HAC T-COIL TEST REPORT

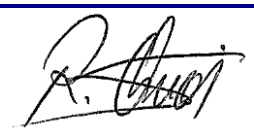
Test of: PM-0500-BV

To: FCC CFR47 Part 20.19

ANSI C63.19-2011

Test Report Serial No:
UL-HAC-RP10027127JD01B V2.0

Version 2.0 supersedes previous report versions

This Test Report Is Issued Under The Authority Of Richelieu Quoi, SAR Technology Consultant:	 (APPROVED SIGNATORY)
Checked By: Naseer Mirza	 (APPROVED SIGNATORY)
Issue Date:	**02 August 2013**
Test Dates:	**29 June 2013**

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1. Customer Information

Company Name:	Sony Mobile Communications AB
Address:	Nya Vattentornet 22188 Lund Sweden

2. Summary of Test Results

Test Name	Specification Reference	Equipment Category	Result
Hearing Aid Compatibility - GSM 850	FCC CFR47 Part 20.19 ANSI C63.19-2011	T3	✓
Hearing Aid Compatibility - PCS 1900	FCC CFR47 Part 20.19 ANSI C63.19-2011	T3	✓
Hearing Aid Compatibility – UMTS FDD 2	FCC CFR47 Part 20.19 ANSI C63.19-2011	T4	✓
Hearing Aid Compatibility - UMTS FDD 4	FCC CFR47 Part 20.19 ANSI C63.19-2011	T4	✓
Hearing Aid Compatibility - UMTS FDD 5	FCC CFR47 Part 20.19 ANSI C63.19-2011	T4	✓
Key to Results	✓ = Complied ✗ = Did not comply		

Conclusion:

Overall HAC T-Coil Category = T3

2.1. Location of Tests

All the measurements described in this report were performed at the premises of
UL, Pavilion A, Ashwood Park, Ashwood Way, Basingstoke, Hampshire, RG23 8BG United Kingdom

3. Test Methodology

The tests documented in this report were performed in accordance with ANSI C63.19-2011 Methods of Measurement of Compatibility between Wireless Communications Devices and Hearing Aids and FCC KDB 285076 D01 HAC Guidance v03r02

Prior to testing the FCC was contacted for HAC evaluation and, testing was performed as per response on Dual Transfer Mode (DTM) over GSM air interface. Only GSM mode T-Coil HAC valuation is required and DTM evaluation is not required on GSM850 and PCS1900 Bands.

4. Calibration and Uncertainty

4.1. Measuring Instrument Calibration

The measuring equipment utilized to perform the tests documented in this report has been calibrated in accordance with the manufacturer's recommendations, and is traceable to recognized national standards.

UL No.	Instrument	Manufacturer	Type No.	Serial No.	Date Last Calibrated	Cal. Interval (Months)
A1182	Handset Positioner	Schmid & Partner Engineering AG	V3.0	None	-	-
A2109	Data Acquisition Electronics	Schmid & Partner Engineering AG	DAE3	417	17 April 2013	12
A2237	HAC Audio Magnetic Field Probe	Schmid & Partner Engineering AG	AM1 DV2	1062	11 Dec 2012	12
M1660	Telephone Magnetic Field Simulator (TMFS) Coil	Schmid & Partner Engineering AG	SE UMS 010 AB	101	11 Dec 2012	12
A2170	Audio Magnetic Calibration Coil	Schmid & Partner Engineering AG	SD HAC P02 AB	1014	Calibrated as part of system	-
A2171	Test Arch Phantom	Schmid & Partner Engineering AG	SD HAC P01 BA	1032	Calibrated as part of system	-
A2263	Digital Camera	Samsung	PL211	9453C90B 607487L	-	-
C1145	Cable	Rosenberger MICRO-COAX	FA147A F003003030	41843-1	Calibrated as part of system	-
G0592	Robot Power Supply	Schmid & Partner Engineering AG	DASY53	F125MZ7A1/C/01	Calibrated before use	-
M1680	Robot Arm	Staubli	TX60 L	F12/5MZ7 A1/A/01	Calibrated before use	-
M1071	Spectrum Analyzer	Agilent	HP8590E	3647U00514	(Monitoring use only)	-
M1650	Digital Thermometer	Dickson	FH320	09099180	03 May 2013	12
M1662	Radio Communication Tester	Rohde & Schwarz	CMU200	109374	21 May 2013	12
S513	SAR Lab	UL	Site 58	N/A	Calibrated before use	-

Note:

All the assets were in calibration during the course of testing.

4.2. Measurement Uncertainty

Error Description	± Value (%)	Probability Distribution	Divisor	(c_i) ABM1	(c_i) ABM2	Standard Uncertainty	
						± ABM1 (%)	± ABM2 (%)
Probe Sensitivity							
Reference Level	3.0	normal (k=1)	1.000	1	1	3.0	3.0
AMCC Geometry	0.4	Rectangular	1.732	1	1	0.2	0.2
AMCC Current	1.0	Rectangular	1.732	1	1	0.6	0.6
Probe positioning during calibration	0.1	Rectangular	1.732	1	1	0.1	0.1
Noise Contribution	0.7	Rectangular	1.732	0.0143	1	0.0	0.4
Frequency Slope	5.9	Rectangular	1.732	0.1	1	0.3	3.5
Probe System							
Repeatability/ Drift	1.0	Rectangular	1.732	1	1	0.6	0.6
Linearity/ Dynamic Range	0.6	Rectangular	1.732	1	1	0.4	0.4
Acoustic Noise	1.0	Rectangular	1.732	0.1	1	0.1	0.6
Probe Angle	2.3	Rectangular	1.732	1	1	1.4	1.4
Spectral Processing	0.9	Rectangular	1.732	1	1	0.5	0.5
Integration Time	0.6	normal (k=1)	1.000	1	5	0.6	3.0
Field Distribution	0.2	Rectangular	1.732	1	1	0.1	0.1
Test Signal							
Ref. Signal Spectral Response	0.6	Rectangular	1.732	0	1	0.0	0.4
Positioning							
Probe Positioning	1.9	Rectangular	1.732	1	1	1.1	1.1
Phantom Thickness	0.9	Rectangular	1.732	1	1	0.5	0.5
DUT Positioning	1.9	Rectangular	1.732	1	1	1.1	1.1
External Contributions							
RF Interference	0.0	Rectangular	1.732	1	0.3	0.0	0.0
Test Signal Variation	2.0	Rectangular	1.732	1	1	1.2	1.2
Combined uncertainty							
Expanded Std. uncertainty (ABM Field)						4.08	6.18
Expanded Std uncertainty						8.17	12.36

Note:

1. **Audio Band Magnetic signal** - **desired (ABM1):** Measured quantity of the desired magnetic signal
2. **Audio Band Magnetic signal - undesired (ABM2):** Measured quantity of the undesired magnetic signal, such as interference from battery current and similar non-signal elements.

5. Equipment Under Test (EUT)

5.1. Identification of Equipment Under Test (EUT)

Description:	Smartphone Handset
Brand Name:	Sony
Type Number:	PM-0500-BV
Serial Number:	CB5124U76C
IMEI Number:	00440214-685868-7
Hardware Version Number:	AP2.0
Software Version Number:	14.1. G.1. 241
FCC ID Number:	PY7PM-0500
IC Number:	4170B-PM0500
Country of Manufacture:	China
Date of Receipt:	01 July 2013

Note(s):

1. IMEI: 00440214-685868-7 used to perform HAC T-Coil testing only.

5.2. List of Air Interfaces/Bands & Operating Modes

Air-Interface	Bands (MHz)	Type Transport	HAC Tested	Simultaneous but not Tested[1]	Concurrent HAC Tested or not Tested	Voice over digital Transport OTT Capability	Wi-Fi Low Power	Additional GSM Power Reduction
GSM	850	VO	Yes	Yes - WiFi/BT	Not tested[2]	NA	NA	NA
GSM	1900	VO	Yes	Yes - WiFi/BT	Not tested[2]	NA	NA	NA
GPRS	850/1900	DT	No	Yes - WiFi/BT	NA	Yes	NA	NA
EGPRS	850/1900	DT	No	Yes - WiFi/BT	NA	Yes	NA	NA
WCDMA R99	Band V (850)	VO	Yes	Yes - WiFi/BT	Not tested[3]	NA	NA	NA
WCDMA R99	Band IV (1700)	VO	Yes	Yes - WiFi/BT	Not tested[3]	NA	NA	NA
WCDMA R99	Band II (1900)	VO	Yes	Yes - WiFi/BT	Not tested[3]	NA	NA	NA
HSPA	Band V, IV & II	DT	No	Yes - WiFi/BT	NA	Yes	NA	NA
WiFi	2400	DT	No	Yes –WCDMA	NA	Yes	No	NA
WiFi	5200	DT	No	Yes –WCDMA	NA	Yes	No	NA
WiFi	5300	DT	No	Yes –WCDMA	NA	Yes	No	NA
WiFi	5500	DT	No	Yes –WCDMA	NA	Yes	No	NA
WiFi	5800	DT	No	Yes –WCDMA	NA	Yes	No	NA
BT	2400	DT	No	Yes –WCDMA	NA	NA	NA	NA

Type Transport
VO = Voice only
DT = Digital Transport
VD = CMRS and Data transport (HAC Tested)

1. At the present time the C63.19 standard does not provide simultaneous transmission test procedures.
2. Voice Mode was tested as it was found to be the worst case mode compared to Dual Transfer Mode (Voice + Data)
3. Low Power Exemption for WCDMA Bands as sum of average antenna input power plus its MIF is ≤17 dBm (Refer Section 9)

6. Test Procedure

ANSI C63.19-2011, Section 7

It is necessary that the magnetic and RF ambient levels are low enough so that they do not affect measurement significantly. In order to achieve this, audio band magnetic and RF ambient shielding might be required.

The WD is set to transmit at maximum RF power to ensure that associate baseband effects such as battery surge current are accounted for. However, the WD antenna is replaced by a coax to mask the effects of the RF transmission signal from the measurement.

The test procedure used to measure the ABM (T-coil) performance of the WD is explained below. In addition to the measuring the absolute signal level, the weighted magnitude of the unintended signal shall also be determined. To assure that the required signal quality is measured, the measurement of the intended signal and the measurement of the unintended signal must be made at the same location for each measurement position. The RF field strength at each measurement location must be at or below that required for the assigned category. The ratio of ABM1 to ABM2 is calculated to determine the sound to noise ratio.

The following steps summarize the basic test flow for determining ABM1[1] and ABM2[2]. A sine wave or narrowband 1/3 octave signal can be used for measuring ABM1.

a) A validation of the test setup and instrumentation may be performed using a TMFS or Helmholtz coil. Measure the emissions and confirm that they are within the specific tolerance.

b) Position the WD in the test setup and connect the WD RF connector to a base station simulator or a non-radiating load as shown in fig1. Confirm that the equipment that requires calibration has been calibrated and that the noise level meets the requirements (atleast 10dB lower than the category limit being measured or below the device ABM2 level).

c) The drive level to the WD is set such that the reference input level specified in Fig 1 is input to the base station simulator (or manufacturer's test equivalent) in the 1kHz, 1/3 octave band. The drive level shall be used for the T-coil signal test (ABM1) at f=1kHz.Either a sine wave at 1025Hz or a voice-like signal, band limited to the 1kHz 1/3 octave, shall be used for the reference audio signal. If interference is found at 1025 Hz, an alternative nearby reference audio signal frequency maybe used. The same drive level shall be used for the ABM1 frequency response measurements at each 1/3 octave band centre frequency. The WD volume control may be set at any level up to maximum, provided that a signal at any frequency at maximum modulation would bit result in clipping or signal overload.

d) Determine the magnetic measurement locations for the WD device, if not already specified by the manufacturer.

e) At each measurement location, measure and record the desired T-coil magnetic signals (ABM1 at fi). The desired audio band input frequency (fi) shall be centered in each 1/3 octave band maintaining the same drive level as determined in item c) and reading taken for that band.

f) Equivalent methods of determining the frequency response may also be employed, such as fast Fourier transform (FFT) analysis using noise excitation or input–output comparison using simulated speech. The full-band integrated or half-band integrated probe output, may be used, as long as the appropriate calibration curve is applied to the measured result, so as to yield an accurate measurement of the field magnitude. (The resulting measurement shall be an accurate measurement in dB A/m.)

g) All measurements of the desired signal shall be shown to be of the desired signal and not of an undesired signal. This may be shown by turning the desired signal ON and OFF with the probe measuring the same location. If the scanning method is used the scans shall show that all measurement points selected for the ABM1 measurement meet the ambient and test system noise criteria.

h) At the measurement location for each orientation, measure and record the undesired broadband audio magnetic signal (ABM2) with no audio signal applied (or digital zero applied, if appropriate) using A-weighting and the half-band integrator. Calculate the ratio of the desired to undesired signal strength (i.e., signal quality).

i) Obtain the data from the postprocessor, SEMCAD, and determine the category that properly classifies the signal quality based on Fig 6.

