

## TEST REPORT

Test Report No.: 1-8286-23-01-06\_TR1-R01



### Testing Laboratory

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**Accredited Testing Laboratory:**

The testing laboratory (area of testing) is accredited according to DIN EN ISO/IEC 17025 (2018-03) by the Deutsche Akkreditierungsstelle GmbH (DAkkS).

The accreditation is valid for the scope of testing procedures as stated in the accreditation certificate with the registration number: D-PL-12047-01-00.

ISED Testing Laboratory Recognized Listing Number: DE0001

FCC designation number: DE0002

### Applicant

**Gigaset Technologies GmbH**

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46395 Bocholt/GERMANY

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### Manufacturer

**Gigaset Technologies GmbH**

Frankenstr. 2

46395 Bocholt/GERMANY

### Test standard/s

**CS-03, Part V, Issue 9,  
Amendment 3 August 2021**

**Requirements and Test Methods for Magnetic Output from Handset Telephones for  
Hearing Aid Coupling and for Receive Volume Control**

**FCC - Title 47 CFR Part 68**

**Subpart D, Conditions for Terminal Equipment Approval,  
§ 68.316 Hearing aid compatibility: Technical Requirements,  
§ 68.317 Hearing aid compatibility volume control: technical standards**

### Product

**Kind of product:** DECT Device (PP)

**Product name:** Gigaset S700H PRO US



### Test report authorised:



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## 1 Table of contents

|         |                                       |    |
|---------|---------------------------------------|----|
| 1       | Table of contents.....                | 2  |
| 2       | General information.....              | 3  |
| 3       | Test standard/s .....                 | 3  |
| 4       | Test environment .....                | 4  |
| 5       | Test laboratories sub-contracted..... | 4  |
| 6       | Test setup .....                      | 5  |
| 7       | Information about product .....       | 9  |
| 8       | Summary of measurement results .....  | 10 |
| 9       | Detailed test results.....            | 11 |
| 10      | Observations.....                     | 24 |
| Annex A | Photographs of the test set-up .....  | 25 |
| Annex B | Photographs of the EUT.....           | 27 |
| Annex C | Document history .....                | 28 |
| Annex D | Further information .....             | 28 |

## 2 General information

### 2.1 Notes and disclaimer

The test results of this test report relate exclusively to the test item specified in this test report. cetecom advanced GmbH does not assume responsibility for any conclusions and generalizations drawn from the test results with regard to other specimens or samples of the type of the equipment represented by the test item.

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### 2.2 Application details

|                                    |            |
|------------------------------------|------------|
| Date of receipt of order:          | 2024-12-10 |
| Date of receipt of test item:      | 2025-01-02 |
| Start of test:                     | 2025-01-09 |
| End of test:                       | 2025-01-15 |
| Person(s) present during the test: | %          |

## 3 Test standard/s

| Test standard                                   | Version    | Test standard description                                                                                                                                                                 |
|-------------------------------------------------|------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| CS-03, Part V, Issue 9, Amendment 3 August 2021 | 01.08.2021 | Requirements and Test Methods for Magnetic Output from Handset Telephones for Hearing Aid Coupling and for Receive Volume Control                                                         |
| FCC - Title 47 CFR Part 68                      |            | Subpart D, Conditions for Terminal Equipment Approval, § 68.316 Hearing aid compatibility: Technical Requirements, § 68.317 Hearing aid compatibility volume control: technical standards |

#### 4 Test environment

|                            |               |
|----------------------------|---------------|
| Temperature:               | 18-28°C       |
| Relative humidity content: | 10-80%        |
| Atmospheric pressure:      | 813-1063hPa   |
| Power supply:              | 230 V / 50 Hz |

#### 5 Test laboratories sub-contracted

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## 6 Test setup

### 6.1 Used Equipment

Diagram for acoustic measurements:

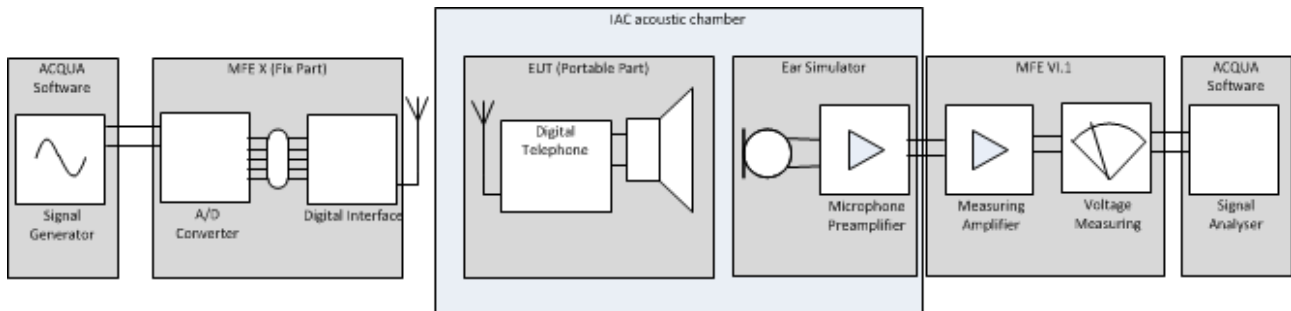
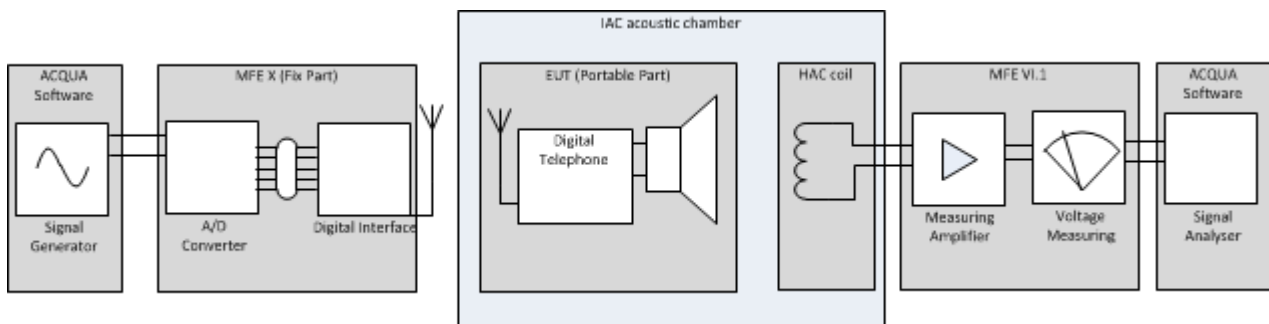


