TESTING
No. L2264

ANSI C63.19

TEST REPORT

Product Name	cdma2000 Digital Mobile Phone
Model	PCDM650KT/HUAWEI M650/ M650/HUAWEI C8350/C8350
FCC ID	QISM650
Client	Huawei Technologies Co., Ltd.

TA Technology (Shanghai) Co., Ltd.

GENERAL SUMMARY

Product Name	cdma2000 Digital Mobile Phone	**Model**	PCDM650KT/HUAWEI M650/ M650/HUAWEI C8350/C8350
FCC ID	QISM650	**Report No.**	RZA1106-1064HAC02
Client	Huawei Technologies Co., Ltd.		
Manufacturer	Huawei Technologies Co., Ltd.		
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: T4 (Stamp) **Date of issue: July 6th, 2011**		
Comment	The test result only responds to the measured sample.		

Approved by Derek Yang Director

Revised by Jeff Wang SAR Manager

Performed by Jason Du SAR Engineer

TABLE OF CONTENT

1. General Information

1.1. Notes of the Test Report

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

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Address:	Bantian, Longgang District
City:	Shenzhen
Postal Code:	518129
Country:	P.R. China
Contact:	Zhao Guiying
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1.4. Manufacturer Information

Company:	Huawei Technologies Co., Ltd.
Address:	Bantian, Longgang District
City:	Shenzhen
Postal Code:	518129
Country:	P.R. China
Telephone:	0755-28780808
Fax:	0755-28780808

1.5. Information of EUT

General Information

Device Type:	Portable Device		
Product Name:	cdma2000 Digital Mobile Phone		
MEID:	A000002E1FB16B		
Hardware Version:	HC1M650M Ver.D		
Software Version:	M650V100R001USAC237B822		
Antenna Type:	Internal Antenna		
Device Operating Configurations:			
Supporting Mode(s):	CDMA Cellular/CDMA PCS; (tested)		
	CDMA BC10/CDMA BC14; (tested)		
	WiFi(802.11b/g/n HT20); (untested)		
	Bluetooth; (untested)		
Test Modulation:	QPSK		
Operating Frequency Range(s):	Mode	Tx (MHz)	Rx (MHz)
	CDMA Cellular	824.7 ~ 848.31	869.7 ~ 893.31
	CDMA PCS	1851.25 ~ 1908.75	1931.25 ~ 1988.75
	CDMA BC10	817.9 ~ 823.1	862.9 ~ 868.1
	CDMA BC14	1911.25 ~ 1913.75	1991.25 ~ 1993.75
Test Channel:Middle	384 (CDMA Cellular) (tested) 600 (CDMA PCS) (tested) 580 (CDMA BC10) (tested) 1250 (CDMA BC14) (tested)		
Power Class:	CDMA Cellular: Tested with Power Control All up bits		
	CDMA PCS: Tested with Power Control All up bits		
	CDMA BC10: Tested with Power Control All up bits		
	CDMA BC14: Tested with Power Control All up bits		

Auxiliary Equipment Details

AE1:Battery

Model:	HB4F1
Manufacturer:	Huawei Technologies Co., Ltd.
SN:	SGCB317HI1231065

Equipment Under Test (EUT) is a model of cdma2000 Digital Mobile Phone. It has Personal Wireless Routers (hot spots) function and Proximity Sensor function. The detail about Mobile phone and Lithium Battery is in chapter 1.5 in this report. The EUT has a CDMA antenna that is used for Tx/Rx, and the other is BT/WiFi antenna. T-Coil is tested for CDMA Cellular, CDMA PCS, CDMA BC10 and CDMA BC14. WiFi and Bluetooth modes don't have voice capability, and do not operate in the held to ear mode for providing handset service.

The sample under test was selected by the Client.

Components list please refer to documents of the manufacturer.

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. T-Coil signal quality categories of each tested Mode

Band	Category
CDMA Cellular	**T4**
CDMA PCS	**T4**
CDMA BC10	**T4**
CDMA BC14	**T4**

1.8. Test Date

The test is performed from July 1, 2011 to July 2, 2011.

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. EUT holder on the yellow base plate of the Test Arch phantom. During the test, the EUT is selected on T-Coil mode, the LCD backlight is turn off and volume is adjusted to maximum level.

2.1.2. CDMA Test Configuration

A communication link is set up with a System Simulator (SS) by RF cable, and a call is established. The Absolute Radio Frequency Channel Number (ARFCN) are allocated to 384 respectively in the case of CDMA Cellular, allocated to 600 respectively in the case of CDMA PCS, allocated to 580 respectively in the case of CDMA BC10, allocated to 1250 respectively in the case of CDMA BC14. T-Coil configurations is measured in RC1 with the EUT configured to transmit at full rate using Loopback Service Option SO3, at the same time the EUT shall be operated at its maximum RF output power setting.

2.2. T-Coil Measurements System Configuration

2.2.1. T-coil 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.

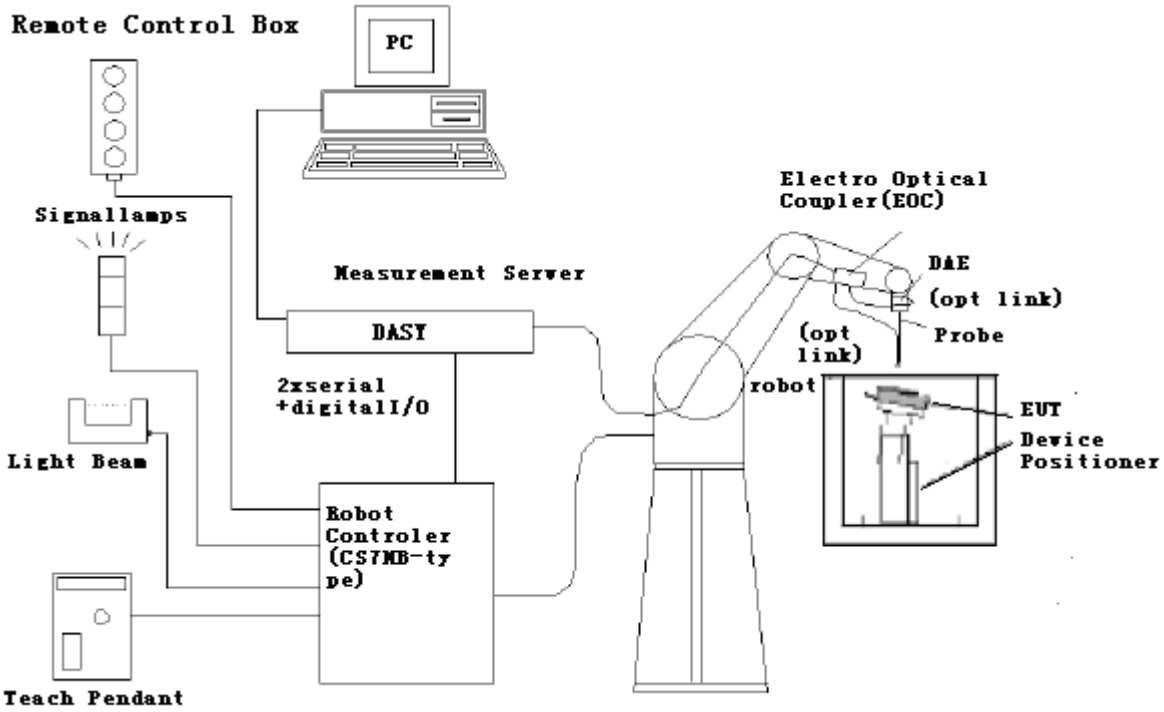
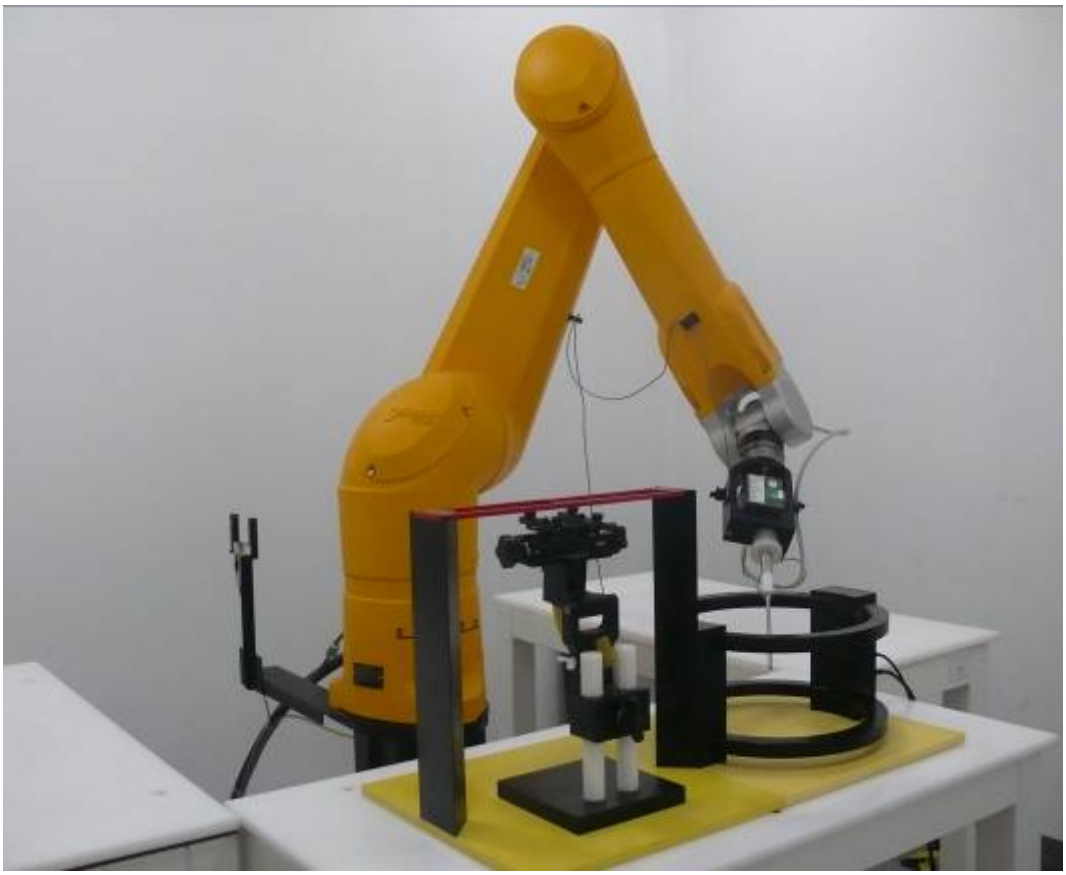


Figure 1 T-Coil Test Measurement Set-up

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.



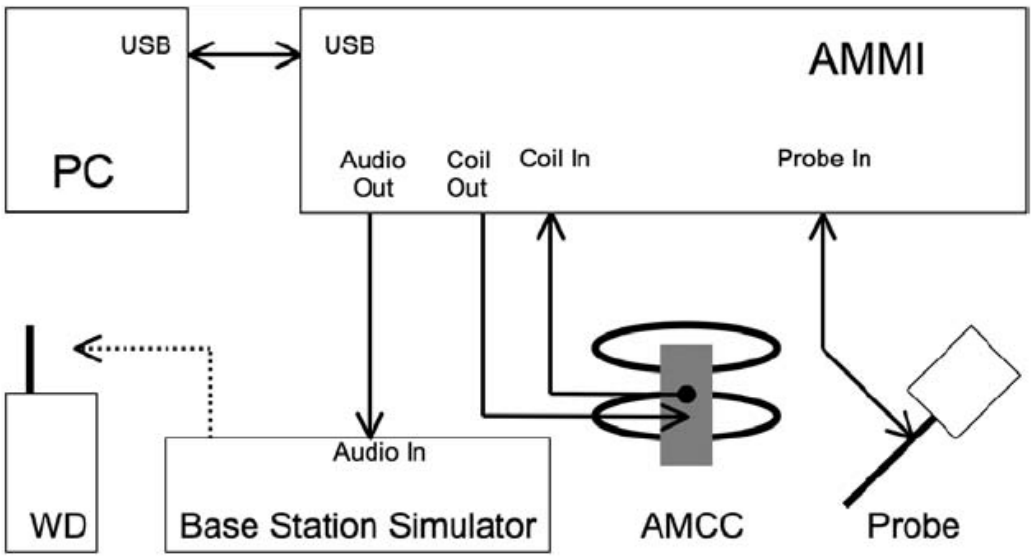


Figure 2 T-Coil Test Measurement Set-up

2.2.2. AM1D Probe

The AM1D probe is an active probe with a single sensor. It is fully RF-shielded and has a rounded tip 6mm in diameter incorporating a pickup coil with its center offset 3mm from the tip and the sides. The symmetric signal preamplifier in the probe is fed via the shielded symmetric output cable from the AMMI with a 48V “phantom” voltage supply. The 7-pin connector on the back in the axis of the probe does not carry any signals. It is mounted to the DAE for the correct orientation of the sensor. If the probe axis is tilted 54.7 degree from the vertical, the sensor is approximately vertical when the signal connector is at the underside of the probe (cable hanging downwards).

Specification

frequency range	0.1 - 20 kHz (RF sensitivity <-100 dB, fully RF shielded)
sensitivity	<-50 dB A/m @ 1 kHz
pre-amplifier	40 dB, symmetric
dimensions	tip diameter / length: 6 / 290 mm, sensor according to ANSI-C63.19

Figure 3 AM1D Probe

2.2.3. Audio Magnetic Measurement Instrument (AMMI)

The Audio Magnetic Measuring Instrument (AMMI) is a desktop 19-inch unit containing a sampling unit, a waveform generator for test and calibration signals, and a USB interface.

Figure 4 AMMI front panel

Port description:

Audio Out	BNC, audio signal to the base station simulator, for >500Ohm load
Coil Out	BNC, test and calibration signal to the AMCC (top connector), for 50Ohm load
Coil In	XLR, monitor signal from the AMCC BNO connector, 600 Ohm
Probe In	XLR, probe signal and phantom supply to the probe Lemo connector

Figure 5 AMMI rear side

Sampling rate	48 kHz / 24 bit
Dynamic range	85 dB
Test signal generation	User selectable and predefined (vis PC)
Calibration	Auto-calibration / full system calibration using AMCC with monitor output
Dimensions	482 x 65 x 270 mm

2.2.4. Helmholtz Calibration Coil (AMCC)

The Audio Magnetic Calibration coil is a Helmholtz Coil designed for calibration of the AM1D probe. The two horizontal coils generate a homogeneous magnetic field in the z direction. The DC input resistance is adjusted by a series resistor to approximately 50Ohm, and a shunt resistor of 10Ohm permits monitoring the current with a scale of 1:10

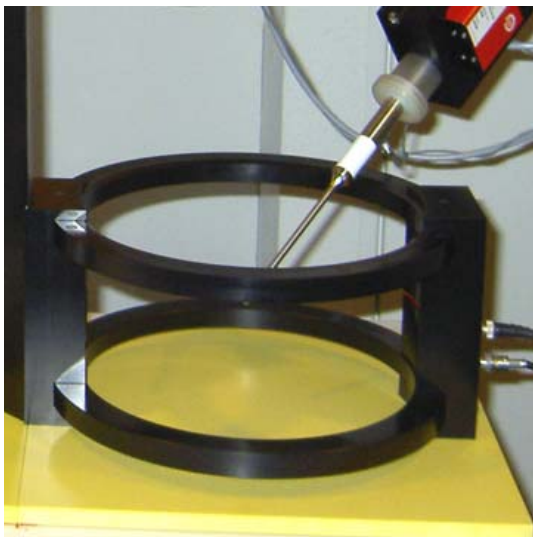


Figure 6 AMCC

Port description:

Signal	**Connector**	**Resistance**
Coil In	BNC	Typically 50Ohm
Coil Monitor	BNO	10Ohm±1% (100mV corresponding to 1 A/m)

Specification:

Dimensions	370 x 370 x 196 mm, according to ANSI-C63.19

2.2.5. 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 verication 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 <±0.5 dB.

Figure 7 T-coil Phantom & Device Holder

2.3. T-Coil measurement points and reference plane

The following figure illustrates the three standard probe orientations. Position 1 is the axial orientation of the probe coil; orientation 2 and orientation 3 are radial orientations. The space between the measurement positions is not fixed. It is recommended that a scan of the EUT be done for each probe coil orientation and that the maximum level recorded be used as the reading for that orientation of the probe coil.

1) The reference plane is the planar area that contains the highest point in the area of the phone that normally rests against the user's ear. It is parallel to the centerline of the receiver area of the phone and is defined by the points of the receiver-end of the EUT handset, which, in normal handset use, rest against the ear.

2) The measurement plane is parallel to, and 10 mm in front of, the reference plane.