6.1. Normal Speech Input Levels

Standard	Protocol	Input (dBm0)
TIA/ EIA/ IS2000	CDMA	-18
TIA/ EIA-136	TDMA (50 Hz)	-18
J-STD-007	GSM (217 Hz)	-16
T1/T1P1/3GPP	UMTS (WCDMA)	-16
iDEN	TDMA (22 Hz and 11 Hz)	-18

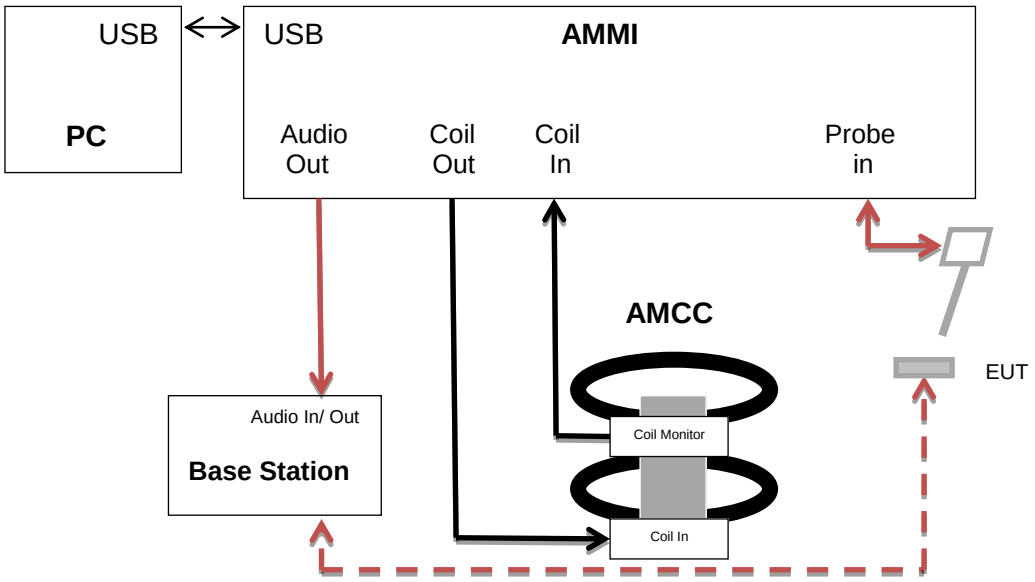


Figure 1: Test set up Diagram T-coil

6.2. Determining the WD reference level

First step is to find the Uref, which is 1 kHz signal output of the CMU200. Fig 1 and Fig 2 show the setup for the measurements. The first step is to measure Uref and the following step is to measure U, which is the signal from AMMI to the CMU200 during testing.

The setup shown below is used to measure Uref. To measure the reference input level, first connect the Coil In of the AMMI to the Audio Out of the CMU200 (as shown in fig 1). Then establish a conducted link between the EUT and the CMU200. Once the link is established, select the network tab of the CMU200 and change the bitstream setting to decoder cal in order for the CMU to produce the necessary calibration 1 kHz signal. Record the value from the Dasy4 file and use this value as Uref.

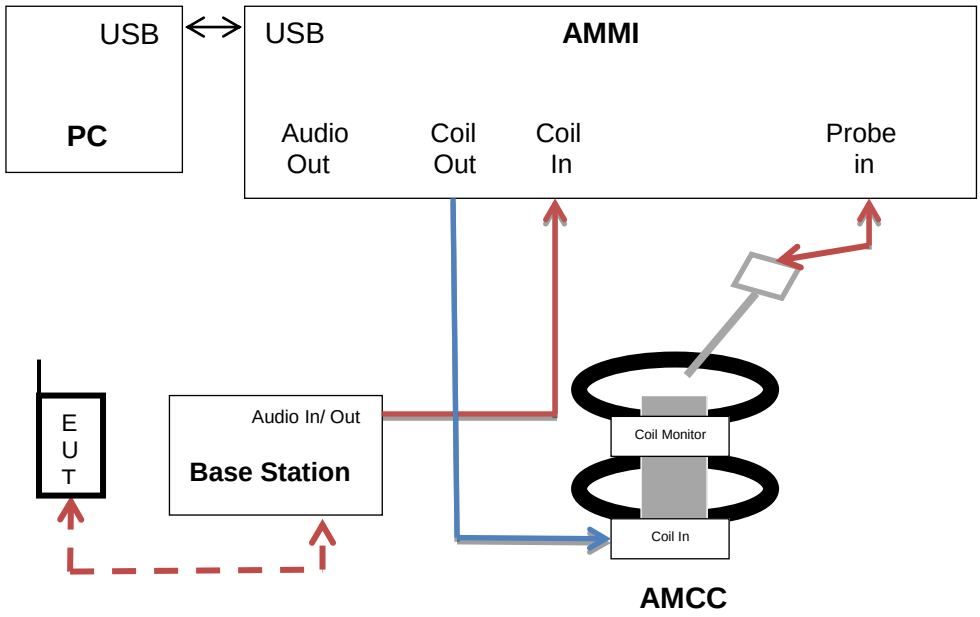


Figure 2: RF reference signal measurement Set-up

Next step is to measure U, which is the signal from AMMI to the CMU200 during testing. The following setup is used to measure U for narrow band (Voice1.025 kHz) and broad band (300 Hz – 300 kHz) signals:

To determine the DASY gain setting necessary to achieve the proper EUT signal level, connect the Coil In of AMMI to the Audio Out of AMMI. Run the narrow band job (Voice 1.025kHz signal setting) from DASY4 and record the RMS coil signal. Adjust the gain of the signal by changing the gain value within the particular DASY job until the coil signal reading is that of the desired output signal level. Repeat this step for the broad band job (Voice 300 – 3kHz signal).

Determining the WD reference level (Continued):

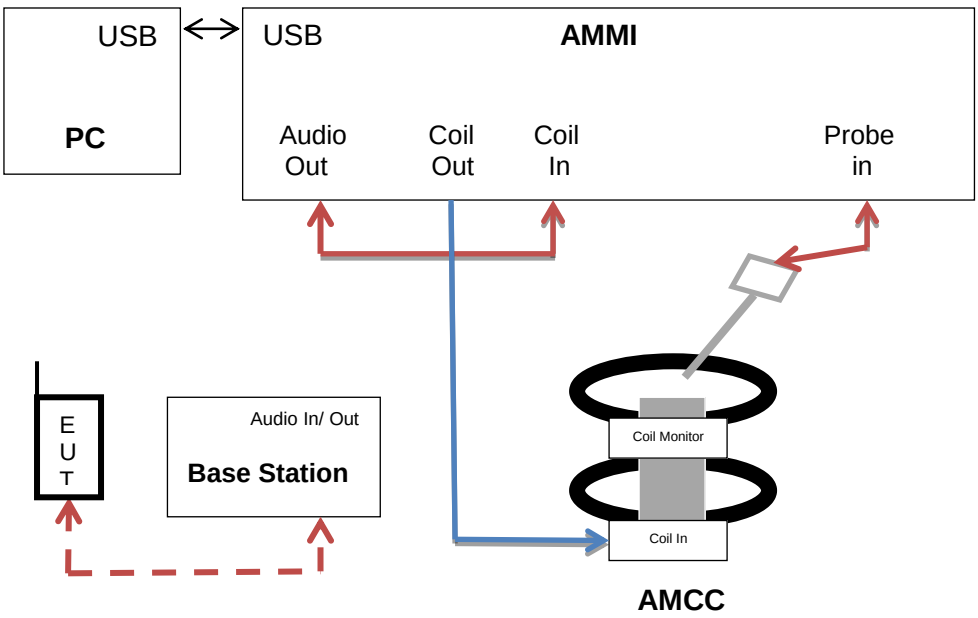


Figure 3: Signal from AMMI to CMU200 measurement Set-up

Measured Input Level is calculated: Measured_Input_Level=20*log($\frac{U}{Uref}$)

Results:

GSM and WCDMA

1kHz Voice Signal			
Reference Input Level (dBm0)		**Adjusted Gain Setting**	**RMS (dB V)**
GSM/UMTS	-16.0	38.5	-2.66
300 Hz – 3 kHz Voice Signal			
GSM/UMTS	-16.0	76.5	-2.66

6.3. Frequency Response

The frequency response of the perpendicular 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.

This section describes the relationship between the M ratings, which is based on RF emissions test and T ratings, which is based on the T-coil tests performed.

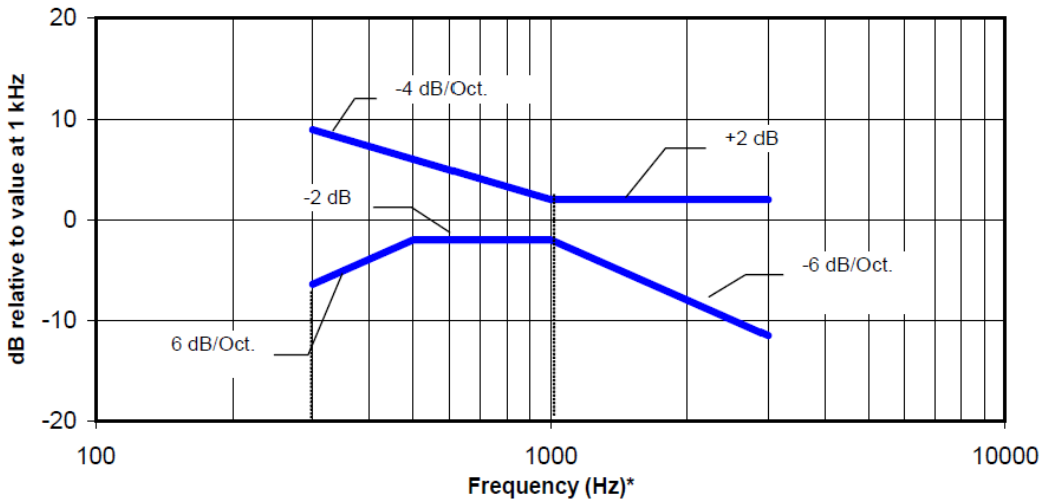


Figure 4: Frequency response for WDs with field strength ≤-15dB (A/m) at 1 kHz

Note: The frequency response is between 300 Hz and 3000 Hz

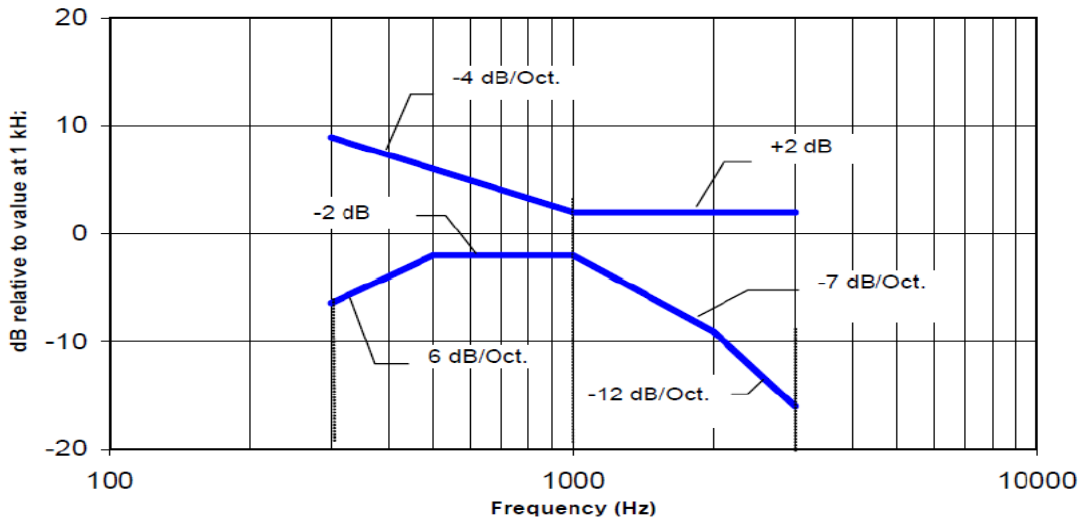


Figure 5: Frequency response for WDs with field strength exceeding 15dB (A/m) at 1 kHz

NOTE- The frequency response is between 300 Hz and 3000 Hz

6.4. Signal to Noise Ratio

This specifies the signal-to-noise quality which is used to determine the T-Coil mode category as shown in table below.

