



ANSI C63.19

TEST REPORT

Product Name	CDMA/LTE Smart phone
Model	HUAWEI H882L,H882L,Marina,Y301-A3
FCC ID	QISH882L
Client	Huawei Technologies Co., Ltd.
Manufacturer	Huawei Technologies Co., Ltd.
Date of issue	March 20,2013

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GENERAL SUMMARY

Reference Standard(s)	ANSI C63.19-2007: American National Standard Methods of Measurement of Compatibility between Wireless Communications Devices and Hearing Aids.
Conclusion	This portable wireless equipment has been measured in all cases requested by the relevant standards. General Judgment: M4 (RF Emission)
Comment	The test result only responds to the measured sample.

Approved by 杨伟中
Director

Revised by 凌敏定
SAR Manager

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1. General Information

1.1. Notes of the Test Report

TA Technology (Shanghai) Co., Ltd. has obtained the accreditation of China National Accreditation Service for Conformity Assessment (CNAS), and accreditation number: L2264.

TA Technology (Shanghai) Co., Ltd. has been listed on the US Federal Communications Commission list of test facilities recognized to perform electromagnetic emissions measurements. The site recognition number is 428261.

TA Technology (Shanghai) Co., Ltd. has been listed by industry Canada to perform electromagnetic emission measurement. The site recognition number is 8510A.

TA Technology (Shanghai) Co., Ltd. guarantees the reliability of the data presented in this test report, which is the results of measurements and tests performed for the items under test on the date and under the conditions stated in this test report and is based on the knowledge and technical facilities available at TA Technology (Shanghai) Co., Ltd. at the time of execution of the test.

TA Technology (Shanghai) Co., Ltd. is liable to the client for the maintenance by its personnel of the confidentiality of all information related to the items under test and the results of the test. This report only refers to the item that has undergone the test.

This report standalone dose not constitute or imply by its own an approval of the product by the certification Bodies or competent Authorities. This report cannot be used partially or in full for publicity and/or promotional purposes without previous written approval of **TA Technology (Shanghai) Co., Ltd.** and the Accreditation Bodies, if it applies.

If the electrical report is inconsistent with the printed one, it should be subject to the latter.

1.2. Testing Laboratory

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1.3. Applicant Information

Company: Huawei Technologies Co., Ltd.
Address: Administration Building, Headquarters of Huawei Technologies Co., Ltd., Bantian,
Longgang District
City: Shenzhen
Postal Code: 518129
Country: P.R. China

1.4. Manufacturer Information

Company: Huawei Technologies Co., Ltd.
Address: Administration Building, Headquarters of Huawei Technologies Co., Ltd., Bantian,
Longgang District
City: Shenzhen
Postal Code: 518129
Country: P.R. China

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1.5. Information of EUT

General Information

Device Type:	Portable Device		
State of Sample:	Prototype Unit		
Product MEID:	99000298000443		
Hardware Version:	HL1C8833LM		
Software Version:	H882L V100R001C378B160		
Antenna Type:	Internal Antenna		
Device Operating Configurations:			
Supporting Mode(s):	CDMA BC0/CDMA BC1/ CDMA BC10; (tested)		
	LTE Band 25; (untested)		
	WIFI(802.11b/g/n); (untested)		
	Bluetooth; (untested)		
Test Modulation:	QPSK		
Operating Frequency Range(s):	Mode	Tx (MHz)	Rx (MHz)
	CDMA BC0	824.7 ~ 848.31	869.7 ~ 893.31
	CDMA BC1	1851.25 ~ 1908.75	1931.25 ~ 1988.75
	CDMA BC10	817.9~823.1	862.0~869.0
Test Channel: (Low - Middle - High)	1013 - 384 - 777	(CDMA BC0)	(tested)
	25 - 600 - 1175	(CDMA BC1)	(tested)
	476 - 580 - 684	(CDMA BC10)	(tested)
Power Class:	CDMA BC0: Tested with Power Control All up bits		
	CDMA BC1: Tested with Power Control All up bits		
	CDMA BC10: Tested with Power Control All up bits		

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Auxiliary Equipment Details

AE1:Battery

Model: HB4W1H
Manufacturer: Huawei Technologies Co., Ltd.
S/N: MAICB01X19102164

AE2:Battery

Model: HB4W1H
Manufacturer: Huawei Technologies Co., Ltd.
S/N: MPCCA25919100430

Equipment Under Test (EUT) has a CDMA antenna that is used for Tx/Rx, the Second is LTE antenna that is used for Tx/Rx, the third is BT/WIFI antenna that is used for Tx/Rx.the fourth is BC0/BC10/GPS Diversity Antenna that is used for Rx, The Fifth is BC1/LTE Band 25 Diversity Antenna that is used for Rx, The detail about Mobile phone and Lithium Battery is in chapter 1.5 in this report. The EUT HAC RF emission is tested for CDMA BC0, CDMA BC1 and CDMA BC10 in this report.

The sample under test was selected by the Client.

Components list please refer to documents of the manufacturer.

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Air-Interface	Band (MHz)	Type	C63.19/ tested	Simultaneous Transmissions Note: Not to be tested	Concurrent single transmission	Reduced power 20.19(c)(1)	Voice Over Digital Transport (Data)
CDMA	BC0	VO	Yes	Yes LTE, WIFI and BT	Yes:LTE, WIFI, BT	NA	NA
	BC1	VO	Yes				
	BC10	VO	Yes				
	EVDO	DT	NA	Yes LTE, WIFI and BT	Yes: * see note	NA	NA
	1X Advance	VO	NA	Yes LTE, WIFI and BT	Yes: * see note	NA	NA
LTE	Band 25	DT	NA	Yes CDMA(VO), WIFI and BT	Yes: * see note	NA	NA
WIFI	2450	DT	NA	Yes CDMA (VO) , EVDO, LTE and BT	NA	NA	NA
Bluetooth (BT)	2400	DT	NA	Yes CDMA (VO) , EVDO, LTE and WIFI	NA	NA	NA

VO Voice CMRS/PSTN Service only
V/D Voice CMRS/PSTN and Data Service
DT Digital Transport

*HAC Rating was based on concurrent voice and data modes, Non current mode was found to represent worst case rating for both M and T rating

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1.6. The Ambient Conditions during Test

Temperature	Min. = 18°C, Max. = 28 °C
Relative humidity	Min. = 0%, Max. = 80%
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.	

1.7. The Total M-rating of each tested band

Band	Rating
CDMA BC0	M4
CDMA BC1	M4
CDMA BC10	M4

1.8. Test Date

The test performed on February 21, 2013.

2. Test Information

2.1. Operational Conditions during Test

2.1.1. General Description of Test Procedures

The phone was tested in all normal configurations for the ear use. The EUT is mounted in the device holder equivalent as for classic dosimeter measurements. The acoustic output of the EUT 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 EUT shall be moved vertically upwards until it touches the frame. The fine adjustment is possible by sliding the complete. The EUT holder is 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.

2.1.2. CDMA Test Configuration

A communication link is set up with a System Simulator (SS) by air link, and a call is established. The EUT is commanded to operate at maximum transmitting power.

Test Parameter setup for maximum RF output power according to section 4.4.5 of 3GPP2.

Parameter	Units	Value
I or	dBm/1.23MHz	-104
PilotE c /I or	dB	-7
TrafficE c /I or	dB	-7.4

2.2. HAC RF Measurements System Configuration

2.2.1. HAC Measurement Set-up

These measurements are performed using the DASY5 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. Cell controller systems contain the power supply, robot controller, teach pendant (Joystick) and remote control, and are used to drive the robot motors. 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.

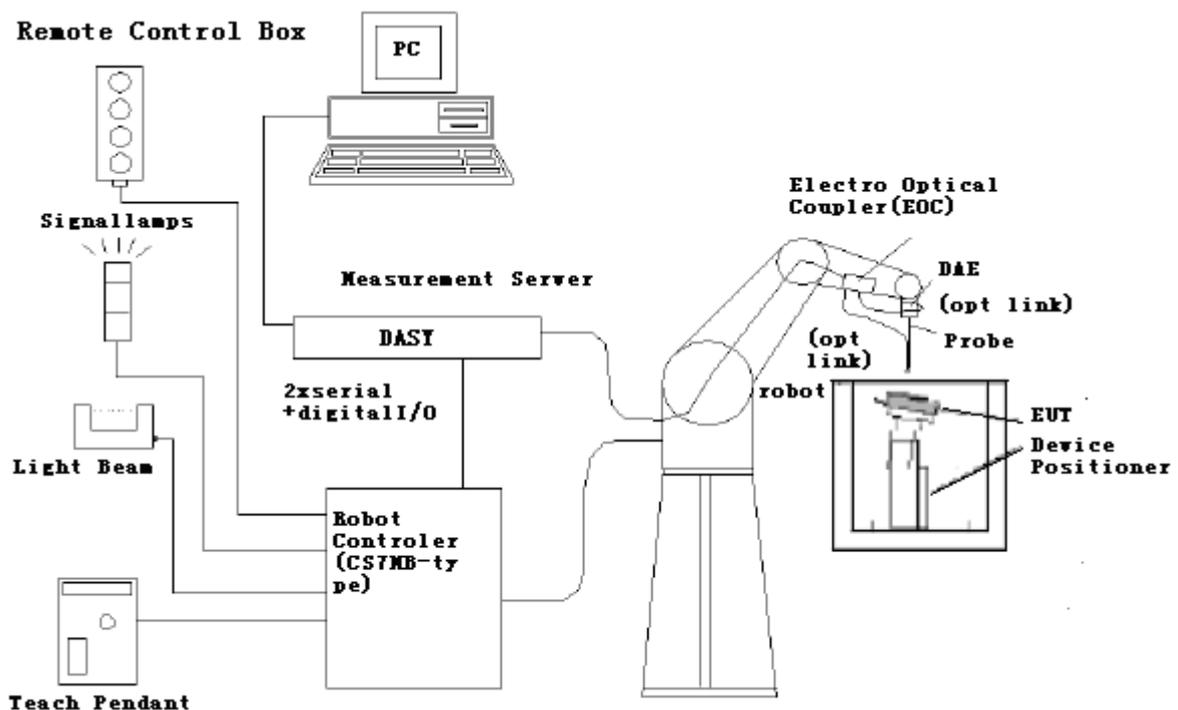


Figure 1 HAC Test Measurement Set-up

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.

2.2.2. Probe System

The HAC measurements were conducted with the E-Field Probe ER3DV6 and the H-Field Probe H3DV6 (manufactured by SPEAG), designed in the classical triangular configuration and optimized for dosimetric evaluation.

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
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



Figure 2 ER3DV6 E-field Probe

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



Figure 3 H3DV6 H-field Probe

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

2.2.3. 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 Device reference point is set for the EUT at 6.3 mm, the Grid reference point is on the upper surface at the origin of the coordinates, and the “user point \Height Check 0.5 mm” is 0.5mm above the center, allowing verification of the gap of 0.5mm while the probe is positioned there.

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

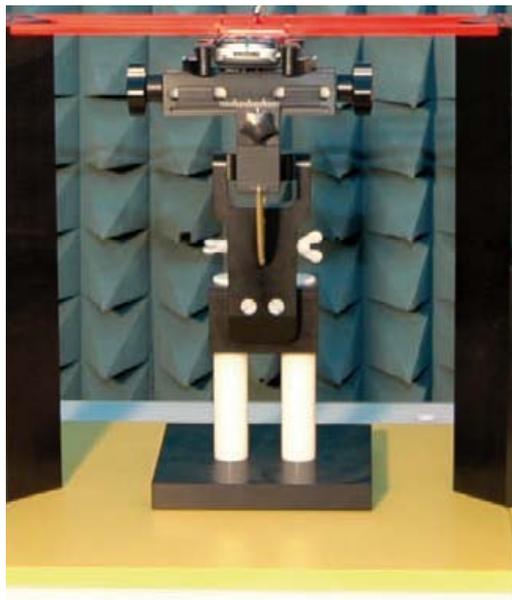


Figure 4 HAC Phantom & Device Holder

2.3. 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 is 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 center on the center of the 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 grid is 5 cm by 5 cm area that is divided into 9 evenly sized blocks or sub-grids. 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.



Figure 5 WD reference and plane for RF emission measurements

2.4. System Check

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. Validation was performed to verify that measured E-field and H-field values are within +/-25% from the target reference values provided by the manufacturer. "Values within +/-25% are acceptable. Of which 12% is deviation and 13% is measurement uncertainty."

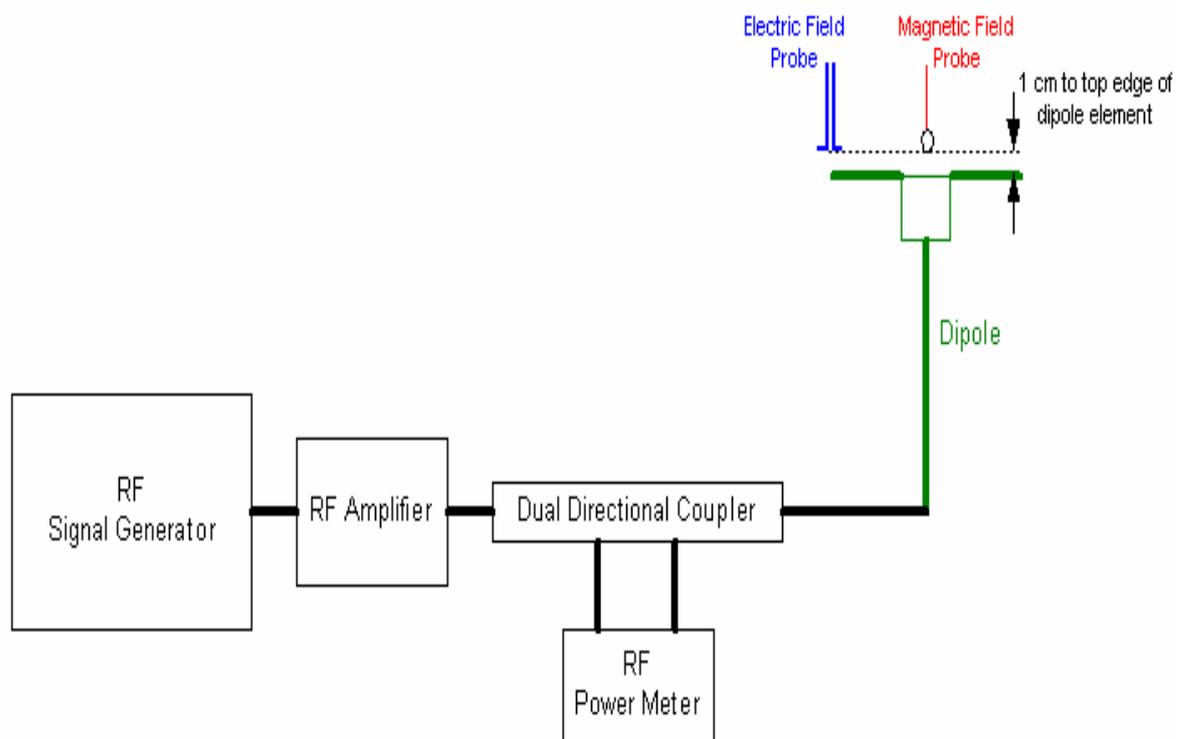


Figure 6 Dipole Validation Setup

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Dipole Measurement Summary

E-Field Scan					
Mode	Frequency (MHz)	Input Power (mW)	Value		Test Date
CW	835	100	Target ¹ Value(V/m)	161.8	August 30,2012
			Measured ² Value(V/m)	170.3	February 21,2013
			Deviation ³ (%)	5.25	/
CW	1880	100	Target ¹ Value(V/m)	139.0	August 30,2012
			Measured ² Value(V/m)	148.1	February 21,2013
			Deviation ³ (%)	6.55	/
H-Field Scan					
Mode	Frequency (MHz)	Input Power (mW)	Value		Test Date
CW	835	100	Target ¹ Value(A/m)	0.460	August 30,2012
			Measured ² Value(A/m)	0.471	February 21,2013
			Deviation ³ (%)	2.39	/
CW	1880	100	Target ¹ Value(A/m)	0.460	August 30,2012
			Measured ² Value(A/m)	0.457	February 21,2013
			Deviation ³ (%)	-0.65	/
<p>Notes: 1. Target value is provided by SPEAD in the calibration certificate of specific dipoles. 2. Please refer to the attachment for detailed measurement data and plot. 3. Deviation (%) = 100 * (Measured value minus Target value) divided by Target value.</p>					

2.5. 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.

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.
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.

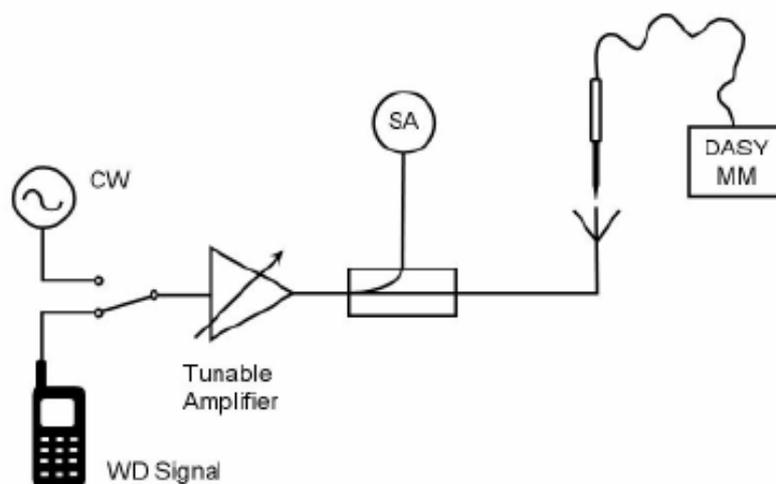


Figure Figure 7 Probe Modulation Factor Test Setup

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PMF

Band	E-Field Probe Modulation Factor	H-Field Probe Modulation Factor
CDMA BC0	1.05	1.01
CDMA BC1	1.03	1.00
CDMA BC10	1.05	1.01

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2.6. Conducted Output Power Measurement

Summary

The DUT is tested using an E5515C communications tester as controller unit to set test channels and maximum output power to the DUT, as well as for measuring the conducted power. Conducted output power was measured using an integrated RF connector and attached RF cable. This result contains conducted output power for the EUT.

Conducted Power Results

CDMA BC0	Conducted Power(dBm)		
	Channel 1013	Channel 384	Channel 777
RC3	24.09	23.92	24.01
RC1	24.13	23.9	23.97
CDMA BC1	Conducted Power(dBm)		
	Channel 25	Channel 600	Channel 1175
RC3	23.92	23.94	23.96
RC1	23.83	23.95	23.87
CDMA BC10	Conducted Power(dBm)		
	Channel 476	Channel 580	Channel 684
RC3	23.97	24.04	24.02
RC1	23.95	24.02	23.96

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3. Test Results

3.1. ANSI C63.19-2007 Limits

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

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3.2. Summary Test Results

CDMA BC0 Results

E-Field with Battery (SN: MAICB01X19102164)					
Channel	Frequency (MHz)	Peak Field (V/m)	Power Drift (dB)	Rating	Graph Results
777	848.31	70.5	-0.069	M4	Figure 12
384	836.52	72.9	-0.029	M4	Figure 13
1013	824.70	66.6	0.015	M4	Figure 14
E-Field with Battery (SN: MPCCA25919100430)					
384	836.52	70.8	0.006	M4	Figure 15
H-Field with Battery (SN: MAICB01X19102164)					
Channel	Frequency (MHz)	Peak Field (A/m)	Power Drift (dB)	Rating	Graph Results
777	848.31	0.065	0.099	M4	Figure 16
384	836.52	0.065	0.165	M4	Figure 17
1013	824.70	0.057	0.004	M4	Figure 18
H-Field with Battery (SN: MPCCA25919100430)					
384	836.52	0.066	0.119	M4	Figure 19

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CDMA BC1 Results

E-Field with Battery (SN: MAICB01X19102164)					
Channel	Frequency (MHz)	Peak Field (V/m)	Power Drift (dB)	Rating	Graph Results
1175	1908.75	22.8	-0.091	M4	Figure 20
600	1880.00	22.8	-0.033	M4	Figure 21
25	1851.25	28.5	-0.079	M4	Figure 22
E-Field with Battery (SN: MPCCA25919100430)					
25	1851.25	28.1	-0.078	M4	Figure 23
H-Field with Battery (SN: MAICB01X19102164)					
Channel	Frequency (MHz)	Peak Field (A/m)	Power Drift (dB)	Rating	Graph Results
1175	1908.75	0.090	-0.034	M4	Figure 24
600	1880.00	0.100	0.025	M4	Figure 25
25	1851.25	0.109	-0.008	M4	Figure 26
H-Field with Battery (SN: MPCCA25919100430)					
25	1851.25	0.108	0.037	M4	Figure 27

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CDMA BC10 Results

E-Field with Battery (SN: MAICB01X19102164)					
Channel	Frequency (MHz)	Peak Field (V/m)	Power Drift (dB)	Rating	Graph Results
684	823.1	65.2	-0.048	M4	Figure 20
580	820.5	71.6	-0.036	M4	Figure 21
476	817.9	77.3	-0.029	M4	Figure 22
E-Field with Battery (SN: MPCCA25919100430)					
476	817.9	76.7	0.076	M4	Figure 23
H-Field with Battery (SN: MAICB01X19102164)					
Channel	Frequency (MHz)	Peak Field (A/m)	Power Drift (dB)	Rating	Graph Results
684	823.1	0.056	0.022	M4	Figure 24
580	820.5	0.059	0.004	M4	Figure 25
476	817.9	0.066	0.016	M4	Figure 26
H-Field with Battery (SN: MPCCA25919100430)					
476	817.9	0.066	0.001	M4	Figure 27

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4. Measurement Uncertainty

No.	Error source	Type	Uncertainty Value (%)	Prob. Dist.	k	c_{iE}	c_{iH}	Standard Uncertainty (%) u_i (%) E	Standard Uncertainty (%) u_i (%) H	Degree of freedom V_{eff} or v_i
Measurement System										
1	Probe Calibration	B	5.1	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	Test Arch	B	7.2	R	$\sqrt{3}$	1	0	4.1	0	∞
6	Linearity	B	4.7	R	$\sqrt{3}$	1	1	2.7	2.7	∞
7	Scaling to Peak Envelope Power	B	2.0	R	$\sqrt{3}$	1	1	1.2	1.2	∞
8	System Detection Limit	B	1.0	R	$\sqrt{3}$	1	1	0.6	0.6	∞
9	Readout Electronics	B	0.3	N	1	1	1	0.3	0.3	∞
10	Response Time	B	0.8	R	$\sqrt{3}$	1	1	0.5	0.5	∞
11	Integration Time	B	2.6	R	$\sqrt{3}$	1	1	1.5	1.5	∞
12	RF Ambient Conditions	B	3.0	R	$\sqrt{3}$	1	1	1.7	1.7	∞
13	RF Reflections	B	12.0	R	$\sqrt{3}$	1	1	6.9	6.9	∞
14	Probe Positioner	B	1.2	R	$\sqrt{3}$	1	0.67	0.7	0.5	∞
15	Probe Positioning	A	4.7	R	$\sqrt{3}$	1	0.67	2.7	1.8	∞
16	Extra. And Interpolation	B	1.0	R	$\sqrt{3}$	1	1	0.6	0.6	∞
Test Sample Related										
17	Device Positioning Vertical	B	4.7	R	$\sqrt{3}$	1	0.67	2.7	1.8	∞
18	Device Positioning Lateral	B	1.0	R	$\sqrt{3}$	1	1	0.6	0.6	∞

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19	Device Holder and Phantom	B	2.4	R	$\sqrt{3}$	1	1	1.4	1.4	∞
20	Power Drift	B	5.0	R	$\sqrt{3}$	1	1	2.9	2.9	∞
Phantom and Setup related										
21	Phantom Thickness	B	2.4	R	$\sqrt{3}$	1	0.67	1.4	0.9	∞
Combined standard uncertainty (%)								15.19	10.82	
Expanded Std. uncertainty on power (K=2)								30.38	21.65	
Expanded Std. uncertainty on field (K=2)								15.19	10.82	

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5. Main Test Instruments

No.	Name	Type	Serial Number	Calibration Date	Valid Period
01	Power meter	Agilent E4417A	GB41291714	March 11, 2012	One year
02	Power sensor	Agilent N8481H	MY50350004	September 24, 2012	One year
03	Signal Generator	HP 8341B	2730A00804	September 11, 2012	One year
04	Amplifier	IXA-020	0401	No Calibration Requested	
05	BTS	E5515C	MY48360988	December 1, 2012	One year
06	E-Field Probe	ER3DV6	2428	August 30, 2012	One year
07	H-Field Probe	H3DV6	6260	August 30, 2012	One year
08	DAE	DAE4	905	June 21, 2012	One year
09	Validation Kit 835MHz	CD835V3	1023	August 30, 2012	One year
10	Validation Kit 1880MHz	CD1880V3	1018	August 30, 2012	One year
11	Hygrothermograph	WS-1	64591	September 27, 2012	One year

*****END OF REPORT *****

ANNEX A: System Check Results

HAC_System Performance Check at 835MHz_E

DUT: Dipole 835 MHz; Type: CD835V3; SN:1023

Date/Time: 2/21/2013 6:17:52 PM

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

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

Ambient Temperature: 22.3 °C

Phantom section: RF Section

DASY5 Configuration:

Probe: ER3DV6 - SN2428; ConvF(1, 1, 1); Calibrated: 8/30/2012

Electronics: DAE4 Sn905; Calibrated: 6/21/2012

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

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

E Scan - measurement distance from the probe sensor center to CD835 Dipole = 10mm

2/Hearing Aid Compatibility Test (41x361x1): Measurement grid: dx=5mm, dy=5mm

Maximum value of peak Total field = 170.3 V/m

Probe Modulation Factor = 1.00

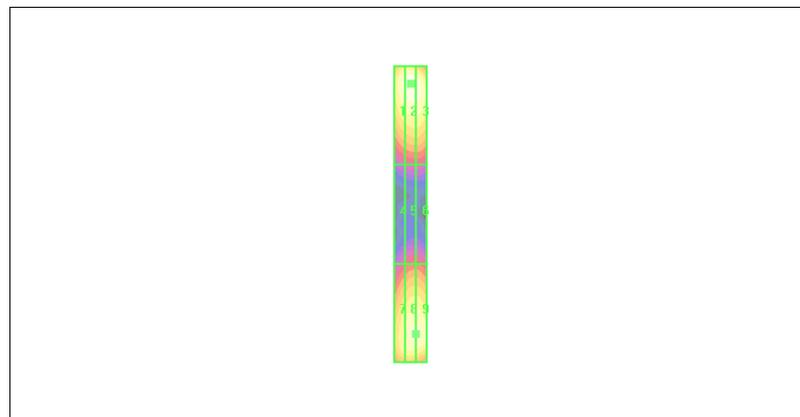
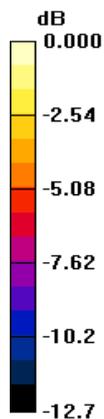
Device Reference Point: 0.000, 0.000, -6.30 mm

Reference Value = 118.7 V/m; Power Drift = 0.003 dB

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

Peak E-field in V/m

Grid 1	Grid 2	Grid 3
161.9 M4	170.3 M4	166.1 M4
Grid 4	Grid 5	Grid 6
81.2 M4	88.2 M4	87.9 M4
Grid 7	Grid 8	Grid 9
144.5 M4	157.6 M4	157.6 M4



