Registration
No.788871

Test Report
FOR HAC T-coil

Report No. : SRTC2018-9004(F)-18030601(M)

Product Name: Mobile Phone

Product Model: H1A1000

Applicant: RED Technologies LLC

Manufacturer: RED Technologies LLC

Specification: FCC Part 20.19 (2017-10)

ANSI C63.19-2011

FCC ID: 2AOYWH1A1000

The State Radio_monitoring_center Testing Center (SRTC)

15th Building, No.30, Shixing Street, Shijingshan District, Beijing, P.R.China

Tel: 86-10-57996183 Fax: 86-10-57996388

Contents

1 GENERAL INFORMATION

1.1 Notes of the test report

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The test results relate only to individual items of the samples which have been tested.

1.2 Information about the testing laboratory

Company:	The State Radio_monitoring_center Testing Center (SRTC)
Address:	15th Building, No.30 Shixing Street, Shijingshan District
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1.3 Applicant's details

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1.4 Manufacturer's details

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City:	Irvine
Country or Region:	United States
Contacted person:	Doug Kwon
Tel:	9492067900 ext 7794
Fax:	---
Email:	Doug.kwon@Red.com

1.5 Test Environment

Date of Receipt of test sample at SRTC:	2018.04.28
Testing Start Date:	2018.05.08
Testing End Date:	2018.07.02

Environmental Data:	Temperature (°C)	Humidity (%)
Ambient	21.0-23.0	40.0-45.0

Normal Supply Voltage (V d.c.):	3.85

2 DESCRIPTION OF THE DEVICE UNDER TEST

2.1 Final Equipment Build Status

Wireless Technology and Frequency Bands	☒GSM Band: GSM850/PCS1900 ☒WCDMA Band: FDD2/4/5 ☒LTE Band: FDD2/3/4/5/7/12/13/14/17/18/19/25/26/28/29/30/66 TDD38/40/41 ☒Bluetooth Band: 2.4GHz~2.4835GHz ☒Wi-Fi Band: 2.4GHz ,5GHz(U-NII-1,U-NII-3)
Mode	GSM ☒Voice (GMSK) ☒GPRS (GMSK) ☒EGPRS (GMSK/8PSK) WCDMA ☒UMTS Rel. 99 (Voice & Data) ☒HSDPA (Rel. 5) ☒HSUPA (Rel. 6) ☒HSPA+ (Rel.) ☒DC-HSDPA (Rel.) Wi-Fi (802.11a/b/g/n) ☒802.11a ☒802.11b ☒802.11g ☒802.11n (20MHz) ☒802.11n (40MHz) ☒802.11ac (20MHz) ☒802.11ac (40MHz) ☒802.11ac (80MHz) ☐802.11ac (160MHz) Bluetooth ☒BR(GFSK) ☒EDR(π/4 DQPSK , 8-DPSK) ☒BLE(GFSK) LTE ☒QPSK ☒16QAM ☐64QAM

Note: We don't need to consider LTE band3,18,19,28,29 (CA-downlink),40 in the report according to "LTE in FCC Bands and Services"

2.2 Support Equipment

The following support equipment was used to exercise the DUT during testing:

State of sample	Normal
Headset	QZESDM1532001A00/KAN TSANG iNDUSTRIAL CO.Ltd
Batteries	RED-A2H-4500/DONGGUAN DRN NEW ENERGY CO.,LTD
H/W Version S/W Version	EVT2.1 HiA1000.005ho.01.00.01d.403
IMEI	355929090024713/355929090025314
Normal	operation
Back	The Back Cover is not removable
Notes	Considering the worst condition, We used SIM card hold1 perform all the test.

3 REFERENCE SPECIFICATIONS

Specification	Version	Title
Part 20.19	2017	Hearing aid-compatible mobile handsets.
C63.19	2011	American National Standard Methods of Measurement of Compatibility between Wireless Communications Devices and Hearing Aids
285076 D01	v05	HAC Guidance
285076 D02	v03	T-Coil Testing

4 RESULT SUMMAR

Band & Mode	Category assessment T-coil signal quality	Pass/Fail
GSM850	T3	PASS
GSM1900	T3	PASS
WCDMA BAND2	T3	PASS
WCDMA BAND4	T3	PASS
WCDMA BAND5	T4	PASS
LTE BAND2	T3	PASS
LTE BAND4	T3	PASS
LTE BAND5	T3	PASS
LTE BAND7	T3	PASS
LTE BAND12	T3	PASS
LTE BAND13	T3	PASS
LTE BAND14	T3	PASS
LTE BAND17	T3	PASS
LTE BAND25	T3	PASS
LTE BAND26	T3	PASS
LTE BAND30	T3	PASS
LTE BAND38	T3	PASS
LTE BAND41	T3	PASS
LTE BAND66	T3	PASS
WIFI 2.4GHz	T4	PASS
WIFI 5GHz U-NII-1	T4	PASS
WIFI 5GHz U-NII-3	T4	PASS
Final M Category	**T3**	**PASS**

This Test Report Is Issued by: Mr. Peng Zhen	Checked by: Mr. Li Bin
Tested by: Mr. Chang Tianyu	Issued date: 20180709

5 Test Procedures for all Technologies

Referenced to ANSI C63.19-2011, Section 7.4,

This section describes the describes the procedures used to measure the ABM (T-Coil) performance of the WD. In addition to measuring the absolute signal levels, the A-weighted magnitude of the unintended signal shall also be determined. In order 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 all measurement positions. In addition, the RF field strength at each measurement location must be at or below that required for the assigned category.

Measurements shall not include undesired properties from the WD's RF field; therefore, use of a coaxial connection to a base station simulator or non-radiating load may be necessary. However, even then with a coaxial connection to a base station simulator or non-radiating load there may still be RF leakage from the WD, which may interfere with the desired measurement. Pre-measurement checks should be made to avoid this possibility. All measurements shall be done with the WD operating on battery power with an appropriate normal speech audio signal input level given in Table 7.1. If the device display can be turned off during a phone call then that may be done during the measurement as well.

Measurements shall be performed at two locations specified in A.3, with the correct probe orientation for a particular location, in a multistage sequence by first measuring the field intensity of the desired T-Coil signal (ABM1) that is useful to a hearing aid T-Coil. The undesired magnetic components (ABM2) must be measured at the same location as the desired ABM or T-Coil signal (ABM1), and the ratio of desired to undesired ABM signals must be calculated. For the perpendicular field location, only the ABM1 frequency response shall be determined in a third measurement stage. The flow chart in Figure 7.3 illustrates this three-stage, two orientation process.

The following steps summarize the basic test flow for determining ABM1 and ABM2. These steps assume that a sine wave or narrowband 1/3 octave signal can be used for the measurement of 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 specified 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 Figure 7.1 or Figure 7.2. Confirm that equipment that requires calibration has been calibrated, and that the noise level meets the requirements given in 7.3.1.

c. The drive level to the WD is set such that the reference input level specified

in Table 7.1 is input to the base station simulator (or manufacturer's test mode equivalent) in the 1 kHz, 1/3 octave band. This drive level shall be used for the T-Coil signal test (ABM1) at f = 1 kHz. Either a sine wave at 1025 Hz or a voice-like signal, band-limited to the 1 kHz 1/3 octave, as defined in 7.4.2, shall be used for the reference audio signal. If interference is found at 1025 Hz an alternative nearby reference audio signal frequency may be used.46 The same drive level will be used for the ABM1 frequency response measurements at each 1/3 octave band center 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 not result in clipping or signal overload.

d. Determine the magnetic measurement locations for the WD device (A.3), if not already specified by the manufacturer, as described in 7.4.4.1.1 and 7.4.4.2.

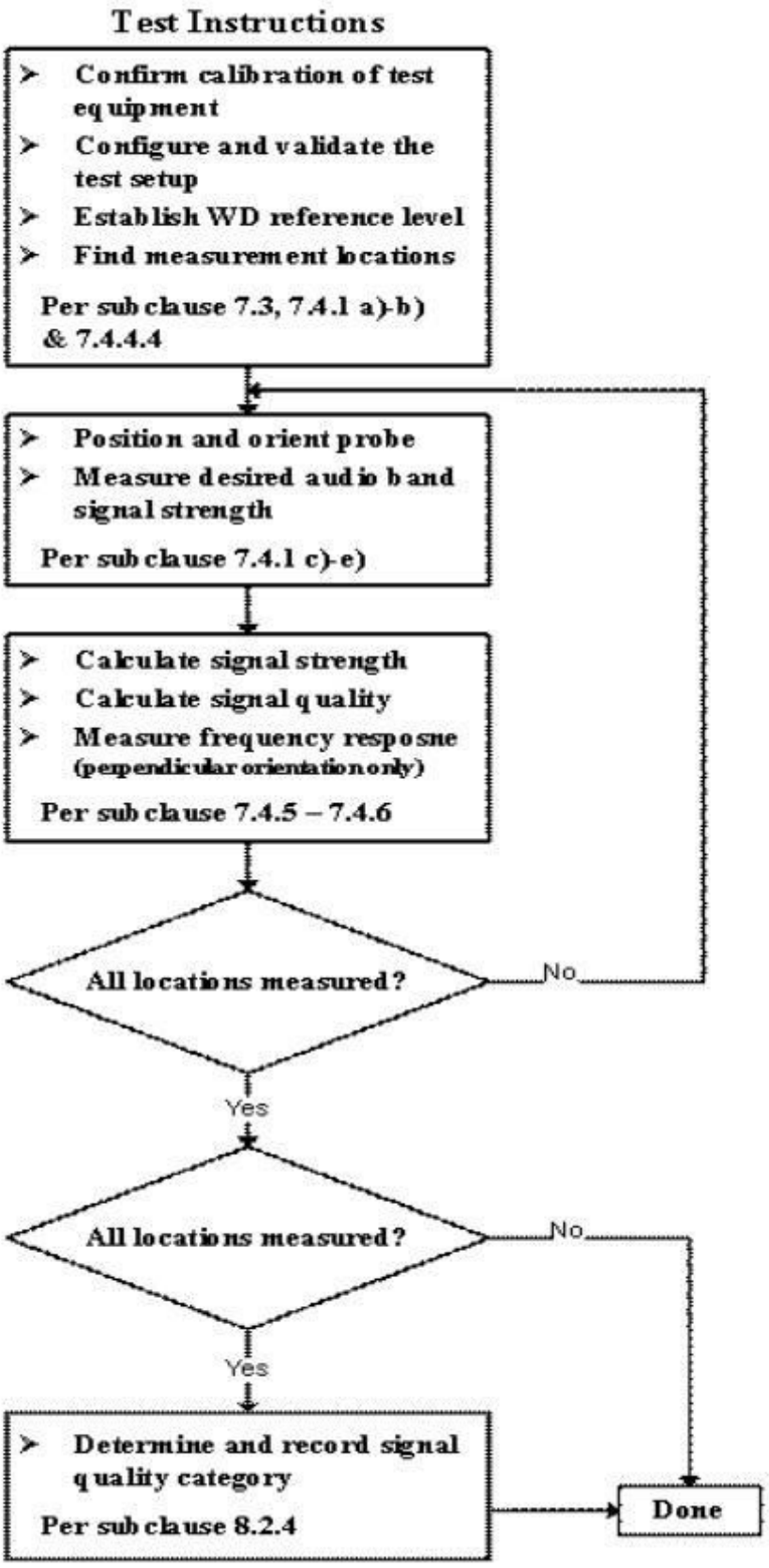
e. At each measurement location, measure and record the desired T-Coil magnetic signals (ABM1 at fi) as described in 7.4.4.2 in each individual ISO 266-1975 R10 standard 1/3 octave band. The desired audio band input frequency (fi) shall be centered in each 1/3 octave band maintaining the same drive level as determined in item c) and the 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 probe output, as specified in D.9, 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.)

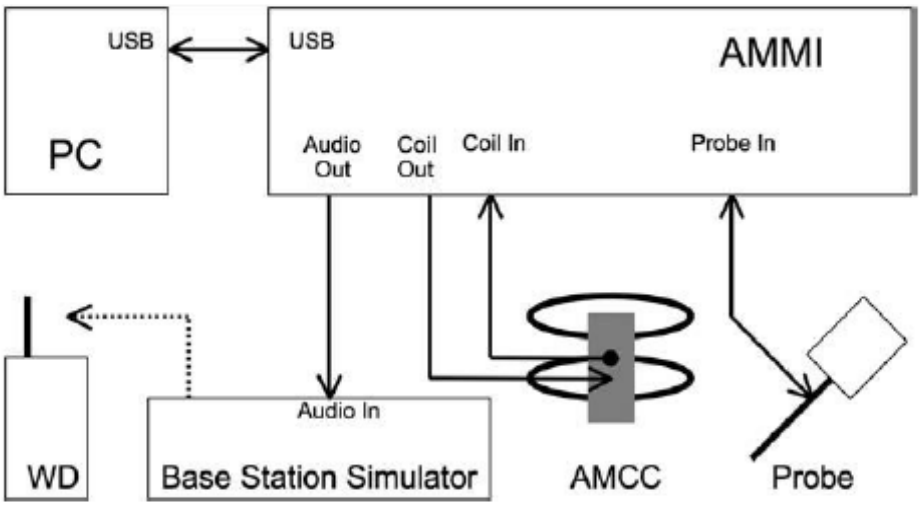
g. All Measurements of the desired signal shall be shown to be of the desired signal and not of an undesired signal. This may be shown by turning the desired signal ON and OFF with the probe measuring the same location. If the scanning method is used the scans shall show that all measurement points selected for the ABM1 measurement meet the ambient and test system noise criteria in ANSI C63.19-2011 clause 7.3.1.

h. At the measurement location for each orientation, measure and record the undesired broadband audio magnetic signal (ABM2) as specified in 7.4.4.4 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 Table 8.5.


Test Instructions
Confirm calibration of test equipment
Configure and validate the test setup
Establish WD reference level
Find measurement locations
Per subclause 7.3, 7.4.1 a)-b) & 7.4.4.4
Position and orient probe
Measure desired audio band signal strength
Per subclause 7.4.1 c)-e)
Calculate signal strength
Calculate signal quality
Measure frequency resposne (perpendicular orientation only)
Per subclause 7.4.5 – 7.4.6
All locations measured?
No
Yes
All locations measured?
No
Yes
Determine and record signal quality category
Per subclause 8.2.4
Done

WD T-Coil signal test flowchart



Test Setup Diagram

For GSM / UMTS test setup and input level, the correct input level definition is via a communication tester CMU200's "Decoder Cal" and "Codec Cal" with audio option to set the
correct audio input levels.

For VoLTE and VoWiFi the test setup used is via the callbox of CMW500 for T-coil measurement, The DAU of the CMW500 was used to simulate the IMS. The CMW500 can be manually configured to ensure and control the speech input level result is -16dBm0 for VoLTE, -20dBm0 for VoWiFi when the device during the IMS connection.

For GSM / UMTS test setup and input level, the correct input level definition is via a communication tester **CMU200**'s "Decoder Cal" and "Codec Cal" with audio option B52 and B85

The following options units on **CMW500** were used to simulate the VoLTE /VOWIFI (IMS,EPDG,DNS inside DAU with Audio Board) for testing.

Firmware License Keys	Software Name
CMW-PS505	Basic Assembly
CMW-S052S	SSD Driver
CMW-S100D	Baseband Measurement Unit
CMW-S550N	Flexible Internal Connection
CMW-S570B	RF Converter
CMW-S590D	Advanced Frontend
CMW-S600B	Front Panel with Display
CMW-PS505	Basic Assembly
CMW-S052S	SSD Driver

Hardware Options and Accessory:

CMW-B400B	**Audio Board**
CMW-B405A	**CODEC Board**
CMW-B500I	**Signaling Unit for LTE and WLAN**
CMW-B612A	GPIB Connector
CMW-B660H	Option Carrier
CMW-B661H	Ethernet Switch Board
CMW-B690B	OXCO
CMW-KB036	6 GHz Extension
CMW-Z06	Test USIM Card
CMW-B450H	**Data Application Unit (DAU) for IMS Server and IP Emulation**

Software Options:

CMW-K0	
CMW-KS104	Software License for EVS
CMW-PK45	Software License Package for IP Network Emulation
CMW-PK50	Software License Package for LTE
CMW-PK65	Software License Package for WLAN

6 Audio Level and Gain Measurements

According to C63 .19and KDB 285076 D02v03 , the input audio level showing below:

- GSM input level: -16dBm0
- UMTS input level: -16dBm0
- VoLTE input level: -16dBm0
- VoWiFi input level: -20dBm0

The table of **Required gain** showing below is given by SPEAG, And we used these parameters to determine the **Gain setting** on the software DASY52 perform HAC T-coil test.

Signal [file name]	Duration [s]	Peak-to-RMS [dB]	RMS [dB]	Required gain factor *)	Gain setting
1kHz sine	---	3.0	0.0	1.00	
48k_1.025kHz_10s.wav	10	3.0	0.0	1.00	
48k_1kHz_3.15kHz_10s.wav	10	6.0	-3.0	1.42	
48k_315Hz_1kHz_10s.wav	10	6.0	-2.9	1.40	
48k_csek_8k_441_white_10s.wav	10	13.8	-10.5	3.34	
48k_multisine_50-5000_10s.wav	10	11.1	-7.9	2.49	
48k_multisine_50-10000_10s.wav	10	10.8	-7.7	2.42	
48k_voice_1kHz_1s.wav	1	16.2	-12.7	4.33	
48k_voice_300-3000_2s.wav	2	21.6	-18.6	8.48	
48k_normal (example)	51	25.4	-22.42	13.21	

(*) The gain for the specific signal shall typically be multiplied by this factor to achieve approx. the same level as for the 1kHz sine signal.

Note: For protocols not listed in Table 7.1 of ANSI C63.19-2011 or the ANSI C63.19-2011 VoLTE interpretation, the average speech level of -20 dBm0 should be used

For GSM/UMTS test, we use uncalibrated simulator CMU200 the reference level in dBm0 depend on the instrument, the signaling unit used and on the AMMI.
The gain level determination to obtain a specific level in dBm0 with R&S CMU200 describe as following procedure.
Step1: **Decoder Calibration** on the CMU200.
The value of AMCC coil in_RMS (dBv) is -2.42dBV is equal to the reference input level of 3.14dBm0
Step2: **Codec Calibration** on the CMU200.
Measure the AMMI 1KHz sine with gain 10(20dB) looped through the CMU200 using AMMI 'Coil_In' and ''Coil_In' signal reading is -19.71dBV corresponds to a level -14.15 dBm0
Step3: **Calculate the required gain** for a '1 kHz Sine'.
Our desire input level is -16dBm0 for GSM and WCDMA, so the **required gain** is (-16dBm0) – (-14.15dBm0) + 20 dB=18.15 dB (gain dB)=8.08 (gain linear)
Step4: **Gain setting for several audio files (required gain* gain factor).**

Mode	Signal Type	Duration (s)	Peak to RMS (dB)	Peak to RMS (dB)	Required Gain Factor	Calculated Gain Setting
GSM/ WCDMA (-16dBm0)	1kHz sine	---	3	0	1	**8.08**
	48k_voice_1kHz	1	16.2	-12.7	4.33	**34.99**
	48k_voice_300Hz ~ 3kHz	2	21.6	-18.6	8.48	**68.52**

For VoLTE/VoWIFI test, we use simulators with calibrated inputs CMW500 where the input sensitivity dBm0 per input voltage is known or can be set, the relation between the analog input voltage and the internal level in dBm0 can be determined
The gain level determination to obtain a specific level in dBm0 with CMW500 describe as following procedure.

Step1: **Define CMW500 analog input voltage** on the CMW500.
The value of Speech_In Sensitivity is 1.8V_fullscale is equal to the reference input level of 3.14dBm0, Full scale input level converted to dBV_RMS is 2.10
Step2: **Connect AMMI "Audio Out" to "AMMI Coil In" via BNC-XLR adapter.**
Measure the AMMI 1KHz sine with gain 100(40dB) "Coil_In' signal reading is 3.37 dBV ,Impedence corrected "Coil_In' signal reading is 3.37 dBV -0.15dB= 3.22dBV corresponds to a level 4.26 dBm0
Step3: **Calculate the required gain** for a '1 kHz Sine'.
If our desire input level is -16dBm0 for LTE, the **required gain** is (-16dBm0) – (4.26dBm0) + 40 dB=19.74 dB (gain dB)= 9.70 (gain linear)
If our desire input level is -20dBm0 for WIFI, the **required gain** is (-20dBm0) – (4.26dBm0) + 40 dB=15.74 dB (gain dB)= 6.12 (gain linear)

Step4: **Gain setting for several audio files (required gain* gain factor).**

Mode	Signal Type	Duration (s)	Peak to RMS (dB)	Peak to RMS (dB)	Required Gain Factor	Calculated Gain Setting
LTE (-16dBm0)	1kHz sine	---	3	0	1	**9.70**
	48k_voice_1kHz	1	16.2	-12.7	4.33	**42.00**
	48k_voice_300Hz ~ 3kHz	2	21.6	-18.6	8.48	**82.26**
WIFI (-20dBm0)	1kHz sine	---	3	0	1	**6.12**
	48k_voice_1kHz	1	16.2	-12.7	4.33	**26.50**
	48k_voice_300Hz ~ 3kHz	2	21.6	-18.6	8.48	**51.90**

7 Description of the test Position

7.1 Test positions

The device was positioned such that Device Reference plane was touching the bottom of the Test Arch. The scan is centered at the acoustic output by aligning the acoustic output with the intersection of the Test Arch's middle bar and dielectric wire. The WD is positioned always this way to ensure repeatability of the measurements. Coordinate system depicted below is used to define exact locations of measurement points relative to the center of the acoustic output.

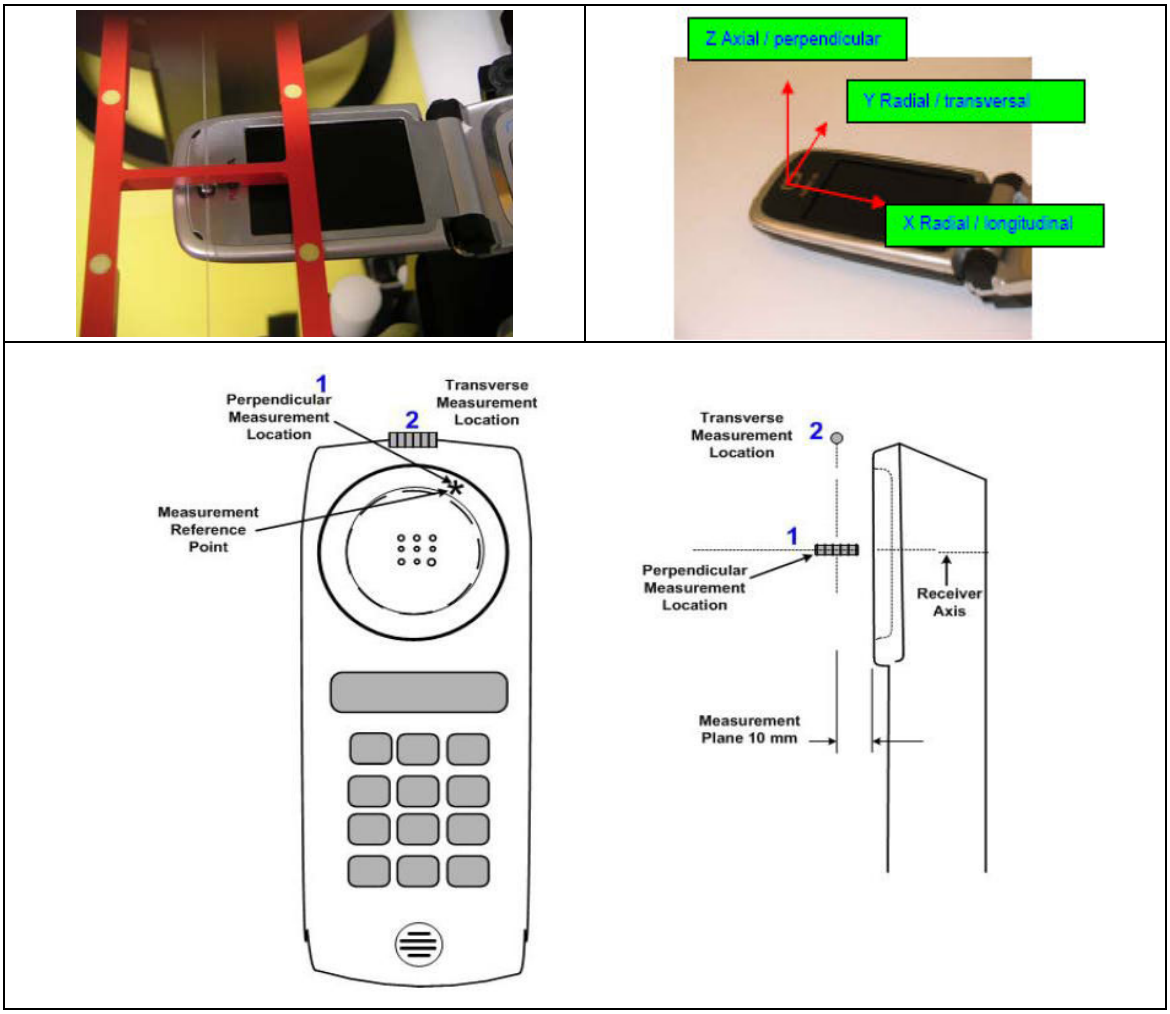


Photo of the device positioned under Test Arch and coordinate system (The EUT in picture is generic phone sample and does not represent the actual equipment under test)

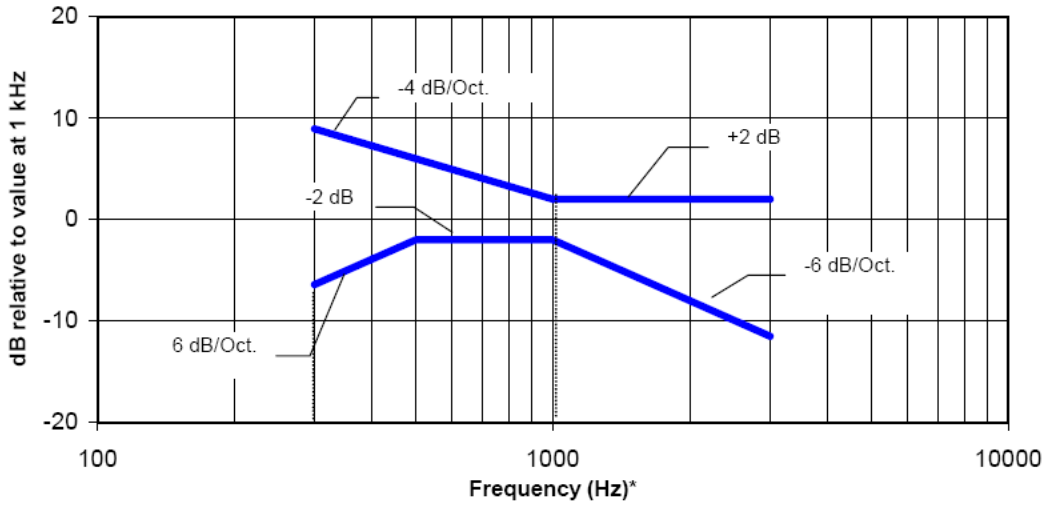
7.2 T-coil Requirements and Category Limits

Signal to Noise :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. So, the only criterion that can be measured is the RF immunity in T-Coil Mode. The RF measurements made for the T-Coil evaluation are used to assign the category T1 through T4.

