



HAC RF TEST REPORT

No. 2011HAC00029

For

TCT Mobile Limited

HSDPA/UMTS dual band / GSM quad bands mobile phone

Tequila AWS

one touch 909S

With

Hardware Version: PIO

Software Version: V942

FCCID: RAD183

Results Summary: M Category = M4 (for WCDMA 1700)

M Category = M3 (for GSM 850/1900)

Issued Date: 2011-09-02



No. DGA-PL-114/01-02

Note:

The test results in this test report relate only to the devices specified in this report. This report shall not be reproduced except in full without the written approval of TMC Beijing.

Test Laboratory:

TMC Beijing, Telecommunication Metrology Center of MIIT

No. 52, Huayuan Bei Road, Haidian District, Beijing, P. R. China 100191.

Tel: +86(0)10-62304633-2079, Fax: +86(0)10-62304793 Email: welcome@emcite.com. www.emcite.com

TABLE OF CONTENT

1 TEST LABORATORY	3
1.1 TESTING LOCATION	3
1.2 TESTING ENVIRONMENT	3
1.3 PROJECT DATA.....	3
1.4 SIGNATURE.....	3
2 CLIENT INFORMATION	4
2.1 APPLICANT INFORMATION	4
2.2 MANUFACTURER INFORMATION	4
3 EQUIPMENT UNDER TEST (EUT) AND ANCILLARY EQUIPMENT (AE).....	4
3.1 ABOUT EUT	4
3.2 INTERNAL IDENTIFICATION OF EUT USED DURING THE TEST	4
3.3 INTERNAL IDENTIFICATION OF AE USED DURING THE TEST	4
4 CONDUCTED OUTPUT POWER MEASUREMENT	5
4.1 SUMMARY	5
4.2 CONDUCTED POWER	5
5. REFERENCE DOCUMENTS	5
5.1 REFERENCE DOCUMENTS FOR TESTING	5
6 OPERATIONAL CONDITIONS DURING TEST	5
6.1 HAC MEASUREMENT SET-UP	5
6.2 PROBE SPECIFICATION	6
6.3 TEST ARCH PHANTOM & PHONE POSITIONER	7
6.4 ROBOTIC SYSTEM SPECIFICATIONS	8
7 EUT ARRANGEMENT	8
7.1 WD RF EMISSION MEASUREMENTS REFERENCE AND PLANE.....	8
8 SYSTEM VALIDATION	9
8.1 VALIDATION PROCEDURE	9
8.2 VALIDATION RESULT	10
9 PROBE MODULATION FACTOR.....	10
9.1 MODULATION FACTOR TEST PROCEDURE.....	11
9.2 MODULATION FACTOR	11
10 RF TEST PROCEDURES.....	12
11 HAC RF TEST DATA SUMMARY	13
11.1 MEASUREMENT RESULTS (E-FIELD)	13
11.2 MEASUREMENT RESULTS (H-FIELD)	13
11.3 TOTAL M-RATING	14
12 ANSI C 63.19-2007 LIMITS	14
13 MEASUREMENT UNCERTAINTY	15
14 MAIN TEST INSTRUMENTS.....	16
15 CONCLUSION	16
ANNEX A TEST LAYOUT	17
ANNEX B TEST PLOTS	18
ANNEX C SYSTEM VALIDATION RESULT	42
ANNEX D PROBE CALIBRATION CERTIFICATE.....	46

1 Test Laboratory

1.1 Testing Location

Company Name: TMC Beijing, Telecommunication Metrology Center of MIIT
Address: No 52, Huayuan beilu, Haidian District, Beijing, P.R.China
Postal Code: 100191
Telephone: +86-10-62304633
Fax: +86-10-62304793

1.2 Testing Environment

Temperature: 18°C~25 °C,
Relative humidity: 30%~ 70%
Ground system resistance: < 0.5 Ω

Ambient noise is checked and found very low and in compliance with requirement of standards.
Reflection of surrounding objects is minimized and in compliance with requirement of standards.

1.3 Project Data

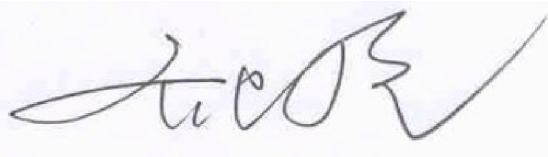
Project Leader: Qi Dianyuan
Test Engineer: Lin Hao
Testing Start Date: July 28, 2011
Testing End Date: July 28, 2011

1.4 Signature



Lin Hao

(Prepared this test report)



Qi Dianyuan

(Reviewed this test report)



Xiao Li

Deputy Director of the laboratory
(Approved this test report)

2 Client Information

2.1 Applicant Information

Company Name: TCT Mobile Limited
Address /Post: 5F, E building, No. 232, Liang Jing Road ZhangJiang High-Tech Park,
Pudong Area Shanghai, P.R. China. 201203
City: Shanghai
Postal Code: 201203
Contact Person: Gong Zhizhou
Email: zhizhou.gong@jrdcom.com
Country: P. R. China
Telephone: 0086-21-61460890
Fax: 0086-21-61460602

2.2 Manufacturer Information

Company Name: TCT Mobile Limited
Address /Post: 5F, E building, No. 232, Liang Jing Road ZhangJiang High-Tech Park,
Pudong Area Shanghai, P.R. China. 201203
City: Shanghai
Postal Code: 201203
Contact Person: Gong Zhizhou
Email: zhizhou.gong@jrdcom.com
Country: P. R. China
Telephone: 0086-21-61460890
Fax: 0086-21-61460602

3 Equipment Under Test (EUT) and Ancillary Equipment (AE)

3.1 About EUT

EUT Description: HSDPA/UMTS dual band / GSM quad bands mobile phone
Model Name: Tequila AWS
Marketing Name: one touch 909S
Frequency Band: GSM 850/1900; WCDMA 1700

3.2 Internal Identification of EUT used during the test

EUT ID*	SN or IMEI	HW Version	SW Version
EUT1	012718000003858	PIO	V942

*EUT ID: is used to identify the test sample in the lab internally.

3.3 Internal Identification of AE used during the test

AE ID*	Description	Model	SN	Manufacturer
AE1	Battery	CAB31P0000C1	/	BYD

*AE ID: is used to identify the test sample in the lab internally

4 CONDUCTED OUTPUT POWER MEASUREMENT

4.1 Summary

During the process of testing, the EUT was controlled via Rhode & Schwarz Digital Radio Communication tester (CMU-200) to ensure the maximum power transmission and proper modulation. This result contains conducted output power for the EUT. In all cases, the measured output power should be greater and within 5% than EMI measurement.

4.2 Conducted Power

GSM 850MHz	Conducted Power (dBm)		
	Channel 251(848.8MHz)	Channel 190(836.6MHz)	Channel 128(824.2MHz)
	32.79	32.87	32.97
GSM 1900MHz	Conducted Power (dBm)		
	Channel 810(1909.8MHz)	Channel 661(1880MHz)	Channel 512(1850.2MHz)
	29.62	29.72	29.80
WCDMA 1700MHz	Conducted Power (dBm)		
	Channel 1513(1752.6MHz)	Channel 1412(1732.4MHz)	Channel 1312(1712.4MHz)
	23.00	22.87	23.43

5. Reference Documents

5.1 Reference Documents for testing

The following document listed in this section is referred for testing.

Reference	Title	Version
ANSI C63.19-2007	American National Standard for Methods of Measurement of Compatibility between Wireless Communication Devices and Hearing Aids	2007 Edition

6 OPERATIONAL CONDITIONS DURING TEST

6.1 HAC MEASUREMENT SET-UP

These measurements are performed using the DASY5 NEO automated dosimetric assessment system. It is made by Schmid & Partner Engineering AG (SPEAG) in Zurich, Switzerland. It consists of high precision robotics system (Stäubli), robot controller, Intel Core2 computer, near-field probe, probe alignment sensor. The robot is a six-axis industrial robot performing precise movements. A cell controller system contains the power supply, robot controller, teach pendant (Joystick), and remote control, is used to drive the robot motors. The PC consists of the HP Intel Core2 1.86 GHz computer with Windows XP system and HAC Measurement Software DASY5 NEO, A/D interface card, monitor, mouse, and keyboard. The Stäubli Robot is connected to the cell controller to allow software manipulation of the robot. A data acquisition electronic (DAE) circuit performs the signal amplification, signal multiplexing, AD-conversion, offset measurements,

mechanical surface detection, collision detection, etc. is connected to the Electro-optical coupler (EOC). The EOC performs the conversion from the optical into digital electric signal of the DAE and transfers data to the PC plug-in card.

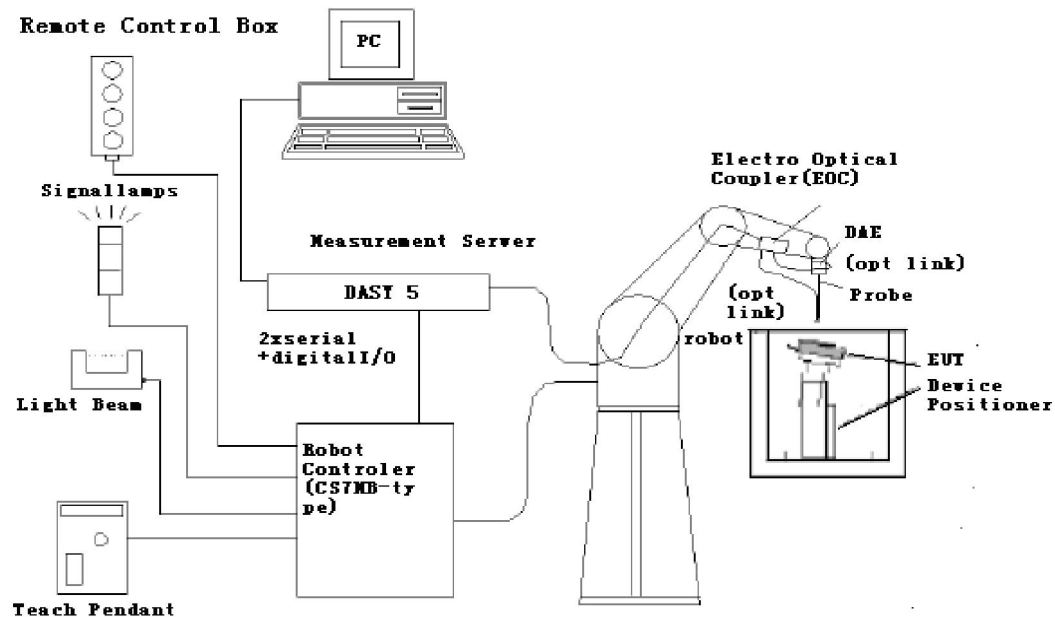


Fig. 1 HAC Test Measurement Set-up

The DAE4 consists of a highly sensitive electrometer-grade preamplifier with auto-zeroing, a channel and gain-switching multiplexer, a fast 16 bit AD-converter and a command decoder and control logic unit. Transmission to the PC-card is accomplished through an optical downlink for data and status information and an optical uplink for commands and clock lines. The mechanical probe mounting device includes two different sensor systems for frontal and sidewise probe contacts. They are also used for mechanical surface detection and probe collision detection. The robot uses its own controller with a built in VME-bus computer.

6.2 Probe Specification

6.2.1 E-Field Probe Description

Construction	One dipole parallel, two dipoles normal to probe axis Built-in shielding against static charges PEEK enclosure material
Calibration	In air from 100 MHz to 3.0 GHz (absolute accuracy $\pm 6.0\%$, $k=2$)
Frequency	40 MHz to > 6 GHz (can be extended to < 20 MHz) Linearity: ± 0.2 dB (100 MHz to 3 GHz)
Directivity	± 0.2 dB in air (rotation around probe axis) ± 0.4 dB in air (rotation normal to probe axis)
Dynamic Range	2 V/m to > 1000 V/m; Linearity: ± 0.2 dB



[ER3DV6]

Dimensions	Overall length: 330 mm (Tip: 16 mm)
	Tip diameter: 8 mm (Body: 12 mm)
	Distance from probe tip to dipole centers: 2.5 mm
Application	General near-field measurements up to 6 GHz
	Field component measurements
	Fast automatic scanning in phantoms

6.2.2 H-Field Probe Description

Construction	Three concentric loop sensors with 3.8 mm loop diameters
	Resistively loaded detector diodes for linear response
	Built-in shielding against static charges
	PEEK enclosure material (resistant to organic solvents, e.g., glycolether)
Frequency	200 MHz to 3 GHz (absolute accuracy $\pm 6.0\%$, $k=2$); Output linearized
Directivity	± 0.2 dB (spherical isotropy error)
Dynamic Range	10 mA/m to 2 A/m at 1 GHz
E-Field Interference	< 10% at 3 GHz (for plane wave)
Dimensions	Overall length: 330 mm (Tip: 40 mm)
	Tip diameter: 6 mm (Body: 12 mm)
	Distance from probe tip to dipole centers: 3 mm
Application	General magnetic near-field measurements up to 3 GHz (in air or liquids)
	Field component measurements
	Surface current measurements
	Low interaction with the measured field



[H3DV6]

6.3 Test Arch Phantom & Phone Positioner

The Test Arch phantom should be positioned horizontally on a stable surface. Reference markings on the Phantom allow the complete setup of all predefined phantom positions and measurement grids by manually teaching three points in the robot. It enables easy and well defined positioning of the phone and validation dipoles as well as simple teaching of the robot (Dimensions: 370 x 370 x 370 mm).

