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Hearing Aid Compatibility(HAC) **TEST REPORT**

<For RF-Emission measurement>

Applicant Name	DELL Inc.	
Address of Applicant	One Dell Way, Round Rock, Tx 78682	
EUT Name	Smart Phone	
Model Number	V02S002	
Date of receive	2010.12.21	
Date of Test(s)	2010.12.27	
Date of Issue	2011.01.06	

Standards:

ANSI C63.19-2007

FCC RULE PART(S): 47 CFR PART 20.19(B)

M3 (M Category) HAC CATEGORY:

In the configuration tested, the EUT complied with the standards specified above. Remarks:

This report details the results of the testing carried out on one sample, the results contained in this test report do not relate to other samples of the same product. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report. This report may only be reproduced and distributed in full. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards. Any mention of SGS Taiwan Electronics & Communication Laboratory or testing done by SGS Taiwan Electronics & Communication Laboratory in connection with distribution or use of the product described in this report must be approved by SGS Taiwan Electronics & Communication Laboratory in writing.

Tested by :	ky M	rang	Approved by:	Hi	ck H	m	
Ricky Huang		a Fr	Nick Hsu				
Asst. Supervisor	Date:	2011/01/06	Supervisor	Date:	2011/01/	06	

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Version

Version No.	Date	Description	
1.0	Jan. 06, 2011	Initial issue of report	

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1. Introduction

The purpose of the Hearing Aid Compatibility extension is to enable measurements of the near electric and magnetic fields generated by wireless communication devices in the region controlled for use by a hearing aid in accordance with ANSI-C63.19-2007

FCC has granted a request for waiver of the HAC rules in section 20.19 for dual band GSM handsets. The waiver has specific conditions, as stated in the order (FCC 05-166) and expires 1 August 2006.

The purpose of this standard is to establish categories for hearing aids and for WD (wireless communications devices) that can indicate to health care practitioners and hearing aid users which hearing aids are compatible with which WD, and to provide tests that can be used to assess the electromagnetic characteristics of hearing aids and WD and assign them to these categories. The various parameters required, in order to demonstrate compatibility and accessibility are measured. The design of the standard is such that when a hearing aid and WD achieve one of the categories specified, as measured by the methodology of this standard, the indicated performance is realized.

In order to provide for the usability of a hearing aid with a WD, several factors must be coordinated:

a) Radio frequency (RF) measurements of the near-field electric and magnetic fields emitted by a WD to categorize these emissions for correlation with the RF immunity of a hearing aid

Hence, the following are measurements made for the WD:

- a) RF E-Field emissions
- b) RF H-Field emissions

The measurement plane is parallel to, and 1.5cm in front of, the reference plane.

Applications for certification of equipment operation under part 20, that a manufacturer is seeking to certify as hearing aid compatible, as set forth in §20.19 of that part, shall include a statement indication compliance with the test requirements of §20.19 and indicating the appropriate U-rating for the equipment. The manufacturer of the equipment shall be responsible for maintaining the test results.

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prosecuted to the fullest extent of the law.



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2. Testing Laboratory

Company Name	SGS Taiwan Ltd. Electronics & Communication Laboratory
Company address	134, Wu Kung Road, Wuku Industrial Zone Taipei,
	Taiwan, R.O.C.
Telephone	+886-2-2299-3279
Fax	+886-2-2298-0488
Website	http://www.tw.sgs.com/

3. Details of Applicant

Applicant Name	DELL Inc.
Applicant Address	One Dell Way, Round Rock, Tx 78682
Contact Person	Matthew Samonek
TEL	815-382-4275
E-mail	matthew_samonek@dell.com

4. Description of EUT

EUT Name	Smart Phone
Model Name	V02S002
Brand Name	DELL
Marketing Name	Venue Pro
IMEI Code	012287000040377
FCC ID	E2KV02S002
Mode of Operation	GSM/GPRS/EGPRS/WCDMA/HSDPA/ HSUPA/WLAN802.11 b/g band

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Definition	ars.	Production unit	
Duty Cycle	GSM	GPRS	WCDMA B4
	1/8	1/2	1
TV Fraguency Dange	GSM 850	GSM1900	WCDMA B4
TX Frequency Range	824.2-	1850.2-	1712.4-
(MHz)	848.8MHZ	1909.8MHZ	1752.6 MHZ
Channel Number (ARFCN)	GSM 850	GSM1900	WCDMA B4
	128-251	512- 810	1312-1513
VOIP Function	No		
Battery Type	3.7 V Lithium-Ion		
Antenna Type	Internal Antenna		

5. Test Environment

Ambient Temperature	22.2° C	PPO
Relative Humidity	<60 %	

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6. System Specifications of DASY4

6.1 Measurement system Diagram for SPEAG Robotic

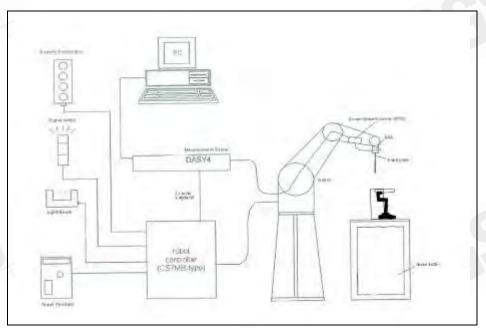


Fig 1. The SPEAG Robotic Diagram

The DASY4 system for performing compliance tests consists of the following items:

- A standard high precision 6-axis robot (Staubli RX family) with controller, teach pendant and software. An arm extension is for accommodating the data acquisition electronics (DAE).
- E and H Field probe.
- A data acquisition electronics (DAE) which performs the signal amplification, signal multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection, etc. The unit is battery powered with standard or rechargeable batteries. The signal is optically transmitted to the EOC.
- The Electro-optical converter (EOC) performs the conversion between optical and electrical of the signals for the digital communication to the DAE and for the analog signal from the optical surface detection. The EOC is connected to the measurement server.
- The function of the measurement server is to perform the time critical tasks such as signal filtering, control of the robot operation and fast movement interrupts.
- A probe alignment unit which improves the (absolute) accuracy of the probe positioning.
- A computer operating Windows 2000 or Windows XP.
- DASY4 software.

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- Remote control with teach pendant and additional circuitry for robot safety such as warning lamps, etc.
- The Test Arch phantom.
- The device holder for handheld mobile phones.
- Validation dipole kits allowing to validate the proper functioning of the system.

6.2 E and H Field Probe

O.Z L and IIII		
Construction	One dipole parallel, two dipoles normal to probe axis Built-in shielding against static charges PEEK enclosure material	
Calibration	In air from 100 MHz to 3.0 GHz (absolute accuracy $\pm 6.0\%$, $k=2$)	14/19
Frequency	100 MHz to $>$ 6 GHz (extended to 20 MHz for MRI), Linearity: \pm 0.2 dB (100 MHz to 3 GHz)	ER3DV6 E-Field Probe
Directivity	\pm 0.2 dB in air (rotation around probe axis) \pm 0.4 dB in air (rotation normal to probe axi	s)
Dynamic Range	2 V/m to > 1000 V/m; Linearity: ± 0.2 dB	
Dimensions	Overall length: 330 mm (Tip: 16 mm) Tip diameter: 8 mm (Body: 12 mm) Distance from probe tip to dipole centers: 2.	5 mm
Application	General near-field measurements up to 6 GF Field component measurements Fast automatic scanning in phantoms	Hz
Construction	Three concentric loop sensors with 3.8 mm loop diameters Resistively loaded detector diodes for linear response Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., glycolether)	
Frequency	200 MHz to 3 GHz (absolute accuracy ± 6.0%, k=2); Output linearized	H3DV6 H-Field Probe
Directivity	± 0.2 dB (spherical isotropy error)	
Dynamic Range	10 mA/m to 2 A/m at 1 GHz	

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E-Field	< 10% at 3 GHz (for plane wave)
Interference	To to at a chill (is: plane trate)
Dimensions	Overall length: 330 mm (Tip: 40 mm)
	Tip diameter: 6 mm (Body: 12 mm)
	Distance from probe tip to dipole centers: 3 mm
Application	General magnetic near-field measurements up to 3 GHz (in air or liquids)
	Field component measurements
	Surface current measurements
	Low interaction with the measured field

6.3 Test Arch

Description	Enables easy and well defined positioning of	
	the phone and validation dipoles as well as	
	simple teaching of the robot.	
Dimensions	length: 370 mm	
	width: 370 mm	
	height: 370 mm	
		Test Arc



6.4 Phone Holder

0		
·	Supports accurate and reliable positioning of any phone Effect on near field <+/- 0.5 dB	
		Phone Holder

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7. Measurement Procedure

The following illustrate a typical RF emissions test scan over a wireless communications device:

- 1. Proper operation of the field probe, probe measurement system, other instrumentation, and the positioning system was confirmed.
- 2. WD is positioned in its intended test position, acoustic output point of the device perpendicular to the field probe.
- 3. the WD operation for maximum rated RF output power was configured and confirmed with the base station simulator, at the test channel and other normal operating parameters as intended for the test. The battery was ensured to be fully charged before each test.
- 4. the center sub-grid was centered over the center of the acoustic output (also audio band magnetic output, if applicable). The WD audio output was positioned tangent (as physically possible) to the measurement plane.
- 5. A surface calibration was performed before each setup change to ensure repeatable spacing and proper maintenance of the measurement plane using the HAC Phantom.
- 6. The measurement system measured the field strength at the reference location.
- 7. Measurements at 2mm increments in the 5 × 5 cm region were performed and recorded. A 360° rotation about the azimuth axis at the maximum interpolated position was measured. For the worst-case condition, the peak reading from this rotation was used in re-evaluating the HAC category.
- 8. The system performed a drift evaluation by measuring the field at the reference location.
- 9. Steps 1-8 were done for both the E and H-Field measurements.

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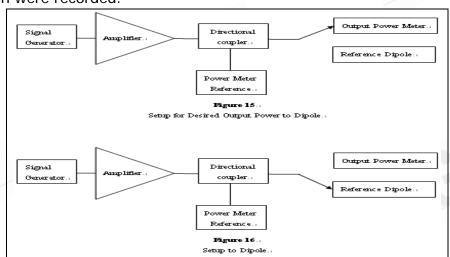


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8. System Verification

A dipole antenna meeting the requirements given in C63.19 was placed in the position normally occupied by the WD.

The length of the dipole was scanned with both E-field and H-field probes and the maximum values for each were recorded.



For E-Field Scan

7 27 = 7,374 00417							
Mode	Frequency	Input	Measured	Target	Measured		
Mode	(MHz)	Power(dBm)	Value(V/m)	Value(V/m)	Date		
CW	835	20	173.1	168.9	2010/12/27		
Mode	Frequency	Input	Measured	Target	Measured		
Mode	(MHz)	Power(dBm)	Value(V/m)	Value(V/m)	Date		
CW	1880	20	137.9	136.1	2010/12/27		

For H-Field Scan

Mode	Fraguancy	Input	Measured	Target	Measured
iviode	Frequency	Power	Value(A/m)	Value(A/m)	Date
CW	835	20	0.454	0.452	2010/12/27
Mode	Frequency	Input	Measured	Target	Measured
Mode		Power	Value(A/m)	Value(A/m)	Date
CW	1880	20	0.457	0.447	2010/12/27

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9. Probe Modulation Factor

The measurement setup for determination of the PMF is given in DASY4 manual section 28.2. The following points describe the installation, the measurement procedure and the evaluation.

- 1. Install the field probe in the DASY4 window setup.
- 2. Mount a validation dipole for the appropriate frequency band under the Test Arch. Move the probe manually to a point of high field strength for the specific field type. The probe may be very close to the dipole and might even touch it. During the fine adjustment of the probe with a signal applied to the dipole, read the x, y and z channel amplitudes in a multimeter job. They should all show a similar amplitude.
- 3. For comparing the peak amplitudes of modulated and CW signal, the same spectrum analyzer settings are required. The signal path (and setup geometry) between spectrum analyzer and probe must not be changed during the evaluation of the PMF! Only signal type and amplitudes as well as DASY4 settings may be varied.

Spectrum analyzer settings:

- Center Frequency: nominal center frequency of channel
- Span: zero
- Resolution bandwidth >= emission bandwidth
- Video bandwidth = 20dB
- Detection: RMS detection
- Trigger: Video or IF trigger, adjusted to give a stable display of the transmission
- Sweep rate: Set to show a complete tranmission cycle
- Line max hold may be used temporarily to ease the peak reading.
- 4. Define a DASY4 document and set the procedure properties (frequency as above, modulation frequency and crest factor for the modulated signal) according to the measured signal. Define a multimeter job (continuous mode) for the field reading. The probe shall not move. A predefined document is available.
- 5. Define a DASY4 document with a procedure for the evaluation of the CW signal (frequency, modulation frequency = 0, crest factor = 1) with a multimeter job.

The HAC measurement procedure is as follows:

6. Prepare the evaluation sheet for the installed field probe, frequency and modulation type.

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- 7. Modulated signal measurement: Connect the modulated signal using the appropriate frequency via the cable to the setup. Do not move the setup between the following measurements.
- 8. Run the multimeter job in the procedure with the corresponding modulation setting in continuous mode.
- 9. Adjust the signal amplitude to achieve the the desired field level display in the multimeter. (A number of levels over the full dynamic range of the probe in the desired range shall be set, including the values read during the WD scans.)
- 10. Read the total field for the modulated signal.
- 11. Read the peak envelope signal on the spectrum analyzer.
- 12. Repeat these readings for other amplitude settings.
- 13. Switch the signal source off and verify that the ambient and instrumentation noise level is at least 10dB lower (a factor of 3 in field).
- 14. CW measurement: Change the signal to CW at the same center frequency, without touching or moving dipole or probe in the setup.
- 15. Adjust the CW signal amplitude to a similar range of peak levels on the spectrum analyzer.
- 16. Run the multimeter in the CW procedure in continuous mode.
- 17. Read the multimeter total field display.
- 18. Read the signal on the spectrum analyzer.
- 19. Repeat these readings for other amplitude settings.
- 20. Select the correct type of predefined Excel calculation sheet and insert the readings into the appropriate measurement columns. Conversion from linear DASY readings to logarithmic will be automatically made. The diagrams contain fitting curves for the logarithmic quantities. CW and E-field values will be fitted by linear trend lines, H-field values by quadratic.

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10. Test Standards and Limits

The measurements were performed to ensure compliance to the ANSI C63.19-2007 standard.

AWF (dB)	Limits for E-Field Emissions (V/m) > 960MHz	Limits for H-Field Emissions (A/m) > 960MHz
0	199.5 - 354.8	0.6 - 1.07
-5	149.6 - 266.1	0.45 - 0.8
0	112.2 - 199.5	0.34 - 0.6
-5	84.1 - 149.6	0.25 - 0.45
0	63.1 - 112.2	0.19 - 0.34
-5	47.3 - 84.1	0.14 - 0.25
0	<63.1	<0.19
-5	<47.3	<0.14
AWF (dB)	Limits for E-Field Emissions (V/m) < 960MHz	Limits for H-Field Emissions (A/m) < 960 MHz
0	631 - 1122	1.91 - 3.39
-5	473.2 - 841.4	1.43 - 2.54
0	354.8 - 631	1.07 - 1.91
-5	266.1 - 473.2	0.8 - 1.43
0	199.5 - 354.8	0.6 - 1.07
-5	149.6 - 266.1	0.45 - 0.8
0	<199.5	<0.6
	.140 /	<0.45
	AWF (dB) 0 -5 0 -5 0 -5 0 -5 0 -5 0 -5 0 -5 0	AWF (dB)

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11. Instruments List

Manufacturer	Device	Туре	Serial number	Date of last calibration
Schmid & Partner	E-Field and H-Field	ER3DV6	2306	Apr.26.2010
Engineering AG	Probe	H3DV6	6142	Apr.26.2010
Schmid & Partner Engineering AG	835&1880 MHz System Validation Dipole In Air	CD835V3 CD1880V3	1052 1044	Apr.26.2010 Apr.26.2010
Schmid & Partner Engineering AG	Data acquisition Electronics	DAE4	547	Aug.18.2010
Schmid & Partner Engineering AG	Software	DASY 4 V4.7 Build 80	N/A	Calibration isn't necessary
Agilent	Dielectric Probe Kit	85070D	US01440168	Calibration isn't necessary
Agilent	Dual-directional coupler	778D	50313	Aug.25.2010
Agilent	RF Signal Generator	8648D	3847M00432	Jun.06.2010
Agilent	Power Sensor	U2001B	MY48100169	Apr.30.2010
R&S	Radio Communication Test	CMU200	113505	Mar.25.2010
Schmid & Partner Engineering AG	Test Arch SD HAC	P01	1047	N/A

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12. Summary of Results

E-Field (Slider off)

E-Field Emission	Channel	Modulation Factor	Conducted Power at BS (dBm)	Measured Drift(%)	Time Avg. Field (V/m)	RESULT	Excl Blocks per 4.3.1.2.2
	128	2.83	32.20	0.13	164.4	М3	236
GSM850	190	2.83	32.20	-0.038	153.6	М3	689
	251	2.83	32.20	0.002	152	М3	689
E-Field Emission	Channel	Modulation Factor	Conducted Power at BS (dBm)	Measured Drift(%)	Time Avg. Field (V/m)	RESULT	Excl Blocks per 4.3.1.2.2
	512	2.89	28.90	0.161	50.9	М3	789
GSM1900	661	2.89	29.00	0.108	50	М3	789
	810	2.89	29.00	0.004	51.3	М3	789
E-Field Emission	Channel	Modulation Factor	Conducted Power at BS (dBm)	Measured Drift(%)	Time Avg. Field (V/m)	RESULT	Excl Blocks per 4.3.1.2.2
	1312	1	23.30	0.128	37.6	M4	689
WCDMA B4	1412	1	23.20	-0.035	39.3	M4	689
	1513	1	23.10	-0.121	43.2	M4	689

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H-Filed (Slider off)

H-Filed (Slider OII)							
H-Field Emission	Channel	Modulation Factor	Conducted Power at BS (dBm)	Measured Drift(%)	Time Avg. Field (A/m)	RESULT	Excl Blocks per 4.3.1.2.2
	128	2.98	32.20	-0.011	0.285	M4	147
GSM850	190	2.98	32.20	0.031	0.266	M4	147
	251	2.98	32.20	0.023	0.272	M4	147
H-Field Emission	Channel	Modulation Factor	Conducted Power at BS (dBm)	Measured Drift(%)	Time Avg. Field (A/m)	RESULT	Excl Blocks per 4.3.1.2.2
	512	2.78	28.90	0.092	0.148	М3	478
GSM900	661	2.78	29.00	0.023	0.178	М3	478
	810	2.78	29.00	0.019	0.180	М3	789
H-Field Emission	Channel	Modulation Factor	Conducted Power at BS (dBm)	Measured Drift(%)	Time Avg. Field (A/m)	RESULT	Excl Blocks per 4.3.1.2.2
	1312	1	23.30	-0.03	0.093	M4	478
WCDMA B4	1412	1	23.20	-0.063	0.1	M4	478
	1513	1	23.10	-0.042	0.114	M4	478

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E-Field (Slider on)

E-Field Emission	Channel	Modulation Factor	Conducted Power at BS (dBm)	Measured Drift(%)	Time Avg. Field (V/m)	RESULT	Excl Blocks per 4.3.1.2.2
	128	2.84	32.20	-0.036	124.2	M4	689
GSM850	190	2.84	32.20	-0.019	114.8	M4	689
	251	2.84	32.20	-0.146	107.7	M4	689
E-Field Emission	Channel	Modulation Factor	Conducted Power at BS (dBm)	Measured Drift(%)	Time Avg. Field (V/m)	RESULT	Excl Blocks per 4.3.1.2.2
	512	2.89	28.90	0.058	49.3	М3	689
GSM1900	661	2.89	29.00	0.121	51	M3	689
	810	2.89	29.00	0.037	50.7	M3	789
E-Field Emission	Channel	Modulation Factor	Conducted Power at BS (dBm)	Measured Drift(%)	Time Avg. Field (V/m)	RESULT	Excl Blocks per 4.3.1.2.2
	1312	1	23.30	0.132	38.2	M4	689
WCDMA B4	1412	1	23.20	0.13	39.6	M4	689
	1513	1	23.10	-0.018	34.8	M4	689

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H-Filed (Slider on)

	n-Filed (Silder Oil)						
H-Field Emission	Channel	Modulation Factor	Conducted Power at BS (dBm)	Measured Drift(%)	Time Avg. Field (A/m)	RESULT	Excl Blocks per 4.3.1.2.2
	128	2.99	32.20	-0.054	0.189	M4	147
GSM850	190	2.99	32.20	0.008	0.169	M4	147
	251	2.99	32.20	0.04	0.163	M4	147
H-Field Emission	Channel	Modulation Factor	Conducted Power at BS (dBm)	Measured Drift(%)	Time Avg. Field (A/m)	RESULT	Excl Blocks per 4.3.1.2.2
	512	2.69	28.90	0.033	0.129	M4	478
GSM900	661	2.69	29.00	0.122	0.136	M4	478
	810	2.69	29.00	-0.008	0.142	М3	478
H-Field Emission	Channel	Modulation Factor	Conducted Power at BS (dBm)	Measured Drift(%)	Time Avg. Field (A/m)	RESULT	Excl Blocks per 4.3.1.2.2
	1312	1	23.30	0.006	0.097	M4	478
WCDMA B4	1412	1	23.20	0.186	0.093	M4	478
	1513	1	23.10	-0.151	0.092	M4	478

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13. Measurement Data

Date: 2010/12/27

HAC_E GSM 850_CH128_slider off

DUT: V02S002;

Communication System: GSM 850; Frequency: 824.2 MHz; Duty Cycle: 1:8.3 Medium: Air Medium parameters used: $\sigma = 0$ mho/m, $\varepsilon_r = 1$; $\rho = 1000$ kg/m³

Phantom section: E Device Section

DASY4 Configuration:

Probe: ER3DV6 - SN2306; ConvF(1, 1, 1); Calibrated: 2010/4/26

Sensor-Surface: (Fix Surface)

Electronics: DAE4 Sn547; Calibrated: 2010/8/18

Phantom: HAC Test Arch 4.6; Type: SD HAC P01 BA;

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

E Scan - ER3DV6 - measurement distance from the probe sensor center to the Device = 15mm/Hearing Aid Compatibility Test (101x101x1):

Measurement grid: dx=5mm, dy=5mm

Maximum value of peak Total field = 164.4 V/m

Probe Modulation Factor = 2.83

Device Reference Point: 0.000, 0.000, 353.7 mm Reference Value = 71.4 V/m; Power Drift = 0.13 dB

Hearing Aid Near-Field Category: M3 (AWF -5 dB)

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Peak E-field in V/m

Grid 1	Grid 2	Grid 3
145.2 M4	162.1 M3	158.8 M3
Grid 4	Grid 5	Grid 6
148.0 M4	164.4 M3	161.3 M3
Grid 7	Grid 8	Grid 9
144.6 M4	161.4 M3	159.1 M3

