BT                | VoLTE           |
|               | Band 4          | VD   | WLAN & BT                | VoLTE           |
|               | Band 5          | VD   | WLAN & BT                | VoLTE           |
|               | Band 7          | VD   | WLAN & BT                | VoLTE           |
|               | Band 12         | VD   | WLAN & BT                | VoLTE           |
|               | Band 25         | VD   | WLAN & BT                | VoLTE           |
|               | Band 26 part 90 | VD   | WLAN & BT                | VoLTE           |
|               | Band 26 part 22 | VD   | WLAN & BT                | VoLTE           |
|               | Band 40         | VD   | WLAN & BT                | VoLTE           |
|               | Band 41         | VD   | WLAN & BT                | VoLTE           |
|               | Band 66         | VD   | WLAN & BT                | VoLTE           |
|               | Band 71         | VD   | WLAN & BT                | VoLTE           |
| NR            | N2              | VD   | WLAN & BT                | VoNR            |
|               | N5              | VD   | WLAN & BT                | VoNR            |
|               | N7              | VD   | WLAN & BT                | VoNR            |
|               | N25             | VD   | WLAN & BT                | VoNR            |
|               | N40             | VD   | WLAN & BT                | VoNR            |
|               | N41             | VD   | WLAN & BT                | VoNR            |
|               | N66             | VD   | WLAN & BT                | VoNR            |
|               | N71             | VD   | WLAN & BT                | VoNR            |
|               | N77             | VD   | WLAN & BT                | VoNR            |
|               | N78             | VD   | WLAN & BT                | VoNR            |

|        |                        |    |           |       |
|--------|------------------------|----|-----------|-------|
| NR NSA | NSA LTE Band 2+NR N41  | VD | WLAN & BT | VoLTE |
|        | NSA LTE Band 2+NR N71  | VD | WLAN & BT | VoLTE |
|        | NSA LTE Band 2+NR N77  | VD | WLAN & BT | VoLTE |
|        | NSA LTE Band 66+NR N41 | VD | WLAN & BT | VoLTE |
|        | NSA LTE Band 66+NR N71 | VD | WLAN & BT | VoLTE |
|        | NSA LTE Band 66+NR N77 | VD | WLAN & BT | VoLTE |
| WLAN   | 2.4g&5g                | DT | WWAN      | N/A   |
| BT     | 2450                   | DT | WWAN      | N/A   |

NA: Not Applicable

VO: Voice Only

VD: CMRS and IP Voice Service over Digital Transport

DT: Digital Transport Only

Note: The hearing aid compatibility mode of the prototype was turned on during testing, and all tests were performed in HAC mode.

## NR Bands BW

| Band       | Duplex | SCS(KHz) | Bandwidths(BW)                                  |
|------------|--------|----------|-------------------------------------------------|
| NR Band 2  | FDD    | 30       | 5, 10, 15, 20                                   |
| NR Band 5  | FDD    | 30       | 5, 10, 15, 20                                   |
| NR Band 7  | FDD    | 30       | 5, 10, 15, 20, 25, 30                           |
| NR Band 25 | FDD    | 30       | 5, 10, 15, 20                                   |
| NR Band 40 | TDD    | 30       | 10                                              |
| NR Band 41 | TDD    | 30       | 10, 15, 20, 40, 50, 60, 80, 90, 100             |
| NR Band 66 | FDD    | 30       | 5, 10, 15, 20                                   |
| NR Band 71 | FDD    | 30       | 5, 10, 15, 20                                   |
| NR Band 77 | TDD    | 30       | 10, 15, 20, 25, 30, 40, 50, 60, 70, 80, 90, 100 |
| NR Band 78 | TDD    | 30       | 10, 15, 20, 25, 30, 40, 50, 60, 70, 80, 90, 100 |

## NSA

| Band               |
|--------------------|
| LTE Band 2+NR N71  |
| LTE Band 66+NR N71 |
| LTE Band 2+NR N77  |
| LTE Band 66+NR N77 |
| LTE Band 2+NR N41  |
| LTE Band 66+NR N41 |

## 4. Test Uncertainty

The component of uncertainty may generally be categorized according to the methods used to evaluate them. The evaluation of uncertainty by the statistical analysis of a series of observations is termed a Type A evaluation of uncertainty. The evaluation of uncertainty by means other than the statistical analysis of a series of observation is termed a Type B evaluation of uncertainty. Each component of uncertainty, however evaluated, is represented by an estimated standard deviation, termed standard uncertainty, which is determined by the positive square root of the estimated variance.

The combined standard uncertainty of the measurement result represents the estimated standard deviation of the result. It is obtained by combining the individual standard uncertainties of both Type A and Type B evaluation using the usual "root-sum-squares" (RSS) methods of combining standard deviations by taking the positive square root of the estimated variances. Expanded uncertainty is a measure of uncertainty that defines an interval about the measurement result within which the measured value is confidently believed to lie. It is obtained by multiplying the combined standard uncertainty by a coverage factor. For purpose of this document, a coverage factor two is used, which corresponds to confidence interval of about 95 %.

The judgment of conformity in the report is based on the measurement results excluding the measurement uncertainty.

Declaration of Conformity:

The test results with all measurement uncertainty excluded is presented in accordance with the regulation limits or requirements declared by manufacturers.

Comments and Explanations.

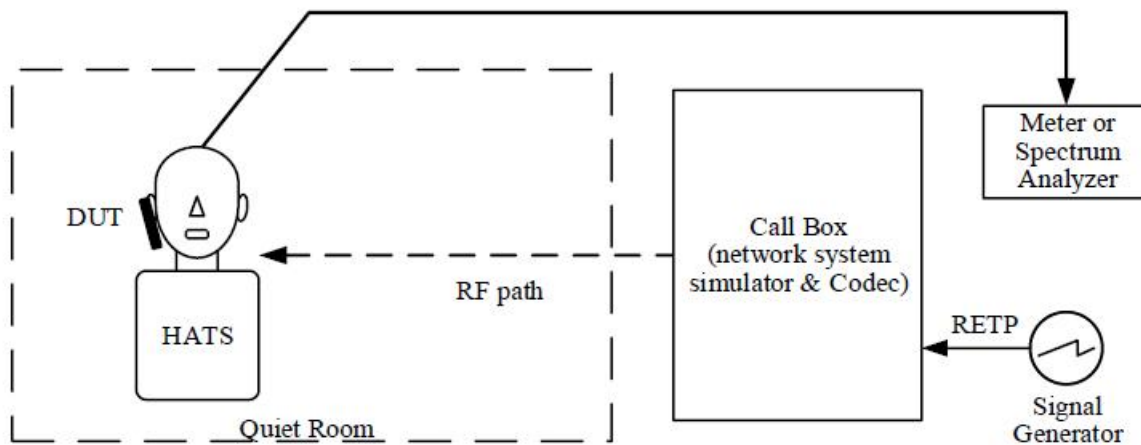
The declared of product specification for EUT presented in the report are provided by the manufacturer, and the manufacturer takes all the responsibilities for the accuracy of product specification.

| Component                                                                                                                                                                                                                                                                      | Standard Uncertainty (dB) | U <sup>2</sup> (%) |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|--------------------|
| Generator Accuracy<br>To enable harmonic distortion measurements to 0.1%, the generator distortion must be <0.05%. This is equivalent to a standard uncertainty of 0.043 dB.                                                                                                   | 0.043                     | 0.25               |
| Ear Simulator Pressure Sensitivity (incl. Measurement Mic.)<br>The uncertainty of the ear simulator as per the standards and quoted on its calibration certificate is 0.3 dB with a coverage factor of k= 2. This is equivalent to a standard uncertainty of $0.3/2 = 0.15$ dB | 0.15                      | 3.03               |
| Microphone Preamplifier<br>The manufacturer quotes the preamp to be within + 0.02 dB with a 95% probability or $2\sigma$ . This is equivalent to a standard uncertainty of $0.02/2 = 0.01$ dB.                                                                                 | 0.01                      | 0.01               |
| Analysis System/RMS Detector<br>Typical measurement system detector accuracy is 0.1 dB with a coverage factor of k= 2. This is equivalent to a standard uncertainty of $0.1/2 = 0.05$ dB                                                                                       | 0.05                      | 0.33               |
| Effect of Positioning on Mid-Band Sensitivity<br>For a handset, with the HATS positioning jig, the typical standard deviation estimated from a statistically significant number of measurements is +2 dB. This is equivalent to a standard uncertainty of 2 dB.                | 2                         | 670.42             |
| Time Varying Effects of the Mouth Simulator for Send & Sidetone<br>For a receive measurement on a handset, the mouth simulator is not used (its uncertainty is zero). The standard uncertainty of 0 dB                                                                         | 0                         | 0                  |
| Total Standard Uncertainty (%)                                                                                                                                                                                                                                                 | 25.06                     |                    |
| UMAX(k=2)(%)                                                                                                                                                                                                                                                                   | 51.9                      |                    |
| UMAX(k=2)(dB)                                                                                                                                                                                                                                                                  | 3.6                       |                    |

## 5. Measurement System

### 5.1 MEASUREMENT SET-UP

The general test arrangement is shown in Figure 1. The Call Box passes the voice channel stream to the DUT without modification. There is no gain or loss in the voice channel stream due to the Call Box interface.



#### NOTES:

1. Additional information related to the air interface for the various RF technologies is specified in several 3GPP documents. A list of these can be found in 3GPP TS 26.132 V14.0.0 clause 4
2. Additional information related to the test setup can be found in 3GPP TS 26.132, V14.0.0 clause 5.1.
3. The RETP (receive electrical test point) is the point in the device test arrangement where signals are applied to the DUT in the receive direction.

## 6. Evaluation of Test

### 6.1 RECEIVE VOLUME CONTROL PERFORMANCE

#### 6.1.1 Requirement

1. With a mounting force of 8N, the DUT shall have at least one volume control setting that will produce a conversational gain of  $\geq 6$  dB with the output distortion and the frequency response meeting the requirements in clause 5.2.1 & 5.3.1 respectively.
2. With a mounting force of 2N, the DUT shall have at least one volume control setting that will produce a conversational gain of  $\geq 6$  dB with the output distortion and the frequency response meeting the requirements in clause 5.2.1 & 5.3.1 respectively.

*NOTE: Other acoustic receive features may be available such as additional amplification, tone control, automatic gain control, etc. ANSI/TIA-4953-B contains performance requirements for output levels and tone control operation for amplified devices.*

#### 6.1.2 Method of Measurement

1. Configure the DUT with a mounting force of 8N and test equipment as shown in Figure 1 in an active call state with the applicable codec for the transmission mode under test.
2. Set the DUT volume control to the maximum setting.
3. If the DUT has an adjustable tone control feature, a tone control setting that meets the frequency response requirements in section 5.3.1 shall be used.
4. Apply the real speech test signal at a level of -20 dBm0 at the RETP and measure the acoustic output at the Drum Reference Point (DRP) over one complete sequence of the test signal.
5. Translate the measurement made at the DRP to the Free Field (FF) using the translation data in Annex B.
6. Over the applicable frequency band, determine the ASL in dBSPL for the resulting sound pressure level in accordance with Method B of ITU-T Recommendation P.56:
  - a. Narrowband 100 Hz through 4000 Hz.
  - b. Wideband 100 Hz through 7720 Hz.
7. Calculate the Conversational Gain by subtracting 70 dB from the measured dBSPL.  
[Conversational Gain = (Measured dBSPL Level – 70 dBSPL) dB]
8. Measure the output distortion per clause 5.2. If a distortion failure occurs at the maximum volume control setting, reduce the volume control setting and repeat the measurement to determine if a setting can be found for which the conversational gain requirement is met without a distortion failure.
9. Repeat steps 2-8 with a mounting force of 2N.

#### 6.1.3 Test Result

Refer to Part Nine test result.

Remark: The report only reflects the test data plots of worst mode (for GSM 850, WCDMA Band 2, LTE Band 2, NR Band 7)

#### 6.1.4 Test Conclusion

PASS.

## 6.2 RECEIVE DISTORTION AND NOISE PERFORMANCE

### 6.2.1 Requirement

With a mounting force of 8N and 2N, the ratio of the stimulus signal power to the 100 Hz to 8000 Hz total A-weighted distortion and noise power shall be  $\geq 20$  dB when tested over the range of 1/3 octave band center frequencies:

1. Narrowband transmission mode: Each 1/3 octave band center frequency from 400 Hz to 3150 Hz.
2. Wideband transmission mode: Each 1/3 octave band center frequency from 250 Hz to 5000 Hz.

### 6.2.2 Method of Measurement

1. Configure the DUT with a mounting force of 8N and test equipment as shown in Figure 1 in an active call state with the applicable codec for the transmission mode under test with the volume control at the setting determined in 5.1.1.
2. Receive distortion and noise is measured using the PN-SDNR procedure as described in Annex A.
3. To ensure DUT activation, apply the real speech test signal at a level of -20 dBm0 followed immediately by the initial 1/3 octave center frequency PN test signal in Table A.1 based on the narrowband or wideband operating mode. Measure the acoustic output at the DRP over the complete sequence of the PN test signal.
4. Translate the measurement made at the DRP to the FF using the translation data in Annex B.
5. Calculate the acoustic output unweighted total signal power of the stimulus measurement band as described in A.2.
6. Calculate the notched A-weighting distortion and noise components as described in A.3.
7. Calculate the ratio of the signal power to the total A-weighted distortion and noise power using Eq A-1.
8. Repeat for each of the remaining 1/3 octave center frequencies in Table A.1 based on the narrowband or wideband operating mode.
9. Repeat steps 2-8 with a mounting force of 2N.

### 6.2.3 Test Result

Refer to test Annex A.

Remark: The report only reflects the test data plots of worst mode (for GSM 850, WCDMA Band 2, LTE Band 2, NR Band 7)

### 6.2.4 Test Conclusion

PASS.

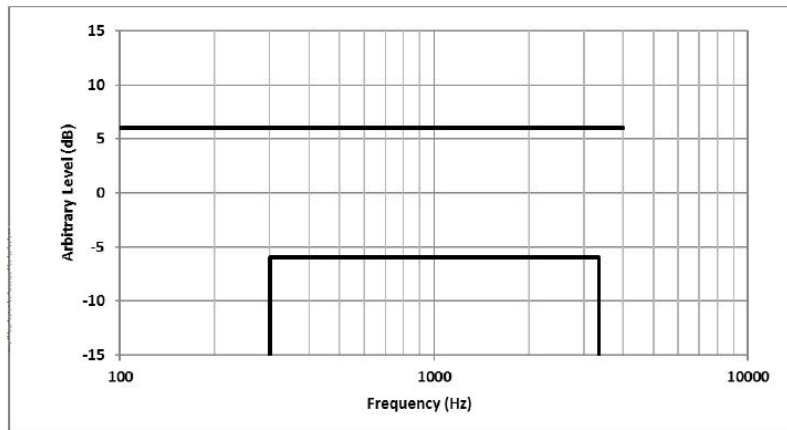
## 6.3 RECEIVE ACOUSTIC FREQUENCY RESPONSE PERFORMANCE

### 6.3.1 Requirement

1. Narrowband: The 1/12 octave band frequency response after translation to the FF or DF shall fall between the upper and lower limits given in Table 1 and shown in Figure below.

Table 1 – Narrowband Receive Frequency Response Limits

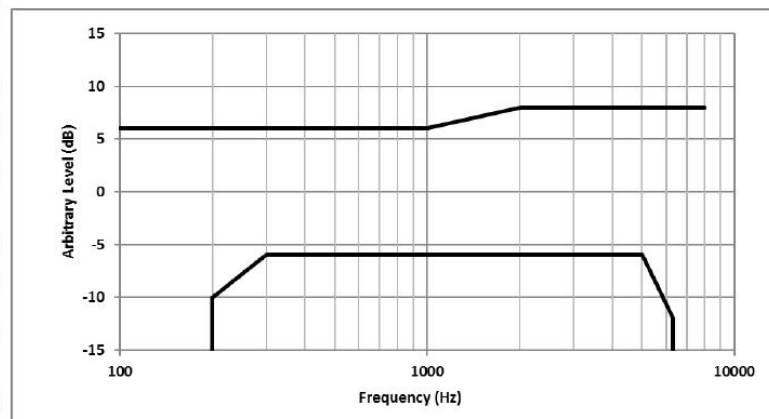
| Lower Limit Frequency (Hz) | Lower Limit (dB) | Upper Limit Frequency (Hz) | Upper Limit (dB) |
|----------------------------|------------------|----------------------------|------------------|
| 300                        | -6               | 100                        | +6               |
| 3400                       | -6               | 4000                       | +6               |



2. Wideband: The 1/12 octave band frequency response after translation to the FF or DF shall fall between the upper and lower limits given in Table 2 and shown in Figure below.

Table 2 – Wideband Receive Frequency Response Limits

| Lower Limit Frequency (Hz) | Lower Limit (dB) | Upper Limit Frequency (Hz) | Upper Limit (dB) |
|----------------------------|------------------|----------------------------|------------------|
| 200                        | -10              | 100                        | +6               |
| 300                        | -6               | 1000                       | +6               |
| 5000                       | -6               | 2000                       | +8               |
| 6300                       | -12              | 8000                       | +8               |



### 6.3.2 Method of Measurement

1. Configure the DUT with a mounting force of 8N and test equipment as shown in Figure 1 in an active call state with the applicable codec for the transmission mode under test with the volume control at the setting determined in 5.1.1.
2. If the DUT has an adjustable tone control feature the initial measurement is to be performed with the default tone control setting.
3. Apply the real speech test signal with a level of -20 dBm0 at the RETP.
4. Capture the frequency spectrum at the DRP of the HATS using real-time analysis with 1/12 octave bands over the frequency range from 100 Hz to 4000 Hz for narrowband measurements, or over the frequency range from 100 Hz to 8000 Hz for wideband measurements, averaged over the entire duration of the test signal.
5. Transform the DRP frequency spectrum measurement to the FF or DF (see Annex B).
6. Divide the 1/12 octave measurement data by the 1/12 octave frequency spectrum of the test signal at the RETP and present the measurement in terms of dB(Pa/V).
7. Apply the applicable frequency response limits to determine compliance.
8. If the default tone control setting does not meet the requirement, repeat the above steps for other tone control settings to determine a tone control setting that meets the requirements.
9. Repeat with a mounting force of 2N.

### 6.3.3 Test Result

Refer to test Annex A.

Remark: The report only reflects the test data plots of worst mode (for GSM 850, WCDMA Band 2, LTE Band 2, NR Band 7)

### 6.3.4 Test Conclusion

PASS.

## 7. Test Equipment List

| Description                         | Manufacturer  | Model           | Internal number | Cal. Date  | Cal. Due   |
|-------------------------------------|---------------|-----------------|-----------------|------------|------------|
| WIDEBAND RADIO COMMUNICATION TESTER | ROHDE&SCHWARZ | CMW500          | BTF-EM-023      | 2024/10/25 | 2025/10/24 |
| Conditioning Amplifier              | Brule&Kjaer   | Type -2690--030 | BTF-EM- 146     | 2025/2/11  | 2026/2/10  |
| Head and Torso Simulator            | Brule&Kjaer   | Type 4128C      | BTF-EM- 148     | 2025/2/11  | 2026/2/10  |
| Sound Calibration                   | Brule&Kjaer   | Type 4231       | BTF-EM- 149     | 2025/2/08  | 2026/2/07  |
| Anechoic Test Chamber               | MEC           | Type 115        | BTF-EM- 150     | N/A        | N/A        |

## 8. Air Interfaces / Bands used for testing

| Air-interface | Band                                                                                                                                                  | Tested Codec | Tested Rate(kbps) |
|---------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|-------------------|
| GSM           | 850/1900                                                                                                                                              | EFR          | /                 |
| WCDMA(UMTS)   | Band 2/4/5                                                                                                                                            | AMR-NB       | 4.75/12.2         |
|               |                                                                                                                                                       | AMR-WB       | 6.6/23.85         |
|               |                                                                                                                                                       | EVS-NB       | 5.9/24.4          |
|               |                                                                                                                                                       | EVS-WB       | 5.9/24.4          |
| VoLTE         | Band 2/4/5/7/12/25/26/40/41/66/71                                                                                                                     | AMR-NB       | 4.75/12.2         |
|               |                                                                                                                                                       | AMR-WB       | 6.6/23.85         |
|               |                                                                                                                                                       | EVS-NB       | 5.9/24.4          |
|               |                                                                                                                                                       | EVS-WB       | 5.9/24.4          |
| VoNR          | SA N2/5/7/25/40/41/66/71/77/78                                                                                                                        | AMR-NB       | 4.75/12.2         |
|               |                                                                                                                                                       | AMR-WB       | 6.6/23.85         |
|               |                                                                                                                                                       | EVS-NB       | 5.9/24.4          |
|               |                                                                                                                                                       | EVS-WB       | 5.9/24.4          |
| VoLTE         | NSA LTE Band 2+NR N41<br>NSA LTE Band 2+NR N71<br>NSA LTE Band 2+NR N77<br>NSA LTE Band 66+NR N41<br>NSA LTE Band 66+NR N71<br>NSA LTE Band 66+NR N77 | AMR-NB       | 4.75/12.2         |
|               |                                                                                                                                                       | AMR-WB       | 6.6/23.85         |
|               |                                                                                                                                                       | EVS-NB       | 5.9/24.4          |
|               |                                                                                                                                                       | EVS-WB       | 5.9/24.4          |

Note: We only select one codec type for the test, narrowband and wideband.