0 dB = 170.3V/m

Figure 8 System Performance Check 835MHz_E

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HAC_System Performance Check at 835MHz_H

DUT: Dipole 835 MHz; Type: CD835V3; SN: 1023

Date/Time: 2/21/2013 4:47:52 PM

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

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

Ambient Temperature: 22.3 °C

Phantom section: RF Section

DASY5 Configuration:

Probe: H3DV6 - SN6260; ; Calibrated: 8/30/2012

Electronics: DAE4 Sn905; Calibrated: 6/21/2012

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

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

H Scan - measurement distance from the probe sensor center to CD835 Dipole = 10mm/Hearing Aid Compatibility Test (41x381x1): Measurement grid: dx=5mm, dy=5mm

Maximum value of peak Total field = 0.471 A/m

Probe Modulation Factor = 1.00

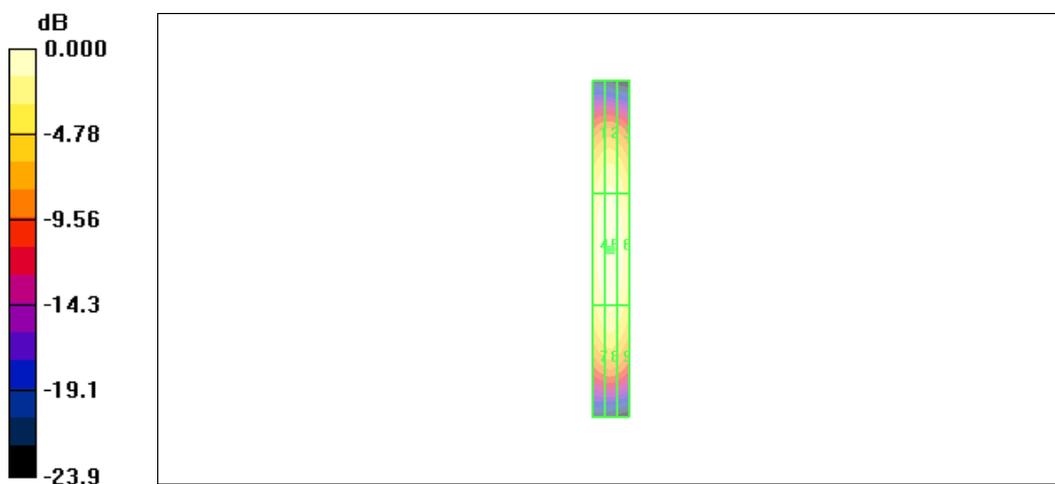
Device Reference Point: 0.000, 0.000, -6.30 mm

Reference Value = 0.503 A/m; Power Drift = -0.012 dB

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

Peak H-field in A/m

Grid 1 0.397 M4	Grid 2 0.411 M4	Grid 3 0.382 M4
Grid 4 0.453 M4	Grid 5 0.471 M4	Grid 6 0.440 M4
Grid 7 0.388 M4	Grid 8 0.405 M4	Grid 9 0.380 M4



0 dB = 0.471A/m

Figure 9 System Performance Check 835MHz_H

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HAC_System Performance Check at 1880MHz_E

DUT: Dipole 1880 MHz; Type: CD1880V3; SN: 1018

Date/Time: 2/21/2013 3:17:52 PM

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

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

Ambient Temperature: 22.3 °C

Phantom section: RF Section

DASY5 Configuration:

Probe: ER3DV6 - SN2428; ConvF(1, 1, 1); Calibrated: 8/30/2012

Electronics: DAE4 Sn905; Calibrated: 6/21/2012

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

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

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 = 148.1 V/m

Probe Modulation Factor = 1.00

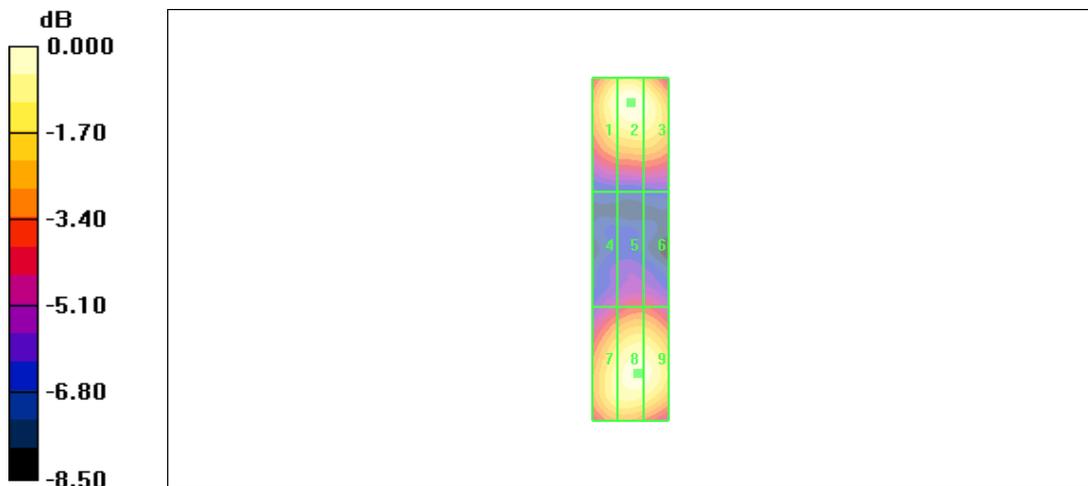
Device Reference Point: 0.000, 0.000, -6.30 mm

Reference Value = 146.4 V/m; Power Drift = 0.002 dB

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

Peak E-field in V/m

Grid 1 140.5 M2	Grid 2 148.1 M2	Grid 3 143.0 M2
Grid 4 86.9 M3	Grid 5 93.9 M3	Grid 6 93.7 M3
Grid 7 136.0 M2	Grid 8 143.9 M2	Grid 9 143.2 M2



0 dB = 148.1V/m

Figure 10 System Performance Check 1880MHz_E

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HAC_System Performance Check at 1880MHz_H

DUT: Dipole 1880 MHz; Type: CD1880V3; SN: 1018

Date/Time: 2/21/2013 1:47:52 PM

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

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

Ambient Temperature: 22.3 °C

Phantom section: RF Section

DASY5 Configuration:

Probe: H3DV6 - SN6260; ; Calibrated: 8/30/2012

Electronics: DAE4 Sn905; Calibrated: 6/21/2012

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

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

H Scan - measurement distance from the probe sensor center to Dipole = 10mm/Hearing Aid

Compatibility Test (41x181x1): Measurement grid: dx=5mm, dy=5mm

Maximum value of peak Total field = 0.457 A/m

Probe Modulation Factor = 1.00

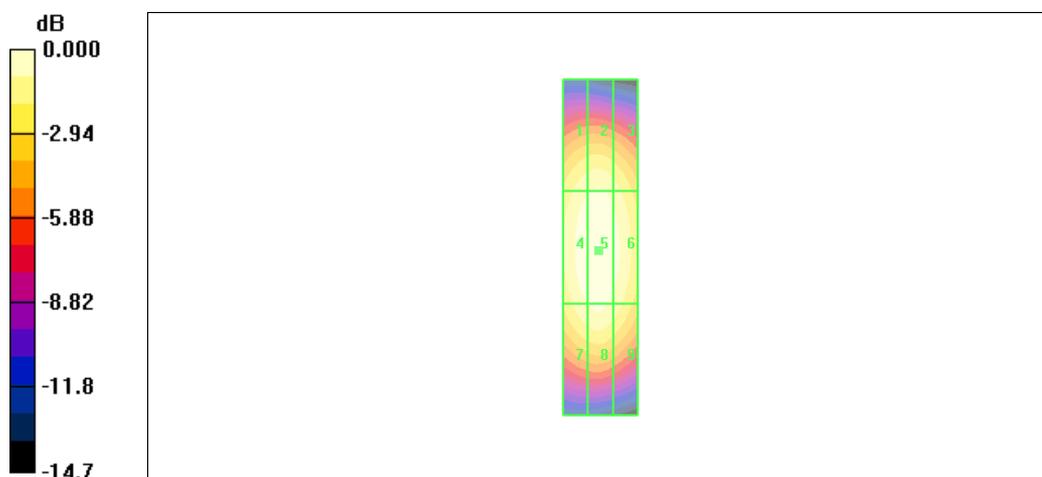
Device Reference Point: 0.000, 0.000, -6.30 mm

Reference Value = 0.483 A/m; Power Drift = 0.003 dB

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

Peak H-field in A/m

Grid 1 0.403 M2	Grid 2 0.415 M2	Grid 3 0.387 M2
Grid 4 0.443 M2	Grid 5 0.457 M2	Grid 6 0.428 M2
Grid 7 0.408 M2	Grid 8 0.423 M2	Grid 9 0.393 M2



0 dB = 0.457A/m

Figure 11 System Performance Check 1880MHz_H

ANNEX B: Graph Results

HAC RF E-Field CDMA BC0 High (SN: MAICB01X19102164)

Date/Time: 2/21/2013 7:54:53 PM

Communication System: CDMA ; Frequency: 848.31 MHz; Duty Cycle: 1:1

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

Ambient Temperature: 22.3 °C

Phantom section: RF Section

DASY5 Configuration:

Probe: ER3DV6 - SN2428; ConvF(1, 1, 1); Calibrated: 8/30/2012

Electronics: DAE4 Sn905; Calibrated: 6/21/2012

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

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

H882L CDMA Cellular HAC RF E-Field/E Scan - ER3D - 2007: 15 mm from Probe Center to the Device High/Hearing Aid Compatibility Test (101x101x1): Measurement grid: dx=5mm, dy=5mm

Maximum value of peak Total field = 63.7 V/m

Probe Modulation Factor = 1.05

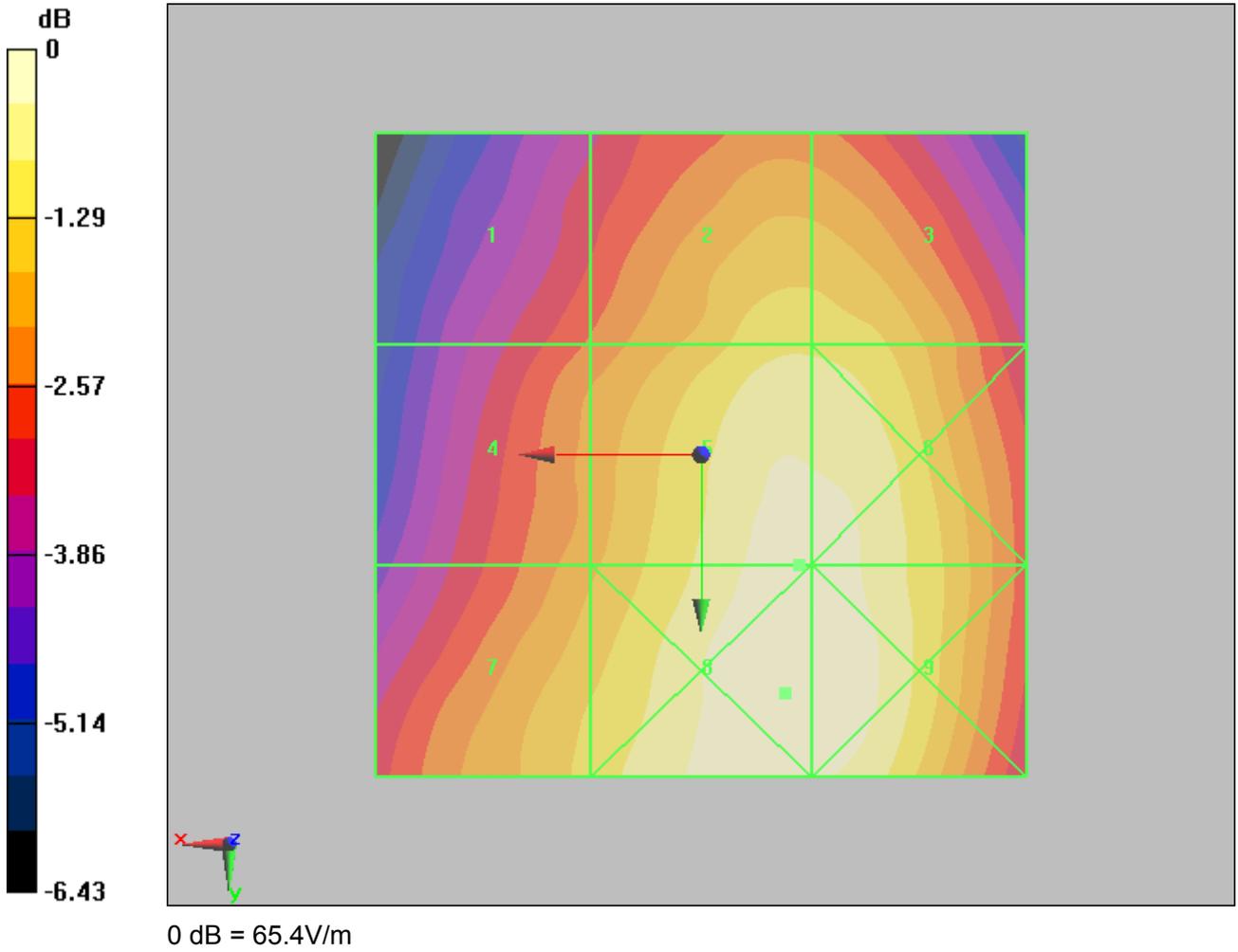
Device Reference Point: 0, 0, -6.3 mm

Reference Value = 70.5 V/m; Power Drift = -0.069 dB

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

Peak E-field in V/m

Grid 1	Grid 2	Grid 3
49.1 M4	58.8 M4	58.7 M4
Grid 4	Grid 5	Grid 6
53.2 M4	63.7 M4	63.7 M4
Grid 7	Grid 8	Grid 9
57.5 M4	65.4 M4	65.2 M4



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HAC RF E-Field CDMA BC0 Middle (SN: MAICB01X19102164)

Date/Time: 2/21/2013 7:47:24 PM

Communication System: CDMA ; Frequency: 836.52 MHz;Duty Cycle: 1:1

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

Ambient Temperature:22.3 °C

Phantom section: RF Section

DASY5 Configuration:

Probe: ER3DV6 - SN2428; ConvF(1, 1, 1); Calibrated: 8/30/2012

Electronics: DAE4 Sn905; Calibrated: 6/21/2012

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

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

H882L CDMA Cellular HAC RF E-Field/E Scan - ER3D - 2007: 15 mm from Probe Center to the Device Middle/Hearing Aid Compatibility Test (101x101x1): Measurement grid: dx=5mm, dy=5mm

Maximum value of peak Total field = 65.3 V/m

Probe Modulation Factor = 1.05

Device Reference Point: 0, 0, -6.3 mm

Reference Value = 72.9 V/m; Power Drift = -0.029 dB

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

Peak E-field in V/m

Grid 1	Grid 2	Grid 3
50.9 M4	60.3 M4	60.3 M4
Grid 4	Grid 5	Grid 6
54.5 M4	65.3 M4	65.3 M4
Grid 7	Grid 8	Grid 9
58.8 M4	66.2 M4	66.1 M4

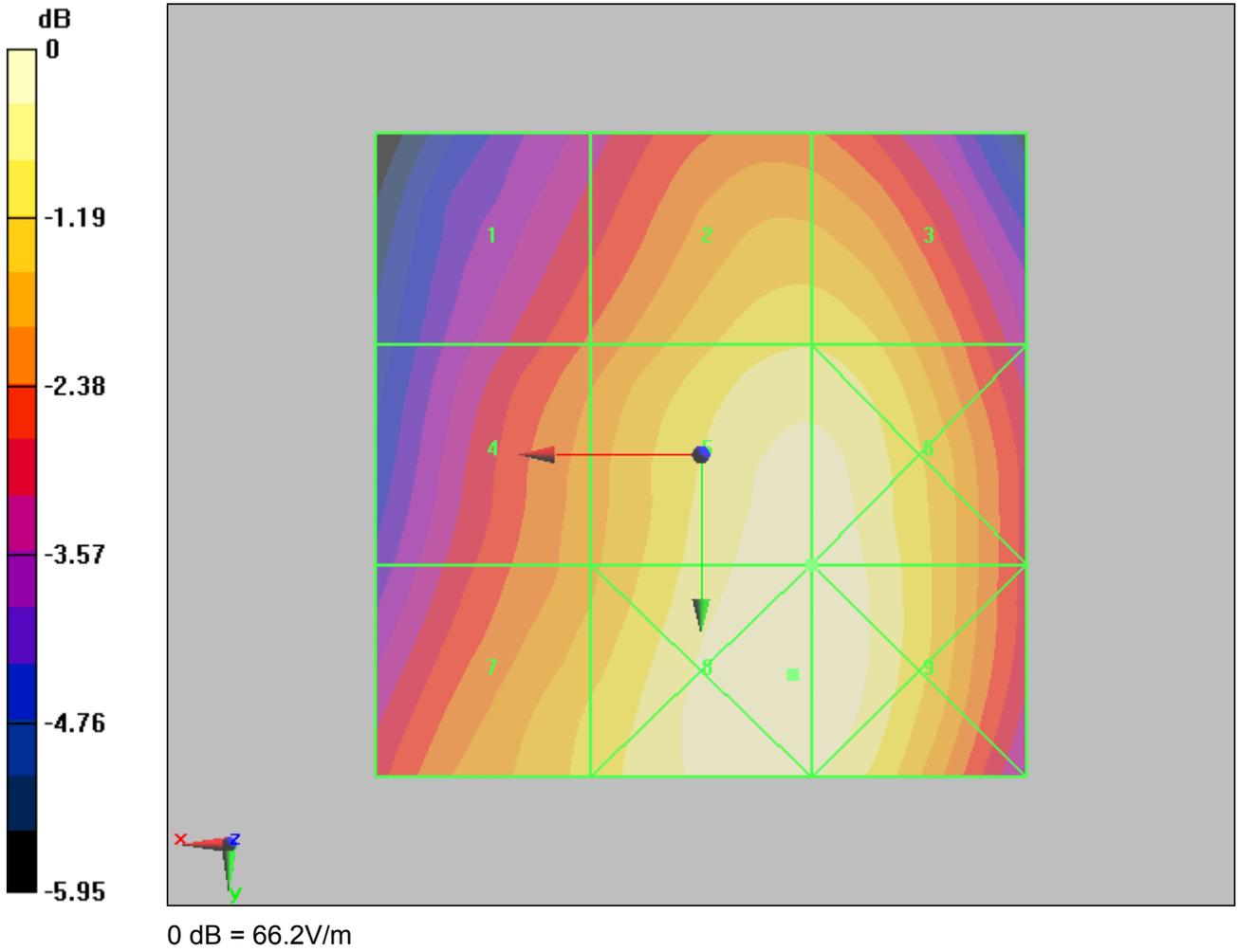


Figure 13 HAC RF E-Field CDMA BC0 Channel 384

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HAC RF E-Field CDMA BC0 Low (SN: MAICB01X19102164)

Date/Time: 2/21/2013 8:00:28 PM

Communication System: CDMA ; Frequency: 824.7 MHz; Duty Cycle: 1:1

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

Ambient Temperature: 22.3 °C

Phantom section: RF Section

DASY5 Configuration:

Probe: ER3DV6 - SN2428; ConvF(1, 1, 1); Calibrated: 8/30/2012

Electronics: DAE4 Sn905; Calibrated: 6/21/2012

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

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

H882L CDMA Cellular HAC RF E-Field/E Scan - ER3D - 2007: 15 mm from Probe Center to the Device Low/Hearing Aid Compatibility Test (101x101x1): Measurement grid: dx=5mm, dy=5mm

Maximum value of peak Total field = 58.9 V/m

Probe Modulation Factor = 1.05

Device Reference Point: 0, 0, -6.3 mm

Reference Value = 66.6 V/m; Power Drift = 0.015 dB

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

Peak E-field in V/m

Grid 1 47.2 M4	Grid 2 54.8 M4	Grid 3 54.7 M4
Grid 4 50.6 M4	Grid 5 58.9 M4	Grid 6 58.7 M4
Grid 7 54 M4	Grid 8 59.5 M4	Grid 9 59.4 M4

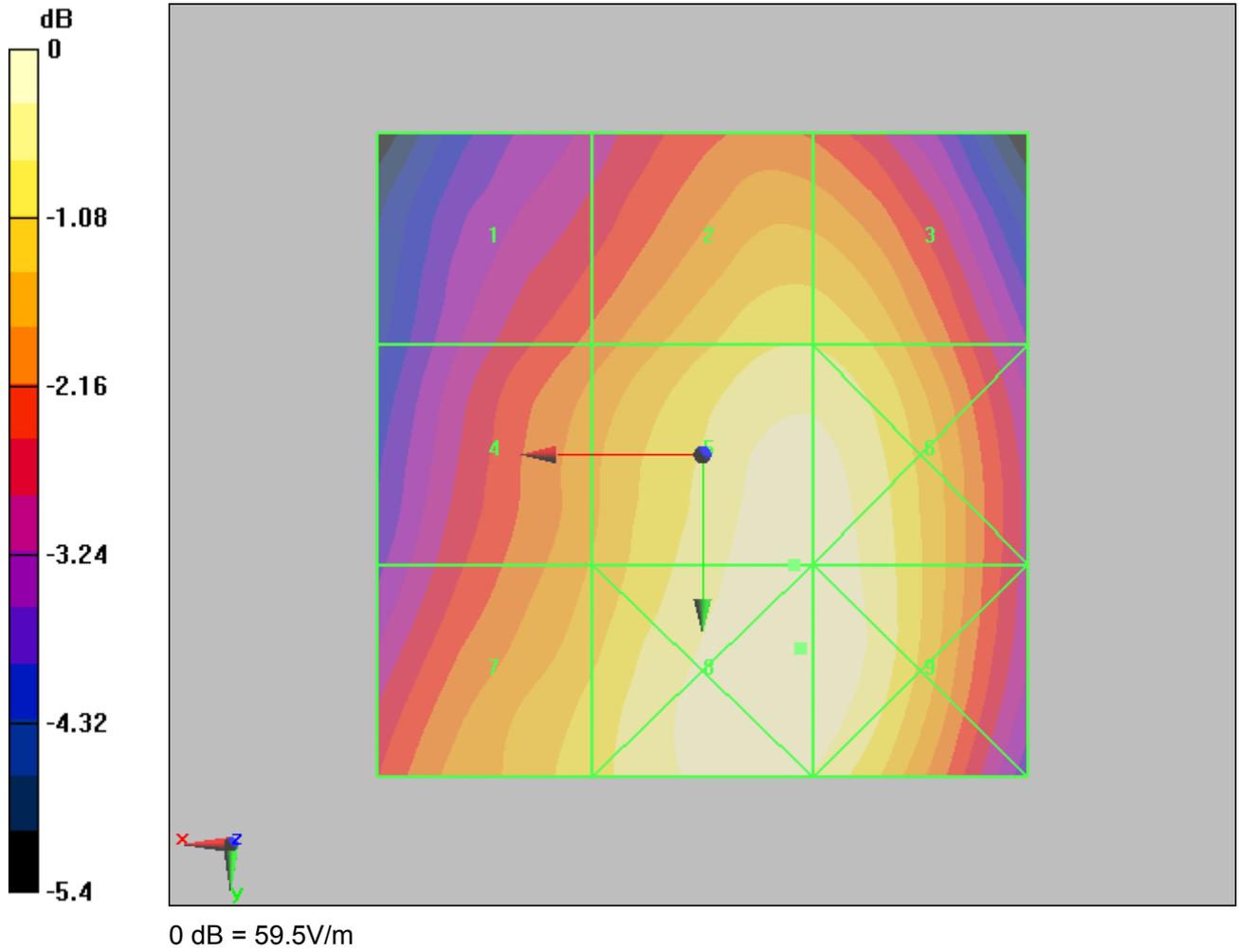


Figure 14 HAC RF E-Field CDMA BC0 Channel 1013

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HAC RF E-Field CDMA BC0 Middle (SN: MPCCA25919100430)

Date/Time: 2/21/2013 8:27:05 PM

Communication System: CDMA ; Frequency: 836.52 MHz; Duty Cycle: 1:1

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

Ambient Temperature: 22.3 °C

Phantom section: RF Section

DASY5 Configuration:

Probe: ER3DV6 - SN2428; ConvF(1, 1, 1); Calibrated: 8/30/2012

Electronics: DAE4 Sn905; Calibrated: 6/21/2012

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

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

H882L with Battery MPCC CDMA Cellular HAC RF E-Field/E Scan - ER3D - 2007: 15 mm from Probe Center to the Device Middle/Hearing Aid Compatibility Test (101x101x1): Measurement

grid: dx=5mm, dy=5mm

Maximum value of peak Total field = 63.1 V/m

Probe Modulation Factor = 1.05

Device Reference Point: 0, 0, -6.3 mm

Reference Value = 70.8 V/m; Power Drift = 0.006 dB

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

Peak E-field in V/m

Grid 1	Grid 2	Grid 3
49.7 M4	58.8 M4	58.7 M4
Grid 4	Grid 5	Grid 6
53.4 M4	63.1 M4	63.1 M4
Grid 7	Grid 8	Grid 9
57.1 M4	63.9 M4	63.9 M4

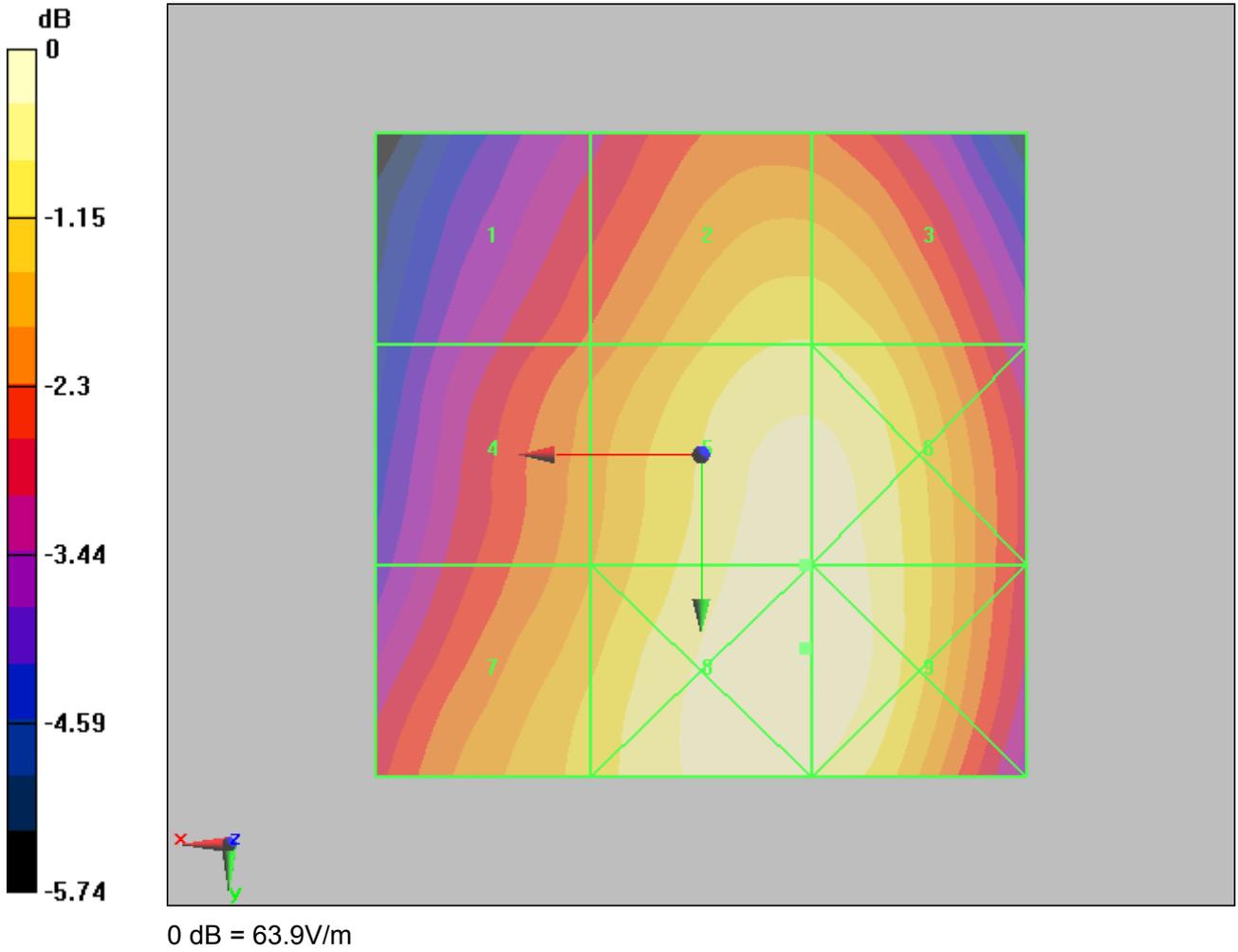


Figure 15 HAC RF E-Field CDMA BC0 Channel 384

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HAC RF H-Field CDMA BC0 High (SN: MAICB01X19102164)