Category	AWF (dB)	Limits for E-Field Emissions (V/m) > 960MHz	Limits for H-Field Emissions (A/m) > 960MHz
M1	0	199.5 - 354.8	0.6 - 1.07
	-5	149.6 - 266.1	0.45 - 0.8
M2	0	112.2 - 199.5	0.34 - 0.6
	-5	84.1 - 149.6	0.25 - 0.45
M3	0	63.1 - 112.2	0.19 - 0.34
167	-5	47.3 - 84.1	0.14 - 0.25
M4	0	<63.1	<0.19
	-5	<47.3	<0.14
Category	AWF (dB)	Limits for E-Field Emissions (V/m) < 960MHz	Limits for H-Field Emissions (A/m) < 960 MHz
M1	0	631 - 1122	1.91 - 3.39
	-5	473.2 - 841.4	1.43 - 2.54
M2	0	354.8 - 631	1.07 - 1.91
	-5	266.1 - 473.2	0.8 - 1.43
M3	0	199.5 - 354.8	0.6 - 1.07
	-5	149.6 - 266.1	0.45 - 0.8
M4	0	<199.5	<0.6
	U	< 177.5	10.0

Cursor:

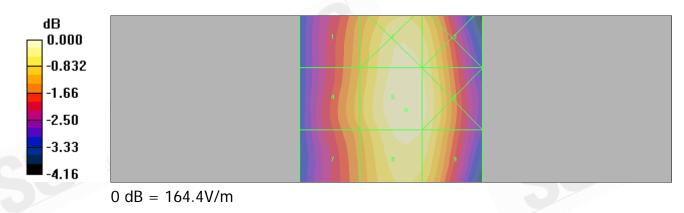
Total = 164.4 V/mE Category: M3

Location: -4, 3, 368.7 mm

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Date: 2010/12/27

HAC_E GSM 850_CH190_slider off

DUT: V02S002;

Communication System: GSM 850; Frequency: 836.6 MHz; Duty Cycle: 1:8.3 Medium: Air Medium parameters used: $\sigma = 0$ mho/m, $\varepsilon_r = 1$; $\rho = 1000$ kg/m³

Phantom section: E Device Section

DASY4 Configuration:

Probe: ER3DV6 - SN2306; ConvF(1, 1, 1); Calibrated: 2010/4/26

• Sensor-Surface: (Fix Surface)

Electronics: DAE4 Sn547; Calibrated: 2010/8/18

Phantom: HAC Test Arch 4.6; Type: SD HAC P01 BA;

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

E Scan - ER3DV6 - measurement distance from the probe sensor center to the Device = 15mm/Hearing Aid Compatibility Test (101x101x1):

Measurement grid: dx=5mm, dy=5mm

Maximum value of peak Total field = 153.6 V/m

Probe Modulation Factor = 2.83

Device Reference Point: 0.000, 0.000, 353.7 mm Reference Value = 67.5 V/m; Power Drift = -0.038 dB Hearing Aid Near-Field Category: M3 (AWF -5 dB)

Peak E-field in V/m

Grid 1	Grid 2	Grid 3
133.2 M4	152.0 M3	150.1 M3
Grid 4	Grid 5	Grid 6
135.8 M4	153.6 M3	152.2 M3
Grid 7	Grid 8	Grid 9
132.8 M4	152.1 M3	150.3 M3

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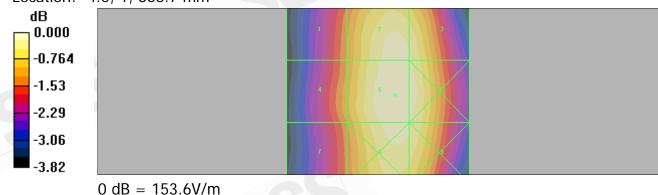
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Category	AWF (dB)	Limits for E-Field Emissions (V/m) > 960MHz	Limits for H-Field Emissions (A/m) > 960MHz
M1	0	199.5 - 354.8	0.6 - 1.07
	-5	149.6 - 266.1	0.45 - 0.8
M2	0	112.2 - 199.5	0.34 - 0.6
	-5	84.1 - 149.6	0.25 - 0.45
M3	0	63.1 - 112.2	0.19 - 0.34
	-5	47.3 - 84.1	0.14 - 0.25
M4	0	<63.1	<0.19
	-5	<47.3	<0.14
Category	AWF (dB)	Limits for E-Field Emissions (V/m) < 960MHz	Limits for H-Field Emissions (A/m) < 960 MHz
M1	0	631 - 1122	1.91 - 3.39
	-5	473.2 - 841.4	1.43 - 2.54
M2	0	354.8 - 631	1.07 - 1.91
	-5	266.1 - 473.2	0.8 - 1.43
M3	0	199.5 - 354.8	0.6 - 1.07
	-5	149.6 - 266.1	0.45 - 0.8
M4	0	<199.5	<0.6
	-5	<149.6	<0.45

Cursor:

Total = 153.6 V/mE Category: M3

Location: -4.5, 1, 368.7 mm



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Date: 2010/12/27

HAC_E GSM 850_CH251_slider off

DUT: V02S002;

Communication System: GSM 850; Frequency: 848.8 MHz; Duty Cycle: 1:8.3 Medium: Air Medium parameters used: $\sigma = 0$ mho/m, $\varepsilon_r = 1$; $\rho = 1000$ kg/m³

Phantom section: E Device Section

DASY4 Configuration:

Probe: ER3DV6 - SN2306; ConvF(1, 1, 1); Calibrated: 2010/4/26

Sensor-Surface: (Fix Surface)

Electronics: DAE4 Sn547; Calibrated: 2010/8/18

Phantom: HAC Test Arch 4.6; Type: SD HAC P01 BA;

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

E Scan - ER3DV6 - measurement distance from the probe sensor center to the Device = 15mm/Hearing Aid Compatibility Test (101x101x1):

Measurement grid: dx=5mm, dy=5mm

Maximum value of peak Total field = 152.0 V/m

Probe Modulation Factor = 2.83

Device Reference Point: 0.000, 0.000, 353.7 mm Reference Value = 65.9 V/m; Power Drift = 0.002 dB

Hearing Aid Near-Field Category: M3 (AWF -5 dB)

Peak E-field in V/m

Grid 1	Grid 2	Grid 3
132.8 M4	149.4 M4	147.6 M4
Grid 4	Grid 5	Grid 6
135.6 M4	152.0 M3	150.0 M3
Grid 7	Grid 8	Grid 9
133.5 M4	149.8 M3	148.4 M4

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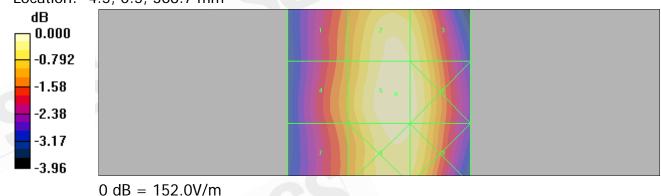
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Category	AWF (dB)	Limits for E-Field Emissions (V/m) > 960MHz	Limits for H-Field Emissions (A/m) > 960MHz
M1	0	199.5 - 354.8	0.6 - 1.07
	-5	149.6 - 266.1	0.45 - 0.8
M2	0	112.2 - 199.5	0.34 - 0.6
	-5	84.1 - 149.6	0.25 - 0.45
M3	0	63.1 - 112.2	0.19 - 0.34
	-5	47.3 - 84.1	0.14 - 0.25
M4	0	<63.1	<0.19
	-5	<47.3	<0.14
Category	AWF (dB)	Limits for E-Field Emissions (V/m) < 960MHz	Limits for H-Field Emissions (A/m) < 960 MHz
M1	0	631 - 1122	1.91 - 3.39
	-5	473.2 - 841.4	1.43 - 2.54
M2	0	354.8 - 631	1.07 - 1.91
	-5	266.1 - 473.2	0.8 - 1.43
M3	0	199.5 - 354.8	0.6 - 1.07
181	-5	149.6 - 266.1	0.45 - 0.8
M4	0	<199.5	<0.6
	-5	<149.6	<0.45

Cursor:

Total = 152.0 V/m E Category: M3

Location: -4.5, 0.5, 368.7 mm



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Date: 2010/12/27

HAC_H_GSM 850_CH128_slider off

DUT: V02S002;

Communication System: GSM 850; Frequency: 824.2 MHz; Duty Cycle: 1:8.3 Medium: Air Medium parameters used: $\sigma = 0$ mho/m, $\varepsilon_r = 1$; $\rho = 1$ kg/m³

Phantom section: H Device Section

DASY4 Configuration:

Probe: H3DV6 - SN6142; ; Calibrated: 2010/4/26

Sensor-Surface: (Fix Surface)

Electronics: DAE4 Sn547; Calibrated: 2010/8/18

Phantom: HAC Test Arch 4.6; Type: SD HAC P01 BA;

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

H Scan - H3DV6 - measurement discance from the probe sensor center to the Device = 15mm/Hearing Aid Compatibility Test (101x101x1):

Measurement grid: dx=5mm, dy=5mm

Maximum value of peak Total field = 0.285 A/m

Probe Modulation Factor = 2.98

Device Reference Point: 0.000, 0.000, 353.7 mm

Reference Value = 0.077 A/m; Power Drift = -0.011 dB Hearing Aid Near-Field Category: M4 (AWF -5 dB)

Peak H-field in A/m

Grid 1	Grid 2	Grid 3
0.381 M4	0.280 M4	0.170 M4
Grid 4	Grid 5	Grid 6
0.378 M4	0.278 M4	0.170 M4
Grid 7	Grid 8	Grid 9
0.390 M4	0.285 M4	0.175 M4

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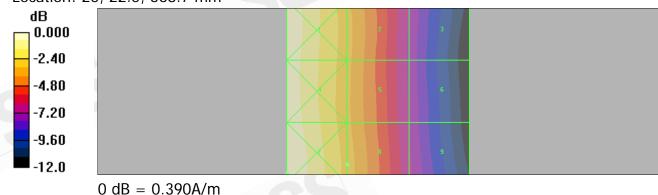
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Category	AWF (dB)	Limits for E-Field Emissions (V/m) > 960MHz	Limits for H-Field Emissions (A/m) > 960MHz
M1	0	199.5 - 354.8	0.6 - 1.07
	-5	149.6 - 266.1	0.45 - 0.8
M2	0	112.2 - 199.5	0.34 - 0.6
	-5	84.1 - 149.6	0.25 - 0.45
M3	0	63.1 - 112.2	0.19 - 0.34
	-5	47.3 - 84.1	0.14 - 0.25
M4	0	<63.1	<0.19
	-5	<47.3	<0.14
Category	AWF (dB)	Limits for E-Field Emissions (V/m) < 960MHz	Limits for H-Field Emissions (A/m) < 960 MHz
M1	0	631 - 1122	1.91 - 3.39
	-5	473.2 - 841.4	1.43 - 2.54
M2	0	354.8 - 631	1.07 - 1.91
	-5	266.1 - 473.2	0.8 - 1.43
M3	0	199.5 - 354.8	0.6 - 1.07
	-5	149.6 - 266.1	0.45 - 0.8
M4	0	<199.5	<0.6
	-5	<149.6	<0.45

Cursor:

Total = 0.390 A/mH Category: M4

Location: 25, 22.5, 368.7 mm



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Date: 2010/12/27

HAC_H_GSM 850_CH190_slider off

DUT: V02S002;

Communication System: GSM 850; Frequency: 836.6 MHz; Duty Cycle: 1:8.3 Medium: Air Medium parameters used: $\sigma = 0$ mho/m, $\varepsilon_r = 1$; $\rho = 1$ kg/m³

Phantom section: H Device Section

DASY4 Configuration:

Probe: H3DV6 - SN6142; ; Calibrated: 2010/4/26

Sensor-Surface: (Fix Surface)

Electronics: DAE4 Sn547; Calibrated: 2010/8/18

Phantom: HAC Test Arch 4.6; Type: SD HAC P01 BA;

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

H Scan - H3DV6 - measurement discance from the probe sensor center to the Device = 15mm/Hearing Aid Compatibility Test (101x101x1):

Measurement grid: dx=5mm, dy=5mm

Maximum value of peak Total field = 0.266 A/m

Probe Modulation Factor = 2.98

Device Reference Point: 0.000, 0.000, 353.7 mm Reference Value = 0.072 A/m; Power Drift = 0.031 dB Hearing Aid Near-Field Category: M4 (AWF -5 dB)

Peak H-field in A/m

Grid 1	Grid 2	Grid 3
0.356 M4	0.265 M4	0.163 M4
Grid 4	Grid 5	Grid 6
0.351 M4	0.263 M4	0.160 M4
Grid 7	Grid 8	Grid 9
0.361 M4	0.266 M4	0.164 M4

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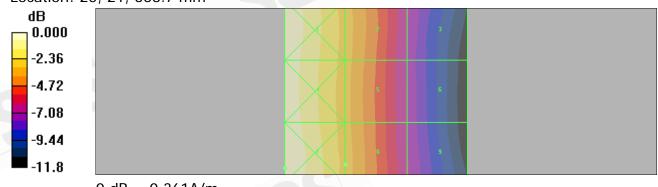
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Category	AWF (dB)	Limits for E-Field Emissions (V/m) > 960MHz	Limits for H-Field Emissions (A/m) > 960MHz
M1	0	199.5 - 354.8	0.6 - 1.07
	-5	149.6 - 266.1	0.45 - 0.8
M2	0	112.2 - 199.5	0.34 - 0.6
	-5	84.1 - 149.6	0.25 - 0.45
M3	0	63.1 - 112.2	0.19 - 0.34
	-5	47.3 - 84.1	0.14 - 0.25
M4	0	<63.1	<0.19
	-5	<47.3	<0.14
Category	AWF (dB)	Limits for E-Field Emissions (V/m) < 960MHz	Limits for H-Field Emissions (A/m) < 960 MHz
M1	0	631 - 1122	1.91 - 3.39
	-5	473.2 - 841.4	1.43 - 2.54
M2	0	354.8 - 631	1.07 - 1.91
	-5	266.1 - 473.2	0.8 - 1.43
M3	0	199.5 - 354.8	0.6 - 1.07
161	-5	149.6 - 266.1	0.45 - 0.8
M4	0	<199.5	<0.6
	-5	<149.6	<0.45

Cursor:

Total = 0.361 A/mH Category: M4

Location: 25, 21, 368.7 mm



0 dB = 0.361A/m

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Date: 2010/12/27

HAC_H_GSM 850_CH251_slider off

DUT: V02S002;

Communication System: GSM 850; Frequency: 848.8 MHz; Duty Cycle: 1:8.3 Medium: Air Medium parameters used: $\sigma = 0$ mho/m, $\varepsilon_r = 1$; $\rho = 1$ kg/m³

Phantom section: H Device Section

DASY4 Configuration:

Probe: H3DV6 - SN6142; ; Calibrated: 2010/4/26

Sensor-Surface: (Fix Surface)

Electronics: DAE4 Sn547; Calibrated: 2010/8/18

Phantom: HAC Test Arch 4.6; Type: SD HAC P01 BA;

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

H Scan - H3DV6 - measurement discance from the probe sensor center to the Device = 15mm/Hearing Aid Compatibility Test (101x101x1):

Measurement grid: dx=5mm, dy=5mm

Maximum value of peak Total field = 0.272 A/m

Probe Modulation Factor = 2.98

Device Reference Point: 0.000, 0.000, 353.7 mm Reference Value = 0.074 A/m; Power Drift = 0.023 dB Hearing Aid Near-Field Category: M4 (AWF -5 dB)

Peak H-field in A/m

Grid 1	Grid 2	Grid 3
0.365 M4	0.272 M4	0.164 M4
Grid 4	Grid 5	Grid 6
0 2/2 1/4	0 270 144	0.161 M4
U.362 IVI4	0.270 1014	U. 10 I IVI4
		Grid 9

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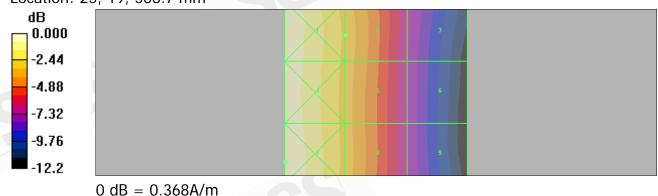
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Category	AWF (dB)	Limits for E-Field Emissions (V/m) > 960MHz	Limits for H-Field Emissions (A/m) > 960MHz
M1	0	199.5 - 354.8	0.6 - 1.07
	-5	149.6 - 266.1	0.45 - 0.8
M2	0	112.2 - 199.5	0.34 - 0.6
	-5	84.1 - 149.6	0.25 - 0.45
M3	0	63.1 - 112.2	0.19 - 0.34
	-5	47.3 - 84.1	0.14 - 0.25
M4	0	<63.1	<0.19
	-5	<47.3	<0.14
Category	AWF (dB)	Limits for E-Field Emissions (V/m) < 960MHz	Limits for H-Field Emissions (A/m) < 960 MHz
M1	0	631 - 1122	1.91 - 3.39
	-5	473.2 - 841.4	1.43 - 2.54
M2	0	354.8 - 631	1.07 - 1.91
	-5	266.1 - 473.2	0.8 - 1.43
M3	0	199.5 - 354.8	0.6 - 1.07
165	-5	149.6 - 266.1	0.45 - 0.8
M4	0	<199.5	<0.6
	-5	<149.6	<0.45

Cursor:

Total = 0.368 A/mH Category: M4

Location: 25, 19, 368.7 mm



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Date: 2010/12/27

HAC_E GSM 850_CH128_slider on

DUT: V02S002;

Communication System: GSM 850; Frequency: 824.2 MHz; Duty Cycle: 1:8.3 Medium: Air Medium parameters used: $\sigma = 0$ mho/m, $\varepsilon_r = 1$; $\rho = 1000$ kg/m³

Phantom section: E Device Section

DASY4 Configuration:

Probe: ER3DV6 - SN2306; ConvF(1, 1, 1); Calibrated: 2010/4/26

• Sensor-Surface: (Fix Surface)

Electronics: DAE4 Sn547; Calibrated: 2010/8/18

Phantom: HAC Test Arch 4.6; Type: SD HAC P01 BA;

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

E Scan - ER3DV6 - measurement distance from the probe sensor center to the Device = 15mm/Hearing Aid Compatibility Test (101x101x1):

Measurement grid: dx=5mm, dy=5mm

Maximum value of peak Total field = 124.2 V/m

Probe Modulation Factor = 2.84

Device Reference Point: 0.000, 0.000, 353.7 mm Reference Value = 55.5 V/m; Power Drift = -0.036 dB Hearing Aid Near-Field Category: M4 (AWF -5 dB)

Peak E-field in V/m

Grid 1	Grid 2	Grid 3
105.3 M4	121.6 M4	119.7 M4
Grid 4	Grid 5	Grid 6
107.8 M4	124.2 M4	122.2 M4
Grid 7	Grid 8	Grid 9
106.5 M4	122.7 M4	120.8 M4

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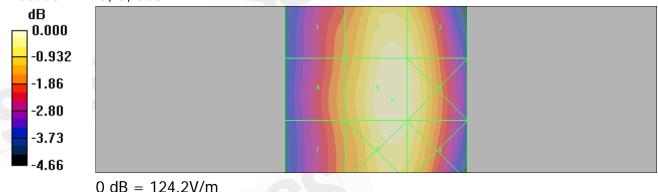
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Category	AWF (dB)	Limits for E-Field Emissions (V/m) > 960MHz	Limits for H-Field Emissions (A/m) > 960MHz
M1	0	199.5 - 354.8	0.6 - 1.07
	-5	149.6 - 266.1	0.45 - 0.8
M2	0	112.2 - 199.5	0.34 - 0.6
	-5	84.1 - 149.6	0.25 - 0.45
M3	0	63.1 - 112.2	0.19 - 0.34
	-5	47.3 - 84.1	0.14 - 0.25
M4	0	<63.1	<0.19
	-5	<47.3	<0.14
Category	AWF (dB)	Limits for E-Field Emissions (V/m) < 960MHz	Limits for H-Field Emissions (A/m) < 960 MHz
M1	0	631 - 1122	1.91 - 3.39
	-5	473.2 - 841.4	1.43 - 2.54
M2	0	354.8 - 631	1.07 - 1.91
	-5	266.1 - 473.2	0.8 - 1.43
M3	0	199.5 - 354.8	0.6 - 1.07
	-5	149.6 - 266.1	0.45 - 0.8
M4	0	<199.5	<0.6
	-5	<149.6	<0.45

Cursor:

Total = 124.2 V/mE Category: M4

Location: -4.5, 3, 368.7 mm



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Date: 2010/12/27

HAC_E GSM 850_CH190_slider on

DUT: V02S002;

Communication System: GSM 850; Frequency: 836.6 MHz; Duty Cycle: 1:8.3 Medium: Air Medium parameters used: $\sigma = 0$ mho/m, $\varepsilon_r = 1$; $\rho = 1000$ kg/m³

Phantom section: E Device Section

DASY4 Configuration:

Probe: ER3DV6 - SN2306; ConvF(1, 1, 1); Calibrated: 2010/4/26

• Sensor-Surface: (Fix Surface)

Electronics: DAE4 Sn547; Calibrated: 2010/8/18

Phantom: HAC Test Arch 4.6; Type: SD HAC P01 BA;

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

E Scan - ER3DV6 - measurement distance from the probe sensor center to the Device = 15mm/Hearing Aid Compatibility Test (101x101x1):

Measurement grid: dx=5mm, dy=5mm

Maximum value of peak Total field = 114.8 V/m

Probe Modulation Factor = 2.84

Device Reference Point: 0.000, 0.000, 353.7 mm Reference Value = 50.7 V/m; Power Drift = -0.019 dB Hearing Aid Near-Field Category: M4 (AWF -5 dB)

Peak E-field in V/m

Grid 1	Grid 2	Grid 3
96.9 M4	111.8 M4	110.8 M4
Grid 4	Grid 5	Grid 6
99.5 M4	114.8 M4	113.1 M4
Grid 7	Grid 8	Grid 9
98.2 M4	113.5 M4	111.3 M4

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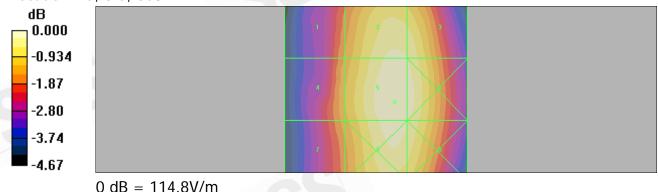
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AWF (dB)	Limits for E-Field Emissions (V/m) > 960MHz	Limits for H-Field Emissions (A/m) > 960MHz
0	199.5 - 354.8	0.6 - 1.07
-5	149.6 - 266.1	0.45 - 0.8
0	112.2 - 199.5	0.34 - 0.6
-5	84.1 - 149.6	0.25 - 0.45
0	63.1 - 112.2	0.19 - 0.34
-5	47.3 - 84.1	0.14 - 0.25
0	<63.1	<0.19
-5	<47.3	<0.14
AWF (dB)	Limits for E-Field Emissions (V/m) < 960MHz	Limits for H-Field Emissions (A/m) < 960 MHz
0	631 - 1122	1.91 - 3.39
-5	473.2 - 841.4	1.43 - 2.54
0	354.8 - 631	1.07 - 1.91
-5	266.1 - 473.2	0.8 - 1.43
0	199.5 - 354.8	0.6 - 1.07
-5	149.6 - 266.1	0.45 - 0.8
0	~100 5	<0.6
0	<177.5	\0.0
	(dB) 0 -5 0 -5 0 -5 AWF (dB) 0 -5 0 -5 -5 0 -5 0 -5	(dB) 960MHz 0 199.5 - 354.8 -5 149.6 - 266.1 0 112.2 - 199.5 -5 84.1 - 149.6 0 63.1 - 112.2 -5 47.3 - 84.1 0 47.3 - 84.1 -5 AWF (dB) Limits for E-Field Emissions (V/m) < 960MHz