## 9. Test Result

### 9.1 Receive volume control, distortion and noise performance

| Plot No. | Mode                       | Channel/Freq.   | BW              | Codec Bi<br>trate | Volume<br>Level | Codec Ty<br>pe | Codec Ba<br>ndwidth | Mounting<br>Force (N) | Frequ<br>ncy(H<br>Z) | Min PN-S<br>DNR(dB) | PN-SDNR<br>Limb(d<br>B) | Signal Q<br>uality (d<br>B) | Conversa<br>tional Gai<br>n | Limit (dB) | Result |
|----------|----------------------------|-----------------|-----------------|-------------------|-----------------|----------------|---------------------|-----------------------|----------------------|---------------------|-------------------------|-----------------------------|-----------------------------|------------|--------|
| 1        | GSM850                     | 128/824.2MHz    | /               | /                 | Max             | EFR            | NB                  | 8N                    | 800                  | <b>20.76</b>        | 20.00                   | 88.52                       | 18.52                       | 6.00       | Pass   |
|          |                            |                 | /               | /                 | Max             | EFR            | NB                  | 2N                    | 3150                 | <b>20.95</b>        | 20.00                   | 78.63                       | <b>8.63</b>                 | 6.00       |        |
| 2        | PCS1900                    | 661/1880.0MHz   | /               | /                 | Max             | EFR            | NB                  | 8N                    | 800                  | 20.98               | 20.00                   | 89.25                       | 19.25                       | 6.00       | Pass   |
|          |                            |                 | /               | /                 | Max             | EFR            | NB                  | 2N                    | 3150                 | 21.07               | 20.00                   | 79.25                       | 9.25                        | 6.00       |        |
| 3        | WCDMA Band II              | 9262/1852.4MHz  | /               | 12.20             | Max             | AMR            | NB                  | 8N                    | 3150                 | 25.41               | 20.00                   | 89.50                       | 19.50                       | 6.00       | Pass   |
|          |                            |                 | /               | 12.20             | Max             | AMR            | NB                  | 2N                    | 3150                 | 24.80               | 20.00                   | 84.99                       | 14.99                       | 6.00       |        |
|          |                            |                 | /               | 23.85             | Max             | AMR            | WB                  | 8N                    | 5000                 | <b>20.03</b>        | 20.00                   | 89.01                       | 19.01                       | 6.00       |        |
|          |                            |                 | /               | 23.85             | Max             | AMR            | WB                  | 2N                    | 5000                 | <b>22.12</b>        | 20.00                   | 83.15                       | 13.15                       | 6.00       |        |
| 4        | WCDMA Band IV              | 1413/1732.6MHz  | /               | 12.20             | Max             | AMR            | NB                  | 8N                    | 3150                 | 25.67               | 20.00                   | 89.63                       | 19.63                       | 6.00       | Pass   |
|          |                            |                 | /               | 12.20             | Max             | AMR            | NB                  | 2N                    | 3150                 | 25.35               | 20.00                   | 85.61                       | 15.61                       | 6.00       |        |
|          |                            |                 | /               | 23.85             | Max             | AMR            | WB                  | 8N                    | 5000                 | 20.58               | 20.00                   | 89.58                       | 19.58                       | 6.00       |        |
|          |                            |                 | /               | 23.85             | Max             | AMR            | WB                  | 2N                    | 5000                 | 22.33               | 20.00                   | 84.84                       | 14.84                       | 6.00       |        |
| 5        | WCDMA Band V               | 4132/826.4MHz   | /               | 12.20             | Max             | AMR            | NB                  | 8N                    | 3150                 | 25.73               | 20.00                   | 89.96                       | 19.96                       | 6.00       | Pass   |
|          |                            |                 | /               | 12.20             | Max             | AMR            | NB                  | 2N                    | 3150                 | 25.01               | 20.00                   | 85.33                       | 15.33                       | 6.00       |        |
|          |                            |                 | /               | 23.85             | Max             | AMR            | WB                  | 8N                    | 5000                 | 20.33               | 20.00                   | 90.63                       | 20.63                       | 6.00       |        |
|          |                            |                 | /               | 23.85             | Max             | AMR            | WB                  | 2N                    | 5000                 | 22.96               | 20.00                   | 86.77                       | 16.77                       | 6.00       |        |
| 6        | LTE FDD Band 2             | 18700/1860.0MHz | 20MHz_QPSK_1_0  | 12.20             | Max             | AMR            | NB                  | 8N                    | 2000                 | 23.56               | 20.00                   | 89.29                       | 19.29                       | 6.00       | Pass   |
|          |                            |                 |                 | 12.20             | Max             | AMR            | NB                  | 2N                    | 3150                 | 24.24               | 20.00                   | 84.98                       | 14.98                       | 6.00       |        |
|          |                            |                 |                 | 23.85             | Max             | AMR            | WB                  | 8N                    | 2000                 | <b>21.25</b>        | 20.00                   | 89.98                       | 19.98                       | 6.00       |        |
|          |                            |                 |                 | 23.85             | Max             | AMR            | WB                  | 2N                    | 5000                 | <b>21.14</b>        | 20.00                   | 82.09                       | 12.09                       | 6.00       |        |
| 7        | LTE FDD Band 4             | 20175/1732.5MHz | 20MHz_QPSK_1_50 | 12.20             | Max             | AMR            | NB                  | 8N                    | 2000                 | 24.20               | 20.00                   | 89.48                       | 19.48                       | 6.00       | Pass   |
|          |                            |                 |                 | 12.20             | Max             | AMR            | NB                  | 2N                    | 3150                 | 24.36               | 20.00                   | 85.35                       | 15.35                       | 6.00       |        |
|          |                            |                 |                 | 23.85             | Max             | AMR            | WB                  | 8N                    | 2000                 | 21.62               | 20.00                   | 90.21                       | 20.21                       | 6.00       |        |
|          |                            |                 |                 | 23.85             | Max             | AMR            | WB                  | 2N                    | 5000                 | 21.35               | 20.00                   | 86.58                       | 16.58                       | 6.00       |        |
| 8        | LTE FDD Band 5             | 20525/836.5MHz  | 10MHz_QPSK_1_25 | 12.20             | Max             | AMR            | NB                  | 8N                    | 2000                 | 23.85               | 20.00                   | 89.53                       | 19.53                       | 6.00       | Pass   |
|          |                            |                 |                 | 12.20             | Max             | AMR            | NB                  | 2N                    | 3150                 | 24.51               | 20.00                   | 85.24                       | 15.24                       | 6.00       |        |
|          |                            |                 |                 | 23.85             | Max             | AMR            | WB                  | 8N                    | 2000                 | 21.59               | 20.00                   | 90.35                       | 20.35                       | 6.00       |        |
|          |                            |                 |                 | 23.85             | Max             | AMR            | WB                  | 2N                    | 5000                 | 21.33               | 20.00                   | 86.51                       | 16.51                       | 6.00       |        |
| 9        | LTE FDD Band 7             | 21350/2560.0MHz | 20MHz_QPSK_1_50 | 12.20             | Max             | AMR            | NB                  | 8N                    | 2000                 | 23.91               | 20.00                   | 89.36                       | 19.36                       | 6.00       | Pass   |
|          |                            |                 |                 | 12.20             | Max             | AMR            | NB                  | 2N                    | 3150                 | 25.06               | 20.00                   | 85.89                       | 15.89                       | 6.00       |        |
|          |                            |                 |                 | 23.85             | Max             | AMR            | WB                  | 8N                    | 2000                 | 21.86               | 20.00                   | 91.06                       | 21.06                       | 6.00       |        |
|          |                            |                 |                 | 23.85             | Max             | AMR            | WB                  | 2N                    | 5000                 | 21.19               | 20.00                   | 86.77                       | 16.77                       | 6.00       |        |
| 10       | LTE FDD Band 12            | 23060/704.0MHz  | 10MHz_QPSK_1_25 | 12.20             | Max             | AMR            | NB                  | 8N                    | 800                  | 24.71               | 20.00                   | 93.32                       | 23.32                       | 6.00       | Pass   |
|          |                            |                 |                 | 12.20             | Max             | AMR            | NB                  | 2N                    | 3150                 | 24.96               | 20.00                   | 85.36                       | 15.36                       | 6.00       |        |
|          |                            |                 |                 | 23.85             | Max             | AMR            | WB                  | 8N                    | 5000                 | 21.63               | 20.00                   | 90.85                       | 20.85                       | 6.00       |        |
|          |                            |                 |                 | 23.85             | Max             | AMR            | WB                  | 2N                    | 5000                 | 22.09               | 20.00                   | 87.05                       | 17.05                       | 6.00       |        |
| 11       | LTE FDD Band 25            | 26140/1860.0MHz | 20MHz_QPSK_1_0  | 12.20             | Max             | AMR            | NB                  | 8N                    | 2000                 | 23.91               | 20.00                   | 90.05                       | 20.05                       | 6.00       | Pass   |
|          |                            |                 |                 | 12.20             | Max             | AMR            | NB                  | 2N                    | 3150                 | 24.92               | 20.00                   | 85.38                       | 15.38                       | 6.00       |        |
|          |                            |                 |                 | 23.85             | Max             | AMR            | WB                  | 8N                    | 2000                 | 21.51               | 20.00                   | 90.66                       | 20.66                       | 6.00       |        |
|          |                            |                 |                 | 23.85             | Max             | AMR            | WB                  | 2N                    | 5000                 | 21.98               | 20.00                   | 86.71                       | 16.71                       | 6.00       |        |
| 12       | LTE FDD Band 26<br>part 90 | 26740/819.0MHz  | 10MHz_QPSK_1_0  | 12.20             | Max             | AMR            | NB                  | 8N                    | 2000                 | 23.81               | 20.00                   | 89.51                       | 19.51                       | 6.00       | Pass   |
|          |                            |                 |                 | 12.20             | Max             | AMR            | NB                  | 2N                    | 3150                 | 24.55               | 20.00                   | 85.61                       | 15.61                       | 6.00       |        |
|          |                            |                 |                 | 23.85             | Max             | AMR            | WB                  | 8N                    | 2000                 | 21.86               | 20.00                   | 90.51                       | 20.51                       | 6.00       |        |
|          |                            |                 |                 | 23.85             | Max             | AMR            | WB                  | 2N                    | 5000                 | 21.45               | 20.00                   | 86.77                       | 16.77                       | 6.00       |        |

| Plot No. | Mode                    | Channel/Freq.    | BW                         | Codec Bitrate | Volume Level | Codec Type | Codec Bandwidth | Mounting Force (N) | Frequency (Hz) | Min PN-SNR (dB) | PN-SDNR Limb (dB) | Signal Quality (dB) | Conversational Gain | Limit (dB) | Result |
|----------|-------------------------|------------------|----------------------------|---------------|--------------|------------|-----------------|--------------------|----------------|-----------------|-------------------|---------------------|---------------------|------------|--------|
| 13       | LTE FDD Band 26 part 22 | 26965/841.5MHz   | 15MHz_QPSK_1_0             | 12.20         | Max          | AMR        | NB              | 8N                 | 2000           | 24.03           | 20.00             | 89.81               | 19.81               | 6.00       | Pass   |
|          |                         |                  |                            | 12.20         | Max          | AMR        | NB              | 2N                 | 3150           | 25.02           | 20.00             | 85.26               | 15.26               | 6.00       |        |
|          |                         |                  |                            | 23.85         | Max          | AMR        | WB              | 8N                 | 5000           | 21.81           | 20.00             | 90.71               | 20.71               | 6.00       |        |
|          |                         |                  |                            | 23.85         | Max          | AMR        | WB              | 2N                 | 5000           | 21.57           | 20.00             | 86.41               | 16.41               | 6.00       |        |
| 14       | LTE TDD Band 40a        | 38750/2310.0MHz  | 10MHz_QPSK_1_25            | 12.20         | Max          | AMR        | NB              | 8N                 | 2000           | 23.71           | 20.00             | 89.63               | 19.63               | 6.00       | Pass   |
|          |                         |                  |                            | 12.20         | Max          | AMR        | NB              | 2N                 | 3150           | 24.81           | 20.00             | 85.37               | 15.37               | 6.00       |        |
|          |                         |                  |                            | 23.85         | Max          | AMR        | WB              | 8N                 | 5000           | 21.33           | 20.00             | 90.28               | 20.28               | 6.00       |        |
|          |                         |                  |                            | 23.85         | Max          | AMR        | WB              | 2N                 | 5000           | 21.46           | 20.00             | 86.81               | 16.81               | 6.00       |        |
| 15       | LTE TDD Band 40b        | 39200/2355.0MHz  | 10MHz_QPSK_1_25            | 12.20         | Max          | AMR        | NB              | 8N                 | 2000           | 23.89           | 20.00             | 89.52               | 19.52               | 6.00       | Pass   |
|          |                         |                  |                            | 12.20         | Max          | AMR        | NB              | 2N                 | 3150           | 24.77           | 20.00             | 85.31               | 15.31               | 6.00       |        |
|          |                         |                  |                            | 23.85         | Max          | AMR        | WB              | 8N                 | 5000           | 21.35           | 20.00             | 90.13               | 20.13               | 6.00       |        |
|          |                         |                  |                            | 23.85         | Max          | AMR        | WB              | 2N                 | 5000           | 21.47           | 20.00             | 86.58               | 16.58               | 6.00       |        |
| 16       | LTE TDD Band 41         | 41490/2680.0MHz  | 20MHz_QPSK_1_50            | 12.20         | Max          | AMR        | NB              | 8N                 | 2000           | 23.61           | 20.00             | 89.35               | 19.35               | 6.00       | Pass   |
|          |                         |                  |                            | 12.20         | Max          | AMR        | NB              | 2N                 | 3150           | 24.39           | 20.00             | 85.25               | 15.25               | 6.00       |        |
|          |                         |                  |                            | 23.85         | Max          | AMR        | WB              | 8N                 | 2000           | 21.43           | 20.00             | 90.25               | 20.25               | 6.00       |        |
|          |                         |                  |                            | 23.85         | Max          | AMR        | WB              | 2N                 | 5000           | 21.61           | 20.00             | 86.33               | 16.33               | 6.00       |        |
| 17       | LTE FDD Band 66         | 132572/1770MHz   | 20MHz_QPSK_1_50            | 12.20         | Max          | AMR        | NB              | 8N                 | 2000           | 23.91           | 20.00             | 89.71               | 19.71               | 6.00       | Pass   |
|          |                         |                  |                            | 12.20         | Max          | AMR        | NB              | 2N                 | 3150           | 24.52           | 20.00             | 85.63               | 15.63               | 6.00       |        |
|          |                         |                  |                            | 23.85         | Max          | AMR        | WB              | 8N                 | 2000           | 21.73           | 20.00             | 90.59               | 20.59               | 6.00       |        |
|          |                         |                  |                            | 23.85         | Max          | AMR        | WB              | 2N                 | 5000           | 21.68           | 20.00             | 86.33               | 16.33               | 6.00       |        |
| 18       | LTE FDD Band 71         | 133222/673.0MHz  | 20MHz_QPSK_1_0             | 12.20         | Max          | AMR        | NB              | 8N                 | 1600           | 23.88           | 20.00             | 89.53               | 19.53               | 6.00       | Pass   |
|          |                         |                  |                            | 12.20         | Max          | AMR        | NB              | 2N                 | 3150           | 24.59           | 20.00             | 85.63               | 15.63               | 6.00       |        |
|          |                         |                  |                            | 23.85         | Max          | AMR        | WB              | 8N                 | 2000           | 21.53           | 20.00             | 90.35               | 20.35               | 6.00       |        |
|          |                         |                  |                            | 23.85         | Max          | AMR        | WB              | 2N                 | 5000           | 21.47           | 20.00             | 86.72               | 16.72               | 6.00       |        |
| 19       | NR FDD Band 2           | 376000/1880MHz   | 20MHz_QPSK_Inner_1RB_Right | 12.20         | Max          | AMR        | NB              | 8N                 | 3150           | 21.61           | 20.00             | 89.65               | 19.65               | 6.00       | Pass   |
|          |                         |                  |                            | 12.20         | Max          | AMR        | NB              | 2N                 | 3150           | 23.83           | 20.00             | 81.86               | 11.86               | 6.00       |        |
|          |                         |                  |                            | 23.85         | Max          | AMR        | WB              | 8N                 | 5000           | 21.51           | 20.00             | 94.36               | 24.36               | 6.00       |        |
|          |                         |                  |                            | 23.85         | Max          | AMR        | WB              | 2N                 | 5000           | 20.59           | 20.00             | 93.81               | 23.81               | 6.00       |        |
| 20       | NR FDD Band 5           | 166800/834.0MHz  | 20MHz_QPSK_Inner_1RB_Right | 12.20         | Max          | AMR        | NB              | 8N                 | 3150           | 21.42           | 20.00             | 89.53               | 19.53               | 6.00       | Pass   |
|          |                         |                  |                            | 12.20         | Max          | AMR        | NB              | 2N                 | 3150           | 23.71           | 20.00             | 81.73               | 11.73               | 6.00       |        |
|          |                         |                  |                            | 23.85         | Max          | AMR        | WB              | 8N                 | 5000           | 21.47           | 20.00             | 94.47               | 24.47               | 6.00       |        |
|          |                         |                  |                            | 23.85         | Max          | AMR        | WB              | 2N                 | 5000           | 20.47           | 20.00             | 93.68               | 23.68               | 6.00       |        |
| 21       | NR FDD Band 7           | 511000/2555MHz   | 30MHz_QPSK_Inner_1RB_Left  | 12.20         | Max          | AMR        | NB              | 8N                 | 3150           | 21.32           | 20.00             | 89.30               | 19.30               | 6.00       | Pass   |
|          |                         |                  |                            | 12.20         | Max          | AMR        | NB              | 2N                 | 3150           | 23.54           | 20.00             | 81.50               | 11.50               | 6.00       |        |
|          |                         |                  |                            | 23.85         | Max          | AMR        | WB              | 8N                 | 5000           | <b>21.36</b>    | 20.00             | 88.11               | <b>18.11</b>        | 6.00       |        |
|          |                         |                  |                            | 23.85         | Max          | AMR        | WB              | 2N                 | 5000           | <b>20.32</b>    | 20.00             | 83.50               | 13.50               | 6.00       |        |
| 22       | NR FDD Band 25          | 376500/1882.5MHz | 20MHz_QPSK_Inner_1RB_Right | 12.20         | Max          | AMR        | NB              | 8N                 | 3150           | 21.92           | 20.00             | 90.03               | 20.03               | 6.00       | Pass   |
|          |                         |                  |                            | 12.20         | Max          | AMR        | NB              | 2N                 | 3150           | 24.36           | 20.00             | 82.25               | 12.25               | 6.00       |        |
|          |                         |                  |                            | 23.85         | Max          | AMR        | WB              | 8N                 | 5000           | 22.19           | 20.00             | 92.98               | 22.98               | 6.00       |        |
|          |                         |                  |                            | 23.85         | Max          | AMR        | WB              | 2N                 | 5000           | 21.05           | 20.00             | 83.35               | 13.35               | 6.00       |        |
| 23       | NR TDD Band 40a         | 462000/2310MHz   | 10MHz_QPSK_Edge_1RB_Left   | 12.20         | Max          | AMR        | NB              | 8N                 | 3150           | 21.55           | 20.00             | 89.58               | 19.58               | 6.00       | Pass   |
|          |                         |                  |                            | 12.20         | Max          | AMR        | NB              | 2N                 | 3150           | 23.81           | 20.00             | 81.77               | 11.77               | 6.00       |        |
|          |                         |                  |                            | 23.85         | Max          | AMR        | WB              | 8N                 | 5000           | 21.71           | 20.00             | 91.61               | 21.61               | 6.00       |        |
|          |                         |                  |                            | 23.85         | Max          | AMR        | WB              | 2N                 | 5000           | 20.63           | 20.00             | 82.89               | 12.89               | 6.00       |        |
| 24       | NR TDD Band 40b         | 471000/2355MHz   | 10MHz_QPSK_Inner_1RB_Right | 12.20         | Max          | AMR        | NB              | 8N                 | 3150           | 21.83           | 20.00             | 89.73               | 19.73               | 6.00       | Pass   |
|          |                         |                  |                            | 12.20         | Max          | AMR        | NB              | 2N                 | 3150           | 24.21           | 20.00             | 82.31               | 12.31               | 6.00       |        |
|          |                         |                  |                            | 23.85         | Max          | AMR        | WB              | 8N                 | 5000           | 21.86           | 20.00             | 94.58               | 24.58               | 6.00       |        |
|          |                         |                  |                            | 23.85         | Max          | AMR        | WB              | 2N                 | 5000           | 20.83           | 20.00             | 85.82               | 15.82               | 6.00       |        |

| Plot No. | Mode            | Channel/Freq.         | BW                             | Codec Bi<br>trate | Volume<br>Level | Codec Ty<br>pe | Codec B<br>andwidth | Mounting<br>Force<br>(N) | Frequ<br>ncy(H<br>Z) | Min PN-S<br>DNR(dB) | PN-SDNR<br>Limb(d<br>B) | Signal Q<br>uality (d<br>B) | Conversa<br>tional Gai<br>n | Limit (dB) | Result |
|----------|-----------------|-----------------------|--------------------------------|-------------------|-----------------|----------------|---------------------|--------------------------|----------------------|---------------------|-------------------------|-----------------------------|-----------------------------|------------|--------|
| 25       | NR TDD Band 41  | 528000/2640.0MHz      | 100MHz_QPSK_Out<br>er_Full     | 12.20             | Max             | AMR            | NB                  | 8N                       | 3150                 | 21.63               | 20.00                   | 89.51                       | 19.51                       | 6.00       | Pass   |
|          |                 |                       |                                | 12.20             | Max             | AMR            | NB                  | 2N                       | 3150                 | 23.61               | 20.00                   | 81.66                       | 11.66                       | 6.00       |        |
|          |                 |                       |                                | 23.85             | Max             | AMR            | WB                  | 8N                       | 5000                 | 21.73               | 20.00                   | 93.43                       | 23.43                       | 6.00       |        |
|          |                 |                       |                                | 23.85             | Max             | AMR            | WB                  | 2N                       | 5000                 | 20.51               | 20.00                   | 84.91                       | 14.91                       | 6.00       |        |
| 26       | NR FDD Band 66  | 344000/1720MHz        | 20MHz_QPSK_Edg<br>e_1RB_Right  | 12.20             | Max             | AMR            | NB                  | 8N                       | 3150                 | 22.02               | 20.00                   | 90.09                       | 20.09                       | 6.00       | Pass   |
|          |                 |                       |                                | 12.20             | Max             | AMR            | NB                  | 2N                       | 3150                 | 24.31               | 20.00                   | 82.43                       | 12.43                       | 6.00       |        |
|          |                 |                       |                                | 23.85             | Max             | AMR            | WB                  | 8N                       | 5000                 | 22.25               | 20.00                   | 91.91                       | 21.91                       | 6.00       |        |
|          |                 |                       |                                | 23.85             | Max             | AMR            | WB                  | 2N                       | 5000                 | 21.18               | 20.00                   | 84.21                       | 14.21                       | 6.00       |        |
| 27       | NR FDD Band 71  | 136100/680.5MHz       | 20MHz_QPSK_Inne<br>r_1RB_Left  | 12.20             | Max             | AMR            | NB                  | 8N                       | 3150                 | 21.51               | 20.00                   | 89.72                       | 19.72                       | 6.00       | Pass   |
|          |                 |                       |                                | 12.20             | Max             | AMR            | NB                  | 2N                       | 3150                 | 23.79               | 20.00                   | 81.81                       | 11.81                       | 6.00       |        |
|          |                 |                       |                                | 23.85             | Max             | AMR            | WB                  | 8N                       | 5000                 | 21.66               | 20.00                   | 90.49                       | 20.49                       | 6.00       |        |
|          |                 |                       |                                | 23.85             | Max             | AMR            | WB                  | 2N                       | 5000                 | 20.61               | 20.00                   | 82.83                       | 12.83                       | 6.00       |        |
| 28       | NR TDD Band 77a | 650000/3750.0MHz      | 100MHz_QPSK_Out<br>er_Full     | 12.20             | Max             | AMR            | NB                  | 8N                       | 3150                 | 22.09               | 20.00                   | 90.13                       | 20.13                       | 6.00       | Pass   |
|          |                 |                       |                                | 12.20             | Max             | AMR            | NB                  | 2N                       | 3150                 | 24.32               | 20.00                   | 82.35                       | 12.35                       | 6.00       |        |
|          |                 |                       |                                | 23.85             | Max             | AMR            | WB                  | 8N                       | 5000                 | 21.97               | 20.00                   | 92.66                       | 22.66                       | 6.00       |        |
|          |                 |                       |                                | 23.85             | Max             | AMR            | WB                  | 2N                       | 5000                 | 21.05               | 20.00                   | 83.31                       | 13.31                       | 6.00       |        |
| 29       | NR TDD Band 77d | 633334/3500.01MH<br>z | 100MHz_QPSK_Out<br>er_Full     | 12.20             | Max             | AMR            | NB                  | 8N                       | 3150                 | 21.51               | 20.00                   | 89.62                       | 19.62                       | 6.00       | Pass   |
|          |                 |                       |                                | 12.20             | Max             | AMR            | NB                  | 2N                       | 3150                 | 23.77               | 20.00                   | 81.79                       | 11.79                       | 6.00       |        |
|          |                 |                       |                                | 23.85             | Max             | AMR            | WB                  | 8N                       | 5000                 | 21.69               | 20.00                   | 91.57                       | 21.57                       | 6.00       |        |
|          |                 |                       |                                | 23.85             | Max             | AMR            | WB                  | 2N                       | 5000                 | 20.89               | 20.00                   | 83.94                       | 13.94                       | 6.00       |        |
| 30       | NR TDD Band 78a | 650000/3750.0MHz      | 100MHz_QPSK_Inn<br>er_1RB_Left | 12.20             | Max             | AMR            | NB                  | 8N                       | 3150                 | 21.44               | 20.00                   | 89.48                       | 19.48                       | 6.00       | Pass   |
|          |                 |                       |                                | 12.20             | Max             | AMR            | NB                  | 2N                       | 3150                 | 23.68               | 20.00                   | 81.61                       | 11.61                       | 6.00       |        |
|          |                 |                       |                                | 23.85             | Max             | AMR            | WB                  | 8N                       | 5000                 | 21.51               | 20.00                   | 92.28                       | 22.28                       | 6.00       |        |
|          |                 |                       |                                | 23.85             | Max             | AMR            | WB                  | 2N                       | 5000                 | 20.53               | 20.00                   | 86.66                       | 16.66                       | 6.00       |        |
| 31       | NR TDD Band 78e | 633334/3500MHz        | 100MHz_QPSK_Out<br>er_Full     | 12.20             | Max             | AMR            | NB                  | 8N                       | 3150                 | 21.78               | 20.00                   | 89.84                       | 19.84                       | 6.00       | Pass   |
|          |                 |                       |                                | 12.20             | Max             | AMR            | NB                  | 2N                       | 3150                 | 24.35               | 20.00                   | 81.91                       | 11.91                       | 6.00       |        |
|          |                 |                       |                                | 23.85             | Max             | AMR            | WB                  | 8N                       | 5000                 | 21.81               | 20.00                   | 90.68                       | 20.68                       | 6.00       |        |
|          |                 |                       |                                | 23.85             | Max             | AMR            | WB                  | 2N                       | 5000                 | 20.93               | 20.00                   | 85.21                       | 15.21                       | 6.00       |        |

## Note:

- 1.This device does not support VoWIFI, so VoWIFI is not tested and evaluated.
- 2.With a mounting force of 8N, the DUT shall have at least one volume control setting that will produce a conversational gain of  $\geq 6$  dB with the output distortion and the frequency response.
- 3.With a mounting force of 2N, the DUT shall have at least one volume control setting that will produce a conversational gain of  $\geq 6$  dB with the output distortion and the frequency response.
- 4.With a mounting force of 8N and 2N, the ratio of the stimulus signal power to the 100 Hz to 8000 Hz total A-weighted distortion and noise power shall be  $\geq 20$  dB.
- 5.We only select one codec type for the test, narrowband and wideband.

