TEST REPORT

No. I23N01803-HAC T-coil

For

Shenzhen Tengfei Technology Management Ltd.

5G Mobile Phone

Model Name: NX769J

With

Hardware Version: NX769J_V1AMB

Software Version: REDMAGICOS9.0.0_NX769J_GB

FCC ID: 2A9QD-NX769J

Results Summary: T Rating = T3

Issued Date: 2023-11-30

Designation Number: CN1210

Note:

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

Test Laboratory:

SAICT, Shenzhen Academy of Information and Communications Technology

Building G, Shenzhen International Innovation Center, No.1006 Shennan Road, Futian District, Shenzhen, Guangdong, P. R. China 518000.

Tel:+86(0)755-33322000, Fax:+86(0)755-33322001

Email: yewu@caict.ac.cn. www.saict.ac.cn

REPORT HISTORY

Report Number	Revision	Description	Issue Date
I23N01803-HAC T-coil	Rev.0	1st edition	2023-11-30

©Copyright. All rights reserved by SAICT.

CONTENTS

1. SUMMARY OF TEST REPORT 5

1.1. TEST ITEMS 5
1.2. TEST STANDARDS 5
1.3. TEST RESULT 5
1.4. TESTING LOCATION 5
1.5. PROJECT DATA 5
1.6. SIGNATURE 5

2. CLIENT INFORMATION 6

2.1. APPLICANT INFORMATION 6
2.2. MANUFACTURER INFORMATION 6

3. EQUIPMENT UNDER TEST (EUT) AND ANCILLARY EQUIPMENT (AE) 7

3.1. ABOUT EUT 7
3.2. INTERNAL IDENTIFICATION OF EUT USED DURING THE TEST 7
3.3. INTERNAL IDENTIFICATION OF AE USED DURING THE TEST 7
3.4. AIR INTERFACES AND OPERATING MODES 8

4. REFERENCE DOCUMENTS 9

5. OPERATIONAL CONDITIONS DURING TEST 10

5.1. HAC MEASUREMENT SET-UP 10
5.2. AM1D PROBE 12
5.3. AMCC 12
5.4. AMMI 12
5.5. TEST ARCH PHANTOM & PHONE POSITIONER 13
5.6. ROBOTIC SYSTEM SPECIFICATIONS 14
5.7. T-COIL MEASUREMENT POINTS AND REFERENCE PLANE 14

6. T-COIL TEST PROCEDURES 16

7. T-COIL PERFORMANCE REQUIREMENTS 17

7.1. T-COIL COUPLING FIELD INTENSITY 17
7.2. FREQUENCY RESPONSE 17
7.3. SIGNAL QUALITY 18

8. T-COIL TESTING FOR CMRS VOICE 19

8.1. GSM TESTS RESULTS 19
8.2. CDMA TESTS RESULTS 19
8.3. WCDMA TESTS RESULTS 20

9. T-COIL TESTING FOR VOLTE 21

9.1. TEST SYSTEM SETUP FOR VOLTE OVER IMS T-COIL TESTING 21
9.2. CODEC CONFIGURATION 22
9.3. RADIO CONFIGURATION 23

©Copyright. All rights reserved by SAICT.

9.4. VoLTE Tests Results 24
10. T-COIL TESTING FOR VONR 25
10.1. Test Data Summary 25
11. MEASUREMENT UNCERTAINTY 27
12. MAIN TEST INSTRUMENTS 28
ANNEX A: TEST PLOTS 29
ANNEX B: FREQUENCY RESPONSE CURVES 149
ANNEX C: PROBE CALIBRATION CERTIFICATE 168
ANNEX D: DAE CALIBRATION CERTIFICATE 171

©Copyright. All rights reserved by SAICT.

1. Summary of Test Report

1.1. Test Items

Description:	5G Mobile Phone
Model Name:	NX769J
Applicant's Name:	Shenzhen Tengfei Technology Management Ltd.
Manufacturer's Name:	Shenzhen Tengfei Technology Management Ltd.

1.2. Test Standards

ANSI C63.19-2011

1.3. Test Result

Pass

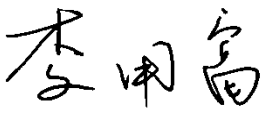
1.4. Testing Location

Address: Building G, Shenzhen International Innovation Center, No.1006 Shennan Road, Futian District, Shenzhen, Guangdong, P. R. China

1.5. Project Data

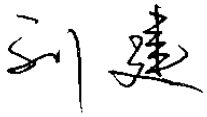
Testing Start Date: 2023-11-07 Testing End Date: 2023-11-10

1.6. Signature



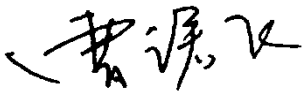
Li Yongfu

(Prepared this test report)



Liu Jian

(Reviewed this test report)



Cao Junfei

(Approved this test report)

©Copyright. All rights reserved by SAICT.