Cursor:

Total = 114.8 V/m E Category: M4

Location: -5, 3.5, 368.7 mm



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Date: 2010/12/27

HAC_E GSM 850_CH251_slider on

DUT: V02S002;

Communication System: GSM 850; Frequency: 848.8 MHz; Duty Cycle: 1:8.3 Medium: Air Medium parameters used: $\sigma = 0$ mho/m, $\varepsilon_r = 1$; $\rho = 1000$ kg/m³

Phantom section: E Device Section

DASY4 Configuration:

Probe: ER3DV6 - SN2306; ConvF(1, 1, 1); Calibrated: 2010/4/26

Sensor-Surface: (Fix Surface)

Electronics: DAE4 Sn547; Calibrated: 2010/8/18

Phantom: HAC Test Arch 4.6; Type: SD HAC P01 BA;

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

E Scan - ER3DV6 - measurement distance from the probe sensor center to the Device = 15mm/Hearing Aid Compatibility Test (101x101x1):

Measurement grid: dx=5mm, dy=5mm

Maximum value of peak Total field = 107.7 V/m

Probe Modulation Factor = 2.84

Device Reference Point: 0.000, 0.000, 353.7 mm Reference Value = 47.5 V/m; Power Drift = -0.146 dB Hearing Aid Near-Field Category: M4 (AWF -5 dB)

Peak E-field in V/m

Grid 1	Grid 2	Grid 3
89.2 M4	104.9 M4	103.9 M4
Grid 4	Grid 5	Grid 6
92.1 M4	107.7 M4	106.5 M4
Grid 7	Grid 8	Grid 9
90.8 M4	106.5 M4	105.3 M4

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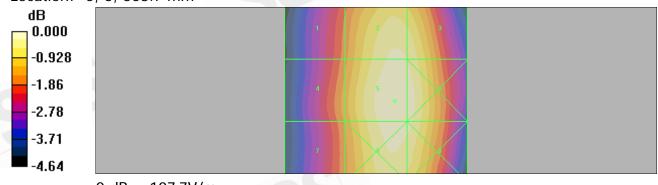
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AWF (dB)	Limits for E-Field Emissions (V/m) > 960MHz	Limits for H-Field Emissions (A/m) > 960MHz
0	199.5 - 354.8	0.6 - 1.07
-5	149.6 - 266.1	0.45 - 0.8
0	112.2 - 199.5	0.34 - 0.6
-5	84.1 - 149.6	0.25 - 0.45
0	63.1 - 112.2	0.19 - 0.34
-5	47.3 - 84.1	0.14 - 0.25
0	<63.1	<0.19
-5	<47.3	<0.14
AWF (dB)	Limits for E-Field Emissions (V/m) < 960MHz	Limits for H-Field Emissions (A/m) < 960 MHz
0	631 - 1122	1.91 - 3.39
-5	473.2 - 841.4	1.43 - 2.54
0	354.8 - 631	1.07 - 1.91
-5	266.1 - 473.2	0.8 - 1.43
0	199.5 - 354.8	0.6 - 1.07
-5	149.6 - 266.1	0.45 - 0.8
0	~100 5	<0.6
l O	<177.5	10.0
	(dB) 0 -5 0 -5 0 -5 AWF (dB) 0 -5 0 -5 -5 0 -5 0 -5	(dB) 960MHz 0 199.5 - 354.8 -5 149.6 - 266.1 0 112.2 - 199.5 -5 84.1 - 149.6 0 63.1 - 112.2 -5 47.3 - 84.1 0 47.3 - 84.1 -5 AWF (dB) Limits for E-Field Emissions (V/m) < 960MHz

Cursor:

Total = 107.7 V/mE Category: M4

Location: -5, 3, 368.7 mm



0 dB = 107.7V/m

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Date: 2010/12/27

HAC_H_GSM 850_CH128_slider on

DUT: V02S002;

Communication System: GSM 850; Frequency: 824.2 MHz; Duty Cycle: 1:8.3 Medium: Air Medium parameters used: $\sigma = 0$ mho/m, $\varepsilon_r = 1$; $\rho = 1$ kg/m³

Phantom section: H Device Section

DASY4 Configuration:

Probe: H3DV6 - SN6142; ; Calibrated: 2010/4/26

Sensor-Surface: (Fix Surface)

Electronics: DAE4 Sn547; Calibrated: 2010/8/18

Phantom: HAC Test Arch 4.6; Type: SD HAC P01 BA;

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

H Scan - H3DV6 - measurement discance from the probe sensor center to the Device = 15mm/Hearing Aid Compatibility Test (101x101x1):

Measurement grid: dx=5mm, dy=5mm

Maximum value of peak Total field = 0.189 A/m

Probe Modulation Factor = 2.99

Device Reference Point: 0.000, 0.000, 353.7 mm

Reference Value = 0.047 A/m; Power Drift = -0.054 dB Hearing Aid Near-Field Category: M4 (AWF -5 dB)

Peak H-field in A/m

Grid 1	Grid 2	Grid 3
0.254 M4	0.187 M4	0.116 M4
Grid 4	Grid 5	Grid 6
0.237 M4	0.175 M4	0.107 M4
Grid 7	Grid 8	Grid 9

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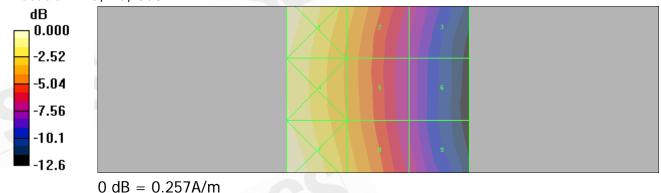
Page: 40 of 136

Category	AWF (dB)	Limits for E-Field Emissions (V/m) > 960MHz	Limits for H-Field Emissions (A/m) > 960MHz
M1	0	199.5 - 354.8	0.6 - 1.07
	-5	149.6 - 266.1	0.45 - 0.8
M2	0	112.2 - 199.5	0.34 - 0.6
	-5	84.1 - 149.6	0.25 - 0.45
M3	0	63.1 - 112.2	0.19 - 0.34
	-5	47.3 - 84.1	0.14 - 0.25
M4	0	<63.1	<0.19
	-5	<47.3	<0.14
Category	AWF (dB)	Limits for E-Field Emissions (V/m) < 960MHz	Limits for H-Field Emissions (A/m) < 960 MHz
M1	0	631 - 1122	1.91 - 3.39
	-5	473.2 - 841.4	1.43 - 2.54
M2	0	354.8 - 631	1.07 - 1.91
	-5	266.1 - 473.2	0.8 - 1.43
M3	0	199.5 - 354.8	0.6 - 1.07
	-5	149.6 - 266.1	0.45 - 0.8
M4	0	<199.5	<0.6
	-5	<149.6	<0.45

Cursor:

Total = 0.257 A/mH Category: M4

Location: 25, 25, 368.7 mm



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Date: 2010/12/27

HAC_H_GSM 850_CH190_slider on

DUT: V02S002;

Communication System: GSM 850; Frequency: 836.6 MHz; Duty Cycle: 1:8.3 Medium: Air Medium parameters used: $\sigma = 0$ mho/m, $\varepsilon_r = 1$; $\rho = 1$ kg/m³

Phantom section: H Device Section

DASY4 Configuration:

Probe: H3DV6 - SN6142; ; Calibrated: 2010/4/26

Sensor-Surface: (Fix Surface)

Electronics: DAE4 Sn547; Calibrated: 2010/8/18

Phantom: HAC Test Arch 4.6; Type: SD HAC P01 BA;

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

H Scan - H3DV6 - measurement discance from the probe sensor center to the Device = 15mm/Hearing Aid Compatibility Test (101x101x1):

Measurement grid: dx=5mm, dy=5mm

Maximum value of peak Total field = 0.169 A/m

Probe Modulation Factor = 2.99

Device Reference Point: 0.000, 0.000, 353.7 mm Reference Value = 0.041 A/m; Power Drift = 0.008 dB Hearing Aid Near-Field Category: M4 (AWF -5 dB)

Peak H-field in A/m

Grid 1	Grid 2	Grid 3
0.226 M4	0.167 M4	0.108 M4
Grid 4	Grid 5	Grid 6
0.209 M4	0.154 M4	0.096 M4
Grid 7	Grid 8	Grid 9
	0440844	0.105 M4

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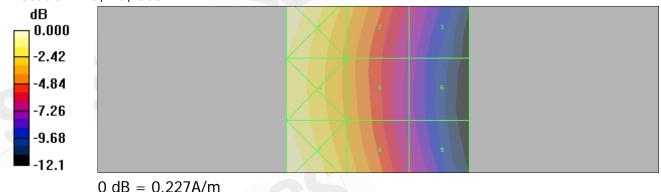
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Category	AWF (dB)	Limits for E-Field Emissions (V/m) > 960MHz	Limits for H-Field Emissions (A/m) > 960MHz
M1	0	199.5 - 354.8	0.6 - 1.07
	-5	149.6 - 266.1	0.45 - 0.8
M2	0	112.2 - 199.5	0.34 - 0.6
	-5	84.1 - 149.6	0.25 - 0.45
M3	0	63.1 - 112.2	0.19 - 0.34
	-5	47.3 - 84.1	0.14 - 0.25
M4	0	<63.1	<0.19
	-5	<47.3	<0.14
Category	AWF (dB)	Limits for E-Field Emissions (V/m) < 960MHz	Limits for H-Field Emissions (A/m) < 960 MHz
M1	0	631 - 1122	1.91 - 3.39
	-5	473.2 - 841.4	1.43 - 2.54
M2	0	354.8 - 631	1.07 - 1.91
	-5	266.1 - 473.2	0.8 - 1.43
M3	0	199.5 - 354.8	0.6 - 1.07
167	-5	149.6 - 266.1	0.45 - 0.8
M4	0	<199.5	<0.6
	-5	<149.6	<0.45

Cursor:

Total = 0.227 A/mH Category: M4

Location: 25, 25, 368.7 mm



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Date: 2010/12/27

HAC_H_GSM 850_CH251_slider on

DUT: V02S002;

Communication System: GSM 850; Frequency: 848.8 MHz; Duty Cycle: 1:8.3 Medium: Air Medium parameters used: $\sigma = 0$ mho/m, $\varepsilon_r = 1$; $\rho = 1$ kg/m³

Phantom section: H Device Section

DASY4 Configuration:

Probe: H3DV6 - SN6142; ; Calibrated: 2010/4/26

Sensor-Surface: (Fix Surface)

Electronics: DAE4 Sn547; Calibrated: 2010/8/18

Phantom: HAC Test Arch 4.6; Type: SD HAC P01 BA;

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

H Scan - H3DV6 - measurement discance from the probe sensor center to the Device = 15mm/Hearing Aid Compatibility Test (101x101x1):

Measurement grid: dx=5mm, dy=5mm

Maximum value of peak Total field = 0.163 A/m

Probe Modulation Factor = 2.99

Device Reference Point: 0.000, 0.000, 353.7 mm Reference Value = 0.040 A/m; Power Drift = 0.040 dB Hearing Aid Near-Field Category: M4 (AWF -5 dB)

Peak H-field in A/m

Grid 1	Grid 2	Grid 3
0.219 M4	0.163 M4	0.105 M4
Grid 4	Grid 5	Grid 6
0 201 1/4	0 1 40 144	0.093 M4
0.201 1014	U. 149 W4	U.U93 IVI4
	Grid 8	Grid 9

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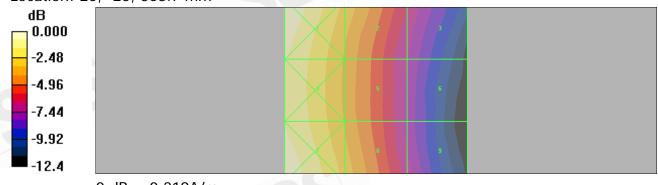
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Category	AWF (dB)	Limits for E-Field Emissions (V/m) > 960MHz	Limits for H-Field Emissions (A/m) > 960MHz
M1	0	199.5 - 354.8	0.6 - 1.07
	-5	149.6 - 266.1	0.45 - 0.8
M2	0	112.2 - 199.5	0.34 - 0.6
	-5	84.1 - 149.6	0.25 - 0.45
M3	0	63.1 - 112.2	0.19 - 0.34
	-5	47.3 - 84.1	0.14 - 0.25
M4	0	<63.1	<0.19
	-5	<47.3	<0.14
Category	AWF (dB)	Limits for E-Field Emissions (V/m) < 960MHz	Limits for H-Field Emissions (A/m) < 960 MHz
M1	0	631 - 1122	1.91 - 3.39
	-5	473.2 - 841.4	1.43 - 2.54
M2	0	354.8 - 631	1.07 - 1.91
	-5	266.1 - 473.2	0.8 - 1.43
M3	0	199.5 - 354.8	0.6 - 1.07
161	-5	149.6 - 266.1	0.45 - 0.8
M4	0	<199.5	<0.6
	-5	<149.6	<0.45

Cursor:

Total = 0.219 A/mH Category: M4

Location: 25, -25, 368.7 mm



0 dB = 0.219A/m

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Date: 2010/12/27

HAC_E GSM 1900_CH512_slider off

DUT: V02S002;

Communication System: GSM1900; Frequency: 1850.2 MHz; Duty Cycle: 1:8.3 Medium: Air Medium parameters used: $\sigma = 0$ mho/m, $\varepsilon_r = 1$; $\rho = 1000$ kg/m³

Phantom section: E Device Section

DASY4 Configuration:

Probe: ER3DV6 - SN2306; ConvF(1, 1, 1); Calibrated: 2010/4/26

Sensor-Surface: (Fix Surface)

Electronics: DAE4 Sn547; Calibrated: 2010/8/18

Phantom: HAC Test Arch 4.6; Type: SD HAC P01 BA;

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

E Scan - ER3DV6 - measurement distance from the probe sensor center to the Device = 15mm/Hearing Aid Compatibility Test (101x101x1):

Measurement grid: dx=5mm, dy=5mm

Maximum value of peak Total field = 50.9 V/m

Probe Modulation Factor = 2.89

Device Reference Point: 0.000, 0.000, 353.7 mm Reference Value = 12.9 V/m; Power Drift = 0.161 dB

Hearing Aid Near-Field Category: M3 (AWF -5 dB)

Peak E-field in V/m

Grid 1	Grid 2	Grid 3
38.4 M4	31.8 M4	31.6 M4
Grid 4	Grid 5	Grid 6
33.1 M4	50.9 M3	50.9 M3
		50.9 M3 Grid 9

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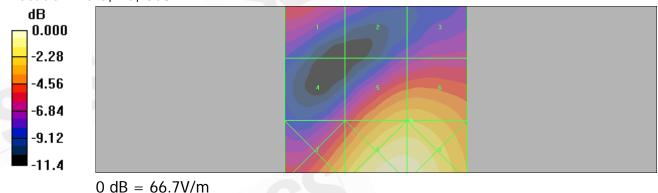
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Category	AWF (dB)	Limits for E-Field Emissions (V/m) > 960MHz	Limits for H-Field Emissions (A/m) > 960MHz
M1	0	199.5 - 354.8	0.6 - 1.07
	-5	149.6 - 266.1	0.45 - 0.8
M2	0	112.2 - 199.5	0.34 - 0.6
	-5	84.1 - 149.6	0.25 - 0.45
M3	0	63.1 - 112.2	0.19 - 0.34
	-5	47.3 - 84.1	0.14 - 0.25
M4	0	<63.1	<0.19
	-5	<47.3	<0.14
Category	AWF (dB)	Limits for E-Field Emissions (V/m) < 960MHz	Limits for H-Field Emissions (A/m) < 960 MHz
M1	0	631 - 1122	1.91 - 3.39
	-5	473.2 - 841.4	1.43 - 2.54
M2	0	354.8 - 631	1.07 - 1.91
	-5	266.1 - 473.2	0.8 - 1.43
M3	0	199.5 - 354.8	0.6 - 1.07
	-5	149.6 - 266.1	0.45 - 0.8
M4	0	<199.5	<0.6
	-5	<149.6	<0.45

Cursor:

Total = 66.7 V/mE Category: M3

Location: -5.5, 25, 368.7 mm



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Date: 2010/12/27

HAC_E GSM 1900_CH661_slider off

DUT: V02S002;

Communication System: GSM1900; Frequency: 1880 MHz; Duty Cycle: 1:8.3 Medium: Air Medium parameters used: $\sigma = 0$ mho/m, $\varepsilon_r = 1$; $\rho = 1000$ kg/m³

Phantom section: E Device Section

DASY4 Configuration:

Probe: ER3DV6 - SN2306; ConvF(1, 1, 1); Calibrated: 2010/4/26

Sensor-Surface: (Fix Surface)

Electronics: DAE4 Sn547; Calibrated: 2010/8/18

Phantom: HAC Test Arch 4.6; Type: SD HAC P01 BA;

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

E Scan - ER3DV6 - measurement distance from the probe sensor center to the Device = 15mm/Hearing Aid Compatibility Test (101x101x1):

Measurement grid: dx=5mm, dy=5mm

Maximum value of peak Total field = 50.0 V/m

Probe Modulation Factor = 2.89

Device Reference Point: 0.000, 0.000, 353.7 mm Reference Value = 11.2 V/m; Power Drift = 0.108 dB

Hearing Aid Near-Field Category: M3 (AWF -5 dB)

Peak E-field in V/m

Grid 1	Grid 2	Grid 3
41.4 M4	37.4 M4	29.7 M4
Grid 4	Grid 5	Grid 6
32.8 M4	49.9 M3	50.0 M3
		50.0 M3 Grid 9

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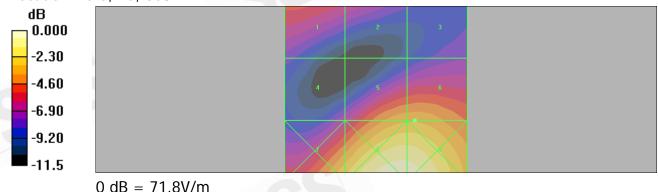
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Category	AWF (dB)	Limits for E-Field Emissions (V/m) > 960MHz	Limits for H-Field Emissions (A/m) > 960MHz
M1	0	199.5 - 354.8	0.6 - 1.07
	-5	149.6 - 266.1	0.45 - 0.8
M2	0	112.2 - 199.5	0.34 - 0.6
	-5	84.1 - 149.6	0.25 - 0.45
M3	0	63.1 - 112.2	0.19 - 0.34
	-5	47.3 - 84.1	0.14 - 0.25
M4	0	<63.1	<0.19
	-5	<47.3	<0.14
Category	AWF (dB)	Limits for E-Field Emissions (V/m) < 960MHz	Limits for H-Field Emissions (A/m) < 960 MHz
M1	0	631 - 1122	1.91 - 3.39
	-5	473.2 - 841.4	1.43 - 2.54
M2	0	354.8 - 631	1.07 - 1.91
	-5	266.1 - 473.2	0.8 - 1.43
M3	0	199.5 - 354.8	0.6 - 1.07
161	-5	149.6 - 266.1	0.45 - 0.8
M4	0	<199.5	<0.6
	-5	<149.6	<0.45

Cursor:

Total = 71.8 V/mE Category: M3

Location: -5.5, 25, 368.7 mm



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Date: 2010/12/27

HAC_E GSM 1900_CH810_slider off

DUT: V02S002;

Communication System: GSM1900; Frequency: 1909.8 MHz; Duty Cycle: 1:8.3 Medium: Air Medium parameters used: $\sigma = 0$ mho/m, $\varepsilon_r = 1$; $\rho = 1000$ kg/m³

Phantom section: E Device Section

DASY4 Configuration:

Probe: ER3DV6 - SN2306; ConvF(1, 1, 1); Calibrated: 2010/4/26

• Sensor-Surface: (Fix Surface)

Electronics: DAE4 Sn547; Calibrated: 2010/8/18

Phantom: HAC Test Arch 4.6; Type: SD HAC P01 BA;

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

E Scan - ER3DV6 - measurement distance from the probe sensor center to the Device = 15mm/Hearing Aid Compatibility Test (101x101x1):

Measurement grid: dx=5mm, dy=5mm

Maximum value of peak Total field = 51.3 V/m

Probe Modulation Factor = 2.89

Device Reference Point: 0.000, 0.000, 353.7 mm

Reference Value = 10.7 V/m; Power Drift = 0.004 dB

Hearing Aid Near-Field Category: M3 (AWF -5 dB)

Peak E-field in V/m

Grid 1	Grid 2	Grid 3
43.8 M4	43.7 M4	37.3 M4
Grid 4	Grid 5	Grid 6
34.2 M4	51.2 M3	51.3 M3
		51.3 M3 Grid 9

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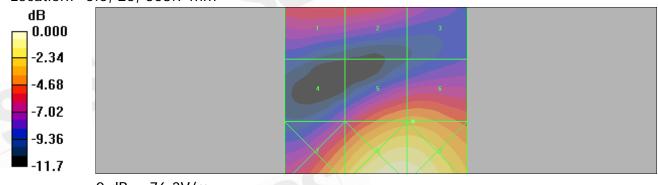
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AWF (dB)	Limits for E-Field Emissions (V/m) > 960MHz	Limits for H-Field Emissions (A/m) > 960MHz
0	199.5 - 354.8	0.6 - 1.07
-5	149.6 - 266.1	0.45 - 0.8
0	112.2 - 199.5	0.34 - 0.6
-5	84.1 - 149.6	0.25 - 0.45
0	63.1 - 112.2	0.19 - 0.34
-5	47.3 - 84.1	0.14 - 0.25
0	<63.1	<0.19
-5	<47.3	<0.14
AWF (dB)	Limits for E-Field Emissions (V/m) < 960MHz	Limits for H-Field Emissions (A/m) < 960 MHz
0	631 - 1122	1.91 - 3.39
-5	473.2 - 841.4	1.43 - 2.54
0	354.8 - 631	1.07 - 1.91
-5	266.1 - 473.2	0.8 - 1.43
0	199.5 - 354.8	0.6 - 1.07
-5	149.6 - 266.1	0.45 - 0.8
0	<199.5	<0.6
-5	<149.6	<0.45
	(dB) 0 -5 0 -5 0 -5 0 -5 0 -5 0 -5 0 -5 0 -5 0 -5 0 -5 0	(dB) 960MHz 0 199.5 - 354.8 -5 149.6 - 266.1 0 112.2 - 199.5 -5 84.1 - 149.6 0 63.1 - 112.2 -5 47.3 - 84.1 0 47.3 - 84.1 -5 47.3 - 84.1 -6