3) The reference axis is normal to the reference plane and passes through the center of the receiver speaker section (or the center of the hole array); or may be centered on a secondary inductive source. The actual location of the measurement point shall be noted in the test report as the measurement reference point.

4) The measurement points may be located where the axial and radial field intensity measurements are optimum with regard to the requirements. However, the measurement points should be near the acoustic output of the EUT and shall be located in the same half of the phone as the EUT receiver. In a EUT handset with a centered receiver and a circularly symmetrical magnetic field, the measurement axis and the reference axis would coincide.

5) The relative spacing of each measurement orientation is not fixed. The axial and two radial orientations should be chosen to select the optimal position.

6) The measurement point for the axial position is located 10 mm from the reference plane on the measurement axis. The actual location of the measurement point shall be noted in test reports and designated as the measurement reference point.

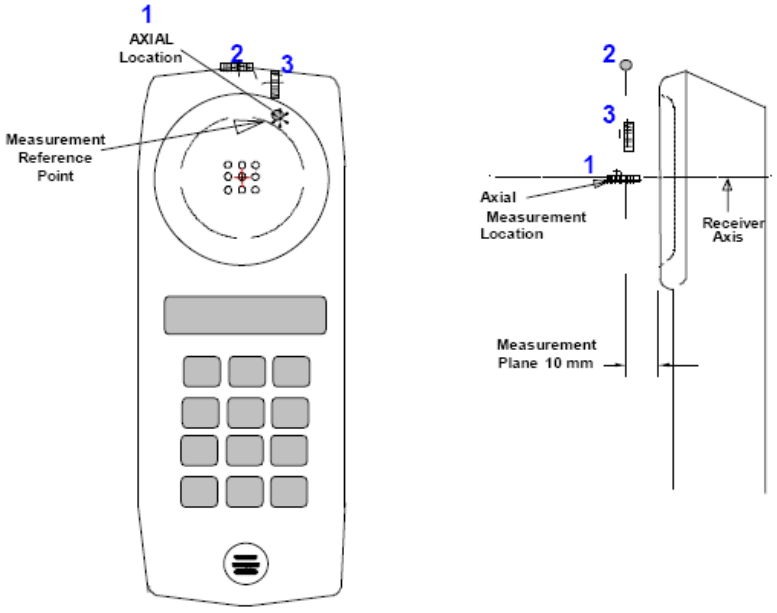


Figure 8 Axis and planes for EUT audio frequency magnetic field measurements

2.4. T-Coil Test Procedueres

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

1) Geometry and signal check: system probe alignment, proper operation of the field probe, probe measurement system, other instrumentation, and the positioning system was confirmed. A surface calibration was performed before each setup change to ensure repeatable spacing and proper maintenance of the measurement plane using the test Arch.

2) Set the reference drive level of signal voice defined in C63.19 per 6.3.2.1.

3) The ambient and test system background noise (dB A/m) was measured as well as ABM2 over the full measurement. The maximum noise level must be at least 10dB below the limit of C63.19 per 7.3.2.

4) The DUT was positioned in its intended test position, acoustic output point of the device perpendicular to the field probe.

5) The DUT operation for maximum rated RF output power was configured and connected by using of coaxial cable connection to the base station simulator at the test channel and other normal operating parameters as intended for the test. The battery was ensured to be fully charged before each test. The center sub-grid was centered over the center of the acoustic output (also audio band magnetic output, if applicable). The DUT audio output was positioned tangent (as physically possible) to the measurement plane.

6) The DUT's RF emission field was eliminated from T-coil results by using a well RF-shielding of the probe, AM1D, and by using of coaxial cable connection to a Base Station Simulator. One test channel was pre-measurement to avoid this possibility.

7) Determined the optimal measurement locations for the DUT by following the three steps, coarse resolution scan, fine resolution scans, and point measurement, as described in C63.19 per 6.3.4.4. At each measurement locations, samples in the measurement window duration were evaluated to get ABM1 and the signal spectrum. The noise measurement was performed after the scan with the signal, the same happened, just with the voice signal switched off. The ABM2 was calculated from this second scan.

8) All results resulting from a measurement point in a T-Coil job were calculated from the signal samples during this window interval. ABM values were averaged over the sequence of there samples.

9) At an optimal point measurement, the SNR (ABM1/ABM2) was calculated for axial,radial transverse and radial longitudinal orientation, and the frequency response was measured in axial axis.

10) Corrected for the frequency response after the DUT measurement since the DASY5 system had known the spectrum of the input signal by using a reference job.

11) In SEMCAD postprocessing, the spectral points are in addition scaled with the high-pass (half-band) and the A-weighting, bandwidth compensated factor (BWC) and those results are final as shown in this report.

3. T-Coil Performance Requirements

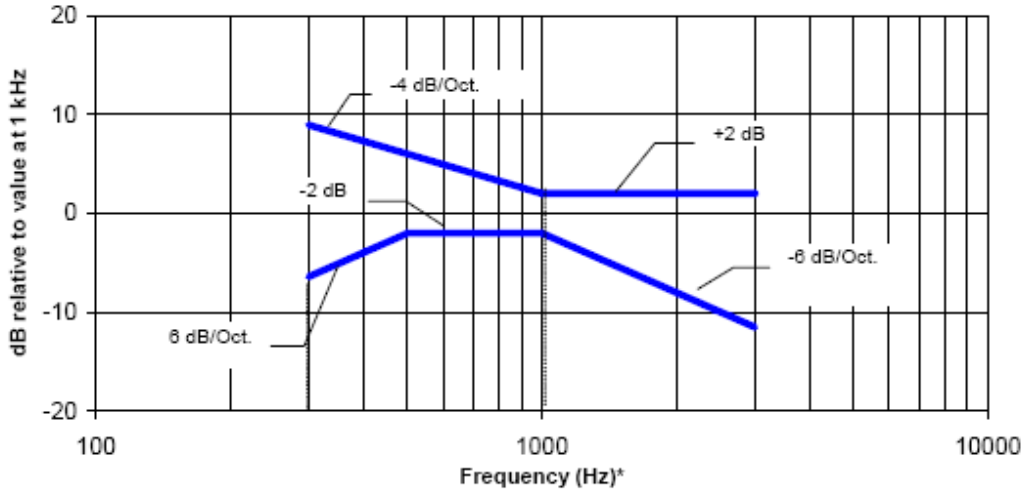
In order to be rated for T-Coil use, a EUT shall meet the requirements for signal level and signal quality contained in this part.

3.1.1. T-Coil coupling field intensity

When measured as specified in ANSI C63.19, the T-Coil signal shall be ≥ –18 dB (A/m) at 1 kHz, in a 1/3 octave band filter for all orientations.

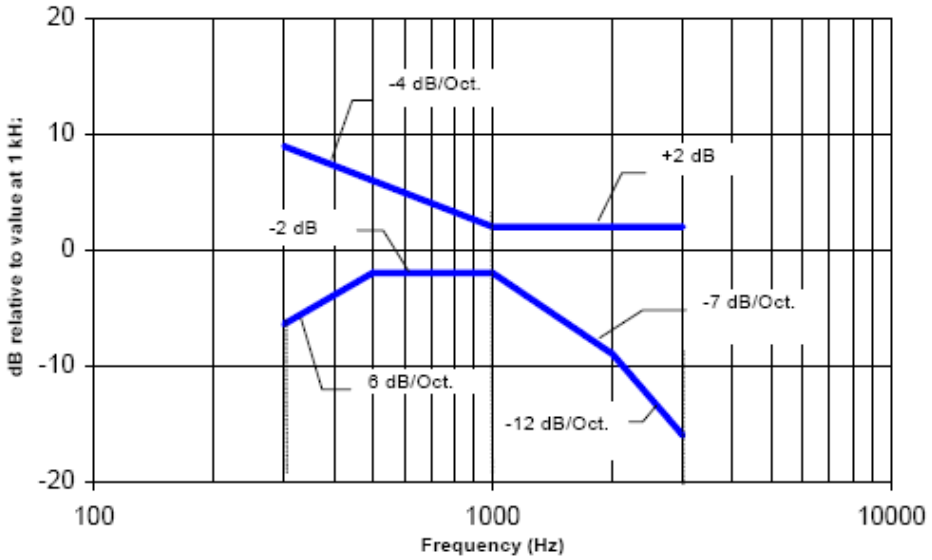
3.1.2. Frequency response

The frequency response of the axial component of the magnetic field, measured in 1/3 octave bands, shall follow the response curve specified in this sub-clause, over the frequency range 300 Hz to 3000 Hz. The following figures provide the boundaries for the specified frequency. These response curves are for true field strength measurements of the T-Coil signal. Thus the 6 dB/octave probe response has been corrected from the raw readings.



NOTE—Frequency response is between 300 Hz and 3000 Hz.

Figure 9 Magnetic field frequency response for EUTs with a field ≤ –15 dB (A/m) at 1 kHz



NOTE—Frequency response is between 300 Hz and 3000 Hz.

Figure 10 Magnetic field frequency response for EUTs with a field that exceeds –15 dB(A/m) at 1 kHz

3.1.3. Signal quality

This part provides the signal quality requirement for the intended T-Coil signal from a EUT. Only the RF immunity of the hearing aid is measured in T-Coil mode. It is assumed that a hearing aid can have no immunity to an interference signal in the audio band, which is the intended reception band for this mode. So, the only criteria that can be measured is the RF immunity in T-Coil mode. This is measured using the same procedure as for the audio coupling mode and at the same levels.

The worst signal quality of the three T-Coil signal measurements shall be used to determine the T-Coil mode category per Table 1

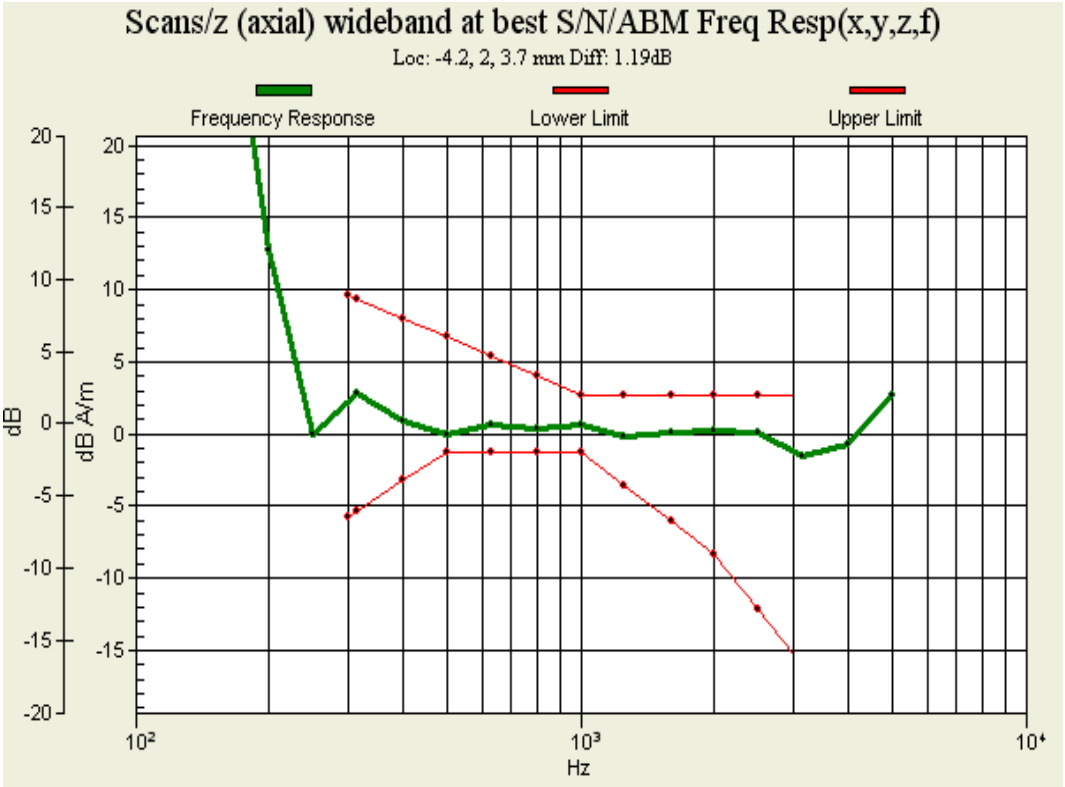
Table 1: T-Coil signal quality categories

Category	Telephone parameters WD signal quality [(signal + noise) – to – noise ratio in decibels]
Category T1	0 dB to 10 dB
Category T2	10 dB to 20 dB
Category T3	20 dB to 30 dB
Category T4	> 30 dB

4. Summary Test Results

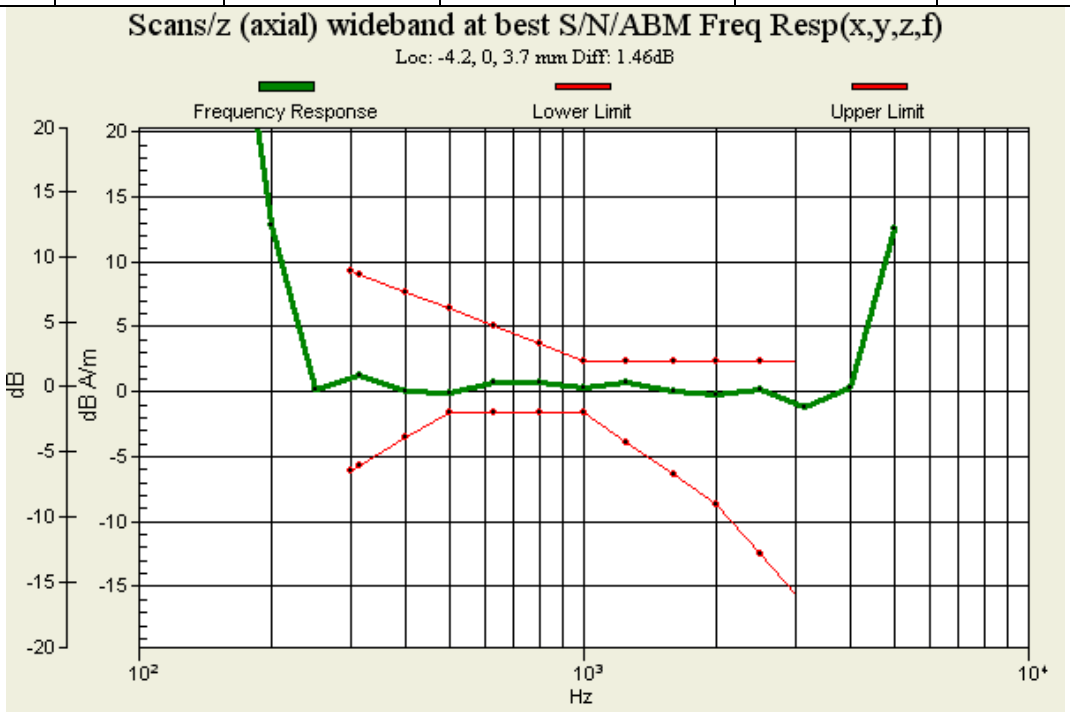
4.1. CDMA Cellular

Band-Channel	Probe Orientation	Measurement Position (x,y)[mm]	ABM1≥ -18dB(A/m) (Signal)	SNR(ABM1/ ABM2)(dB)	Frequency Response	T-Rating
CDMA Celluar-384	x (Radial):	(-13.2,0)	-12.1	38.1	/	T4
	y (Radial):	(-4.2,-6)	-11.6	41.7		T4
	z (Axial):	(-4.2,2)	-2.54	43.8	Pass	T4