Diagram for inductive measurements:



Software:

| No. | Name  | Manufacturer  | Version |
|-----|-------|---------------|---------|
| 1   | ACQUA | HEADacoustics | 4.0.200 |

**Hardware:**

| No. | Equipment                       | Manufacturer                           | Type        | Serial-No. | Kind of Calib. | Last Calib. | Next Calib. |
|-----|---------------------------------|----------------------------------------|-------------|------------|----------------|-------------|-------------|
| 1   | HATS                            | HEADacoustics                          | HMS II.3    | 12306143   | Vlkl!          | 2020-09-28  | 2025-09-27  |
| 2   | Analog USB Front End            | HEADacoustics                          | MFE VI.1    | 64626004   | vlkl!          | 2023-12-05  | 2025-12-05  |
| 3   | Digital Front End for DECT      | HEADacoustics                          | MFE X       | 64680007   | ne             | --          | --          |
| 4   | HAC Probe - Axial               | Communication Certification Laboratory | Model A-100 | 0123       | ne             | --          | --          |
| 5   | HAC Probe - Radial              | Communication Certification Laboratory | Model R-100 | 0123       | ne             | --          | --          |
| 6   | Audio Analyzer                  | Rohde & Schwarz                        | UPV         | 104301     | k              | 2024-01-10  | 2026-01-10  |
| 7   | Audio Magnetic Calibration Coil | Schmid & Partner                       | AMCC        | 1007       | ne             | --          | --          |

**Agenda:** Kind of Calibration

k calibration / calibrated  
 ne not required (k, ev, izw, zw not required)  
 ev periodic self verification  
 Ve long-term stability recognized  
 vlkl! Attention: extended calibration interval  
 NK! Attention: not calibrated

EK limited calibration  
 zw cyclical maintenance (external cyclical maintenance)  
 izw internal cyclical maintenance  
 g blocked for accredited testing  
 \*) next calibration ordered / currently in progress

## 6.2 Measurement uncertainty (MU) budgets

### 6.2.1 MU budget for 0dB Pa adjustment and maximum gain measurement

| Symbol                                           | Source $X_i$                                               | $U(x_i)$ in dB | Distribution | Divisor | $u(x_i)$ in dB | $c_i$ | $c_i u_i(y)$ | $c_i^2 u_i(y)^2$ |
|--------------------------------------------------|------------------------------------------------------------|----------------|--------------|---------|----------------|-------|--------------|------------------|
| $K_{mic\_offset}$                                | Correction value of the analyzer for dB (SPL/V) correction | 0.00           | Normal       | 2       | 0.000          | 1     | 0.000        | 0.000            |
| $K_{ear}$                                        | Correction value for ear simulator                         | 0.1            | Normal       | 2       | 0.05           | 1     | 0.05         | 0.003            |
| $L_{Va}$                                         | Voltage level analyzer                                     | 0.05           | Normal       | 2       | 0.025          | 1     | 0.025        | 0.001            |
| $L_{Vg}$                                         | Voltage level generator                                    | 0.05           | Normal       | 2       | 0.025          | 1     | 0.025        | 0.001            |
| $\sum c_i^2 u_i(y)^2$                            |                                                            |                |              |         |                |       |              | 0.004            |
| $u(y) = \sqrt{\sum c_i^2 u_i(y)^2}$              |                                                            |                |              |         |                |       |              | 0.061            |
| <b>Expanded MU</b><br>$U = u(y) \times k, k = 2$ |                                                            |                |              |         |                |       |              | <b>0.122 dB</b>  |

### 6.2.2 MU budget for magnetic field measurement

| Symbol                                           | Source $X_i$                  | $U(x_i)$ in dB | Distribution | Divisor | $u(x_i)$ in dB | $c_i$ | $c_i u_i(y)$ | $c_i^2 u_i(y)^2$ |
|--------------------------------------------------|-------------------------------|----------------|--------------|---------|----------------|-------|--------------|------------------|
| $K_{ind\_offset}$                                | Correction value for HAC coil | 0.13           | Normal       | 2       | 0.065          | 1     | 0.065        | 0.004            |
| $L_{Va}$                                         | Voltage level analyzer        | 0.05           | Normal       | 2       | 0.025          | 1     | 0.025        | 0.001            |
| $L_{Vg}$                                         | Voltage level generator       | 0.05           | Normal       | 2       | 0.025          | 1     | 0.025        | 0.001            |
| $\sum c_i^2 u_i(y)^2$                            |                               |                |              |         |                |       |              | 0.005            |
| $u(y) = \sqrt{\sum c_i^2 u_i(y)^2}$              |                               |                |              |         |                |       |              | 0.074            |
| <b>Expanded MU</b><br>$U = u(y) \times k, k = 2$ |                               |                |              |         |                |       |              | <b>0.148 dB</b>  |

### 6.3 Used Artificial Ears

#### HATS (Head and Torso Simulator):

|                                                                            |   |
|----------------------------------------------------------------------------|---|
| Ear Type 3.3: IEC 60711 + Pinna simulator (anatomically shaped)            | ✓ |
| Ear Type 3.4: IEC 60711 + Pinna simulator (simplified anatomically shaped) |   |

### 6.4 Used Audio Codec(s)

#### Narrowband:

|             |   |
|-------------|---|
| G.711 a-law |   |
| G.711 u-law |   |
| G.726       | ✓ |
| G.729       |   |

#### Wideband:

|         |  |
|---------|--|
| G.722   |  |
| G.729.1 |  |

### 6.5 HAC probe verification

The HAC probes were validated with a Schmid & Partner AMCC Audio Magnetic Calibration Coil in combination with a Rohde & Schwarz UPV audio analyzer.

| Probe Type | Reference Field Strength | Probe Sensitivity |
|------------|--------------------------|-------------------|
| A-100      | 1 A/m                    | -59.6 dBV / (A/m) |
| R-100      | 1 A/m                    | -59.6 dBV / (A/m) |

## 7 Information about product

|                                       |                           |     |    |
|---------------------------------------|---------------------------|-----|----|
| Kind of product:                      | DECT Device (PP)          |     |    |
| Test Item:                            | Gigaset S700H PRO US      |     |    |
| Serial number:                        | HAC sample                |     |    |
| Hardware version:                     | -/-                       |     |    |
| Software version:                     | -/-                       |     |    |
| MECRP                                 | delta from ECRP           |     |    |
|                                       | y-axis                    | 0mm |    |
|                                       | x-axis                    | 0mm |    |
| Angle settings                        | delta from standard angle |     |    |
|                                       | A                         |     | 0° |
|                                       | B                         |     | 0° |
|                                       | C                         |     | 0° |
| Application force                     | 10 N                      |     |    |
| Operating mode:                       |                           |     |    |
| Narrow band call has been established |                           |     |    |
| Additional information:               |                           |     |    |
| -/-                                   |                           |     |    |