Cursor:

Total = 76.3 V/mE Category: M3

Location: -5.5, 25, 368.7 mm



0 dB = 76.3V/m

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Date: 2010/12/27

HAC_H_GSM 1900_CH512_slider off

DUT: V02S002;

Communication System: GSM1900; Frequency: 1850.2 MHz; Duty Cycle: 1:8.3 Medium: Air Medium parameters used: $\sigma = 0$ mho/m, $\varepsilon_r = 1$; $\rho = 1$ kg/m³

Phantom section: H Device Section

DASY4 Configuration:

Probe: H3DV6 - SN6142; ; Calibrated: 2010/4/26

Sensor-Surface: (Fix Surface)

Electronics: DAE4 Sn547; Calibrated: 2010/8/18

Phantom: HAC Test Arch 4.6; Type: SD HAC P01 BA;

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

H Scan - H3DV6 - measurement discance from the probe sensor center to the Device = 15mm/Hearing Aid Compatibility Test (101x101x1):

Measurement grid: dx=5mm, dy=5mm

Maximum value of peak Total field = 0.148 A/m

Probe Modulation Factor = 2.78

Device Reference Point: 0.000, 0.000, 353.7 mm Reference Value = 0.057 A/m; Power Drift = 0.092 dB Hearing Aid Near-Field Category: M3 (AWF -5 dB)

Peak H-field in A/m

Grid 1	Grid 2	Grid 3
0.122 M4	0.139 M4	0.138 M4
Grid 4	Grid 5	Grid 6
0.148 M3	0.148 M3	0.141 M3
Grid 7	Grid 8	Grid 9
0.191 M3	0.170 M3	0.137 M4

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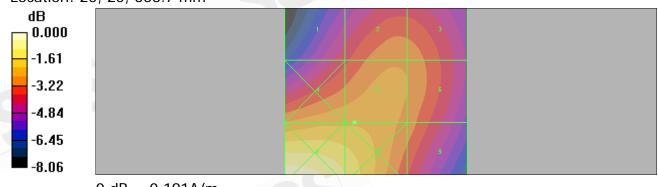
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Category	AWF (dB)	Limits for E-Field Emissions (V/m) > 960MHz	Limits for H-Field Emissions (A/m) > 960MHz
M1	0	199.5 - 354.8	0.6 - 1.07
	-5	149.6 - 266.1	0.45 - 0.8
M2	0	112.2 - 199.5	0.34 - 0.6
	-5	84.1 - 149.6	0.25 - 0.45
M3	0	63.1 - 112.2	0.19 - 0.34
	-5	47.3 - 84.1	0.14 - 0.25
M4	0	<63.1	<0.19
	-5	<47.3	<0.14
Category	AWF (dB)	Limits for E-Field Emissions (V/m) < 960MHz	Limits for H-Field Emissions (A/m) < 960 MHz
M1	0	631 - 1122	1.91 - 3.39
	-5	473.2 - 841.4	1.43 - 2.54
M2	0	354.8 - 631	1.07 - 1.91
	-5	266.1 - 473.2	0.8 - 1.43
M3	0	199.5 - 354.8	0.6 - 1.07
	-5	149.6 - 266.1	0.45 - 0.8
M4	0	<199.5	<0.6
	-5	<149.6	<0.45

Cursor:

Total = 0.191 A/mH Category: M3

Location: 25, 25, 368.7 mm



0 dB = 0.191A/m

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Date: 2010/12/27

HAC_H_GSM 1900_CH661_slider off

DUT: V02S002;

Communication System: GSM1900; Frequency: 1880 MHz; Duty Cycle: 1:8.3 Medium: Air Medium parameters used: $\sigma = 0$ mho/m, $\varepsilon_r = 1$; $\rho = 1$ kg/m³

Phantom section: H Device Section

DASY4 Configuration:

Probe: H3DV6 - SN6142; ; Calibrated: 2010/4/26

Sensor-Surface: (Fix Surface)

Electronics: DAE4 Sn547; Calibrated: 2010/8/18

Phantom: HAC Test Arch 4.6; Type: SD HAC P01 BA;

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

H Scan - H3DV6 - measurement discance from the probe sensor center to the Device = 15mm/Hearing Aid Compatibility Test (101x101x1):

Measurement grid: dx=5mm, dy=5mm

Maximum value of peak Total field = 0.178 A/m

Probe Modulation Factor = 2.78

Device Reference Point: 0.000, 0.000, 353.7 mm Reference Value = 0.072 A/m; Power Drift = 0.023 dB Hearing Aid Near-Field Category: M3 (AWF -5 dB)

Peak H-field in A/m

Grid 1	Grid 2	Grid 3
0.144 M3	0.171 M3	0.170 M3
Grid 4	Grid 5	Grid 6
0.171 M3	0.178 M3	0.176 M3
Grid 7	Grid 8	Grid 9
0.208 M3	0.187 M3	0.170 M3

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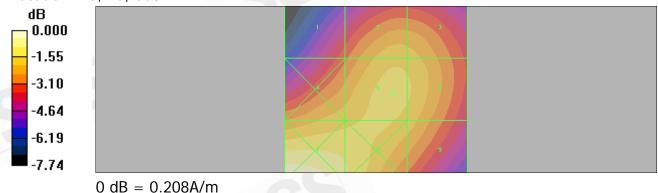
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Category	AWF (dB)	Limits for E-Field Emissions (V/m) > 960MHz	Limits for H-Field Emissions (A/m) > 960MHz
M1	0	199.5 - 354.8	0.6 - 1.07
	-5	149.6 - 266.1	0.45 - 0.8
M2	0	112.2 - 199.5	0.34 - 0.6
	-5	84.1 - 149.6	0.25 - 0.45
M3	0	63.1 - 112.2	0.19 - 0.34
	-5	47.3 - 84.1	0.14 - 0.25
M4	0	<63.1	<0.19
	-5	<47.3	<0.14
Category	AWF (dB)	Limits for E-Field Emissions (V/m) < 960MHz	Limits for H-Field Emissions (A/m) < 960 MHz
M1	0	631 - 1122	1.91 - 3.39
	-5	473.2 - 841.4	1.43 - 2.54
M2	0	354.8 - 631	1.07 - 1.91
	-5	266.1 - 473.2	0.8 - 1.43
M3	0	199.5 - 354.8	0.6 - 1.07
181	-5	149.6 - 266.1	0.45 - 0.8
M4	0	<199.5	<0.6
	-5	<149.6	<0.45

Cursor:

Total = 0.208 A/mH Category: M3

Location: 25, 25, 368.7 mm



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Date: 2010/12/27

HAC_H_GSM 1900_CH810_slider off

DUT: V02S002;

Communication System: GSM1900; Frequency: 1909.8 MHz; Duty Cycle: 1:8.3 Medium: Air Medium parameters used: $\sigma = 0$ mho/m, $\varepsilon_r = 1$; $\rho = 1$ kg/m³

Phantom section: H Device Section

DASY4 Configuration:

Probe: H3DV6 - SN6142; ; Calibrated: 2010/4/26

Sensor-Surface: (Fix Surface)

Electronics: DAE4 Sn547; Calibrated: 2010/8/18

Phantom: HAC Test Arch 4.6; Type: SD HAC P01 BA;

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

H Scan - H3DV6 - measurement discance from the probe sensor center to the Device = 15mm/Hearing Aid Compatibility Test (101x101x1):

Measurement grid: dx=5mm, dy=5mm

Maximum value of peak Total field = 0.180 A/m

Probe Modulation Factor = 2.78

Device Reference Point: 0.000, 0.000, 353.7 mm Reference Value = 0.072 A/m; Power Drift = 0.019 dB Hearing Aid Near-Field Category: M3 (AWF -5 dB)

Peak H-field in A/m

Grid 1	Grid 2	Grid 3
0.142 M3	0.177 M3	0.177 M3
Grid 4	Grid 5	Grid 6
0.158 M3	O 100 M2	O 170 M2
U. 130 WIS	U. 100 IVI3	U. 1 / 7 IVIS
		Grid 9

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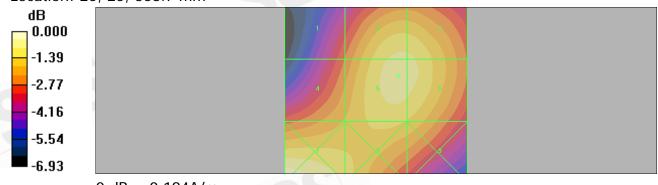
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Category	AWF (dB)	Limits for E-Field Emissions (V/m) > 960MHz	Limits for H-Field Emissions (A/m) > 960MHz
M1	0	199.5 - 354.8	0.6 - 1.07
	-5	149.6 - 266.1	0.45 - 0.8
M2	0	112.2 - 199.5	0.34 - 0.6
	-5	84.1 - 149.6	0.25 - 0.45
M3	0	63.1 - 112.2	0.19 - 0.34
	-5	47.3 - 84.1	0.14 - 0.25
M4	0	<63.1	<0.19
	-5	<47.3	<0.14
Category	AWF (dB)	Limits for E-Field Emissions (V/m) < 960MHz	Limits for H-Field Emissions (A/m) < 960 MHz
M1	0	631 - 1122	1.91 - 3.39
	-5	473.2 - 841.4	1.43 - 2.54
M2	0	354.8 - 631	1.07 - 1.91
	-5	266.1 - 473.2	0.8 - 1.43
M3	0	199.5 - 354.8	0.6 - 1.07
181	-5	149.6 - 266.1	0.45 - 0.8
M4	0	<199.5	<0.6
	-5	<149.6	<0.45

Cursor:

Total = 0.194 A/mH Category: M3

Location: 25, 25, 368.7 mm



0 dB = 0.194A/m

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Date: 2010/12/27

HAC_E GSM 1900_CH512_slider on

DUT: V02S002;

Communication System: GSM1900; Frequency: 1850.2 MHz; Duty Cycle: 1:8.3 Medium: Air Medium parameters used: $\sigma = 0$ mho/m, $\varepsilon_r = 1$; $\rho = 1000$ kg/m³

Phantom section: E Device Section

DASY4 Configuration:

Probe: ER3DV6 - SN2306; ConvF(1, 1, 1); Calibrated: 2010/4/26

Sensor-Surface: (Fix Surface)

Electronics: DAE4 Sn547; Calibrated: 2010/8/18

Phantom: HAC Test Arch 4.6; Type: SD HAC P01 BA;

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

E Scan - ER3DV6 - measurement distance from the probe sensor center to the Device = 15mm/Hearing Aid Compatibility Test (101x101x1):

Measurement grid: dx=5mm, dy=5mm

Maximum value of peak Total field = 49.3 V/m

Probe Modulation Factor = 2.89

Device Reference Point: 0.000, 0.000, 353.7 mm Reference Value = 16.1 V/m; Power Drift = 0.058 dB

Hearing Aid Near-Field Category: M3 (AWF -5 dB)

Peak E-field in V/m

Grid 1	Grid 2	Grid 3
19.8 M4	36.0 M4	36.8 M4
Grid 4	Grid 5	Grid 6
33.0 M4	49.3 M3	49.1 M3
Grid 7	Grid 8	Grid 9
48.4 M3	58.8 M3	58.0 M3

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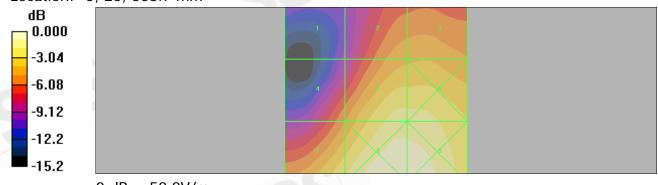
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Category	AWF (dB)	Limits for E-Field Emissions (V/m) > 960MHz	Limits for H-Field Emissions (A/m) > 960MHz
M1	0	199.5 - 354.8	0.6 - 1.07
	-5	149.6 - 266.1	0.45 - 0.8
M2	0	112.2 - 199.5	0.34 - 0.6
	-5	84.1 - 149.6	0.25 - 0.45
M3	0	63.1 - 112.2	0.19 - 0.34
	-5	47.3 - 84.1	0.14 - 0.25
M4	0	<63.1	<0.19
	-5	<47.3	<0.14
Category	AWF (dB)	Limits for E-Field Emissions (V/m) < 960MHz	Limits for H-Field Emissions (A/m) < 960 MHz
M1	0	631 - 1122	1.91 - 3.39
	-5	473.2 - 841.4	1.43 - 2.54
M2	0	354.8 - 631	1.07 - 1.91
	-5	266.1 - 473.2	0.8 - 1.43
M3	0	199.5 - 354.8	0.6 - 1.07
181	-5	149.6 - 266.1	0.45 - 0.8
M4	0	<199.5	<0.6
	-5	<149.6	<0.45

Cursor:

Total = 58.8 V/mE Category: M3

Location: -5, 25, 368.7 mm



0 dB = 58.8V/m

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Date: 2010/12/27

HAC_E GSM 1900_CH661_slider on

DUT: V02S002;

Communication System: GSM1900; Frequency: 1880 MHz; Duty Cycle: 1:8.3 Medium: Air Medium parameters used: $\sigma = 0$ mho/m, $\varepsilon_r = 1$; $\rho = 1000$ kg/m³

Phantom section: E Device Section

DASY4 Configuration:

Probe: ER3DV6 - SN2306; ConvF(1, 1, 1); Calibrated: 2010/4/26

Sensor-Surface: (Fix Surface)

Electronics: DAE4 Sn547; Calibrated: 2010/8/18

Phantom: HAC Test Arch 4.6; Type: SD HAC P01 BA;

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

E Scan - ER3DV6 - measurement distance from the probe sensor center to the Device = 15mm/Hearing Aid Compatibility Test (101x101x1):

Measurement grid: dx=5mm, dy=5mm

Maximum value of peak Total field = 51.0 V/m

Probe Modulation Factor = 2.89

Device Reference Point: 0.000, 0.000, 353.7 mm Reference Value = 16.3 V/m; Power Drift = 0.121 dB

Hearing Aid Near-Field Category: M3 (AWF -5 dB)

Peak E-field in V/m

Grid 1	Grid 2	Grid 3
21.5 M4	37.1 M4	37.8 M4
Grid 4	Grid 5	Grid 6
33.7 M4	51.0 M3	51.0 M3
Grid 7	Grid 8	Grid 9
50.0 M3	61.2 M3	59.8 M3

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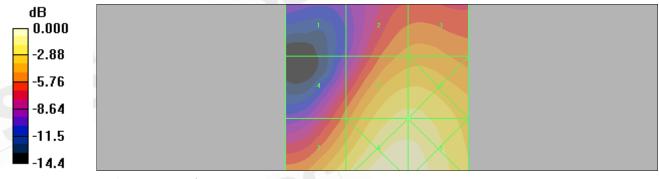
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Category	AWF (dB)	Limits for E-Field Emissions (V/m) > 960MHz	Limits for H-Field Emissions (A/m) > 960MHz
M1	0	199.5 - 354.8	0.6 - 1.07
	-5	149.6 - 266.1	0.45 - 0.8
M2	0	112.2 - 199.5	0.34 - 0.6
	-5	84.1 - 149.6	0.25 - 0.45
M3	0	63.1 - 112.2	0.19 - 0.34
	-5	47.3 - 84.1	0.14 - 0.25
M4	0	<63.1	<0.19
	-5	<47.3	<0.14
Category	AWF (dB)	Limits for E-Field Emissions (V/m) < 960MHz	Limits for H-Field Emissions (A/m) < 960 MHz
M1	0	631 - 1122	1.91 - 3.39
	-5	473.2 - 841.4	1.43 - 2.54
M2	0	354.8 - 631	1.07 - 1.91
	-5	266.1 - 473.2	0.8 - 1.43
M3	0	199.5 - 354.8	0.6 - 1.07
	-5	149.6 - 266.1	0.45 - 0.8
M4	0	<199.5	<0.6
	-5	<149.6	<0.45

Cursor:

Total = 61.2 V/mE Category: M3

Location: -5, 25, 368.7 mm



0 dB = 61.2V/m

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Date: 2010/12/27

HAC_E GSM 1900_CH810_slider on

DUT: V02S002;

Communication System: GSM1900; Frequency: 1909.8 MHz; Duty Cycle: 1:8.3 Medium: Air Medium parameters used: $\sigma = 0$ mho/m, $\varepsilon_r = 1$; $\rho = 1000$ kg/m³

Phantom section: E Device Section

DASY4 Configuration:

Probe: ER3DV6 - SN2306; ConvF(1, 1, 1); Calibrated: 2010/4/26

Sensor-Surface: (Fix Surface)

Electronics: DAE4 Sn547; Calibrated: 2010/8/18

Phantom: HAC Test Arch 4.6; Type: SD HAC P01 BA;

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

E Scan - ER3DV6 - measurement distance from the probe sensor center to the Device = 15mm/Hearing Aid Compatibility Test (101x101x1):

Measurement grid: dx=5mm, dy=5mm

Maximum value of peak Total field = 50.7 V/m

Probe Modulation Factor = 2.89

Device Reference Point: 0.000, 0.000, 353.7 mm Reference Value = 14.6 V/m; Power Drift = 0.037 dB

Hearing Aid Near-Field Category: M3 (AWF -5 dB)

Peak E-field in V/m

Grid 1	Grid 2	Grid 3
25.3 M4	34.8 M4	35.9 M4
Grid 4	Grid 5	Grid 6
32.6 M4	50.6 M3	50.7 M3
		50.7 M3 Grid 9

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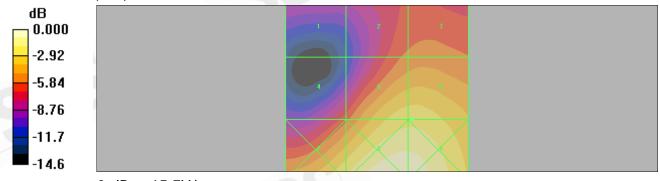
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Category	AWF (dB)	Limits for E-Field Emissions (V/m) > 960MHz	Limits for H-Field Emissions (A/m) > 960MHz
M1	0	199.5 - 354.8	0.6 - 1.07
	-5	149.6 - 266.1	0.45 - 0.8
M2	0	112.2 - 199.5	0.34 - 0.6
	-5	84.1 - 149.6	0.25 - 0.45
M3	0	63.1 - 112.2	0.19 - 0.34
	-5	47.3 - 84.1	0.14 - 0.25
M4	0	<63.1	<0.19
	-5	<47.3	<0.14
Category	AWF (dB)	Limits for E-Field Emissions (V/m) < 960MHz	Limits for H-Field Emissions (A/m) < 960 MHz
M1	0	631 - 1122	1.91 - 3.39
	-5	473.2 - 841.4	1.43 - 2.54
M2	0	354.8 - 631	1.07 - 1.91
	-5	266.1 - 473.2	0.8 - 1.43
M3	0	199.5 - 354.8	0.6 - 1.07
161	-5	149.6 - 266.1	0.45 - 0.8
M4	0	<199.5	<0.6
	-5	<149.6	<0.45

Cursor:

Total = 65.7 V/mE Category: M3

Location: -5, 25, 368.7 mm



0 dB = 65.7V/m

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Date: 2010/12/27

HAC_H_GSM 1900_CH512_slider on

DUT: V02S002;

Communication System: GSM1900; Frequency: 1850.2 MHz; Duty Cycle: 1:8.3 Medium: Air Medium parameters used: $\sigma = 0$ mho/m, $\varepsilon_r = 1$; $\rho = 1$ kg/m³

Phantom section: H Device Section

DASY4 Configuration:

Probe: H3DV6 - SN6142; ; Calibrated: 2010/4/26

Sensor-Surface: (Fix Surface)

Electronics: DAE4 Sn547; Calibrated: 2010/8/18

Phantom: HAC Test Arch 4.6; Type: SD HAC P01 BA;

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

H Scan - H3DV6 - measurement discance from the probe sensor center to the Device = 15mm/Hearing Aid Compatibility Test (101x101x1):

Measurement grid: dx=5mm, dy=5mm

Maximum value of peak Total field = 0.129 A/m

Probe Modulation Factor = 2.69

Device Reference Point: 0.000, 0.000, 353.7 mm Reference Value = 0.049 A/m; Power Drift = 0.033 dB Hearing Aid Near-Field Category: M4 (AWF -5 dB)

Peak H-field in A/m

Grid 1	Grid 2	Grid 3
0.108 M4	0.111 M4	0.108 M4
Grid 4	Grid 5	Grid 6
0.131 M4	0.129 M4	0.115 M4
Grid 7	Grid 8	Grid 9
0.160 M3	0.145 M3	0.115 M4

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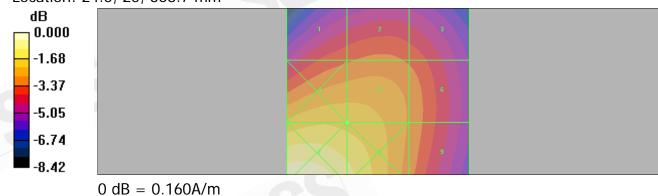
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AWF (dB)	Limits for E-Field Emissions (V/m) > 960MHz	Limits for H-Field Emissions (A/m) > 960MHz
0	199.5 - 354.8	0.6 - 1.07
-5	149.6 - 266.1	0.45 - 0.8
0	112.2 - 199.5	0.34 - 0.6
-5	84.1 - 149.6	0.25 - 0.45
0	63.1 - 112.2	0.19 - 0.34
-5	47.3 - 84.1	0.14 - 0.25
0	<63.1	<0.19
-5	<47.3	<0.14
AWF (dB)	Limits for E-Field Emissions (V/m) < 960MHz	Limits for H-Field Emissions (A/m) < 960 MHz
0	631 - 1122	1.91 - 3.39
-5	473.2 - 841.4	1.43 - 2.54
0	354.8 - 631	1.07 - 1.91
-5	266.1 - 473.2	0.8 - 1.43
0	199.5 - 354.8	0.6 - 1.07
-5	149.6 - 266.1	0.45 - 0.8
0	<199.5	<0.6
-5	<149.6	<0.45
	(dB) 0 -5 0 -5 0 -5 0 -5 0 -5 0 -5 0 -5 0 -5 0 -5 0 -5 0	(dB) 960MHz 0 199.5 - 354.8 -5 149.6 - 266.1 0 112.2 - 199.5 -5 84.1 - 149.6 0 63.1 - 112.2 -5 47.3 - 84.1 0 47.3 - 84.1 -5 47.3 - 84.1 -6

Cursor:

Total = 0.160 A/mH Category: M3

Location: 24.5, 25, 368.7 mm



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Date: 2010/12/27

HAC_H_GSM 1900_CH661_slider on

DUT: V02S002;

