Report No. 430662-03-R01

Test Report

Product	Portable DECT Handset
Name and address of the applicant	Ascom Sweden AB Grimbodalen 2, Box 8783 SE-40276, Gothenburg, Sweden
Name and address of the manufacturer	Ascom Sweden AB Grimbodalen 2, Box 8783 SE-40276, Gothenburg, Sweden
Model	DH8
Rating	3.8 V_{DC} (Li-Ion Battery, 920mAh)
Trademark	Ascom
Serial number	See page 3
Additional information	Portable handset with BLE, BT and DECT.
Tested according to	CS-03 Part V Issue 9 Amendment 2 FCC 47 CFR part 68.316/317 ANSI/TIA-4965
Order number	430662
Tested in period	2021-04-06 - 2021-04-15 and 2021-11-26
Issue date	2021-11-26
Name and address of the testing laboratory	Nemko Instituttveien 6 Kjeller, Norway CAB Number: FCC: NO0001 IC: NO0470 ilac-MRA NORWEGIAN ACCREDITATION TEST 033 **An accredited technical test executed under the Norwegian accreditation scheme**

Prepared by [G.Suhanthakumar]	Approved by [Frode Sveinsen]

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1 TEST INFORMATION

1.1 Tested item

Name	Ascom
Model/version	DH8
Serial number	T26107D4SH
Hardware identity and/or version	C1
Software identity and/or version	1.0.5
Desktop Charger	Yes

Description of Tested Device(s)

The EUT is a DECT Handset with bluetooth.

1.2 Test environment

1.2.1 Normal test condition

Temperature:	20 - 23 °C
Relative humidity:	30 - 50 %
Normal test voltage:	3.7Vdc

The values are the limit registered during the test period.

1.3 Test equipment

See list of test equipment in clause 5.

1.4 Other comments

The testing was performed according to all relevant requirements of the test standard and the results comply in full with the requirements.

2 TEST REPORT SUMMARY

2.1 General

The tests were conducted on a sample of the equipment for the purpose of demonstrating compliance with:

- CS-03 Part V Issue 9 Amendment 2, January 2017; Requirements and test methods for magnectic output from Handset Telephones for Hearing Aid Coupling
- FCC 47CFR part 68.316/317; Hearing aid compatibility magnetic field intensity requirements: Technical standards.
- ANSI/TIA-4965, Telecommunications Telephone Terminal Equipment
  Receive Volume Control Requirements for Digital and Analog Wireline Handset Terminals

Nemko Norway at Kjeller is accredited by Norwegian accreditation to CS-03 Part V and recognized by Industry Canada, CAB indentifier NO0470. The tests included in this report are within the scope of the accreditation.

☒ Production Unit

☐ Pre-production Unit

THIS TEST REPORT APPLIES ONLY TO THE ITEM(S) AND CONFIGURATIONS TESTED.

Deviations from, additions to, or exclusions from the test specifications are described in “Summary of Test Data”.

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2.2 Test summary

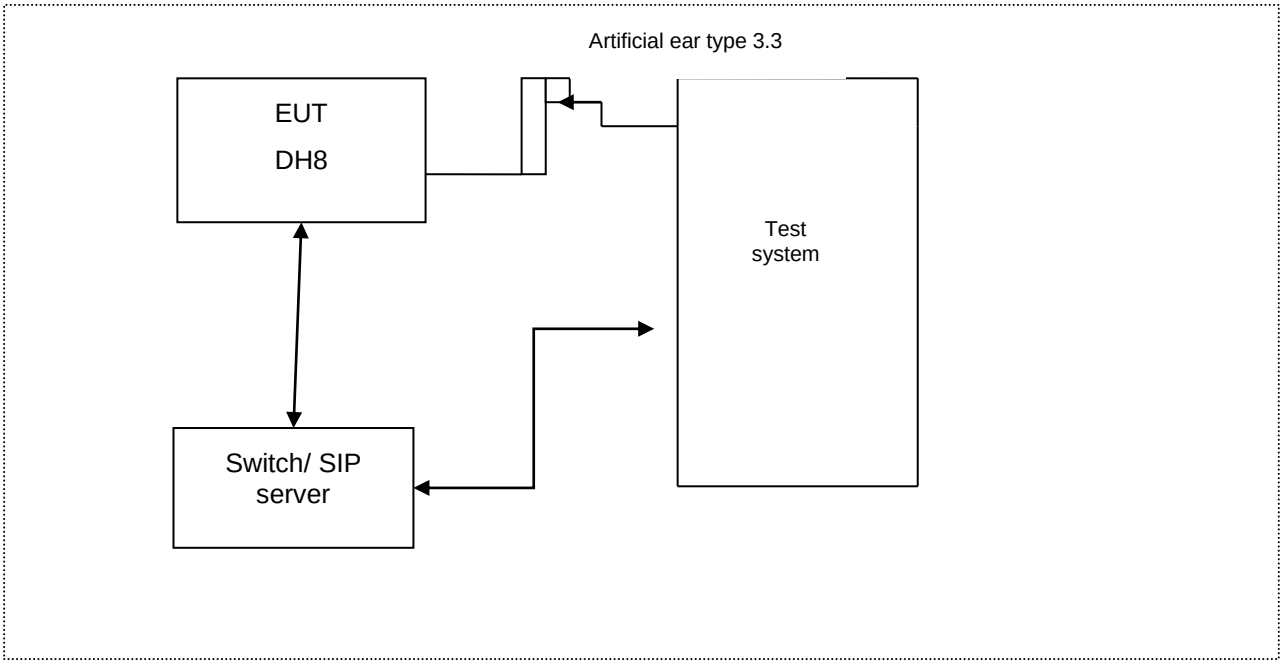
Name of test	FCC part 68/ANSI/TIA-4965	CS-03 part V	Verdict
Axial field intensity	316- 4.2	4.1.2	PASS
Radial field intensity	316- 4.3	4.1.3	PASS
Magnectic field intensity Frequency response	316-	4.1.4	PASS
Hearing aid compatibility volume control	317	5.1	PASS
Conversational Gain	4.4.1		PASS
Automatic dialing and automatic redialing	318	-	N/A