2. Client Information

2.1. Applicant Information

Company Name:	Shenzhen Tengfei Technology Management Ltd.
Address:	Room 3101, Building D1, Chuangzhi Yuncheng, Liuxian Avenue, Xili Community, Xili Street, Nanshan District, Shenzhen
City:	Shenzhen
Country:	China
Telephone:	+86 0755 86360200

2.2. Manufacturer Information

Company Name:	Shenzhen Tengfei Technology Management Ltd.
Address:	Room 3101, Building D1, Chuangzhi Yuncheng, Liuxian Avenue, Xili Community, Xili Street, Nanshan District, Shenzhen
City:	Shenzhen
Country:	China
Telephone:	+86 0755 86360200

©Copyright. All rights reserved by SAICT.

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

3.1. About EUT

Description:	5G Mobile Phone
Mode Name:	NX769J
Condition of EUT as received:	No obvious damage in appearance
Frequency Bands:	GSM 850/1900, CDMA BC0, WCDMA Band 2/4/5, LTE Band 2/4/5/7/12/17/26/41/66, NR n2/n5/n7/n41/n66/n77/n78, Bluetooth, WLAN 2.4GHz/5GHz

3.2. Internal Identification of EUT used during the test

EUT ID*	IMEI	HW Version	SW Version	Receipt Date
UT01aa	862664060009115	NX769J_V1AMB	REDMAGICOS9.0.0_NX769J_GB	2023-10-31
UT02aa	862664060009651	NX769J_V1AMB	REDMAGICOS9.0.0_NX769J_GB	2023-10-31

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

Note: It is performed to test HAC with the UT01aa & UT02aa.

3.3. Internal Identification of AE used during the test

AE ID*	Description	Model	Manufacturer
/	/	/	/

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

©Copyright. All rights reserved by SAICT.

3.4. Air Interfaces and Operating Modes

Air-interface	Band(MHz)	Type	C63.19 / tested	Simultaneous Transmissions	Name of Voice Service
GSM	GSM 850/1900	VO	Yes	BT, WLAN	CMRS Voice
	EDGE	DT	No	BT, WLAN	NA
CDMA	BC0	VO	Yes	BT, WLAN	CMRS Voice
	EVDO	DT	No	BT, WLAN	NA
WCDMA	B2/B4/B5	VO	Yes	BT, WLAN	CMRS Voice
	HSPA	DT	No	BT, WLAN	NA
LTE (FDD)	2/4/5/7/12/17/26/66	VD	Yes	NR, BT, WLAN	VoLTE
LTE (TDD)	41	VD	Yes	NR, BT, WLAN	VoLTE
NR(FDD)	n2/n5/n7/n66	VD	Yes	LTE, BT, WLAN	VoNR
NR(TDD)	n41/n77/n78	VD	Yes	LTE, BT, WLAN	VoNR
WLAN	2.4GHz	DT	No	WWAN	NA
WLAN	5GHz	DT	No	WWAN	NA
Bluetooth	2.4GHz	DT	No	WWAN	NA

VO: Voice Only

VD: CMRS and IP Voice Service over Digital Transport

DT: Digital Transport only (no voice)

©Copyright. All rights reserved by SAICT.

4. Reference Documents

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

Reference	Title	Version
ANSI C63.19-2011	American National Standard for Methods of Measurement of Compatibility between Wireless Communication Devices and Hearing Aids	2011
KDB 285076 D01	Equipment Authorization Guidance for Hearing Aid Compatibility	v06r02
KDB 285076 D02	Guidance for performing T-Coil tests for air interfaces supporting voice over IP (e.g., LTE and WiFi) to support CMRS based telephone services	v04
KDB 285076 D03	Heading Aid Compatibility Frequently Asked Questions	v01r06

©Copyright. All rights reserved by SAICT.