The Phone Positioner supports accurate and reliable positioning of any phone with effect on near field $< \pm 0.5$ dB.

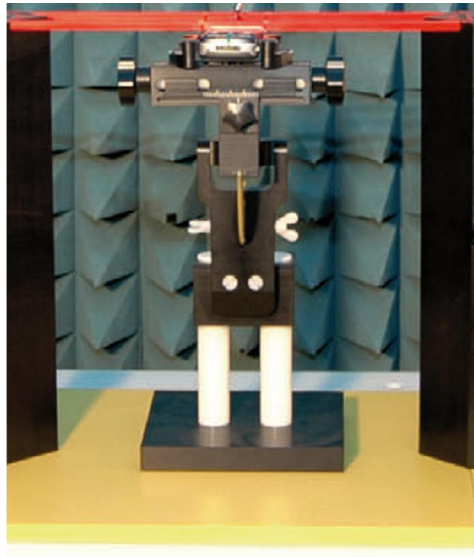


Fig. 2 HAC Phantom & Device Holder

6.4 Robotic System Specifications

Specifications

Positioner: Stäubli Unimation Corp. Robot Model: RX160L

Repeatability: ± 0.02 mm

No. of Axis: 6

Data Acquisition Electronic (DAE) System

Cell Controller

Processor: Intel Core2

Clock Speed: 1.86 GHz

Operating System: Windows XP

Data Converter

Features: Signal Amplifier, multiplexer, A/D converter, and control logic

Software: DASY5 software

Connecting Lines: Optical downlink for data and status info.

Optical uplink for commands and clock

7 EUT ARRANGEMENT

7.1 WD RF Emission Measurements Reference and Plane

Figure 4 illustrates the references and reference plane that shall be used in the WD emissions measurement.

- The grid is 5 cm by 5 cm area that is divided into 9 evenly sized blocks or sub-grids.
- The grid is centered on the audio frequency output transducer of the WD (speaker or T-coil).
- The grid is located by reference to a reference plane. This reference plane is the planar area that contains the highest point in the area of the WD that normally rests against the user's ear
- The measurement plane is located parallel to the reference plane and 15 mm from it, out from the phone. The grid is located in the measurement plane.

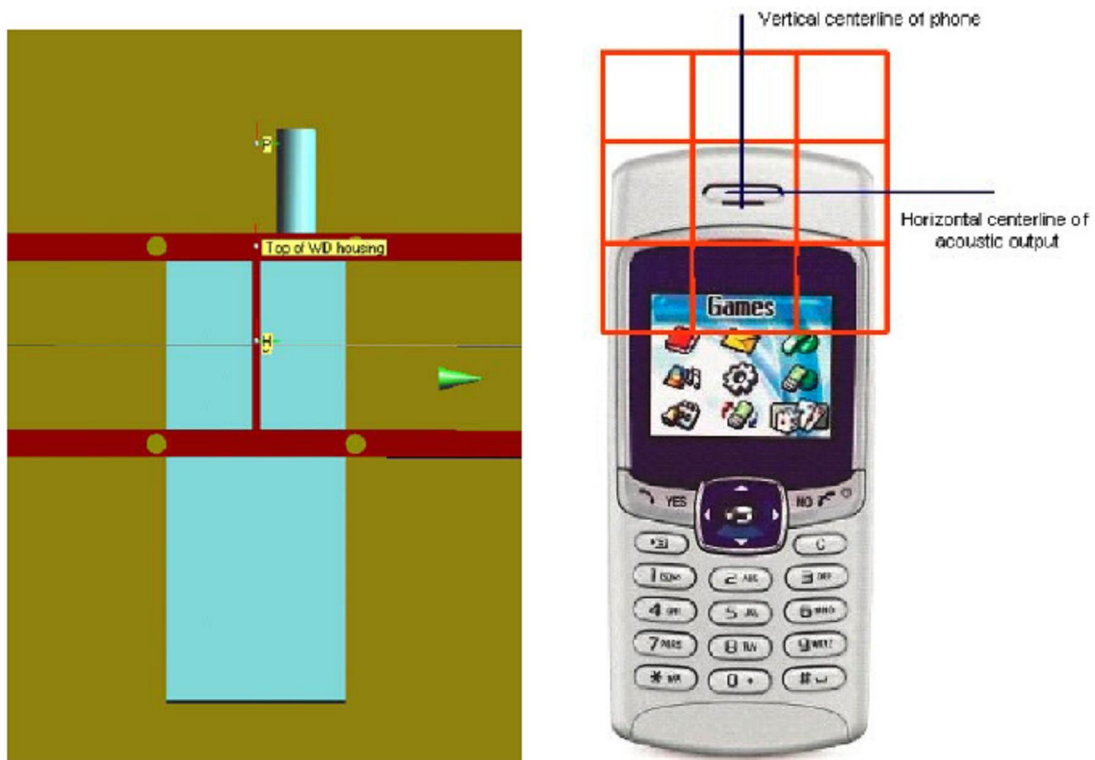


Fig. 3 WD reference and plane for RF emission measurements

8 SYSTEM VALIDATION

8.1 Validation Procedure

Place a dipole antenna meeting the requirements given in ANSI C63.19 D.5 in the position normally occupied by the WD. The dipole antenna serves as a known source for an electrical and magnetic output. Position the E-field and H-field probes so that:

- The probes and their cables are parallel to the coaxial feed of the dipole antenna
- The probe cables and the coaxial feed of the dipole antenna approach the measurement area from opposite directions
- The center point of the probe element(s) are 10 mm from the closest surface of the dipole elements.

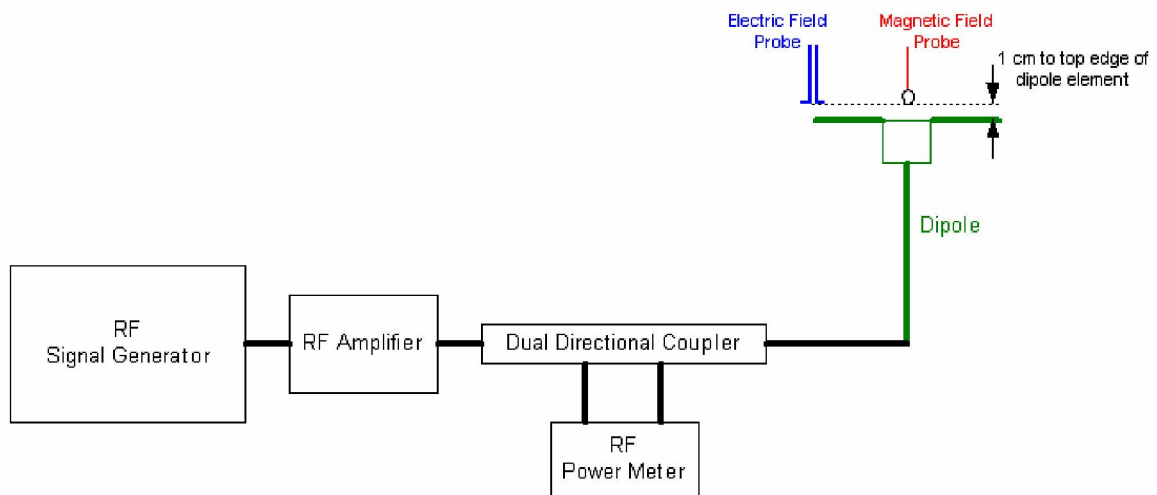


Fig. 4 Dipole Validation Setup

8.2 Validation Result

E-Field Scan							
Mode	Frequency (MHz)	Input Power (mW)	Power	Measured ¹ Value(V/m)	Target ² Value(V/m)	Deviation ³ (%)	Limit ⁴ (%)
CW	835	100		170.5	163.9	+4.03%	± 25
CW	1880	100		133.8	137.7	-2.98%	± 25
H-Field Scan							
Mode	Frequency (MHz)	Input Power (mW)	Power	Measured Value(A/m)	Target Value(A/m)	Deviation (%)	Limit (%)
CW	835	100		0.442	0.458	-3.49%	± 25
CW	1880	100		0.450	0.463	-2.81%	± 25

Notes:

- Please refer to the attachment for detailed measurement data and plot.
- Target value is provided by SPEAD in the calibration certificate of specific dipoles.
- Deviation (%) = 100 * (Measured value minus Target value) divided by Target value.
- ANSI C63.19 requires values within ± 25% are acceptable, of which 12% is deviation and 13% is measurement uncertainty. Values independently validated for the dipole actually used in the measurements should be used, when available.

9 Probe Modulation Factor

The Probe Modulation Factor (PMF) is defined as the ratio of the field readings for a CW and a modulated signal with the equivalent Field Envelope Peak as defined in ANSI C63.19 (Chapter C.3.1). Calibration shall be made of the modulation response of the probe and its instrumentation chain. This Calibration shall be performed with the field probe, attached to the instrumentation that is to be used with it during the measurement. 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. The field level of the test signals shall be more than 10dB above the ambient level and

the noise floor of the instrumentation being used. The ratio of the CW reading to that taken with a modulated field shall be applied to the readings taken of modulated fields of the specified type.

9.1 Modulation Factor Test Procedure

This may be done using the following procedure:

1. Fix the field probe in a set location relative to a field generating device, such as the reference dipole antenna, as illustrated in Figure 6.
2. Illuminate the probe using the wireless device connected to the reference dipole with a test signal at the intended measurement frequency. Ensure there is sufficient field coupling between the probe and the antenna so the resulting reading is greater than 10 dB above the probe system noise floor but within the systems operating range.
3. Record the amplitude applied to the antenna during transmission and the field strength measured by the E-field probe located near the tip of the dipole antenna
4. Replace the wireless device with an RF signal generator producing an unmodulated CW signal and set to the wireless device operating frequency.
5. Set the amplitude of the unmodulated signal to equal that recorded from the wireless device.
6. Record the reading of the probe measurement system of the unmodulated signal.
7. The ratio, in linear units, of the probe reading in Step 6) to the reading in Step 3) is the E-field modulation factor. $PMF_E = E_{CW} / E_{mod}$ ($PMF_H = H_{CW} / H_{mod}$)
8. Repeat the previous steps using the H-field probe, except locate the probe at the center of the dipole.

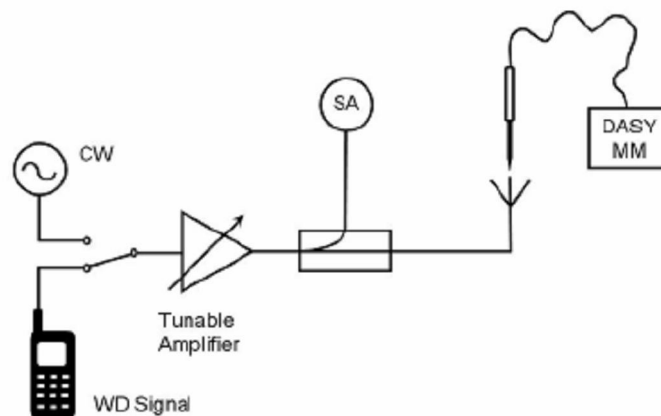


Fig. 5 Probe Modulation Factor Test Setup

9.2 Modulation Factor

9.2.1 E-Field

Frequency (MHz)	Mode	Input Power (mW)	E-Field Measured Value (V/m)	Probe Modulation Factor
835	CW	100	163.9	\
	WCDMA	100	173.9	1.00
	GSM	100	60.2	2.88
1880	CW	100	137.7	\
	WCDMA	100	134.8	1.00
	GSM	100	46.6	2.88

9.2.2 H-Field

Frequency (MHz)	Mode	Input Power (mW)	H-Field Measured Value (A/m)	Probe Modulation Factor
835	CW	100	0.458	\
	WCDMA	100	0.425	1.00
	GSM	100	0.147	2.88
1880	CW	100	0.463	\
	WCDMA	100	0.411	1.00
	GSM	100	0.143	2.88

10 RF TEST PROCEDURES

The evaluation was performed with the following procedure:

- 1) Confirm proper operation of the field probe, probe measurement system and other instrumentation and the positioning system.
- 2) Position the WD in its intended test position. The gauge block can simplify this positioning. Note that a separate E-field and H-field gauge block will be needed if the center of the probe sensor elements are at different distances from the tip of the probe.
- 3) Configure the WD normal operation for maximum rated RF output power, at the desired channel and other operating parameters (e.g., test mode), as intended for the test.
- 4) The center sub-grid shall centered on the center of the T-Coil mode axial measurement point or the acoustic output, as appropriate. Locate the field probe at the initial test position in the 50 mm by 50 mm grid, which is contained in the measurement plane. If the field alignment method is used, align the probe for maximum field reception.
- 5) Record the reading.
- 6) Scan the entire 50 mm by 50 mm region in equally spaced increments and record the reading at each measurement point. The distance between measurement points shall be sufficient to assure the identification of the maximum reading.
- 7) Identify the five contiguous sub-grids around the center sub-grid with the lowest maximum field strength readings. Thus the six areas to be used to determine the WD's highest emissions are identified and outlined for the final manual scan. Please note that a maximum of five blocks can be excluded for both E-field and H-field measurements for the WD output being measured. Stated another way, the center sub-grid and three others must be common to both the E-field and H-field measurements.
- 8) Identify the maximum field reading within the non-excluded sub-grids identified in Step 7)
- 9) Convert the maximum field strength reading identified in Step 8) to V/m or A/m, as appropriate. For probes which require a probe modulation factor, this conversion shall be done using the appropriate probe modulation factor and the calibration.
- 10) Repeat Step 1) through Step 10) for both the E-field and H-field measurements.
- 11) Compare this reading to the categories in ANSI C63.19 Clause 7 and record the resulting category. The lowest category number listed in 7.2, Table 7.4, or Table 7.5 obtained in Step 10) for either E- or H-field determines the M category for the audio coupling mode assessment. Record the WD category rating.