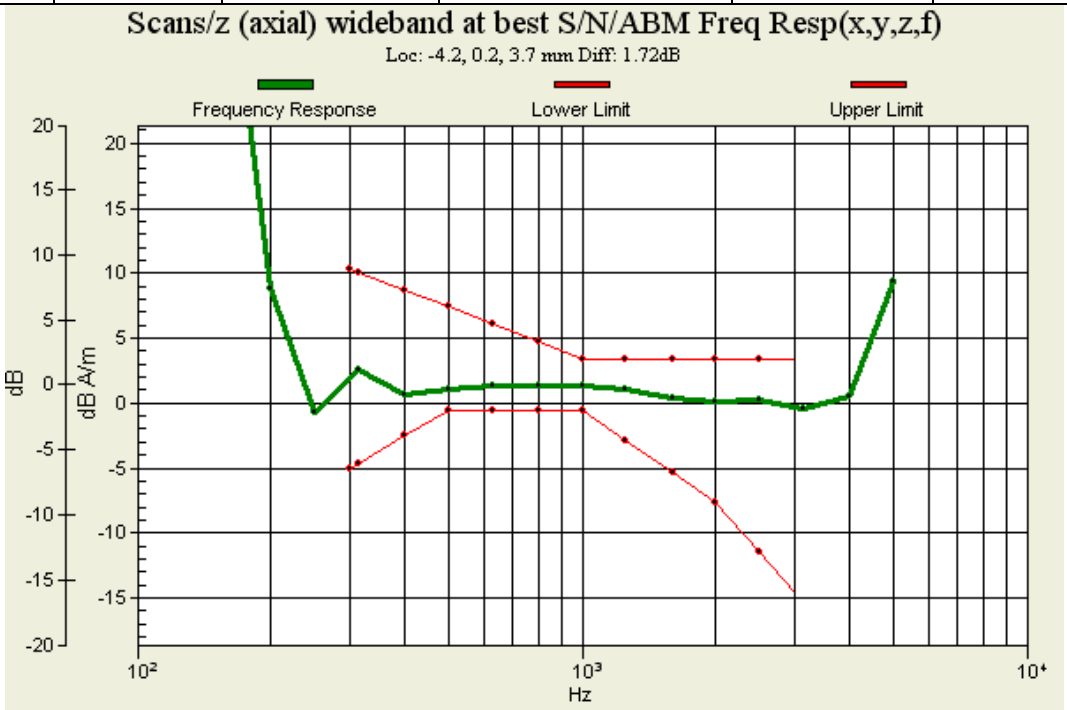
4.2. CDMA PCS

Band-Channel	Probe Orientation	Measurement Position (x,y)[mm]	ABM1≥ -18dB(A/m) (Signal)	SNR(ABM1/ABM2)(dB)	Frequency Response	T-Rating
CDMA PCS-600	x (Radial):	(-10.2,0)	-10.1	36.9	/	T4
	y (Radial):	(-4.2,-6)	-10.3	42.7		T4
	z (Axial):	(-4.2,0)	-2.67	41.9	Pass	T4



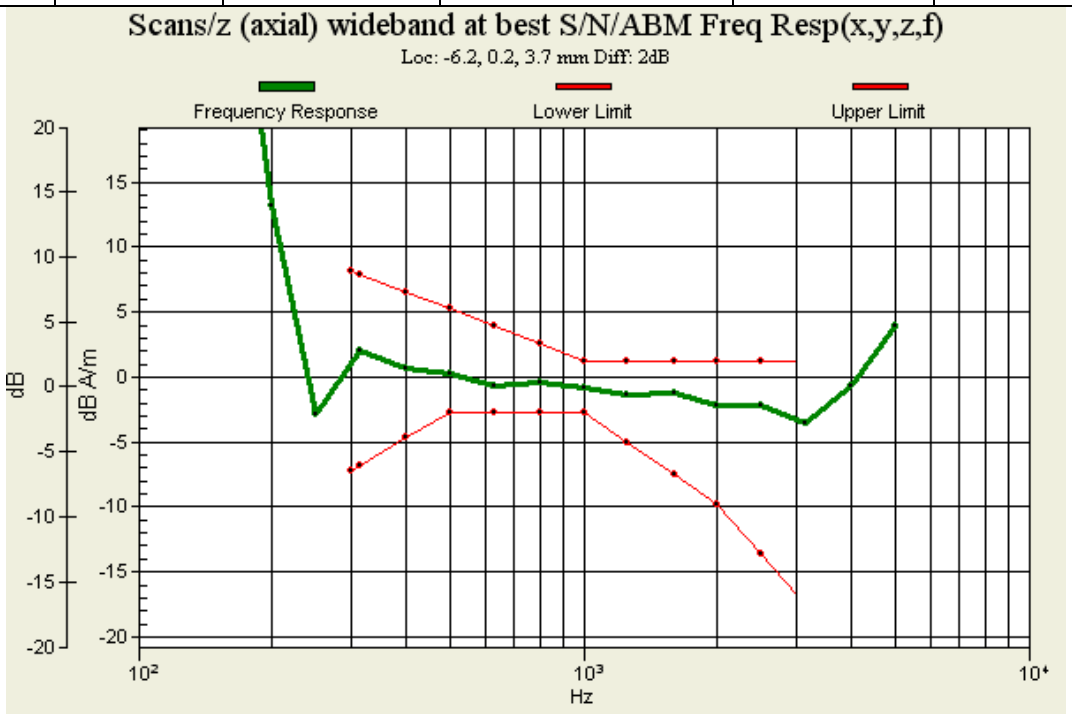
4.3. CDMA BC10

Band-Channel	Probe Orientation	Measurement Position (x,y)[mm]	ABM1≥ -18dB(A/m) (Signal)	SNR(ABM1/ABM2)(dB)	Frequency Response	T-Rating
CDMA BC10-580	x (Radial):	(-13.2,1.2)	-11.7	38.6	/	T4
	y (Radial):	(-4.2,7.2)	-11.5	42.2		T4
	z (Axial):	(-4.2,0.2)	-1.88	44.9	Pass	T4



4.4. CDMA BC14

Band-Channel	Probe Orientation	Measurement Position (x,y)[mm]	ABM1≥ -18dB(A/m) (Signal)	SNR(ABM1/ABM2)(dB)	Frequency Response	T-Rating
CDMA BC14-1250	x (Radial):	(-13.2,1.2)	-12.4	35.7	/	T4
	y (Radial):	(-4.2,10.2)	-11.1	41.5		T4
	z (Axial):	(-6.2,0.2)	-3.48	40.6	Pass	T4



5. Measurement Uncertainty

No.	Error source	Type	Uncertainty Value a_i (%)	Prob. Dist.	k	ABM 1c_i	ABM2 c_i	Std. Unc. ABM1 u_i' (%)	Std. Unc. ABM2 u_i' (%)	Degree of freedom V_{eff} or v_i
1	System Repeatability	A	0.016	N	1	1	1	0.016	0.016	9
Probe Sensitivity										
2	Reference Level	B	3.0	R	$\sqrt{3}$	1	1	3.0	3.0	∞
3	AMCC Geometry	B	0.4	R	$\sqrt{3}$	1	1	0.2	0.2	∞
4	AMCC Current	B	0.6	R	$\sqrt{3}$	1	1	0.4	0.4	∞
5	Probe Positioning during Calibration	B	0.1	R	$\sqrt{3}$	1	1	0.1	0.1	∞
6	Noise Contribution	B	0.7	R	$\sqrt{3}$	0.0143	1	0.0	0.4	∞
7	Frequency Slope	B	5.9	R	$\sqrt{3}$	0.1	1	0.3	3.5	∞
Probe System										
8	Repeatability / Drift	B	1.0	R	$\sqrt{3}$	1	1	0.6	0.6	∞
9	Linearity / Dynamic Range	B	0.6	N	1	1	1	0.4	0.4	∞
10	Acoustic Noise	B	1.0	R	$\sqrt{3}$	0.1	1	0.1	0.6	∞
11	Probe Angle	B	2.3	R	$\sqrt{3}$	1	1	1.4	1.4	∞
12	Spectral Processing	B	0.9	R	$\sqrt{3}$	1	1	0.5	0.5	∞
13	Integration Time	B	0.6	N	1	1	5	0.6	3.0	∞
14	Field Distribution	B	0.2	R	$\sqrt{3}$	1	1	0.1	0.1	∞
Test Signal										
15	Ref.Signal Spectral Response	B	0.6	R	$\sqrt{3}$	0	1	0.0	0.4	∞
Positioning										
16	Probe Positioning	B	1.9	R	$\sqrt{3}$	1	1	1.1	1.1	∞
17	Phantom Thickness	B	0.9	R	$\sqrt{3}$	1	1	0.5	0.5	∞

18	DUT Positioning	B	1.9	R	$\sqrt{3}$	1	1	1.1	1.1	∞
External Contributions										
19	RF Interference	B	0.0	R	$\sqrt{3}$	1	0.3	0.0	0.0	∞
20	Test Signal Variation	B	2.0	R	$\sqrt{3}$	1	1	1.2	1.2	∞
Combined Std. Uncertainty (ABM Field)		$u_c^{'} = \sqrt{\sum_{i=1}^{20} c_i^2 u_i^2}$						4.1	6.1	
Expanded Std. Uncertainty		$u_e = 2u_c$		N	$k = 2$			**8.2**	**12.2**	

6. Main Test Instruments

No.	Name	Type	Serial Number	Calibration Date	Valid Period
01	Audio Magnetic 1D Field Probe	AM1DV3	3082	November 29, 2010	One year
02	Audio Magnetic Calibration Coil	SD HAC P02A	1112	N/A	N/A
03	Audio Measuring Instrument	AMMI	1101	N/A	N/A
05	DAE	DAE4	871	November 18, 2010	One year
06	Software	DASY5, V5.0 Build 120	N/A	N/A	N/A
07	Software	SEMCAD X Version 13.4 Build 45	N/A	N/A	N/A
08	Universal Radio Communication Tester	CMU 200	118133	May 26, 2011	One year

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

ANNEX A: Test Layout

Picture 1: HAC T-Coil System Layout

ANNEX B: Graph Results

T-Coil CDMA Cellular X longitudinal

Date/Time: 7/2/2011 12:04:31 AM
Communication System: CDMA Cellular; Frequency: 836.52 MHz;Duty Cycle: 1:1
Ambient Temperature:22.3 ℃
Phantom section: TCoil Section
DASY5 Configuration:
Probe: AM1DV3 - 3082; ; Calibrated: 11/29/2010
Electronics: DAE4 Sn871; Calibrated: 11/18/2010
Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA;
Measurement SW: DASY5, V5.0 Build 120; SEMCAD X Version 13.4 Build 45

Scans/x (longitudinal) 4.2mm 50 x 50/ABM Signal(x,y,z) (13x13x1):
Measurement grid: dx=10mm, dy=10mm
Signal Type: Audio File (.wav) 48k_voice_1kHz_1s.wav
Output Gain: 28.8
Measure Window Start: 0ms
Measure Window Length: 1000ms
BWC applied: 0.158027 dB
Device Reference Point: 0, 0, -6.3 mm

Category	Telephone parameters WD signal quality [(signal+noise)-to-noise ratio in decibels]
Category T1	0 dB to 10 dB
Category T2	10 dB to 20 dB
Category T3	20 dB to 30 dB
Category T4	> 30 dB

Cursor:
ABM1 comp = -10.9 dB A/m
BWC Factor = 0.158027 dB
Location: 4.2, 0, 3.7 mm

Scans/x (longitudinal) fine 3mm 42 x 6/ABM Signal(x,y,z) (15x3x1):
Measurement grid: dx=10mm, dy=10mm
Signal Type: Audio File (.wav) 48k_voice_1kHz_1s.wav
Output Gain: 28.8
Measure Window Start: 0ms
Measure Window Length: 1000ms
BWC applied: 0.158027 dB
Device Reference Point: 0, 0, -6.3 mm

Category	Telephone parameters WD signal quality [(signal+noise)-to-noise ratio in decibels]
Category T1	0 dB to 10 dB
Category T2	10 dB to 20 dB
Category T3	20 dB to 30 dB
Category T4	> 30 dB

Cursor:
ABM1 comp = -9.39 dB A/m
BWC Factor = 0.158027 dB
Location: 1.8, 0, 3.7 mm

Scans/x (longitudinal) fine 3mm 42 x 6/ABM SNR(x,y,z) (15x3x1):
Measurement grid: dx=10mm, dy=10mm
Signal Type: Audio File (.wav) 48k_voice_1kHz_1s.wav
Output Gain: 28.8
Measure Window Start: 0ms
Measure Window Length: 1000ms
BWC applied: 0.158027 dB
Device Reference Point: 0, 0, -6.3 mm

Category	Telephone parameters WD signal quality [(signal+noise)-to-noise ratio in decibels]
Category T1	0 dB to 10 dB
Category T2	10 dB to 20 dB
Category T3	20 dB to 30 dB
Category T4	> 30 dB

Cursor:
ABM1/ABM2 = 38.1 dB
ABM1 comp = -12.1 dB A/m
BWC Factor = 0.158027 dB
Location: -13.2, 0, 3.7 mm

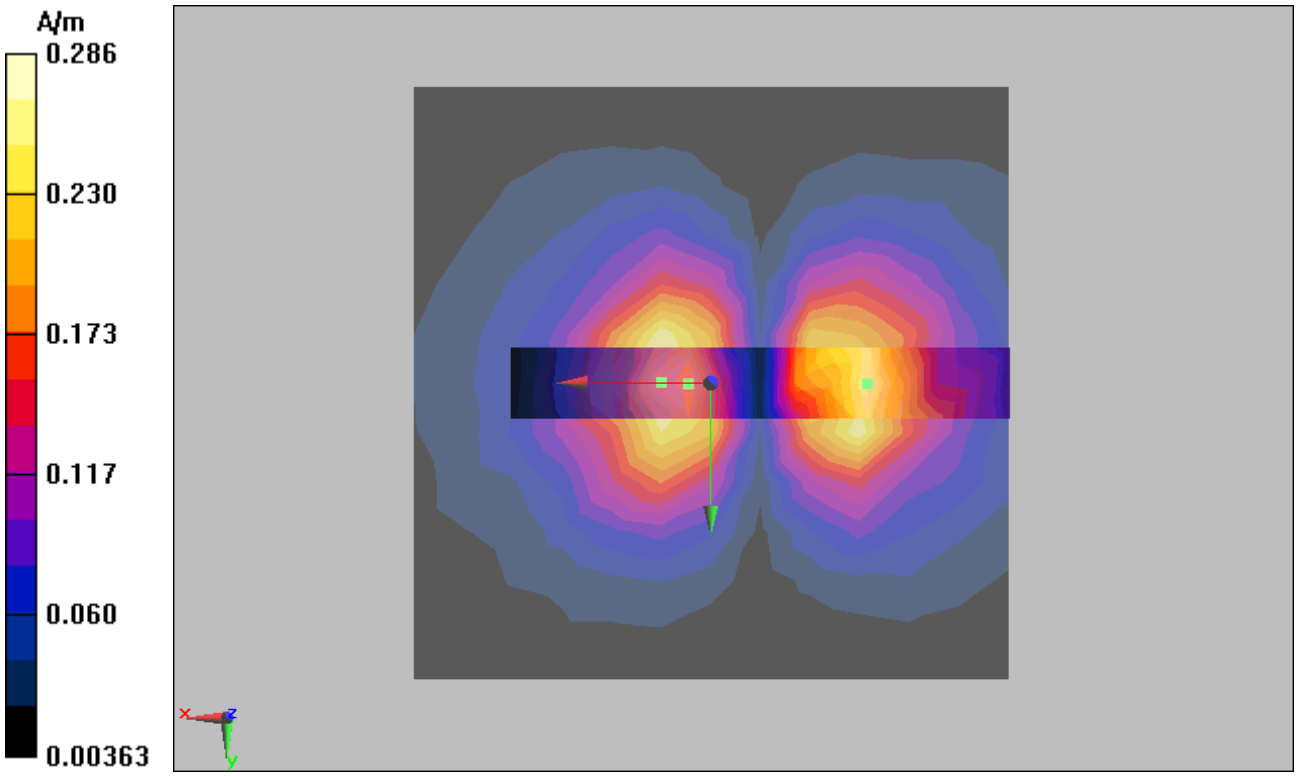


Figure 11 T-Coil CDMA Cellular X longitudinal

T-Coil CDMA Cellular Y transversal

Date/Time: 7/2/2011 12:11:45 AM
Communication System: CDMA Cellular; Frequency: 836.52 MHz;Duty Cycle: 1:1
Ambient Temperature:22.3 ℃
Phantom section: TCoil Section
DASY5 Configuration:
Probe: AM1DV3 - 3082; ; Calibrated: 11/29/2010
Electronics: DAE4 Sn871; Calibrated: 11/18/2010
Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA;
Measurement SW: DASY5, V5.0 Build 120; SEMCAD X Version 13.4 Build 45

Scans/y (transversal) 4.2mm 50 x 50/ABM Signal(x,y,z) (13x13x1):
Measurement grid: dx=10mm, dy=10mm
Signal Type: Audio File (.wav) 48k_voice_1kHz_1s.wav
Output Gain: 28.8
Measure Window Start: 0ms
Measure Window Length: 1000ms
BWC applied: 0.158027 dB
Device Reference Point: 0, 0, -6.3 mm

Category	Telephone parameters WD signal quality [(signal+noise)-to-noise ratio in decibels]
Category T1	0 dB to 10 dB
Category T2	10 dB to 20 dB
Category T3	20 dB to 30 dB
Category T4	> 30 dB

Cursor:
ABM1 comp = -11.5 dB A/m
BWC Factor = 0.158027 dB
Location: -4.2, 8.3, 3.7 mm

Scans/y (transversal) fine 3mm 6 x 42/ABM Signal(x,y,z) (3x15x1):
Measurement grid: dx=10mm, dy=10mm
Signal Type: Audio File (.wav) 48k_voice_1kHz_1s.wav
Output Gain: 28.8
Measure Window Start: 0ms
Measure Window Length: 1000ms
BWC applied: 0.158027 dB
Device Reference Point: 0, 0, -6.3 mm