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

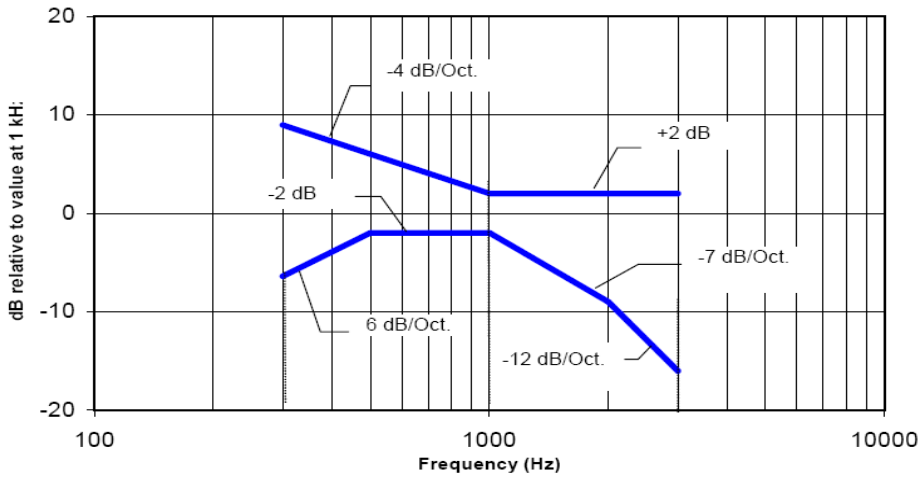
Frequency Response

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.



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

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



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

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

8 Measurement uncertainty

Uncertainty of Audio Band Magnetic Measurements							
Error Description	Unc. Value	Prob. Dist.	Div.	(c_i) ABM1	(c_i) ABM2	Std. Unc. ABM1	Std. Unc. ABM2
Probe Sensitivity							
Reference Level	±3.0%	N	1	1	1	±3.0%	±3.0%
AMCC Geometry	±0.4%	R	√3	1	1	±0.2%	±0.2%
AMCC Current	±1.0%	R	√3	1	1	±0.6%	±0.6%
Probe Positioning during Calibr.	±0.1%	R	√3	1	1	±0.1, %	±0.1%
Noise Contribution	±0.7%	R	√3	0.0143	1	±0.0%	±0.4%
Frequency Slope	±5.9%	R	√3	0.1	1.0	±0.3%	±3.5%
Probe System							
Repeatability / Drift	±1.0%	R	√3	1	1	±0.6%	±0.6%
Linearity / Dynamic Range	±0.6%	R	√3	1	1	±0.4%	±0.4%
Acoustic Noise	±1.0%	R	√3	0.1	1	±0.1%	±0.6%
Probe Angle	±2.3%	R	√3	1	1	±1.4%	±1.4%
Spectral Processing	±0.9%	R	√3	1	1	±0.5%	±0.5%
Integration Time	±0.6%	N	1	1	5	±0.6%	±3.0%
Field Disturbation	±0.2%	R	√3	1	1	±0.1%	±0.1%
Test Signal							
Ref. Signal Spectral Response	±0.6%	R	√3	0	1	±0.0%	±0.4%
Positioning							
Probe Positioning	±1.9%	R	√3	1	1	±1.1%	±1.1%
Phantom Thickness	±0.9%	R	√3	1	1	±0.5%	±0.5%
DUT Positioning	±1.9%	R	√3	1	1	±1.1%	±1.1%
External Contributions							
RF Interference	±0.0%	R	√3	1	0.3	±0.0%	±0.0%
Test Signal Variation	±2.0%	R	√3	1	1	±1.2%	±1.2%
Combined Uncertainty							
Combined Std. Uncertainty (ABM Field)						±4.1%	±6.1%
Expanded Std. Uncertainty						±8.1%	±12.3%

9 Air Interfaces and Operating Mode

Air interface	Bands (MHz)	Type	ANSI C63.19 Tested	Simultaneous Transmitter	Voice Service	Power Reduction
GSM	GSM850	VO	YES	WIFI, BT	CMRS Voice	NA
	GSM1900		YES	WIFI, BT	CMRS Voice	**No**
	GPRS/EGPRS(850&1900)	DT	YES	WIFI, BT	NA	NA
WCDMA (UMTS)	Band 2	VO	YES	WIFI, BT	CMRS Voice	NA
	Band 4	VO	YES	WIFI, BT	CMRS Voice	NA
	Band 5	VO	YES	WIFI, BT	CMRS Voice	NA
	HSPA&HSPA+(Band 2/4/5)	DT	YES	WIFI, BT	NA	NA
LTE (FDD)	LTE BAND2	VD	Yes	WIFI, BT	VoLTE	NA
	LTE BAND3			WIFI, BT		NA
	LTE BAND4			WIFI, BT		NA
	LTE BAND5			WIFI, BT		NA
	LTE BAND7			WIFI, BT		NA
	LTE BAND12			WIFI, BT		NA
	LTE BAND13			WIFI, BT		NA
	LTE BAND14			WIFI, BT		NA
	LTE BAND17			WIFI, BT		NA
	LTE BAND18			WIFI, BT		NA
	LTE BAND19			WIFI, BT		NA
	LTE BAND25			WIFI, BT		NA
	LTE BAND26			WIFI, BT		NA
	LTE BAND28			WIFI, BT		NA
	LTE BAND30			WIFI, BT		NA
	LTE BAND66			WIFI, BT		NA
LTE (TDD)	LTE BAND38	VD	Yes	WIFI, BT	VoLTE	NA
	LTE BAND40			WIFI, BT		NA
	LTE BAND41			WIFI, BT		NA

Air interface	Bands (MHz)	Type	ANSI C63.19 Tested	Simultaneous Transmitter	Voice Service	Power Reduction
WIFI	2.4GHz	VD	Yes	GSM,WCDMA,LTE	VoWiFi	NA
	5GHz(U-NII-1)			GSM,WCDMA,LTE, BT		NA
	5GHz(U-NII-3)			GSM,WCDMA,LTE, BT		NA
BT	2.4GHz	DT	No	GSM,WCDMA,LTE, WIFI 5G	NA	NA

Abbreviation Type
VO=CMRS Voice Service
DT = Digital Transport
VD=CMRS IP Voice Service and Digital Transport
BT=Bluetooth

10 T-Coil testing

General illustration:

1. The middle channel of each frequency band is used for T-Coil testing according ANSI C63.19 2011.
2. For VoLTE or VoWiFi ,Codec investigation is choose either one radio configuration and an investigation was performed, the following tests use worst codec for the handset.
3. For VoLTE or VoWiFi, Radio configuration investigation is choose worst codec from codec investigation to determine the worst radio configuration on all frequency band, data rates and modulations and RB configuration,
4. All the data showing on the section “Tests Results” used the worst features (codec and radio configuration) determined by codec investigation (illustration2) and Radio configuration investigation (illustration3).
5. According to 3GPP 36.211 Table 4.2-2, TDD-LTE supports uplink-downlink configuration from 0 to 6, an additional parameter investigation was performed to determine the worst-case uplink-downlink and with the FDD-LTE worst case radio configuration.
6. Phone Condition: Mute on; Backlight off; Max Volume

10 .1 GSM Test Result

Codec Investigation

codec	**Full rate version1**	Half rate version1	Orientation	Band/channel
ABM1 [dB A/m]	-3.82	-3.44	Axial(Z)	GSM850 / 189
ABM2 [dB A/m]	-27.92	-28.27		
SNR [dB]	**24.10**	24.83		
Frequency response	Pass	Pass		

Tests Results

We use codec **Full rate version1** perform all the test below.

Air interface	Channel	Orientation	ABM1 dB(A/m)	ABM2 dB(A/m)	Signal Quality dB	T-Rating ANSI C63.19-2011	Freq. Response
GSM850	189	Radial (Y)	-15.04	-40.01	24.97	T3	---
		Axial (Z)	-3.82	-27.92	24.10	T3	Pass
GSM1900	661	Radial (Y)	-15.14	-41.36	26.22	T3	---
		Axial (Z)	-1.77	-26.83	25.06	T3	Pass

10 .2 WCMDA Test Result

Codec Investigation

codec	**AMR 4.75Kbps**	AMR 7.95Kbps	AMR 12.2Kbps	Orientation	Band/channel
ABM1 [dB A/m]	-8.06	-7.73	-7.09	Axial(Z)	WCDMA Band2
ABM2 [dB A/m]	-35.23	-35.35	-35.14		
SNR [dB]	**27.17**	27.62	28.05		
Frequency response	Pass	Pass	Pass		

Tests Results

We use codec **AMR 4.75Kbps** perform all the test below.

Air interface	Channel	Orientation	ABM1 dB(A/m)	ABM2 dB(A/m)	Signal Quality dB	T-Rating ANSI C63.19-2011	Freq. Response
WCMDA BAND2	9400	Radial (Y)	-15.58	-45.58	30.00	T4	---
		Axial (Z)	-8.06	-35.23	27.17	T3	Pass
WCMDA BAND4	1413	Radial (Y)	-15.70	-45.87	30.17	T4	---
		Axial (Z)	-7.55	-35.57	28.02	T3	Pass
WCMDA BAND5	4182	Radial (Y)	-13.95	-46.40	32.45	T4	---
		Axial (Z)	-6.68	-38.15	31.47	T4	Pass

10 .3 VOLTE Test Result

Codec Investigation

We choose **LTE BAND3 /20MHz / channel 19575/QPSK** for codec investigation

AMR Codec Investigation

codec	**AMR -NB 4.75Kbps**	AMR -NB 12.2Kbps	AMR –WB 6.6Kbps	AMR –WB 23.85Kbps	Orientation	Band/ BW/ channel/ Modulation
ABM1 [dB A/m]	**-8.33**	-8.16	-7.96	-7.67	Axial(Z)	LTE BAND3 / 20MHz/19575 /QPSK
ABM2 [dB A/m]	-35.05	-35.33	-35.21	-35.78		
SNR [dB]	**26.72**	27.17	27.25	28.11		
Frequency response	**Pass**	Pass	Pass	Pass		

EVS Codec Investigation

Codec	EVS-FWB 16.4Kbps	EVS-FWB 128Kbps	EVS-SWB 9.6Kbps	EVS-SWB 128Kbps	EVS-WB 5.9Kbps	EVS-WB 128Kbps	EVS-NB 5.9Kbps	EVS-NB 24.4Kbps	Orientation	Band/ BW/ channel/ Modulation
ABM1 [dB A/m]	-6.92	-6.13	-7.88	-7.59	-7.47	-6.95	-7.92	-7.51	Axial (Z)	LTE BAND3 / 20MHz/ 19575/ QPSK
ABM2 [dB A/m]	-34.74	-35.10	-35.13	-35.47	-34.89	-35.11	-35.02	-35.35		
SNR [dB]	27.82	28.97	27.25	27.88	27.42	28.16	27.10	27.84		
Frequency response	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass		

Radio Configuration Investigation

For the radio configuration investigation (FDD-LTE, TDD-LTE), we use codec **AMR -NB4.75Kbps** determined by Codec Investigation which represents the worst codec future.

Air interface	BW	Modulation	RB Size/ offset	Channel	UL-DL Configuration	ABM1 [dB A/m Axial(Z)]	ABM2[dB A/m] Axial(Z)	Signal Quality dB
FDD-LTE BAND2	**20**	**QPSK**	**1/0**	**18900**	**---**	**-6.23**	**-33.39**	**27.16**
	20	QPSK	50/0	18900	---	-6.02	-33.66	27.64
	20	QPSK	100/0	18900	---	-5.95	-33.57	27.62
	20	16QAM	1/0	18900	---	-5.46	-33.47	28.01
	15	QPSK	1/0	18900	---	-6.21	-33.54	27.33
	10	QPSK	1/0	18900	---	-6.08	-33.83	27.75
	5	QPSK	1/0	18900	---	---	---	---
	3	QPSK	1/0	18900	---	---	---	---
	1.4	QPSK	1/0	18900	---	---	---	---
TDD-LTE BAND38	20	QPSK	1/0	38000	0	-9.06	-33.18	24.12
	20	QPSK	1/0	38000	1	-9.02	-33.23	24.21
	20	QPSK	1/0	38000	2	-9.05	-33.41	24.36
	20	QPSK	1/0	38000	3	-8.93	-33.51	24.58
	20	QPSK	1/0	38000	4	-8.87	-33.36	24.49
	20	**QPSK**	**1/0**	**38000**	**5**	**-9.14**	**-33.20**	**24.06**
	20	QPSK	1/0	38000	6	-8.97	-33.12	24.15

Note: We could measure the conducted power with bandwidth (5&3&1.4M) but actually do not support VOLTE during the test. (The device could not register IMS on CMW500 due to unknown technical restriction)

Summary Tests Results

Refers to previous investigation, we use the worst codec **AMR –NB 4.75Kbps** and the worst configuration showing below perform all the test for each LTE bands.

Configuration for FDD-LTE:

QPSK,MAX Bandwidth for each band(20/15/10MHz),1RB,Offset 0

Configuration for TDD-LTE:

QPSK,MAX Bandwidth for each band(20),1RB,Offset 0/MCS5

Air interface	Channel	Orientation	ABM1 dB(A/m)	ABM2 dB(A/m)	Signal Quality dB	T-Rating ANSI C63.19-2011	Freq. Response
FDD-LTE BAND2	18900	Radial (Y)	-12.05	-40.87	28.82	T3	---
		Axial (Z)	-6.23	-33.39	27.16	T3	Pass
FDD-LTE BAND4	20175	Radial (Y)	-14.08	-40.71	26.63	T3	---
		Axial (Z)	-9.32	-35.72	26.40	T3	Pass
FDD-LTE BAND5	20525	Radial (Y)	-14.38	-40.41	26.03	T3	---
		Axial (Z)	-8.01	-34.03	26.02	T3	Pass
FDD-LTE BAND7	21100	Radial (Y)	-15.64	-42.26	26.62	T3	---
		Axial (Z)	-8.32	-33.42	25.10	T3	Pass
FDD-LTE BAND12	23095	Radial (Y)	-15.96	-42.31	26.35	T3	---
		Axial (Z)	-8.22	-34.15	25.93	T3	Pass
FDD-LTE BAND13	23230	Radial (Y)	-14.42	-41.05	26.63	T3	---
		Axial (Z)	-7.31	-33.06	25.75	T3	Pass
FDD-LTE BAND14	23330	Radial (Y)	-14.00	-41.50	27.50	T3	---
		Axial (Z)	-7.23	-34.20	26.97	T3	Pass
FDD-LTE BAND17	23790	Radial (Y)	-14.58	-41.73	27.15	T3	---
		Axial (Z)	-7.19	-33.96	26.77	T3	Pass
FDD-LTE BAND25	26365	Radial (Y)	-14.86	-41.11	26.25	T3	---
		Axial (Z)	-6.98	-33.03	26.05	T3	Pass
FDD-LTE BAND26	26865	Radial (Y)	-13.03	-40.92	27.89	T3	---
		Axial (Z)	-6.54	-32.70	26.16	T3	Pass
FDD-LTE BAND30	27710	Radial (Y)	-14.83	-41.70	26.87	T3	---
		Axial (Z)	-7.44	-33.03	25.59	T3	Pass
FDD-LTE BAN38	38000	Radial (Y)	-15.53	-40.40	24.87	T3	---
		Axial (Z)	-9.14	-33.20	24.06	T3	Pass
FDD-LTE BAND41	40620	Radial (Y)	-15.21	-40.75	25.54	T3	---
		Axial (Z)	-9.14	-33.96	24.82	T3	Pass
FDD-LTE BAND66	132322	Radial (Y)	-14.24	-42.06	27.82	T3	---
		Axial (Z)	-6.48	-32.63	26.15	T3	Pass

Note: BW=20 for LTE band 2,4,7,25,38,41,66. BW=15 for LTE band 26.
BW=10 for LTE band 5,12,13,14,17,30.

10 .4 VOWIFI Test Result

Codec Investigation

We choose **802.11b 2.4G/6/1Mbps** for codec investigation (the same codec types as VOLTE by using CMW500)

AMR Codec Investigation

codec	AMR -NB 4.75Kbps	AMR -NB 12.2Kbps	AMR–WB 6.6Kbps	AMR –WB 23.85Kbps	Orientation	Band/channel/Rate
ABM1 [dB A/m]	-8.97	-8.53	-9.05	-8.86	Axial(Z)	802.11b 2.4G/6/1Mbps
ABM2 [dB A/m]	-45.00	-45.08	-45.16	-45.34		
SNR [dB]	36.03	36.55	36.11	36.48		
Frequency response	Pass	Pass	Pass	Pass		

EVS Codec Investigation

Codec	EVS-FWB 16.4Kbps	EVS-FWB 128Kbps	EVS-SWB 9.6Kbps	EVS-SWB 128Kbps	EVS-WB 5.9Kbps	EVS-WB 128Kbps	**EVS-NB 5.9Kbps**	EVS-NB 24.4Kbps	Orientation	Band/channel/Rate
ABM1 [dB A/m]	-9.03	-8.75	-9.10	-8.83	-8.78	-8.45	**-9.14**	-7.88	Axial (Z)	802.11b 2.4G/6/1Mbps
ABM2 [dB A/m]	-45.21	-45.39	-45.18	-45.55	-45.05	-45.16	**-45.08**	-44.71		
SNR [dB]	36.18	36.64	36.08	36.72	36.27	36.71	**35.94**	36.83		
Frequency response	Pass	Pass	Pass	Pass	Pass	Pass	**Pass**	Pass		

Note: We notice that the narrow band (NB) codec with lower codec rate usually has worse signal quality .and T-Coil (T-rating) is primarily influenced by the codec performance.

Radio Configuration Investigation

For WIFI radio configuration investigation, we use codec **EVS-NB4.75Kbps** determined by Codec Investigation which represents the worst codec future.

Air interface		BW	Data rate	Channel	ABM1 [dB A/m] Axial(Z)	ABM2[dB A/m] Axial(Z)	Signal Quality dB
2.4GHz	802.11b	20	1M	6	**-9.14**	-45.08	**35.94**
	802.11b	20	11M	6	-8.95	-45.08	36.13
	802.11g	20	6M	6	-8.88	-45.34	36.46
	802.11g	20	54M	6	-8.63	-45.17	36.54
	802.11n-HT20	20	MCS0	6	---	---	---
	802.11n-HT20	20	MCS7	6	---	---	---
	802.11n-HT40	40	MCS0	6	---	---	---
	802.11n-HT40	40	MCS7	6	---	---	---
5GHz U-NII-1	802.11a	20	6M	40	-10.04	-42.60	32.56
	802.11a	20	54M	40	-9.41	-42.30	32.89
	802.11an-HT20	20	MCS0	40	---	---	---
	802.11an-HT20	20	MCS7	40	---	---	---
	802.11an-HT40	40	MCS0	38	---	---	---
	802.11an-HT40	40	MCS7	38	---	---	---
	802.11ac-HT20	20	MCS0	40	---	---	---
	802.11ac-HT20	20	MCS7	40	---	---	---
	802.11ac-HT40	40	MCS0	38	---	---	---
	802.11ac-HT40	40	MCS7	38	---	---	---
	802.11ac-HT80	80	MCS0	42	---	---	---
	802.11ac-HT80	80	MCS7	42	---	---	---

Note: For WIFI 802.11n(2.4GHz&5GHz) and 802.11ac,we didn't achieve successfully due to unknown technical restriction. The phenomenon is that the DUT was always trying to search IP address, even we use static IP. After we negotiate with R&S technician as well as the applicant, we didn't find the appropriate solution, so we currently claim that the device support VOWIFI without mode 802.11gn&802.11an &802.11ac

Summary Tests Results

We use codec **EVS-NB4.75Kbps** and the worst configuration describe as below perform the test for each WIFI bands.
Configuration for WIFI 2.4GHz use **802.11b 1Mbps**
Configuration for WIFI 5GHz U-NII-1 & U-NII-3 use **802.11a 6Mbps**

Air interface	Mode	Channel	Orientation	ABM1 dB(A/m)	ABM2 dB(A/m)	Signal Quality dB	T-Rating ANSI C63.19 -2011	Freq. Response
WIFI2.4GHz	802.11b 1Mbps	6	Radial(Y)	-15.91	-49.06	33.15	T4	---
			Axial (Z)	-9.14	-45.08	35.94	T4	Pass
WIFI5GHz U-NII-1	802.11a 6 Mbps	40	Radial(Y)	-14.87	-45.67	30.80	T4	---
			Axial (Z)	-10.04	-42.60	32.56	T4	Pass
WIFI5GHz U-NII-3	802.11a 6 Mbps	157	Radial(Y)	-15.38	-47.36	31.98	T4	---
			Axial (Z)	-10.90	-44.82	33.92	T4	Pass

11 Test Equipments

The measurements were performed using an automated near-field scanning system, DASY5, manufactured by Schmid & Partner Engineering AG (SPEAG) in Switzerland.
The following table lists calibration dates of SPEAG components:

Test equipment	Model	S/N	Cal Date	Cal Due Date
DAE	DAE 4	720	2017.10.30	2018.10.29
Audio Magnetic Probe	AM1DV2	1021	2017.10.30	2018.10.29
Audio Magnetic Measurement Instrument	TMFS	1013	2017.10.30	2018.10.29
Helmholtz Audio Magnetic Calibration Coil	AMMI	1045	2017.10.30	2018.10.29
Radio Test Set	CMU200	114666	2017.08.20	2018.08.19
Radio Test Set	CMU500	129825	2017.08.20	2018.08.19

11.1 Audio Magnetic Probe AM1DV2

Construction	Fully RF shielded metal construction (RF sensitivity<-100 dB)
System Calibration	Calibrated using Helmholtz coil according to manufacturers instructions
Frequency	0.1-20kHz(HOX!test signal is limited to required BW of 300 to 3000Hz,ANSI C63.19);
Sensitivity	<-50dB A/m
Dimensions	Overall length:290mm; Tip diameter:6mm

11.2 Audio Magnetic Measurement Instrument AMMI

Sampling rate	48kHz/24bit
Dynamic Rage	85dB
Test Signal generation	User selectable and predefined(via pc)
System calibration	Auto-calibration/full system calibration using AMCC with monitor output

11.3 Audio Magnetic calibration Coil AMCC

Dimensions	370 x 370 x 196 mm (ANSI-C63.19 compliant)

ANNEX A – TEST PLOTS

Please refer to the attachment.

ANNEX B – RELEVANT PAGES FROM CALIBRATION REPORTS

Please refer to the attachment.

APPENDIX A: MEASUREMENT SCAN

GSM850	Axial Y

Communication System: UID 0, WCDMA BAND2 (0); Frequency: 1880 MHz
Medium parameters used: σ = 0 S/m, ε_r = 1; ρ = 0 kg/m^3
Phantom section: TCoil Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY Configuration:

- Probe: AM1DV2 - 1021; ; Calibrated: 2017/10/23
- Sensor-Surface: 0mm (Fix Surface), z = 3.0
- Electronics: DAE4 Sn546; Calibrated: 2017/9/15
- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA;
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)
  T-Coil scan (scan for ANSI C63.19-2007 & 2011 compliance)/General Scans_GSM835_T-Coil_HAC/y (transversal) 4.2mm 50 x 50/ABM Interpolated SNR(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: 34.99
  Device Reference Point: 0, 0, -6.3 mm
  Cursor:
  ABM1/ABM2 = 24.97 dB
  ABM1 comp = -15.04 dBA/m
  Location: -5.4, 3.7, 3.7 mm

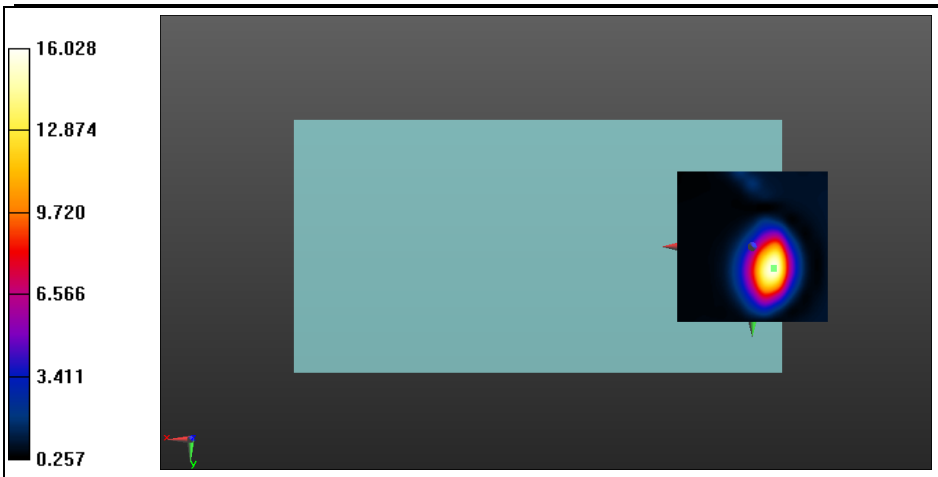
GSM850	Axial Z & Frequency Resp.

