A Test Lab Techno Corp.

Changan Lab：No. 140 -1, Changan Street, Bade City, Taoyuan County, Taiwan R.O.C.
Tel：886-3-271-0188 / Fax：886-3-271-0190

HAC EVALUATION REPORT

Test Report No.	**: 0912FS14-01**
Applicant	**: HTC Corporation**
Trade Name	**: HTC**
Model Number	**: PB65100**
EUT Type	**: Smartphone**
FCC ID	**: NM8PB65100**
Dates of Test	**: Dec. 23, 2009**
Test Environment	**: Ambient Temperature： 22 ± 2 ℃**
	Relative Humidity： 40 - 70 %
FCC Rule Part(s)	**: FCC 47 CFR § 20.19.**
HAC Standard	**: ANSI C63.19-2007**
C63.19 HAC Rated Category	**: M3 (RF EMISSIONS)**
Test Lab.	**: Chang-An Lab**

1. The test operations have to be performed with cautious behavior, the test results are as attached.
2. The test results are under chamber environment of A Test Lab Techno Corp. A Test Lab Techno Corp. does not assume responsibility for any conclusions and generalizations drawn from the test results with regard to other specimens or samples.
3. The measurement report has to be written approval of A Test Lab Techno Corp. It may only be reproduced or published in full. This report shall not be reproduced except in full, without the written approval of A Test Lab Techno Corp. The test results in the report only apply to the tested sample.

Sam Chuang **20100225**
Approve Signer

Alex Wu **20100225**
Testing Engineer

Contents

1. Description of Equipment Under Test (EUT)

Applicant	:	HTC Corporation
Applicant Address	:	No. 23, Xinghua Rd., Taoyuan City, Taoyuan County 330, Taiwan
	:	HTC Corporation
Manufacturer Address	:	No. 23, Xinghua Rd., Taoyuan City, Taoyuan County 330, Taiwan
EUT Type	:	Smartphone
Trade Name	:	HTC
Model Number	:	PB65100
FCC ID	:	NM8PB65100
Time-Avg Output Power	:	0.254 W (24.05 dBm) GSM 850
		0.151 W (21.78dBm) PCS 1900
		0.256 W (24.09 dBm) WCDMA Band IV (RMC12.2K)
Tx Frequency	:	824.2 - 848.8 MHz (GSM 850)
		1850.2 - 1909.8 MHz (PCS 1900)
		1712.4 - 1752.6 MHz (WCDMA Band IV)
Antenna Gain	:	-0.39 dBi (GSM 850)
		2.43 dBi (PCS 1900 / WCDMA Band IV)
Antenna Type	:	PIFA
Battery Option	:	Standard
		Source1 #1 (3.7V 1300mAh)
		Source2 #2 (3.7V 1300mAh)
		Source3 #3 (3.7V 1300mAh)
Test Device	:	Production Unit
Device Category	:	Portable

This wireless portable device has performed Hearing Aid Compatibility (HAC) measurements for the portable cellular phone. The measurements were performed to ensure compliance to the ANSI C63.19-2007 standards.

2. Introduction

The A Test Lab Techno Corp. has performed measurements of the maximum potential exposure to the user of **HTC Corporation Trade Name: HTC Model(s)：PB65100.** The test procedures, as described in ANSI C63.19-2007 standard were employed. A description of the product and operating configuration, detailed summary of the test results, methodology and procedures used in the equipment are included within this test report.

3. Test Equipment List

Manufacturer	Name of Equipment	Type/Model	Serial Number	Calibration	
				Last Cal.	Due Date
SPEAG	Dosimetric E-Filed Probe	ER3DV6	2256	Aug. 21, 2009	Aug. 21, 2010
SPEAG	Dosimetric H-Filed Probe	H3DV6	6076	Aug. 19, 2009	Aug. 19, 2010
SPEAG	835 MHz System Validation Kit	CD835V3	1017	Jul. 14, 2009	Jul. 14, 2010
SPEAG	1880 MHz System Validation Kit	CD1880V3	1036	Jul. 15, 2009	Jul. 15, 2010
SPEAG	Data Acquisition Electronics	DAE3	393	Aug. 24, 2009	Aug. 24, 2010
SPEAG	Device Holder	N/A	N/A	NCR	
SPEAG	Phantom	SAM V4.0	TP-1150	NCR	
SPEAG	Robot	Staubli TX90XL	F07/564ZA1/C/01	NCR	
SPEAG	Software	DASY5 V5.0 Build 125	N/A	NCR	
SPEAG	Software	SEMCAD X V13.4 Build 125	N/A	NCR	
SPEAG	Measurement Server	SE UMS 011 AA	1025	NCR	
Agilent	Wireless Communication Test Set	CMU200	109369	Jul. 29, 2009	Jul. 29, 2010
Agilent	Spectrum Analyzer(ESA-L)	E4408B	MY45107753	Jun. 23, 2009	Jun. 23, 2010
R&S	Spectrum Analyzer(FSL)	FSL6	100410	Mar. 25, 2009	Mar. 25, 2010
Agilent	Power Meter	E4418B	GB40206143	Jun. 18, 2009	Jun. 18, 2010
Agilent	Signal Generator	E8257D	MY44320425	Mar. 09, 2009	Mar. 09, 2010
R&S	Power Sensor	8481H	3318A20779	Jun. 18, 2009	Jun. 18, 2010
Agilent	Dual Directional Coupler	778D	50334	NCR	
Mini-Circuits	Power Amplifier	ZVE-8G	D042005 671800514	NCR	
Mini-Circuits	Power Amplifier	ZHL-42W-SMA	D111103#5	NCR	

Table 1. Test Equipment List

4. Validation

Validations of the DASY5 v5.0 test system were performed using the measurement equipment listed in Section 3. All validations occur in free space using the DASY5 test arch. Note that the 10mm probe to dipole separation is measured from the top edge of the dipole to the calibration reference point of the probe. SPEAG uses the center point of the probe sensor(s) as the reference point when establishing targets for their dipoles. Therefore, because SPEAG's dipoles and targets are used, it is appropriate to measure the 10mm separation distance to the center of the sensors as they do. This reference point was used for validation only. Validations were performed at 835 MHz and/or 1880 MHz. These frequencies are within each operating band and are within 2MHz of the mid-band frequency of the test device.

Validations were performed to verify that measured E-field and H-field values are within +/- 25% from the target reference values provided by the manufacturer (Ref: Appendix D). Per Section 4.2.2.1 of the standard, "Values within +/-25% are acceptable, of which 12% is deviation and 13% is measurement uncertainty." Therefore, the E-Field and H-Field dipole verification results, shown in Table 2 & 3, are in accordance with the acceptable parameters defined by the standard.

Dipole	Freq. (MHz)	Protocol	Input Power (mW)	Target for Dipole (V/m)	E-Field Results (V/m)	Deviation	Date
SN:1017	**835**	**CW**	**100**	159.6	171.6	7.52%	Dec. 23, 2009
SN:1036	**1880**	**CW**	**100**	137.5	141.0	2.55%	Dec. 23, 2009

Table 2. Dipole E-Field Measurement Summary

Dipole	Freq. (MHz)	Protocol	Input Power (mW)	Target for Dipole (A/m)	H-Field Results (A/m)	Deviation	Date
SN:1017	**835**	**CW**	**100**	0.457	0.460	0.66%	Dec. 23, 2009
SN:1036	**1880**	**CW**	**100**	0.474	0.453	-4.43%	Dec. 23, 2009

Table 3. Dipole H-Field Measurement Summary

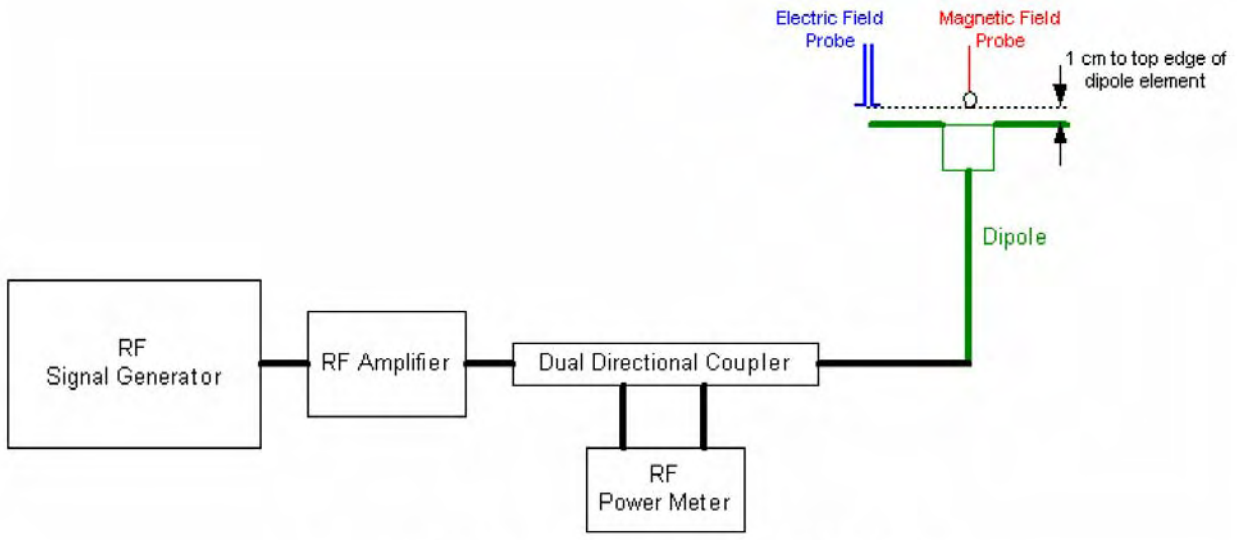


Figure 1. WD dipole calibration procedure

5. Probe Modulation Factor

After every probe calibration, the response of the probe to each applicable modulated signal (CDMA, GSM, WCDMA (UMTS), etc) must be assessed at both 835 MHz, 1880 MHz. The response of the probe system to a CW field at the frequency(s) of interest is compared to its response to a modulated signal with equal peak amplitude. For each PMF assessment, a Signal Generator was used to replace the original CW signal with the desired modulated signal. The PMF results are shown in Table 4. RF Field Probe Modulation Response was measured with the field probe and associated measurement equipment. The PMF was measured per ANSI C63.19-2007 using a signal generator as follows:

1. Illuminate a dipole with a CW signal at the intended measured frequency.
2. Fix the probe at a set location relative to the dipole; typically located at the field reference point.
3. Record the reading of the probe measurement system of the CW signal.
4. Substitute a modulated signal of the same amplitude, using the same modulation as that used by the intended WD for the CW signal.
5. Record the reading of the probe measurement system of the modulated signal.
6. The ratio of the CW to modulated signal reading is the probe modulation factor.
7. Spectrum analyzer settings:
   - Center Frequency: nominal center frequency of channel
   - Span: zero
   - Resolution bandwidth >= emission bandwidth
   - Video bandwidth >= 20 kHz.
   - Detection: RMS detection.
   - Trigger: Video or IF trigger, adjusted to give a stable display of the transmission.
   - Sweep rate: Set to show a complete transmission cycle.
   - Line max hold may be used temporarily to ease the peak reading.

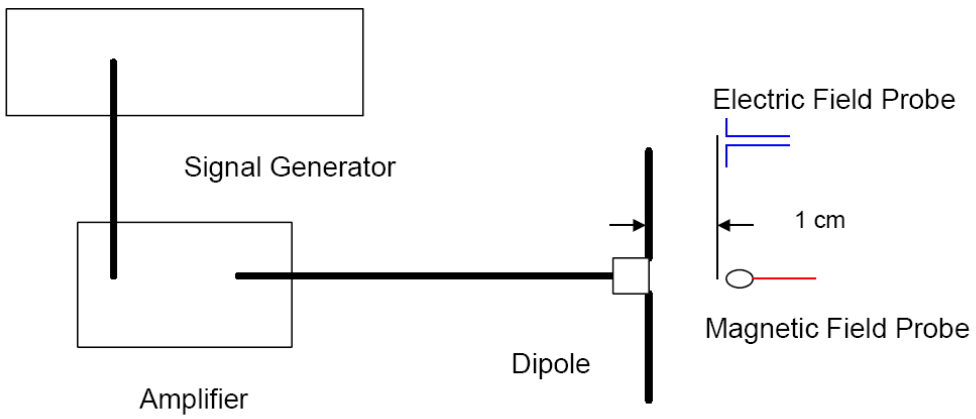


Figure 2. Dipole calibration procedure

Formula between PMF and test results

1. HAC test of device and determine the maximum value (M) of grids.
2. Determine the value (P) of PMF according to (M).
3. Find the maximum value (F) from the other data.

$$R = P * F$$

Example:

E-Field Maximum value (M) = 52, Maximum value (F) = 51.8, PMF (P) = 2.82

R = 51.8 * 2.82 = 146.076 V/m

Frequency (MHz)	Protocol	E-Field Probe SN:2256		H-Field Probe SN:6076	
		E-Field (V/m)	E-Field Modulation Factor	H-Field (A/m)	H-Field Modulation Factor
835.0	GSM	< 47	2.53	< 0.14	1.81
		47 - 63	2.54	0.14 - 0.19	2.12
		63 - 84	2.54	0.19 - 0.25	2.37
		84 - 112	2.55	0.25 - 0.34	2.57
		112 - 150	2.56	0.34 - 0.45	2.68
		150 - 200	2.56	0.45 - 0.60	2.71
		200- 266	2.57	0.60 - 0.80	2.64
		266 - 355	2.57	0.80 - 1.07	2.49
		355 - 473	2.58	1.07 - 1.43	2.26
		473 - 631	2.58	1.43 - 1.91	1.98
		631 - 841	2.59	1.91 - 2.54	1.67
		841 - 1122	2.60	2.54 - 3.39	1.36
1880.0	GSM	< 47	2.53	< 0.14	2.63
		47 - 63	2.52	0.14 - 0.19	2.59
		63 - 84	2.51	0.19 - 0.25	2.54
		84 - 112	2.50	0.25 - 0.34	2.44
		112 - 150	2.49	0.34 - 0.45	2.32
		150 - 200	2.48	0.45 - 0.60	2.18
		200- 266	2.47	0.60 - 0.80	2.02
		266 - 355	2.46	0.80 - 1.07	1.92
		355 - 473	2.45	1.07 - 1.43	1.73
		473 - 631	2.44	1.43 - 1.91	1.54
		631 - 841	2.43	1.91 - 2.54	1.36
		841 - 1122	2.42	2.54 - 3.39	1.17

Frequency (MHz)	Protocol	E-Field Probe SN:2256		H-Field Probe SN:6076	
		E-Field (V/m)	E-Field Modulation Factor	H-Field (A/m)	H-Field Modulation Factor
835.0	WCDMA	< 47	1.07	< 0.14	0.86
		47 - 63	1.04	0.14 - 0.19	0.86
		63 - 84	1.01	0.19 - 0.25	0.85
		84 - 112	0.98	0.25 - 0.34	0.83
		112 - 150	0.95	0.34 - 0.45	0.81
		150 - 200	0.92	0.45 - 0.60	0.78
		200- 266	0.89	0.60 - 0.80	0.75
		266 - 355	0.87	0.80 - 1.07	0.72
		355 - 473	0.84	1.07 - 1.43	0.68
		473 - 631	0.82	1.43 - 1.91	0.64
		631 - 841	0.79	1.91 - 2.54	0.61
		841 - 1122	0.77	2.54 - 3.39	0.56
1880.0	WCDMA	< 47	0.90	< 0.14	0.81
		47 - 63	0.89	0.14 - 0.19	0.76
		63 - 84	0.89	0.19 - 0.25	0.71
		84 - 112	0.89	0.25 - 0.34	0.65
		112 - 150	0.89	0.34 - 0.45	0.59
		150 - 200	0.89	0.45 - 0.60	0.52
		200- 266	0.89	0.60 - 0.80	0.46
		266 - 355	0.89	0.80 - 1.07	0.39
		355 - 473	0.89	1.07 - 1.43	0.33
		473 - 631	0.88	1.43 - 1.91	0.28
		631 - 841	0.88	1.91 - 2.54	0.23
		841 - 1122	0.88	2.54 - 3.39	0.19

Table 4. PMF Measurement Summary

Note: PMF measurements were verified at WD's power as an input to the dipole.

6. Test Results

6.1 Device and Test Conditions

The phone was tested in all normal configurations for the ear use. A DUT is mounted in the device holder equivalent as for classic dosimetric measurements. The accoustic output of the DUT shall coincide with the center point of the area formed by the dielectric wire and the middle bar of the arch's top frame The DUT shall be moved vertically upwards until it touches the frame. The fine adjustment is possible by sliding the complete DUT holder on the yellow base plate of the Test Arch phantom. These test configurations are tested at the high, middle and low frequency channels of each applicable operating mode; for example, GSM, WCDMA (UMTS), CDMA and TDMA.

GSM Devices setup for HAC Measurement.

The values were assessed for the lowest, middle and highest channels defined by **GSM 850** and **PCS 1900** systems, Power level was set to its maximum, i.e., **GSM 850** nominal maximum output power class 4 (PCL 5, 33dBm) and **PCS 1900** nominal maximum output power class 1(PCL 0, 30dBm). These parameters will need to be replaced for the individual phone tested.

CDMA Devices setup for HAC Measurement.

The signal was setup by creating and maintaining an over the coaxial connection between the DUT and an R&S CMU200 Wireless Communications Test Set. The CDMA radio is available on CDMA 2000(1X) and IS-95. The test equipment was configured to use "all up bits" for RC1 / SO2 on J-STD-008 for CDMA 1900 and TSB-84 for CDMA 800 MHz. The Wideband and Zero Span spectrum analyzer plots are shown in Appendix A.

The DASY5 v5.0 measurement system specified in section 3.1 was utilized within the intended operations as set by the SPEAG™ setup. The default settings for the grid spacing of the scan were set to 5mm as shown in the Field plots included in Appendix B and C. The 5cm x 5cm area measurement grid is centered on the acoustic output of the device. The Test Arch provided by SPEAG is used to position the DUT. The WD reference plane is parallel to the device and contains the highest point on its contour in the area of the phone that normally rests against the user's ear. The measurement plane contains the nearest point on the probe sensor(s) relative to the WD. The pictures of the setup are included in 7.3.

WCDMA Devices setup for HAC Measurement.

The following procedures are applicable to WCDMA handsets operating under 3GPP Release 99 and Release 5. The default test configuration is to measure HAC with an established radio link between the DUT and a communication test set using a 12.2 kbps RMC (reference measurement channel) configured in Test Loop Mode 1. HAC is selectively confirmed for other physical channel configurations (DPCCH & $DPDCH_n$) according to output power, exposure conditions and device operating capabilities. Both uplink and downlink should be configured with the same RMC or AMR, when required. Maximum output power is verified according to 3GPP TS 34.121 and HAC must be measured according to these maximum output conditions.

HSDPA Devices setup for HAC Measurement.

Body HAC is not required for handsets with HSDPA capabilities when the maximum average output of each RF channel with HSDPA active is less than ¼ dB higher than that measured without HSDPA using 12.2 kbps RMC. Otherwise, HAC is measured for HSDPA, using FRC, with the body exposure configuration that results in the highest HAC in 12.2 RMC for that RF channel.

The device is positioned such that the WD reference plane is located 10mm from, and parallel to, the measurement plane. This is in accordance with section 4.3 of the standard, which states that “The WD reference plane is a plane parallel with the front "face" of the WD and containing the highest point on its contour in the area of the phone that normally rests against the user's ear.”

The following figure shows the position of the measurement grid with respect to a typical device under test.

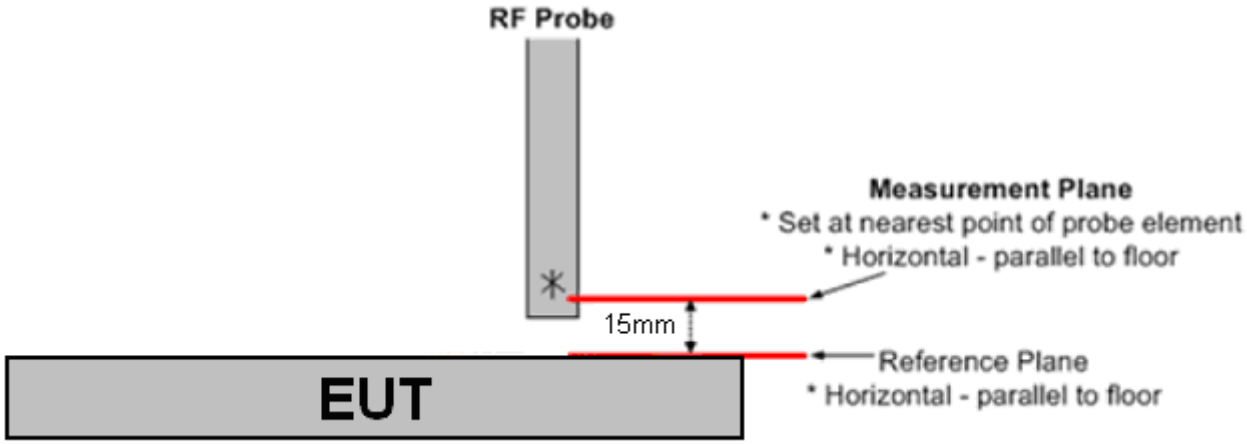


Figure 3. Clarification of Figure A-2 from the Standard

The HAC Rating results for E-Field and H-field are shown in 7.1 and 7.2. Also shown are the measured conducted output powers, the measured drifts, excluded areas, and the peak fields. PMF measurements are taken from Section 5. The worst-case test conditions are indicated with bold numbers in the tables and are detailed in Appendix C: HAC distribution plots for E-Field and H-Field.

Drift was measured using the typical DASY5 v5.0 measurement routines. The field is measured at the reference location (center of the ear piece) at the beginning of the test. Then after completion of the E or H field measurement, the probe returns to the same reference location and takes another measurement. The drift is the delta between these two values and is included in the test report scans.