Category	Telephone parameters WD signal quality [(signal+noise)-to-noise ratio in decibels]

Category T1	0 dB to 10 dB
Category T2	10 dB to 20 dB
Category T3	20 dB to 30 dB
Category T4	> 30 dB

Cursor:

ABM1 comp = -11.6 dB A/m

BWC Factor = 0.158027 dB

Location: -4.2, -6, 3.7 mm

Scans/y (transversal) fine 3mm 6 x 42/ABM SNR(x,y,z) (3x15x1):

Measurement grid: dx=10mm, dy=10mm

Signal Type: Audio File (.wav) 48k_voice_1kHz_1s.wav

Output Gain: 28.8

Measure Window Start: 0ms

Measure Window Length: 1000ms

BWC applied: 0.158027 dB

Device Reference Point: 0, 0, -6.3 mm

Category	**Telephone parameters WD signal quality [(signal+noise)-to-noise ratio in decibels]**
Category T1	0 dB to 10 dB
Category T2	10 dB to 20 dB
Category T3	20 dB to 30 dB
Category T4	> 30 dB

Cursor:

ABM1/ABM2 = 41.7 dB

ABM1 comp = -11.6 dB A/m

BWC Factor = 0.158027 dB

Location: -4.2, -6, 3.7 mm

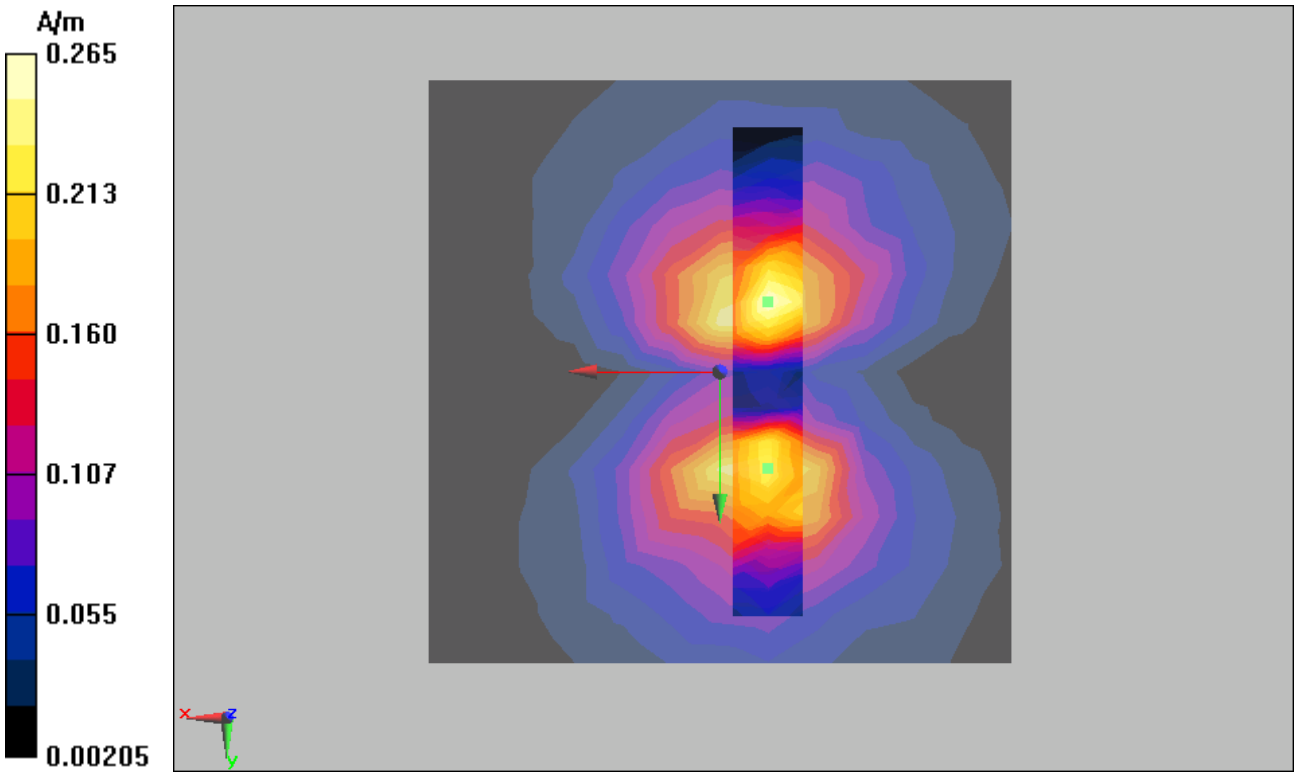


Figure 12 T-Coil CDMA Cellular Y transversal

T-Coil CDMA Cellular Z Axial

Date/Time: 7/1/2011 11:57:14 PM
Communication System: CDMA Cellular; Frequency: 836.52 MHz;Duty Cycle: 1:1
Ambient Temperature:22.3 ℃
Phantom section: TCoil Section
DASY5 Configuration:
Probe: AM1DV3 - 3082; ; Calibrated: 11/29/2010
Electronics: DAE4 Sn871; Calibrated: 11/18/2010
Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA;
Measurement SW: DASY5, V5.0 Build 120; SEMCAD X Version 13.4 Build 45
Scans/z (axial) 4.2mm 50 x 50/ABM Signal(x,y,z) (13x13x1):
Measurement grid: dx=10mm, dy=10mm
Signal Type: Audio File (.wav) 48k_voice_1kHz_1s.wav
Output Gain: 28.8
Measure Window Start: 0ms
Measure Window Length: 1000ms
BWC applied: 0.158027 dB
Device Reference Point: 0, 0, -6.3 mm

Category	Telephone parameters WD signal quality [(signal+noise)-to-noise ratio in decibels]
Category T1	0 dB to 10 dB
Category T2	10 dB to 20 dB
Category T3	20 dB to 30 dB
Category T4	> 30 dB

Cursor:
ABM1 comp = -2.81 dB A/m
BWC Factor = 0.158027 dB
Location: -4.2, 0, 3.7 mm
Scans/z (axial) fine 2mm 8 x 8/ABM Signal(x,y,z) (5x5x1):
Measurement grid: dx=10mm, dy=10mm
Signal Type: Audio File (.wav) 48k_voice_1kHz_1s.wav
Output Gain: 28.8
Measure Window Start: 0ms
Measure Window Length: 1000ms
BWC applied: 0.158027 dB
Device Reference Point: 0, 0, -6.3 mm

Category	Telephone parameters WD signal quality [(signal+noise)-to-noise ratio in decibels]
Category T1	0 dB to 10 dB
Category T2	10 dB to 20 dB

Category T3	20 dB to 30 dB
Category T4	> 30 dB

Cursor:

ABM1 comp = -2.03 dB A/m

BWC Factor = 0.158027 dB

Location: -2.2, 2, 3.7 mm

Scans/z (axial) fine 2mm 8 x 8/ABM SNR(x,y,z) (5x5x1):

Measurement grid: dx=10mm, dy=10mm

Signal Type: Audio File (.wav) 48k_voice_1kHz_1s.wav

Output Gain: 28.8

Measure Window Start: 0ms

Measure Window Length: 1000ms

BWC applied: 0.158027 dB

Device Reference Point: 0, 0, -6.3 mm

Category	**Telephone parameters WD signal quality [(signal+noise)-to-noise ratio in decibels]**
Category T1	0 dB to 10 dB
Category T2	10 dB to 20 dB
Category T3	20 dB to 30 dB
Category T4	> 30 dB

Cursor:

ABM1/ABM2 = 43.8 dB

ABM1 comp = -2.54 dB A/m

BWC Factor = 0.158027 dB

Location: -4.2, 2, 3.7 mm

Scans/z (axial) wideband at best S/N/ABM Freq Resp(x,y,z,f) (1x1x1):

Measurement grid: dx=10mm, dy=10mm

Signal Type: Audio File (.wav) 48k_voice_300-3000_2s.wav

Output Gain: 56.4

Measure Window Start: 0ms

Measure Window Length: 2000ms

BWC applied: 10.8 dB

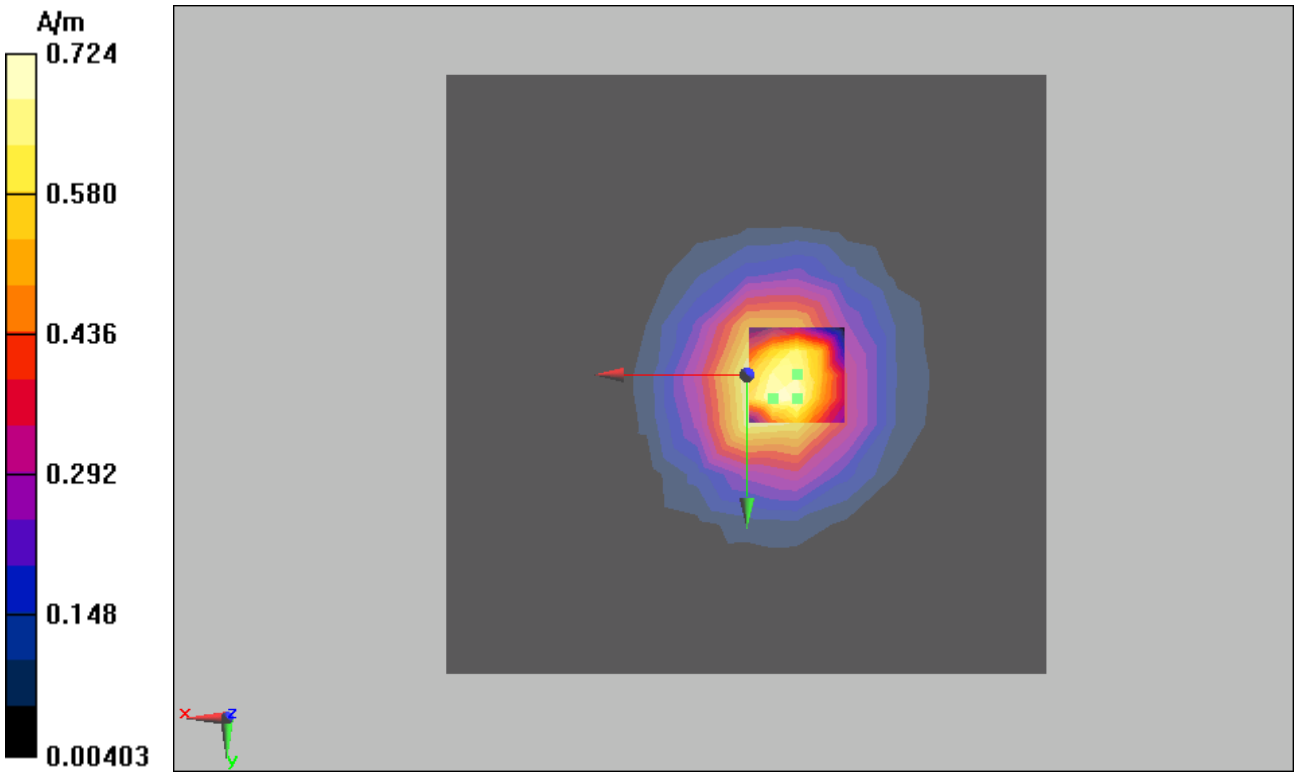
Device Reference Point: 0, 0, -6.3 mm

Category	**Telephone parameters WD signal quality [(signal+noise)-to-noise ratio in decibels]**
Category T1	0 dB to 10 dB
Category T2	10 dB to 20 dB
Category T3	20 dB to 30 dB
Category T4	> 30 dB

Cursor:

Diff = 1.19 dB

BWC Factor = 10.8 dB
Location: -4.2, 2, 3.7 mm



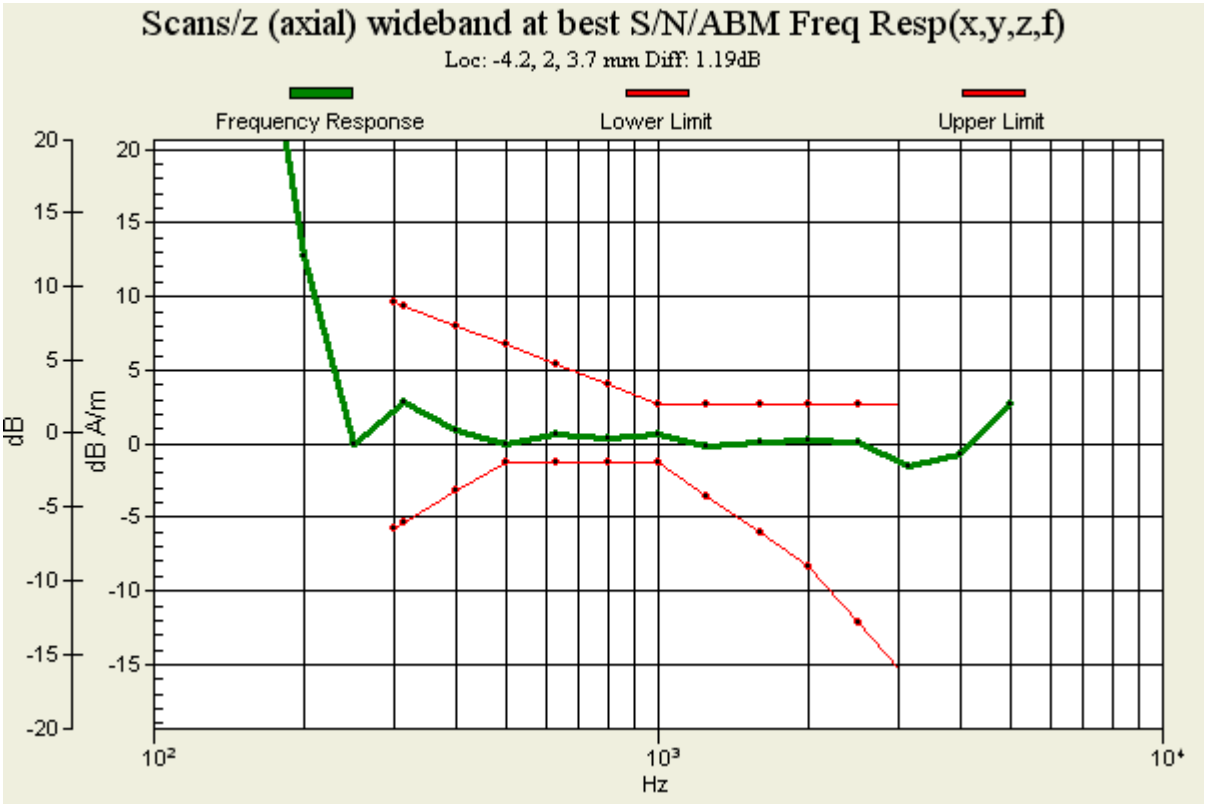


Figure 13 T-Coil CD T-Coil CDMA Cellular X longitudinal

T-Coil CDMA PCS X longitudinal

Date/Time: 7/2/2011 1:15:59 AM
Communication System: CDMA PCS; Frequency: 1880 MHz;Duty Cycle: 1:1
Ambient Temperature:22.3 ℃
Phantom section: TCoil Section
DASY5 Configuration:
Probe: AM1DV3 - 3082; ; Calibrated: 11/29/2010
Electronics: DAE4 Sn871; Calibrated: 11/18/2010
Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA;
Measurement SW: DASY5, V5.0 Build 120; SEMCAD X Version 13.4 Build 45

Scans/x (longitudinal) 4.2mm 50 x 50/ABM Signal(x,y,z) (13x13x1):
Measurement grid: dx=10mm, dy=10mm
Signal Type: Audio File (.wav) 48k_voice_1kHz_1s.wav
Output Gain: 28.8
Measure Window Start: 0ms
Measure Window Length: 1000ms
BWC applied: 0.158027 dB
Device Reference Point: 0, 0, -6.3 mm

Category	Telephone parameters WD signal quality [(signal+noise)-to-noise ratio in decibels]
Category T1	0 dB to 10 dB
Category T2	10 dB to 20 dB
Category T3	20 dB to 30 dB
Category T4	> 30 dB

Cursor:
ABM1 comp = -9.79 dB A/m
BWC Factor = 0.158027 dB
Location: 4.2, 0, 3.7 mm

Scans/x (longitudinal) fine 3mm 42 x 6/ABM Signal(x,y,z) (15x3x1):
Measurement grid: dx=10mm, dy=10mm
Signal Type: Audio File (.wav) 48k_voice_1kHz_1s.wav
Output Gain: 28.8
Measure Window Start: 0ms
Measure Window Length: 1000ms
BWC applied: 0.158027 dB
Device Reference Point: 0, 0, -6.3 mm