2.3 Description of modification for Modification Filing

No modifications were made during the test.

2.4 Comments

The EUT is connected via SIP server.



3 Test Results

3.1 CS-03 part V /FCC part 68 Chapter 1: Introduction

Ref. CS-03 part V

3.2 CS-03 part V /FCC part 68 Chapter 2: General Requirements

Ref. CS-03 part V

3.3 CS-03 part V / FCC part 68 Chapter 3: Exemptions

Ref. CS-03 part V

3.4 CS-03 part V /FCC part 68 Chapter 4: TECHNICAL REQUIREMENTS

3.5 Axial field intensity

Para. No.: 68.316/CS-03 part V 4.1.2

Test Performed By: G.Suhanthakumar	**Date of Test: 2021.04.11**

Test condition: **Nominal volume setting (Level 2)**

Test Results: **Complies**

Measurement Data:

Measured Axial field intensity at 1kHz for an input of -10dBm0 at digital interface gives 0 dBPa :

EUT	Position in degree	Calculated Axial field intensity (dB A/m)	Limit (dB A/m)	Verdict
DH8	-	-10.2	≥ -22	PASS

See attached graphs below

Requirement:

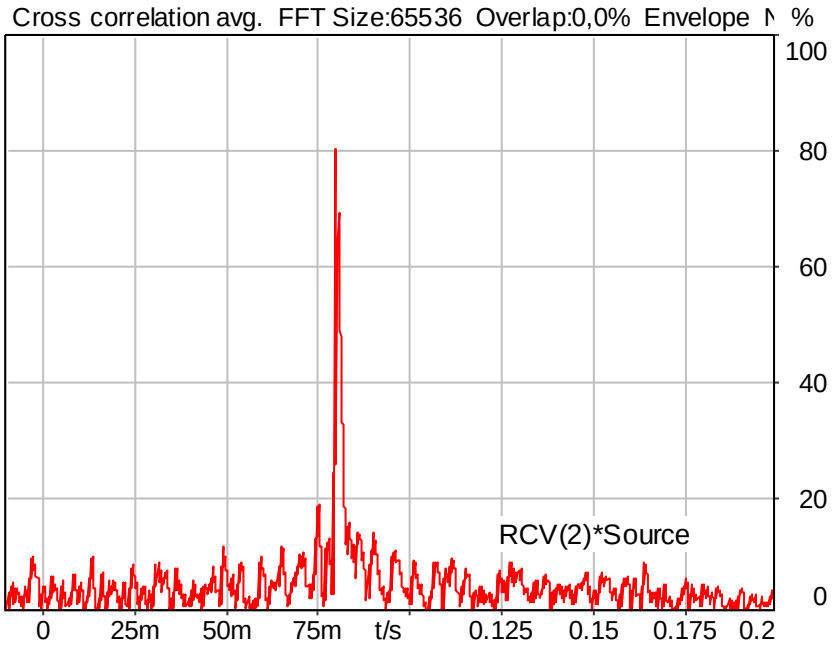
Axial field intensity: shall be grater than -22 dB relative 1 A/m for an input of -10 dBV (or -18dBV (-16dBm0)) at 1kHz.

The magnetic field intensity frequency response graph fig 4.3 or fig 4.4. For field intensity greater than -19 dB relative 1 A/m the frequency response shall be according to fig 4.1 of fig. 4.2.

Radial field intensity: shall be grater than -27 dB relative 1 A/m for an input of -10 dBV at 1kHz.