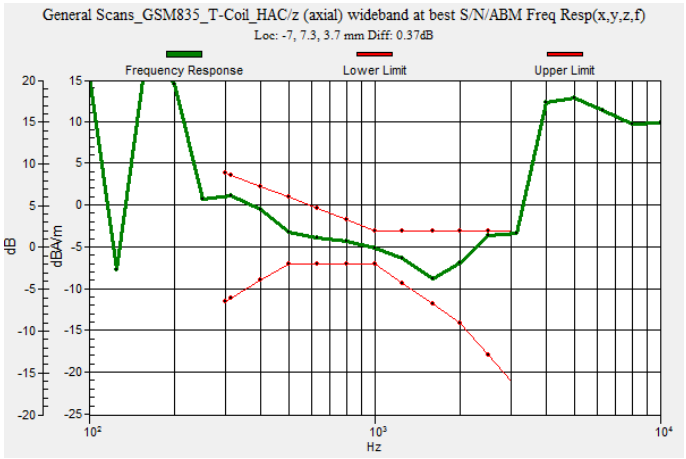
Communication System: UID 0, WCDMA BAND2 (0); Frequency: 1880 MHz
Medium parameters used: σ = 0 S/m, ε_r = 1; ρ = 0 kg/m^3
Phantom section: TCoil Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

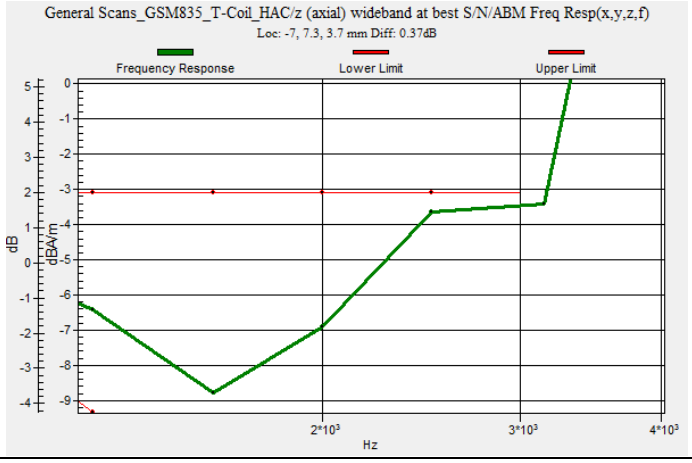
DASY Configuration:

- Probe: AM1DV2 - 1021; ; Calibrated: 2017/10/23
- Sensor-Surface: 0mm (Fix Surface), z = 3.0
- Electronics: DAE4 Sn546; Calibrated: 2017/9/15
- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA;
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)
  T-Coil scan (scan for ANSI C63.19-2007 & 2011 compliance)/General Scans_GSM835_T-Coil_HAC/z (axial) 4.2mm 50 x 50/ABM Interpolated SNR(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: 34.99

  Device Reference Point: 0, 0, -6.3 mm
  Cursor:
  ABM1/ABM2 = 24.10 dB
  ABM1 comp = -3.82 dBA/m
  Location: -7.1, 7.1, 3.7 mm
  T-Coil scan (scan for ANSI C63.19-2007 & 2011 compliance)/General Scans_GSM835_T-Coil_HAC/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: 68.52
  Device Reference Point: 0, 0, -6.3 mm


16.028
12.874
9.720
6.566
3.411
0.257


General Scans_GSM835_T-Coil_HAC/z (axial) wideband at best S/N/ABM Freq Resp(x,y,z,f)
Loc: -7, 7.3, 3.7 mm Diff: 0.37dB
Frequency Response
Lower Limit
Upper Limit
dB
dBA/m
Hz


General Scans_GSM835_T-Coil_HAC/z (axial) wideband at best S/N/ABM Freq Resp(x,y,z,f)
Loc: -7, 7.3, 3.7 mm Diff: 0.37dB
Frequency Response
Lower Limit
Upper Limit
dB
dBA/m
Hz

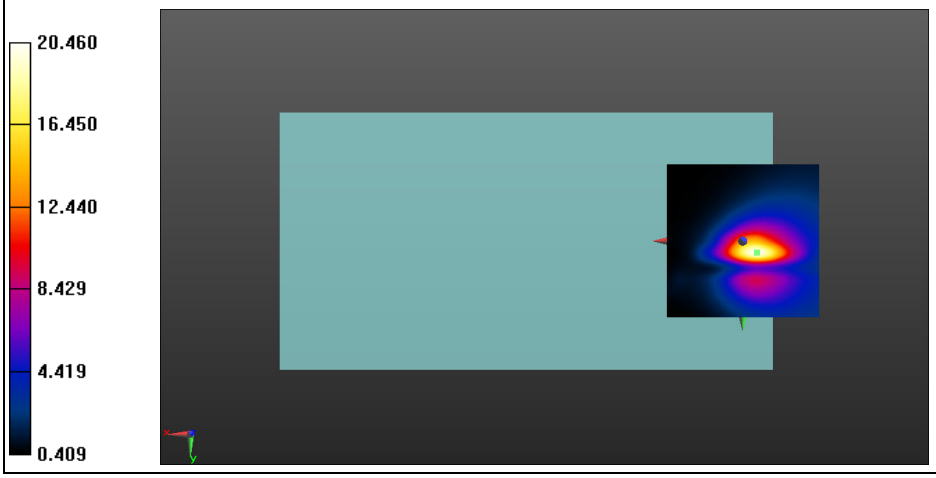
GSM1900	Axial Y

Communication System: UID 0, Generic GSM (0); Frequency: 1880 MHz
Medium parameters used: $\sigma = 0$ S/m, $\varepsilon_r = 1$; $\rho = 0$ kg/m^3
Phantom section: TCoil Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY Configuration:

- Probe: AM1DV2 - 1021; ; Calibrated: 2017/10/23
- Sensor-Surface: 0mm (Fix Surface), z = 3.0
- Electronics: DAE4 Sn546; Calibrated: 2017/9/15
- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA;
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

T-Coil scan (scan for ANSI C63.19-2007 & 2011 compliance)/General Scans_GSM1900_T-Coil_HAC data test/y (transversal) 4.2mm 50 x 50/ABM Interpolated SNR(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: 34.99
Device Reference Point: 0, 0, -6.3 mm
Cursor:
ABM1/ABM2 = 26.22 dB
ABM1 comp = -15.14 dBA/m
Location: -4.6, 3.7, 3.7 mm



GSM1900	Axial Z & Frequency Resp.

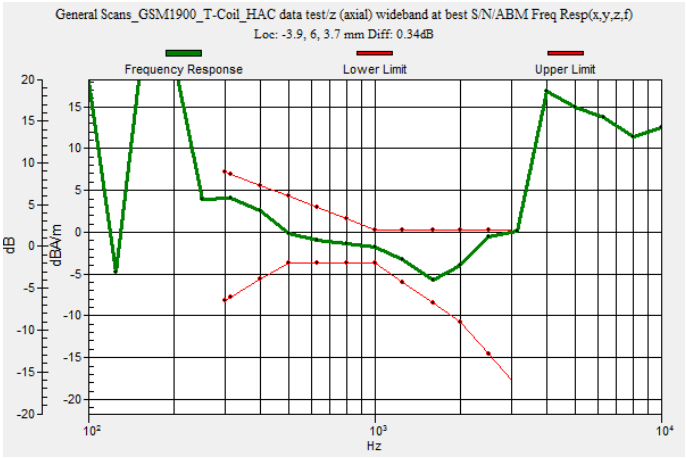
Communication System: UID 0, Generic GSM (0); Frequency: 1880 MHz
Medium parameters used: $\sigma = 0$ S/m, $\varepsilon_r = 1$; $\rho = 0$ kg/m^3
Phantom section: TCoil Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

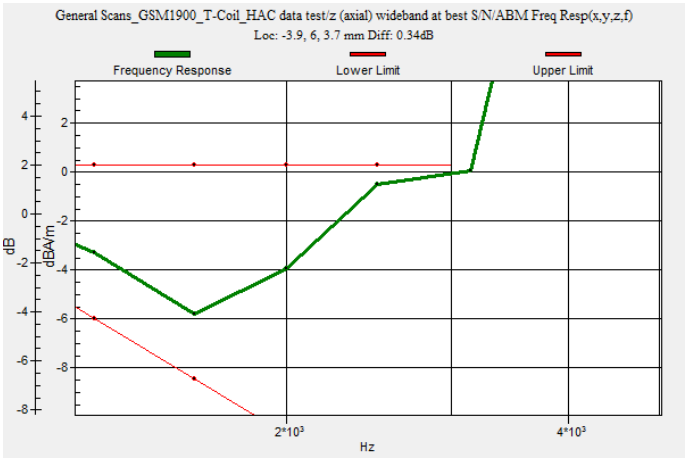
DASY Configuration:

- Probe: AM1DV2 - 1021; ; Calibrated: 2017/10/23
- Sensor-Surface: 0mm (Fix Surface), z = 3.0
- Electronics: DAE4 Sn546; Calibrated: 2017/9/15
- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA;
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

T-Coil scan (scan for ANSI C63.19-2007 & 2011 compliance)/General Scans_GSM1900_T-Coil_HAC data test/z (axial) 4.2mm 50 x 50/ABM Interpolated SNR(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: 34.99
Device Reference Point: 0, 0, -6.3 mm
Cursor:
ABM1/ABM2 = 25.06 dB
ABM1 comp = -1.77 dBA/m
Location: -3.7, 6.2, 3.7 mm
T-Coil scan (scan for ANSI C63.19-2007 & 2011 compliance)/General Scans_GSM1900_T-Coil_HAC data test/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: 68.52
Device Reference Point: 0, 0, -6.3 mm


17.910
14.378
10.846
7.314
3.783
0.251


General Scans_GSM1900_T-Coil_HAC data test/z (axial) wideband at best S/N/ABM Freq Resp(x,y,z,f)
Loc: -3.9, 6, 3.7 mm Diff: 0.34dB
Frequency Response
Lower Limit
Upper Limit
dB
dBA/m
Hz


General Scans_GSM1900_T-Coil_HAC data test/z (axial) wideband at best S/N/ABM Freq Resp(x,y,z,f)
Loc: -3.9, 6, 3.7 mm Diff: 0.34dB
Frequency Response
Lower Limit
Upper Limit
dB
dBA/m
Hz

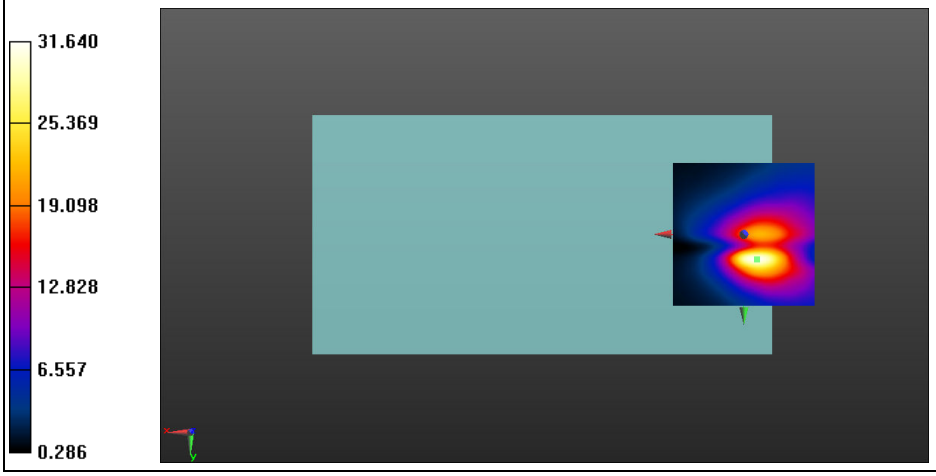
WCDMA BAND2	Axial Y

Communication System: UID 0, WCDMA BAND2 (0); Frequency: 1880 MHz
Medium parameters used: σ = 0 S/m, ε_r = 1; ρ = 0 kg/m^3
Phantom section: TCoil Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY Configuration:

- Probe: AM1DV2 - 1021; ; Calibrated: 2017/10/23
- Sensor-Surface: 0mm (Fix Surface), z = 3.0
- Electronics: DAE4 Sn546; Calibrated: 2017/9/15
- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA;
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

T-Coil scan (scan for ANSI C63.19-2007 & 2011 compliance)/General Scans_WCDMA 2_T-Coil_HAC/y (transversal) 4.2mm 50 x 50/ABM Interpolated SNR(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: 34.99
Device Reference Point: 0, 0, -6.3 mm
Cursor:
ABM1/ABM2 = 30.00 dB
ABM1 comp = -15.58 dBA/m
Location: -4.6, 8.7, 3.7 mm

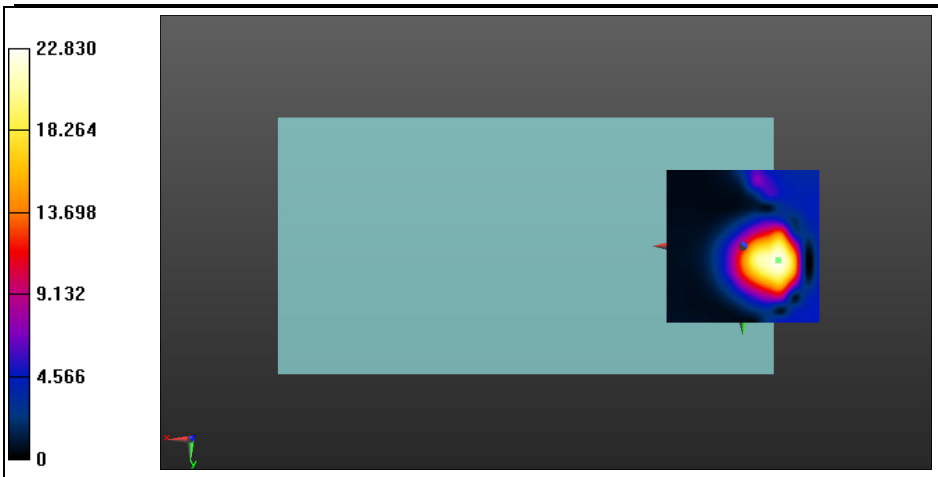


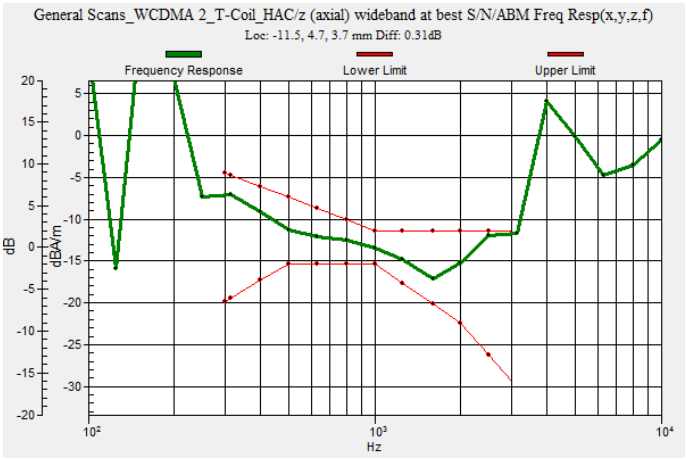
WCDMA BAND2	Axial Z & Frequency Resp.

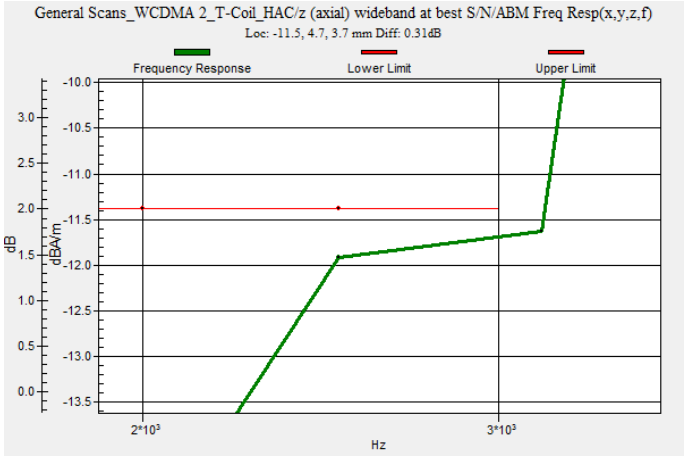
Communication System: UID 0, WCDMA BAND2 (0); Frequency: 1880 MHz
Medium parameters used: σ = 0 S/m, ε_r = 1; ρ = 0 kg/m^3
Phantom section: TCoil Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY Configuration:

- Probe: AM1DV2 - 1021; ; Calibrated: 2017/10/23
- Sensor-Surface: 0mm (Fix Surface), z = 3.0
- Electronics: DAE4 Sn546; Calibrated: 2017/9/15
- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA;
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)
  T-Coil scan (scan for ANSI C63.19-2007 & 2011 compliance)/General Scans_WCDMA 2_T-Coil_HAC/z (axial) 4.2mm 50 x 50/ABM Interpolated SNR(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: 34.99
  Device Reference Point: 0, 0, -6.3 mm
  Cursor:
  ABM1/ABM2 = 27.17 dB
  ABM1 comp = -8.06 dBA/m
  Location: -11.7, 4.6, 3.7 mm
  T-Coil scan (scan for ANSI C63.19-2007 & 2011 compliance)/General Scans_WCDMA 2_T-Coil_HAC/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: 68.52
  Device Reference Point: 0, 0, -6.3 mm


22.830
18.264
13.698
9.132
4.566
0


General Scans_WCDMA 2_T-Coil_HAC/z (axial) wideband at best S/N/ABM Freq Resp(x,y,z,f)
Loc: -11.5, 4.7, 3.7 mm Diff: 0.31dB
Frequency Response
Lower Limit
Upper Limit
dB
dBA/m
Hz

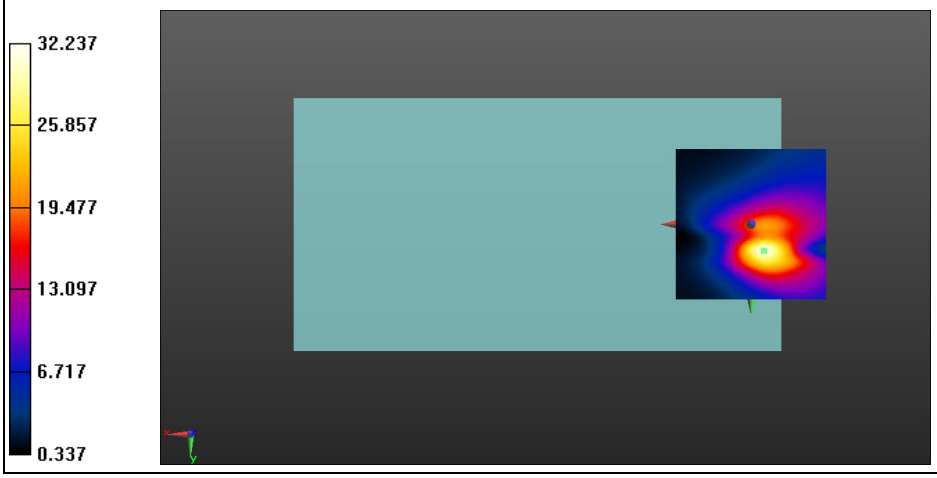

General Scans_WCDMA 2_T-Coil_HAC/z (axial) wideband at best S/N/ABM Freq Resp(x,y,z,f)
Loc: -11.5, 4.7, 3.7 mm Diff: 0.31dB
Frequency Response
Lower Limit
Upper Limit
dB
dBA/m
Hz

WCDMA BAND4	Axial Y

Communication System: UID 10011 - CAB, UMTS-FDD (WCDMA); Frequency: 1732.6 MHz
Medium parameters used: $\sigma = 0$ S/m, $\varepsilon_r = 1$; $\rho = 0$ kg/m^3
Phantom section: TCoil Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY Configuration:

- Probe: AM1DV2 - 1021; ; Calibrated: 2017/10/23
- Sensor-Surface: 0mm (Fix Surface), z = 3.0
- Electronics: DAE4 Sn546; Calibrated: 2017/9/15
- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA;
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)
  T-Coil scan (scan for ANSI C63.19-2007 & 2011 compliance)/General Scans_WCDMA IV_T-Coil_HAC/y (transversal) 4.2mm 50 x 50/ABM Interpolated SNR(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: 34.99
  Device Reference Point: 0, 0, -6.3 mm
  Cursor:
  ABM1/ABM2 = 30.17 dB
  ABM1 comp = -15.70 dBA/m
  Location: -4.2, 8.7, 3.7 mm

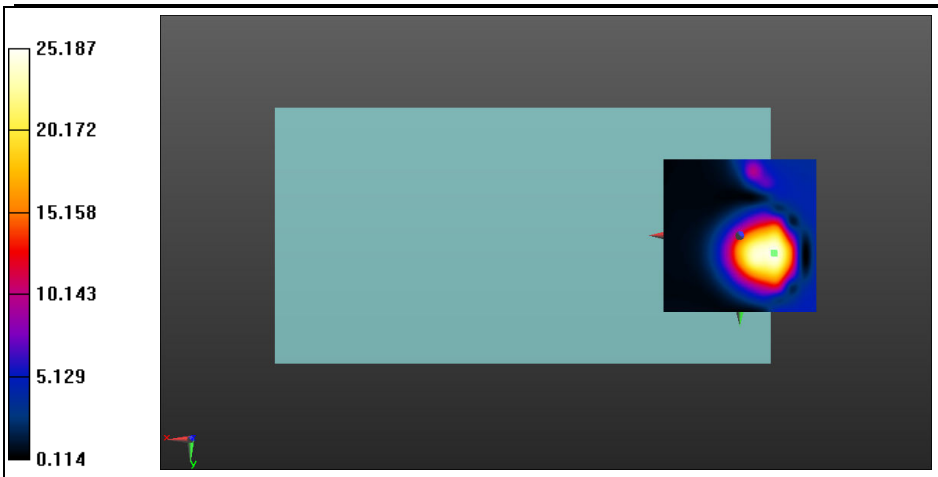


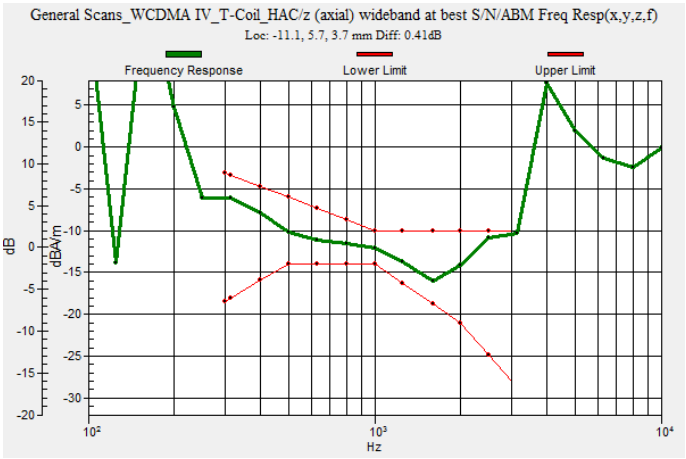
WCDMA BAND4	Axial Z & Frequency Resp.