Category	Telephone parameters WD signal quality [(signal+noise)-to-noise ratio in decibels]

Category T1	0 dB to 10 dB
Category T2	10 dB to 20 dB
Category T3	20 dB to 30 dB
Category T4	> 30 dB

Cursor:

ABM1 comp = -9.33 dB A/m

BWC Factor = 0.158027 dB

Location: 1.8, 0, 3.7 mm

Scans/x (longitudinal) fine 3mm 42 x 6/ABM SNR(x,y,z) (15x3x1):

Measurement grid: dx=10mm, dy=10mm

Signal Type: Audio File (.wav) 48k_voice_1kHz_1s.wav

Output Gain: 28.8

Measure Window Start: 0ms

Measure Window Length: 1000ms

BWC applied: 0.158027 dB

Device Reference Point: 0, 0, -6.3 mm

Category	**Telephone parameters WD signal quality [(signal+noise)-to-noise ratio in decibels]**
Category T1	0 dB to 10 dB
Category T2	10 dB to 20 dB
Category T3	20 dB to 30 dB
Category T4	> 30 dB

Cursor:

ABM1/ABM2 = 36.9 dB

ABM1 comp = -10.1 dB A/m

BWC Factor = 0.158027 dB

Location: -10.2, 0, 3.7 mm

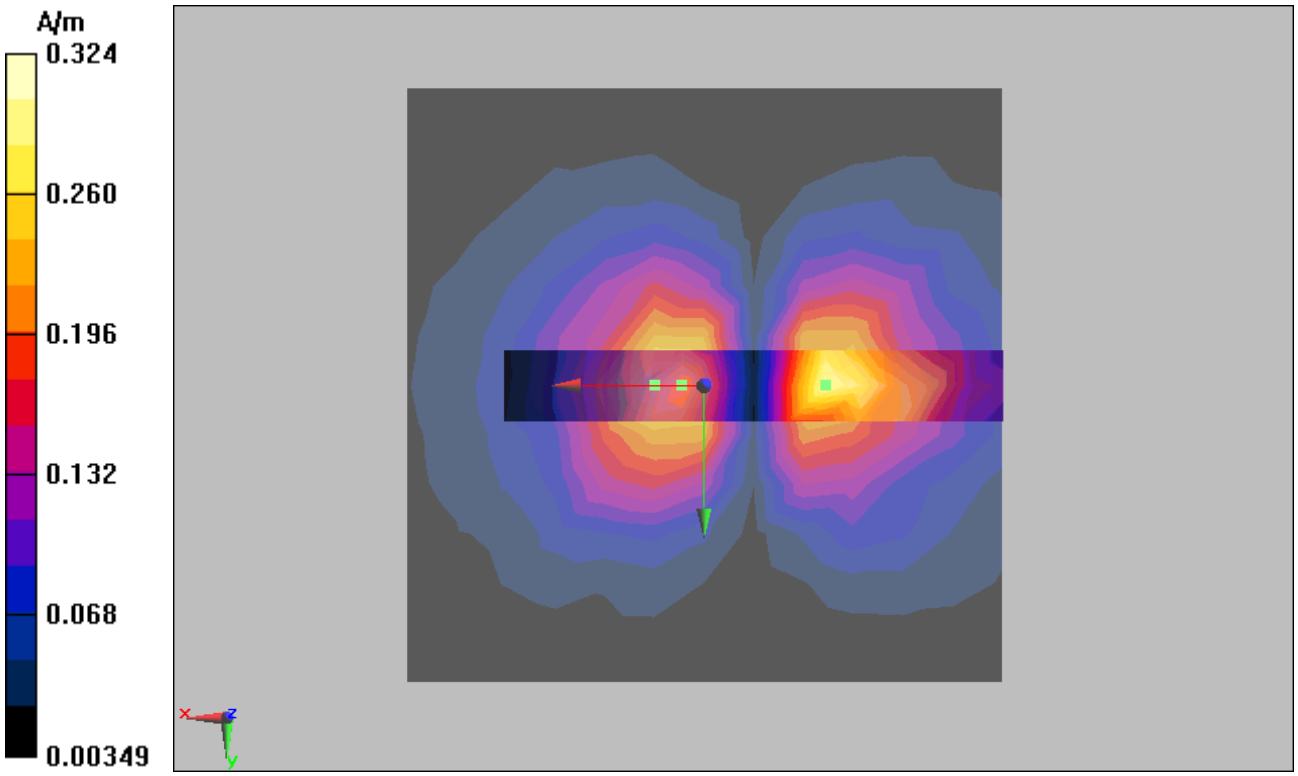


Figure 14 T-Coil CDMA PCS X longitudinal

T-Coil CDMA PCS Y transversal

Date/Time: 7/2/2011 1:23:15 AM
Communication System: CDMA PCS; Frequency: 1880 MHz;Duty Cycle: 1:1
Ambient Temperature:22.3 ℃
Phantom section: TCoil Section
DASY5 Configuration:
Probe: AM1DV3 - 3082; ; Calibrated: 11/29/2010
Electronics: DAE4 Sn871; Calibrated: 11/18/2010
Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA;
Measurement SW: DASY5, V5.0 Build 120; SEMCAD X Version 13.4 Build 45

Scans/y (transversal) 4.2mm 50 x 50/ABM Signal(x,y,z) (13x13x1):
Measurement grid: dx=10mm, dy=10mm
Signal Type: Audio File (.wav) 48k_voice_1kHz_1s.wav
Output Gain: 28.8
Measure Window Start: 0ms
Measure Window Length: 1000ms
BWC applied: 0.158027 dB
Device Reference Point: 0, 0, -6.3 mm

Category	Telephone parameters WD signal quality [(signal+noise)-to-noise ratio in decibels]
Category T1	0 dB to 10 dB
Category T2	10 dB to 20 dB
Category T3	20 dB to 30 dB
Category T4	> 30 dB

Cursor:
ABM1 comp = -11.2 dB A/m
BWC Factor = 0.158027 dB
Location: -4.2, 8.3, 3.7 mm

Scans/y (transversal) fine 3mm 6 x 42/ABM Signal(x,y,z) (3x15x1):
Measurement grid: dx=10mm, dy=10mm
Signal Type: Audio File (.wav) 48k_voice_1kHz_1s.wav
Output Gain: 28.8
Measure Window Start: 0ms
Measure Window Length: 1000ms
BWC applied: 0.158027 dB
Device Reference Point: 0, 0, -6.3 mm

Category	Telephone parameters WD signal quality [(signal+noise)-to-noise ratio in decibels]

Category T1	0 dB to 10 dB
Category T2	10 dB to 20 dB
Category T3	20 dB to 30 dB
Category T4	> 30 dB

Cursor:

ABM1 comp = -10.3 dB A/m

BWC Factor = 0.158027 dB

Location: -4.2, -6, 3.7 mm

Scans/y (transversal) fine 3mm 6 x 42/ABM SNR(x,y,z) (3x15x1):

Measurement grid: dx=10mm, dy=10mm

Signal Type: Audio File (.wav) 48k_voice_1kHz_1s.wav

Output Gain: 28.8

Measure Window Start: 0ms

Measure Window Length: 1000ms

BWC applied: 0.158027 dB

Device Reference Point: 0, 0, -6.3 mm

Category	**Telephone parameters WD signal quality [(signal+noise)-to-noise ratio in decibels]**
Category T1	0 dB to 10 dB
Category T2	10 dB to 20 dB
Category T3	20 dB to 30 dB
Category T4	> 30 dB

Cursor:

ABM1/ABM2 = 42.7 dB

ABM1 comp = -10.3 dB A/m

BWC Factor = 0.158027 dB

Location: -4.2, -6, 3.7 mm

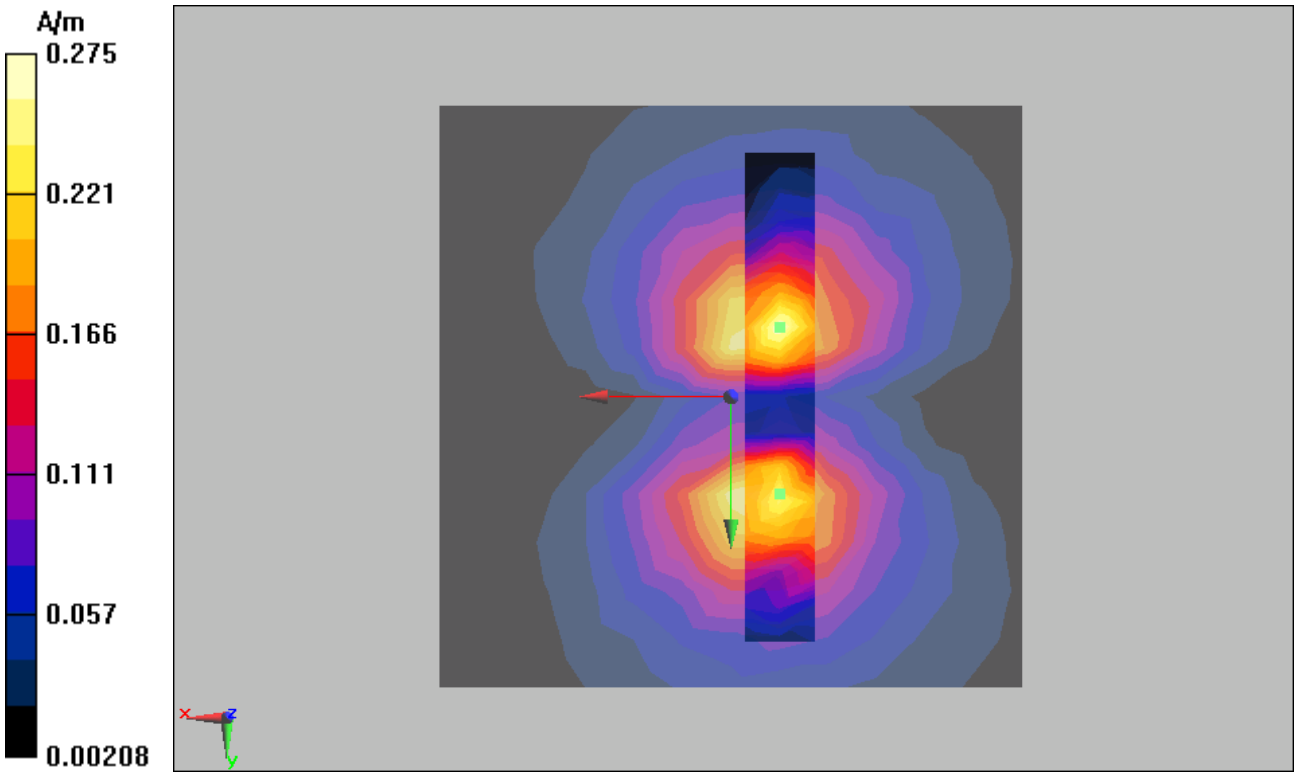


Figure 15 T-Coil CDMA PCS Y transversal

T-Coil CDMA PCS Z Axial

Date/Time: 7/2/2011 1:08:42 AM
Communication System: CDMA PCS; Frequency: 1880 MHz;Duty Cycle: 1:1
Ambient Temperature:22.3 ℃
Phantom section: TCoil Section
DASY5 Configuration:
Probe: AM1DV3 - 3082; ; Calibrated: 11/29/2010
Electronics: DAE4 Sn871; Calibrated: 11/18/2010
Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA;
Measurement SW: DASY5, V5.0 Build 120; SEMCAD X Version 13.4 Build 45
Scans/z (axial) 4.2mm 50 x 50/ABM Signal(x,y,z) (13x13x1):
Measurement grid: dx=10mm, dy=10mm
Signal Type: Audio File (.wav) 48k_voice_1kHz_1s.wav
Output Gain: 28.8
Measure Window Start: 0ms
Measure Window Length: 1000ms
BWC applied: 0.158027 dB
Device Reference Point: 0, 0, -6.3 mm

Category	Telephone parameters WD signal quality [(signal+noise)-to-noise ratio in decibels]
Category T1	0 dB to 10 dB
Category T2	10 dB to 20 dB
Category T3	20 dB to 30 dB
Category T4	> 30 dB

Cursor:
ABM1 comp = -1.35 dB A/m
BWC Factor = 0.158027 dB
Location: -4.2, 0, 3.7 mm
Scans/z (axial) fine 2mm 8 x 8/ABM Signal(x,y,z) (5x5x1):
Measurement grid: dx=10mm, dy=10mm
Signal Type: Audio File (.wav) 48k_voice_1kHz_1s.wav
Output Gain: 28.8
Measure Window Start: 0ms
Measure Window Length: 1000ms
BWC applied: 0.158027 dB
Device Reference Point: 0, 0, -6.3 mm

Category	Telephone parameters WD signal quality [(signal+noise)-to-noise ratio in decibels]
Category T1	0 dB to 10 dB
Category T2	10 dB to 20 dB

Category T3	20 dB to 30 dB
Category T4	> 30 dB

Cursor:

ABM1 comp = -2.33 dB A/m

BWC Factor = 0.158027 dB

Location: -2.2, 2, 3.7 mm

Scans/z (axial) fine 2mm 8 x 8/ABM SNR(x,y,z) (5x5x1):

Measurement grid: dx=10mm, dy=10mm

Signal Type: Audio File (.wav) 48k_voice_1kHz_1s.wav

Output Gain: 28.8

Measure Window Start: 0ms

Measure Window Length: 1000ms

BWC applied: 0.158027 dB

Device Reference Point: 0, 0, -6.3 mm

Category	**Telephone parameters WD signal quality [(signal+noise)-to-noise ratio in decibels]**
Category T1	0 dB to 10 dB
Category T2	10 dB to 20 dB
Category T3	20 dB to 30 dB
Category T4	> 30 dB

Cursor:

ABM1/ABM2 = 41.9 dB

ABM1 comp = -2.67 dB A/m

BWC Factor = 0.158027 dB

Location: -4.2, 0, 3.7 mm

Scans/z (axial) wideband at best S/N/ABM Freq Resp(x,y,z,f) (1x1x1):

Measurement grid: dx=10mm, dy=10mm

Signal Type: Audio File (.wav) 48k_voice_300-3000_2s.wav

Output Gain: 56.4

Measure Window Start: 0ms

Measure Window Length: 2000ms

BWC applied: 10.8 dB

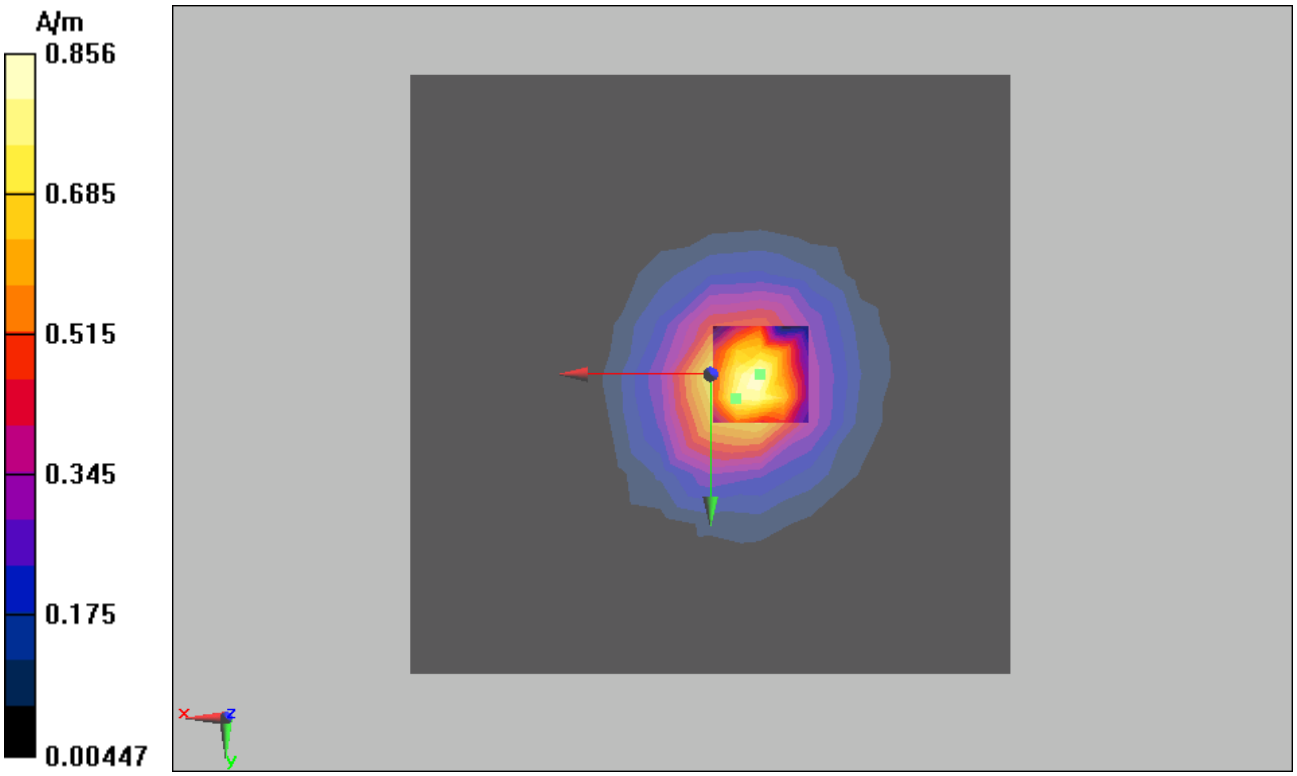
Device Reference Point: 0, 0, -6.3 mm

Category	**Telephone parameters WD signal quality [(signal+noise)-to-noise ratio in decibels]**
Category T1	0 dB to 10 dB
Category T2	10 dB to 20 dB
Category T3	20 dB to 30 dB
Category T4	> 30 dB