5. Operational Conditions during Test

5.1. HAC Measurement Set-up

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

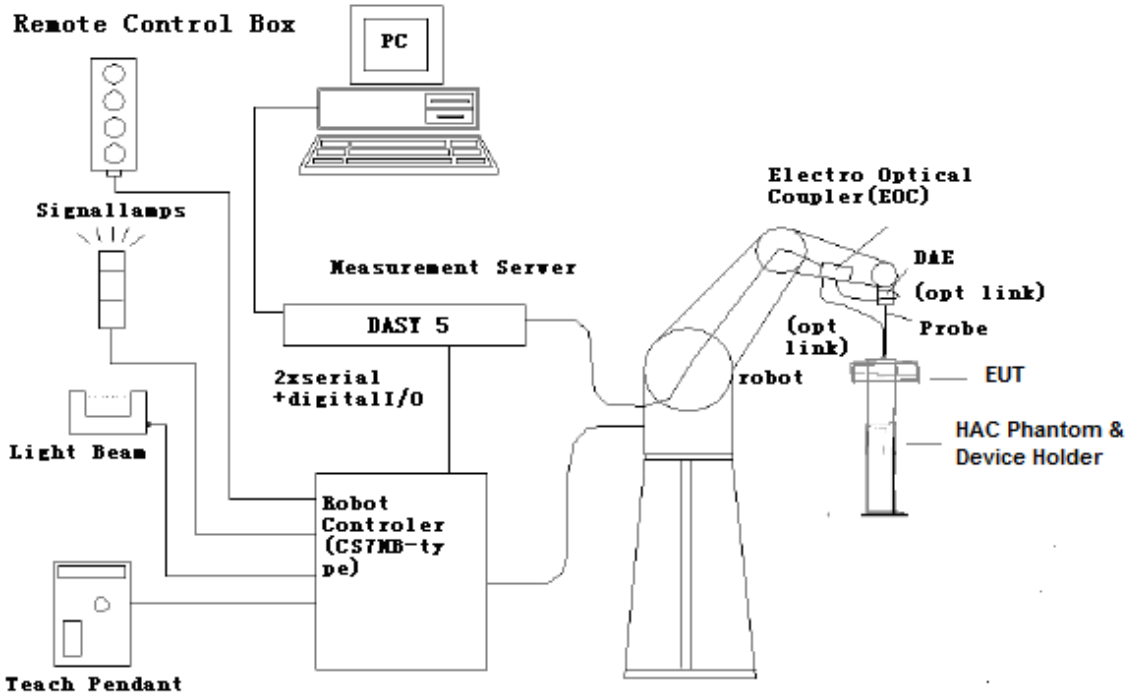


Figure 5.1 HAC Test Measurement Set-up

©Copyright. All rights reserved by SAICT.

The DAE4 consists of a highly sensitive electrometer-grade preamplifier with auto-zeroing, a channel and gain-switching multiplexer, a fast 16 bit AD-converter and a command decoder and control logic unit. Transmission to the PC-card is accomplished through an optical downlink for data and status information and an optical uplink for commands and clock lines. The mechanical probe mounting device includes two different sensor systems for frontal and sidewise probe contacts. They are also used for mechanical surface detection and probe collision detection. The robot uses its own controller with a built in VME-bus computer.

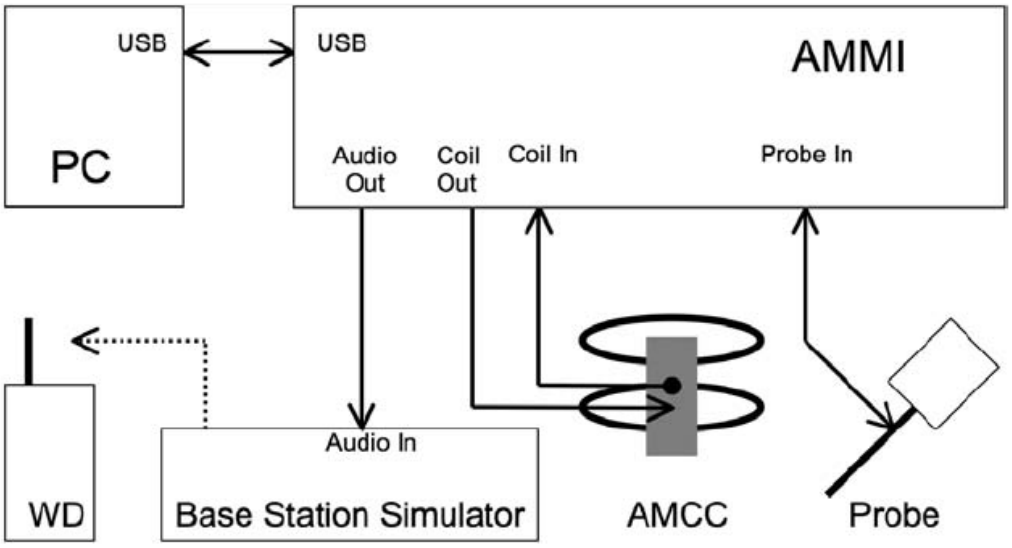


Figure 5.2 T-Coil setup with HAC Test Arch and AMCC

©Copyright. All rights reserved by SAICT.

5.2. AM1D probe

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

Specification:

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

5.3. AMCC

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

Port description:

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

Specification:

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

5.4. AMMI

Figure 5.3 AMMI front panel

©Copyright. All rights reserved by SAICT.

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

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

5.5. Test Arch Phantom & Phone Positioner

The Test Arch phantom should be positioned horizontally on a stable surface. Reference markings on the Phantom allow the complete setup of all predefined phantom positions and measurement grids by manually teaching three points in the robot. It enables easy and well defined positioning of the phone and validation dipoles as well as simple teaching of the robot (Dimensions: 370 x 370 x 370 mm).
The Phone Positioner supports accurate and reliable positioning of any phone with effect on near field <±0.5 dB.

