

TEST REPORT

Test Report No.: 1-3152/21-02-03-A



Deutsche
Akkreditierungsstelle
D-PL-12076-01-01

Testing Laboratory

CTC advanced GmbH

Untertürkheimer Straße 6 – 10

66117 Saarbrücken/Germany

Phone: + 49 681 5 98 - 0

Fax: + 49 681 5 98 - 9075

Internet: <https://www.ctcadvanced.com/>

e-mail: mail@ctcadvanced.com

Accredited Testing Laboratory:

The testing laboratory (area of testing) is accredited according to DIN EN ISO/IEC 17025 (2018) 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-12076-01-01

Area of Testing: Acoustics

Applicant

Gigaset Communications GmbH

Frankenstr. 2

46395 Bocholt/GERMANY

Phone: +49 2871 91-0

Contact: Uwe Alt

e-mail: uwe.alt@gigaset.com

Phone: +49 287 191-2857

Fax: +49 287 191-62857

Manufacturer

Gigaset Communications GmbH

Frankenstr. 2

46395 Bocholt/GERMANY

Test standard/s

FCC - Title 47 CFR Part 68

FCC - Title 47 of the Code of Federal Regulations; Chapter I; Part 68 - Requirements and Test Methods for Magnetic Output from Handset Telephones for Hearing Aid Coupling

Product

Kind of product: DECT Handset

Product name: Gigaset COMFORT 552 H



This test report is electronically signed and valid without handwritten signature. The public keys can be requested at the test laboratory to verify the electronic signatures.

Test report authorised:

Uli Kraus
Head of department
Radio Communications & EMC

Test performed:

Jörg Langer
Testing manager
Radio Communications & EMC

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	12
10	Observations	21
Annex A	Photographs of the test set-up.....	22
Annex B	Photographs of the EUT.....	24
Annex C	Document history	25
Annex D	Further information	25

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. CTC 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.

The test report may only be reproduced or published in full. Reproduction or publication of extracts from the report requires the prior written approval of CTC advanced GmbH.

The testing service provided by CTC advanced GmbH has been rendered under the current "General Terms and Conditions for CTC advanced GmbH".

CTC advanced GmbH will not be liable for any loss or damage resulting from false, inaccurate, inappropriate or incomplete product information provided by the customer.

Under no circumstances does the CTC advanced GmbH test report include any endorsement or warranty regarding the functionality, quality or performance of any other product or service provided.

Under no circumstances does the CTC advanced GmbH test report include or imply any product or service warranties from CTC advanced GmbH, including, without limitation, any implied warranties of merchantability, fitness for purpose, or non-infringement, all of which are expressly disclaimed by CTC advanced GmbH.

All rights and remedies regarding vendor's products and services for which CTC advanced GmbH has prepared this test report shall be provided by the party offering such products or services and not by CTC advanced GmbH. In no case this test report can be considered as a Letter of Approval.

This test report is electronically signed and valid without handwritten signature. For verification of the electronic signatures, the public keys can be requested at the testing laboratory.

This test report replaces the test report with the number 1-3152/21-02-03 and dated 2020-12-02

2.2 Application details

Date of receipt of order:	2021-09-15
Date of receipt of test item:	2021-11-11
Start of test:	2021-11-19
End of test:	2021-11-19
Person(s) present during the test:	%

3 Test standard/s

Test standard	Version	Test standard description
FCC - Title 47 CFR Part 68		FCC - Title 47 of the Code of Federal Regulations; Chapter I; Part 68 - Requirements and Test Methods for Magnetic Output from Handset Telephones for Hearing Aid Coupling

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

6 Test setup

6.1 Used Equipment

Diagram for acoustic measurements:

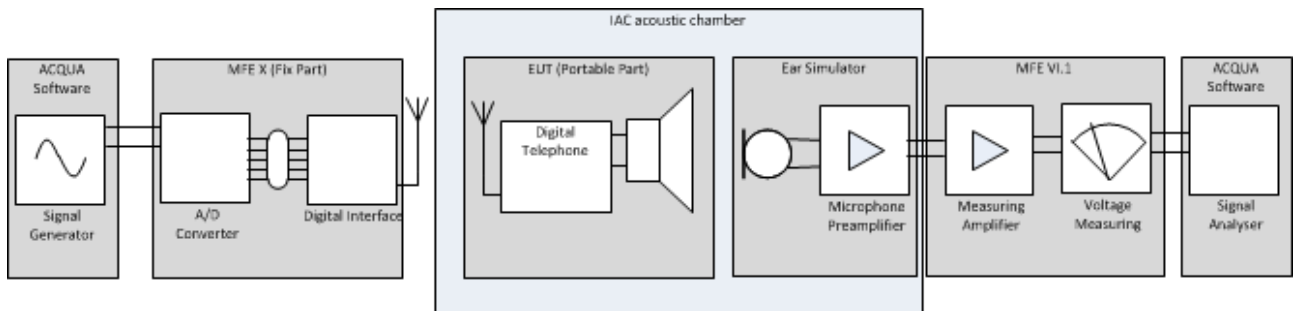
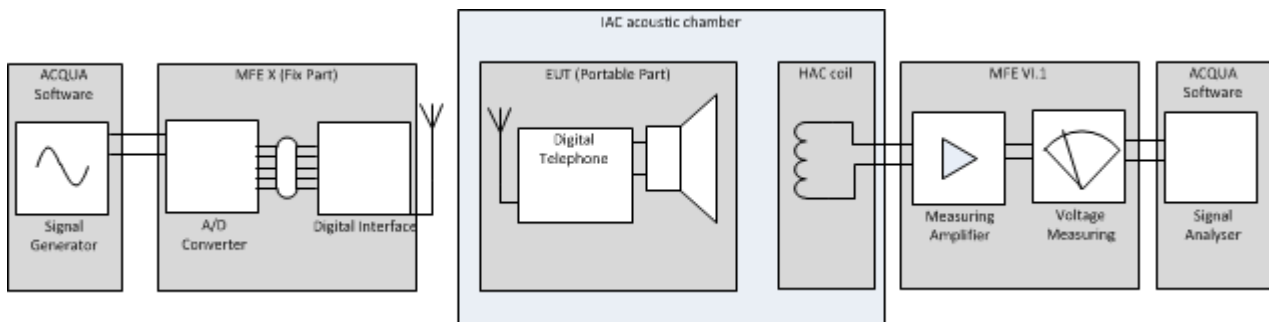


