HAC T-Coil TEST REPORT

No. 2009HAC00002-2

For

ZTE CORPORATION

CDMA 1X Digital Mobile Phone

ZTE C70

With

Hardware Version: C98A

Software Version: ZTEC70V1.0.0B01

Results Summary: T Category = T3

Issued Date: 2009-05-12

No. **DAT-P-114/01-01**

Note:

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

Test Laboratory:

TMC Beijing, Telecommunication Metrology Center of Ministry of Information Industry

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TABLE OF CONTENT

1 Test Laboratory

1.1 Testing Location

Company Name:	TMC Beijing, Telecommunication Metrology Center of MII
Address:	No 52, Huayuan beilu, Haidian District, Beijing,P.R.China
Postal Code:	100083
Telephone:	+86-10-62303288
Fax:	+86-10-62304793

1.2 Testing Environment

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

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

1.3 Project Data

Project Leader:	Sun Qian
Test Engineer:	Lin Hao
Testing Start Date:	April 29, 2009
Testing End Date:	April 29, 2009

1.4 Signature

Lin Hao

(Prepared this test report)

Sun Qian

(Reviewed this test report)

Lu Bingsong

Deputy Director of the laboratory

(Approved this test report)

2 Client Information

2.1 Applicant Information

Company Name:	ZTE CORPORATION
Address /Post:	ZTE Plaza, Keji Road South, Hi-Tech Industrial Park, Nanshan District, Shenzhen, Guangdong, 518057, P.R.China
City:	Shenzhen
Postal Code:	518057
Country:	P. R. China
Telephone:	021-68897541
Fax:	/

2.2 Manufacturer Information

Company Name:	ZTE CORPORATION
Address /Post:	ZTE Plaza, Keji Road South, Hi-Tech Industrial Park, Nanshan District, Shenzhen, Guangdong, 518057, P.R.China
City:	Shenzhen
Postal Code:	518057
Country:	P. R. China
Telephone:	021-68897541
Fax:	/

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

3.1 About EUT

EUT Description:	CDMA 1X Digital Mobile Phone
Model Name:	ZTE C70
Frequency Band:	CDMA 800 / CDMA 1900 / AWS 1700

Figure 3.1: Constituents of the sample

3.2 Internal Identification of EUT used during the test

EUT ID*	SN or IMEI	HW Version	SW Version
EUT1	A000000B000012	C98A	ZTEC70V1.0.0B01

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

3.3 Internal Identification of AE used during the test

AE ID*	Description	Model	SN	Manufacturer
AE1	Adapter	STC-A22O50U5-C	800811270467701	ZTE CORPORATION
AE2	Battery	Li3709T42P3h553447	60110811040347499	ZTE CORPORATION
AE3	Battery	Li3709T42P3h553447	60110811040340245	ZTE CORPORATION

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

4. Reference Documents

4.1Reference Documents for testing

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

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

5 OPERATIONAL CONDITIONS DURING TEST

5.1 HAC MEASUREMENT SET-UP

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

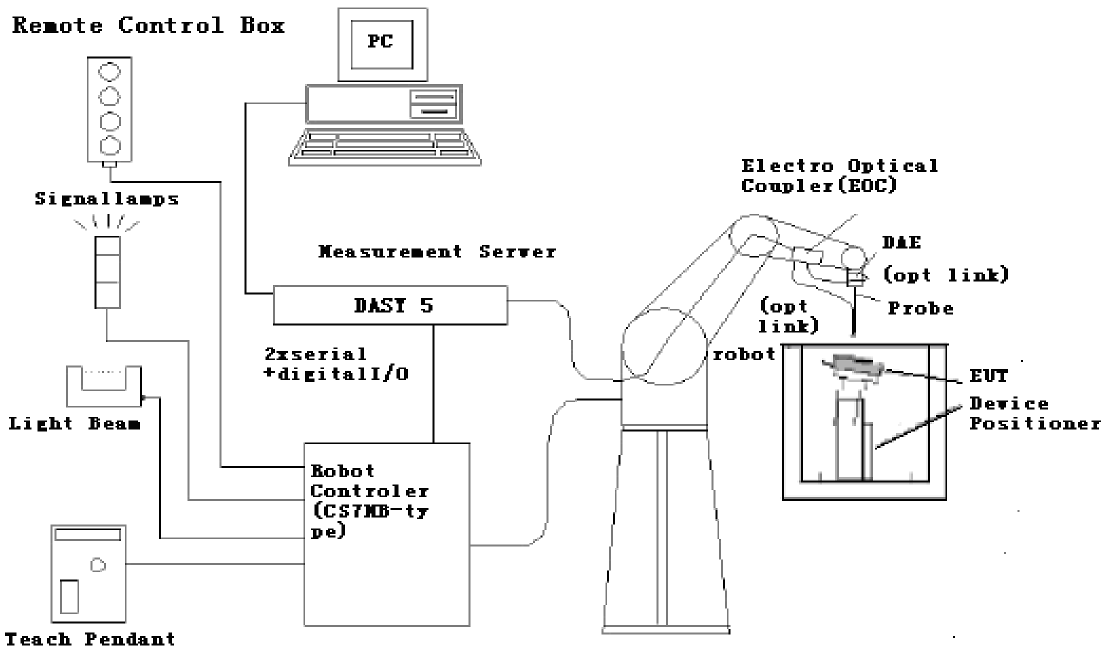


Figure 5.1 HAC Test Measurement Set-up

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.

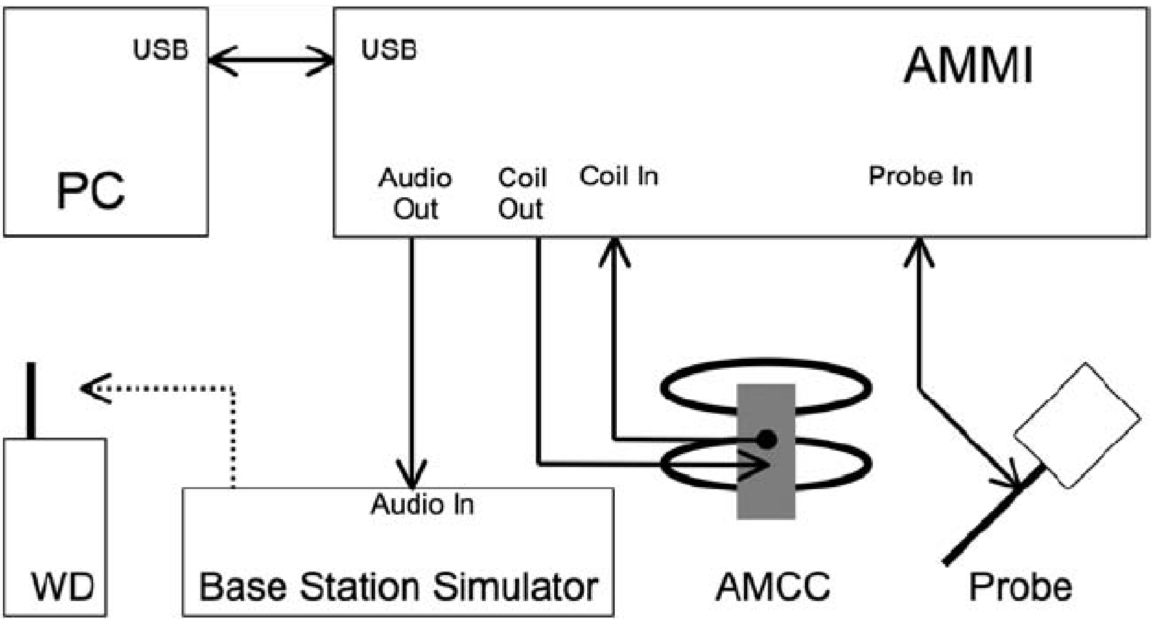


Figure 5.2 T-Coil setup with HAC Test Arch and AMCC

5.2 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	0.1~20kHz (RF sensitivity < -100dB, fully RF shielded)
Sensitivity	< -50dB A/m @ 1kHz
Pre-amplifier	40dB, symmetric
Dimensions	Tip diameter/length: 6/290mm, sensor according to ANSI-C63.19

5.3 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

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

5.4 AMMI

Figure 5.3 AMMI front panel

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.

Specification:

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

5.5 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 Phone Positioner supports accurate and reliable positioning of any phone with effect on near field <±0.5 dB.

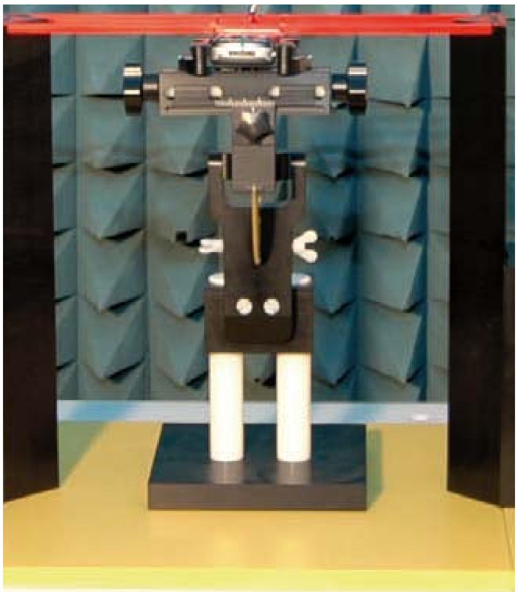


Figure 5.4 HAC Phantom & Device Holder

5.6 Robotic System Specifications

Specifications

Positioner: Stäubli Unimation Corp. Robot Model: RX160L
Repeatability: ±0.02 mm
No. of Axis: 6

Data Acquisition Electronic (DAE) System

Cell Controller
Processor: Intel Core2
Clock Speed: 1.86 GHz
Operating System: Windows XP
Data Converter
Features: Signal Amplifier, multiplexer, A/D converter, and control logic
Software: DASY5 software
Connecting Lines: Optical downlink for data and status info.
Optical uplink for commands and clock

5.7 DUT Radio Configuration Selection

During the ABM2 measurement, there was no audio signal passing through the DUT, meanwhile, the device was set at maximum RF power and high digital processing such as backlight on, display on, maximum volume, maximum panel contrast setting and without any external shielding case. The device was chosen from a variety of vocoders to be tested in the worst case ABM2 condition under RC1/SO3. The ABM2 summary as below:

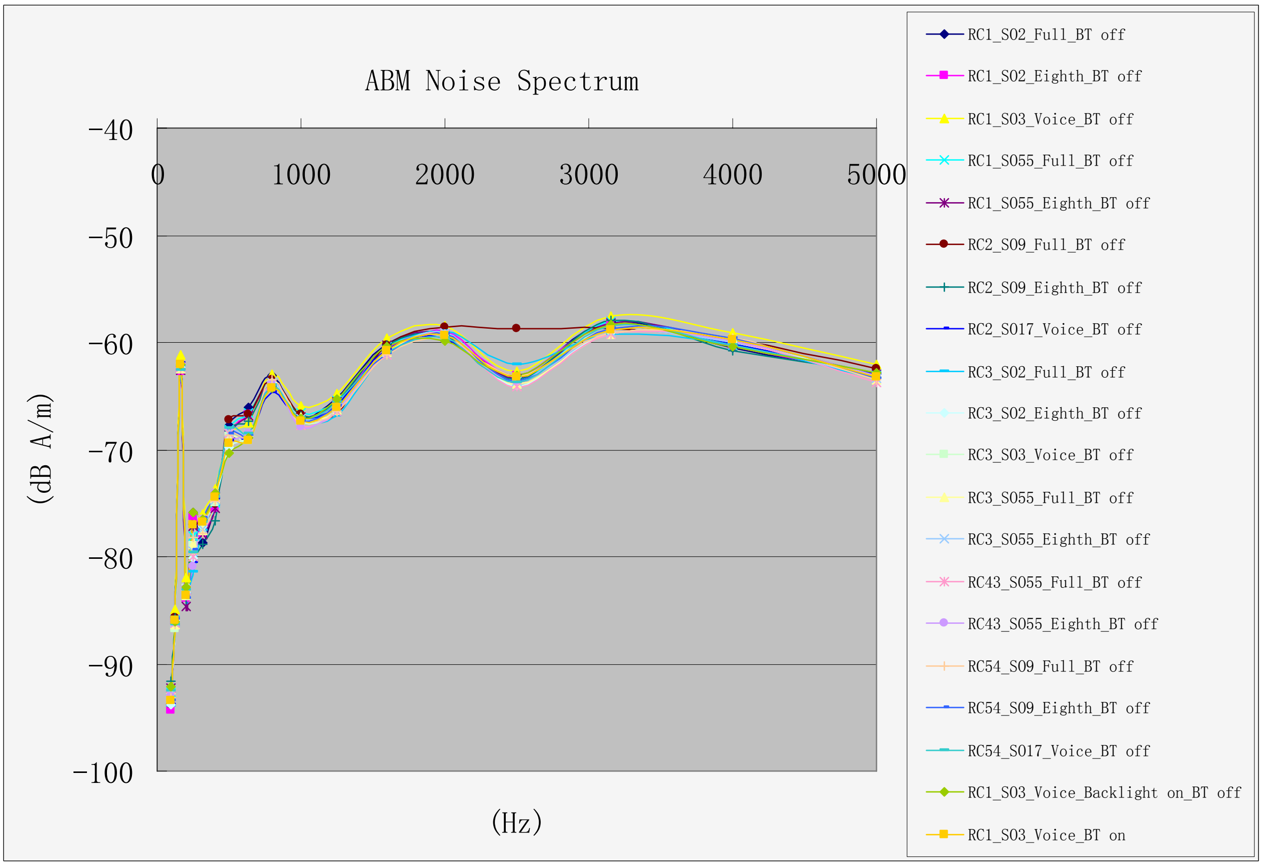


Figure 5.5 Vocoder Analysis for ABM Noise

The ABM2 measurement is implemented by applying digital filtering to the data stream of 48 kHz samples in the measurement window. The digital filters consist of an integrator, a high-pass and an A-filter. From the output, the numerical “ABM2” value is generated. This value is represented in the top of the data window in DASY. The intermediate results are not visible. The graphical representation of the ABM2 spectrum consists of the same data filtered with a band of third-octave filters. In DASY system, the representation is directly in dB A/m without weighting. In the postprocessor representation, the spectral points are in addition scaled with the high-pass (half-band) and the A-weighting, and those results are final as shown in this report.

6 EUT ARRANGEMENT

Figure 6.1 illustrates the references and reference plane that shall be used in a typical DUT emissions measurement. The actual DUT’s pictures are showed in Annex A. The principle of this section is applied to DUT with similar geometry.

- The grid is 5 cm by 5 cm area that is divided into 9 evenly sized blocks or sub-grids.
- The grid is centered on the audio frequency output transducer of the DUT.
- The grid is in a reference plane, which is defined as 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 DUT handset, which, in normal handset use, rest against the ear.

- The measurement plane is located parallel to the reference plane and 10 mm from it, out from the phone. The grid is located in the measurement plane.

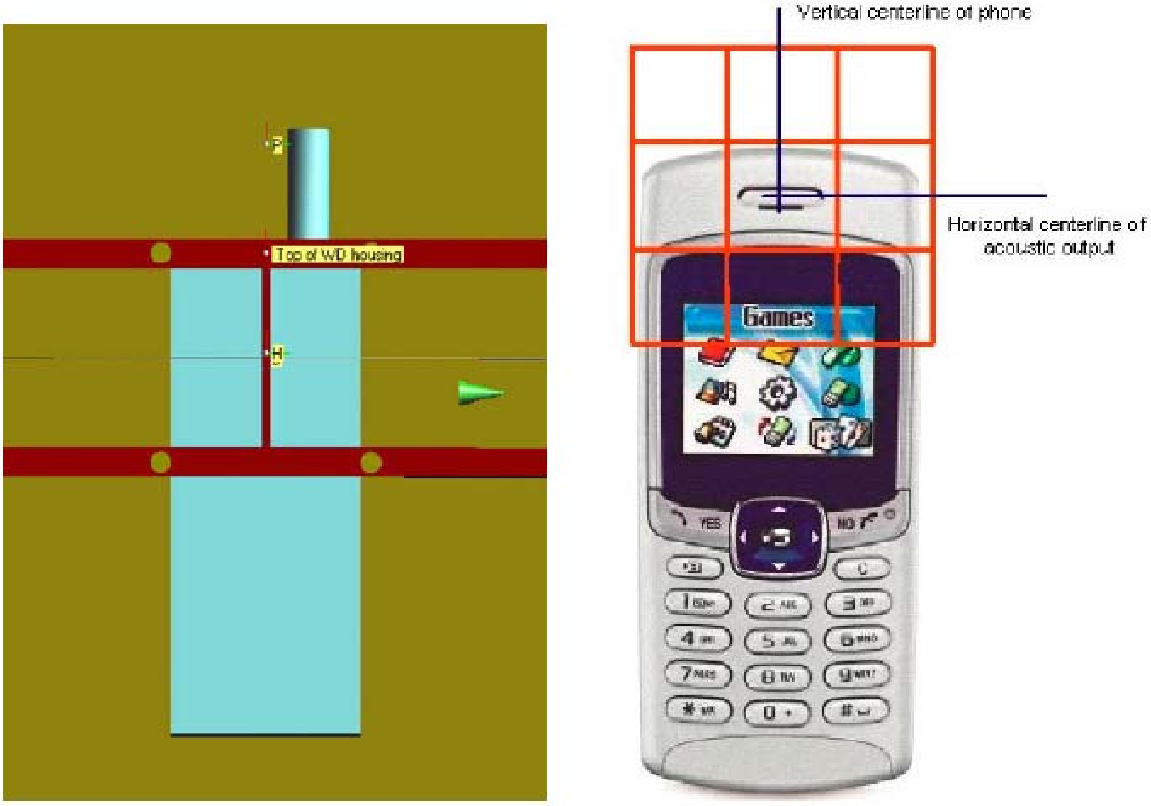


Figure 6.1 A typical DUT reference and plane for HAC measureents

7 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.

8 HAC T-Coil TEST DATA SUMMARY

8.1 Test Result

8.1.1 Magnitude Result

The Table 1 and 2 shows testing result in position coordinates which are defined as deviation from earpiece center in millimeters. Axial measurement location was defined by the manufacture of the device. Signal strength measurement scans are presented in Annex B.

Table 1. Test Result for Various Positions – Slide down

Probe Position	Band	Channel	Measurement Position (x mm, y mm)	ABM1 (dB A/m)	AWF	SNR (dB)
Radial 1 (Longitudinal)	Cellular	384	(3.9, -3)	-8.66	0	25.6
	AWS	450	(-15.9, -0.6)	-11.3	0	24
	PCS	600	(2.7, -3)	-9.66	0	25.5
Radial 2 (Transversal)	Cellular	384	(-3, 3)	-16.9	0	26.1
	AWS	450	(-7.2, 9)	-6.9	0	29.1
	PCS	600	(-4.2, -6)	-5.53	0	27.4
Axial	Cellular	384	(-4, -1.8)	0.357	0	25
	AWS	450	(-0.2, -4)	0.262	0	38.4
	PCS	600	(-0.2, -4)	-2.11	0	25.2

Table 2. Test Result for Various Positions – Slide up

Probe Position	Band	Channel	Measurement Position (x mm, y mm)	ABM1 (dB A/m)	AWF	SNR (dB)
Radial 1 (Longitudinal)	Cellular	384	(6, 1.2)	-5.55	0	26.5
	AWS	450	(3, 0)	-7.95	0	26.5
	PCS	600	(-13.8, 3)	-8.18	0	26.5
Radial 2 (Transversal)	Cellular	384	(3, -14.1)	-11.6	0	33
	AWS	450	(3, -12.6)	-10	0	36.2
	PCS	600	(3, -14.7)	-12.5	0	32.6
Axial	Cellular	384	(4, 0.2)	-2.07	0	36.1
	AWS	450	(4, -0.8)	-3.05	0	37.4
	PCS	600	(4, -3)	-5.06	0	33.5

Remark:

1. The device was chosen to be tested in the worst case ABM2 condition under RC1/SO3.
2. The LCD backlight is turn off, Bluetooth function is turn off and volume is adjusted to maximum level during T-Coil testing.