The cellular phone model covered by this report has the following battery options:

Battery ： #1 (3.7V 1300mAh)

6.2 HAC E-Field Measurement Results:

Band	Rating	E-Field
GSM 850	M3	149.6 to 266.1 V/m
	M4	< 149.6 V/m
PCS 1900	M3	47.3 to 84.1 V/m
	M4	< 47.3 V/m
WCDMA Band IV	M3	63.1 to 112.2 V/m
	M4	< 63.1 V/m

Table 5. Emissions Limits

Open

Band	Channel	Conducted Power (dBm)		Measured PMF	Drift (dB)	Excluded Cells	Peak Field (V/m)	Rating
		Time-Avg	Peak					
GSM 850	128	23.97	33.16	2.55	0.038	2.3.6	95.0	M4
	190	23.98	33.17	2.56	0.013	2.3.6	114.3	M4
	251	24.05	33.24	2.56	-0.021	2.3.6	134.4	M4
PCS 1900	512	21.40	30.59	2.52	0.057	7.8.9	46.0	M4
	661	21.74	30.93	2.51	0.015	7.8.9	49.8	M3
	810	21.78	30.97	2.51	-0.053	7.8.9	54.9	M3
WCDMA Band IV (RMC12.2K)	1312	23.97	23.99	0.90	0.199	7.8.9	20.6	M4
	1450	23.80	23.83	0.90	0.027	7.8.9	24.3	M4
	1513	24.09	24.10	0.90	-0.079	7.8.9	22.8	M4

Note: HAC E-Field measurement results for the portable cellular telephone at highest possible output power.

Close

Band	Channel	Conducted Power (dBm)		Measured PMF	Drift (dB)	Excluded Cells	Peak Field (V/m)	Rating
		Time-Avg	Peak					
GSM 850	**128**	23.97	33.16	2.56	-0.00158	2.3.6	136.4	**M4**
	190	23.98	33.17	2.56	0.00828	2.3.6	163.5	**M3**
	251	24.05	33.24	2.57	0.00242	2.3.6	187.8	**M3**
PCS 1900	**512**	21.40	30.59	2.50	-0.098	7.8.9	77.3	**M3**
	661	21.74	30.93	2.50	0.016	7.8.9	79.7	**M3**
	810	21.78	30.97	2.50	0.016	7.8.9	77.1	**M3**
WCDMA Band IV (RMC12.2K)	**1312**	23.97	23.99	0.90	0.131	1.4.7	32.5	**M4**
	1450	23.80	23.83	0.90	0.019	4.7.8	38.2	**M4**
	1513	24.09	24.10	0.90	0.025	4.7.8	35.6	**M4**

Note: HAC E-Field measurement results for the portable cellular telephone at highest possible output power.

Turn on Wi-Fi and Bluetooth Function

Band	EUT Mode	Channel	Wireless Mode	Peak Field (V/m)
GSM 850	Close	251	-----	187.8
			Wi-Fi	187.4
			Bluetooth	187.6
PCS 1900	Close	661	-----	79.7
			Wi-Fi	79.5
			Bluetooth	79.6
WCDMA Band IV (RMC12.2K)	Close	1450	-----	38.2
			Wi-Fi	38.0
			Bluetooth	38.1

6.3 HAC H-Field measurement results:

Band	Rating	H-Field
GSM 850	M3	0.45 to 0.80 A/m
	M4	< 0.45 A/m
PCS 1900	M3	0.14 to 0.25 A/m
	M4	<0.14 A/m
WCDMA Band IV	M3	0.19 to 0.34 A/m
	M4	< 0.19 A/m

Table 6. Emissions Limits

Open

Band	Channel	Conducted Power (dBm)		Measured PMF	Drift (dB)	Excluded Cells	Peak Field (A/m)	Rating
		Time-Avg	Peak					
GSM 850	128	23.97	33.16	1.81	0.061	1.4.7	0.090	M4
	190	23.98	33.17	2.37	-0.023	1.4.7	0.141	M4
	251	24.05	33.24	2.37	-0.018	1.4.7	0.170	M4
PCS 1900	512	21.40	30.59	2.59	0.038	6.8.9	0.130	M4
	661	21.74	30.93	2.59	0.028	6.8.9	0.137	M4
	810	21.78	30.97	2.59	-0.016	6.8.9	0.149	M3
WCDMA Band IV (RMC12.2K)	1312	23.97	23.99	0.81	0.028	2.3.6	0.052	M4
	1450	23.80	23.83	0.81	-0.021	2.3.6	0.059	M4
	1513	24.09	24.10	0.81	-0.011	2.3.6	0.055	M4

Note: HAC H-Field measurement results for the portable cellular telephone at highest possible output power.

Close

Band	Channel	Conducted Power (dBm)		Measured PMF	Drift (dB)	Excluded Cells	Peak Field (A/m)	Rating
		Time-Avg	Peak					
GSM 850	**128**	23.97	33.16	2.57	-0.00384	1.4.7	0.203	**M4**
	190	23.98	33.17	2.68	-0.028	1.4.7	0.251	**M4**
	251	24.05	33.24	2.68	0.025	1.4.7	0.284	**M4**
PCS 1900	**512**	21.40	30.59	2.54	-0.025	1.2.3	0.221	**M3**
	661	21.74	30.93	2.44	0.043	1.2.3	0.212	**M3**
	810	21.78	30.97	2.44	0.063	1.2.3	0.216	**M3**
WCDMA Band IV (RMC12.2K)	**1312**	23.97	23.99	0.81	0.072	1.2.4	0.080	**M4**
	1450	23.80	23.83	0.81	0.014	1.2.4	0.089	**M4**
	1513	24.09	24.10	0.81	0.039	1.2.4	0.084	**M4**

Note: HAC H-Field measurement results for the portable cellular telephone at highest possible output power.

Turn on Wi-Fi and Bluetooth Function

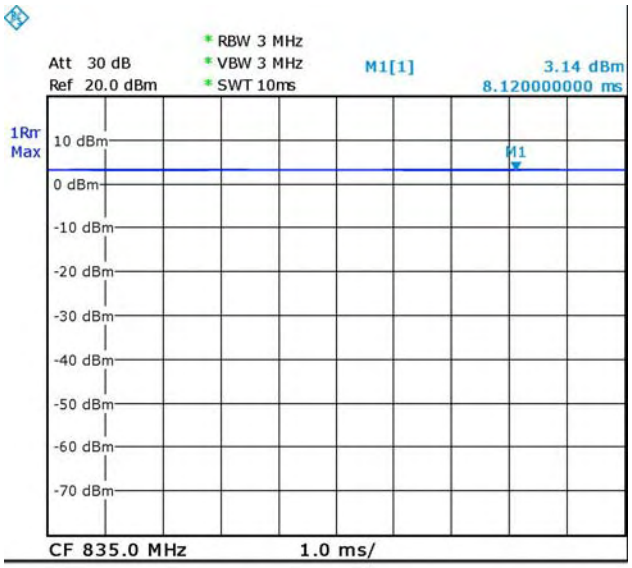
Band	EUT Mode	Channel	Wireless Mode	Peak Field (A/m)
GSM 850	Close	251	-----	0.284
			Wi-Fi	0.280
			Bluetooth	0.282
PCS 1900	Close	512	-----	0.221
			Wi-Fi	0.220
			Bluetooth	0.221
WCDMA Band IV (RMC12.2K)	Close	1450	-----	0.089
			Wi-Fi	0.085
			Bluetooth	0.087

6.4 Description of the Device under Test (DUT)

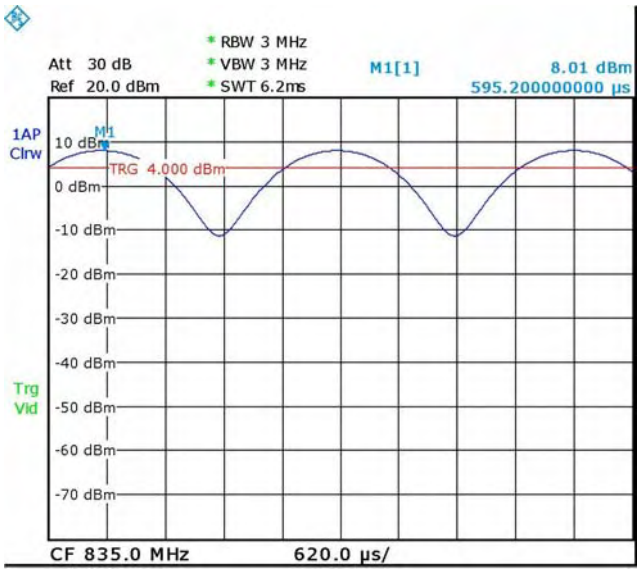
Modes and Bands of Operation	GSM 850	PCS 1900	WCDMA Band IV
Modulation Mode	GMSK	GMSK	QPSK
Duty Cycle	1/8.3	1/8.3	1/1
Transmitter Frequency Range (MHz)	824.2 - 848.8	1850.2 -1909.8	1712.4- 1752.6

Appendix A - Details of WD signal

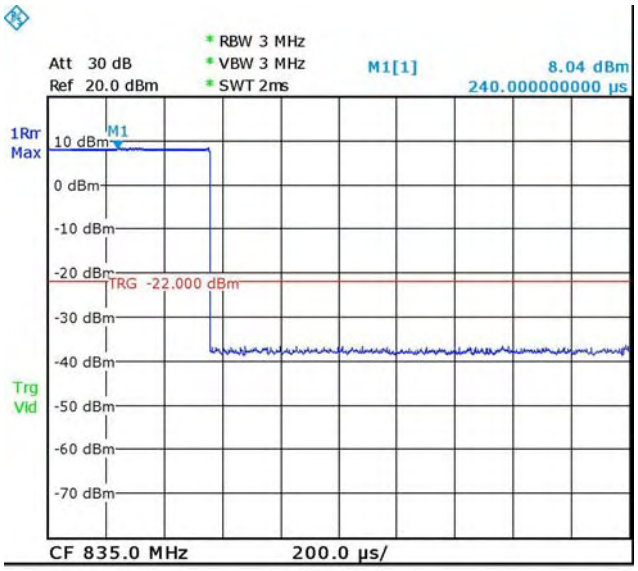
835 MHz



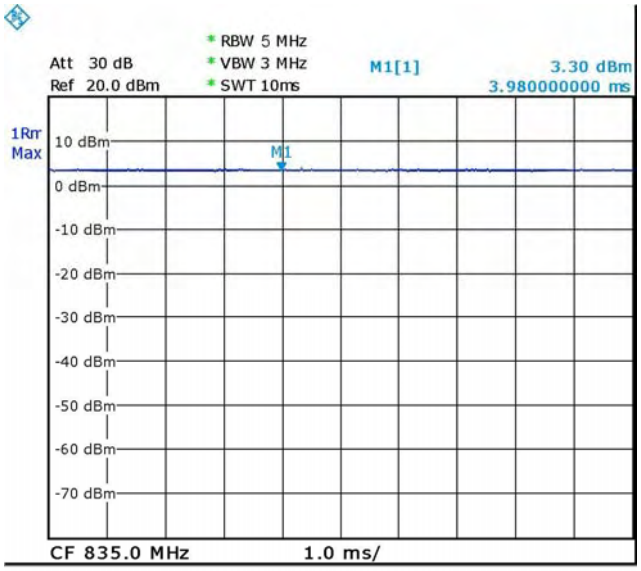
CW Signal



AM80%

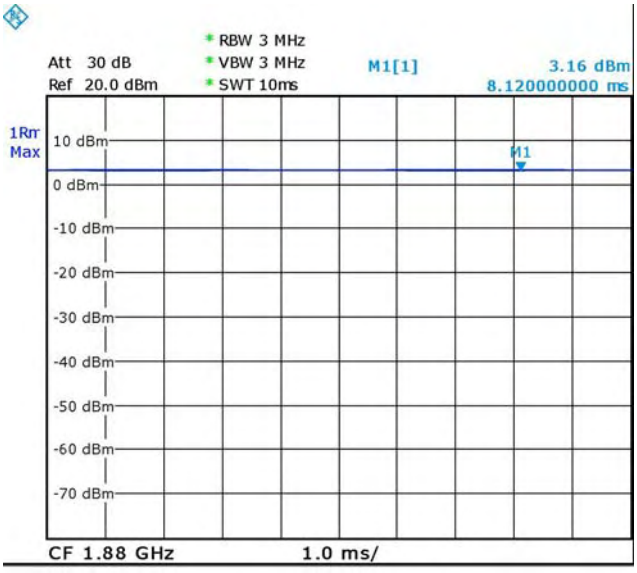


GSM Signal

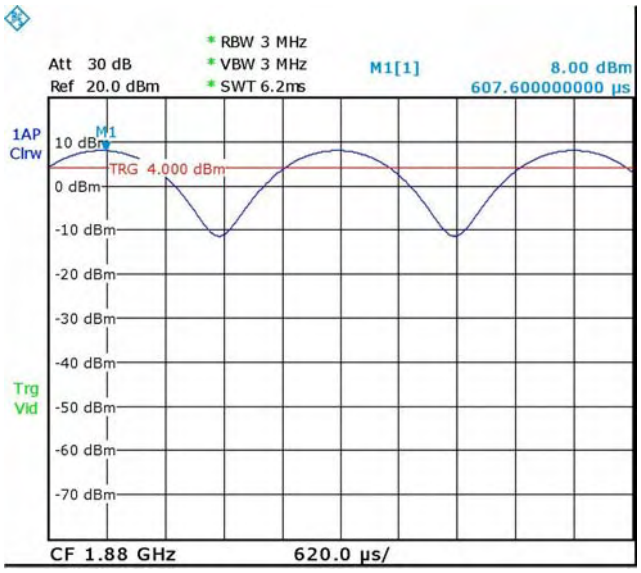


WCDMA Signal

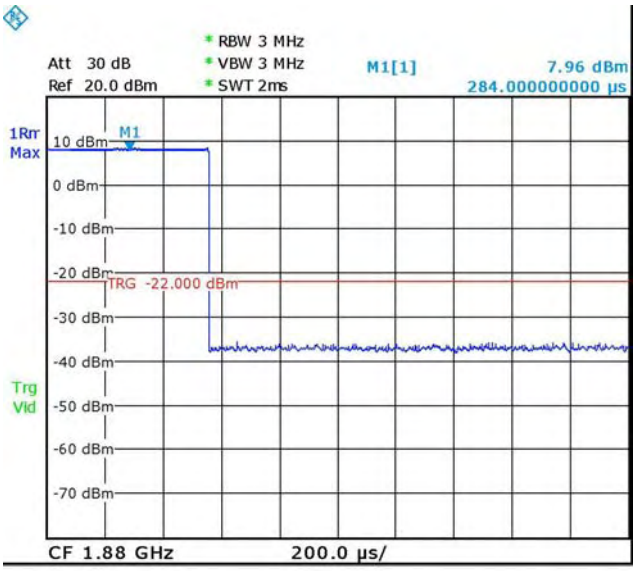
1880 MHz



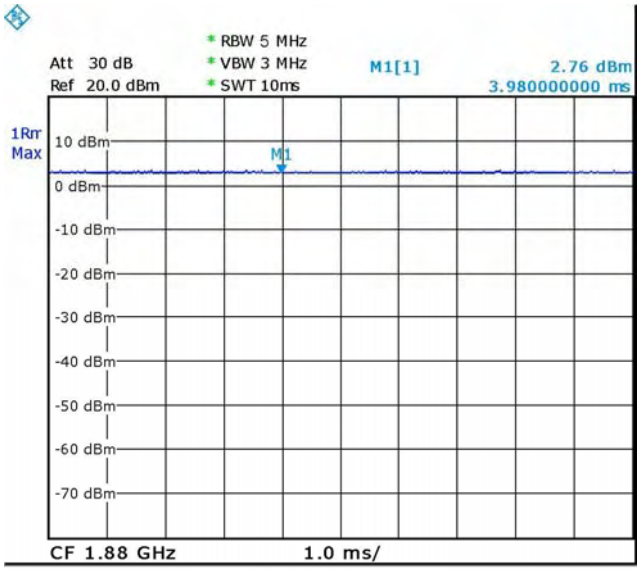
CW Signal



AM80%



GSM Signal



WCDMA Signal

Appendix B - Validation

See following Attached Pages for HAC distribution plots for E-Field and H-Field.

Test Laboratory: A Test Lab Techno Corp.

Date/Time: 12/23/2009 9:16:40 AM

HAC_System Performance Check at 835MHz_20091223_E

DUT: Dipole 835 MHz; Type: CD835V3; Serial: CD835V3 - SN:1017

Communication System: CW; Frequency: 835 MHz;Duty Cycle: 1:1
Medium parameters used: $\sigma = 0$ mho/m, $\varepsilon_r = 1$; $\rho = 1000$ kg/m^3
Phantom section: E Dipole Section
Measurement Standard: DASY5 (IEEE/IEC)

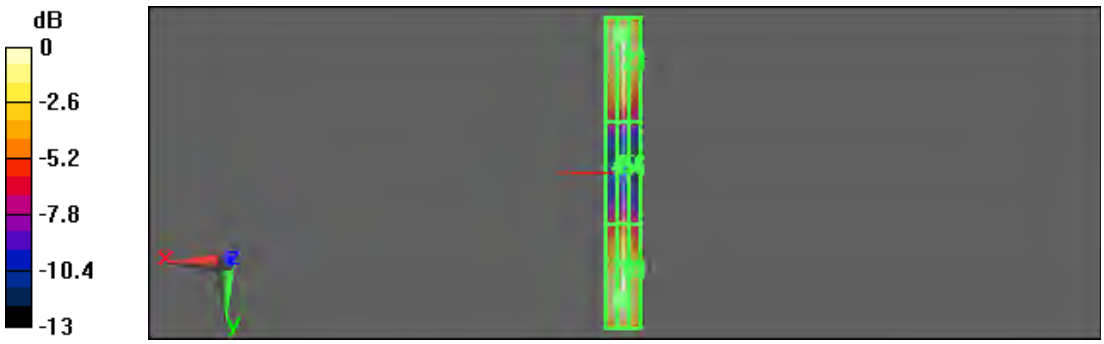
DASY5 Configuration:

- Probe: ER3DV6 - SN2256; ConvF(1, 1, 1); Calibrated: 8/21/2009
- Sensor-Surface: (Fix Surface)
- Electronics: DAE3 Sn393; Calibrated: 8/24/2009
- Phantom: HAC Test Arch 4.6; Type: SD HAC P01 BA; Serial: 1038
- Measurement SW: DASY5, V5.0 Build 125;SEMCAD X Version 13.4 Build 125

E Scan - ER3DV6 - 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 = 171.6 V/m
Probe Modulation Factor = 1
Device Reference Point: 0, 0, 354.7 mm
Reference Value = 127.5 V/m; Power Drift = -0.036 dB
Hearing Aid Near-Field Category: M4 (AWF 0 dB)

Peak E-field in V/m

Grid 1 **168.9 M4**	Grid 2 **171.6 M4**	Grid 3 **160.5 M4**
Grid 4 **90 M4**	Grid 5 **91.8 M4**	Grid 6 **87.4 M4**
Grid 7 **166.6 M4**	Grid 8 **169.4 M4**	Grid 9 **160.9 M4**



0 dB = 171.6V/m

Test Laboratory: A Test Lab Techno Corp.

Date/Time: 12/23/2009 9:40:20 AM

HAC_System Performance Check at 835MHz_20091223_H

DUT: Dipole 835 MHz; Type: CD835V3; Serial: CD835V3 - SN:1017

Communication System: CW; Frequency: 835 MHz;Duty Cycle: 1:1
Medium parameters used: $\sigma = 0$ mho/m, $\varepsilon_r = 1$; $\rho = 1$ kg/m^3
Phantom section: H Dipole Section
Measurement Standard: DASY5 (IEEE/IEC)

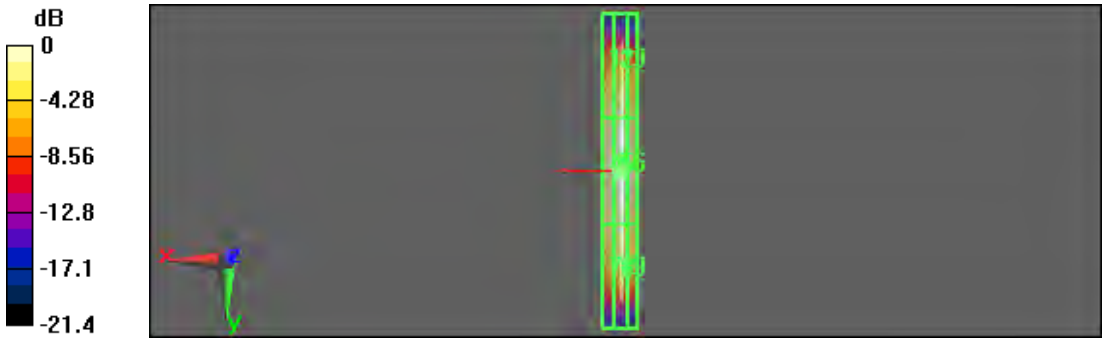
DASY5 Configuration:

- Probe: H3DV6 - SN6076; ; Calibrated: 8/19/2009
- Sensor-Surface: (Fix Surface)
- Electronics: DAE3 Sn393; Calibrated: 8/24/2009
- Phantom: HAC Test Arch 4.6; Type: SD HAC P01 BA; Serial: 1038
- Measurement SW: DASY5, V5.0 Build 125;SEMCAD X Version 13.4 Build 125

H Scan - H3DV6 - 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 = 0.460 A/m
Probe Modulation Factor = 1
Device Reference Point: 0, 0, 354.7 mm
Reference Value = 0.488 A/m; Power Drift = -0.011 dB
Hearing Aid Near-Field Category: M4 (AWF 0 dB)

Peak H-field in A/m

Grid 1 **0.393 M4**	Grid 2 **0.407 M4**	Grid 3 **0.382 M4**
Grid 4 **0.445 M4**	Grid 5 **0.460 M4**	Grid 6 **0.435 M4**
Grid 7 **0.392 M4**	Grid 8 **0.409 M4**	Grid 9 **0.387 M4**



0 dB = 0.460A/m

Test Laboratory: A Test Lab Techno Corp.