Diagram for inductive measurements:



Software:

No.	Name	Manufacturer	Version	ICT Number
1	ACQUA	HEADacoustics	3.4	300003467

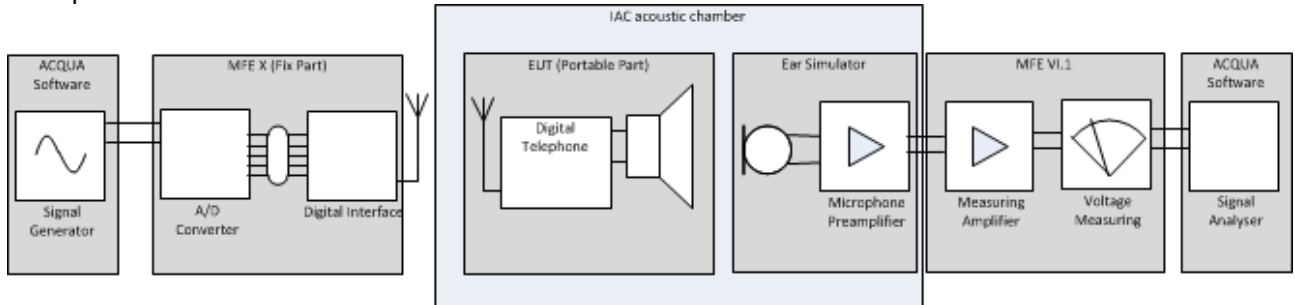
Hardware

No.	Description	Manufacturer	Type	Serial-No.	ICT Number	Calibration Date
1	HATS	HEADacoustics	HMS II.3	12306143	300003469	2017-09-25
2	Acoustic chamber	IAC	1205-A	--	300000950	--
3	Analog USB Front End	HEADacoustics	MFE VI.1	64626119	300003824	2017-09-25
4	Digital Front End for DECT	HEADacoustics	MFE X	64680007	400000362	--
5	HAC Probe - Axial	Communication Certification Laboratory	Model A-100	0123	400001215-0000	2000-09-13
6	HAC Probe - Radial	Communication Certification Laboratory	Model R-100	0123	400001215-0001	2000-09-13

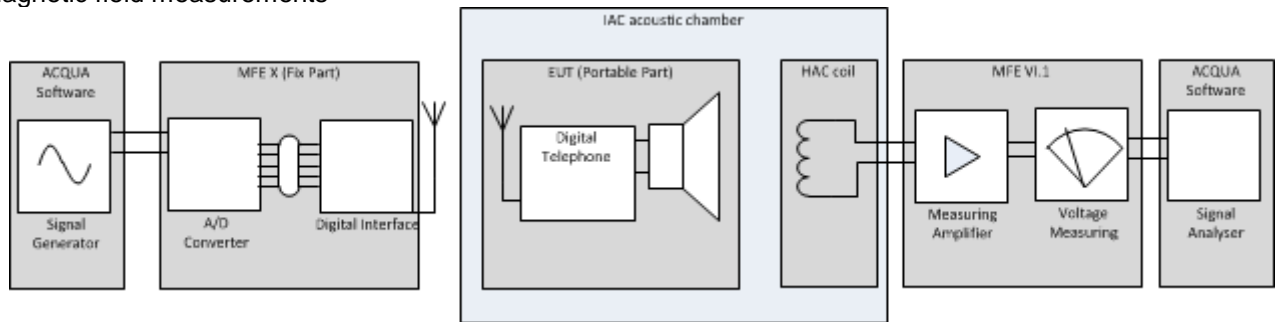
Measurement Equipment for DECT

Measurement equipment can be seen in to different setups as it is shown in the block diagrams below.

Sound pressure measurements



Magnetic field measurements



Following table shows used equipment:

No.	Description	Manufacturer	Type	Serial-No.	ICT Number	Calibration Date
1	HATS	HEADacoustics	HMS II.3	12306143	300003469	2017-09-25
2	Acoustic chamber	IAC	1205-A	--	300000950	--
3	Analog USB Front End	HEADacoustics	MFE VI.1	64626119	300003824	2017-09-25
4	Digital Front End for DECT	HEADacoustics	MFE X	64680007	400000362	--
5	HAC Probe - Axial	Communication Certification Laboratory	Model A-100	0123	400001215-0000	2000-09-13
6	HAC Probe - Radial	Communication Certification Laboratory	Model R-100	0123	400001215-0001	2000-09-13

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	
								Expanded MU	$U = u(y) \times k, k = 2$	0.122 dB

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	
								Expanded MU	$U = u(y) \times k, k = 2$	0.148 dB

6.3 Used Artificial Ears

Test Head Type 1:

Ear Type 1: IEC 60318	
Ear Type 3.2: IEC 60711 + Simplified Pinna Simulator (High Leakage)	
Ear Type 3.2: IEC 60711 + Simplified Pinna Simulator (Low Leakage)	

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	

7 Information about product

Kind of product:	DECT Handset
Test Item:	Gigaset COMFORT 552 H
Serial number:	USA / HAC sample #1
Hardware version:	Series
Software version:	133.004.02
Firmware version:	%
Operating mode:	
--	
Additional information:	
--	