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 criterion that can be measured is the RF immunity in T-Coil Mode.

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

Figure 6: T-coil Category

7. HAC T-Coil Test Results

Operating Band	Channel No.	Freq. (MHz)	Probe Orientation	ABM1 (dBA/m)	BWC Factor*	ABM SNR (dB)	T-Rating
GSM850 Voice Coder: 8k Enhanced (Low)	190	836.6	z(Axial)	-24.11	0.14	21.05	T3
			y(Transversal)	-17.73	0.14	22.13	T3
PCS1900 Voice Coder: 8k Enhanced (Low)	661	1880.0	z(Axial)	-27.68	0.14	27.11	T3
			y(Transversal)	-21.93	0.14	27.49	T3
UMTS FDD 2 Voice Coder: Speech Codec Low	9400	1880.0	z(Axial)	-31.70	0.14	48.60	T4
			y(Transversal)	-36.07	0.14	45.68	T4
UMTS FDD 4 Voice Coder: Speech Codec Low	1412	1732.4	z(Axial)	-31,74	0.14	48.48	T4
			y(Transversal)	-25.98	0.14	45.66	T4
UMTS FDD 5 Voice Coder: Speech Codec Low	4183	836.6	z(Axial)	-31.83	0.14	48.78	T4
			y(Transversal)	-26.06	0.14	45.42	T4

Note(s):

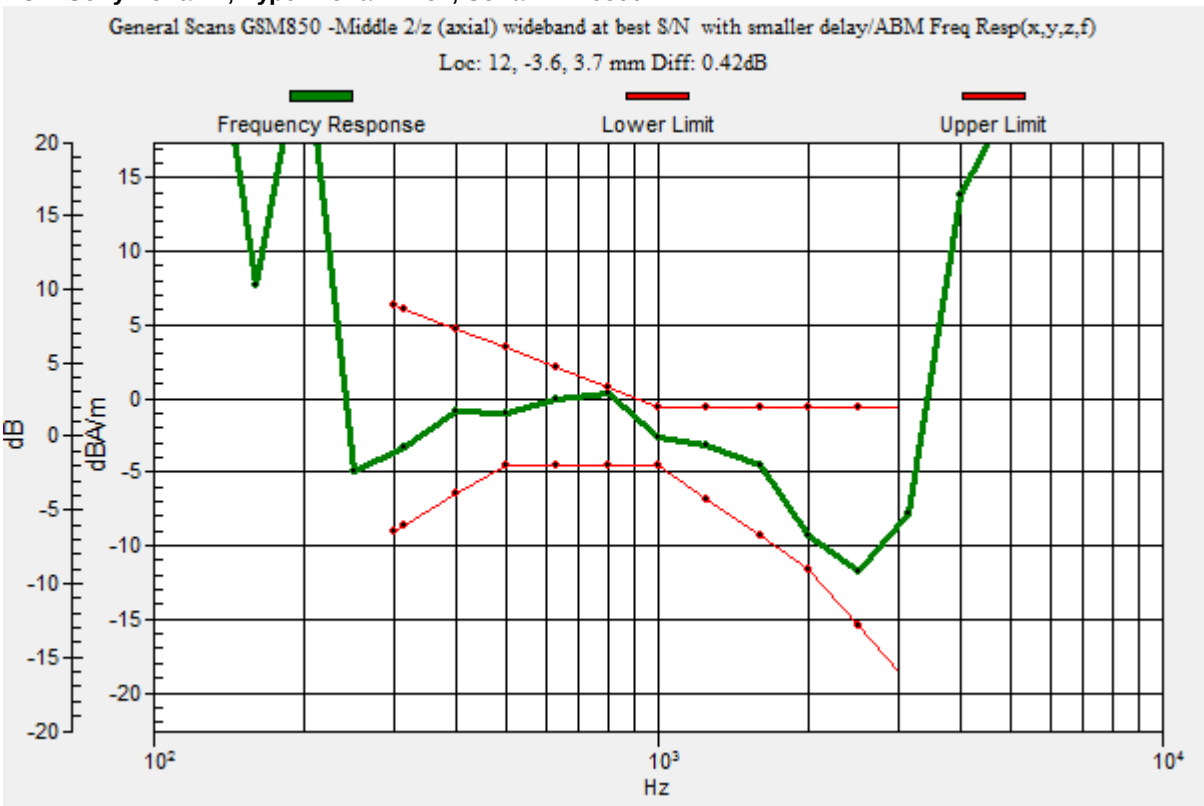
* Bandwidth Compensation Factor

Appendix 1: HAC Test Plot (Frequency Response & SNR)

This appendix contains SAR distribution scans which are not included in the total number of pages for this report.

Scan Reference Number	Title
001	Freq. Response GSM850
002	T-coil GSM850 z(Axial) CH190
003	T-coil GSM850 y(transversal) CH190
004	Freq. Response PCS1900
005	T-coil PCS1900 z(Axial) CH661
006	T-coil PCS1900 y(transversal) CH661
007	Freq. Response UMTS FDD 2
008	T-coil UMTS FDD 2 z(Axial) CH9400
009	T-coil UMTS FDD 2 y(transversal) CH9400
010	1 Freq. Response UMTS FDD 4
011	T-coil UMTS FDD 4 z(Axial) CH1412
012	T-coil UMTS FDD 4 y(transversal) CH1412
013	Freq. Response UMTS FDD 5
014	T-coil UMTS FDD 5 z(Axial) CH4183
015	T-coil UMTS FDD 5 y(transversal) CH4183

001: Freq. Response GSM850
Date: 06/07/2013
DUT: Sony Honami ; Type: Honami Rex; Serial: PM-0500-BV



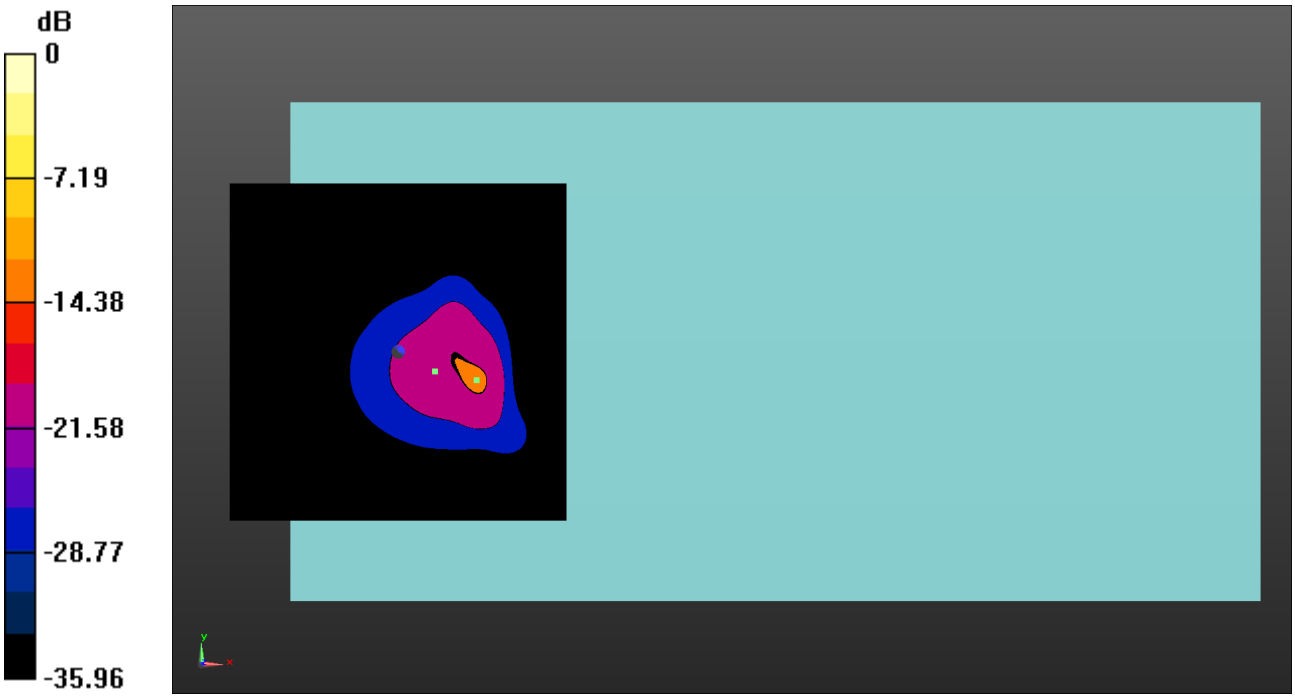
Communication System: UID 0 - n/a, Generic GSM; Frequency: 836.6 MHz;Duty Cycle: 1:8.30042
Medium: Air Medium parameters used: σ = 0 S/m, ε_r = 1; ρ = 0 kg/m^3
Phantom section: TCoil Section
DASY4 Configuration:
- Probe: AM1DV2 - 1062; ; Calibrated: 11/12/2012
- Sensor-Surface: 0mm (Fix Surface)
- Electronics: DAE3 Sn417; Calibrated: 17/04/2013
- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA; Serial: 1032
- ; SEMCAD X Version 14.6.9 (7117)

T-Coil scan (scan for ANSI C63.19-2007 & 2011 compliance)/General Scans GSM850 -Middle 2/z (axial) wideband at best S/N with smaller delay/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: 76.5
Measure Window Start: 80ms
Measure Window Length: 2000ms
BWC applied: 10.78 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 = 0.42 dB
BWC Factor = 10.78 dB
Location: 12, -3.6, 3.7 mm

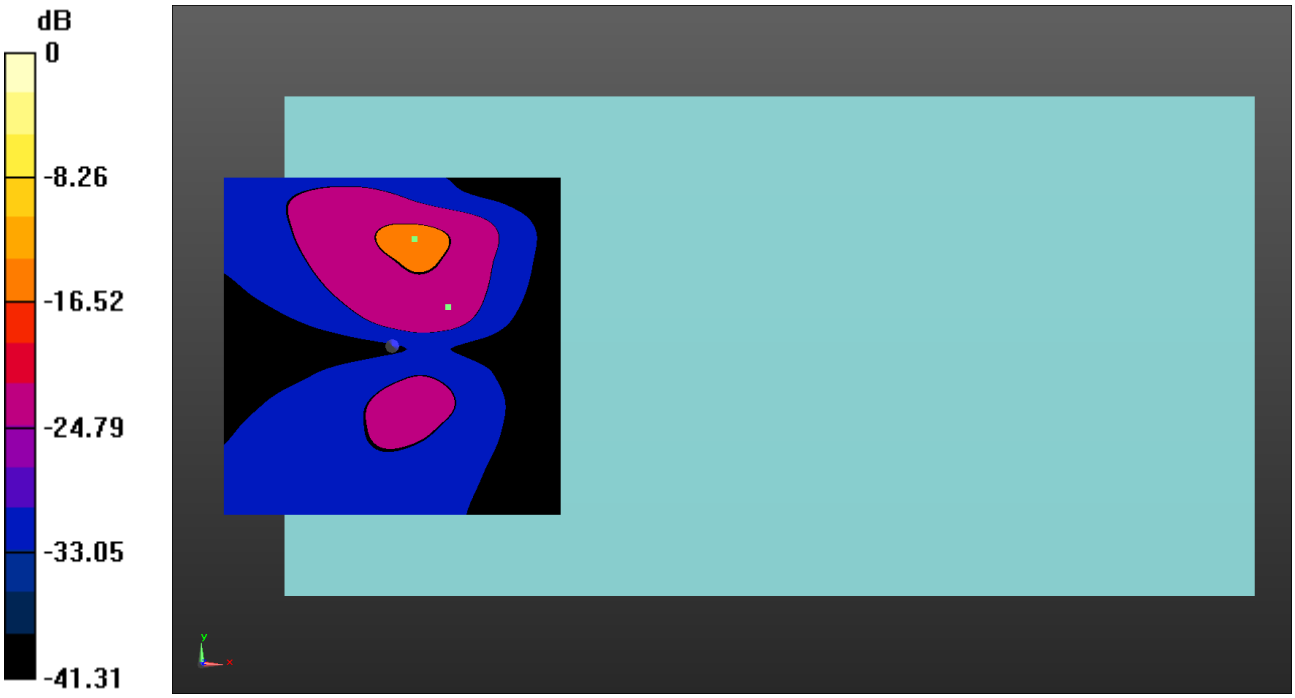
002: T-coil GSM850 z(Axial) CH190
Date:06/07/2013
DUT: Sony Honami ; Type: Honami Rex; Serial: PM-0500-BV