## 8 Summary of measurement results

|                                     |                                                                         |
|-------------------------------------|-------------------------------------------------------------------------|
| <input checked="" type="checkbox"/> | <b>No deviations from the technical specifications were ascertained</b> |
| <input type="checkbox"/>            | There were deviations from the technical specifications ascertained     |

### 8.1 Requirements Table

| No | Test description                            | Reference<br>CS-03 Part V | Reference<br>FCC part 68 | Selected | Verdict     |
|----|---------------------------------------------|---------------------------|--------------------------|----------|-------------|
| 1  | Axial Field intensity                       | 8.1.1                     | § 68.316                 | ✓        | PASS        |
| 2  | Radial Field intensity                      | 8.1.2                     | § 68.316                 | ✓        | PASS        |
| 3  | Magnetic Field Intensity Frequency Response | 8.1.3                     | § 68.316                 | ✓        | PASS        |
| 4  | Telephone Receive Volume Control            | 9.1                       | § 68.317                 | ✓        | PASS        |
|    | <b>Total</b>                                |                           |                          |          | <b>PASS</b> |

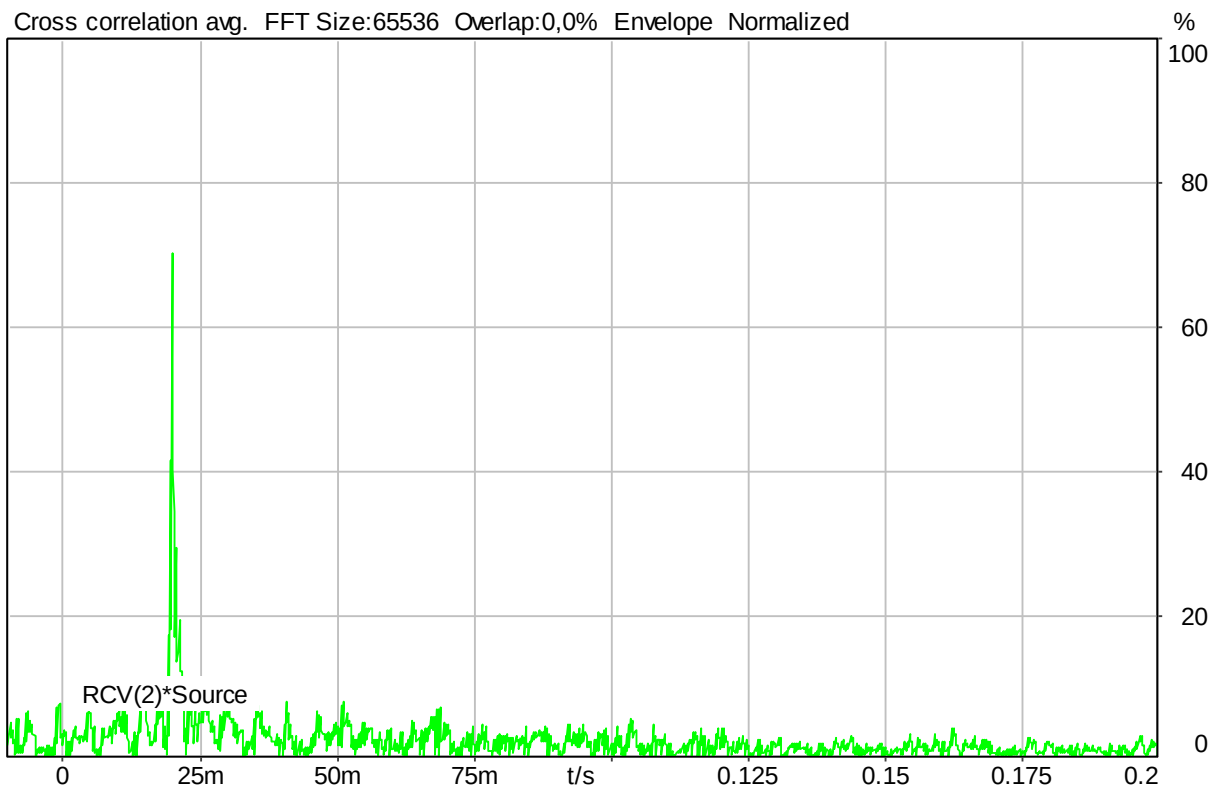
## 9 Status Overview

| SMD                                         | Status | Single Value Description                     | Single Value |
|---------------------------------------------|--------|----------------------------------------------|--------------|
| Delay in Receiving Direction                | Done   | Delay (Cross) [ms]                           | 20.3         |
| Ref_Gain                                    | Done   | Calculated Value                             | -6.40        |
| Reference Measurement 0 dBPa                | Done   | Level [dBPa]. 0                              | 0.06         |
| 8.1.1 Axial Field Intensity                 | Ok     | Level [dBV]. 0                               | -13.94       |
| 8.1.2 Radial Field Intensity 0 Degree       | Ok     | Level [dBV]. 0                               | -23.36       |
| 8.1.2 Radial Field Intensity 90 Degree      | Ok     | Level [dBV]. 0                               | -22.58       |
| 8.1.2 Radial Field Intensity 180 Degree     | Ok     | Level [dBV]. 0                               | -23.78       |
| 8.1.2 Radial Field Intensity 270 Degree     | Ok     | Level [dBV]. 0                               | -25.05       |
| 8.1.3 Magnetic Field Response $\geq -19$ dB | Done   | Max. Peak value [dB[V]]. 3351.6 Hz           | -26.33       |
| 8.1.3 Magnetic Field Response rel. to 1kHz  | Ok     | Min. dist. to tolerance scheme [V], 984,4 Hz | 2.05         |
| 9.1 max. Conversational Gain                | Ok     | Corrected value [dB20 $\mu$ Pa]. 0           | 21.97        |