8 Summary of measurement results

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

8.1 47 e-CFR Part 68 Requirements Table

No	Test description	Reference 47 e-CFR Part 68	Selected	Verdict
1	Axial Field intensity	68.316 4.2	✓	PASS
2	Radial Field intensity	68.316 4.3	✓	PASS
3	Inducted Voltage Frequency Response	68.316 4.4	✓	PASS
4	Hearing Aid volume control	68.317	✓	PASS
	Total		✓	PASS

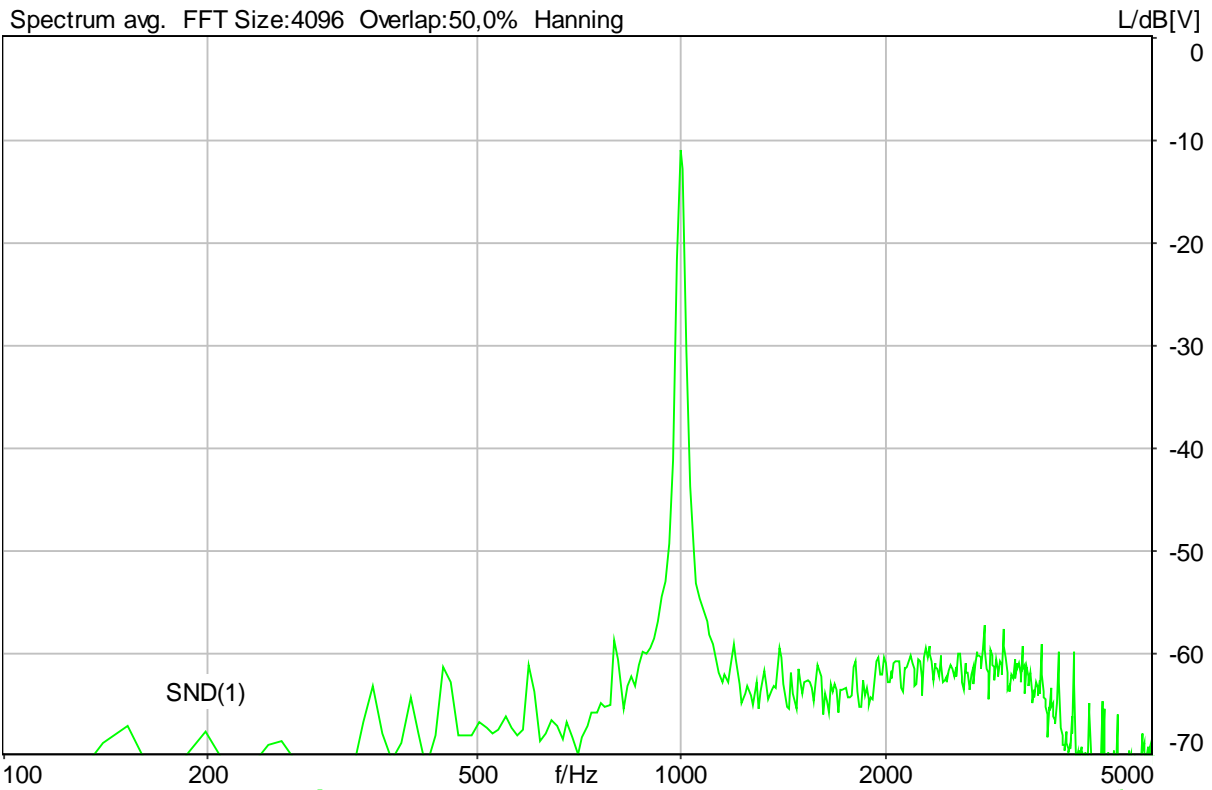
9 Status Overview

SMD	Status	Single Value Description	Single Value
68.316 4.2 Axial Field Intensity	Ok	Level [dBV]. 0	-10.33
68.316 4.3 Radial Field Intensity 0 Degree	Ok	Level [dBV]. 0	-19.51
68.316 4.3 Radial Field Intensity 90 Degree	Ok	Level [dBV]. 0	-18.93
68.316 4.3 Radial Field Intensity 180 Degree	Ok	Level [dBV]. 0	-19.28
68.316 4.3 Radial Field Intensity 270 Degree	Ok	Level [dBV]. 0	-18.54
68.316 4.4 Induced Frequency Response >= -19 dB	Ok	Max. Peak value [dB[V]]. 2812.5 Hz	-18.52
68.316 4.4 Induced Frequency Response rel. to 1kHz	Ok	Min. dist. to tolerance scheme [V]. 2015.6 Hz	1.53
68.317 (h) max. Conversational Gain	Ok	Corrected value [dB20μPa]. 0	22.77

10 Detailed test results

68.316 4.2 Axial Field Intensity	13
68.316 4.3 Radial Field Intensity 0 Degree	14
68.316 4.3 Radial Field Intensity 90 Degree	15
68.316 4.3 Radial Field Intensity 180 Degree	16
68.316 4.3 Radial Field Intensity 270 Degree	17
68.316 4.4 Induced Frequency Response ≥ -19 dB	18
68.316 4.4 Induced Frequency Response rel. to 1kHz	19
68.317 (h) max. Conversational Gain	20