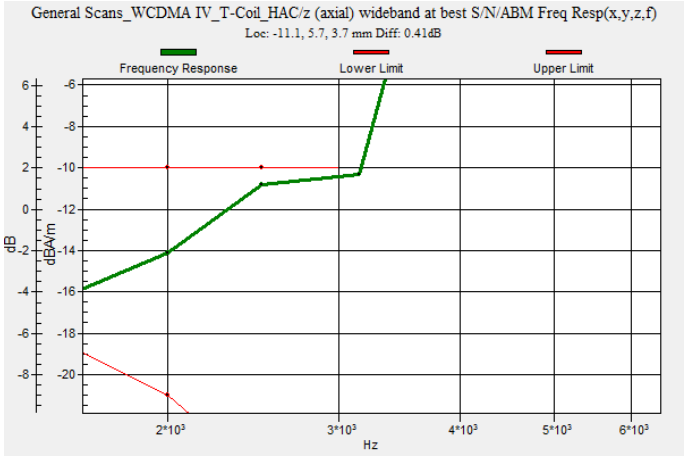
Communication System: UID 10011 - CAB, UMTS-FDD (WCDMA); Frequency: 1732.6 MHz
Medium parameters used: σ = 0 S/m, ε_r = 1; ρ = 0 kg/m^3
Phantom section: TCoil Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY Configuration:

- Probe: AM1DV2 - 1021; ; Calibrated: 2017/10/23
- Sensor-Surface: 0mm (Fix Surface), z = 3.0
- Electronics: DAE4 Sn546; Calibrated: 2017/9/15
- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA;
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373**T-Coil scan (scan for ANSI C63.19-2007 & 2011 compliance)/General Scans_WCDMA IV_T-Coil_HAC/z (axial) 4.2mm 50 x 50/ABM Interpolated SNR(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: 34.99
  Device Reference Point: 0, 0, -6.3 mm
  Cursor:
  ABM1/ABM2 = 28.02 dB
  ABM1 comp = -7.55 dBA/m
  Location: -11.2, 5.8, 3.7 mm
  T-Coil scan (scan for ANSI C63.19-2007 & 2011 compliance)/General Scans_WCDMA IV_T-Coil_HAC/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: 68.52
  Device Reference Point: 0, 0, -6.3 mm


25.187
20.172
15.158
10.143
5.129
0.114


General Scans_WCDMA IV_T-Coil_HAC/z (axial) wideband at best S/N/ABM Freq Resp(x,y,z,f)
Loc: -11.1, 5.7, 3.7 mm Diff: 0.41dB
Frequency Response
Lower Limit
Upper Limit
dB
dBA/m
Hz

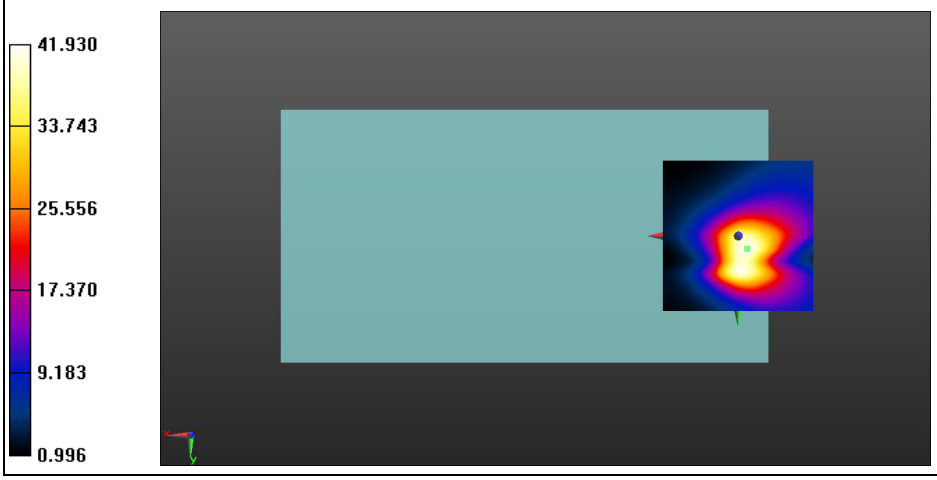

General Scans_WCDMA IV_T-Coil_HAC/z (axial) wideband at best S/N/ABM Freq Resp(x,y,z,f)
Loc: -11.1, 5.7, 3.7 mm Diff: 0.41dB
Frequency Response
Lower Limit
Upper Limit
dB
dBA/m
Hz

WCDMA BAND5	Axial Y

Communication System: UID 10011 - CAB, UMTS-FDD (WCDMA); Frequency: 836.6 MHz
Medium parameters used: $\sigma = 0$ S/m, $\varepsilon_r = 1$; $\rho = 0$ kg/m^3
Phantom section: TCoil Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY Configuration:

- Probe: AM1DV2 - 1021; ; Calibrated: 2017/10/23
- Sensor-Surface: 0mm (Fix Surface), z = 3.0
- Electronics: DAE4 Sn546; Calibrated: 2017/9/15
- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA;
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)**T-Coil scan (scan for ANSI C63.19-2007 & 2011 compliance)/General Scans_WCDMA V_T-Coil_HAC/y (transversal) 4.2mm 50 x 50/ABM Interpolated SNR(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: 34.99
  Device Reference Point: 0, 0, -6.3 mm
  Cursor:
  ABM1/ABM2 = 32.45 dB
  ABM1 comp = -13.95 dBA/m
  Location: -2.9, 4.2, 3.7 mm



WCDMA BAND5	Axial Z & Frequency Resp.

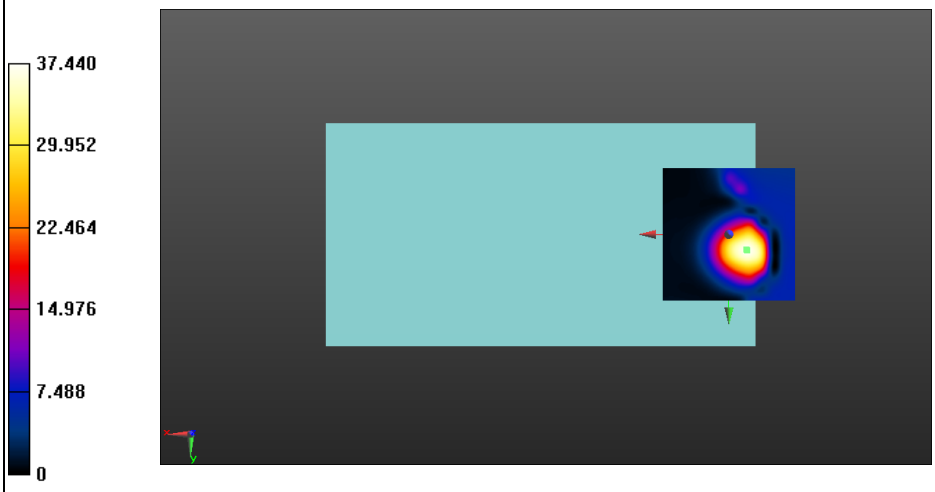
Communication System: UID 10011 - CAB, UMTS-FDD (WCDMA); Frequency: 836.6 MHz
Medium parameters used: σ = 0 S/m, ε_r = 1; ρ = 0 kg/m^3
Phantom section: TCoil Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

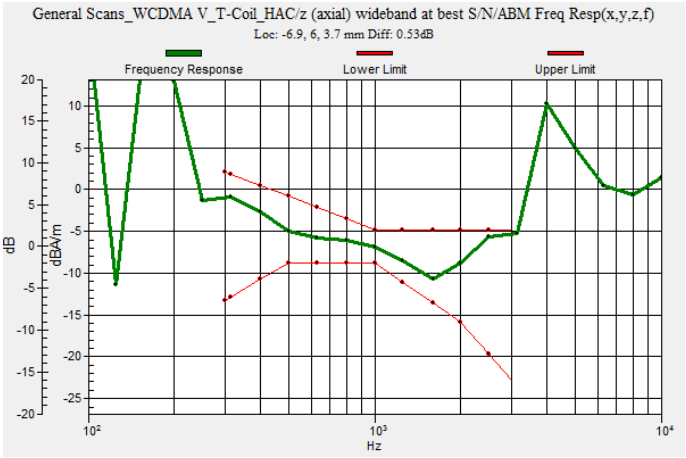
DASY Configuration:

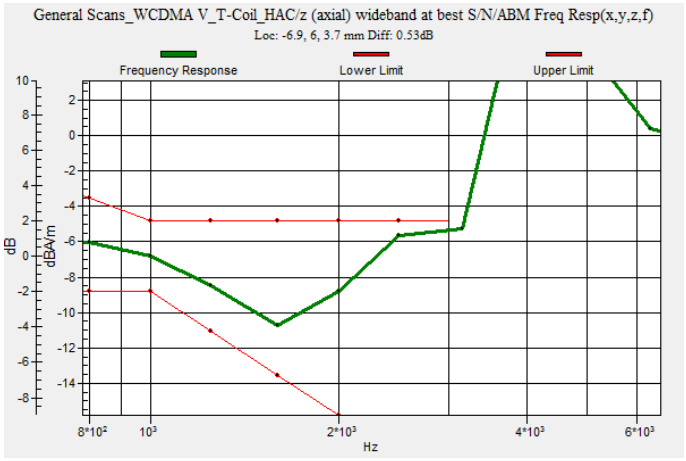
- Probe: AM1DV2 - 1021; ; Calibrated: 2017/10/23
- Sensor-Surface: 0mm (Fix Surface), z = 3.0
- Electronics: DAE4 Sn546; Calibrated: 2017/9/15
- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA;
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

T-Coil scan (scan for ANSI C63.19-2007 & 2011 compliance)/General Scans_WCDMA V_T-Coil_HAC/z (axial) 4.2mm 50 x 50/ABM Interpolated SNR(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: 34.99
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1/ABM2 = 31.47 dB
ABM1 comp = -6.68 dBA/m
Location: -6.7, 5.8, 3.7 mm
T-Coil scan (scan for ANSI C63.19-2007 & 2011 compliance)/General Scans_WCDMA V_T-Coil_HAC/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: 68.52
Device Reference Point: 0, 0, -6.3 mm


37.440
29.952
22.464
14.976
7.488
0


General Scans_WCDMA V_T-Coil_HAC/z (axial) wideband at best S/N/ABM Freq Resp(x,y,z,f)
Loc: -6.9, 6, 3.7 mm Diff: 0.53dB
Frequency Response
Lower Limit
Upper Limit
dB
dBA/m
Hz


General Scans_WCDMA V_T-Coil_HAC/z (axial) wideband at best S/N/ABM Freq Resp(x,y,z,f)
Loc: -6.9, 6, 3.7 mm Diff: 0.53dB
Frequency Response
Lower Limit
Upper Limit
dB
dBA/m
Hz

LTE BAND2	Axial Y

Communication System: UID 10169 - CAB, LTE-FDD (SC-FDMA, 1 RB, 20 MHz, QPSK); Frequency: 1880 MHz
Medium parameters used: σ = 0 S/m, ε_r = 1; ρ = 0 kg/m^3
Phantom section: TCoil Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY Configuration:

- Probe: AM1DV2 - 1021; ; Calibrated: 2017/10/23
- Sensor-Surface: 0mm (Fix Surface), z = 3.0
- Electronics: DAE4 Sn546; Calibrated: 2017/9/15
- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA;
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

T-Coil scan (scan for ANSI C63.19-2007 & 2011 compliance)/General Scans_LTE Band2_T-Coil_HAC/y (transversal) 4.2mm 50 x 50/ABM Interpolated SNR(x,y,z) (101x101x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Signal Type: Audio File (.wav) 48k_voice_1kHz_1s.wav
Output Gain: 42.00
Device Reference Point: 0, 0, -6.3 mm
Cursor:
ABM1/ABM2 = 28.82 dB
ABM1 comp = -12.05 dBA/m
Location: 10.5, 5.5, 3.7 mm

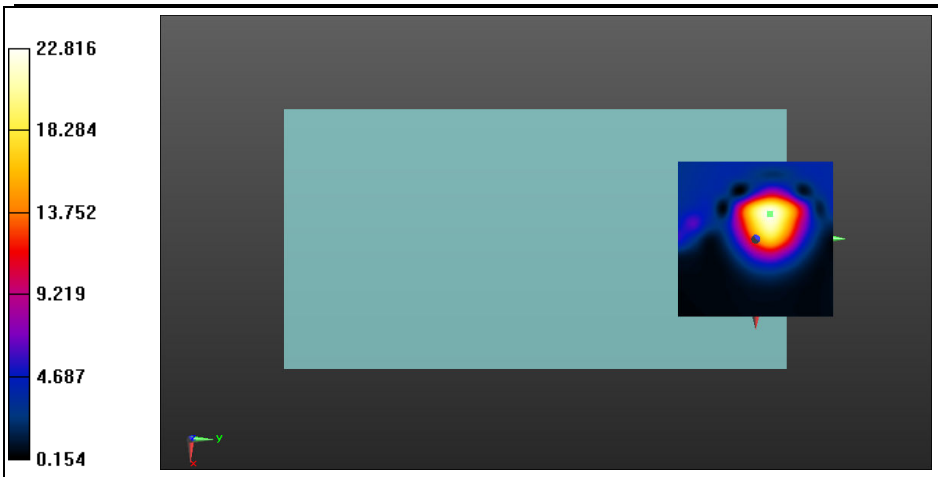
LTE BAND2	Axial Z & Frequency Resp.

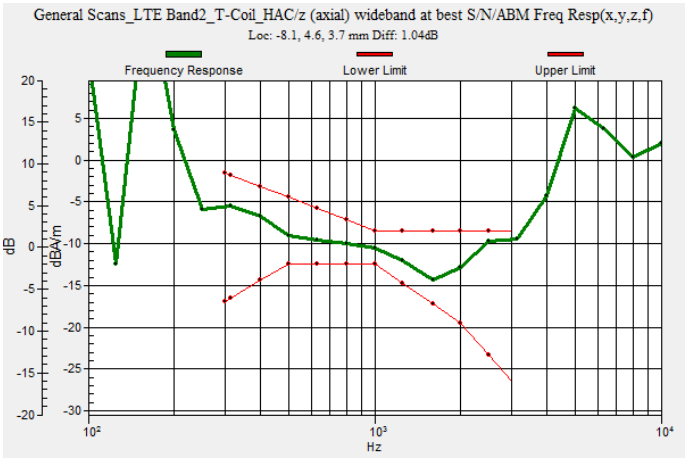
Communication System: UID 10169 - CAB, LTE-FDD (SC-FDMA, 1 RB, 20 MHz, QPSK); Frequency: 1880 MHz
Medium parameters used: $\sigma = 0$ S/m, $\varepsilon_r = 1$; $\rho = 0$ kg/m^3
Phantom section: TCoil Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY Configuration:

- Probe: AM1DV2 - 1021; ; Calibrated: 2017/10/23
- Sensor-Surface: 0mm (Fix Surface), z = 3.0
- Electronics: DAE4 Sn546; Calibrated: 2017/9/15
- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA;
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

T-Coil scan (scan for ANSI C63.19-2007 & 2011 compliance)/General Scans_LTE Band2_T-Coil_HAC/z (axial) 4.2mm 50 x 50/ABM Interpolated SNR(x,y,z) (101x101x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Signal Type: Audio File (.wav) 48k_voice_1kHz_1s.wav
Output Gain: 42.00
Device Reference Point: 0, 0, -6.3 mm
Cursor:
ABM1/ABM2 = 27.16 dB
ABM1 comp = -6.23 dBA/m
Location: -8, 4.5, 3.7 mm
T-Coil scan (scan for ANSI C63.19-2007 & 2011 compliance)/General Scans_LTE Band2_T-Coil_HAC/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: 82.26
Device Reference Point: 0, 0, -6.3 mm


22.816
18.284
13.752
9.219
4.687
0.154


General Scans_LTE Band2_T-Coil_HAC/z (axial) wideband at best S/N/ABM Freq Resp(x,y,z,f)
Loc: -8.1, 4.6, 3.7 mm Diff: 1.04dB
Frequency Response
Lower Limit
Upper Limit
dB
dBA/m
Hz

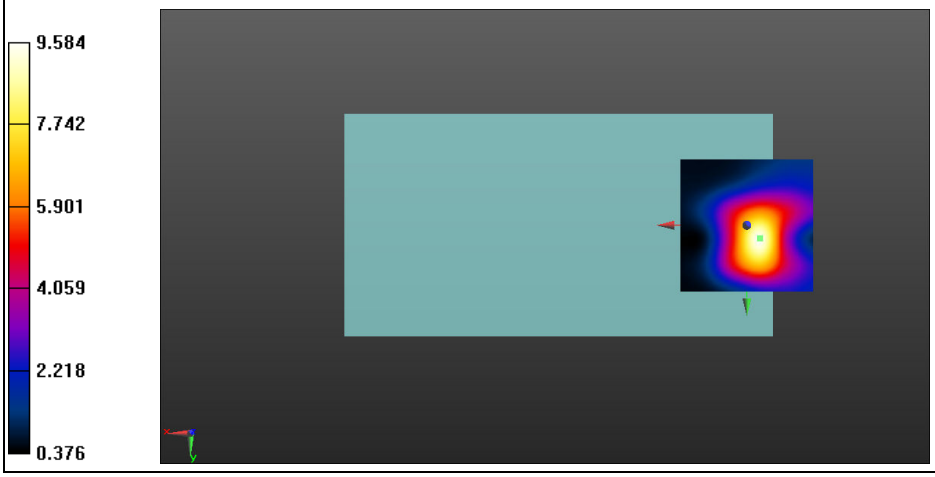
LTE BAND4	Axial Y

Communication System: UID 10169 - CAB, LTE-FDD (SC-FDMA, 1 RB, 20 MHz, QPSK); Frequency: 1732.5 MHz
Medium parameters used: $\sigma = 0$ S/m, $\varepsilon_r = 1$; $\rho = 0$ kg/m^3
Phantom section: TCoil Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY Configuration:

- Probe: AM1DV2 - 1021; ; Calibrated: 2017/10/23
- Sensor-Surface: 0mm (Fix Surface), z = 3.0
- Electronics: DAE4 Sn546; Calibrated: 2017/9/15
- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA;
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

T-Coil scan (scan for ANSI C63.19-2007 & 2011 compliance)/General Scans_LTE Band4_T-Coil_HAC/y (transversal) 4.2mm 50 x 50/ABM Interpolated SNR(x,y,z) (51x51x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Signal Type: Audio File (.wav) 48k_voice_1kHz_1s.wav
Output Gain: 42.00
Device Reference Point: 0, 0, -6.3 mm
Cursor:
ABM1/ABM2 = 26.63 dB
ABM1 comp = -14.08 dBA/m
Location: -5, 5, 3.7 mm



LTE BAND4	Axial Z & Frequency Resp.

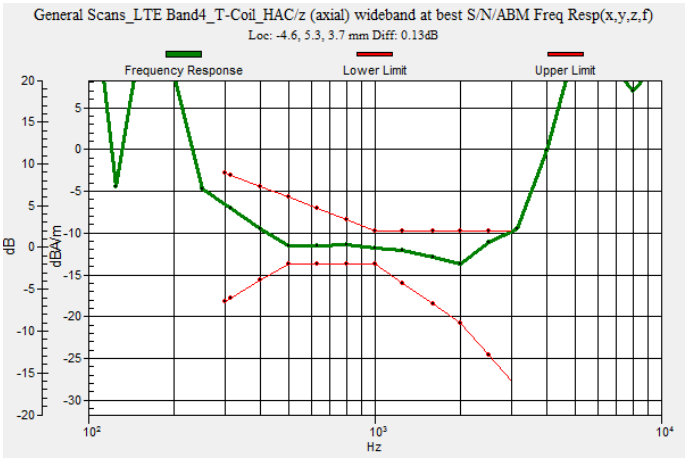
Communication System: UID 10169 - CAB, LTE-FDD (SC-FDMA, 1 RB, 20 MHz, QPSK); Frequency: 1732.5 MHz
Medium parameters used: $\sigma = 0$ S/m, $\varepsilon_r = 1$; $\rho = 0$ kg/m^3
Phantom section: TCoil Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

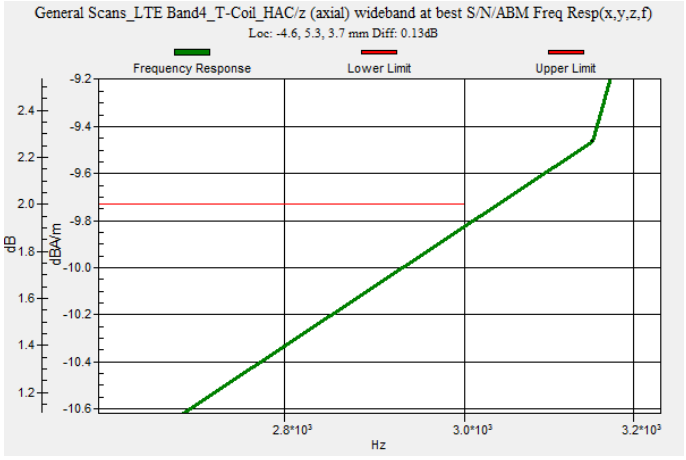
DASY Configuration:

- Probe: AM1DV2 - 1021; ; Calibrated: 2017/10/23
- Sensor-Surface: 0mm (Fix Surface), z = 3.0
- Electronics: DAE4 Sn546; Calibrated: 2017/9/15
- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA;
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

T-Coil scan (scan for ANSI C63.19-2007 & 2011 compliance)/General Scans_LTE Band4_T-Coil_HAC/z (axial) 4.2mm 50 x 50/ABM Interpolated SNR(x,y,z) (51x51x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Signal Type: Audio File (.wav) 48k_voice_1kHz_1s.wav
Output Gain: 42.00
Device Reference Point: 0, 0, -6.3 mm
Cursor:
ABM1/ABM2 = 26.40 dB
ABM1 comp = -9.32 dBA/m
Location: -5, 5, 3.7 mm
T-Coil scan (scan for ANSI C63.19-2007 & 2011 compliance)/General Scans_LTE Band4_T-Coil_HAC/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: 82.26
Device Reference Point: 0, 0, -6.3 mm


9.330
7.505
5.680
3.855
2.030
0.205


General Scans_LTE Band4_T-Coil_HAC/z (axial) wideband at best S/N/ABM Freq Resp(x,y,z,f)
Loc: -4.6, 5.3, 3.7 mm Diff: 0.13dB
Frequency Response
Lower Limit
Upper Limit
dB
dBA/m
Hz


General Scans_LTE Band4_T-Coil_HAC/z (axial) wideband at best S/N/ABM Freq Resp(x,y,z,f)
Loc: -4.6, 5.3, 3.7 mm Diff: 0.13dB
Frequency Response
Lower Limit
Upper Limit
dB
dBA/m
Hz

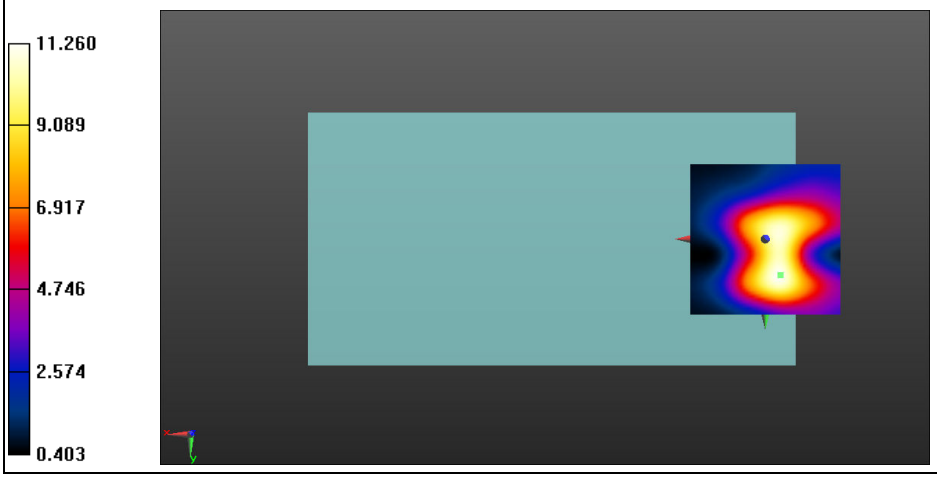
LTE BAND5	Axial Y

Communication System: UID 10175 - CAC, LTE-FDD (SC-FDMA, 1 RB, 10 MHz, QPSK); Frequency: 836.5 MHz
Medium parameters used: σ = 0 S/m, ε_r = 1; ρ = 0 kg/m^3
Phantom section: TCoil Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY Configuration:

- Probe: AM1DV2 - 1021; ; Calibrated: 2017/10/23
- Sensor-Surface: 0mm (Fix Surface), z = 3.0
- Electronics: DAE4 Sn546; Calibrated: 2017/9/15
- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA;
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

T-Coil scan (scan for ANSI C63.19-2007 & 2011 compliance)/General Scans_LTE Band5_T-Coil_HAC/y (transversal) 4.2mm 50 x 50/ABM Interpolated SNR(x,y,z) (51x51x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Signal Type: Audio File (.wav) 48k_voice_1kHz_1s.wav
Output Gain: 42.00
Device Reference Point: 0, 0, -6.3 mm
Cursor:
ABM1/ABM2 = 26.03 dB
ABM1 comp = -14.38 dBA/m
Location: -5, 12, 3.7 mm



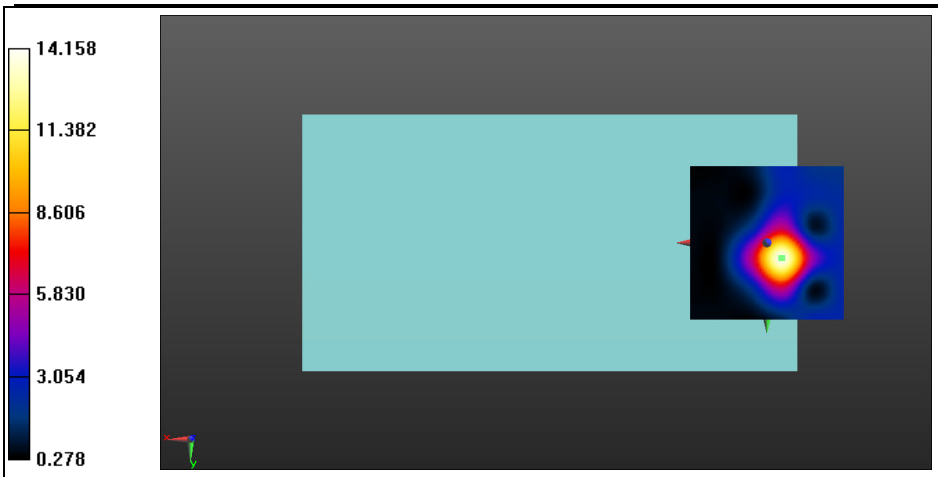
LTE BAND5	Axial Z & Frequency Resp.