0 dB = 1.000 A/m = 0.00 dBA/m
Communication System: UID 0 - n/a, Generic GSM; Frequency: 836.6 MHz;Duty Cycle: 1:8.30042
Medium: Air Medium parameters used: σ = 0 S/m, ε_r = 1; ρ = 0 kg/m^3
Phantom section: TCoil Section
DASY4 Configuration:
- Probe: AM1DV2 - 1062; ; Calibrated: 11/12/2012
- Sensor-Surface: 0mm (Fix Surface)
- Electronics: DAE3 Sn417; Calibrated: 17/04/2013
- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA; Serial: 1032
- ; SEMCAD X Version 14.6.9 (7117)

T-Coil scan (scan for ANSI C63.19-2007 & 2011 compliance)/General Scans GSM850 -Middle 2/z (axial) 4.2mm 50 x 50/ABM SNR Category(x,y,z) (121x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Signal Type: Audio File (.wav) 48k_voice_1kHz_1s.wav
Output Gain: 38.5
Measure Window Start: 300ms
Measure Window Length: 1000ms
BWC applied: 0.14 dB
Device Reference Point: 0, 0, -6.3 mm
Cursor:
ABM1/ABM2 = 21.05 dB
ABM1 comp = -3.12 dBA/m
BWC Factor = 0.14 dB
Location: 11.7, -4.2, 3.7 mm

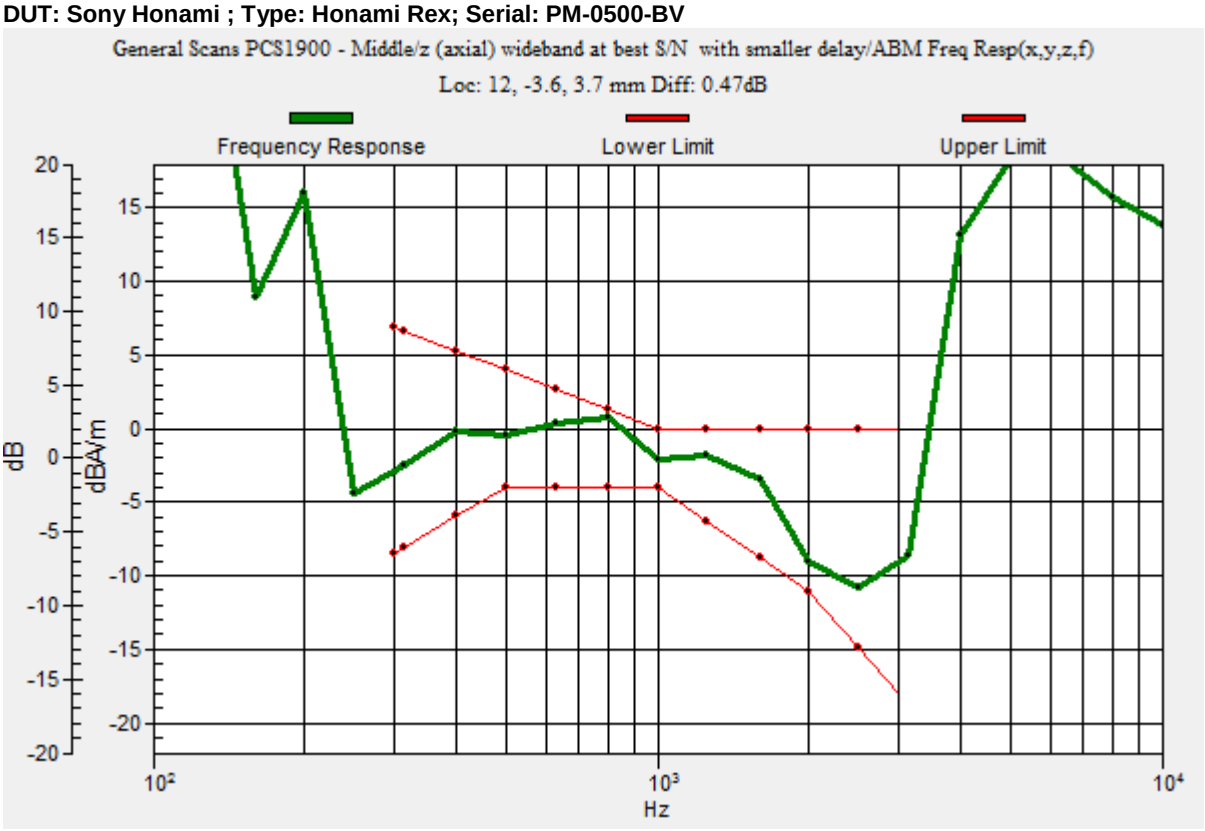
003: T-coil GSM850 y(transversal) CH190
Date: 06/07/2013
DUT: Sony Honami ; Type: Honami Rex; Serial: PM-0500-BV



0 dB = 1.000 A/m = 0.00 dBA/m
Communication System: UID 0 - n/a, Generic GSM; Frequency: 836.6 MHz;Duty Cycle: 1:8.30042
Medium: Air Medium parameters used: σ = 0 S/m, ε_r = 1; ρ = 0 kg/m^3
Phantom section: TCoil Section
DASY4 Configuration:
- Probe: AM1DV2 - 1062; ; Calibrated: 11/12/2012
- Sensor-Surface: 0mm (Fix Surface)
- Electronics: DAE3 Sn417; Calibrated: 17/04/2013
- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA; Serial: 1032
- ; SEMCAD X Version 14.6.9 (7117)

T-Coil scan (scan for ANSI C63.19-2007 & 2011 compliance)/General Scans GSM850 -Middle 2/y (transversal) 4.2mm 50 x 50/ABM SNR Category(x,y,z) (121x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Signal Type: Audio File (.wav) 48k_voice_1kHz_1s.wav
Output Gain: 38.5
Measure Window Start: 300ms
Measure Window Length: 1000ms
BWC applied: 0.14 dB
Device Reference Point: 0, 0, -6.3 mm
Cursor:
ABM1/ABM2 = 22.13 dB
ABM1 comp = -13.36 dBA/m
BWC Factor = 0.14 dB
Location: 3.3, 15.8, 3.7 mm

004: Freq. Response PCS1900
Date: 06/07/2013
DUT: Sony Honami ; Type: Honami Rex; Serial: PM-0500-BV



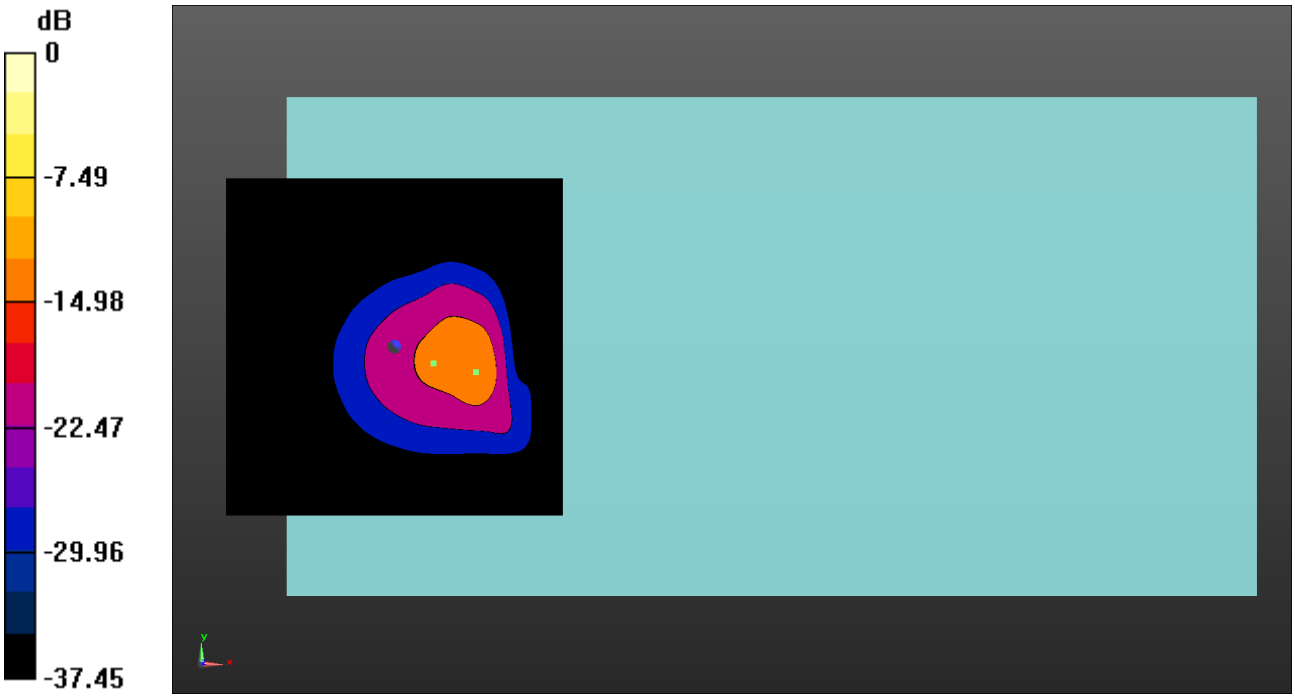
Communication System: UID 0 - n/a, Generic GSM; Frequency: 1880 MHz;Duty Cycle: 1:8.30042
Medium: Air Medium parameters used: σ = 0 S/m, ε_r = 1; ρ = 0 kg/m^3
Phantom section: TCoil Section
DASY4 Configuration:
- Probe: AM1DV2 - 1062; ; Calibrated: 11/12/2012
- Sensor-Surface: 0mm (Fix Surface)
- Electronics: DAE3 Sn417; Calibrated: 17/04/2013
- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA; Serial: 1032
- ; SEMCAD X Version 14.6.9 (7117)

T-Coil scan (scan for ANSI C63.19-2007 & 2011 compliance)/General Scans PCS1900 - Middle/z (axial) wideband at best S/N with smaller delay/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: 76.5
Measure Window Start: 80ms
Measure Window Length: 2000ms
BWC applied: 10.78 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