Date/Time: 2/21/2013 10:22:37 PM

Communication System: CDMA ; Frequency: 848.31 MHz;Duty Cycle: 1:1

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

Ambient Temperature:22.3 °C

Phantom section: RF Section

DASY5 Configuration:

Probe: H3DV6 - SN6260; ; Calibrated: 8/30/2012

Electronics: DAE4 Sn905; Calibrated: 6/21/2012

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

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

H882L CDMA Cellular HAC RF H-Field/H Scan - H3DV6 - 2007: 15 mm from Probe Center to the Device High/Hearing Aid Compatibility Test (101x101x1): Measurement grid: dx=5mm, dy=5mm

Maximum value of peak Total field = 0.094 A/m

Probe Modulation Factor = 1.01

Device Reference Point: 0, 0, -6.3 mm

Reference Value = 0.065 A/m; Power Drift = 0.099 dB

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

Peak H-field in A/m

Grid 1 0.115 M4	Grid 2 0.094 M4	Grid 3 0.068 M4
Grid 4 0.096 M4	Grid 5 0.076 M4	Grid 6 0.058 M4
Grid 7 0.101 M4	Grid 8 0.074 M4	Grid 9 0.049 M4

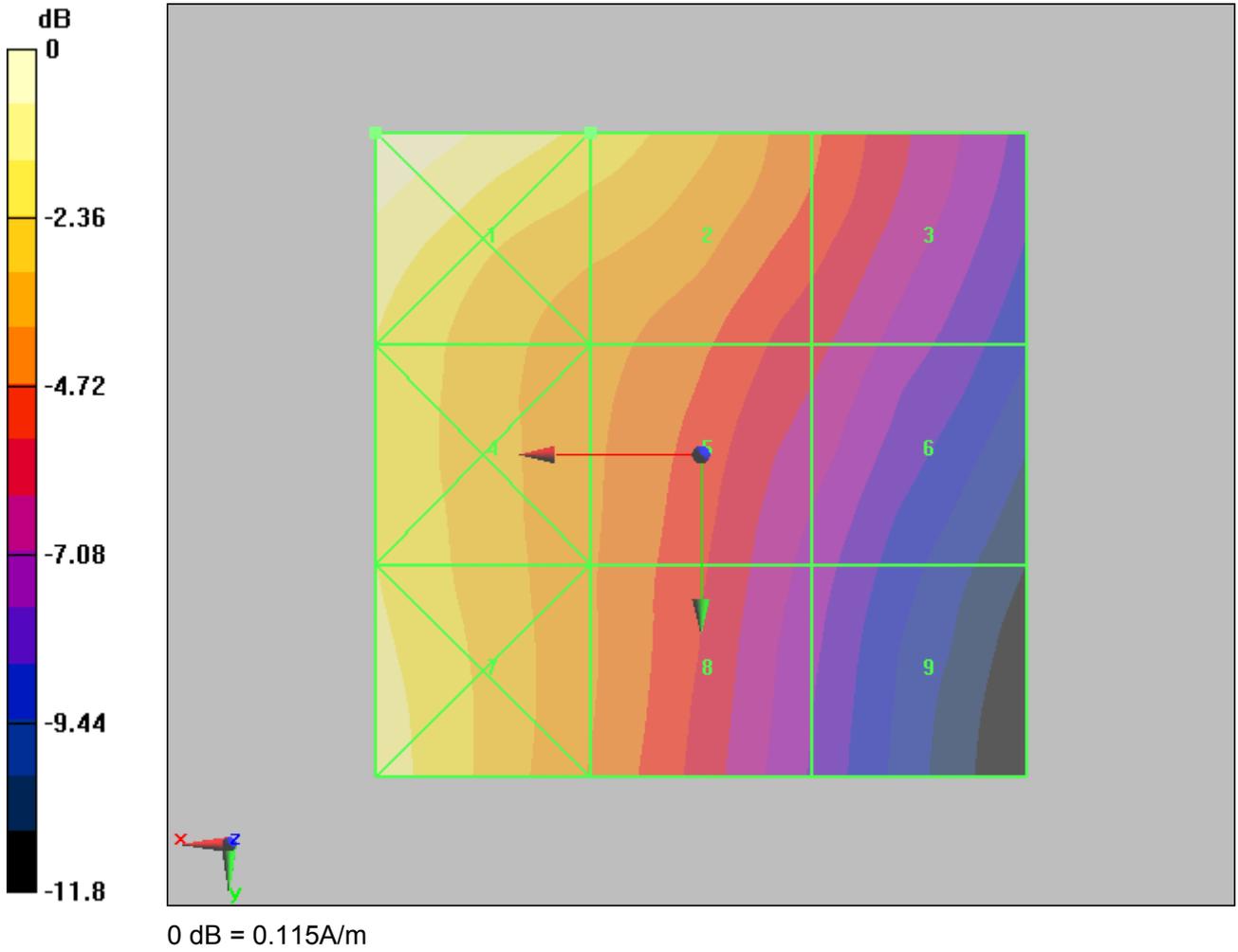


Figure 16 HAC RF H-Field CDMA BC0 Channel 777

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HAC RF H-Field CDMA BC0 Middle (SN: MAICB01X19102164)

Date/Time: 2/21/2013 10:16:02 PM

Communication System: CDMA ; Frequency: 836.52 MHz;Duty Cycle: 1:1

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

Ambient Temperature:22.3 °C

Phantom section: RF Section

DASY5 Configuration:

Probe: H3DV6 - SN6260; ; Calibrated: 8/30/2012

Electronics: DAE4 Sn905; Calibrated: 6/21/2012

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

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

H882L CDMA Cellular HAC RF H-Field/H Scan - H3DV6 - 2007: 15 mm from Probe Center to the Device Middle/Hearing Aid Compatibility Test (101x101x1): Measurement grid: dx=5mm, dy=5mm

Maximum value of peak Total field = 0.096 A/m

Probe Modulation Factor = 1.01

Device Reference Point: 0, 0, -6.3 mm

Reference Value = 0.065 A/m; Power Drift = 0.165 dB

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

Peak H-field in A/m

Grid 1 0.120 M4	Grid 2 0.096 M4	Grid 3 0.070 M4
Grid 4 0.098 M4	Grid 5 0.077 M4	Grid 6 0.058 M4
Grid 7 0.105 M4	Grid 8 0.076 M4	Grid 9 0.050 M4

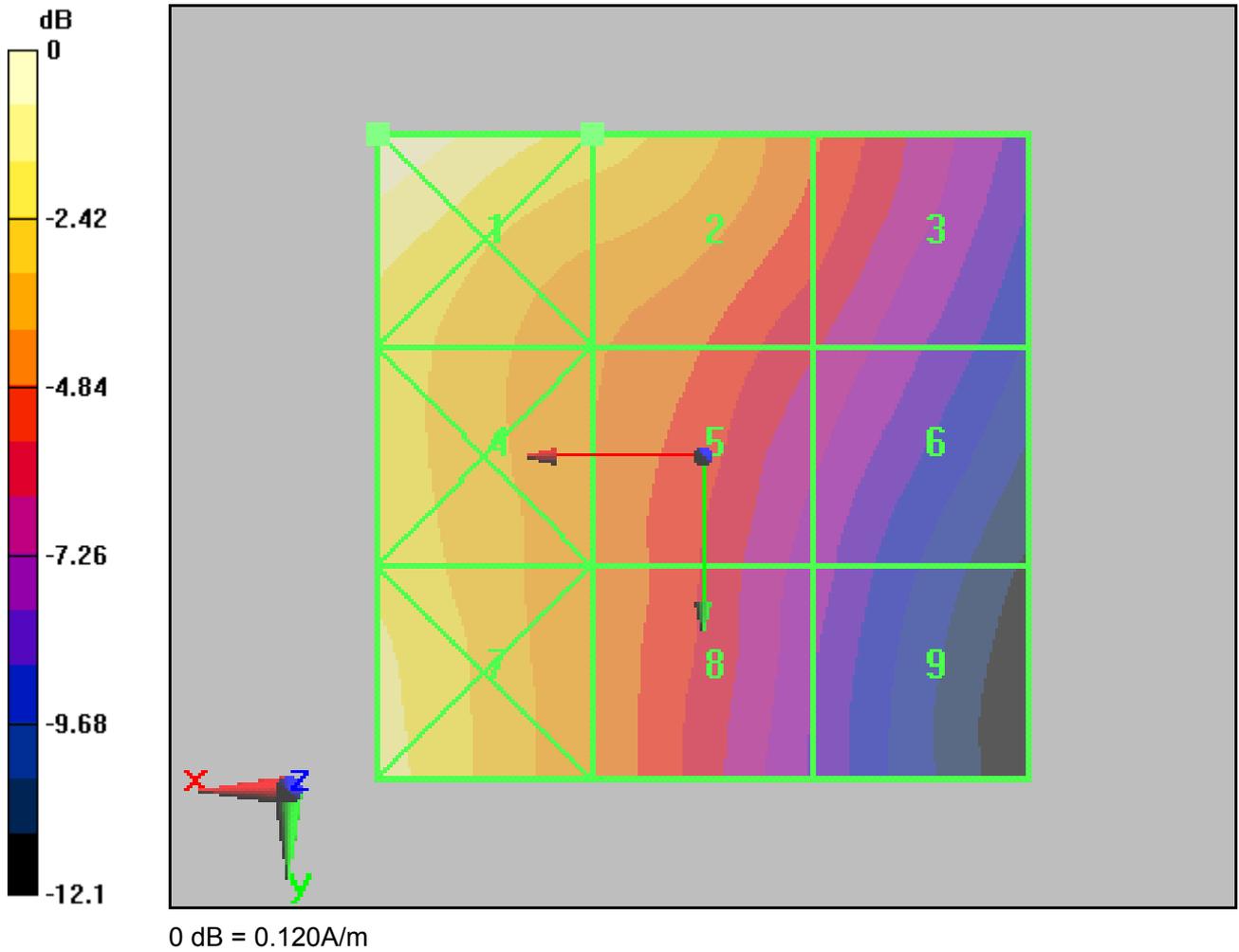


Figure 17 HAC RF H-Field CDMA BC0 Channel 384

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HAC RF H-Field CDMA BC0 Low (SN: MAICB01X19102164)

Date/Time: 2/21/2013 10:28:13 PM

Communication System: CDMA ; Frequency: 824.7 MHz; Duty Cycle: 1:1

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

Ambient Temperature: 22.3 °C

Phantom section: RF Section

DASY5 Configuration:

Probe: H3DV6 - SN6260; ; Calibrated: 8/30/2012

Electronics: DAE4 Sn905; Calibrated: 6/21/2012

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

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

H882L CDMA Cellular HAC RF H-Field/H Scan - H3DV6 - 2007: 15 mm from Probe Center to the Device Low/Hearing Aid Compatibility Test (101x101x1): Measurement grid: dx=5mm, dy=5mm

Maximum value of peak Total field = 0.087 A/m

Probe Modulation Factor = 1.01

Device Reference Point: 0, 0, -6.3 mm

Reference Value = 0.057 A/m; Power Drift = -0.004 dB

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

Peak H-field in A/m

Grid 1 0.107 M4	Grid 2 0.087 M4	Grid 3 0.062 M4
Grid 4 0.086 M4	Grid 5 0.067 M4	Grid 6 0.051 M4
Grid 7 0.091 M4	Grid 8 0.066 M4	Grid 9 0.042 M4

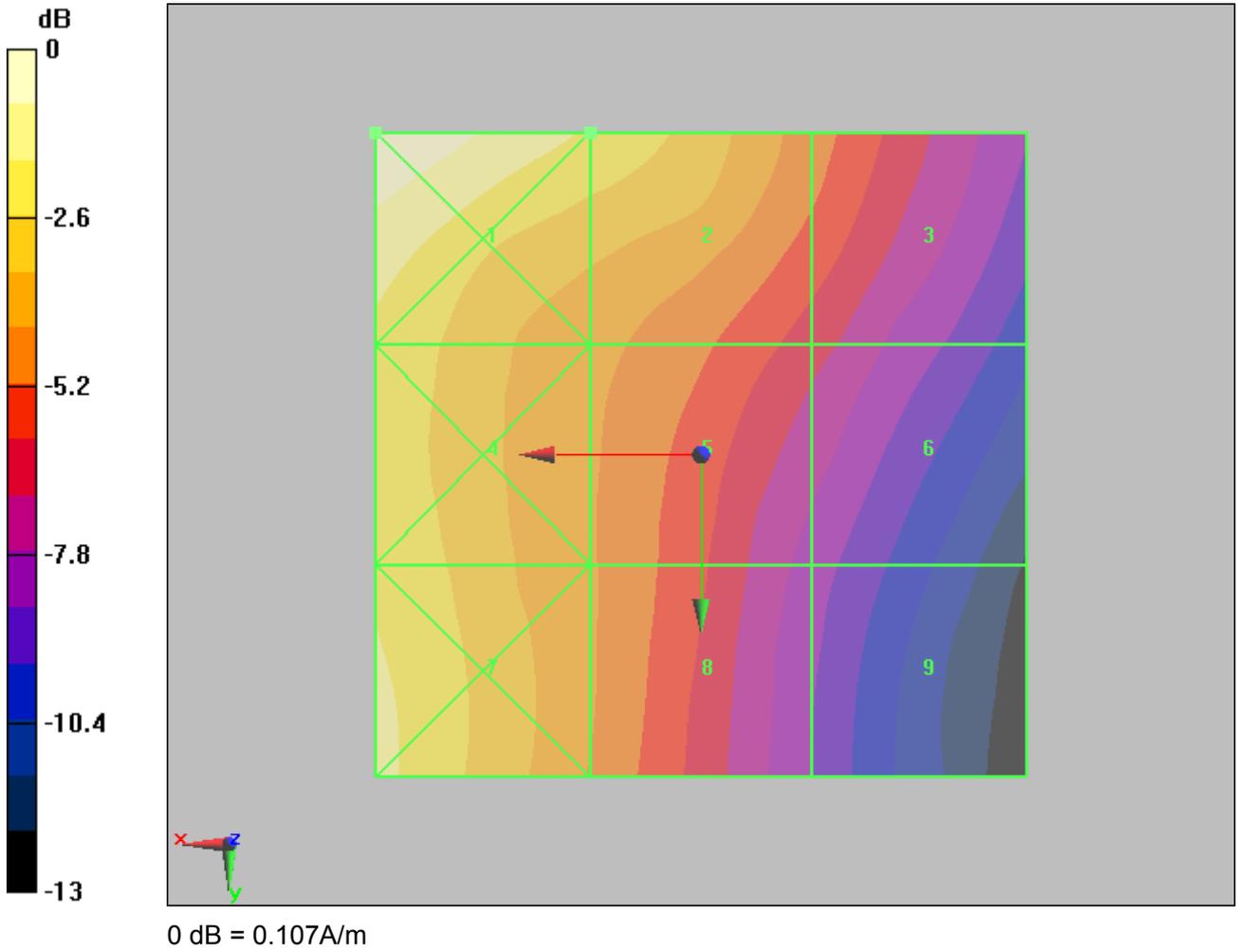


Figure 18 HAC RF H-Field CDMA BC0 Channel 1013

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HAC RF H-Field CDMA BC0 Middle (SN: MPCCA25919100430)

Date/Time: 2/21/2013 10:36:44 PM

Communication System: CDMA ; Frequency: 836.52 MHz;Duty Cycle: 1:1

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

Ambient Temperature:22.3 °C

Phantom section: RF Section

DASY5 Configuration:

Probe: H3DV6 - SN6260; ; Calibrated: 8/30/2012

Electronics: DAE4 Sn905; Calibrated: 6/21/2012

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

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

H882L with Battery MPCC CDMA Cellular HAC RF H-Field/H Scan - H3DV6 - 2007: 15 mm from Probe Center to the Device Middle/Hearing Aid Compatibility Test (101x101x1): Measurement

grid: dx=5mm, dy=5mm

Maximum value of peak Total field = 0.098 A/m

Probe Modulation Factor = 1.01

Device Reference Point: 0, 0, -6.3 mm

Reference Value = 0.066 A/m; Power Drift = 0.119 dB

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

Peak H-field in A/m

Grid 1 0.122 M4	Grid 2 0.098 M4	Grid 3 0.071 M4
Grid 4 0.099 M4	Grid 5 0.078 M4	Grid 6 0.059 M4
Grid 7 0.106 M4	Grid 8 0.077 M4	Grid 9 0.050 M4

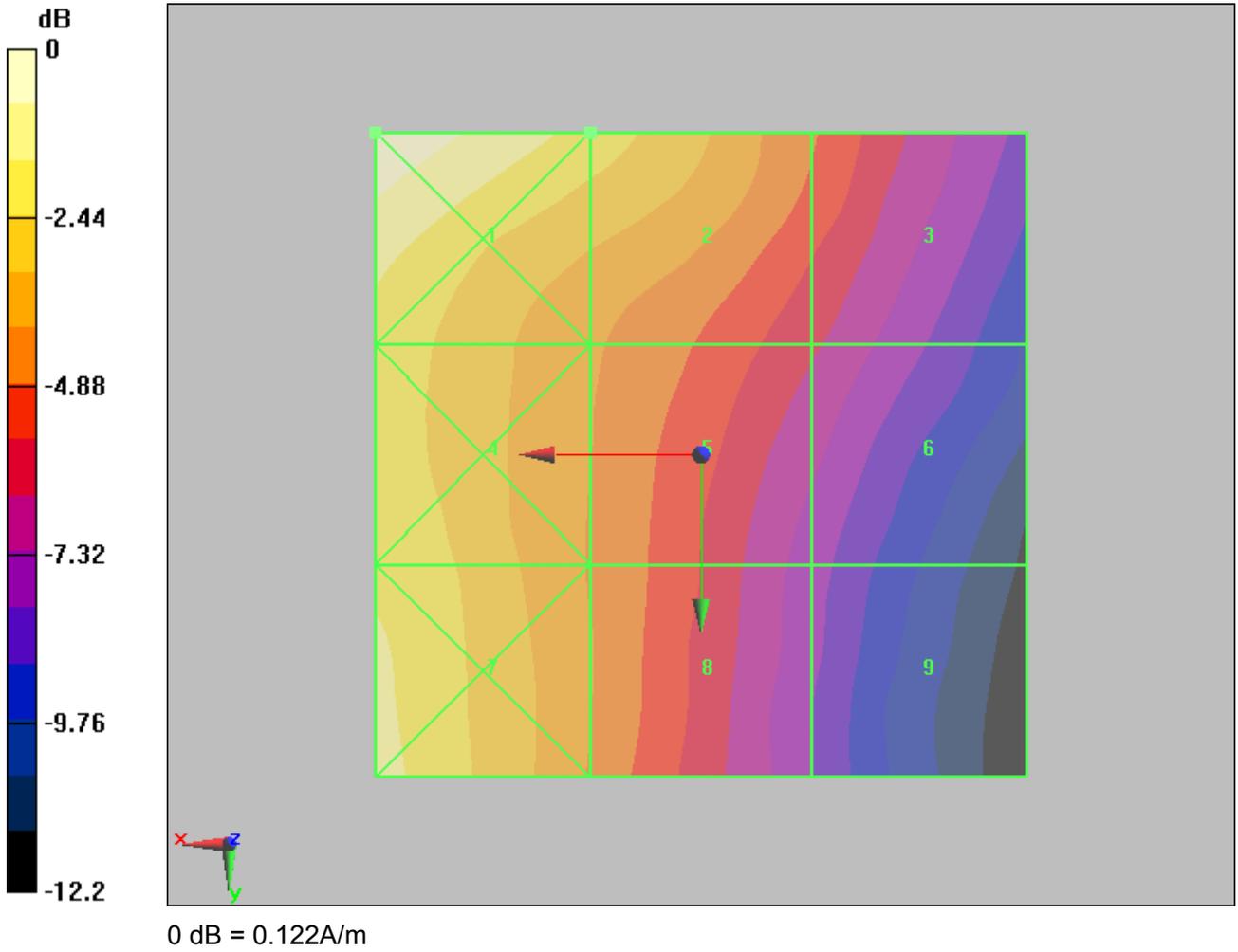


Figure 19 HAC RF H-Field CDMA BC0 Channel 384

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HAC RF E-Field CDMA BC1 High (SN: MAICB01X19102164)

Date/Time: 2/21/2013 8:58:27 PM

Communication System: CDMA ; Frequency: 1908.75 MHz;Duty Cycle: 1:1

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

Ambient Temperature:22.3 °C

Phantom section: RF Section

DASY5 Configuration:

Probe: ER3DV6 - SN2428; ConvF(1, 1, 1); Calibrated: 8/30/2012

Electronics: DAE4 Sn905; Calibrated: 6/21/2012

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

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

H882L CDMA PCS HAC RF E-Field/E Scan - ER3D - 2007: 15 mm from Probe Center to the Device High/Hearing Aid Compatibility Test (101x101x1): Measurement grid: dx=5mm, dy=5mm

Maximum value of peak Total field = 29.1 V/m

Probe Modulation Factor = 1.03

Device Reference Point: 0, 0, -6.3 mm

Reference Value = 22.8 V/m; Power Drift = -0.091 dB

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

Peak E-field in V/m

Grid 1 22.2 M4	Grid 2 19.1 M4	Grid 3 19.7 M4
Grid 4 17.1 M4	Grid 5 29.1 M4	Grid 6 29.4 M4
Grid 7 27.4 M4	Grid 8 34.6 M4	Grid 9 34.3 M4

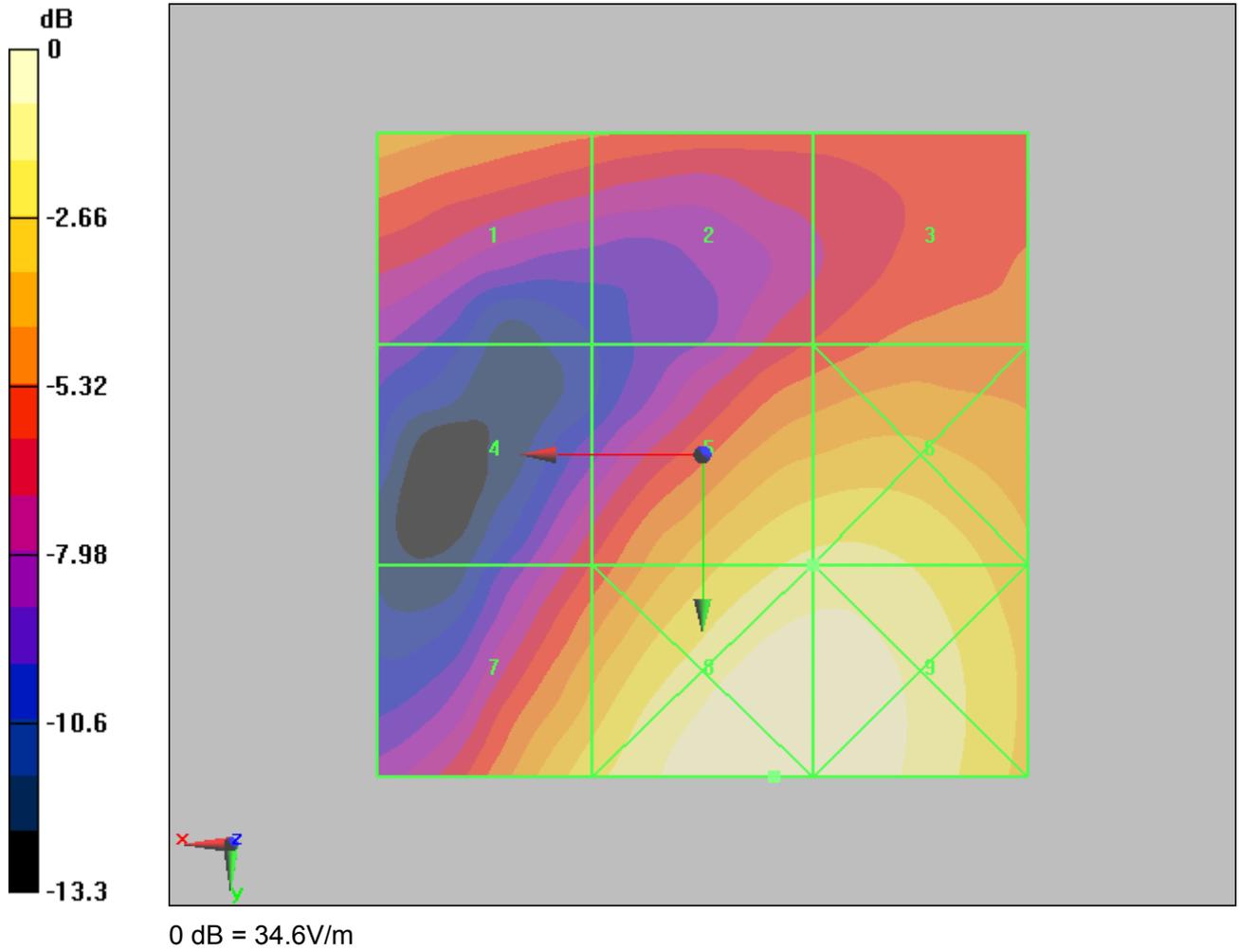


Figure 20 HAC RF E-Field CDMA BC1 Channel 1175

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HAC RF E-Field CDMA BC1 Middle (SN: MAICB01X19102164)

Date/Time: 2/21/2013 8:51:43 PM

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

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

Ambient Temperature:22.3 °C

Phantom section: RF Section

DASY5 Configuration:

Probe: ER3DV6 - SN2428; ConvF(1, 1, 1); Calibrated: 8/30/2012

Electronics: DAE4 Sn905; Calibrated: 6/21/2012

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

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

H882L CDMA PCS HAC RF E-Field/E Scan - ER3D - 2007: 15 mm from Probe Center to the Device Middle/Hearing Aid Compatibility Test (101x101x1): Measurement grid: dx=5mm, dy=5mm

Maximum value of peak Total field = 29.2 V/m

Probe Modulation Factor = 1.03

Device Reference Point: 0, 0, -6.3 mm

Reference Value = 22.8 V/m; Power Drift = -0.033 dB

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

Peak E-field in V/m

Grid 1 24.3 M4	Grid 2 23.4 M4	Grid 3 21.6 M4
Grid 4 18.4 M4	Grid 5 29.1 M4	Grid 6 29.2 M4
Grid 7 29.9 M4	Grid 8 36.5 M4	Grid 9 35.6 M4

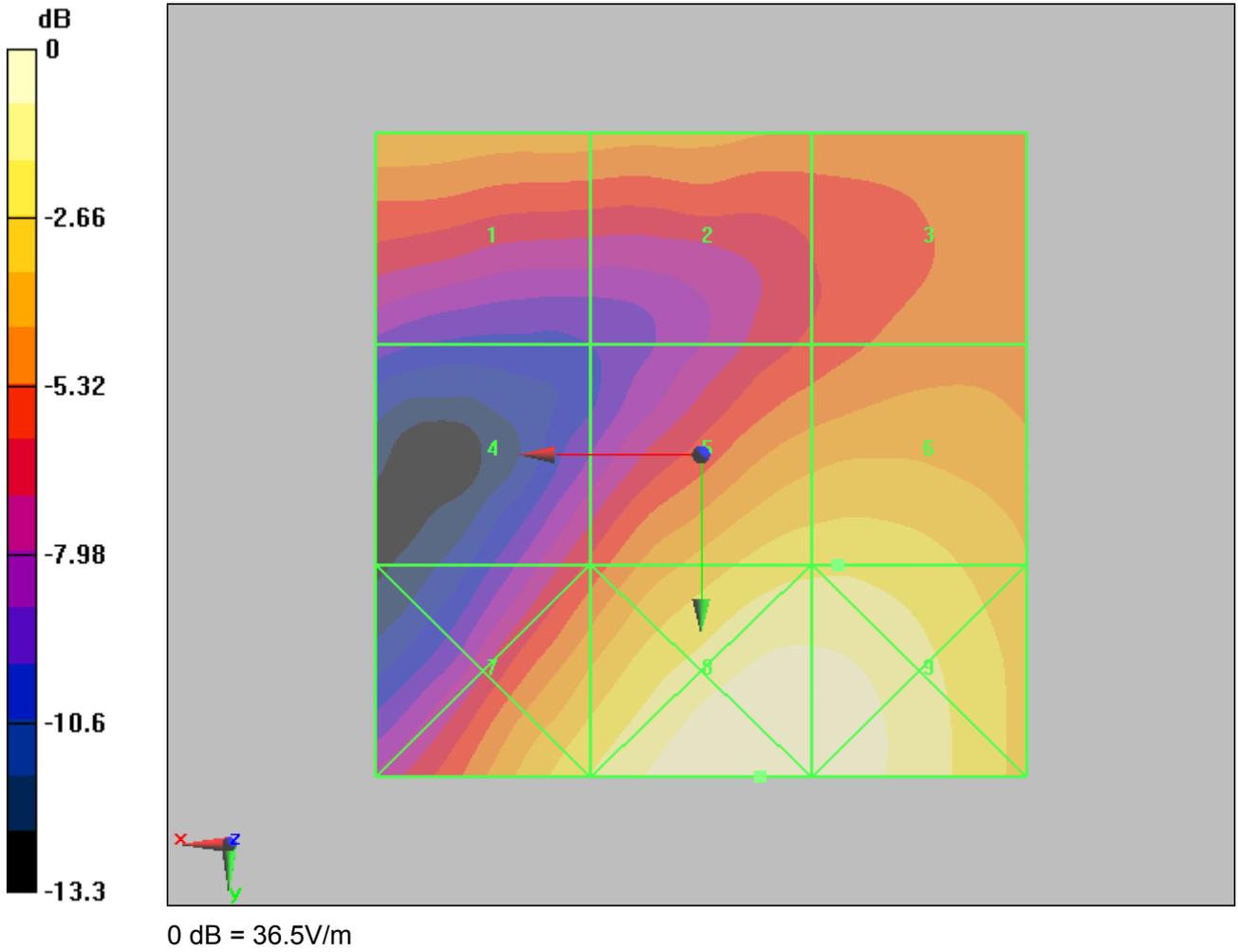


Figure 21 HAC RF E-Field CDMA BC1 Channel 600

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HAC RF E-Field CDMA BC1 Low (SN: MAICB01X19102164)

Date/Time: 2/21/2013 9:15:14 PM

Communication System: CDMA ; Frequency: 1851.25 MHz; Duty Cycle: 1:1

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

Ambient Temperature: 22.3 °C

Phantom section: RF Section

DASY5 Configuration:

Probe: ER3DV6 - SN2428; ConvF(1, 1, 1); Calibrated: 8/30/2012

Electronics: DAE4 Sn905; Calibrated: 6/21/2012

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

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

H882L CDMA PCS HAC RF E-Field/E Scan - ER3D - 2007: 15 mm from Probe Center to the Device Low/Hearing Aid Compatibility Test (101x101x1): Measurement grid: dx=5mm, dy=5mm

Maximum value of peak Total field = 36.5 V/m

Probe Modulation Factor = 1.03

Device Reference Point: 0, 0, -6.3 mm

Reference Value = 28.5 V/m; Power Drift = -0.079 dB

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

Peak E-field in V/m

Grid 1 36.1 M4	Grid 2 36.5 M4	Grid 3 34.1 M4
Grid 4 21.3 M4	Grid 5 32.5 M4	Grid 6 33 M4
Grid 7 29 M4	Grid 8 37.8 M4	Grid 9 37.5 M4

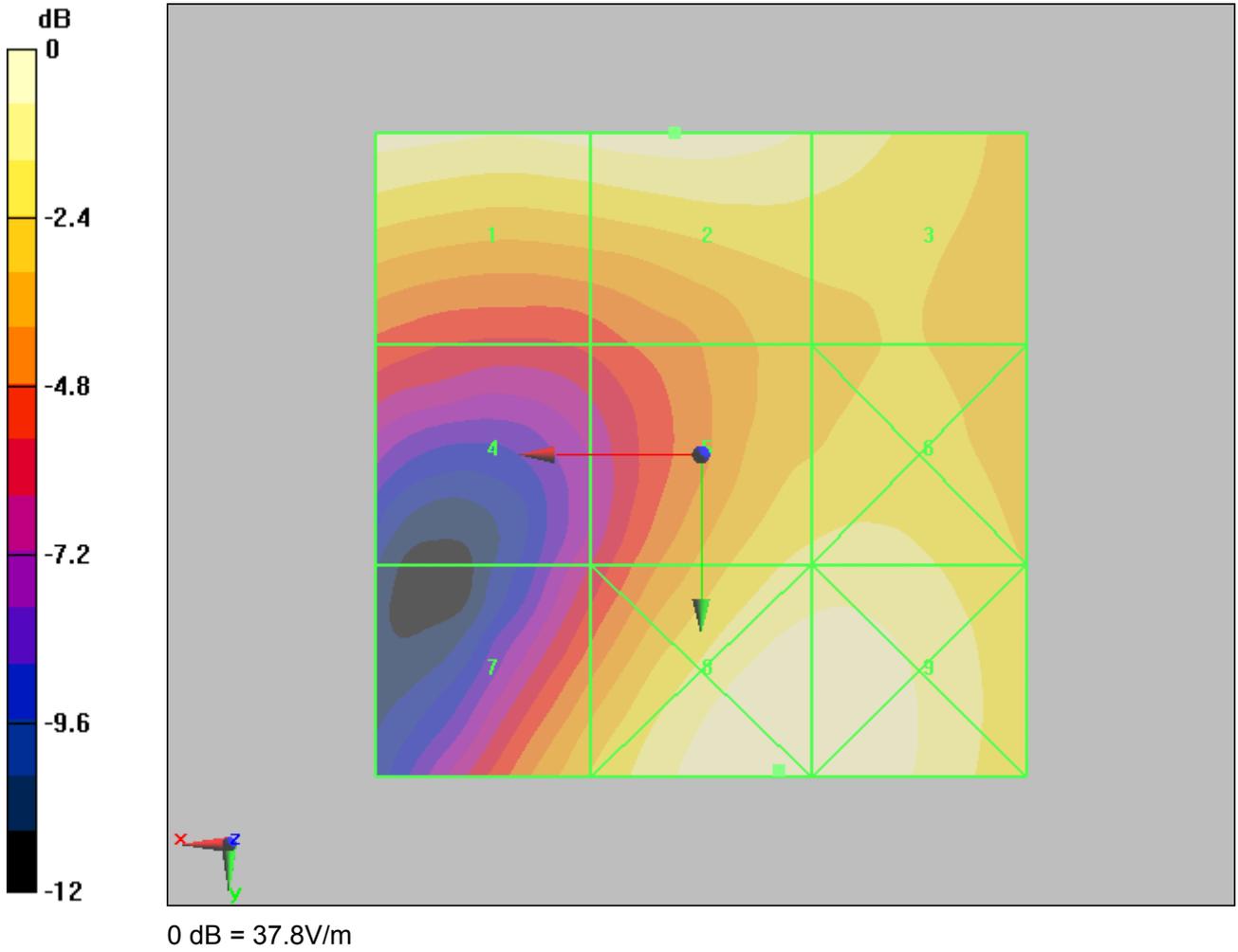


Figure 22 HAC RF E-Field CDMA BC1 Channel 25

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HAC RF E-Field CDMA BC1 Low (SN: MPCCA25919100430)

Date/Time: 2/21/2013 9:22:38 PM

Communication System: CDMA ; Frequency: 1851.25 MHz;Duty Cycle: 1:1

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

Ambient Temperature:22.3 °C

Phantom section: RF Section

DASY5 Configuration:

Probe: ER3DV6 - SN2428; ConvF(1, 1, 1); Calibrated: 8/30/2012

Electronics: DAE4 Sn905; Calibrated: 6/21/2012

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

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

H882L with Battery MPCC CDMA PCS HAC RF E-Field/E Scan - ER3D - 2007: 15 mm from Probe Center to the Device Low/Hearing Aid Compatibility Test (101x101x1): Measurement grid:

dx=5mm, dy=5mm

Maximum value of peak Total field = 36.2 V/m

Probe Modulation Factor = 1.03

Device Reference Point: 0, 0, -6.3 mm

Reference Value = 28.1 V/m; Power Drift = -0.078 dB

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

Peak E-field in V/m

Grid 1	Grid 2	Grid 3
35.8 M4	36.2 M4	33.8 M4
Grid 4	Grid 5	Grid 6
21.3 M4	31.8 M4	32.4 M4
Grid 7	Grid 8	Grid 9
28.5 M4	37.1 M4	36.9 M4

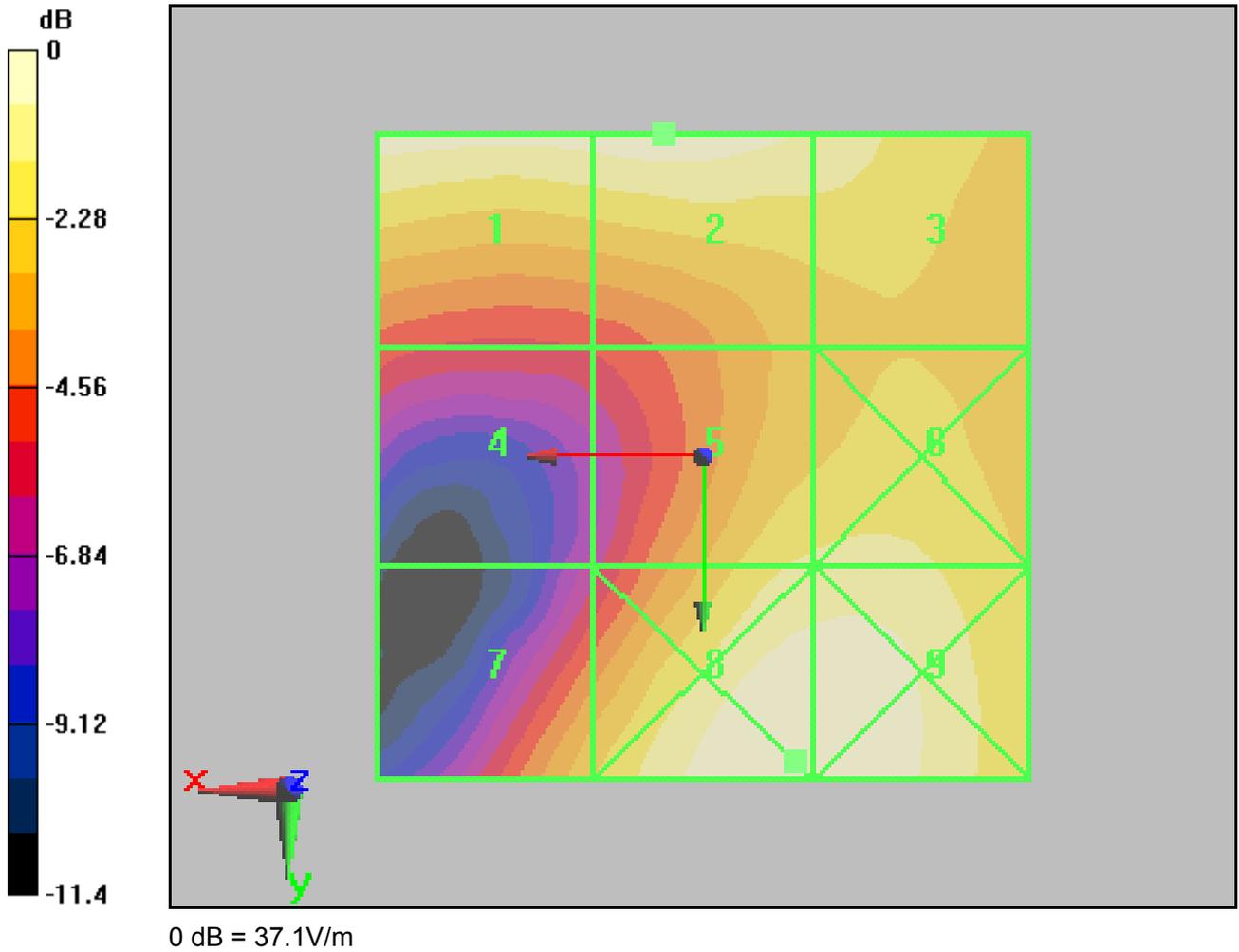


Figure 23 HAC RF E-Field CDMA BC1 Channel 25

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HAC RF H-Field CDMA BC1 High (SN: MAICB01X19102164)

Date/Time: 2/21/2013 9:55:08 PM

Communication System: CDMA ; Frequency: 1908.75 MHz;Duty Cycle: 1:1

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

Ambient Temperature:22.3 °C

Phantom section: RF Section

DASY5 Configuration:

Probe: H3DV6 - SN6260; ; Calibrated: 8/30/2012

Electronics: DAE4 Sn905; Calibrated: 6/21/2012

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

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

H882L CDMA PCS HAC RF H-Field/H Scan - H3DV6 - 2007: 15 mm from Probe Center to the Device High/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 = 0.090 A/m; Power Drift = -0.034 dB

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

Peak H-field in A/m

Grid 1 0.095 M4	Grid 2 0.097 M4	Grid 3 0.090 M4
Grid 4 0.080 M4	Grid 5 0.087 M4	Grid 6 0.085 M4
Grid 7 0.086 M4	Grid 8 0.072 M4	Grid 9 0.066 M4

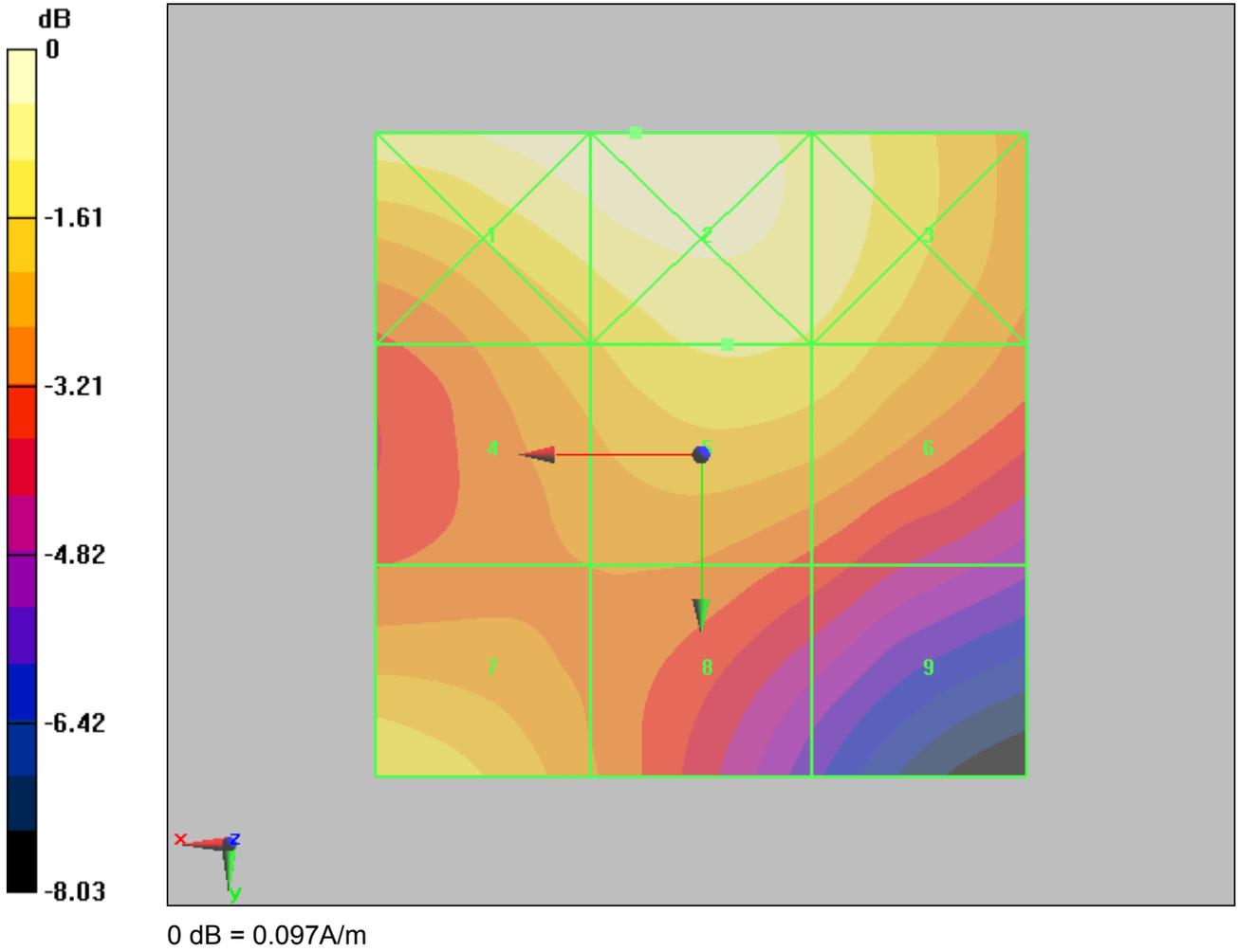


Figure 24 HAC RF H-Field CDMA BC1 Channel 1175

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HAC RF H-Field CDMA BC1 Middle (SN: MAICB01X19102164)

Date/Time: 2/21/2013 9:49:03 PM

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

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

Ambient Temperature:22.3 °C

Phantom section: RF Section

DASY5 Configuration:

Probe: H3DV6 - SN6260; ; Calibrated: 8/30/2012

Electronics: DAE4 Sn905; Calibrated: 6/21/2012

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

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

H882L CDMA PCS HAC RF H-Field/H Scan - H3DV6 - 2007: 15 mm from Probe Center to the Device Middle/Hearing Aid Compatibility Test (101x101x1): Measurement grid: dx=5mm, dy=5mm

Maximum value of peak Total field = 0.096 A/m

Probe Modulation Factor = 1

Device Reference Point: 0, 0, -6.3 mm

Reference Value = 0.100 A/m; Power Drift = 0.025 dB

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

Peak H-field in A/m

Grid 1 0.102 M4	Grid 2 0.104 M4	Grid 3 0.098 M4
Grid 4 0.087 M4	Grid 5 0.096 M4	Grid 6 0.094 M4
Grid 7 0.084 M4	Grid 8 0.079 M4	Grid 9 0.075 M4

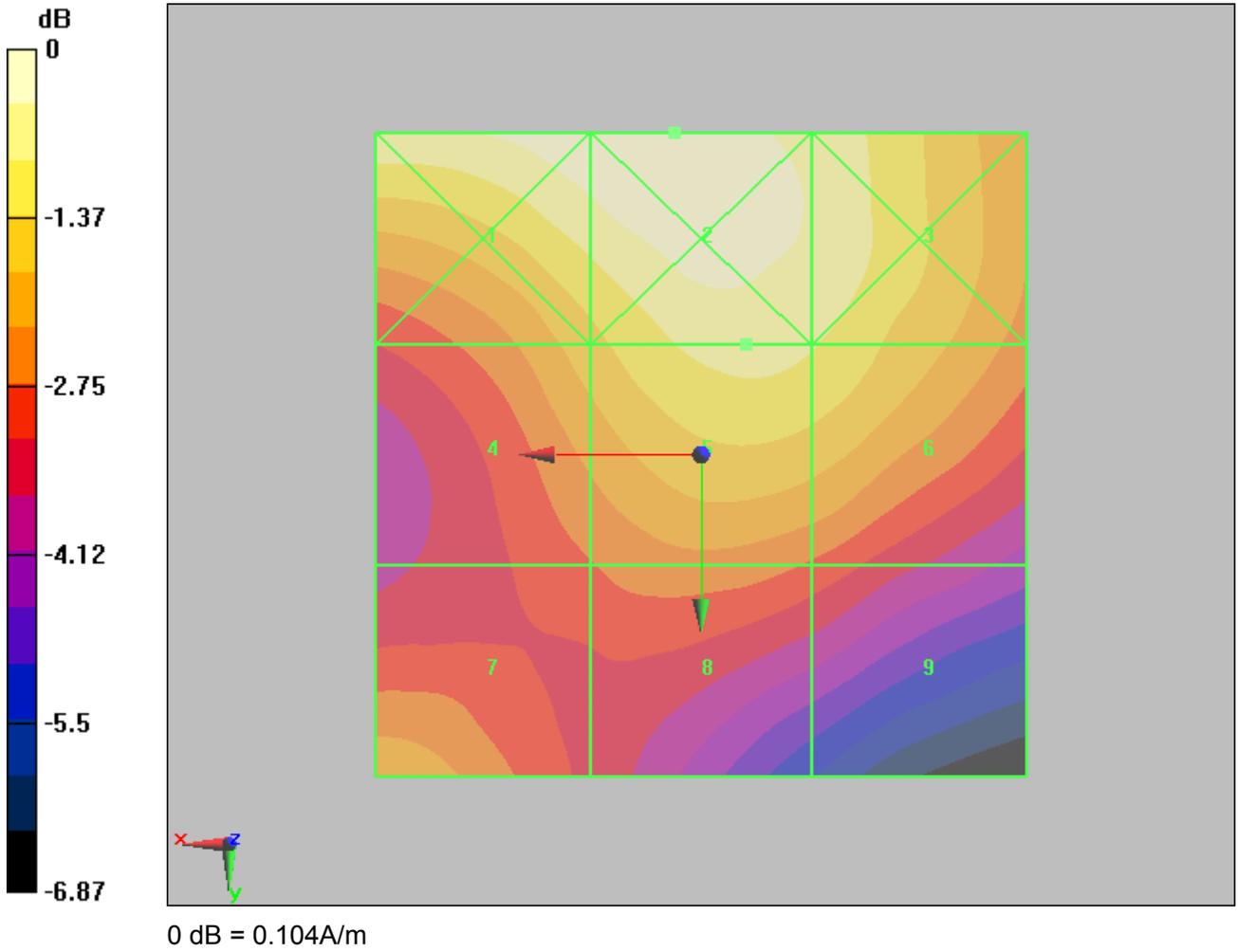


Figure 25 HAC RF H-Field CDMA BC1 Channel 600

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HAC RF H-Field CDMA BC1 Low (SN: MAICB01X19102164)

Date/Time: 2/21/2013 10:00:46 PM

Communication System: CDMA ; Frequency: 1851.25 MHz;Duty Cycle: 1:1

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

Ambient Temperature:22.3 °C

Phantom section: RF Section

DASY5 Configuration:

Probe: H3DV6 - SN6260; ; Calibrated: 8/30/2012

Electronics: DAE4 Sn905; Calibrated: 6/21/2012

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

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

H882L CDMA PCS HAC RF H-Field/H Scan - H3DV6 - 2007: 15 mm from Probe Center to the Device Low/Hearing Aid Compatibility Test (101x101x1): Measurement grid: dx=5mm, dy=5mm

Maximum value of peak Total field = 0.101 A/m

Probe Modulation Factor = 1

Device Reference Point: 0, 0, -6.3 mm

Reference Value = 0.109 A/m; Power Drift = -0.008 dB

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

Peak H-field in A/m

Grid 1 0.106 M4	Grid 2 0.108 M4	Grid 3 0.102 M4
Grid 4 0.092 M4	Grid 5 0.101 M4	Grid 6 0.099 M4
Grid 7 0.081 M4	Grid 8 0.086 M4	Grid 9 0.082 M4