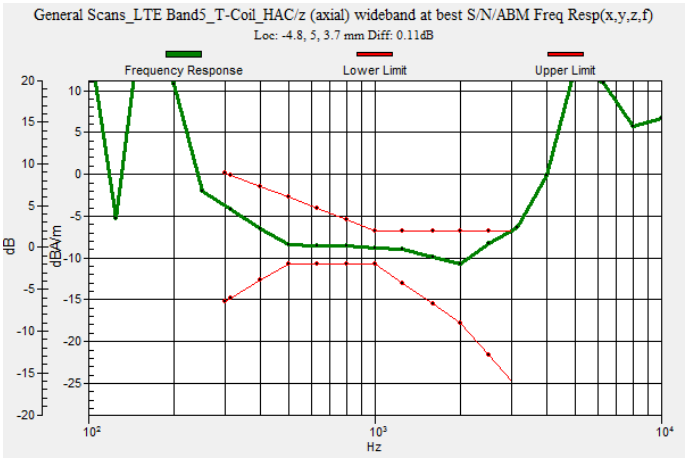
Communication System: UID 10175 - CAC, LTE-FDD (SC-FDMA, 1 RB, 10 MHz, QPSK); Frequency: 836.5 MHz
Medium parameters used: $\sigma = 0$ S/m, $\varepsilon_r = 1$; $\rho = 0$ kg/m^3
Phantom section: TCoil Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

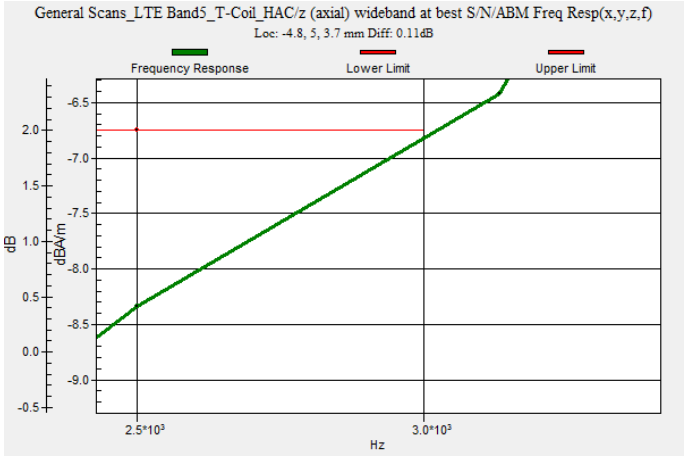
DASY Configuration:

- Probe: AM1DV2 - 1021; ; Calibrated: 2017/10/23
- Sensor-Surface: 0mm (Fix Surface), z = 3.0
- Electronics: DAE4 Sn546; Calibrated: 2017/9/15
- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA;
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

T-Coil scan (scan for ANSI C63.19-2007 & 2011 compliance)/General Scans_LTE Band5_T-Coil_HAC/z (axial) 4.2mm 50 x 50/ABM Interpolated SNR(x,y,z) (51x51x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Signal Type: Audio File (.wav) 48k_voice_1kHz_1s.wav
Output Gain: 42.00
Device Reference Point: 0, 0, -6.3 mm
Cursor:
ABM1/ABM2 = 26.02 dB
ABM1 comp = -8.01 dBA/m
Location: -5, 5, 3.7 mm
T-Coil scan (scan for ANSI C63.19-2007 & 2011 compliance)/General Scans_LTE Band5_T-Coil_HAC/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: 82.26
Device Reference Point: 0, 0, -6.3 mm


14.158
11.382
8.606
5.830
3.054
0.278


General Scans_LTE Band5_T-Coil_HAC/z (axial) wideband at best S/N/ABM Freq Resp(x,y,z,f)
Loc: -4.8, 5, 3.7 mm Diff: 0.11dB
Frequency Response
Lower Limit
Upper Limit
dB
dBA/m
Hz


General Scans_LTE Band5_T-Coil_HAC/z (axial) wideband at best S/N/ABM Freq Resp(x,y,z,f)
Loc: -4.8, 5, 3.7 mm Diff: 0.11dB
Frequency Response
Lower Limit
Upper Limit
dB
dBA/m
Hz

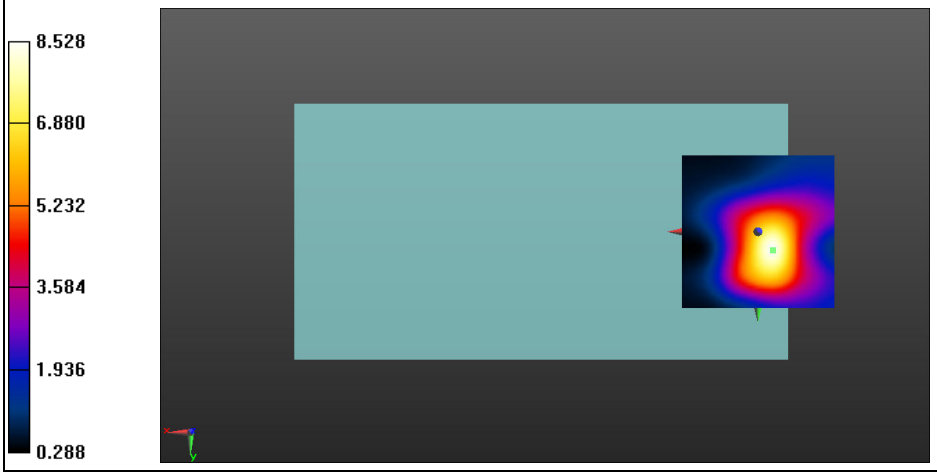
LTE BAND7	Axial Y

Communication System: UID 10169 - CAB, LTE-FDD (SC-FDMA, 1 RB, 20 MHz, QPSK); Frequency: 2535 MHz
Medium parameters used: σ = 0 S/m, ε_r = 1; ρ = 0 kg/m^3
Phantom section: TCoil Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY Configuration:

- Probe: AM1DV2 - 1021; ; Calibrated: 2017/10/23
- Sensor-Surface: 0mm (Fix Surface), z = 3.0
- Electronics: DAE4 Sn546; Calibrated: 2017/9/15
- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA;
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

T-Coil scan (scan for ANSI C63.19-2007 & 2011 compliance)/General Scans_LTE Band7_T-Coil_HAC/y (transversal) 4.2mm 50 x 50/ABM Interpolated SNR(x,y,z) (51x51x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Signal Type: Audio File (.wav) 48k_voice_1kHz_1s.wav
Output Gain: 42.00
Device Reference Point: 0, 0, -6.3 mm
Cursor:
ABM1/ABM2 = 26.62 dB
ABM1 comp = -15.64 dBA/m
Location: -5, 6, 3.7 mm



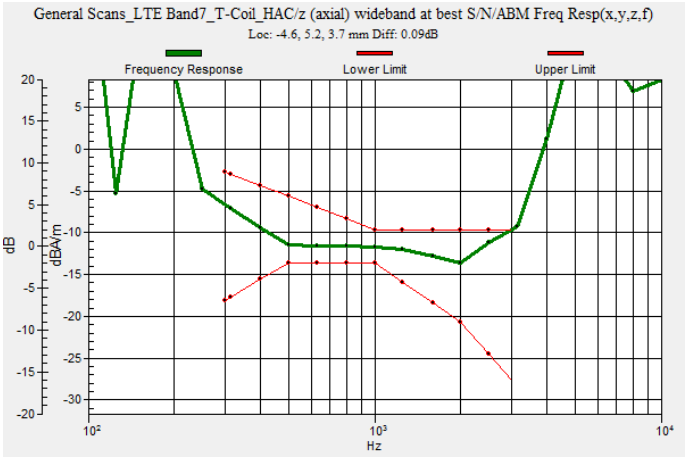
LTE BAND7	Axial Z & Frequency Resp.

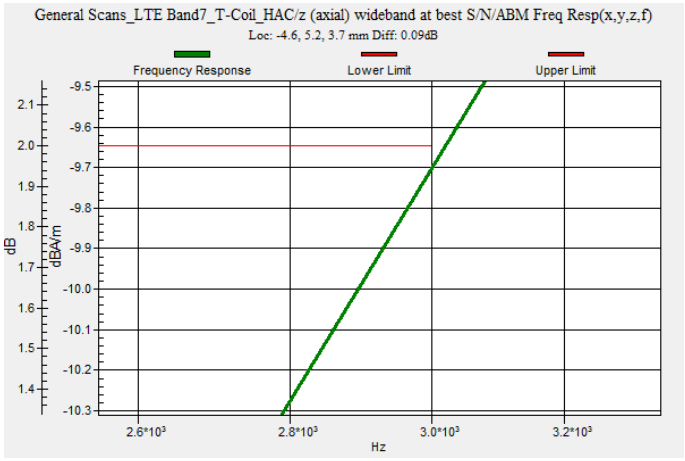
Communication System: UID 10169 - CAB, LTE-FDD (SC-FDMA, 1 RB, 20 MHz, QPSK); Frequency: 2535 MHz
Medium parameters used: σ = 0 S/m, ε_r = 1; ρ = 0 kg/m^3
Phantom section: TCoil Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY Configuration:

- Probe: AM1DV2 - 1021; ; Calibrated: 2017/10/23
- Sensor-Surface: 0mm (Fix Surface), z = 3.0
- Electronics: DAE4 Sn546; Calibrated: 2017/9/15
- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA;
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)
  T-Coil scan (scan for ANSI C63.19-2007 & 2011 compliance)/General Scans_LTE Band7_T-Coil_HAC/z (axial) 4.2mm 50 x 50/ABM Interpolated SNR(x,y,z) (51x51x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
  Signal Type: Audio File (.wav) 48k_voice_1kHz_1s.wav
  Output Gain: 42.00
  Device Reference Point: 0, 0, -6.3 mm
  Cursor:
  ABM1/ABM2 = 25.10 dB
  ABM1 comp = -8.32 dBA/m
  Location: -5, 5, 3.7 mm
  T-Coil scan (scan for ANSI C63.19-2007 & 2011 compliance)/General Scans_LTE Band7_T-Coil_HAC/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: 82.26
  Device Reference Point: 0, 0, -6.3 mm


8.035
6.473
4.912
3.350
1.788
0.227


General Scans_LTE Band7_T-Coil_HAC/z (axial) wideband at best S/N/ABM Freq Resp(x,y,z,f)
Loc: -4.6, 5.2, 3.7 mm Diff: 0.09dB
Frequency Response
Lower Limit
Upper Limit
dB
dBA/m
Hz


General Scans_LTE Band7_T-Coil_HAC/z (axial) wideband at best S/N/ABM Freq Resp(x,y,z,f)
Loc: -4.6, 5.2, 3.7 mm Diff: 0.09dB
Frequency Response
Lower Limit
Upper Limit
dB
dBA/m
Hz

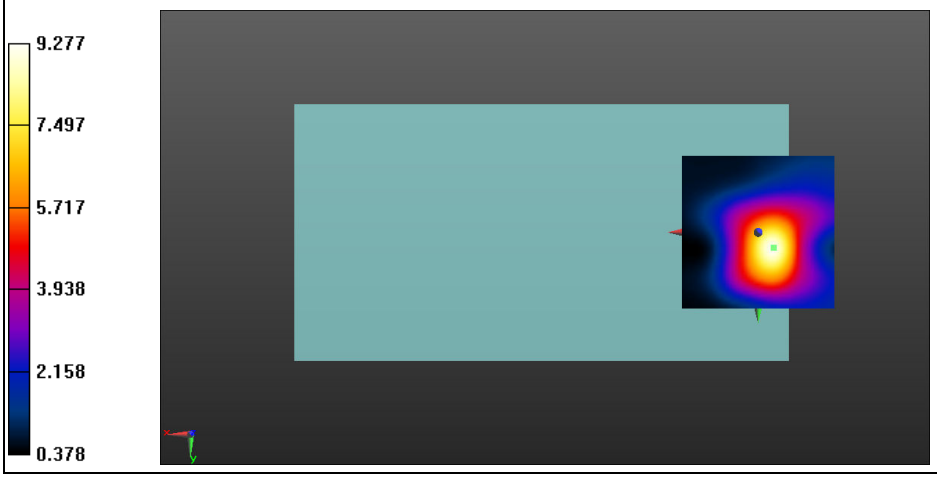
LTE BAND12	Axial Y

Communication System: UID 10175 - CAC, LTE-FDD (SC-FDMA, 1 RB, 10 MHz, QPSK); Frequency: 707.5 MHz
Medium parameters used: σ = 0 S/m, ε_r = 1; ρ = 0 kg/m^3
Phantom section: TCoil Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY Configuration:

- Probe: AM1DV2 - 1021; ; Calibrated: 2017/10/23
- Sensor-Surface: 0mm (Fix Surface), z = 3.0
- Electronics: DAE4 Sn546; Calibrated: 2017/9/15
- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA;
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

T-Coil scan (scan for ANSI C63.19-2007 & 2011 compliance)/General Scans_LTE Band12_T-Coil_HAC/y (transversal) 4.2mm 50 x 50/ABM Interpolated SNR(x,y,z) (51x51x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Signal Type: Audio File (.wav) 48k_voice_1kHz_1s.wav
Output Gain: 42.00
Device Reference Point: 0, 0, -6.3 mm
Cursor:
ABM1/ABM2 = 26.35 dB
ABM1 comp = -15.96 dBA/m
Location: -5, 5, 3.7 mm



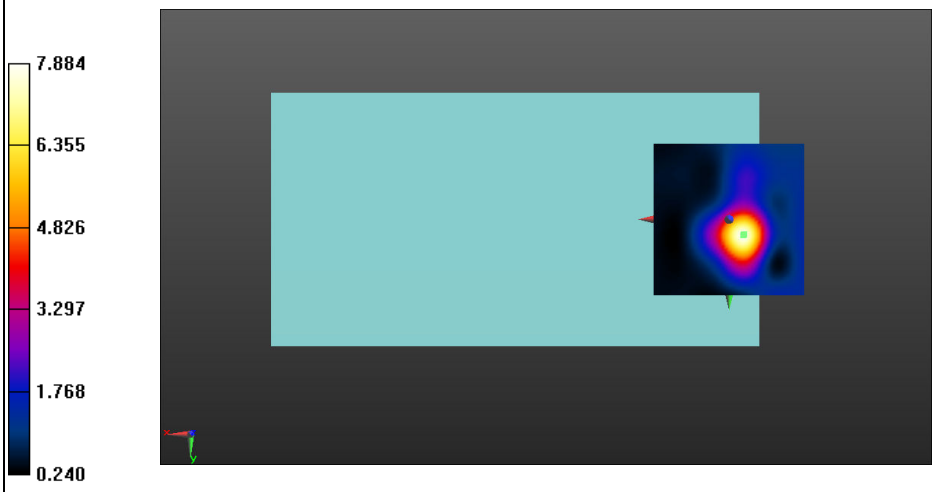
LTE BAND12	Axial Z & Frequency Resp.

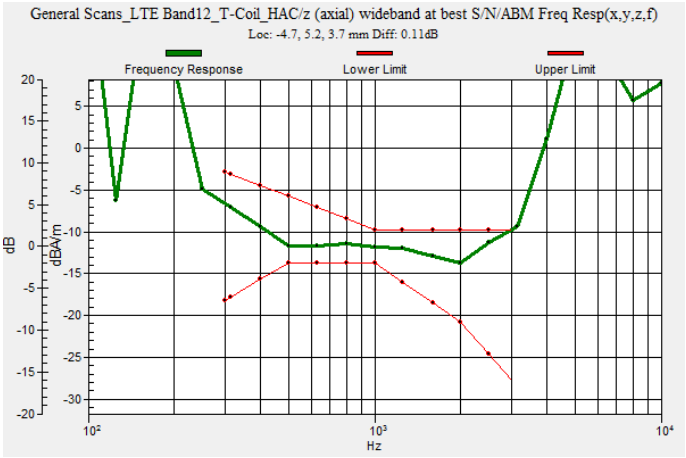
Communication System: UID 10175 - CAC, LTE-FDD (SC-FDMA, 1 RB, 10 MHz, QPSK); Frequency: 707.5 MHz
Medium parameters used: σ = 0 S/m, ε_r = 1; ρ = 0 kg/m^3
Phantom section: TCoil Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

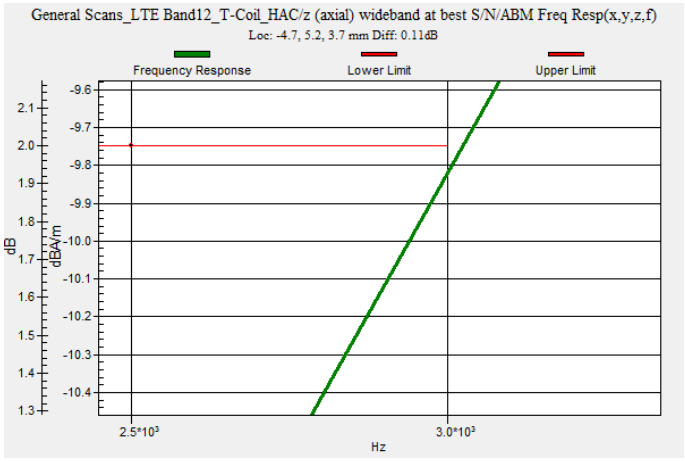
DASY Configuration:

- Probe: AM1DV2 - 1021; ; Calibrated: 2017/10/23
- Sensor-Surface: 0mm (Fix Surface), z = 3.0
- Electronics: DAE4 Sn546; Calibrated: 2017/9/15
- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA;
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

T-Coil scan (scan for ANSI C63.19-2007 & 2011 compliance)/General Scans_LTE Band12_T-Coil_HAC/z (axial) 4.2mm 50 x 50/ABM Interpolated SNR(x,y,z) (51x51x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Signal Type: Audio File (.wav) 48k_voice_1kHz_1s.wav
Output Gain: 42.00
Device Reference Point: 0, 0, -6.3 mm
Cursor:
ABM1/ABM2 = 25.93 dB
ABM1 comp = -8.22 dBA/m
Location: -5, 5, 3.7 mm
T-Coil scan (scan for ANSI C63.19-2007 & 2011 compliance)/General Scans_LTE Band12_T-Coil_HAC/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: 82.26
Device Reference Point: 0, 0, -6.3 mm


7.884
6.355
4.826
3.297
1.768
0.240


General Scans_LTE Band12_T-Coil_HAC/z (axial) wideband at best S/N/ABM Freq Resp(x,y,z,f)
Loc: -4.7, 5.2, 3.7 mm Diff: 0.11dB
Frequency Response
Lower Limit
Upper Limit
dB
dBA/m
Hz


General Scans_LTE Band12_T-Coil_HAC/z (axial) wideband at best S/N/ABM Freq Resp(x,y,z,f)
Loc: -4.7, 5.2, 3.7 mm Diff: 0.11dB
Frequency Response
Lower Limit
Upper Limit
dB
dBA/m
Hz

LTE BAND13	Axial Y

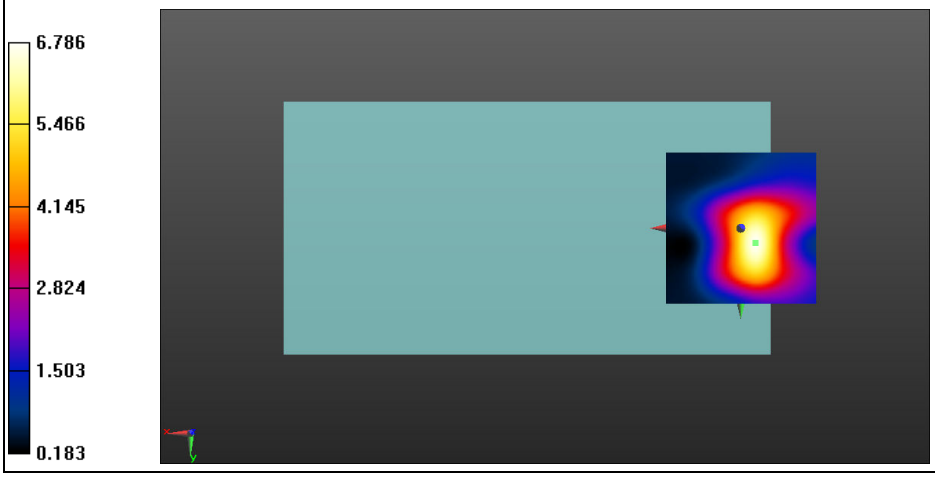
Communication System: UID 10175 - CAC, LTE-FDD (SC-FDMA, 1 RB, 10 MHz, QPSK); Frequency: 782 MHz
Medium parameters used: $\sigma = 0$ S/m, $\varepsilon_r = 1$; $\rho = 0$ kg/m^3
Phantom section: TCoil Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY Configuration:

- Probe: AM1DV2 - 1021; ; Calibrated: 2017/10/23
- Sensor-Surface: 0mm (Fix Surface), z = 3.0
- Electronics: DAE4 Sn546; Calibrated: 2017/9/15
- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA;
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

T-Coil scan (scan for ANSI C63.19-2007 & 2011 compliance)/General Scans_LTE Band13_T-Coil_HAC/y (transversal) 4.2mm 50 x 50/ABM Interpolated SNR(x,y,z) (51x51x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Signal Type: Audio File (.wav) 48k_voice_1kHz_1s.wav
Output Gain: 42.00
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1/ABM2 = 26.63 dB
ABM1 comp = -14.42 dBA/m
Location: -5, 5, 3.7 mm



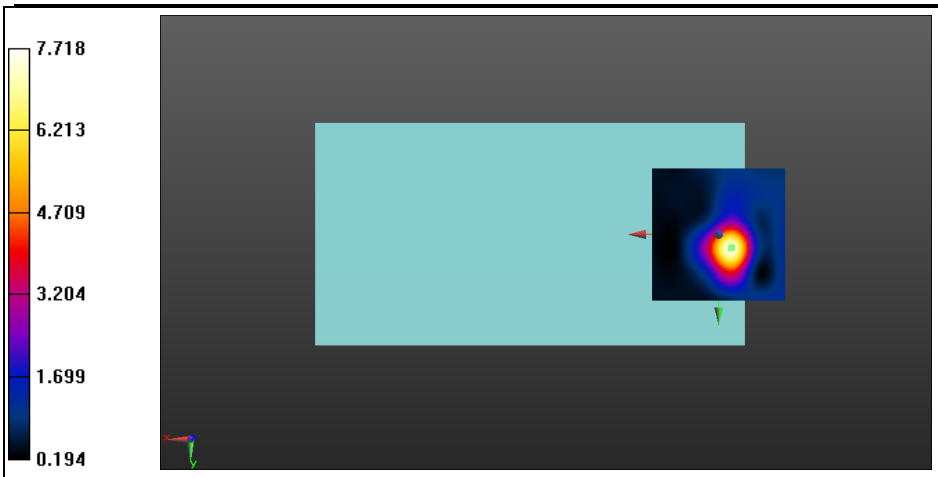
LTE BAND13	Axial Z & Frequency Resp.

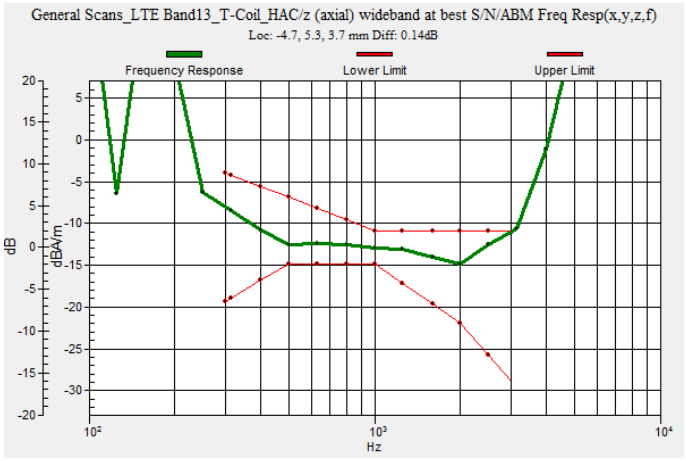
Communication System: UID 10175 - CAC, LTE-FDD (SC-FDMA, 1 RB, 10 MHz, QPSK); Frequency: 782 MHz
Medium parameters used: σ = 0 S/m, ε_r = 1; ρ = 0 kg/m^3
Phantom section: TCoil Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

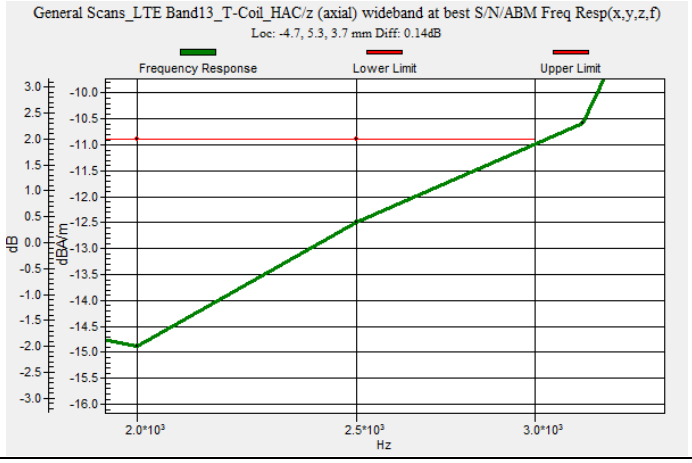
DASY Configuration:

- Probe: AM1DV2 - 1021; ; Calibrated: 2017/10/23
- Sensor-Surface: 0mm (Fix Surface), z = 3.0
- Electronics: DAE4 Sn546; Calibrated: 2017/9/15
- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA;
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

T-Coil scan (scan for ANSI C63.19-2007 & 2011 compliance)/General Scans_LTE Band13_T-Coil_HAC/z (axial) 4.2mm 50 x 50/ABM Interpolated SNR(x,y,z) (51x51x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Signal Type: Audio File (.wav) 48k_voice_1kHz_1s.wav
Output Gain: 42.00
Device Reference Point: 0, 0, -6.3 mm
Cursor:
ABM1/ABM2 = 25.75 dB
ABM1 comp = -7.31 dBA/m
Location: -5, 5, 3.7 mm
T-Coil scan (scan for ANSI C63.19-2007 & 2011 compliance)/General Scans_LTE Band13_T-Coil_HAC/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: 82.26
Device Reference Point: 0, 0, -6.3 mm


7.718
6.213
4.709
3.204
1.699
0.194


General Scans_LTE Band13_T-Coil_HAC/z (axial) wideband at best S/N/ABM Freq Resp(x,y,z,f)
Loc: -4.7, 5.3, 3.7 mm Diff: 0.14dB
Frequency Response
Lower Limit
Upper Limit
dB
dBA/m
Hz


General Scans_LTE Band13_T-Coil_HAC/z (axial) wideband at best S/N/ABM Freq Resp(x,y,z,f)
Loc: -4.7, 5.3, 3.7 mm Diff: 0.14dB
Frequency Response
Lower Limit
Upper Limit
dB
dBA/m
Hz

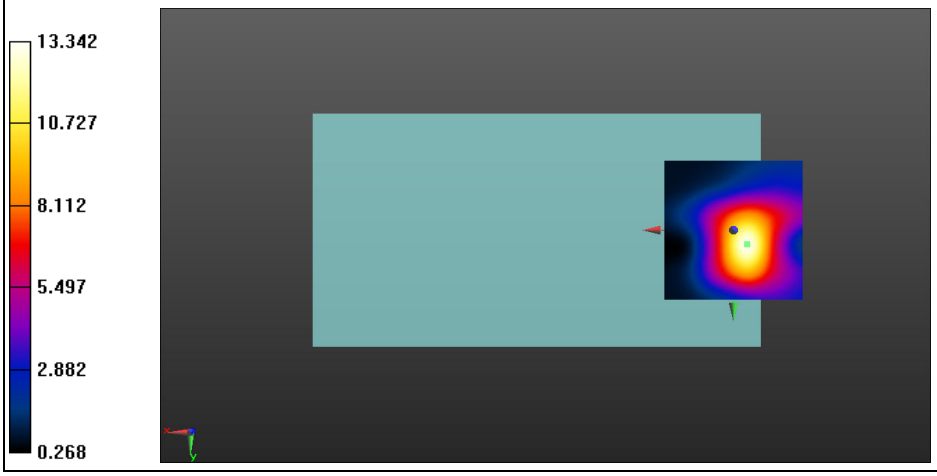
LTE BAND14	Axial Y

Communication System: UID 10175 - CAC, LTE-FDD (SC-FDMA, 1 RB, 10 MHz, QPSK); Frequency: 793 MHz
Medium parameters used: σ = 0 S/m, ε_r = 1; ρ = 0 kg/m^3
Phantom section: TCoil Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY Configuration:

- Probe: AM1DV2 - 1021; ; Calibrated: 2017/10/23
- Sensor-Surface: 0mm (Fix Surface), z = 3.0
- Electronics: DAE4 Sn546; Calibrated: 2017/9/15
- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA;
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

T-Coil scan (scan for ANSI C63.19-2007 & 2011 compliance)/General Scans_LTE Band14_T-Coil_HAC/y (transversal) 4.2mm 50 x 50/ABM Interpolated SNR(x,y,z) (51x51x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Signal Type: Audio File (.wav) 48k_voice_1kHz_1s.wav
Output Gain: 42.00
Device Reference Point: 0, 0, -6.3 mm
Cursor:
ABM1/ABM2 = 27.50 dB
ABM1 comp = -14.00 dBA/m
Location: -5, 5, 3.7 mm



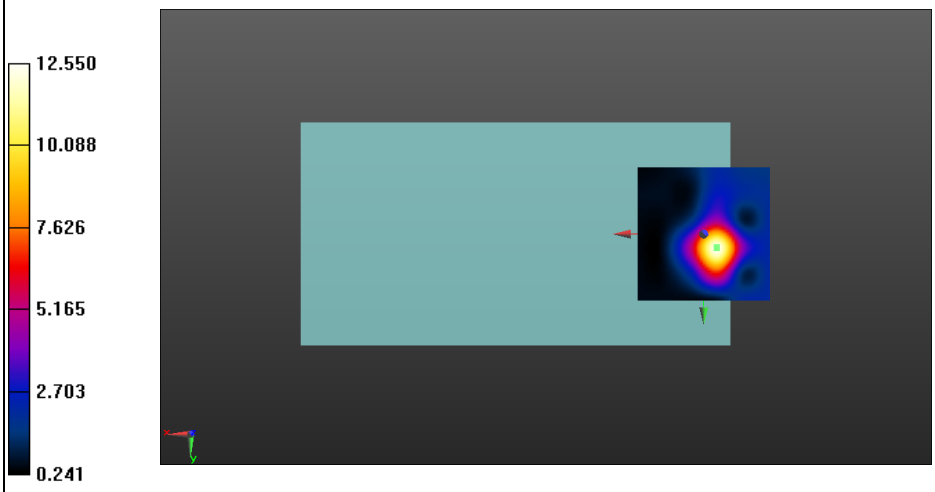
LTE BAND14	Axial Z & Frequency Resp.