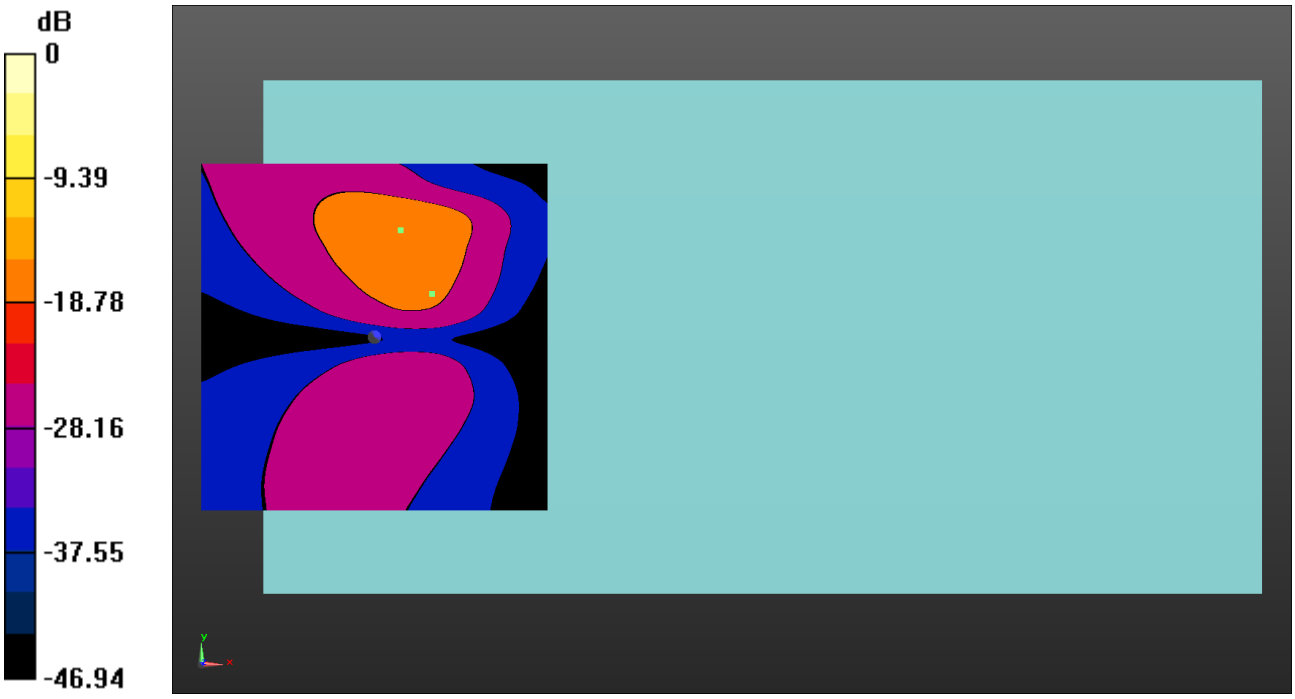
Cursor:
Diff = 0.47 dB
BWC Factor = 10.78 dB
Location: 12, -3.6, 3.7 mm

005: T-coil PCS1900 z(Axial) CH661
Date: 06/07/2013
DUT: Sony Honami ; Type: Honami Rex; Serial: PM-0500-BV



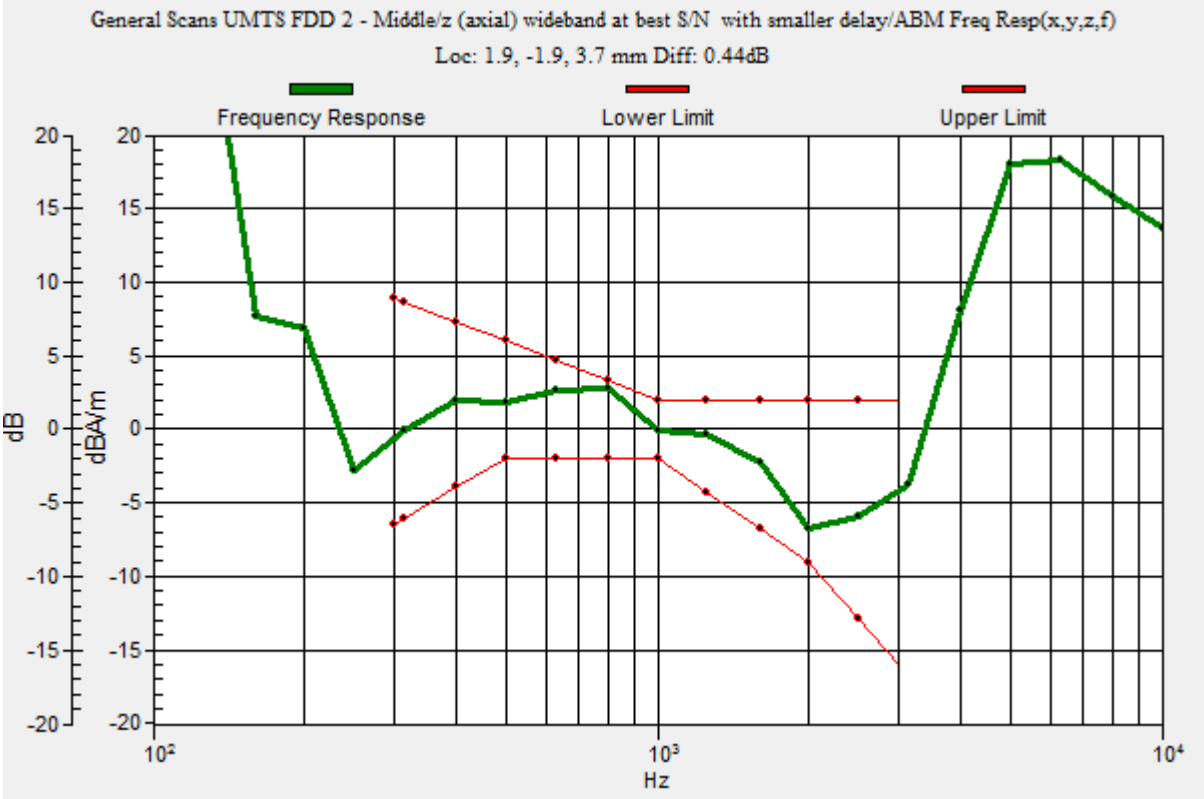
0 dB = 1.000 A/m = 0.00 dBA/m
Communication System: UID 0 - n/a, Generic GSM; Frequency: 1880 MHz;Duty Cycle: 1:8.30042
Medium: Air Medium parameters used: σ = 0 S/m, ε_r = 1; ρ = 0 kg/m^3
Phantom section: TCoil Section
DASY4 Configuration:
- Probe: AM1DV2 - 1062; ; Calibrated: 11/12/2012
- Sensor-Surface: 0mm (Fix Surface)
- Electronics: DAE3 Sn417; Calibrated: 17/04/2013
- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA; Serial: 1032
- ; SEMCAD X Version 14.6.9 (7117)
T-Coil scan (scan for ANSI C63.19-2007 & 2011 compliance)/General Scans PCS1900 - Middle/z (axial) 4.2mm 50 x 50/ABM SNR Category(x,y,z) (121x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Signal Type: Audio File (.wav) 48k_voice_1kHz_1s.wav
Output Gain: 38.5
Measure Window Start: 300ms
Measure Window Length: 1000ms
BWC applied: 0.14 dB
Device Reference Point: 0, 0, -6.3 mm
Cursor:
ABM1/ABM2 = 27.11 dB
ABM1 comp = -3.16 dBA/m
BWC Factor = 0.14 dB
Location: 12.1, -3.8, 3.7 mm

006: T-coil PCS1900 y(transversal) CH661
Date: 06/07/2013
DUT: Sony Honami ; Type: Honami Rex; Serial: PM-0500-BV



0 dB = 1.000 A/m = 0.00 dBA/m
Communication System: UID 0 - n/a, Generic GSM; Frequency: 1880 MHz;Duty Cycle: 1:8.30042
Medium: Air Medium parameters used: σ = 0 S/m, ε_r = 1; ρ = 0 kg/m^3
Phantom section: TCoil Section
DASY4 Configuration:
- Probe: AM1DV2 - 1062; ; Calibrated: 11/12/2012
- Sensor-Surface: 0mm (Fix Surface)
- Electronics: DAE3 Sn417; Calibrated: 17/04/2013
- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA; Serial: 1032
- ; SEMCAD X Version 14.6.9 (7117)
T-Coil scan (scan for ANSI C63.19-2007 & 2011 compliance)/General Scans PCS1900 - Middle/y (transversal) 4.2mm 50 x 50/ABM SNR Category(x,y,z) (121x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Signal Type: Audio File (.wav) 48k_voice_1kHz_1s.wav
Output Gain: 38.5
Measure Window Start: 300ms
Measure Window Length: 1000ms
BWC applied: 0.14 dB
Device Reference Point: 0, 0, -6.3 mm
Cursor:
ABM1/ABM2 = 27.49 dB
ABM1 comp = -12.64 dBA/m
BWC Factor = 0.14 dB
Location: 3.8, 15.4, 3.7 mm

007: Freq. Response UMTS FDD 2
Date: 06/07/2013
DUT: Sony Honami ; Type: Honami Rex; Serial: PM-0500-BV



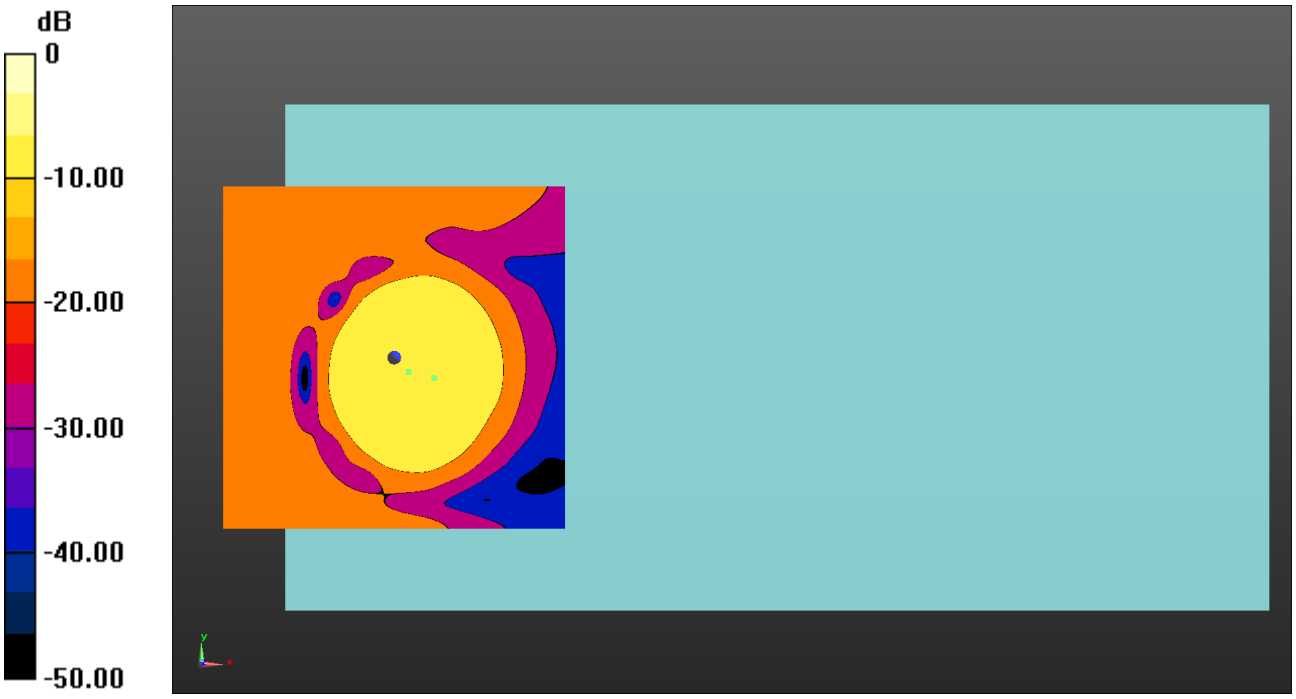
Communication System: UID 0 - n/a, UMTS FDD ; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium: Air Medium parameters used: σ = 0 S/m, ε_r = 1; ρ = 0 kg/m^3
Phantom section: TCoil Section
DASY4 Configuration:
- Probe: AM1DV2 - 1062; ; Calibrated: 11/12/2012
- Sensor-Surface: 0mm (Fix Surface)
- Electronics: DAE3 Sn417; Calibrated: 17/04/2013
- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA; Serial: 1032
- ; SEMCAD X Version 14.6.9 (7117)