Cursor:

Diff = 1.46 dB

BWC Factor = 10.8 dB
Location: -4.2, 0, 3.7 mm



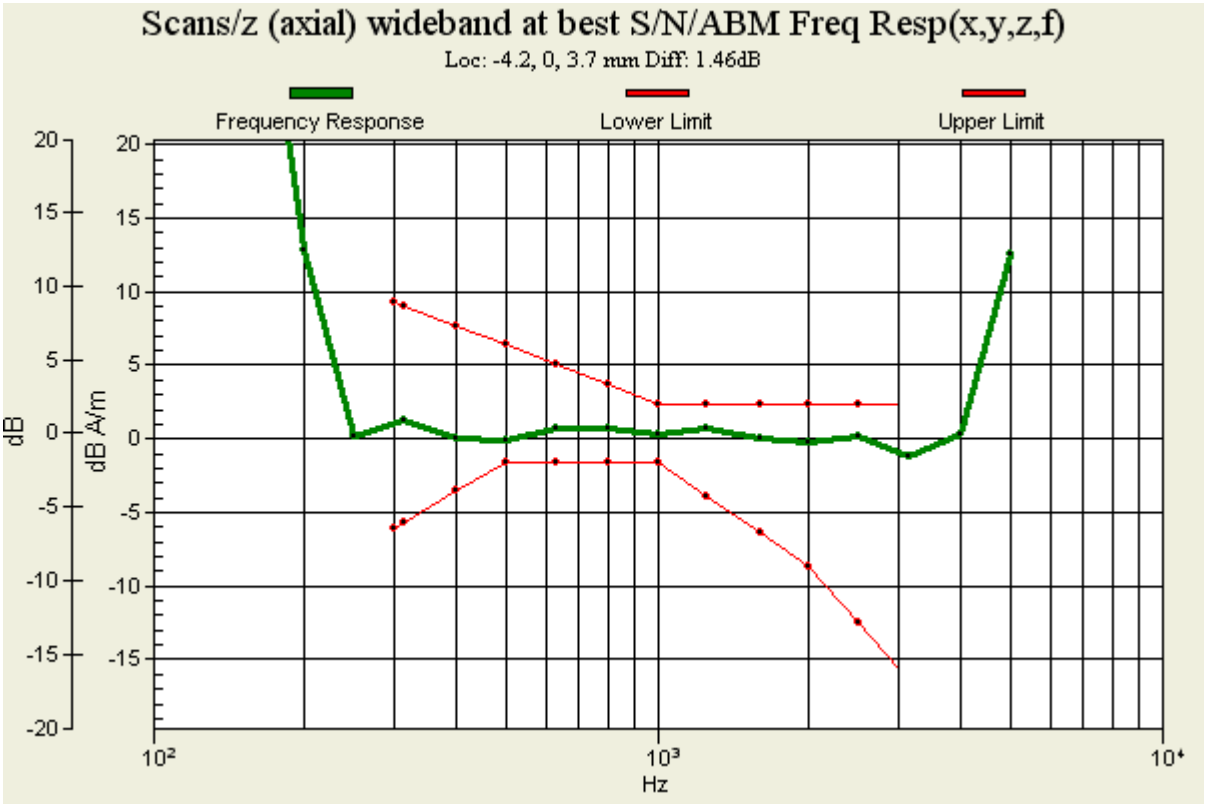


Figure 16 T-Coil CDMA PCS Z Axial

T-Coil CDMA BC10 X longitudinal

Date/Time: 7/2/2011 12:41:04 AM
Communication System: Secondary 800 MHz (BC10); Frequency: 820.5 MHz;Duty Cycle: 1:1
Ambient Temperature:22.3 ℃
Phantom section: TCoil Section
DASY5 Configuration:
Probe: AM1DV3 - 3082; ; Calibrated: 11/29/2010
Electronics: DAE4 Sn871; Calibrated: 11/18/2010
Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA;
Measurement SW: DASY5, V5.0 Build 120; SEMCAD X Version 13.4 Build 45

Scans/x (longitudinal) 4.2mm 50 x 50/ABM Signal(x,y,z) (13x13x1):
Measurement grid: dx=10mm, dy=10mm
Signal Type: Audio File (.wav) 48k_voice_1kHz_1s.wav
Output Gain: 28.8
Measure Window Start: 0ms
Measure Window Length: 1000ms
BWC applied: 0.158027 dB
Device Reference Point: 0, 0, -6.3 mm

Category	Telephone parameters WD signal quality [(signal+noise)-to-noise ratio in decibels]
Category T1	0 dB to 10 dB
Category T2	10 dB to 20 dB
Category T3	20 dB to 30 dB
Category T4	> 30 dB

Cursor:
ABM1 comp = -11.8 dB A/m
BWC Factor = 0.158027 dB
Location: -8.3, 0, 3.7 mm

Scans/x (longitudinal) fine 3mm 42 x 6/ABM Signal(x,y,z) (15x3x1):
Measurement grid: dx=10mm, dy=10mm
Signal Type: Audio File (.wav) 48k_voice_1kHz_1s.wav
Output Gain: 28.8
Measure Window Start: 0ms
Measure Window Length: 1000ms
BWC applied: 0.158027 dB
Device Reference Point: 0, 0, -6.3 mm

Category	Telephone parameters WD signal quality [(signal+noise)-to-noise ratio in decibels]

Category T1	0 dB to 10 dB
Category T2	10 dB to 20 dB
Category T3	20 dB to 30 dB
Category T4	> 30 dB

Cursor:

ABM1 comp = -9.87 dB A/m

BWC Factor = 0.158027 dB

Location: 4.8, 1.2, 3.7 mm

Scans/x (longitudinal) fine 3mm 42 x 6/ABM SNR(x,y,z) (15x3x1):

Measurement grid: dx=10mm, dy=10mm

Signal Type: Audio File (.wav) 48k_voice_1kHz_1s.wav

Output Gain: 28.8

Measure Window Start: 0ms

Measure Window Length: 1000ms

BWC applied: 0.158027 dB

Device Reference Point: 0, 0, -6.3 mm

Category	**Telephone parameters WD signal quality [(signal+noise)-to-noise ratio in decibels]**
Category T1	0 dB to 10 dB
Category T2	10 dB to 20 dB
Category T3	20 dB to 30 dB
Category T4	> 30 dB

Cursor:

ABM1/ABM2 = 38.6 dB

ABM1 comp = -11.7 dB A/m

BWC Factor = 0.158027 dB

Location: -13.2, 1.2, 3.7 mm

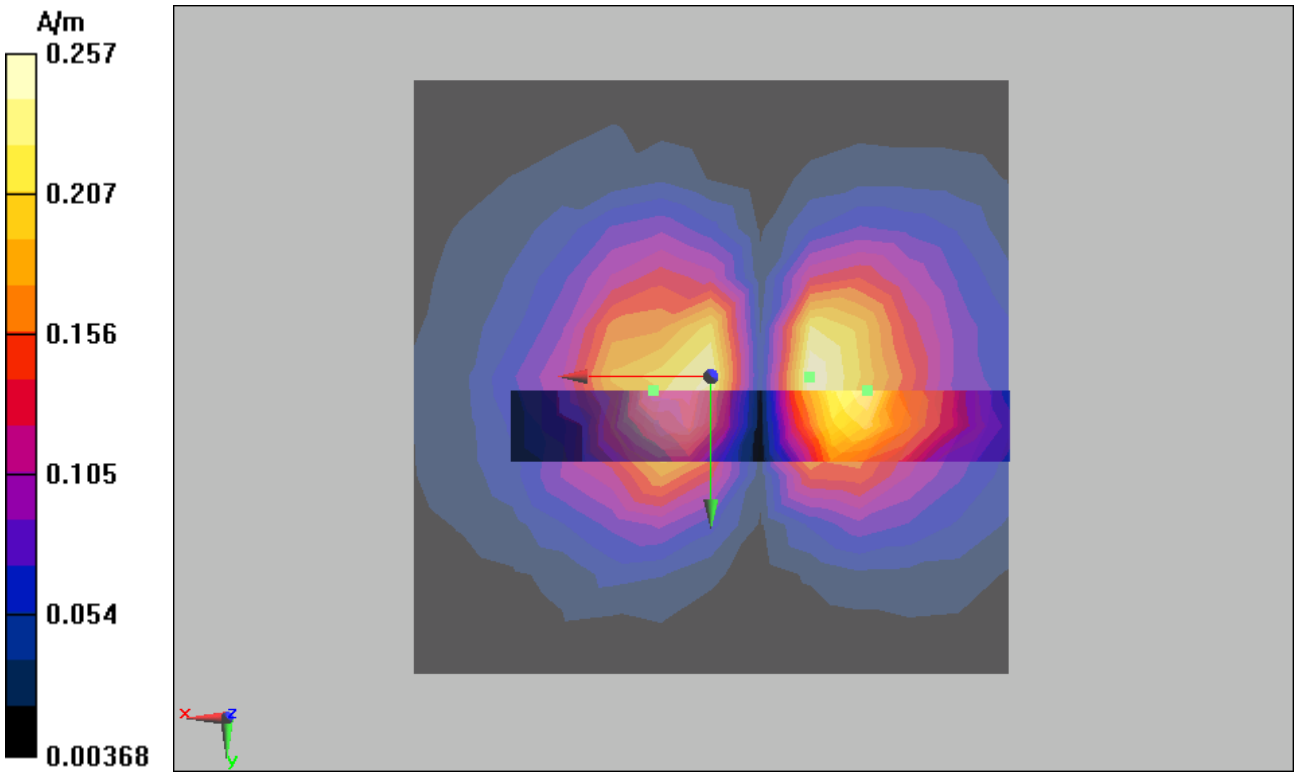


Figure 17 T-Coil CDMA BC10 X longitudinal

T-Coil CDMA BC10 Y transversal

Date/Time: 7/2/2011 12:48:18 AM
Communication System: Secondary 800 MHz (BC10); Frequency: 820.5 MHz;Duty Cycle: 1:1
Ambient Temperature:22.3 ℃
Phantom section: TCoil Section
DASY5 Configuration:
Probe: AM1DV3 - 3082; ; Calibrated: 11/29/2010
Electronics: DAE4 Sn871; Calibrated: 11/18/2010
Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA;
Measurement SW: DASY5, V5.0 Build 120; SEMCAD X Version 13.4 Build 45

Scans/y (transversal) 4.2mm 50 x 50/ABM Signal(x,y,z) (13x13x1):
Measurement grid: dx=10mm, dy=10mm
Signal Type: Audio File (.wav) 48k_voice_1kHz_1s.wav
Output Gain: 28.8
Measure Window Start: 0ms
Measure Window Length: 1000ms
BWC applied: 0.158027 dB
Device Reference Point: 0, 0, -6.3 mm

Category	Telephone parameters WD signal quality [(signal+noise)-to-noise ratio in decibels]
Category T1	0 dB to 10 dB
Category T2	10 dB to 20 dB
Category T3	20 dB to 30 dB
Category T4	> 30 dB

Cursor:
ABM1 comp = -11.5 dB A/m
BWC Factor = 0.158027 dB
Location: -4.2, 8.3, 3.7 mm

Scans/y (transversal) fine 3mm 6 x 42/ABM Signal(x,y,z) (3x15x1):
Measurement grid: dx=10mm, dy=10mm
Signal Type: Audio File (.wav) 48k_voice_1kHz_1s.wav
Output Gain: 28.8
Measure Window Start: 0ms
Measure Window Length: 1000ms
BWC applied: 0.158027 dB
Device Reference Point: 0, 0, -6.3 mm

Category	Telephone parameters WD signal quality [(signal+noise)-to-noise ratio in decibels]

Category T1	0 dB to 10 dB
Category T2	10 dB to 20 dB
Category T3	20 dB to 30 dB
Category T4	> 30 dB

Cursor:

ABM1 comp = -11 dB A/m

BWC Factor = 0.158027 dB

Location: -4.2, -7.8, 3.7 mm

Scans/y (transversal) fine 3mm 6 x 42/ABM SNR(x,y,z) (3x15x1):

Measurement grid: dx=10mm, dy=10mm

Signal Type: Audio File (.wav) 48k_voice_1kHz_1s.wav

Output Gain: 28.8

Measure Window Start: 0ms

Measure Window Length: 1000ms

BWC applied: 0.158027 dB

Device Reference Point: 0, 0, -6.3 mm

Category	**Telephone parameters WD signal quality [(signal+noise)-to-noise ratio in decibels]**
Category T1	0 dB to 10 dB
Category T2	10 dB to 20 dB
Category T3	20 dB to 30 dB
Category T4	> 30 dB

Cursor:

ABM1/ABM2 = 42.2 dB

ABM1 comp = -11.5 dB A/m

BWC Factor = 0.158027 dB

Location: -4.2, 7.2, 3.7 mm

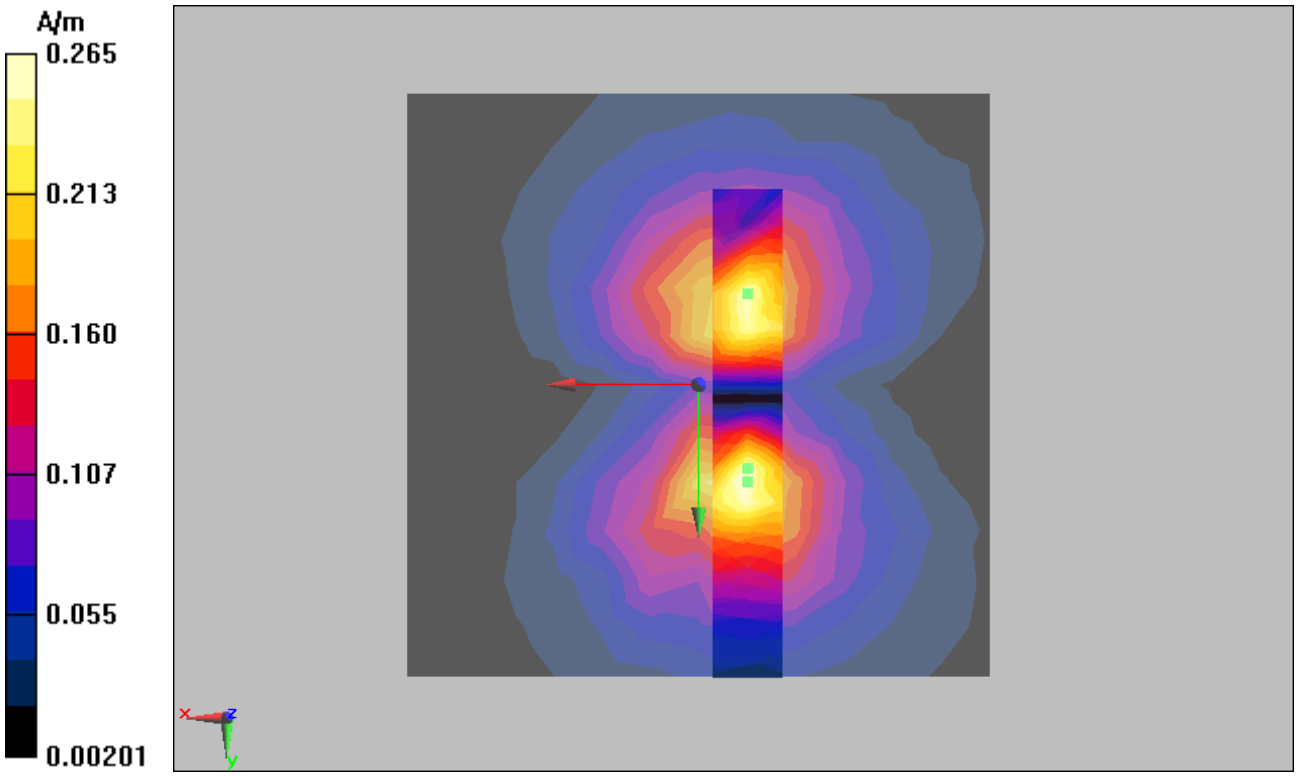


Figure 18 T-Coil CDMA BC10 Y transversal

T-Coil CDMA BC10 Z Axial

Date/Time: 7/2/2011 12:33:46 AM
Communication System: Secondary 800 MHz (BC10); Frequency: 820.5 MHz;Duty Cycle: 1:1
Ambient Temperature:22.3 ℃
Phantom section: TCoil Section
DASY5 Configuration:
Probe: AM1DV3 - 3082; ; Calibrated: 11/29/2010
Electronics: DAE4 Sn871; Calibrated: 11/18/2010
Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA;
Measurement SW: DASY5, V5.0 Build 120; SEMCAD X Version 13.4 Build 45