Preparation: Overall Delay in Receiving Direction

47 CFR § 68.317: Hearing Aid Compatibility Volume Control



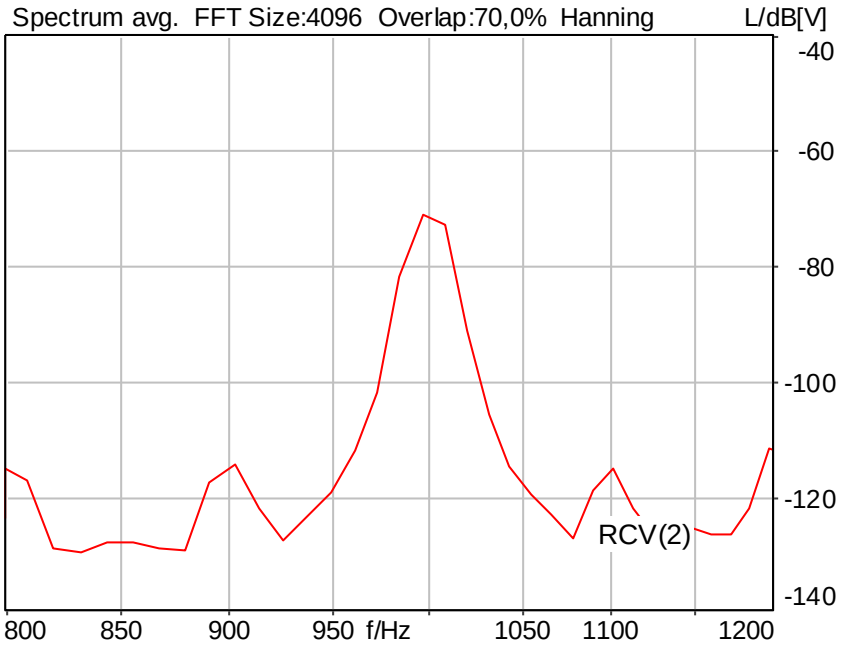
Delay (Cross): 80,4 ms

12.04.2021 07:42 ACQUA 4.0.210

Unmodified HEAD acoustics Measurement Descriptor

4.1.2 /4.2 Axial Field Intensity Dig

47 CFR § 68.316: Hearing Aid Compatibility



Correction

C_Sens	-60.000	12.04.2021	User defined	

X - C_Sens

Level RCV(2): -70.2 dBV Ok
Corrected value RCV(2): -10.2 dBV/ A/m Ok

Ok

13.04.2021 15:42 ACQUA 4.0.210

Limits

	lower
Run 1	-22.00 dBV/ A/m

3.6 Radial field intensity

Para. No.: 68.316/CS-03 part V 4.1.3

Test Performed By: G.Suhanthakumar	**Date of Test: 2021.04.12**

Test condition: Nominal volume setting (Level 2)

Test Results: **Complies**

Measurement Data:

Measured Axial field intensity at 1kHz for an input of -9dBm0 at digital interface gives 0 dBPa :

EUT	Position in degrees	Calculated radial field intensity (dB A/m)	Limit (dB A/m)	Verdict
DH8	0 or 360	-21.1	≥ -27	PASS
DH8	90	-20.0	≥ -27	PASS
DH8	180	-20.8	≥ -27	PASS
DH8	270	-21.6	≥ -27	PASS

See attached graphs below.

Requirement:

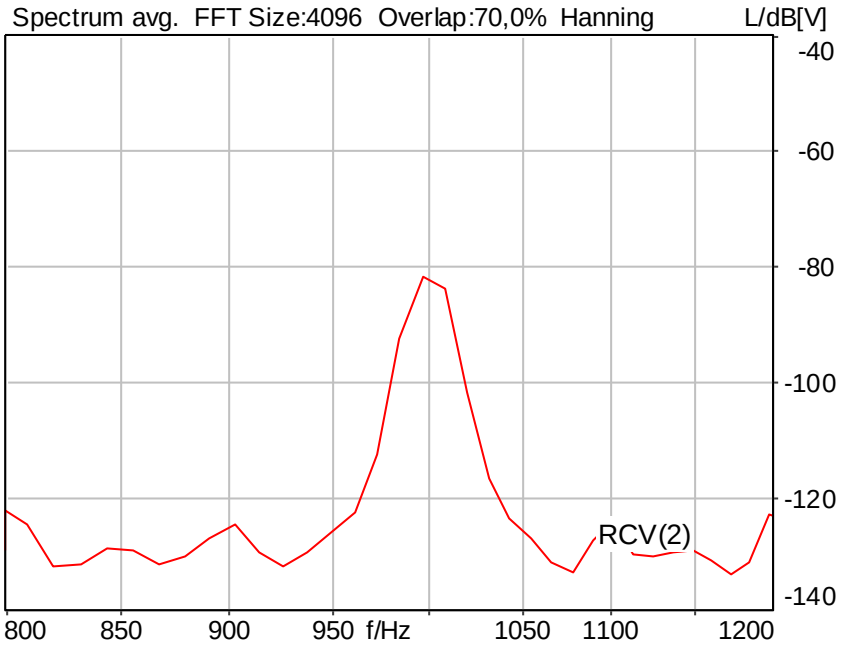
Axial field intensity: shall be grater than -22 dB relative 1 A/m for an input of -10 dBV (or -18dBV (-16dBm0)) at 1kHz.