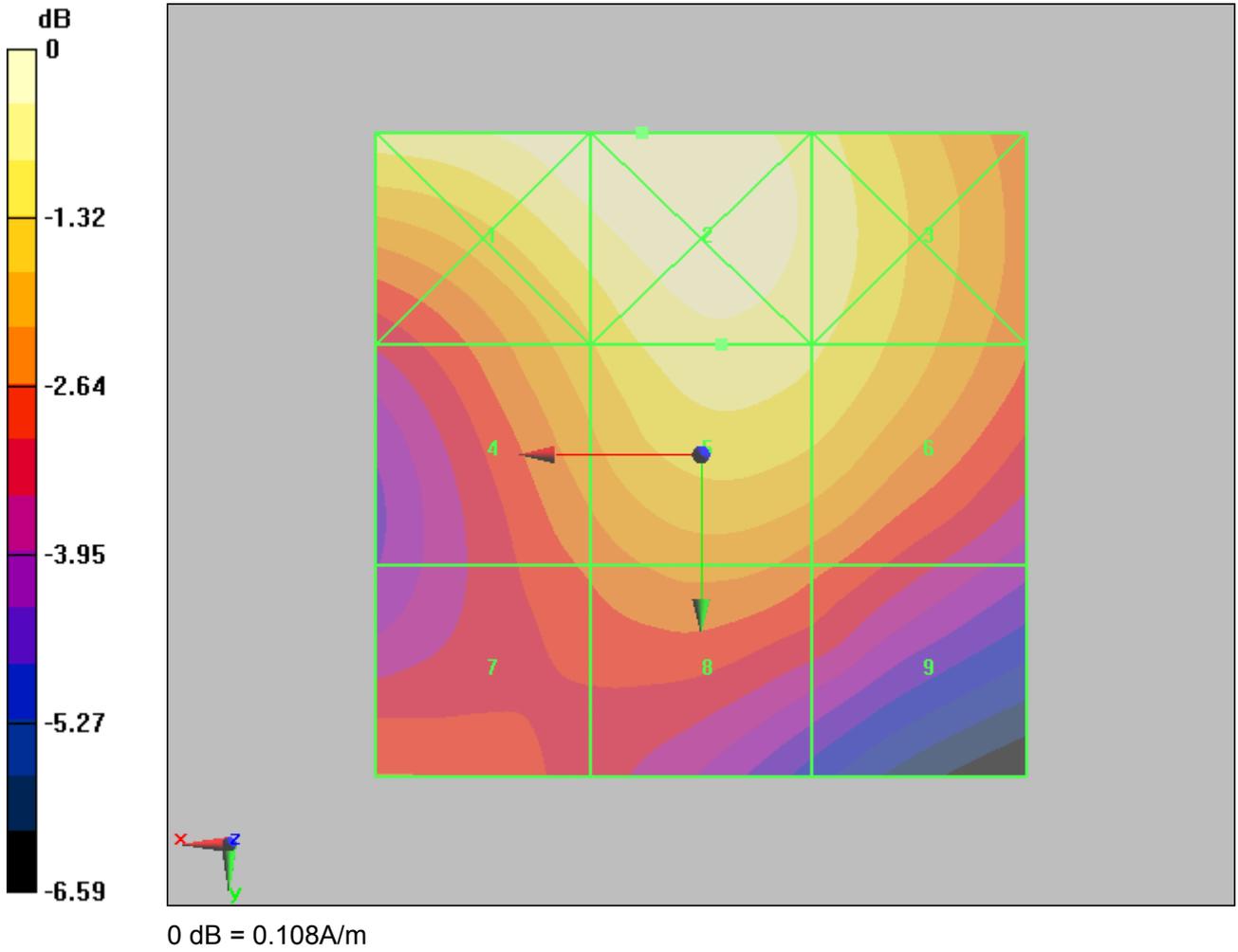


Figure 26 HAC RF H-Field CDMA BC1 Channel 25

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HAC RF H-Field CDMA BC1 Low (SN: MPCCA25919100430)

Date/Time: 2/21/2013 10:08:41 PM

Communication System: CDMA ; Frequency: 1851.25 MHz;Duty Cycle: 1:1

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

Ambient Temperature:22.3 °C

Phantom section: RF Section

DASY5 Configuration:

Probe: H3DV6 - SN6260; ; Calibrated: 8/30/2012

Electronics: DAE4 Sn905; Calibrated: 6/21/2012

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

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

H882L with Battery MPCC CDMA PCS HAC RF H-Field/H Scan - H3DV6 - 2007: 15 mm from Probe Center to the Device Low/Hearing Aid Compatibility Test (101x101x1): Measurement grid:

dx=5mm, dy=5mm

Maximum value of peak Total field = 0.101 A/m

Probe Modulation Factor = 1

Device Reference Point: 0, 0, -6.3 mm

Reference Value = 0.108 A/m; Power Drift = 0.037 dB

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

Peak H-field in A/m

Grid 1 0.106 M4	Grid 2 0.108 M4	Grid 3 0.102 M4
Grid 4 0.093 M4	Grid 5 0.101 M4	Grid 6 0.099 M4
Grid 7 0.081 M4	Grid 8 0.086 M4	Grid 9 0.082 M4

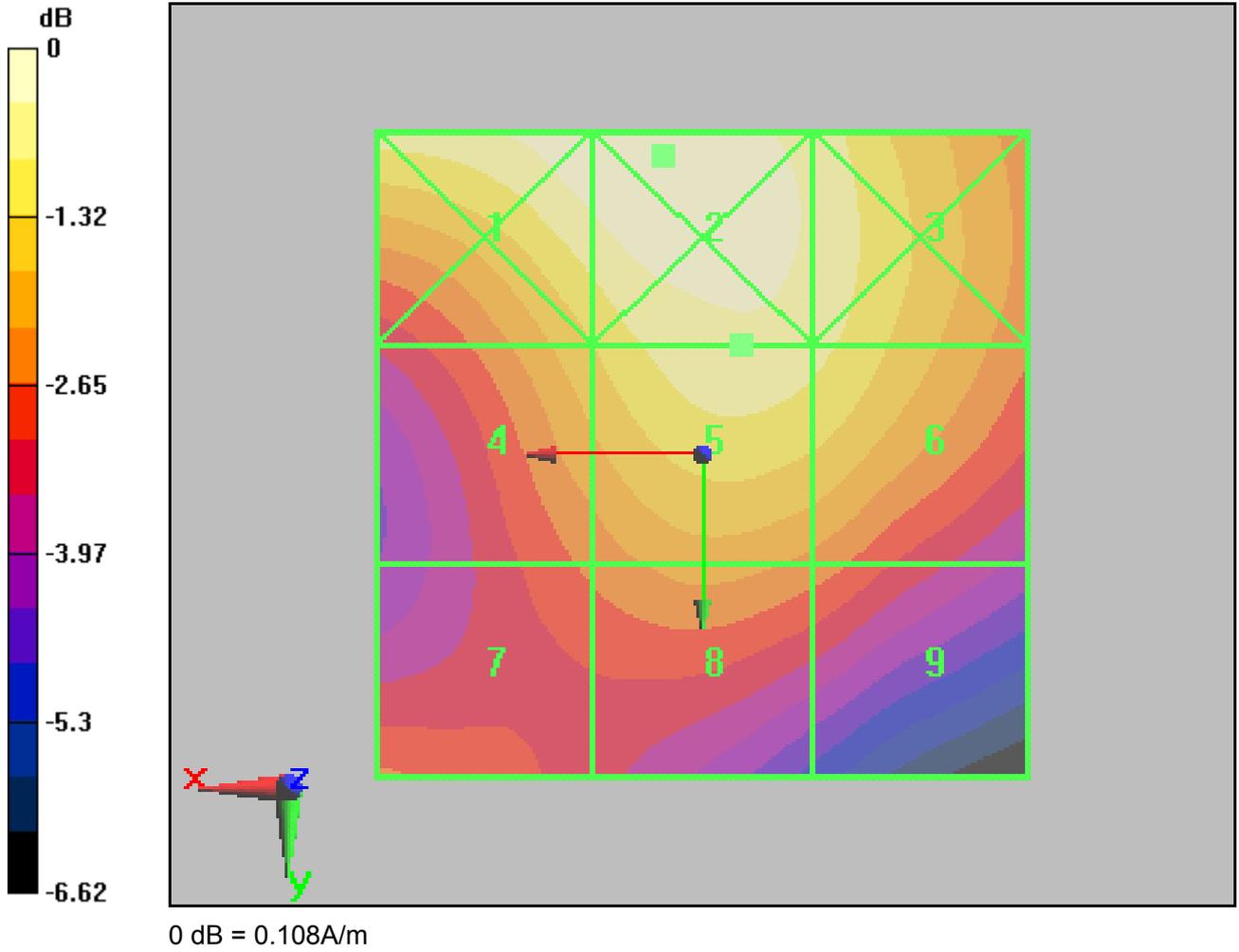


Figure 27 HAC RF H-Field CDMA BC1 Channel 25

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HAC RF E-Field CDMA BC10 High (SN: MAICB01X19102164)

Date/Time: 2/21/2013 8:21:18 PM

Communication System: CDMA ; Frequency: 823.1 MHz; Duty Cycle: 1:1

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

Ambient Temperature: 22.3 °C

Phantom section: RF Section

DASY5 Configuration:

Probe: ER3DV6 - SN2428; ConvF(1, 1, 1); Calibrated: 8/30/2012

Electronics: DAE4 Sn905; Calibrated: 6/21/2012

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

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

H882L CDMA BC10 HAC RF E-Field/E Scan - ER3D - 2007: 15 mm from Probe Center to the Device High/Hearing Aid Compatibility Test (101x101x1): Measurement grid: dx=5mm, dy=5mm

Maximum value of peak Total field = 57.5 V/m

Probe Modulation Factor = 1.05

Device Reference Point: 0, 0, -6.3 mm

Reference Value = 65.2 V/m; Power Drift = -0.048 dB

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

Peak E-field in V/m

Grid 1 46.3 M4	Grid 2 53.5 M4	Grid 3 53.4 M4
Grid 4 49.5 M4	Grid 5 57.5 M4	Grid 6 57.5 M4
Grid 7 53 M4	Grid 8 58 M4	Grid 9 57.9 M4

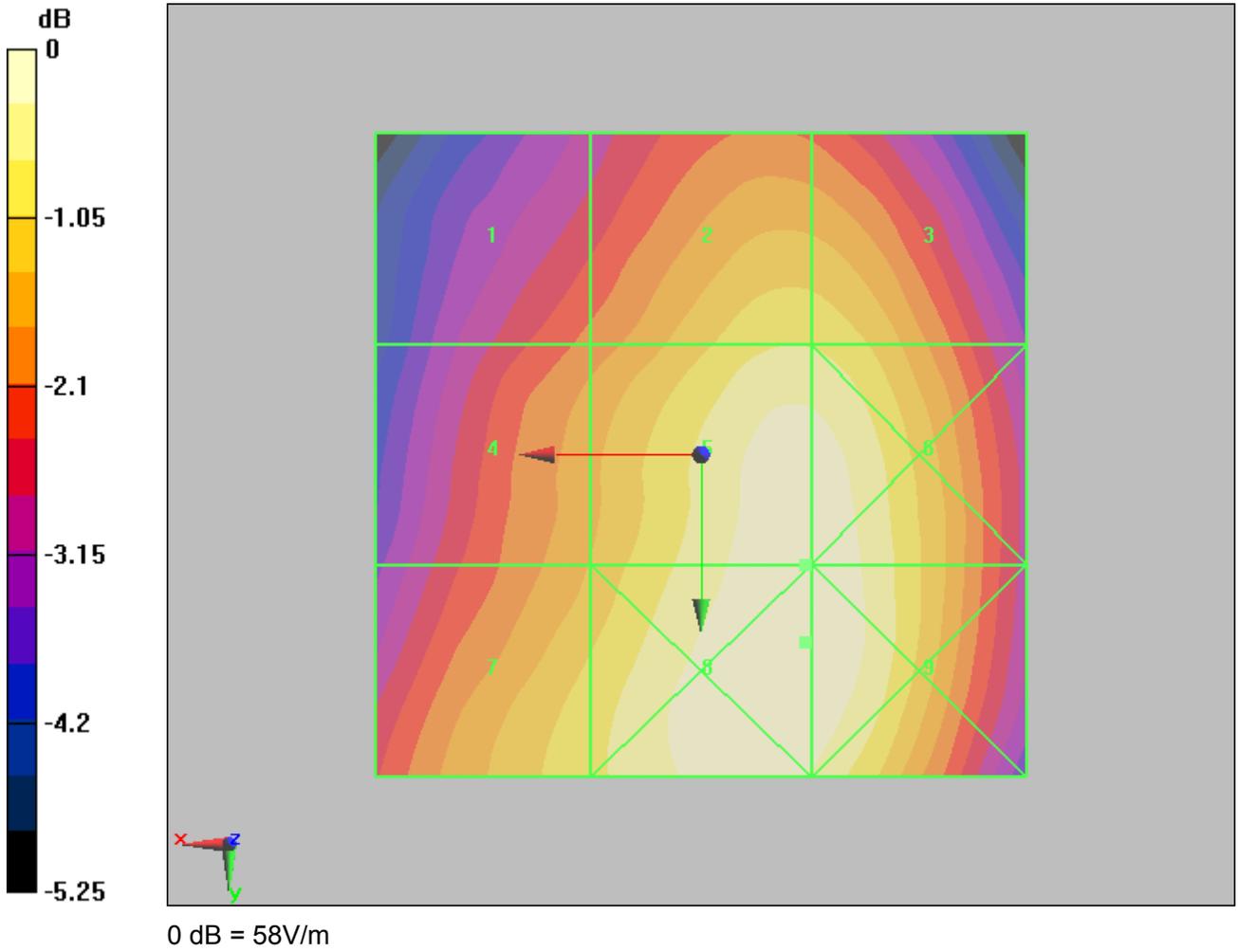


Figure 28 HAC RF E-Field CDMA BC10 Channel 684

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HAC RF E-Field CDMA BC10 Middle (SN: MAICB01X19102164)

Date/Time: 2/21/2013 8:09:14 PM

Communication System: CDMA ; Frequency: 820.5 MHz;Duty Cycle: 1:1

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

Ambient Temperature:22.3 °C

Phantom section: RF Section

DASY5 Configuration:

Probe: ER3DV6 - SN2428; ConvF(1, 1, 1); Calibrated: 8/30/2012

Electronics: DAE4 Sn905; Calibrated: 6/21/2012

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

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

H882L CDMA BC10 HAC RF E-Field/E Scan - ER3D - 2007: 15 mm from Probe Center to the Device Middle/Hearing Aid Compatibility Test (101x101x1): Measurement grid: dx=5mm, dy=5mm

Maximum value of peak Total field = 63.2 V/m

Probe Modulation Factor = 1.05

Device Reference Point: 0, 0, -6.3 mm

Reference Value = 71.6 V/m; Power Drift = -0.036 dB

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

Peak E-field in V/m

Grid 1	Grid 2	Grid 3
50 M4	58.7 M4	58.7 M4
Grid 4	Grid 5	Grid 6
54.2 M4	63.2 M4	63.2 M4
Grid 7	Grid 8	Grid 9
58.4 M4	63.7 M4	63.6 M4

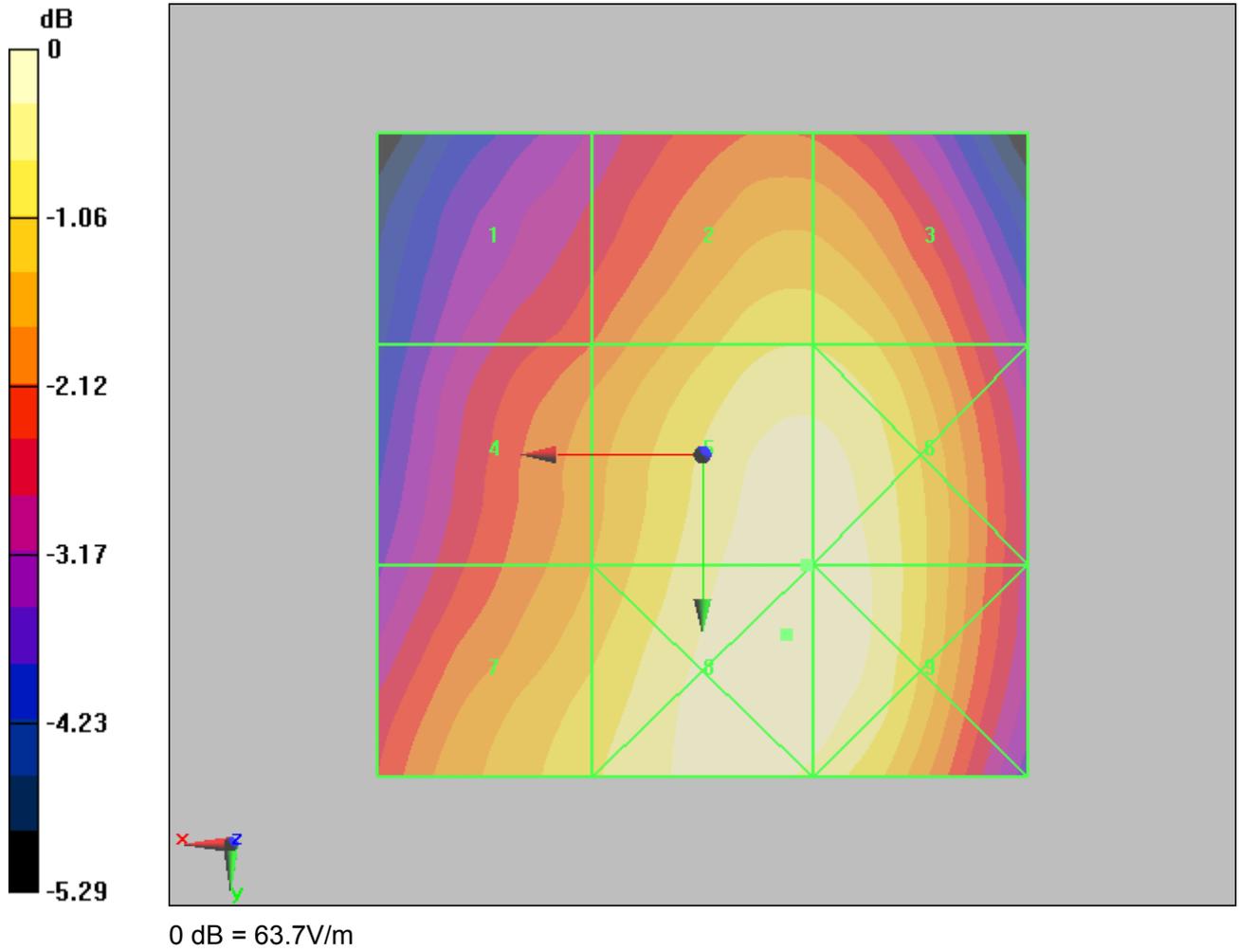


Figure 29 HAC RF E-Field CDMA BC10 Channel 580

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HAC RF E-Field CDMA BC10 Low (SN: MAICB01X19102164)

Date/Time: 2/21/2013 8:32:59 PM

Communication System: CDMA ; Frequency: 817.9 MHz; Duty Cycle: 1:1

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

Ambient Temperature: 22.3 °C

Phantom section: RF Section

DASY5 Configuration:

Probe: ER3DV6 - SN2428; ConvF(1, 1, 1); Calibrated: 8/30/2012

Electronics: DAE4 Sn905; Calibrated: 6/21/2012

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

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

H882L CDMA BC10 HAC RF E-Field/E Scan - ER3D - 2007: 15 mm from Probe Center to the Device Low/Hearing Aid Compatibility Test (101x101x1): Measurement grid: dx=5mm, dy=5mm

Maximum value of peak Total field = 69.2 V/m

Probe Modulation Factor = 1.05

Device Reference Point: 0, 0, -6.3 mm

Reference Value = 77.3 V/m; Power Drift = -0.029 dB

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

Peak E-field in V/m

Grid 1 54.9 M4	Grid 2 64 M4	Grid 3 63.9 M4
Grid 4 58.9 M4	Grid 5 69.2 M4	Grid 6 69.2 M4
Grid 7 62.9 M4	Grid 8 69.4 M4	Grid 9 69.4 M4

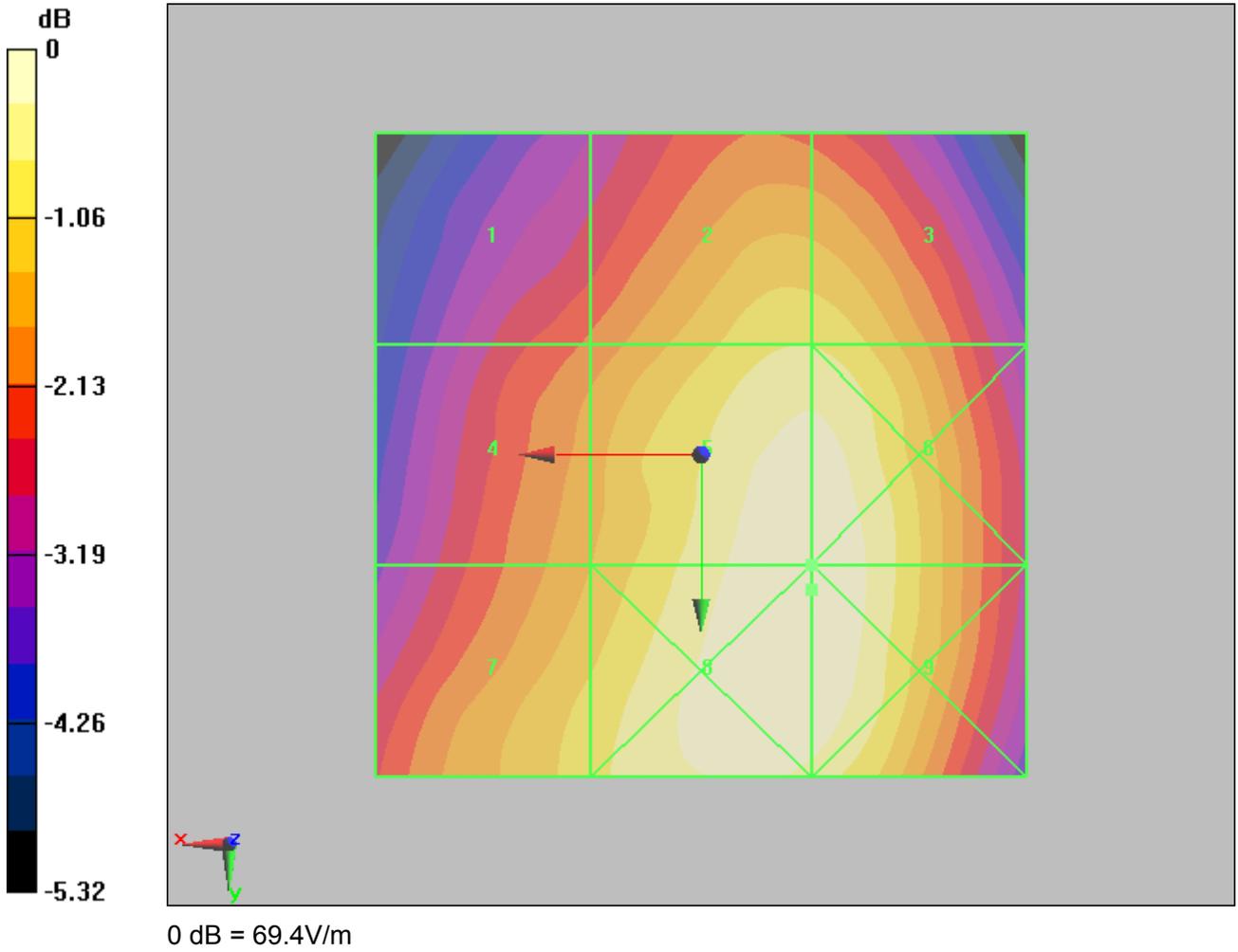


Figure 30 HAC RF E-Field CDMA BC10 Channel 476

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HAC RF E-Field CDMA BC10 Low (SN: MPCCA25919100430)

Date/Time: 2/21/2013 8:39:51 PM

Communication System: CDMA ; Frequency: 817.9 MHz;Duty Cycle: 1:1

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

Ambient Temperature:22.3 °C

Phantom section: RF Section

DASY5 Configuration:

Probe: ER3DV6 - SN2428; ConvF(1, 1, 1); Calibrated: 8/30/2012

Electronics: DAE4 Sn905; Calibrated: 6/21/2012

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

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

H882L with Battery MPCC CDMA BC10 HAC RF E-Field/E Scan - ER3D - 2007: 15 mm from Probe Center to the Device Low/Hearing Aid Compatibility Test (101x101x1): Measurement grid:

dx=5mm, dy=5mm

Maximum value of peak Total field = 68.4 V/m

Probe Modulation Factor = 1.05

Device Reference Point: 0, 0, -6.3 mm

Reference Value = 76.7 V/m; Power Drift = 0.076 dB

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

Peak E-field in V/m

Grid 1	Grid 2	Grid 3
54.6 M4	63.5 M4	63.5 M4
Grid 4	Grid 5	Grid 6
58.9 M4	68.4 M4	68.4 M4
Grid 7	Grid 8	Grid 9
62.6 M4	69 M4	69 M4

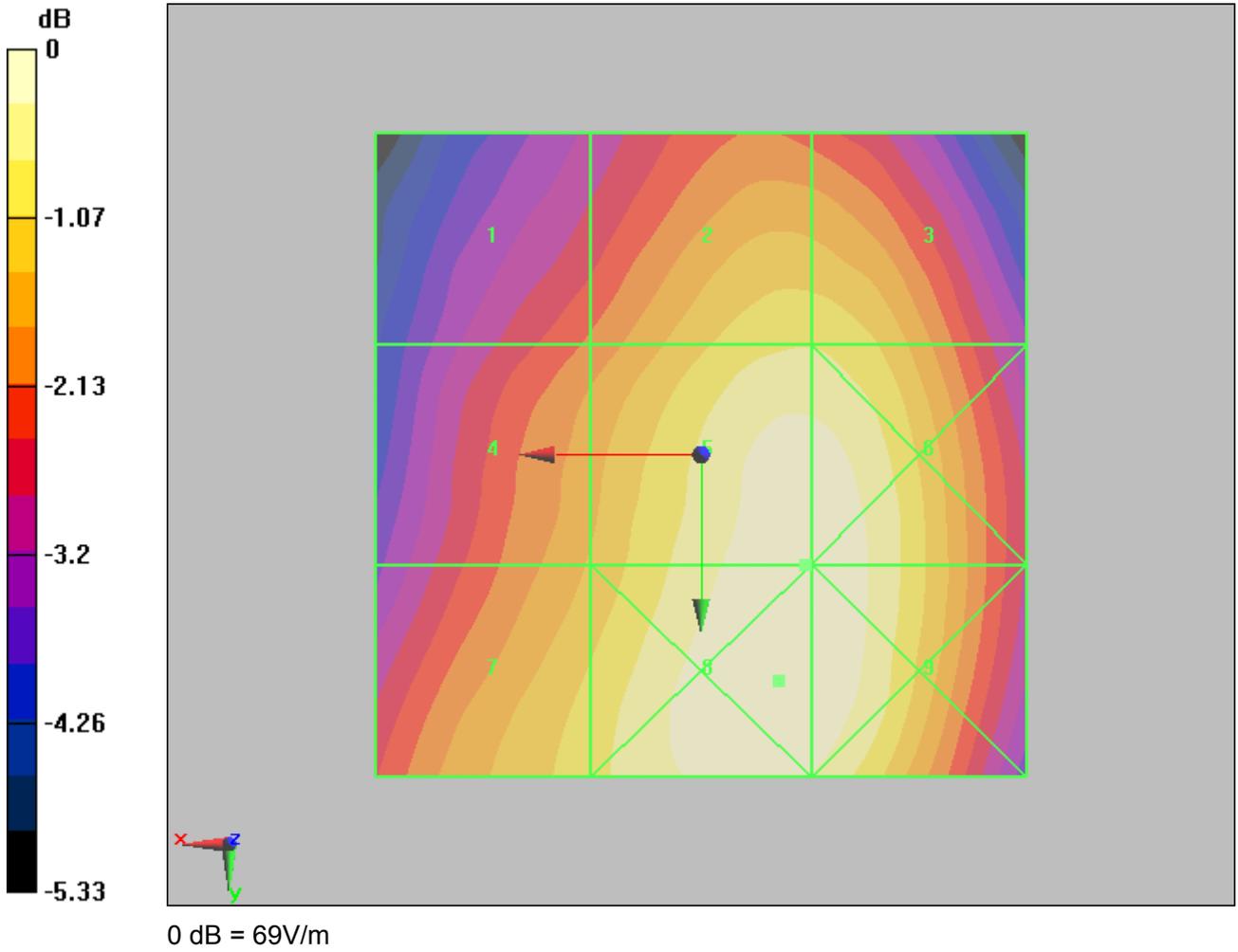


Figure 31 HAC RF E-Field CDMA BC10 Channel 476

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HAC RF H-Field CDMA BC10 High (SN: MAICB01X19102164)