Date/Time: 12/23/2009 10:11:48 AM

HAC_System Performance Check at 1880MHz_20091223_E

DUT: Dipole 1880 MHz; Type: CD1880V3; Serial: CD1880V3 - SN:1036

Communication System: CW; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium parameters used: $\sigma = 0$ mho/m, $\varepsilon_r = 1$; $\rho = 1000$ kg/m^3
Phantom section: E Dipole Section
Measurement Standard: DASY5 (IEEE/IEC)

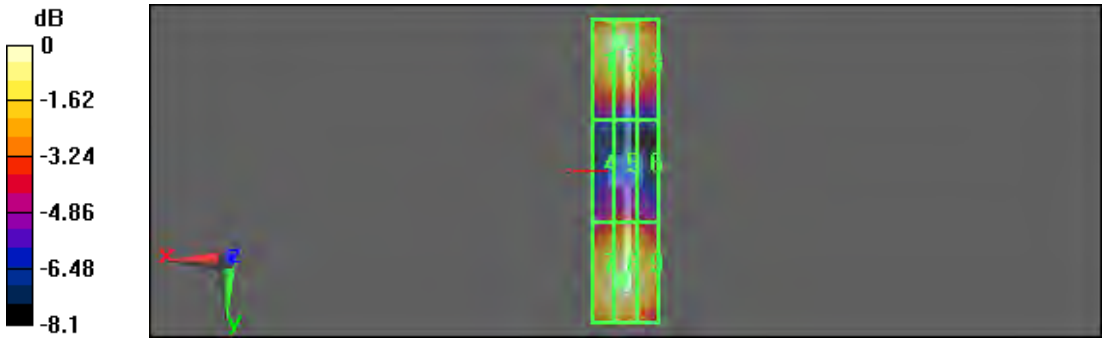
DASY5 Configuration:

- Probe: ER3DV6 - SN2256; ConvF(1, 1, 1); Calibrated: 8/21/2009
- Sensor-Surface: (Fix Surface)
- Electronics: DAE3 Sn393; Calibrated: 8/24/2009
- Phantom: HAC Test Arch 4.6; Type: SD HAC P01 BA; Serial: 1038
- Measurement SW: DASY5, V5.0 Build 125;SEMCAD X Version 13.4 Build 125

E Scan - ER3DV6 - 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 = 141.0 V/m
Probe Modulation Factor = 1
Device Reference Point: 0, 0, 354.7 mm
Reference Value = 140.9 V/m; Power Drift = -0.00533 dB
Hearing Aid Near-Field Category: M2 (AWF 0 dB)

Peak E-field in V/m

Grid 1 **139.4 M2**	Grid 2 **141.0 M2**	Grid 3 **129.9 M2**
Grid 4 **90.4 M3**	Grid 5 **93.2 M3**	Grid 6 **89.6 M3**
Grid 7 **136.2 M2**	Grid 8 **138.4 M2**	Grid 9 **131.1 M2**



0 dB = 141.0V/m

Test Laboratory: A Test Lab Techno Corp.

Date/Time: 12/23/2009 9:54:11 AM

HAC_System Performance Check at 1880MHz_20091223_H

DUT: Dipole 1880 MHz; Type: CD1880V3; Serial: CD1880V3 - SN:1036

Communication System: CW; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium parameters used: $\sigma = 0$ mho/m, $\varepsilon_r = 1$; $\rho = 1$ kg/m^3
Phantom section: H Dipole Section
Measurement Standard: DASY5 (IEEE/IEC)

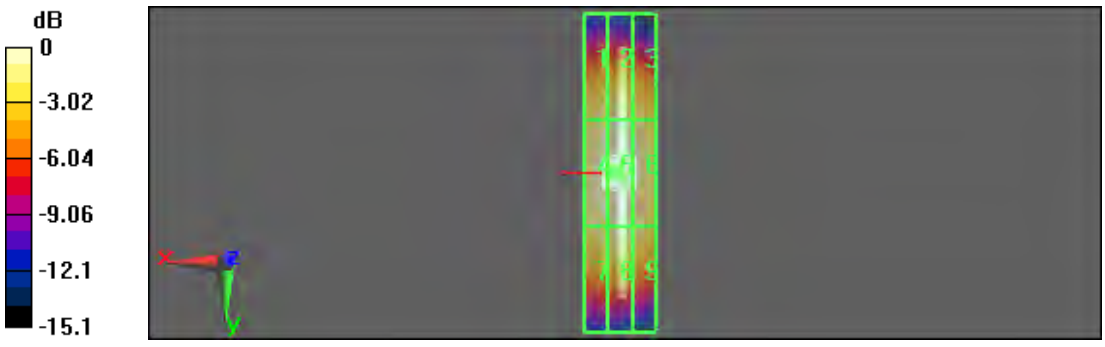
DASY5 Configuration:

- Probe: H3DV6 - SN6076; ; Calibrated: 8/19/2009
- Sensor-Surface: (Fix Surface)
- Electronics: DAE3 Sn393; Calibrated: 8/24/2009
- Phantom: HAC Test Arch 4.6; Type: SD HAC P01 BA; Serial: 1038
- Measurement SW: DASY5, V5.0 Build 125;SEMCAD X Version 13.4 Build 125

H Scan - H3DV6 - 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 = 0.453 A/m
Probe Modulation Factor = 1
Device Reference Point: 0, 0, 354.7 mm
Reference Value = 0.479 A/m; Power Drift = -0.00226 dB
Hearing Aid Near-Field Category: M2 (AWF 0 dB)

Peak H-field in A/m

Grid 1 **0.398 M2**	Grid 2 **0.413 M2**	Grid 3 **0.390 M2**
Grid 4 **0.439 M2**	Grid 5 **0.453 M2**	Grid 6 **0.432 M2**
Grid 7 **0.401 M2**	Grid 8 **0.416 M2**	Grid 9 **0.396 M2**



0 dB = 0.453A/m

Appendix C - HAC distribution plots for E-Field and H-Field

See following Attached Pages for HAC distribution plots for E-Field and H-Field.

Test Laboratory: A Test Lab Techno Corp.

Date/Time: 12/23/2009 11:34:53 AM

HAC_GSM850 CH128_E_Open

DUT: PB65100_Open; Type: Smartphone ; FCC ID: NM8PB65100

Communication System: GSM850; Frequency: 824.2 MHz;Duty Cycle: 1:8.3
Medium parameters used: $\sigma = 0$ mho/m, $\varepsilon_r = 1$; $\rho = 1000$ kg/m^3
Phantom section: E Device Section
Measurement Standard: DASY5 (IEEE/IEC)

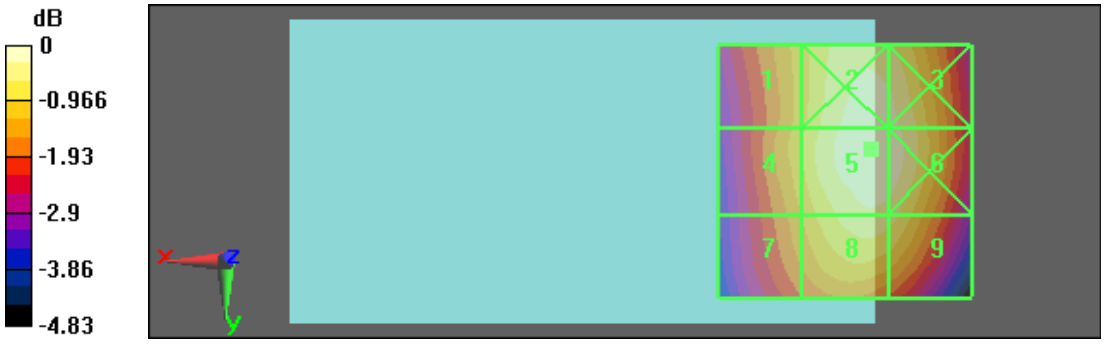
DASY5 Configuration:

- Probe: ER3DV6 - SN2256; ConvF(1, 1, 1); Calibrated: 8/21/2009
- Sensor-Surface: (Fix Surface)
- Electronics: DAE3 Sn393; Calibrated: 8/24/2009
- Phantom: HAC Test Arch 4.6; Type: SD HAC P01 BA; Serial: 1038
- Measurement SW: DASY5, V5.0 Build 125;SEMCAD X Version 13.4 Build 125

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 = 95 V/m
Probe Modulation Factor = 2.55
Device Reference Point: 0, 0, 353.7 mm
Reference Value = 45.2 V/m; Power Drift = 0.038 dB
Hearing Aid Near-Field Category: M4 (AWF -5 dB)

Peak E-field in V/m

Grid 1 **84.3 M4**	Grid 2 **94.2 M4**	Grid 3 **93.3 M4**
Grid 4 **85.1 M4**	Grid 5 **95 M4**	Grid 6 **94.1 M4**
Grid 7 **82.1 M4**	Grid 8 **90.9 M4**	Grid 9 **90 M4**



0 dB = 95V/m

Test Laboratory: A Test Lab Techno Corp.

Date/Time: 12/23/2009 11:45:18 AM

HAC_GSM850 CH190_E_Open

DUT: PB65100_Open; Type: Smartphone ; FCC ID: NM8PB65100

Communication System: GSM850; Frequency: 836.6 MHz;Duty Cycle: 1:8.3
Medium parameters used: $\sigma = 0$ mho/m, $\varepsilon_r = 1$; $\rho = 1000$ kg/m^3
Phantom section: E Device Section
Measurement Standard: DASY5 (IEEE/IEC)

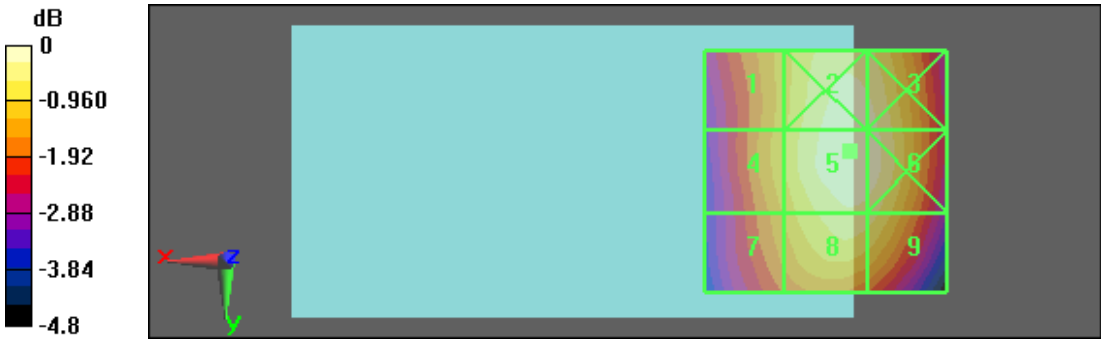
DASY5 Configuration:

- Probe: ER3DV6 - SN2256; ConvF(1, 1, 1); Calibrated: 8/21/2009
- Sensor-Surface: (Fix Surface)
- Electronics: DAE3 Sn393; Calibrated: 8/24/2009
- Phantom: HAC Test Arch 4.6; Type: SD HAC P01 BA; Serial: 1038
- Measurement SW: DASY5, V5.0 Build 125;SEMCAD X Version 13.4 Build 125

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 = 114.3 V/m
Probe Modulation Factor = 2.56
Device Reference Point: 0, 0, 353.7 mm
Reference Value = 54.5 V/m; Power Drift = 0.013 dB
Hearing Aid Near-Field Category: M4 (AWF -5 dB)

Peak E-field in V/m

Grid 1 **101.8 M4**	Grid 2 **113.4 M4**	Grid 3 **112.6 M4**
Grid 4 **102.8 M4**	Grid 5 **114.3 M4**	Grid 6 **113.5 M4**
Grid 7 **99.3 M4**	Grid 8 **109.6 M4**	Grid 9 **108.5 M4**



0 dB = 114.3V/m

Test Laboratory: A Test Lab Techno Corp.

Date/Time: 12/23/2009 11:53:15 AM

HAC_GSM850 CH251_E_Open

DUT: PB65100_Open; Type: Smartphone ; FCC ID: NM8PB65100

Communication System: GSM850; Frequency: 848.8 MHz;Duty Cycle: 1:8.3
Medium parameters used: $\sigma = 0$ mho/m, $\varepsilon_r = 1$; $\rho = 1000$ kg/m^3
Phantom section: E Device Section
Measurement Standard: DASY5 (IEEE/IEC)

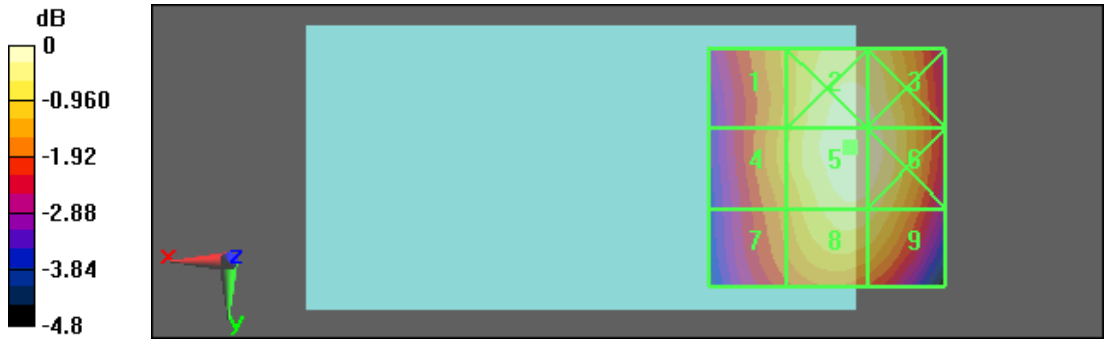
DASY5 Configuration:

- Probe: ER3DV6 - SN2256; ConvF(1, 1, 1); Calibrated: 8/21/2009
- Sensor-Surface: (Fix Surface)
- Electronics: DAE3 Sn393; Calibrated: 8/24/2009
- Phantom: HAC Test Arch 4.6; Type: SD HAC P01 BA; Serial: 1038
- Measurement SW: DASY5, V5.0 Build 125;SEMCAD X Version 13.4 Build 125

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 = 134.4 V/m
Probe Modulation Factor = 2.56
Device Reference Point: 0, 0, 353.7 mm
Reference Value = 64 V/m; Power Drift = -0.021 dB
Hearing Aid Near-Field Category: M4 (AWF -5 dB)

Peak E-field in V/m

Grid 1 **118.5 M4**	Grid 2 **133.0 M4**	Grid 3 **132.0 M4**
Grid 4 **119.7 M4**	Grid 5 **134.4 M4**	Grid 6 **133.4 M4**
Grid 7 **115.1 M4**	Grid 8 **128.6 M4**	Grid 9 **127.5 M4**



0 dB = 134.4V/m

Test Laboratory: A Test Lab Techno Corp.

Date/Time: 12/23/2009 12:03:57 PM

HAC_PCS CH512_E_Open

DUT: PB65100_Open; Type: Smartphone ; FCC ID: NM8PB65100

Communication System: PCS; Frequency: 1850.2 MHz;Duty Cycle: 1:8.3
Medium parameters used: $\sigma = 0$ mho/m, $\varepsilon_r = 1$; $\rho = 1000$ kg/m^3
Phantom section: E Device Section
Measurement Standard: DASY5 (IEEE/IEC)

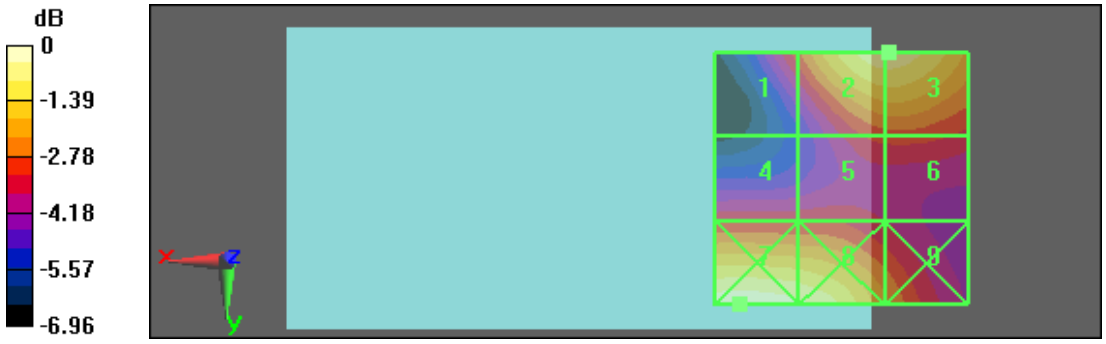
DASY5 Configuration:

- Probe: ER3DV6 - SN2256; ConvF(1, 1, 1); Calibrated: 8/21/2009
- Sensor-Surface: (Fix Surface)
- Electronics: DAE3 Sn393; Calibrated: 8/24/2009
- Phantom: HAC Test Arch 4.6; Type: SD HAC P01 BA; Serial: 1038
- Measurement SW: DASY5, V5.0 Build 125;SEMCAD X Version 13.4 Build 125

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 = 46 V/m
Probe Modulation Factor = 2.52
Device Reference Point: 0, 0, 353.7 mm
Reference Value = 13.4 V/m; Power Drift = 0.057 dB
Hearing Aid Near-Field Category: M4 (AWF -5 dB)

Peak E-field in V/m

Grid 1 **35.6 M4**	Grid 2 **45.9 M4**	Grid 3 **46 M4**
Grid 4 **33.9 M4**	Grid 5 **34.9 M4**	Grid 6 **35.1 M4**
Grid 7 **49.2 M3**	Grid 8 **47.4 M3**	Grid 9 **38.4 M4**



0 dB = 49.2V/m

Test Laboratory: A Test Lab Techno Corp.

Date/Time: 12/23/2009 12:14:43 PM

HAC_PCS CH661_E_Open

DUT: PB65100_Open; Type: Smartphone ; FCC ID: NM8PB65100

Communication System: PCS; Frequency: 1880.0 MHz;Duty Cycle: 1:8.3
Medium parameters used: $\sigma = 0$ mho/m, $\varepsilon_r = 1$; $\rho = 1000$ kg/m^3
Phantom section: E Device Section
Measurement Standard: DASY5 (IEEE/IEC)

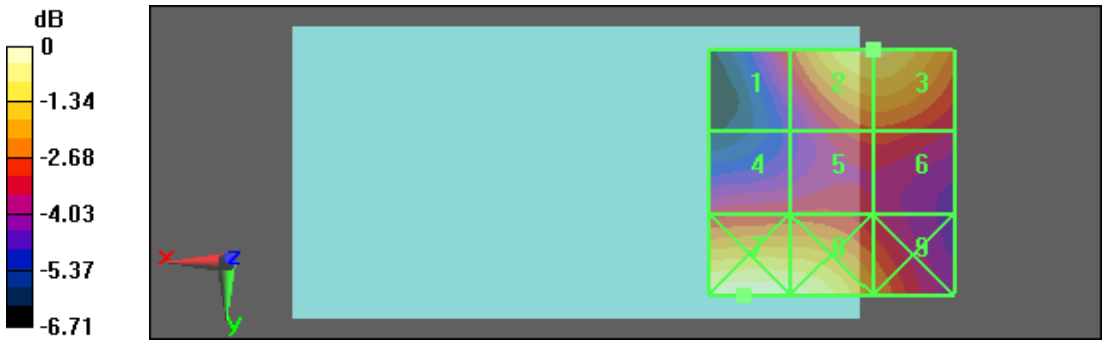
DASY5 Configuration:

- Probe: ER3DV6 - SN2256; ConvF(1, 1, 1); Calibrated: 8/21/2009
- Sensor-Surface: (Fix Surface)
- Electronics: DAE3 Sn393; Calibrated: 8/24/2009
- Phantom: HAC Test Arch 4.6; Type: SD HAC P01 BA; Serial: 1038
- Measurement SW: DASY5, V5.0 Build 125;SEMCAD X Version 13.4 Build 125

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 = 49.8 V/m
Probe Modulation Factor = 2.51
Device Reference Point: 0, 0, 353.7 mm
Reference Value = 15.6 V/m; Power Drift = 0.015 dB
Hearing Aid Near-Field Category: M3 (AWF -5 dB)

Peak E-field in V/m

Grid 1 **38.8 M4**	Grid 2 **49.8 M3**	Grid 3 **49.8 M3**
Grid 4 **38.1 M4**	Grid 5 **39.3 M4**	Grid 6 **39.3 M4**
Grid 7 **54.1 M3**	Grid 8 **53 M3**	Grid 9 **42.9 M4**



0 dB = 54.1V/m

Test Laboratory: A Test Lab Techno Corp.

Date/Time: 12/23/2009 12:20:47 PM

HAC_PCS CH810_E_Open

DUT: PB65100_Open; Type: Smartphone ; FCC ID: NM8PB65100

Communication System: PCS; Frequency: 1909.8 MHz;Duty Cycle: 1:8.3
Medium parameters used: $\sigma = 0$ mho/m, $\varepsilon_r = 1$; $\rho = 1000$ kg/m^3
Phantom section: E Device Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY5 Configuration:

- Probe: ER3DV6 - SN2256; ConvF(1, 1, 1); Calibrated: 8/21/2009
- Sensor-Surface: (Fix Surface)
- Electronics: DAE3 Sn393; Calibrated: 8/24/2009
- Phantom: HAC Test Arch 4.6; Type: SD HAC P01 BA; Serial: 1038
- Measurement SW: DASY5, V5.0 Build 125;SEMCAD X Version 13.4 Build 125

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 = 54.9 V/m
Probe Modulation Factor = 2.51
Device Reference Point: 0, 0, 353.7 mm
Reference Value = 16.9 V/m; Power Drift = -0.053 dB
Hearing Aid Near-Field Category: M3 (AWF -5 dB)

Peak E-field in V/m

Grid 1 **41.8 M4**	Grid 2 **54.9 M3**	Grid 3 **54.9 M3**
Grid 4 **39.4 M4**	Grid 5 **44.4 M4**	Grid 6 **44.5 M4**
Grid 7 **55.3 M3**	Grid 8 **54.7 M3**	Grid 9 **46.4 M4**

0 dB = 55.3V/m

Test Laboratory: A Test Lab Techno Corp.