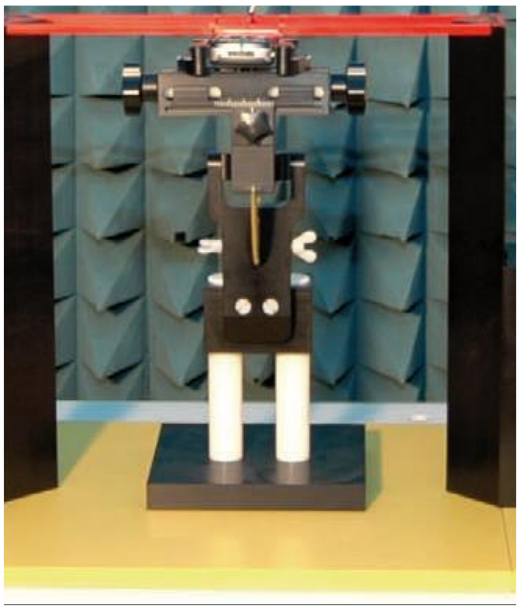


Figure 5.4 HAC Phantom & Device Holder

©Copyright. All rights reserved by SAICT.

5.6. Robotic System Specifications

Specifications

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

Data Acquisition Electronic (DAE) System

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

5.7. T-Coil measurement points and reference plane

Figure 6.5 illustrates the standard probe orientations. Position 1 is the perpendicular orientation of the probe coil; orientation 2 is the transverse orientations. The space between the measurement positions is not fixed. It is recommended that a scan of the WD be done for each probe coil orientation and that the maximum level recorded be used as the reading for that orientation of the probe coil.

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

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

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

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

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

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

©Copyright. All rights reserved by SAICT.

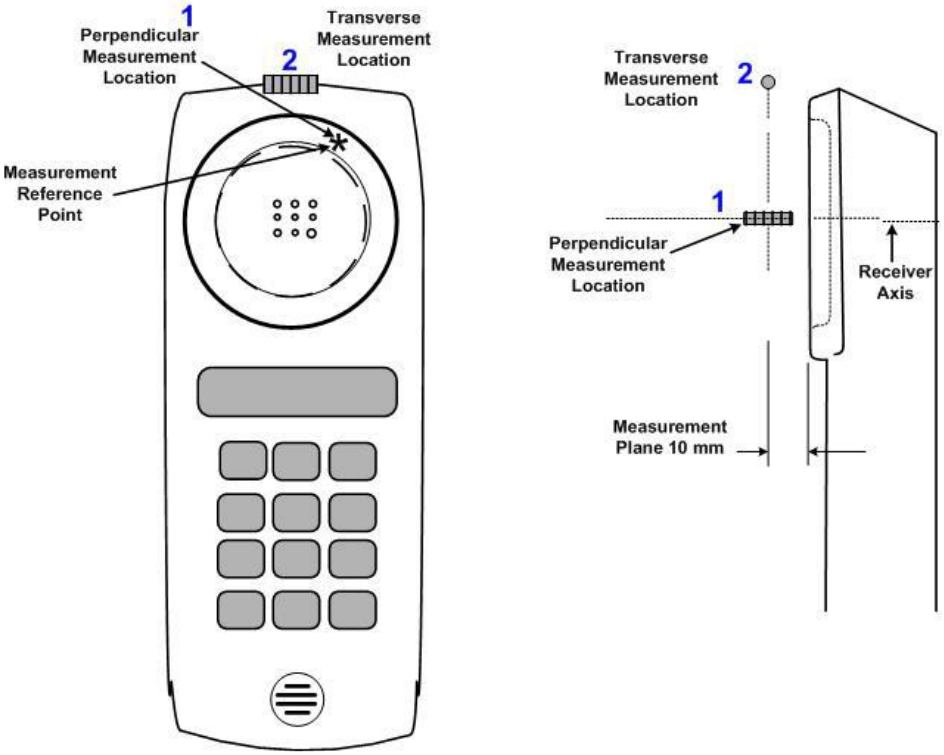


Figure 5.5 Axis and planes for WD audio frequency magnetic field measurements

©Copyright. All rights reserved by SAICT.

6. T-Coil Test Procedures

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

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

2) Set the reference drive level of signal voice defined in C63.19 per 7.4.2.1.

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

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

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

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

7) Determined the optimal measurement locations for the DUT by following the three steps, coarse resolution scan, fine resolution scans, and point measurement, as described in C63.19 per 7.4.4.2. At each measurement locations, samples in the measurement window duration were evaluated to get ABM1 and the signal spectrum. The noise measurement was performed after the scan with the signal, the same happened, just with the voice signal switched off. The ABM2 was calculated from this second scan.