11 HAC RF TEST DATA SUMMARY

11.1 Measurement Results (E-Field)

Frequency		AWF	Measured Value (V/m)	Power Drift (dB)	Category
MHz	Channel				
GSM 850					
848.8	251	-5	206.4	0.038	M3(see Fig B.1)
836.6	190	-5	206.4	-0.048	M3(see Fig B.2)
824.2	128	-5	206.7	0.101	M3(see Fig B.3)
GSM 1900					
1909.8	810	-5	75.4	0.019	M3(see Fig B.4)
1880	661	-5	78.6	0.068	M3(see Fig B.5)
1850.2	512	-5	68.2	0.014	M3(see Fig B.6)
WCDMA 1700					
1752.6	1513	0	34.4	0.011	M4(see Fig B.7)
1732.4	1412	0	33.6	-0.073	M4(see Fig B.8)
1712.4	1312	0	33.5	0.011	M4(see Fig B.9)

11.2 Measurement Results (H-Field)

Frequency		AWF	Measured Value (A/m)	Power Drift (dB)	Category
MHz	Channel				
GSM 850					
848.8	251	-5	0.320	-0.043	M4(see Fig B.10)
836.6	190	-5	0.319	-0.093	M4(see Fig B.11)
824.2	128	-5	0.320	-0.035	M4(see Fig B.12)
GSM 1900					
1909.8	810	-5	0.221	-0.00128	M3(see Fig B.13)
1880	661	-5	0.232	-0.00941	M3(see Fig B.14)
1850.2	512	-5	0.221	-0.020	M3(see Fig B.15)
WCDMA 1700					
1752.6	1513	0	0.086	0.055	M4(see Fig B.16)
1732.4	1412	0	0.087	0.020	M4(see Fig B.17)
1712.4	1312	0	0.093	-0.043	M4(see Fig B.18)

11.3 Total M-rating

Mode	Maximum value of peak Total E-Field (V/m)	Maximum value of peak Total H-Field (A/m)	E-Field M Rating	H-Field M Rating	Total M Rating
GSM 850	206.7	0.320	M3 (AWF -5 dB)	M4 (AWF -5 dB)	M3 (see Fig B.19)
GSM 1900	75.4	0.232	M3 (AWF -5 dB)	M3 (AWF -5 dB)	M3 (see Fig B.20)
WCDMA 1700	34.4	0.093	M4 (AWF 0 dB)	M4 (AWF 0 dB)	M4 (see Fig B.21)

12 ANSI C 63.19-2007 LIMITS

Table 1: Telephone near-field categories in linear units

Category		Telephone RF parameters < 960 MHz			
Near field	AWF	E-field emissions		H-field emissions	
Category M1/T1	0	631.0 to 1122.0	V/m	1.91 to 3.39	A/m
	-5	473.2 to 841.4	V/m	1.43 to 2.54	A/m
Category M2/T2	0	354.8 to 631.0	V/m	1.07 to 1.91	A/m
	-5	266.1 to 473.2	V/m	0.80 to 1.43	A/m
Category M3/T3	0	199.5 to 354.8	V/m	0.60 to 1.07	A/m
	-5	149.6 to 266.1	V/m	0.45 to 0.80	A/m
Category M4/T4	0	< 199.5	V/m	< 0.60	A/m
	-5	< 149.6	V/m	< 0.45	A/m
Category		Telephone RF parameters > 960 MHz			
Near field	AWF	E-field emissions		H-field emissions	
Category M1/T1	0	199.5 to 354.8	V/m	0.60 to 1.07	A/m
	-5	149.6 to 266.1	V/m	0.45 to 0.80	A/m
Category M2/T2	0	112.2 to 199.5	V/m	0.34 to 0.60	A/m
	-5	84.1 to 149.6	V/m	0.25 to 0.45	A/m
Category M3/T3	0	63.1 to 112.2	V/m	0.19 to 0.34	A/m
	-5	47.3 to 84.1	V/m	0.14 to 0.25	A/m
Category M4/T4	0	< 63.1	V/m	< 0.19	A/m
	-5	< 47.3	V/m	< 0.14	A/m

13 MEASUREMENT UNCERTAINTY

No.	Error source	Type	Uncertainty Value (%)	Prob. Dist.	k	c_i E	c_i \sqrt{H}	Standard Uncertainty (%) u_i (%) E	Standard Uncertainty (%) u_i (%) H	Degree of freedom V_{eff} or v_i
Measurement System										
1	Probe Calibration	B	5.	N	1	1	1	5.1	5.1	∞
2	Axial Isotropy	B	4.7	R	$\sqrt{3}$	1	1	2.7	2.7	∞
3	Sensor Displacement	B	16.5	R	$\sqrt{3}$	1	0.145	9.5	1.4	∞
4	Boundary Effects	B	2.4	R	$\sqrt{3}$	1	1	1.4	1.4	∞
5	Linearity	B	4.7	R	$\sqrt{3}$	1	1	2.7	2.7	∞
6	Scaling to Peak Envelope Power	B	2.0	R	$\sqrt{3}$	1	1	1.2	1.2	∞
7	System Detection Limit	B	1.0	R	$\sqrt{3}$	1	1	0.6	0.6	∞
8	Readout Electronics	B	0.3	N	1	1	1	0.3	0.3	∞
9	Response Time	B	0.8	R	$\sqrt{3}$	1	1	0.5	0.5	∞
10	Integration Time	B	2.6	R	$\sqrt{3}$	1	1	1.5	1.5	∞
11	RF Ambient Conditions	B	3.0	R	$\sqrt{3}$	1	1	1.7	1.7	∞
12	RF Reflections	B	12.0	R	$\sqrt{3}$	1	1	6.9	6.9	∞
13	Probe Positioner	B	1.2	R	$\sqrt{3}$	1	0.67	0.7	0.5	∞
14	Probe Positioning	A	4.7	R	$\sqrt{3}$	1	0.67	2.7	1.8	∞
15	Extra. And Interpolation	B	1.0	R	$\sqrt{3}$	1	1	0.6	0.6	∞
Test Sample Related										
16	Device Positioning Vertical	B	4.7	R	$\sqrt{3}$	1	0.67	2.7	1.8	∞
17	Device Positioning Lateral	B	1.0	R	$\sqrt{3}$	1	1	0.6	0.6	∞

18	Device Holder and Phantom	B	2.4	R	$\sqrt{3}$	1	1	1.4	1.4	∞
19	Power Drift	B	5.0	R	$\sqrt{3}$	1	1	2.9	2.9	∞
Phantom and Setup related										
20s	Phantom Thickness	B	2.4	R	$\sqrt{3}$	1	0.67	1.4	0.9	∞
Combined standard uncertainty(%)								14.7	10.9	
Expanded uncertainty (confidence interval of 95 %)		$u_e = 2u_c$		N	k=2			29.4	21.8	

14 MAIN TEST INSTRUMENTS

Table 2: List of Main Instruments

No.	Name	Type	Serial Number	Calibration Date	Valid Period
01	E-Field Probe	ER3DV6	2428	October 20, 2010	One year
02	H-Field Probe	H3DV6	6260	October 20, 2010	One year
03	HAC Dipole	CD835V3	1023	October 21, 2009	Two years
04	HAC Dipole	CD1880V3	1018	October 21, 2009	Two years
05	BTS	8960	MY48365192	November 18, 2010	One year
06	DAE	SPEAG DAE4	777	July 8, 2011	One year

15 CONCLUSION

The HAC measurement indicates that the EUT complies with the HAC limits of the ANSI C63.19-2007. The total M-ratings are **M4** for **WCDMA 1700**; and are **M3** for **GSM 850/1900**.

END OF REPORT BODY

ANNEX A TEST LAYOUT

Picture A1: HAC RF System Layout

ANNEX B TEST PLOTS

HAC RF E-Field GSM 850 High

Date/Time: 7/28/2011 2:56:02 PM

Electronics: DAE4 Sn777

Medium: Air

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

Ambient Temperature: 23.3°C Liquid Temperature: 22.5°C

Communication System: GSM 850; Frequency: 848.8 MHz; Duty Cycle: 1:8.3

Probe: ER3DV6 - SN2428; ConvF(1, 1, 1)

E Scan - ER3DV6 - 2007: 15 mm from Probe Center to the Device/Hearing Aid Compatibility Test (101x101x1): Measurement grid: dx=5mm, dy=5mm

Maximum value of peak Total field = 206.4 V/m

Probe Modulation Factor = 2.88

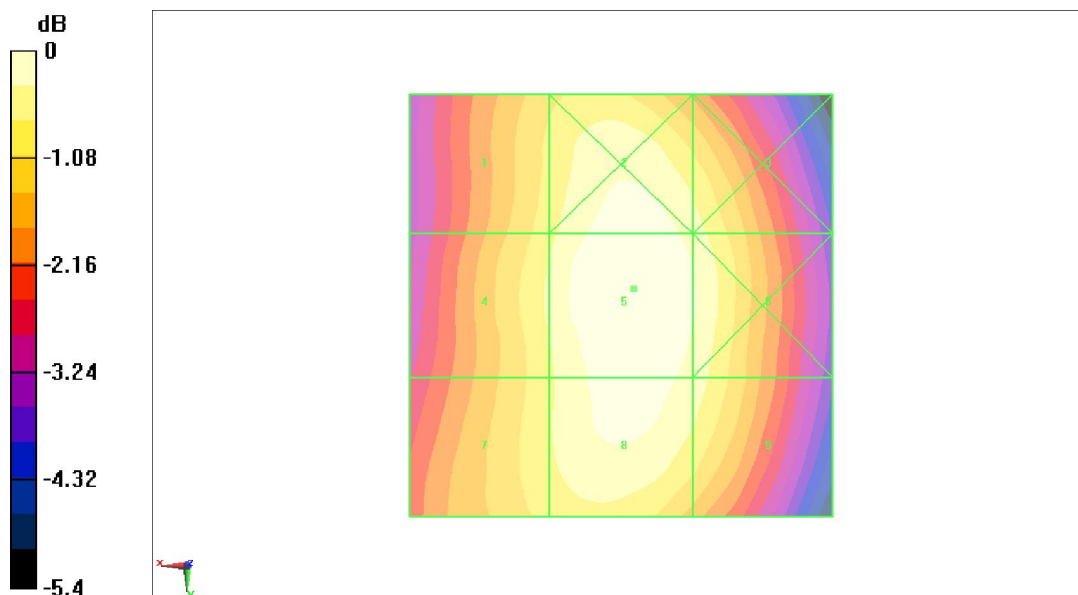
Device Reference Point: 0, 0, -6.3 mm

Reference Value = 94.2 V/m; Power Drift = 0.038 dB

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

Peak E-field in V/m

Grid 1 187.7 M3	Grid 2 202.8 M3	Grid 3 194.4 M3
Grid 4 191.6 M3	Grid 5 206.4 M3	Grid 6 199.2 M3
Grid 7 189.2 M3	Grid 8 202.1 M3	Grid 9 194.6 M3



0 dB = 206.4V/m

Fig B.1 HAC RF E-Field GSM 850 High

HAC RF E-Field GSM 850 Middle

Date/Time: 7/28/2011 3:01:35 PM

Electronics: DAE4 Sn777

Medium: Air

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

Ambient Temperature: 23.3°C Liquid Temperature: 22.5°C

Communication System: GSM 850; Frequency: 836.6 MHz; Duty Cycle: 1:8.3

Probe: ER3DV6 - SN2428; ConvF(1, 1, 1)