The magnetic field intensity frequency response graph fig 4.3 or fig 4.4. For field intensity greater than -19 dB relative 1 A/m the frequency response shall be according to fig 4.1 of fig. 4.2.

Radial field intensity: shall be grater than -27 dB relative 1 A/m for an input of -10 dBV at 1kHz.

4.1.3/4.3 Radial Field Intensity Dig, 0 deg

47 CFR § 68.316: Hearing Aid Compatibility



Correction

C_Sens	-60.000	12.04.2021	User defined	

X - C_Sens

Level RCV(2): -81.1 dB Ok
Corrected value RCV(2): -21.1 dBV/ A/m Ok

Ok

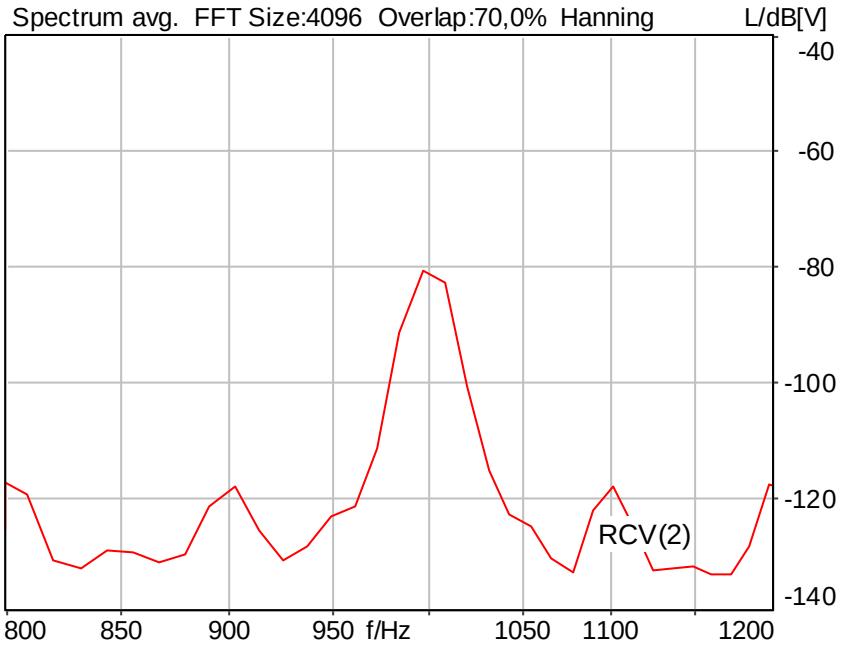
12.04.2021 08:30 ACQUA 4.0.210

Limits

	lower
Run 1	-27.00 dBV/ A/m

4.1.3/4.3 Radial Field Intensity Dig, 90 deg

47 CFR § 68.316: Hearing Aid Compatibility



Correction

C_Sens	-60.000	12.04.2021	User defined	

X - C_Sens

Level RCV(2): -80.0 dB Ok
Corrected value RCV(2): -20.0 dBV/ A/m Ok

Ok

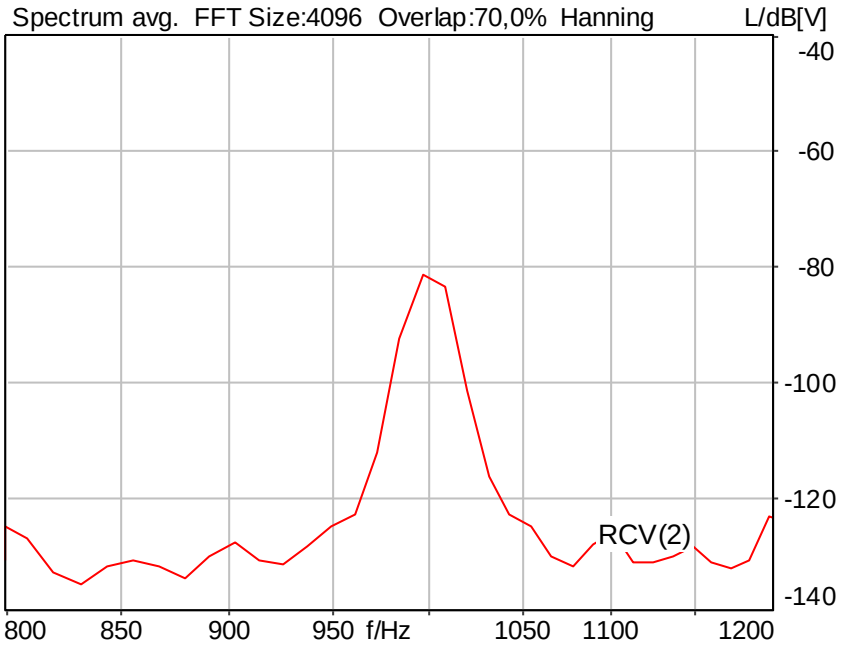
12.04.2021 08:30 ACQUA 4.0.210

Limits

	lower
Run 1	-27.00 dBV/ A/m

4.1.3 Radial Field Intensity Dig, 180 deg