Communication System: GSM1900; Frequency: 1880 MHz; Duty Cycle: 1:8.3 Medium: Air Medium parameters used: $\sigma = 0$ mho/m, $\varepsilon_r = 1$; $\rho = 1$ kg/m³

Phantom section: H Device Section

DASY4 Configuration:

Probe: H3DV6 - SN6142; ; Calibrated: 2010/4/26

Sensor-Surface: (Fix Surface)

Electronics: DAE4 Sn547; Calibrated: 2010/8/18

Phantom: HAC Test Arch 4.6; Type: SD HAC P01 BA;

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

H Scan - H3DV6 - measurement discance from the probe sensor center to the Device = 15mm/Hearing Aid Compatibility Test (101x101x1):

Measurement grid: dx=5mm, dy=5mm

Maximum value of peak Total field = 0.136 A/m

Probe Modulation Factor = 2.69

Device Reference Point: 0.000, 0.000, 353.7 mm Reference Value = 0.051 A/m; Power Drift = 0.122 dB Hearing Aid Near-Field Category: M4 (AWF -5 dB)

Peak H-field in A/m

Grid 1	Grid 2	Grid 3
0.110 M4	0.116 M4	0.115 M4
Grid 4	Grid 5	Grid 6
0.136 M4	0.136 M4	0.123 M4
Grid 7	Grid 8	Grid 9
0.166 M3	0.153 M3	0.123 M4

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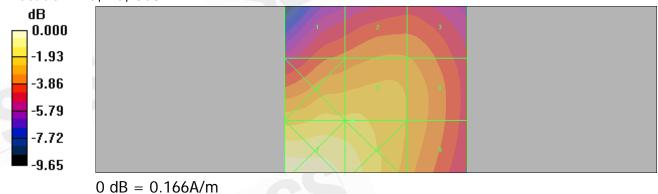
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Category	AWF (dB)	Limits for E-Field Emissions (V/m) > 960MHz	Limits for H-Field Emissions (A/m) > 960MHz
M1	0	199.5 - 354.8	0.6 - 1.07
	-5	149.6 - 266.1	0.45 - 0.8
M2	0	112.2 - 199.5	0.34 - 0.6
	-5	84.1 - 149.6	0.25 - 0.45
M3	0	63.1 - 112.2	0.19 - 0.34
	-5	47.3 - 84.1	0.14 - 0.25
M4	0	<63.1	<0.19
	-5	<47.3	<0.14
Category	AWF (dB)	Limits for E-Field Emissions (V/m) < 960MHz	Limits for H-Field Emissions (A/m) < 960 MHz
M1	0	631 - 1122	1.91 - 3.39
	-5	473.2 - 841.4	1.43 - 2.54
M2	0	354.8 - 631	1.07 - 1.91
	-5	266.1 - 473.2	0.8 - 1.43
M3	0	199.5 - 354.8	0.6 - 1.07
181	-5	149.6 - 266.1	0.45 - 0.8
M4	0	<199.5	<0.6
	-5	<149.6	<0.45

Cursor:

Total = 0.166 A/mH Category: M3

Location: 25, 25, 368.7 mm



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Date: 2010/12/27

HAC_H_GSM 1900_CH810_slider on

DUT: V02S002;

Communication System: GSM1900; Frequency: 1909.8 MHz; Duty Cycle: 1:8.3 Medium: Air Medium parameters used: $\sigma = 0$ mho/m, $\varepsilon_r = 1$; $\rho = 1$ kg/m³

Phantom section: H Device Section

DASY4 Configuration:

Probe: H3DV6 - SN6142; ; Calibrated: 2010/4/26

Sensor-Surface: (Fix Surface)

Electronics: DAE4 Sn547; Calibrated: 2010/8/18

Phantom: HAC Test Arch 4.6; Type: SD HAC P01 BA;

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

H Scan - H3DV6 - measurement discance from the probe sensor center to the Device = 15mm/Hearing Aid Compatibility Test (101x101x1):

Measurement grid: dx=5mm, dy=5mm

Maximum value of peak Total field = 0.142 A/m

Probe Modulation Factor = 2.69

Device Reference Point: 0.000, 0.000, 353.7 mm

Reference Value = 0.057 A/m; Power Drift = -0.008 dB Hearing Aid Near-Field Category: M3 (AWF -5 dB)

Peak H-field in A/m

Grid 1	Grid 2	Grid 3
0.117 M4	0.128 M4	0.128 M4
Grid 4	Grid 5	Grid 6
0.142 M3	0.142 M3	0.137 M4
Grid 7	Grid 8	Grid 9
0.174 M3	0.155 M3	0.137 M4

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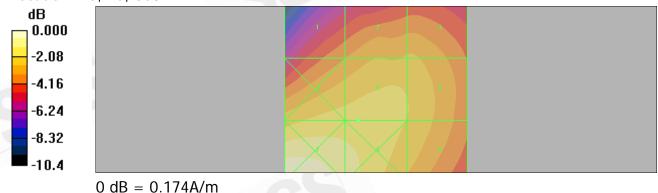
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Category	AWF (dB)	Limits for E-Field Emissions (V/m) > 960MHz	Limits for H-Field Emissions (A/m) > 960MHz
M1	0	199.5 - 354.8	0.6 - 1.07
	-5	149.6 - 266.1	0.45 - 0.8
M2	0	112.2 - 199.5	0.34 - 0.6
	-5	84.1 - 149.6	0.25 - 0.45
M3	0	63.1 - 112.2	0.19 - 0.34
	-5	47.3 - 84.1	0.14 - 0.25
M4	0	<63.1	<0.19
	-5	<47.3	<0.14
Category	AWF (dB)	Limits for E-Field Emissions (V/m) < 960MHz	Limits for H-Field Emissions (A/m) < 960 MHz
M1	0	631 - 1122	1.91 - 3.39
	-5	473.2 - 841.4	1.43 - 2.54
M2	0	354.8 - 631	1.07 - 1.91
	-5	266.1 - 473.2	0.8 - 1.43
M3	0	199.5 - 354.8	0.6 - 1.07
181	-5	149.6 - 266.1	0.45 - 0.8
M4	0	<199.5	<0.6
	-5	<149.6	<0.45

Cursor:

Total = 0.174 A/mH Category: M3

Location: 25, 25, 368.7 mm



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Date: 2010/12/27

HAC_E WCDMA B4_CH1312_slider off

DUT: V02S002;

Communication System: WCDMA BAND4; Frequency: 1712.4 MHz; Duty Cycle: 1:1 Medium: Air Medium parameters used: $\sigma = 0$ mho/m, $\varepsilon_r = 1$; $\rho = 1000$ kg/m³

Phantom section: E Device Section

DASY4 Configuration:

Probe: ER3DV6 - SN2306; ConvF(1, 1, 1); Calibrated: 2010/4/26

Sensor-Surface: (Fix Surface)

Electronics: DAE4 Sn547; Calibrated: 2010/8/18

Phantom: HAC Test Arch 4.6; Type: SD HAC P01 BA;

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

E Scan - ER3DV6 - measurement distance from the probe sensor center to the Device = 15mm/Hearing Aid Compatibility Test (101x101x1):

Measurement grid: dx=5mm, dy=5mm

Maximum value of peak Total field = 37.6 V/m

Probe Modulation Factor = 1.00

Device Reference Point: 0.000, 0.000, 353.7 mm Reference Value = 36.9 V/m; Power Drift = 0.128 dB Hearing Aid Near-Field Category: M4 (AWF 0 dB)

Peak E-field in V/m

Grid 1	Grid 2	Grid 3
25.7 M4	24.8 M4	26.6 M4
Grid 4	Grid 5	Grid 6
27.6 M4	37.6 M4	37.6 M4
Grid 7	Grid 8	Grid 9
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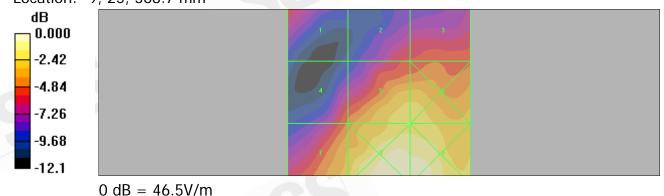
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		-
AWF (dB)	Limits for E-Field Emissions (V/m) > 960MHz	Limits for H-Field Emissions (A/m) > 960MHz
0	199.5 - 354.8	0.6 - 1.07
-5	149.6 - 266.1	0.45 - 0.8
0	112.2 - 199.5	0.34 - 0.6
-5	84.1 - 149.6	0.25 - 0.45
0	63.1 - 112.2	0.19 - 0.34
-5	47.3 - 84.1	0.14 - 0.25
0	<63.1	<0.19
-5	<47.3	<0.14
AWF (dB)	Limits for E-Field Emissions (V/m) < 960MHz	Limits for H-Field Emissions (A/m) < 960 MHz
0	631 - 1122	1.91 - 3.39
-5	473.2 - 841.4	1.43 - 2.54
0	354.8 - 631	1.07 - 1.91
-5	266.1 - 473.2	0.8 - 1.43
0	199.5 - 354.8	0.6 - 1.07
-5	149.6 - 266.1	0.45 - 0.8
0	<199.5	<0.6
-5	<149.6	<0.45
	(dB) 0 -5 0 -5 0 -5 0 -5 0 -5 0 -5 0 -5 0 -5 0 -5 0 -5 0	(dB) 960MHz 0 199.5 - 354.8 -5 149.6 - 266.1 0 112.2 - 199.5 -5 84.1 - 149.6 0 63.1 - 112.2 -5 47.3 - 84.1 0 47.3 - 84.1 -5 AWF (dB) Vertical Emissions (V/m) < 960MHz

Cursor:

Total = 46.5 V/mE Category: M4

Location: -9, 25, 368.7 mm



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Date: 2010/12/27

HAC_E WCDMA B4_CH1412_slider off

DUT: V02S002;

Communication System: WCDMA BAND4; Frequency: 1732.4 MHz; Duty Cycle: 1:1 Medium: Air Medium parameters used: $\sigma = 0$ mho/m, $\varepsilon_r = 1$; $\rho = 1000$ kg/m³

Phantom section: E Device Section

DASY4 Configuration:

Probe: ER3DV6 - SN2306; ConvF(1, 1, 1); Calibrated: 2010/4/26

• Sensor-Surface: (Fix Surface)

Electronics: DAE4 Sn547; Calibrated: 2010/8/18

Phantom: HAC Test Arch 4.6; Type: SD HAC P01 BA;

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

E Scan - ER3DV6 - measurement distance from the probe sensor center to the Device = 15mm/Hearing Aid Compatibility Test (101x101x1):

Measurement grid: dx=5mm, dy=5mm

Maximum value of peak Total field = 39.3 V/m

Probe Modulation Factor = 1.00

Device Reference Point: 0.000, 0.000, 353.7 mm Reference Value = 34.5 V/m; Power Drift = -0.035 dB Hearing Aid Near-Field Category: M4 (AWF 0 dB)

Peak E-field in V/m

Grid 1	Grid 2	Grid 3
24.6 M4	26.8 M4	27.9 M4
Grid 4	Grid 5	Grid 6
26.0 M4	39.3 M4	39.5 M4
Grid 7	Grid 8	Grid 9
36.4 M4	46.0 M4	45.6 M4

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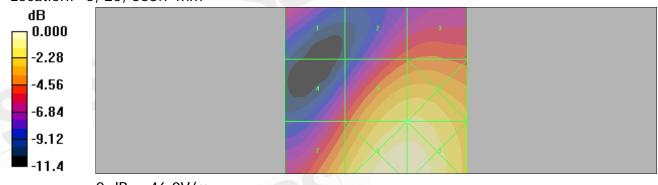
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AWF (dB)	Limits for E-Field Emissions (V/m) > 960MHz	Limits for H-Field Emissions (A/m) > 960MHz
0	199.5 - 354.8	0.6 - 1.07
-5	149.6 - 266.1	0.45 - 0.8
0	112.2 - 199.5	0.34 - 0.6
-5	84.1 - 149.6	0.25 - 0.45
0	63.1 - 112.2	0.19 - 0.34
-5	47.3 - 84.1	0.14 - 0.25
0	<63.1	<0.19
-5	<47.3	<0.14
AWF (dB)	Limits for E-Field Emissions (V/m) < 960MHz	Limits for H-Field Emissions (A/m) < 960 MHz
0	631 - 1122	1.91 - 3.39
-5	473.2 - 841.4	1.43 - 2.54
0	354.8 - 631	1.07 - 1.91
-5	266.1 - 473.2	0.8 - 1.43
0	199.5 - 354.8	0.6 - 1.07
-5	149.6 - 266.1	0.45 - 0.8
0	<199.5	<0.6
-5	<149.6	<0.45
	(dB) 0 -5 0 -5 0 -5 0 -5 0 -5 0 -5 0 -5 0 -5 0 -5 0 -5 0	(dB) 960MHz 0 199.5 - 354.8 -5 149.6 - 266.1 0 112.2 - 199.5 -5 84.1 - 149.6 0 63.1 - 112.2 -5 47.3 - 84.1 0 47.3 - 84.1 -5 AWF (dB) P60MHz Limits for E-Field Emissions (V/m) < 960MHz

Cursor:

Total = 46.0 V/mE Category: M4

Location: -6, 25, 368.7 mm



0 dB = 46.0V/m

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Date: 2010/12/27

HAC_E WCDMA B4_CH1513_slider off

DUT: V02S002;

Communication System: WCDMA BAND4; Frequency: 1752.6 MHz; Duty Cycle: 1:1 Medium: Air Medium parameters used: $\sigma = 0$ mho/m, $\varepsilon_r = 1$; $\rho = 1000$ kg/m³

Phantom section: E Device Section

DASY4 Configuration:

Probe: ER3DV6 - SN2306; ConvF(1, 1, 1); Calibrated: 2010/4/26

Sensor-Surface: (Fix Surface)

Electronics: DAE4 Sn547; Calibrated: 2010/8/18

Phantom: HAC Test Arch 4.6; Type: SD HAC P01 BA;

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

E Scan - ER3DV6 - measurement distance from the probe sensor center to the Device = 15mm/Hearing Aid Compatibility Test (101x101x1):

Measurement grid: dx=5mm, dy=5mm

Maximum value of peak Total field = 43.2 V/m

Probe Modulation Factor = 1.00

Device Reference Point: 0.000, 0.000, 353.7 mm Reference Value = 36.2 V/m; Power Drift = -0.121 dB Hearing Aid Near-Field Category: M4 (AWF 0 dB)

Peak E-field in V/m

Grid 1	Grid 2	Grid 3
27.1 M4	27.6 M4	29.1 M4
Grid 4	Grid 5	Grid 6
26.1 M4	43.2 M4	43.3 M4
Grid 7	Grid 8	Grid 9
38.5 M4	52.4 M4	51.9 M4

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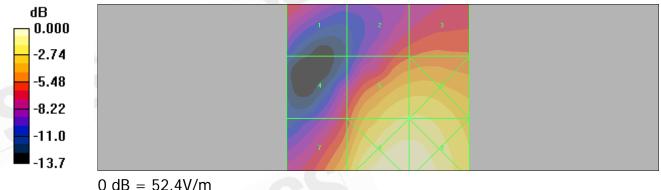
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Category	AWF (dB)	Limits for E-Field Emissions (V/m) > 960MHz	Limits for H-Field Emissions (A/m) > 960MHz
M1	0	199.5 - 354.8	0.6 - 1.07
	-5	149.6 - 266.1	0.45 - 0.8
M2	0	112.2 - 199.5	0.34 - 0.6
	-5	84.1 - 149.6	0.25 - 0.45
M3	0	63.1 - 112.2	0.19 - 0.34
	-5	47.3 - 84.1	0.14 - 0.25
M4	0	<63.1	<0.19
	-5	<47.3	<0.14
Category	AWF (dB)	Limits for E-Field Emissions (V/m) < 960MHz	Limits for H-Field Emissions (A/m) < 960 MHz
M1	0	631 - 1122	1.91 - 3.39
	-5	473.2 - 841.4	1.43 - 2.54
M2	0	354.8 - 631	1.07 - 1.91
	-5	266.1 - 473.2	0.8 - 1.43
M3	0	199.5 - 354.8	0.6 - 1.07
181	-5	149.6 - 266.1	0.45 - 0.8
M4	0	<199.5	<0.6
	-5	<149.6	<0.45

Cursor:

Total = 52.4 V/mE Category: M4

Location: -6, 25, 368.7 mm



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Date: 2010/12/27

HAC_H_WCDMA B4 _CH1312_slider off

DUT: V02S002;

Communication System: WCDMA BAND4; Frequency: 1712.4 MHz; Duty Cycle: 1:1

Medium: Air Medium parameters used: $\sigma = 0$ mho/m, $\varepsilon_r = 1$; $\rho = 1$ kg/m³

Phantom section: H Device Section

DASY4 Configuration:

Probe: H3DV6 - SN6142; ; Calibrated: 2010/4/26

Sensor-Surface: (Fix Surface)

• Electronics: DAE4 Sn547; Calibrated: 2010/8/18

Phantom: HAC Test Arch 4.6; Type: SD HAC P01 BA;

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

H Scan - H3DV6 - measurement discance from the probe sensor center to the Device = 15mm/Hearing Aid Compatibility Test (101x101x1):

Measurement grid: dx=5mm, dy=5mm

Maximum value of peak Total field = 0.093 A/m

Probe Modulation Factor = 1.00

Device Reference Point: 0.000, 0.000, 353.7 mm Reference Value = 0.108 A/m; Power Drift = -0.03 dB Hearing Aid Near-Field Category: M4 (AWF 0 dB)

Peak H-field in A/m

Grid 1	Grid 2	Grid 3
0.087 M4	0.089 M4	0.084 M4
Grid 4	Grid 5	Grid 6
0.097 M4	0.093 M4	0.084 M4
Grid 7	Grid 8	Grid 9
0.113 M4	0.097 M4	0.075 M4

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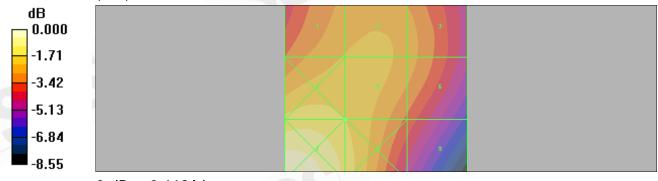
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AWF (dB)	Limits for E-Field Emissions (V/m) > 960MHz	Limits for H-Field Emissions (A/m) > 960MHz
0	199.5 - 354.8	0.6 - 1.07
-5	149.6 - 266.1	0.45 - 0.8
0	112.2 - 199.5	0.34 - 0.6
-5	84.1 - 149.6	0.25 - 0.45
0	63.1 - 112.2	0.19 - 0.34
-5	47.3 - 84.1	0.14 - 0.25
0	<63.1	<0.19
-5	<47.3	<0.14
AWF (dB)	Limits for E-Field Emissions (V/m) < 960MHz	Limits for H-Field Emissions (A/m) < 960 MHz
0	631 - 1122	1.91 - 3.39
-5	473.2 - 841.4	1.43 - 2.54
0	354.8 - 631	1.07 - 1.91
-5	266.1 - 473.2	0.8 - 1.43
0	199.5 - 354.8	0.6 - 1.07
-5	149.6 - 266.1	0.45 - 0.8
0	<199.5	<0.6
-5	<149.6	<0.45
	(dB) 0 -5 0 -5 0 -5 0 -5 0 -5 0 -5 0 -5 0 -5 0 -5 0 -5 0	(dB) 960MHz 0 199.5 - 354.8 -5 149.6 - 266.1 0 112.2 - 199.5 -5 84.1 - 149.6 0 63.1 - 112.2 -5 47.3 - 84.1 0 47.3 - 84.1 -5 47.3 - 84.1 -6

Cursor:

Total = 0.113 A/mH Category: M4

Location: 25, 25, 368.7 mm



0 dB = 0.113A/m

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Date: 2010/12/27

HAC_H_WCDMA B4 _CH1412_slider off

DUT: V02S002;

Communication System: WCDMA BAND4; Frequency: 1732.4 MHz; Duty Cycle: 1:1

Medium: Air Medium parameters used: $\sigma = 0$ mho/m, $\varepsilon_r = 1$; $\rho = 1$ kg/m³

Phantom section: H Device Section

DASY4 Configuration:

Probe: H3DV6 - SN6142; ; Calibrated: 2010/4/26

Sensor-Surface: (Fix Surface)

• Electronics: DAE4 Sn547; Calibrated: 2010/8/18

Phantom: HAC Test Arch 4.6; Type: SD HAC P01 BA;

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

H Scan - H3DV6 - measurement discance from the probe sensor center to the Device = 15mm/Hearing Aid Compatibility Test (101x101x1):

Measurement grid: dx=5mm, dy=5mm

Maximum value of peak Total field = 0.100 A/m

Probe Modulation Factor = 1.00

Device Reference Point: 0.000, 0.000, 353.7 mm

Reference Value = 0.105 A/m; Power Drift = -0.063 dB Hearing Aid Near-Field Category: M4 (AWF 0 dB)

Peak H-field in A/m

Grid 1	Grid 2	Grid 3
0.091 M4	0.095 M4	0.092 M4
Grid 4	Grid 5	Grid 6
0.105 M4	0.100 M4	0.091 M4
Grid 7	Grid 8	Grid 9
0.123 M4	0.107 M4	0.081 M4

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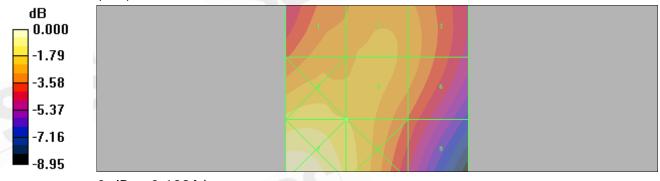
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Category	AWF (dB)	Limits for E-Field Emissions (V/m) > 960MHz	Limits for H-Field Emissions (A/m) > 960MHz
M1	0	199.5 - 354.8	0.6 - 1.07
	-5	149.6 - 266.1	0.45 - 0.8
M2	0	112.2 - 199.5	0.34 - 0.6
	-5	84.1 - 149.6	0.25 - 0.45
M3	0	63.1 - 112.2	0.19 - 0.34
	-5	47.3 - 84.1	0.14 - 0.25
M4	0	<63.1	<0.19
	-5	<47.3	<0.14
Category	AWF (dB)	Limits for E-Field Emissions (V/m) < 960MHz	Limits for H-Field Emissions (A/m) < 960 MHz
M1	0	631 - 1122	1.91 - 3.39
	-5	473.2 - 841.4	1.43 - 2.54
M2	0	354.8 - 631	1.07 - 1.91
	-5	266.1 - 473.2	0.8 - 1.43
M3	0	199.5 - 354.8	0.6 - 1.07
181	-5	149.6 - 266.1	0.45 - 0.8
M4	0	<199.5	<0.6
	-5	<149.6	<0.45

Cursor:

Total = 0.123 A/mH Category: M4

Location: 25, 25, 368.7 mm



0 dB = 0.123A/m

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Date: 2010/12/27

HAC_H_WCDMA B4 _CH1513_slider off

DUT: V02S002;