Date/Time: 12/23/2009 1:34:58 PM

HAC_WCDMA Band IV CH1312_E_Open

DUT: PB65100_Open; Type: Smartphone ; FCC ID: NM8PB65100

Communication System: WCDMA Band IV; Frequency: 1712.4 MHz;Duty Cycle: 1:1
Medium parameters used: $\sigma = 0$ mho/m, $\varepsilon_r = 1$; $\rho = 1000$ kg/m^3
Phantom section: E Device Section
Measurement Standard: DASY5 (IEEE/IEC)

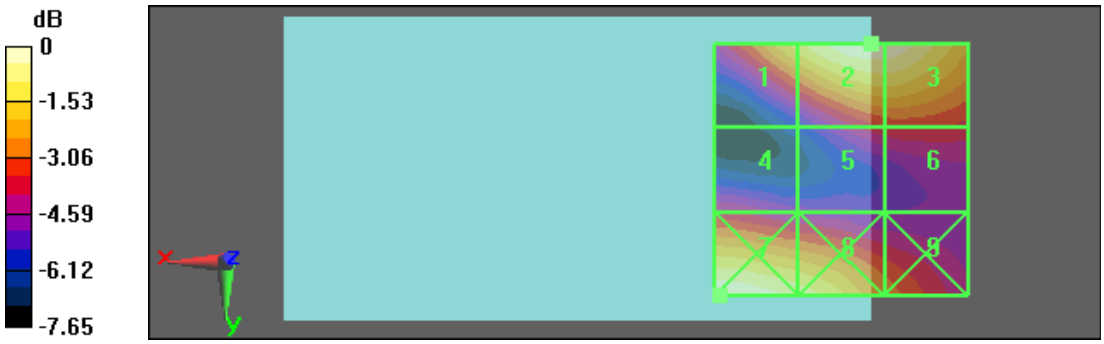
DASY5 Configuration:

- Probe: ER3DV6 - SN2256; ConvF(1, 1, 1); Calibrated: 8/21/2009
- Sensor-Surface: (Fix Surface)
- Electronics: DAE3 Sn393; Calibrated: 8/24/2009
- Phantom: HAC Test Arch 4.6; Type: SD HAC P01 BA; Serial: 1038
- Measurement SW: DASY5, V5.0 Build 125;SEMCAD X Version 13.4 Build 125

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 = 20.6 V/m
Probe Modulation Factor = 0.900
Device Reference Point: 0, 0, 353.7 mm
Reference Value = 11.1 V/m; Power Drift = 0.199 dB
Hearing Aid Near-Field Category: M4 (AWF 0 dB)

Peak E-field in V/m

Grid 1 **18.1 M4**	Grid 2 **20.6 M4**	Grid 3 **20.5 M4**
Grid 4 **13.1 M4**	Grid 5 **13.7 M4**	Grid 6 **13.9 M4**
Grid 7 **20.6 M4**	Grid 8 **19.1 M4**	Grid 9 **15.2 M4**



0 dB = 20.6V/m

Test Laboratory: A Test Lab Techno Corp.

Date/Time: 12/23/2009 1:42:24 PM

HAC_WCDMA Band IV CH1450_E_Open

DUT: PB65100_Open; Type: Smartphone ; FCC ID: NM8PB65100

Communication System: WCDMA Band IV; Frequency: 1740.0 MHz;Duty Cycle: 1:1
Medium parameters used: $\sigma = 0$ mho/m, $\varepsilon_r = 1$; $\rho = 1000$ kg/m^3
Phantom section: E Device Section
Measurement Standard: DASY5 (IEEE/IEC)

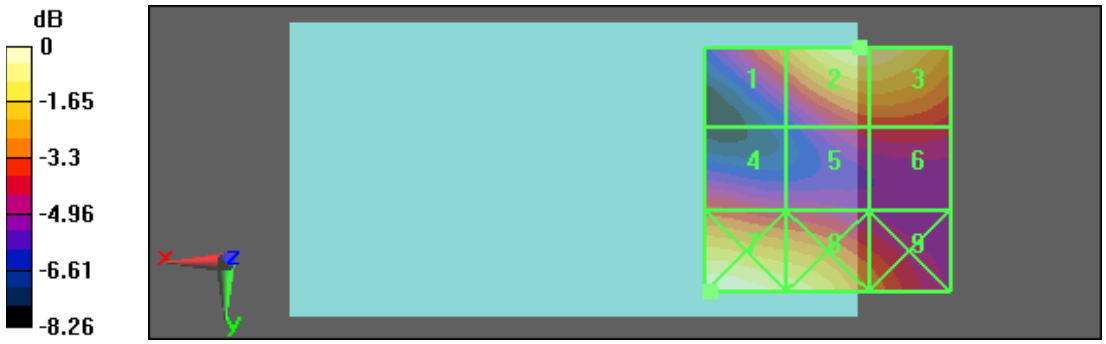
DASY5 Configuration:

- Probe: ER3DV6 - SN2256; ConvF(1, 1, 1); Calibrated: 8/21/2009
- Sensor-Surface: (Fix Surface)
- Electronics: DAE3 Sn393; Calibrated: 8/24/2009
- Phantom: HAC Test Arch 4.6; Type: SD HAC P01 BA; Serial: 1038
- Measurement SW: DASY5, V5.0 Build 125;SEMCAD X Version 13.4 Build 125

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 = 24.3 V/m
Probe Modulation Factor = 0.900
Device Reference Point: 0, 0, 353.7 mm
Reference Value = 14.1 V/m; Power Drift = 0.027 dB
Hearing Aid Near-Field Category: M4 (AWF 0 dB)

Peak E-field in V/m

Grid 1 **20 M4**	Grid 2 **24.3 M4**	Grid 3 **24.2 M4**
Grid 4 **17.2 M4**	Grid 5 **16.6 M4**	Grid 6 **16.8 M4**
Grid 7 **25.8 M4**	Grid 8 **24 M4**	Grid 9 **18.8 M4**



0 dB = 25.8V/m

Test Laboratory: A Test Lab Techno Corp.

Date/Time: 12/23/2009 1:53:32 PM

HAC_WCDMA Band IV CH1513_E_Open

DUT: PB65100_Open; Type: Smartphone ; FCC ID: NM8PB65100

Communication System: WCDMA Band IV; Frequency: 1752.6 MHz;Duty Cycle: 1:1
Medium parameters used: $\sigma = 0$ mho/m, $\varepsilon_r = 1$; $\rho = 1000$ kg/m^3
Phantom section: E Device Section
Measurement Standard: DASY5 (IEEE/IEC)

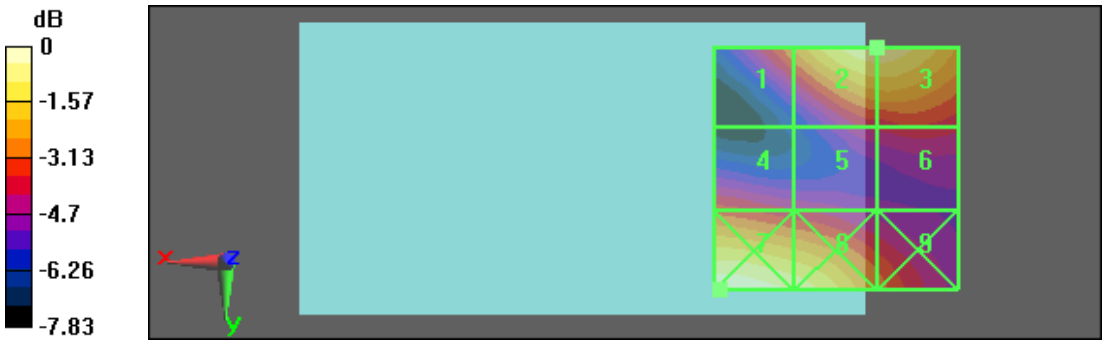
DASY5 Configuration:

- Probe: ER3DV6 - SN2256; ConvF(1, 1, 1); Calibrated: 8/21/2009
- Sensor-Surface: (Fix Surface)
- Electronics: DAE3 Sn393; Calibrated: 8/24/2009
- Phantom: HAC Test Arch 4.6; Type: SD HAC P01 BA; Serial: 1038
- Measurement SW: DASY5, V5.0 Build 125;SEMCAD X Version 13.4 Build 125

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 = 22.8 V/m
Probe Modulation Factor = 0.900
Device Reference Point: 0, 0, 353.7 mm
Reference Value = 13.7 V/m; Power Drift = -0.079 dB
Hearing Aid Near-Field Category: M4 (AWF 0 dB)

Peak E-field in V/m

Grid 1 **18.3 M4**	Grid 2 **22.8 M4**	Grid 3 **22.8 M4**
Grid 4 **16.6 M4**	Grid 5 **15.4 M4**	Grid 6 **15.9 M4**
Grid 7 **24.4 M4**	Grid 8 **22.8 M4**	Grid 9 **17.8 M4**



0 dB = 24.4V/m

Test Laboratory: A Test Lab Techno Corp.

Date/Time: 12/23/2009 11:08:24 AM

HAC_GSM850 CH128_E_Close

DUT: PB65100_Close; Type: Smartphone ; FCC ID: NM8PB65100

Communication System: GSM850; Frequency: 824.2 MHz;Duty Cycle: 1:8.3
Medium parameters used: $\sigma = 0$ mho/m, $\varepsilon_r = 1$; $\rho = 1000$ kg/m^3
Phantom section: E Device Section
Measurement Standard: DASY5 (IEEE/IEC)

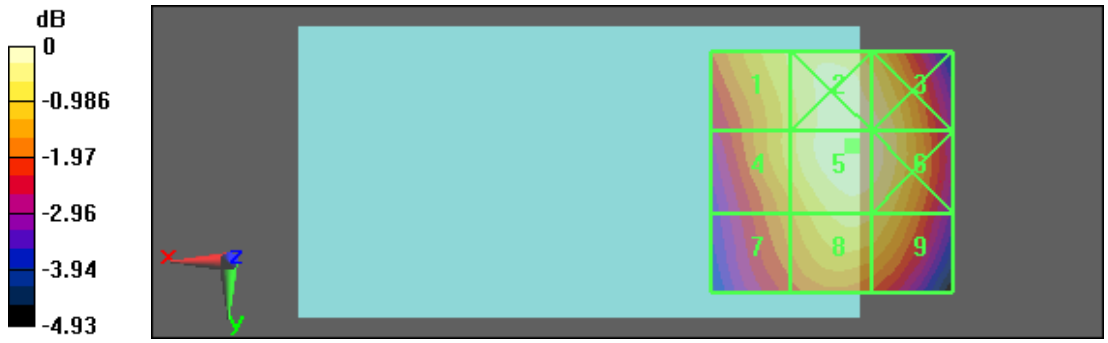
DASY5 Configuration:

- Probe: ER3DV6 - SN2256; ConvF(1, 1, 1); Calibrated: 8/21/2009
- Sensor-Surface: (Fix Surface)
- Electronics: DAE3 Sn393; Calibrated: 8/24/2009
- Phantom: HAC Test Arch 4.6; Type: SD HAC P01 BA; Serial: 1038
- Measurement SW: DASY5, V5.0 Build 125;SEMCAD X Version 13.4 Build 125

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 = 136.4 V/m
Probe Modulation Factor = 2.56
Device Reference Point: 0, 0, 353.7 mm
Reference Value = 65.4 V/m; Power Drift = -0.00158 dB
Hearing Aid Near-Field Category: M4 (AWF -5 dB)

Peak E-field in V/m

Grid 1 **127.4 M4**	Grid 2 **135.7 M4**	Grid 3 **133.7 M4**
Grid 4 **124.6 M4**	Grid 5 **136.4 M4**	Grid 6 **134.5 M4**
Grid 7 **116.5 M4**	Grid 8 **128.8 M4**	Grid 9 **127.2 M4**



0 dB = 136.4V/m

Test Laboratory: A Test Lab Techno Corp.

Date/Time: 12/23/2009 11:14:24 AM

HAC_GSM850 CH190_E_Close

DUT: PB65100_Close; Type: Smartphone ; FCC ID: NM8PB65100

Communication System: GSM850; Frequency: 836.6 MHz;Duty Cycle: 1:8.3
Medium parameters used: $\sigma = 0$ mho/m, $\varepsilon_r = 1$; $\rho = 1000$ kg/m^3
Phantom section: E Device Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY5 Configuration:

- Probe: ER3DV6 - SN2256; ConvF(1, 1, 1); Calibrated: 8/21/2009
- Sensor-Surface: (Fix Surface)
- Electronics: DAE3 Sn393; Calibrated: 8/24/2009
- Phantom: HAC Test Arch 4.6; Type: SD HAC P01 BA; Serial: 1038
- Measurement SW: DASY5, V5.0 Build 125;SEMCAD X Version 13.4 Build 125

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 = 163.5 V/m
Probe Modulation Factor = 2.56
Device Reference Point: 0, 0, 353.7 mm
Reference Value = 78.8 V/m; Power Drift = -0.00828 dB
Hearing Aid Near-Field Category: M3 (AWF -5 dB)

Peak E-field in V/m

Grid 1 **152.7 M3**	Grid 2 **162.4 M3**	Grid 3 **160.0 M3**
Grid 4 **149.3 M4**	Grid 5 **163.5 M3**	Grid 6 **161.0 M3**
Grid 7 **139.9 M4**	Grid 8 **154.1 M3**	Grid 9 **152.4 M3**

0 dB = 163.5V/m

Test Laboratory: A Test Lab Techno Corp.

Date/Time: 12/23/2009 11:21:59 AM

HAC_GSM850 CH251_E_Close

DUT: PB65100_Close; Type: Smartphone ; FCC ID: NM8PB65100

Communication System: GSM850; Frequency: 848.8 MHz;Duty Cycle: 1:8.3
Medium parameters used: $\sigma = 0$ mho/m, $\varepsilon_r = 1$; $\rho = 1000$ kg/m^3
Phantom section: E Device Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY5 Configuration:

- Probe: ER3DV6 - SN2256; ConvF(1, 1, 1); Calibrated: 8/21/2009
- Sensor-Surface: (Fix Surface)
- Electronics: DAE3 Sn393; Calibrated: 8/24/2009
- Phantom: HAC Test Arch 4.6; Type: SD HAC P01 BA; Serial: 1038
- Measurement SW: DASY5, V5.0 Build 125;SEMCAD X Version 13.4 Build 125

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 = 187.8 V/m
Probe Modulation Factor = 2.57
Device Reference Point: 0, 0, 353.7 mm
Reference Value = 90.3 V/m; Power Drift = 0.00242 dB
Hearing Aid Near-Field Category: M3 (AWF -5 dB)

Peak E-field in V/m

Grid 1 **174.8 M3**	Grid 2 **187.3 M3**	Grid 3 **184.7 M3**
Grid 4 **170.8 M3**	Grid 5 **187.8 M3**	Grid 6 **185.8 M3**
Grid 7 **159.3 M3**	Grid 8 **176.3 M3**	Grid 9 **175.3 M3**

0 dB = 187.8V/m

Test Laboratory: A Test Lab Techno Corp.

Date/Time: 12/23/2009 10:40:19 AM

HAC_PCS CH512_E_Close

DUT: PB65100_Close; Type: Smartphone ; FCC ID: NM8PB65100

Communication System: PCS; Frequency: 1850.2 MHz;Duty Cycle: 1:8.3
Medium parameters used: $\sigma = 0$ mho/m, $\varepsilon_r = 1$; $\rho = 1000$ kg/m^3
Phantom section: E Device Section
Measurement Standard: DASY5 (IEEE/IEC)

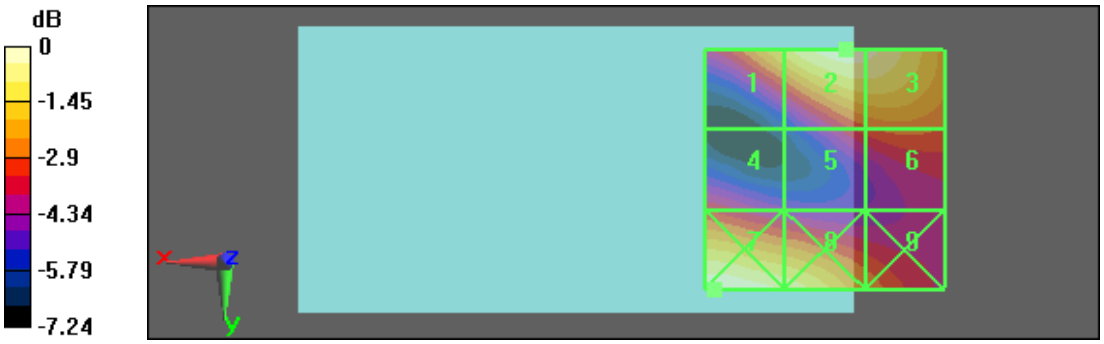
DASY5 Configuration:

- Probe: ER3DV6 - SN2256; ConvF(1, 1, 1); Calibrated: 8/21/2009
- Sensor-Surface: (Fix Surface)
- Electronics: DAE3 Sn393; Calibrated: 8/24/2009
- Phantom: HAC Test Arch 4.6; Type: SD HAC P01 BA; Serial: 1038
- Measurement SW: DASY5, V5.0 Build 125;SEMCAD X Version 13.4 Build 125

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 = 77.3 V/m
Probe Modulation Factor = 2.5
Device Reference Point: 0, 0, 353.7 mm
Reference Value = 14.6 V/m; Power Drift = -0.098 dB
Hearing Aid Near-Field Category: M3 (AWF -5 dB)

Peak E-field in V/m

Grid 1 **68.8 M3**	Grid 2 **77.3 M3**	Grid 3 **76.4 M3**
Grid 4 **53.3 M3**	Grid 5 **55.6 M3**	Grid 6 **58.1 M3**
Grid 7 **78.9 M3**	Grid 8 **74 M3**	Grid 9 **59.9 M3**



0 dB = 78.9V/m

Test Laboratory: A Test Lab Techno Corp.

Date/Time: 12/23/2009 10:47:08 AM

HAC_PCS CH661_E_Close

DUT: PB65100_Close; Type: Smartphone ; FCC ID: NM8PB65100

Communication System: PCS; Frequency: 1880.0 MHz;Duty Cycle: 1:8.3
Medium parameters used: $\sigma = 0$ mho/m, $\varepsilon_r = 1$; $\rho = 1000$ kg/m^3
Phantom section: E Device Section
Measurement Standard: DASY5 (IEEE/IEC)

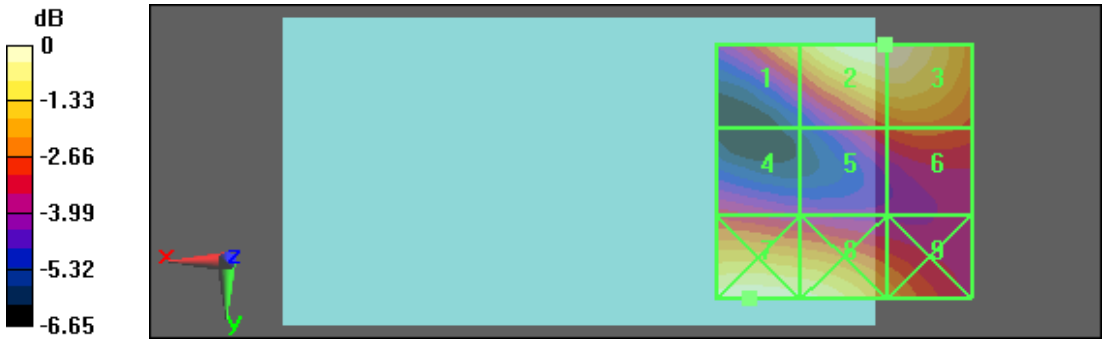
DASY5 Configuration:

- Probe: ER3DV6 - SN2256; ConvF(1, 1, 1); Calibrated: 8/21/2009
- Sensor-Surface: (Fix Surface)
- Electronics: DAE3 Sn393; Calibrated: 8/24/2009
- Phantom: HAC Test Arch 4.6; Type: SD HAC P01 BA; Serial: 1038
- Measurement SW: DASY5, V5.0 Build 125;SEMCAD X Version 13.4 Build 125

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 = 79.7 V/m
Probe Modulation Factor = 2.5
Device Reference Point: 0, 0, 353.7 mm
Reference Value = 16.1 V/m; Power Drift = 0.016 dB
Hearing Aid Near-Field Category: M3 (AWF -5 dB)

Peak E-field in V/m

Grid 1 **69.2 M3**	Grid 2 **79.7 M3**	Grid 3 **79.7 M3**
Grid 4 **54.8 M3**	Grid 5 **58.4 M3**	Grid 6 **60.6 M3**
Grid 7 **79.8 M3**	Grid 8 **77.7 M3**	Grid 9 **64.8 M3**



0 dB = 79.8V/m

Test Laboratory: A Test Lab Techno Corp.

Date/Time: 12/23/2009 10:53:39 AM

HAC_PCS CH810_E_Close

DUT: PB65100_Close; Type: Smartphone ; FCC D: NM8PB65100

Communication System: PCS; Frequency: 1909.8 MHz;Duty Cycle: 1:8.3
Medium parameters used: $\sigma = 0$ mho/m, $\varepsilon_r = 1$; $\rho = 1000$ kg/m^3
Phantom section: E Device Section
Measurement Standard: DASY5 (IEEE/IEC)

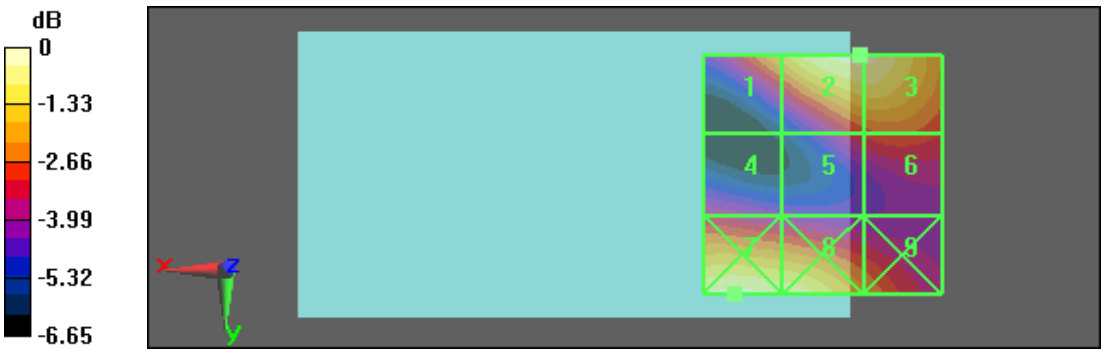
DASY5 Configuration:

- Probe: ER3DV6 - SN2256; ConvF(1, 1, 1); Calibrated: 8/21/2009
- Sensor-Surface: (Fix Surface)
- Electronics: DAE3 Sn393; Calibrated: 8/24/2009
- Phantom: HAC Test Arch 4.6; Type: SD HAC P01 BA; Serial: 1038
- Measurement SW: DASY5, V5.0 Build 125;SEMCAD X Version 13.4 Build 125

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 = 77.1 V/m
Probe Modulation Factor = 2.5
Device Reference Point: 0, 0, 353.7 mm
Reference Value = 16.1 V/m; Power Drift = 0.016 dB
Hearing Aid Near-Field Category: M3 (AWF -5 dB)

Peak E-field in V/m

Grid 1 **67 M3**	Grid 2 **77.1 M3**	Grid 3 **77.1 M3**
Grid 4 **53 M3**	Grid 5 **56.5 M3**	Grid 6 **58.7 M3**
Grid 7 **77.3 M3**	Grid 8 **75.2 M3**	Grid 9 **62.8 M3**



0 dB = 79.5V/m

Test Laboratory: A Test Lab Techno Corp.