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

9) At an optimal point measurement, the SNR (S+N/N) was calculated for perpendicular and transverse orientation, and the frequency response was measured for perpendicular.

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

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

12) 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.

©Copyright. All rights reserved by SAICT.

7. T-Coil Performance Requirements

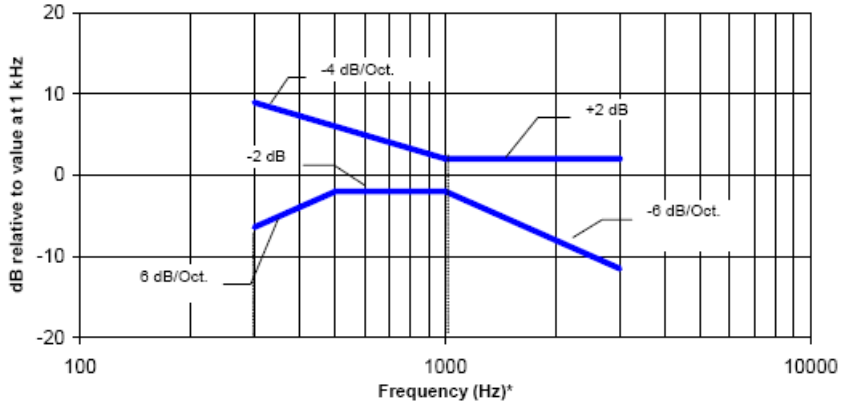
In order to be rated for T-Coil use, a WD shall meet the requirements for signal level and signal quality contained in this part.

7.1. T-Coil coupling field intensity

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

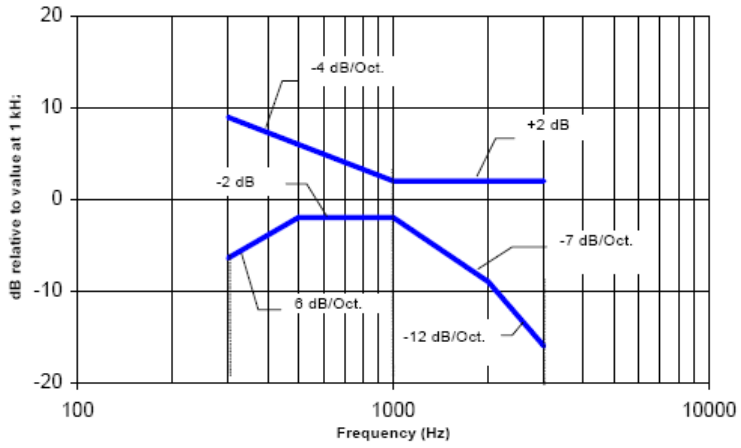
7.2. Frequency response

The frequency response of the axial component of the magnetic field, measured in 1/3 octave bands, shall follow the response curve specified in this sub-clause, over the frequency range 300 Hz to 3000 Hz. Figure 7.1 and Figure 7.2 provide the boundaries for the specified frequency. These response curves are for true field strength measurements of the T-Coil signal. Thus the 6 dB/octave probe response has been corrected from the raw readings.



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

Figure 7.1—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.

Figure 7.2—Magnetic field frequency response for WDs with a field that exceeds –15dB(A/m) at 1 kHz

©Copyright. All rights reserved by SAICT.

7.3. Signal quality

This part 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 criteria that can be measured is the RF immunity in T-Coil mode. This is measured using the same procedure as for the audio coupling mode and at the same levels.
The worst signal quality of the three T-Coil signal measurements shall be used to determine the T-Coil mode category per Table 1

Table 1: T-Coil signal quality categories

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

©Copyright. All rights reserved by SAICT.

8. T-Coil testing for CMRS Voice

General Note:

1. The middle channel of each frequency band is used for T-Coil testing according ANSI C63.19 2011.
2. Choose worst case from radio configuration investigation. After investigation was performed to determine the audio codec configuration to be used for testing, the following tests results which the worst case codec would be remarked to be used for the testing for the handset.