47 CFR § 68.316: Hearing Aid Compatibility



Correction

C_Sens	-60,000	12.04.2021	User defined	

X - C_Sens

Level RCV(2): -80,8 dB Ok
Corrected value RCV(2): -20,8 dBV/ A/m Ok

Ok

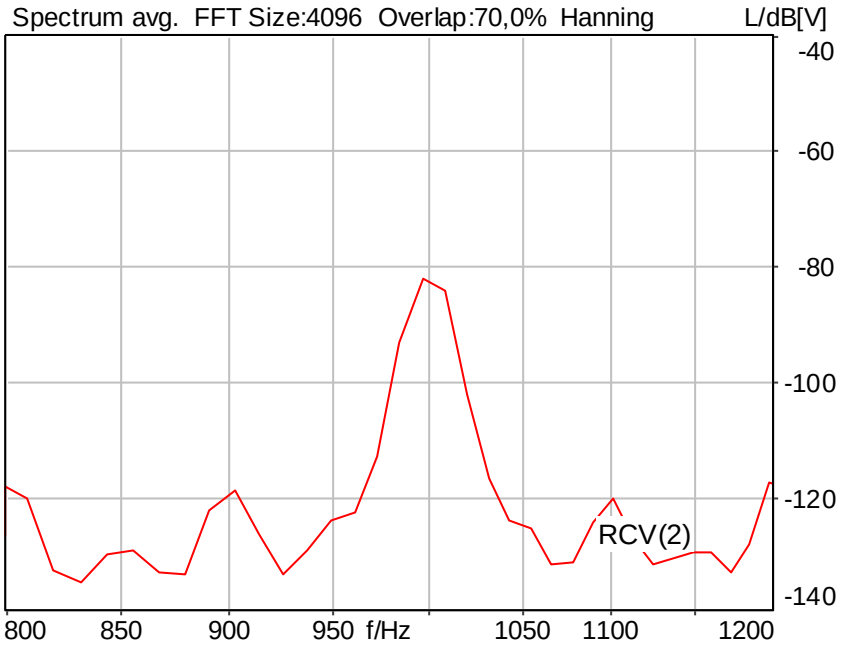
15.04.2021 17:31 ACQUA 4.0.210

Limits

	lower
Run 1	-27.00 dBV/ A/m

4.1.3 Radial Field Intensity Dig, 270 deg

47 CFR § 68.316: Hearing Aid Compatibility



Correction

C_Sens	-60.000	12.04.2021	User defined	

X - C_Sens

Level RCV(2): -81.6 dB Ok
Corrected value RCV(2): -21.6 dBV/ A/m Ok

Ok

12.04.2021 08:31 ACQUA 4.0.210

Limits

	lower
Run 1	-27.00 dBV/ A/m

3.7 Magnetic field Intensity Frequency response, Axial

Para. No.: 68.316/CS-03 part V 4.1.4

Test Performed By: G.Suhanthakumar	**Date of Test: 2021.04.15**

Test condition: Nominal volume setting (Level 2)

Test Results: **Complies**

Measurement Data:

See attached for graphs

The measured axial field intensity is grater than -19 dB relative to 1 A/m, there fig 4.2 limit mask is used.