Date/Time: 12/23/2009 2:03:05 PM

HAC_WCDMA Band IV CH1312_E_Close

DUT: PB65100_Close; Type: Smartphone ; FCC ID: NM8PB65100

Communication System: WCDMA Band IV; Frequency: 1712.4 MHz;Duty Cycle: 1:1
Medium parameters used: $\sigma = 0$ mho/m, $\varepsilon_r = 1$; $\rho = 1000$ kg/m^3
Phantom section: E Device Section
Measurement Standard: DASY5 (IEEE/IEC)

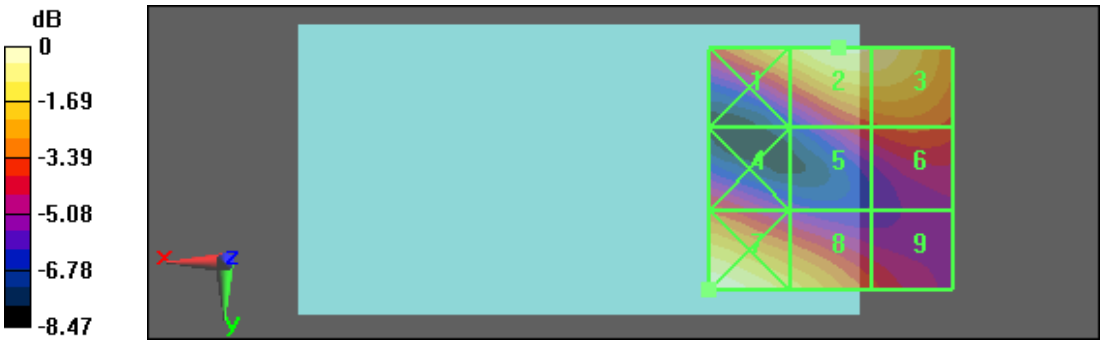
DASY5 Configuration:

- Probe: ER3DV6 - SN2256; ConvF(1, 1, 1); Calibrated: 8/21/2009
- Sensor-Surface: (Fix Surface)
- Electronics: DAE3 Sn393; Calibrated: 8/24/2009
- Phantom: HAC Test Arch 4.6; Type: SD HAC P01 BA; Serial: 1038
- Measurement SW: DASY5, V5.0 Build 125;SEMCAD X Version 13.4 Build 125

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 = 32.5 V/m
Probe Modulation Factor = 0.900
Device Reference Point: 0, 0, 353.7 mm
Reference Value = 13.6 V/m; Power Drift = 0.131 dB
Hearing Aid Near-Field Category: M4 (AWF 0 dB)

Peak E-field in V/m

Grid 1 **29.4 M4**	Grid 2 **32.5 M4**	Grid 3 **31.9 M4**
Grid 4 **22.7 M4**	Grid 5 **22.3 M4**	Grid 6 **23.5 M4**
Grid 7 **34 M4**	Grid 8 **29.3 M4**	Grid 9 **22.3 M4**



0 dB = 34V/m

Test Laboratory: A Test Lab Techno Corp.

Date/Time: 12/23/2009 2:09:54 PM

HAC_WCDMA Band IV CH1450_E_Close

DUT: PB65100_Close; Type: Smartphone ; FCC ID: NM8PB65100

Communication System: WCDMA Band IV; Frequency: 1740.0 MHz;Duty Cycle: 1:1
Medium parameters used: $\sigma = 0$ mho/m, $\varepsilon_r = 1$; $\rho = 1000$ kg/m^3
Phantom section: E Device Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY5 Configuration:

- Probe: ER3DV6 - SN2256; ConvF(1, 1, 1); Calibrated: 8/21/2009
- Sensor-Surface: (Fix Surface)
- Electronics: DAE3 Sn393; Calibrated: 8/24/2009
- Phantom: HAC Test Arch 4.6; Type: SD HAC P01 BA; Serial: 1038
- Measurement SW: DASY5, V5.0 Build 125;SEMCAD X Version 13.4 Build 125

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 = 0.900
Device Reference Point: 0, 0, 353.7 mm
Reference Value = 16.2 V/m; Power Drift = 0.019 dB
Hearing Aid Near-Field Category: M4 (AWF 0 dB)

Peak E-field in V/m

Grid 1 **34.5 M4**	Grid 2 **38.2 M4**	Grid 3 **37.6 M4**
Grid 4 **26.9 M4**	Grid 5 **26.3 M4**	Grid 6 **27.3 M4**
Grid 7 **39.6 M4**	Grid 8 **34.5 M4**	Grid 9 **26.4 M4**

0 dB = 39.6V/m

Test Laboratory: A Test Lab Techno Corp.

Date/Time: 12/23/2009 2:15:33 PM

HAC_WCDMA Band IV CH1513_E_Close

DUT: PB65100_Close; Type: Smartphone ; FCC ID: NM8PB65100

Communication System: WCDMA Band IV; Frequency: 1752.6 MHz;Duty Cycle: 1:1
Medium parameters used: $\sigma = 0$ mho/m, $\varepsilon_r = 1$; $\rho = 1000$ kg/m^3
Phantom section: E Device Section
Measurement Standard: DASY5 (IEEE/IEC)

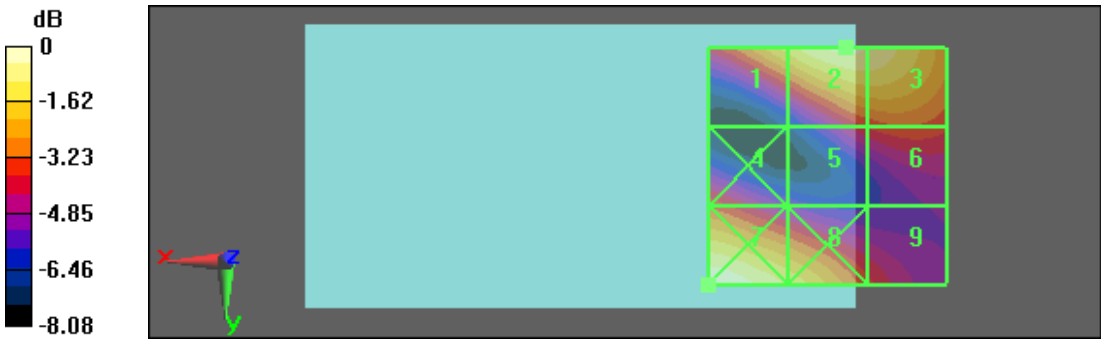
DASY5 Configuration:

- Probe: ER3DV6 - SN2256; ConvF(1, 1, 1); Calibrated: 8/21/2009
- Sensor-Surface: (Fix Surface)
- Electronics: DAE3 Sn393; Calibrated: 8/24/2009
- Phantom: HAC Test Arch 4.6; Type: SD HAC P01 BA; Serial: 1038
- Measurement SW: DASY5, V5.0 Build 125;SEMCAD X Version 13.4 Build 125

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 = 35.6 V/m
Probe Modulation Factor = 0.900
Device Reference Point: 0, 0, 353.7 mm
Reference Value = 15.4 V/m; Power Drift = 0.025 dB
Hearing Aid Near-Field Category: M4 (AWF 0 dB)

Peak E-field in V/m

Grid 1 **31.9 M4**	Grid 2 **35.6 M4**	Grid 3 **35.1 M4**
Grid 4 **25.4 M4**	Grid 5 **24.5 M4**	Grid 6 **25.8 M4**
Grid 7 **37.3 M4**	Grid 8 **32.8 M4**	Grid 9 **24.8 M4**



0 dB = 37.3V/m

Test Laboratory: A Test Lab Techno Corp.

Date/Time: 12/23/2009 4:14:20 PM

HAC_GSM 850 CH128_H_Open

DUT: PB65100_Open; Type: Smartphone ; FCC ID: NM8PB65100

Communication System: GSM850; Frequency: 824.2 MHz;Duty Cycle: 1:8.3
Medium parameters used: $\sigma = 0$ mho/m, $\varepsilon_r = 1$; $\rho = 1$ kg/m^3
Phantom section: H Device Section
Measurement Standard: DASY5 (IEEE/IEC)

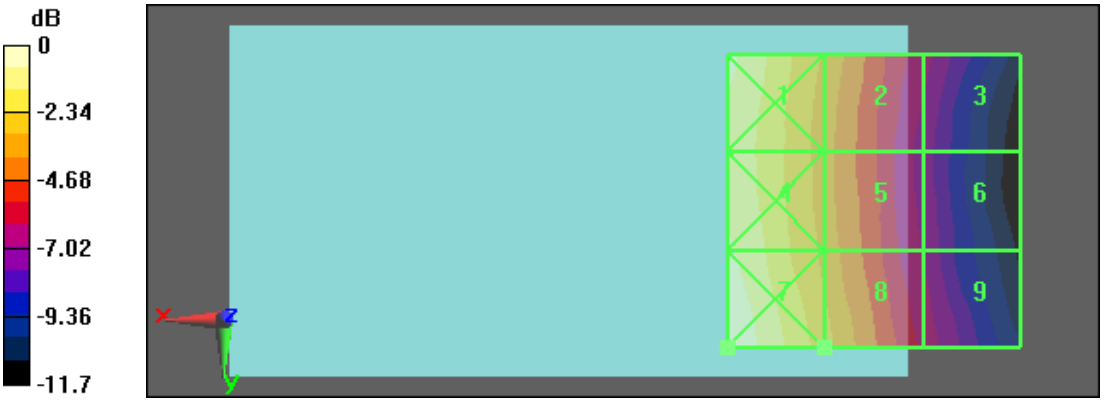
DASY5 Configuration:

- Probe: H3DV6 - SN6076; ; Calibrated: 8/19/2009
- Sensor-Surface: (Fix Surface)
- Electronics: DAE3 Sn393; Calibrated: 8/24/2009
- Phantom: HAC Test Arch 4.6; Type: SD HAC P01 BA; Serial: 1038
- Measurement SW: DASY5, V5.0 Build 125;SEMCAD X Version 13.4 Build 125

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 = 0.090 A/m
Probe Modulation Factor = 1.81
Device Reference Point: 0, 0, 353.7 mm
Reference Value = 0.038 A/m; Power Drift = 0.061 dB
Hearing Aid Near-Field Category: M4 (AWF -5 dB)

Peak H-field in A/m

Grid 1 **0.117 M4**	Grid 2 **0.086 M4**	Grid 3 **0.058 M4**
Grid 4 **0.115 M4**	Grid 5 **0.085 M4**	Grid 6 **0.055 M4**
Grid 7 **0.124 M4**	Grid 8 **0.090 M4**	Grid 9 **0.059 M4**



0 dB = 0.124A/m

Test Laboratory: A Test Lab Techno Corp.

Date/Time: 12/23/2009 4:06:58 PM

HAC_GSM 850 CH190_H_Open

DUT: PB65100_Open; Type: Smartphone ; FCC ID: NM8PB65100

Communication System: GSM850; Frequency: 836.6 MHz;Duty Cycle: 1:8.3
Medium parameters used: $\sigma = 0$ mho/m, $\varepsilon_r = 1$; $\rho = 1$ kg/m^3
Phantom section: H Device Section
Measurement Standard: DASY5 (IEEE/IEC)

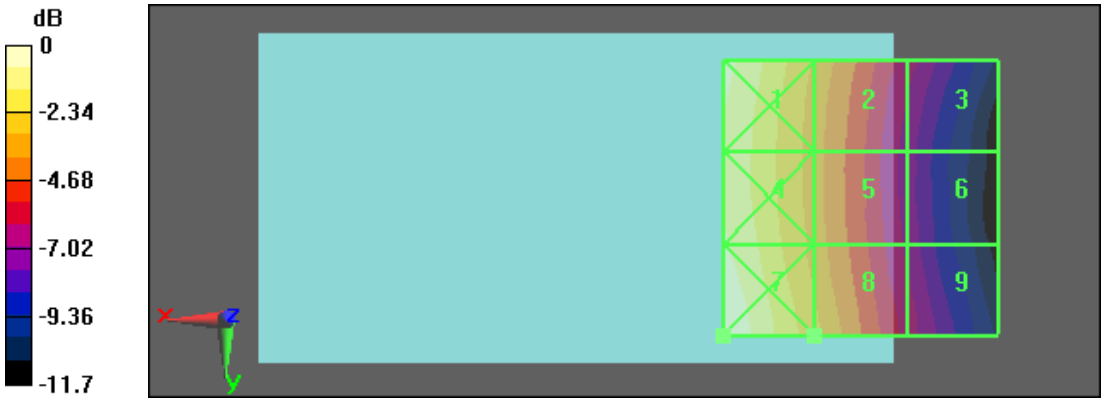
DASY5 Configuration:

- Probe: H3DV6 - SN6076; ; Calibrated: 8/19/2009
- Sensor-Surface: (Fix Surface)
- Electronics: DAE3 Sn393; Calibrated: 8/24/2009
- Phantom: HAC Test Arch 4.6; Type: SD HAC P01 BA; Serial: 1038
- Measurement SW: DASY5, V5.0 Build 125;SEMCAD X Version 13.4 Build 125

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 = 0.141 A/m
Probe Modulation Factor = 2.37
Device Reference Point: 0, 0, 353.7 mm
Reference Value = 0.046 A/m; Power Drift = -0.023 dB
Hearing Aid Near-Field Category: M4 (AWF -5 dB)

Peak H-field in A/m

Grid 1 **0.185 M4**	Grid 2 **0.136 M4**	Grid 3 **0.092 M4**
Grid 4 **0.181 M4**	Grid 5 **0.132 M4**	Grid 6 **0.086 M4**
Grid 7 **0.196 M4**	Grid 8 **0.141 M4**	Grid 9 **0.092 M4**



0 dB = 0.196A/m

Test Laboratory: A Test Lab Techno Corp.

Date/Time: 12/23/2009 4:01:06 PM

HAC_GSM 850 CH251_H_Open

DUT: PB65100_Open; Type: Smartphone ; FCC ID: NM8PB65100

Communication System: GSM850; Frequency: 848.8 MHz;Duty Cycle: 1:8.3
Medium parameters used: $\sigma = 0$ mho/m, $\varepsilon_r = 1$; $\rho = 1$ kg/m^3
Phantom section: H Device Section
Measurement Standard: DASY5 (IEEE/IEC)

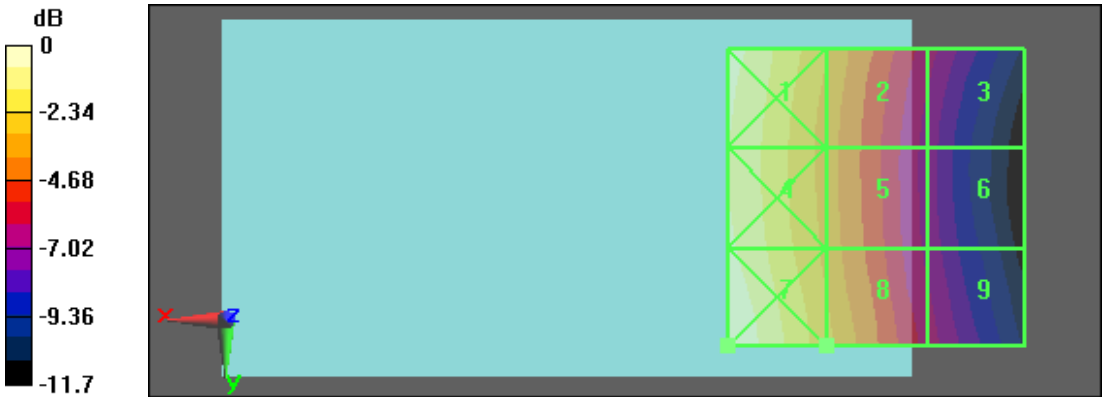
DASY5 Configuration:

- Probe: H3DV6 - SN6076; ; Calibrated: 8/19/2009
- Sensor-Surface: (Fix Surface)
- Electronics: DAE3 Sn393; Calibrated: 8/24/2009
- Phantom: HAC Test Arch 4.6; Type: SD HAC P01 BA; Serial: 1038
- Measurement SW: DASY5, V5.0 Build 125;SEMCAD X Version 13.4 Build 125

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 = 0.170 A/m
Probe Modulation Factor = 2.37
Device Reference Point: 0, 0, 353.7 mm
Reference Value = 0.056 A/m; Power Drift = -0.018 dB
Hearing Aid Near-Field Category: M4 (AWF -5 dB)

Peak H-field in A/m

Grid 1 **0.226 M4**	Grid 2 **0.166 M4**	Grid 3 **0.111 M4**
Grid 4 **0.220 M4**	Grid 5 **0.161 M4**	Grid 6 **0.103 M4**
Grid 7 **0.236 M4**	Grid 8 **0.170 M4**	Grid 9 **0.111 M4**



0 dB = 0.236A/m

Test Laboratory: A Test Lab Techno Corp.

Date/Time: 12/23/2009 4:21:40 PM

HAC_PCS CH512_H_Open

DUT: PB65100_Open; Type: Smartphone ; FCC ID: NM8PB65100

Communication System: PCS; Frequency: 1850.2 MHz;Duty Cycle: 1:8.3
Medium parameters used: $\sigma = 0$ mho/m, $\varepsilon_r = 1$; $\rho = 1$ kg/m^3
Phantom section: H Device Section
Measurement Standard: DASY5 (IEEE/IEC)

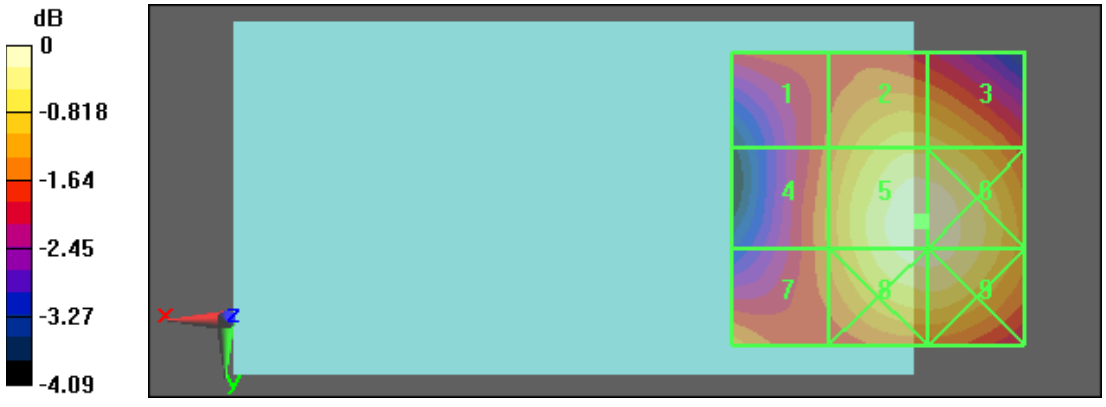
DASY5 Configuration:

- Probe: H3DV6 - SN6076; ; Calibrated: 8/19/2009
- Sensor-Surface: (Fix Surface)
- Electronics: DAE3 Sn393; Calibrated: 8/24/2009
- Phantom: HAC Test Arch 4.6; Type: SD HAC P01 BA; Serial: 1038
- Measurement SW: DASY5, V5.0 Build 125;SEMCAD X Version 13.4 Build 125

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 = 0.130 A/m
Probe Modulation Factor = 2.59
Device Reference Point: 0, 0, 353.7 mm
Reference Value = 0.054 A/m; Power Drift = 0.038 dB
Hearing Aid Near-Field Category: M4 (AWF -5 dB)

Peak H-field in A/m

Grid 1 **0.109 M4**	Grid 2 **0.121 M4**	Grid 3 **0.121 M4**
Grid 4 **0.112 M4**	Grid 5 **0.130 M4**	Grid 6 **0.130 M4**
Grid 7 **0.114 M4**	Grid 8 **0.128 M4**	Grid 9 **0.128 M4**



0 dB = 0.130A/m

Test Laboratory: A Test Lab Techno Corp.

Date/Time: 12/23/2009 4:30:34 PM

HAC_PCS CH661_H_Open

DUT: PB65100_Open; Type: Smartphone ; FCC ID: NM8PB65100

Communication System: PCS; Frequency: 1880.0 MHz;Duty Cycle: 1:8.3
Medium parameters used: $\sigma = 0$ mho/m, $\varepsilon_r = 1$; $\rho = 1$ kg/m^3
Phantom section: H Device Section
Measurement Standard: DASY5 (IEEE/IEC)

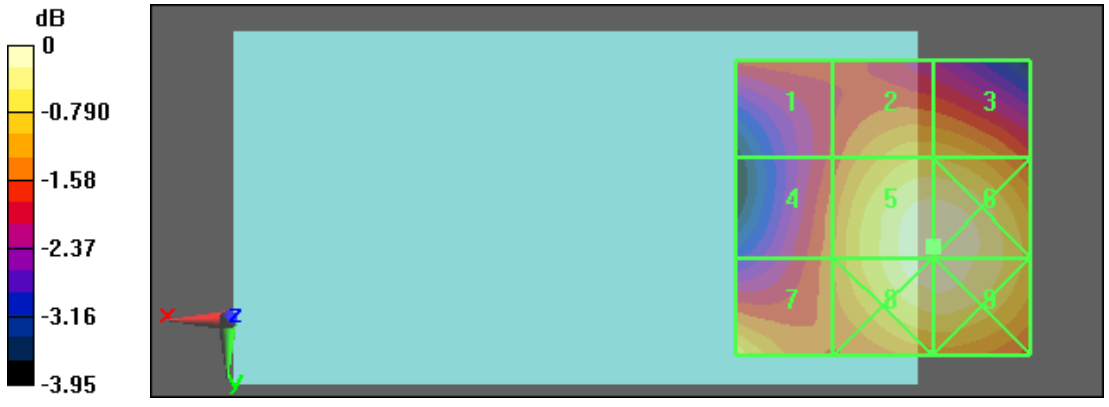
DASY5 Configuration:

- Probe: H3DV6 - SN6076; ; Calibrated: 8/19/2009
- Sensor-Surface: (Fix Surface)
- Electronics: DAE3 Sn393; Calibrated: 8/24/2009
- Phantom: HAC Test Arch 4.6; Type: SD HAC P01 BA; Serial: 1038
- Measurement SW: DASY5, V5.0 Build 125;SEMCAD X Version 13.4 Build 125

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 = 0.137 A/m
Probe Modulation Factor = 2.59
Device Reference Point: 0, 0, 353.7 mm
Reference Value = 0.056 A/m; Power Drift = 0.028 dB
Hearing Aid Near-Field Category: M4 (AWF -5 dB)

Peak H-field in A/m

Grid 1 **0.114 M4**	Grid 2 **0.125 M4**	Grid 3 **0.125 M4**
Grid 4 **0.117 M4**	Grid 5 **0.137 M4**	Grid 6 **0.137 M4**
Grid 7 **0.128 M4**	Grid 8 **0.136 M4**	Grid 9 **0.136 M4**



0 dB = 0.137A/m

Test Laboratory: A Test Lab Techno Corp.