8.1. GSM Tests Results

<Codec Investigation>

Codec	FR V1	HR V1	Orientation	Band / Channel
ABM 1 (dBA/m)	3.38	4.52	Axial	GSM850 / 190
ABM 2 (dBA/m)	-23.95	-23.54		
SNR (dB)	**27.33**	28.06		
Freq. Response	Pass	Pass		

<Summary Tests Results>

Plot No.	Antenna	Band	Mode	Channel	Probe Position	ABM1 dB(A/m)	ABM2 dB(A/m)	SNR (dB)	T Rating	Frequency Response
1	Ant.2	GSM850	CMRS Voice	190	Axial (Z)	3.38	-23.95	27.33	T3	Pass
					Transverse (Y)	-9.25	-41.07	31.82	T4	
2	Ant.3	GSM850	CMRS Voice	190	Axial (Z)	2.19	-25.95	28.14	T3	Pass
					Transverse (Y)	-9.65	-37.96	28.31	T3	
3	Ant.2	GSM1900	CMRS Voice	661	Axial (Z)	2.14	-30.23	32.37	T4	Pass
					Transverse (Y)	-9.22	-41.94	32.72	T4	
4	Ant.4	GSM1900	CMRS Voice	661	Axial (Z)	3.48	-24.62	28.10	T3	Pass
					Transverse (Y)	-9.11	-42.12	33.01	T4	

8.2. CDMA Tests Results

<Codec Investigation>

Codec	RC1 / SO3	RC3 / SO3	RC4 / SO3	Orientation	Band / Channel
ABM 1 (dBA/m)	4.74	5.65	6.51	Axial	BC0 / 384
ABM 2 (dBA/m)	-48.48	-48.10	-47.88		
SNR (dB)	**53.22**	53.75	54.39		
Freq. Response	Pass	Pass	Pass		

<Summary Tests Results>

Plot No.	Antenna	Band	Mode	Channel	Probe Position	ABM1 dB(A/m)	ABM2 dB(A/m)	SNR (dB)	T Rating	Frequency Response
5	Ant.2	CDMA BC0	RC1 / SO3	384	Axial (Z)	4.74	-48.48	53.22	T4	Pass
					Transverse (Y)	-4.37	-44.89	40.52	T4	
6	Ant.3	CDMA BC0	RC1 / SO3	384	Axial (Z)	5.01	-50.21	55.22	T4	Pass
					Transverse (Y)	-3.17	-47.92	44.75	T4	

©Copyright. All rights reserved by SAICT.

8.3. WCDMA Tests Results

<Codec Investigation>

Codec	AMR 12.2Kbps	AMR 7.95Kbps	AMR 4.75Kbps	Orientation	Band / Channel
ABM 1 (dBA/m)	7.70	8.64	9.79	Axial	Band 2 / 9400
ABM 2 (dBA/m)	-48.40	-48.14	-47.70		
SNR (dB)	**56.10**	56.78	57.49		
Freq. Response	Pass	Pass	Pass		

<Summary Tests Results>

Plot No.	Antenna	Band	Mode	Channel	Probe Position	ABM1 dB(A/m)	ABM2 dB(A/m)	SNR (dB)	T Rating	Frequency Response
7	Ant.2	WCDMA Band 2	AMR 12.2Kbps	9400	Axial (Z)	7.70	-48.40	56.10	T4	Pass
					Transverse (Y)	-2.14	-50.17	48.03	T4	
8	Ant.4	WCDMA Band 2	AMR 12.2Kbps	9400	Axial (Z)	7.14	-46.80	53.94	T4	Pass
					Transverse (Y)	-2.06	-48.30	46.24	T4	
9	Ant.2	WCDMA Band 4	AMR 12.2Kbps	1413	Axial (Z)	7.58	-47.49	55.07	T4	Pass
					Transverse (Y)	-3.27	-46.46	43.19	T4	
10	Ant.4	WCDMA Band 4	AMR 12.2Kbps	1413	Axial (Z)	7.16	-46.39	53.55	T4	Pass
					Transverse (Y)	-2.27	-48.39	46.12	T4	
11	Ant.2	WCDMA Band 5	AMR 12.2Kbps	4182	Axial (Z)	7.30	-48.90	56.20	T4	Pass
					Transverse (Y)	-2.51	-49.07	46.56	T4	
12	Ant.3	WCDMA Band 5	AMR 12.2Kbps	4182	Axial (Z)	7.66	-49.46	57.12	T4	Pass
					Transverse (Y)	-1.15	-49.27	48.12	T4	

©Copyright. All rights reserved by SAICT.

9. T-Coil testing for VoLTE

9.1. Test System Setup for VoLTE over IMS T-coil Testing

The general test setup used for VoLTE over IMS is shown below. The callbox used when performing VoLTE over IMS T-coil measurements is a CMW500. The Data Application Unit (DAU)
of the CMW500 was used to simulate the IP Multimedia Subsystem (IMS) server. According to C63 and KDB 285076 D02v03, VoLTE input level is -20dBm0.