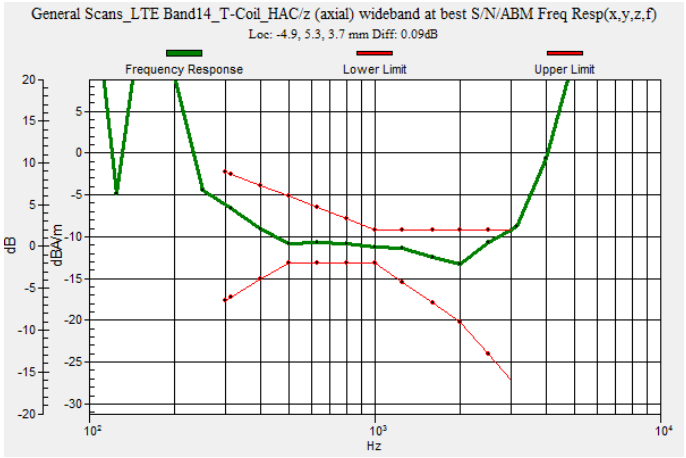
Communication System: UID 10175 - CAC, LTE-FDD (SC-FDMA, 1 RB, 10 MHz, QPSK); Frequency: 793 MHz
Medium parameters used: σ = 0 S/m, ε_r = 1; ρ = 0 kg/m^3
Phantom section: TCoil Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

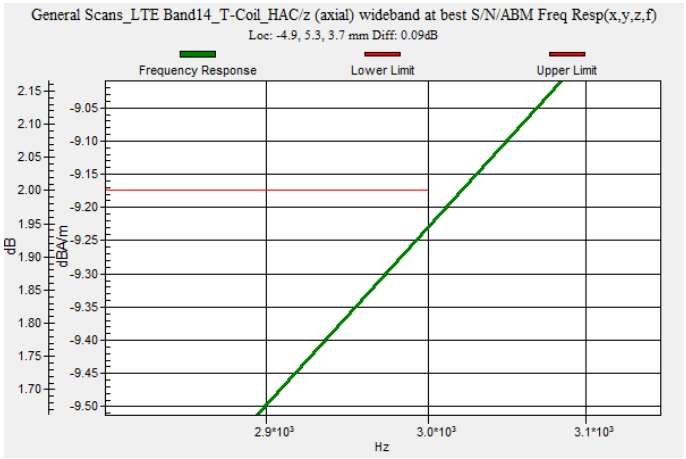
DASY Configuration:

- Probe: AM1DV2 - 1021; ; Calibrated: 2017/10/23
- Sensor-Surface: 0mm (Fix Surface), z = 3.0
- Electronics: DAE4 Sn546; Calibrated: 2017/9/15
- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA;
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

T-Coil scan (scan for ANSI C63.19-2007 & 2011 compliance)/General Scans_LTE Band14_T-Coil_HAC/z (axial) 4.2mm 50 x 50/ABM Interpolated SNR(x,y,z) (51x51x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Signal Type: Audio File (.wav) 48k_voice_1kHz_1s.wav
Output Gain: 42.00
Device Reference Point: 0, 0, -6.3 mm
Cursor:
ABM1/ABM2 = 26.97 dB
ABM1 comp = -7.23 dBA/m
Location: -5, 5, 3.7 mm
T-Coil scan (scan for ANSI C63.19-2007 & 2011 compliance)/General Scans_LTE Band14_T-Coil_HAC/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: 82.26
Device Reference Point: 0, 0, -6.3 mm


12.550
10.088
7.626
5.165
2.703
0.241


General Scans_LTE Band14_T-Coil_HAC/z (axial) wideband at best S/N/ABM Freq Resp(x,y,z,f)
Loc: -4.9, 5.3, 3.7 mm Diff: 0.09dB
Frequency Response
Lower Limit
Upper Limit
dB
dBA/m
Hz


General Scans_LTE Band14_T-Coil_HAC/z (axial) wideband at best S/N/ABM Freq Resp(x,y,z,f)
Loc: -4.9, 5.3, 3.7 mm Diff: 0.09dB
Frequency Response
Lower Limit
Upper Limit
dB
dBA/m
Hz

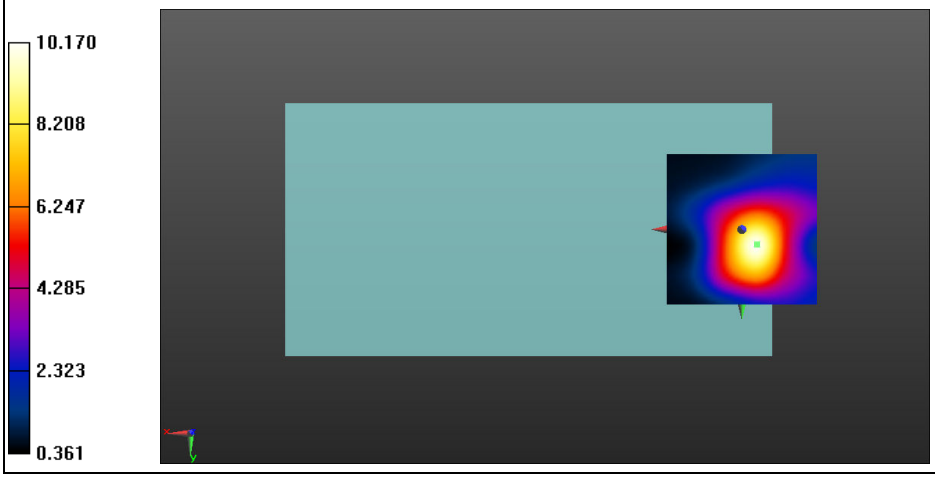
LTE BAND17	Axial Y

Communication System: UID 10175 - CAC, LTE-FDD (SC-FDMA, 1 RB, 10 MHz, QPSK); Frequency: 710 MHz
Medium parameters used: σ = 0 S/m, ε_r = 1; ρ = 0 kg/m^3
Phantom section: TCoil Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY Configuration:

- Probe: AM1DV2 - 1021; ; Calibrated: 2017/10/23
- Sensor-Surface: 0mm (Fix Surface), z = 3.0
- Electronics: DAE4 Sn546; Calibrated: 2017/9/15
- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA;
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

T-Coil scan (scan for ANSI C63.19-2007 & 2011 compliance)/General Scans_LTE Band17_T-Coil_HAC/y (transversal) 4.2mm 50 x 50/ABM Interpolated SNR(x,y,z) (51x51x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Signal Type: Audio File (.wav) 48k_voice_1kHz_1s.wav
Output Gain: 42.00
Device Reference Point: 0, 0, -6.3 mm
Cursor:
ABM1/ABM2 = 27.15 dB
ABM1 comp = 14.58 dBA/m
Location: -5, 5, 3.7 mm



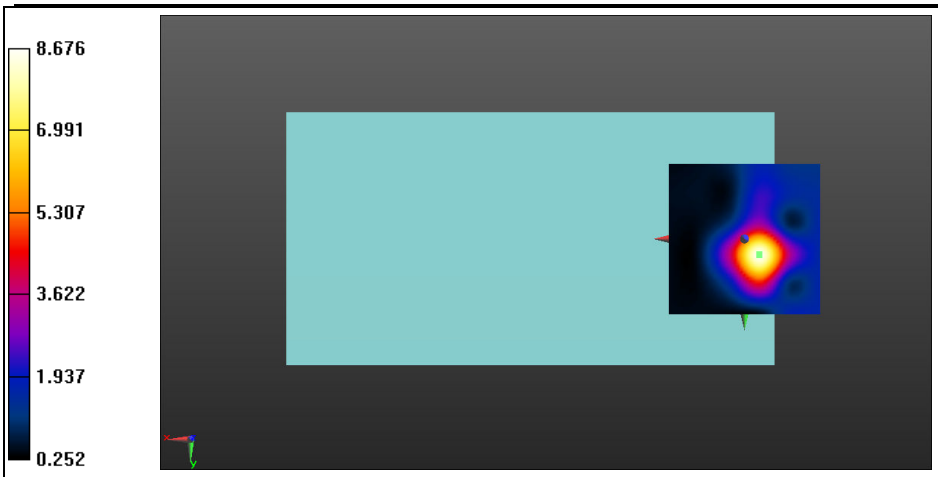
LTE BAND17	Axial Z & Frequency Resp.

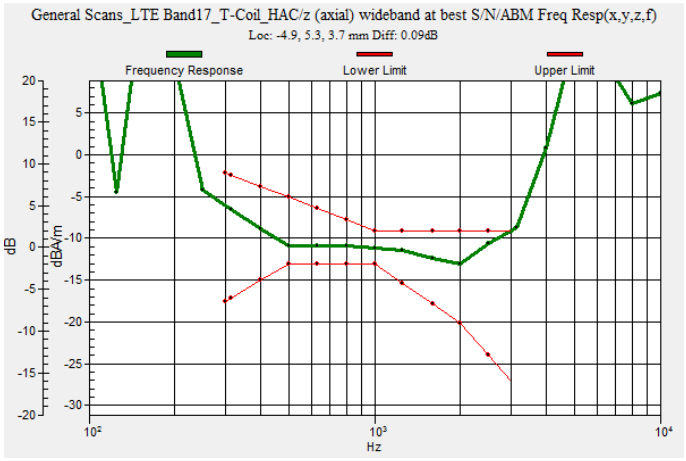
Communication System: UID 10175 - CAC, LTE-FDD (SC-FDMA, 1 RB, 10 MHz, QPSK); Frequency: 710 MHz
Medium parameters used: $\sigma = 0$ S/m, $\varepsilon_r = 1$; $\rho = 0$ kg/m^3
Phantom section: TCoil Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

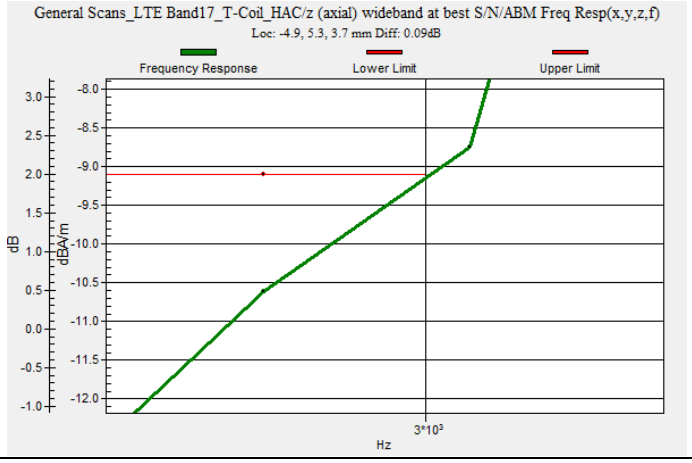
DASY Configuration:

- Probe: AM1DV2 - 1021; ; Calibrated: 2017/10/23
- Sensor-Surface: 0mm (Fix Surface), z = 3.0
- Electronics: DAE4 Sn546; Calibrated: 2017/9/15
- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA;
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

T-Coil scan (scan for ANSI C63.19-2007 & 2011 compliance)/General Scans_LTE Band17_T-Coil_HAC/z (axial) 4.2mm 50 x 50/ABM Interpolated SNR(x,y,z) (51x51x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Signal Type: Audio File (.wav) 48k_voice_1kHz_1s.wav
Output Gain: 42.00
Device Reference Point: 0, 0, -6.3 mm
Cursor:
ABM1/ABM2 = 26.77 dB
ABM1 comp = -7.19 dBA/m
Location: -5, 5, 3.7 mm
T-Coil scan (scan for ANSI C63.19-2007 & 2011 compliance)/General Scans_LTE Band17_T-Coil_HAC/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: 82.26
Device Reference Point: 0, 0, -6.3 mm


8.676
6.991
5.307
3.622
1.937
0.252


General Scans_LTE Band17_T-Coil_HAC/z (axial) wideband at best S/N/ABM Freq Resp(x,y,z,f)
Loc: -4.9, 5.3, 3.7 mm Diff: 0.09dB
Frequency Response
Lower Limit
Upper Limit
dB
dBA/m
Hz


General Scans_LTE Band17_T-Coil_HAC/z (axial) wideband at best S/N/ABM Freq Resp(x,y,z,f)
Loc: -4.9, 5.3, 3.7 mm Diff: 0.09dB
Frequency Response
Lower Limit
Upper Limit
dB
dBA/m
Hz

LTE BAND25	Axial Y

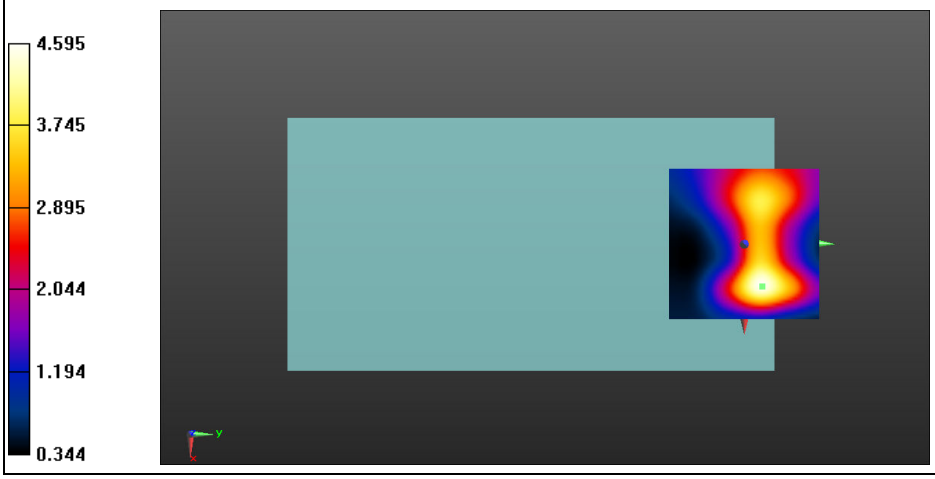
Communication System: UID 10169 - CAB, LTE-FDD (SC-FDMA, 1 RB, 20 MHz, QPSK); Frequency: 1882.5 MHz
Medium parameters used: σ = 0 S/m, ε_r = 1; ρ = 0 kg/m^3
Phantom section: TCoil Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY Configuration:

- Probe: AM1DV2 - 1021; ; Calibrated: 2017/10/23
- Sensor-Surface: 0mm (Fix Surface), z = 3.0
- Electronics: DAE4 Sn546; Calibrated: 2017/9/15
- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA;
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

T-Coil scan (scan for ANSI C63.19-2007 & 2011 compliance)/General Scans_LTE Band25_T-Coil_HAC/y (transversal) 4.2mm 50 x 50/ABM Interpolated SNR(x,y,z) (51x51x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Signal Type: Audio File (.wav) 48k_voice_1kHz_1s.wav
Output Gain: 42.00
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1/ABM2 = 26.25 dB
ABM1 comp = -14.86 dBA/m
Location: 14, 6, 3.7 mm



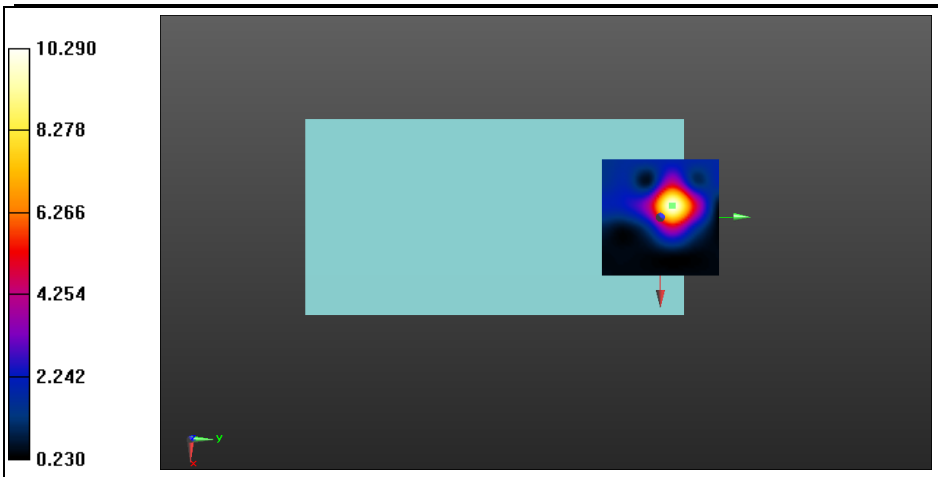
LTE BAND25	Axial Z & Frequency Resp.

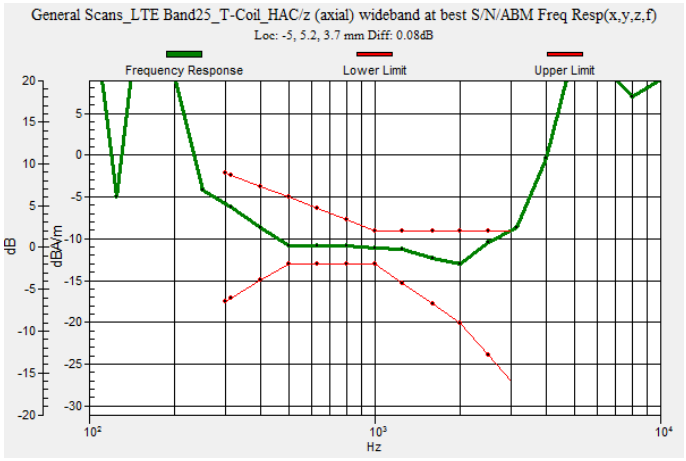
Communication System: UID 10169 - CAB, LTE-FDD (SC-FDMA, 1 RB, 20 MHz, QPSK); Frequency: 1882.5 MHz
Medium parameters used: $\sigma = 0$ S/m, $\varepsilon_r = 1$; $\rho = 0$ kg/m^3
Phantom section: TCoil Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

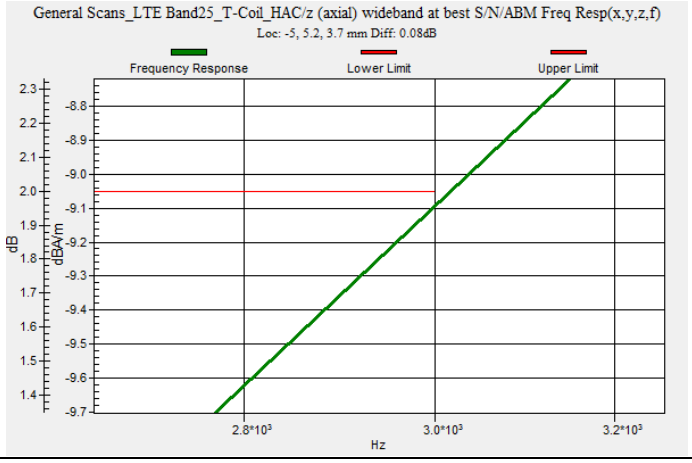
DASY Configuration:

- Probe: AM1DV2 - 1021; ; Calibrated: 2017/10/23
- Sensor-Surface: 0mm (Fix Surface), z = 3.0
- Electronics: DAE4 Sn546; Calibrated: 2017/9/15
- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA;
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

T-Coil scan (scan for ANSI C63.19-2007 & 2011 compliance)/General Scans_LTE Band25_T-Coil_HAC/z (axial) 4.2mm 50 x 50/ABM Interpolated SNR(x,y,z) (51x51x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Signal Type: Audio File (.wav) 48k_voice_1kHz_1s.wav
Output Gain: 42.00
Device Reference Point: 0, 0, -6.3 mm
Cursor:
ABM1/ABM2 = 26.05 dB
ABM1 comp = -6.98 dBA/m
Location: -5, 5, 3.7 mm
T-Coil scan (scan for ANSI C63.19-2007 & 2011 compliance)/General Scans_LTE Band25_T-Coil_HAC/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: 82.26
Device Reference Point: 0, 0, -6.3 mm


10.290
8.278
6.266
4.254
2.242
0.230


General Scans_LTE Band25_T-Coil_HAC/z (axial) wideband at best S/N/ABM Freq Resp(x,y,z,f)
Loc: -5, 5.2, 3.7 mm Diff: 0.08dB
Frequency Response
Lower Limit
Upper Limit
dB
dBA/m
Hz


General Scans_LTE Band25_T-Coil_HAC/z (axial) wideband at best S/N/ABM Freq Resp(x,y,z,f)
Loc: -5, 5.2, 3.7 mm Diff: 0.08dB
Frequency Response
Lower Limit
Upper Limit
dB
dBA/m
Hz

LTE BAND26	Axial Y

Communication System: UID 10181 - CAB, LTE-FDD (SC-FDMA, 1 RB, 15 MHz, QPSK); Frequency: 831.5 MHz
Medium parameters used: σ = 0 S/m, ε_r = 1; ρ = 0 kg/m^3
Phantom section: TCoil Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY Configuration:

- Probe: AM1DV2 - 1021; ; Calibrated: 2017/10/23
- Sensor-Surface: 0mm (Fix Surface), z = 3.0
- Electronics: DAE4 Sn546; Calibrated: 2017/9/15
- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA;
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

T-Coil scan (scan for ANSI C63.19-2007 & 2011 compliance)/General Scans_LTE Band26_T-Coil_HAC/y (transversal) 4.2mm 50 x 50/ABM Interpolated SNR(x,y,z) (51x51x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Signal Type: Audio File (.wav) 48k_voice_1kHz_1s.wav
Output Gain: 42.00
Device Reference Point: 0, 0, -6.3 mm**Cursor:**
ABM1/ABM2 = 27.89 dB
ABM1 comp = -13.03 dBA/m
Location: -5, -5, 3.7 mm

LTE BAND26	Axial Z & Frequency Resp.