## 10 Detailed test results

|                                                   |    |
|---------------------------------------------------|----|
| Delay in Receiving Direction .....                | 13 |
| Ref_Gain .....                                    | 14 |
| Reference Measurement 0 dBPa .....                | 15 |
| 8.1.1 Axial Field Intensity .....                 | 16 |
| 8.1.2 Radial Field Intensity 0 Degree.....        | 17 |
| 8.1.2 Radial Field Intensity 90 Degree.....       | 18 |
| 8.1.2 Radial Field Intensity 180 Degree.....      | 19 |
| 8.1.2 Radial Field Intensity 270 Degree.....      | 20 |
| 8.1.3 Magnetic Field Response $\geq -19$ dB ..... | 21 |
| 8.1.3 Magnetic Field Response rel. to 1kHz .....  | 22 |
| 9.1 max. Conversational Gain .....                | 23 |

## Delay in Receiving Direction



Delay (Cross): 20,3 ms

## **Ref Gain**

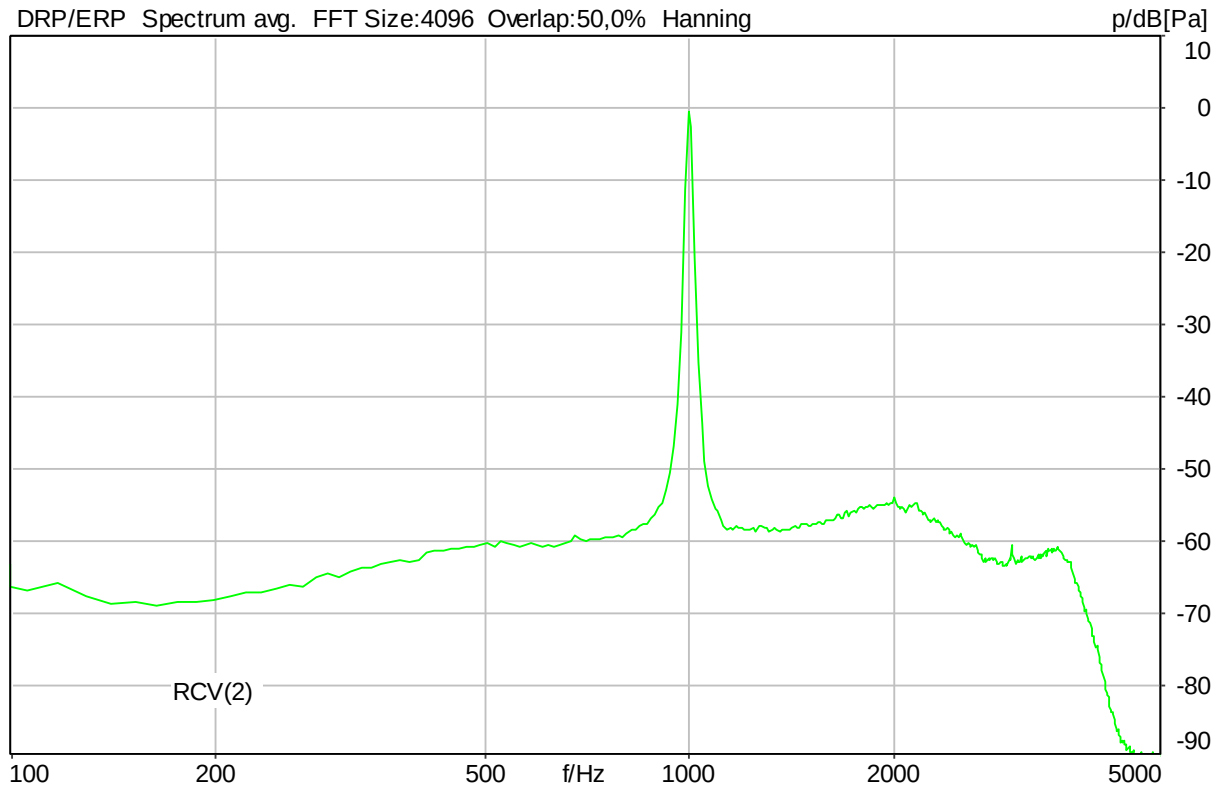
### **Correction**

|          |        |            |              |  |
|----------|--------|------------|--------------|--|
| Ref Gain | -6.400 | 09.01.2025 | User defined |  |
|----------|--------|------------|--------------|--|