Date/Time: 12/23/2009 4:37:01 PM

HAC_PCS CH810_H_Open

DUT: PB65100_Open; Type: Smartphone ; FCC ID: NM8PB65100

Communication System: PCS; Frequency: 1909.8 MHz;Duty Cycle: 1:8.3
Medium parameters used: $\sigma = 0$ mho/m, $\varepsilon_r = 1$; $\rho = 1$ kg/m^3
Phantom section: H Device Section
Measurement Standard: DASY5 (IEEE/IEC)

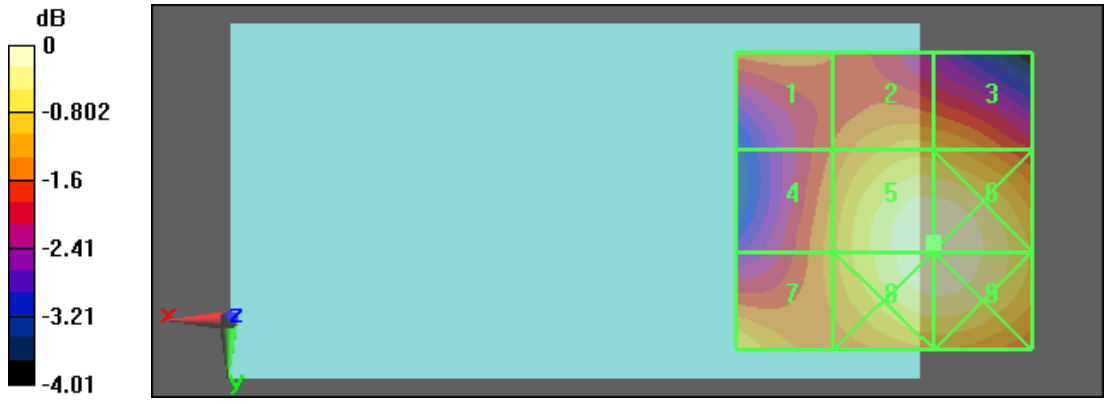
DASY5 Configuration:

- Probe: H3DV6 - SN6076; ; Calibrated: 8/19/2009
- Sensor-Surface: (Fix Surface)
- Electronics: DAE3 Sn393; Calibrated: 8/24/2009
- Phantom: HAC Test Arch 4.6; Type: SD HAC P01 BA; Serial: 1038
- Measurement SW: DASY5, V5.0 Build 125;SEMCAD X Version 13.4 Build 125

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 = 0.149 A/m
Probe Modulation Factor = 2.59
Device Reference Point: 0, 0, 353.7 mm
Reference Value = 0.061 A/m; Power Drift = -0.016 dB
Hearing Aid Near-Field Category: M3 (AWF -5 dB)

Peak H-field in A/m

Grid 1 **0.127 M4**	Grid 2 **0.134 M4**	Grid 3 **0.134 M4**
Grid 4 **0.131 M4**	Grid 5 **0.149 M3**	Grid 6 **0.149 M3**
Grid 7 **0.138 M4**	Grid 8 **0.149 M3**	Grid 9 **0.149 M3**



0 dB = 0.149A/m

Test Laboratory: A Test Lab Techno Corp.

Date/Time: 12/23/2009 3:06:17 PM

HAC_WCDMA Band IV CH1312_H_Open

DUT: PB65100_Open; Type: Smartphone ; FCC ID: NM8PB65100

Communication System: WCDMA Band IV; Frequency: 1712.4 MHz;Duty Cycle: 1:1
Medium parameters used: $\sigma = 0$ mho/m, $\varepsilon_r = 1$; $\rho = 1$ kg/m^3
Phantom section: H Device Section
Measurement Standard: DASY5 (IEEE/IEC)

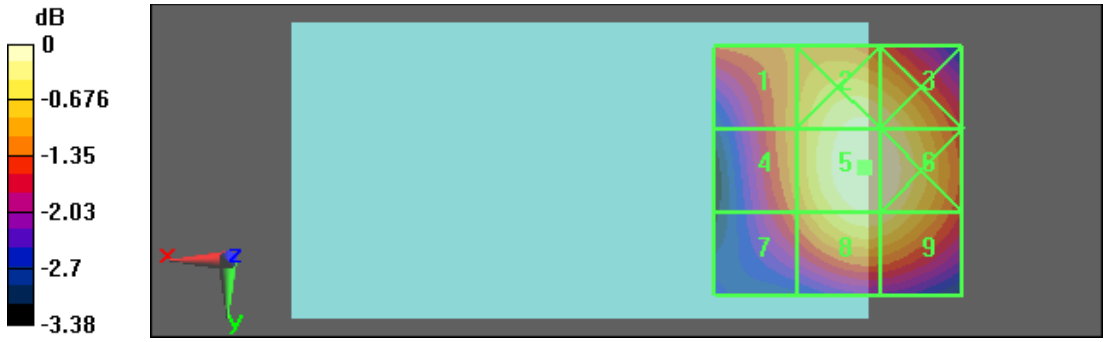
DASY5 Configuration:

- Probe: H3DV6 - SN6076; ; Calibrated: 8/19/2009
- Sensor-Surface: (Fix Surface)
- Electronics: DAE3 Sn393; Calibrated: 8/24/2009
- Phantom: HAC Test Arch 4.6; Type: SD HAC P01 BA; Serial: 1038
- Measurement SW: DASY5, V5.0 Build 125;SEMCAD X Version 13.4 Build 125

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 = 0.052 A/m
Probe Modulation Factor = 0.810
Device Reference Point: 0, 0, 353.7 mm
Reference Value = 0.071 A/m; Power Drift = 0.028 dB
Hearing Aid Near-Field Category: M4 (AWF 0 dB)

Peak H-field in A/m

Grid 1 **0.047 M4**	Grid 2 **0.051 M4**	Grid 3 **0.051 M4**
Grid 4 **0.047 M4**	Grid 5 **0.052 M4**	Grid 6 **0.052 M4**
Grid 7 **0.045 M4**	Grid 8 **0.051 M4**	Grid 9 **0.050 M4**



0 dB = 0.052A/m

Test Laboratory: A Test Lab Techno Corp.

Date/Time: 12/23/2009 2:59:27 PM

HAC_WCDMA Band IV CH1450_H_Open

DUT: PB65100_Open; Type: Smartphone ; FCC ID: NM8PB65100

Communication System: WCDMA Band IV; Frequency: 1740.0 MHz;Duty Cycle: 1:1
Medium parameters used: $\sigma = 0$ mho/m, $\varepsilon_r = 1$; $\rho = 1$ kg/m^3
Phantom section: H Device Section
Measurement Standard: DASY5 (IEEE/IEC)

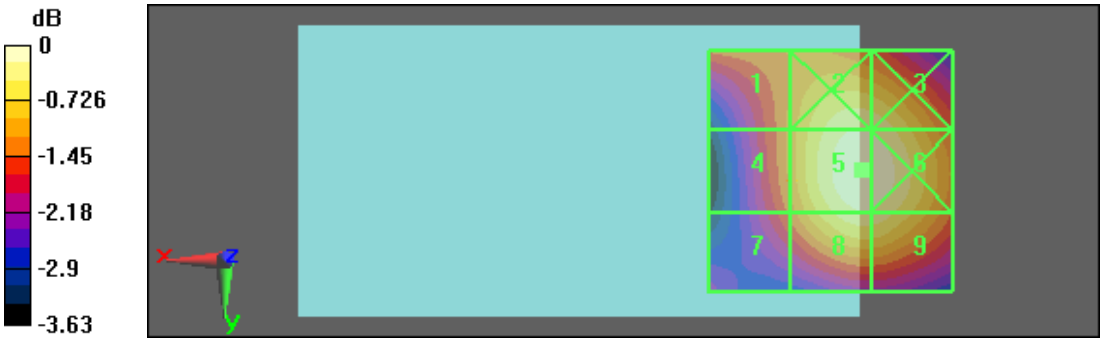
DASY5 Configuration:

- Probe: H3DV6 - SN6076; ; Calibrated: 8/19/2009
- Sensor-Surface: (Fix Surface)
- Electronics: DAE3 Sn393; Calibrated: 8/24/2009
- Phantom: HAC Test Arch 4.6; Type: SD HAC P01 BA; Serial: 1038
- Measurement SW: DASY5, V5.0 Build 125;SEMCAD X Version 13.4 Build 125

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 = 0.059 A/m
Probe Modulation Factor = 0.810
Device Reference Point: 0, 0, 353.7 mm
Reference Value = 0.080 A/m; Power Drift = -0.021 dB
Hearing Aid Near-Field Category: M4 (AWF 0 dB)

Peak H-field in A/m

Grid 1 **0.052 M4**	Grid 2 **0.057 M4**	Grid 3 **0.057 M4**
Grid 4 **0.052 M4**	Grid 5 **0.059 M4**	Grid 6 **0.059 M4**
Grid 7 **0.050 M4**	Grid 8 **0.057 M4**	Grid 9 **0.057 M4**



0 dB = 0.059A/m

Test Laboratory: A Test Lab Techno Corp.

Date/Time: 12/23/2009 2:53:18 PM

HAC_WCDMA Band IV CH1513_H_Open

DUT: PB65100_Open; Type: Smartphone ; FCC ID: NM8PB65100

Communication System: WCDMA Band IV; Frequency: 1752.6 MHz;Duty Cycle: 1:1
Medium parameters used: $\sigma = 0$ mho/m, $\varepsilon_r = 1$; $\rho = 1$ kg/m^3
Phantom section: H Device Section
Measurement Standard: DASY5 (IEEE/IEC)

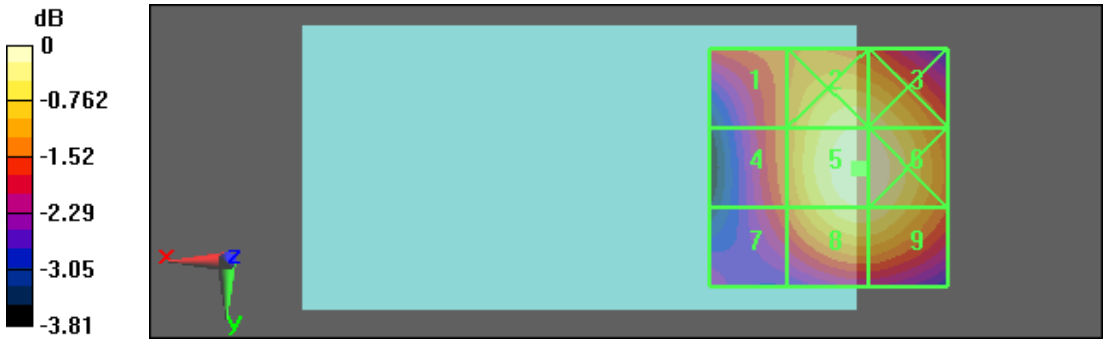
DASY5 Configuration:

- Probe: H3DV6 - SN6076; ; Calibrated: 8/19/2009
- Sensor-Surface: (Fix Surface)
- Electronics: DAE3 Sn393; Calibrated: 8/24/2009
- Phantom: HAC Test Arch 4.6; Type: SD HAC P01 BA; Serial: 1038
- Measurement SW: DASY5, V5.0 Build 125;SEMCAD X Version 13.4 Build 125

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 = 0.055 A/m
Probe Modulation Factor = 0.810
Device Reference Point: 0, 0, 353.7 mm
Reference Value = 0.074 A/m; Power Drift = -0.011 dB
Hearing Aid Near-Field Category: M4 (AWF 0 dB)

Peak H-field in A/m

Grid 1 **0.048 M4**	Grid 2 **0.053 M4**	Grid 3 **0.053 M4**
Grid 4 **0.048 M4**	Grid 5 **0.055 M4**	Grid 6 **0.055 M4**
Grid 7 **0.047 M4**	Grid 8 **0.053 M4**	Grid 9 **0.053 M4**



0 dB = 0.055A/m

Test Laboratory: A Test Lab Techno Corp.

Date/Time: 12/23/2009 3:37:42 PM

HAC_GSM 850 CH128_H_Close

DUT: PB65100_Close; Type: Smartphone ; FCC ID: NM8PB65100

Communication System: GSM850; Frequency: 824.2 MHz;Duty Cycle: 1:8.3
Medium parameters used: $\sigma = 0$ mho/m, $\varepsilon_r = 1$; $\rho = 1$ kg/m^3
Phantom section: H Device Section
Measurement Standard: DASY5 (IEEE/IEC)

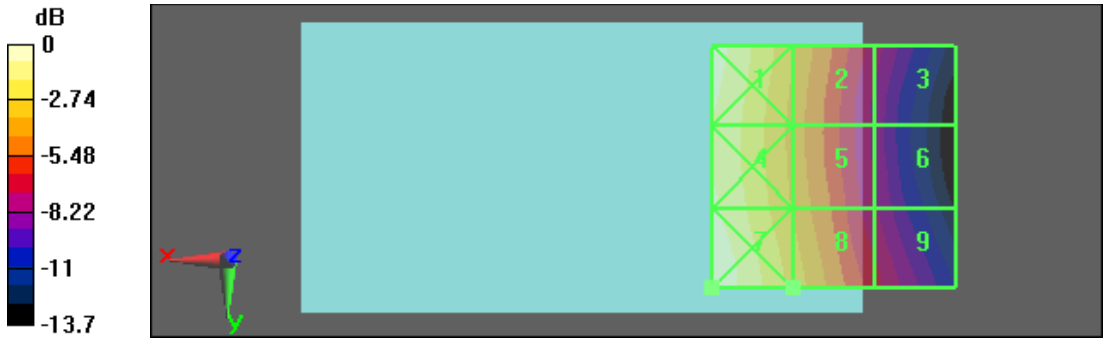
DASY5 Configuration:

- Probe: H3DV6 - SN6076; ; Calibrated: 8/19/2009
- Sensor-Surface: (Fix Surface)
- Electronics: DAE3 Sn393; Calibrated: 8/24/2009
- Phantom: HAC Test Arch 4.6; Type: SD HAC P01 BA; Serial: 1038
- Measurement SW: DASY5, V5.0 Build 125;SEMCAD X Version 13.4 Build 125

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 = 0.203 A/m
Probe Modulation Factor = 2.57
Device Reference Point: 0, 0, 353.7 mm
Reference Value = 0.058 A/m; Power Drift = -0.00384 dB
Hearing Aid Near-Field Category: M4 (AWF -5 dB)

Peak H-field in A/m

Grid 1 **0.274 M4**	Grid 2 **0.192 M4**	Grid 3 **0.118 M4**
Grid 4 **0.264 M4**	Grid 5 **0.187 M4**	Grid 6 **0.114 M4**
Grid 7 **0.287 M4**	Grid 8 **0.203 M4**	Grid 9 **0.129 M4**



0 dB = 0.287A/m

Test Laboratory: A Test Lab Techno Corp.

Date/Time: 12/23/2009 3:44:05 PM

HAC_GSM 850 CH190_H_Close

DUT: PB65100_Close; Type: Smartphone ; FCC ID: NM8PB65100

Communication System: GSM850; Frequency: 836.6 MHz;Duty Cycle: 1:8.3
Medium parameters used: $\sigma = 0$ mho/m, $\varepsilon_r = 1$; $\rho = 1$ kg/m^3
Phantom section: H Device Section
Measurement Standard: DASY5 (IEEE/IEC)

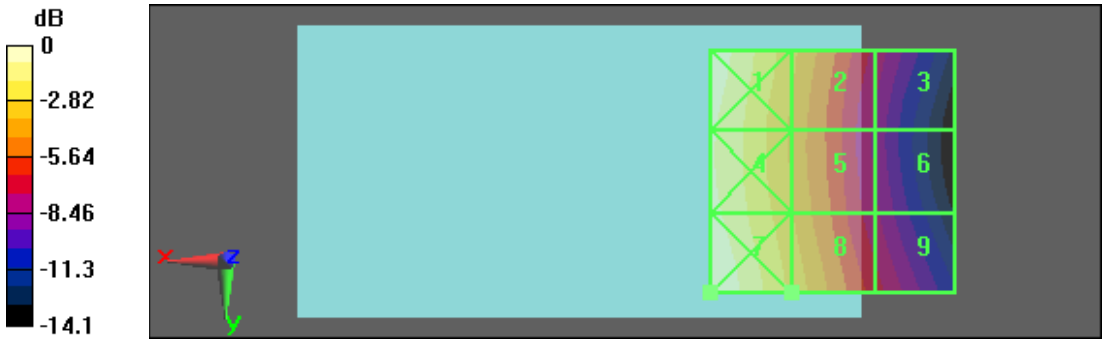
DASY5 Configuration:

- Probe: H3DV6 - SN6076; ; Calibrated: 8/19/2009
- Sensor-Surface: (Fix Surface)
- Electronics: DAE3 Sn393; Calibrated: 8/24/2009
- Phantom: HAC Test Arch 4.6; Type: SD HAC P01 BA; Serial: 1038
- Measurement SW: DASY5, V5.0 Build 125;SEMCAD X Version 13.4 Build 125

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 = 0.251 A/m
Probe Modulation Factor = 2.68
Device Reference Point: 0, 0, 353.7 mm
Reference Value = 0.069 A/m; Power Drift = -0.028 dB
Hearing Aid Near-Field Category: M4 (AWF -5 dB)

Peak H-field in A/m

Grid 1 **0.346 M4**	Grid 2 **0.239 M4**	Grid 3 **0.146 M4**
Grid 4 **0.332 M4**	Grid 5 **0.234 M4**	Grid 6 **0.139 M4**
Grid 7 **0.356 M4**	Grid 8 **0.251 M4**	Grid 9 **0.159 M4**



0 dB = 0.356A/m

Test Laboratory: A Test Lab Techno Corp.

Date/Time: 12/23/2009 3:49:51 PM

HAC_GSM 850 CH251_H_Close

DUT: PB65100_Close; Type: Smartphone ; FCC ID: NM8PB65100

Communication System: GSM850; Frequency: 848.8 MHz;Duty Cycle: 1:8.3
Medium parameters used: $\sigma = 0$ mho/m, $\varepsilon_r = 1$; $\rho = 1$ kg/m^3
Phantom section: H Device Section
Measurement Standard: DASY5 (IEEE/IEC)

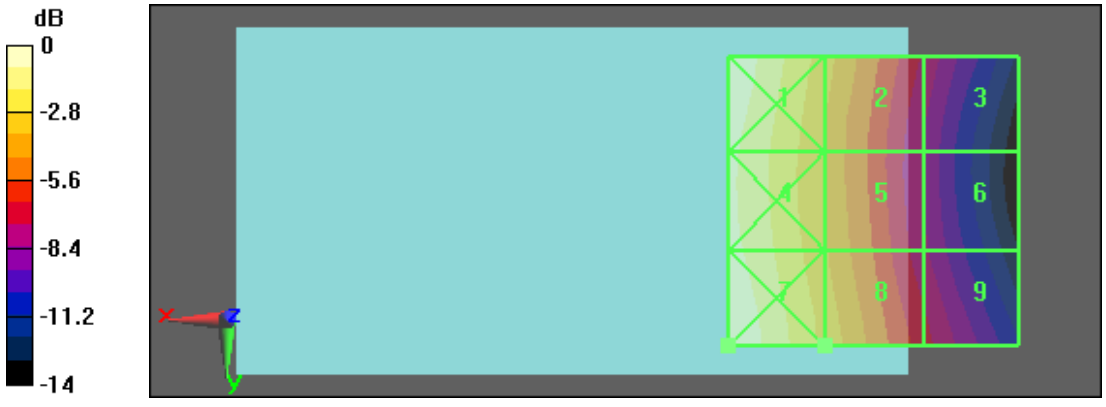
DASY5 Configuration:

- Probe: H3DV6 - SN6076; ; Calibrated: 8/19/2009
- Sensor-Surface: (Fix Surface)
- Electronics: DAE3 Sn393; Calibrated: 8/24/2009
- Phantom: HAC Test Arch 4.6; Type: SD HAC P01 BA; Serial: 1038
- Measurement SW: DASY5, V5.0 Build 125;SEMCAD X Version 13.4 Build 125

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 = 0.284 A/m
Probe Modulation Factor = 2.68
Device Reference Point: 0, 0, 353.7 mm
Reference Value = 0.079 A/m; Power Drift = 0.025 dB
Hearing Aid Near-Field Category: M4 (AWF -5 dB)

Peak H-field in A/m

Grid 1 **0.398 M4**	Grid 2 **0.277 M4**	Grid 3 **0.170 M4**
Grid 4 **0.379 M4**	Grid 5 **0.268 M4**	Grid 6 **0.160 M4**
Grid 7 **0.405 M4**	Grid 8 **0.284 M4**	Grid 9 **0.181 M4**



0 dB = 0.405A/m

Test Laboratory: A Test Lab Techno Corp.