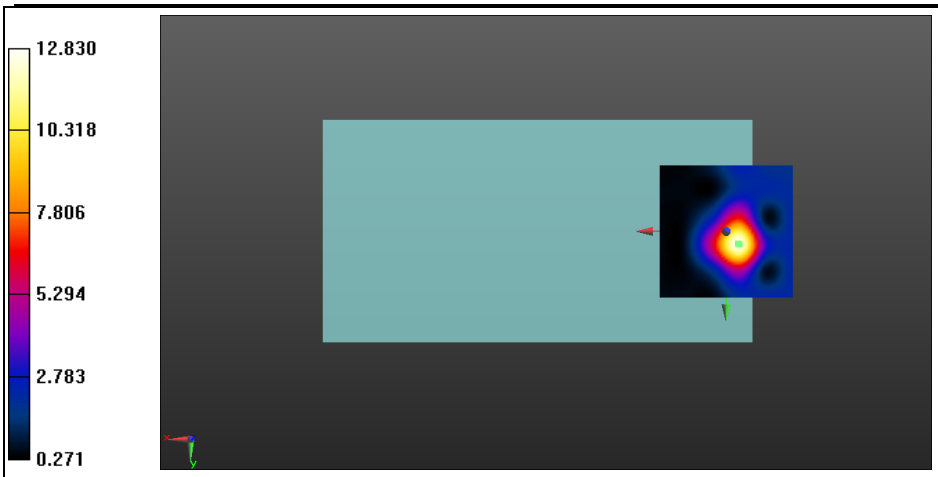
Communication System: UID 10181 - CAB, LTE-FDD (SC-FDMA, 1 RB, 15 MHz, QPSK); Frequency: 831.5 MHz
Medium parameters used: $\sigma = 0$ S/m, $\varepsilon_r = 1$; $\rho = 0$ kg/m^3
Phantom section: TCoil Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

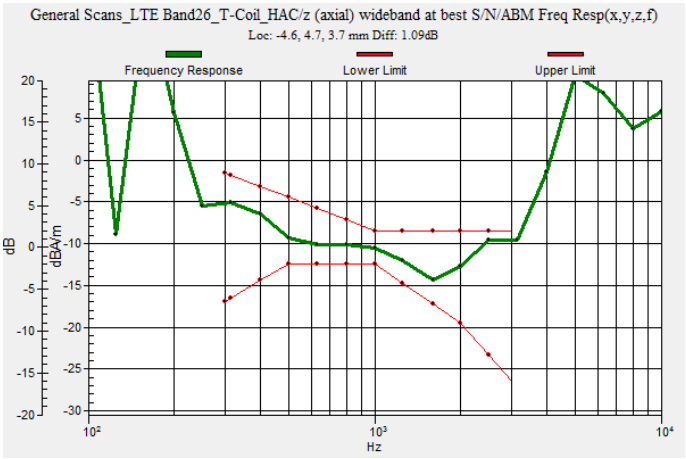
DASY Configuration:

- Probe: AM1DV2 - 1021; ; Calibrated: 2017/10/23
- Sensor-Surface: 0mm (Fix Surface), z = 3.0
- Electronics: DAE4 Sn546; Calibrated: 2017/9/15
- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA;
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

T-Coil scan (scan for ANSI C63.19-2007 & 2011 compliance)/General Scans_LTE Band26_T-Coil_HAC/z (axial) 4.2mm 50 x 50/ABM Interpolated SNR(x,y,z) (51x51x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Signal Type: Audio File (.wav) 48k_voice_1kHz_1s.wav
Output Gain: 42.00
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1/ABM2 = 26.16 dB
ABM1 comp = -6.54 dBA/m
Location: -5, 5, 3.7 mm
T-Coil scan (scan for ANSI C63.19-2007 & 2011 compliance)/General Scans_LTE Band26_T-Coil_HAC/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: 82.26
Device Reference Point: 0, 0, -6.3 mm


12.830
10.318
7.806
5.294
2.783
0.271


General Scans_LTE Band26_T-Coil_HAC/z (axial) wideband at best S/N/ABM Freq Resp(x,y,z,f)
Loc: -4.6, 4.7, 3.7 mm Diff: 1.09dB
Frequency Response
Lower Limit
Upper Limit
dB
dBA/m
Hz

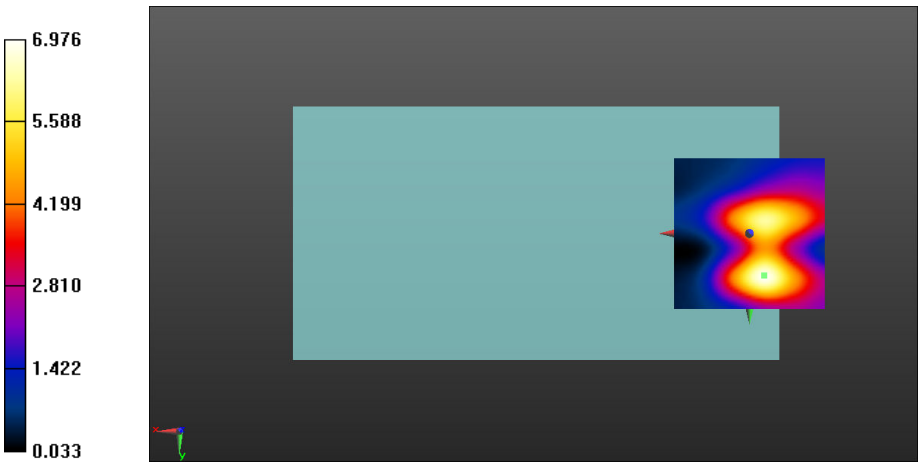
LTE BAND30	Axial Y

Communication System: UID 10172 - CAB, LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK); Frequency: 2595 MHz
Medium parameters used: σ = 0 S/m, εr = 1; ρ = 0 kg/m3
Phantom section: TCoil Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY Configuration:

- Probe: AM1DV2 - 1021; ; Calibrated: 2017/10/23
- Sensor-Surface: 0mm (Fix Surface), z = 3.0
- Electronics: DAE4 Sn546; Calibrated: 2017/9/15
- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA;
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

T-Coil scan (scan for ANSI C63.19-2007 & 2011 compliance)/General Scans_LTE Band38_T-Coil_HAC/y (transversal) 4.2mm 50 x 50/ABM
Interpolated SNR(x,y,z) (51x51x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Signal Type: Audio File (.wav) 48k_voice_1kHz_1s.wav
Output Gain: 42.00
Device Reference Point: 0, 0, -6.3 mm
Cursor:
ABM1/ABM2 = 26.87 dB
ABM1 comp = -14.83 dBA/m
Location: -5, 14, 3.7 mm



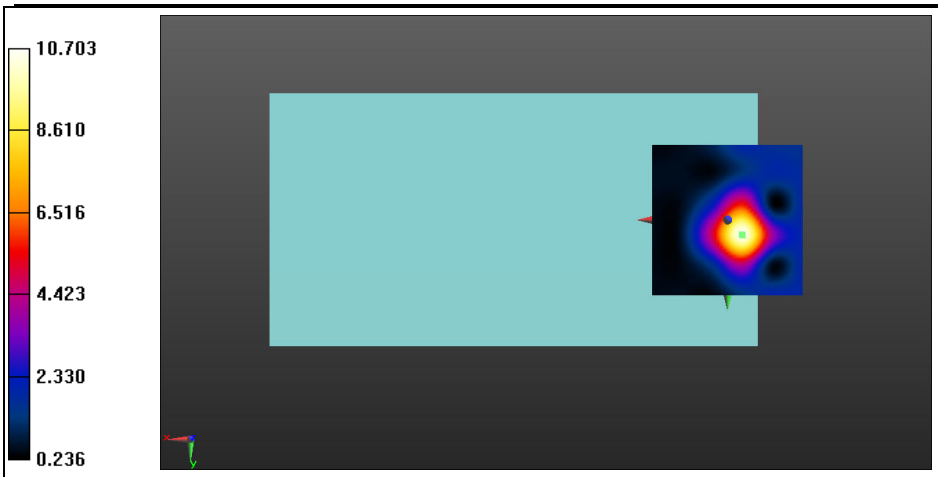
LTE BAND30	Axial Z & Frequency Resp.

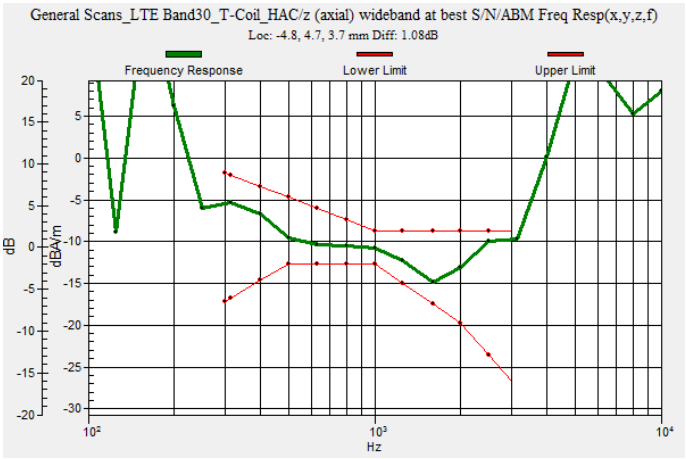
Communication System: UID 10175 - CAC, LTE-FDD (SC-FDMA, 1 RB, 10 MHz, QPSK); Frequency: 2310 MHz
Medium parameters used: $\sigma = 0$ S/m, $\varepsilon_r = 1$; $\rho = 0$ kg/m^3
Phantom section: TCoil Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY Configuration:

- Probe: AM1DV2 - 1021; ; Calibrated: 2017/10/23
- Sensor-Surface: 0mm (Fix Surface), z = 3.0
- Electronics: DAE4 Sn546; Calibrated: 2017/9/15
- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA;
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

T-Coil scan (scan for ANSI C63.19-2007 & 2011 compliance)/General Scans_LTE Band30_T-Coil_HAC/z (axial) 4.2mm 50 x 50/ABM Interpolated SNR(x,y,z) (51x51x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Signal Type: Audio File (.wav) 48k_voice_1kHz_1s.wav
Output Gain: 42.00
Device Reference Point: 0, 0, -6.3 mm
Cursor:
ABM1/ABM2 = 25.59 dB
ABM1 comp = -7.44 dBA/m
Location: -5, 5, 3.7 mm
T-Coil scan (scan for ANSI C63.19-2007 & 2011 compliance)/General Scans_LTE Band30_T-Coil_HAC/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: 82.26
Device Reference Point: 0, 0, -6.3 mm


10.703
8.610
6.516
4.423
2.330
0.236


General Scans_LTE Band30_T-Coil_HAC/z (axial) wideband at best S/N/ABM Freq Resp(x,y,z,f)
Loc: -4.8, 4.7, 3.7 mm Diff: 1.08dB
Frequency Response
Lower Limit
Upper Limit
dB
dBA/m
Hz

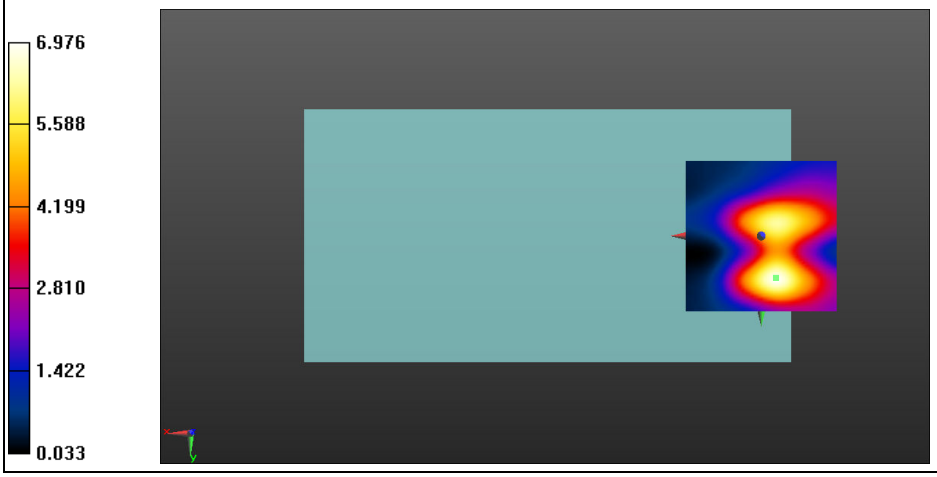
LTE BAND38	Axial Y

Communication System: UID 10172 - CAB, LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK); Frequency: 2595 MHz
Medium parameters used: $\sigma = 0$ S/m, $\varepsilon_r = 1$; $\rho = 0$ kg/m^3
Phantom section: TCoil Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY Configuration:

- Probe: AM1DV2 - 1021; ; Calibrated: 2017/10/23
- Sensor-Surface: 0mm (Fix Surface), z = 3.0
- Electronics: DAE4 Sn546; Calibrated: 2017/9/15
- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA;
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

T-Coil scan (scan for ANSI C63.19-2007 & 2011 compliance)/General Scans_LTE Band38_T-Coil_HAC/y (transversal) 4.2mm 50 x 50/ABM Interpolated SNR(x,y,z) (51x51x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Signal Type: Audio File (.wav) 48k_voice_1kHz_1s.wav
Output Gain: 42.00
Device Reference Point: 0, 0, -6.3 mm
Cursor:
ABM1/ABM2 = 24.87 dB
ABM1 comp = -15.53 dBA/m
Location: -5, 14, 3.7 mm



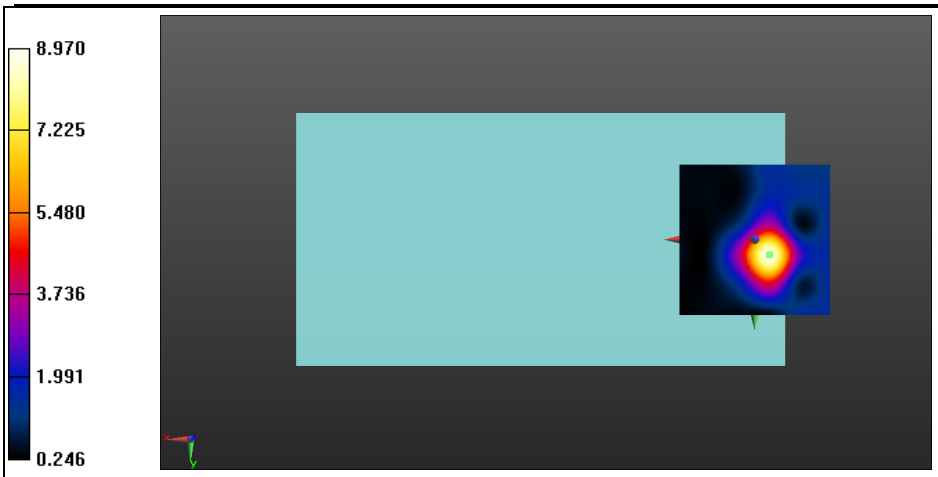
LTE BAND38	Axial Z & Frequency Resp.

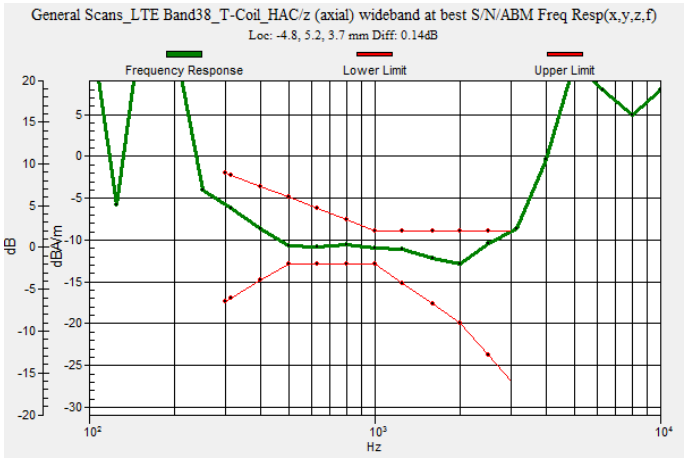
Communication System: UID 10172 - CAB, LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK); Frequency: 2595 MHz
Medium parameters used: $\sigma = 0$ S/m, $\varepsilon_r = 1$; $\rho = 0$ kg/m^3
Phantom section: TCoil Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

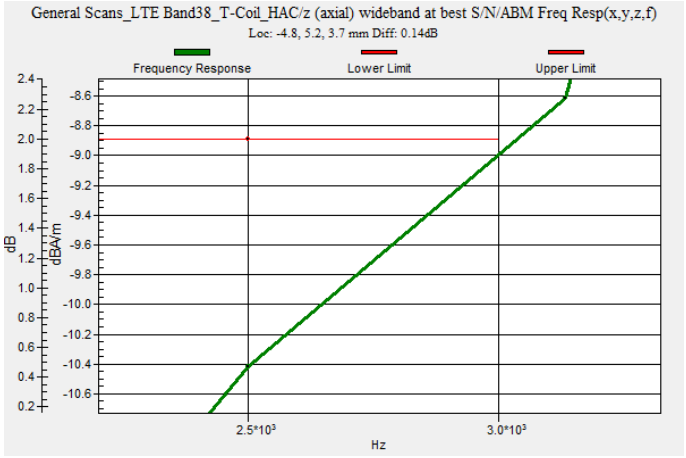
DASY Configuration:

- Probe: AM1DV2 - 1021; ; Calibrated: 2017/10/23
- Sensor-Surface: 0mm (Fix Surface), z = 3.0
- Electronics: DAE4 Sn546; Calibrated: 2017/9/15
- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA;
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

T-Coil scan (scan for ANSI C63.19-2007 & 2011 compliance)/General Scans_LTE Band38_T-Coil_HAC/z (axial) 4.2mm 50 x 50/ABM Interpolated SNR(x,y,z) (51x51x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Signal Type: Audio File (.wav) 48k_voice_1kHz_1s.wav
Output Gain: 42.00
Device Reference Point: 0, 0, -6.3 mm
Cursor:
ABM1/ABM2 = 24.06 dB
ABM1 comp = -9.14 dBA/m
Location: -5, 5, 3.7 mm
T-Coil scan (scan for ANSI C63.19-2007 & 2011 compliance)/General Scans_LTE Band38_T-Coil_HAC/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: 82.26
Device Reference Point: 0, 0, -6.3 mm


8.970
7.225
5.480
3.736
1.991
0.246


General Scans_LTE Band38_T-Coil_HAC/z (axial) wideband at best S/N/ABM Freq Resp(x,y,z,f)
Loc: -4.8, 5.2, 3.7 mm Diff: 0.14dB
Frequency Response
Lower Limit
Upper Limit
dB
dBA/m
Hz


General Scans_LTE Band38_T-Coil_HAC/z (axial) wideband at best S/N/ABM Freq Resp(x,y,z,f)
Loc: -4.8, 5.2, 3.7 mm Diff: 0.14dB
Frequency Response
Lower Limit
Upper Limit
dB
dBA/m
Hz

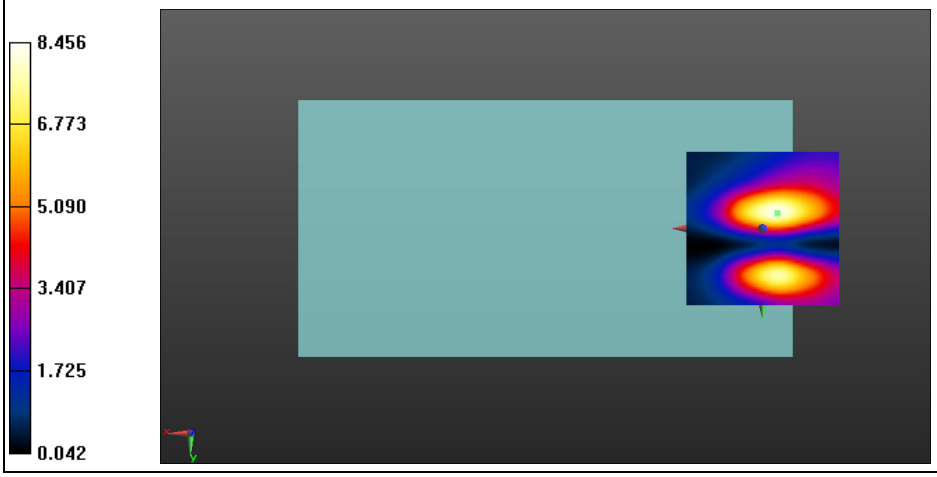
LTE BAND41	Axial Y

Communication System: UID 10173 - CAB, LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM); Frequency: 2593 MHz
Medium parameters used: σ = 0 S/m, ε_r = 1; ρ = 0 kg/m^3
Phantom section: TCoil Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY Configuration:

- Probe: AM1DV2 - 1021; ; Calibrated: 2017/10/23
- Sensor-Surface: 0mm (Fix Surface), z = 3.0
- Electronics: DAE4 Sn546; Calibrated: 2017/9/15
- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA;
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

T-Coil scan (scan for ANSI C63.19-2007 & 2011 compliance)/General Scans_LTE Band41_T-Coil_HAC/y (transversal) 4.2mm 50 x 50/ABM Interpolated SNR(x,y,z) (51x51x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Signal Type: Audio File (.wav) 48k_voice_1kHz_1s.wav
Output Gain: 42.00
Device Reference Point: 0, 0, -6.3 mm
Cursor:
ABM1/ABM2 = 25.54 dB
ABM1 comp = -15.21 dBA/m
Location: -5, -5, 3.7 mm



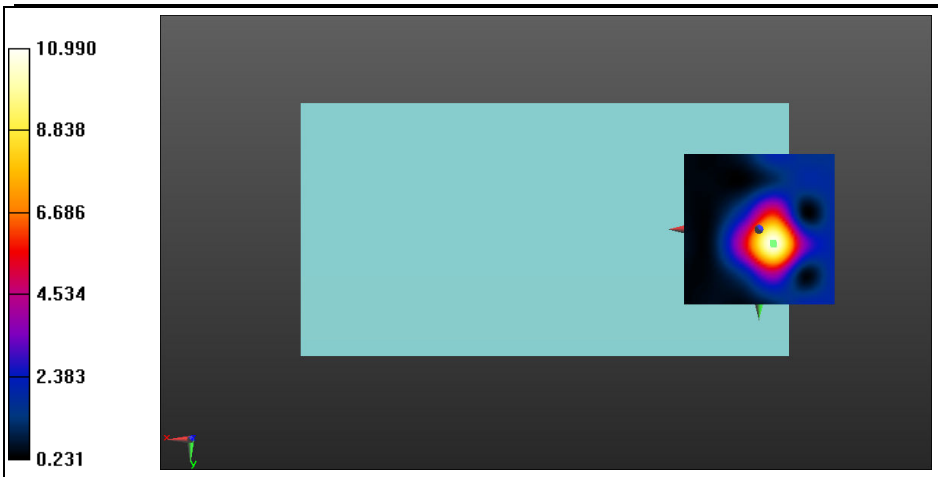
LTE BAND41	Axial Z & Frequency Resp.

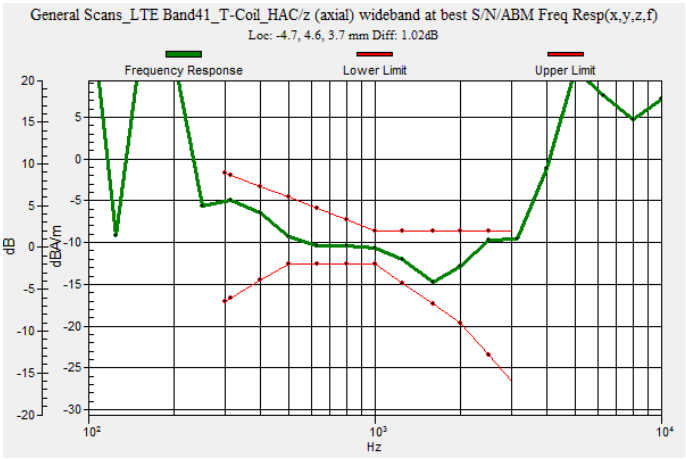
Communication System: UID 10173 - CAB, LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM); Frequency: 2593 MHz
Medium parameters used: $\sigma = 0$ S/m, $\varepsilon_r = 1$; $\rho = 0$ kg/m^3
Phantom section: TCoil Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY Configuration:

- Probe: AM1DV2 - 1021; ; Calibrated: 2017/10/23
- Sensor-Surface: 0mm (Fix Surface), z = 3.0
- Electronics: DAE4 Sn546; Calibrated: 2017/9/15
- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA;
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

T-Coil scan (scan for ANSI C63.19-2007 & 2011 compliance)/General Scans_LTE Band41_T-Coil_HAC/z (axial) 4.2mm 50 x 50/ABM Interpolated SNR(x,y,z) (51x51x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Signal Type: Audio File (.wav) 48k_voice_1kHz_1s.wav
Output Gain: 42.00
Device Reference Point: 0, 0, -6.3 mm
Cursor:
ABM1/ABM2 = 24.82 dB
ABM1 comp = -9.14 dBA/m
Location: -5, 5, 3.7 mm
T-Coil scan (scan for ANSI C63.19-2007 & 2011 compliance)/General Scans_LTE Band41_T-Coil_HAC/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: 82.26
Device Reference Point: 0, 0, -6.3 mm


10.990
8.838
6.686
4.534
2.383
0.231


General Scans_LTE Band41_T-Coil_HAC/z (axial) wideband at best S/N/ABM Freq Resp(x,y,z,f)
Loc: -4.7, 4.6, 3.7 mm Diff: 1.02dB
Frequency Response
Lower Limit
Upper Limit
dB
dBA/m
Hz

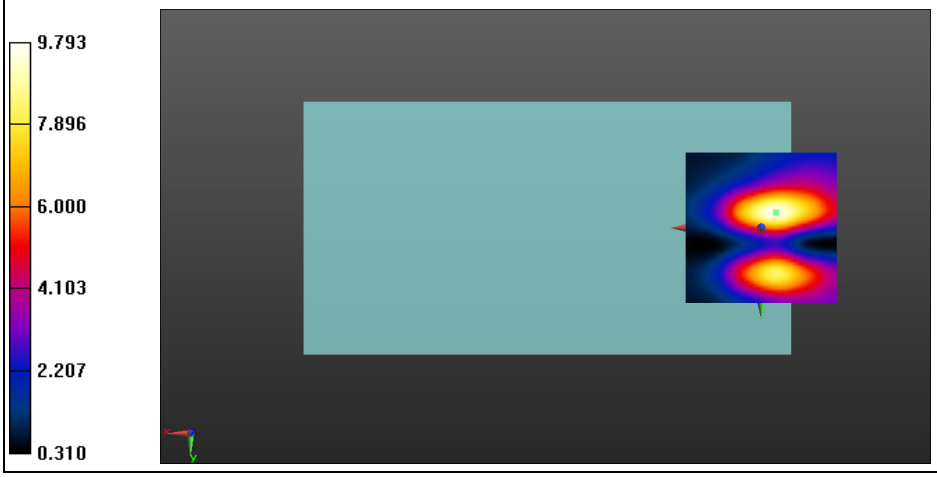
LTE BAND66	Axial Y

Communication System: UID 0, LTE band 66 (0); Frequency: 1745 MHz
Medium parameters used: σ = 0 S/m, ε_r = 1; ρ = 0 kg/m^3
Phantom section: TCoil Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY Configuration:

- Probe: AM1DV2 - 1021; ; Calibrated: 2017/10/23
- Sensor-Surface: 0mm (Fix Surface), z = 3.0
- Electronics: DAE4 Sn546; Calibrated: 2017/9/15
- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA;
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

T-Coil scan (scan for ANSI C63.19-2007 & 2011 compliance)/General Scans_LTE Band66_T-Coil_HAC/y (transversal) 4.2mm 50 x 50/ABM Interpolated SNR(x,y,z) (51x51x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Signal Type: Audio File (.wav) 48k_voice_1kHz_1s.wav
Output Gain: 42.00
Device Reference Point: 0, 0, -6.3 mm
Cursor:
ABM1/ABM2 = 27.82 dB
ABM1 comp = -14.24 dBA/m
Location: -5, -5, 3.7 mm



LTE BAND66	Axial Z & Frequency Resp.