## 9.2 Receive acoustic frequency response performance

| Plot No. | Mode            | Channel/Freq.   | BW              | Volume Level | Codec Type | Codec Bandwidth | Mounting Force (N) | RFR         |
|----------|-----------------|-----------------|-----------------|--------------|------------|-----------------|--------------------|-------------|
|          |                 |                 |                 |              |            |                 |                    | Test Result |
| 1        | GSM850          | 128/824.2MHz    | /               | Max          | EFR        | NB              | 2N                 | Pass        |
|          |                 |                 |                 | Max          | EFR        | NB              | 8N                 |             |
| 2        | PCS1900         | 661/1880.0MHz   | /               | Max          | EFR        | NB              | 2N                 | Pass        |
|          |                 |                 |                 | Max          | EFR        | NB              | 8N                 |             |
| 3        | WCDMA Band II   | 9262/1852.4MHz  | /               | Max          | AMR        | NB              | 2N                 | Pass        |
|          |                 |                 |                 | Max          | AMR        | NB              | 8N                 |             |
|          |                 |                 |                 | Max          | AMR        | WB              | 2N                 |             |
|          |                 |                 |                 | Max          | AMR        | WB              | 8N                 |             |
| 4        | WCDMA Band IV   | 1413/1732.6MHz  | /               | Max          | AMR        | NB              | 2N                 | Pass        |
|          |                 |                 |                 | Max          | AMR        | NB              | 8N                 |             |
|          |                 |                 |                 | Max          | AMR        | WB              | 2N                 |             |
|          |                 |                 |                 | Max          | AMR        | WB              | 8N                 |             |
| 5        | WCDMA Band V    | 4132/826.4MHz   | /               | Max          | AMR        | NB              | 2N                 | Pass        |
|          |                 |                 |                 | Max          | AMR        | NB              | 8N                 |             |
|          |                 |                 |                 | Max          | AMR        | WB              | 2N                 |             |
|          |                 |                 |                 | Max          | AMR        | WB              | 8N                 |             |
| 6        | LTE FDD Band 2  | 18700/1860.0MHz | 20MHz_QPSK_1_0  | Max          | AMR        | NB              | 2N                 | Pass        |
|          |                 |                 |                 | Max          | AMR        | NB              | 8N                 |             |
|          |                 |                 |                 | Max          | AMR        | WB              | 2N                 |             |
|          |                 |                 |                 | Max          | AMR        | WB              | 8N                 |             |
| 7        | LTE FDD Band 4  | 20175/1732.5MHz | 20MHz_QPSK_1_50 | Max          | AMR        | NB              | 2N                 | Pass        |
|          |                 |                 |                 | Max          | AMR        | NB              | 8N                 |             |
|          |                 |                 |                 | Max          | AMR        | WB              | 2N                 |             |
|          |                 |                 |                 | Max          | AMR        | WB              | 8N                 |             |
| 8        | LTE FDD Band 5  | 20525/836.5MHz  | 10MHz_QPSK_1_25 | Max          | AMR        | NB              | 2N                 | Pass        |
|          |                 |                 |                 | Max          | AMR        | NB              | 8N                 |             |
|          |                 |                 |                 | Max          | AMR        | WB              | 2N                 |             |
|          |                 |                 |                 | Max          | AMR        | WB              | 8N                 |             |
| 9        | LTE FDD Band 7  | 21350/2560.0MHz | 20MHz_QPSK_1_50 | Max          | AMR        | NB              | 2N                 | Pass        |
|          |                 |                 |                 | Max          | AMR        | NB              | 8N                 |             |
|          |                 |                 |                 | Max          | AMR        | WB              | 2N                 |             |
|          |                 |                 |                 | Max          | AMR        | WB              | 8N                 |             |
| 10       | LTE FDD Band 12 | 23060/704.0MHz  | 10MHz_QPSK_1_25 | Max          | AMR        | NB              | 2N                 | Pass        |
|          |                 |                 |                 | Max          | AMR        | NB              | 8N                 |             |
|          |                 |                 |                 | Max          | AMR        | WB              | 2N                 |             |
|          |                 |                 |                 | Max          | AMR        | WB              | 8N                 |             |
| 11       | LTE FDD Band 25 | 26140/1860.0MHz | 20MHz_QPSK_1_0  | Max          | AMR        | NB              | 2N                 | Pass        |
|          |                 |                 |                 | Max          | AMR        | NB              | 8N                 |             |
|          |                 |                 |                 | Max          | AMR        | WB              | 2N                 |             |
|          |                 |                 |                 | Max          | AMR        | WB              | 8N                 |             |

| Plot No. | Mode                    | Channel/Freq.    | BW                         | Volume Level | Codec Type | Codec Bandwidth | Mounting Force (N) | RFR         |
|----------|-------------------------|------------------|----------------------------|--------------|------------|-----------------|--------------------|-------------|
|          |                         |                  |                            |              |            |                 |                    | Test Result |
| 12       | LTE FDD Band 26 part 90 | 26740/819.0MHz   | 10MHz_QPSK_1_0             | Max          | AMR        | NB              | 2N                 | Pass        |
|          |                         |                  |                            | Max          | AMR        | NB              | 8N                 |             |
|          |                         |                  |                            | Max          | AMR        | WB              | 2N                 |             |
|          |                         |                  |                            | Max          | AMR        | WB              | 8N                 |             |
| 13       | LTE FDD Band 26 part 22 | 26965/841.5MHz   | 15MHz_QPSK_1_0             | Max          | AMR        | NB              | 2N                 | Pass        |
|          |                         |                  |                            | Max          | AMR        | NB              | 8N                 |             |
|          |                         |                  |                            | Max          | AMR        | WB              | 2N                 |             |
|          |                         |                  |                            | Max          | AMR        | WB              | 8N                 |             |
| 14       | LTE TDD Band 40a        | 38750/2310.0MHz  | 10MHz_QPSK_1_25            | Max          | AMR        | NB              | 2N                 | Pass        |
|          |                         |                  |                            | Max          | AMR        | NB              | 8N                 |             |
|          |                         |                  |                            | Max          | AMR        | WB              | 2N                 |             |
|          |                         |                  |                            | Max          | AMR        | WB              | 8N                 |             |
| 15       | LTE TDD Band 40 b       | 39200/2355.0MHz  | 10MHz_QPSK_1_25            | Max          | AMR        | NB              | 2N                 | Pass        |
|          |                         |                  |                            | Max          | AMR        | NB              | 8N                 |             |
|          |                         |                  |                            | Max          | AMR        | WB              | 2N                 |             |
|          |                         |                  |                            | Max          | AMR        | WB              | 8N                 |             |
| 16       | LTE TDD Band 41         | 41490/2680.0MHz  | 20MHz_QPSK_1_50            | Max          | AMR        | NB              | 2N                 | Pass        |
|          |                         |                  |                            | Max          | AMR        | NB              | 8N                 |             |
|          |                         |                  |                            | Max          | AMR        | WB              | 2N                 |             |
|          |                         |                  |                            | Max          | AMR        | WB              | 8N                 |             |
| 17       | LTE FDD Band 66         | 132572/1770.0MHz | 20MHz_QPSK_1_50            | Max          | AMR        | NB              | 2N                 | Pass        |
|          |                         |                  |                            | Max          | AMR        | NB              | 8N                 |             |
|          |                         |                  |                            | Max          | AMR        | WB              | 2N                 |             |
|          |                         |                  |                            | Max          | AMR        | WB              | 8N                 |             |
| 18       | LTE FDD Band 71         | 133222/673.0MHz  | 20MHz_QPSK_1_0             | Max          | AMR        | NB              | 2N                 | Pass        |
|          |                         |                  |                            | Max          | AMR        | NB              | 8N                 |             |
|          |                         |                  |                            | Max          | AMR        | WB              | 2N                 |             |
|          |                         |                  |                            | Max          | AMR        | WB              | 8N                 |             |
| 19       | NR FDD Band 2           | 376000/1880MHz   | 20MHz_QPSK_Inner_1RB_Right | Max          | AMR        | NB              | 2N                 | Pass        |
|          |                         |                  |                            | Max          | AMR        | NB              | 8N                 |             |
|          |                         |                  |                            | Max          | AMR        | WB              | 2N                 |             |
|          |                         |                  |                            | Max          | AMR        | WB              | 8N                 |             |
| 20       | NR FDD Band 5           | 166800/834.0MHz  | 20MHz_QPSK_Inner_1RB_Right | Max          | AMR        | NB              | 2N                 | Pass        |
|          |                         |                  |                            | Max          | AMR        | NB              | 8N                 |             |
|          |                         |                  |                            | Max          | AMR        | WB              | 2N                 |             |
|          |                         |                  |                            | Max          | AMR        | WB              | 8N                 |             |
| 21       | NR FDD Band 7           | 511000/2555MHz   | 30MHz_QPSK_Inner_1RB_Left  | Max          | AMR        | NB              | 2N                 | Pass        |
|          |                         |                  |                            | Max          | AMR        | NB              | 8N                 |             |
|          |                         |                  |                            | Max          | AMR        | WB              | 2N                 |             |
|          |                         |                  |                            | Max          | AMR        | WB              | 8N                 |             |
| 22       | NR FDD Band 25          | 376500/1882.5MHz | 20MHz_QPSK_Inner_1RB_Right | Max          | AMR        | NB              | 2N                 | Pass        |
|          |                         |                  |                            | Max          | AMR        | NB              | 8N                 |             |
|          |                         |                  |                            | Max          | AMR        | WB              | 2N                 |             |
|          |                         |                  |                            | Max          | AMR        | WB              | 8N                 |             |
| 23       | NR TDD Band 40a         | 462000/2310MHz   | 10MHz_QPSK_Edge_1RB_Left   | Max          | AMR        | NB              | 2N                 | Pass        |
|          |                         |                  |                            | Max          | AMR        | NB              | 8N                 |             |
|          |                         |                  |                            | Max          | AMR        | WB              | 2N                 |             |
|          |                         |                  |                            | Max          | AMR        | WB              | 8N                 |             |

| Plot No. | Mode                   | Channel/Freq.     | BW                         | Volume Level | Codec Type | Codec Bandwidth | Mounting Force (N) | RFR         |
|----------|------------------------|-------------------|----------------------------|--------------|------------|-----------------|--------------------|-------------|
|          |                        |                   |                            |              |            |                 |                    | Test Result |
| 24       | NR TDD Band 40b        | 471000/2355MHz    | 10MHz_QPSK_Inner_1RB_Right | Max          | AMR        | NB              | 2N                 | Pass        |
|          |                        |                   |                            | Max          | AMR        | NB              | 8N                 |             |
|          |                        |                   |                            | Max          | AMR        | WB              | 2N                 |             |
|          |                        |                   |                            | Max          | AMR        | WB              | 8N                 |             |
| 25       | NR TDD Band 41         | 528000/2640.0MHz  | 100MHz_QPSK_Outer_Full     | Max          | AMR        | NB              | 2N                 | Pass        |
|          |                        |                   |                            | Max          | AMR        | NB              | 8N                 |             |
|          |                        |                   |                            | Max          | AMR        | WB              | 2N                 |             |
|          |                        |                   |                            | Max          | AMR        | WB              | 8N                 |             |
| 26       | NR FDD Band 66         | 344000/1720MHz    | 20MHz_QPSK_Edge_1RB_Right  | Max          | AMR        | NB              | 2N                 | Pass        |
|          |                        |                   |                            | Max          | AMR        | NB              | 8N                 |             |
|          |                        |                   |                            | Max          | AMR        | WB              | 2N                 |             |
|          |                        |                   |                            | Max          | AMR        | WB              | 8N                 |             |
| 27       | NR FDD Band 71         | 136100/680.5MHz   | 20MHz_QPSK_Inner_1RB_Left  | Max          | AMR        | NB              | 2N                 | Pass        |
|          |                        |                   |                            | Max          | AMR        | NB              | 8N                 |             |
|          |                        |                   |                            | Max          | AMR        | WB              | 2N                 |             |
|          |                        |                   |                            | Max          | AMR        | WB              | 8N                 |             |
| 28       | NR TDD Band 77a        | 650000/3750.0MHz  | 100MHz_QPSK_Outer_Full     | Max          | AMR        | NB              | 2N                 | Pass        |
|          |                        |                   |                            | Max          | AMR        | NB              | 8N                 |             |
|          |                        |                   |                            | Max          | AMR        | WB              | 2N                 |             |
|          |                        |                   |                            | Max          | AMR        | WB              | 8N                 |             |
| 29       | NR TDD Band 77d        | 633334/3500.01MHz | 100MHz_QPSK_Outer_Full     | Max          | AMR        | NB              | 2N                 | Pass        |
|          |                        |                   |                            | Max          | AMR        | NB              | 8N                 |             |
|          |                        |                   |                            | Max          | AMR        | WB              | 2N                 |             |
|          |                        |                   |                            | Max          | AMR        | WB              | 8N                 |             |
| 30       | NR TDD Band 78a        | 650000/3750.0MHz  | 100MHz_QPSK_Inner_1RB_Left | Max          | AMR        | NB              | 2N                 | Pass        |
|          |                        |                   |                            | Max          | AMR        | NB              | 8N                 |             |
|          |                        |                   |                            | Max          | AMR        | WB              | 2N                 |             |
|          |                        |                   |                            | Max          | AMR        | WB              | 8N                 |             |
| 31       | NR TDD Band 78e        | 633334/3500MHz    | 100MHz_QPSK_Outer_Full     | Max          | AMR        | NB              | 2N                 | Pass        |
|          |                        |                   |                            | Max          | AMR        | NB              | 8N                 |             |
|          |                        |                   |                            | Max          | AMR        | WB              | 2N                 |             |
|          |                        |                   |                            | Max          | AMR        | WB              | 8N                 |             |
| 32       | NSA LTE Band 2+NR N41  | /                 | /                          | Max          | AMR        | NB              | 2N                 | Pass        |
|          |                        |                   |                            | Max          | AMR        | NB              | 8N                 |             |
|          |                        |                   |                            | Max          | AMR        | WB              | 2N                 |             |
|          |                        |                   |                            | Max          | AMR        | WB              | 8N                 |             |
| 33       | NSA LTE Band 2+NR N71  | /                 | /                          | Max          | AMR        | NB              | 2N                 | Pass        |
|          |                        |                   |                            | Max          | AMR        | NB              | 8N                 |             |
|          |                        |                   |                            | Max          | AMR        | WB              | 2N                 |             |
|          |                        |                   |                            | Max          | AMR        | WB              | 8N                 |             |
| 34       | NSA LTE Band 2+NR N77  | /                 | /                          | Max          | AMR        | NB              | 2N                 | Pass        |
|          |                        |                   |                            | Max          | AMR        | NB              | 8N                 |             |
|          |                        |                   |                            | Max          | AMR        | WB              | 2N                 |             |
|          |                        |                   |                            | Max          | AMR        | WB              | 8N                 |             |
| 35       | NSA LTE Band 66+NR N41 | /                 | /                          | Max          | AMR        | NB              | 2N                 | Pass        |
|          |                        |                   |                            | Max          | AMR        | NB              | 8N                 |             |
|          |                        |                   |                            | Max          | AMR        | WB              | 2N                 |             |
|          |                        |                   |                            | Max          | AMR        | WB              | 8N                 |             |
| 36       | NSA LTE Band 66+NR N71 | /                 | /                          | Max          | AMR        | NB              | 2N                 | Pass        |
|          |                        |                   |                            | Max          | AMR        | NB              | 8N                 |             |
|          |                        |                   |                            | Max          | AMR        | WB              | 2N                 |             |
|          |                        |                   |                            | Max          | AMR        | WB              | 8N                 |             |
| 37       | NSA LTE Band 66+NR N77 | /                 | /                          | Max          | AMR        | NB              | 2N                 | Pass        |
|          |                        |                   |                            | Max          | AMR        | NB              | 8N                 |             |
|          |                        |                   |                            | Max          | AMR        | WB              | 2N                 |             |
|          |                        |                   |                            | Max          | AMR        | WB              | 8N                 |             |

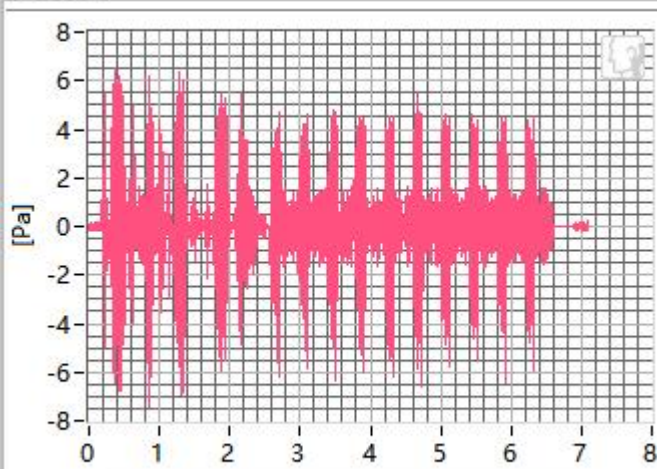
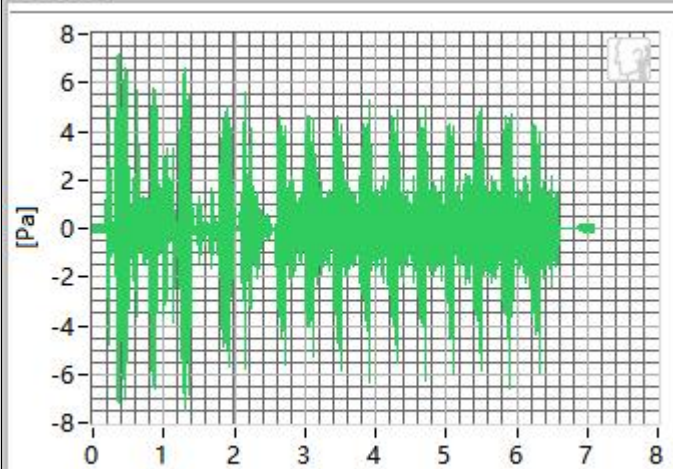
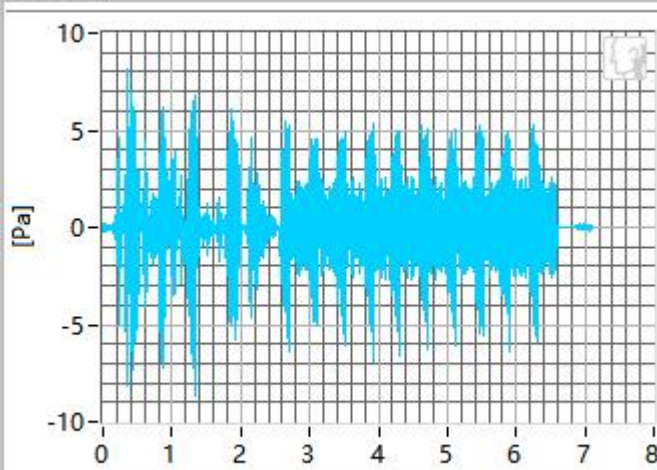
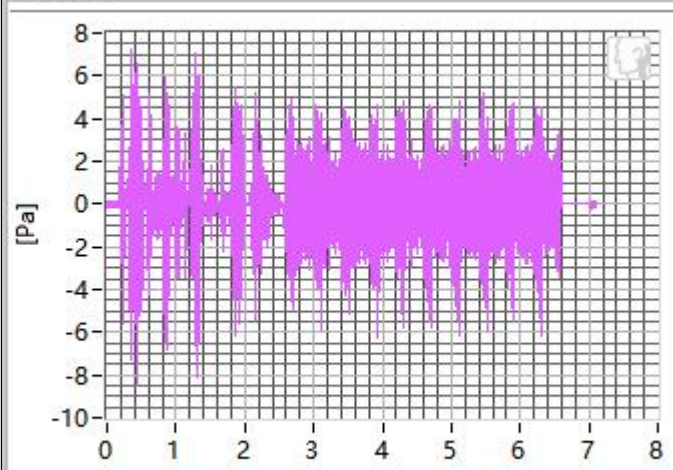
## Volume Control Verification Test Results

| Date of Testing                                            | Test Location | Air Interface Equipment | Acoustical Calibrator | HATS Sens.(dB) | Ambient Noise(dBA) |
|------------------------------------------------------------|---------------|-------------------------|-----------------------|----------------|--------------------|
| 15/7/2025                                                  | JB HATS R     | CMW 500                 | B&K 4231 & UA1546     | 97.12          | 35.24              |
| 17/7/2025                                                  | JB HATS R     | CMW 500                 | B&K 4231 & UA1546     | 97.14          | 33.47              |
| 19/7/2025                                                  | JB HATS R     | CMW 500                 | B&K 4231 & UA1546     | 97.16          | 32.51              |
| 21/7/2025                                                  | JB HATS R     | CMW 500                 | B&K 4231 & UA1546     | 97.11          | 34.15              |
| Note: A room with background noise no greater than 40 dBA. |               |                         |                       |                |                    |

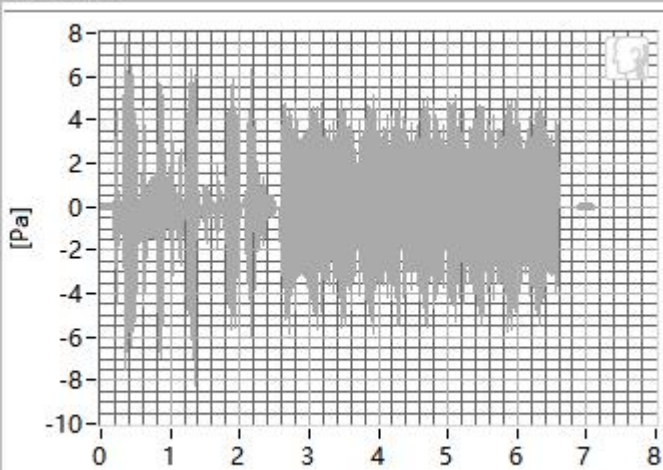
## ANNEX A Test Data

### 1. GSM 850 in channel 128

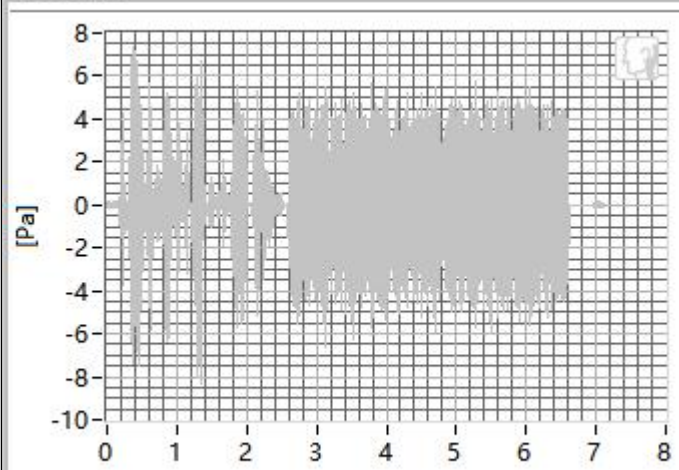
#### 1.1 Receive Distortion and Noise 8N NB

**400Hz****500Hz****630Hz****800Hz**

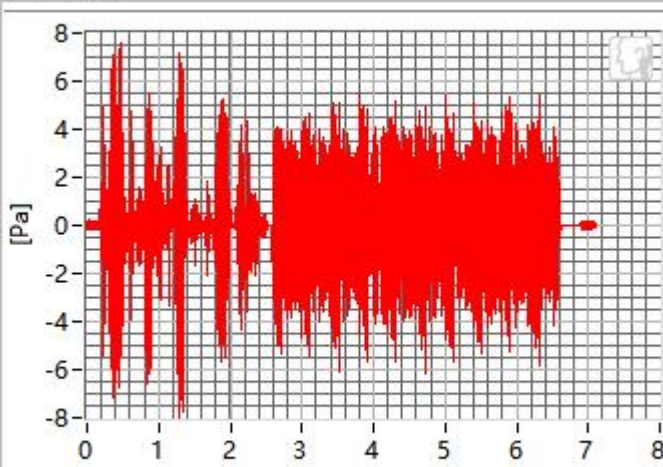
1000Hz



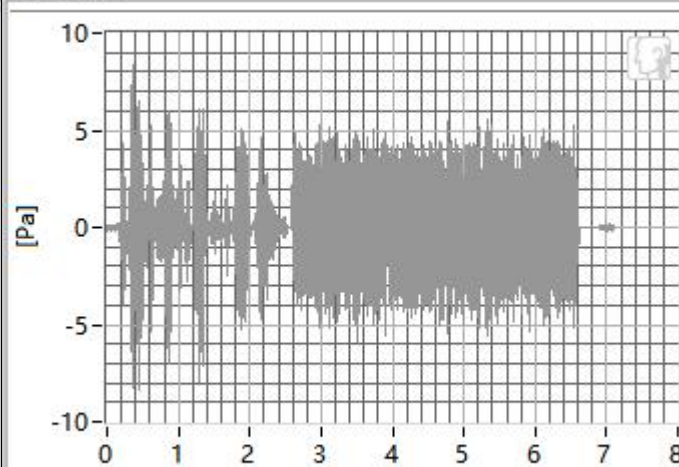
1250Hz



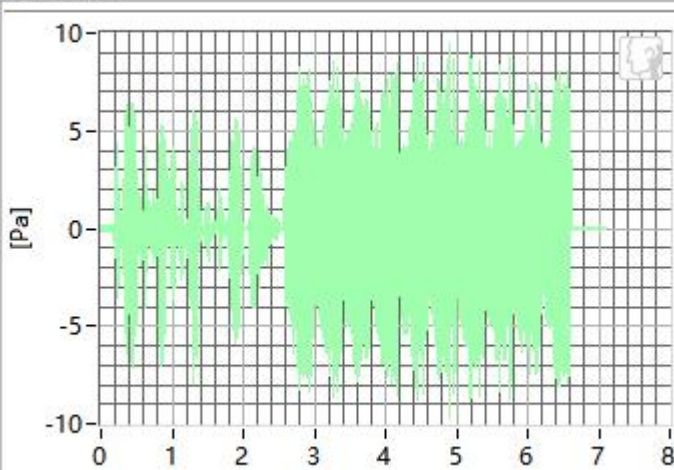
1600Hz



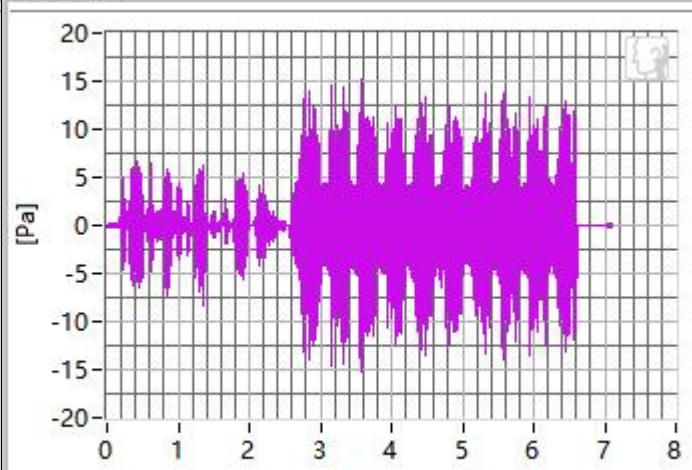
2000Hz



2500Hz



3150Hz

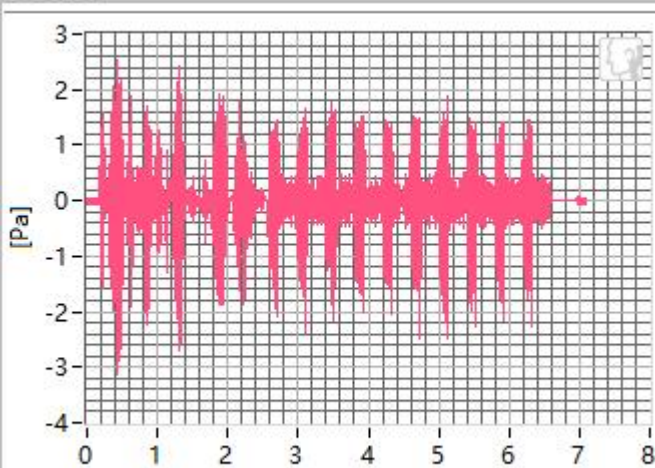


| Frequency | SDNR     | Frequency | SDNR     |
|-----------|----------|-----------|----------|
| 400Hz     | 31.51 dB | 1250Hz    | 26.25 dB |
| 500Hz     | 28.16 dB | 1600Hz    | 25.52 dB |
| 630Hz     | 29.49 dB | 2000Hz    | 21.70 dB |
| 800Hz     | 20.76 dB | 2500Hz    | 22.32 dB |
| 1000Hz    | 23.31 dB | 3150Hz    | 23.27 dB |

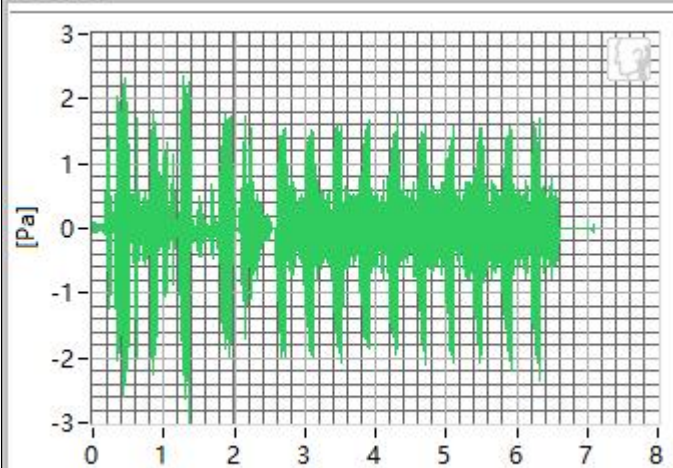
All SDNRs were greater than 20.0 dB, requirement was met. Smallest SDNR was 20.76 dB at 800Hz.