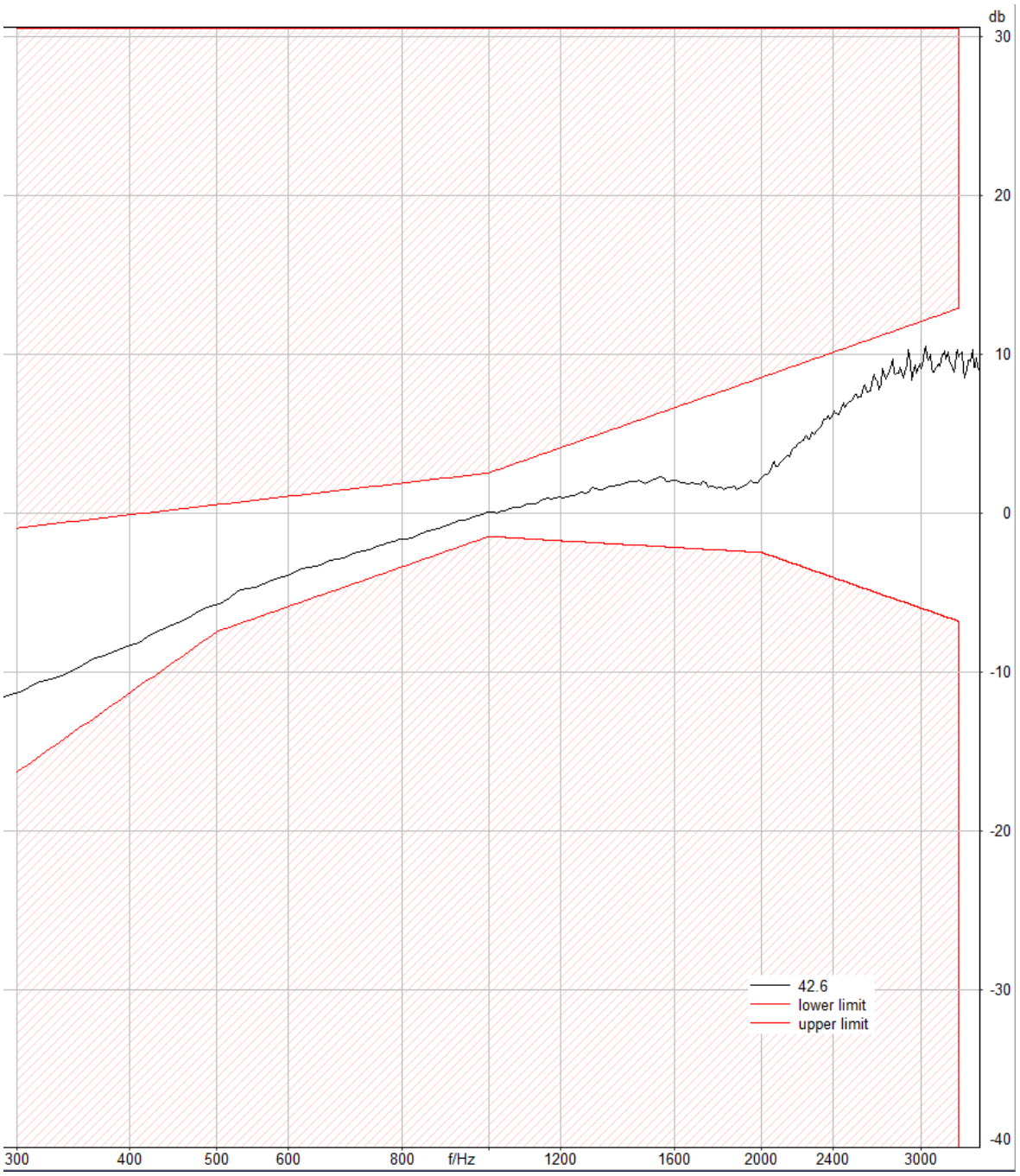
Requirement:

Axial field intensity: shall be grater than -22 dB relative 1 A/m for an input of -10 dBV or -18dBV (-16dBm0)) at 1kHz.

The magnetic field intensity frequency response graph fig 4.3 or fig 4.4. For field intensity greater than -19 dB relative 1 A/m the frequency response shall be according to fig 4.1 of fig. 4.2.

Radial field intensity: shall be grater than -27 dB relative 1 A/m for an input of -10 dBV at 1kHz.

4.1.4 Frequency Response, Axial Component, Dig



Ok

15.04.2021 17:15 ACQUA 4.0.210

Frequency response normalized aroung 1kHz/0dB

3.8 Hearing aid compatibility volume control

Para. No.: 68.317/CS-03 part V 6.0

Test Performed By: G.Suhanthakumar	**Date of Test: 2021.04.12**

Test Results: **Complies**

Measurement Data:

Volume setting/Line length (0km)	**ROLR (dB)**	**Limit (dB)**
High	**37.90**	**-**
Nominal	**55.84**	**(+49.5 – +56.5 dB)**
Gain	**17.94**	**< 18 dB**
Compliance	**PASS**	

Nominal volume setting is: level 2

(The receive volume can be regulated manually by user, Level 1 to level 8)

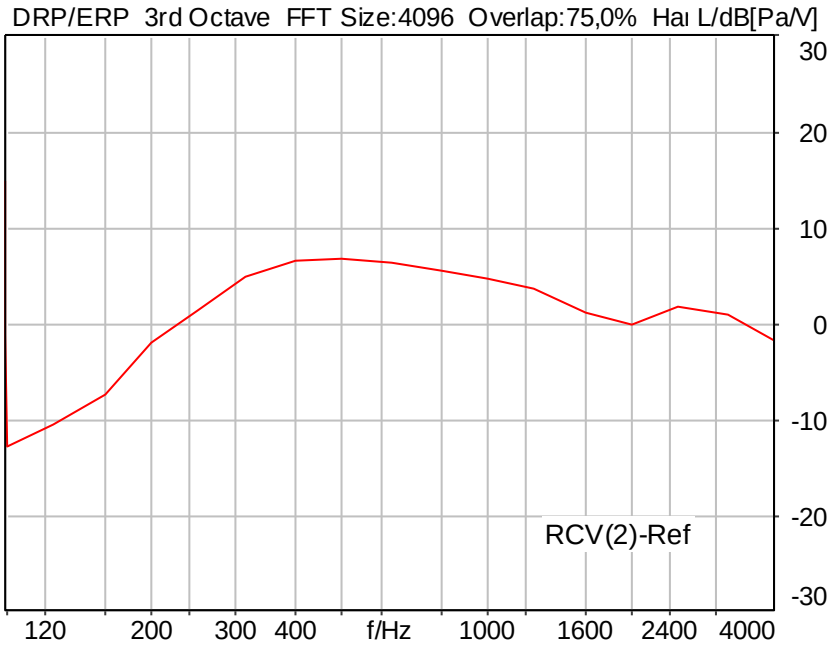
Requirement:

For digital telephone sets the nominal ROLR is +53 dB, within a permissible range of +49.5- +56.5 dB.