T-Coil scan (scan for ANSI C63.19-2007 & 2011 compliance)/General Scans UMTS FDD 2 - Middle/z (axial) wideband at best S/N with smaller delay/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: 76.5
Measure Window Start: 80ms
Measure Window Length: 2000ms
BWC applied: 10.79 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 = 0.44 dB
BWC Factor = 10.79 dB
Location: 1.9, -1.9, 3.7 mm

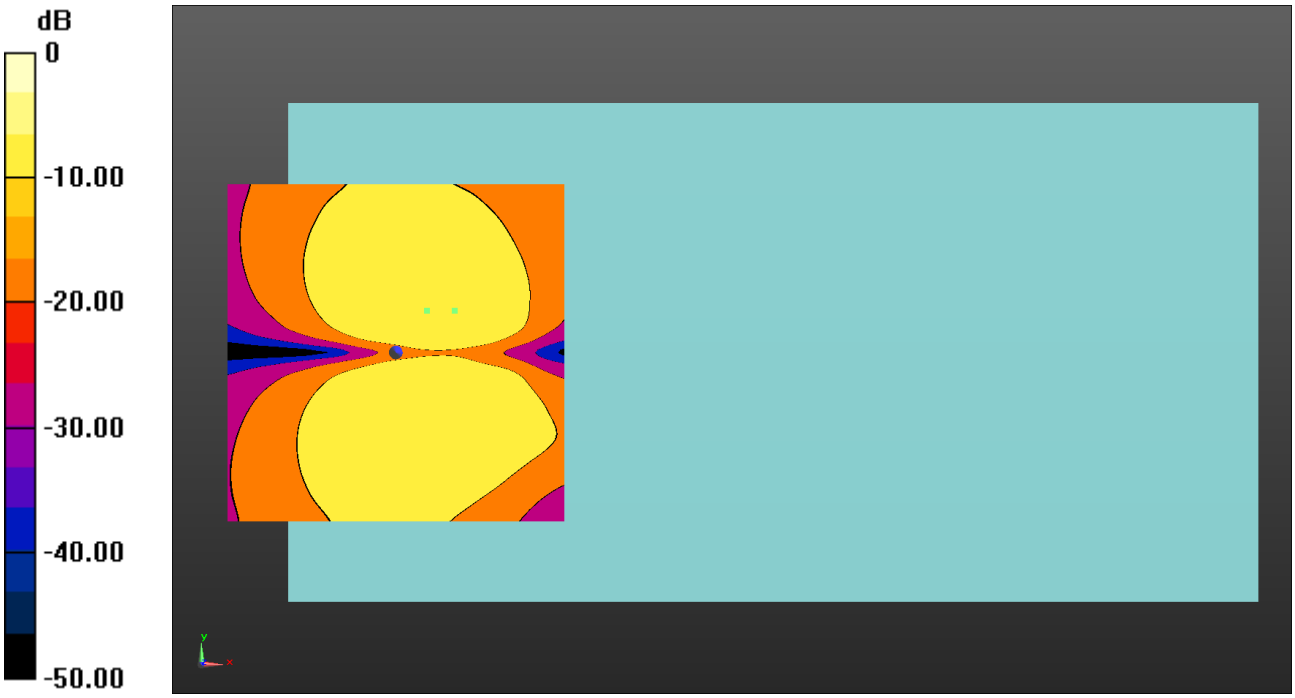
008: T-coil UMTS FDD 2 z(Axial) CH9400
Date: 06/07/2013
DUT: Sony Honami ; Type: Honami Rex; Serial: PM-0500-BV



0 dB = 1.000 A/m = 0.00 dBA/m
Communication System: UID 0 - n/a, UMTS FDD ; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium: Air Medium parameters used: $\sigma = 0$ S/m, $\varepsilon_r = 1$; $\rho = 0$ kg/m^3
Phantom section: TCoil Section
DASY4 Configuration:
- Probe: AM1DV2 - 1062; ; Calibrated: 11/12/2012
- Sensor-Surface: 0mm (Fix Surface)
- Electronics: DAE3 Sn417; Calibrated: 17/04/2013
- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA; Serial: 1032
- ; SEMCAD X Version 14.6.9 (7117)

T-Coil scan (scan for ANSI C63.19-2007 & 2011 compliance)/General Scans UMTS FDD 2 - Middle/z (axial) 4.2mm 50 x 50/ABM SNR Category(x,y,z) (121x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Signal Type: Audio File (.wav) 48k_voice_1kHz_1s.wav
Output Gain: 38.5
Measure Window Start: 300ms
Measure Window Length: 1000ms
BWC applied: 0.14 dB
Device Reference Point: 0, 0, -6.3 mm
Cursor:
ABM1/ABM2 = 48.60 dB
ABM1 comp = -0.00 dBA/m
BWC Factor = 0.14 dB
Location: 2.1, -2.1, 3.7 mm

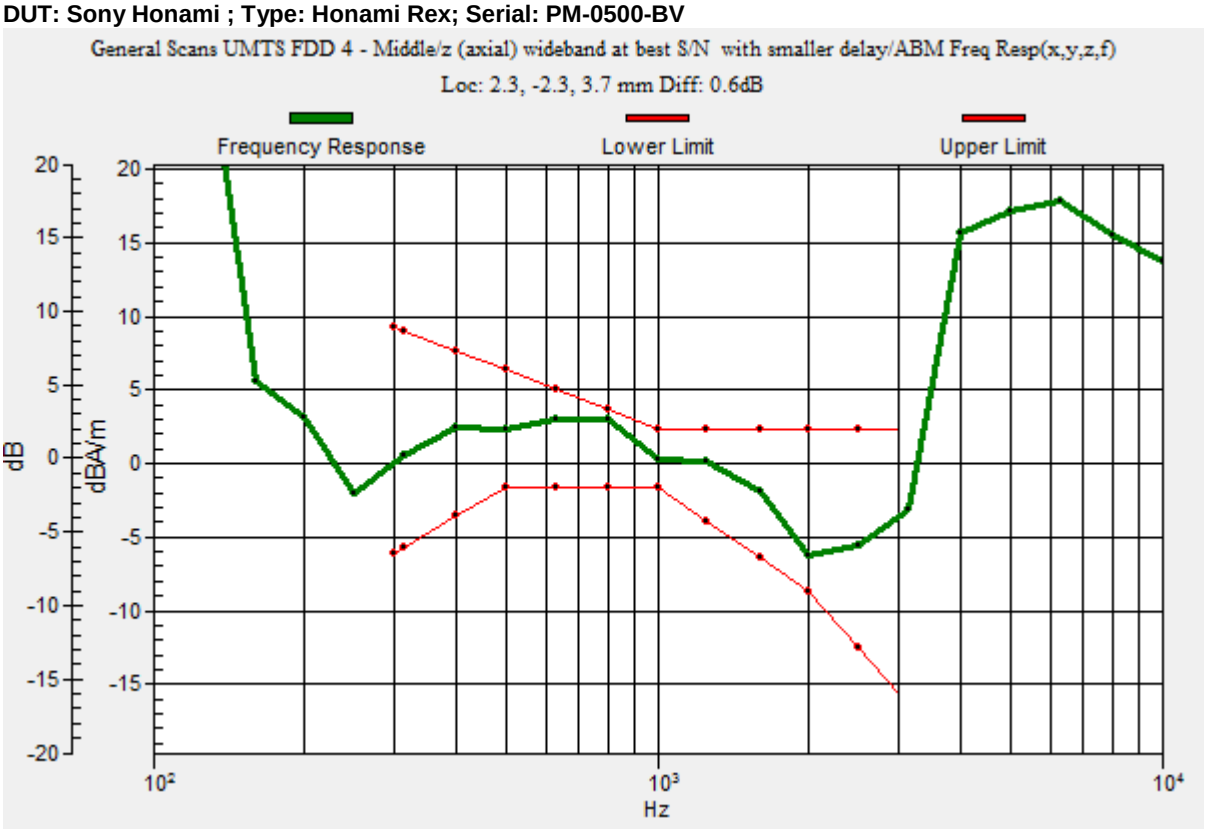
009: T-coil UMTS FDD 2 y(transversal) CH9400
Date: 06/07/2013
DUT: Sony Honami ; Type: Honami Rex; Serial: PM-0500-BV



0 dB = 1.000 A/m = 0.00 dBA/m
Communication System: UID 0 - n/a, UMTS FDD ; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium: Air Medium parameters used: $\sigma = 0$ S/m, $\varepsilon_r = 1$; $\rho = 0$ kg/m^3
Phantom section: TCoil Section
DASY4 Configuration:
- Probe: AM1DV2 - 1062; ; Calibrated: 11/12/2012
- Sensor-Surface: 0mm (Fix Surface)
- Electronics: DAE3 Sn417; Calibrated: 17/04/2013
- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA; Serial: 1032
- ; SEMCAD X Version 14.6.9 (7117)

T-Coil scan (scan for ANSI C63.19-2007 & 2011 compliance)/General Scans UMTS FDD 2 - Middle/y (transversal) 4.2mm 50 x 50/ABM SNR Category(x,y,z) (121x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Signal Type: Audio File (.wav) 48k_voice_1kHz_1s.wav
Output Gain: 38.5
Measure Window Start: 300ms
Measure Window Length: 1000ms
BWC applied: 0.14 dB
Device Reference Point: 0, 0, -6.3 mm
Cursor:
ABM1/ABM2 = 45.68 dB
ABM1 comp = -6.06 dBA/m
BWC Factor = 0.14 dB
Location: 4.6, 6.2, 3.7 mm

010: 1 Freq. Response UMTS FDD 4
Date: 06/07/2013
DUT: Sony Honami ; Type: Honami Rex; Serial: PM-0500-BV



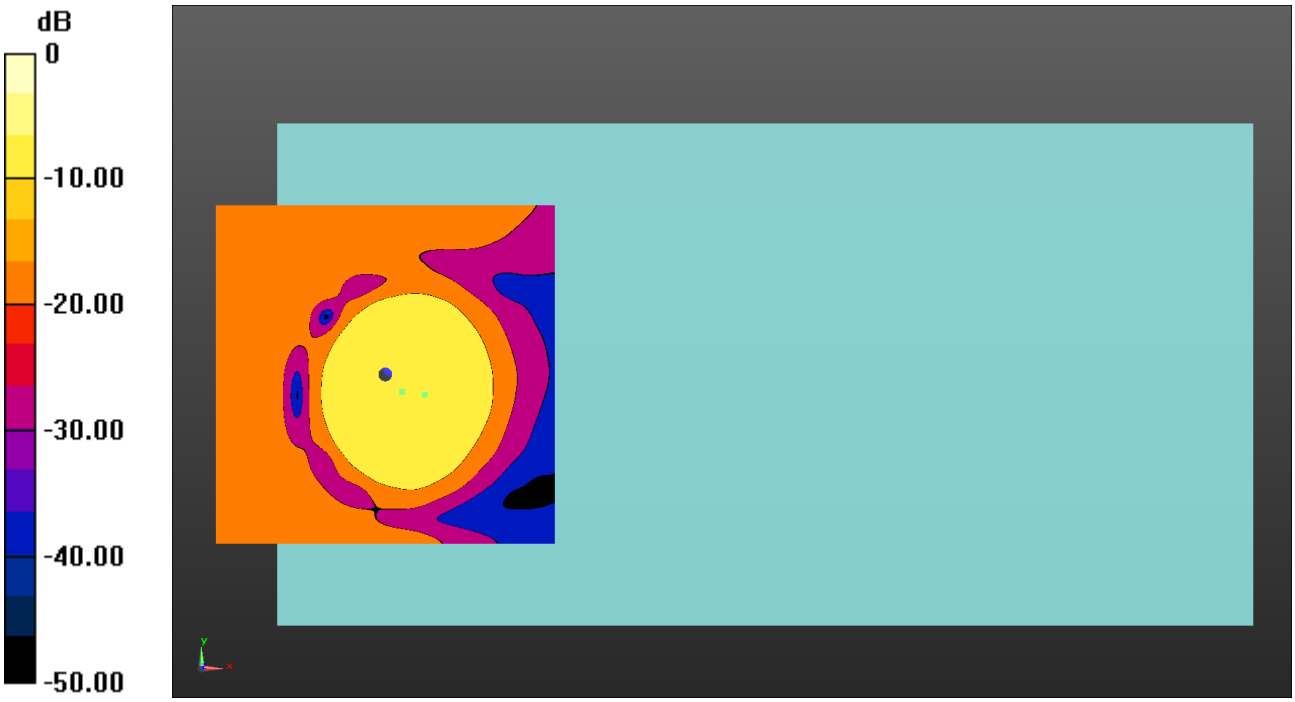
Communication System: UID 0 - n/a, UMTS FDD ; Frequency: 1732.4 MHz;Duty Cycle: 1:1
Medium: Air Medium parameters used: σ = 0 S/m, ε_r = 1; ρ = 0 kg/m^3
Phantom section: TCoil Section
DASY4 Configuration:
- Probe: AM1DV2 - 1062; ; Calibrated: 11/12/2012
- Sensor-Surface: 0mm (Fix Surface)
- Electronics: DAE3 Sn417; Calibrated: 17/04/2013
- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA; Serial: 1032
- ; SEMCAD X Version 14.6.9 (7117)