## 1.2 Receive Distortion and Noise 2N NB

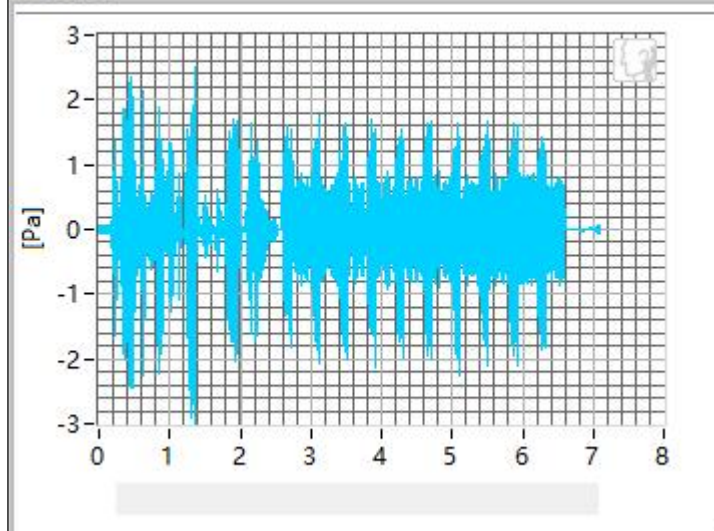
400Hz



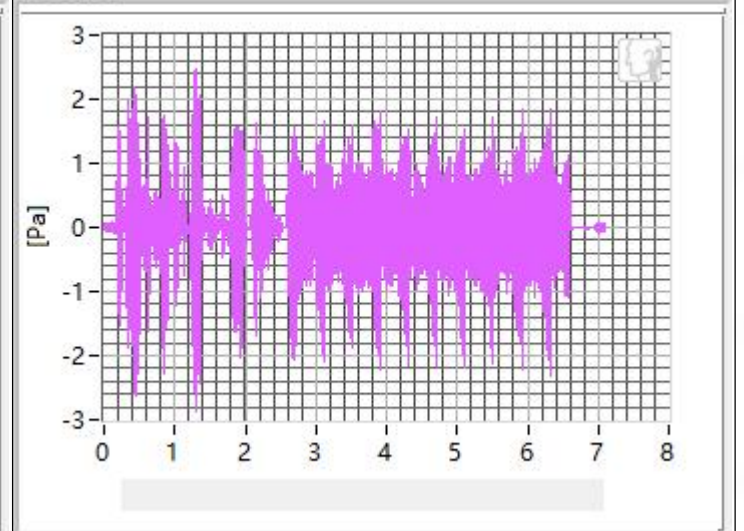
500Hz



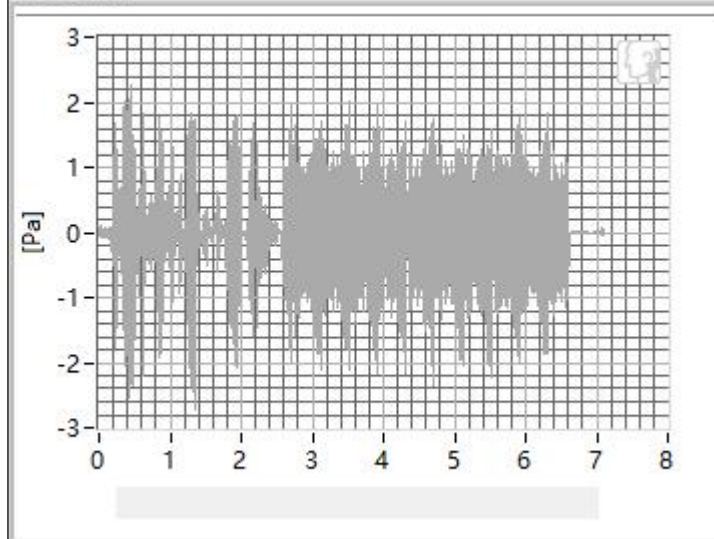
630Hz



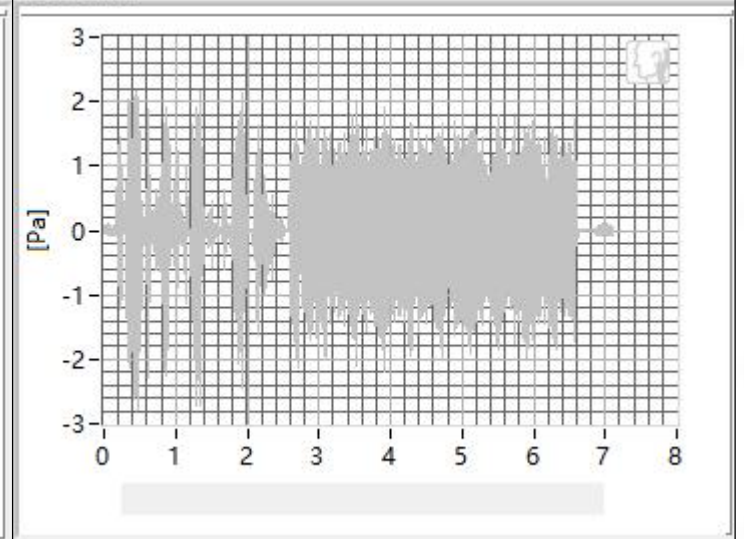
800Hz



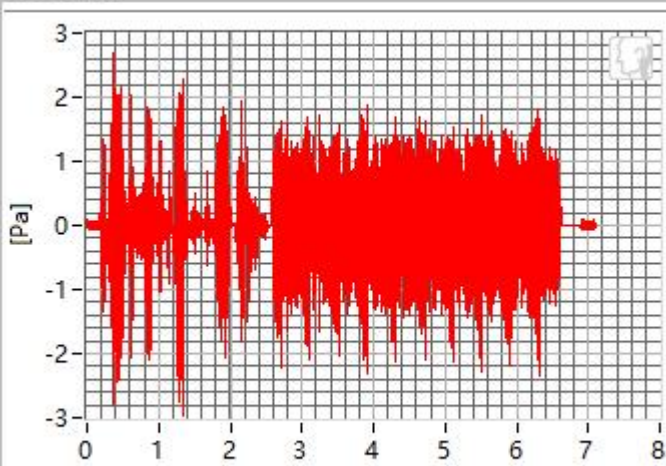
1000Hz



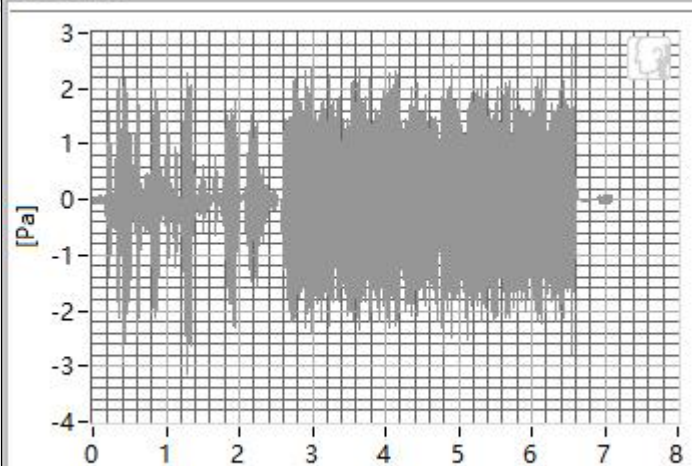
1250Hz



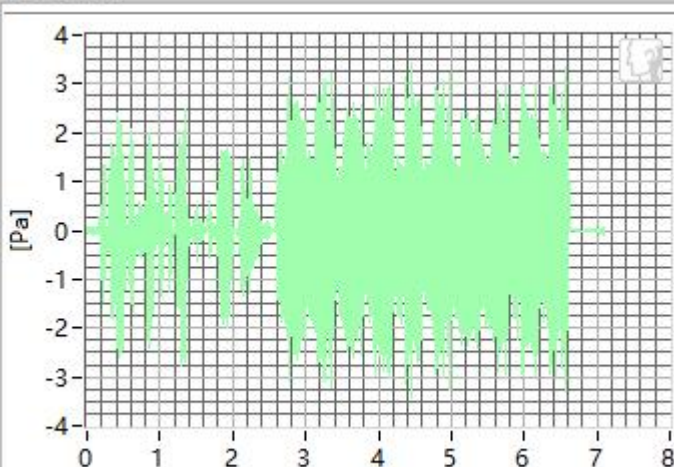
1600Hz



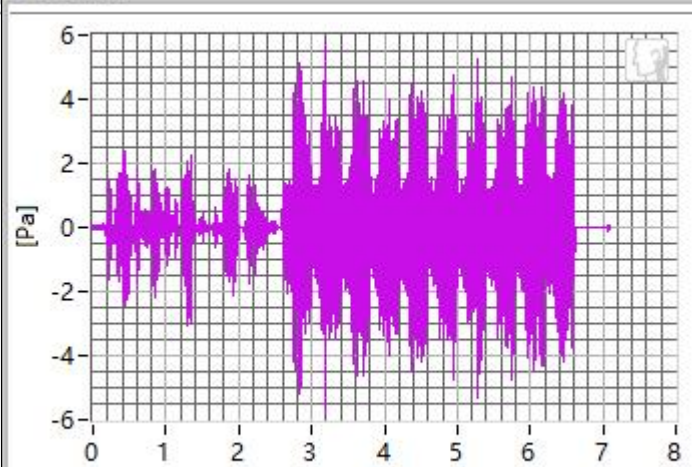
2000Hz



2500Hz



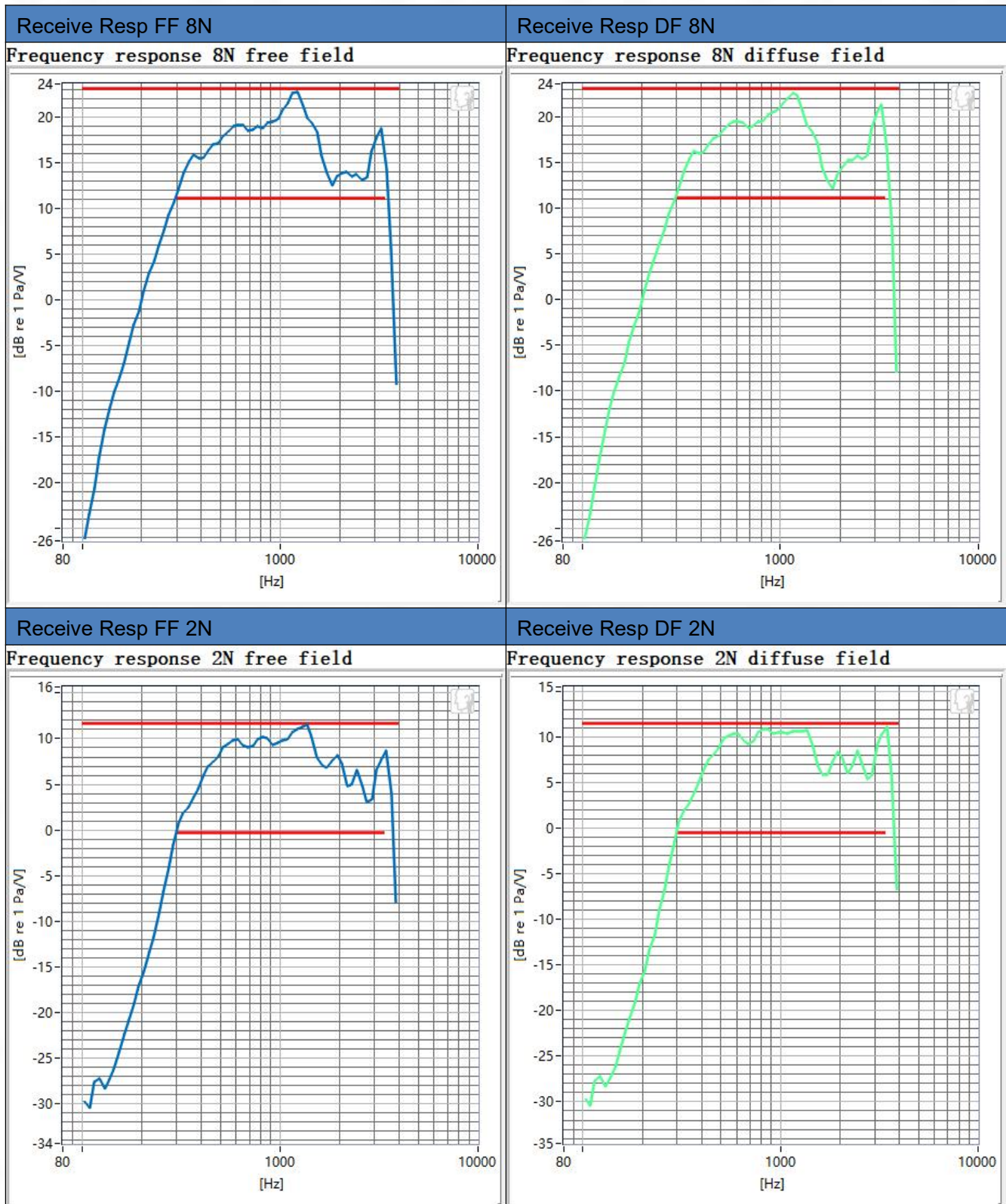
3150Hz



| Frequency | SDNR     | Frequency | SDNR     |
|-----------|----------|-----------|----------|
| 400Hz     | 29.60 dB | 1250Hz    | 26.88 dB |
| 500Hz     | 27.85 dB | 1600Hz    | 23.03 dB |
| 630Hz     | 25.40 dB | 2000Hz    | 26.37 dB |
| 800Hz     | 21.70 dB | 2500Hz    | 21.97 dB |
| 1000Hz    | 24.29 dB | 3150Hz    | 20.95 dB |

All SDNRs were greater than 20.0 dB, requirement was met. Smallest SDNR was 20.95 dB at 3150Hz.