68.316 4.2 Axial Field Intensity



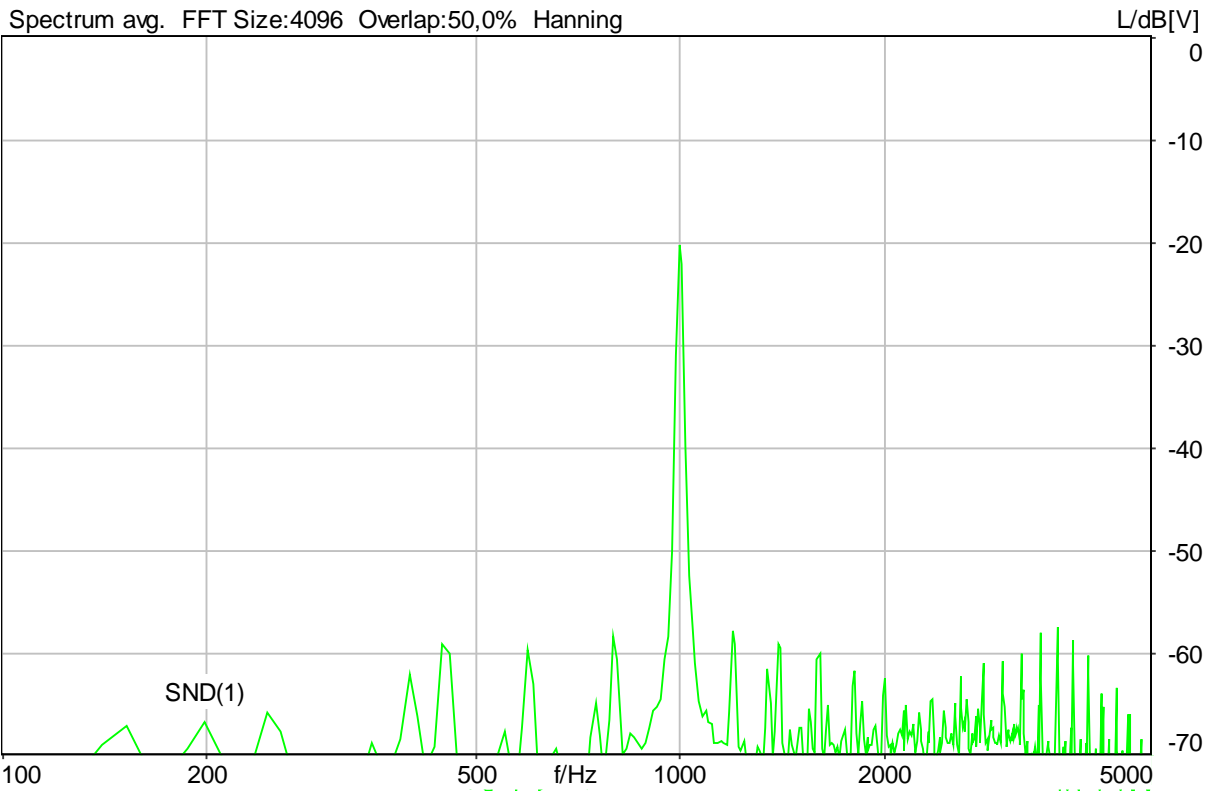
Level SND(1): -10.33 dBV Ok

Ok

Limits

	lower
Run 1	-22.00 dBV

68.316 4.3 Radial Field Intensity 0 Degree



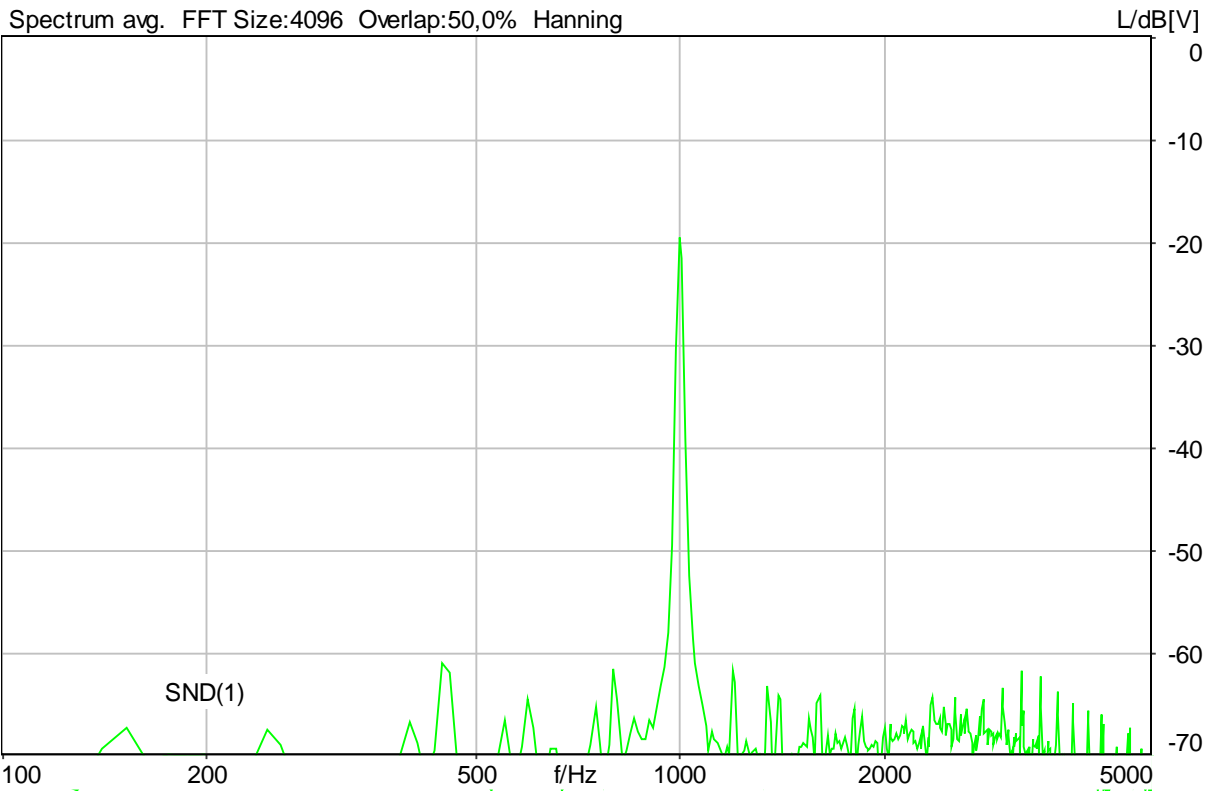
Level SND(1): -19.51 dBV Ok

Ok

Limits

	lower
Run 1	-27.00 dBV

68.316 4.3 Radial Field Intensity 90 Degree