The minimum gain 12 dB and maximum gain 18 dB. If maximum gain exceeds 18 dB.

68.317 2 ROLR of digital Telephone, nom. vol. level

47 CFR § 68.317: Hearing Aid Compatibility Volume Control \ Digital Phones



ROLR: 55,84 dB Ok

Ok

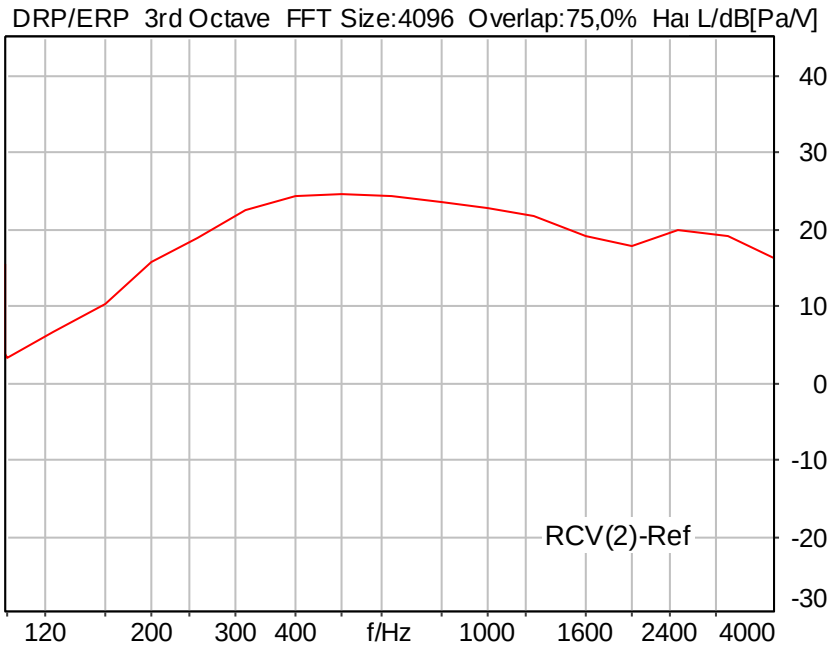
12.04.2021 08:08 ACQUA 4.0.210

Limits

	lower	upper
Run 1	49.50 dB	56.50 dB

68.317 ROLR of digital Telephone, max. vol.

47 CFR § 68.317: Hearing Aid Compatibility Volume Control \ Digital Phones



ROLR: 37,90 dB

12.04.2021 07:47 ACQUA 4.0.210

3.9 Hearing aid compatibility volume control

Para. No.: 68.317(h)/ANSI/TIA-4965 4.4.1 Digital Terminals

Test Performed By: G.Suhanthakumar	**Date of Test: 2021.04.12 and 2021.11.26**

Test Results: **Complies**

Measurement Data:

Type	**Measured conversational gain (dB) 400 - 3150Hz**	**Minimum limt (dB)**	**Maximum Limit (dB)**	**Verdict**
Narrow band (NB)	22.04	18	24	Pass

Type	**Measured conversational gain (dB) 250 - 5000Hz**	**Minimum limt (dB)**	**Maximum Limit (dB)**	**Verdict**
Wide band (WB)	19.02	18	24	Pass

Requirement:

1. The terminal shall have at least one volume control setting that will produce a conversational gain of ≥18 dB without significant clipping of the test signal.
2. If the Conversational Gain exceeds 24 dB for any volume control setting, the volume control shall be reset so that it produces a conversational gain ≤ 24 dB when the terminal is caused to pass through a proper on-hook transition.

4 MEASUREMENT UNCERTAINTY

CS-03 part V		Description	Parameter	Estimated uncertainty
4.2/4.3		**Axial and radial sensitivity at 1kHz**	dB A/m	± 0.15 dB
4.4		**Receiving Frequency response**	dBPa/V	
		100 – 10000 Hz		± 0.2 dB
6.0		**Receiving Overall loudness rating**	ROLR (dB)	± 0.13 dB
		gain	dB	± 0.15 dB

5 TEST EQUIPMENT USED

Number	Model name	Manufacturer	Seriel number	Cal. date	Cal. due
-	ACQUA software v4.0.200	HEAD Acoustic	-	N/A	N/A
LR 1572	MFE VI (Frontend analogue with ear canal coupler and artificial mouth	HEAD Acoustic	64626147	2019/06	2022/06
LR 1571	Artificial ear type 3.3	HEAD Acoustic	12306232	2019/06	2022/06
LT 5522	HAC probe- Radial	CCL	0325	Cal b4 use	
LT 5521	HAC probe-Axial	CCL	0325	Cal b4 use	
LT 5292	Calibrator	B&K	1723569	2019/07	2021/07