E Scan - ER3DV6 - 2007: 15 mm from Probe Center to the Device/Hearing Aid Compatibility Test (101x101x1): Measurement grid: dx=5mm, dy=5mm

Maximum value of peak Total field = 206.4 V/m

Probe Modulation Factor = 2.88

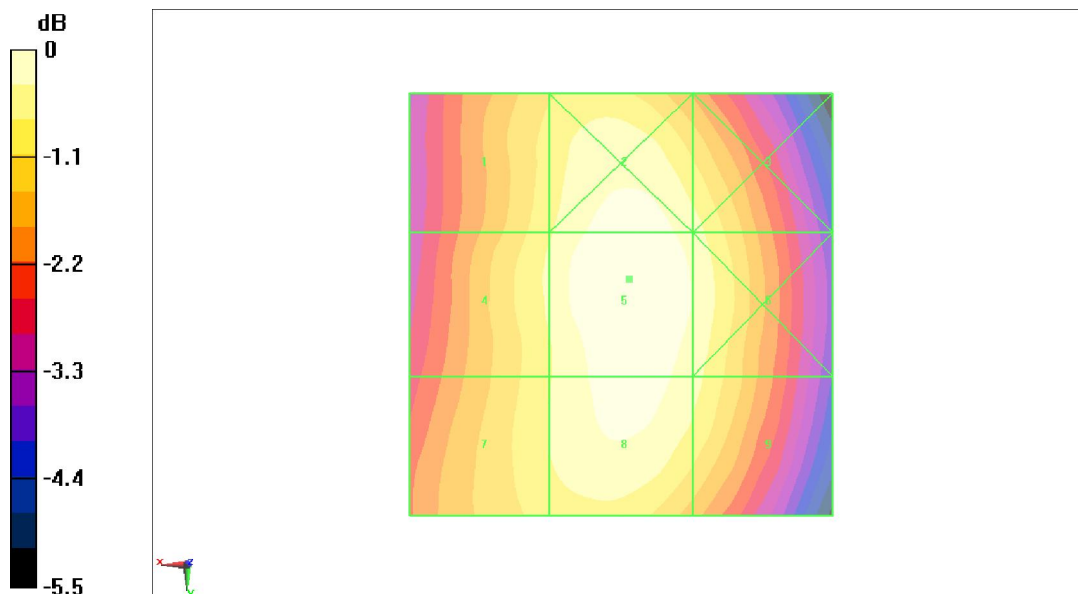
Device Reference Point: 0, 0, -6.3 mm

Reference Value = 94 V/m; Power Drift = -0.048 dB

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

Peak E-field in V/m

Grid 1 188.6 M3	Grid 2 202.5 M3	Grid 3 193.5 M3
Grid 4 191.7 M3	Grid 5 206.4 M3	Grid 6 197.4 M3
Grid 7 189.9 M3	Grid 8 201.7 M3	Grid 9 193.0 M3



0 dB = 206.4V/m

Fig B.2 HAC RF E-Field GSM 850 Middle

HAC RF E-Field GSM 850 Low

Date/Time: 7/28/2011 3:07:38 PM

Electronics: DAE4 Sn777

Medium: Air

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

Ambient Temperature: 23.3°C Liquid Temperature: 22.5°C

Communication System: GSM 850; Frequency: 824.2 MHz; Duty Cycle: 1:8.3

Probe: ER3DV6 - SN2428; ConvF(1, 1, 1)

E Scan - ER3DV6 - 2007: 15 mm from Probe Center to the Device/Hearing Aid Compatibility Test (101x101x1): Measurement grid: dx=5mm, dy=5mm

Maximum value of peak Total field = 206.7 V/m

Probe Modulation Factor = 2.88

Device Reference Point: 0, 0, -6.3 mm

Reference Value = 93.5 V/m; Power Drift = 0.101 dB

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

Peak E-field in V/m

Grid 1 186.4 M3	Grid 2 202.5 M3	Grid 3 195.3 M3
Grid 4 190.4 M3	Grid 5 206.7 M3	Grid 6 200.7 M3
Grid 7 187.1 M3	Grid 8 202.5 M3	Grid 9 195.9 M3

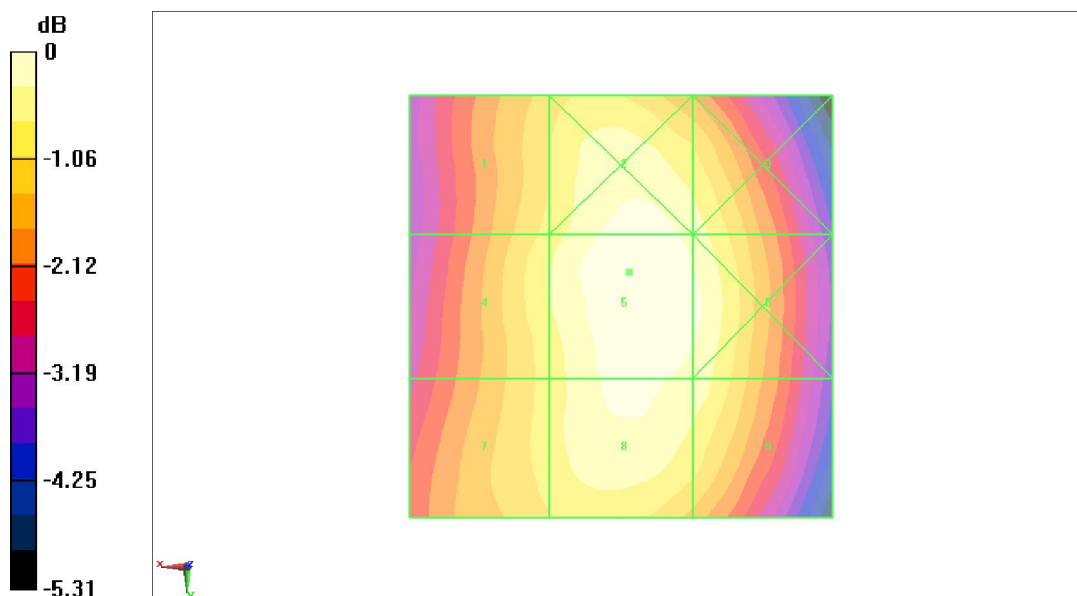


Fig B.3 HAC RF E-Field GSM 850 Low

HAC RF E-Field GSM 1900 High

Date/Time: 7/28/2011 2:39:03 PM

Electronics: DAE4 Sn777

Medium: Air

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

Ambient Temperature: 23.3°C Liquid Temperature: 22.5°C

Communication System: DCS 1900; Frequency: 1909.8 MHz; Duty Cycle: 1:8.3

Probe: ER3DV6 - SN2428; ConvF(1, 1, 1)

E Scan - ER3DV6 - 2007: 15 mm from Probe Center to the Device/Hearing Aid Compatibility Test (101x101x1): Measurement grid: dx=5mm, dy=5mm

Maximum value of peak Total field = 75.4 V/m

Probe Modulation Factor = 2.88

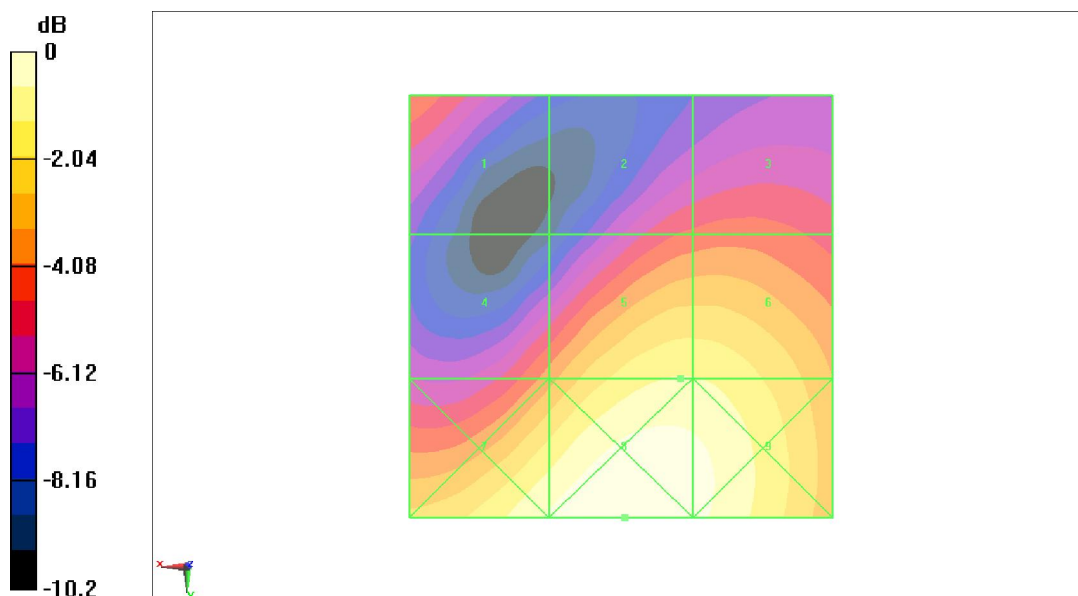
Device Reference Point: 0, 0, -6.3 mm

Reference Value = 24.6 V/m; Power Drift = 0.019 dB

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

Peak E-field in V/m

Grid 1	Grid 2	Grid 3
54.5 M3	51.9 M3	53.1 M3
Grid 4	Grid 5	Grid 6
57.3 M3	75.4 M3	75.2 M3
Grid 7	Grid 8	Grid 9
82 M3	87.7 M2	83.6 M3



0 dB = 87.7V/m

Fig B.4 HAC RF E-Field GSM 1900 High

HAC RF E-Field GSM 1900 Middle

Date/Time: 7/28/2011 2:44:29 PM

Electronics: DAE4 Sn777

Medium: Air

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

Ambient Temperature: 23.3°C Liquid Temperature: 22.5°C

Communication System: DCS 1900; Frequency: 1880 MHz; Duty Cycle: 1:8.3

Probe: ER3DV6 - SN2428; ConvF(1, 1, 1)

E Scan - ER3DV6 - 2007: 15 mm from Probe Center to the Device/Hearing Aid Compatibility Test (101x101x1): Measurement grid: dx=5mm, dy=5mm

Maximum value of peak Total field = 78.6 V/m

Probe Modulation Factor = 2.88

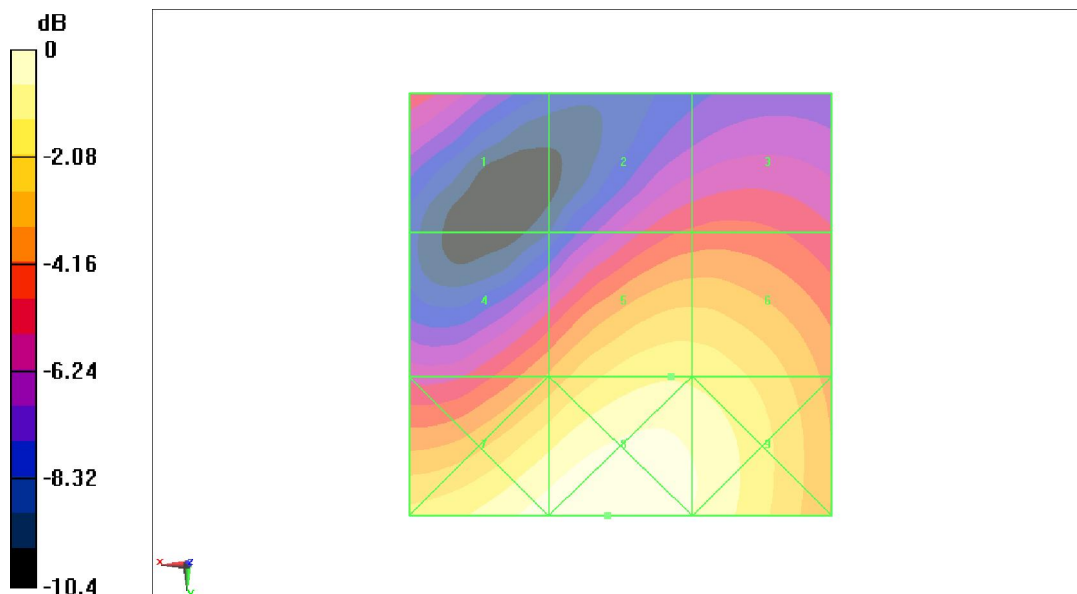
Device Reference Point: 0, 0, -6.3 mm

Reference Value = 26.4 V/m; Power Drift = 0.068 dB

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

Peak E-field in V/m

Grid 1	Grid 2	Grid 3
51.9 M3	54.2 M3	55.1 M3
Grid 4	Grid 5	Grid 6
63.3 M3	78.6 M3	78 M3
Grid 7	Grid 8	Grid 9
89.6 M2	93 M2	86.5 M2