T-Coil scan (scan for ANSI C63.19-2007 & 2011 compliance)/General Scans UMTS FDD 4 - Middle/z (axial) wideband at best S/N with smaller delay/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: 76.5
Measure Window Start: 80ms
Measure Window Length: 2000ms
BWC applied: 10.78 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 = 0.60 dB
BWC Factor = 10.78 dB
Location: 2.3, -2.3, 3.7 mm

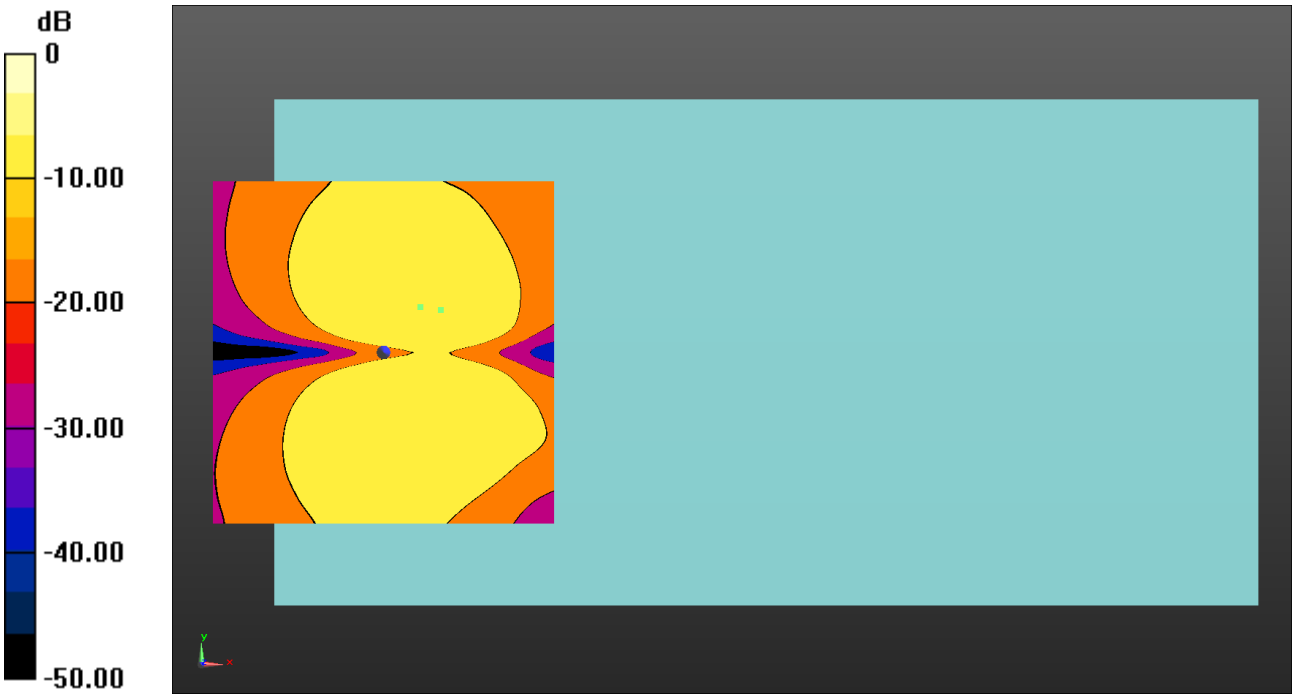
011: T-coil UMTS FDD 4 z(Axial) CH1412
Date: 06/07/2013
DUT: Sony Honami ; Type: Honami Rex; Serial: PM-0500-BV



0 dB = 1.000 A/m = 0.00 dBA/m
Communication System: UID 0 - n/a, UMTS FDD ; Frequency: 1732.4 MHz;Duty Cycle: 1:1
Medium: Air Medium parameters used: σ = 0 S/m, ε_r = 1; ρ = 0 kg/m^3
Phantom section: TCoil Section
DASY4 Configuration:
- Probe: AM1DV2 - 1062; ; Calibrated: 11/12/2012
- Sensor-Surface: 0mm (Fix Surface)
- Electronics: DAE3 Sn417; Calibrated: 17/04/2013
- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA; Serial: 1032
- ; SEMCAD X Version 14.6.9 (7117)

T-Coil scan (scan for ANSI C63.19-2007 & 2011 compliance)/General Scans UMTS FDD 4 - Middle/z (axial) 4.2mm 50 x 50/ABM SNR Category(x,y,z) (121x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Signal Type: Audio File (.wav) 48k_voice_1kHz_1s.wav
Output Gain: 38.5
Measure Window Start: 300ms
Measure Window Length: 1000ms
BWC applied: 0.14 dB
Device Reference Point: 0, 0, -6.3 mm
Cursor:
ABM1/ABM2 = 48.48 dB
ABM1 comp = 0.48 dBA/m
BWC Factor = 0.14 dB
Location: 2.5, -2.5, 3.7 mm

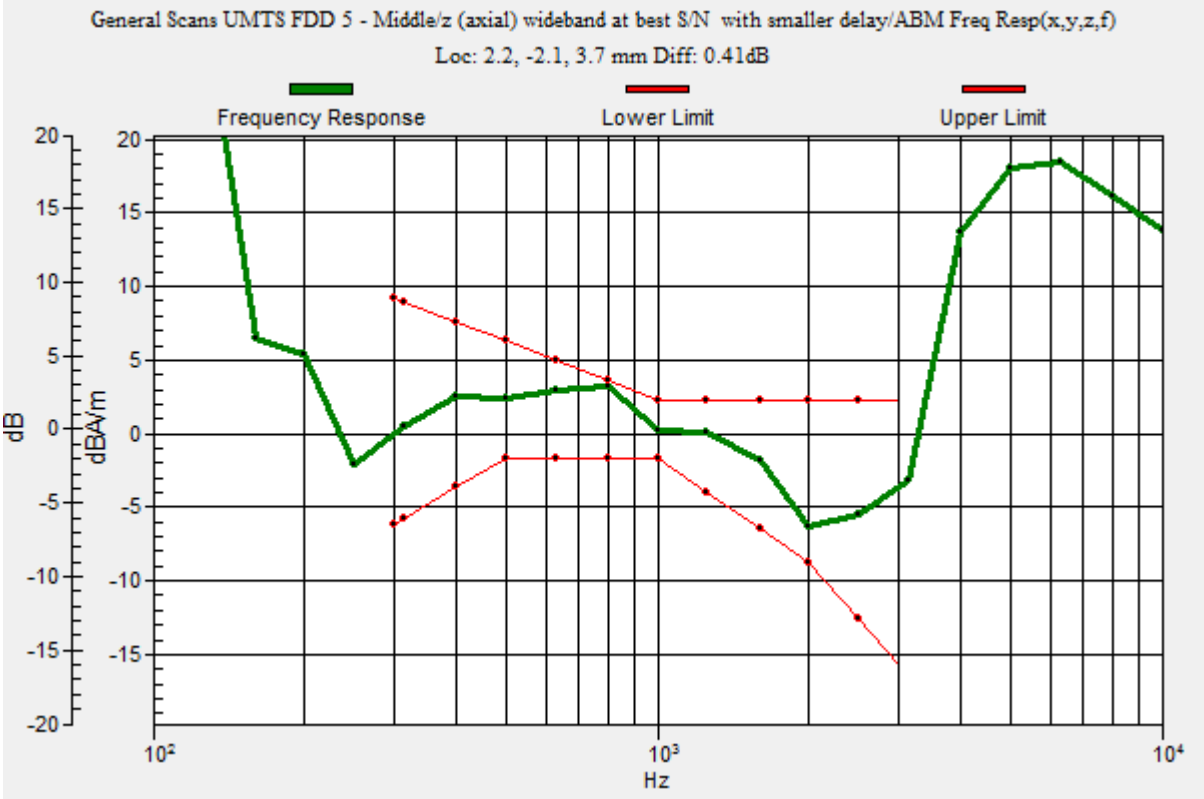
012: T-coil UMTS FDD 4 y(transversal) CH1412
Date: 06/07/2013
DUT: Sony Honami ; Type: Honami Rex; Serial: PM-0500-BV



0 dB = 1.000 A/m = 0.00 dBA/m
Communication System: UID 0 - n/a, UMTS FDD ; Frequency: 1732.4 MHz;Duty Cycle: 1:1
Medium: Air Medium parameters used: $\sigma = 0$ S/m, $\varepsilon_r = 1$; $\rho = 0$ kg/m^3
Phantom section: TCoil Section
DASY4 Configuration:
- Probe: AM1DV2 - 1062; ; Calibrated: 11/12/2012
- Sensor-Surface: 0mm (Fix Surface)
- Electronics: DAE3 Sn417; Calibrated: 17/04/2013
- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA; Serial: 1032
- ; SEMCAD X Version 14.6.9 (7117)

T-Coil scan (scan for ANSI C63.19-2007 & 2011 compliance)/General Scans UMTS FDD 4 - Middle/y (transversal) 4.2mm 50 x 50/ABM SNR Category(x,y,z) (121x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Signal Type: Audio File (.wav) 48k_voice_1kHz_1s.wav
Output Gain: 38.5
Measure Window Start: 300ms
Measure Window Length: 1000ms
BWC applied: 0.14 dB
Device Reference Point: 0, 0, -6.3 mm
Cursor:
ABM1/ABM2 = 45.66 dB
ABM1 comp = -5.32 dBA/m
BWC Factor = 0.14 dB
Location: 5.4, 6.7, 3.7 mm

013: Freq. Response UMTS FDD 5
Date: 06/07/2013
DUT: Sony Honami ; Type: Honami Rex; Serial: PM-0500-BV