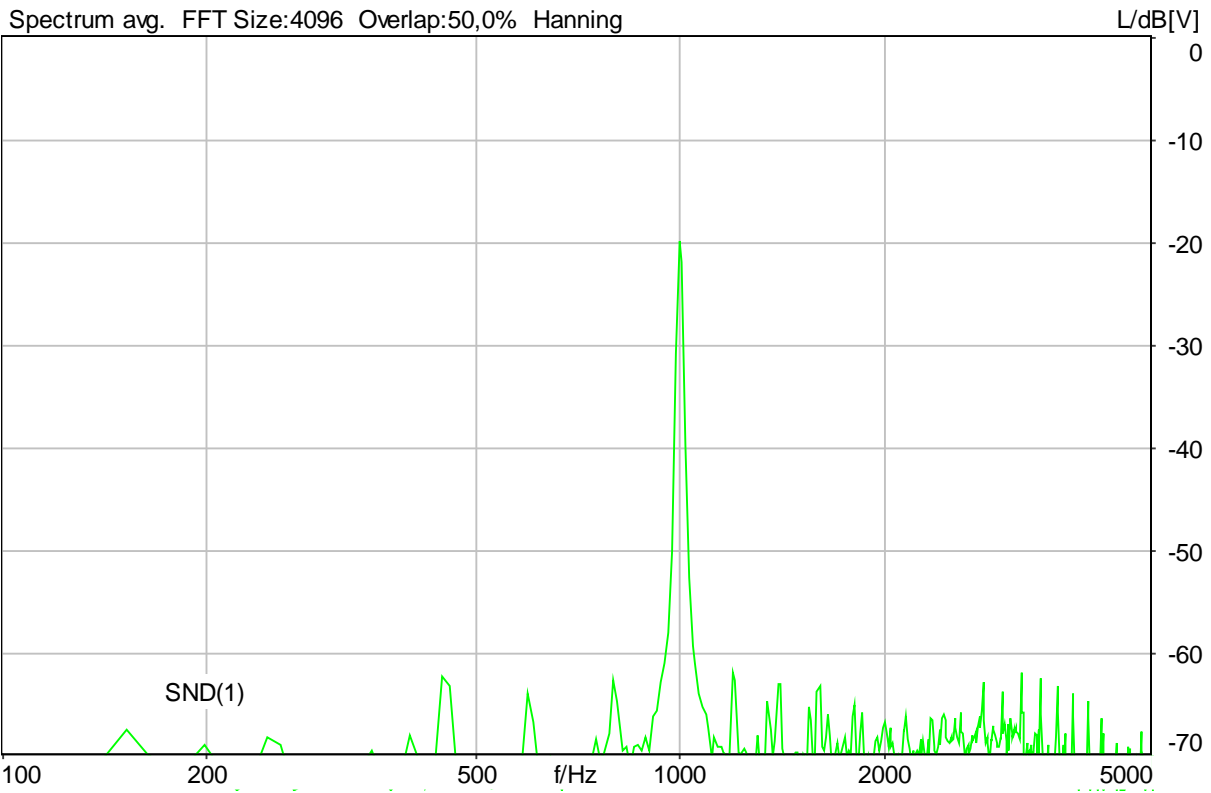
Level SND(1): -18.93 dBV Ok

Ok

Limits

	lower
Run 1	-27.00 dBV

68.316 4.3 Radial Field Intensity 180 Degree



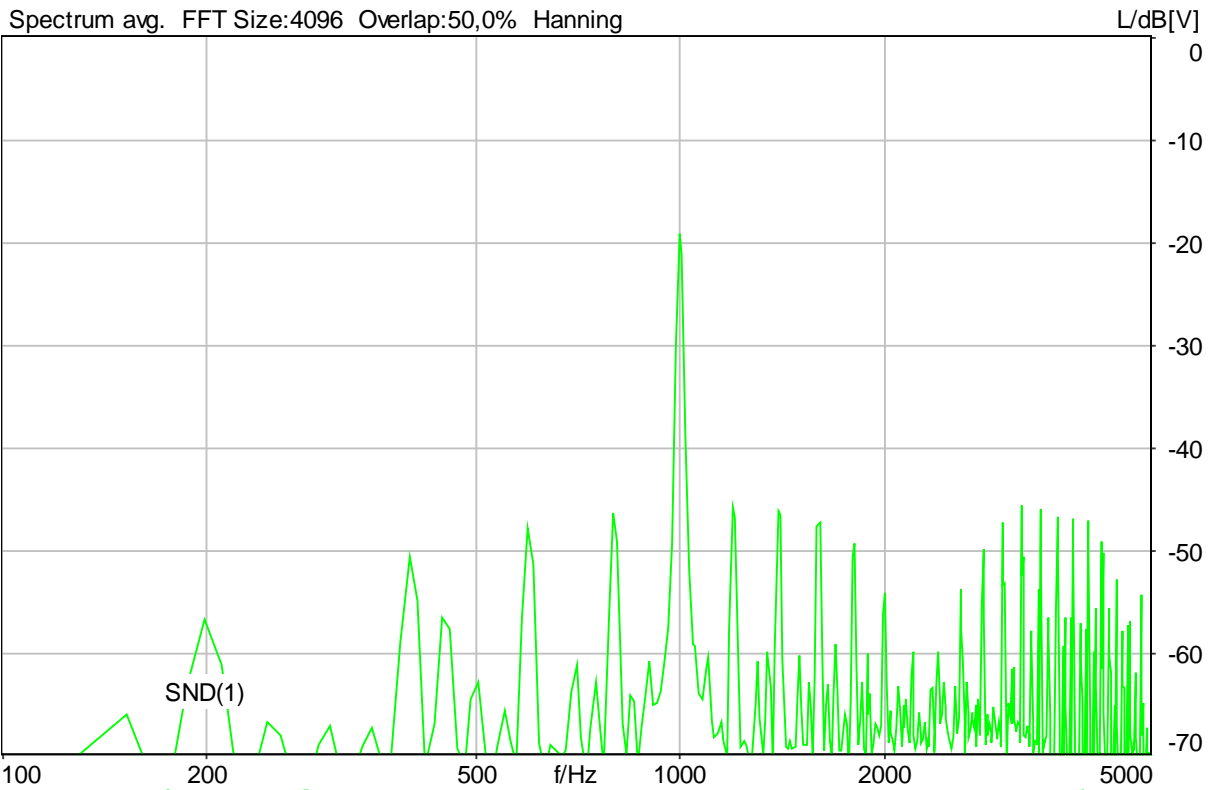
Level SND(1): -19.28 dBV Ok

Ok

Limits

	lower
Run 1	-27.00 dBV

68.316 4.3 Radial Field Intensity 270 Degree



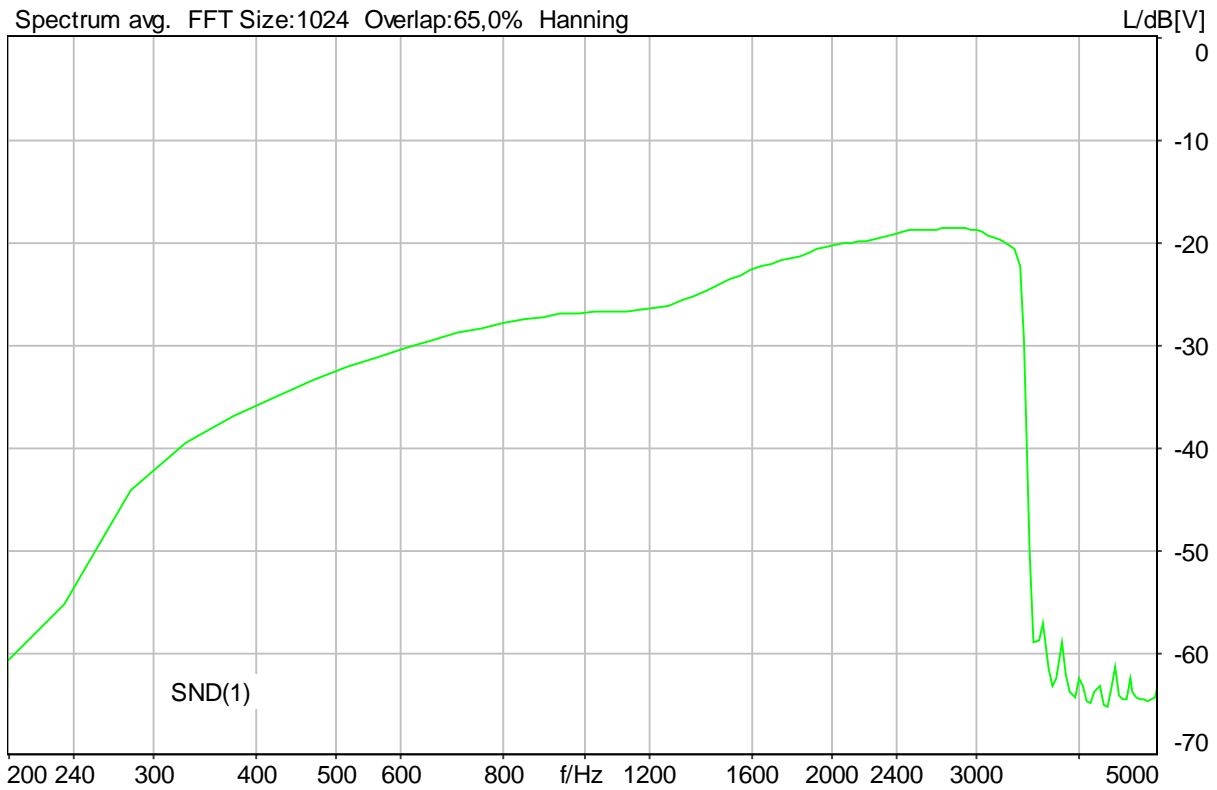