Calculated Value: -6.4

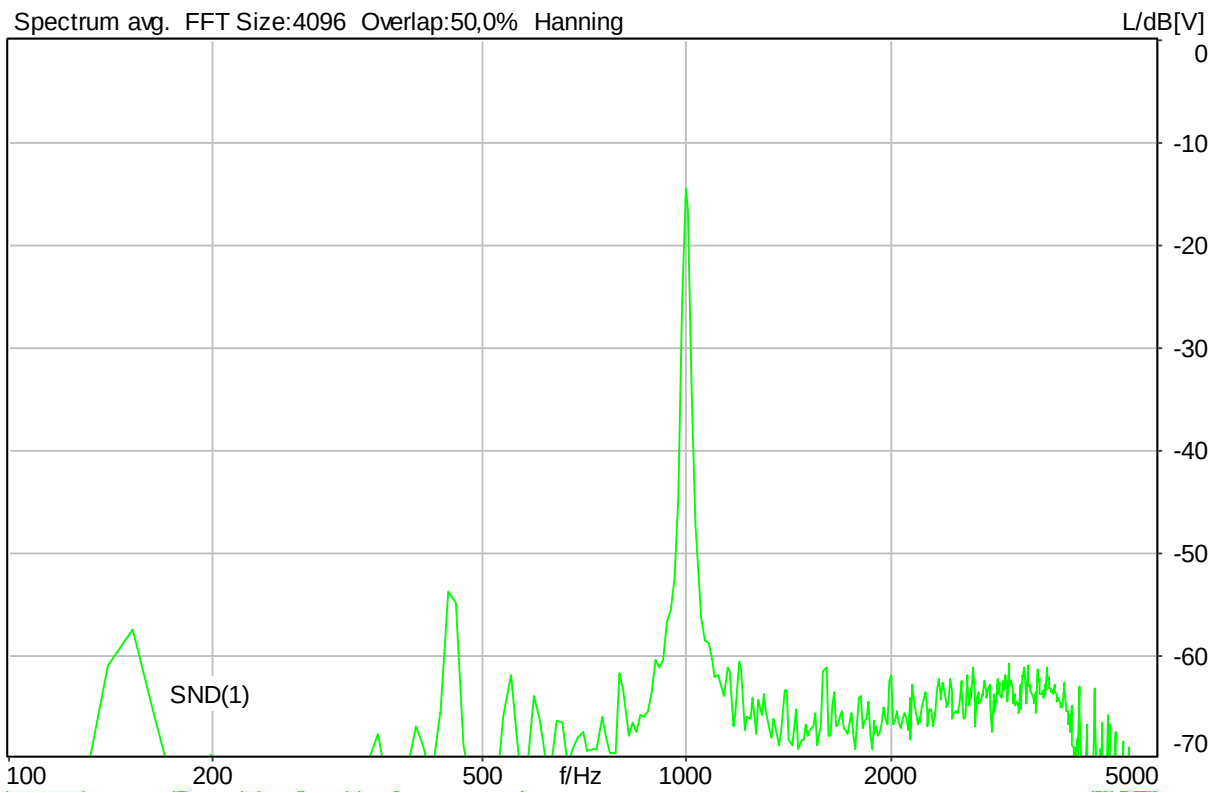
## Reference Measurement 0 dBPa

Vol 3/5



Level RCV(2): 0.06 dBPa

### 8.1.1 Axial Field Intensity

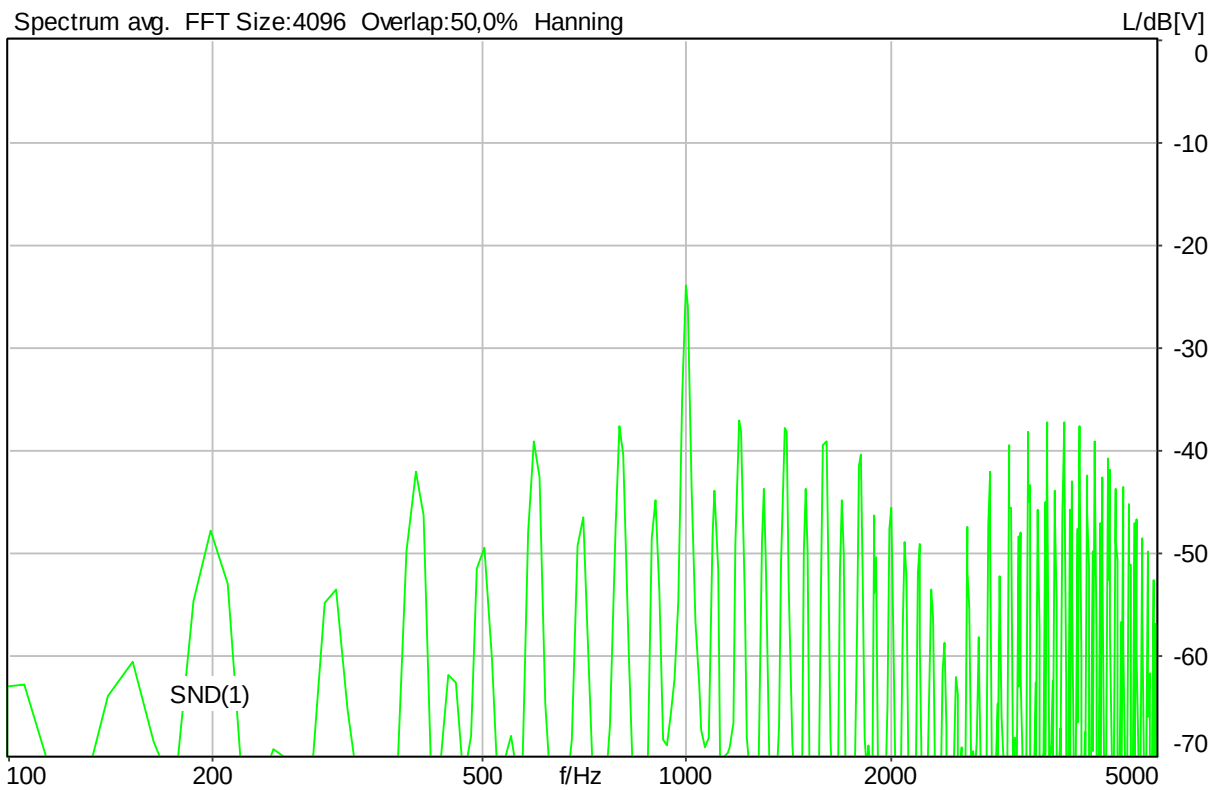


Ok

#### Limits

|       | lower      |
|-------|------------|
| Run 1 | -22.00 dBV |