0 dB = 93V/m

Fig B.5 HAC RF E-Field GSM 1900 Middle

HAC RF E-Field GSM 1900 Low

Date/Time: 7/28/2011 2:50:05 PM

Electronics: DAE4 Sn777

Medium: Air

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

Ambient Temperature: 23.3°C Liquid Temperature: 22.5°C

Communication System: DCS 1900; Frequency: 1850.2 MHz; Duty Cycle: 1:8.3

Probe: ER3DV6 - SN2428; ConvF(1, 1, 1)

E Scan - ER3DV6 - 2007: 15 mm from Probe Center to the Device/Hearing Aid Compatibility Test (101x101x1): Measurement grid: dx=5mm, dy=5mm

Maximum value of peak Total field = 68.2 V/m

Probe Modulation Factor = 2.88

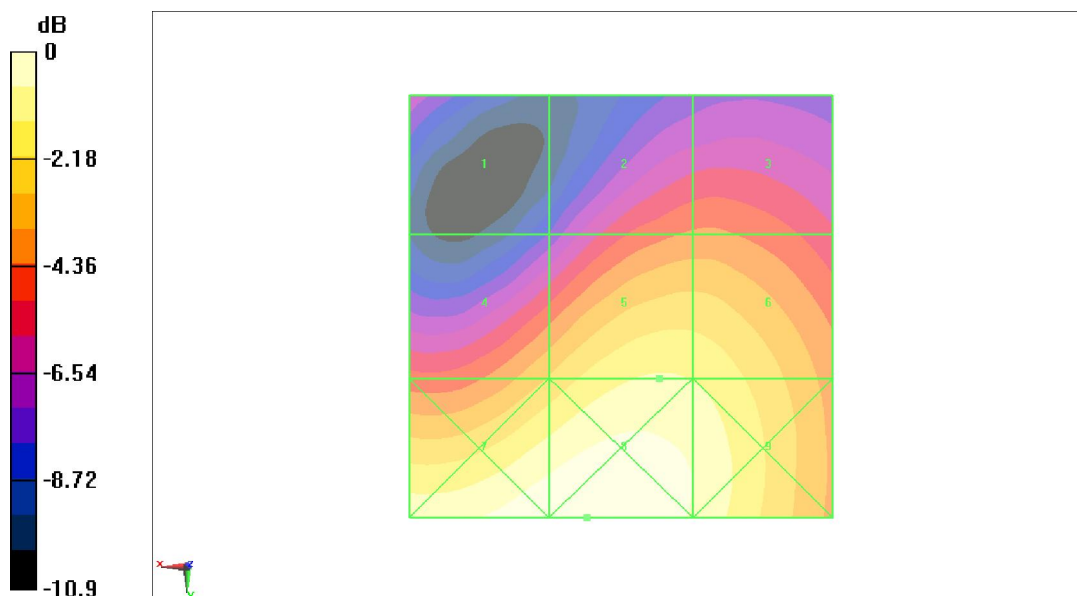
Device Reference Point: 0, 0, -6.3 mm

Reference Value = 24.5 V/m; Power Drift = 0.014 dB

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

Peak E-field in V/m

Grid 1	Grid 2	Grid 3
37.3 M4	49.2 M3	49.4 M3
Grid 4	Grid 5	Grid 6
57.7 M3	68.2 M3	67.3 M3
Grid 7	Grid 8	Grid 9
78.5 M3	79.9 M3	73.4 M3



0 dB = 79.9V/m

Fig B.6 HAC RF E-Field GSM 1900 Low

HAC RF E-Field WCDMA 1700 High

Date/Time: 7/28/2011 2:32:47 PM

Electronics: DAE4 Sn777

Medium: Air

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

Ambient Temperature: 23.3°C Liquid Temperature: 22.5°C

Communication System: WCDMA 1700; Frequency: 1752.6 MHz; Duty Cycle: 1:1

Probe: ER3DV6 - SN2428; ConvF(1, 1, 1)

E Scan - ER3DV6 - 2007: 15 mm from Probe Center to the Device/Hearing Aid Compatibility Test (101x101x1): Measurement grid: dx=5mm, dy=5mm

Maximum value of peak Total field = 34.4 V/m

Probe Modulation Factor = 1

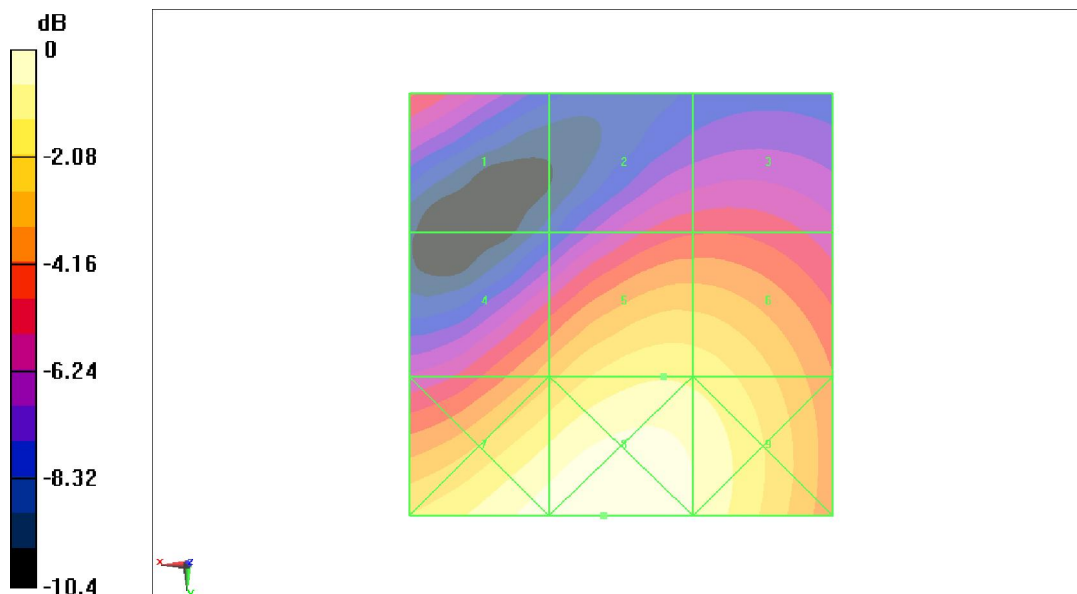
Device Reference Point: 0, 0, -6.3 mm

Reference Value = 33.7 V/m; Power Drift = 0.011 dB

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

Peak E-field in V/m

Grid 1	Grid 2	Grid 3
23.7 M4	23.1 M4	23.2 M4
Grid 4	Grid 5	Grid 6
28.7 M4	34.4 M4	33.9 M4
Grid 7	Grid 8	Grid 9
39.3 M4	40.6 M4	37.6 M4



0 dB = 40.6V/m

Fig B.7 HAC RF E-Field WCDMA 1700 High

HAC RF E-Field WCDMA 1700 Middle

Date/Time: 7/28/2011 2:27:06 PM

Electronics: DAE4 Sn777

Medium: Air

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

Ambient Temperature: 23.3°C Liquid Temperature: 22.5°C

Communication System: WCDMA 1700; Frequency: 1732.4 MHz; Duty Cycle: 1:1

Probe: ER3DV6 - SN2428; ConvF(1, 1, 1)

E Scan - ER3DV6 - 2007: 15 mm from Probe Center to the Device/Hearing Aid Compatibility Test (101x101x1): Measurement grid: dx=5mm, dy=5mm

Maximum value of peak Total field = 33.6 V/m

Probe Modulation Factor = 1

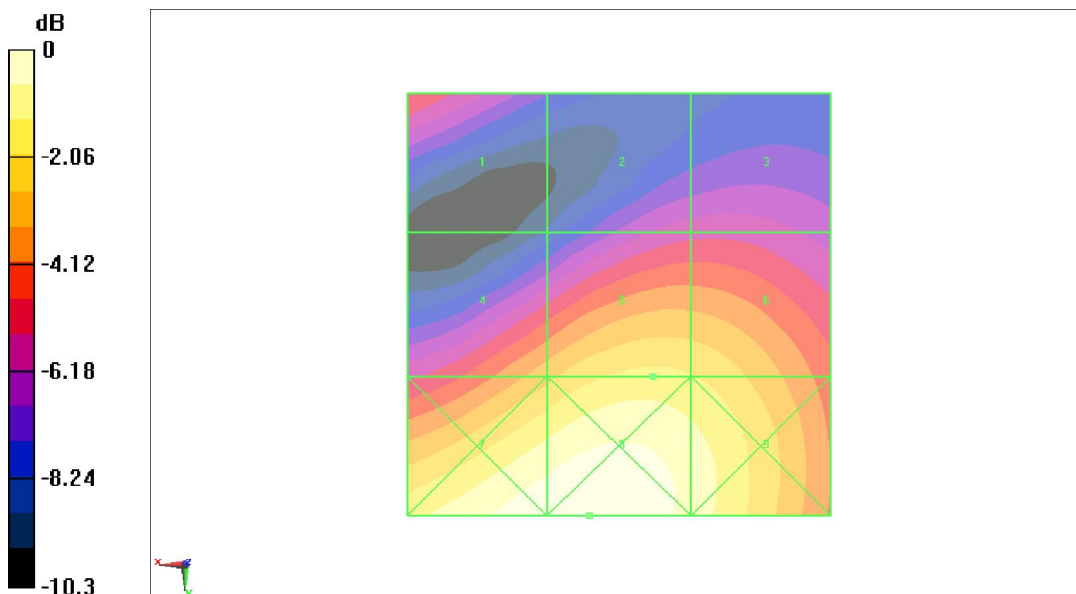
Device Reference Point: 0, 0, -6.3 mm

Reference Value = 32.3 V/m; Power Drift = -0.073 dB

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

Peak E-field in V/m

Grid 1	Grid 2	Grid 3
24.1 M4	21.5 M4	21.7 M4
Grid 4	Grid 5	Grid 6
29.5 M4	33.6 M4	32.9 M4
Grid 7	Grid 8	Grid 9
40.8 M4	41.5 M4	37.4 M4



0 dB = 41.5V/m

Fig B.8 HAC RF E-Field WCDMA 1700 Middle

HAC RF E-Field WCDMA 1700 Low

Date/Time: 7/28/2011 2:21:39 PM

Electronics: DAE4 Sn777

Medium: Air

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

Ambient Temperature: 23.3°C Liquid Temperature: 22.5°C

Communication System: WCDMA 1700; Frequency: 1712.4 MHz; Duty Cycle: 1:1

Probe: ER3DV6 - SN2428; ConvF(1, 1, 1)

E Scan - ER3DV6 - 2007: 15 mm from Probe Center to the Device/Hearing Aid Compatibility Test (101x101x1): Measurement grid: dx=5mm, dy=5mm

Maximum value of peak Total field = 33.5 V/m

Probe Modulation Factor = 1

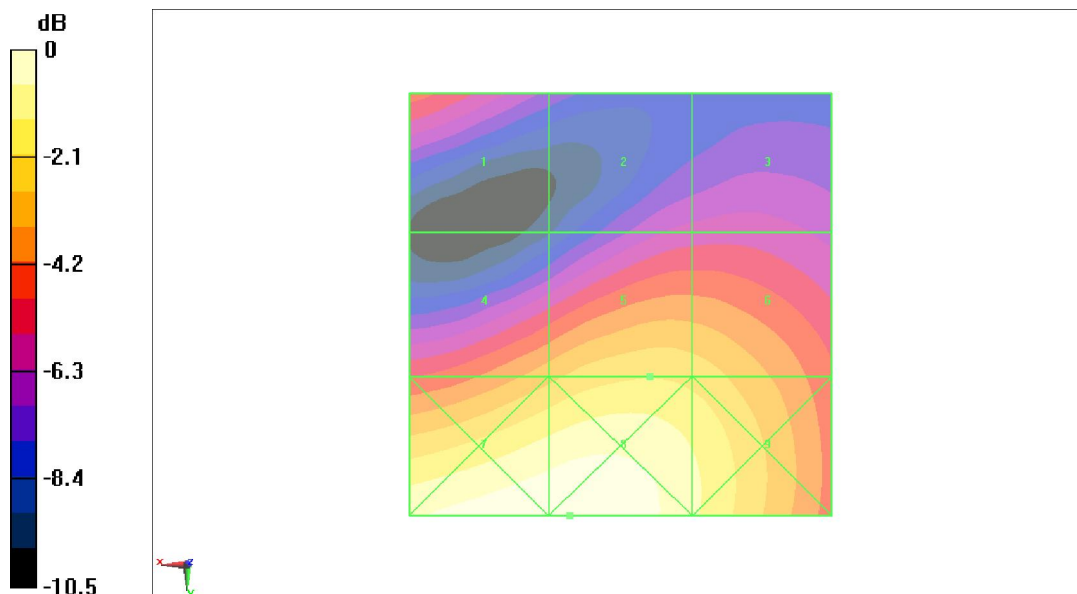
Device Reference Point: 0, 0, -6.3 mm

Reference Value = 31.5 V/m; Power Drift = 0.011 dB

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

Peak E-field in V/m

Grid 1	Grid 2	Grid 3
25.4 M4	21.5 M4	21.8 M4
Grid 4	Grid 5	Grid 6
30.2 M4	33.5 M4	32.7 M4
Grid 7	Grid 8	Grid 9
42.5 M4	42.8 M4	37.2 M4