2021-11-26

Number	Model name	Manufacturer	Seriel number	Cal. date	Cal. due
1	ACQUA SW 4.3.100	Head Acoustic	N/A	N/A	N/A
2	7700 labCORE	Head Acoustic	77000251	2021-01-08	2022-01-08
3	4231 Acoustical calibrator	B&K	2094687	2021-10-25	2023-10
4	4128C HATS	B&K	2477588	2021-10-11	N/A

6 Photos of EUT

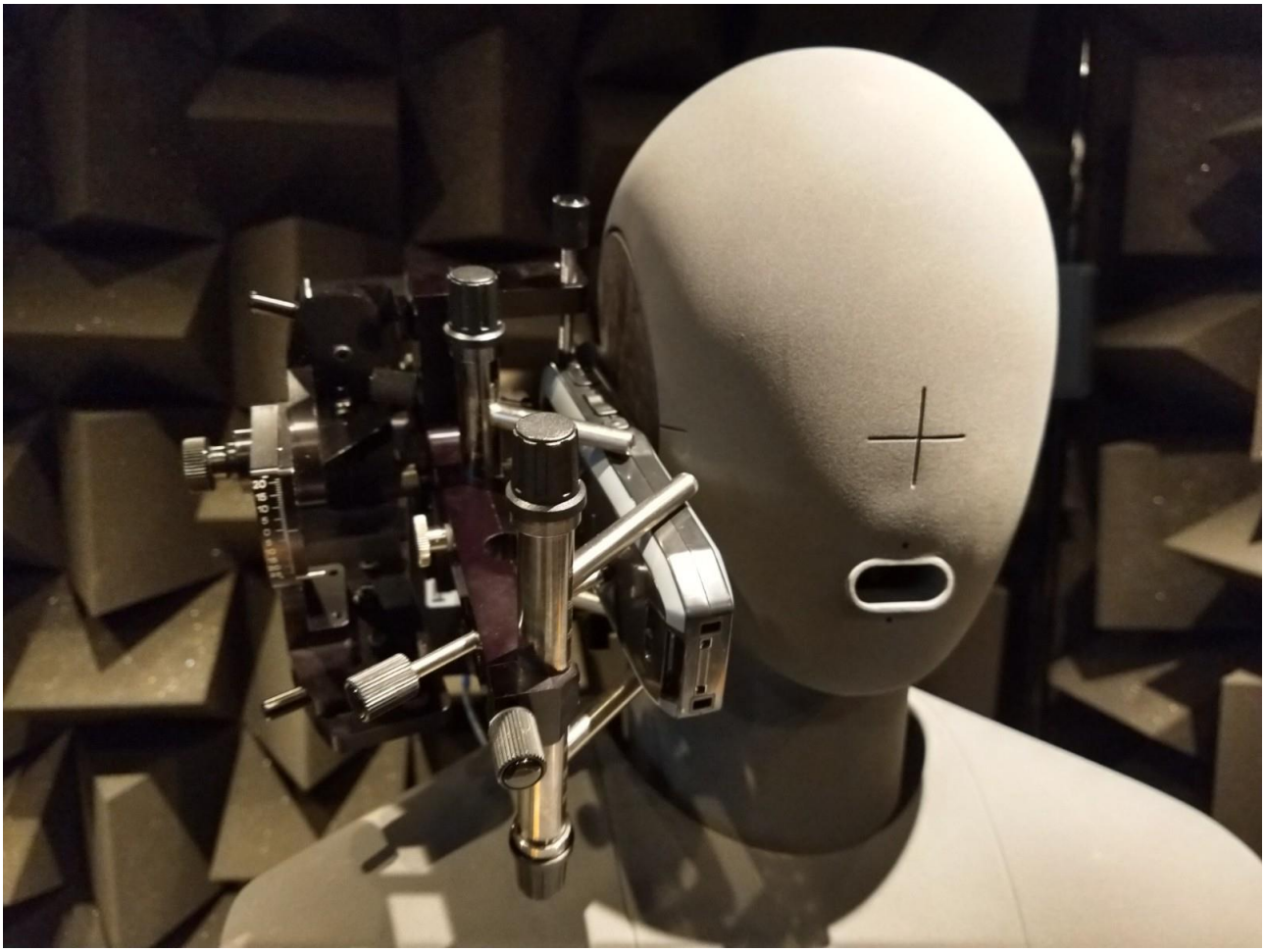


DH8- Front side



DH8- rear side with battery

7 Photo of the test-set-up



RORL measurements

Revisions

Revision #	Date	Order #	Description
00	2021-04-28	430662	First issued
01	2021-11-28	430662	WB Conversational Gain is included