8.1.2 Frequency Response

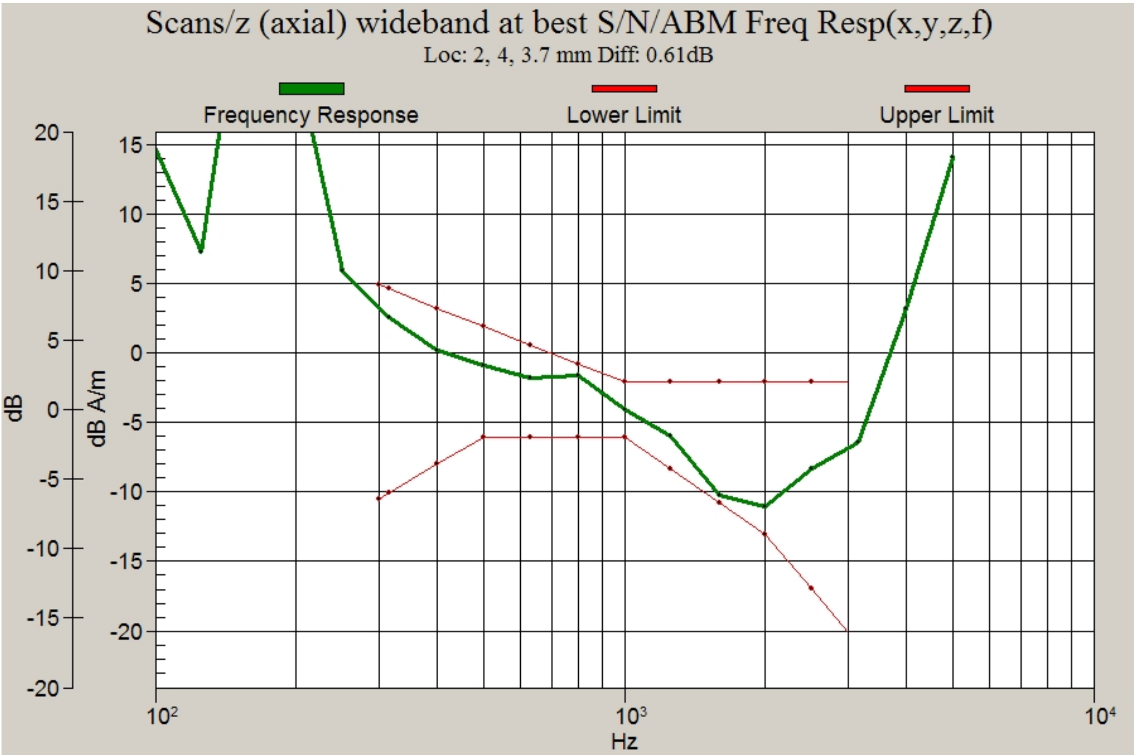


Figure 8.1 Frequency Response of CDMA2000 Cellular for Ch384 – Slide down

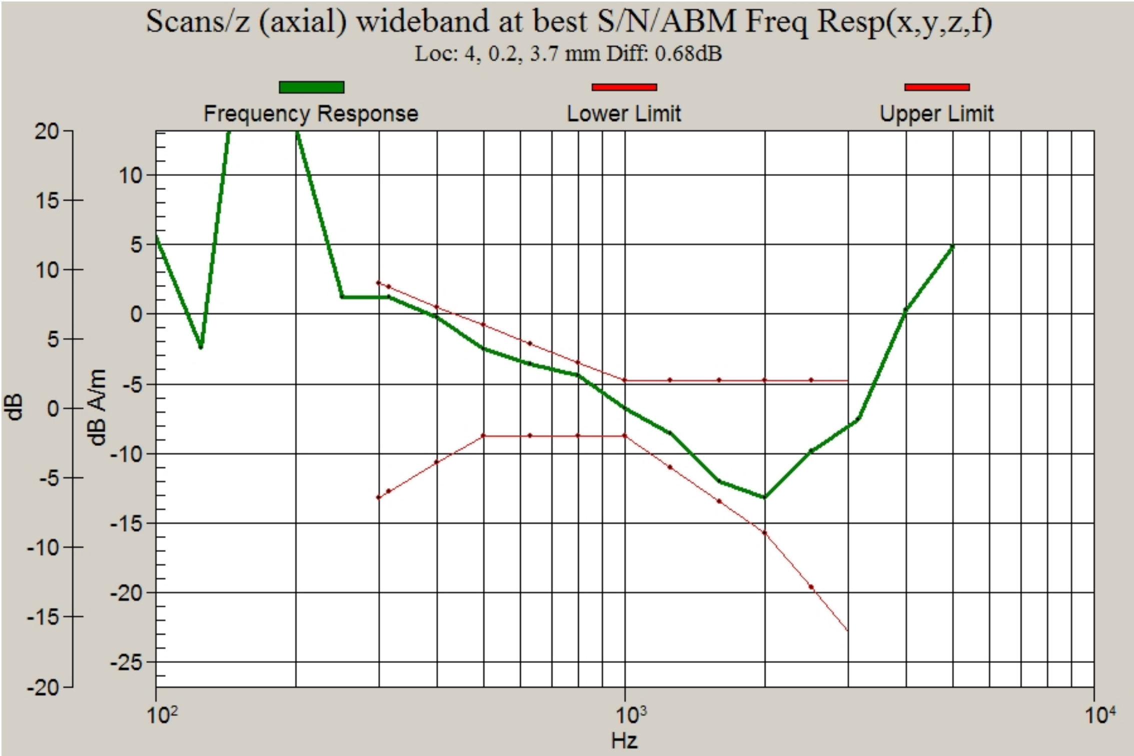


Figure 8.2 Frequency Response of CDMA2000 Cellular for Ch384 – Slide up

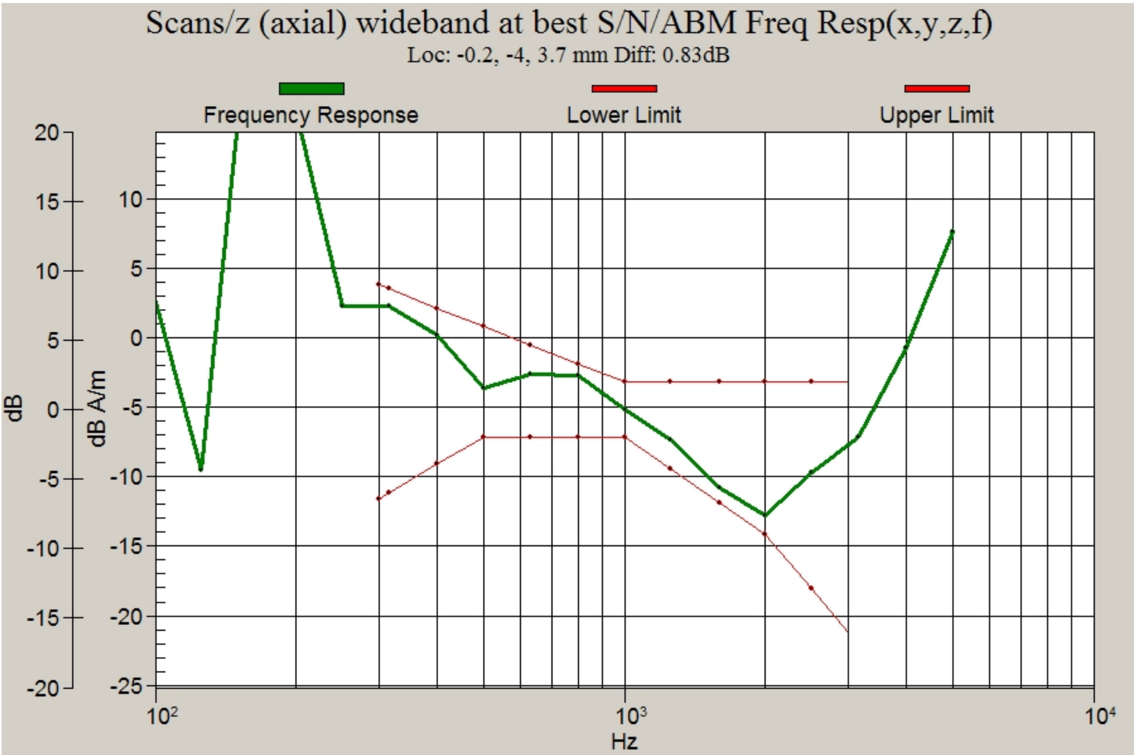


Figure 8.3 Frequency Response of CDMA2000 AWS for Ch450 – Slide down

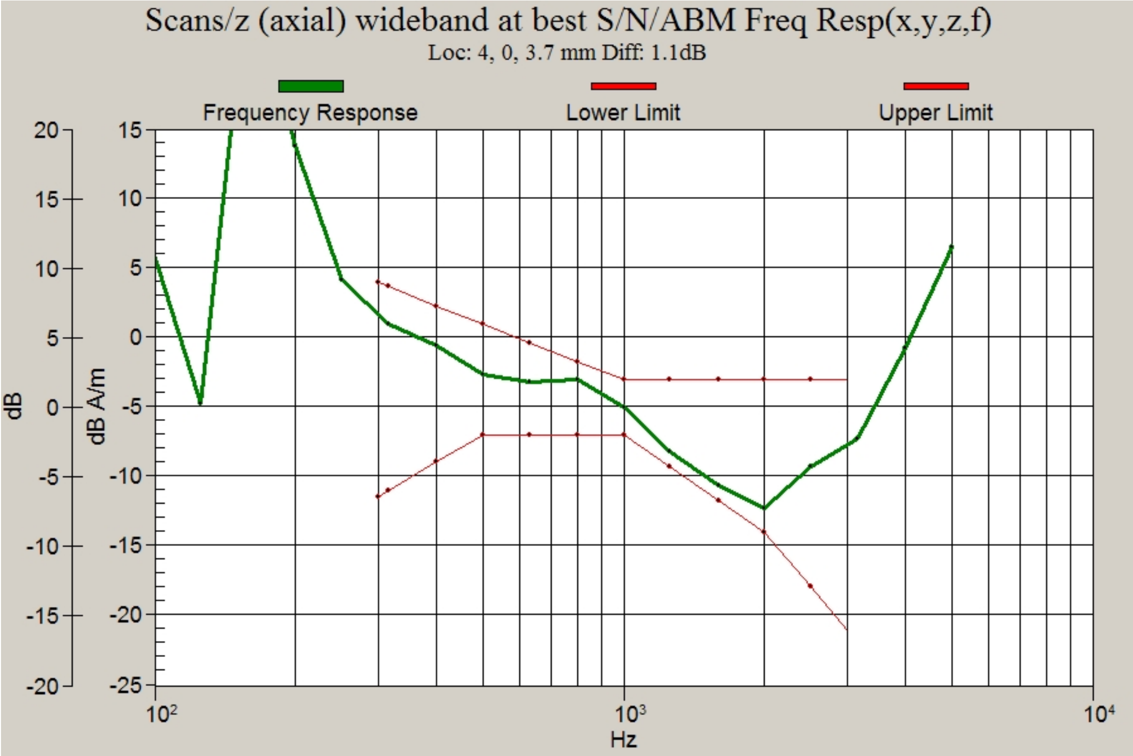


Figure 8.4 Frequency Response of CDMA2000 AWS for Ch450 – Slide up

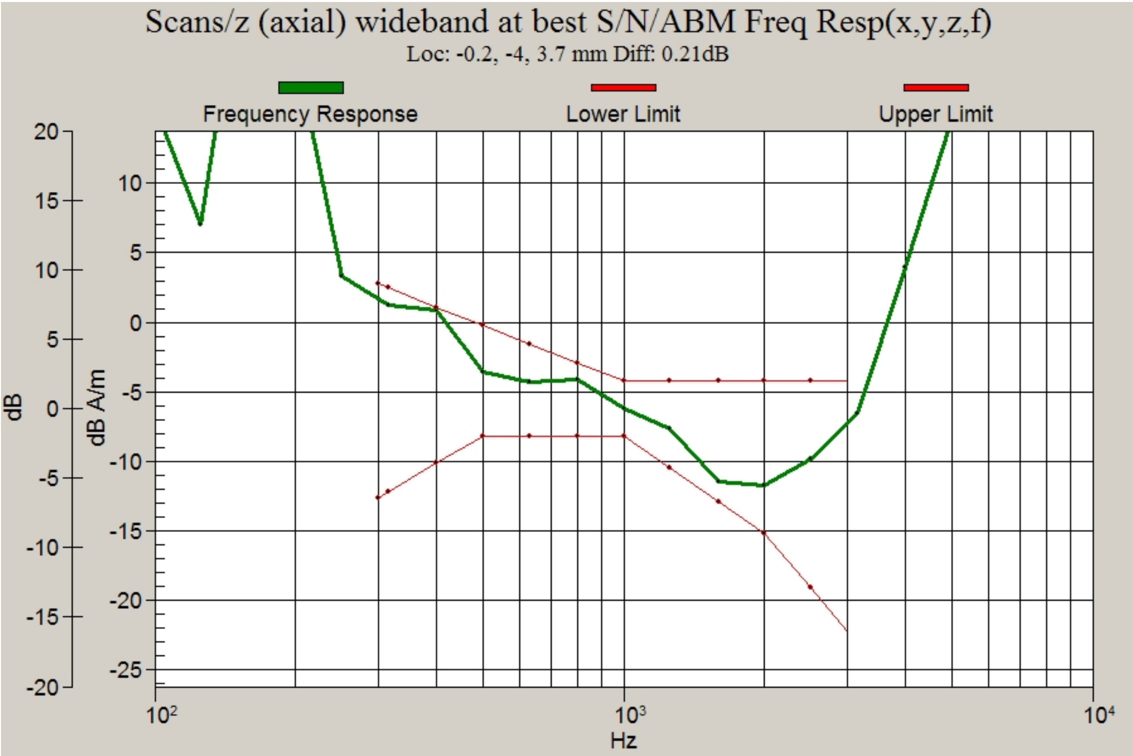


Figure 8.5 Frequency Response of CDMA2000 PCS for Ch600 – Slide down

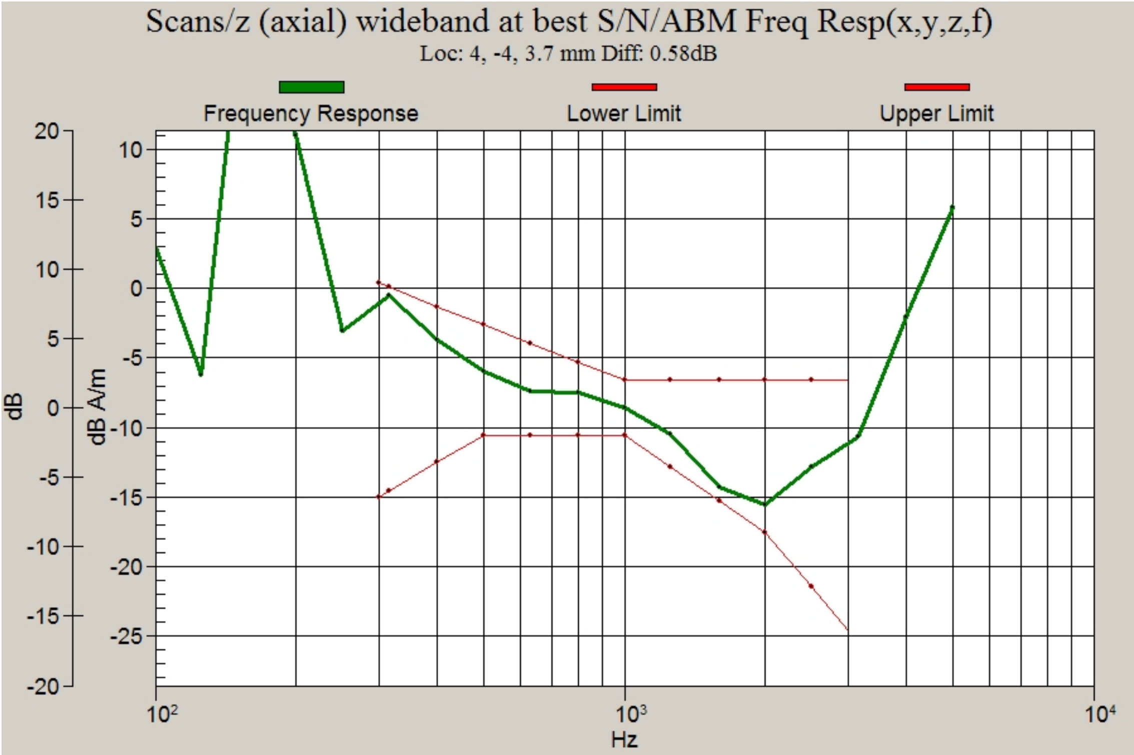


Figure 8.6 Frequency Response of CDMA2000 PCS for Ch600 – Slide up

8.2 T-Coil Coupling Field Intensity

8.2.1 Axial Field Intensity

Cell Phone Mode	Minimum limit (dB A/m)	Result (dB A/m)	Verdict
CDMA2000 Cellular	-18	-2.07	**Pass**
CDMA2000 AWS	-18	-3.05	**Pass**
CDMA2000 PCS	-18	-5.06	**Pass**

8.2.2 Radial Field Intensity

Cell Phone Mode	Minimum limit (dB A/m)	Result (dB A/m)	Verdict
CDMA2000 Cellular	-18	-16.9	**Pass**
CDMA2000 AWS	-18	-11.3	**Pass**
CDMA2000 PCS	-18	-12.5	**Pass**

8.2.3 Frequency Response at Axial Measurement Point

Cell Phone Mode	Verdict
CDMA2000 Cellular	**Pass**
CDMA2000 AWS	**Pass**
CDMA2000 PCS	**Pass**

8.2.4 Signal Quality

Cell Phone Mode	Minimum limit (dB)				Minimum Result (dB)	Verdict
	T1	T2	T3	T4		
CDMA2000 Cellular	0	10	20	30	25	**T3**
CDMA2000 AWS	0	10	20	30	24	**T3**
CDMA2000 PCS	0	10	20	30	25.2	**T3**

9 ANSI C 63.19-2007 LIMITS

This section provides the signal quality requirement for the intended T-Coil signal from a WD. 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. A device is assessed beginning by determining the category of the RF environment in the area of the T-Coil source.

The RF measurements made for the T-Coil evaluation are used to assign the category T1 through T4. The limitation is given in Table 3. This establishes the RF environment presented by the WD to a hearing aid.