0 dB = 42.8V/m

Fig B.9 HAC RF E-Field WCDMA 1700 Low

HAC RF H-Field GSM 850 High

Date/Time: 7/28/2011 1:22:25 PM

Electronics: DAE4 Sn777

Medium: Air

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

Ambient Temperature: 23.3°C Liquid Temperature: 22.5°C

Communication System: GSM 850; Frequency: 848.8 MHz; Duty Cycle: 1:8.3

Probe: H3DV6 - SN6260;

**H Scan - H3DV6 - 2007: 15 mm from Probe Center to the Device/Hearing Aid
Compatibility Test (101x101x1):** Measurement grid: dx=5mm, dy=5mm

Maximum value of peak Total field = 0.320 A/m

Probe Modulation Factor = 2.88

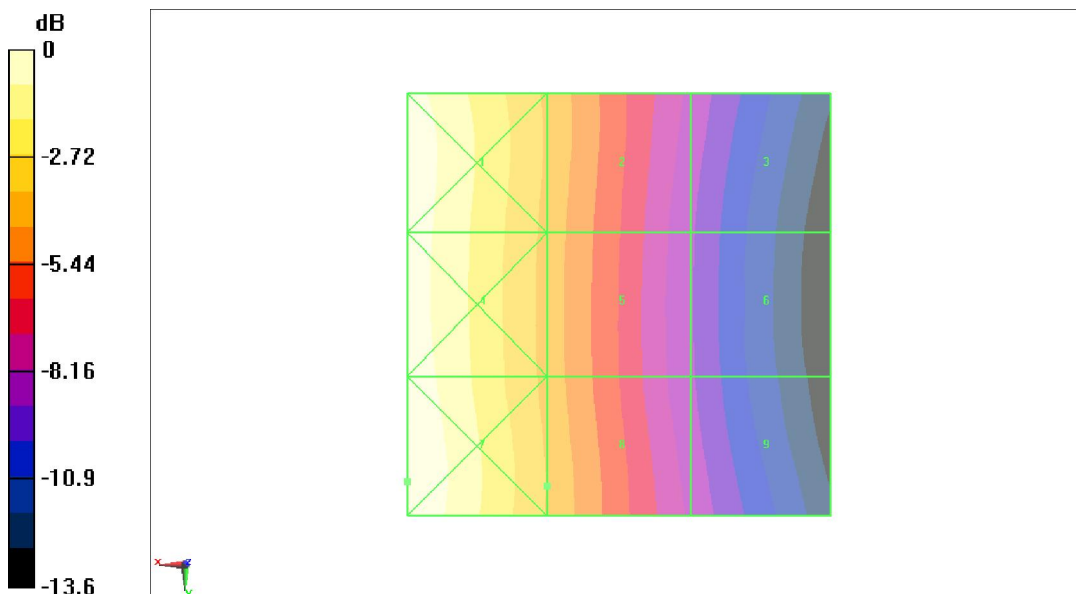
Device Reference Point: 0, 0, -6.3 mm

Reference Value = 0.081 A/m; Power Drift = -0.043 dB

Hearing Aid Near-Field Category: M4 (AWF -5 dB)

Peak H-field in A/m

Grid 1 0.473 M3	Grid 2 0.318 M4	Grid 3 0.186 M4
Grid 4 0.469 M3	Grid 5 0.311 M4	Grid 6 0.175 M4
Grid 7 0.488 M3	Grid 8 0.320 M4	Grid 9 0.187 M4



0 dB = 0.488A/m

Fig B.10 HAC RF H-Field GSM 850 High

HAC RF H-Field GSM 850 Middle

Date/Time: 7/28/2011 1:28:10 PM

Electronics: DAE4 Sn777

Medium: Air

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

Ambient Temperature: 23.3°C Liquid Temperature: 22.5°C

Communication System: GSM 850; Frequency: 836.6 MHz; Duty Cycle: 1:8.3

Probe: H3DV6 - SN6260;

H Scan - H3DV6 - 2007: 15 mm from Probe Center to the Device/Hearing Aid Compatibility Test (101x101x1): Measurement grid: dx=5mm, dy=5mm

Maximum value of peak Total field = 0.319 A/m

Probe Modulation Factor = 2.88

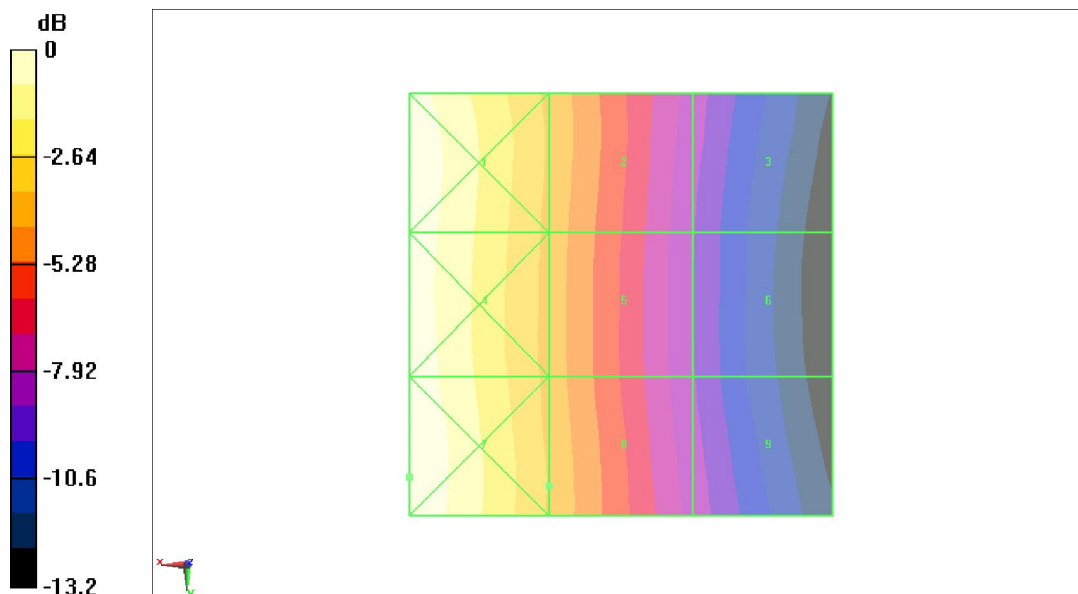
Device Reference Point: 0, 0, -6.3 mm

Reference Value = 0.082 A/m; Power Drift = -0.093 dB

Hearing Aid Near-Field Category: M4 (AWF -5 dB)

Peak H-field in A/m

Grid 1 0.472 M3	Grid 2 0.318 M4	Grid 3 0.185 M4
Grid 4 0.467 M3	Grid 5 0.312 M4	Grid 6 0.177 M4
Grid 7 0.482 M3	Grid 8 0.319 M4	Grid 9 0.188 M4



0 dB = 0.482 A/m

Fig B.11 HAC RF H-Field GSM 850 Middle

HAC RF H-Field GSM 850 Low

Date/Time: 7/28/2011 1:34:02 PM

Electronics: DAE4 Sn777

Medium: Air

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

Ambient Temperature: 23.3°C Liquid Temperature: 22.5°C

Communication System: GSM 850; Frequency: 824.2 MHz; Duty Cycle: 1:8.3

Probe: H3DV6 - SN6260;

H Scan - H3DV6 - 2007: 15 mm from Probe Center to the Device/Hearing Aid Compatibility Test (101x101x1): Measurement grid: dx=5mm, dy=5mm

Maximum value of peak Total field = 0.320 A/m

Probe Modulation Factor = 2.88

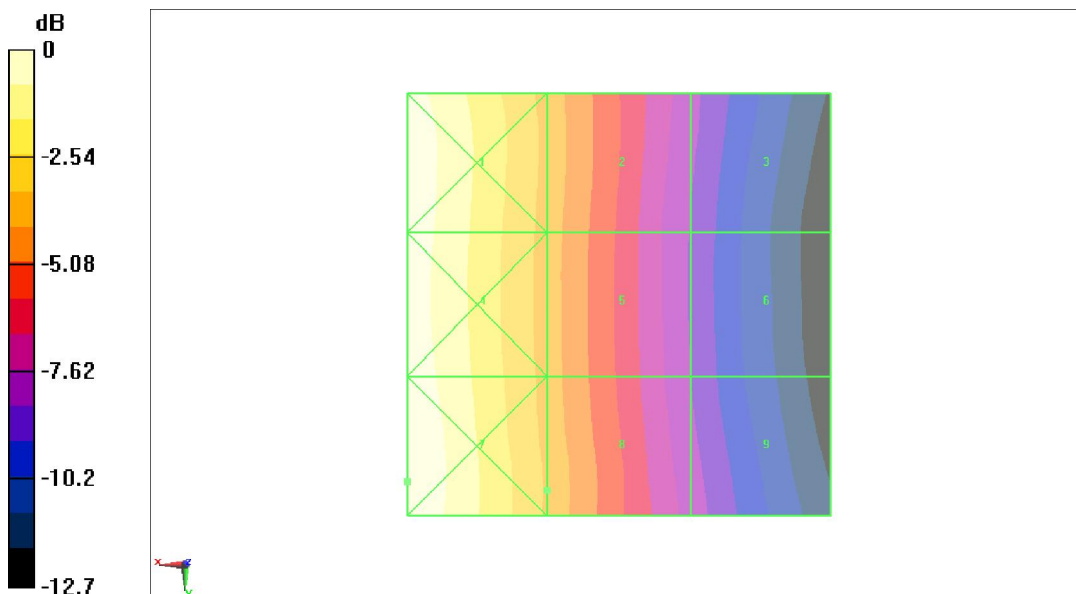
Device Reference Point: 0, 0, -6.3 mm

Reference Value = 0.083 A/m; Power Drift = -0.035 dB

Hearing Aid Near-Field Category: M4 (AWF -5 dB)

Peak H-field in A/m

Grid 1 0.467 M3	Grid 2 0.316 M4	Grid 3 0.188 M4
Grid 4 0.461 M3	Grid 5 0.312 M4	Grid 6 0.181 M4
Grid 7 0.479 M3	Grid 8 0.320 M4	Grid 9 0.192 M4



0 dB = 0.479 A/m

Fig B.12 HAC RF H-Field GSM 850 Low

HAC RF H-Field GSM 1900 High

Date/Time: 7/28/2011 1:40:11 PM

Electronics: DAE4 Sn777

Medium: Air

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

Ambient Temperature: 23.3°C Liquid Temperature: 22.5°C

Communication System: DCS 1900; Frequency: 1909.8 MHz; Duty Cycle: 1:8.3

Probe: H3DV6 - SN6260;

H Scan - H3DV6 - 2007: 15 mm from Probe Center to the Device/Hearing Aid Compatibility Test (101x101x1): Measurement grid: dx=5mm, dy=5mm

Maximum value of peak Total field = 0.221 A/m

Probe Modulation Factor = 2.88

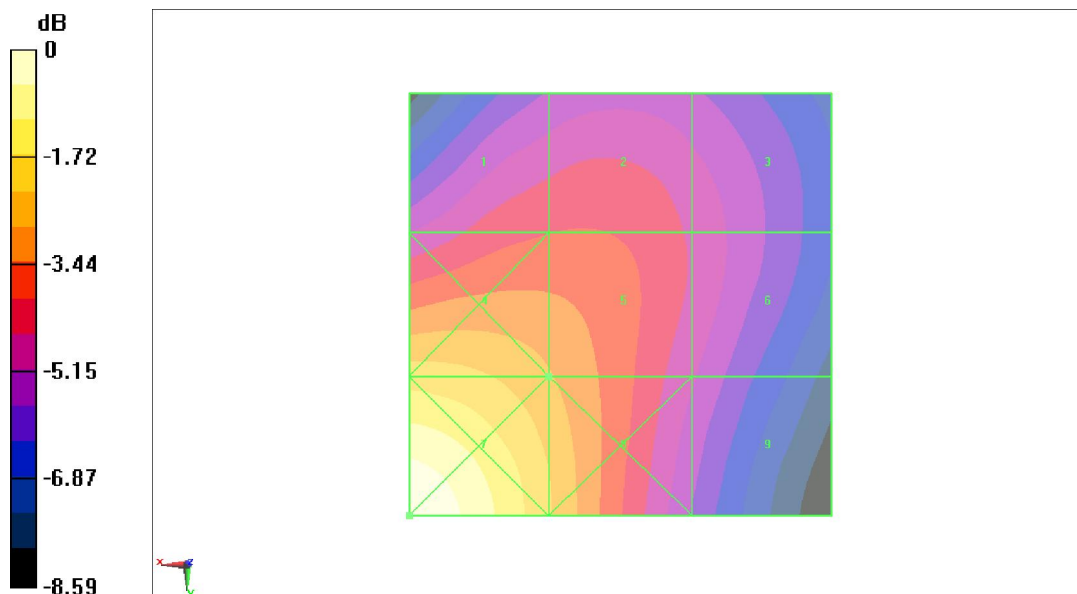
Device Reference Point: 0, 0, -6.3 mm

Reference Value = 0.074 A/m; Power Drift = -0.00128 dB

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

Peak H-field in A/m

Grid 1 0.192 M3	Grid 2 0.193 M3	Grid 3 0.178 M3
Grid 4 0.243 M3	Grid 5 0.221 M3	Grid 6 0.179 M3
Grid 7 0.305 M2	Grid 8 0.236 M3	Grid 9 0.170 M3