Date/Time: 12/23/2009 3:16:50 PM

HAC_PCS CH512_H_Close

DUT: PB65100_Close; Type: Smartphone ; FCC ID: NM8PB65100

Communication System: PCS; Frequency: 1850.2 MHz;Duty Cycle: 1:8.3
Medium parameters used: $\sigma = 0$ mho/m, $\varepsilon_r = 1$; $\rho = 1$ kg/m^3
Phantom section: H Device Section
Measurement Standard: DASY5 (IEEE/IEC)

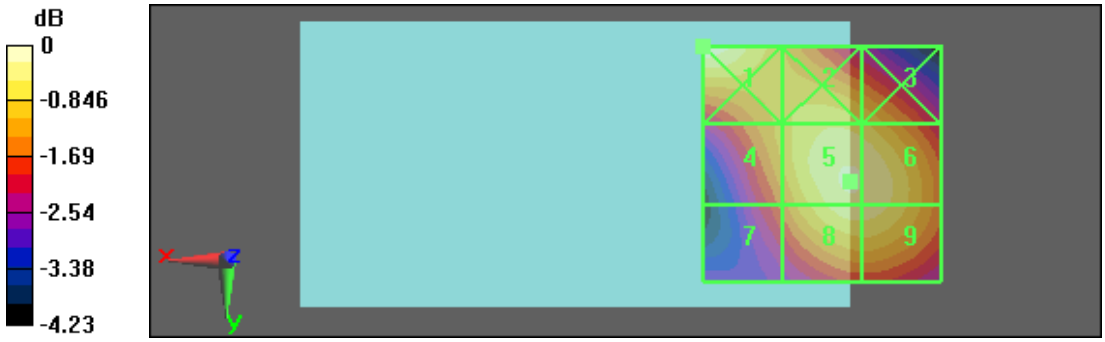
DASY5 Configuration:

- Probe: H3DV6 - SN6076; ; Calibrated: 8/19/2009
- Sensor-Surface: (Fix Surface)
- Electronics: DAE3 Sn393; Calibrated: 8/24/2009
- Phantom: HAC Test Arch 4.6; Type: SD HAC P01 BA; Serial: 1038
- Measurement SW: DASY5, V5.0 Build 125;SEMCAD X Version 13.4 Build 125

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 = 0.221 A/m
Probe Modulation Factor = 2.54
Device Reference Point: 0, 0, 353.7 mm
Reference Value = 0.098 A/m; Power Drift = -0.025 dB
Hearing Aid Near-Field Category: M3 (AWF -5 dB)

Peak H-field in A/m

Grid 1 **0.227 M3**	Grid 2 **0.212 M3**	Grid 3 **0.208 M3**
Grid 4 **0.202 M3**	Grid 5 **0.221 M3**	Grid 6 **0.220 M3**
Grid 7 **0.190 M3**	Grid 8 **0.218 M3**	Grid 9 **0.218 M3**



0 dB = 0.227A/m

Test Laboratory: A Test Lab Techno Corp.

Date/Time: 12/23/2009 3:22:58 PM

HAC_PCS CH661_H_Close

DUT: PB65100_Close; Type: Smartphone ; FCC ID: NM8PB65100

Communication System: PCS; Frequency: 1880.0 MHz;Duty Cycle: 1:8.3
Medium parameters used: $\sigma = 0$ mho/m, $\varepsilon_r = 1$; $\rho = 1$ kg/m^3
Phantom section: H Device Section
Measurement Standard: DASY5 (IEEE/IEC)

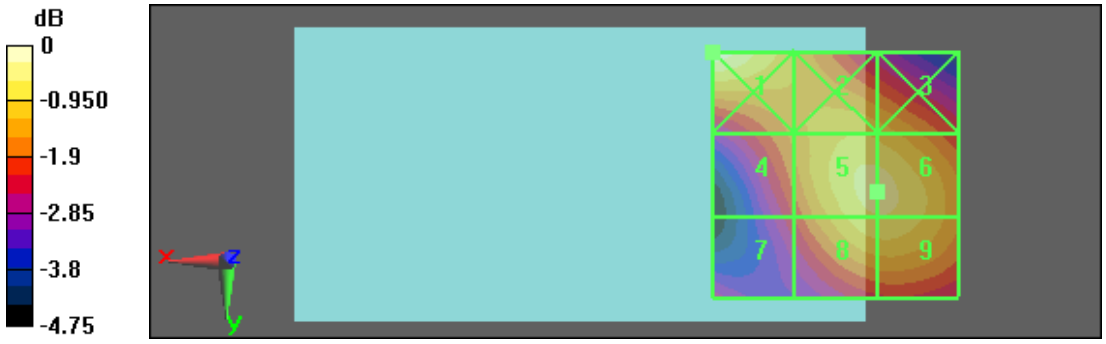
DASY5 Configuration:

- Probe: H3DV6 - SN6076; ; Calibrated: 8/19/2009
- Sensor-Surface: (Fix Surface)
- Electronics: DAE3 Sn393; Calibrated: 8/24/2009
- Phantom: HAC Test Arch 4.6; Type: SD HAC P01 BA; Serial: 1038
- Measurement SW: DASY5, V5.0 Build 125;SEMCAD X Version 13.4 Build 125

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 = 0.212 A/m
Probe Modulation Factor = 2.44
Device Reference Point: 0, 0, 353.7 mm
Reference Value = 0.096 A/m; Power Drift = 0.043 dB
Hearing Aid Near-Field Category: M3 (AWF -5 dB)

Peak H-field in A/m

Grid 1 **0.225 M3**	Grid 2 **0.202 M3**	Grid 3 **0.200 M3**
Grid 4 **0.190 M3**	Grid 5 **0.212 M3**	Grid 6 **0.212 M3**
Grid 7 **0.175 M3**	Grid 8 **0.209 M3**	Grid 9 **0.209 M3**



0 dB = 0.225A/m

Test Laboratory: A Test Lab Techno Corp.

Date/Time: 12/23/2009 3:30:00 PM

HAC_PCS CH810_H_Close

DUT: PB65100_Close; Type: Smartphone ; FCC ID: NM8PB65100

Communication System: PCS; Frequency: 1909.8 MHz;Duty Cycle: 1:8.3
Medium parameters used: $\sigma = 0$ mho/m, $\varepsilon_r = 1$; $\rho = 1$ kg/m^3
Phantom section: H Device Section
Measurement Standard: DASY5 (IEEE/IEC)

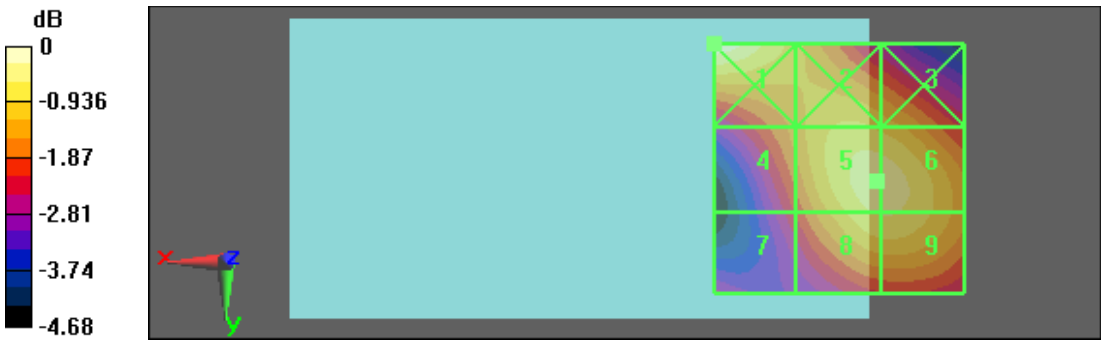
DASY5 Configuration:

- Probe: H3DV6 - SN6076; ; Calibrated: 8/19/2009
- Sensor-Surface: (Fix Surface)
- Electronics: DAE3 Sn393; Calibrated: 8/24/2009
- Phantom: HAC Test Arch 4.6; Type: SD HAC P01 BA; Serial: 1038
- Measurement SW: DASY5, V5.0 Build 125;SEMCAD X Version 13.4 Build 125

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 = 0.216 A/m
Probe Modulation Factor = 2.44
Device Reference Point: 0, 0, 353.7 mm
Reference Value = 0.098 A/m; Power Drift = 0.063 dB
Hearing Aid Near-Field Category: M3 (AWF -5 dB)

Peak H-field in A/m

Grid 1 **0.228 M3**	Grid 2 **0.206 M3**	Grid 3 **0.203 M3**
Grid 4 **0.194 M3**	Grid 5 **0.216 M3**	Grid 6 **0.216 M3**
Grid 7 **0.179 M3**	Grid 8 **0.213 M3**	Grid 9 **0.213 M3**



0 dB = 0.228A/m

Test Laboratory: A Test Lab Techno Corp.

Date/Time: 12/23/2009 2:32:40 PM

HAC_WCDMA Band IV CH1312_H_Close

DUT: PB65100_Close; Type: Smartphone ; FCC ID: NM8PB65100

Communication System: WCDMA Band IV; Frequency: 1712.4 MHz;Duty Cycle: 1:1
Medium parameters used: $\sigma = 0$ mho/m, $\varepsilon_r = 1$; $\rho = 1$ kg/m^3
Phantom section: H Device Section
Measurement Standard: DASY5 (IEEE/IEC)

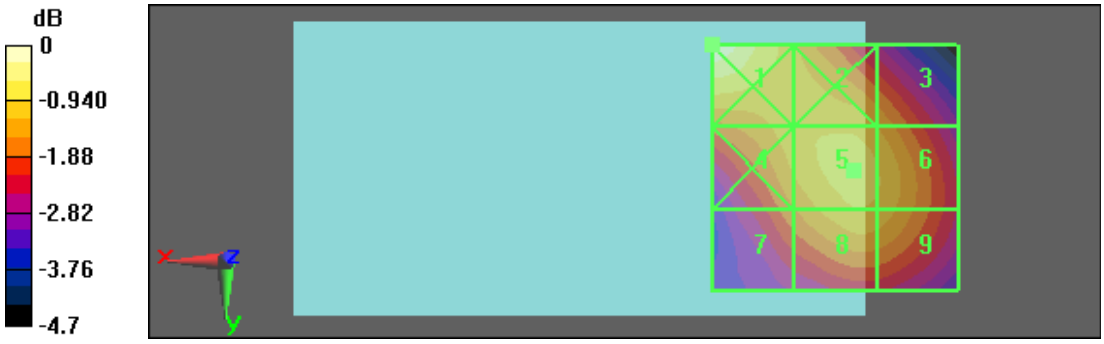
DASY5 Configuration:

- Probe: H3DV6 - SN6076; ; Calibrated: 8/19/2009
- Sensor-Surface: (Fix Surface)
- Electronics: DAE3 Sn393; Calibrated: 8/24/2009
- Phantom: HAC Test Arch 4.6; Type: SD HAC P01 BA; Serial: 1038
- Measurement SW: DASY5, V5.0 Build 125;SEMCAD X Version 13.4 Build 125

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 = 0.080 A/m
Probe Modulation Factor = 0.810
Device Reference Point: 0, 0, 353.7 mm
Reference Value = 0.107 A/m; Power Drift = 0.072 dB
Hearing Aid Near-Field Category: M4 (AWF 0 dB)

Peak H-field in A/m

Grid 1 **0.087 M4**	Grid 2 **0.078 M4**	Grid 3 **0.075 M4**
Grid 4 **0.077 M4**	Grid 5 **0.080 M4**	Grid 6 **0.078 M4**
Grid 7 **0.072 M4**	Grid 8 **0.078 M4**	Grid 9 **0.077 M4**



0 dB = 0.087A/m

Test Laboratory: A Test Lab Techno Corp.

Date/Time: 12/23/2009 2:39:09 PM

HAC_WCDMA Band IV CH1450_H_Close

DUT: PB65100_Close; Type: Smartphone ; FCC ID: NM8PB65100

Communication System: WCDMA Band IV; Frequency: 1740.0 MHz;Duty Cycle: 1:1
Medium parameters used: $\sigma = 0$ mho/m, $\varepsilon_r = 1$; $\rho = 1$ kg/m^3
Phantom section: H Device Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY5 Configuration:

- Probe: H3DV6 - SN6076; ; Calibrated: 8/19/2009
- Sensor-Surface: (Fix Surface)
- Electronics: DAE3 Sn393; Calibrated: 8/24/2009
- Phantom: HAC Test Arch 4.6; Type: SD HAC P01 BA; Serial: 1038
- Measurement SW: DASY5, V5.0 Build 125;SEMCAD X Version 13.4 Build 125

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 = 0.089 A/m
Probe Modulation Factor = 0.810
Device Reference Point: 0, 0, 353.7 mm
Reference Value = 0.122 A/m; Power Drift = 0.014 dB
Hearing Aid Near-Field Category: M4 (AWF 0 dB)

Peak H-field in A/m

Grid 1 **0.103 M4**	Grid 2 **0.088 M4**	Grid 3 **0.085 M4**
Grid 4 **0.087 M4**	Grid 5 **0.089 M4**	Grid 6 **0.088 M4**
Grid 7 **0.081 M4**	Grid 8 **0.087 M4**	Grid 9 **0.087 M4**

0 dB = 0.103A/m

Test Laboratory: A Test Lab Techno Corp.

Date/Time: 12/23/2009 2:46:12 PM

HAC_WCDMA Band IV CH1513_H_Close

DUT: PB65100_Close; Type: Smartphone ; FCC ID: NM8PB65100

Communication System: WCDMA Band IV; Frequency: 1752.6 MHz;Duty Cycle: 1:1
Medium parameters used: $\sigma = 0$ mho/m, $\varepsilon_r = 1$; $\rho = 1$ kg/m^3
Phantom section: H Device Section
Measurement Standard: DASY5 (IEEE/IEC)

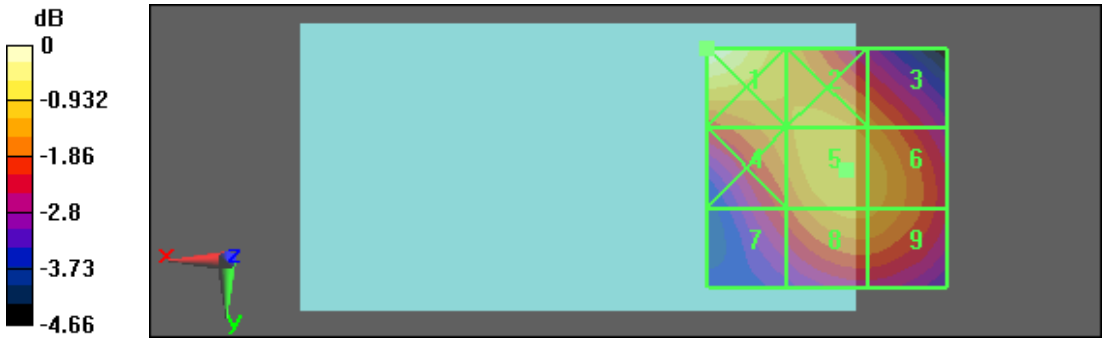
DASY5 Configuration:

- Probe: H3DV6 - SN6076; ; Calibrated: 8/19/2009
- Sensor-Surface: (Fix Surface)
- Electronics: DAE3 Sn393; Calibrated: 8/24/2009
- Phantom: HAC Test Arch 4.6; Type: SD HAC P01 BA; Serial: 1038
- Measurement SW: DASY5, V5.0 Build 125;SEMCAD X Version 13.4 Build 125

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 = 0.084 A/m
Probe Modulation Factor = 0.810
Device Reference Point: 0, 0, 353.7 mm
Reference Value = 0.114 A/m; Power Drift = 0.039 dB
Hearing Aid Near-Field Category: M4 (AWF 0 dB)

Peak H-field in A/m

Grid 1 **0.094 M4**	Grid 2 **0.083 M4**	Grid 3 **0.080 M4**
Grid 4 **0.081 M4**	Grid 5 **0.084 M4**	Grid 6 **0.084 M4**
Grid 7 **0.075 M4**	Grid 8 **0.083 M4**	Grid 9 **0.082 M4**



0 dB = 0.094A/m

Appendix D - Calibration

All of the instruments Calibration information are listed below.

- Dipole _ CD835V3 SN:1017 Calibration No.CD835V3-1017_Jul09
- Dipole _ CD1880V3 SN:1036 Calibration No.CD1880V3-1036_ Jul09
- Probe _ ER3DV6 SN: 2256 Calibration No. ER3-2256_Aug09
- Probe _ H3DV6 SN: 6076 Calibration No. H3-6076_ Aug09
- DAE _ DAE3 SN:393 Calibration No.DAE3-393_ Aug09

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

S Schweizerischer Kalibrierdienst
C Service suisse d'étalonnage
S 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

Client **ATL (Auden)** **Certificate No: CD835V3-1017_Jul09**

CALIBRATION CERTIFICATE

Object	CD835V3 - SN: 1017
Calibration procedure(s)	QA CAL-20.v4 Calibration procedure for dipoles in air
Calibration date:	July 14, 2009
Condition of the calibrated item	In Tolerance

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	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter EPM-442A	GB37480704	08-Oct-08 (No. 217-00898)	Oct-09
Power sensor HP 8481A	US37292783	08-Oct-08 (No. 217-00898)	Oct-09
Probe ER3DV6	SN: 2336	22-Dec-08 (No. ER3-2336_Dec08)	Dec-09
Probe H3DV6	SN: 6065	22-Dec-08 (No. H3-6065_-Dec08)	Dec-09
DAE4	SN: 781	20-Feb-09 (No. DAE4-781_Feb09)	Feb-10

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power meter R&S NRP	SN: 101748	23-Sep-08 (in house check Dec-08)	In house check: Dec-10
Power sensor R&S NRP-Z91	SN: 100711	25-Aug-08 (in house check Dec-08)	In house check: Dec-10
Power sensor R&S NRP-Z91	SN: 100712	25-Aug-08 (in house check Dec-08)	In house check: Dec-10
Network Analyzer HP 8753E	US37390585	18-Oct-01 (in house check Oct-08)	In house check: Oct-09
RF generator E4433B	MY 41310391	03-Nov-04 (in house check Oct-07)	In house check: Oct-09

	Name	Function	Signature
Calibrated by:	Claudio Leubler	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: July 15, 2009

References

[1] ANSI-C63.19-2006
American National Standard for Methods of Measurement of Compatibility between Wireless Communications Devices and Hearing Aids.

[2] ANSI-C63.19-2007
American National Standard for Methods of Measurement of Compatibility between Wireless Communications Devices and Hearing Aids.

Methods Applied and Interpretation of Parameters:

- *Coordinate System:* y-axis is in the direction of the dipole arms. z-axis is from the basis of the antenna (mounted on the table) towards its feed point between the two dipole arms. x-axis is normal to the other axes. In coincidence with the standards [1, 2], the measurement planes (probe sensor center) are selected to be at a distance of 10 mm above the top edge of the dipole arms.
- *Measurement Conditions:* Further details are available from the hardcopies at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated. The forward power to the dipole connector is set with a calibrated power meter connected and monitored with an auxiliary power meter connected to a directional coupler. While the dipole under test is connected, the forward power is adjusted to the same level.
- *Antenna Positioning:* The dipole is mounted on a HAC Test Arch phantom using the matching dipole positioner with the arms horizontal and the feeding cable coming from the floor. The measurements are performed in a shielded room with absorbers around the setup to reduce the reflections.
  It is verified before the mounting of the dipole under the Test Arch phantom, that its arms are perfectly in a line. It is installed on the HAC dipole positioner with its arms parallel below the dielectric reference wire and able to move elastically in vertical direction without changing its relative position to the top center of the Test Arch phantom. The vertical distance to the probe is adjusted after dipole mounting with a DASY4 Surface Check job. Before the measurement, the distance between phantom surface and probe tip is verified. The proper measurement distance is selected by choosing the matching section of the HAC Test Arch phantom with the proper device reference point (upper surface of the dipole) and the matching grid reference point (tip of the probe) considering the probe sensor offset. The vertical distance to the probe is essential for the accuracy.
- *Feed Point Impedance and Return Loss:* These parameters are measured using a HP 8753E Vector Network Analyzer. The impedance is specified at the SMA connector of the dipole. The influence of reflections was eliminating by applying the averaging function while moving the dipole in the air, at least 70cm away from any obstacles.
- *E- field distribution:* E field is measured in the x-y-plane with an isotropic ER3D-field probe with 100 mW forward power to the antenna feed point. In accordance with [1, 2], the scan area is 20mm wide, its length exceeds the dipole arm length (180 or 90mm). The sensor center is 10 mm (in z) above the top of the dipole arms. Two 3D maxima are available near the end of the dipole arms. Assuming the dipole arms are perfectly in one line, the average of these two maxima (in subgrid 2 and subgrid 8) is determined to compensate for any non-parallelity to the measurement plane as well as the sensor displacement. The E-field value stated as calibration value represents the maximum of the interpolated 3D-E-field, 10mm above the dipole surface.
- *H-field distribution:* H-field is measured with an isotropic H-field probe with 100mW forward power to the antenna feed point, in the x-y-plane. The scan area and sensor distance is equivalent to the E-field scan. The maximum of the field is available at the center (subgrid 5) above the feed point. The H-field value stated as calibration value represents the maximum of the interpolated H-field, 10mm above the dipole surface at the feed point.

1 Measurement Conditions

DASY system configuration, as far as not given on page 1.