Table 3: 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

10 MEASUREMENT UNCERTAINTY

No.	Error source	Type	Uncertainty Value a_i (%)	Prob. Dist.	Div.	ABM1 ci	ABM2 ci	Std. Unc. ABM1 u_i' (%)	Std. Unc. ABM2 u_i' (%)
1	System Repeatability	A	0.016	N	1	1	1	0.016	0.016
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

11 MAIN TEST INSTRUMENTS

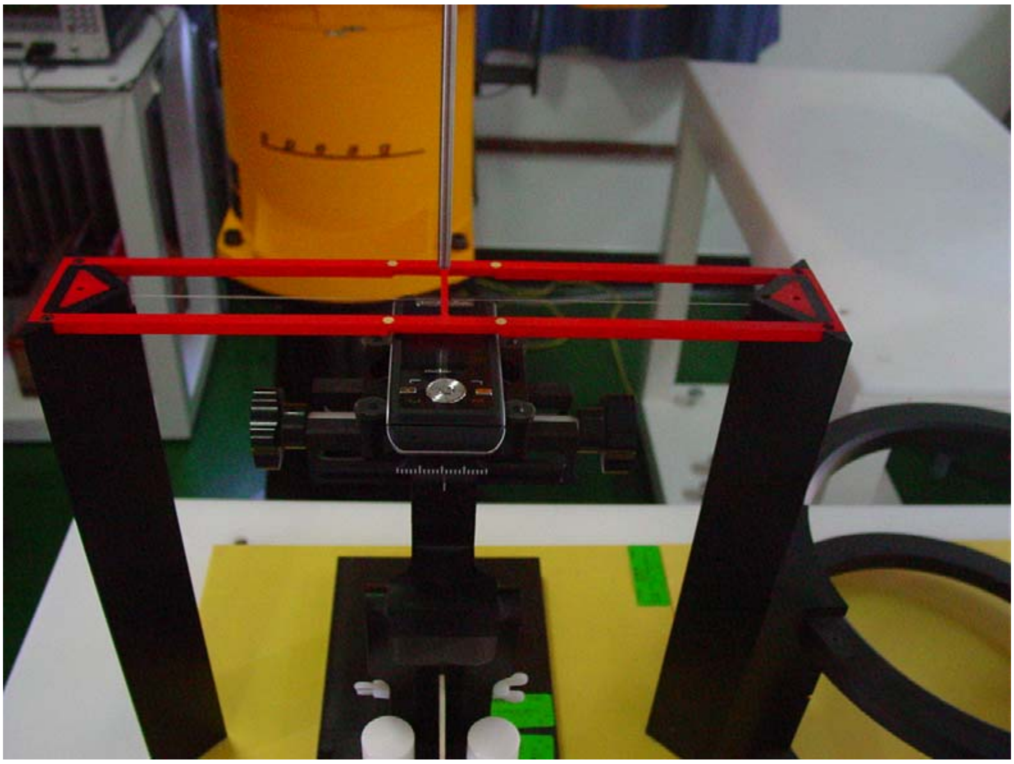
Table 4: List of Main Instruments

No.	Name	Type	Serial Number	Calibration Date	Valid Period
01	Audio Magnetic 1D Field Probe	AM1DV2	1064	December 6, 2008	One year
02	Audio Magnetic Calibration Coil	AMCC	1064	NCR	NCR
03	Audio Measuring Instrument	AMMI	1044	NCR	NCR
04	HAC Test Arch	N/A	1014	NCR	NCR
05	DAE	DAE4	771	November 21, 2008	One year
06	Software	DASY5 V5.0 Build 119.9	N/A	NCR	NCR
07	Software	SEMCAD V13.2 Build 87	N/A	NCR	NCR
08	Universal Radio Communication Tester	CMU 200	105948	August 24, 2008	One year

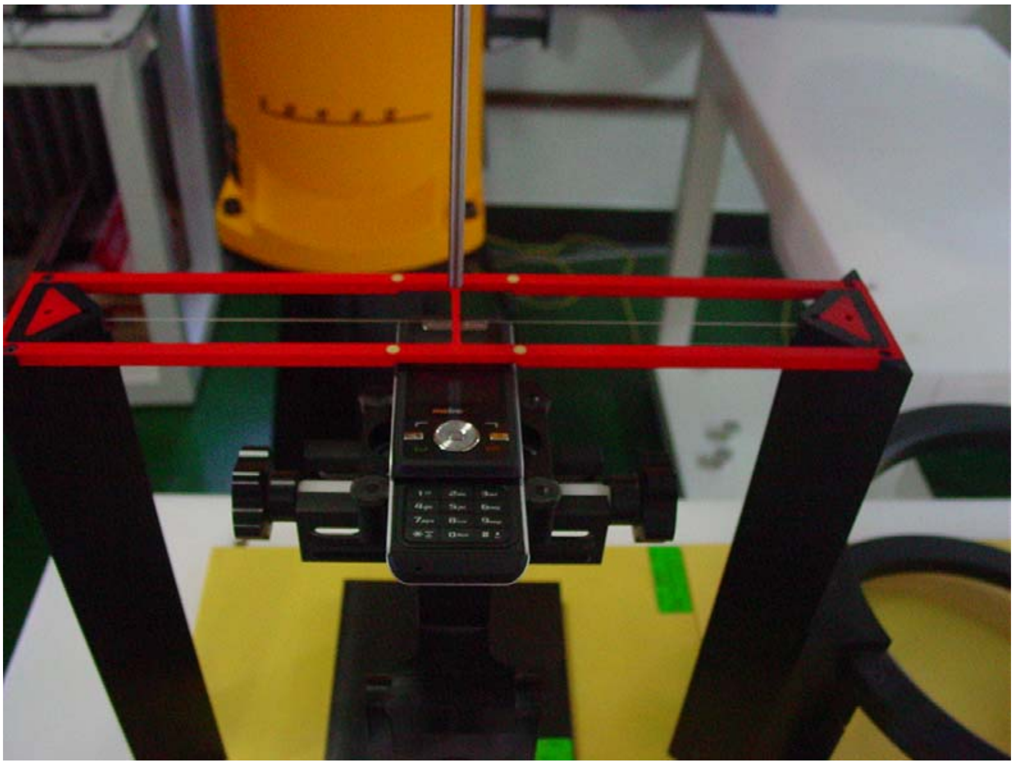
END OF REPORT BODY

ANNEX A TEST LAYOUT

Picture A1: HAC T-Coil System Layout



Picture A2: EUT Positioning – Slide down



Picture A3: EUT Positioning – Slide up

ANNEX B TEST PLOTS

T-Coil CDMA 835 Ch384_RC1 SO3_Voice_X longitudinal – Slide down

Date/Time: 4/29/2009 5:05:53 PM
Electronics: DAE4 Sn771
Medium: Air
Medium parameters used: σ = 0 mho/m, ε_r = 1; ρ = 1 kg/m^3
Ambient Temperature:23.3℃ Liqiud Temperature: 22.5℃
Communication System: CDMA 835; Frequency: 836.52 MHz;Duty Cycle: 1:1
Probe: AM1DV2 - 1064;

Scans/x (longitudinal) 4.2mm 50 x 50/ABM Signal(x,y,z) (121x121x1):

Measurement grid: dx=10mm, dy=10mm
Signal Type: Audio File (.wav) 48k_voice_1kHz_1s.wav
Output Gain: 29.51
Measure Window Start: 0ms
Measure Window Length: 1000ms
BWC applied: 0.157003 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1 = -8.22 dB A/m
BWC Factor = 0.157003 dB
Location: -8.7, 3.7, 3.7 mm

Scans/x (longitudinal) fine 3mm 42 x 6/ABM Signal(x,y,z) (141x21x1):

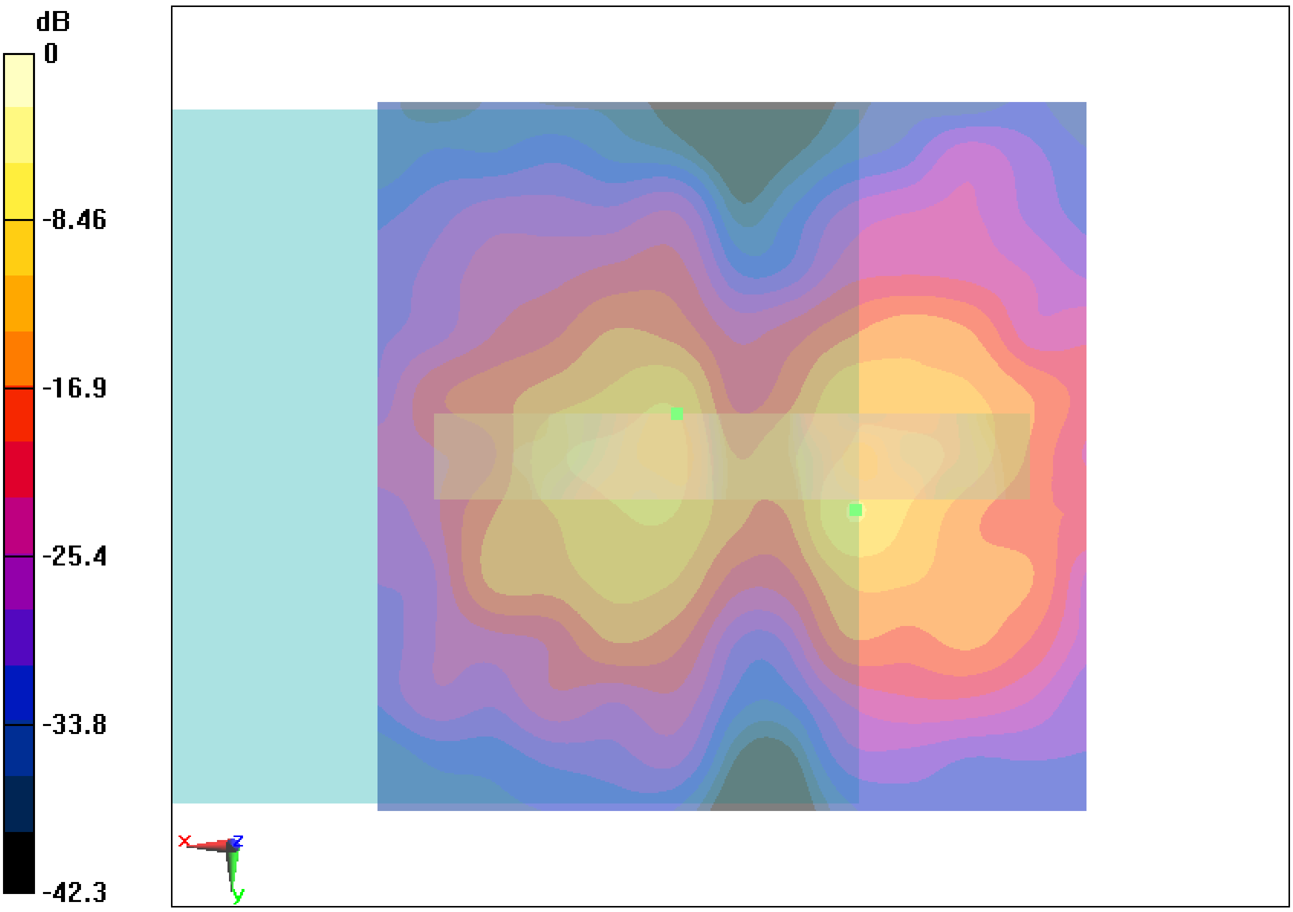
Measurement grid: dx=10mm, dy=10mm
Signal Type: Audio File (.wav) 48k_voice_1kHz_1s.wav
Output Gain: 29.51
Measure Window Start: 0ms
Measure Window Length: 1000ms
BWC applied: 0.157003 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1 = -8.04 dB A/m
BWC Factor = 0.157003 dB
Location: -9, 0.3, 3.7 mm

Scans/x (longitudinal) fine 3mm 42 x 6/ABM SNR(x,y,z) (141x21x1):

Measurement grid: dx=10mm, dy=10mm
Signal Type: Audio File (.wav) 48k_voice_1kHz_1s.wav
Output Gain: 29.51
Measure Window Start: 0ms
Measure Window Length: 1000ms
BWC applied: 0.157003 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1/ABM2 = 25.6 dB
ABM1 comp = -8.66 dB A/m
BWC Factor = 0.157003 dB
Location: 3.9, -3, 3.7 mm



0 dB = 1A/m

Fig B.1 T-Coil CDMA 835 Ch384 – Slide down

T-Coil CDMA 835 Ch384_RC1 SO3_Voice_Y transversal – Slide down

Date/Time: 4/29/2009 5:13:17 PM
Electronics: DAE4 Sn771
Medium: Air
Medium parameters used: σ = 0 mho/m, ε_r = 1; ρ = 1 kg/m^3
Ambient Temperature:23.3℃ Liqiud Temperature: 22.5℃
Communication System: CDMA 835; Frequency: 836.52 MHz;Duty Cycle: 1:1
Probe: AM1DV2 - 1064;

Scans/y (transversal) 4.2mm 50 x 50/ABM Signal(x,y,z) (121x121x1):

Measurement grid: dx=10mm, dy=10mm
Signal Type: Audio File (.wav) 48k_voice_1kHz_1s.wav
Output Gain: 29.51
Measure Window Start: 0ms
Measure Window Length: 1000ms
BWC applied: 0.157003 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1 = -8.29 dB A/m
BWC Factor = 0.157003 dB
Location: -7.9, -4.6, 3.7 mm

Scans/y (transversal) fine 3mm 6 x 42/ABM Signal(x,y,z) (21x141x1):

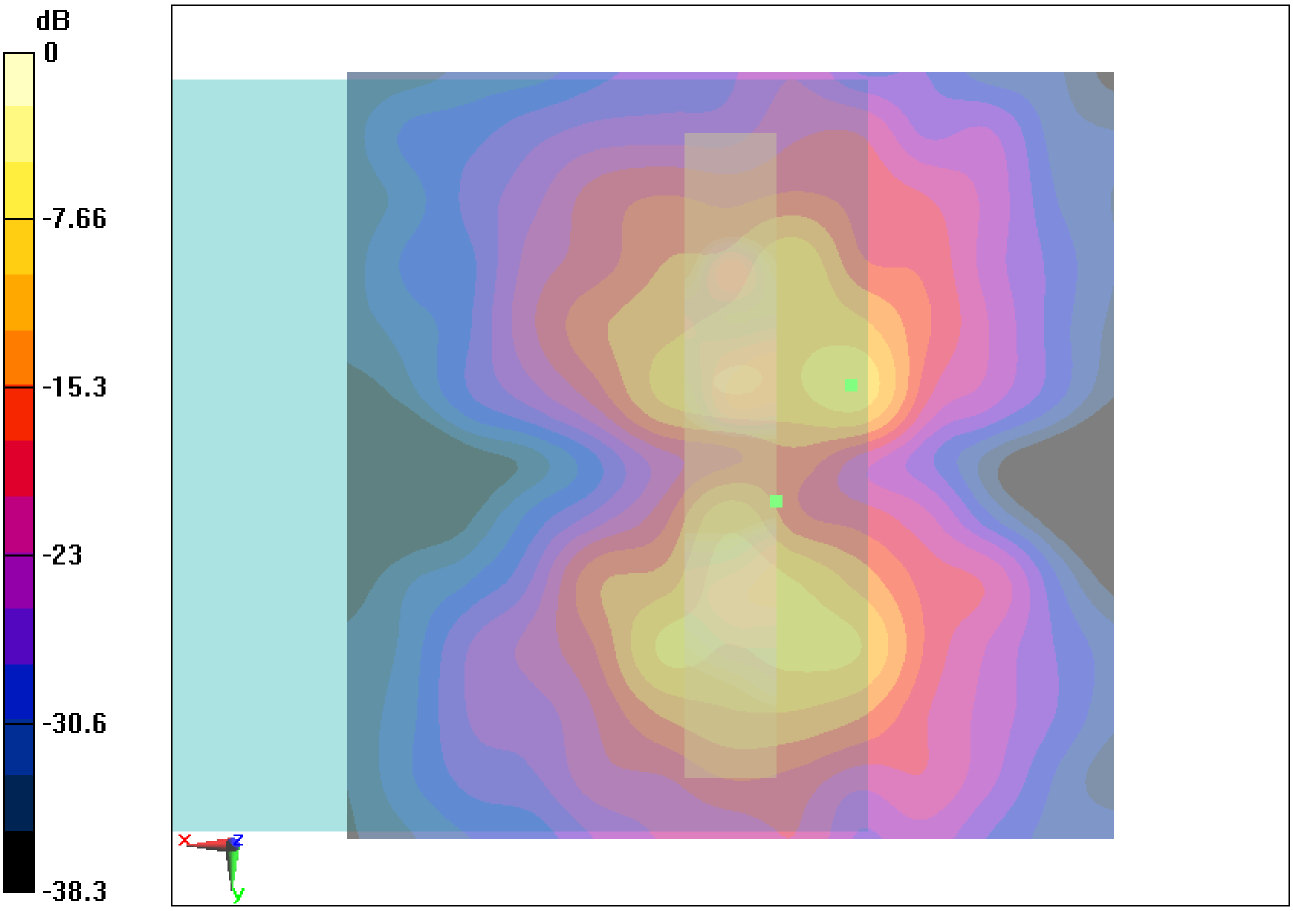
Measurement grid: dx=10mm, dy=10mm
Signal Type: Audio File (.wav) 48k_voice_1kHz_1s.wav
Output Gain: 29.51
Measure Window Start: 0ms
Measure Window Length: 1000ms
BWC applied: 0.157003 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1 = -8.28 dB A/m
BWC Factor = 0.157003 dB
Location: -3, -5.1, 3.7 mm

Scans/y (transversal) fine 3mm 6 x 42/ABM SNR(x,y,z) (21x141x1):

Measurement grid: dx=10mm, dy=10mm
Signal Type: Audio File (.wav) 48k_voice_1kHz_1s.wav
Output Gain: 29.51
Measure Window Start: 0ms
Measure Window Length: 1000ms
BWC applied: 0.157003 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1/ABM2 = 26.1 dB
ABM1 comp = -16.9 dB A/m
BWC Factor = 0.157003 dB
Location: -3, 3, 3.7 mm



0 dB = 1A/m

Fig B.2 T-Coil CDMA 835 Ch384 – Slide down

T-Coil CDMA 835 Ch384_RC1 SO3_Voice_Z Axial – Slide down

Date/Time: 4/29/2009 4:58:34 PM
Electronics: DAE4 Sn771
Medium: Air
Medium parameters used: σ = 0 mho/m, ε_r = 1; ρ = 1 kg/m^3
Ambient Temperature:23.3℃ Liqiud Temperature: 22.5℃
Communication System: CDMA 835; Frequency: 836.52 MHz;Duty Cycle: 1:1
Probe: AM1DV2 - 1064;

Scans/z (axial) 4.2mm 50 x 50/ABM Signal(x,y,z) (121x121x1):

Measurement grid: dx=10mm, dy=10mm
Signal Type: Audio File (.wav) 48k_voice_1kHz_1s.wav
Output Gain: 29.51
Measure Window Start: 0ms
Measure Window Length: 1000ms
BWC applied: 0.157003 dB
Device Reference Point: 0, 0, -6.3 mm
Cursor:
ABM1 = 0.603 dB A/m
BWC Factor = 0.157003 dB
Location: -0.4, 0.4, 3.7 mm

Scans/z (axial) fine 2mm 8 x 8/ABM Signal(x,y,z) (41x41x1):

Measurement grid: dx=10mm, dy=10mm
Signal Type: Audio File (.wav) 48k_voice_1kHz_1s.wav
Output Gain: 29.51
Measure Window Start: 0ms
Measure Window Length: 1000ms
BWC applied: 0.157003 dB
Device Reference Point: 0, 0, -6.3 mm
Cursor:
ABM1 = 0.387 dB A/m
BWC Factor = 0.157003 dB
Location: 2, 4, 3.7 mm