Date/Time: 2/21/2013 10:49:48 PM

Communication System: CDMA ; Frequency: 823.1 MHz;Duty Cycle: 1:1

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

Ambient Temperature:22.3 °C

Phantom section: RF Section

DASY5 Configuration:

Probe: H3DV6 - SN6260; ; Calibrated: 8/30/2012

Electronics: DAE4 Sn905; Calibrated: 6/21/2012

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

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

H882L CDMA BC10 HAC RF H-Field/H Scan - H3DV6 - 2007: 15 mm from Probe Center to the Device High/Hearing Aid Compatibility Test (101x101x1): Measurement grid: dx=5mm, dy=5mm

Maximum value of peak Total field = 0.085 A/m

Probe Modulation Factor = 1.01

Device Reference Point: 0, 0, -6.3 mm

Reference Value = 0.056 A/m; Power Drift = 0.022 dB

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

Peak H-field in A/m

Grid 1 0.106 M4	Grid 2 0.085 M4	Grid 3 0.060 M4
Grid 4 0.084 M4	Grid 5 0.066 M4	Grid 6 0.049 M4
Grid 7 0.089 M4	Grid 8 0.064 M4	Grid 9 0.041 M4

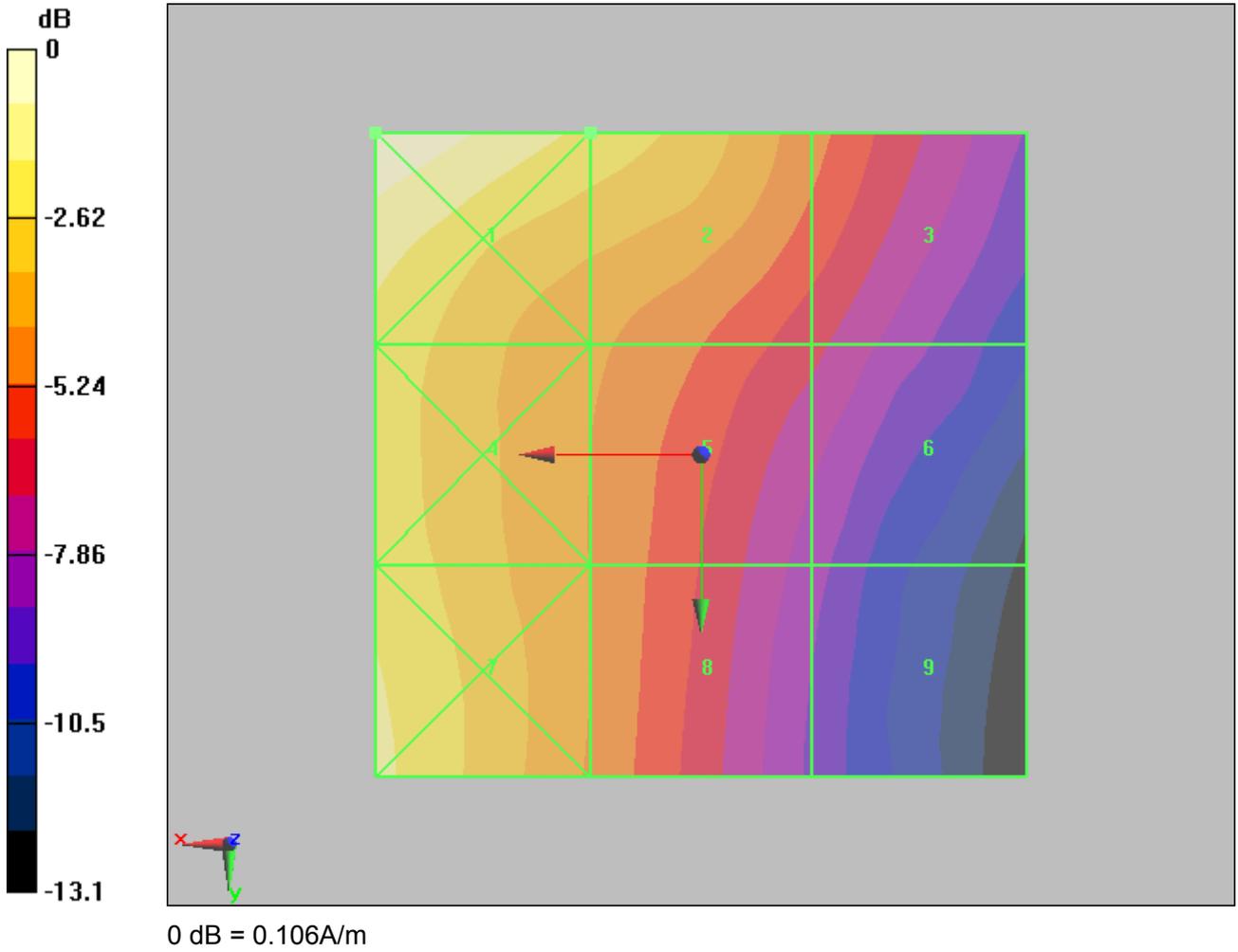


Figure 32 HAC RF H-Field CDMA BC10 Channel 684

TA Technology (Shanghai) Co., Ltd.
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HAC RF H-Field CDMA BC10 Middle (SN: MAICB01X19102164)

Date/Time: 2/21/2013 10:43:47 PM

Communication System: CDMA ; Frequency: 820.5 MHz;Duty Cycle: 1:1

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

Ambient Temperature:22.3 °C

Phantom section: RF Section

DASY5 Configuration:

Probe: H3DV6 - SN6260; ; Calibrated: 8/30/2012

Electronics: DAE4 Sn905; Calibrated: 6/21/2012

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

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

H882L CDMA BC10 HAC RF H-Field/H Scan - H3DV6 - 2007: 15 mm from Probe Center to the Device Middle/Hearing Aid Compatibility Test (101x101x1): Measurement grid: dx=5mm, dy=5mm

Maximum value of peak Total field = 0.092 A/m

Probe Modulation Factor = 1.01

Device Reference Point: 0, 0, -6.3 mm

Reference Value = 0.059 A/m; Power Drift = 0.004 dB

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

Peak H-field in A/m

Grid 1 0.115 M4	Grid 2 0.092 M4	Grid 3 0.066 M4
Grid 4 0.091 M4	Grid 5 0.071 M4	Grid 6 0.053 M4
Grid 7 0.096 M4	Grid 8 0.069 M4	Grid 9 0.043 M4

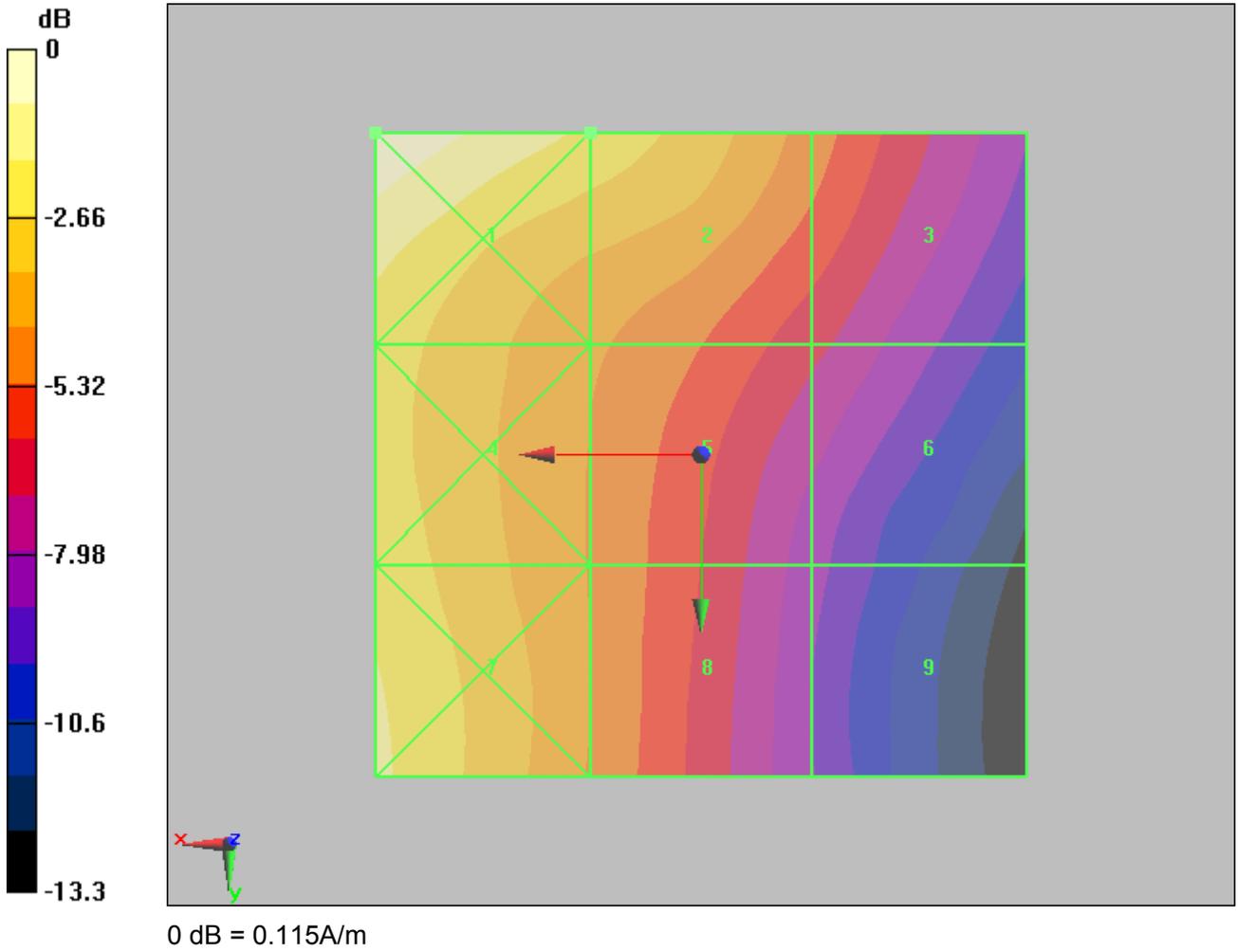


Figure 33 HAC RF H-Field CDMA BC10 Channel 580

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HAC RF H-Field CDMA BC10 Low (SN: MAICB01X19102164)

Date/Time: 2/21/2013 10:55:39 PM

Communication System: CDMA ; Frequency: 817.9 MHz; Duty Cycle: 1:1

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

Ambient Temperature: 22.3 °C

Phantom section: RF Section

DASY5 Configuration:

Probe: H3DV6 - SN6260; ; Calibrated: 8/30/2012

Electronics: DAE4 Sn905; Calibrated: 6/21/2012

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

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

H882L CDMA BC10 HAC RF H-Field/H Scan - H3DV6 - 2007: 15 mm from Probe Center to the Device Low/Hearing Aid Compatibility Test (101x101x1): Measurement grid: dx=5mm, dy=5mm

Maximum value of peak Total field = 0.102 A/m

Probe Modulation Factor = 1.01

Device Reference Point: 0, 0, -6.3 mm

Reference Value = 0.066 A/m; Power Drift = 0.016 dB

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

Peak H-field in A/m

Grid 1 0.127 M4	Grid 2 0.102 M4	Grid 3 0.073 M4
Grid 4 0.101 M4	Grid 5 0.078 M4	Grid 6 0.059 M4
Grid 7 0.107 M4	Grid 8 0.078 M4	Grid 9 0.048 M4

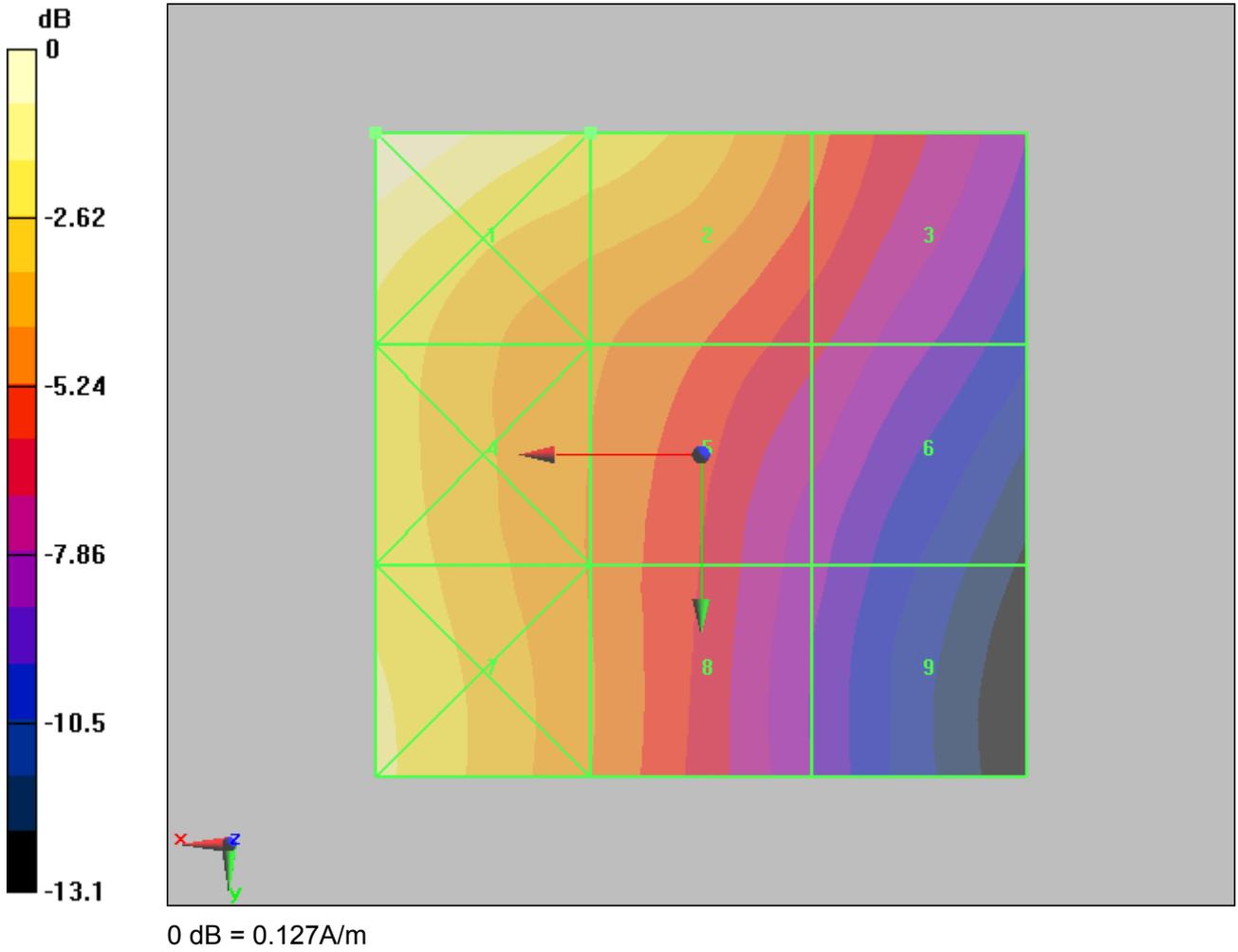


Figure 34 HAC RF H-Field CDMA BC10 Channel 476

TA Technology (Shanghai) Co., Ltd.
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HAC RF H-Field CDMA BC10 Low (SN: MPCCA25919100430)

Date/Time: 2/21/2013 11:06:16 PM

Communication System: CDMA ; Frequency: 817.9 MHz; Duty Cycle: 1:1

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

Ambient Temperature: 22.3 °C

Phantom section: RF Section

DASY5 Configuration:

Probe: H3DV6 - SN6260; ; Calibrated: 8/30/2012

Electronics: DAE4 Sn905; Calibrated: 6/21/2012

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

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

H882L with Battery MPCC CDMA BC10 HAC RF H-Field/H Scan - H3DV6 - 2007: 15 mm from Probe Center to the Device Low/Hearing Aid Compatibility Test (101x101x1): Measurement grid:

dx=5mm, dy=5mm

Maximum value of peak Total field = 0.102 A/m

Probe Modulation Factor = 1.01

Device Reference Point: 0, 0, -6.3 mm

Reference Value = 0.066 A/m; Power Drift = -0.001 dB

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

Peak H-field in A/m

Grid 1 0.127 M4	Grid 2 0.102 M4	Grid 3 0.073 M4
Grid 4 0.101 M4	Grid 5 0.079 M4	Grid 6 0.059 M4
Grid 7 0.107 M4	Grid 8 0.077 M4	Grid 9 0.049 M4

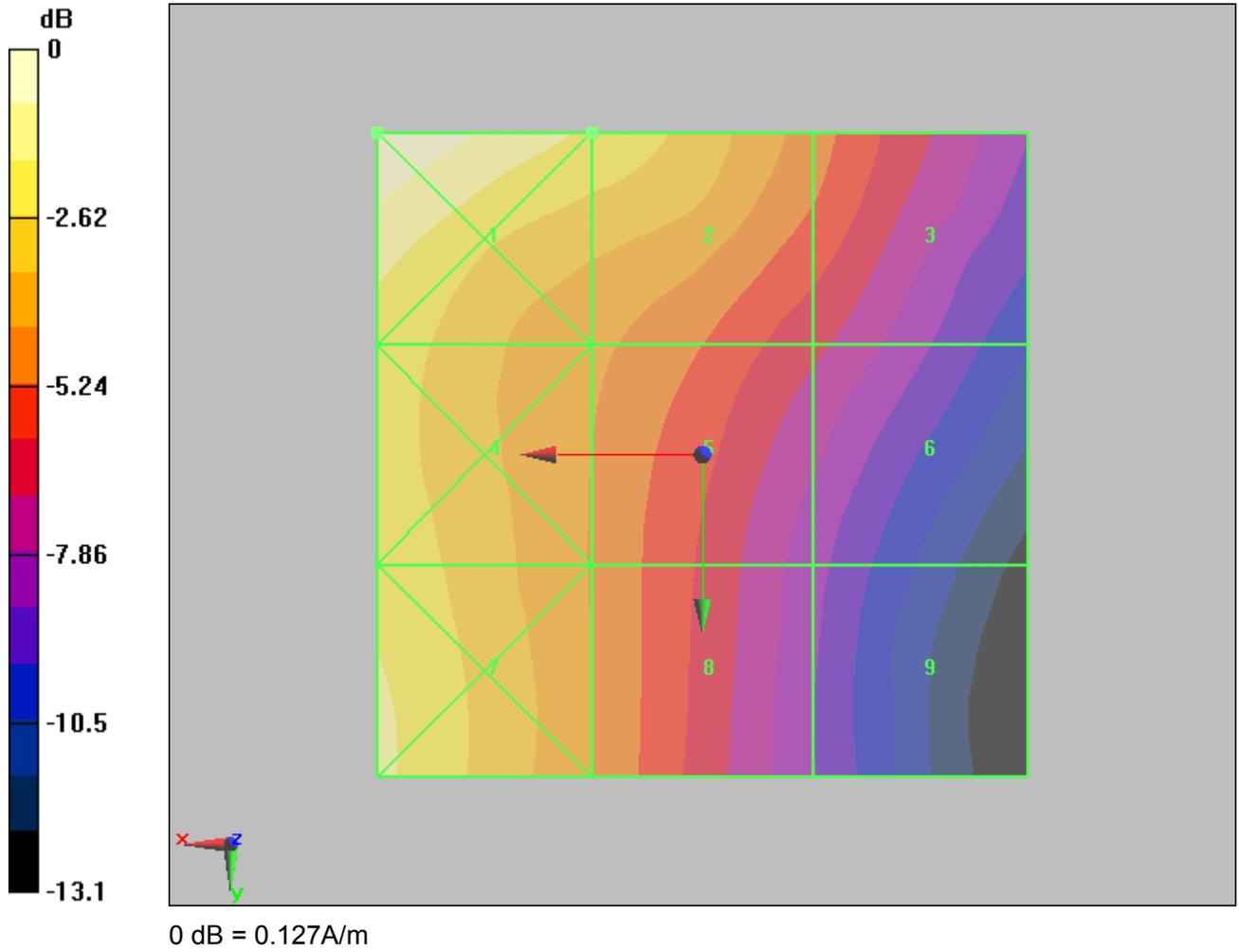


Figure 35 HAC RF H-Field CDMA BC10 Channel 476

TA Technology (Shanghai) Co., Ltd. Test Report

ANNEX C: E-Probe Calibration Certificate

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




S Schweizerischer Kalibrierdienst
S Service suisse d'étalonnage
S Servizio svizzero di taratura
S 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: **TMC Beijing (Auden)**

Certificate No: **ER3-2428_Aug12**

CALIBRATION CERTIFICATE

Object: **ER3DV6 - SN:2428**

Calibration procedure(s): **QA CAL-02.v6, QA CAL-25.v4
Calibration procedure for E-field probes optimized for close near field
evaluations in air**

Calibration date: **August 30, 2012**

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID	Cal Date (Certificate No.)	Scheduled Calibration
Power meter E4419B	GB41293874	29-Mar-12 (No. 217-01508)	Apr-13
Power sensor E4412A	MY41498087	29-Mar-12 (No. 217-01508)	Apr-13
Reference 3 dB Attenuator	SN: S5054 (3c)	27-Mar-12 (No. 217-01531)	Apr-13
Reference 20 dB Attenuator	SN: S5096 (20b)	27-Mar-12 (No. 217-01529)	Apr-13
Reference 30 dB Attenuator	SN: S5129 (30b)	27-Mar-12 (No. 217-01532)	Apr-13
Reference Probe ER3DV6	SN: 2328	11-Oct-11 (No. ER3-2328_Oct11)	Oct-12
D4E4	SN: 789	30-Jan-12 (No. D4E4-789_Jan12)	Jan-13
Secondary Standards	ID	Check Date (in house)	Scheduled Check
RF generator HP 8648C	US3642U01700	4-Aug-99 (in house check Apr-11)	In house check: Apr-13
Network Analyzer HP 8753E	US37390585	18-Oct-01 (in house check Oct-11)	In house check: Oct-12

Calibrated by:

Approved by:

Name: **Jeton Kastrali**

Function: **Laboratory Technician**

Name: **Katja Pokovic**

Function: **Technical Manager**

Signature




Issued: August 30, 2012

This calibration certificate shall not be reproduced except in full without written approval of the laboratory.

Certificate No: ER3-2428_Aug12

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TA Technology (Shanghai) Co., Ltd.

Test Report

Report No. RHA1301-0016HAC01R1

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



S Schweizerischer Kalibrierdienst
S Service suisse d'étalonnage
C Servizio svizzero di taratura
S 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**

Glossary:

NORM _{x,y,z}	sensitivity in free space
DCP	diode compression point
CF	crest factor (1/duty_cycle) of the RF signal
A, B, C	modulation dependent linearization parameters
Polarization φ	φ rotation around probe axis
Polarization ϑ	ϑ rotation around an axis that is in the plane normal to probe axis (at measurement center), i.e., $\vartheta = 0$ is normal to probe axis
Connector Angle	information used in DASY system to align probe sensor X to the robot coordinate system

Calibration is Performed According to the Following Standards:

- IEEE Std 1309-2005, "IEEE Standard for calibration of electromagnetic field sensors and probes, excluding antennas, from 9 kHz to 40 GHz", December 2005
- CTIA Test Plan for Hearing Aid Compatibility, April 2010.

Methods Applied and Interpretation of Parameters:

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

ER3DV6 – SN:2428

August 30, 2012

Probe ER3DV6

SN:2428

Manufactured: September 11, 2007
Calibrated: August 30, 2012

Calibrated for DASY/EASY Systems
(Note: non-compatible with DASY2 system!)

TA Technology (Shanghai) Co., Ltd. Test Report

ER3DV6-- SN:2428

August 30, 2012

DASY/EASY - Parameters of Probe: ER3DV6 - SN:2428

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm ($\mu\text{V}/(\text{V}/\text{m})^2$)	1.50	1.57	1.84	$\pm 10.1\%$
DCP (mV) ^b	100.9	100.7	99.6	

Modulation Calibration Parameters

UID	Communication System Name	PAR		A dB	B dB	C dB	VR mV	Unc ^c (k=2)
0	CW	0.00	X	0.00	0.00	1.00	206.3	$\pm 3.3\%$
			Y	0.00	0.00	1.00	201.2	
			Z	0.00	0.00	1.00	209.4	

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

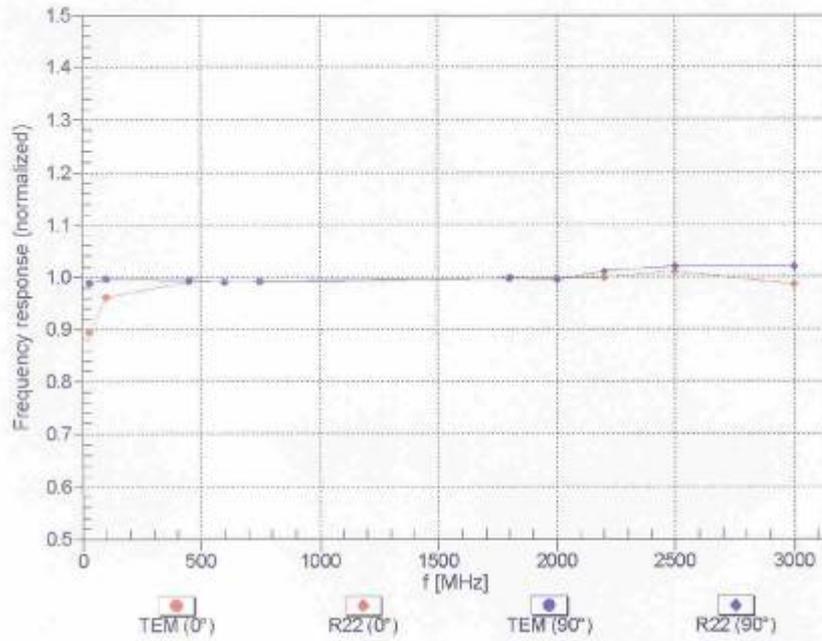
^b Numerical linearization parameter; uncertainty not required.

^c Uncertainty is determined using the max. deviation from linear response applying rectangular distribution and is expressed for the square of the field value.