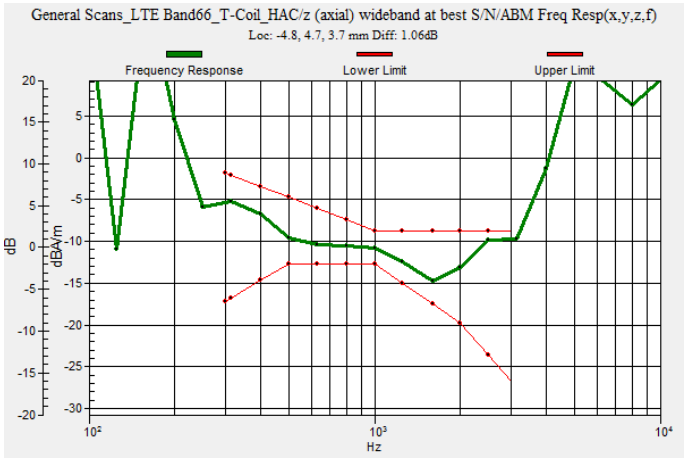
Communication System: UID 0, LTE band 66 (0); Frequency: 1745 MHz
Medium parameters used: σ = 0 S/m, ε_r = 1; ρ = 0 kg/m^3
Phantom section: TCoil Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY Configuration:

- Probe: AM1DV2 - 1021; ; Calibrated: 2017/10/23
- Sensor-Surface: 0mm (Fix Surface), z = 3.0
- Electronics: DAE4 Sn546; Calibrated: 2017/9/15
- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA;
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

T-Coil scan (scan for ANSI C63.19-2007 & 2011 compliance)/General Scans_LTE Band66_T-Coil_HAC/z (axial) 4.2mm 50 x 50/ABM Interpolated SNR(x,y,z) (51x51x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Signal Type: Audio File (.wav) 48k_voice_1kHz_1s.wav
Output Gain: 42.00
Device Reference Point: 0, 0, -6.3 mm
Cursor:
ABM1/ABM2 = 26.15 dB
ABM1 comp = -6.48 dBA/m
Location: -5, 5, 3.7 mm
T-Coil scan (scan for ANSI C63.19-2007 & 2011 compliance)/General Scans_LTE Band66_T-Coil_HAC/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: 82.26
Device Reference Point: 0, 0, -6.3 mm


12.810
10.293
7.777
5.260
2.744
0.227


General Scans_LTE Band66_T-Coil_HAC/z (axial) wideband at best S/N/ABM Freq Resp(x,y,z,f)
Loc: -4.8, 4.7, 3.7 mm Diff: 1.06dB
Frequency Response
Lower Limit
Upper Limit
dB
dBA/m
Hz

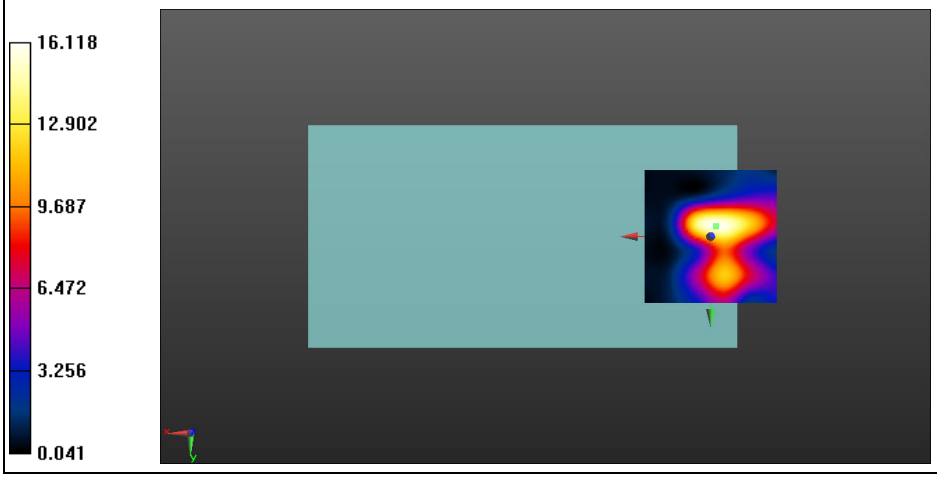
WIFI 2.4G 802.11b	Axial Y

Communication System: UID 10012 - CAB, IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps); Frequency: 2437 MHz
Medium parameters used: $\sigma = 0$ S/m, $\varepsilon_r = 1$; $\rho = 0$ kg/m^3
Phantom section: TCoil Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY Configuration:

- Probe: AM1DV2 - 1021; ; Calibrated: 2017/10/23
- Sensor-Surface: 0mm (Fix Surface), z = 3.0
- Electronics: DAE4 Sn546; Calibrated: 2017/9/15
- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA;
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

T-Coil scan (scan for ANSI C63.19-2007 & 2011 compliance)/General Scans_WIFI2.4G 802.11b 1Mbps_T-Coil_HAC/y (transversal) 4.2mm 50 x 50/ABM Interpolated SNR(x,y,z) (51x51x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Signal Type: Audio File (.wav) 48k_voice_1kHz_1s.wav
Output Gain: 26.50
Device Reference Point: 0, 0, -6.3 mm
Cursor:
ABM1/ABM2 = 33.15 dB
ABM1 comp = -15.91 dBA/m
Location: -2, -4, 3.7 mm



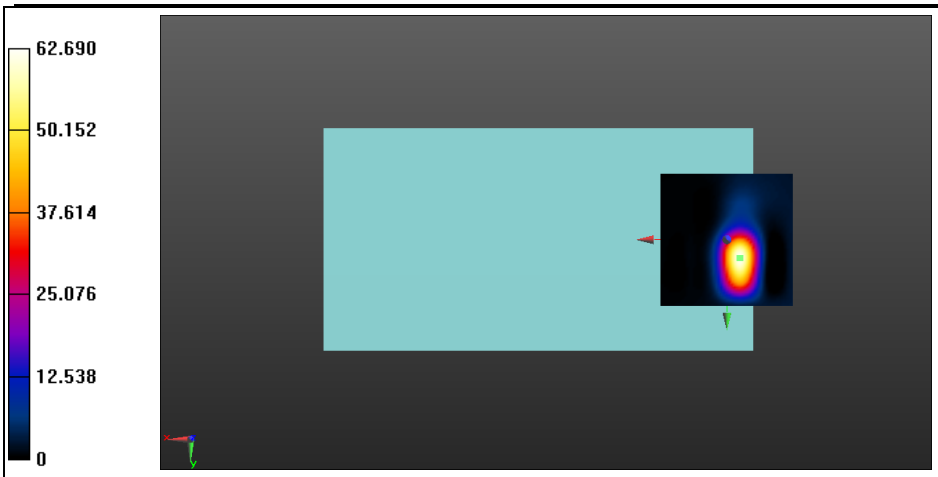
WIFI 2.4G 802.11b	Axial Z & Frequency Resp.

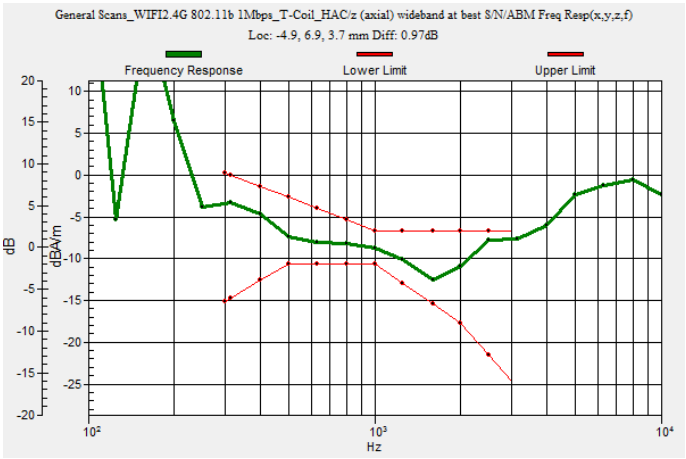
Communication System: UID 10012 - CAB, IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps); Frequency: 2437 MHz
Medium parameters used: σ = 0 S/m, ε_r = 1; ρ = 0 kg/m^3
Phantom section: TCoil Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY Configuration:

- Probe: AM1DV2 - 1021; ; Calibrated: 2017/10/23
- Sensor-Surface: 0mm (Fix Surface), z = 3.0
- Electronics: DAE4 Sn546; Calibrated: 2017/9/15
- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA;
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

T-Coil scan (scan for ANSI C63.19-2007 & 2011 compliance)/General Scans_WIFI2.4G 802.11b 1Mbps_T-Coil_HAC/z (axial) 4.2mm 50 x 50/ABM Interpolated SNR(x,y,z) (51x51x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Signal Type: Audio File (.wav) 48k_voice_1kHz_1s.wav
Output Gain: 26.50
Device Reference Point: 0, 0, -6.3 mm
Cursor:
ABM1/ABM2 = 35.94 dB
ABM1 comp = -9.14 dBA/m
Location: -5, 7, 3.7 mm
T-Coil scan (scan for ANSI C63.19-2007 & 2011 compliance)/General Scans_WIFI2.4G 802.11b 1Mbps_T-Coil_HAC/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: 51.90
Device Reference Point: 0, 0, -6.3 mm


62.690
50.152
37.614
25.076
12.538
0


General Scans_WIFI2.4G 802.11b 1Mbps_T-Coil_HAC/z (axial) wideband at best S/N/ABM Freq Resp(x,y,z,f)
Loc: -4.9, 6.9, 3.7 mm Diff: 0.97dB
Frequency Response
Lower Limit
Upper Limit
dB
dBA/m
Hz

WIFI5GHz U-NII-1 802.11a	Axial Y

Communication System: UID 10062 - CAB, IEEE 802.11a/h WiFi 5 GHz (OFDM, 6 Mbps); Frequency: 5200 MHz
Medium parameters used: $\sigma = 0$ S/m, $\varepsilon_r = 1$; $\rho = 0$ kg/m^3
Phantom section: TCoil Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY Configuration:

- Probe: AM1DV2 - 1021; ; Calibrated: 2017/10/23
- Sensor-Surface: 0mm (Fix Surface), z = 3.0
- Electronics: DAE4 Sn546; Calibrated: 2017/9/15
- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA;
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

T-Coil scan (scan for ANSI C63.19-2007 & 2011 compliance)/General Scans_WIFI5G U-NII-1 802.11a 6Mbps T-Coil_HAC data test/y (transversal) 4.2mm 50 x 50/ABM Interpolated SNR(x,y,z) (51x51x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Signal Type: Audio File (.wav) 48k_voice_1kHz_1s.wav
Output Gain: 26.50
Device Reference Point: 0, 0, -6.3 mm
Cursor:
ABM1/ABM2 = 30.80 dB
ABM1 comp = -14.87 dBA/m
Location: -5, 14, 3.7 mm

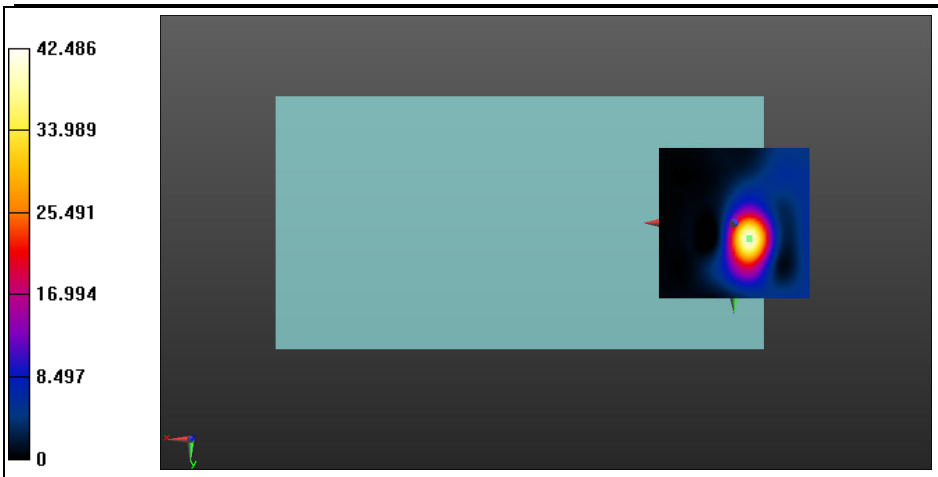
WIFI5GHz U-NII-1 802.11a	Axial Z & Frequency Resp.

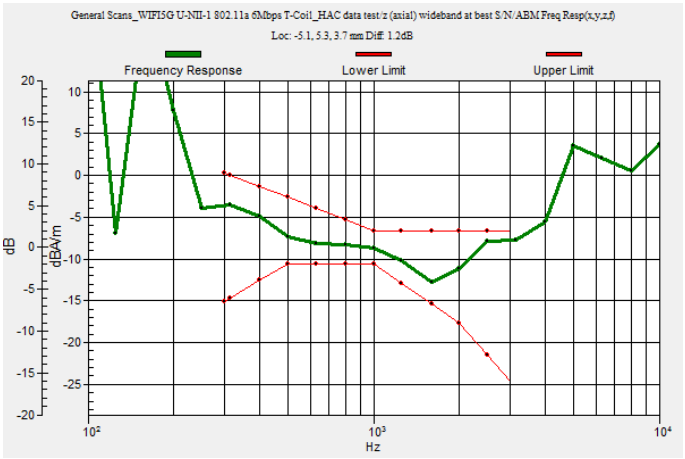
Communication System: UID 10062 - CAB, IEEE 802.11a/h WiFi 5 GHz (OFDM, 6 Mbps); Frequency: 5200 MHz
Medium parameters used: σ = 0 S/m, ε_r = 1; ρ = 0 kg/m^3
Phantom section: TCoil Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY Configuration:

- Probe: AM1DV2 - 1021; ; Calibrated: 2017/10/23
- Sensor-Surface: 0mm (Fix Surface), z = 3.0
- Electronics: DAE4 Sn546; Calibrated: 2017/9/15
- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA;
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

T-Coil scan (scan for ANSI C63.19-2007 & 2011 compliance)/General Scans_WIFI5G U-NII-1 802.11a 6Mbps T-Coil_HAC data test/z (axial) 4.2mm 50 x 50/ABM Interpolated SNR(x,y,z) (51x51x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Signal Type: Audio File (.wav) 48k_voice_1kHz_1s.wav
Output Gain: 26.50
Device Reference Point: 0, 0, -6.3 mm
Cursor:
ABM1/ABM2 = 32.56 dB
ABM1 comp = -10.04 dBA/m
Location: -5, 5, 3.7 mm
T-Coil scan (scan for ANSI C63.19-2007 & 2011 compliance)/General Scans_WIFI5G U-NII-1 802.11a 6Mbps T-Coil_HAC data test/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: 51.90
Device Reference Point: 0, 0, -6.3 mm


42.486
33.989
25.491
16.994
8.497
0


General Scans_WIFI5G U-NII-1 802.11a 6Mbps T-Coil_HAC data test/z (axial) wideband at best S/N/ABM Freq Resp(x,y,z,f)
Loc: -5.1, 5.3, 3.7 mm Diff: 1.2dB
Frequency Response
Lower Limit
Upper Limit
dB
dBA/m
Hz

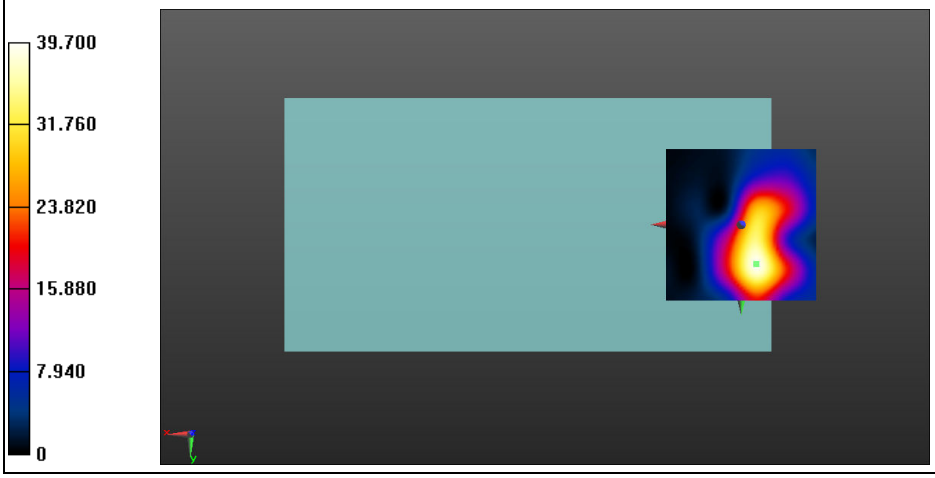
WIFI5GHz U-NII-1 802.11a	Axial Y

Communication System: UID 10062 - CAB, IEEE 802.11a/h WiFi 5 GHz (OFDM, 6 Mbps); Frequency: 5785 MHz
Medium parameters used: σ = 0 S/m, ε_r = 1; ρ = 0 kg/m^3
Phantom section: TCoil Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY Configuration:

- Probe: AM1DV2 - 1021; ; Calibrated: 2017/10/23
- Sensor-Surface: 0mm (Fix Surface), z = 3.0
- Electronics: DAE4 Sn546; Calibrated: 2017/9/15
- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA;
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

T-Coil scan (scan for ANSI C63.19-2007 & 2011 compliance)/General Scans_WIFI5G U-NII-3 802.11a 6Mbps T-Coil_HAC data test/y (transversal) 4.2mm 50 x 50/ABM Interpolated SNR(x,y,z) (51x51x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Signal Type: Audio File (.wav) 48k_voice_1kHz_1s.wav
Output Gain: 26.50
Device Reference Point: 0, 0, -6.3 mm
Cursor:
ABM1/ABM2 = 31.98 dB
ABM1 comp = -15.38 dBA/m
Location: -5, 13, 3.7 mm



WIFI5GHz U-NII-1 802.11a	Axial Z & Frequency Resp.

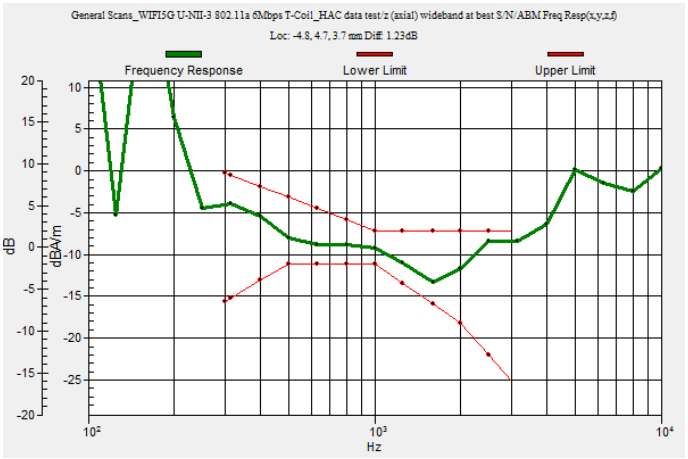
Communication System: UID 10062 - CAB, IEEE 802.11a/h WiFi 5 GHz (OFDM, 6 Mbps); Frequency: 5785 MHz
Medium parameters used: σ = 0 S/m, ε_r = 1; ρ = 0 kg/m^3
Phantom section: TCoil Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY Configuration:

- Probe: AM1DV2 - 1021; ; Calibrated: 2017/10/23
- Sensor-Surface: 0mm (Fix Surface), z = 3.0
- Electronics: DAE4 Sn546; Calibrated: 2017/9/15
- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA;
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

T-Coil scan (scan for ANSI C63.19-2007 & 2011 compliance)/General Scans_WIFI5G U-NII-3 802.11a 6Mbps T-Coil_HAC data test/z (axial) 4.2mm 50 x 50/ABM Interpolated SNR(x,y,z) (51x51x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Signal Type: Audio File (.wav) 48k_voice_1kHz_1s.wav
Output Gain: 26.50
Device Reference Point: 0, 0, -6.3 mm
Cursor:
ABM1/ABM2 = 33.92 dB
ABM1 comp = -10.90 dBA/m
Location: -5, 5, 3.7 mm
T-Coil scan (scan for ANSI C63.19-2007 & 2011 compliance)/General Scans_WIFI5G U-NII-3 802.11a 6Mbps T-Coil_HAC data test/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: 51.90
Device Reference Point: 0, 0, -6.3 mm


49.681
39.745
29.809
19.873
9.936
0


General Scans_WIFI5G U-NII-3 802.11a 6Mbps T-Coil_HAC data test/z (axial) wideband at best S/N/ABM Freq Resp(x,y,z,f)
Loc: -4.8, 4.7, 3.7 mm Diff: 1.23dB
Frequency Response
Lower Limit
Upper Limit
dB
dBA/m
Hz

APPENDIX B RELEVANT PAGES FROM PROBE CALIBRATION REPORT

AM1DV2 Sn:1021

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
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 0108

Client SRTC (Vitec) Certificate No: AM1DV2-1021_Oct16

CALIBRATION CERTIFICATE

Object AM1DV2 - SN: 1021

Calibration procedure(s) QA CAL-24.v4
Calibration procedure for AM1D magnetic field probes and TMFS in the audio range

Calibration date: October 24, 2016

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	09-Sep-16 (No. 19065)	Sep-17
Reference Probe AM1DV2	SN: 1008	30-Dec-15 (No. AM1D-1008_Dec15)	Dec-16
DAE4	SN: 781	02-Sep-16 (No. DAE4-781_Sep16)	Sep-17

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
AMCC	SN: 1050	01-Oct-13 (in house check Sep-15)	Oct-17
AMMI Audio Measuring Instrument	SN: 1062	26-Sep-12 (in house check Sep-15)	Oct-17

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

Issued: October 25, 2016

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

Certificate No: AM1DV2-1021_Oct16 Page 1 of 3

[References

[1] ANSI-C63.19-2007
American National Standard for Methods of Measurement of Compatibility between Wireless Communications Devices and Hearing Aids.
[2] ANSI-C63.19-2011
American National Standard, Methods of Measurement of Compatibility between Wireless Communications Devices and Hearing Aids.
[3] 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+2]. 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+2] 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 [3], 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.

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AM1D probe identification and configuration data

Item	**AM1DV2** Audio Magnetic 1D Field Probe
Type No	SP AM1 001 AF
Serial No	**1021**

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, Zürich, Switzerland
Manufacturing date	April 10, 2006
Last calibration date	October 20, 2015

Calibration data

Connector rotation angle	(in DASY system)	**76.9** °	+/- 3.6 ° (k=2)
Sensor angle	(in DASY system)	**0.08** °	+/- 0.5 ° (k=2)
Sensitivity at 1 kHz	(in DASY system)	**0.0660 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%.

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DAE4 Sn:546

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Client : SRTC Certificate No: Z17-97141

CALIBRATION CERTIFICATE

Object	DAE4 - SN: 546
Calibration Procedure(s)	FF-Z11-002-01 Calibration Procedure for the Data Acquisition Electronics (DAEx)
Calibration date:	September 15, 2017

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)℃ and humidity<70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date(Calibrated by, Certificate No.)	Scheduled Calibration
Process Calibrator 753	1971018	27-Jun-17 (CTTL, No.J17X05859)	June-18

	Name	Function	Signature
Calibrated by:	Yu Zongying	SAR Test Engineer	
Reviewed by:	Lin Hao	SAR Test Engineer	
Approved by:	Qi Dianyuan	SAR Project Leader	

Issued: September 18, 2017

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Glossary:

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

Methods Applied and Interpretation of Parameters:

- *DC Voltage Measurement*: Calibration Factor assessed for use in DASY system by comparison with a calibrated instrument traceable to national standards. The figure given corresponds to the full scale range of the voltmeter in the respective range.
- *Connector angle*: The angle of the connector is assessed measuring the angle mechanically by a tool inserted. Uncertainty is not required.
- The report provide only calibration results for DAE, it does not contain other performance test results.

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DC Voltage Measurement

A/D - Converter Resolution nominal
High Range: 1LSB = 6.1μV , full range = -100...+300 mV
Low Range: 1LSB = 61nV , full range = -1.....+3mV
DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

Calibration Factors	X	Y	Z
High Range	405.337 ± 0.15% (k=2)	404.085 ± 0.15% (k=2)	404.215 ± 0.15% (k=2)
Low Range	3.98726 ± 0.7% (k=2)	3.95731 ± 0.7% (k=2)	3.97839 ± 0.7% (k=2)

Connector Angle

Connector Angle to be used in DASY system	236.5° ± 1 °