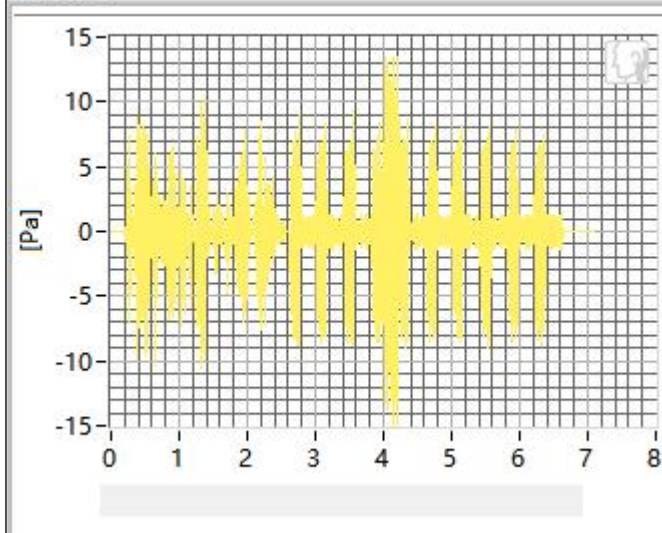
### 1.3 Receive Frequency Response



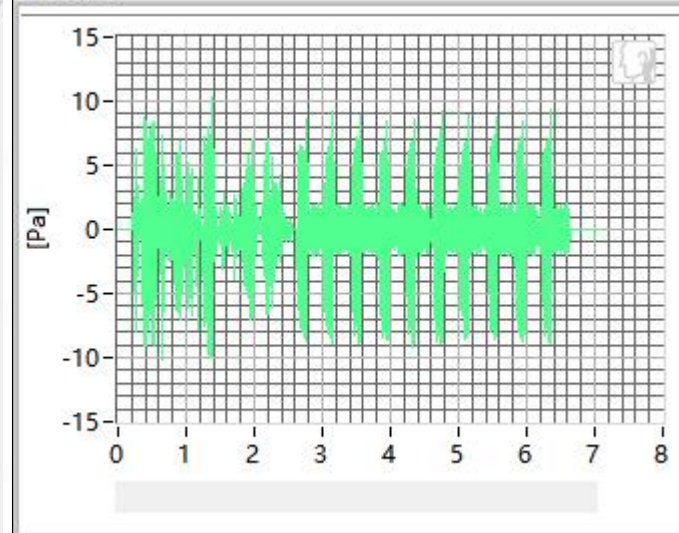
## 2. WCDMA band 2 in channel 9262

### 2.1 Receive Distortion and Noise 8N WB

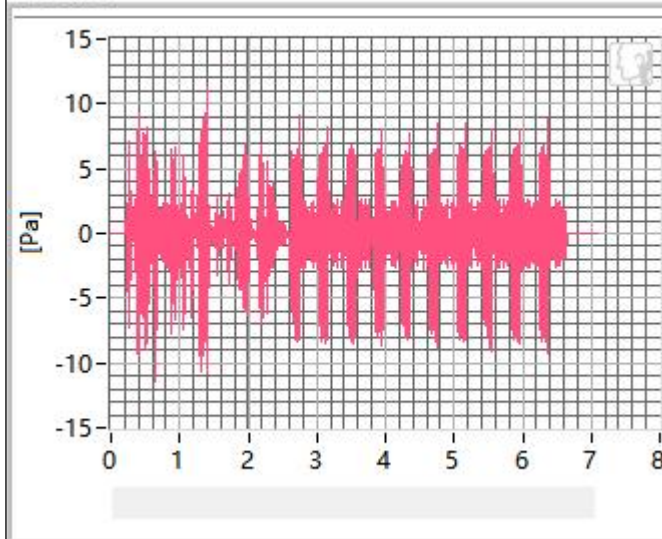
250Hz



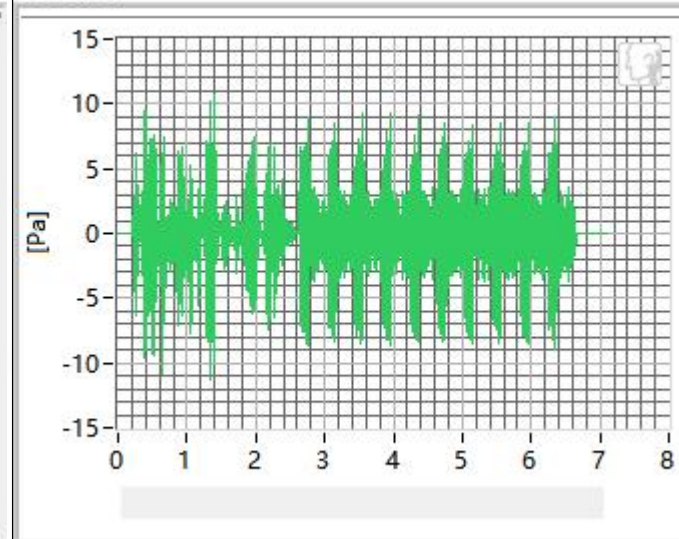
315Hz



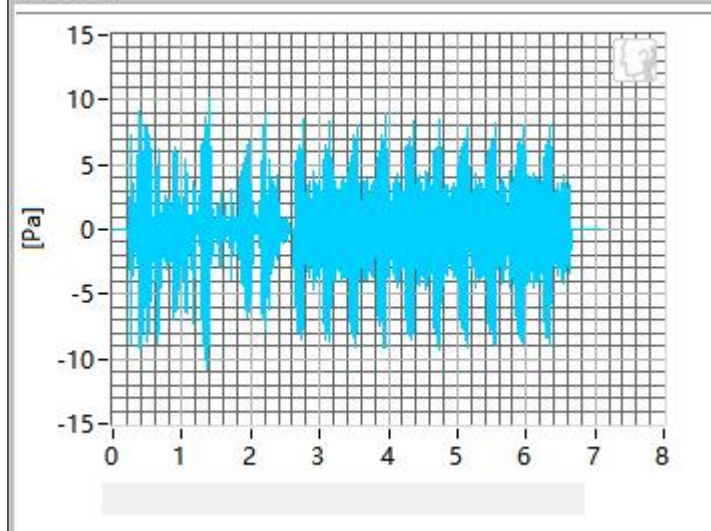
400Hz



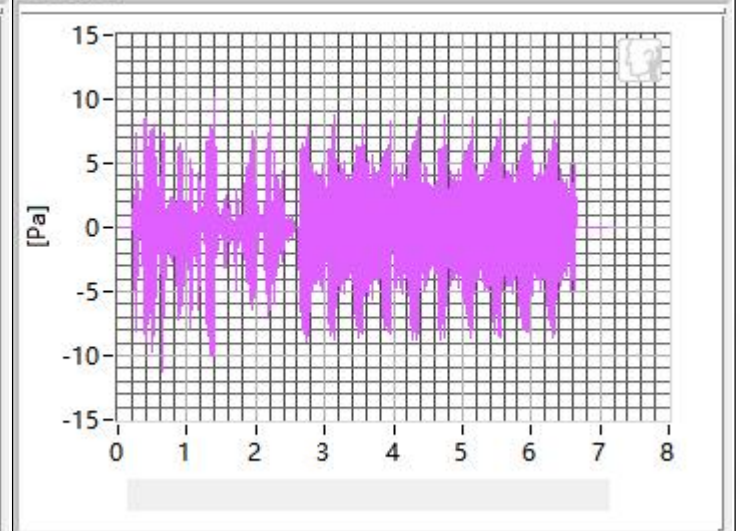
500Hz



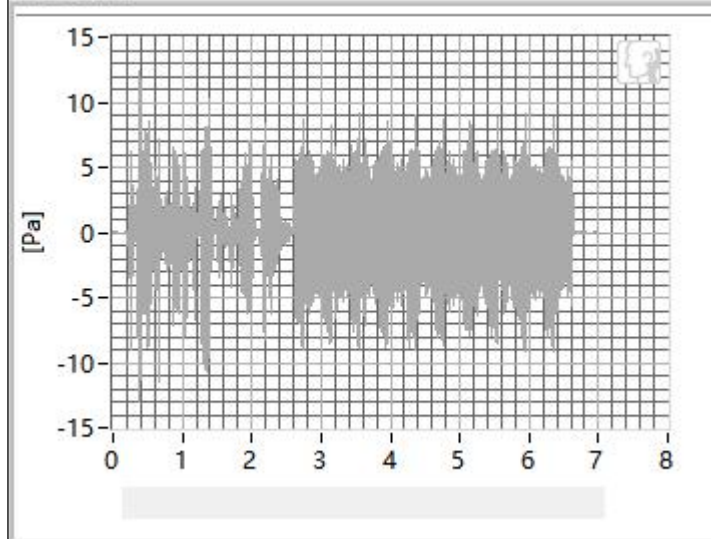
630Hz



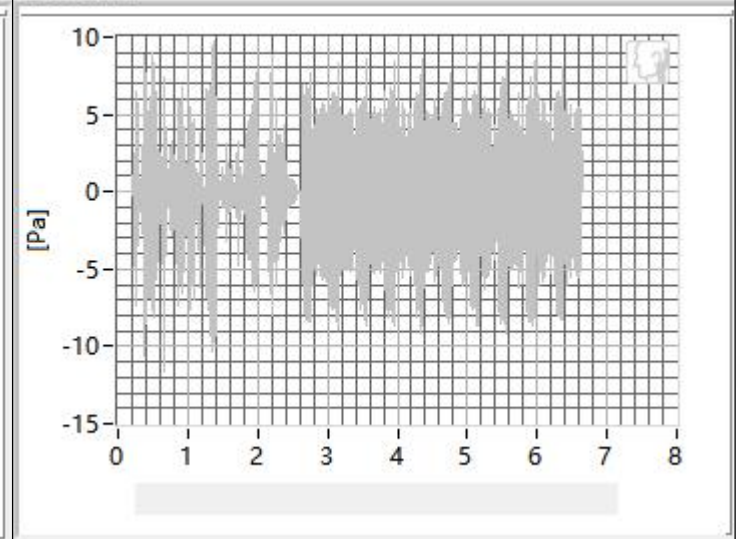
800Hz



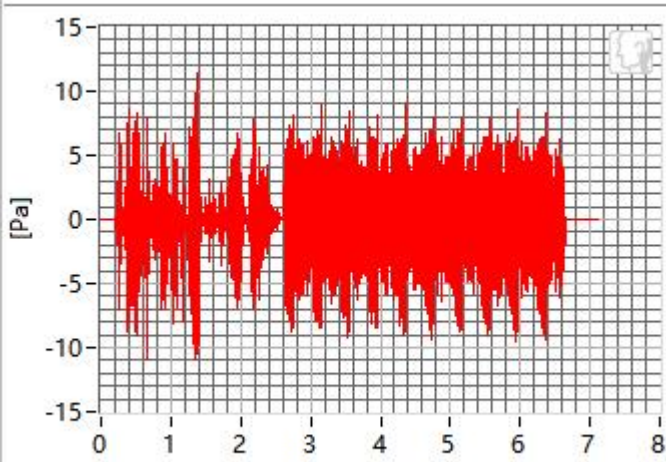
1000Hz



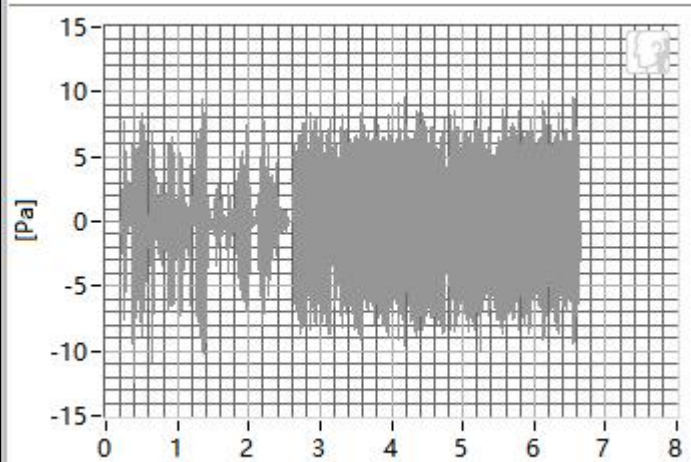
1250Hz



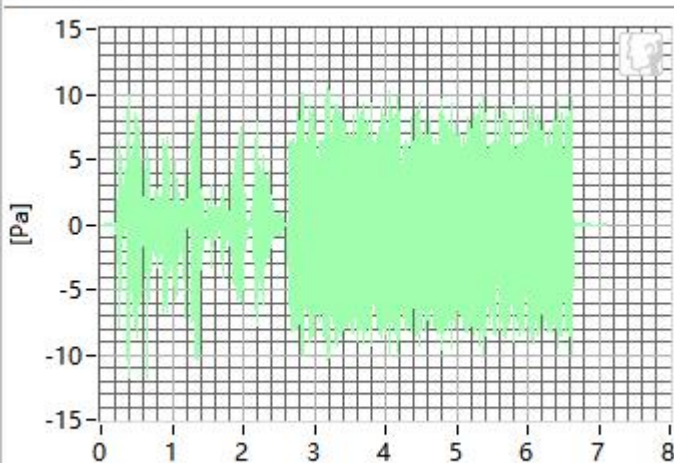
1600Hz



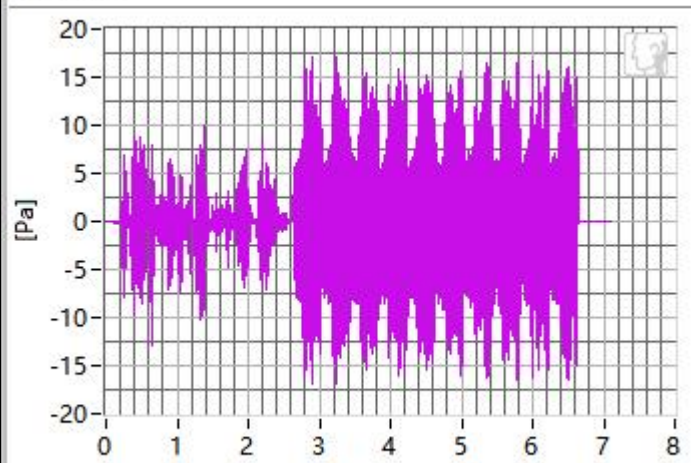
2000Hz



2500Hz



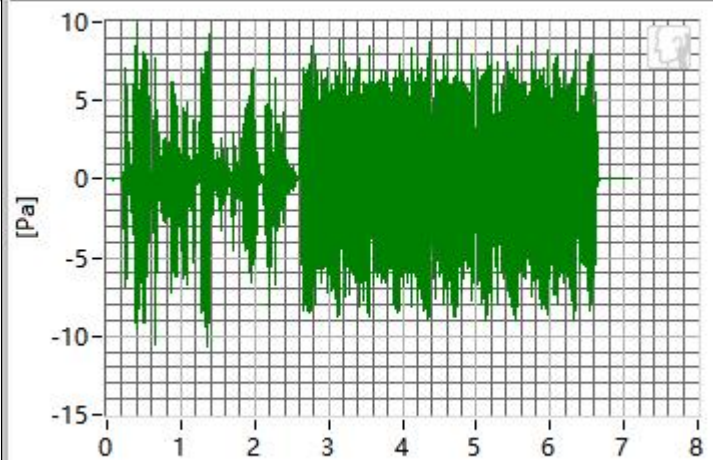
3150Hz



4000Hz



5000Hz

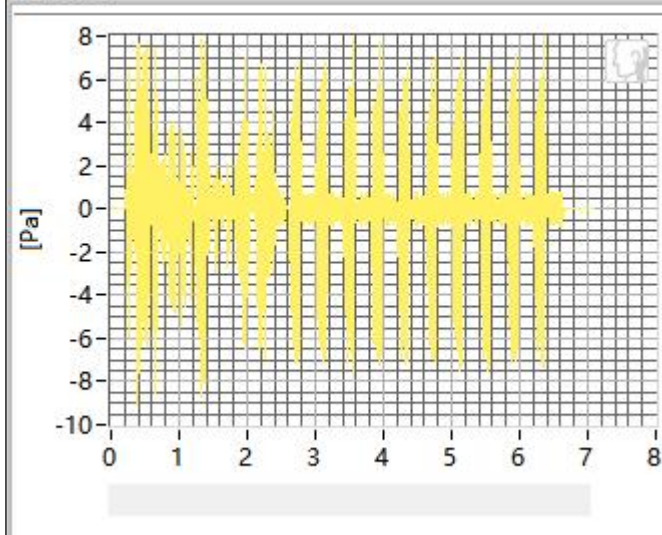


| Frequency | SDNR     | Frequency | SDNR     |
|-----------|----------|-----------|----------|
| 250Hz     | 26.31 dB | 1250Hz    | 24.43 dB |
| 315Hz     | 29.68 dB | 1600Hz    | 23.55 dB |
| 400Hz     | 30.71 dB | 2000Hz    | 22.48 dB |
| 500Hz     | 31.79 dB | 2500Hz    | 23.80 dB |
| 630Hz     | 29.50 dB | 3150Hz    | 27.98 dB |
| 800Hz     | 30.30 dB | 4000Hz    | 30.15 dB |
| 1000Hz    | 27.46 dB | 5000Hz    | 20.03 dB |

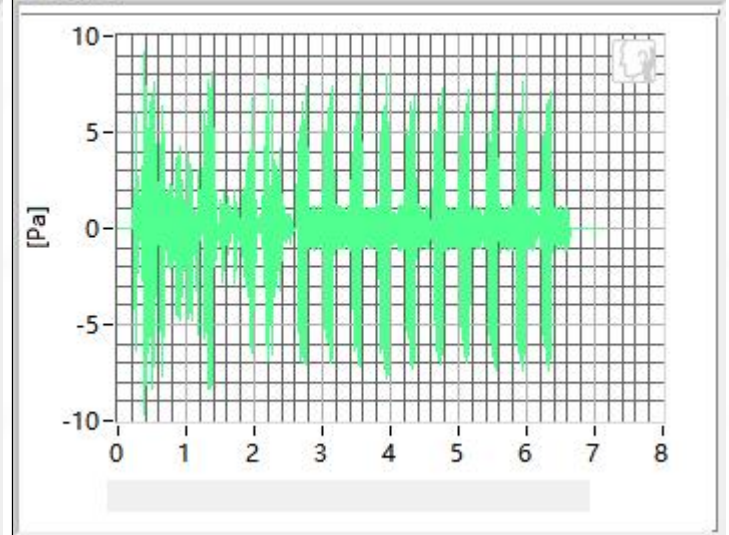
All SDNRs were greater than 20.0 dB, requirement was met. Smallest SDNR was 20.03 dB at 5000Hz.

## 2.2 Receive Distortion and Noise 2N WB

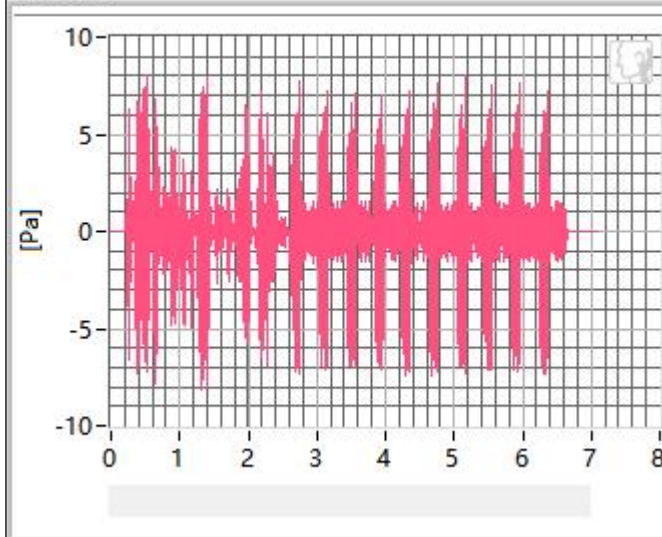
250Hz



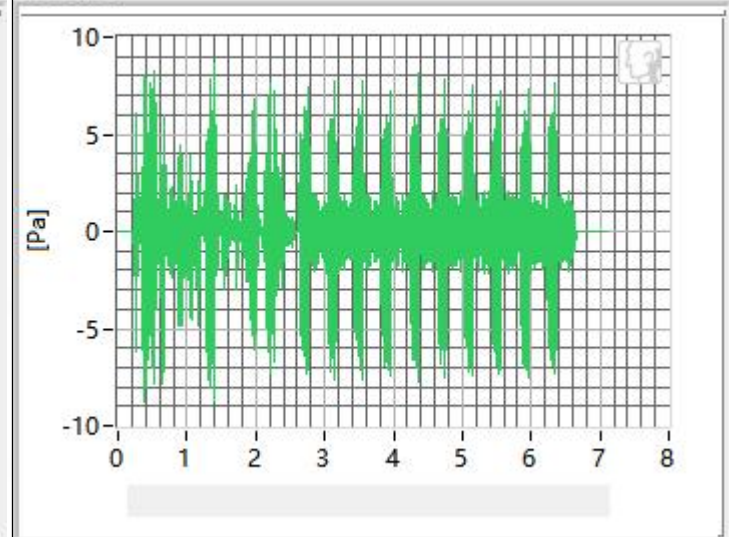
315Hz



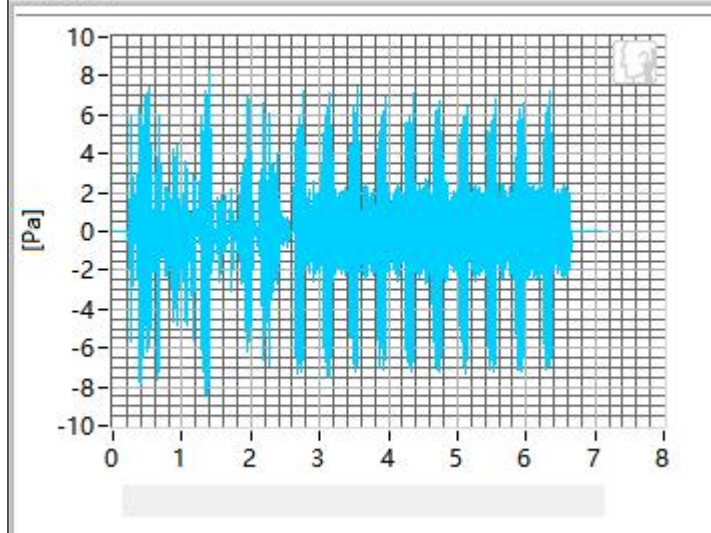
400Hz



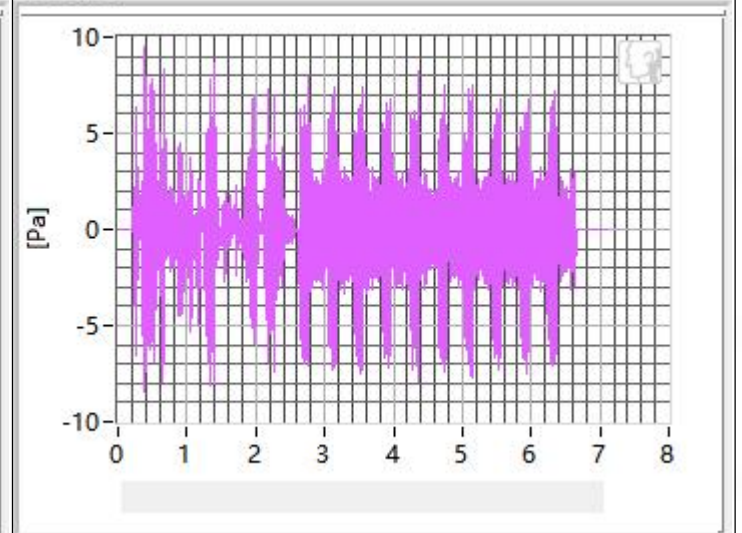
500Hz



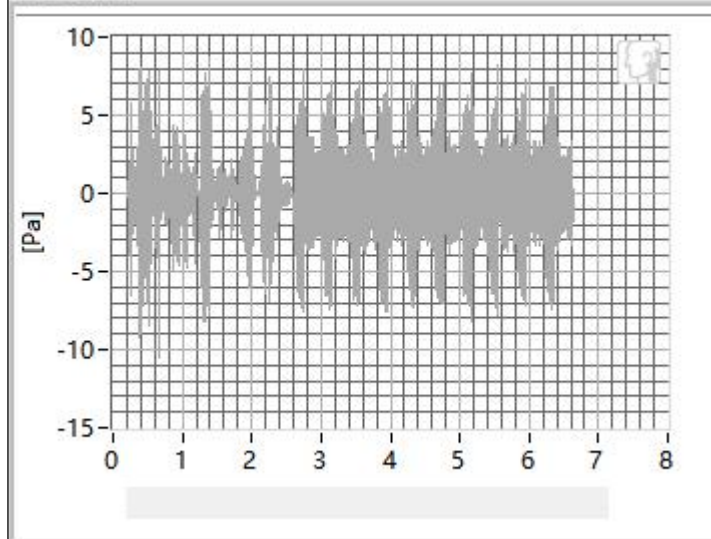
630Hz



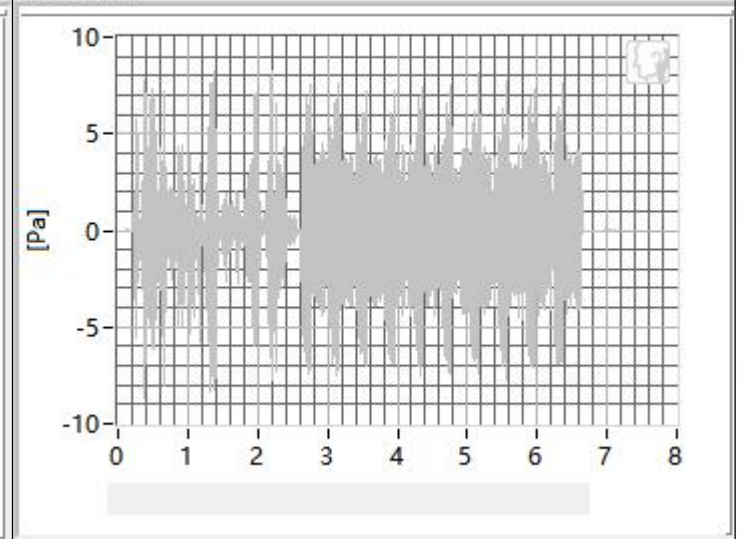
800Hz



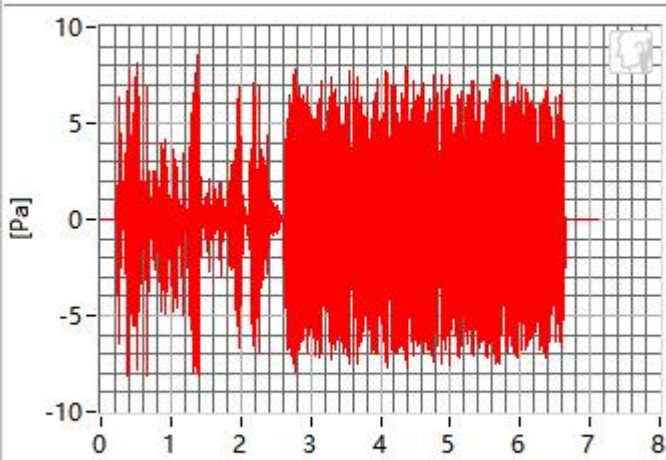
1000Hz



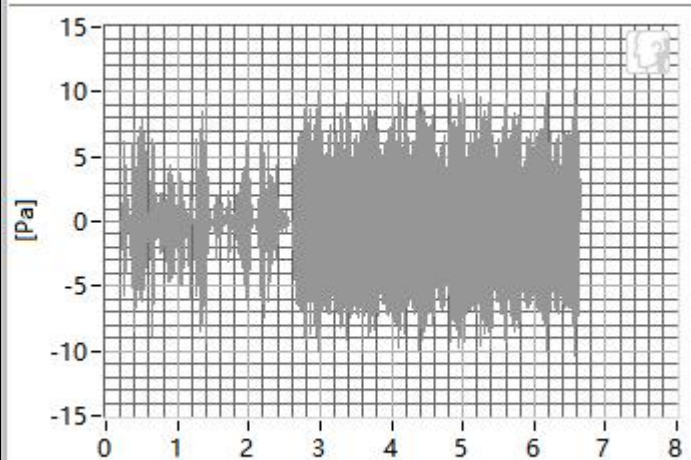
1250Hz



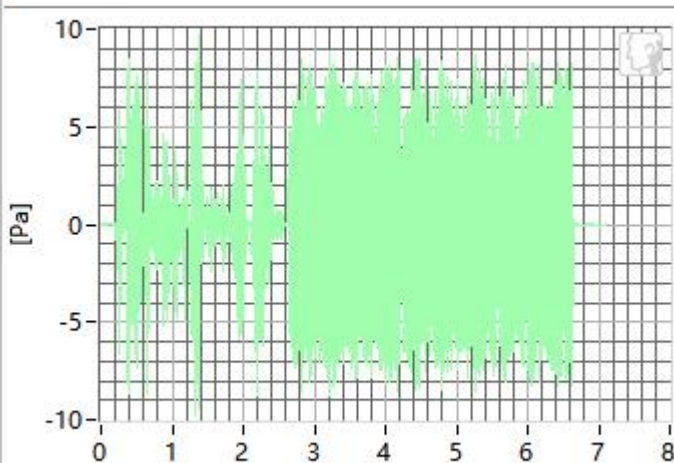
1600Hz



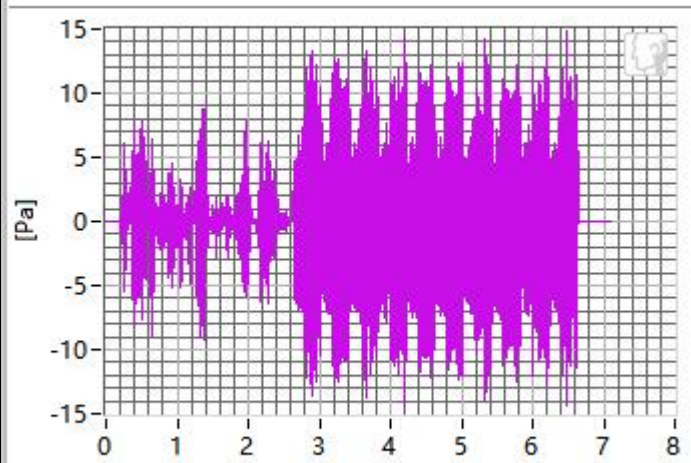
2000Hz



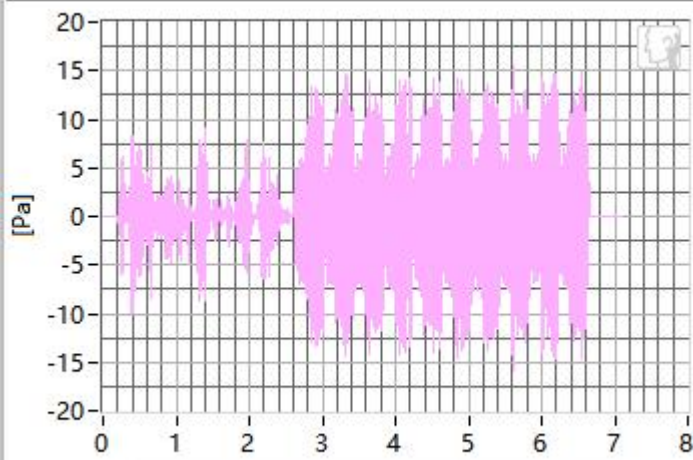
2500Hz



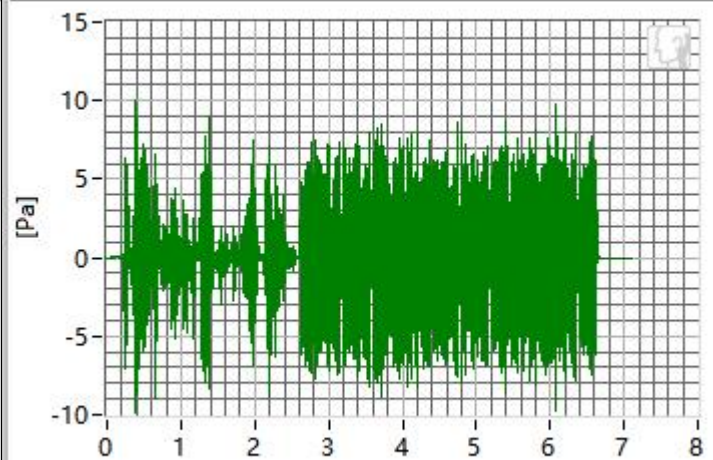
3150Hz



4000Hz



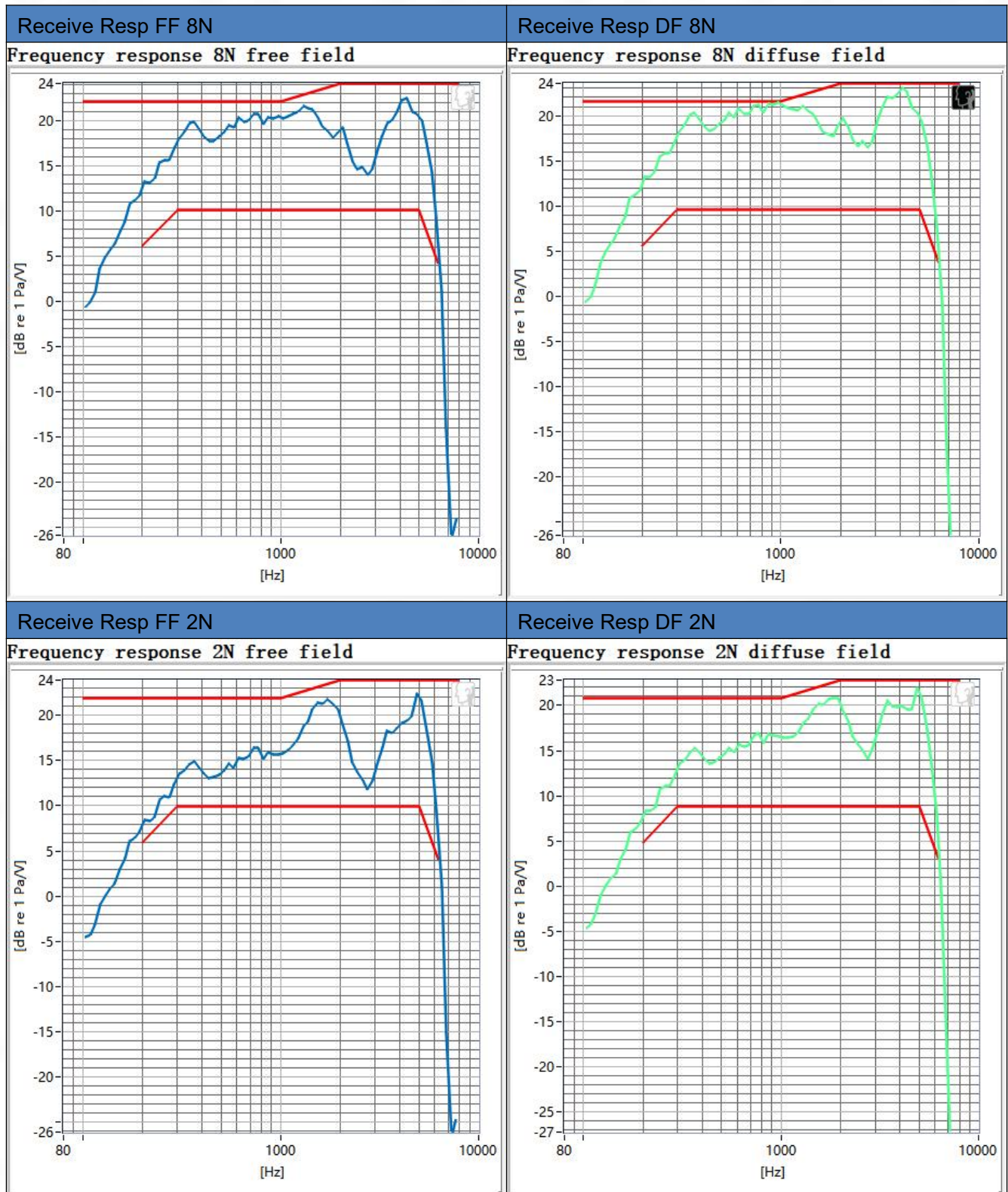
5000Hz



| Frequency | SDNR     | Frequency | SDNR     |
|-----------|----------|-----------|----------|
| 250Hz     | 26.66 dB | 1250Hz    | 23.55 dB |
| 315Hz     | 29.80 dB | 1600Hz    | 26.22 dB |
| 400Hz     | 29.52 dB | 2000Hz    | 22.76 dB |
| 500Hz     | 30.73 dB | 2500Hz    | 22.79 dB |
| 630Hz     | 33.08 dB | 3150Hz    | 28.70 dB |
| 800Hz     | 28.30 dB | 4000Hz    | 27.63 dB |
| 1000Hz    | 26.05 dB | 5000Hz    | 22.12 dB |

All SDNRs were greater than 20.0 dB, requirement was met. Smallest SDNR was 22.12 dB at 5000Hz.