Communication System: WCDMA BAND4; Frequency: 1752.6 MHz; Duty Cycle: 1:1

Medium: Air Medium parameters used: $\sigma = 0$ mho/m, $\varepsilon_r = 1$; $\rho = 1$ kg/m³

Phantom section: H Device Section

DASY4 Configuration:

Probe: H3DV6 - SN6142; ; Calibrated: 2010/4/26

Sensor-Surface: (Fix Surface)

• Electronics: DAE4 Sn547; Calibrated: 2010/8/18

Phantom: HAC Test Arch 4.6; Type: SD HAC P01 BA;

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

H Scan - H3DV6 - measurement discance from the probe sensor center to the Device = 15mm/Hearing Aid Compatibility Test (101x101x1):

Measurement grid: dx=5mm, dy=5mm

Maximum value of peak Total field = 0.114 A/m

Probe Modulation Factor = 1.00

Device Reference Point: 0.000, 0.000, 353.7 mm

Reference Value = 0.124 A/m; Power Drift = -0.042 dB Hearing Aid Near-Field Category: M4 (AWF 0 dB)

Peak H-field in A/m

		Grid 3
0.104 M4	0.111 M4	0.101 M4
Grid 4	Grid 5	Grid 6
0.114 M4	0.114 M4	0.103 M4
Grid 7	Grid 8	Grid 9
0.137 M4	0.117 M4	0.089 M4

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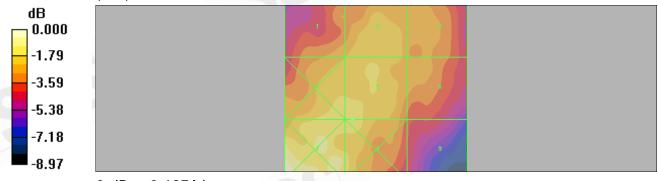
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Category	AWF (dB)	Limits for E-Field Emissions (V/m) > 960MHz	Limits for H-Field Emissions (A/m) > 960MHz
M1	0	199.5 - 354.8	0.6 - 1.07
	-5	149.6 - 266.1	0.45 - 0.8
M2	0	112.2 - 199.5	0.34 - 0.6
	-5	84.1 - 149.6	0.25 - 0.45
M3	0	63.1 - 112.2	0.19 - 0.34
	-5	47.3 - 84.1	0.14 - 0.25
M4	0	<63.1	<0.19
	-5	<47.3	<0.14
Category	AWF (dB)	Limits for E-Field Emissions (V/m) < 960MHz	Limits for H-Field Emissions (A/m) < 960 MHz
M1	0	631 - 1122	1.91 - 3.39
	-5	473.2 - 841.4	1.43 - 2.54
M2	0	354.8 - 631	1.07 - 1.91
	-5	266.1 - 473.2	0.8 - 1.43
M3	0	199.5 - 354.8	0.6 - 1.07
181	-5	149.6 - 266.1	0.45 - 0.8
M4	0	<199.5	<0.6
	-5	<149.6	<0.45

Cursor:

Total = 0.137 A/mH Category: M4

Location: 25, 25, 368.7 mm



0 dB = 0.137A/m

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Date: 2010/12/27

HAC_E WCDMA B4_CH1312_slider on

DUT: V02S002;

Communication System: WCDMA BAND4; Frequency: 1712.4 MHz; Duty Cycle: 1:1 Medium: Air Medium parameters used: $\sigma = 0$ mho/m, $\varepsilon_r = 1$; $\rho = 1000$ kg/m³

Phantom section: E Device Section

DASY4 Configuration:

Probe: ER3DV6 - SN2306; ConvF(1, 1, 1); Calibrated: 2010/4/26

Sensor-Surface: (Fix Surface)

Electronics: DAE4 Sn547; Calibrated: 2010/8/18

Phantom: HAC Test Arch 4.6; Type: SD HAC P01 BA;

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

E Scan - ER3DV6 - measurement distance from the probe sensor center to the Device = 15mm/Hearing Aid Compatibility Test (101x101x1):

Measurement grid: dx=5mm, dy=5mm

Maximum value of peak Total field = 38.2 V/m

Probe Modulation Factor = 1.00

Device Reference Point: 0.000, 0.000, 353.7 mm Reference Value = 37.2 V/m; Power Drift = 0.132 dB Hearing Aid Near-Field Category: M4 (AWF 0 dB)

Peak E-field in V/m

Grid 1	Grid 2	Grid 3
17.7 M4	29.7 M4	29.7 M4
Grid 4	Grid 5	Grid 6
27.9 M4	38.2 M4	37.3 M4
Grid 7	Grid 8	Grid 9
35.5 M4	41.6 M4	40.7 M4

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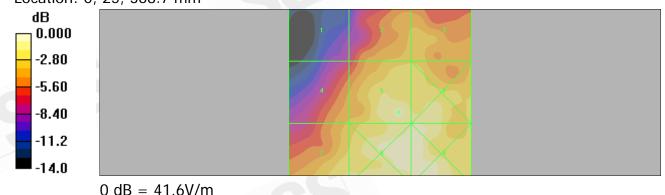
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Category	AWF (dB)	Limits for E-Field Emissions (V/m) > 960MHz	Limits for H-Field Emissions (A/m) > 960MHz
M1	0	199.5 - 354.8	0.6 - 1.07
	-5	149.6 - 266.1	0.45 - 0.8
M2	0	112.2 - 199.5	0.34 - 0.6
	-5	84.1 - 149.6	0.25 - 0.45
M3	0	63.1 - 112.2	0.19 - 0.34
	-5	47.3 - 84.1	0.14 - 0.25
M4	0	<63.1	<0.19
	-5	<47.3	<0.14
Category	AWF (dB)	Limits for E-Field Emissions (V/m) < 960MHz	Limits for H-Field Emissions (A/m) < 960 MHz
M1	0	631 - 1122	1.91 - 3.39
	-5	473.2 - 841.4	1.43 - 2.54
M2	0	354.8 - 631	1.07 - 1.91
	-5	266.1 - 473.2	0.8 - 1.43
M3	0	199.5 - 354.8	0.6 - 1.07
	-5	149.6 - 266.1	0.45 - 0.8
M4	0	<199.5	<0.6
	-5	<149.6	<0.45

Cursor:

Total = 41.6 V/mE Category: M4

Location: 0, 25, 368.7 mm



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Date: 2010/12/27

HAC_E WCDMA B4_CH1412_slider on

DUT: V02S002;

Communication System: WCDMA BAND4; Frequency: 1732.4 MHz; Duty Cycle: 1:1 Medium: Air Medium parameters used: $\sigma = 0$ mho/m, $\varepsilon_r = 1$; $\rho = 1000$ kg/m³

Phantom section: E Device Section

DASY4 Configuration:

Probe: ER3DV6 - SN2306; ConvF(1, 1, 1); Calibrated: 2010/4/26

Sensor-Surface: (Fix Surface)

Electronics: DAE4 Sn547; Calibrated: 2010/8/18

Phantom: HAC Test Arch 4.6; Type: SD HAC P01 BA;

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

E Scan - ER3DV6 - measurement distance from the probe sensor center to the Device = 15mm/Hearing Aid Compatibility Test (101x101x1):

Measurement grid: dx=5mm, dy=5mm

Maximum value of peak Total field = 39.6 V/m

Probe Modulation Factor = 1.00

Device Reference Point: 0.000, 0.000, 353.7 mm Reference Value = 39.5 V/m; Power Drift = 0.13 dB

Hearing Aid Near-Field Category: M4 (AWF 0 dB)

Peak E-field in V/m

Grid 1	Grid 2	Grid 3
18.2 M4	31.8 M4	31.9 M4
Grid 4	Grid 5	Grid 6
26.7 M4	39.6 M4	39.6 M4
Grid 7	Grid 8	Grid 9
0.10		

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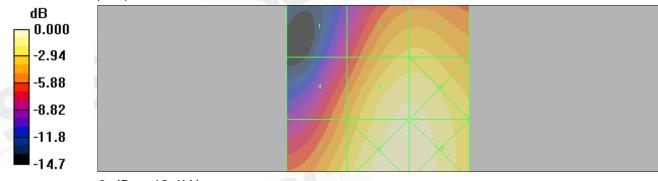
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AWF (dB)	Limits for E-Field Emissions (V/m) > 960MHz	Limits for H-Field Emissions (A/m) > 960MHz
0	199.5 - 354.8	0.6 - 1.07
-5	149.6 - 266.1	0.45 - 0.8
0	112.2 - 199.5	0.34 - 0.6
-5	84.1 - 149.6	0.25 - 0.45
0	63.1 - 112.2	0.19 - 0.34
-5	47.3 - 84.1	0.14 - 0.25
0	<63.1	<0.19
-5	<47.3	<0.14
AWF (dB)	Limits for E-Field Emissions (V/m) < 960MHz	Limits for H-Field Emissions (A/m) < 960 MHz
0	631 - 1122	1.91 - 3.39
-5	473.2 - 841.4	1.43 - 2.54
0	354.8 - 631	1.07 - 1.91
-5	266.1 - 473.2	0.8 - 1.43
0	199.5 - 354.8	0.6 - 1.07
-5	149.6 - 266.1	0.45 - 0.8
0	<199.5	<0.6
-5	<149.6	<0.45
	(dB) 0 -5 0 -5 0 -5 0 -5 0 -5 0 -5 0 -5 0 -5 0 -5 0 -5 0	(dB) 960MHz 0 199.5 - 354.8 -5 149.6 - 266.1 0 112.2 - 199.5 -5 84.1 - 149.6 0 63.1 - 112.2 -5 47.3 - 84.1 0 47.3 - 84.1 -5 47.3 - 84.1 -6

Cursor:

Total = 42.6 V/mE Category: M4

Location: -6, 25, 368.7 mm



0 dB = 42.6V/m

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Date: 2010/12/27

HAC_E WCDMA B4_CH1513_slider on

DUT: V02S002;

Communication System: WCDMA BAND4; Frequency: 1752.6 MHz; Duty Cycle: 1:1 Medium: Air Medium parameters used: $\sigma = 0$ mho/m, $\varepsilon_r = 1$; $\rho = 1000$ kg/m³

Phantom section: E Device Section

DASY4 Configuration:

Probe: ER3DV6 - SN2306; ConvF(1, 1, 1); Calibrated: 2010/4/26

Sensor-Surface: (Fix Surface)

Electronics: DAE4 Sn547; Calibrated: 2010/8/18

Phantom: HAC Test Arch 4.6; Type: SD HAC P01 BA;

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

E Scan - ER3DV6 - measurement distance from the probe sensor center to the Device = 15mm/Hearing Aid Compatibility Test (101x101x1):

Measurement grid: dx=5mm, dy=5mm

Maximum value of peak Total field = 34.8 V/m

Probe Modulation Factor = 1.00

Device Reference Point: 0.000, 0.000, 353.7 mm Reference Value = 35.3 V/m; Power Drift = -0.018 dB Hearing Aid Near-Field Category: M4 (AWF 0 dB)

Peak E-field in V/m

Grid 1	Grid 2	Grid 3
16.2 M4	27.7 M4	27.7 M4
Grid 4	Grid 5	Grid 6
23.9 M4	34.8 M4	34.8 M4
Grid 7	Grid 8	Grid 9
31.0 M4	37.0 M4	36.7 M4

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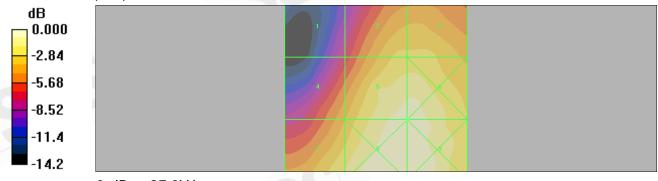
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Category	AWF (dB)	Limits for E-Field Emissions (V/m) > 960MHz	Limits for H-Field Emissions (A/m) > 960MHz
M1	0	199.5 - 354.8	0.6 - 1.07
	-5	149.6 - 266.1	0.45 - 0.8
M2	0	112.2 - 199.5	0.34 - 0.6
	-5	84.1 - 149.6	0.25 - 0.45
M3	0	63.1 - 112.2	0.19 - 0.34
	-5	47.3 - 84.1	0.14 - 0.25
M4	0	<63.1	<0.19
	-5	<47.3	<0.14
Category	AWF (dB)	Limits for E-Field Emissions (V/m) < 960MHz	Limits for H-Field Emissions (A/m) < 960 MHz
M1	0	631 - 1122	1.91 - 3.39
	-5	473.2 - 841.4	1.43 - 2.54
M2	0	354.8 - 631	1.07 - 1.91
	-5	266.1 - 473.2	0.8 - 1.43
M3	0	199.5 - 354.8	0.6 - 1.07
181	-5	149.6 - 266.1	0.45 - 0.8
M4	0	<199.5	<0.6
	-5	<149.6	<0.45

Cursor:

Total = 37.0 V/mE Category: M4

Location: -5, 25, 368.7 mm



0 dB = 37.0V/m

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Date: 2010/12/27

HAC_H_WCDMA B4 _CH1312_slider on

DUT: V02S002;

Communication System: WCDMA BAND4; Frequency: 1712.4 MHz; Duty Cycle: 1:1

Medium: Air Medium parameters used: $\sigma = 0$ mho/m, $\varepsilon_r = 1$; $\rho = 1$ kg/m³

Phantom section: H Device Section

DASY4 Configuration:

Probe: H3DV6 - SN6142; ; Calibrated: 2010/4/26

Sensor-Surface: (Fix Surface)

• Electronics: DAE4 Sn547; Calibrated: 2010/8/18

Phantom: HAC Test Arch 4.6; Type: SD HAC P01 BA;

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

H Scan - H3DV6 - measurement discance from the probe sensor center to the Device = 15mm/Hearing Aid Compatibility Test (101x101x1):

Measurement grid: dx=5mm, dy=5mm

Maximum value of peak Total field = 0.097 A/m

Probe Modulation Factor = 1.00

Device Reference Point: 0.000, 0.000, 353.7 mm Reference Value = 0.090 A/m; Power Drift = 0.006 dB Hearing Aid Near-Field Category: M4 (AWF 0 dB)

Peak H-field in A/m

Grid 1	Grid 2	Grid 3
0.089 M4	0.087 M4	0.073 M4
Grid 4	Grid 5	Grid 6
0.106 M4	0.097 M4	0.075 M4
Grid 7	Grid 8	Grid 9
0.125 M4	0.108 M4	0.074 M4

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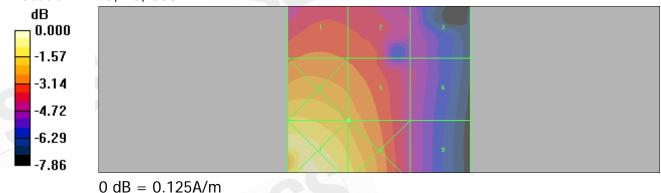
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Category	AWF (dB)	Limits for E-Field Emissions (V/m) > 960MHz	Limits for H-Field Emissions (A/m) > 960MHz
M1	0	199.5 - 354.8	0.6 - 1.07
	-5	149.6 - 266.1	0.45 - 0.8
M2	0	112.2 - 199.5	0.34 - 0.6
	-5	84.1 - 149.6	0.25 - 0.45
M3	0	63.1 - 112.2	0.19 - 0.34
	-5	47.3 - 84.1	0.14 - 0.25
M4	0	<63.1	<0.19
	-5	<47.3	<0.14
Category	AWF (dB)	Limits for E-Field Emissions (V/m) < 960MHz	Limits for H-Field Emissions (A/m) < 960 MHz
M1	0	631 - 1122	1.91 - 3.39
	-5	473.2 - 841.4	1.43 - 2.54
M2	0	354.8 - 631	1.07 - 1.91
	-5	266.1 - 473.2	0.8 - 1.43
M3	0	199.5 - 354.8	0.6 - 1.07
181	-5	149.6 - 266.1	0.45 - 0.8
M4	0	<199.5	<0.6
	-5	<149.6	<0.45

Cursor:

Total = 0.125 A/mH Category: M4

Location: 24.5, 25, 368.7 mm



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Date: 2010/12/27

HAC_H_WCDMA B4 _CH1412_slider on

DUT: V02S002;

Communication System: WCDMA BAND4; Frequency: 1732.4 MHz; Duty Cycle: 1:1

Medium: Air Medium parameters used: $\sigma = 0$ mho/m, $\varepsilon_r = 1$; $\rho = 1$ kg/m³

Phantom section: H Device Section

DASY4 Configuration:

Probe: H3DV6 - SN6142; ; Calibrated: 2010/4/26

Sensor-Surface: (Fix Surface)

• Electronics: DAE4 Sn547; Calibrated: 2010/8/18

Phantom: HAC Test Arch 4.6; Type: SD HAC P01 BA;

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

H Scan - H3DV6 - measurement discance from the probe sensor center to the Device = 15mm/Hearing Aid Compatibility Test (101x101x1):

Measurement grid: dx=5mm, dy=5mm

Maximum value of peak Total field = 0.093 A/m

Probe Modulation Factor = 1.00

Device Reference Point: 0.000, 0.000, 353.7 mm Reference Value = 0.083 A/m; Power Drift = 0.186 dB Hearing Aid Near-Field Category: M4 (AWF 0 dB)

Peak H-field in A/m

Grid 1	Grid 2	Grid 3
0.082 M4	0.081 M4	0.070 M4
Grid 4	Grid 5	Grid 6
0.099 M4	0.093 M4	0.070 M4
Grid 7	Grid 8	Grid 9

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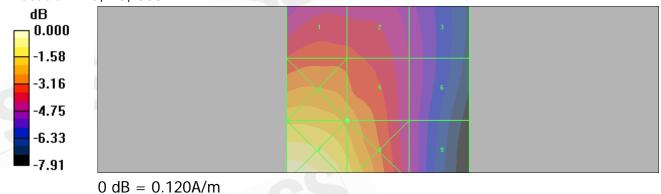
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Category	AWF (dB)	Limits for E-Field Emissions (V/m) > 960MHz	Limits for H-Field Emissions (A/m) > 960MHz
M1	0	199.5 - 354.8	0.6 - 1.07
	-5	149.6 - 266.1	0.45 - 0.8
M2	0	112.2 - 199.5	0.34 - 0.6
	-5	84.1 - 149.6	0.25 - 0.45
M3	0	63.1 - 112.2	0.19 - 0.34
	-5	47.3 - 84.1	0.14 - 0.25
M4	0	<63.1	<0.19
	-5	<47.3	<0.14
Category	AWF (dB)	Limits for E-Field Emissions (V/m) < 960MHz	Limits for H-Field Emissions (A/m) < 960 MHz
M1	0	631 - 1122	1.91 - 3.39
	-5	473.2 - 841.4	1.43 - 2.54
M2	0	354.8 - 631	1.07 - 1.91
	-5	266.1 - 473.2	0.8 - 1.43
M3	0	199.5 - 354.8	0.6 - 1.07
	-5	149.6 - 266.1	0.45 - 0.8
M4	0	<199.5	<0.6
	-5	<149.6	<0.45

Cursor:

Total = 0.120 A/mH Category: M4

Location: 25, 25, 368.7 mm



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Date: 2010/12/27

HAC_H_WCDMA B4 _CH1513_slider on

DUT: V02S002;

Communication System: WCDMA BAND4; Frequency: 1752.6 MHz; Duty Cycle: 1:1

Medium: Air Medium parameters used: $\sigma = 0$ mho/m, $\varepsilon_r = 1$; $\rho = 1$ kg/m³

Phantom section: H Device Section

DASY4 Configuration:

Probe: H3DV6 - SN6142; ; Calibrated: 2010/4/26

Sensor-Surface: (Fix Surface)

Electronics: DAE4 Sn547; Calibrated: 2010/8/18

Phantom: HAC Test Arch 4.6; Type: SD HAC P01 BA;

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

H Scan - H3DV6 - measurement discance from the probe sensor center to the Device = 15mm/Hearing Aid Compatibility Test (101x101x1):

Measurement grid: dx=5mm, dy=5mm

Maximum value of peak Total field = 0.092 A/m

Probe Modulation Factor = 1.00

Device Reference Point: 0.000, 0.000, 353.7 mm

Reference Value = 0.083 A/m; Power Drift = -0.151 dB Hearing Aid Near-Field Category: M4 (AWF 0 dB)

Peak H-field in A/m

Grid 1	Grid 2	Grid 3
0.084 M4	0.079 M4	0.066 M4
Grid 4	Grid 5	Grid 6
0.101 M4	0.092 M4	0.069 M4
Grid 7	Grid 8	Grid 9
	0 400 844	0.069 M4

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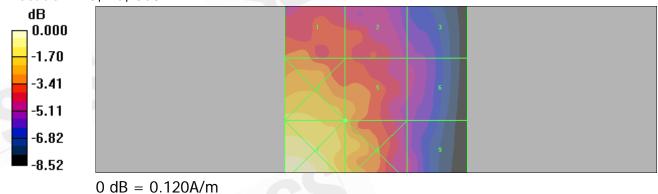
Page: 92 of 136

Category	AWF (dB)	Limits for E-Field Emissions (V/m) > 960MHz	Limits for H-Field Emissions (A/m) > 960MHz
M1	0	199.5 - 354.8	0.6 - 1.07
	-5	149.6 - 266.1	0.45 - 0.8
M2	0	112.2 - 199.5	0.34 - 0.6
	-5	84.1 - 149.6	0.25 - 0.45
M3	0	63.1 - 112.2	0.19 - 0.34
	-5	47.3 - 84.1	0.14 - 0.25
M4	0	<63.1	<0.19
	-5	<47.3	<0.14
Category	AWF (dB)	Limits for E-Field Emissions (V/m) < 960MHz	Limits for H-Field Emissions (A/m) < 960 MHz
M1	0	631 - 1122	1.91 - 3.39
	-5	473.2 - 841.4	1.43 - 2.54
M2	0	354.8 - 631	1.07 - 1.91
	-5	266.1 - 473.2	0.8 - 1.43
M3	0	199.5 - 354.8	0.6 - 1.07
	-5	149.6 - 266.1	0.45 - 0.8
M4	0	<199.5	<0.6
	-5	<149.6	<0.45

Cursor:

Total = 0.120 A/mH Category: M4

Location: 23, 25, 368.7 mm



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14. System Verification

Date: 2010/12/27

HAC_E_Dipole_835MHz

Communication System: CW; Frequency: 835 MHz; Duty Cycle: 1:1

Medium: Air Medium parameters used: $\sigma = 0$ mho/m, $\varepsilon_r = 1$; $\rho = 1000$ kg/m³

Phantom section: E Dipole Section

DASY4 Configuration:

Probe: ER3DV6 - SN2306; ConvF(1, 1, 1); Calibrated: 2010/4/26

Sensor-Surface: (Fix Surface)

Electronics: DAE4 Sn547: Calibrated: 2010/8/18

Phantom: HAC Test Arch 4.6; Type: SD HAC P01 BA;

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

E Scan - ER probe center 10mm above CD835 Dipole/Hearing Aid Compatibility Test (41x361x1): Measurement grid: dx=5mm, dy=5mm