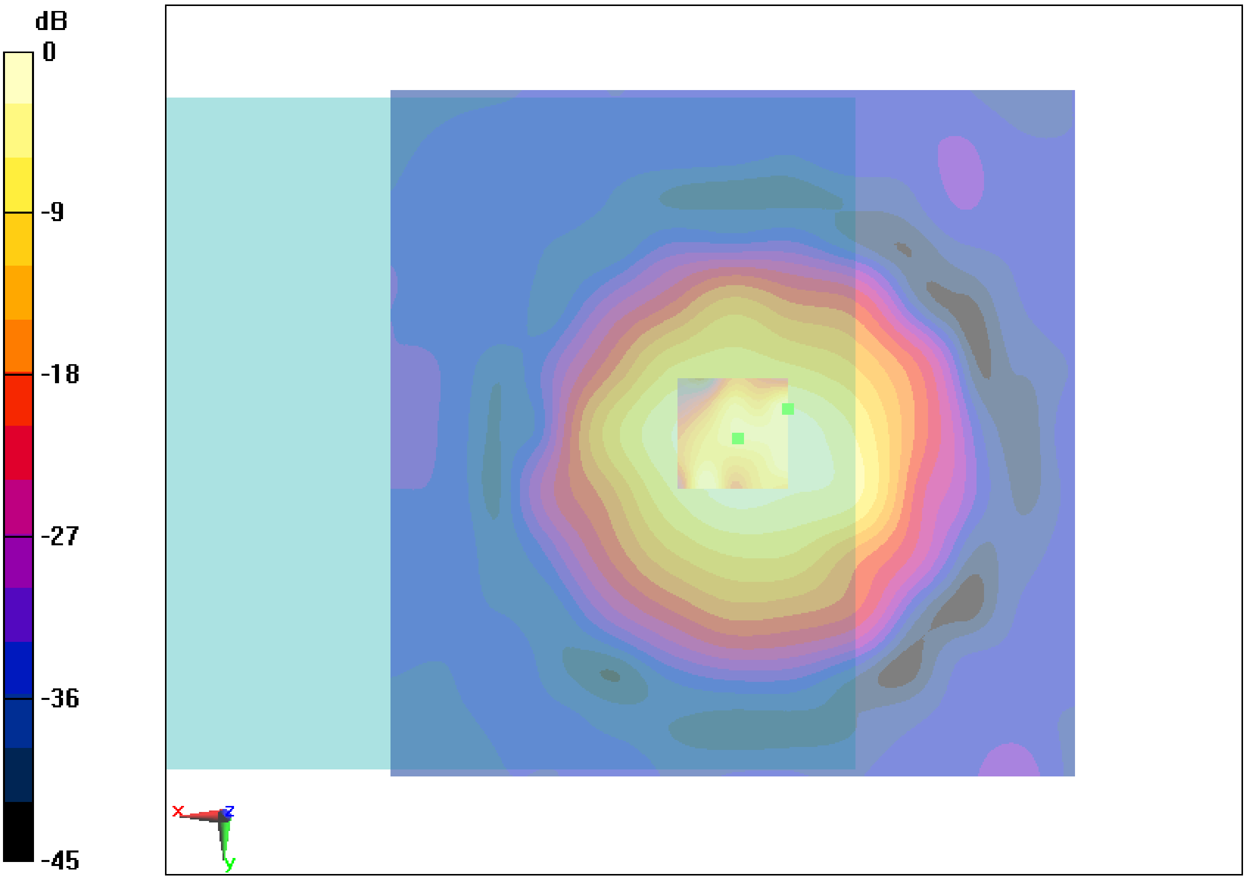
Scans/z (axial) fine 2mm 8 x 8/ABM SNR(x,y,z) (41x41x1):

Measurement grid: dx=10mm, dy=10mm
Signal Type: Audio File (.wav) 48k_voice_1kHz_1s.wav
Output Gain: 29.51
Measure Window Start: 0ms
Measure Window Length: 1000ms

BWC applied: 0.157003 dB
Device Reference Point: 0, 0, -6.3 mm
Cursor:
ABM1/ABM2 = 25 dB
ABM1 comp = 0.357 dB A/m
BWC Factor = 0.157003 dB
Location: -4, -1.8, 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: 57.8
Measure Window Start: 0ms
Measure Window Length: 2000ms
BWC applied: 10.8 dB
Device Reference Point: 0, 0, -6.3 mm
Cursor:
Diff = 0.607 dB
BWC Factor = 10.8 dB
Location: 2, 4, 3.7 mm



0 dB = 1A/m

Fig B.3 T-Coil CDMA 835 Ch384 – Slide down

T-Coil CDMA 835 Ch384_RC1 SO3_Voice_X longitudinal – Slide up

Date/Time: 4/29/2009 5:50:28 PM
Electronics: DAE4 Sn771
Medium: Air
Medium parameters used: σ = 0 mho/m, ε_r = 1; ρ = 1 kg/m^3
Ambient Temperature:23.3℃ Liqiud Temperature: 22.5℃
Communication System: CDMA 835; Frequency: 836.52 MHz;Duty Cycle: 1:1
Probe: AM1DV2 - 1064;

Scans/x (longitudinal) 4.2mm 50 x 50/ABM Signal(x,y,z) (121x121x1):

Measurement grid: dx=10mm, dy=10mm
Signal Type: Audio File (.wav) 48k_voice_1kHz_1s.wav
Output Gain: 29.51
Measure Window Start: 0ms
Measure Window Length: 1000ms
BWC applied: 0.157003 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1 = -8.18 dB A/m
BWC Factor = 0.157003 dB
Location: 7.1, 0, 3.7 mm

Scans/x (longitudinal) fine 3mm 42 x 6/ABM Signal(x,y,z) (141x21x1):

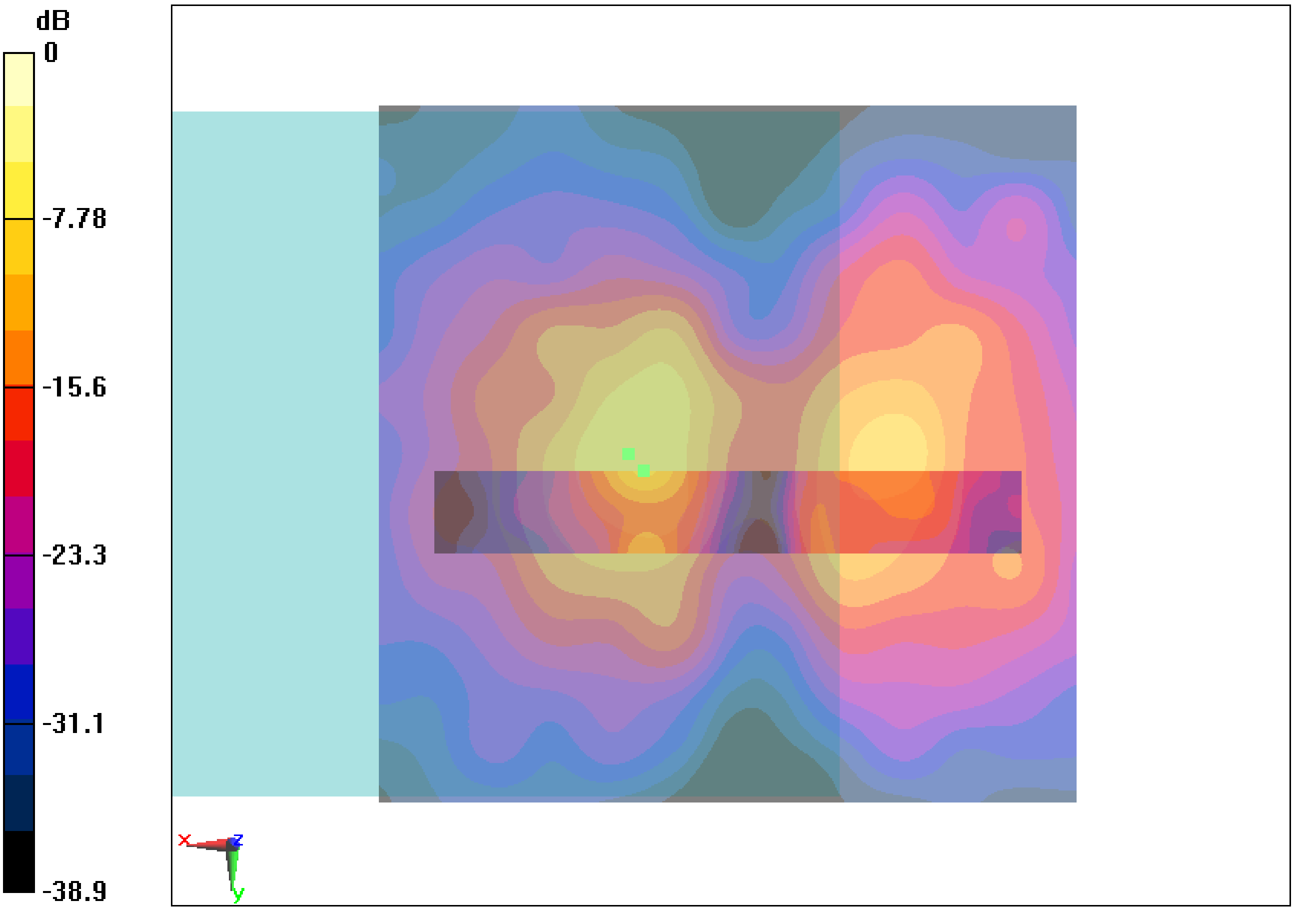
Measurement grid: dx=10mm, dy=10mm
Signal Type: Audio File (.wav) 48k_voice_1kHz_1s.wav
Output Gain: 29.51
Measure Window Start: 0ms
Measure Window Length: 1000ms
BWC applied: 0.157003 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1 = -5.55 dB A/m
BWC Factor = 0.157003 dB
Location: 6, 1.2, 3.7 mm

Scans/x (longitudinal) fine 3mm 42 x 6/ABM SNR(x,y,z) (141x21x1):

Measurement grid: dx=10mm, dy=10mm
Signal Type: Audio File (.wav) 48k_voice_1kHz_1s.wav
Output Gain: 29.51
Measure Window Start: 0ms
Measure Window Length: 1000ms
BWC applied: 0.157003 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1/ABM2 = 26.5 dB
ABM1 comp = -5.55 dB A/m
BWC Factor = 0.157003 dB
Location: 6, 1.2, 3.7 mm



0 dB = 1A/m

Fig B.4 T-Coil CDMA 835 Ch384 – Slide up

T-Coil CDMA 835 Ch384_RC1 SO3_Voice_Y transversal – Slide up

Date/Time: 4/29/2009 5:57:49 PM
Electronics: DAE4 Sn771
Medium: Air
Medium parameters used: σ = 0 mho/m, ε_r = 1; ρ = 1 kg/m^3
Ambient Temperature:23.3℃ Liqiud Temperature: 22.5℃
Communication System: CDMA 835; Frequency: 836.52 MHz;Duty Cycle: 1:1
Probe: AM1DV2 - 1064;

Scans/y (transversal) 4.2mm 50 x 50/ABM Signal(x,y,z) (121x121x1):

Measurement grid: dx=10mm, dy=10mm
Signal Type: Audio File (.wav) 48k_voice_1kHz_1s.wav
Output Gain: 29.51
Measure Window Start: 0ms
Measure Window Length: 1000ms
BWC applied: 0.157003 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1 = -6.03 dB A/m
BWC Factor = 0.157003 dB
Location: -4.2, -7.9, 3.7 mm

Scans/y (transversal) fine 3mm 6 x 42/ABM Signal(x,y,z) (21x141x1):

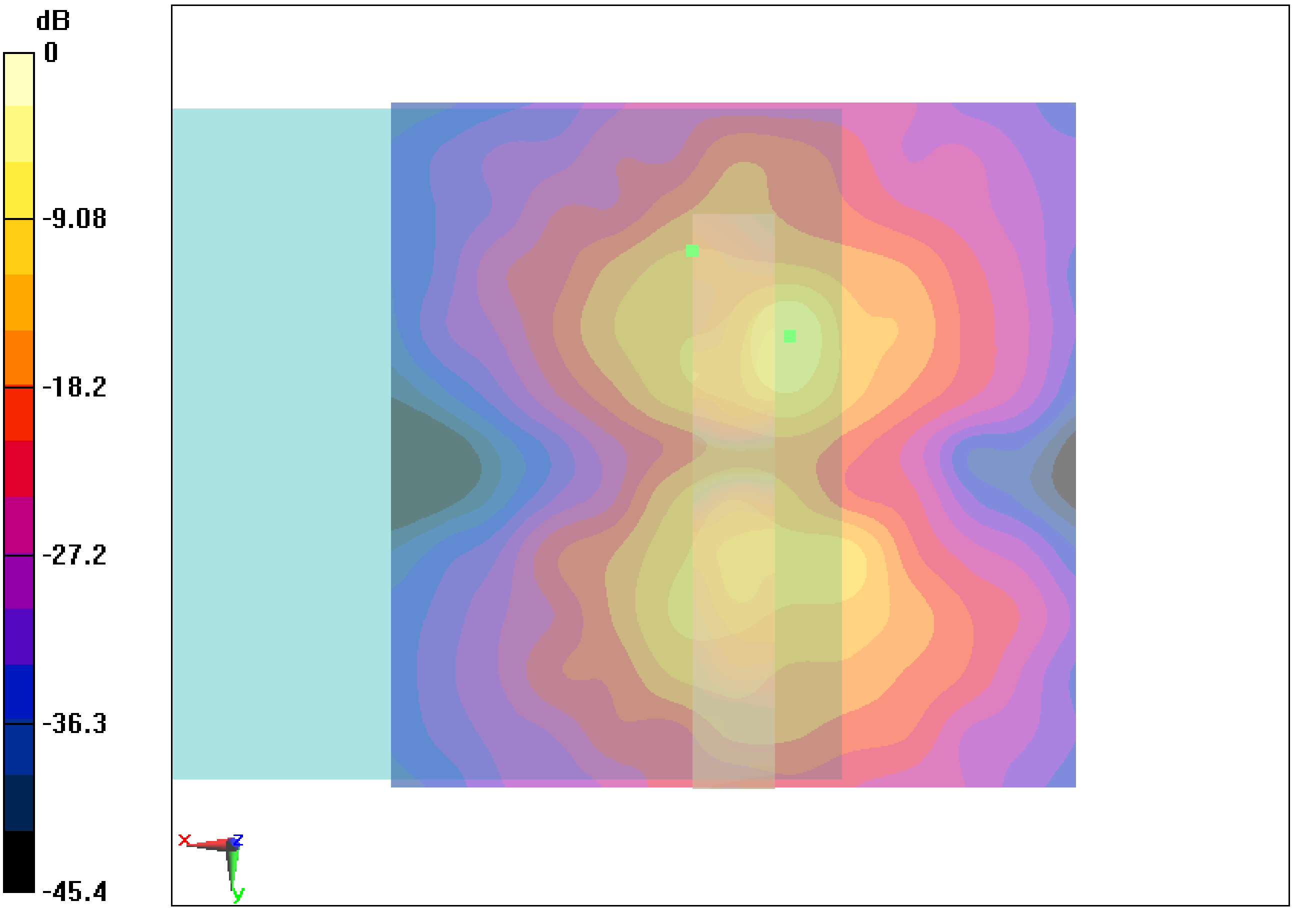
Measurement grid: dx=10mm, dy=10mm
Signal Type: Audio File (.wav) 48k_voice_1kHz_1s.wav
Output Gain: 29.51
Measure Window Start: 0ms
Measure Window Length: 1000ms
BWC applied: 0.157003 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1 = -6.8 dB A/m
BWC Factor = 0.157003 dB
Location: -3, -5.7, 3.7 mm

Scans/y (transversal) fine 3mm 6 x 42/ABM SNR(x,y,z) (21x141x1):

Measurement grid: dx=10mm, dy=10mm
Signal Type: Audio File (.wav) 48k_voice_1kHz_1s.wav
Output Gain: 29.51
Measure Window Start: 0ms
Measure Window Length: 1000ms
BWC applied: 0.157003 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1/ABM2 = 33 dB
ABM1 comp = -11.6 dB A/m
BWC Factor = 0.157003 dB
Location: 3, -14.1, 3.7 mm



0 dB = 1A/m

Fig B.5 T-Coil CDMA 835 Ch384 – Slide up

T-Coil CDMA 835 Ch384_RC1 SO3_Voice_Z Axial – Slide up

Date/Time: 4/29/2009 5:43:08 PM
Electronics: DAE4 Sn771
Medium: Air
Medium parameters used: σ = 0 mho/m, ε_r = 1; ρ = 1 kg/m^3
Ambient Temperature:23.3℃ Liqiud Temperature: 22.5℃
Communication System: CDMA 835; Frequency: 836.52 MHz;Duty Cycle: 1:1
Probe: AM1DV2 - 1064;

Scans/z (axial) 4.2mm 50 x 50/ABM Signal(x,y,z) (121x121x1):

Measurement grid: dx=10mm, dy=10mm
Signal Type: Audio File (.wav) 48k_voice_1kHz_1s.wav
Output Gain: 29.51
Measure Window Start: 0ms
Measure Window Length: 1000ms
BWC applied: 0.157003 dB
Device Reference Point: 0, 0, -6.3 mm
Cursor:
ABM1 = 0.591 dB A/m
BWC Factor = 0.157003 dB
Location: 0, 3.7, 3.7 mm

Scans/z (axial) fine 2mm 8 x 8/ABM Signal(x,y,z) (41x41x1):

Measurement grid: dx=10mm, dy=10mm
Signal Type: Audio File (.wav) 48k_voice_1kHz_1s.wav
Output Gain: 29.51
Measure Window Start: 0ms
Measure Window Length: 1000ms
BWC applied: 0.157003 dB
Device Reference Point: 0, 0, -6.3 mm
Cursor:
ABM1 = 1.75 dB A/m
BWC Factor = 0.157003 dB
Location: -1.2, 4, 3.7 mm