0 dB = 0.305 A/m

Fig B.13 HAC RF H-Field GSM 1900 High

HAC RF H-Field GSM 1900 Middle

Date/Time: 7/28/2011 1:45:38 PM

Electronics: DAE4 Sn777

Medium: Air

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

Ambient Temperature: 23.3°C Liquid Temperature: 22.5°C

Communication System: DCS 1900; Frequency: 1880 MHz; Duty Cycle: 1:8.3

Probe: H3DV6 - SN6260;

**H Scan - H3DV6 - 2007: 15 mm from Probe Center to the Device/Hearing Aid
Compatibility Test (101x101x1):** Measurement grid: dx=5mm, dy=5mm

Maximum value of peak Total field = 0.232 A/m

Probe Modulation Factor = 2.88

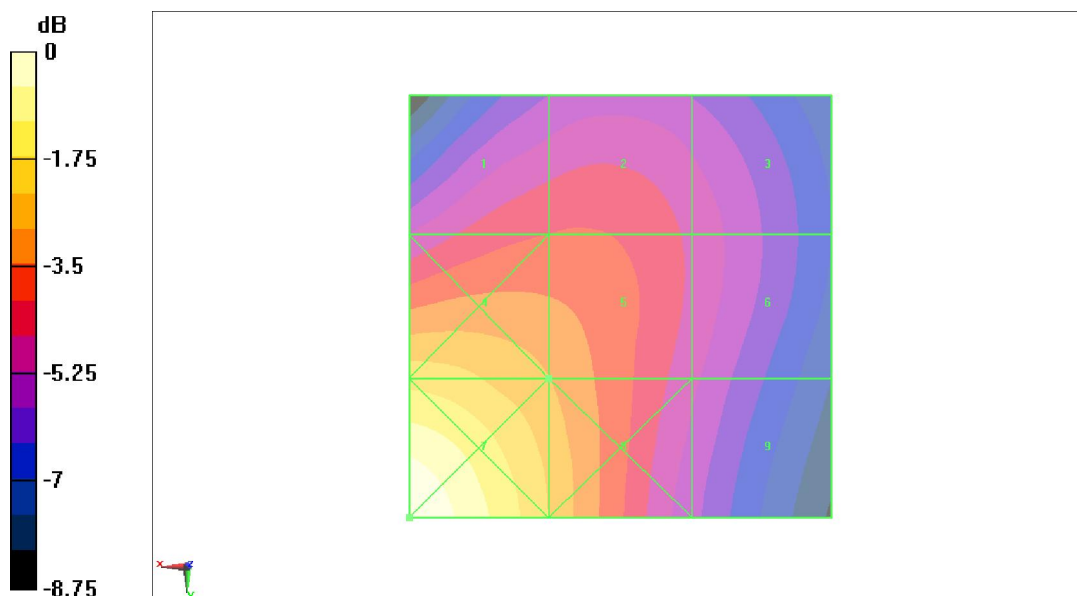
Device Reference Point: 0, 0, -6.3 mm

Reference Value = 0.078 A/m; Power Drift = -0.00941 dB

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

Peak H-field in A/m

Grid 1 0.203 M3	Grid 2 0.204 M3	Grid 3 0.187 M3
Grid 4 0.258 M2	Grid 5 0.232 M3	Grid 6 0.187 M3
Grid 7 0.324 M2	Grid 8 0.247 M3	Grid 9 0.180 M3



0 dB = 0.324A/m

Fig B.14 HAC RF H-Field GSM 1900 Middle

HAC RF H-Field GSM 1900 Low

Date/Time: 7/28/2011 1:51:23 PM

Electronics: DAE4 Sn777

Medium: Air

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

Ambient Temperature: 23.3°C Liquid Temperature: 22.5°C

Communication System: DCS 1900; Frequency: 1850.2 MHz; Duty Cycle: 1:8.3

Probe: H3DV6 - SN6260;

H Scan - H3DV6 - 2007: 15 mm from Probe Center to the Device/Hearing Aid Compatibility Test (101x101x1): Measurement grid: dx=5mm, dy=5mm

Maximum value of peak Total field = 0.221 A/m

Probe Modulation Factor = 2.88

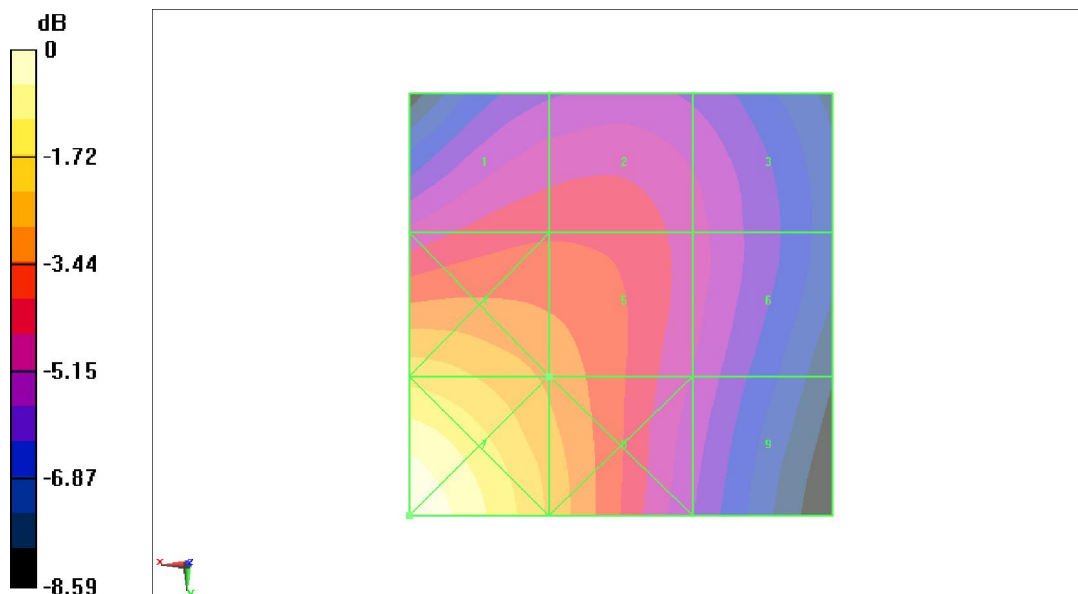
Device Reference Point: 0, 0, -6.3 mm

Reference Value = 0.075 A/m; Power Drift = -0.020 dB

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

Peak H-field in A/m

Grid 1 0.195 M3	Grid 2 0.195 M3	Grid 3 0.177 M3
Grid 4 0.250 M3	Grid 5 0.221 M3	Grid 6 0.178 M3
Grid 7 0.311 M2	Grid 8 0.236 M3	Grid 9 0.171 M3



0 dB = 0.311 A/m

Fig B.15 HAC RF H-Field GSM 1900 Low

HAC RF H-Field WCDMA 1700 High

Date/Time: 7/28/2011 1:59:21 PM

Electronics: DAE4 Sn777

Medium: Air

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

Ambient Temperature: 23.3°C Liquid Temperature: 22.5°C

Communication System: WCDMA 1700; Frequency: 1752.6 MHz; Duty Cycle: 1:1

Probe: H3DV6 - SN6260;

**H Scan - H3DV6 - 2007: 15 mm from Probe Center to the Device/Hearing Aid
Compatibility Test (101x101x1):** Measurement grid: dx=5mm, dy=5mm

Maximum value of peak Total field = 0.086 A/m

Probe Modulation Factor = 1

Device Reference Point: 0, 0, -6.3 mm

Reference Value = 0.085 A/m; Power Drift = 0.055 dB

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

Peak H-field in A/m

Grid 1 0.081 M4	Grid 2 0.081 M4	Grid 3 0.074 M4
Grid 4 0.099 M4	Grid 5 0.086 M4	Grid 6 0.073 M4
Grid 7 0.122 M4	Grid 8 0.090 M4	Grid 9 0.065 M4



0 dB = 0.122A/m

Fig B.16 HAC RF H-Field WCDMA 1700 High

HAC RF H-Field WCDMA 1700 Middle

Date/Time: 7/28/2011 2:05:22 PM

Electronics: DAE4 Sn777

Medium: Air

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

Ambient Temperature: 23.3°C Liquid Temperature: 22.5°C

Communication System: WCDMA 1700; Frequency: 1732.4 MHz; Duty Cycle: 1:1

Probe: H3DV6 - SN6260;

H Scan - H3DV6 - 2007: 15 mm from Probe Center to the Device/Hearing Aid Compatibility Test (101x101x1): Measurement grid: dx=5mm, dy=5mm

Maximum value of peak Total field = 0.087 A/m

Probe Modulation Factor = 1

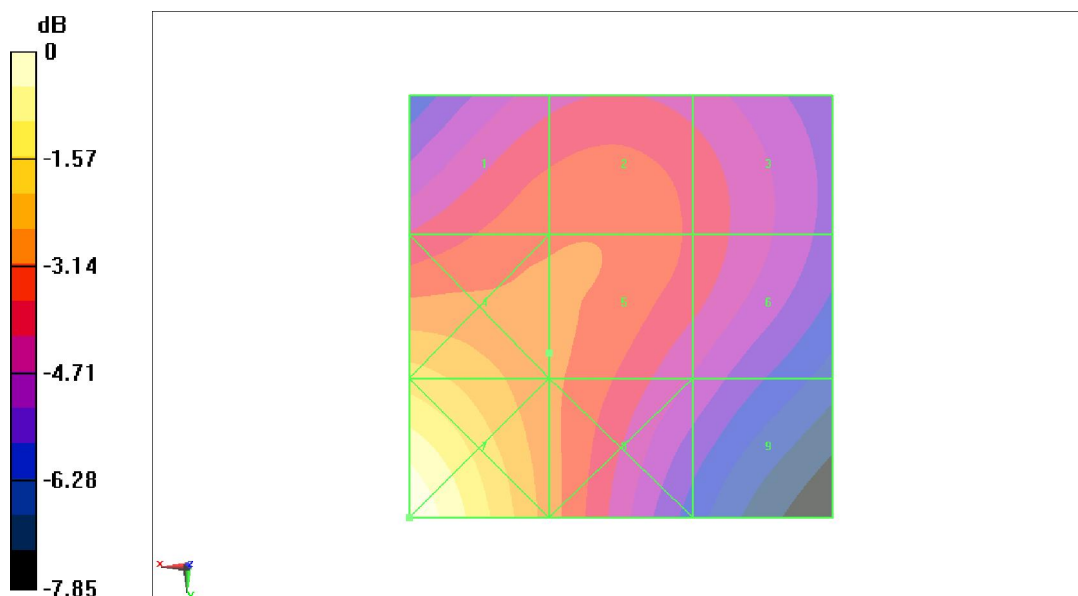
Device Reference Point: 0, 0, -6.3 mm

Reference Value = 0.091 A/m; Power Drift = 0.020 dB

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

Peak H-field in A/m

Grid 1 0.084 M4	Grid 2 0.085 M4	Grid 3 0.079 M4
Grid 4 0.099 M4	Grid 5 0.087 M4	Grid 6 0.079 M4
Grid 7 0.122 M4	Grid 8 0.088 M4	Grid 9 0.071 M4



0 dB = 0.122A/m

Fig B.17 HAC RF H-Field WCDMA 1700 Middle

HAC RF H-Field WCDMA 1700 Low

Date/Time: 7/28/2011 2:11:06 PM

Electronics: DAE4 Sn777

Medium: Air

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

Ambient Temperature: 23.3°C Liquid Temperature: 22.5°C

Communication System: WCDMA 1700; Frequency: 1712.4 MHz; Duty Cycle: 1:1

Probe: H3DV6 - SN6260;

H Scan - H3DV6 - 2007: 15 mm from Probe Center to the Device/Hearing Aid Compatibility Test (101x101x1): Measurement grid: dx=5mm, dy=5mm

Maximum value of peak Total field = 0.093 A/m

Probe Modulation Factor = 1

Device Reference Point: 0, 0, -6.3 mm

Reference Value = 0.098 A/m; Power Drift = -0.043 dB

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

Peak H-field in A/m

Grid 1 0.088 M4	Grid 2 0.089 M4	Grid 3 0.082 M4
Grid 4 0.105 M4	Grid 5 0.093 M4	Grid 6 0.083 M4
Grid 7 0.128 M4	Grid 8 0.094 M4	Grid 9 0.076 M4