Level SND(1): -18.54 dBV Ok

Ok

Limits

	lower
Run 1	-27.00 dBV

68.316 4.4 Induced Frequency Response >= -19 dB



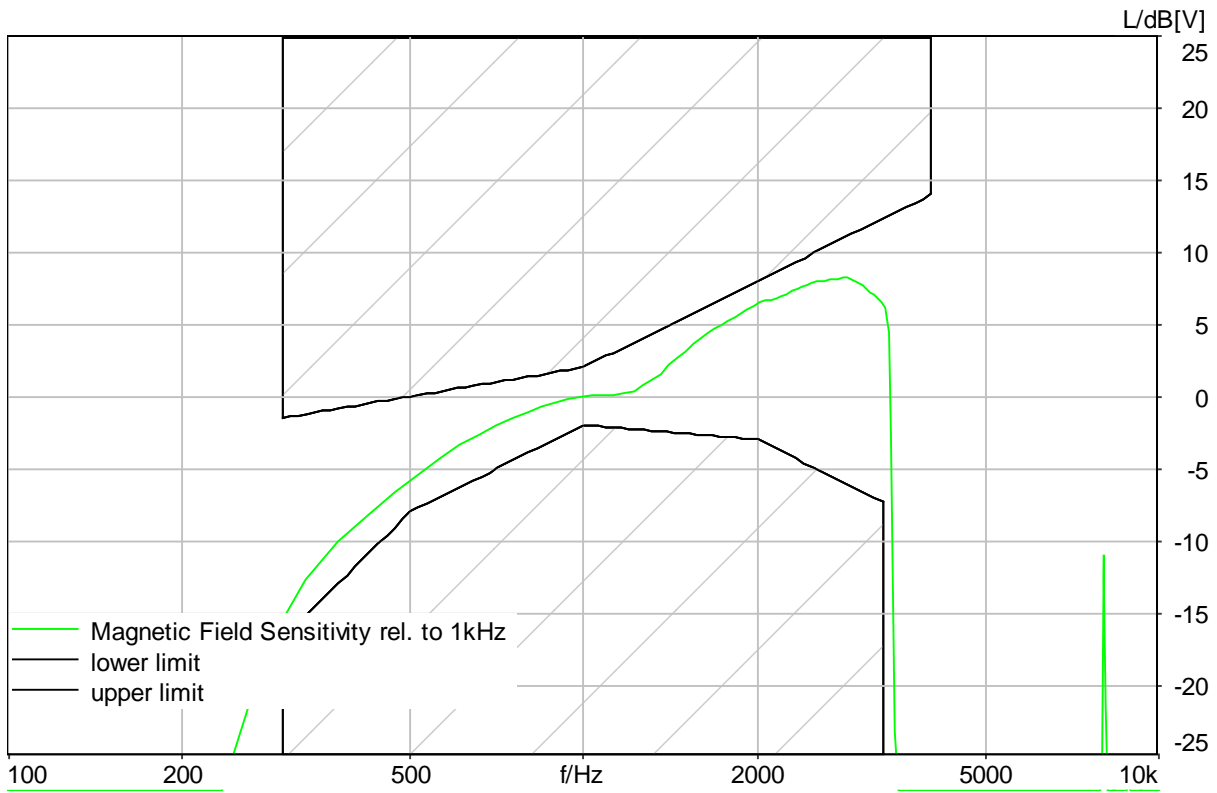
Max. Peak value SND(1): -18.52 dB[V] at 2812.5 Hz Ok

Ok

Limits

	upper
Run 1	0.00 dB

68.316 4.4 Induced Frequency Response rel. to 1kHz



Minimal distance to lower limit
2.05 dB at 984.4 Hz