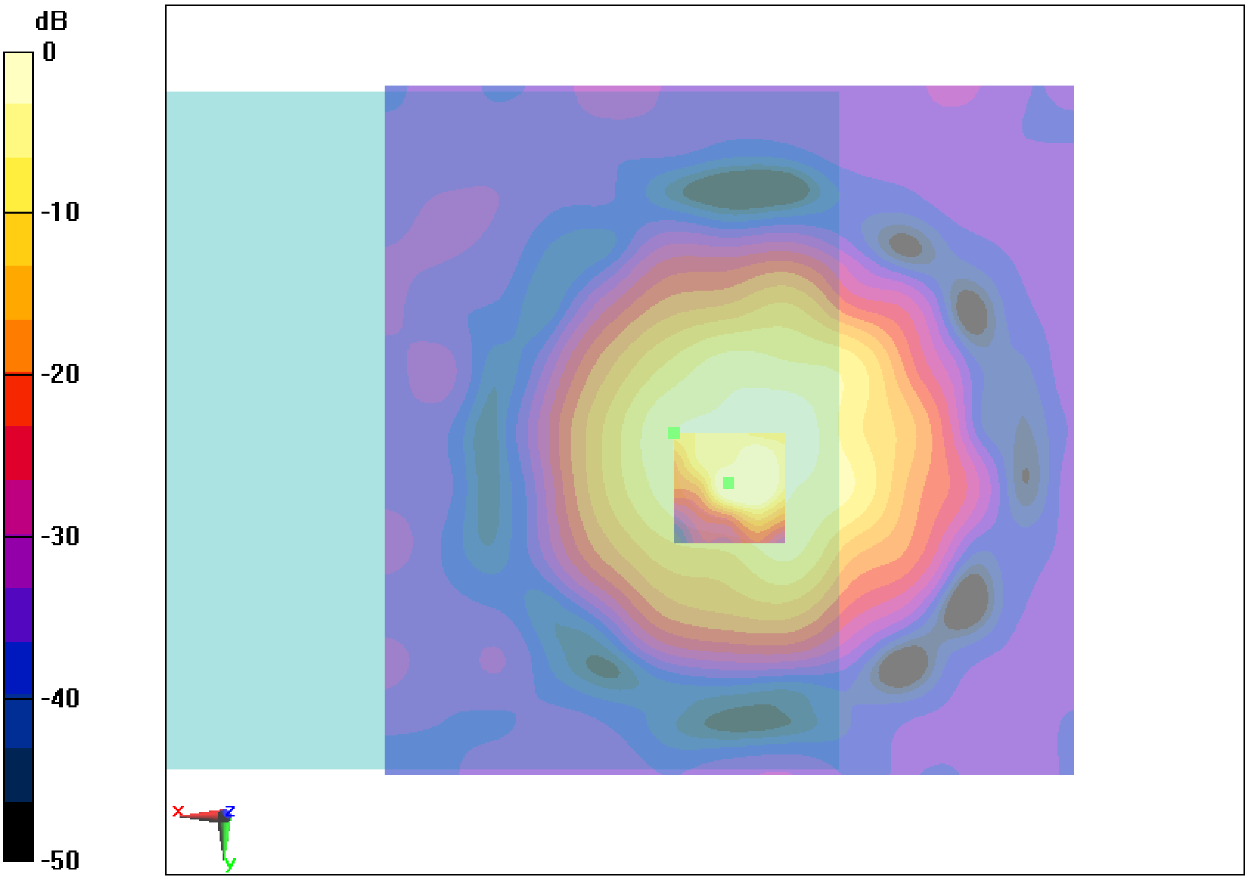
Scans/z (axial) fine 2mm 8 x 8/ABM SNR(x,y,z) (41x41x1):

Measurement grid: dx=10mm, dy=10mm
Signal Type: Audio File (.wav) 48k_voice_1kHz_1s.wav
Output Gain: 29.51
Measure Window Start: 0ms
Measure Window Length: 1000ms

BWC applied: 0.157003 dB
Device Reference Point: 0, 0, -6.3 mm
Cursor:
ABM1/ABM2 = 36.1 dB
ABM1 comp = -2.07 dB A/m
BWC Factor = 0.157003 dB
Location: 4, 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: 57.8
Measure Window Start: 0ms
Measure Window Length: 2000ms
BWC applied: 10.8 dB
Device Reference Point: 0, 0, -6.3 mm
Cursor:
Diff = 0.677 dB
BWC Factor = 10.8 dB
Location: 4, 0.2, 3.7 mm



0 dB = 1A/m

Fig B.6 T-Coil CDMA 835 Ch384 – Slide up

T-Coil CDMA 1700 Ch450_RC1 SO3_Voice_X longitudinal – Slide down

Date/Time: 4/29/2009 4:27:04 PM
Electronics: DAE4 Sn771
Medium: Air
Medium parameters used: σ = 0 mho/m, ε_r = 1; ρ = 1 kg/m^3
Ambient Temperature:23.3℃ Liqiud Temperature: 22.5℃
Communication System: CDMA 1700; Frequency: 1732.5 MHz;Duty Cycle: 1:1
Probe: AM1DV2 - 1064;

Scans/x (longitudinal) 4.2mm 50 x 50/ABM Signal(x,y,z) (121x121x1):

Measurement grid: dx=10mm, dy=10mm
Signal Type: Audio File (.wav) 48k_voice_1kHz_1s.wav
Output Gain: 29.51
Measure Window Start: 0ms
Measure Window Length: 1000ms
BWC applied: 0.157003 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1 = -7.56 dB A/m
BWC Factor = 0.157003 dB
Location: -12.1, 1.7, 3.7 mm

Scans/x (longitudinal) fine 3mm 42 x 6/ABM Signal(x,y,z) (141x21x1):

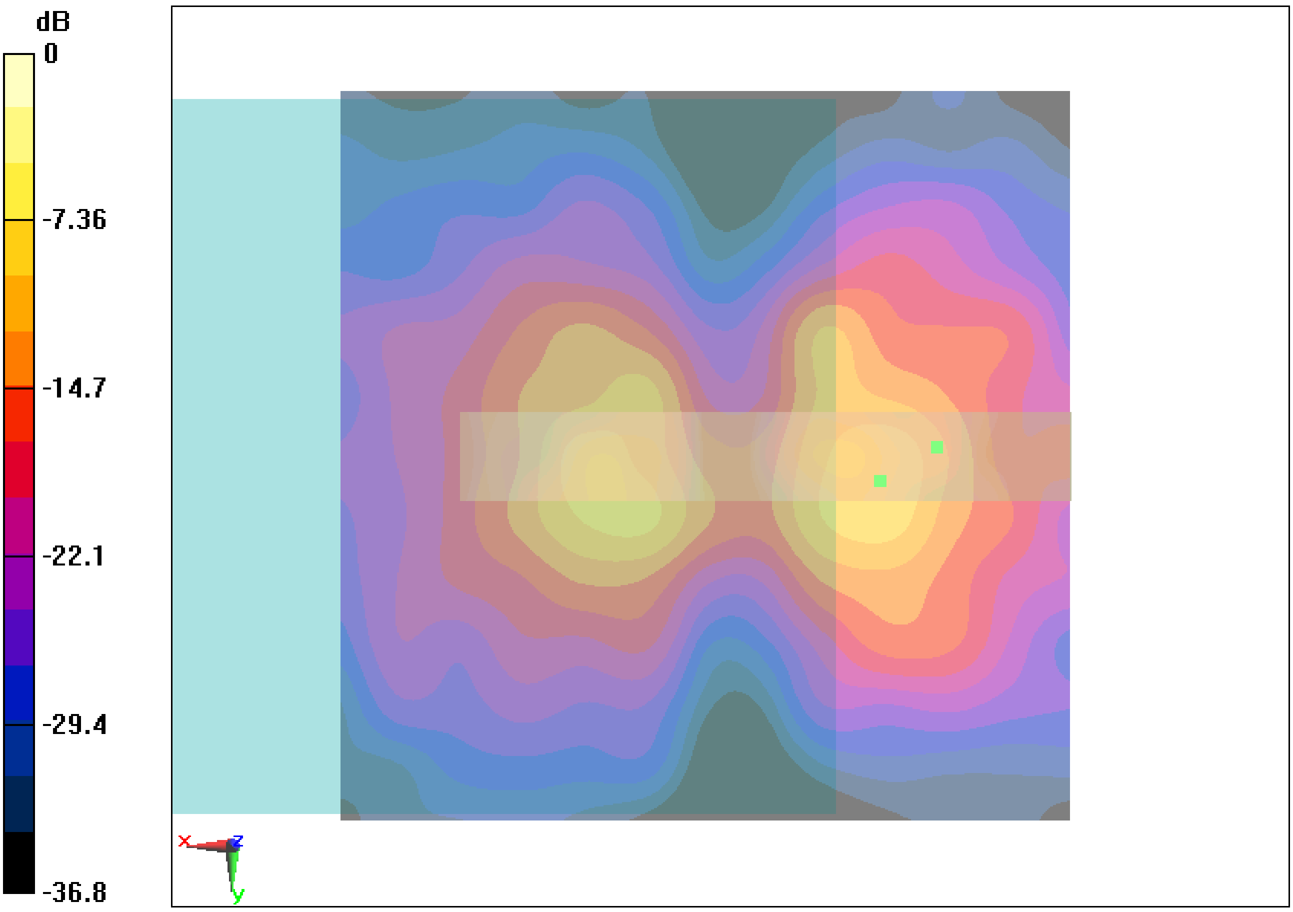
Measurement grid: dx=10mm, dy=10mm
Signal Type: Audio File (.wav) 48k_voice_1kHz_1s.wav
Output Gain: 29.51
Measure Window Start: 0ms
Measure Window Length: 1000ms
BWC applied: 0.157003 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1 = -7.99 dB A/m
BWC Factor = 0.157003 dB
Location: -9.3, 0, 3.7 mm

Scans/x (longitudinal) fine 3mm 42 x 6/ABM SNR(x,y,z) (141x21x1):

Measurement grid: dx=10mm, dy=10mm
Signal Type: Audio File (.wav) 48k_voice_1kHz_1s.wav
Output Gain: 29.51
Measure Window Start: 0ms
Measure Window Length: 1000ms
BWC applied: 0.157003 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1/ABM2 = 24 dB
ABM1 comp = -11.3 dB A/m
BWC Factor = 0.157003 dB
Location: -15.9, -0.6, 3.7 mm



0 dB = 1A/m

Fig B.7 T-Coil CDMA 1700 Ch450 – Slide down

T-Coil CDMA 1700 Ch450_RC1 SO3_Voice_Y transversal – Slide down

Date/Time: 4/29/2009 4:34:27 PM
Electronics: DAE4 Sn771
Medium: Air
Medium parameters used: $\sigma = 0$ mho/m, $\varepsilon_r = 1$; $\rho = 1$ kg/m^3
Ambient Temperature:23.3℃ Liqiud Temperature: 22.5℃
Communication System: CDMA 1700; Frequency: 1732.5 MHz;Duty Cycle: 1:1
Probe: AM1DV2 - 1064;

Scans/y (transversal) 4.2mm 50 x 50/ABM Signal(x,y,z) (121x121x1):

Measurement grid: dx=10mm, dy=10mm
Signal Type: Audio File (.wav) 48k_voice_1kHz_1s.wav
Output Gain: 29.51
Measure Window Start: 0ms
Measure Window Length: 1000ms
BWC applied: 0.157003 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1 = -8.92 dB A/m
BWC Factor = 0.157003 dB
Location: -1.2, 8.3, 3.7 mm

Scans/y (transversal) fine 3mm 6 x 42/ABM Signal(x,y,z) (21x141x1):

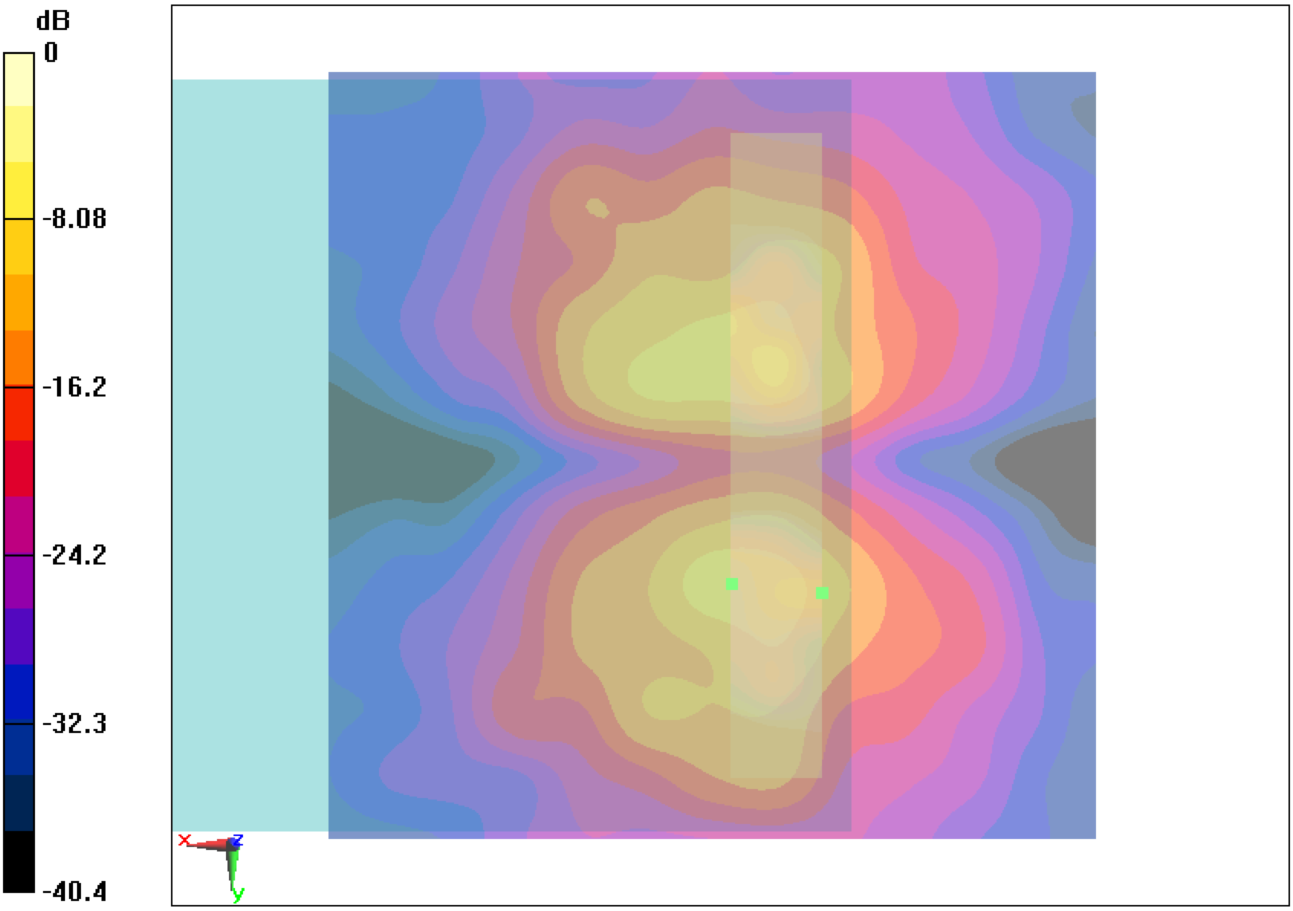
Measurement grid: dx=10mm, dy=10mm
Signal Type: Audio File (.wav) 48k_voice_1kHz_1s.wav
Output Gain: 29.51
Measure Window Start: 0ms
Measure Window Length: 1000ms
BWC applied: 0.157003 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1 = -5.75 dB A/m
BWC Factor = 0.157003 dB
Location: -3.9, -6, 3.7 mm

Scans/y (transversal) fine 3mm 6 x 42/ABM SNR(x, y, z) (21x141x1):

Measurement grid: dx=10mm, dy=10mm
Signal Type: Audio File (.wav) 48k_voice_1kHz_1s.wav
Output Gain: 29.51
Measure Window Start: 0ms
Measure Window Length: 1000ms
BWC applied: 0.157003 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1/ABM2 = 29.1 dB
ABM1 comp = -6.9 dB A/m
BWC Factor = 0.157003 dB
Location: -7.2, 9, 3.7 mm



0 dB = 1A/m

Fig B.8 T-Coil CDMA 1700 Ch450 – Slide down

T-Coil CDMA 1700 Ch450_RC1 SO3_Voice_Z Axial – Slide down

Date/Time: 4/29/2009 4:19:46 PM
Electronics: DAE4 Sn771
Medium: Air
Medium parameters used: σ = 0 mho/m, ε_r = 1; ρ = 1 kg/m^3
Ambient Temperature:23.3℃ Liqiud Temperature: 22.5℃
Communication System: CDMA 1700; Frequency: 1732.5 MHz;Duty Cycle: 1:1
Probe: AM1DV2 - 1064;

Scans/z (axial) 4.2mm 50 x 50/ABM Signal(x,y,z) (121x121x1):

Measurement grid: dx=10mm, dy=10mm
Signal Type: Audio File (.wav) 48k_voice_1kHz_1s.wav
Output Gain: 29.51
Measure Window Start: 0ms
Measure Window Length: 1000ms
BWC applied: 0.157003 dB
Device Reference Point: 0, 0, -6.3 mm
Cursor:
ABM1 = 0.413 dB A/m
BWC Factor = 0.157003 dB
Location: -3.7, -2.1, 3.7 mm

Scans/z (axial) fine 2mm 8 x 8/ABM Signal(x,y,z) (41x41x1):

Measurement grid: dx=10mm, dy=10mm
Signal Type: Audio File (.wav) 48k_voice_1kHz_1s.wav
Output Gain: 29.51
Measure Window Start: 0ms
Measure Window Length: 1000ms
BWC applied: 0.157003 dB
Device Reference Point: 0, 0, -6.3 mm
Cursor:
ABM1 = 4.01 dB A/m
BWC Factor = 0.157003 dB
Location: -2.2, 1.8, 3.7 mm

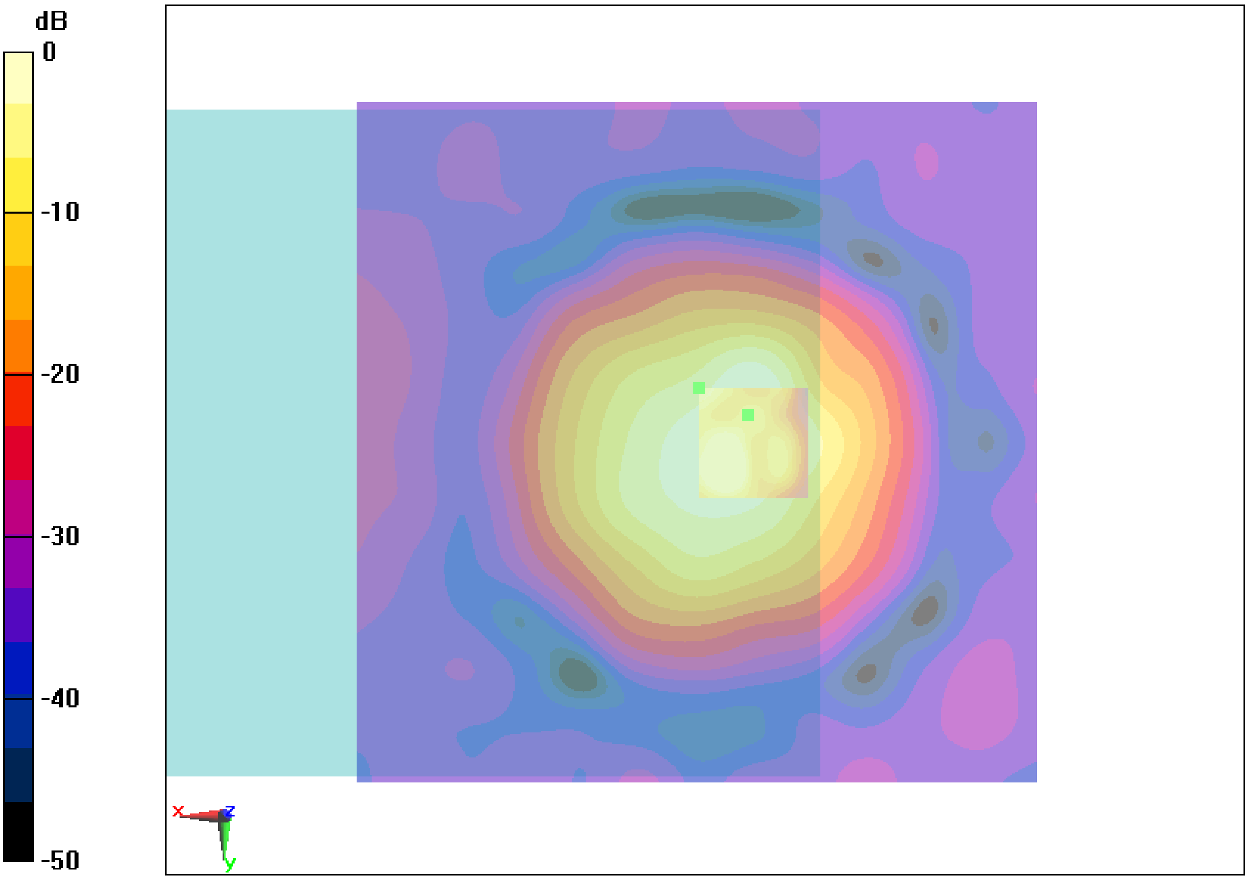
Scans/z (axial) fine 2mm 8 x 8/ABM SNR(x,y,z) (41x41x1):