## 8.1.2 Radial Field Intensity 0 Degree

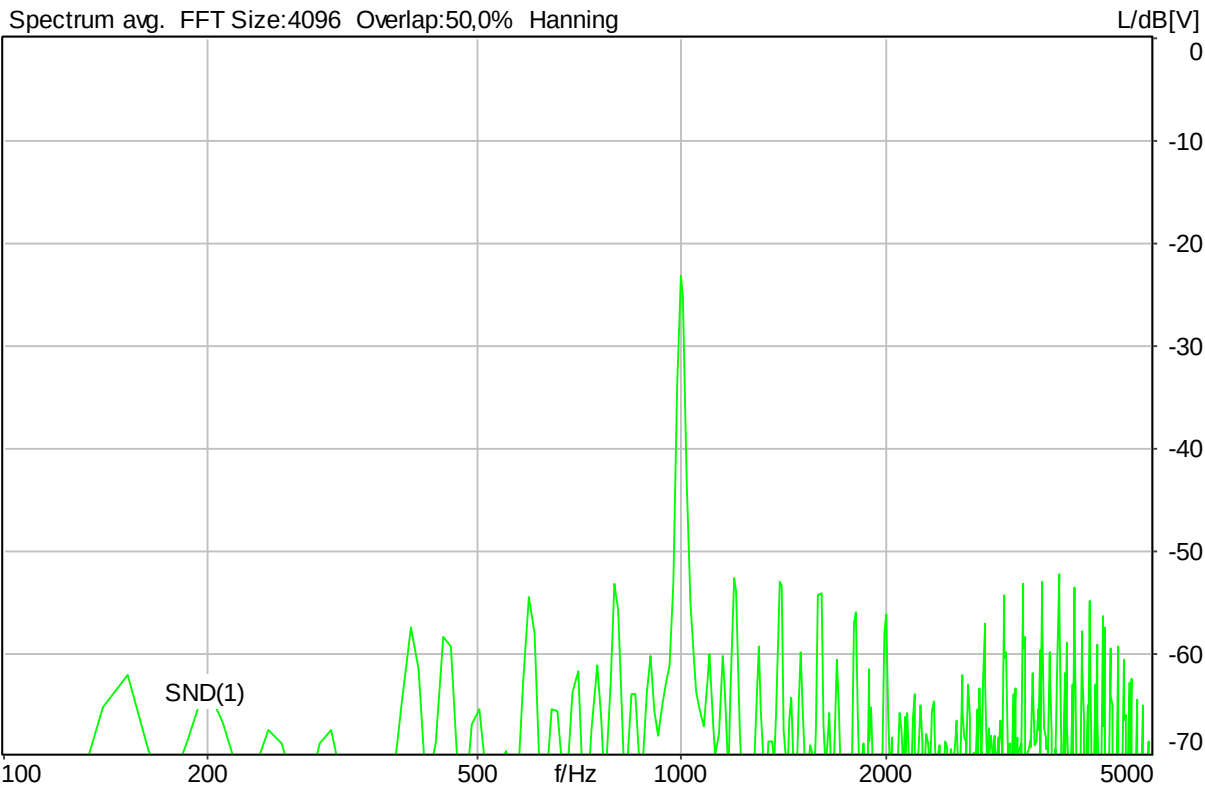


Ok

### Limits

|       | lower      |
|-------|------------|
| Run 1 | -27.00 dBV |

8.1.2 Radial Field Intensity 90 Degree

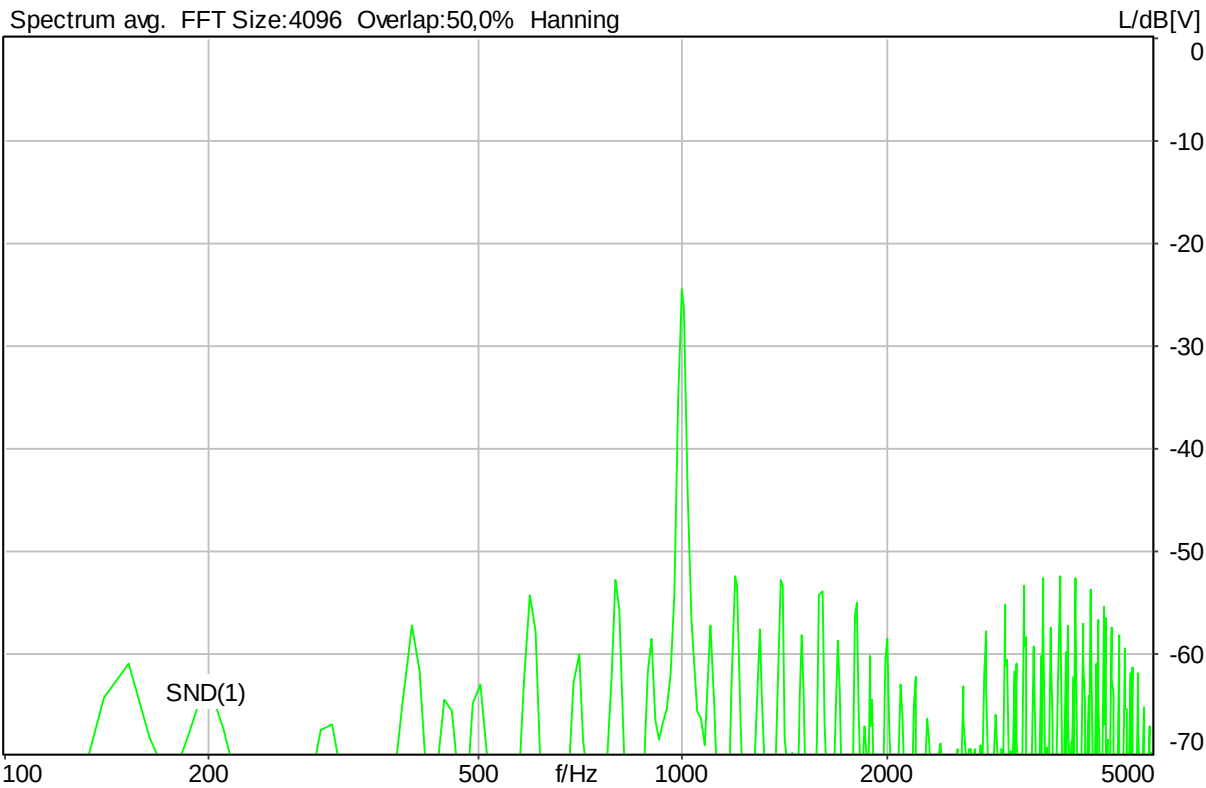


Ok

Limits

|       |            |
|-------|------------|
|       | lower      |
| Run 1 | -27.00 dBV |