ER3DV6- SN:2428

August 30, 2012

Frequency Response of E-Field (TEM-Cell: if1110 EXX, Waveguide: R22)



Uncertainty of Frequency Response of E-field: $\pm 6.3\%$ (k=2)

ER3DV6- SN:2428

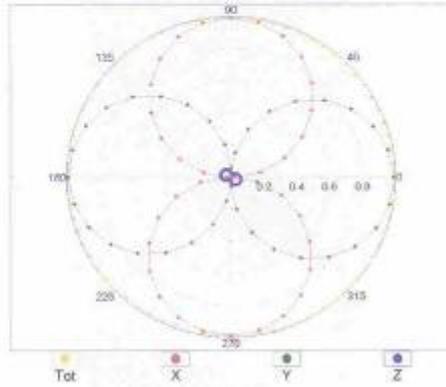
August 30, 2012

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

f=600 MHz,TEM,0°

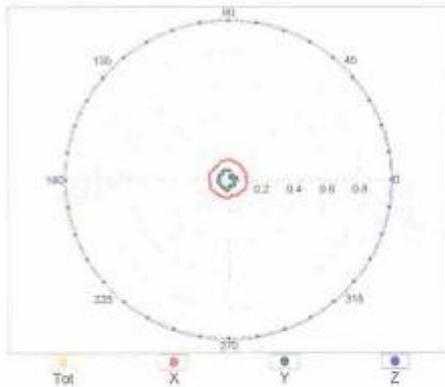


f=2500 MHz,R22,0°

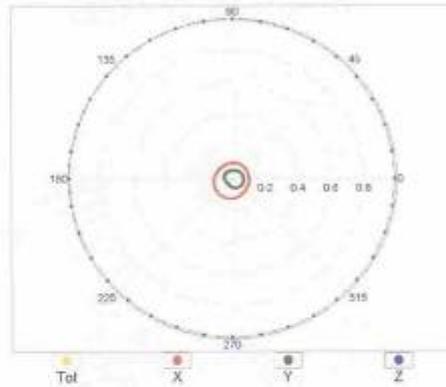


Receiving Pattern (ϕ), $\vartheta = 90^\circ$

f=600 MHz,TEM,90°



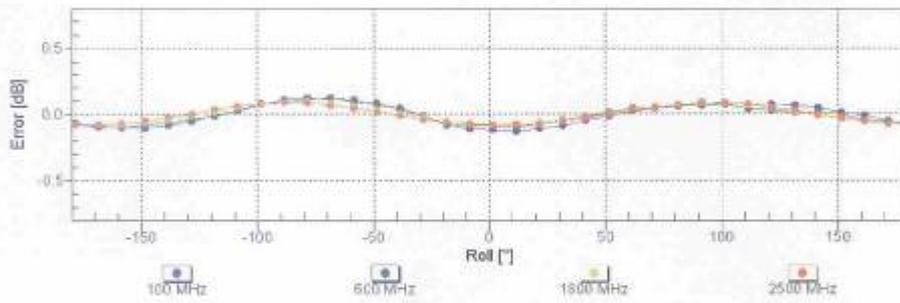
f=2500 MHz,R22,90°



ER3DV6- SN:2428

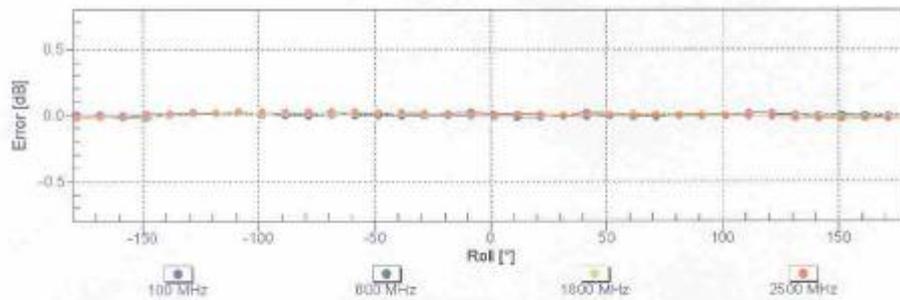
August 30, 2012

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



Uncertainty of Axial Isotropy Assessment: $\pm 0.5\%$ ($k=2$)

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

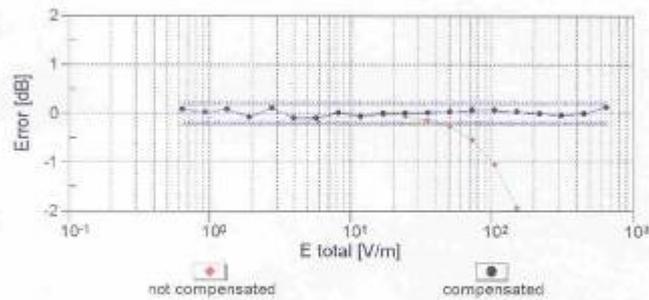
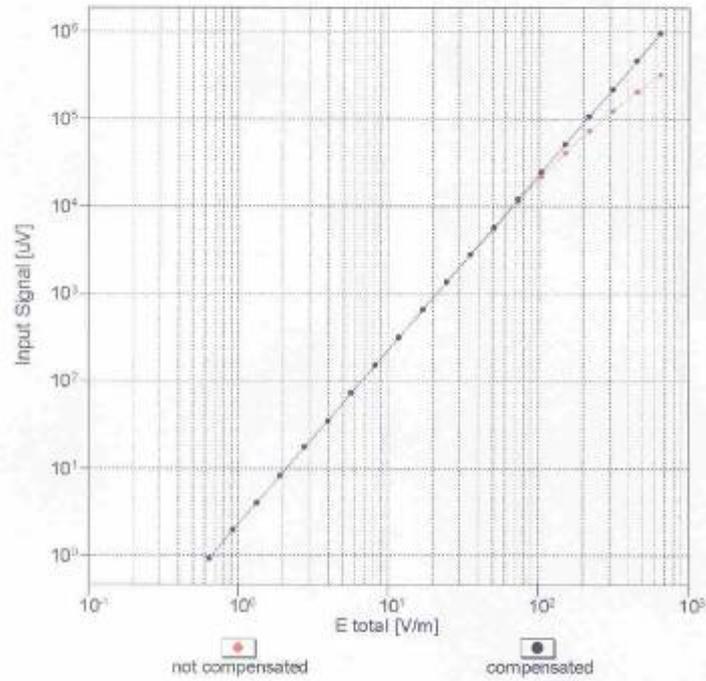


Uncertainty of Axial Isotropy Assessment: $\pm 0.5\%$ ($k=2$)

ER3DV6-SN:2428

August 30, 2012

Dynamic Range f(E-field) (TEM cell , f = 900 MHz)

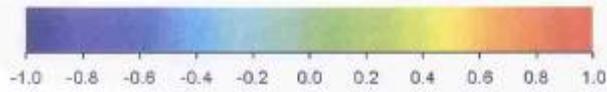
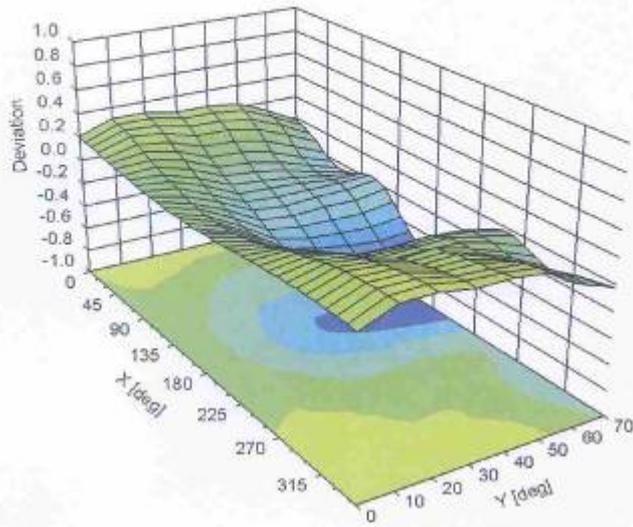


Uncertainty of Linearity Assessment: $\pm 0.6\%$ (k=2)

ER3DV6-SN.2428

August 30, 2012

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



Uncertainty of Spherical Isotropy Assessment: $\pm 2.6\%$ ($k=2$)

ER3DV6-- SN:2428

August 30, 2012

DASY/EASY - Parameters of Probe: ER3DV6 - SN:2428

Other Probe Parameters

Sensor Arrangement	Rectangular
Connector Angle (°)	141.5
Mechanical Surface Detection Mode	enabled
Optical Surface Detection Mode	disabled
Probe Overall Length	337 mm
Probe Body Diameter	10 mm
Tip Length	10 mm
Tip Diameter	8 mm
Probe Tip to Sensor X Calibration Point	2.5 mm
Probe Tip to Sensor Y Calibration Point	2.5 mm
Probe Tip to Sensor Z Calibration Point	2.5 mm

TA Technology (Shanghai) Co., Ltd. Test Report

ANNEX D: H-Probe Calibration Certificate

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




**S
C
S** Schweizerischer Kalibrierdienst
Service suisse d'étalonnage
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: **TMC Beijing (Auden)**

Certificate No: **H3-6260_Aug12**

CALIBRATION CERTIFICATE

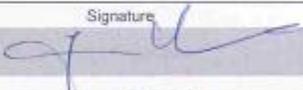
Object	H3DV6 - SN:6260
Calibration procedure(s)	QA CAL-03.v6, QA CAL-25.v4 Calibration procedure for H-field probes optimized for close near field evaluations in air
Calibration date:	August 30, 2012

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID	Cat Date (Certificate No.)	Scheduled Calibration
Power meter E4419B	GB41293874	29-Mar-12 (No. 217-01508)	Apr-13
Power sensor E4412A	MY41498087	29-Mar-12 (No. 217-01508)	Apr-13
Reference 3 dB Attenuator	SN: S5054 (3c)	27-Mar-12 (No. 217-01531)	Apr-13
Reference 20 dB Attenuator	SN: S5086 (20b)	27-Mar-12 (No. 217-01529)	Apr-13
Reference 30 dB Attenuator	SN: S5129 (30b)	27-Mar-12 (No. 217-01532)	Apr-13
Reference Probe H3DV6	SN: 6182	11-Oct-11 (No. H3-6182_Oct11)	Oct-12
DAE4	SN: 789	30-Jan-12 (No. DAE4-789_Jan12)	Jan-13
Secondary Standards	ID	Check Date (in house)	Scheduled Check
RF generator HP 8648C	US3642U01700	4-Aug-99 (in house check Apr-11)	In house check: Apr-13
Network Analyzer HP 8753E	US37390585	18-Oct-01 (in house check Oct-11)	In house check: Oct-12

	Name	Function	Signature
Calibrated by:	Jeton Kastrelli	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: August 30, 2012

This calibration certificate shall not be reproduced except in full without written approval of the laboratory.

Certificate No: H3-6260_Aug12

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TA Technology (Shanghai) Co., Ltd.

Test Report

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



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S 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**

Glossary:

NORM _{x,y,z}	sensitivity in free space
DCP	diode compression point
CF	crest factor (1/duty_cycle) of the RF signal
A, B, C	modulation dependent linearization parameters
Polarization φ	φ rotation around probe axis
Polarization ϑ	ϑ rotation around an axis that is in the plane normal to probe axis (at measurement center), i.e., $\vartheta = 0$ is normal to probe axis
Connector Angle	information used in DASY system to align probe sensor X to the robot coordinate system

Calibration is Performed According to the Following Standards:

- IEEE Std 1309-2005, "IEEE Standard for calibration of electromagnetic field sensors and probes, excluding antennas, from 9 kHz to 40 GHz", December 2005.
- CTIA Test Plan for Hearing Aid Compatibility, April 2010.

Methods Applied and Interpretation of Parameters:

- NORM_{x,y,z}**: Assessed for E-field polarization $\vartheta = 0$ for XY sensors and $\vartheta = 90$ for Z sensor ($f \leq 900$ MHz in TEM-cell; $f > 1800$ MHz: R22 waveguide).
- X, Y, Z(f)_a0a1a2 = X, Y, Z_a0a1a2* frequency_response** (see Frequency Response Chart).
- DCP_{x,y,z}**: DCP are numerical linearization parameters assessed based on the data of power sweep with CW signal (no uncertainty required). DCP does not depend on frequency nor media.
- PAR**: PAR is the Peak to Average Ratio that is not calibrated but determined based on the signal characteristics
- A_{x,y,z}, B_{x,y,z}, C_{x,y,z}, VR_{x,y,z}: A, B, C** are numerical linearization parameters assessed based on the data of power sweep for specific modulation signal. The parameters do not depend on frequency nor media. VR is the maximum calibration range expressed in RMS voltage across the diode.
- Spherical isotropy (3D deviation from isotropy)**: in a locally homogeneous field realized using an open waveguide setup.
- Sensor Offset**: The sensor offset corresponds to the offset of virtual measurement center from the probe tip (on probe axis). No tolerance required.
- Connector Angle**: The angle is assessed using the information gained by determining the X_a0a1a2 (no uncertainty required).

H3DV6 – SN:6260

August 30, 2012

Probe H3DV6

SN:6260

Manufactured: September 7, 2007
Calibrated: August 30, 2012

Calibrated for DASY/EASY Systems
(Note: non-compatible with DASY2 system!)

TA Technology (Shanghai) Co., Ltd.

Test Report

H3DV6-SN:6260

August 30, 2012

DASY/EASY - Parameters of Probe: H3DV6 - SN:6260

Basic Calibration Parameters

		Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm (A/m / $\sqrt{\text{mV}}$)	a0	2.48E-003	2.50E-003	2.92E-003	$\pm 5.1 \%$
Norm (A/m / $\sqrt{\text{mV}}$)	a1	-2.59E-005	-5.62E-006	-1.13E-005	$\pm 5.1 \%$
Norm (A/m / $\sqrt{\text{mV}}$)	a2	4.45E-005	3.83E-005	5.02E-005	$\pm 5.1 \%$
DCP (mV) ^B		92.3	93.0	92.1	

Modulation Calibration Parameters

UID	Communication System Name	PAR		A dB	B dB	C dB	VR mV	Unc ^E (k=2)
0	CW	0.00	X	0.00	0.00	1.00	139.0	$\pm 2.7 \%$
			Y	0.00	0.00	1.00	136.0	
			Z	0.00	0.00	1.00	136.0	

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

^B Numerical linearization parameter; uncertainty not required.

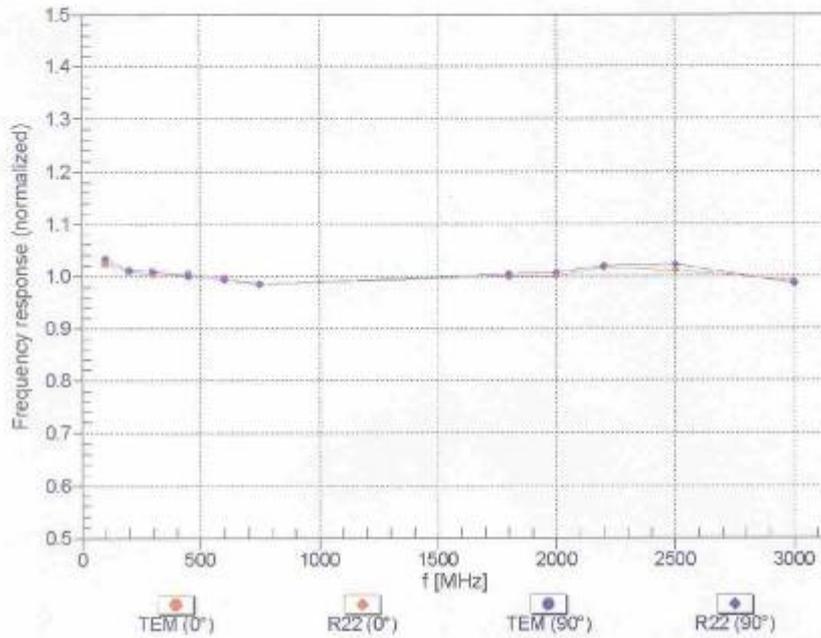
^E Uncertainty is determined using the max. deviation from linear response applying rectangular distribution and is expressed for the square of the field value.

TA Technology (Shanghai) Co., Ltd.
Test Report

H3DV6- SN:6260

August 30, 2012

Frequency Response of H-Field
(TEM-Cell:ifi110 EXX, Waveguide: R22)



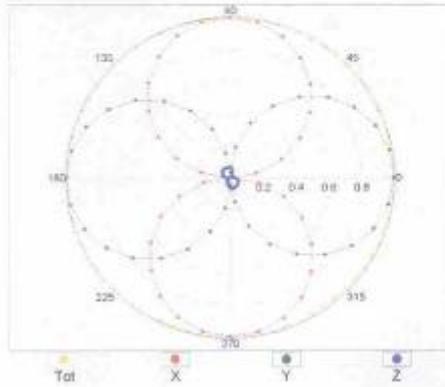
Uncertainty of Frequency Response of H-field: $\pm 6.3\%$ (k=2)

H3DV6-SN:6260

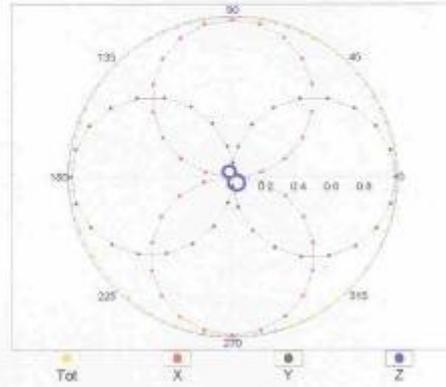
August 30, 2012

Receiving Pattern (ϕ), $\theta = 0^\circ$

f=600 MHz, TEM, 0°

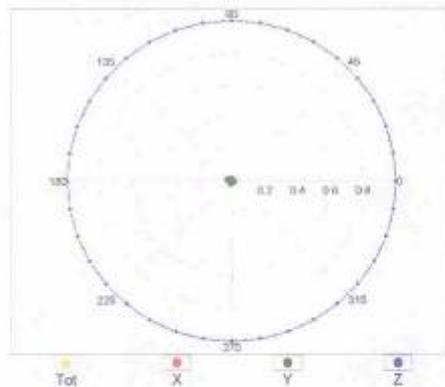


f=2500 MHz, R22, 0°

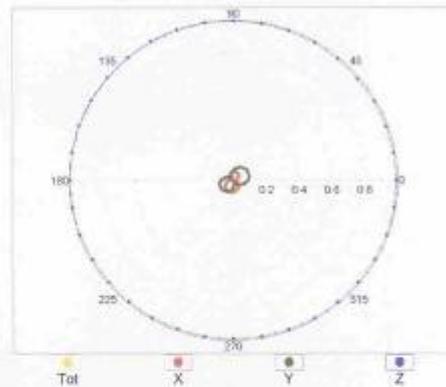


Receiving Pattern (ϕ), $\theta = 90^\circ$

f=600 MHz, TEM, 90°



f=2500 MHz, R22, 90°

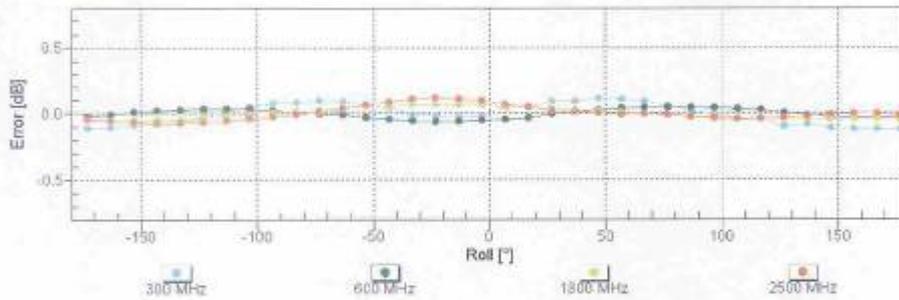


TA Technology (Shanghai) Co., Ltd. Test Report

H3DV6-SN:6260

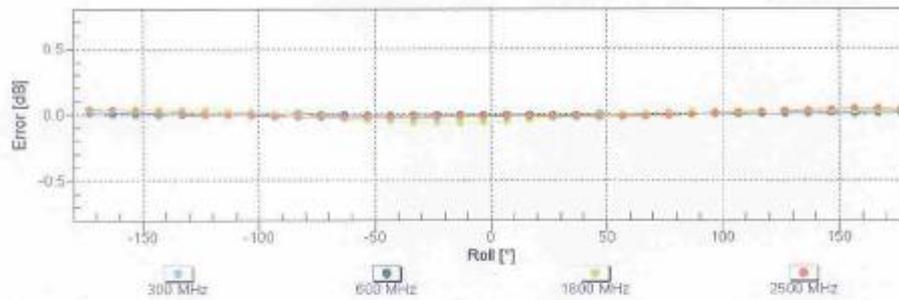
August 30, 2012

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



Uncertainty of Axial Isotropy Assessment: $\pm 0.5\%$ ($k=2$)

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

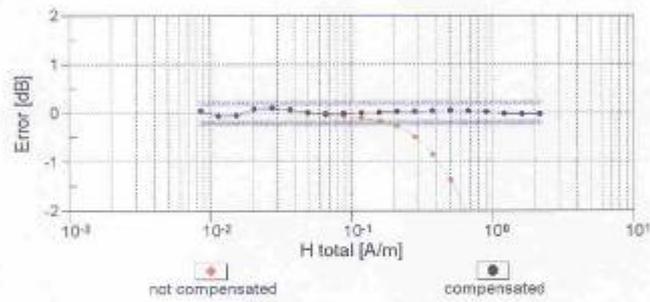
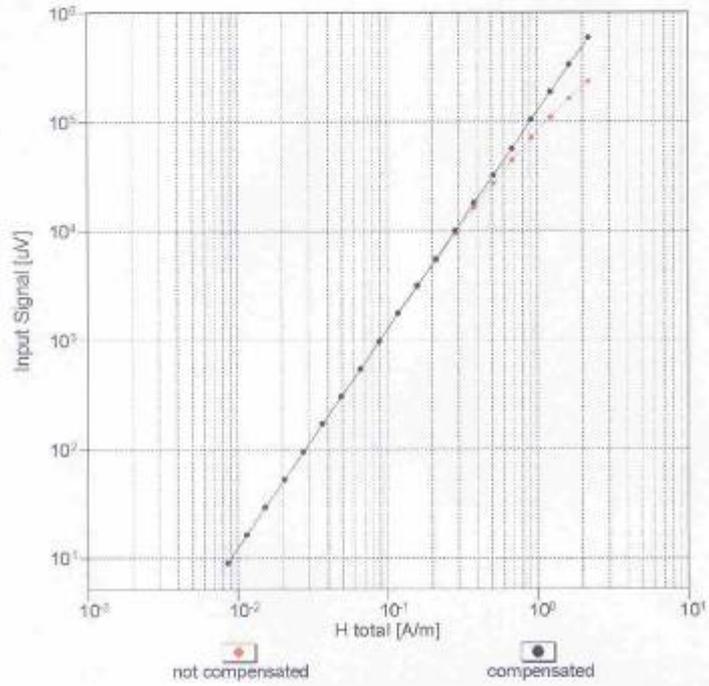


Uncertainty of Axial Isotropy Assessment: $\pm 0.5\%$ ($k=2$)

H3DV6-SN:6260

August 30, 2012

Dynamic Range f(H-field) (TEM cell, f = 900 MHz)

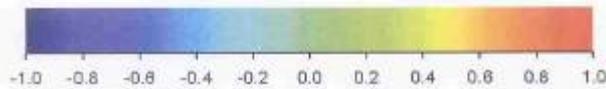
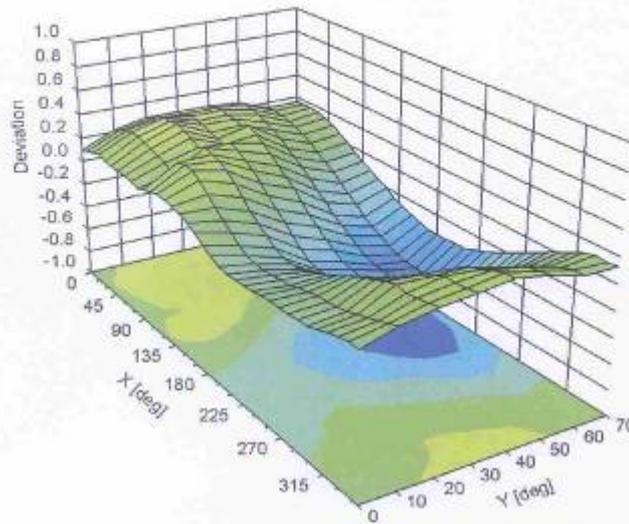


Uncertainty of Linearity Assessment: $\pm 0.6\%$ (k=2)

H3DV6-SN:6260

August 30, 2012

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



Uncertainty of Spherical Isotropy Assessment: $\pm 2.6\%$ ($k=2$)

H3DV6- SN:6260

August 30, 2012

DASY/EASY - Parameters of Probe: H3DV6 - SN:6260

Other Probe Parameters

Sensor Arrangement	Rectangular
Connector Angle (°)	26.8
Mechanical Surface Detection Mode	enabled
Optical Surface Detection Mode	disabled
Probe Overall Length	337 mm
Probe Body Diameter	10 mm
Tip Length	20 mm
Tip Diameter	6 mm
Probe Tip to Sensor X Calibration Point	3 mm
Probe Tip to Sensor Y Calibration Point	3 mm
Probe Tip to Sensor Z Calibration Point	3 mm

TA Technology (Shanghai) Co., Ltd. Test Report

ANNEX E: CD835V3 Dipole Calibration Certificate

**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
S 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: **TMC Beijing (Auden)**

Certificate No: **CD835V3-1023_Aug12**

CALIBRATION CERTIFICATE

Object: **CD835V3 - SN: 1023**

Calibration procedure(s): **QA CAL-20.v6
Calibration procedure for dipoles in air**

Calibration date: **August 30, 2012**

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter EPM-442A	GB37480704	05-Oct-11 (No. 217-01451)	Oct-12
Power sensor HP 8481A	US37292783	05-Oct-11 (No. 217-01451)	Oct-12
Probe ER3DV6	SN: 2336	29-Dec-11 (No. ER3-2336_Dec11)	Dec-12
Probe H3DV8	SN: 6065	29-Dec-11 (No. H3-6065_Dec11)	Dec-12
DAE4	SN: 781	29-May-12 (No. DAE4-781_May12)	May-13
Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power meter Agilent 4419B	SN: GB42420191	09-Oct-09 (in house check Oct-11)	In house check: Oct-12
Power sensor HP 8482H	SN: 3318A09450	09-Oct-09 (in house check Oct-11)	In house check: Oct-12
Power sensor HP 8482A	SN: US37295597	09-Oct-09 (in house check Oct-11)	In house check: Oct-12
Network Analyzer HP 8753E	US37390585	18-Oct-01 (in house check Oct-11)	In house check: Oct-12
RF generator E4433B	MY 41000675	03-Nov-04 (in house check Oct-11)	In house check: Oct-13

	Name	Function	Signature
Calibrated by:	Fin Bornholt	R&D Director	
Approved by:	Katja Pokovic	Laboratory Director	

Issued: September 4, 2012

This calibration certificate shall not be reproduced except in full without written approval of the laboratory.

TA Technology (Shanghai) Co., Ltd.

Test Report

Report No. RHA1301-0016HAC01R1

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Calibration Laboratory of
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Engineering AG
Zeughausstrasse 43, 8004 Zurich, Switzerland



S Schweizerischer Kalibrierdienst
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S 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

References

- [1] 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], 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 DASYS 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 eliminated 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], 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.

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

TA Technology (Shanghai) Co., Ltd.

Test Report

Measurement Conditions

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

DASY Version	DASY5	V52.8.2
Extrapolation	Advanced Extrapolation	
Phantom	HAC Test Arch	
Distance Dipole Top - Probe Center	10mm	
Scan resolution	dx, dy = 5 mm	
Frequency	835 MHz ± 1 MHz	
Input power drift	< 0.05 dB	

Maximum Field values at 835 MHz

H-field 10 mm above dipole surface	condition	interpolated maximum
Maximum measured	100 mW input power	0.461 A / m ± 8.2 % (k=2)

E-field 10 mm above dipole surface	condition	Interpolated maximum
Maximum measured above high end	100 mW input power	161.8 V / m
Maximum measured above low end	100 mW input power	159.0 V / m
Averaged maximum above arm	100 mW input power	160.4 V / m ± 12.8 % (k=2)

Appendix

Antenna Parameters

Frequency	Return Loss	Impedance
800 MHz	16.2 dB	45.1 Ω - 14.1 jΩ
835 MHz	29.5 dB	49.6 Ω + 3.3 jΩ
900 MHz	16.7 dB	59.4 Ω - 13.1 jΩ
950 MHz	26.0 dB	46.0 Ω + 2.7 jΩ
960 MHz	19.3 dB	51.1 Ω + 10.9 jΩ

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.