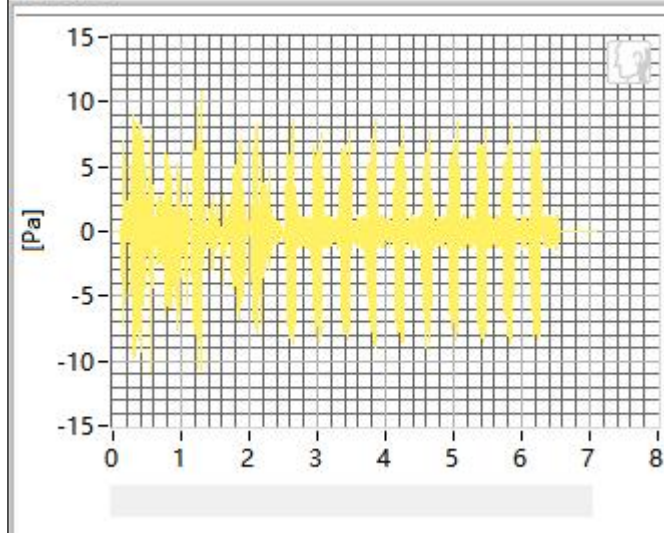
## 2.3 Receive Frequency Response



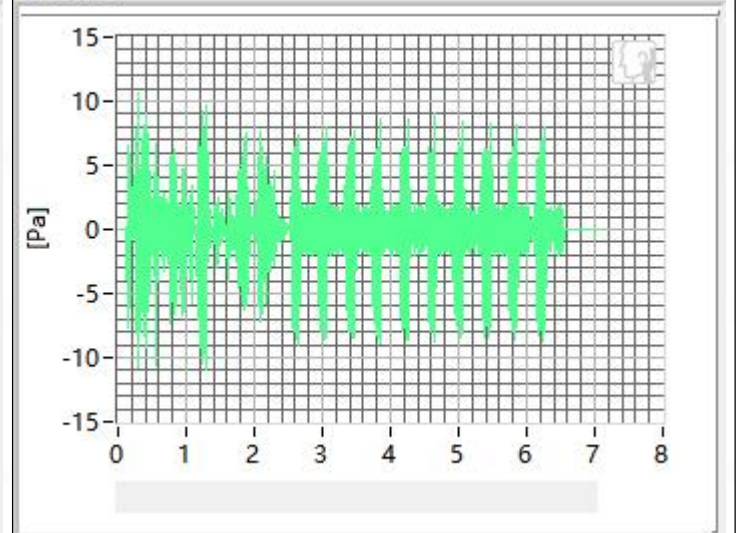
### 3. LTE band 2 in channel 18700

#### 3.1 Receive Distortion and Noise 8N WB

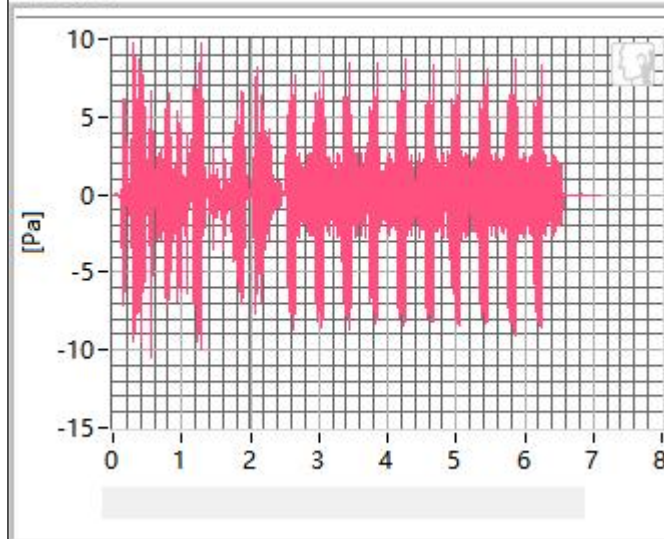
250Hz



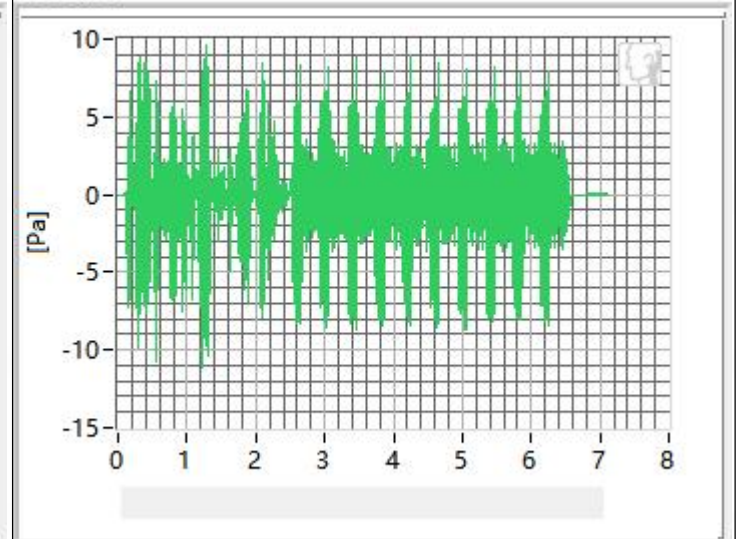
315Hz



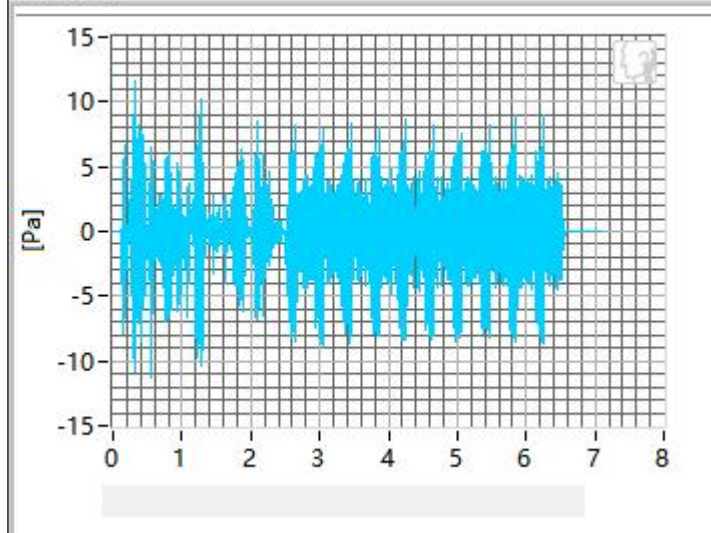
400Hz



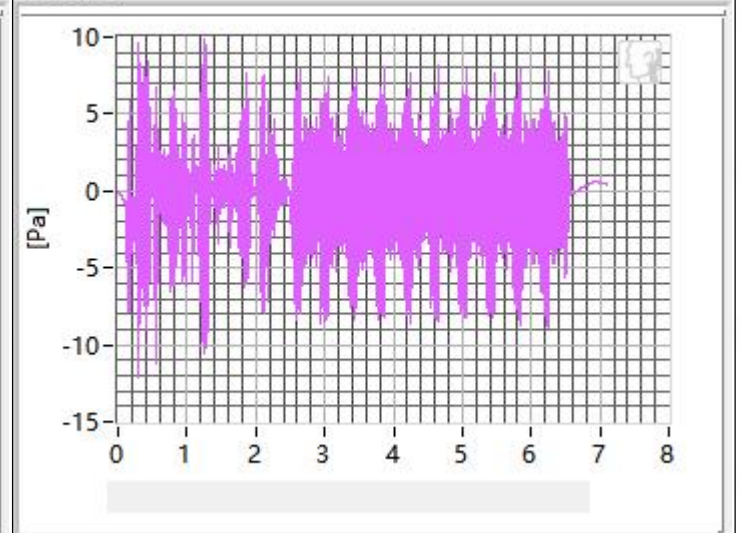
500Hz



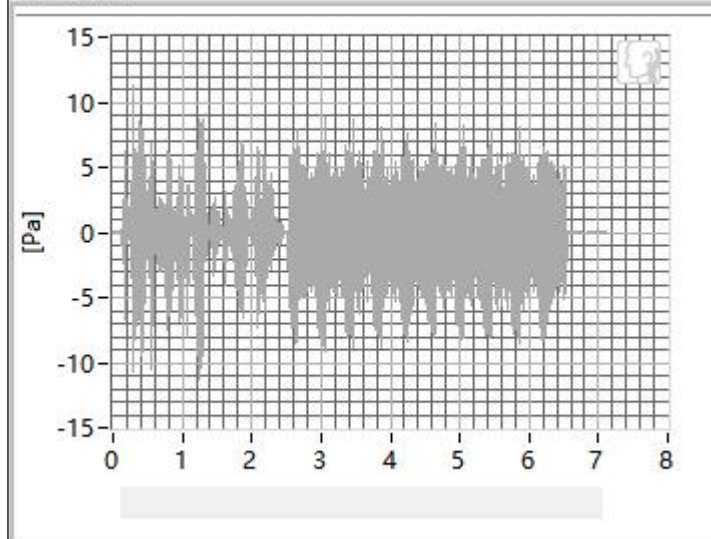
630Hz



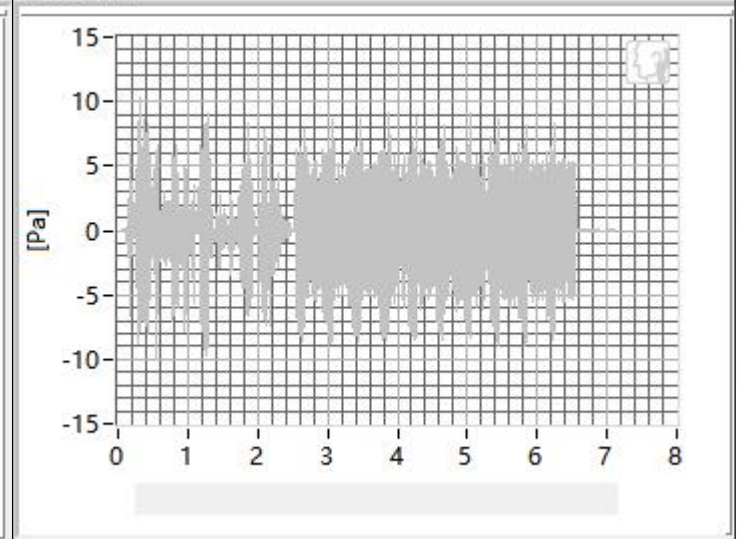
800Hz



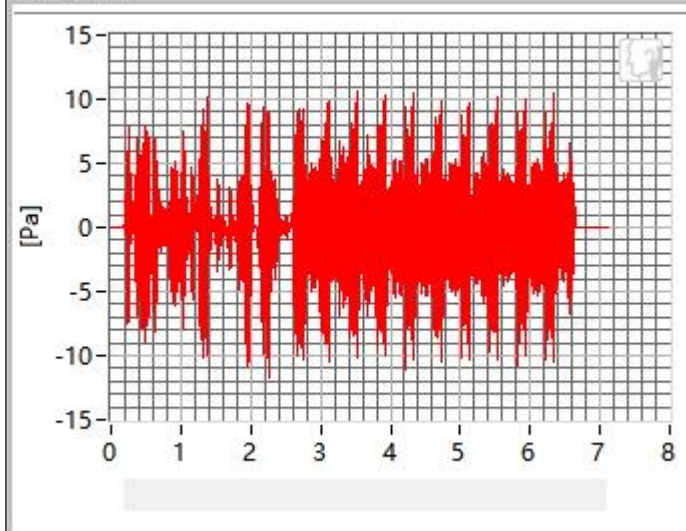
1000Hz



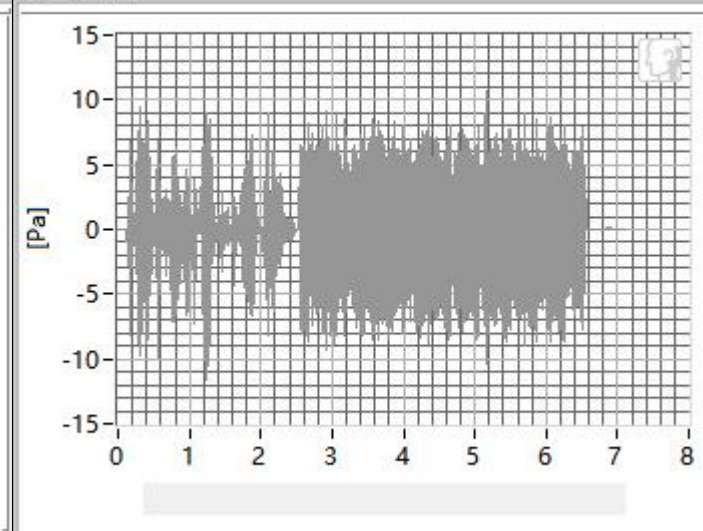
1250Hz



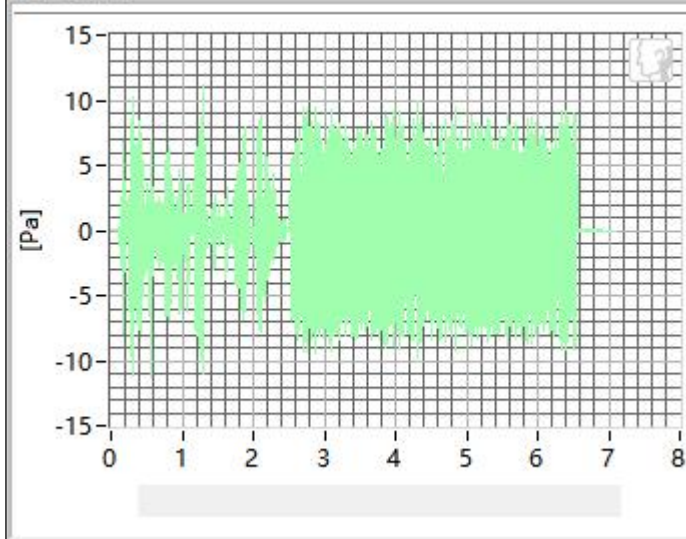
1600Hz



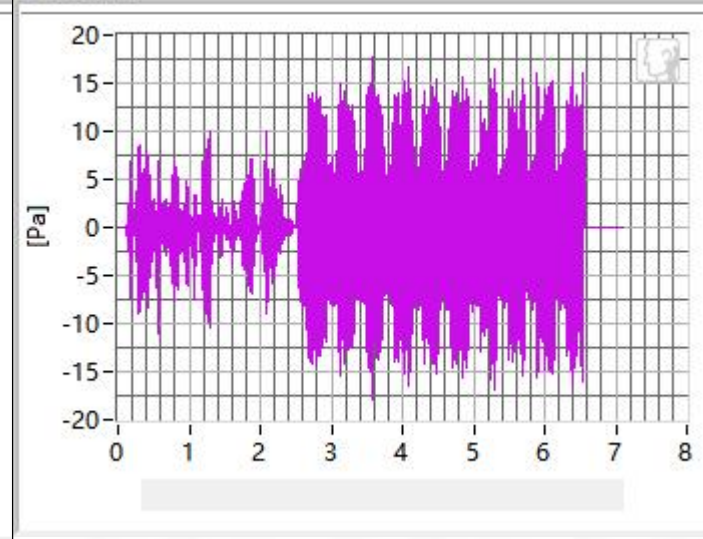
2000Hz



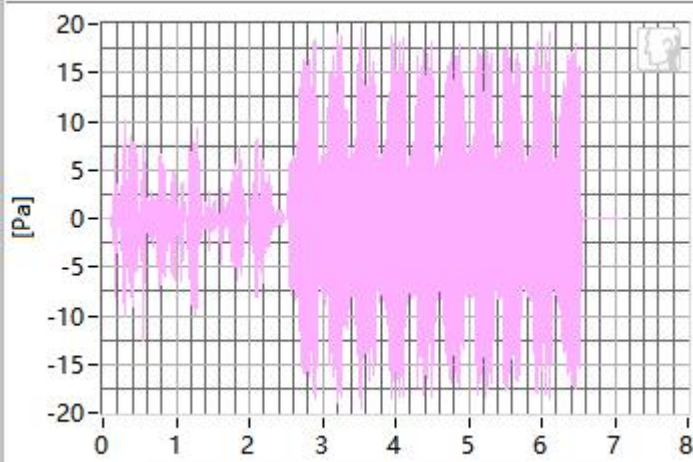
2500Hz



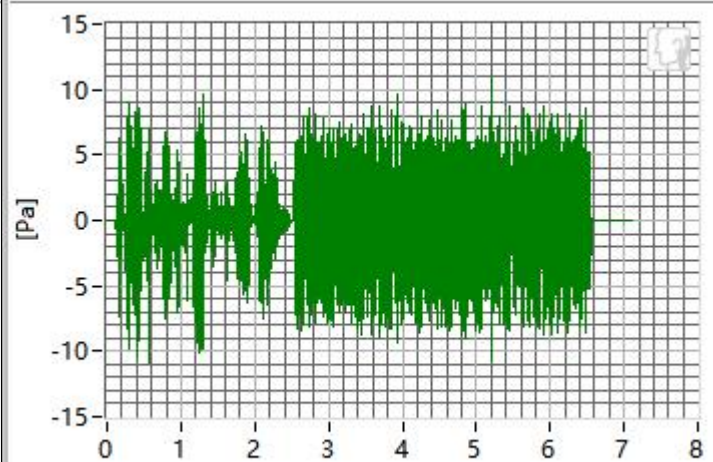
3150Hz



4000Hz



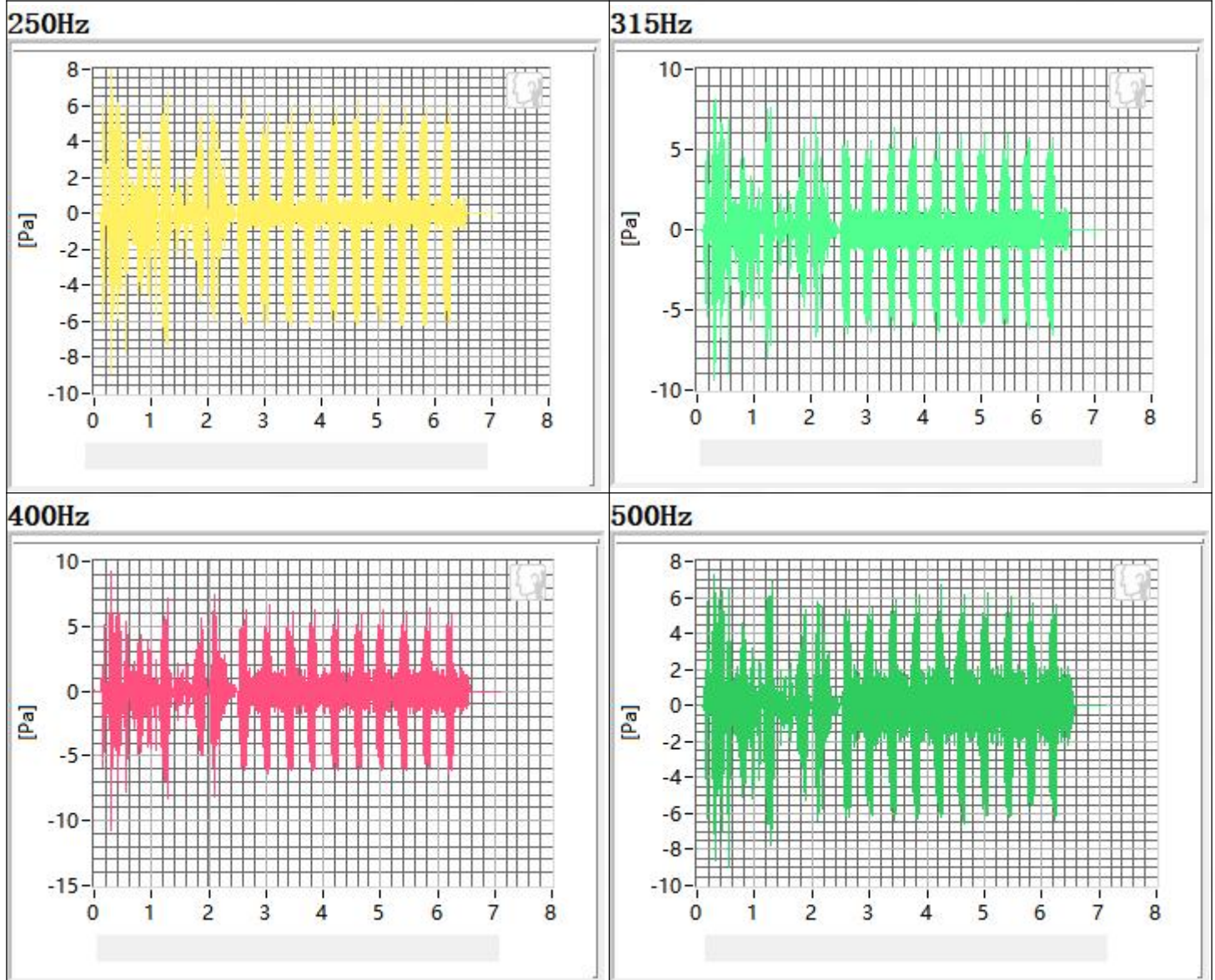
5000Hz

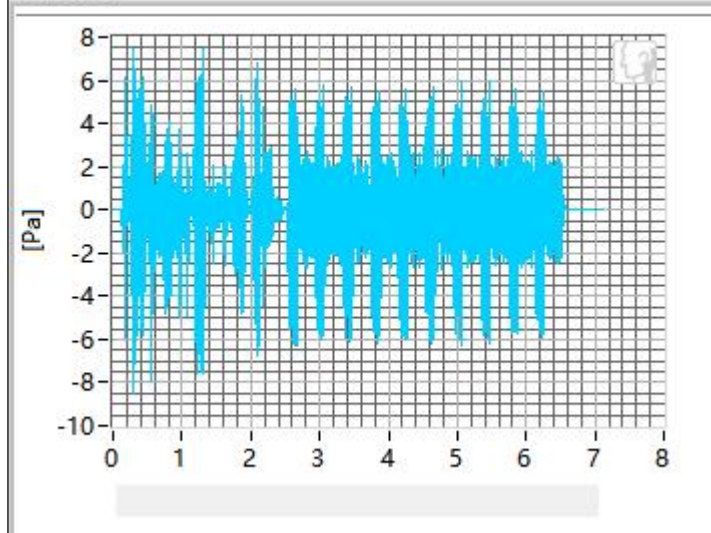
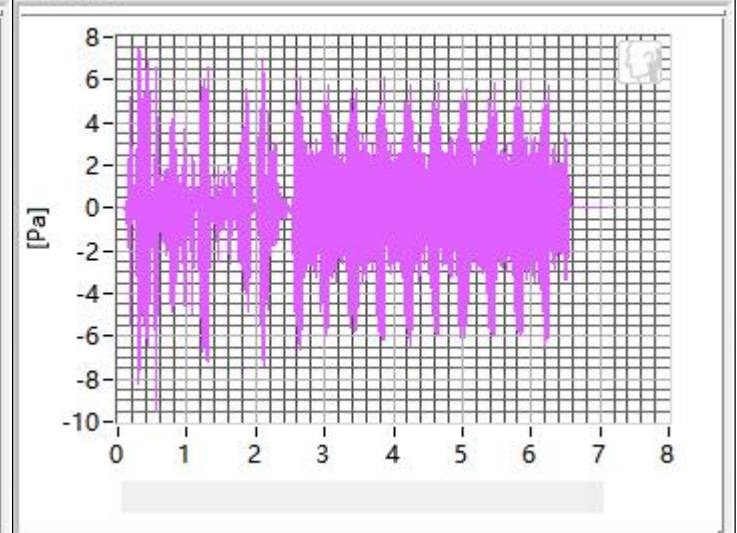
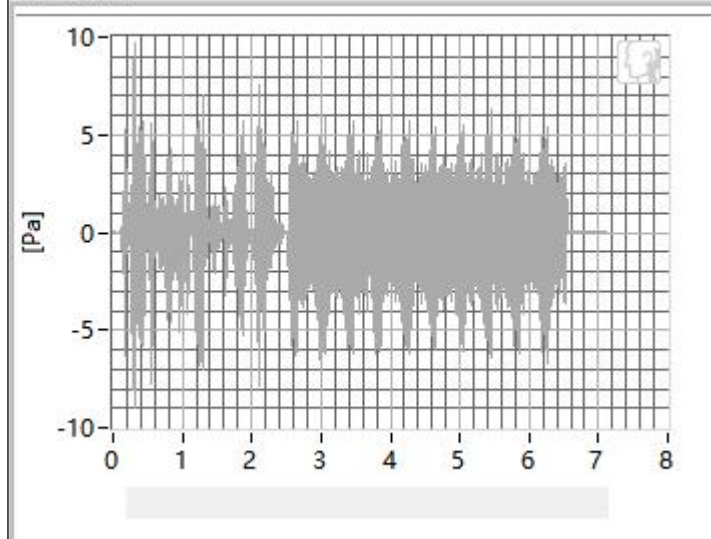
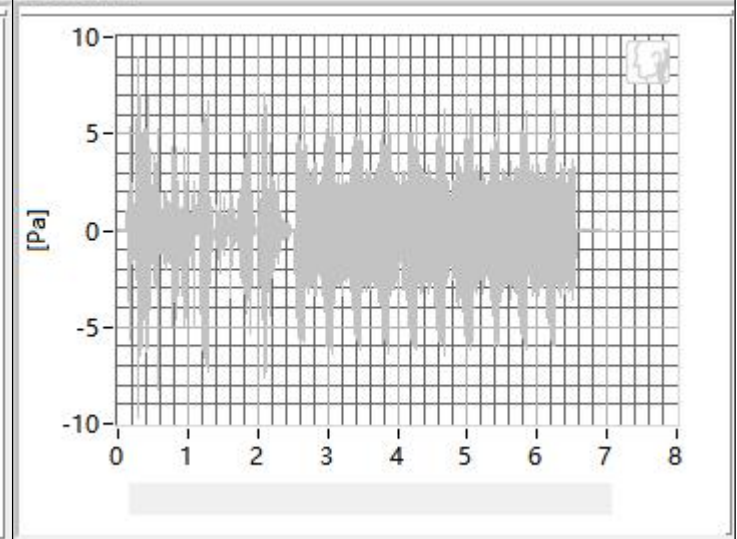


| Frequency | SDNR     | Frequency | SDNR     |
|-----------|----------|-----------|----------|
| 250Hz     | 27.54 dB | 1250Hz    | 23.92 dB |
| 315Hz     | 29.31 dB | 1600Hz    | 24.51 dB |
| 400Hz     | 30.89 dB | 2000Hz    | 21.25 dB |
| 500Hz     | 32.54 dB | 2500Hz    | 23.60 dB |
| 630Hz     | 32.18 dB | 3150Hz    | 27.05 dB |
| 800Hz     | 28.67 dB | 4000Hz    | 28.80 dB |
| 1000Hz    | 27.23dB  | 5000Hz    | 21.55 dB |

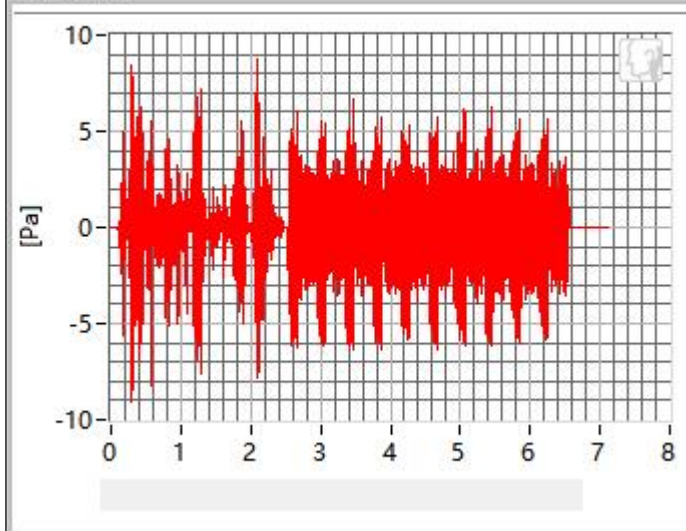
All SDNRs were greater than 20.0 dB, requirement was met. Smallest SDNR was 21.25 dB at 2000 Hz.