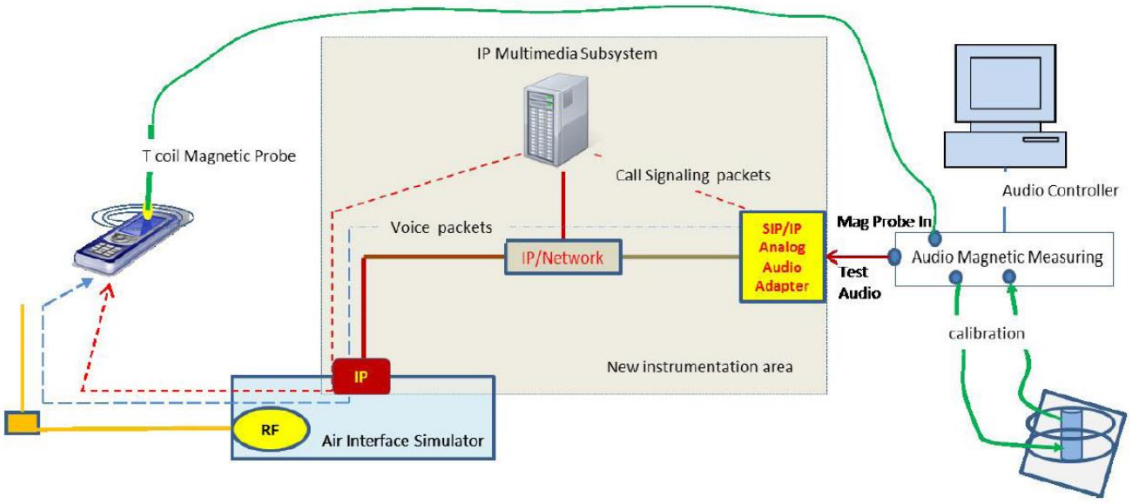


Figure 9.1 Test Setup for VoLTE over IMS T-coil Measurements

No correction gain factors were measured for VoLTE due to the Rohde & Schwarz CMW500, hosting a calibrated audio board. The gains used to measure VoLTE are set to 100.
The following software/firmware was used to simulate the VoLTE server for testing:

Firmware	License Keys	Software Name
V3.7.50 for LTE	KS500	LTE FDD R8 SIG BASIC
	KS550	LTE TDD R8 SIG BASIC
	KA100	IP APPL ENABLING IPv4
	KA150	IP APPL ENABLING IPv6
V3.7.20 for Audio	KAA20	IP APPL IMS BASIC
	KM050	DATA APPL MEAS
	KS104	EVS SPEECH CODEC

©Copyright. All rights reserved by SAICT.

9.2. Codec Configuration

An investigation was performed to determine the audio codec configuration to be used for testing. WB AMR 6.6Kbps setting was used for the audio codec on the CMW500 for VoLTE over IMS T-coil testing. See below table for comparisons between different codecs and codec data rates:

<AMR Codec Investigation>

Codec	NB AMR 4.75Kbps	NB AMR 12.2Kbps	WB AMR 6.6Kbps	WB AMR 23.85Kbps	Orientation	Band / BW / Channel
ABM 1 (dBA/m)	7.84	8.71	6.75	7.43	Axial	LTE Band 2 / 20M / 18900
ABM 2 (dBA/m)	-46.64	-46.48	-47.09	-46.89		
SNR (dB)	54.48	55.19	**53.84**	54.32		
Freq. Response	Pass	Pass	Pass	Pass		

©Copyright. All rights reserved by SAICT.

9.3. Radio Configuration

An investigation was performed to determine the modulation, the bandwidth configuration and RB configuration to be used for testing. For LTE-FDD bands, 10MHz BW, QPSK, 1RB, 0RB offset was used for the testing as the worst-case configuration for the handset. For LTE-TDD bands, 20MHz BW, QPSK, 1RB, 0RB offset was used for the testing as the worst-case configuration for the handset. See below table for comparisons between different radios configurations:

<Radio Configuration Investigation>-FDD

Band	Bandwidth (MHz)	Modulation	RB size	RB offset	channel	ABM1 dB (A/m)	ABM2 dB(A/m)	SNR (dB)
LTE Band 2	20	QPSK	1	0	18900	6.75	-47.09	53.84
LTE Band 2	20	QPSK	50	0	18900	6.99	-46.98	53.97
LTE Band 2	20	QPSK	100	0	18900	7.46	-46.69	54.15
LTE Band 2	20	16QAM	1	0	18900	7.73	-46.50	54.23
LTE Band 2	15	QPSK	1	0	18900	8.19	-46.37	54.56
LTE Band 2	10	QPSK	1	0	18900	5.92	-47.24	**53.16**
LTE Band 2	5	QPSK	1	0	18900	7.68	-46.36	54.04
LTE Band 2	3	QPSK	1	0	18900	6.48	-46.97	53.45
LTE Band 2	1.4	QPSK	1	0	18900	8.37	-46.24	54.61