Scans/z (axial) 4.2mm 50 x 50/ABM Signal(x,y,z) (13x13x1):

Measurement grid: dx=10mm, dy=10mm
Signal Type: Audio File (.wav) 48k_voice_1kHz_1s.wav
Output Gain: 28.8
Measure Window Start: 0ms
Measure Window Length: 1000ms
BWC applied: 0.158027 dB
Device Reference Point: 0, 0, -6.3 mm

Category	Telephone parameters WD signal quality [(signal+noise)-to-noise ratio in decibels]
Category T1	0 dB to 10 dB
Category T2	10 dB to 20 dB
Category T3	20 dB to 30 dB
Category T4	> 30 dB

Cursor:

ABM1 comp = -2.5 dB A/m
BWC Factor = 0.158027 dB
Location: -4.2, 4.2, 3.7 mm

Scans/z (axial) fine 2mm 8 x 8/ABM Signal(x,y,z) (5x5x1):

Measurement grid: dx=10mm, dy=10mm
Signal Type: Audio File (.wav) 48k_voice_1kHz_1s.wav
Output Gain: 28.8
Measure Window Start: 0ms
Measure Window Length: 1000ms
BWC applied: 0.158027 dB
Device Reference Point: 0, 0, -6.3 mm

Category	Telephone parameters WD signal quality [(signal+noise)-to-noise ratio in decibels]
Category T1	0 dB to 10 dB
Category T2	10 dB to 20 dB

Category T3	20 dB to 30 dB
Category T4	> 30 dB

Cursor:

ABM1 comp = -1.5 dB A/m

BWC Factor = 0.158027 dB

Location: -2.2, 2.2, 3.7 mm

Scans/z (axial) fine 2mm 8 x 8/ABM SNR(x,y,z) (5x5x1):

Measurement grid: dx=10mm, dy=10mm

Signal Type: Audio File (.wav) 48k_voice_1kHz_1s.wav

Output Gain: 28.8

Measure Window Start: 0ms

Measure Window Length: 1000ms

BWC applied: 0.158027 dB

Device Reference Point: 0, 0, -6.3 mm

Category	**Telephone parameters WD signal quality [(signal+noise)-to-noise ratio in decibels]**
Category T1	0 dB to 10 dB
Category T2	10 dB to 20 dB
Category T3	20 dB to 30 dB
Category T4	> 30 dB

Cursor:

ABM1/ABM2 = 44.9 dB

ABM1 comp = -1.88 dB A/m

BWC Factor = 0.158027 dB

Location: -4.2, 0.2, 3.7 mm

Scans/z (axial) wideband at best S/N/ABM Freq Resp(x,y,z,f) (1x1x1):

Measurement grid: dx=10mm, dy=10mm

Signal Type: Audio File (.wav) 48k_voice_300-3000_2s.wav

Output Gain: 56.4

Measure Window Start: 0ms

Measure Window Length: 2000ms

BWC applied: 10.8 dB

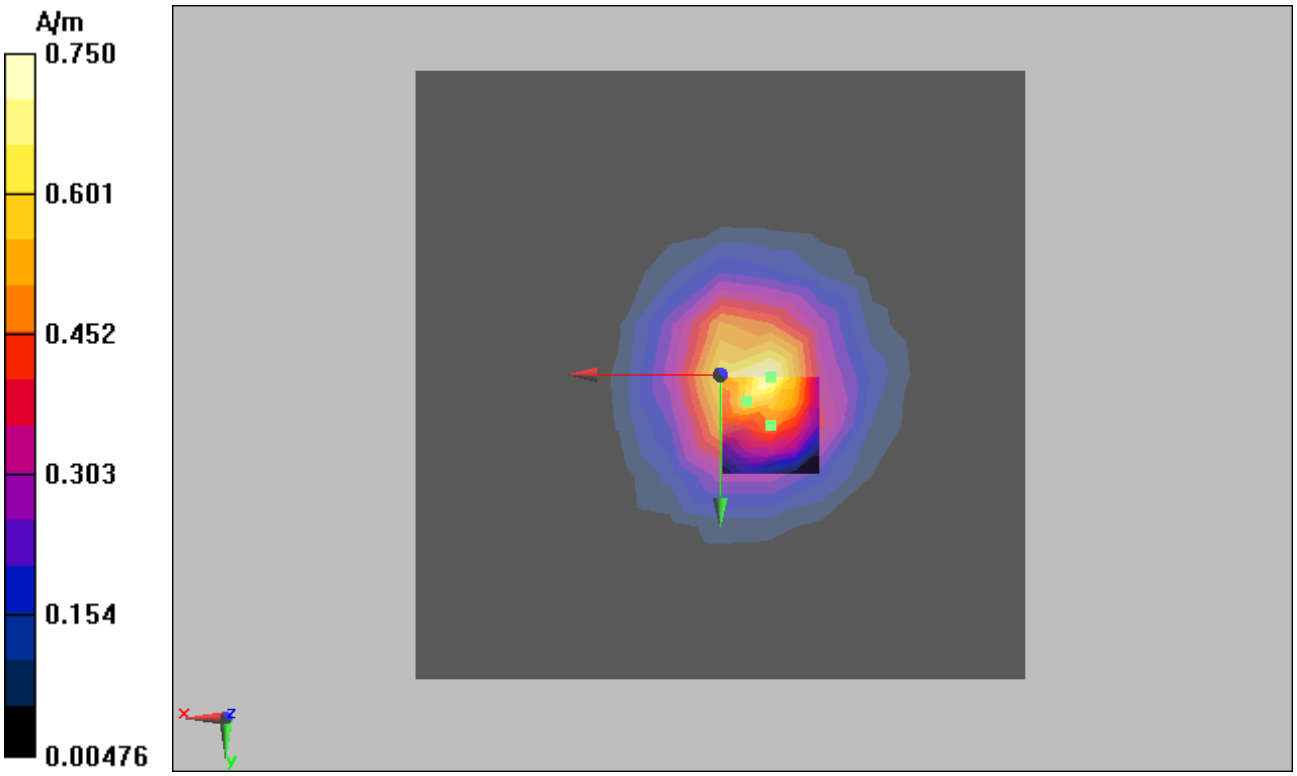
Device Reference Point: 0, 0, -6.3 mm

Category	**Telephone parameters WD signal quality [(signal+noise)-to-noise ratio in decibels]**
Category T1	0 dB to 10 dB
Category T2	10 dB to 20 dB
Category T3	20 dB to 30 dB
Category T4	> 30 dB

Cursor:

Diff = 1.72 dB

BWC Factor = 10.8 dB
Location: -4.2, 0.2, 3.7 mm



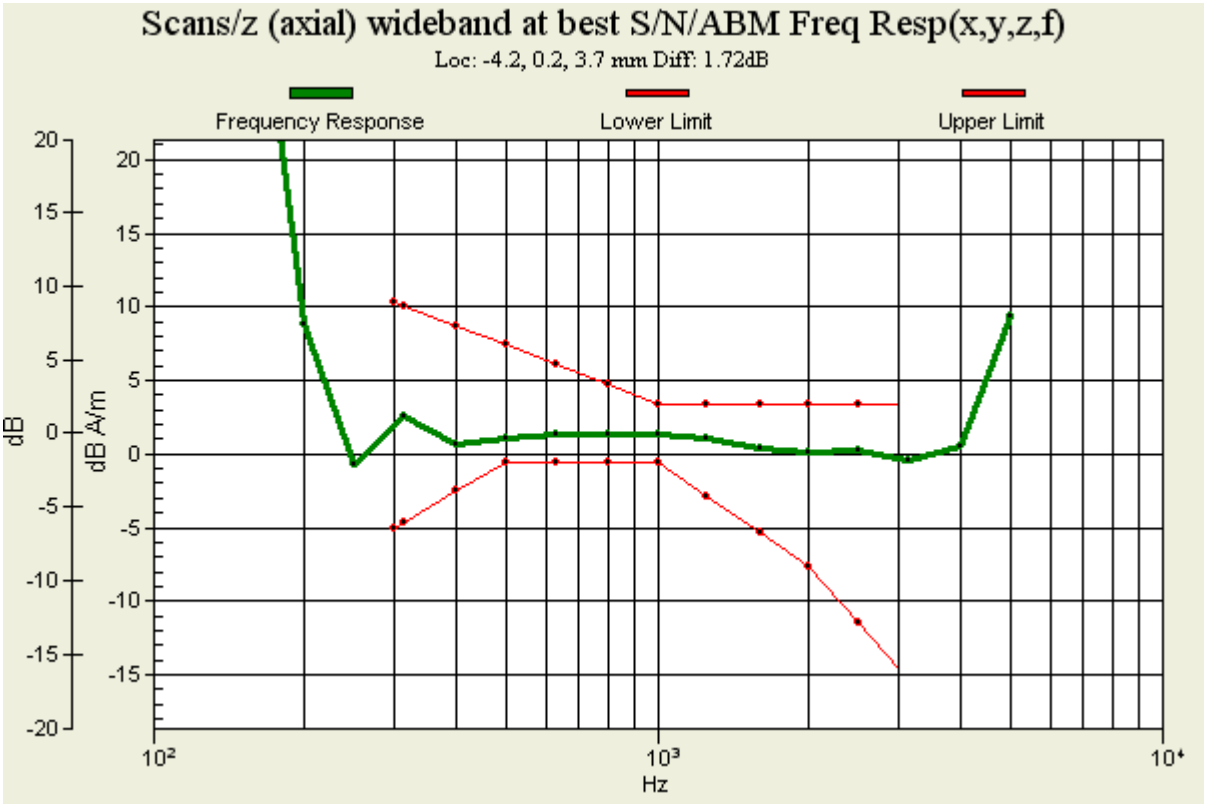


Figure 19 T-Coil CDMA BC10 Z Axial

T-Coil CDMA BC14 X longitudinal

Date/Time: 7/2/2011 1:49:32 AM
Communication System: CDMA US PCS 1900 (BC14); Frequency: 1912.5 MHz;Duty Cycle: 1:1
Ambient Temperature:22.3 ℃
Phantom section: TCoil Section
DASY5 Configuration:
Probe: AM1DV3 - 3082; ; Calibrated: 11/29/2010
Electronics: DAE4 Sn871; Calibrated: 11/18/2010
Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA;
Measurement SW: DASY5, V5.0 Build 120; SEMCAD X Version 13.4 Build 45

Scans/x (longitudinal) 4.2mm 50 x 50/ABM Signal(x,y,z) (13x13x1):
Measurement grid: dx=10mm, dy=10mm
Signal Type: Audio File (.wav) 48k_voice_1kHz_1s.wav
Output Gain: 28.8
Measure Window Start: 0ms
Measure Window Length: 1000ms
BWC applied: 0.158027 dB
Device Reference Point: 0, 0, -6.3 mm

Category	Telephone parameters WD signal quality [(signal+noise)-to-noise ratio in decibels]
Category T1	0 dB to 10 dB
Category T2	10 dB to 20 dB
Category T3	20 dB to 30 dB
Category T4	> 30 dB

Cursor:
ABM1 comp = -10.1 dB A/m
BWC Factor = 0.158027 dB
Location: 4.2, 0, 3.7 mm

Scans/x (longitudinal) fine 3mm 42 x 6/ABM Signal(x,y,z) (15x3x1):
Measurement grid: dx=10mm, dy=10mm
Signal Type: Audio File (.wav) 48k_voice_1kHz_1s.wav
Output Gain: 28.8
Measure Window Start: 0ms
Measure Window Length: 1000ms
BWC applied: 0.158027 dB
Device Reference Point: 0, 0, -6.3 mm

Category	Telephone parameters WD signal quality [(signal+noise)-to-noise ratio in decibels]

Category T1	0 dB to 10 dB
Category T2	10 dB to 20 dB
Category T3	20 dB to 30 dB
Category T4	> 30 dB

Cursor:

ABM1 comp = -11 dB A/m

BWC Factor = 0.158027 dB

Location: 4.8, 1.2, 3.7 mm

Scans/x (longitudinal) fine 3mm 42 x 6/ABM SNR(x,y,z) (15x3x1):

Measurement grid: dx=10mm, dy=10mm

Signal Type: Audio File (.wav) 48k_voice_1kHz_1s.wav

Output Gain: 28.8

Measure Window Start: 0ms

Measure Window Length: 1000ms

BWC applied: 0.158027 dB

Device Reference Point: 0, 0, -6.3 mm

Category	**Telephone parameters WD signal quality [(signal+noise)-to-noise ratio in decibels]**
Category T1	0 dB to 10 dB
Category T2	10 dB to 20 dB
Category T3	20 dB to 30 dB
Category T4	> 30 dB

Cursor:

ABM1/ABM2 = 35.7 dB

ABM1 comp = -12.4 dB A/m

BWC Factor = 0.158027 dB

Location: -13.2, 1.2, 3.7 mm

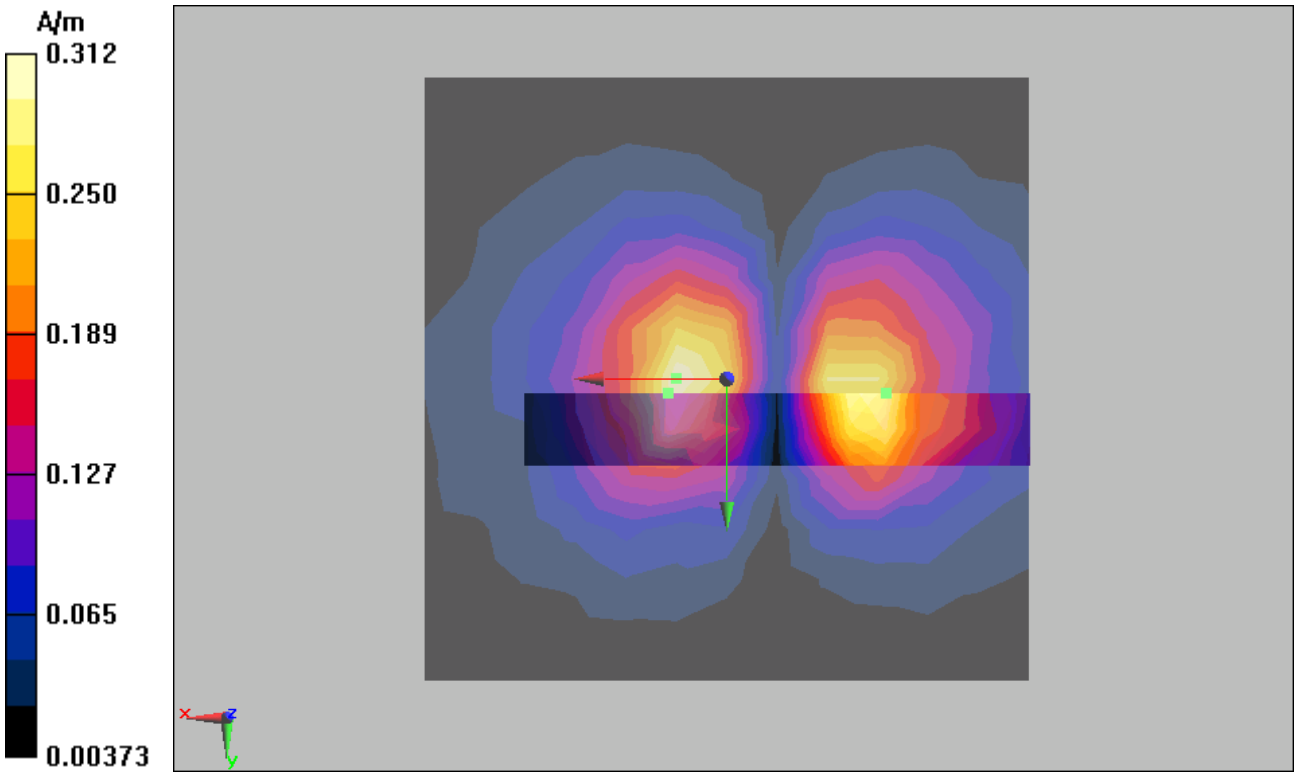


Figure 20 T-Coil CDMA BC14 X longitudinal

T-Coil CDMA BC14 Y transversal

Date/Time: 7/2/2011 1:56:47 AM
Communication System: CDMA US PCS 1900 (BC14); Frequency: 1912.5 MHz;Duty Cycle: 1:1
Ambient Temperature:22.3 ℃
Phantom section: TCoil Section
DASY5 Configuration:
Probe: AM1DV3 - 3082; ; Calibrated: 11/29/2010
Electronics: DAE4 Sn871; Calibrated: 11/18/2010
Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA;
Measurement SW: DASY5, V5.0 Build 120; SEMCAD X Version 13.4 Build 45