Maximum value of peak Total field = 168.9 V/m

Probe Modulation Factor = 1.00

Device Reference Point: 0.000, 0.000, 354.7 mm Reference Value = 114.0 V/m; Power Drift = 0.032 dB

Hearing Aid Near-Field Category: M4 (AWF 0 dB)

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Peak E-field in V/m

Grid 1	Grid 2	Grid 3
165.3 M4	168.9 M4	164.4 M4
Grid 4	Grid 5	Grid 6
89.6 M4	91.1 M4	87.8 M4
Grid 7	Grid 8	Grid 9
176.4 M4	185.2 M4	181.3 M4

AWF (dB)	Limits for E-Field Emissions (V/m) > 960MHz	Limits for H-Field Emissions (A/m) > 960MHz
0	199.5 - 354.8	0.6 - 1.07
-5	149.6 - 266.1	0.45 - 0.8
0	112.2 - 199.5	0.34 - 0.6
-5	84.1 - 149.6	0.25 - 0.45
0	63.1 - 112.2	0.19 - 0.34
-5	47.3 - 84.1	0.14 - 0.25
0	<63.1	<0.19
-5	<47.3	<0.14
AWF (dB)	Limits for E-Field Emissions (V/m) < 960MHz	Limits for H-Field Emissions (A/m) < 960 MHz
0	631 - 1122	1.91 - 3.39
-5	473.2 - 841.4	1.43 - 2.54
0	354.8 - 631	1.07 - 1.91
-5	266.1 - 473.2	0.8 - 1.43
0	199.5 - 354.8	0.6 - 1.07
-5	149.6 - 266.1	0.45 - 0.8
	100 F	.0.1
0	<199.5	<0.6
	(dB) 0 -5 0 -5 0 -5 AWF (dB) 0 -5 0 -5 0 -5 0 -5 0 -5	(dB) 960MHz 0 199.5 - 354.8 -5 149.6 - 266.1 0 112.2 - 199.5 -5 84.1 - 149.6 0 63.1 - 112.2 -5 47.3 - 84.1 0 47.3 - 84.1 -5 AWF (dB) P60MHz Limits for E-Field Emissions (V/m) < 960MHz

Cursor:

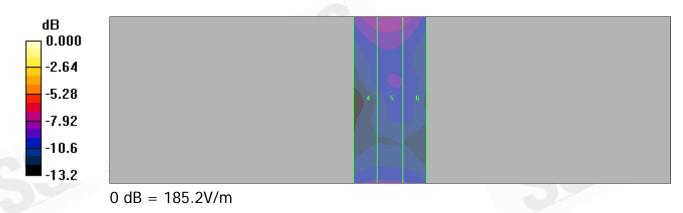
Total = 185.2 V/mE Category: M4

Location: -1, 79.5, 364.7 mm

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Date: 2010/12/27

HAC_H_Dipole_835MHz

Communication System: CW; Frequency: 835 MHz; Duty Cycle: 1:1

Medium: Air Medium parameters used: $\sigma = 0$ mho/m, $\varepsilon_r = 1$; $\rho = 1$ kg/m³

Phantom section: H Dipole Section

DASY4 Configuration:

Probe: H3DV6 - SN6142; ; Calibrated: 2010/4/26

Sensor-Surface: (Fix Surface)

Electronics: DAE4 Sn547; Calibrated: 2010/8/18

Phantom: HAC Test Arch 4.6; Type: SD HAC P01 BA;

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

H Scan - H3DV6 probe center 10mm above CD835 Dipole/Hearing Aid Compatibility Test (41x361x1): Measurement grid: dx=5mm, dy=5mm

Maximum value of peak Total field = 0.452 A/m

Probe Modulation Factor = 1.00

Device Reference Point: 0.000, 0.000, 354.7 mm

Reference Value = 0.479 A/m; Power Drift = -0.036 dB

Hearing Aid Near-Field Category: M4 (AWF 0 dB)

Peak H-field in A/m

Grid 1	Grid 2	Grid 3
0.370 M4	0.401 M4	0.387 M4
Grid 4	Grid 5	Grid 6
0.412 M4	0.452 M4	0.440 M4
Grid 7	Grid 8	Grid 9
0.368 M4	0.406 M4	0.396 M4

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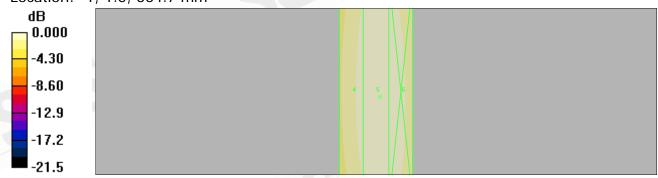
Page: 97 of 136

Category	AWF (dB)	Limits for E-Field Emissions (V/m) > 960MHz	Limits for H-Field Emissions (A/m) > 960MHz
M1	0	199.5 - 354.8	0.6 - 1.07
	-5	149.6 - 266.1	0.45 - 0.8
M2	0	112.2 - 199.5	0.34 - 0.6
	-5	84.1 - 149.6	0.25 - 0.45
M3	0	63.1 - 112.2	0.19 - 0.34
	-5	47.3 - 84.1	0.14 - 0.25
M4	0	<63.1	<0.19
	-5	<47.3	<0.14
Category	AWF (dB)	Limits for E-Field Emissions (V/m) < 960MHz	Limits for H-Field Emissions (A/m) < 960 MHz
M1	0	631 - 1122	1.91 - 3.39
	-5	473.2 - 841.4	1.43 - 2.54
M2	0	354.8 - 631	1.07 - 1.91
	-5	266.1 - 473.2	0.8 - 1.43
M3	0	199.5 - 354.8	0.6 - 1.07
	-5	149.6 - 266.1	0.45 - 0.8
M4	0	<199.5	<0.6
	-5	<149.6	<0.45

Cursor:

Total = 0.452 A/mH Category: M4

Location: -1, 1.5, 364.7 mm



0 dB = 0.452A/m

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Date: 2010/12/27

HAC_E_Dipole_1880MHz

Communication System: CW; Frequency: 1880 MHz; Duty Cycle: 1:1

Medium: Air Medium parameters used: $\sigma = 0$ mho/m, $\varepsilon_r = 1$; $\rho = 1000$ kg/m³

Phantom section: E Dipole Section

DASY4 Configuration:

Probe: ER3DV6 - SN2306; ConvF(1, 1, 1); Calibrated: 2010/4/26

Sensor-Surface: (Fix Surface)

Electronics: DAE4 Sn547; Calibrated: 2010/8/18

Phantom: HAC Test Arch 4.6; Type: SD HAC P01 BA;

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

E Scan - ER probe center 10mm above CD1880 Dipole/Hearing Aid Compatibility Test (41x181x1): Measurement grid: dx=5mm, dy=5mm

Maximum value of peak Total field = 136.1 V/m

Probe Modulation Factor = 1.00

Device Reference Point: 0.000, 0.000, 354.7 mm Reference Value = 175.2 V/m; Power Drift = 0.000 dB

Hearing Aid Near-Field Category: M2 (AWF 0 dB)

Peak F-field in V/m

Grid 1	Grid 2	Grid 3
132.5 M2	136.1 M2	133.4 M2
Grid 4	Grid 5	Grid 6
105.0 M3	107.1 M3	104.3 M3
Grid 7	Grid 8	Grid 9
149.0 M2	156.2 M2	152.8 M2

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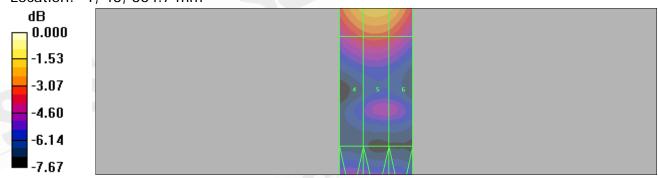
Page: 99 of 136

Category	AWF (dB)	Limits for E-Field Emissions (V/m) > 960MHz	Limits for H-Field Emissions (A/m) > 960MHz
M1	0	199.5 - 354.8	0.6 - 1.07
	-5	149.6 - 266.1	0.45 - 0.8
M2	0	112.2 - 199.5	0.34 - 0.6
	-5	84.1 - 149.6	0.25 - 0.45
M3	0	63.1 - 112.2	0.19 - 0.34
	-5	47.3 - 84.1	0.14 - 0.25
M4	0	<63.1	<0.19
	-5	<47.3	<0.14
Category	AWF (dB)	Limits for E-Field Emissions (V/m) < 960MHz	Limits for H-Field Emissions (A/m) < 960 MHz
M1	0	631 - 1122	1.91 - 3.39
	-5	473.2 - 841.4	1.43 - 2.54
M2	0	354.8 - 631	1.07 - 1.91
	-5	266.1 - 473.2	0.8 - 1.43
M3	0	199.5 - 354.8	0.6 - 1.07
181	-5	149.6 - 266.1	0.45 - 0.8
M4	0	<199.5	<0.6
	-5	<149.6	<0.45

Cursor:

Total = 156.2 V/m E Category: M2

Location: -1, 43, 364.7 mm



0 dB = 156.2V/m

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Date: 2010/12/27

HAC_H_Dipole_1880MHz

Communication System: CW; Frequency: 1880 MHz; Duty Cycle: 1:1

Medium: Air Medium parameters used: $\sigma = 0$ mho/m, $\varepsilon_r = 1$; $\rho = 1$ kg/m³

Phantom section: H Dipole Section

DASY4 Configuration:

Probe: H3DV6 - SN6142; ; Calibrated: 2010/4/26

Sensor-Surface: (Fix Surface)

Electronics: DAE4 Sn547; Calibrated: 2010/8/18

Phantom: HAC Test Arch 4.6; Type: SD HAC P01 BA;

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

H Scan - H3DV6 probe center 10mm above CD1880 Dipole/Hearing Aid Compatibility Test (41x181x1): Measurement grid: dx=5mm, dy=5mm

Maximum value of peak Total field = 0.447 A/m

Probe Modulation Factor = 1.00

Device Reference Point: 0.000, 0.000, 354.7 mm

Reference Value = 0.469 A/m; Power Drift = -0.045 dB

Hearing Aid Near-Field Category: M2 (AWF 0 dB)

Peak H-field in A/m

Grid 1	Grid 2	Grid 3
0.368 M2	0.404 M2	0.397 M2
Grid 4	Grid 5	Grid 6
0.408 M2	0.447 M2	0.436 M2
Grid 7	Grid 8	Grid 9
0.380 M2	0.416 M2	0.405 M2

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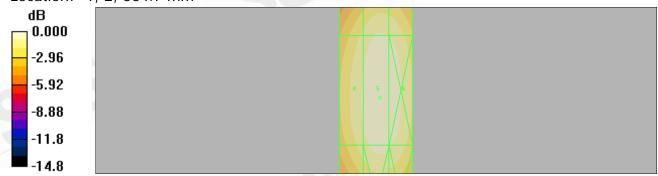
Page: 101 of 136

Category	AWF (dB)	Limits for E-Field Emissions (V/m) > 960MHz	Limits for H-Field Emissions (A/m) > 960MHz
M1	0	199.5 - 354.8	0.6 - 1.07
	-5	149.6 - 266.1	0.45 - 0.8
M2	0	112.2 - 199.5	0.34 - 0.6
	-5	84.1 - 149.6	0.25 - 0.45
M3	0	63.1 - 112.2	0.19 - 0.34
	-5	47.3 - 84.1	0.14 - 0.25
M4	0	<63.1	<0.19
	-5	<47.3	<0.14
Category	AWF (dB)	Limits for E-Field Emissions (V/m) < 960MHz	Limits for H-Field Emissions (A/m) < 960 MHz
M1	0	631 - 1122	1.91 - 3.39
	-5	473.2 - 841.4	1.43 - 2.54
M2	0	354.8 - 631	1.07 - 1.91
	-5	266.1 - 473.2	0.8 - 1.43
M3	0	199.5 - 354.8	0.6 - 1.07
181	-5	149.6 - 266.1	0.45 - 0.8
M4	0	<199.5	<0.6
	-5	<149.6	<0.45

Cursor:

Total = 0.447 A/mH Category: M2

Location: -1, 2, 364.7 mm



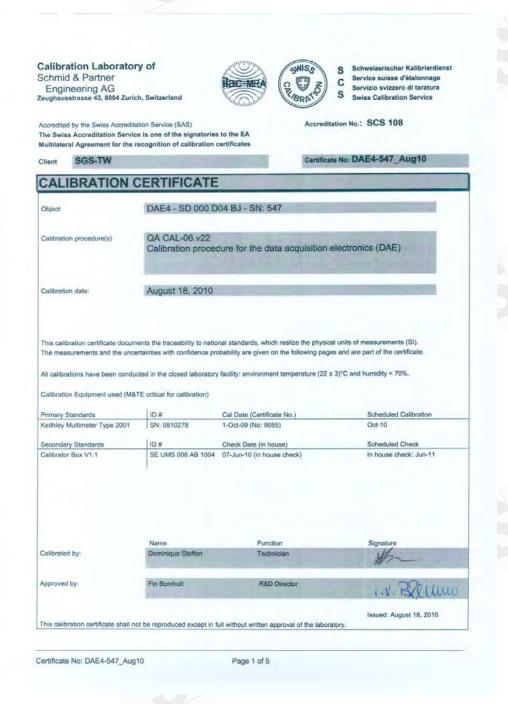
0 dB = 0.447A/m

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15. DAE & Probe Calibration certificate



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Calibration Laboratory of

Schmid & Partner Engineering AG Zeughausstrasse 43, 8004 Zurich, Switzerland





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Accredited by the Swiss Accreditation Service (SAS)

The Swiss Accreditation Service is one of the signatories to the EA Multilateral Agreement for the recognition of calibration certificates

SGS-TW (Auden)

Accreditation No.: SCS 108

Certificate No: ER3-2306_Apr10

CALIBRATION CERTIFICATE ER3DV6 - SN:2306 Object

QA CAL-02.v5 and QA CAL-25.v2 Calibration procedure(s)

Calibration procedure for E-field probes optimized for close near field

evaluations in air

April 26, 2010 Calibration date

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI). The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate

All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.

Primary Standards	ID#	Cal Date (Certificate No.)	Scheduled Calibration
Power meter E4419B	GB41293874	1-Apr-10 (No. 217-01136)	Apr-11
Power sensor E4412A	MY41495277	1-Apr-10 (No. 217-01136)	Apr-11
Power sensor E4412A	MY41498087	1-Apr-10 (No. 217-01136)	Apr-11
Reference 3 dB Attenuator	SN: S5054 (3c)	30-Mar-10 (No. 217-01159)	Mar-11
Reference 20 dB Attenuator	SN: S5086 (20b)	30-Mar-10 (No. 217-01161)	Mar-11
Reference 30 dB Attenuator	SN: S5129 (30b)	30-Mar-10 (No. 217-01160)	Mar-11
Reference Probe ER3DV6	SN: 2328	3-Oct-09 (No. ER3-2328_Oct09)	Oct-10
DAE4	SN: 789	23-Dec-09 (No. DAE4-789_Dec09)	Dec-10
Secondary Standards	ID#	Check Date (in house)	Scheduled Check
RF generator HP 8648C	US3642U01700	4-Aug-99 (in house check Oct-09)	In house check: Oct-11
Network Analyzer HP 8753E	US37390585	18-Oct-01 (in house check Oct-09)	In house check: Oct10
	Name	Function	Signature
Calibrated by:	Jeton Kastrati	Laboratory Technician	To be
Approved by:	Katja Pokovic	Technical Manager	20 les

Certificate No: ER3-2306_Apr10

Page 1 of 10

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Issued: April 27, 2010



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Calibration Laboratory of

Schmid & Partner Engineering AG Zeughausstrasse 43, 8004 Zurich, Switzerland





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Accreditation No.: SCS 108

Swiss Calibration Service

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Glossary: sensitivity in free space NORMx,y,z DCP diode compression point

crest factor (1/duty_cycle) of the RF signal modulation dependent linearization parameters CF A.B.C

φ rotation around probe axis Polarization o

9 rotation around an axis that is in the plane normal to probe axis (at measurement center), Polarization 9

i.e., 9=0 is normal to probe axis information used in DASY system to align probe sensor X to the robot coordinate system Connector Angle

Calibration is Performed According to the Following Standards:

IEEE Std 1309-2005, "IEEE Standard for calibration of electromagnetic field sensors and probes, excluding antennas, from 9 kHz to 40 GHz", December 2005.

Methods Applied and Interpretation of Parameters:

- *NORMx*, y, z: Assessed for E-field polarization ϑ = 0 for XY sensors and ϑ = 90 for Z sensor (f \leq 900 MHz in TEM-cell; f > 1800 MHz: R22 waveguide).
- $NORM(f)x,y,z = NORMx,y,z * frequency_response$ (see Frequency Response Chart).
- DCPx,y,z: DCP are numerical linearization parameters assessed based on the data of power sweep with CW signal (no uncertainty required). DCP does not depend on frequency nor media.
- Ax,y,z; Bx,y,z; Cx,y,z, VRx,y,z; A, B, C are numerical linearization parameters assessed based on the data of power sweep for specific modulation signal. The parameters do not depend on frequency nor media. VR is the maximum calibration range expressed in RMS voltage across the diode.
- Spherical isotropy (3D deviation from isotropy): in a locally homogeneous field realized using an open
- Sensor Offset: The sensor offset corresponds to the offset of virtual measurement center from the probe tip (on probe axis). No tolerance required.
- Connector Angle: The angle is assessed using the information gained by determining the NORMx (no uncertainty required).

Certificate No: ER3-2306_Apr10

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ER3DV6 SN:2306

April 26, 2010



Probe ER3DV6

SN:2306

Manufactured:

December 17, 2002

Last calibrated: Recalibrated:

April 27, 2009 April 26, 2010

Calibrated for DASY Systems

(Note: non-compatible with DASY2 system!)

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ER3DV6 SN:2306

April 26, 2010

DASY - Parameters of Probe: ER3DV6 SN:2306

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm $(\mu V/(V/m)^2)$	1.10	1.13	1.26	± 10.1%
DCP (mV) ^A	97.8	99.1	102.8	

Modulation Calibration Parameters

UID	Communication System Name	PAR		A dB	B dBuV	С	VR mV	Unc ^E (k=2)
10000	cw	0.00	X	0.00	0.00	1.00	300	± 1.5 %
			Y	0.00	0.00	1.00	300	
			Z	0.00	0.00	1.00	300	

The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%.

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E Uncertainty is determined using the maximum deviation from linear response applying recatangular distribution and is expressed for the square of the field value.

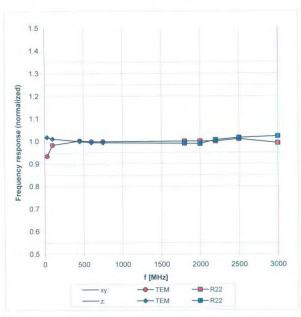


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April 26, 2010 ER3DV6 SN:2306

Frequency Response of E-Field

(TEM-Cell:ifi110 EXX, Waveguide R22)



Uncertainty of Frequency Response of E-field: ± 6.3% (k=2)

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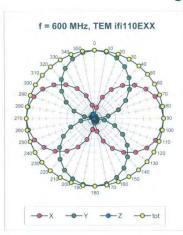
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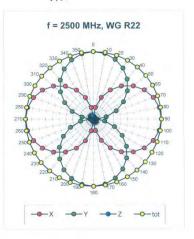


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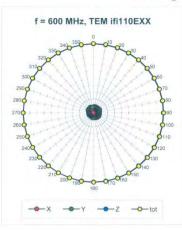
ER3DV6 SN:2306 April 26, 2010

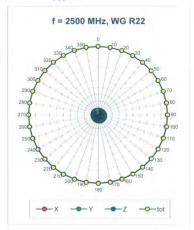
Receiving Pattern (ϕ), $\vartheta = 0^{\circ}$





Receiving Pattern (ϕ), θ = 90°





Certificate No: ER3-2306_Apr10

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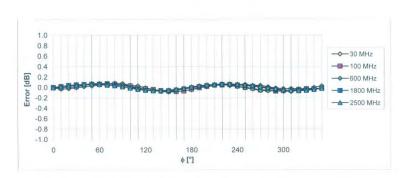
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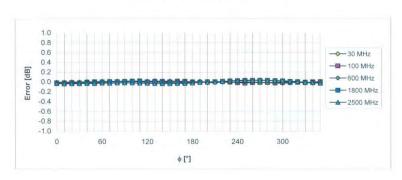
ER3DV6 SN:2306 April 26, 2010

Receiving Pattern (ϕ), $\vartheta = 0^{\circ}$



Uncertainty of Axial Isotropy Assessment: ± 0.5% (k=2)

Receiving Pattern (ϕ), ϑ = 90°



Uncertainty of Axial Isotropy Assessment: ± 0.5% (k=2)

Certificate No: ER3-2306_Apr10

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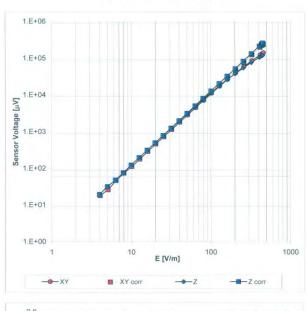


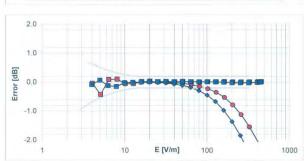
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ER3DV6 SN:2306 April 26, 2010

Dynamic Range f(E-field)

(Waveguide R22, f = 1800 MHz)





Uncertainty of Linearity Assessment: ± 0.6% (k=2)

Certificate No: ER3-2306 Apr10

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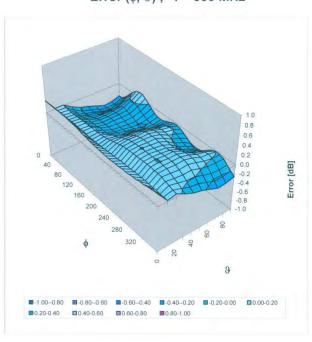
prosecuted to the fullest extent of the law.