Measurement grid: dx=10mm, dy=10mm
Signal Type: Audio File (.wav) 48k_voice_1kHz_1s.wav
Output Gain: 29.51
Measure Window Start: 0ms
Measure Window Length: 1000ms

BWC applied: 0.157003 dB
Device Reference Point: 0, 0, -6.3 mm
Cursor:
ABM1/ABM2 = 38.4 dB
ABM1 comp = 0.262 dB A/m
BWC Factor = 0.157003 dB
Location: -0.2, -4, 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: 57.8
Measure Window Start: 0ms
Measure Window Length: 2000ms
BWC applied: 10.8 dB
Device Reference Point: 0, 0, -6.3 mm
Cursor:
Diff = 0.832 dB
BWC Factor = 10.8 dB
Location: -0.2, -4, 3.7 mm



0 dB = 1A/m

Fig B.9 T-Coil CDMA 1700 Ch450 – Slide down

T-Coil CDMA 1700 Ch450_RC1 SO3_Voice_X longitudinal – Slide up

Date/Time: 4/29/2009 6:29:23 PM
Electronics: DAE4 Sn771
Medium: Air
Medium parameters used: σ = 0 mho/m, ε_r = 1; ρ = 1 kg/m^3
Ambient Temperature:23.3℃ Liqiud Temperature: 22.5℃
Communication System: CDMA 1700; Frequency: 1732.5 MHz;Duty Cycle: 1:1
Probe: AM1DV2 - 1064;

Scans/x (longitudinal) 4.2mm 50 x 50/ABM Signal(x,y,z) (121x121x1):

Measurement grid: dx=10mm, dy=10mm
Signal Type: Audio File (.wav) 48k_voice_1kHz_1s.wav
Output Gain: 29.51
Measure Window Start: 0ms
Measure Window Length: 1000ms
BWC applied: 0.157003 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1 = -5.6 dB A/m
BWC Factor = 0.157003 dB
Location: -8.3, 3.7, 3.7 mm

Scans/x (longitudinal) fine 3mm 42 x 6/ABM Signal(x,y,z) (141x21x1):

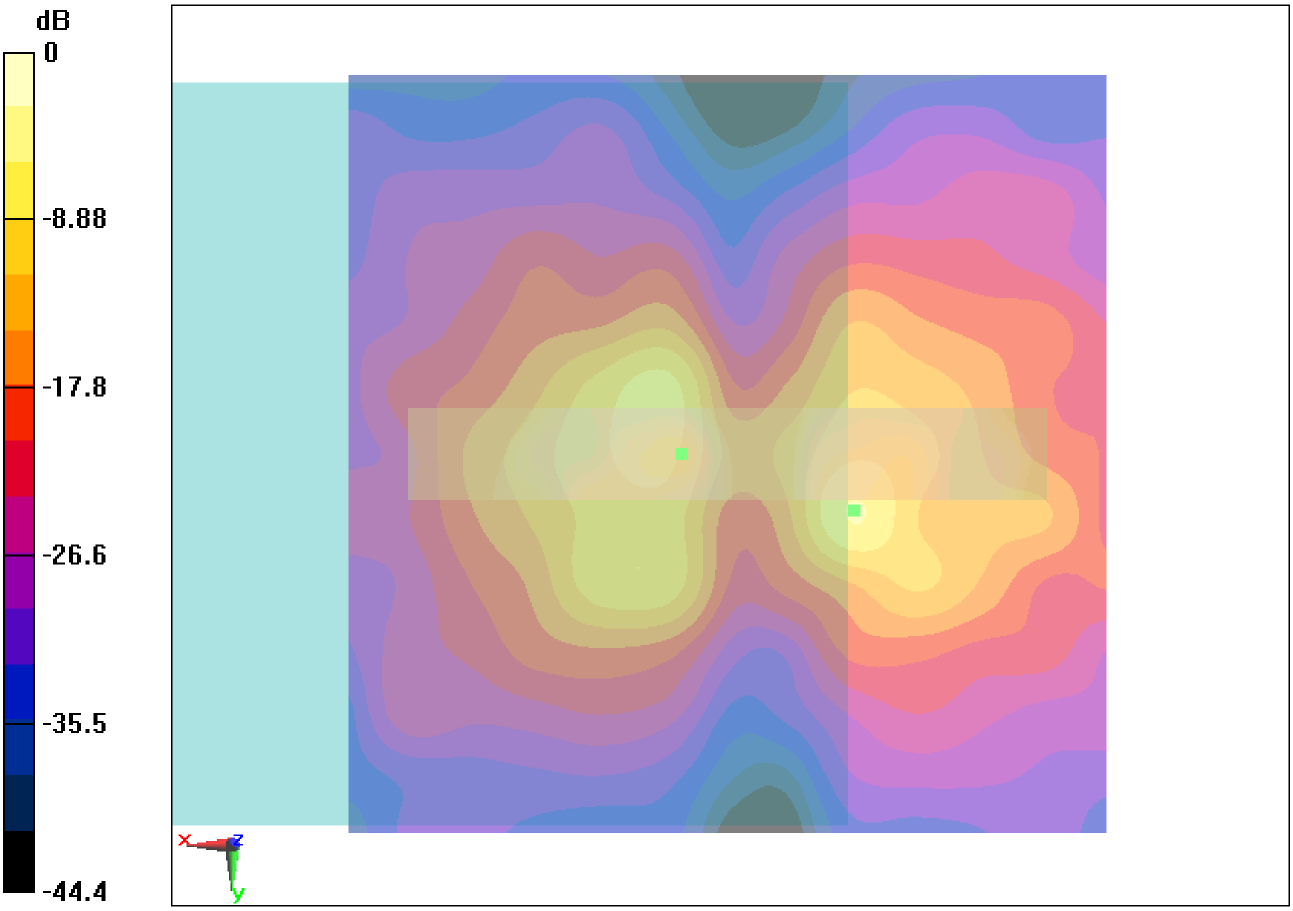
Measurement grid: dx=10mm, dy=10mm
Signal Type: Audio File (.wav) 48k_voice_1kHz_1s.wav
Output Gain: 29.51
Measure Window Start: 0ms
Measure Window Length: 1000ms
BWC applied: 0.157003 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1 = -7.75 dB A/m
BWC Factor = 0.157003 dB
Location: 3.6, 0, 3.7 mm

Scans/x (longitudinal) fine 3mm 42 x 6/ABM SNR(x,y,z) (141x21x1):

Measurement grid: dx=10mm, dy=10mm
Signal Type: Audio File (.wav) 48k_voice_1kHz_1s.wav
Output Gain: 29.51
Measure Window Start: 0ms
Measure Window Length: 1000ms
BWC applied: 0.157003 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1/ABM2 = 26.5 dB
ABM1 comp = -7.95 dB A/m
BWC Factor = 0.157003 dB
Location: 3, 0, 3.7 mm



0 dB = 1A/m

Fig B.10 T-Coil CDMA 1700 Ch450 – Slide up

T-Coil CDMA 1700 Ch450_RC1 SO3_Voice_Y transversal – Slide up

Date/Time: 4/29/2009 6:36:45 PM
Electronics: DAE4 Sn771
Medium: Air
Medium parameters used: σ = 0 mho/m, ε_r = 1; ρ = 1 kg/m^3
Ambient Temperature:23.3℃ Liqiud Temperature: 22.5℃
Communication System: CDMA 1700; Frequency: 1732.5 MHz;Duty Cycle: 1:1
Probe: AM1DV2 - 1064;

Scans/y (transversal) 4.2mm 50 x 50/ABM Signal(x,y,z) (121x121x1):

Measurement grid: dx=10mm, dy=10mm
Signal Type: Audio File (.wav) 48k_voice_1kHz_1s.wav
Output Gain: 29.51
Measure Window Start: 0ms
Measure Window Length: 1000ms
BWC applied: 0.157003 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1 = -7.48 dB A/m
BWC Factor = 0.157003 dB
Location: -0.4, -5.8, 3.7 mm

Scans/y (transversal) fine 3mm 6 x 42/ABM Signal(x,y,z) (21x141x1):

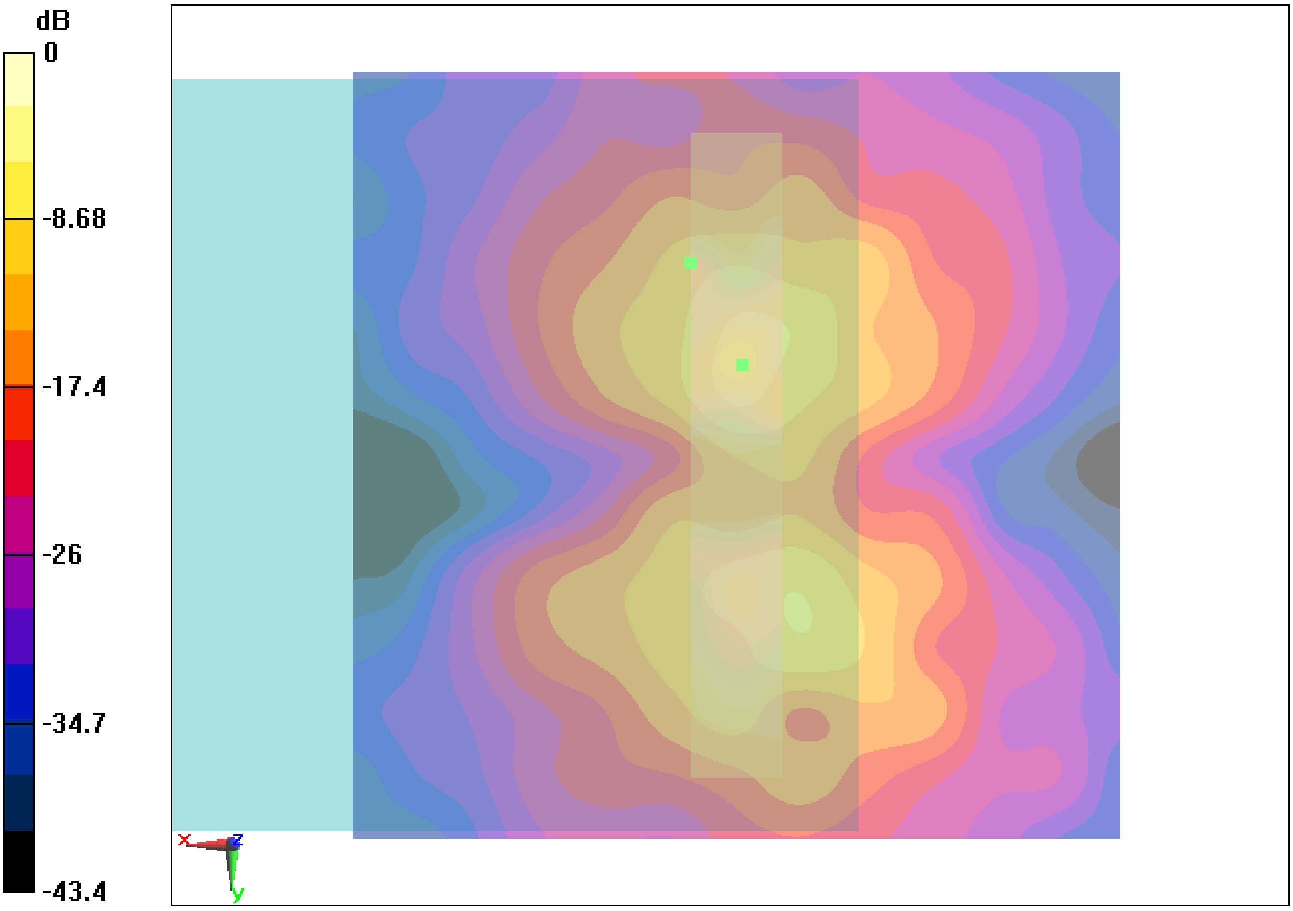
Measurement grid: dx=10mm, dy=10mm
Signal Type: Audio File (.wav) 48k_voice_1kHz_1s.wav
Output Gain: 29.51
Measure Window Start: 0ms
Measure Window Length: 1000ms
BWC applied: 0.157003 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1 = -6.7 dB A/m
BWC Factor = 0.157003 dB
Location: 0, -6, 3.7 mm

Scans/y (transversal) fine 3mm 6 x 42/ABM SNR(x,y,z) (21x141x1):

Measurement grid: dx=10mm, dy=10mm
Signal Type: Audio File (.wav) 48k_voice_1kHz_1s.wav
Output Gain: 29.51
Measure Window Start: 0ms
Measure Window Length: 1000ms
BWC applied: 0.157003 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1/ABM2 = 36.2 dB
ABM1 comp = -10 dB A/m
BWC Factor = 0.157003 dB
Location: 3, -12.6, 3.7 mm



0 dB = 1A/m

Fig B.11 T-Coil CDMA 1700 Ch450 – Slide up

T-Coil CDMA 1700 Ch450_RC1 SO3_Voice_Z Axial – Slide up

Date/Time: 4/29/2009 6:22:04 PM
Electronics: DAE4 Sn771
Medium: Air
Medium parameters used: σ = 0 mho/m, ε_r = 1; ρ = 1 kg/m^3
Ambient Temperature:23.3℃ Liqiud Temperature: 22.5℃
Communication System: CDMA 1700; Frequency: 1732.5 MHz;Duty Cycle: 1:1
Probe: AM1DV2 - 1064;

Scans/z (axial) 4.2mm 50 x 50/ABM Signal(x,y,z) (121x121x1):

Measurement grid: dx=10mm, dy=10mm
Signal Type: Audio File (.wav) 48k_voice_1kHz_1s.wav
Output Gain: 29.51
Measure Window Start: 0ms
Measure Window Length: 1000ms
BWC applied: 0.157003 dB
Device Reference Point: 0, 0, -6.3 mm
Cursor:
ABM1 = -0.055 dB A/m
BWC Factor = 0.157003 dB
Location: -0.4, 2.1, 3.7 mm

Scans/z (axial) fine 2mm 8 x 8/ABM Signal(x,y,z) (41x41x1):

Measurement grid: dx=10mm, dy=10mm
Signal Type: Audio File (.wav) 48k_voice_1kHz_1s.wav
Output Gain: 29.51
Measure Window Start: 0ms
Measure Window Length: 1000ms
BWC applied: 0.157003 dB
Device Reference Point: 0, 0, -6.3 mm
Cursor:
ABM1 = 2.28 dB A/m
BWC Factor = 0.157003 dB
Location: -4, 0.2, 3.7 mm

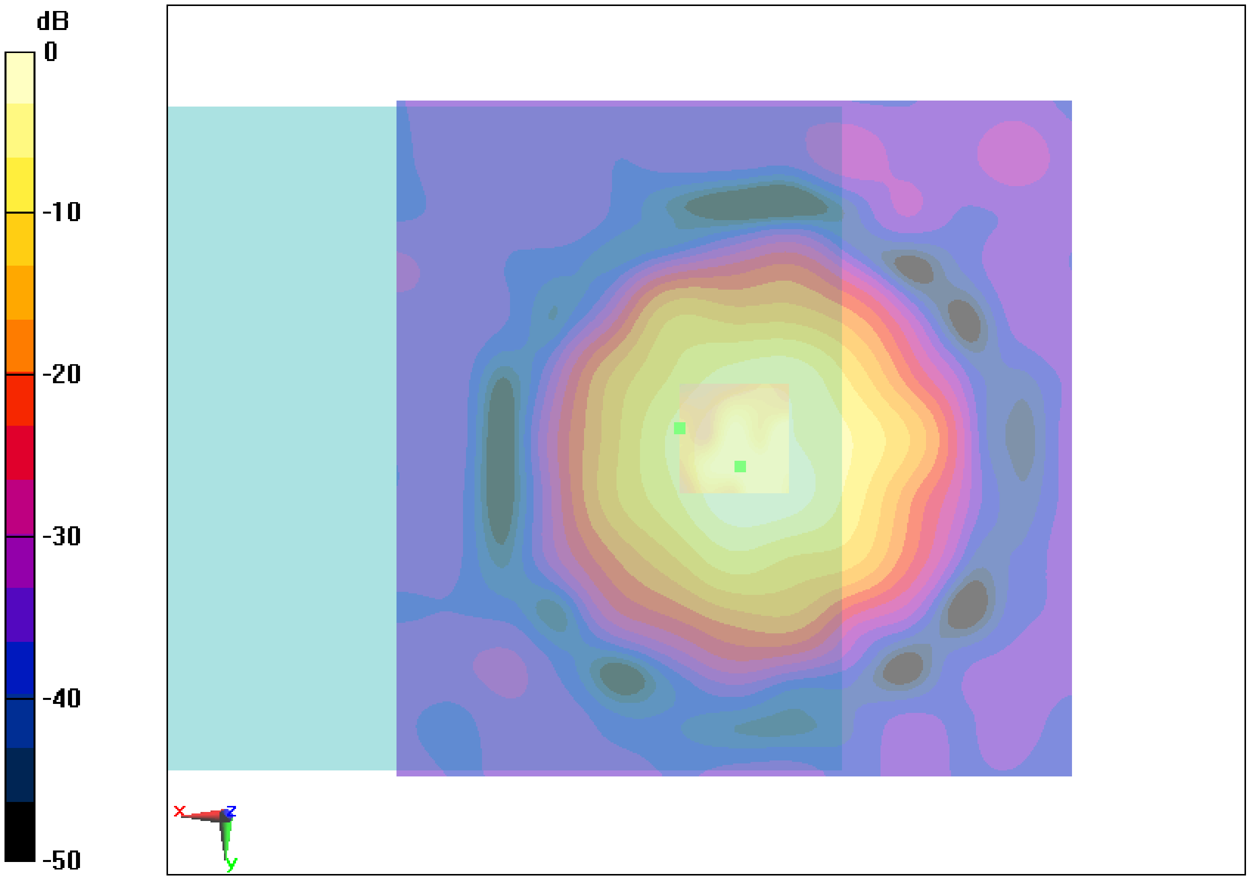
Scans/z (axial) fine 2mm 8 x 8/ABM SNR(x,y,z) (41x41x1):

Measurement grid: dx=10mm, dy=10mm
Signal Type: Audio File (.wav) 48k_voice_1kHz_1s.wav
Output Gain: 29.51
Measure Window Start: 0ms
Measure Window Length: 1000ms

BWC applied: 0.157003 dB
Device Reference Point: 0, 0, -6.3 mm
Cursor:
ABM1/ABM2 = 37.4 dB
ABM1 comp = -3.05 dB A/m
BWC Factor = 0.157003 dB
Location: 4, -0.8, 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: 57.8
Measure Window Start: 0ms
Measure Window Length: 2000ms
BWC applied: 10.8 dB
Device Reference Point: 0, 0, -6.3 mm
Cursor:
Diff = 1.1 dB
BWC Factor = 10.8 dB
Location: 4, 0, 3.7 mm