Minimal distance to upper limit
1.53 dB at 2015.6 Hz

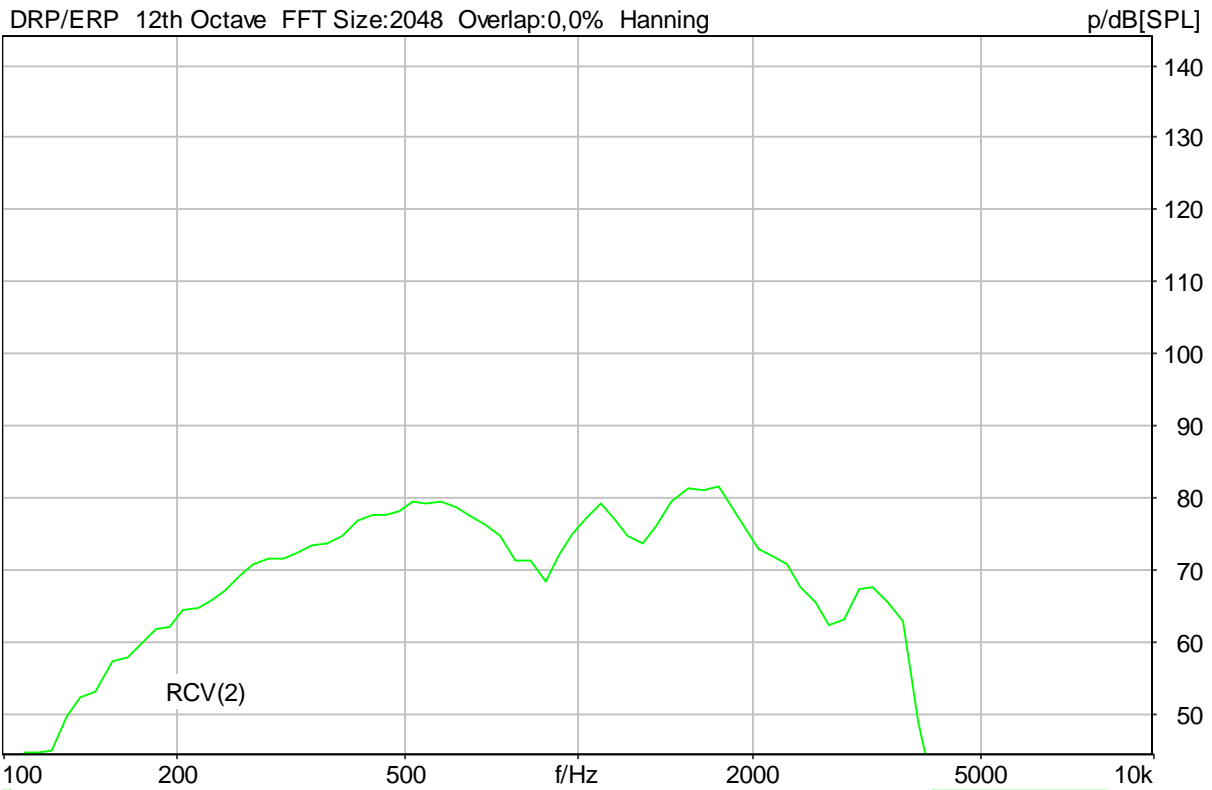
Absolute minimal distance
1.53 dB at 2015.6 Hz Ok

Ok

Limits

	lower
Run 1	Fit into tolerance

68.317 (h) max. Conversational Gain



Correction

CG-70

Level RCV(2): 92.77 dB20µPa Ok

Corrected value RCV(2): 22.77 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