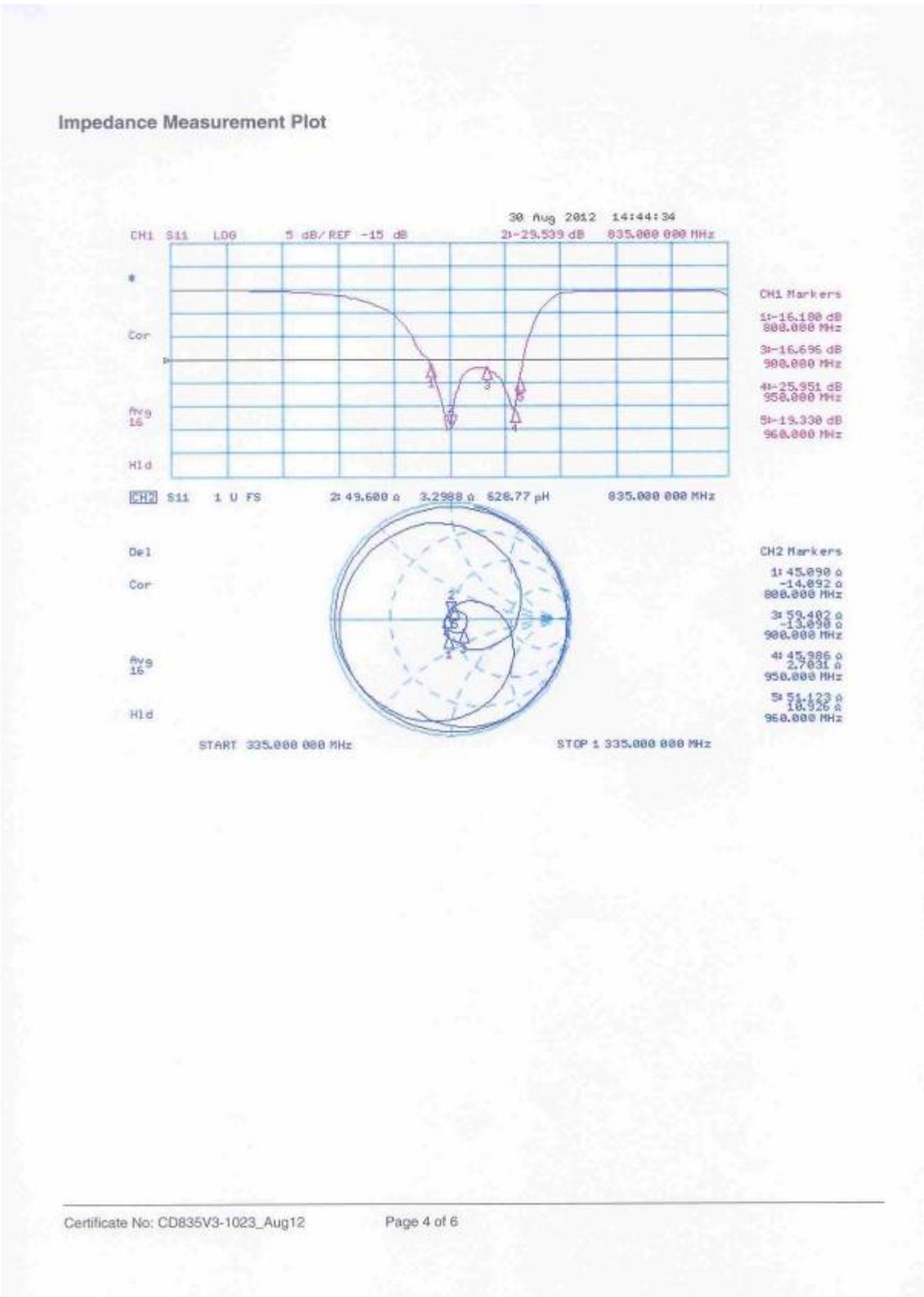
Do not apply force to dipole arms, as they are liable to bend. The soldered connections near the feedpoint may be damaged. After excessive mechanical stress or overheating, check the impedance characteristics to ensure that the internal matching network is not affected.

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

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DASY5 H-field Result

Date: 30.08.2012

Test Laboratory: SPEAG Lab2

DUT: HAC-Dipole 835 MHz; Type: CD835V3; Serial: CD835V3 - SN: 1023

Communication System: CW; Frequency: 835 MHz
 Medium parameters used: $\sigma = 0 \text{ mho/m}$, $\epsilon_r = 1$; $\rho = 1 \text{ kg/m}^3$
 Phantom section: RF Section
 Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

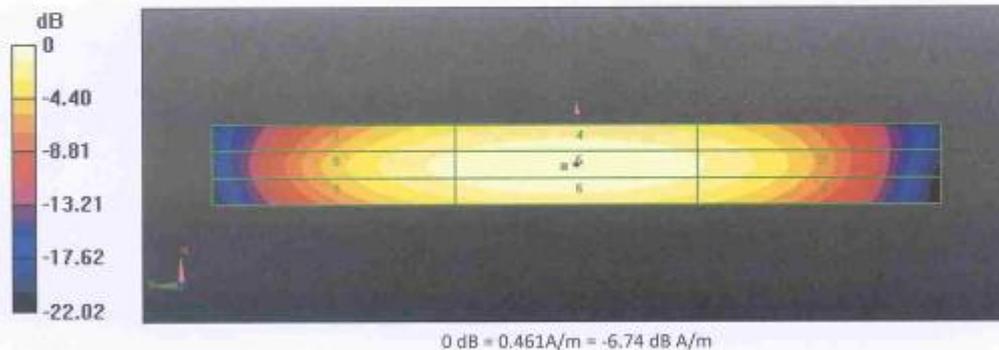
- Probe: H3DV6 - SN6065; ; Calibrated: 29.12.2011
- Sensor-Surface: [Fix Surface]
- Electronics: DAE4 5n781; Calibrated: 29.05.2012
- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA; Serial: 1070
- DASY52 52.8.2(969); SEMCAD X 14.6.4(4989)

Dipole H-Field measurement @ 835MHz/H-Scan - 835MHz d=10mm/Hearing Aid Compatibility Test (41x361x1):

Measurement grid: dx=5mm, dy=5mm
 Device Reference Point: 0, 0, -6.3 mm
 Reference Value = 0.49 V/m; Power Drift = 0.01 dB
 PMR not calibrated. PMF = 1.000 is applied.
 H-field emissions = 0.46 A/m
 Near-field category: M4 (AWF 0 dB)

PMF scaled H-field

Grid 1 M4	Grid 2 M4	Grid 3 M4
0.38 A/m	0.40 A/m	0.38 A/m
Grid 4 M4	Grid 5 M4	Grid 6 M4
0.43 A/m	0.46 A/m	0.44 A/m
Grid 7 M4	Grid 8 M4	Grid 9 M4
0.39 A/m	0.42 A/m	0.40 A/m



TA Technology (Shanghai) Co., Ltd. Test Report

DASY5 E-field Result

Date: 30.08.2012

Test Laboratory: SPEAG Lab2

DUT: HAC-Dipole 835 MHz; Type: CD835V3; Serial: CD835V3 - SN: 1023

Communication System: CW; Frequency: 835 MHz
 Medium parameters used: $\sigma = 0$ mho/m, $\epsilon_r = 1$; $\rho = 1000$ kg/m³
 Phantom section: RF Section
 Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

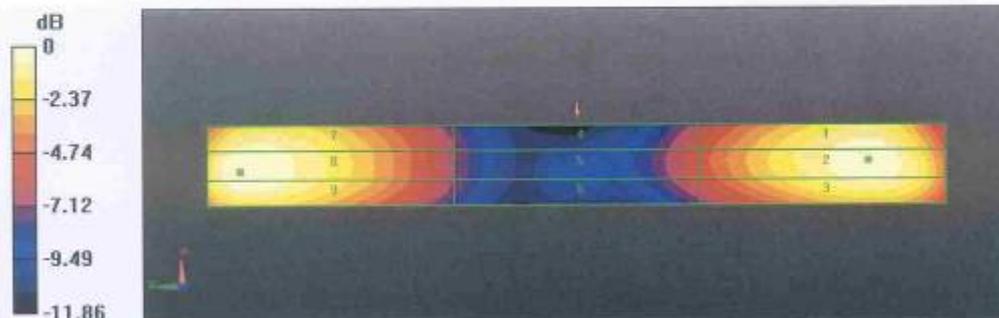
- Probe: ER3DV6 - 5N2336; ConvF[1, 1, 1]; Calibrated: 29.12.2011
- Sensor-Surface: (Fix Surface)
- Electronics: DAE4 Sn781; Calibrated: 29.05.2012
- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA; Serial: 1070
- DASY52 52.8.2(969); SEMCAD X 14.6.4(4989)

Dipole E-Field measurement @ 835MHz/E-Scan - 835MHz d=10mm/Hearing Aid Compatibility Test (41x361x1):

Measurement grid: dx=5mm, dy=5mm
 Device Reference Point: 0, 0, -6.3 mm
 Reference Value = 104.0 V/m; Power Drift = -0.04 dB
 PMR not calibrated. PMF = 1.000 is applied.
 E-field emissions = 161.8 V/m
 Near-field category: M4 (AWF 0 dB)

PMF scaled E-field

Grid 1 M4	Grid 2 M4	Grid 3 M4
156.0 V/m	159.0 V/m	151.3 V/m
Grid 4 M4	Grid 5 M4	Grid 6 M4
87.06 V/m	88.87 V/m	85.39 V/m
Grid 7 M4	Grid 8 M4	Grid 9 M4
154.8 V/m	161.8 V/m	159.2 V/m



0 dB = 161.8V/m = 44.18 dB V/m

TA Technology (Shanghai) Co., Ltd.

Test Report

ANNEX F: CD1880V3 Dipole Calibration Certificate

**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
S 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: **TMC Beijing (Auden)**

Certificate No: **CD1880V3-1018_Aug12**

CALIBRATION CERTIFICATE

Object: **CD1880V3 - SN: 1018**

Calibration procedure(s): **QA CAL-20.v6
Calibration procedure for dipoles in air**

Calibration date: **August 30, 2012**

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter EPM-442A	GB37480704	05-Oct-11 (No. 217-01451)	Oct-12
Power sensor HP 8481A	US37292783	05-Oct-11 (No. 217-01451)	Oct-12
Probe ER3DV6	SN: 2336	29-Dec-11 (No. ER3-2336_Dec11)	Dec-12
Probe H3DV6	SN: 6065	29-Dec-11 (No. H3-6065_Dec11)	Dec-12
DAE4	SN: 781	29-May-12 (No. DAE4-781_May12)	May-13
Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power meter Agilent 4419B	SN: GB42420191	09-Oct-09 (in house check Oct-11)	In house check: Oct-12
Power sensor HP 8482H	SN: 3316A09450	09-Oct-09 (in house check Oct-11)	In house check: Oct-12
Power sensor HP 8482A	SN: US37295597	09-Oct-09 (in house check Oct-11)	In house check: Oct-12
Network Analyzer HP 8753E	US37390585	18-Oct-01 (in house check Oct-11)	In house check: Oct-12
RF generator E4433B	MY 41006675	03-Nov-04 (in house check Oct-11)	In house check: Oct-13

	Name	Function	Signature
Calibrated by:	Fin Bornholt	R&D Director	
Approved by:	Katja Pokovic	Laboratory Director	

Issued: September 4, 2012

This calibration certificate shall not be reproduced except in full without written approval of the laboratory.

TA Technology (Shanghai) Co., Ltd.

Test Report

Report No. RHA1301-0016HAC01R1

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



S Schweizerischer Kalibrierdienst
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S 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

References

- [1] 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], 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 DASY5 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], 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.

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

TA Technology (Shanghai) Co., Ltd.

Test Report

Measurement Conditions

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

DASY Version	DASY5	V52.8.2
Extrapolation	Advanced Extrapolation	
Phantom	HAC Test Arch	
Distance Dipole Top - Probe Center	10mm	
Scan resolution	dx, dy = 5 mm	
Frequency	1880 MHz \pm 1 MHz	
Input power drift	< 0.05 dB	

Maximum Field values at 1880 MHz

H-field 10 mm above dipole surface	condition	interpolated maximum
Maximum measured	100 mW input power	0.463 A / m \pm 8.2 % (k=2)

E-field 10 mm above dipole surface	condition	Interpolated maximum
Maximum measured above high end	100 mW input power	139.0 V / m
Maximum measured above low end	100 mW input power	138.8 V / m
Averaged maximum above arm	100 mW input power	138.9 V / m \pm 12.8 % (k=2)

Appendix

Antenna Parameters

Frequency	Return Loss	Impedance
1730 MHz	27.8 dB	52.8 Ω + 3.1 j Ω
1880 MHz	21.7 dB	49.4 Ω + 8.2 j Ω
1900 MHz	22.2 dB	51.6 Ω + 7.7 j Ω
1950 MHz	30.1 dB	52.3 Ω + 2.3 j Ω
2000 MHz	20.7 dB	42.8 Ω + 4.7 j Ω

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.

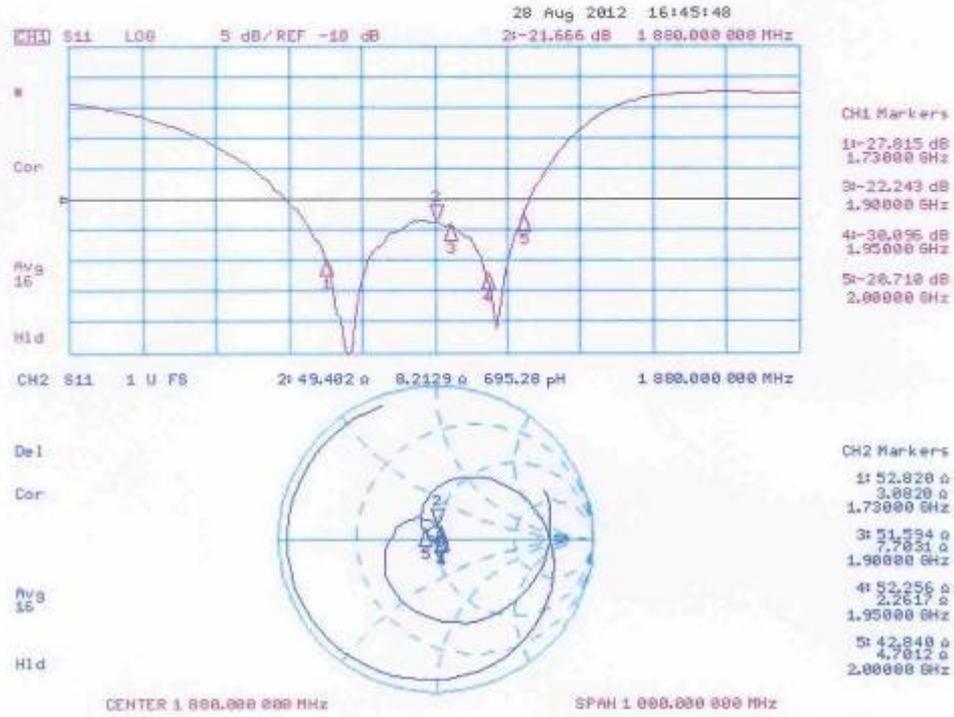
After long term use with 40W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

TA Technology (Shanghai) Co., Ltd. Test Report

Report No. RHA1301-0016HAC01R1

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Impedance Measurement Plot



DASY5 H-field Result

Date: 30.08.2012

Test Laboratory: SPEAG Lab2

DUT: HAC Dipole 1880 MHz; Type: CD1880V3; Serial: CD1880V3 - SN: 1018

Communication System: CW; Frequency: 1880 MHz
 Medium parameters used: $\sigma = 0$ mho/m, $\epsilon_r = 1$; $\rho = 1$ kg/m³
 Phantom section: RF Section
 Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

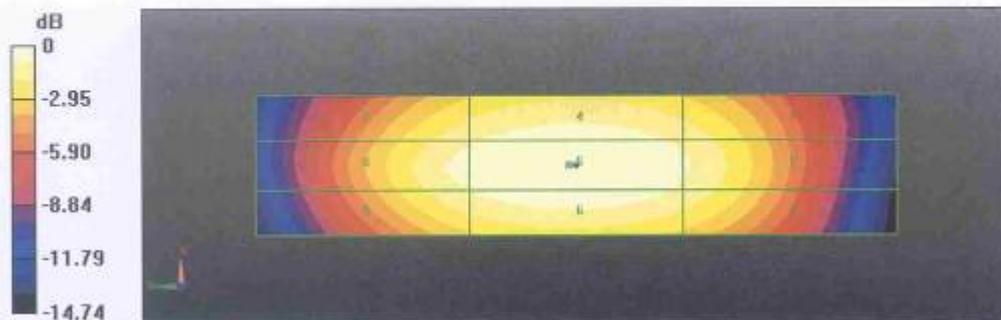
- Probe: H3DV6 - SN6065; ; Calibrated: 29.12.2011
- Sensor-Surface: {Fix Surface}
- Electronics: DAE4 Sn781; Calibrated: 29.05.2012
- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA; Serial: 1070
- DASY52 52.8.2(969); SEMCAD X 14.6.4(4989)

Dipole H-Field measurement @ 1880MHz/H-Scan - 1880MHz d=10mm/Hearing Aid Compatibility Test (41x181x1):

Measurement grid: dx=5mm, dy=5mm
 Device Reference Point: 0, 0, -6.3 mm
 Reference Value = 0.49 V/m; Power Drift = 0.03 dB
 PMR not calibrated. PMF = 1.000 is applied.
 H-field emissions = 0.46 A/m
 Near-field category: M2 (AWF 0 dB)

PMF scaled H-field

Grid 1 M2	Grid 2 M2	Grid 3 M2
0.40 A/m	0.42 A/m	0.40 A/m
Grid 4 M2	Grid 5 M2	Grid 6 M2
0.44 A/m	0.46 A/m	0.44 A/m
Grid 7 M2	Grid 8 M2	Grid 9 M2
0.40 A/m	0.43 A/m	0.41 A/m



0 dB = 0.463A/m = -6.74 dB A/m

DASY5 E-field Result

Date: 30.08.2012

Test Laboratory: SPEAG Lab2

DUT: HAC Dipole 1880 MHz; Type: CD1880V3; Serial: CD1880V3 - SN: 1018

Communication System: CW; Frequency: 1880 MHz
 Medium parameters used: $\sigma = 0$ mho/m, $\epsilon_r = 1$; $\rho = 1000$ kg/m³
 Phantom section: RF Section
 Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

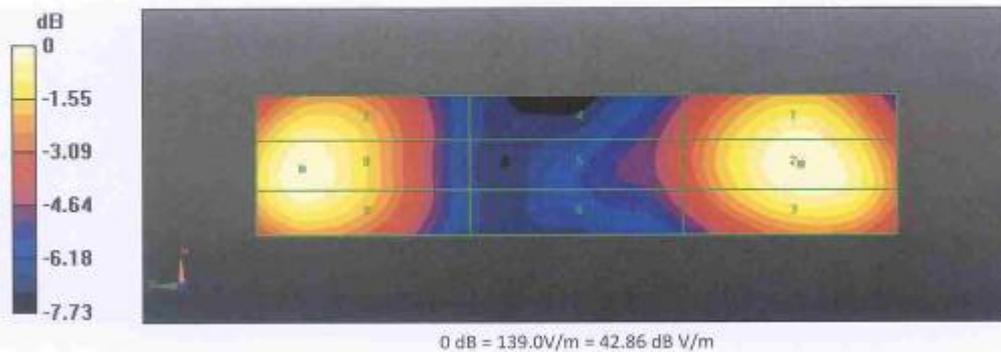
- Probe: ER3DV6 - SN2336; ConvF(1, 1, 1); Calibrated: 29.12.2011
- Sensor-Surface: (Fix Surface)
- Electronics: DAE4 Sn781; Calibrated: 29.05.2012
- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA; Serial: 1070
- DASY52 52.8.2(969); SEMCAD X 14.6.4(4989)

Dipole E-Field measurement @ 1880MHz/E-Scan - 1880MHz d=10mm/Hearing Aid Compatibility Test (41x181x1):

Measurement grid: dx=5mm, dy=5mm
 Device Reference Point: 0, 0, -6.3 mm
 Reference Value = 156.8 V/m; Power Drift = 0.01 dB
 PMR not calibrated. PMF = 1.000 is applied.
 E-field emissions = 139.0 V/m
 Near-field category: M2 (AWF 0 dB)

PMF scaled E-field

Grid 1 M2	Grid 2 M2	Grid 3 M2
135.0 V/m	138.8 V/m	134.4 V/m
Grid 4 M3	Grid 5 M3	Grid 6 M3
91.42 V/m	93.60 V/m	89.22 V/m
Grid 7 M2	Grid 8 M2	Grid 9 M2
130.8 V/m	139.0 V/m	136.3 V/m



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ANNEX G: DAE4 Calibration Certificate

**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
S 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 **Auden**

Certificate No: **DAE4-905_Jun12**

CALIBRATION CERTIFICATE

Object **DAE4 - SD 000 D04 BK - SN: 905**

Calibration procedure(s) **QA CAL-06.v24
Calibration procedure for the data acquisition electronics (DAE)**

Calibration date: **June 21, 2012**

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Keithley Multimeter Type 2001	SN: 081027B	28-Sep-11 (No:11450)	Sep-12
Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Calibrator Box V2.1	SE UWS 053 AA 1001	05-Jan-12 (in house check)	In house check: Jan-13

	Name	Function	Signature
Calibrated by:	Roland Mayoraz	Technician	
Approved by:	Fin Bomholt	R&D Director	

Issued: June 21, 2012

This calibration certificate shall not be reproduced except in full without written approval of the laboratory.

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
S Swiss Calibration Service

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Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: SCS 108

Glossary

DAE data acquisition electronics
Connector angle information used in DASY system to align probe sensor X to the robot coordinate system.

Methods Applied and Interpretation of Parameters

- *DC Voltage Measurement:* Calibration Factor assessed for use in DASY system by comparison with a calibrated instrument traceable to national standards. The figure given corresponds to the full scale range of the voltmeter in the respective range.
- *Connector angle:* The angle of the connector is assessed measuring the angle mechanically by a tool inserted. Uncertainty is not required.
- The following parameters as documented in the Appendix contain technical information as a result from the performance test and require no uncertainty.
 - *DC Voltage Measurement Linearity:* Verification of the Linearity at +10% and -10% of the nominal calibration voltage. Influence of offset voltage is included in this measurement.
 - *Common mode sensitivity:* Influence of a positive or negative common mode voltage on the differential measurement.
 - *Channel separation:* Influence of a voltage on the neighbor channels not subject to an input voltage.
 - *AD Converter Values with inputs shorted:* Values on the internal AD converter corresponding to zero input voltage
 - *Input Offset Measurement:* Output voltage and statistical results over a large number of zero voltage measurements.
 - *Input Offset Current:* Typical value for information; Maximum channel input offset current, not considering the input resistance.
 - *Input resistance:* Typical value for information; DAE input resistance at the connector, during internal auto-zeroing and during measurement.
 - *Low Battery Alarm Voltage:* Typical value for information. Below this voltage, a battery alarm signal is generated.
 - *Power consumption:* Typical value for information. Supply currents in various operating modes.

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DC Voltage Measurement

A/D - Converter Resolution nominal

High Range: 1LSB = 6.1 μ V, full range = -100...+300 mV

Low Range: 1LSB = 61nV, full range = -1.....+3mV

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

Calibration Factors	X	Y	Z
High Range	404.744 \pm 0.1% (k=2)	405.295 \pm 0.1% (k=2)	404.875 \pm 0.1% (k=2)
Low Range	3.97983 \pm 0.7% (k=2)	4.00269 \pm 0.7% (k=2)	3.99654 \pm 0.7% (k=2)

Connector Angle

Connector Angle to be used in DASY system	270 $^{\circ}$ \pm 1 $^{\circ}$
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Appendix

1. DC Voltage Linearity

High Range	Reading (μV)	Difference (μV)	Error (%)
Channel X + Input	199996.94	-1.27	-0.00
Channel X + Input	20000.14	-0.07	-0.00
Channel X - Input	-19997.83	3.06	-0.02
Channel Y + Input	199996.34	-1.76	-0.00
Channel Y + Input	19997.45	-2.66	-0.01
Channel Y - Input	-20000.85	0.11	-0.00
Channel Z + Input	199999.43	1.31	0.00
Channel Z + Input	19998.09	-2.03	-0.01
Channel Z - Input	-20000.38	0.66	-0.00

Low Range	Reading (μV)	Difference (μV)	Error (%)
Channel X + Input	2000.20	-0.38	-0.02
Channel X + Input	201.23	0.09	0.04
Channel X - Input	-197.80	0.90	-0.45
Channel Y + Input	2000.37	-0.14	-0.01
Channel Y + Input	200.23	-0.93	-0.46
Channel Y - Input	-199.71	-0.91	0.46
Channel Z + Input	2000.07	-0.47	-0.02
Channel Z + Input	200.24	-0.94	-0.47
Channel Z - Input	-199.53	-0.70	0.35

2. Common mode sensitivity

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

	Common mode Input Voltage (mV)	High Range Average Reading (μV)	Low Range Average Reading (μV)
Channel X	200	10.10	8.39
	-200	-8.31	-7.87
Channel Y	200	7.67	7.42
	-200	-9.57	-9.68
Channel Z	200	2.03	1.67
	-200	-2.67	-3.15

3. Channel separation

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

	Input Voltage (mV)	Channel X (μV)	Channel Y (μV)	Channel Z (μV)
Channel X	200	-	5.61	-1.03
Channel Y	200	9.77	-	7.17
Channel Z	200	9.96	6.56	-

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4. AD-Converter Values with inputs shorted

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

	High Range (LSB)	Low Range (LSB)
Channel X	15897	16637
Channel Y	16146	15425
Channel Z	16377	16752

5. Input Offset Measurement

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

Input 10MΩ

	Average (μV)	min. Offset (μV)	max. Offset (μV)	Std. Deviation (μV)
Channel X	0.62	-0.20	1.36	0.34
Channel Y	-0.89	-1.83	-0.02	0.33
Channel Z	-0.59	-2.34	1.15	0.60

6. Input Offset Current

Nominal Input circuitry offset current on all channels: <25fA

7. Input Resistance (Typical values for information)

	Zeroing (kOhm)	Measuring (MOhm)
Channel X	200	200
Channel Y	200	200
Channel Z	200	200

8. Low Battery Alarm Voltage (Typical values for information)

Typical values	Alarm Level (VDC)
Supply (+ Vcc)	+7.9
Supply (- Vcc)	-7.6

9. Power Consumption (Typical values for information)

Typical values	Switched off (mA)	Stand by (mA)	Transmitting (mA)
Supply (+ Vcc)	+0.01	+6	+14
Supply (- Vcc)	-0.01	-8	-9