### 3.2 Receive Distortion and Noise 2N WB

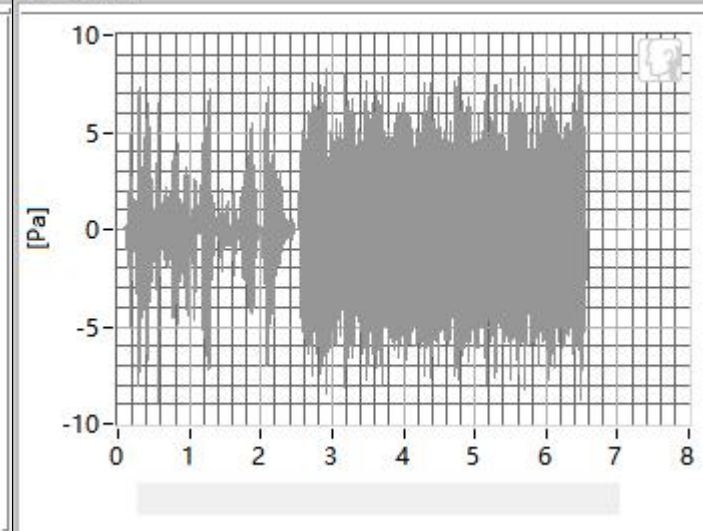


**630Hz****800Hz****1000Hz****1250Hz**

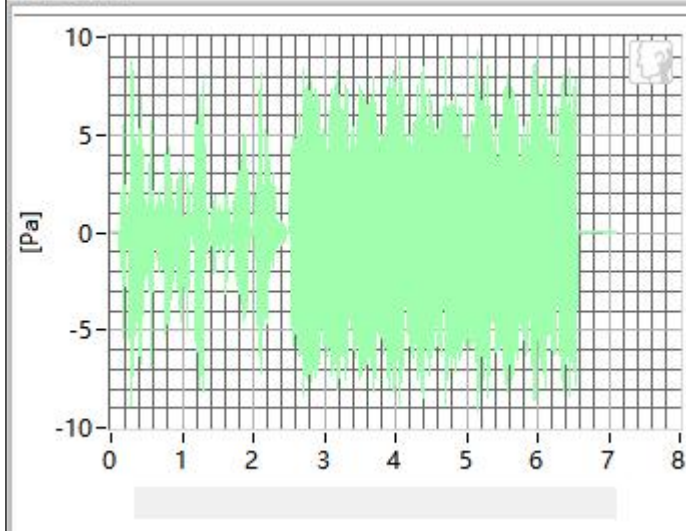
1600Hz



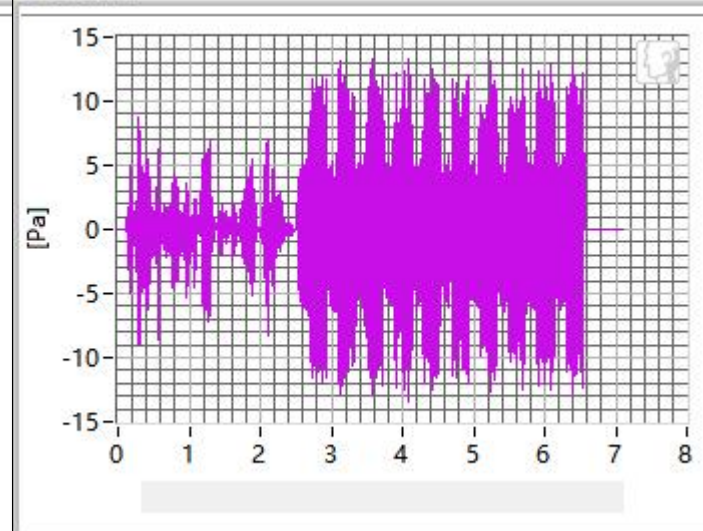
2000Hz



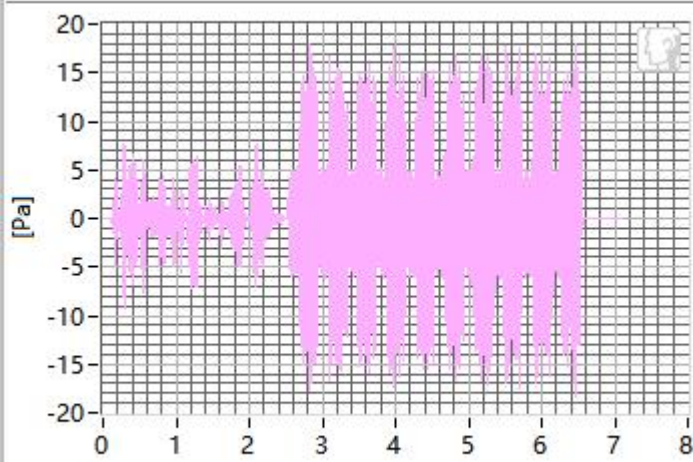
2500Hz



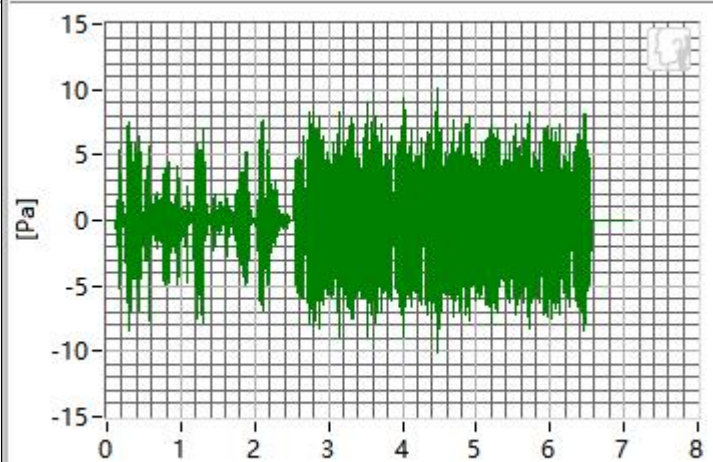
3150Hz



4000Hz



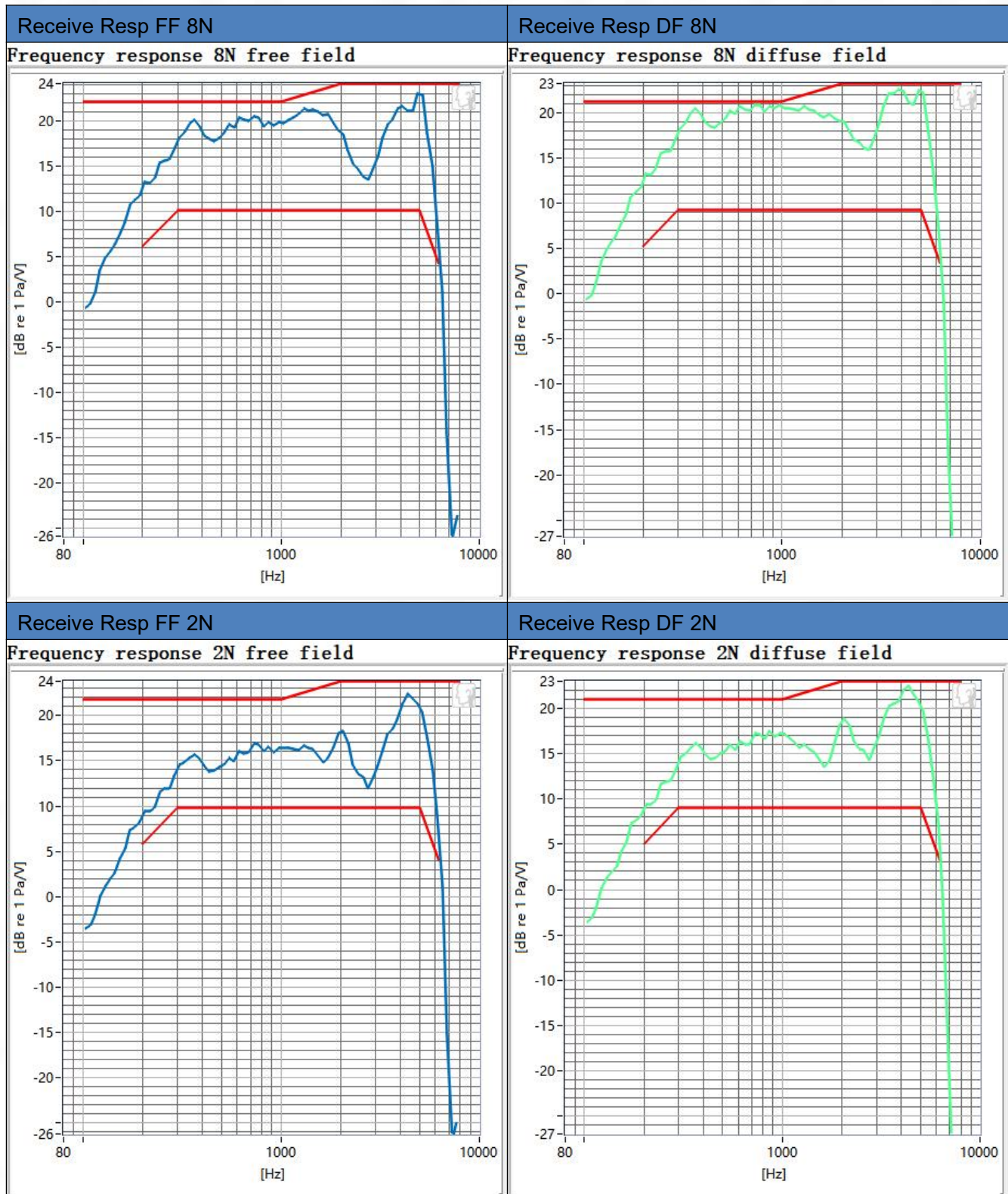
5000Hz



| Frequency | SDNR     | Frequency | SDNR     |
|-----------|----------|-----------|----------|
| 250Hz     | 26.59 dB | 1250Hz    | 23.70 dB |
| 315Hz     | 29.94 dB | 1600Hz    | 22.96 dB |
| 400Hz     | 29.51 dB | 2000Hz    | 24.31 dB |
| 500Hz     | 31.72 dB | 2500Hz    | 23.38 dB |
| 630Hz     | 31.13 dB | 3150Hz    | 27.85 dB |
| 800Hz     | 28.44 dB | 4000Hz    | 28.42 dB |
| 1000Hz    | 28.41 dB | 5000Hz    | 21.14 dB |

All SDNRs were greater than 20.0 dB, requirement was met. Smallest SDNR was 21.14 dB at 5000Hz.

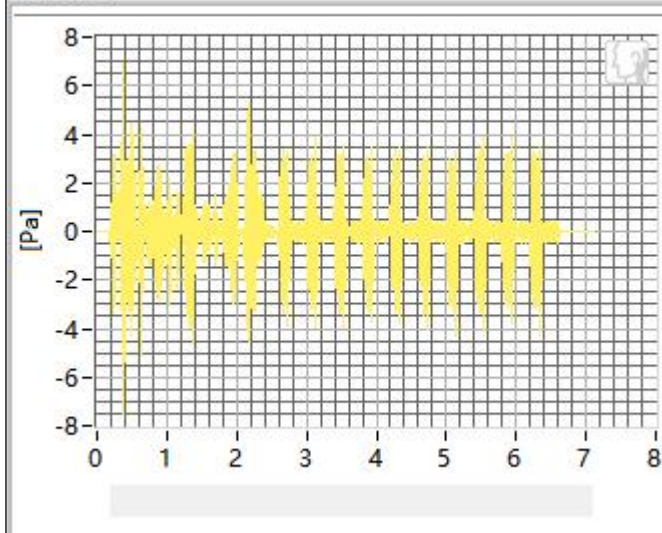
### 3.3 Receive Frequency Response



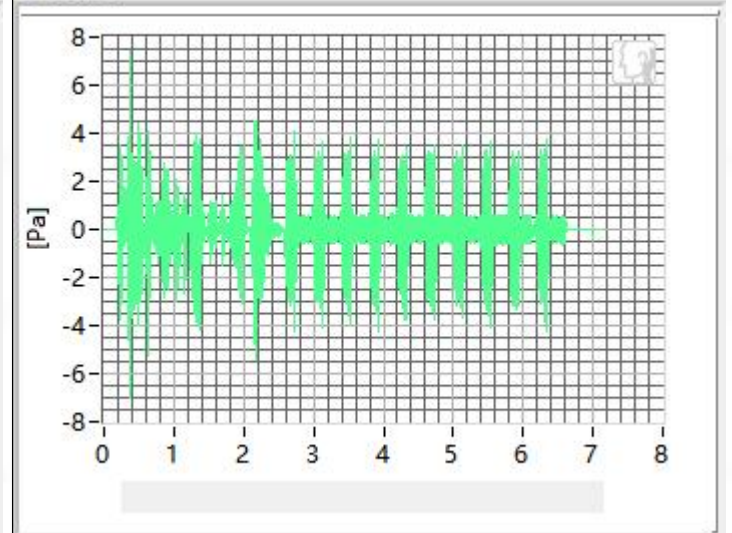
## 4. NR Band 7 in channel 511000

### 4.1 Receive Distortion and Noise 8N WB

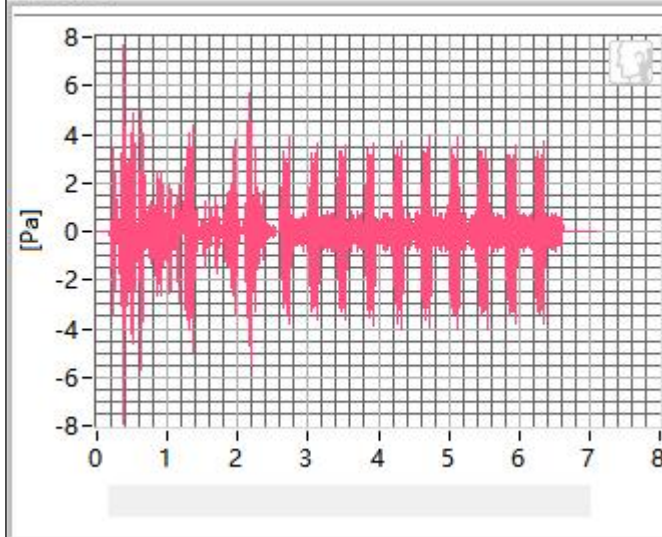
250Hz



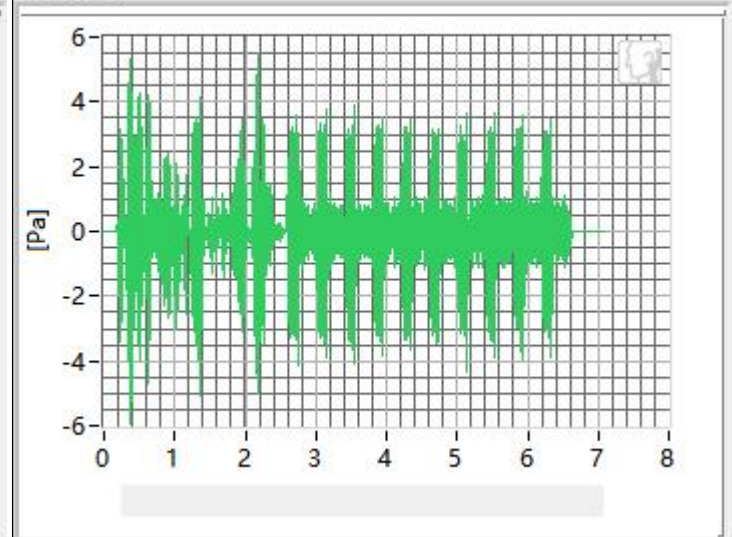
315Hz

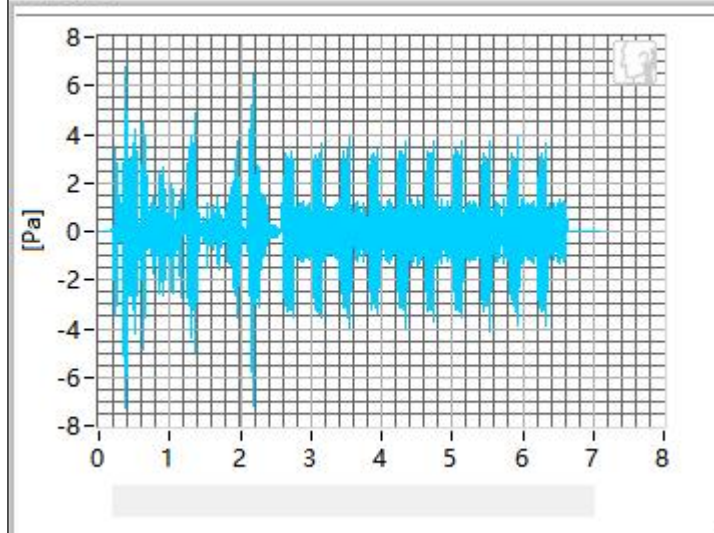
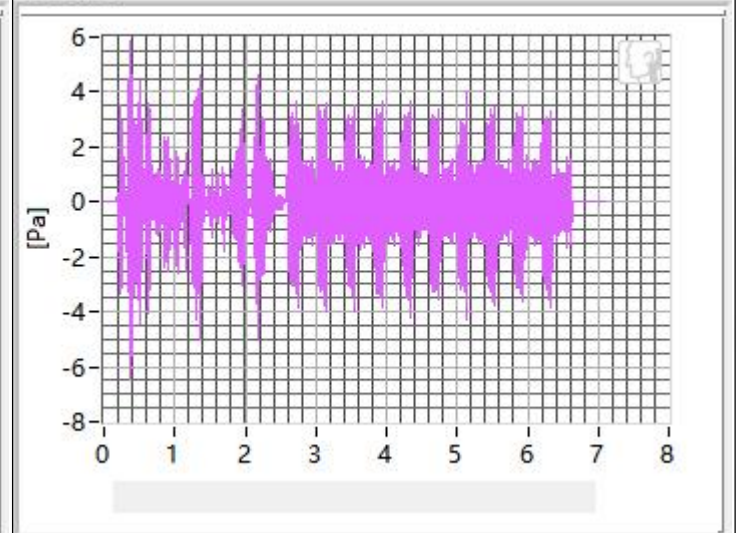
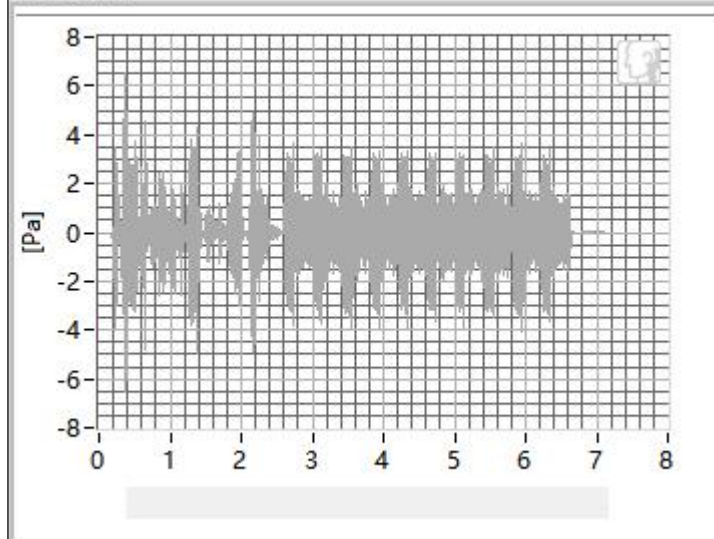
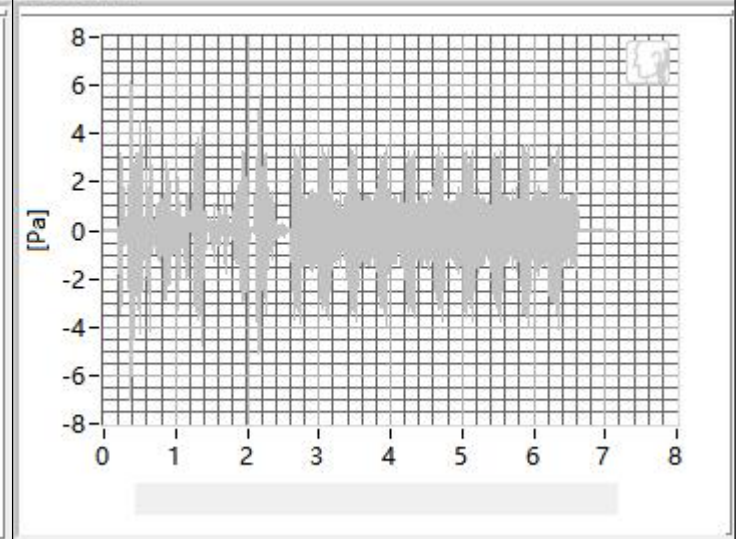