8.1.2 Radial Field Intensity 180 Degree

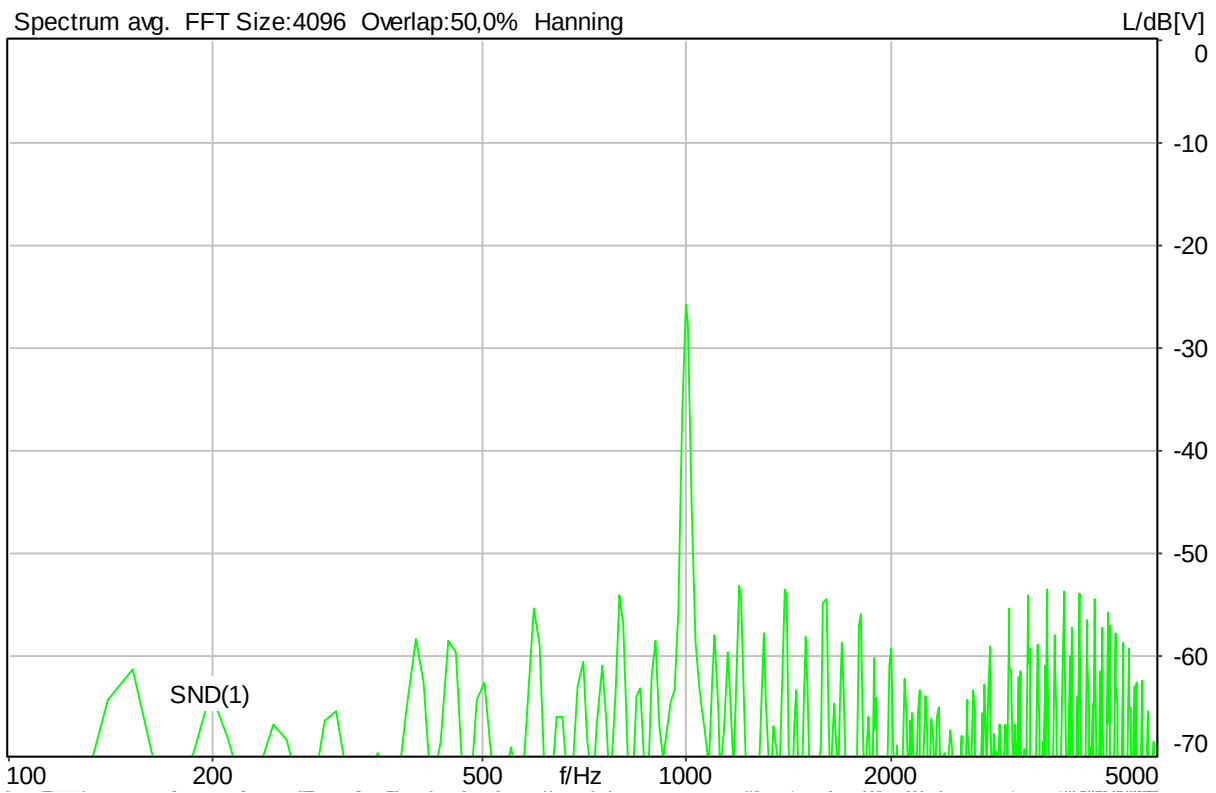


Ok

Limits

|       |            |
|-------|------------|
|       | lower      |
| Run 1 | -27.00 dBV |

## 8.1.2 Radial Field Intensity 270 Degree

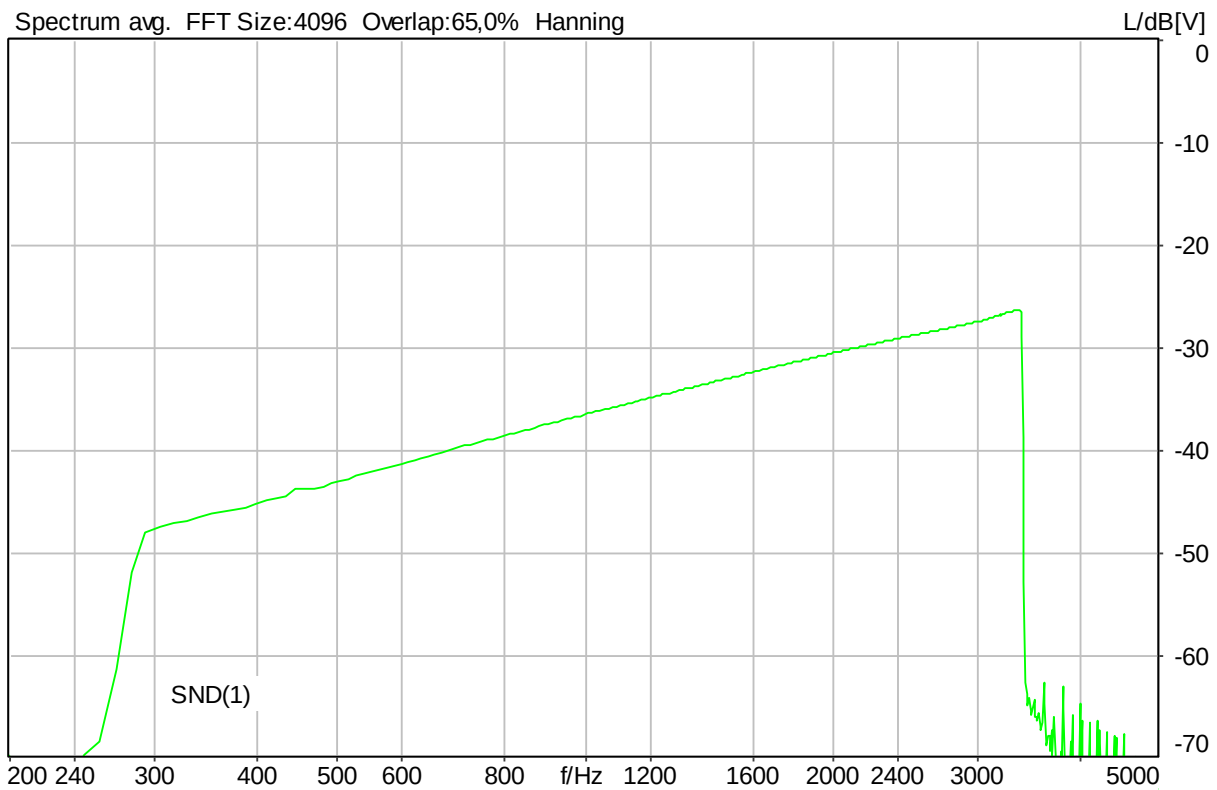


Ok

### Limits

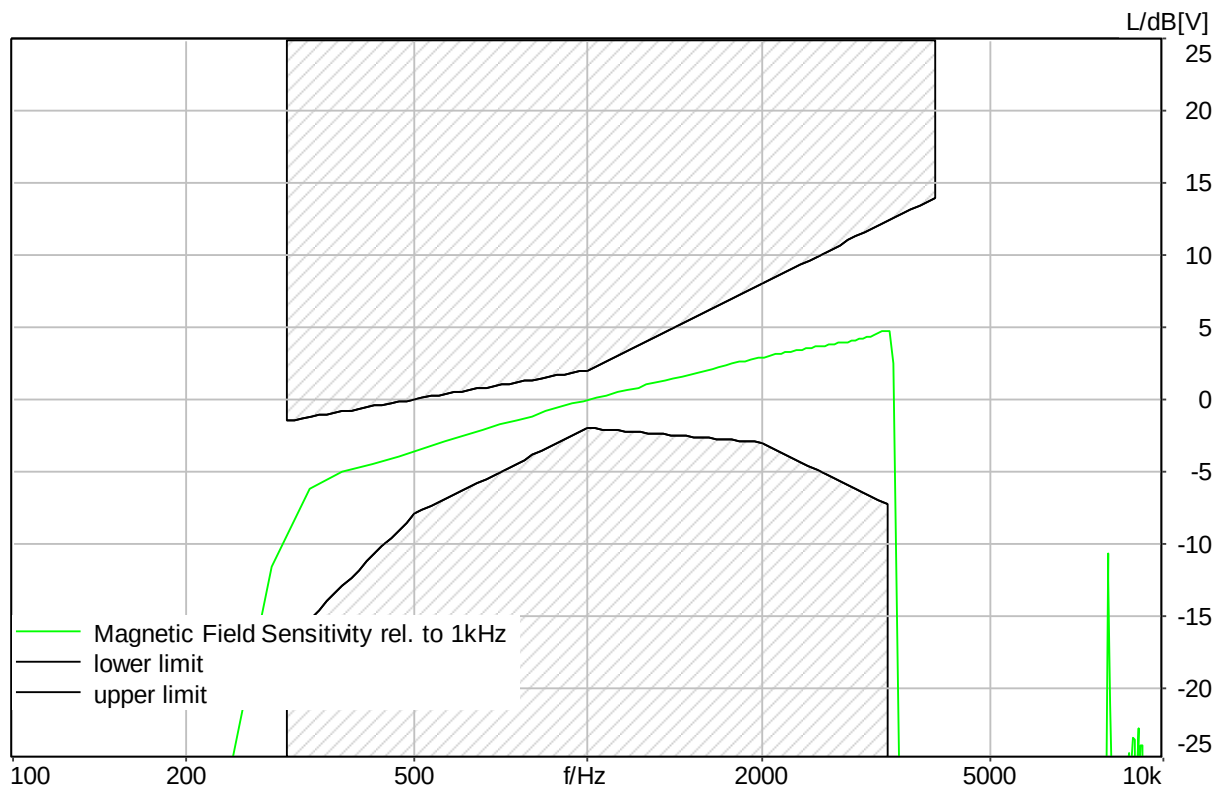
|       | lower      |
|-------|------------|
| Run 1 | -27.00 dBV |