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ER3DV6 SN:2306 April 26, 2010

Deviation from Isotropy in Air Error (ϕ, ϑ) , f = 900 MHz



Uncertainty of Spherical Isotropy Assessment: ± 2.6% (k=2)

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ER3DV6 SN:2306

April 26, 2010

Other Probe Parameters

Sensor Arrangement	Rectangular
Connector Angle (°)	-223.7
Mechanical Surface Detection Mode	enabled
Optical Surface Detection Mode	disabled
Probe Overall Length	337 mm
Probe Body Diameter	10 mm
Tip Length	10 mm
Tip Diameter	8.0 mm
Probe Tip to Sensor X Calibration Point	2.5 mm
Probe Tip to Sensor Y Calibration Point	2.5 mm
Probe Tip to Sensor Z Calibration Point	2.5 mm

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Client SGS-TW (Auden)

Certificate No: H3-6142_Apr10

Accreditation No.: SCS 108

CALIBRATION CERTIFICATE Object H3DV6 - SN:6142 Calibration procedure(s) QA CAL-03.v5 and QA CAL-25.v2 Calibration procedure for H-field probes optimized for close near field evaluations in air Calibration date: April 26, 2010 This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI). The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate. All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%. Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID#	Cal Date (Certificate No.)	Scheduled Calibration
Power meter E4419B	GB41293874	1-Apr-10 (No. 217-01136)	Apr-11
Power sensor E4412A	MY41495277	1-Apr-10 (No. 217-01136)	Apr-11
Power sensor E4412A	MY41498087	1-Apr-10 (No. 217-01136)	Apr-11
Reference 3 dB Attenuator	SN: S5054 (3c)	30-Mar-10 (No. 217-01159)	Mar-11
Reference 20 dB Attenuator	SN: S5086 (20b)	30-Mar-10 (No. 217-01161)	Mar-11
Reference 30 dB Attenuator	SN: S5129 (30b)	30-Mar-10 (No. 217-01160)	Mar-11
Reference Probe H3DV6	SN: 6182	3-Oct-09 (No. H3-6182 Oct09)	Oct-10
DAE4	SN: 789	23-Dec-09 (No. DAE4-789_Dec09)	Dec-10
Secondary Standards	ID#	Check Date (in house)	Scheduled Check
RF generator HP 8648C	US3642U01700	4-Aug-99 (in house check Oct-09)	In house check: Oct-11
Network Analyzer HP 8753E	US37390585	18-Oct-01 (in house check Oct-09)	In house check: Oct10
	Name	Function	Signature
Calibrated by:	Jeton Kastrati	Laboratory Technician	for Cc
Approved by:	Katja Pokovic	Technical Manager	20110

Certificate No: H3-6142 Apr10

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Schmid & Partner Engineering AG Zeughausstrasse 43, 8004 Zurich, Switzerland





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Swiss Calibration Service Accreditation No.: SCS 108

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Glossary:

sensitivity in free space NORMx,y,z DCP diode compression point

crest factor (1/duty_cycle) of the RF signal modulation dependent linearization parameters CF A. B. C

Polarization φ φ rotation around probe axis

9 rotation around an axis that is in the plane normal to probe axis (at measurement center), Polarization 9

i.e., $\theta = 0$ is normal to probe axis

information used in DASY system to align probe sensor X to the robot coordinate system Connector Angle

Calibration is Performed According to the Following Standards:

a) IEEE Std 1309-2005, "IEEE Standard for calibration of electromagnetic field sensors and probes, excluding antennas, from 9 kHz to 40 GHz", December 2005.

Methods Applied and Interpretation of Parameters:

- NORMx, y, z: Assessed for E-field polarization ϑ = 0 for XY sensors and ϑ = 90 for Z sensor (f \leq 900 MHz in TEM-cell; f > 1800 MHz: R22 waveguide).
- X, Y, Z(f)_a0a1a2= X, Y, Z_a0a1a2* frequency_response (see Frequency Response Chart).
- DCPx, y, z: DCP are numerical linearization parameters assessed based on the data of power sweep with CW signal (no uncertainty required). DCP does not depend on frequency nor media.
- Ax,y,z; Bx,y,z; Cx,y,z, VRx,y,z: A, B, C are numerical linearization parameters assessed based on the data of power sweep for specific modulation signal. The parameters do not depend on frequency nor media. VR is the maximum calibration range expressed in RMS voltage across the diode.
- Spherical isotropy (3D deviation from isotropy): in a locally homogeneous field realized using an open waveguide setup
- Sensor Offset: The sensor offset corresponds to the offset of virtual measurement center from the probe tip (on probe axis). No tolerance required
- Connector Angle: The angle is assessed using the information gained by determining the X a0a1a2 (no uncertainty required).

Certificate No: H3-6142_Apr10

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H3DV6 SN:6142

April 26, 2010



Probe H3DV6

SN:6142

Manufactured: Last calibrated: Recalibrated:

July 3, 2002 April 27, 2009 April 26, 2010

Calibrated for DASY Systems

(Note: non-compatible with DASY2 system!)

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April 26, 2010 H3DV6 SN:6142

DASY - Parameters of Probe: H3DV6 SN:6142

Basic Calibration Parameters

		Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm (A/m / √(µV))	a0	2.73E-3	2.71E-3	3.08E-3	± 5.1%
Norm (A/m / √(µV))	a1	-6.53E-5	-1.16E-4	-3.09E-4	± 5.1%
Norm (A/m / √(μV))	a2	-1.83E-5	4.57E-6	3.49E-5	± 5.1%
DCP (mV) ^A	_	91.3	82.0	82.1	

Modulation Calibration Parameters

UID	Communication System Name	PAR		A dB	B dBuV	С	VR mV	Unc ^E (k=2)
10000	cw	0.00	X	0.00	0.00	1.00	300	± 1.5 %
			Y	0.00	0.00	1.00	300	
			Z	0.00	0.00	1.00	300	

The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%.

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numerical linearization parameter, uncertainty not required

E Uncertainty is determined using the maximum deviation from linear response applying recatangular distribution and is expressed for the square of the field value

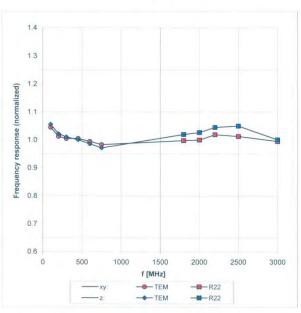


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H3DV6 SN:6142 April 26, 2010

Frequency Response of H-Field

(TEM-Cell:ifi110 EXX, Waveguide R22)



Uncertainty of Frequency Response of H-field: ± 6.3% (k=2)

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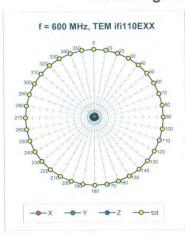


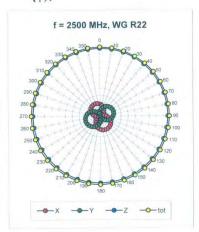
April 26, 2010

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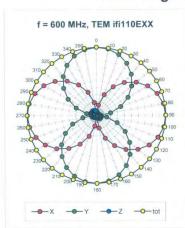
H3DV6 SN:6142

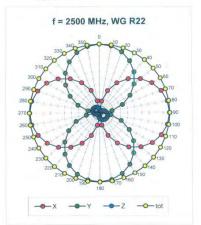
Receiving Pattern (ϕ), $\vartheta = 90^{\circ}$





Receiving Pattern (ϕ), $\vartheta = 0^{\circ}$





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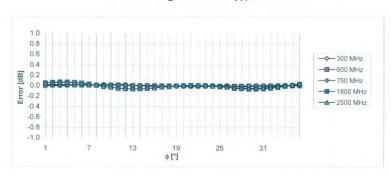
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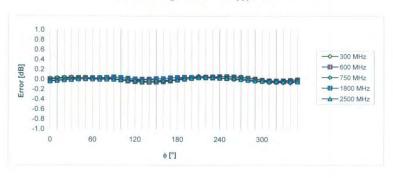
H3DV6 SN:6142 April 26, 2010

Receiving Pattern (ϕ), $\vartheta = 90^{\circ}$



Uncertainty of Axial Isotropy Assessment: ± 0.5% (k=2)

Receiving Pattern (ϕ), $\vartheta = 0^{\circ}$



Uncertainty of Axial Isotropy Assessment: ± 0.5% (k=2)

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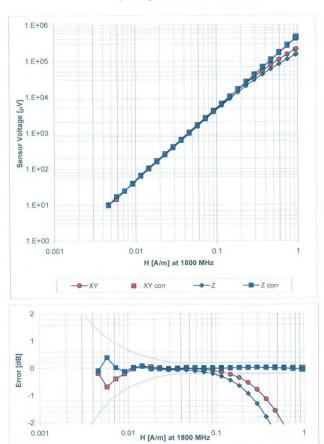
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H3DV6 SN:6142

April 26, 2010

Dynamic Range f(H-field)

(Waveguide R22, f = 1800 MHz)



Uncertainty of Linearity Assessment: ± 0.6% (k=2)

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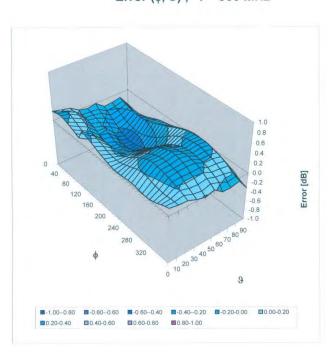
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April 26, 2010 H3DV6 SN:6142

Deviation from Isotropy in Air Error (ϕ, ϑ) , f = 900 MHz



Uncertainty of Spherical Isotropy Assessment: ± 2.6% (k=2)

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April 26, 2010 H3DV6 SN:6142

Sensor Arrangement	Rectangular
Connector Angle (°)	-247.6
Mechanical Surface Detection Mode	enabled
Optical Surface Detection Mode	disabled
Probe Overall Length	337 mm
Probe Body Diameter	10 mm
Tip Length	20 mm
Probe Tip to Sensor X Calibration Point	3 mm
Probe Tip to Sensor Y Calibration Point	3 mm
Probe Tip to Sensor Z Calibration Point	3 mm

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16. Uncertainty Analysis

HAC-Extension Setup Performance Test Using SPEAG Calibration Dipoles

Error Description	Uncertainty value	Prob. Dist.	Div.	(c_i)	(c_i) Π	Std. Unc.	Std. Unc.
Measurement System							
Probe Calibration	15.1%	N	1	1	1	1.5.1 %	±5.1 %
Axial Isotropy	上4.7%	R	$\sqrt{3}$	1	1	±2.7%	±2.7%
Sensor Displacement	±16.5%	R	$\sqrt{3}$	1	0.145	±9.5%	±1.4%
Boundary Effects	±2.4 %	R	$\sqrt{3}$	1	1	±1.4%	±1.4%
Linearity	±4.7%	R	$\sqrt{3}$	1	1	±2.7%	±2.7%
Scaling to Peak Envelope Power	±0%	R	$\sqrt{3}$	1	1	±0%	±0%
System Detection Limit	±1.0%	R	$\sqrt{3}$	1	1	±0.6%	±0.6%
Readout Electronics	±0.3%	N	1	1	1	±0.3%	±0.3 %
Response Time	±0%	R	$\sqrt{3}$	1	1	±0%	±0%
Integration Time	±0%	R	$\sqrt{3}$	1	1	±0%	±0%
RF Ambient Conditions	13.0%	R	$\sqrt{3}$	1	I	±1.7%	11.7%
RF Reflections	16.0%	R	$\sqrt{3}$	1	1	±3.5 %	+3.5 %
Probe Positioner	±1.2%	R	$\sqrt{3}$	-1	0.67	±0.7%	±0.5 %
Probe Positioning	±4.7%	R	$\sqrt{3}$	1	0.67	±2.7%	±1.8%
Extrap. and Interpolation	11.0%	R	$\sqrt{3}$	1	1	10.6%	+0.6%
Dipole Related							
Distance Dipole - Scanning Plane	±5.2%	R.	$\sqrt{3}$	1	0.3	±3.0%	=0.9 %
Input power	±4.7%	N	1	1	1	±4.7%	=4.7%
Combined Std. Uncertainty		4 - 4				±13.7 %	±9.3 %
Expanded Std. Uncertainty or						27.4 %	18.6 %
Expanded Std. Uncertainty or	n Field					±13.7 %	=9.3 %

Table 28.1: Uncertainty budget for HAC setup performance test. The budget is valid for the frequency range 800 MHz - 3 GHz and represents a worst-case analysis with respect to power uncertainty of the field. Some of the parameters are dependent on the user situations and need adjustment according to the actual laboratory conditions.

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17. System Validation from Original equipment supplier

ilac-MRA

Calibration Laboratory of Schmid & Partner **Engineering AG**

43, 8004 Zurich, Switzerland

Accredited by the Swiss Accreditation Service (SAS) The Swiss Accreditation Service is one of the signatories to the EA Multilateral Agreement for the recognition of calibration certificates



Service suisse d'étalonnage C Servizio svizzero di taratura Swiss Calibration Service

Accreditation No.: SCS 108

SGS-TW (Auden) Certificate No: CD835V3-1052 Apr10 **CALIBRATION CERTIFICATE** CD835V3 - SN: 1052 QA CAL-20.v5 Calibration procedure(s) Calibration procedure for dipoles in air April 26, 2010 Calibration date: All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70% Calibration Equipment used (M&TE critical for calibration) Primary Standards ID# Cal Date (Certificate No.) Scheduled Calibration ower meter EPM-442A GB37480704 06-Oct-09 (No. 217-01086) Power sensor HP 8481A US37292783 06-Oct-09 (No. 217-01086) Oct-10 Probe ER3DV6 30-Dec-09 (No. ER3-2336_Dec09) Probe H3DV6 SN: 6065 30-Dec-09 (No. H3-6065_Dec09) Dec-10 Secondary Standards Check Date (in house) Scheduled Check Power meter Agilent 4419B Power sensor HP 8482H SN: GB42420191 09-Oct-09 (in house check Oct-09) In house check: Oct-10 SN: 3318A09450 09-Oct-09 (in house check Oct-09) Power sensor HP 8482A SN: US37295597 09-Oct-09 (in house check Oct-09) In house check: Oct-10 Network Analyzer HP 8753E 18-Oct-01 (in house check Oct-09) BF generator E4433B MY 41000675 03-Nov-04 (in house check Oct-09) In house check: Oct-11 Function Claudio Leublei Laboratory Technician Calibrated by: Fin Bomholt Technical Director Issued: April 27, 2010

Certificate No: CD835V3-1052 Apr10

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3.3.2 DASY4 H-field Result

Date/Time: 26.04.2010 11:29:17

Test Laboratory: SPEAG Lab2

HAC RF_CD835_1052_H_100426_CL

DUT: HAC-Dipole 835 MHz; Type: CD835V3; Serial: 1052

Communication System: CW; Communication System Band: CD835 (835.0 MHz); Frequency: 835 MHz;

Communication System PAR: 0 dB

Medium parameters used: $\sigma = 0$ mho/m, $\varepsilon_r = 1$; $\rho = 1$ kg/m³

Phantom section: RF Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63,19-2007)

DASY5 Configuration:

Probe: H3DV6 - SN6065; ; Calibrated: 30.12.2009

Sensor-Surface: (Fix Surface)

Electronics: DAE4 Sn781; Calibrated: 22.01.2010

Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA; Serial: 1070

Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

Dipole H-Field measurement @ 835MHz/H Scan - measurement distance from the probe sensor center to CD835 Dipole = 10mm/Hearing Aid Compatibility Test (41x361x1): Measurement grid: dx=5mm, dy=5mm

Maximum value of peak Total field = 0.459 A/m

Probe Modulation Factor = 1

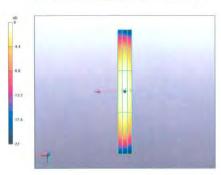
Device Reference Point: 0, 0, -6.3 mm

Reference Value = 0.488 A/m; Power Drift = -0.015 dB

Hearing Aid Near-Field Category: M4 (AWF 0 dB)

Peak H-field in A/m

Grid 1	Grid 2	Grid 3
0.394	0.412	0.385
M4	M4	M4
Grid 4	Grid 5	Grid 6
0.441	0.459	0.427
M4	M4	M4
Grid 7	Grid 8	Grid 9
0.390	0.403	0.368
M4	M4	M4



0 dB = 0.459 A/m

Certificate No: CD835V3-1052 Apr10

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3.3.3 DASY4 E-field Result

Date/Time: 26.04.2010 16:28:20

Test Laboratory: SPEAG Lab2

HAC RF_CD835_1052_E_100426_CL

DUT: HAC-Dipole 835 MHz; Type: CD835V3; Serial: 1052

Communication System: CW; Communication System Band: CD835 (835.0 MHz); Frequency: 835 MHz;

Communication System PAR: 0 dB

Medium parameters used: $\sigma = 0$ mho/m, $\varepsilon_r = 1$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: RF Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: ER3DV6 SN2336; ConvF(1, 1, 1); Calibrated: 30.12.2009
- Sensor-Surface: (Fix Surface)
- Electronics: DAE4 Sn781; Calibrated: 22.01.2010
- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA; Serial: 1070
- Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

Dipole E-Field measurement @ 835MHz/E Scan - measurement distance from the probe sensor center to CD835 Dipole = 10mm 2/Hearing Aid Compatibility Test (41x361x1):

Measurement grid: dx=5mm, dy=5mm

Maximum value of peak Total field = 175.0 V/m

Probe Modulation Factor = 1

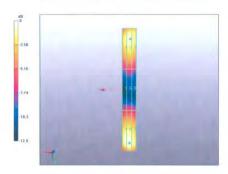
Device Reference Point: 0, 0, -6.3 mm

Reference Value = 114.7 V/m; Power Drift = 0.0013 dB

Hearing Aid Near-Field Category: M4 (AWF 0 dB)

Peak E-field in V/m

Grid 1	Grid 2	Grid 3
154.6	162.4	161.0
M4	M4	M4
Grid 4	Grid 5	Grid 6
80.2	83.2	81.8
M4	M4	M4
Grid 7	Grid 8	Grid 9
166.7	175.0	167.6
M4	M4	M4



0 dB = 175.0 V/m

Certificate No: CD835V3-1052 Apr10

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Calibration Laboratory of Schmid & Partner **Engineering AG** Zeughausstrasse 43, 8004 Zurich, Switzerland





Schweizerischer Kalibrierdienst Service suisse d'étalonnage C Servizio svizzero di taratura Swiss Calibration Service

Accredited by the Swiss Accreditation Service (SAS) The Swiss Accreditation Service is one of the signatories to the EA Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: SCS 108

SGS-TW (Auden)

Certificate No: CD1880V3-1044_Apr10

CALIBRATION CERTIFICATE CD1880V3 - SN: 1044 Object QA CAL-20.v5 Calibration procedure(s) Calibration procedure for dipoles in air April 26, 2010 Calibration date This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI). All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%. Calibration Equipment used (M&TE critical for calibration) Primary Standards Cal Date (Certificate No.) Scheduled Calibration Power meter EPM-442A GB37480704 06-Oct-09 (No. 217-01086) Oct-10 Oct-10 Power sensor HP 8481A US37292783 06-Oct-09 (No. 217-01086) 30-Dec-09 (No. ER3-2336 Dec09) Dec-10 Probe ER3DV6 SN: 2336 Dec-10 SN: 6065 30-Dec-09 (No. H3-6065 Dec09) Probe H3DV6 22-Jan-10 (No. DAE4-781_Jan10) Jan-11 SN: 781 DAE4 Scheduled Check Check Date (in house) Secondary Standards SN: GB42420191 09-Oct-09 (in house check Oct-09) In house check: Oct-10 Power meter Agilent 4419B Power sensor HP 8482H SN: 3318A09450 09-Oct-09 (in house check Oct-09) In house check: Oct-10 SN: US37295597 Power sensor HP 8482A 09-Oct-09 (in house check Oct-09) In house check: Oct-10 Network Analyzer HP 8753E US37390585 18-Oct-01 (in house check Oct-09) In house check: Oct-10 RF generator E4433B MY 41000675 03-Nov-04 (in house check Oct-09) In house check: Oct-11 Function Name Claudio Leubler Laboratory Technician Calibrated by: Fin Bomholt Technical Directo Approved by: Issued: April 27, 2010 This calibration certificate shall not be reproduced except in full without written approval of the laboratory

Certificate No: CD1880V3-1044 Apr10

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3.3.2 DASY4 H-Field Result

Date/Time: 26.04,2010 12:16:04

Test Laboratory: SPEAG Lab2

HAC RF_CD1880_1044_H_100426_CL

DUT: HAC Dipole 1880 MHz; Type: CD1880V3; Serial: 1044

Communication System: CW; Communication System Band: CD1880 (1880.0 MHz); Frequency: 1880 MHz; Communication System PAR: 0 dB

Medium parameters used: $\sigma = 0$ mho/m, $\varepsilon_r = 1$; $\rho = 1$ kg/m³

Phantom section: RF Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

Probe: H3DV6 - SN6065; ; Calibrated: 30.12.2009

Sensor-Surface: (Fix Surface)
Electronics: DAE4 Sn781; Calibrated: 22.01.2010
Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA; Serial: 1070
Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

Dipole H-Field measurement @ 1880MHz/H Scan - measurement distance from the probe sensor center to CD1880 Dipole = 10mm/Hearing Aid Compatibility Test (41x181x1):

Measurement grid: dx=5mm, dy=5mm Maximum value of peak Total field = 0.469 A/m

Probe Modulation Factor = 1

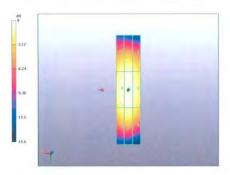
Device Reference Point: 0, 0, -6.3 mm

Reference Value = 0.496 A/m; Power Drift = 0.00101 dB

Hearing Aid Near-Field Category: M2 (AWF 0 dB)

Peak H-field in A/m

Grid I	Grid 2	Grid 3
0.414	0.428	0.401
M2	M2	M2
Grid 4	Grid 5	Grid 6
0.453	0.469	0.438
M2	M2	M2
Grid 7	Grid 8	Grid 9
0.413	0.429	0.395
M2	M2	M2



0 dB = 0.469 A/m

Certificate No: CD1880V3-1044 Apr10

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3.3.3 DASY4 E-Field Result

Date/Time: 26.04.2010 14:58:13

Test Laboratory: SPEAG Lab2

HAC_RF_CD1880_1044_E_100426_CL

DUT: HAC Dipole 1880 MHz; Type: CD1880V3; Serial: 1044

Communication System: CW; Communication System Band: CD1880 (1880.0 MHz); Frequency: 1880 MHz; Communication System PAR: 0 dB

Medium parameters used: $\sigma = 0$ mho/m, $\varepsilon_r = 1$; $\rho = 1000$ kg/m³

Phantom section: RF Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

Probe: ER3DV6 - SN2336; ConvF(1, 1, 1); Calibrated: 30.12.2009

- Sensor-Surface: (Fix Surface) Electronics: DAE4 Sn781; Calibrated: 22.01.2010
- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA; Serial: 1070
- Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

Dipole E-Field measurement @ 1880MHz/E Scan - measurement distance from the probe sensor center to CD1880 Dipole = 10mm/Hearing Aid Compatibility Test (41x181x1):

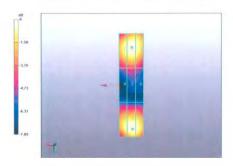
Measurement grid: dx=5mm, dy=5mm Maximum value of peak Total field = 138.4 V/m

Probe Modulation Factor = 1

Device Reference Point: 0, 0, -6.3 mm Reference Value = 153.7 V/m; Power Drift = -0.00981 dB Hearing Aid Near-Field Category: M2 (AWF 0 dB)

Peak E-field in V/m

Grid 1	Grid 2	Grid 3
131.8	136.2	134.2
M2	M2	M2
Grid 4	Grid 5	Grid 6
86.8	89.3	86.6
M3	M3	M3
Grid 7	Grid 8	Grid 9
130.3	138.4	136.1
M2	M2	M2



0 dB = 138.4 V/m

Certificate No: CD1880V3-1044 Apr10

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End of 1st part of report

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