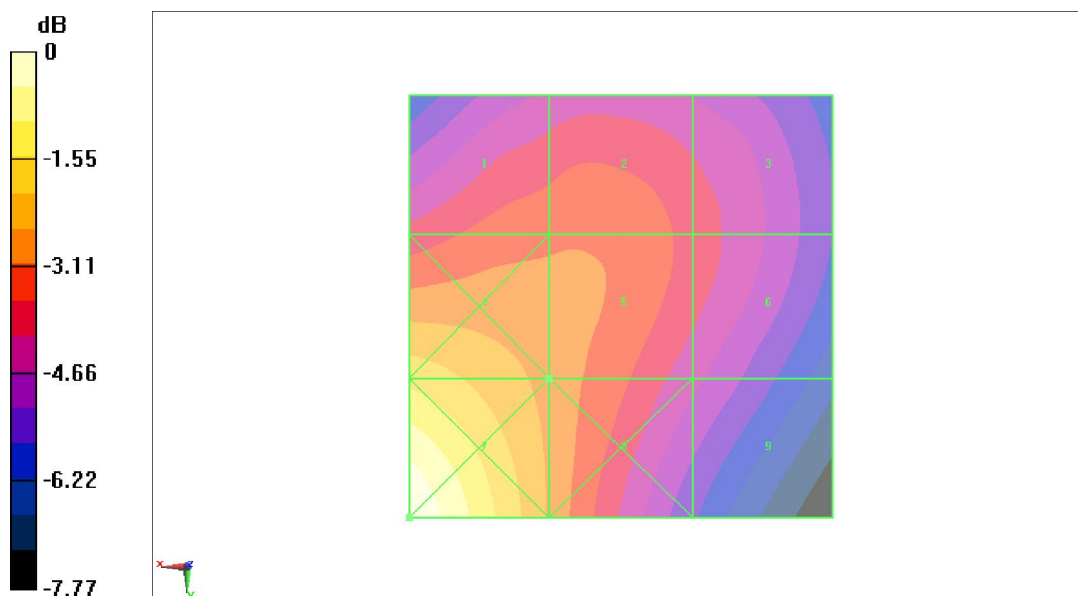


Fig B.18 HAC RF H-Field WCDMA 1700 Low

Total M-rating of GSM 850 MHz Band

Date/Time: 7/28/2011 3:07:38 PM, Date/Time: 7/28/2011 1:34:02 PM

Electronics: DAE4 Sn777

Medium: Air

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

Ambient Temperature: 23.3°C Liquid Temperature: 22.5°C

Communication System: GSM 850; Frequency: 824.2 MHz; Duty Cycle: 1:8.3

Probe: ER3DV6 - SN2428 Probe: H3DV6 - SN6260; ConvF(1, 1, 1)

E Scan - ER3DV6 - 2007: 15 mm from Probe Center to the Device/Hearing Aid

Compatibility Test (101x101x1): Measurement grid: dx=5mm, dy=5mm

Maximum value of peak Total field = 206.7 V/m

Probe Modulation Factor = 2.88

Device Reference Point: 0, 0, -6.3 mm

Reference Value = 93.5 V/m; Power Drift = 0.101 dB

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

Peak E-field in V/m

Grid 1 186.4 M3	Grid 2 202.5 M3	Grid 3 195.3 M3
Grid 4 190.4 M3	Grid 5 206.7 M3	Grid 6 200.7 M3
Grid 7 187.1 M3	Grid 8 202.5 M3	Grid 9 195.9 M3

H Scan - H3DV6 - 2007: 15 mm from Probe Center to the Device/Hearing Aid

Compatibility Test (101x101x1): Measurement grid: dx=5mm, dy=5mm

Maximum value of peak Total field = 0.320 A/m

Probe Modulation Factor = 2.88

Device Reference Point: 0, 0, -6.3 mm

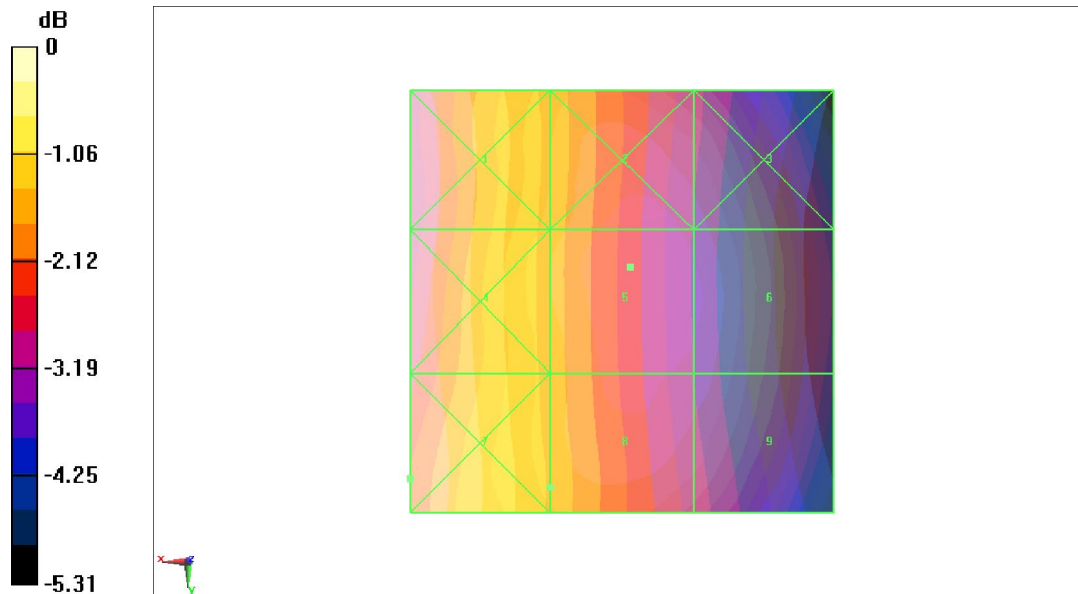
Reference Value = 0.083 A/m; Power Drift = -0.035 dB

Hearing Aid Near-Field Category: M4 (AWF -5 dB)

Peak H-field in A/m

Grid 1 0.467 M3	Grid 2 0.316 M4	Grid 3 0.188 M4
Grid 4 0.461 M3	Grid 5 0.312 M4	Grid 6 0.181 M4

Grid 7	Grid 8	Grid 9
0.479 M3	0.320 M4	0.192 M4



0 dB = 206.7V/m

RF RESULTS AND M-RATING	E-Field M Rating	M3 (AWF -5 dB)
	H-Field M Rating	M4 (AWF -5 dB)
	Total M Rating	M3

Fig B.19 Total M-rating of GSM 850

Total M-rating of GSM 1900 MHz Band

Date/Time: 7/28/2011 2:39:03 PM, Date/Time: 7/28/2011 1:45:38 PM

Electronics: DAE4 Sn777

Medium: Air

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

Ambient Temperature: 23.3°C Liquid Temperature: 22.5°C

Communication System: DCS 1900; Frequency: 1850.2 MHz; Duty Cycle: 1:8.3

Probe: ER3DV6 - SN2428 Probe: H3DV6 - SN6260; ConvF(1, 1, 1)

E Scan - ER3DV6 - 2007: 15 mm from Probe Center to the Device/Hearing Aid Compatibility Test (101x101x1): Measurement grid: dx=5mm, dy=5mm

Maximum value of peak Total field = 75.4 V/m

Probe Modulation Factor = 2.88

Device Reference Point: 0, 0, -6.3 mm

Reference Value = 24.6 V/m; Power Drift = 0.019 dB

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

Peak E-field in V/m

Grid 1	Grid 2	Grid 3
54.5 M3	51.9 M3	53.1 M3
Grid 4	Grid 5	Grid 6
57.3 M3	75.4 M3	75.2 M3
Grid 7	Grid 8	Grid 9
82 M3	87.7 M2	83.6 M3

H Scan - H3DV6 - 2007: 15 mm from Probe Center to the Device/Hearing Aid Compatibility Test (101x101x1): Measurement grid: dx=5mm, dy=5mm

Maximum value of peak Total field = 0.232 A/m

Probe Modulation Factor = 2.88

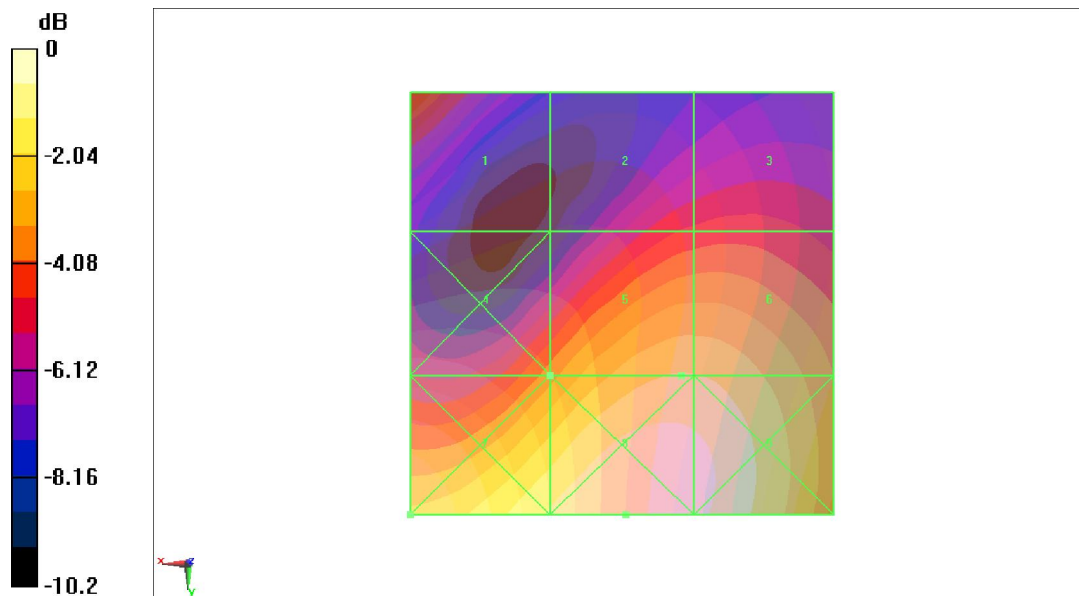
Device Reference Point: 0, 0, -6.3 mm

Reference Value = 0.078 A/m; Power Drift = -0.00941 dB

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

Peak H-field in A/m

Grid 1	Grid 2	Grid 3
0.203 M3	0.204 M3	0.187 M3
Grid 4	Grid 5	Grid 6
0.258 M2	0.232 M3	0.187 M3
Grid 7	Grid 8	Grid 9
0.324 M2	0.247 M3	0.180 M3



0 dB = 87.7V/m

RF RESULTS AND M-RATING	E-Field M Rating	M3 (AWF -5 dB)
	H-Field M Rating	M3 (AWF -5 dB)
	Total M Rating	M3

Fig B.20 Total M-rating of GSM 1900

Total M-rating of WCDMA 1700 MHz Band

Date/Time: 7/28/2011 2:32:47 PM, Date/Time: 7/28/2011 2:11:06 PM

Electronics: DAE4 Sn777

Medium: Air

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

Ambient Temperature: 23.3°C Liquid Temperature: 22.5°C

Communication System: WCDMA 1700; Frequency: 1732.4 MHz; Duty Cycle: 1:1

Probe: ER3DV6 - SN2428 Probe: H3DV6 - SN6260; ConvF(1, 1, 1)

E Scan - ER3DV6 - 2007: 15 mm from Probe Center to the Device/Hearing Aid

Compatibility Test (101x101x1): Measurement grid: dx=5mm, dy=5mm

Maximum value of peak Total field = 34.4 V/m

Probe Modulation Factor = 1

Device Reference Point: 0, 0, -6.3 mm

Reference Value = 33.7 V/m; Power Drift = 0.011 dB

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

Peak E-field in V/m

Grid 1 23.7 M4	Grid 2 23.1 M4	Grid 3 23.2 M4
Grid 4 28.7 M4	Grid 5 34.4 M4	Grid 6 33.9 M4
Grid 7 39.3 M4	Grid 8 40.6 M4	Grid 9 37.6 M4

H Scan - H3DV6 - 2007: 15 mm from Probe Center to the Device/Hearing Aid

Compatibility Test (101x101x1): Measurement grid: dx=5mm, dy=5mm

Maximum value of peak Total field = 0.093 A/m

Probe Modulation Factor = 1

Device Reference Point: 0, 0, -6.3 mm

Reference Value = 0.098 A/m; Power Drift = -0.043 dB

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

Peak H-field in A/m

Grid 1 0.088 M4	Grid 2 0.089 M4	Grid 3 0.082 M4
Grid 4 0.105 M4	Grid 5 0.093 M4	Grid 6 0.083 M4
Grid 7 0.128 M4	Grid 8 0.094 M4	Grid 9 0.076 M4