400Hz

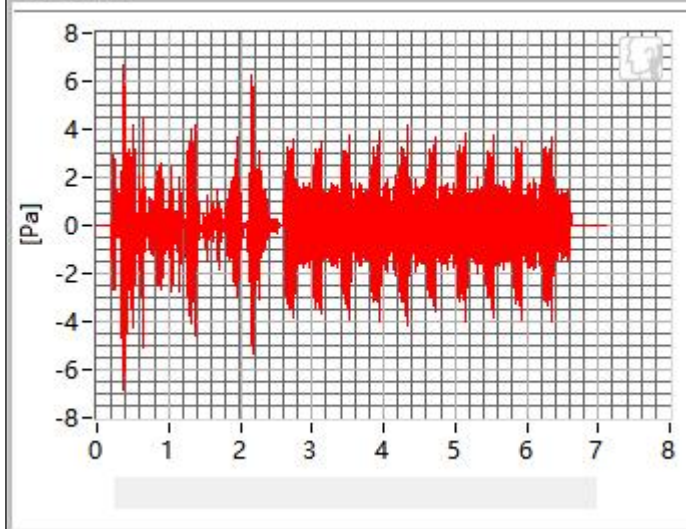


500Hz

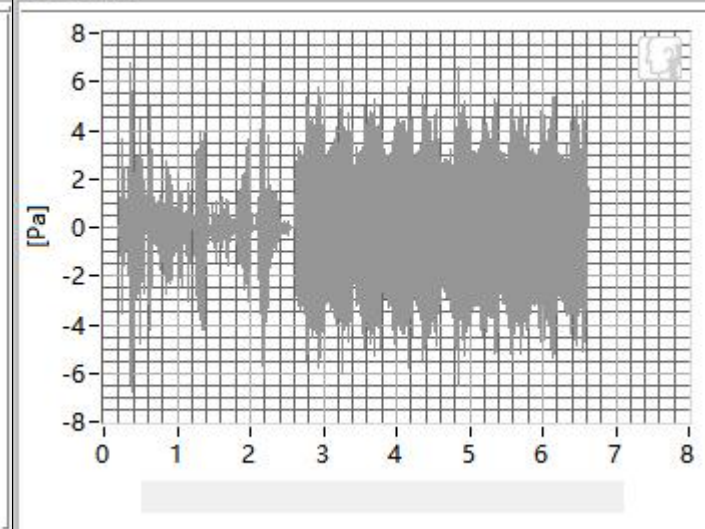


**630Hz****800Hz****1000Hz****1250Hz**

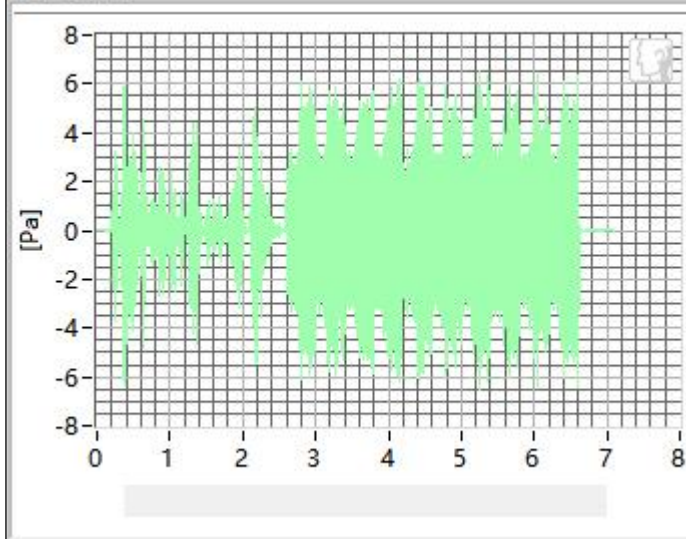
1600Hz



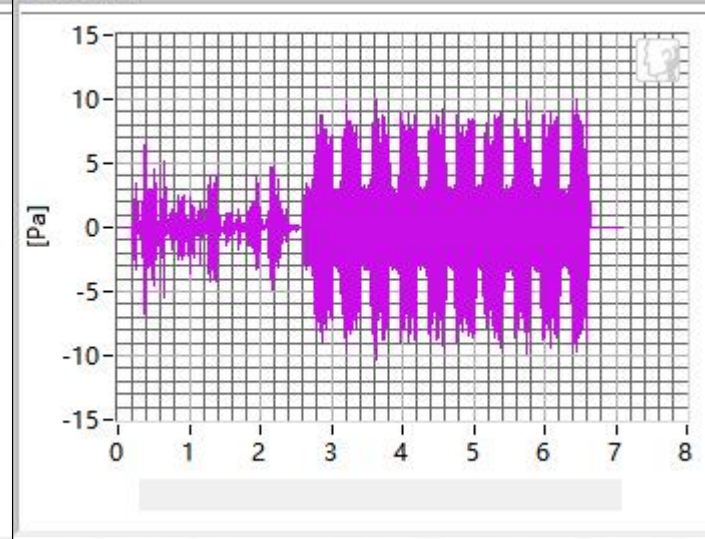
2000Hz



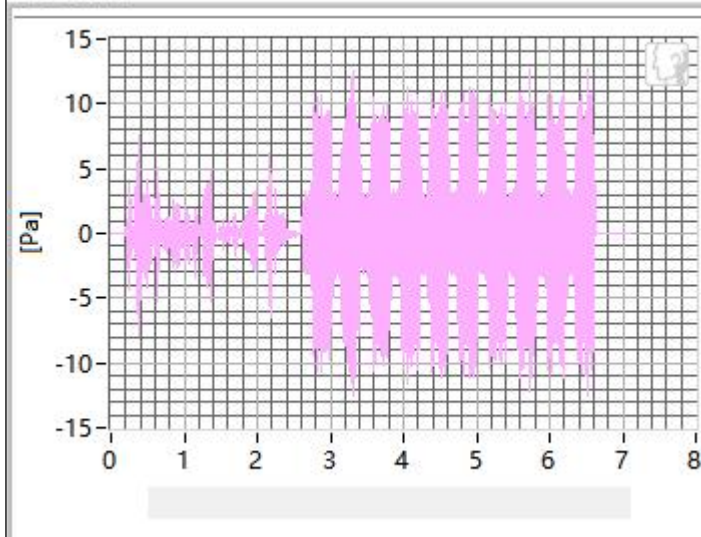
2500Hz



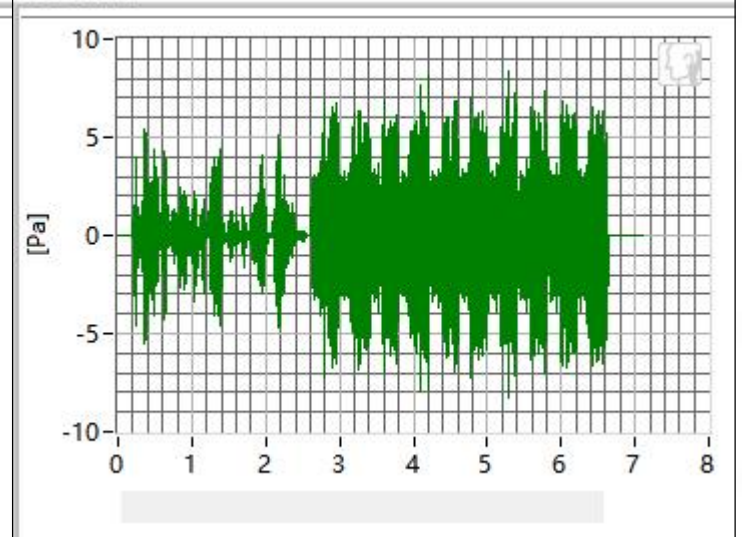
3150Hz



4000Hz



5000Hz

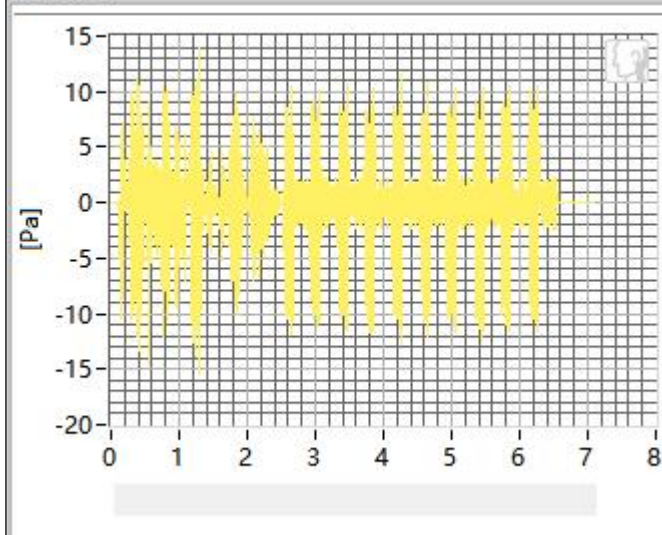


| Frequency | SDNR     | Frequency | SDNR     |
|-----------|----------|-----------|----------|
| 250Hz     | 27.73 dB | 1250Hz    | 23.11 dB |
| 315Hz     | 28.29 dB | 1600Hz    | 25.39 dB |
| 400Hz     | 28.19 dB | 2000Hz    | 23.49 dB |
| 500Hz     | 30.56 dB | 2500Hz    | 24.59 dB |
| 630Hz     | 30.45 dB | 3150Hz    | 26.91 dB |
| 800Hz     | 28.59 dB | 4000Hz    | 30.86 dB |
| 1000Hz    | 26.42 dB | 5000Hz    | 21.36 dB |

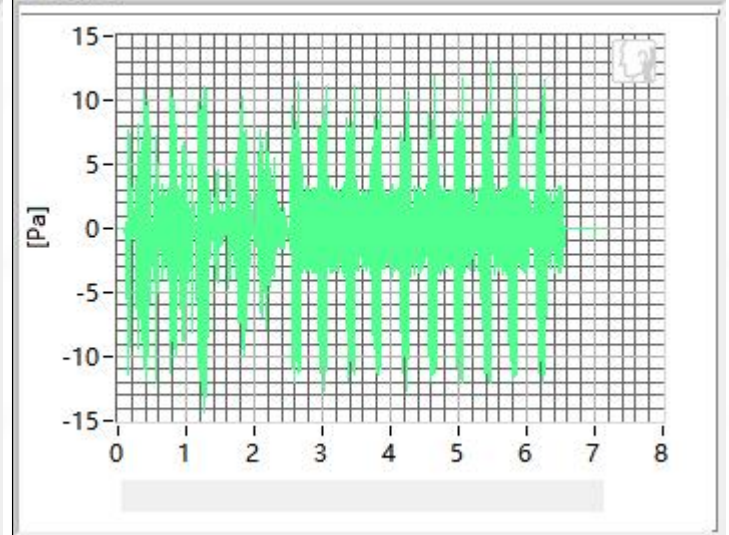
All SDNRs were greater than 20.0 dB, requirement was met. Smallest SDNR was 21.36 dB at 5000Hz.

## 4.2 Receive Distortion and Noise 2N WB

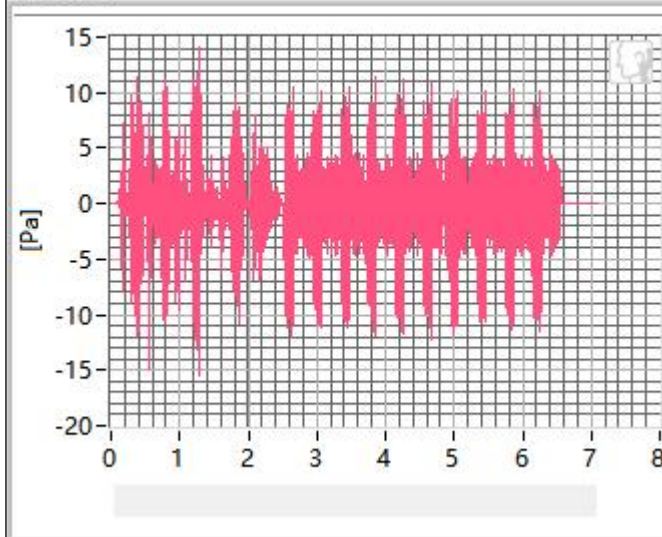
250Hz



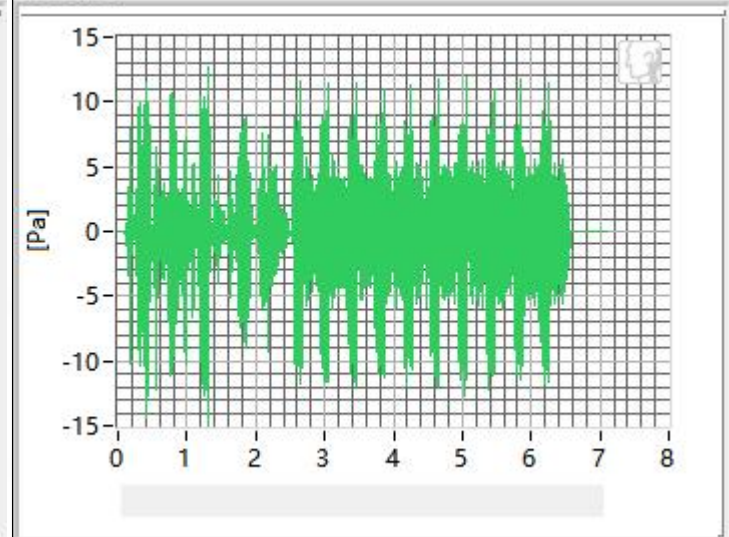
315Hz



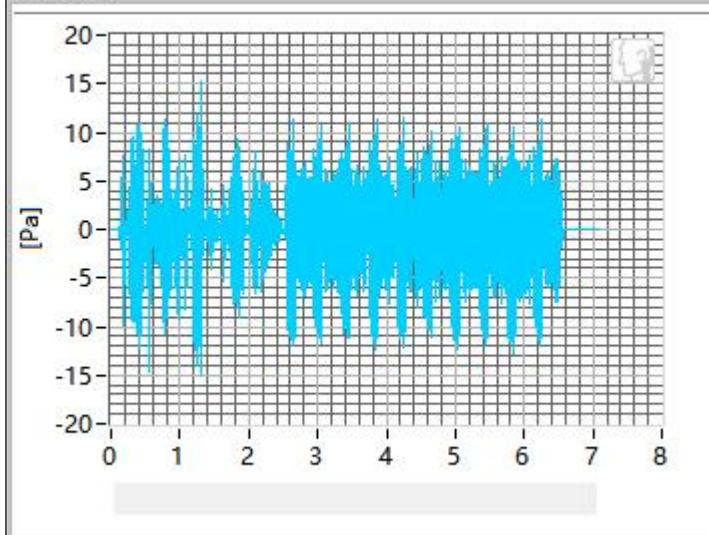
400Hz



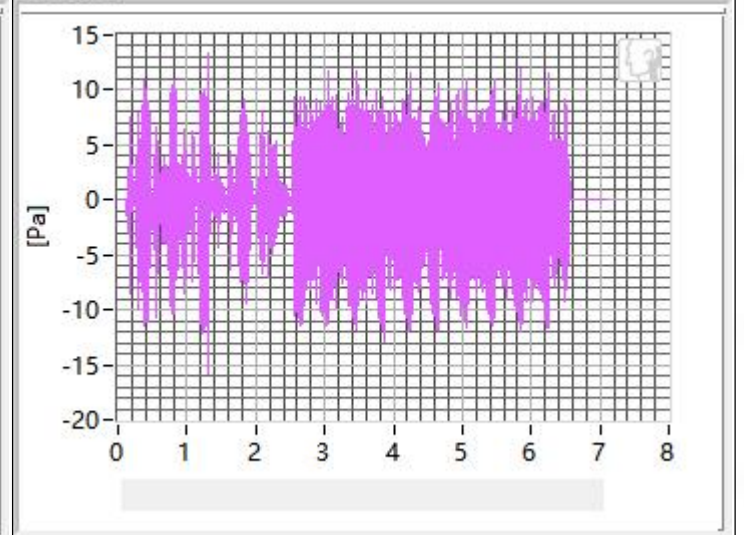
500Hz



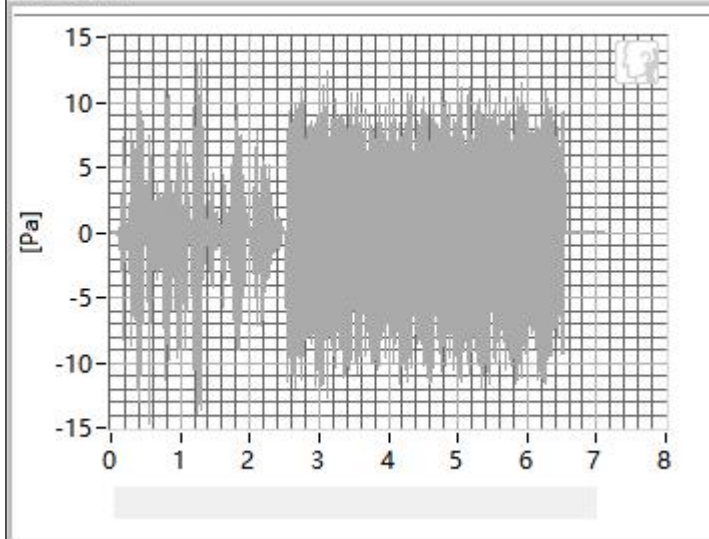
630Hz



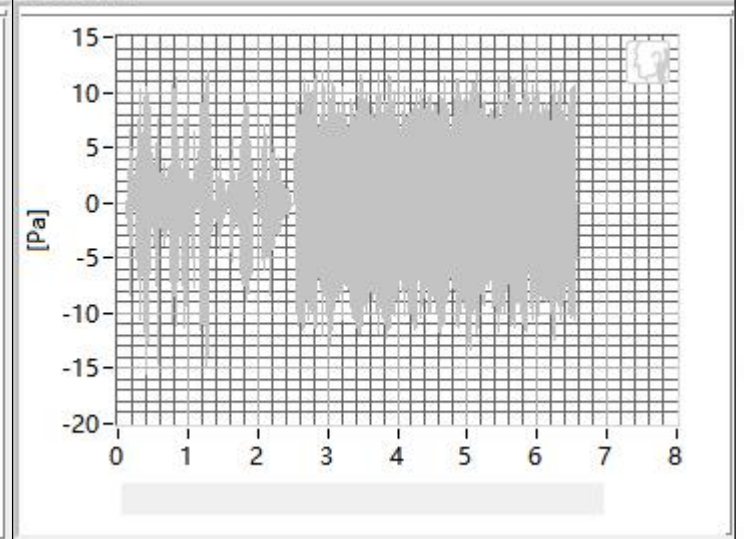
800Hz



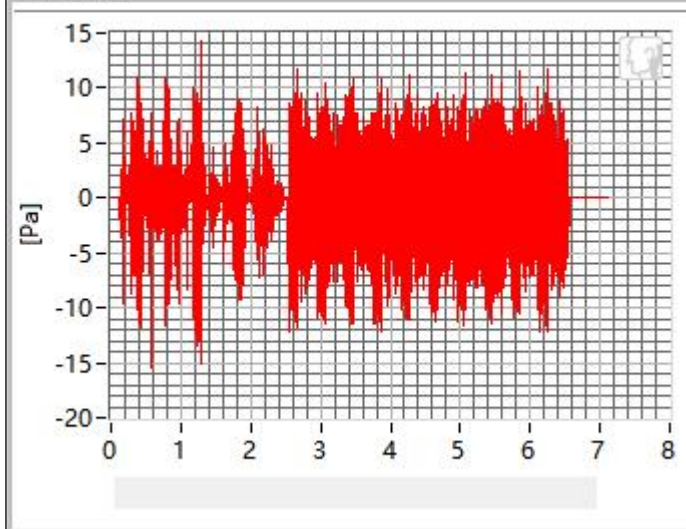
1000Hz



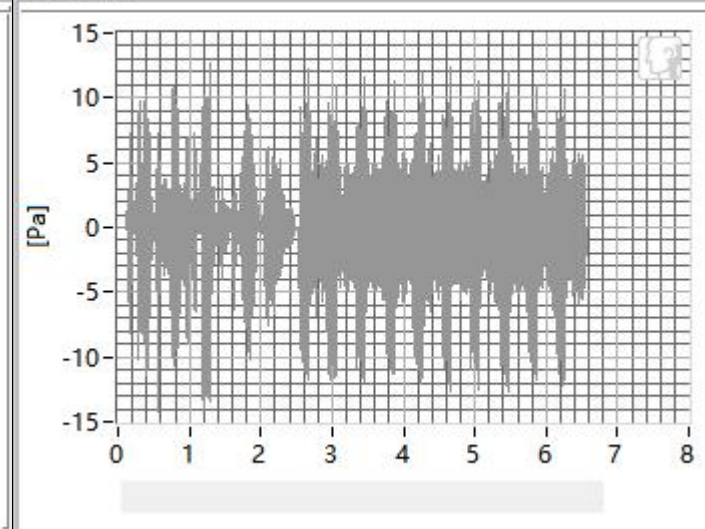
1250Hz



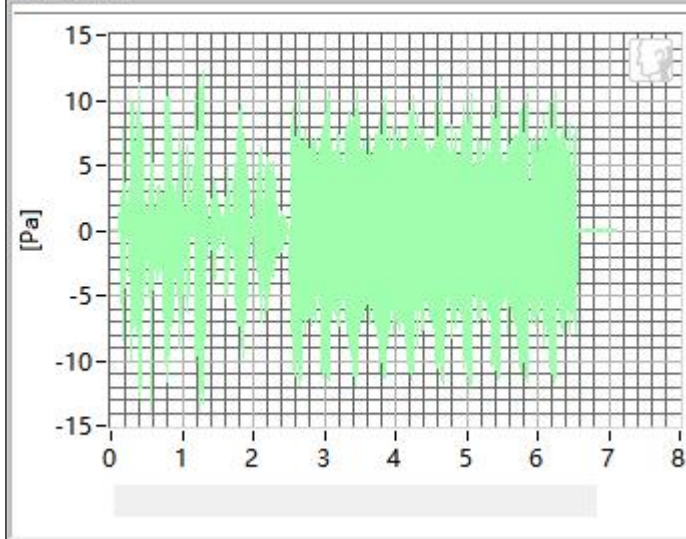
1600Hz



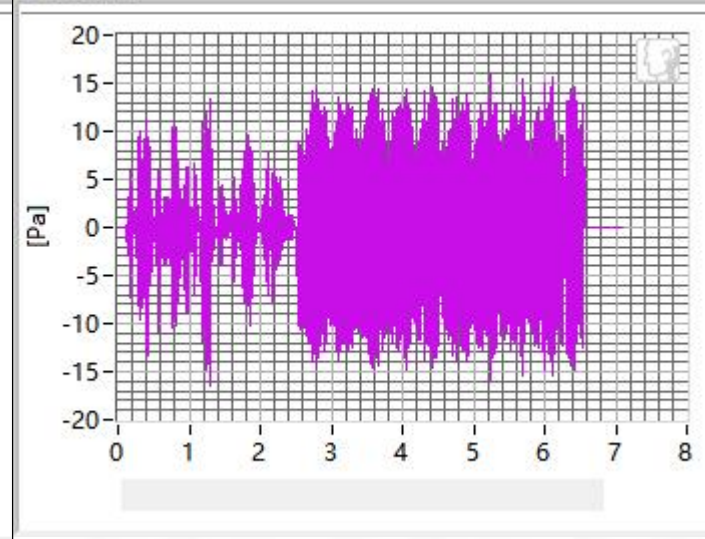
2000Hz



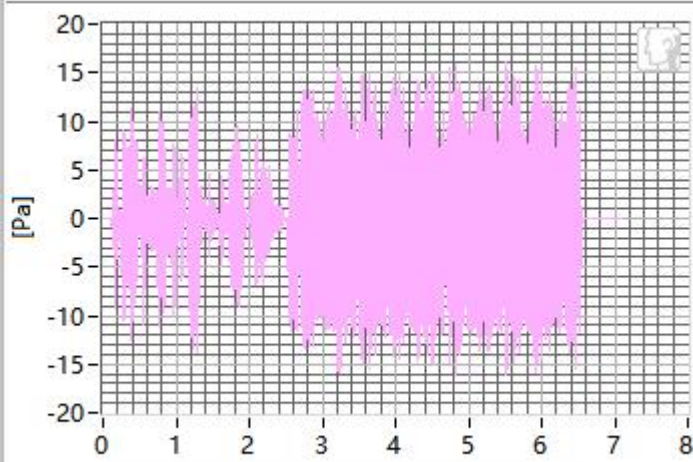
2500Hz



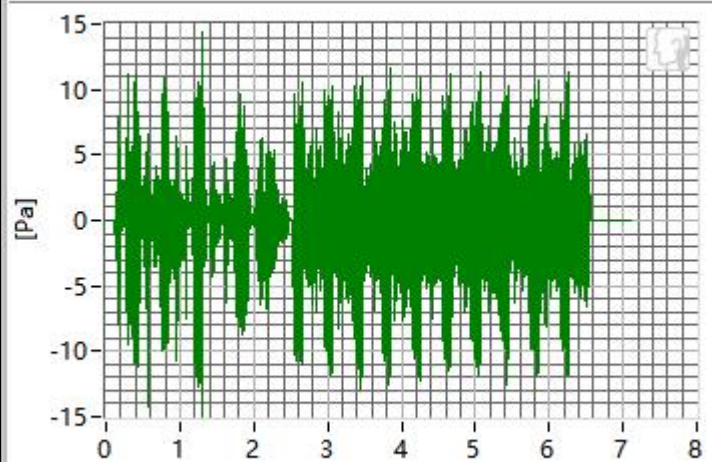
3150Hz



4000Hz



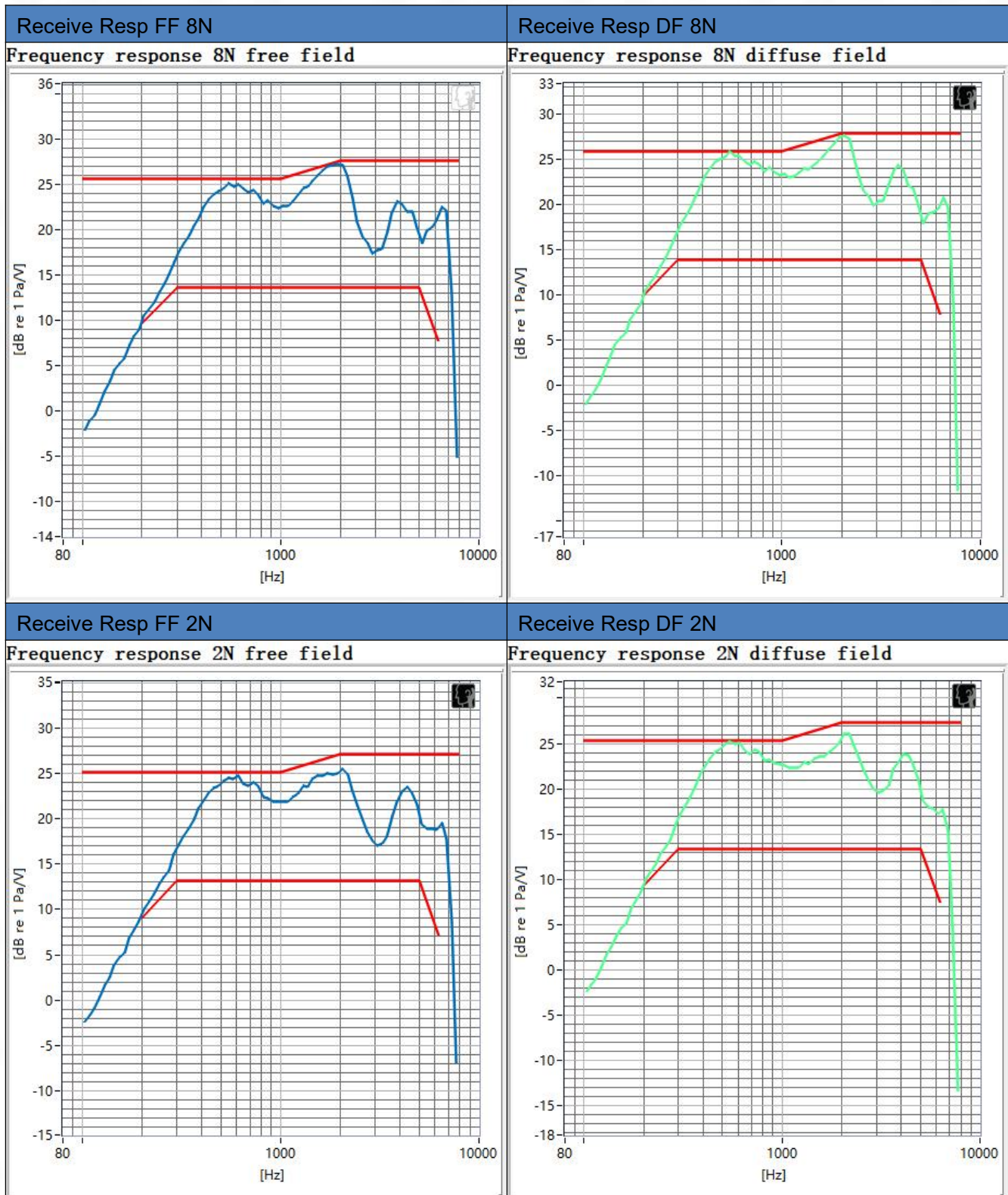
5000Hz



| Frequency | SDNR     | Frequency | SDNR     |
|-----------|----------|-----------|----------|
| 250Hz     | 28.22 dB | 1250Hz    | 23.45 dB |
| 315Hz     | 28.15 dB | 1600Hz    | 24.95 dB |
| 400Hz     | 27.95 dB | 2000Hz    | 24.33 dB |
| 500Hz     | 31.61 dB | 2500Hz    | 25.38 dB |
| 630Hz     | 30.58 dB | 3150Hz    | 26.48 dB |
| 800Hz     | 28.78 dB | 4000Hz    | 28.62 dB |
| 1000Hz    | 28.16 dB | 5000Hz    | 20.32 dB |

All SDNRs were greater than 20.0 dB, requirement was met. Smallest SDNR was 20.32 dB at 5000Hz.

### 4.3 Receive Frequency Response



## ANNEX B Test Setup Photo

Please refer the document “ANNEX B Test Setup Photo\_VC.pdf”.

## ANNEX C CALIBRATION REPORT

Please refer the document “CALIBRATION REPORT.pdf”.



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**--END OF REPORT--**