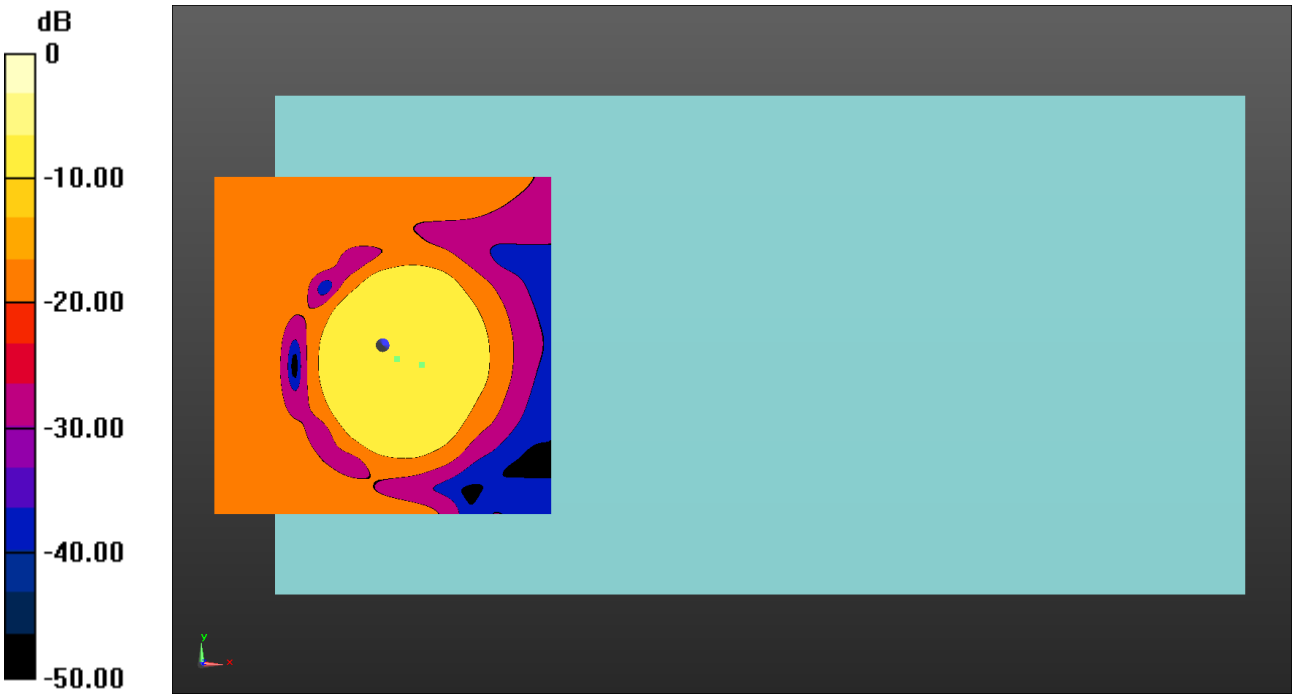
Communication System: UID 0 - n/a, UMTS FDD ; Frequency: 836.6 MHz;Duty Cycle: 1:1
Medium: Air Medium parameters used: σ = 0 S/m, ε_r = 1; ρ = 0 kg/m^3
Phantom section: TCoil Section
DASY4 Configuration:
- Probe: AM1DV2 - 1062; ; Calibrated: 11/12/2012
- Sensor-Surface: 0mm (Fix Surface)
- Electronics: DAE3 Sn417; Calibrated: 17/04/2013
- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA; Serial: 1032
- ; SEMCAD X Version 14.6.9 (7117)

T-Coil scan (scan for ANSI C63.19-2007 & 2011 compliance)/General Scans UMTS FDD 5 - Middle/z (axial) wideband at best S/N with smaller delay/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: 76.5
Measure Window Start: 80ms
Measure Window Length: 2000ms
BWC applied: 10.79 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

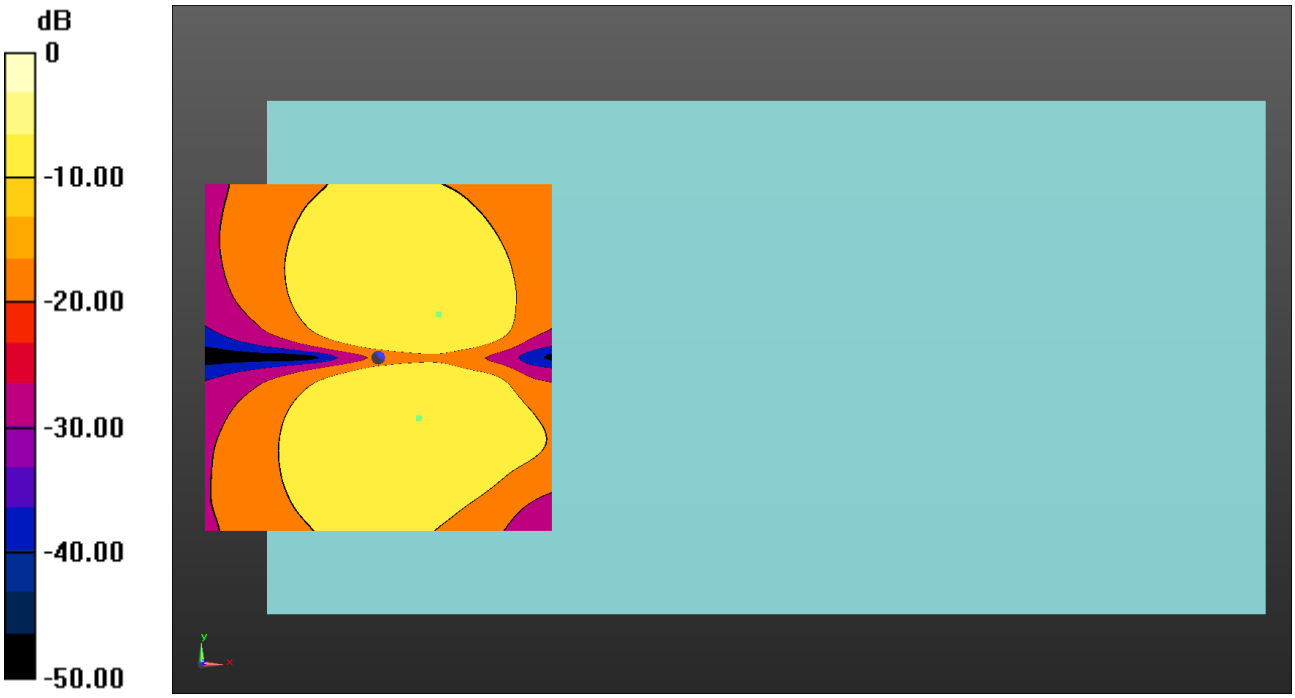
Cursor:
Diff = 0.41 dB
BWC Factor = 10.79 dB
Location: 2.2, -2.1, 3.7 mm

014: T-coil UMTS FDD 5 z(Axial) CH4183
Date: 06/07/2013
DUT: Sony Honami ; Type: Honami Rex; Serial: PM-0500-BV



0 dB = 1.000 A/m = 0.00 dBA/m
Communication System: UID 0 - n/a, UMTS FDD ; Frequency: 836.6 MHz;Duty Cycle: 1:1
Medium: Air Medium parameters used: $\sigma = 0$ S/m, $\varepsilon_r = 1$; $\rho = 0$ kg/m^3
Phantom section: TCoil Section
DASY4 Configuration:
- Probe: AM1DV2 - 1062; ; Calibrated: 11/12/2012
- Sensor-Surface: 0mm (Fix Surface)
- Electronics: DAE3 Sn417; Calibrated: 17/04/2013
- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA; Serial: 1032
- ; SEMCAD X Version 14.6.9 (7117)
T-Coil scan (scan for ANSI C63.19-2007 & 2011 compliance)/General Scans UMTS FDD 5 - Middle/z (axial) 4.2mm 50 x 50/ABM SNR Category(x,y,z) (121x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Signal Type: Audio File (.wav) 48k_voice_1kHz_1s.wav
Output Gain: 38.5
Measure Window Start: 300ms
Measure Window Length: 1000ms
BWC applied: 0.14 dB
Device Reference Point: 0, 0, -6.3 mm
Cursor:
ABM1/ABM2 = 48.78 dB
ABM1 comp = -0.07 dBA/m
BWC Factor = 0.14 dB
Location: 2.1, -2.1, 3.7 mm

015: T-coil UMTS FDD 5 y(transversal) CH4183
Date: 06/07/2013
DUT: Sony Honami ; Type: Honami Rex; Serial: PM-0500-BV



0 dB = 1.000 A/m = 0.00 dBA/m
Communication System: UID 0 - n/a, UMTS FDD ; Frequency: 836.6 MHz;Duty Cycle: 1:1
Medium: Air Medium parameters used: σ = 0 S/m, ε_r = 1; ρ = 0 kg/m^3
Phantom section: TCoil Section
DASY4 Configuration:
- Probe: AM1DV2 - 1062; ; Calibrated: 11/12/2012
- Sensor-Surface: 0mm (Fix Surface)
- Electronics: DAE3 Sn417; Calibrated: 17/04/2013
- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA; Serial: 1032
- ; SEMCAD X Version 14.6.9 (7117)

T-Coil scan (scan for ANSI C63.19-2007 & 2011 compliance)/General Scans UMTS FDD 5 - Middle/y (transversal) 4.2mm 50 x 50/ABM SNR Category(x,y,z) (121x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Signal Type: Audio File (.wav) 48k_voice_1kHz_1s.wav
Output Gain: 38.5
Measure Window Start: 300ms
Measure Window Length: 1000ms
BWC applied: 0.14 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1/ABM2 = 45.42 dB
ABM1 comp = -5.45 dBA/m
BWC Factor = 0.14 dB
Location: 5.8, -8.8, 3.7 mm

Appendix 2: Cal Certificates

This section contains the calibration certificates, data for the Probe(s) used. This is not included in the total number of pages for this report.

Checked by

DATE: 25-Jan-2013

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

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

Accredited by the Swiss Accreditation Service (SAS)
The Swiss Accreditation Service is one of the signatories to the EA Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: SCS 108

A2237

Client RFI

Certificate No: AM1D-1062_Dec12

CALIBRATION CERTIFICATE

Object	AM1DV2 - SN: 1062
Calibration procedure(s)	QA CAL-24.v3 Calibration procedure for AM1D magnetic field probes and TMFS in the audio range
Calibration date:	December 11, 2012

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Keithley Multimeter Type 2001	SN: 0810278	02-Oct-12 (No:12728)	Oct-13
Reference Probe AM1DV2	SN: 1008	12-Jan-12 (No. AM1D-1008_Jan12)	Jan-13
DAE4	SN: 781	29-May-12 (No. DAE4-781_May12)	May-13

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
AMCC	1050	12-Oct-11 (in house check Oct-11)	Oct-13
AMMI Audio Measuring Instrument	1062	26-Sep-12 (in house check Sep-12)	Sep-14

	Name	Function	Signature
Calibrated by:	Dimce Iliev	Laboratory Technician	D. Iliev
Approved by:	Fin Bomholt	R&D Director	F. Bomholt

Issued: December 11, 2012

References

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

[2] DASY5 manual, Chapter: Hearing Aid Compatibility (HAC) T-Coil Extension

Description of the AM1D probe

The AM1D 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 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 nominally 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 a DASY system, the probe must be operated with the special probe cup provided (larger diameter).

Methods Applied and Interpretation of Parameters

- *Coordinate System:* The AM1D probe is mounted in the DASY system for operation with a HAC Test Arch phantom with AMCC Helmholtz calibration coil according to [2], with the tip pointing to "southwest" orientation.
- *Functional Test:* The functional test preceding calibration includes test of
  Noise level
  RF immunity (1kHz AM modulated signal). The shield of the probe cable must be well connected.
  Frequency response verification from 100 Hz to 10 kHz.
- *Connector Rotation:* The connector at the end of the probe does not carry any signals and is used for fixation to the DAE only. The probe is operated in the center of the AMCC Helmholtz coil using a 1 kHz magnetic field signal. Its angle is determined from the two minima at nominally +120° and –120° rotation, so the sensor in the tip of the probe is aligned to the vertical plane in z-direction, corresponding to the field maximum in the AMCC Helmholtz calibration coil.
- *Sensor Angle:* The sensor tilting in the vertical plane from the ideal vertical direction is determined from the two minima at nominally +120° and –120°. DASY system uses this angle to align the sensor for radial measurements to the x and y axis in the horizontal plane.
- *Sensitivity:* With the probe sensor aligned to the z-field in the AMCC, the output of the probe is compared to the magnetic field in the AMCC at 1 kHz. The field in the AMCC Helmholtz coil is given by the geometry and the current through the coil, which is monitored on the precision shunt resistor of the coil.

AM1D probe identification and configuration data

Item	**AM1DV2** Audio Magnetic 1D Field Probe
Type No	SP AM1 001 AF
Serial No	**1062**

Overall length	296 mm
Tip diameter	6.0 mm (at the tip)
Sensor offset	3.0 mm (centre of sensor from tip)
Internal Amplifier	40 dB

Manufacturer / Origin	Schmid & Partner Engineering AG, Zurich, Switzerland
Manufacturing date	Aug-2007
Last calibration date	November 16, 2010

Calibration data

Connector rotation angle	(in DASY system)	**331.6 °**	+/- 3.6 ° (k=2)
Sensor angle	(in DASY system)	**0.41 °**	+/- 0.5 ° (k=2)
Sensitivity at 1 kHz	(in DASY system)	**0.0679 V / (A/m)**	+/- 2.2 % (k=2)

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