0 dB = 1A/m

Fig B.12 T-Coil CDMA 1700 Ch450 – Slide up

T-Coil CDMA 1900 Ch600_RC1 SO3_Voice_X longitudinal – Slide down

Date/Time: 4/29/2009 2:11:44 PM
Electronics: DAE4 Sn771
Medium: Air
Medium parameters used: σ = 0 mho/m, ε_r = 1; ρ = 1 kg/m^3
Ambient Temperature:23.3℃ Liqiud Temperature: 22.5℃
Communication System: CDMA 1900; Frequency: 1880 MHz;Duty Cycle: 1:1
Probe: AM1DV2 - 1064;

Scans/x (longitudinal) 4.2mm 50 x 50/ABM Signal(x,y,z) (121x121x1):

Measurement grid: dx=10mm, dy=10mm
Signal Type: Audio File (.wav) 48k_voice_1kHz_1s.wav
Output Gain: 29.51
Measure Window Start: 0ms
Measure Window Length: 1000ms
BWC applied: 0.157003 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1 = -7.67 dB A/m
BWC Factor = 0.157003 dB
Location: 6.7, 3.7, 3.7 mm

Scans/x (longitudinal) fine 3mm 42 x 6/ABM Signal(x,y,z) (141x21x1):

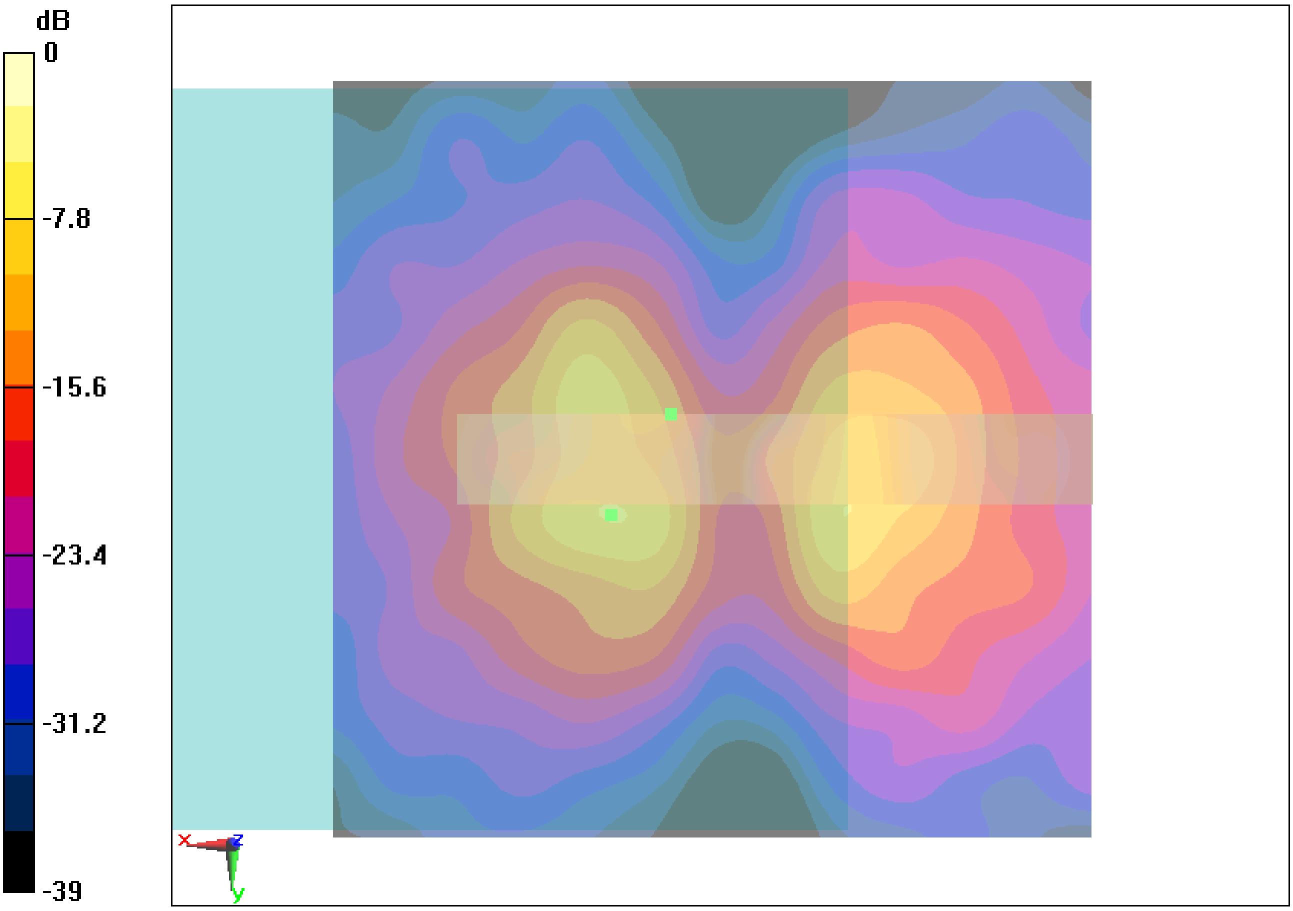
Measurement grid: dx=10mm, dy=10mm
Signal Type: Audio File (.wav) 48k_voice_1kHz_1s.wav
Output Gain: 29.51
Measure Window Start: 0ms
Measure Window Length: 1000ms
BWC applied: 0.157003 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1 = -6.96 dB A/m
BWC Factor = 0.157003 dB
Location: -9.9, 3, 3.7 mm

Scans/x (longitudinal) fine 3mm 42 x 6/ABM SNR(x,y,z) (141x21x1):

Measurement grid: dx=10mm, dy=10mm
Signal Type: Audio File (.wav) 48k_voice_1kHz_1s.wav
Output Gain: 29.51
Measure Window Start: 0ms
Measure Window Length: 1000ms
BWC applied: 0.157003 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1/ABM2 = 25.5 dB
ABM1 comp = -9.66 dB A/m
BWC Factor = 0.157003 dB
Location: 2.7, -3, 3.7 mm



0 dB = 1A/m

Fig B.13 T-Coil CDMA 1900 Ch600 – Slide down

T-Coil CDMA 1900 Ch600_RC1 SO3_Voice_Y transversal – Slide down

Date/Time: 4/29/2009 2:19:10 PM
Electronics: DAE4 Sn771
Medium: Air
Medium parameters used: σ = 0 mho/m, ε_r = 1; ρ = 1 kg/m^3
Ambient Temperature:23.3℃ Liqiud Temperature: 22.5℃
Communication System: CDMA 1900; Frequency: 1880 MHz;Duty Cycle: 1:1
Probe: AM1DV2 - 1064;

Scans/y (transversal) 4.2mm 50 x 50/ABM Signal(x,y,z) (121x121x1):

Measurement grid: dx=10mm, dy=10mm
Signal Type: Audio File (.wav) 48k_voice_1kHz_1s.wav
Output Gain: 29.51
Measure Window Start: 0ms
Measure Window Length: 1000ms
BWC applied: 0.157003 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1 = -5.96 dB A/m
BWC Factor = 0.157003 dB
Location: -0.4, -5, 3.7 mm

Scans/y (transversal) fine 3mm 6 x 42/ABM Signal(x,y,z) (21x141x1):

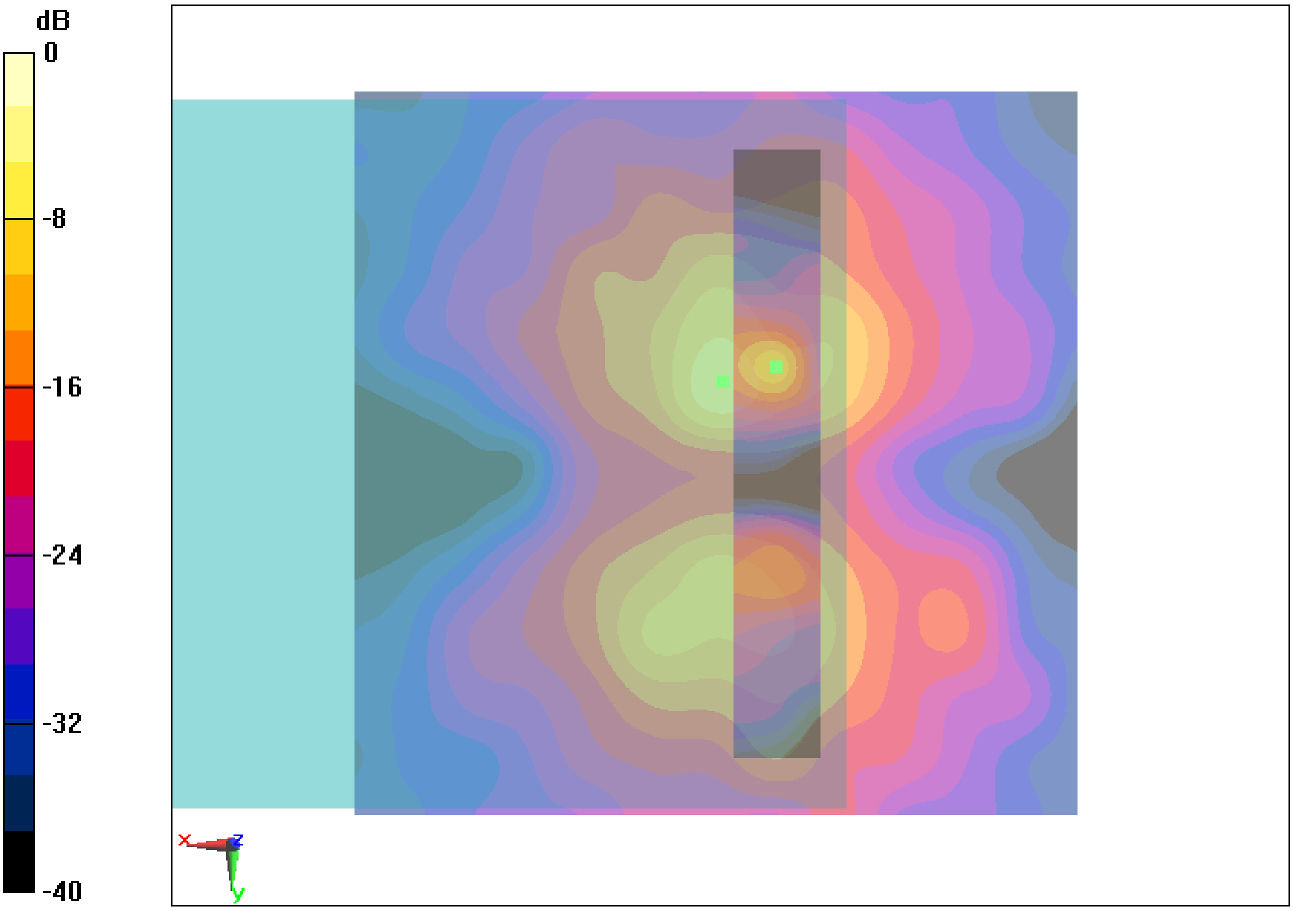
Measurement grid: dx=10mm, dy=10mm
Signal Type: Audio File (.wav) 48k_voice_1kHz_1s.wav
Output Gain: 29.51
Measure Window Start: 0ms
Measure Window Length: 1000ms
BWC applied: 0.157003 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1 = -5.49 dB A/m
BWC Factor = 0.157003 dB
Location: -3.9, -6, 3.7 mm

Scans/y (transversal) fine 3mm 6 x 42/ABM SNR(x,y,z) (21x141x1):

Measurement grid: dx=10mm, dy=10mm
Signal Type: Audio File (.wav) 48k_voice_1kHz_1s.wav
Output Gain: 29.51
Measure Window Start: 0ms
Measure Window Length: 1000ms
BWC applied: 0.157003 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1/ABM2 = 27.4 dB
ABM1 comp = -5.53 dB A/m
BWC Factor = 0.157003 dB
Location: -4.2, -6, 3.7 mm



0 dB = 1A/m

Fig B.14 T-Coil CDMA 1900 Ch600 – Slide down

T-Coil CDMA 1900 Ch600_RC1 SO3_Voice_Z Axial – Slide down

Date/Time: 4/29/2009 2:04:23 PM
Electronics: DAE4 Sn771
Medium: Air
Medium parameters used: σ = 0 mho/m, ε_r = 1; ρ = 1 kg/m^3
Ambient Temperature:23.3℃ Liqiud Temperature: 22.5℃
Communication System: CDMA 1900; Frequency: 1880 MHz;Duty Cycle: 1:1
Probe: AM1DV2 - 1064;

Scans/z (axial) 4.2mm 50 x 50/ABM Signal(x,y,z) (121x121x1):

Measurement grid: dx=10mm, dy=10mm
Signal Type: Audio File (.wav) 48k_voice_1kHz_1s.wav
Output Gain: 29.51
Measure Window Start: 0ms
Measure Window Length: 1000ms
BWC applied: 0.157003 dB
Device Reference Point: 0, 0, -6.3 mm
Cursor:
ABM1 = 2.06 dB A/m
BWC Factor = 0.157003 dB
Location: -4.2, 0, 3.7 mm

Scans/z (axial) fine 2mm 8 x 8/ABM Signal(x,y,z) (41x41x1):

Measurement grid: dx=10mm, dy=10mm
Signal Type: Audio File (.wav) 48k_voice_1kHz_1s.wav
Output Gain: 29.51
Measure Window Start: 0ms
Measure Window Length: 1000ms
BWC applied: 0.157003 dB
Device Reference Point: 0, 0, -6.3 mm
Cursor:
ABM1 = -0.508 dB A/m
BWC Factor = 0.157003 dB
Location: -4, 4, 3.7 mm

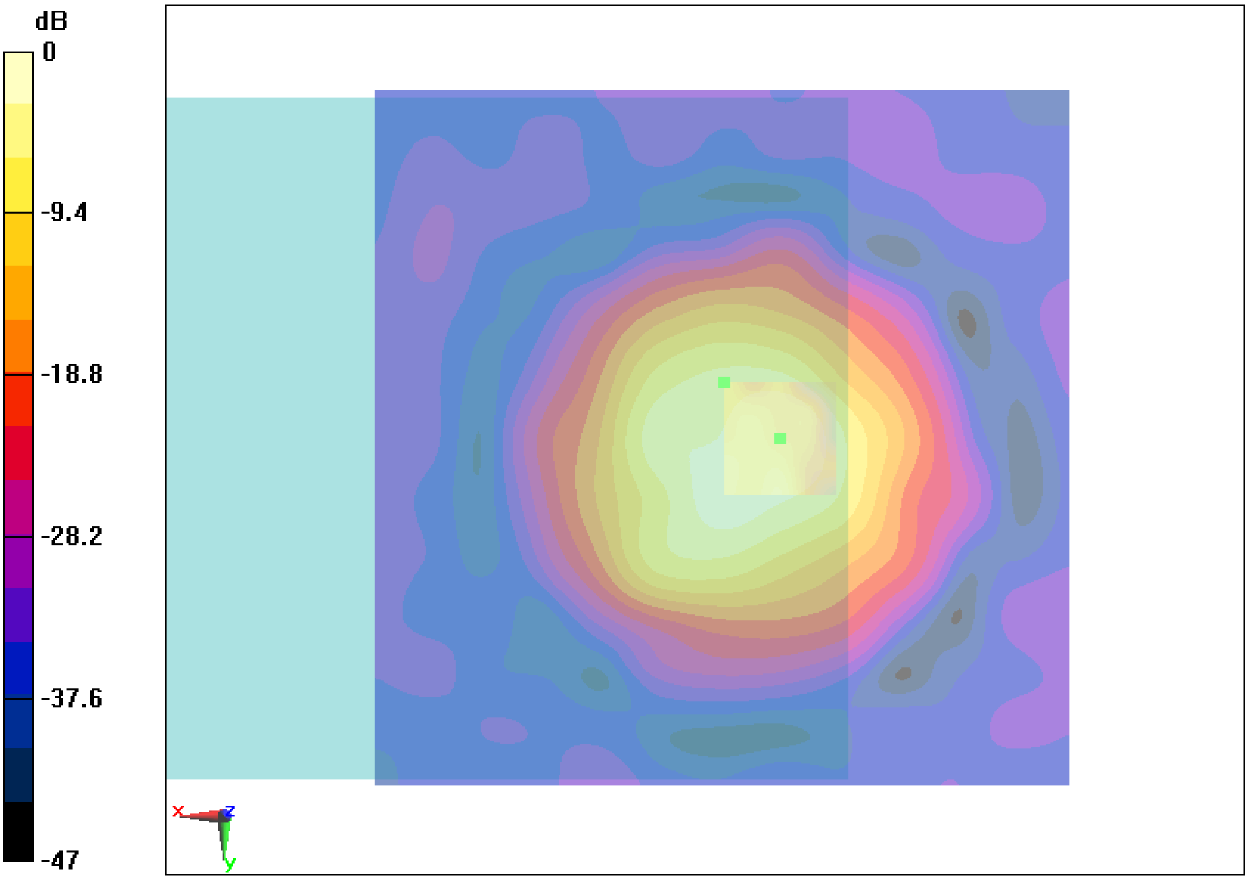
Scans/z (axial) fine 2mm 8 x 8/ABM SNR(x,y,z) (41x41x1):

Measurement grid: dx=10mm, dy=10mm
Signal Type: Audio File (.wav) 48k_voice_1kHz_1s.wav
Output Gain: 29.51
Measure Window Start: 0ms
Measure Window Length: 1000ms

BWC applied: 0.157003 dB
Device Reference Point: 0, 0, -6.3 mm
Cursor:
ABM1/ABM2 = 25.2 dB
ABM1 comp = -2.11 dB A/m
BWC Factor = 0.157003 dB
Location: -0.2, -4, 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: 57.8
Measure Window Start: 0ms
Measure Window Length: 2000ms
BWC applied: 10.8 dB
Device Reference Point: 0, 0, -6.3 mm
Cursor:
Diff = 0.211 dB
BWC Factor = 10.8 dB
Location: -0.2, -4, 3.7 mm



0 dB = 1A/m

Fig B.15 T-Coil CDMA 1900 Ch600 – Slide down

T-Coil CDMA 1900 Ch600_RC1 SO3_Voice_X longitudinal – Slide up

Date/Time: 4/29/2009 3:02:41 PM
Electronics: DAE4 Sn771
Medium: Air
Medium parameters used: σ = 0 mho/m, ε_r = 1; ρ = 1 kg/m^3
Ambient Temperature:23.3℃ Liqiud Temperature: 22.5℃
Communication System: CDMA 1900; Frequency: 1880 MHz;Duty Cycle: 1:1
Probe: AM1DV2 - 1064;

Scans/x (longitudinal) 4.2mm 50 x 50/ABM Signal(x,y,z) (121x121x1):

Measurement grid: dx=10mm, dy=10mm
Signal Type: Audio File (.wav) 48k_voice_1kHz_1s.wav
Output Gain: 29.51
Measure Window Start: 0ms
Measure Window Length: 1000ms
BWC applied: 0.157003 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1 = -7.05 dB A/m
BWC Factor = 0.157003 dB
Location: 4.6, 1.2, 3.7 mm

Scans/x (longitudinal) fine 3mm 42 x 6/ABM Signal(x,y,z) (141x21x1):