DASY Version	DASY4	V4.7 B80
DASY PP Version	SEMCAD	V1.8 B186
Phantom	HAC Test Arch	SD HAC P01 BA, #1070
Distance Dipole Top - Probe Center	10 mm	
Scan resolution	dx, dy = 5 mm	area = 20 x 180 mm
Frequency	**835 MHz** ± 1 MHz	
Forward power at dipole connector	20.0 dBm = 100mW	
Input power drift	< 0.05 dB	

2 Maximum Field values

H-field 10 mm above dipole surface	condition	**interpolated maximum**
Maximum measured	100 mW forward power	**0.457 A/m**

Uncertainty for H-field measurement: 8.2% (k=2)

E-field 10 mm above dipole surface	condition	**Interpolated maximum**
Maximum measured above high end-	100 mW forward power	159.6 V/m
Maximum measured above low end	100 mW forward power	157.0 V/m
Averaged maximum above arm	100 mW forward power	**158.3 V/m**

Uncertainty for E-field measurement: 12.8% (k=2)

3 Appendix

3.1 Antenna Parameters

Frequency	**Return Loss**	**Impedance**
800 MHz	16.5 dB	(43.3 – j12.3) Ohm
835 MHz	**28.4 dB**	**(49.2 + j3.7) Ohm**
900 MHz	17.1 dB	(55.5 – j13.7) Ohm
950 MHz	20.7 dB	(45.5 + j7.6) Ohm
960 MHz	16.0 dB	(51.6 + j16.2) Ohm

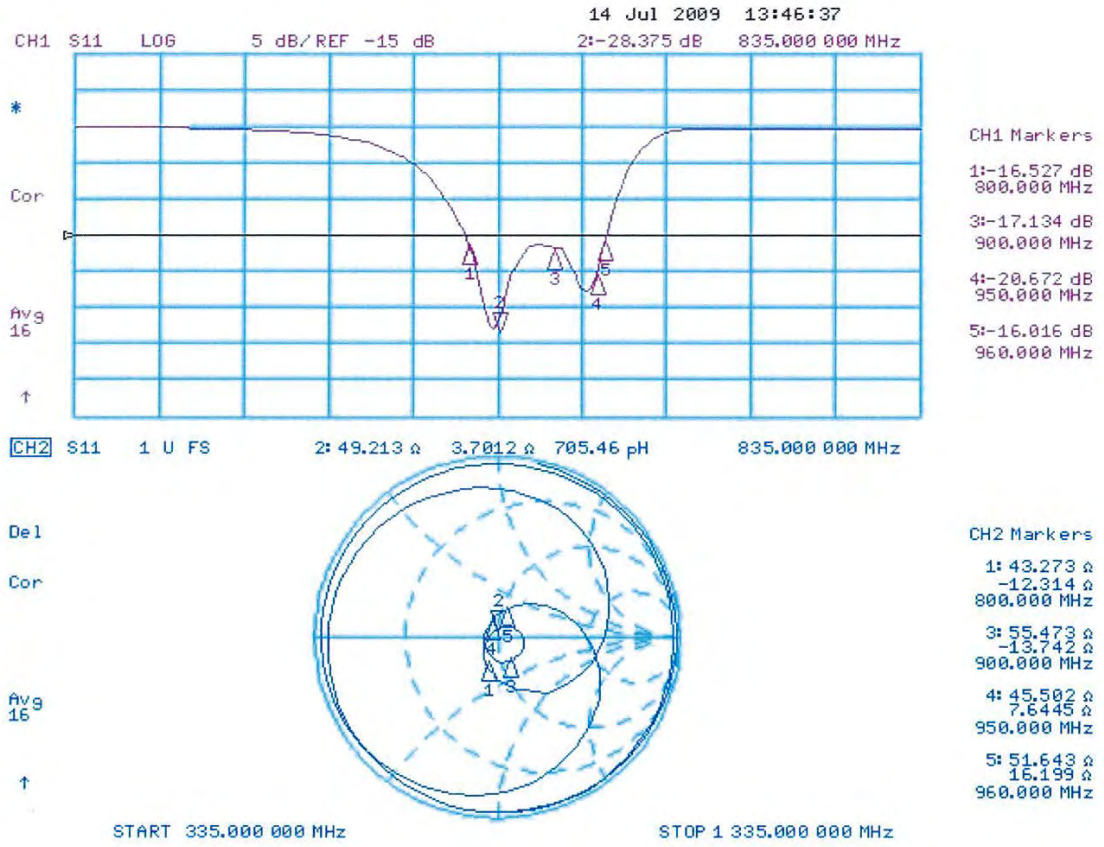
3.2 Antenna Design and Handling

The calibration dipole has a symmetric geometry with a built-in two stub matching network, which leads to the enhanced bandwidth.
The dipole is built of standard semirigid coaxial cable. The internal matching line is open ended. The antenna is therefore open for DC signals.
Do not apply force to dipole arms, as they are liable to bend. The soldered connections near the feedpoint may be damaged. After excessive mechanical stress or overheating, check the impedance characteristics to ensure that the internal matching network is not affected.

After long term use with 40W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

3.3 Measurement Sheets

3.3.1 Return Loss and Smith Chart



3.3.2 DASY4 H-field Result

Date/Time: 14.07.2009 11:05:09

Test Laboratory: SPEAG Lab 2

H_CD835_1017_090714

DUT: HAC-Dipole 835 MHz; Type: D835V3; Serial: 1017

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

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

Phantom section: RF Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: H3DV6 - SN6065; ; Calibrated: 22.12.2008
- Sensor-Surface: (Fix Surface)
- Electronics: DAE4 Sn781; Calibrated: 20.02.2009
- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA; Serial: 1070
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

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 = 0.457 A/m

Probe Modulation Factor = 1.00

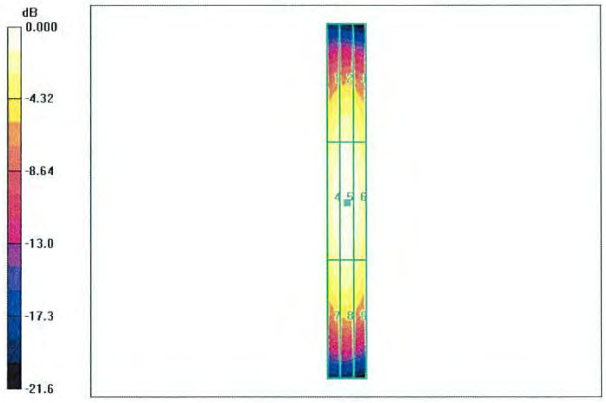
Device Reference Point: 0.000, 0.000, -6.30 mm

Reference Value = 0.489 A/m; Power Drift = -0.003 dB

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

Peak H-field in A/m

Grid 1 **0.374 M4**	Grid 2 **0.397 M4**	Grid 3 **0.374 M4**
Grid 4 **0.430 M4**	Grid 5 **0.457 M4**	Grid 6 **0.429 M4**
Grid 7 **0.379 M4**	Grid 8 **0.400 M4**	Grid 9 **0.371 M4**



0 dB = 0.457A/m

3.3.3 DASY4 E-field Result

Date/Time: 14.07.2009 16:07:18

Test Laboratory: SPEAG Lab 2

E_CD835_1017_090714

DUT: HAC-Dipole 835 MHz; Type: D835V3; Serial: 1017

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

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

Phantom section: RF Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ER3DV6 - SN2336; ConvF(1, 1, 1); Calibrated: 22.12.2008
- Sensor-Surface: (Fix Surface)
- Electronics: DAE4 Sn781; Calibrated: 20.02.2009
- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA; Serial: 1070
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

E 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 = 159.6 V/m

Probe Modulation Factor = 1.00

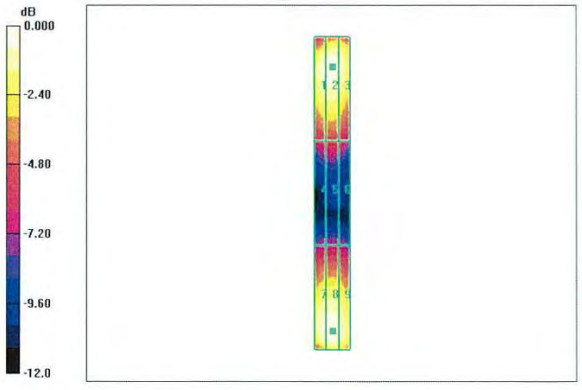
Device Reference Point: 0.000, 0.000, -6.30 mm

Reference Value = 103.6 V/m; Power Drift = -0.032 dB

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

Peak E-field in V/m

Grid 1 **153.4 M4**	Grid 2 **157.0 M4**	Grid 3 **152.7 M4**
Grid 4 **85.7 M4**	Grid 5 **87.5 M4**	Grid 6 **84.0 M4**
Grid 7 **154.9 M4**	Grid 8 **159.6 M4**	Grid 9 **153.9 M4**



0 dB = 159.6V/m

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

S Schweizerischer Kalibrierdienst
C Service suisse d'étalonnage
S 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

Client ATL (Auden)

Certificate No: CD1880V3-1036_Jul09

CALIBRATION CERTIFICATE

Object	CD1880V3 - SN: 1036
Calibration procedure(s)	QA CAL-20.v4 Calibration procedure for dipoles in air
Calibration date:	July 15, 2009
Condition of the calibrated item	In Tolerance

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	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter EPM-442A	GB37480704	08-Oct-08 (No. 217-00898)	Oct-09
Power sensor HP 8481A	US37292783	08-Oct-08 (No. 217-00898)	Oct-09
Probe ER3DV6	SN: 2336	22-Dec-08 (No. ER3-2336_Dec08)	Dec-09
Probe H3DV6	SN: 6065	22-Dec-08 (No. H3-6065_-Dec08)	Dec-09
DAE4	SN 781	20-Feb-09 (No. DAE4-781_Feb09)	Feb-10

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power meter R&S NRP	SN: 101748	23-Sep-08 (in house check Dec-08)	In house check: Dec-10
Power sensor R&S NRP-Z91	SN: 100711	25-Aug-08 (in house check Dec-08)	In house check: Dec-10
Power sensor R&S NRP-Z91	SN: 100712	25-Aug-08 (in house check Dec-08)	In house check: Dec-10
Network Analyzer HP 8753E	US37390585	18-Oct-01 (in house check Oct-08)	In house check: Oct-09
RF generator E4433B	MY 41310391	22-Nov-04 (in house check Oct-07)	In house check: Oct-09

	Name	Function	Signature
Calibrated by:	Mike Meili	Laboratory Technician	
Approved by:	Fin Bomholt	Technical Director	

Issued: July 16, 2009

References

[1] ANSI-C63.19-2006
American National Standard for Methods of Measurement of Compatibility between Wireless Communications Devices and Hearing Aids.

[2] ANSI-C63.19-2007
American National Standard for Methods of Measurement of Compatibility between Wireless Communications Devices and Hearing Aids.

Methods Applied and Interpretation of Parameters:

- *Coordinate System:* y-axis is in the direction of the dipole arms. z-axis is from the basis of the antenna (mounted on the table) towards its feed point between the two dipole arms. x-axis is normal to the other axes. In coincidence with the standards [1, 2], the measurement planes (probe sensor center) are selected to be at a distance of 10 mm above the top edge of the dipole arms.
- *Measurement Conditions:* Further details are available from the hardcopies at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated. The forward power to the dipole connector is set with a calibrated power meter connected and monitored with an auxiliary power meter connected to a directional coupler. While the dipole under test is connected, the forward power is adjusted to the same level.
- *Antenna Positioning:* The dipole is mounted on a HAC Test Arch phantom using the matching dipole positioner with the arms horizontal and the feeding cable coming from the floor. The measurements are performed in a shielded room with absorbers around the setup to reduce the reflections.
  It is verified before the mounting of the dipole under the Test Arch phantom, that its arms are perfectly in a line. It is installed on the HAC dipole positioner with its arms parallel below the dielectric reference wire and able to move elastically in vertical direction without changing its relative position to the top center of the Test Arch phantom. The vertical distance to the probe is adjusted after dipole mounting with a DASY4 Surface Check job. Before the measurement, the distance between phantom surface and probe tip is verified. The proper measurement distance is selected by choosing the matching section of the HAC Test Arch phantom with the proper device reference point (upper surface of the dipole) and the matching grid reference point (tip of the probe) considering the probe sensor offset. The vertical distance to the probe is essential for the accuracy.
- *Feed Point Impedance and Return Loss:* These parameters are measured using a HP 8753E Vector Network Analyzer. The impedance is specified at the SMA connector of the dipole. The influence of reflections was eliminating by applying the averaging function while moving the dipole in the air, at least 70cm away from any obstacles.
- *E- field distribution:* E field is measured in the x-y-plane with an isotropic ER3D-field probe with 100 mW forward power to the antenna feed point. In accordance with [1, 2], the scan area is 20mm wide, its length exceeds the dipole arm length (180 or 90mm). The sensor center is 10 mm (in z) above the top of the dipole arms. Two 3D maxima are available near the end of the dipole arms. Assuming the dipole arms are perfectly in one line, the average of these two maxima (in subgrid 2 and subgrid 8) is determined to compensate for any non-parallelity to the measurement plane as well as the sensor displacement. The E-field value stated as calibration value represents the maximum of the interpolated 3D-E-field, 10mm above the dipole surface.
- *H-field distribution:* H-field is measured with an isotropic H-field probe with 100mW forward power to the antenna feed point, in the x-y-plane. The scan area and sensor distance is equivalent to the E-field scan. The maximum of the field is available at the center (subgrid 5) above the feed point. The H-field value stated as calibration value represents the maximum of the interpolated H-field, 10mm above the dipole surface at the feed point.

1. Measurement Conditions

DASY system configuration, as far as not given on page 1.

DASY Version	DASY4	V4.7 B80
DASY PP Version	SEMCAD	V1.8 B186
Phantom	HAC Test Arch	SD HAC P01 BA, #1070
Distance Dipole Top - Probe Center	10 mm	
Scan resolution	dx, dy = 5 mm	area = 20 x 90 mm
Frequency	**1880 MHz** ± 1 MHz	
Forward power at dipole connector	20.0 dBm = 100mW	
Input power drift	< 0.05 dB	

2. Maximum Field values

H-field 10 mm above dipole surface	condition	**Interpolated maximum**
Maximum measured	100 mW forward power	**0.474 A/m**

Uncertainty for H-field measurement: 8.2% (k=2)

E-field 10 mm above dipole surface	condition	**Interpolated maximum**
Maximum measured above high end	100 mW forward power	137.5 V/m
Maximum measured above low end	100 mW forward power	136.8 V/m
Averaged maximum above arm	100 mW forward power	**137.2 V/m**

Uncertainty for E-field measurement: 12.8% (k=2)

3. Appendix

3.1 Antenna Parameters

Frequency	**Return Loss**	**Impedance**
1710 MHz	20.0 dB	(50.0 + j10.1) Ohm
1880 MHz	**22.0 dB**	**(52.5 + j7.8) Ohm**
1900 MHz	22.1 dB	(54.9 + j6.6) Ohm
1950 MHz	32.1 dB	(52.4 – j0.8) Ohm
2000 MHz	20.3 dB	(41.4 + j2.1) Ohm

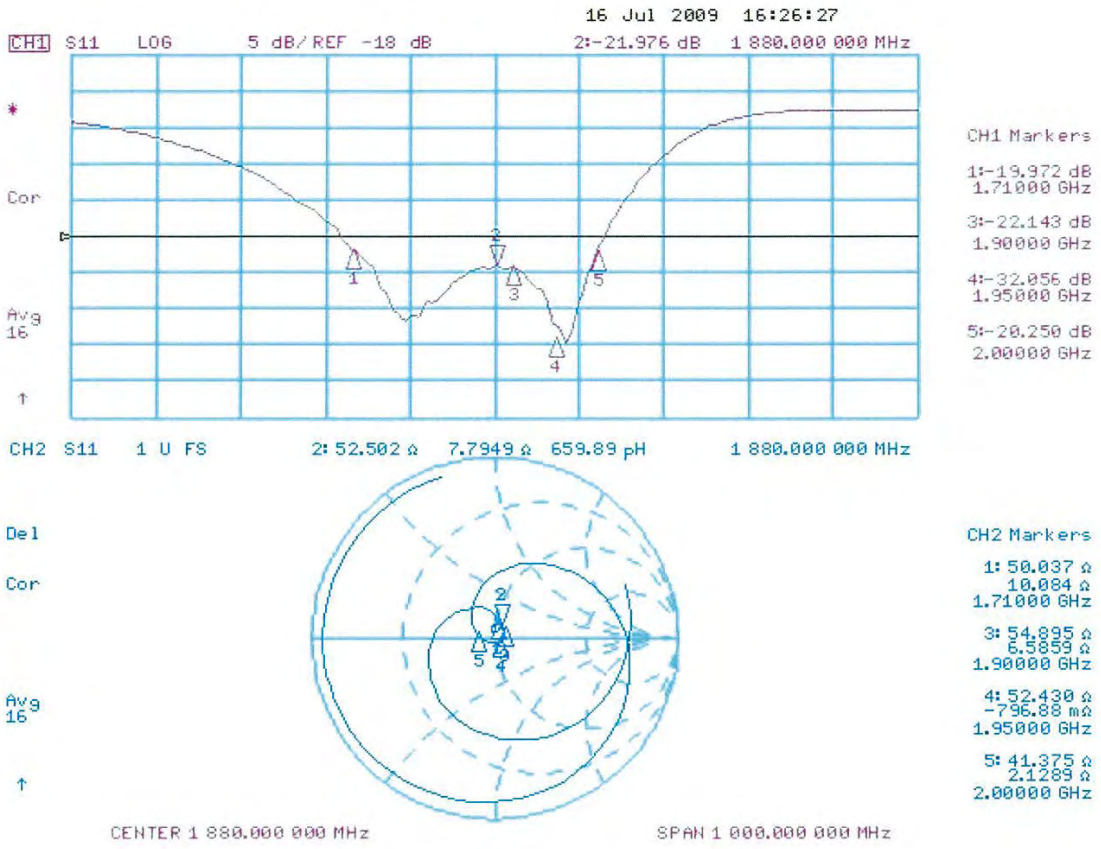
3.2 Antenna Design and Handling

The calibration dipole has a symmetric geometry with a built-in two stub matching network, which leads to the enhanced bandwidth.
The dipole is built of standard semirigid coaxial cable. The internal matching line is open ended. The antenna is therefore open for DC signals.
Do not apply force to dipole arms, as they are liable to bend. The soldered connections near the feedpoint may be damaged. After excessive mechanical stress or overheating, check the impedance characteristics to ensure that the internal matching network is not affected.

After long term use with 40W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

3.3 Measurement Sheets

3.3.1 Return Loss and Smith Chart



3.3.2 DASY4 H-Field Result

Date/Time: 15.07.2009 13:38:53

Test Laboratory: SPEAG Lab 2

DUT: HAC Dipole 1880 MHz; Type: CD1880V3; Serial: 1036
Communication System: CW; Frequency: 1880 MHz; Duty Cycle: 1:1
Medium parameters used: $\sigma = 0$ mho/m, $\varepsilon_r = 1$; $\rho = 1$ kg/m^3
Phantom section: RF Section
Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: H3DV6 - SN6065; ; Calibrated: 22.12.2008
- Sensor-Surface: (Fix Surface)
- Electronics: DAE4 Sn781; Calibrated: 20.02.2009
- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA; Serial: 1070
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

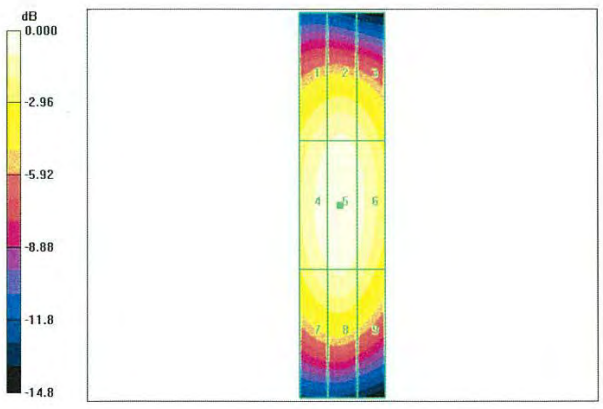
H Scan - measurement distance from the probe sensor center to CD1880 Dipole = 10mm/Hearing Aid Compatibility Test (41x181x1):

Measurement grid: dx=5mm, dy=5mm
Maximum value of peak Total field = 0.474 A/m
Probe Modulation Factor = 1.00
Device Reference Point: 0.000, 0.000, -6.30 mm
Reference Value = 0.503 A/m; Power Drift = -0.028 dB

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

Peak H-field in A/m

Grid 1 **0.417** **M2**	Grid 2 **0.435** **M2**	Grid 3 **0.410** **M2**
Grid 4 **0.456** **M2**	Grid 5 **0.474** **M2**	Grid 6 **0.445** **M2**
Grid 7 **0.417** **M2**	Grid 8 **0.433** **M2**	Grid 9 **0.401** **M2**



0 dB = 0.474A/m

3.3.3 DASY4 E-Field Result

Date/Time: 15.07.2009 11:02:06

Test Laboratory: SPEAG Lab 2

DUT: HAC Dipole 1880 MHz; Type: CD1880V3; Serial: 1036
Communication System: CW; Frequency: 1880 MHz; Duty Cycle: 1:1
Medium parameters used: $\sigma = 0$ mho/m, $\varepsilon_r = 1$; $\rho = 1000$ kg/m^3
Phantom section: RF Section
Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

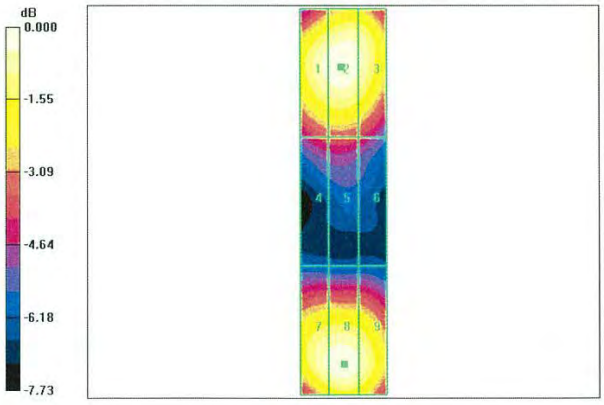
- Probe: ER3DV6 - SN2336; ConvF(1, 1, 1); Calibrated: 22.12.2008
- Sensor-Surface: (Fix Surface)
- Electronics: DAE4 Sn781; Calibrated: 20.02.2009
- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA; Serial: 1070
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

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 = 137.5 V/m
Probe Modulation Factor = 1.00
Device Reference Point: 0.000, 0.000, -6.30 mm
Reference Value = 154.7 V/m; Power Drift = -0.013 dB
Hearing Aid Near-Field Category: M2 (AWF 0 dB)

Peak E-field in V/m

Grid 1 **133.3** **M2**	Grid 2 **136.8** **M2**	Grid 3 **131.9** **M2**
Grid 4 **90.2** **M3**	Grid 5 **91.9** **M3**	Grid 6 **87.1** **M3**
Grid 7 **132.6** **M2**	Grid 8 **137.5** **M2**	Grid 9 **131.3** **M2**



0 dB = 137.5V/m