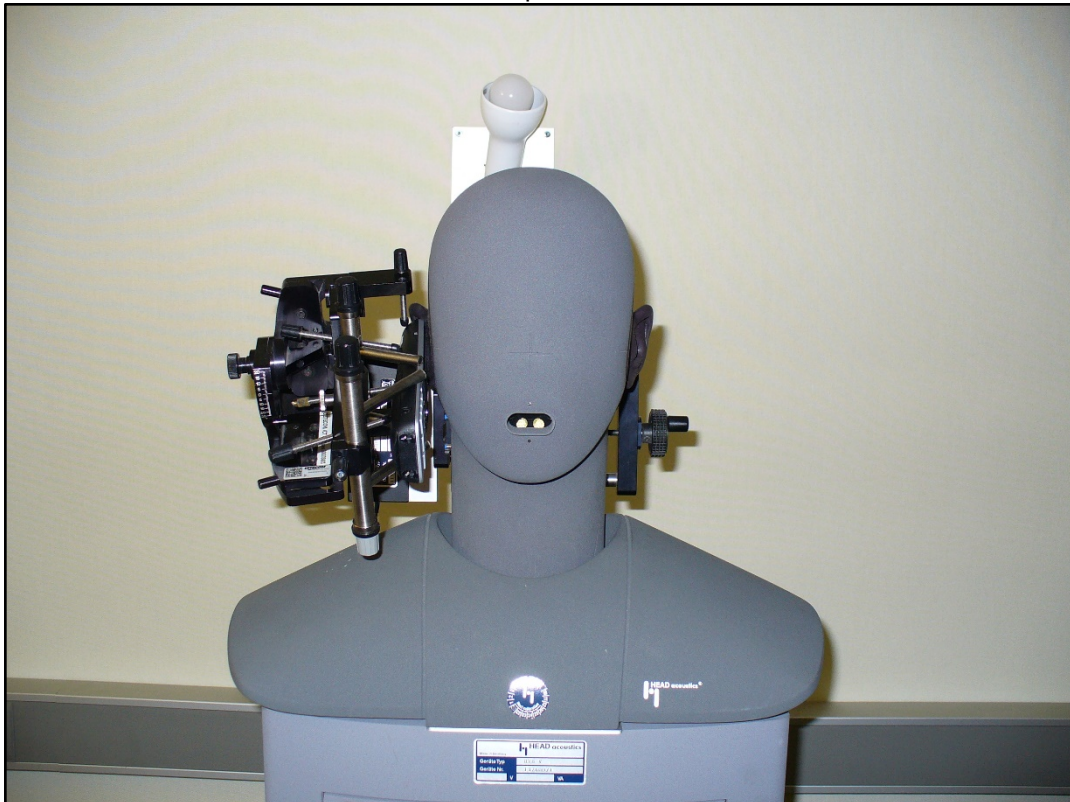


Photo 2: test setup for volume control (close-up view)

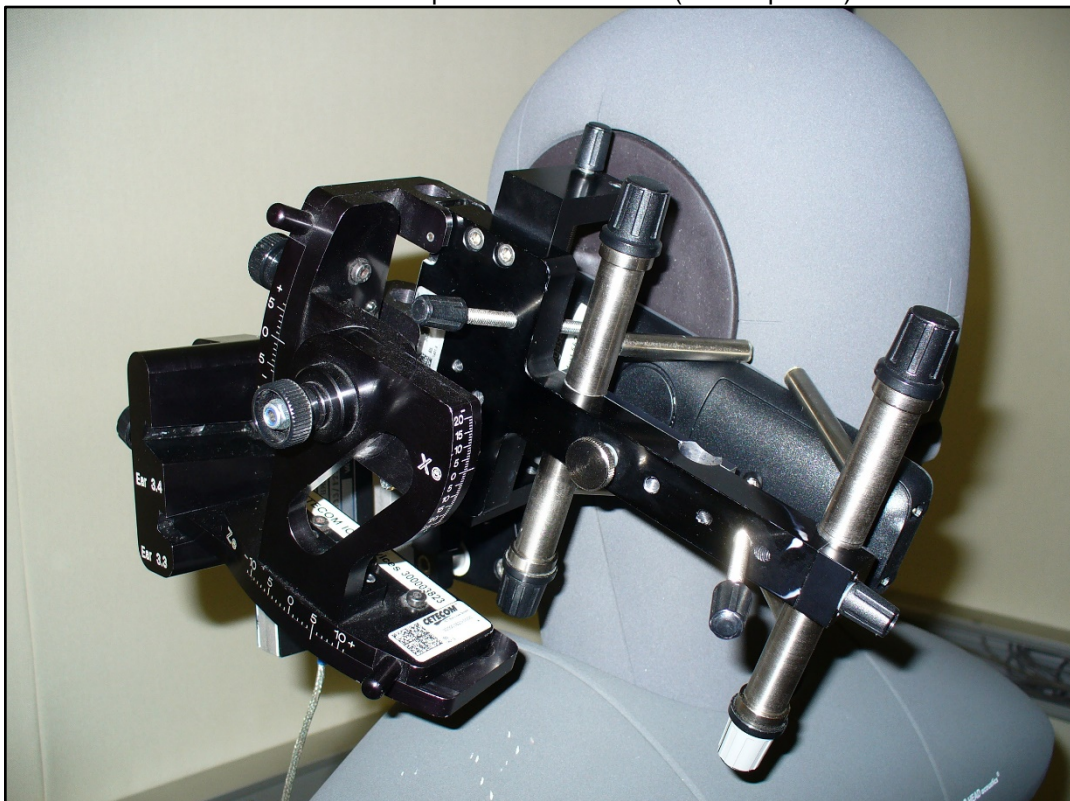


Photo 3: test setup for axial field intensity and magnetic field intensity frequency response



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



Annex B Photographs of the EUT

Photo 5: EUT front side view



Photo 6: EUT rear side view



Annex C Document history

Version	Applied changes	Date of release
---	Initial release	2022-01-13
-A	Revision A: Edited Product name on Cover Page Edited Test item on chapter 7 (Information about product This test report replaces the test report with the number 1-3152/21-02-03 and dated 2020-12-02	2022-01-13

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