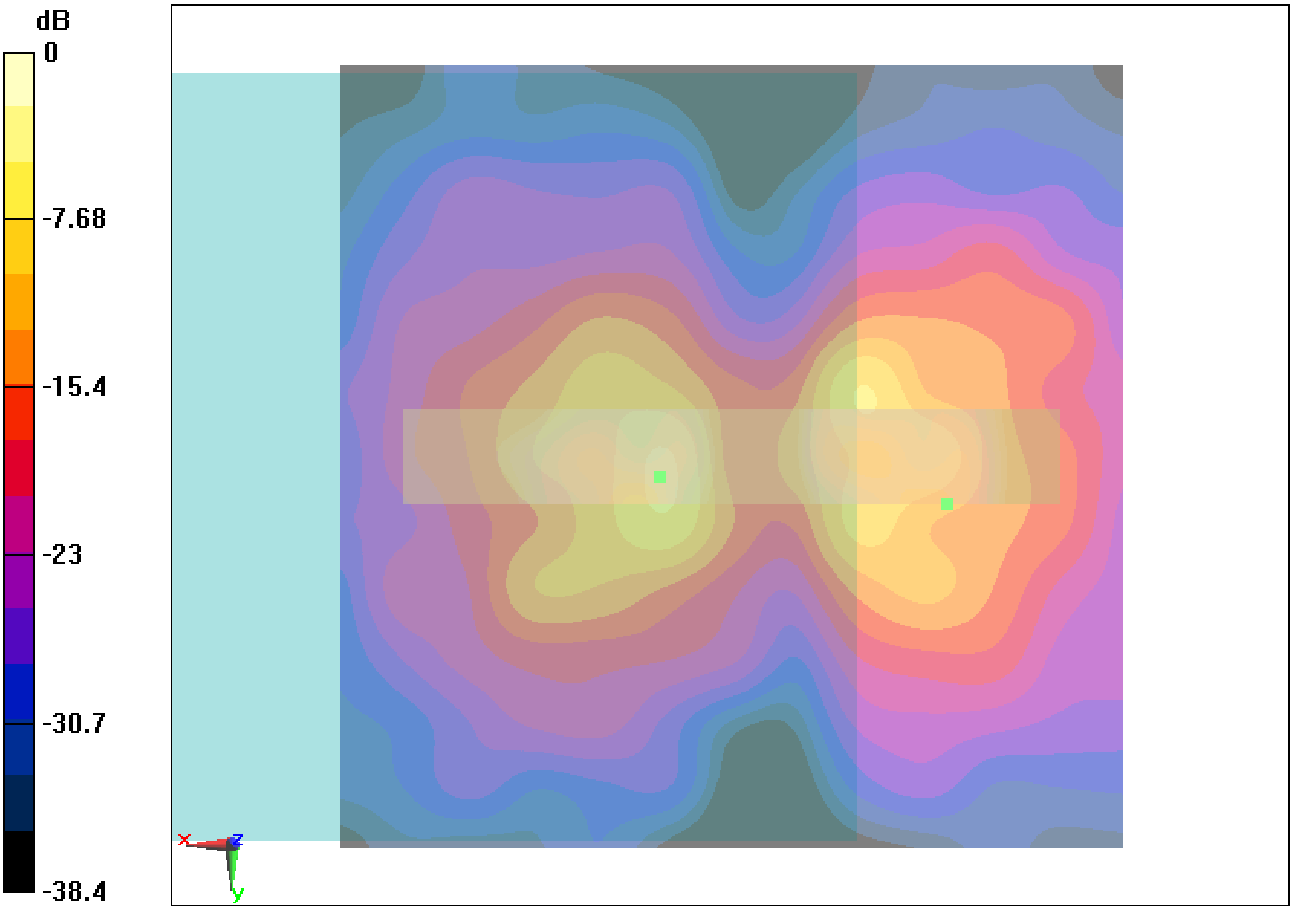
Measurement grid: dx=10mm, dy=10mm
Signal Type: Audio File (.wav) 48k_voice_1kHz_1s.wav
Output Gain: 29.51
Measure Window Start: 0ms
Measure Window Length: 1000ms
BWC applied: 0.157003 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1 = -6.79 dB A/m
BWC Factor = 0.157003 dB
Location: 6, 3, 3.7 mm

Scans/x (longitudinal) fine 3mm 42 x 6/ABM SNR(x,y,z) (141x21x1):

Measurement grid: dx=10mm, dy=10mm
Signal Type: Audio File (.wav) 48k_voice_1kHz_1s.wav
Output Gain: 29.51
Measure Window Start: 0ms
Measure Window Length: 1000ms
BWC applied: 0.157003 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1/ABM2 = 26.5 dB
ABM1 comp = -8.18 dB A/m
BWC Factor = 0.157003 dB
Location: -13.8, 3, 3.7 mm



0 dB = 1A/m

Fig B.16 T-Coil CDMA 1900 Ch600 – Slide up

T-Coil CDMA 1900 Ch600_RC1 SO3_Voice_Y transversal – Slide up

Date/Time: 4/29/2009 3:10:04 PM
Electronics: DAE4 Sn771
Medium: Air
Medium parameters used: σ = 0 mho/m, ε_r = 1; ρ = 1 kg/m^3
Ambient Temperature:23.3℃ Liqiud Temperature: 22.5℃
Communication System: CDMA 1900; Frequency: 1880 MHz;Duty Cycle: 1:1
Probe: AM1DV2 - 1064;

Scans/y (transversal) 4.2mm 50 x 50/ABM Signal(x,y,z) (121x121x1):

Measurement grid: dx=10mm, dy=10mm
Signal Type: Audio File (.wav) 48k_voice_1kHz_1s.wav
Output Gain: 29.51
Measure Window Start: 0ms
Measure Window Length: 1000ms
BWC applied: 0.157003 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1 = -7.59 dB A/m
BWC Factor = 0.157003 dB
Location: -1.7, 8.7, 3.7 mm

Scans/y (transversal) fine 3mm 6 x 42/ABM Signal(x,y,z) (21x141x1):

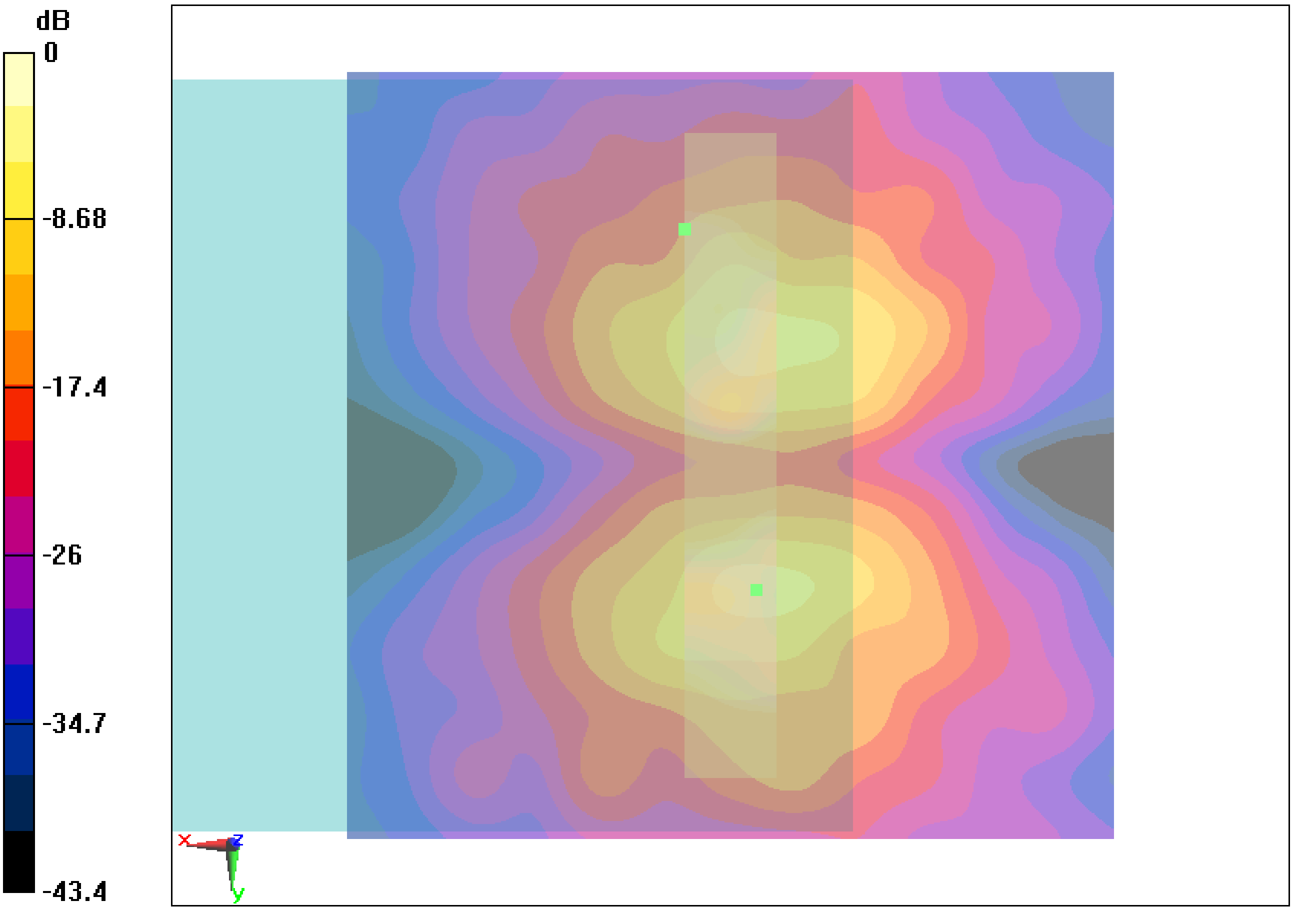
Measurement grid: dx=10mm, dy=10mm
Signal Type: Audio File (.wav) 48k_voice_1kHz_1s.wav
Output Gain: 29.51
Measure Window Start: 0ms
Measure Window Length: 1000ms
BWC applied: 0.157003 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1 = -6.62 dB A/m
BWC Factor = 0.157003 dB
Location: 0, -3.3, 3.7 mm

Scans/y (transversal) fine 3mm 6 x 42/ABM SNR(x,y,z) (21x141x1):

Measurement grid: dx=10mm, dy=10mm
Signal Type: Audio File (.wav) 48k_voice_1kHz_1s.wav
Output Gain: 29.51
Measure Window Start: 0ms
Measure Window Length: 1000ms
BWC applied: 0.157003 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1/ABM2 = 32.6 dB
ABM1 comp = -12.5 dB A/m
BWC Factor = 0.157003 dB
Location: 3, -14.7, 3.7 mm



0 dB = 1A/m

Fig B.17 T-Coil CDMA 1900 Ch600 – Slide up

T-Coil CDMA 1900 Ch600_RC1 SO3_Voice_Z Axial – Slide up

Date/Time: 4/29/2009 2:55:22 PM
Electronics: DAE4 Sn771
Medium: Air
Medium parameters used: σ = 0 mho/m, ε_r = 1; ρ = 1 kg/m^3
Ambient Temperature:23.3℃ Liqiud Temperature: 22.5℃
Communication System: CDMA 1900; Frequency: 1880 MHz;Duty Cycle: 1:1
Probe: AM1DV2 - 1064;

Scans/z (axial) 4.2mm 50 x 50/ABM Signal(x,y,z) (121x121x1):

Measurement grid: dx=10mm, dy=10mm
Signal Type: Audio File (.wav) 48k_voice_1kHz_1s.wav
Output Gain: 29.51
Measure Window Start: 0ms
Measure Window Length: 1000ms
BWC applied: 0.157003 dB
Device Reference Point: 0, 0, -6.3 mm
Cursor:
ABM1 = -0.192 dB A/m
BWC Factor = 0.157003 dB
Location: -2.1, 0.4, 3.7 mm

Scans/z (axial) fine 2mm 8 x 8/ABM Signal(x,y,z) (41x41x1):

Measurement grid: dx=10mm, dy=10mm
Signal Type: Audio File (.wav) 48k_voice_1kHz_1s.wav
Output Gain: 29.51
Measure Window Start: 0ms
Measure Window Length: 1000ms
BWC applied: 0.157003 dB
Device Reference Point: 0, 0, -6.3 mm
Cursor:
ABM1 = 0.738 dB A/m
BWC Factor = 0.157003 dB
Location: -2.2, 0.4, 3.7 mm

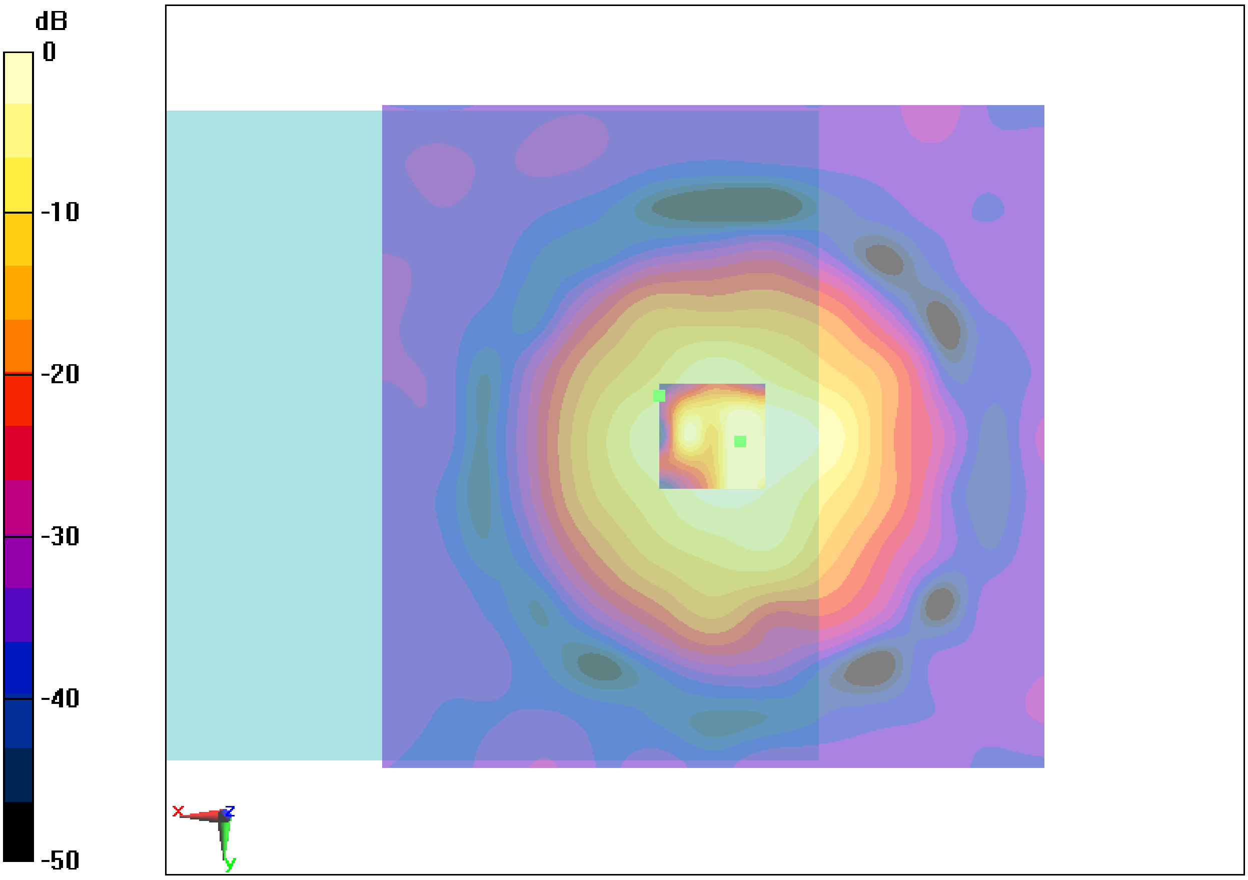
Scans/z (axial) fine 2mm 8 x 8/ABM SNR(x,y,z) (41x41x1):

Measurement grid: dx=10mm, dy=10mm
Signal Type: Audio File (.wav) 48k_voice_1kHz_1s.wav
Output Gain: 29.51
Measure Window Start: 0ms
Measure Window Length: 1000ms

BWC applied: 0.157003 dB
Device Reference Point: 0, 0, -6.3 mm
Cursor:
ABM1/ABM2 = 33.5 dB
ABM1 comp = -5.06 dB A/m
BWC Factor = 0.157003 dB
Location: 4, -3, 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: 57.8
Measure Window Start: 0ms
Measure Window Length: 2000ms
BWC applied: 10.8 dB
Device Reference Point: 0, 0, -6.3 mm
Cursor:
Diff = 0.578 dB
BWC Factor = 10.8 dB
Location: 4, -4, 3.7 mm



0 dB = 1A/m

Fig B.18 T-Coil CDMA 1900 Ch600 – Slide up

ANNEX C PROBE CALIBRATION CERTIFICATE

Schmid & Partner Engineering AG s p e a g

Zeughausstrasse 43, 8004 Zurich, Switzerland
Phone +41 44 245 9700, Fax +41 44 245 9779
info@speag.com, http://www.speag.com

Client TMC

Certificate of test and configuration

Item	**AM1DV2** Audio Magnetic 1D Field Probe
Type No	SP AM1 001 AF
Series No	**1064**
Manufacturer / Origin	Schmid & Partner Engineering AG, Zürich, Switzerland

Description of the item
The Audio Magnetic Field Probe is a fully shielded magnetic field probe for the frequency range from 100 Hz to 20 kHz. The pickup coil is compliant with the dimensional requirements of [1]. The probe includes a symmetric 40dB low noise amplifier for the signal available at the shielded 3 pin connector at the side. Power is supplied via the same connector (phantom power supply) and monitored via the LED near the connector. The 7 pin connector at the end of the probe does not carry any signals, but determines the angle of the sensor when mounted on the DAE. The probe supports mechanical detection of the surface. The single sensor in the probe is arranged in a tilt angle allowing measurement of 3 orthogonal field components when rotating the probe by 120° around its axis. It is aligned with the perpendicular component of the field, if the probe axis is tilted 35.3° above the measurement plane, using the connector rotation and Sensor angle stated below.
The probe is fully RF shielded when operated with the matching signal cable (shielded) and allows measurement of audio magnetic fields in the close vicinity of RF emitting wireless devices according to [1] without additional shielding.

Handling of the item
The probe is manufactured from stainless steel. In order to maintain the performance and calibration of the probe, it must not be opened. The probe is designed for operation in air and shall not be exposed to humidity or liquids. For proper operation of the surface detection and emergency stop functions in the DASY system, the probe must be operated with the special probe cup provided (larger diameter). Verify that the probe can slide in the probe cup rubber smoothly.

Functional test, configuration data and sensitivity
The probe configuration data were evaluated after a functional test including noise level and RF immunity. Connector rotation, sensor angle and sensitivity are specific for this probe.

DASY configuration data for the probe

Configuration item	Condition	Configuration Data	Dimension
Overall length	mounted on DAE in DASY system	296	mm
Tip diameter	at the cylindrical part	6	mm
Sensor offset	center of sensor, from tip	3	mm
Connector rotation	Evaluated in homogeneous 1 kHz magnetic field generated with AMCC Helmholtz Calibration Coil	**- 30.1**	°
Sensor angle		**0.45**	°
Sensitivity	at 1 kHz	**0.0660**	V / (A/m)

Standards
[1] ANSI-C63.19-2007

Test date 6.12.2008 MM

Issue date 17.12.2008

Signature M. Meili FB