Scans/y (transversal) 4.2mm 50 x 50/ABM Signal(x,y,z) (13x13x1):
Measurement grid: dx=10mm, dy=10mm
Signal Type: Audio File (.wav) 48k_voice_1kHz_1s.wav
Output Gain: 28.8
Measure Window Start: 0ms
Measure Window Length: 1000ms
BWC applied: 0.158027 dB
Device Reference Point: 0, 0, -6.3 mm

Category	Telephone parameters WD signal quality [(signal+noise)-to-noise ratio in decibels]
Category T1	0 dB to 10 dB
Category T2	10 dB to 20 dB
Category T3	20 dB to 30 dB
Category T4	> 30 dB

Cursor:
ABM1 comp = -10.6 dB A/m
BWC Factor = 0.158027 dB
Location: -4.2, -4.2, 3.7 mm

Scans/y (transversal) fine 3mm 6 x 42/ABM Signal(x,y,z) (3x15x1):
Measurement grid: dx=10mm, dy=10mm
Signal Type: Audio File (.wav) 48k_voice_1kHz_1s.wav
Output Gain: 28.8
Measure Window Start: 0ms
Measure Window Length: 1000ms
BWC applied: 0.158027 dB
Device Reference Point: 0, 0, -6.3 mm

Category	Telephone parameters WD signal quality [(signal+noise)-to-noise ratio in decibels]

Category T1	0 dB to 10 dB
Category T2	10 dB to 20 dB
Category T3	20 dB to 30 dB
Category T4	> 30 dB

Cursor:

ABM1 comp = -11.1 dB A/m

BWC Factor = 0.158027 dB

Location: -4.2, 10.2, 3.7 mm

Scans/y (transversal) fine 3mm 6 x 42/ABM SNR(x,y,z) (3x15x1):

Measurement grid: dx=10mm, dy=10mm

Signal Type: Audio File (.wav) 48k_voice_1kHz_1s.wav

Output Gain: 28.8

Measure Window Start: 0ms

Measure Window Length: 1000ms

BWC applied: 0.158027 dB

Device Reference Point: 0, 0, -6.3 mm

Category	**Telephone parameters WD signal quality [(signal+noise)-to-noise ratio in decibels]**
Category T1	0 dB to 10 dB
Category T2	10 dB to 20 dB
Category T3	20 dB to 30 dB
Category T4	> 30 dB

Cursor:

ABM1/ABM2 = 41.5 dB

ABM1 comp = -11.1 dB A/m

BWC Factor = 0.158027 dB

Location: -4.2, 10.2, 3.7 mm

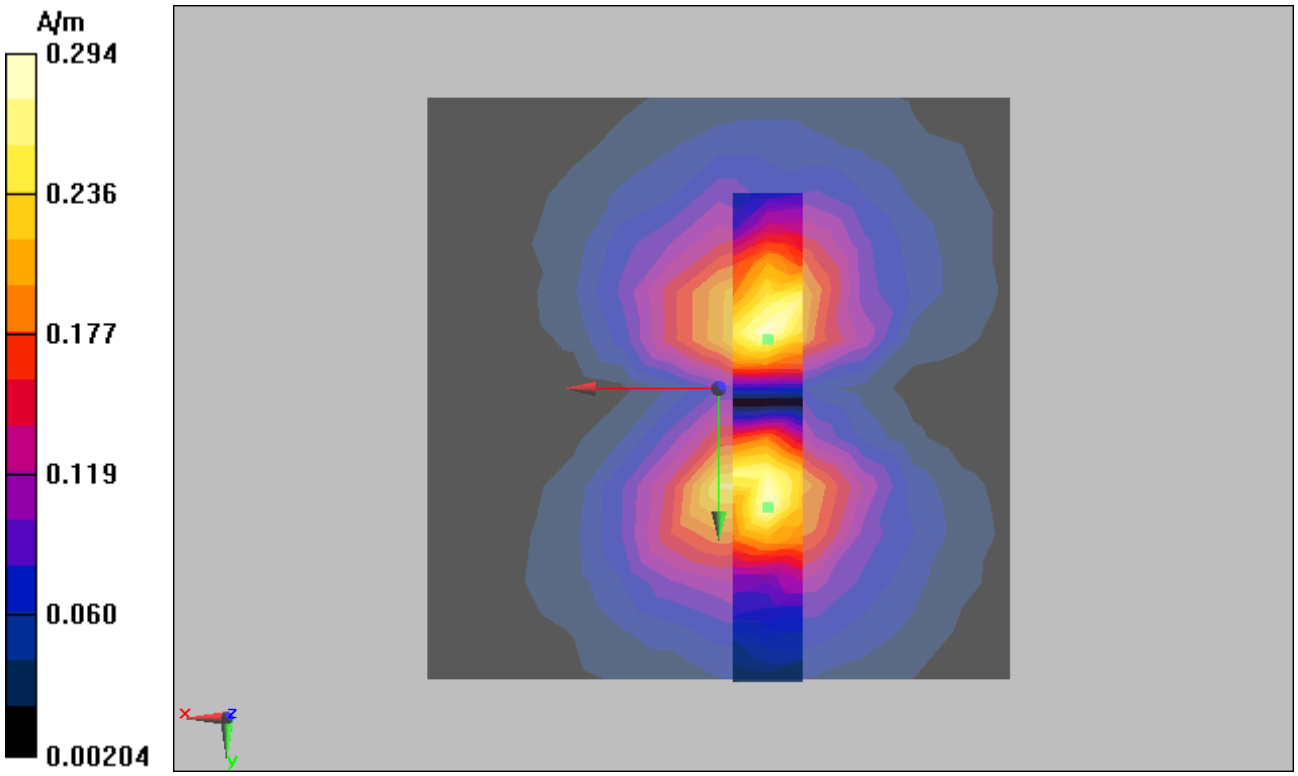


Figure 21 T-Coil CDMA BC14 Y transversal

T-Coil CDMA BC14 Z Axial

Date/Time: 7/2/2011 1:42:15 AM
Communication System: CDMA US PCS 1900 (BC14); Frequency: 1912.5 MHz;Duty Cycle: 1:1
Ambient Temperature:22.3 ℃
Phantom section: TCoil Section
DASY5 Configuration:
Probe: AM1DV3 - 3082; ; Calibrated: 11/29/2010
Electronics: DAE4 Sn871; Calibrated: 11/18/2010
Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA;
Measurement SW: DASY5, V5.0 Build 120; SEMCAD X Version 13.4 Build 45
Scans/z (axial) 4.2mm 50 x 50/ABM Signal(x,y,z) (13x13x1):
Measurement grid: dx=10mm, dy=10mm
Signal Type: Audio File (.wav) 48k_voice_1kHz_1s.wav
Output Gain: 28.8
Measure Window Start: 0ms
Measure Window Length: 1000ms
BWC applied: 0.158027 dB
Device Reference Point: 0, 0, -6.3 mm

Category	Telephone parameters WD signal quality [(signal+noise)-to-noise ratio in decibels]
Category T1	0 dB to 10 dB
Category T2	10 dB to 20 dB
Category T3	20 dB to 30 dB
Category T4	> 30 dB

Cursor:
ABM1 comp = -3.53 dB A/m
BWC Factor = 0.158027 dB
Location: -4.2, 4.2, 3.7 mm
Scans/z (axial) fine 2mm 8 x 8/ABM Signal(x,y,z) (5x5x1):
Measurement grid: dx=10mm, dy=10mm
Signal Type: Audio File (.wav) 48k_voice_1kHz_1s.wav
Output Gain: 28.8
Measure Window Start: 0ms
Measure Window Length: 1000ms
BWC applied: 0.158027 dB
Device Reference Point: 0, 0, -6.3 mm

Category	Telephone parameters WD signal quality [(signal+noise)-to-noise ratio in decibels]
Category T1	0 dB to 10 dB
Category T2	10 dB to 20 dB

Category T3	20 dB to 30 dB
Category T4	> 30 dB

Cursor:

ABM1 comp = -1.51 dB A/m

BWC Factor = 0.158027 dB

Location: -0.2, 0.2, 3.7 mm

Scans/z (axial) fine 2mm 8 x 8/ABM SNR(x,y,z) (5x5x1):

Measurement grid: dx=10mm, dy=10mm

Signal Type: Audio File (.wav) 48k_voice_1kHz_1s.wav

Output Gain: 28.8

Measure Window Start: 0ms

Measure Window Length: 1000ms

BWC applied: 0.158027 dB

Device Reference Point: 0, 0, -6.3 mm

Category	**Telephone parameters WD signal quality [(signal+noise)-to-noise ratio in decibels]**
Category T1	0 dB to 10 dB
Category T2	10 dB to 20 dB
Category T3	20 dB to 30 dB
Category T4	> 30 dB

Cursor:

ABM1/ABM2 = 40.6 dB

ABM1 comp = -3.48 dB A/m

BWC Factor = 0.158027 dB

Location: -6.2, 0.2, 3.7 mm

Scans/z (axial) wideband at best S/N/ABM Freq Resp(x,y,z,f) (1x1x1):

Measurement grid: dx=10mm, dy=10mm

Signal Type: Audio File (.wav) 48k_voice_300-3000_2s.wav

Output Gain: 56.4

Measure Window Start: 0ms

Measure Window Length: 2000ms

BWC applied: 10.8 dB

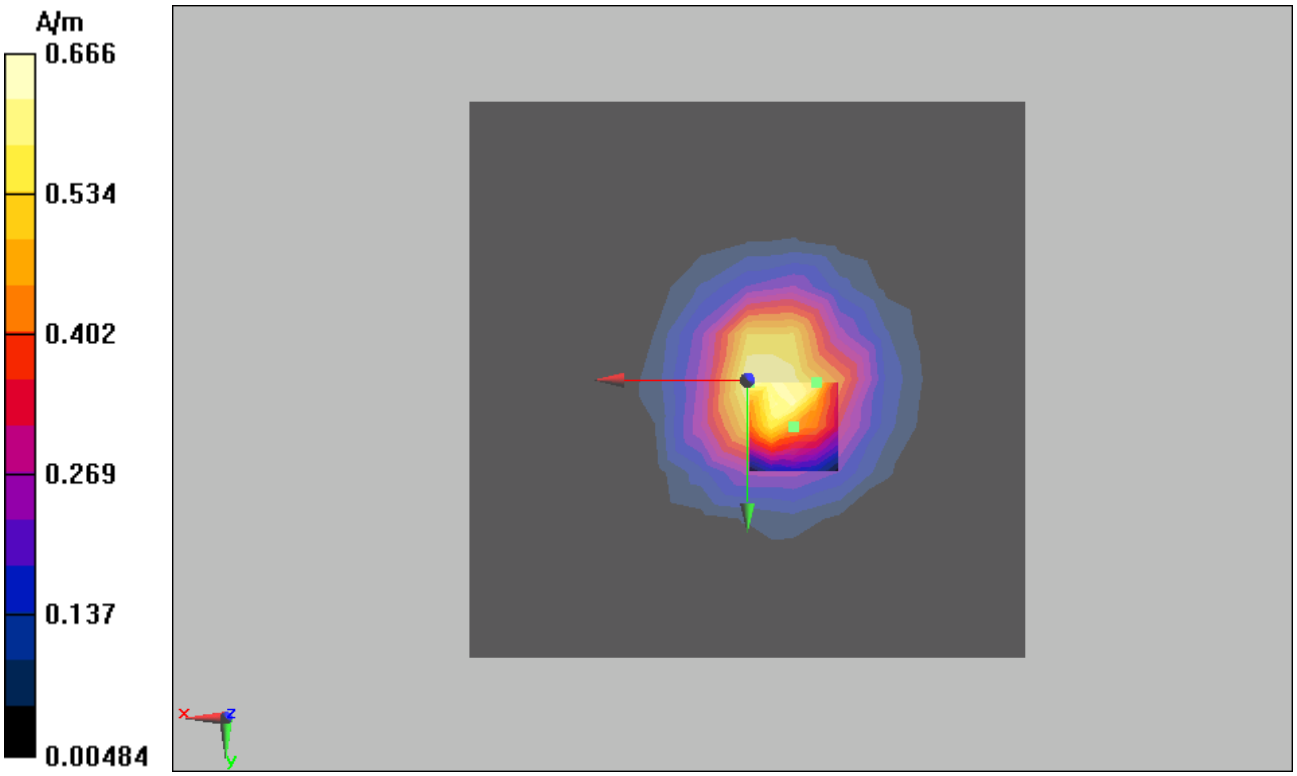
Device Reference Point: 0, 0, -6.3 mm

Category	**Telephone parameters WD signal quality [(signal+noise)-to-noise ratio in decibels]**
Category T1	0 dB to 10 dB
Category T2	10 dB to 20 dB
Category T3	20 dB to 30 dB
Category T4	> 30 dB

Cursor:

Diff = 2 dB

BWC Factor = 10.8 dB
Location: -6.2, 0.2, 3.7 mm



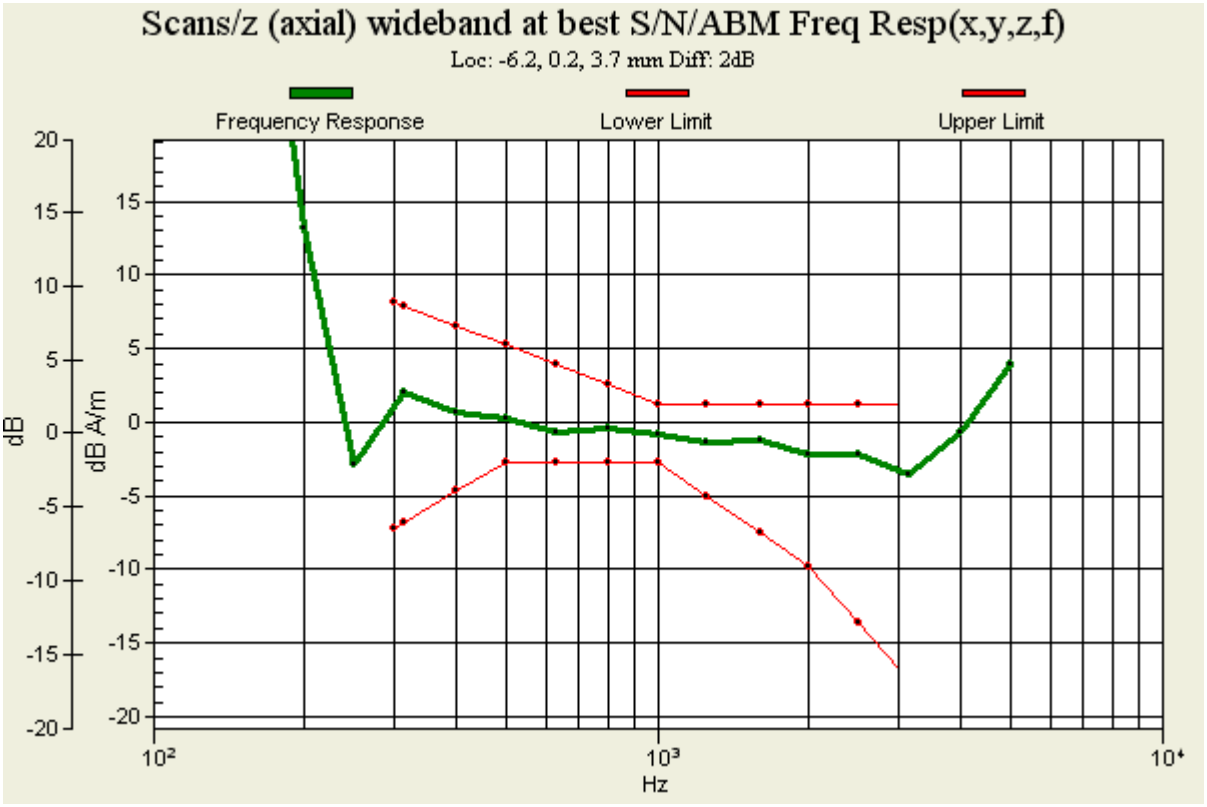


Figure 22 T-Coil CDMA BC14 Z Axial