### **8.1.3 Magnetic Field Response $\geq -19$ dB**



Max. Peak value SND(1): -26.33 dB[V] at 3351.6 Hz

### 8.1.3 Magnetic Field Response rel. to 1kHz



Minimal distance to lower limit  
2.05 dB at 984.4 Hz

Minimal distance to upper limit  
2.05 dB at 984.4 Hz

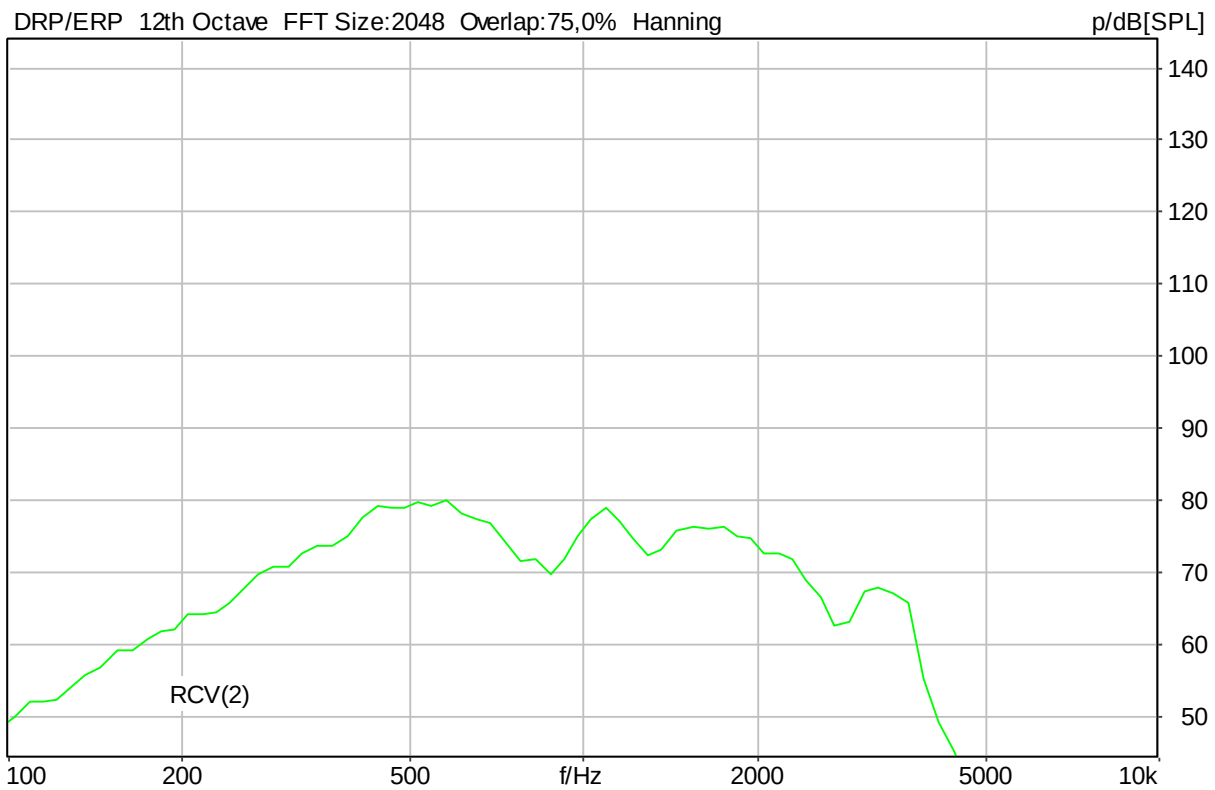
Absolute minimal distance  
2.05 dB at 984.4 Hz Ok

**Ok**

#### Limits

|       | lower              |
|-------|--------------------|
| Run 1 | Fit into tolerance |

## 9.1 max. Conversational Gain



### Correction

CG-70

Level RCV(2): 91.97 dB20μPa Ok

Corrected value RCV(2): 21.97 dB20μPa Ok

Ok

### Limits

|       | lower         | upper         |
|-------|---------------|---------------|
| Run 1 | 18.00 dB20uPa | 24.00 dB20uPa |

## 11 Observations

No observations exceeding those reported with the single test cases have been made.

## Annex A Photographs of the test set-up

Photo 1: test setup for volume control



Photo 2: test setup for volume control (close-up view)



Photo 3: test setup for axial field intensity and magnetic field intensity frequency response



Photo 4: test setup for Radial field intensity (0 degree)



## Annex B Photographs of the EUT

Photo 5: Top side of EUT



Photo 6: Bottom side of EUT



**Annex C Document history**

| Version | Applied changes | Date of release |
|---------|-----------------|-----------------|
| R01     | Initial release | 2025-01-23      |

**Annex D Further information****Glossary**

|          |   |                      |
|----------|---|----------------------|
| EUT      | - | Equipment Under Test |
| Inv. No. | - | Inventory number     |
| N/A      | - | not applicable       |
| S/N      | - | Serial Number        |
| HW       | - | Hardware             |
| SW       | - | Software             |
| %        | - | none                 |