<Radio Configuration Investigation>-TDD

Band	Bandwidth (MHz)	Modulation	RB size	RB offset	channel	UL-DL Configuration	ABM1 dB (A/m)	ABM2 dB(A/m)	SNR (dB)
LTE Band 41	20	QPSK	1	0	40620	0	5.57	-36.78	**42.35**
LTE Band 41	20	QPSK	50	0	40620	0	6.39	-36.49	42.88
LTE Band 41	20	QPSK	100	0	40620	0	6.22	-36.52	42.74
LTE Band 41	20	16QAM	1	0	40620	0	6.87	-36.28	43.15
LTE Band 41	20	64QAM	1	0	40620	0	7.75	-35.92	43.67
LTE Band 41	15	QPSK	1	0	40620	0	8.27	-35.65	43.92
LTE Band 41	10	QPSK	1	0	40620	0	6.58	-36.40	42.98
LTE Band 41	5	QPSK	1	0	40620	0	7.64	-35.81	43.45
LTE Band 41	20	QPSK	1	0	40620	1	8.66	-35.33	43.99
LTE Band 41	20	QPSK	1	0	40620	2	7.91	-35.81	43.72
LTE Band 41	20	QPSK	1	0	40620	3	8.17	-35.67	43.84
LTE Band 41	20	QPSK	1	0	40620	4	9.32	-34.80	44.12
LTE Band 41	20	QPSK	1	0	40620	5	7.76	-35.72	43.48
LTE Band 41	20	QPSK	1	0	40620	6	9.06	-34.95	44.01

©Copyright. All rights reserved by SAICT.

9.4. VoLTE Tests Results

<Summary Tests Results>

Plot No.	Antenna	Band	Mode	Channel	Probe Position	ABM1 dB(A/m)	ABM2 dB(A/m)	SNR (dB)	T Rating	Frequency Response
13	Ant.2	LTE Band 2	QPSK_1RB_0	18900	Axial (Z)	5.92	-47.24	53.16	T4	Pass
					Transverse (Y)	-3.90	-49.90	46.00	T4	
14	Ant.4	LTE Band 2	QPSK_1RB_0	18900	Axial (Z)	6.34	-45.88	52.22	T4	Pass
					Transverse (Y)	-2.73	-47.60	44.87	T4	
15	Ant.2	LTE Band 4	QPSK_1RB_0	20175	Axial (Z)	6.58	-47.20	53.78	T4	Pass
					Transverse (Y)	-4.06	-46.66	42.60	T4	
16	Ant.4	LTE Band 4	QPSK_1RB_0	20175	Axial (Z)	5.22	-46.12	51.34	T4	Pass
					Transverse (Y)	-3.04	-47.83	44.79	T4	
17	Ant.2	LTE Band 5	QPSK_1RB_0	20525	Axial (Z)	5.69	-45.59	51.28	T4	Pass
					Transverse (Y)	-2.69	-47.72	45.03	T4	
18	Ant.3	LTE Band 5	QPSK_1RB_0	20525	Axial (Z)	6.85	-43.57	50.42	T4	Pass
					Transverse (Y)	-3.39	-47.75	44.36	T4	
19	Ant.2	LTE Band 7	QPSK_1RB_0	21100	Axial (Z)	6.32	-48.02	54.34	T4	Pass
					Transverse (Y)	-4.67	-48.97	44.30	T4	
20	Ant.4	LTE Band 7	QPSK_1RB_0	21100	Axial (Z)	2.86	-46.10	48.96	T4	Pass
					Transverse (Y)	-4.41	-46.84	42.43	T4	
21	Ant.2	LTE Band 12	QPSK_1RB_0	23095	Axial (Z)	5.15	-47.14	52.29	T4	Pass
					Transverse (Y)	-2.93	-47.47	44.54	T4	
22	Ant.3	LTE Band 12	QPSK_1RB_0	23095	Axial (Z)	6.12	-46.43	52.55	T4	Pass
					Transverse (Y)	-3.56	-46.78	43.22	T4	
23	Ant.2	LTE Band 17	QPSK_1RB_0	23790	Axial (Z)	5.53	-47.87	53.40	T4	Pass
					Transverse (Y)	-2.75	-47.86	45.11	T4	
24	Ant.3	LTE Band 17	QPSK_1RB_0	23790	Axial (Z)	6.97	-44.61	51.58	T4	Pass
					Transverse (Y)	-4.44	-46.32	41.88	T4	
25	Ant.2	LTE Band 26	QPSK_1RB_0	26865	Axial (Z)	6.40	-46.71	53.11	T4	Pass
					Transverse (Y)	-2.67	-47.62	44.95	T4	
26	Ant.3	LTE Band 26	QPSK_1RB_0	26865	Axial (Z)	7.15	-43.95	51.10	T4	Pass
					Transverse (Y)	-3.08	-48.10	45.02	T4	
27	Ant.2	LTE Band 66	QPSK_1RB_0	132322	Axial (Z)	6.82	-46.42	53.24	T4	Pass
					Transverse (Y)	-3.07	-48.30	45.23	T4	
28	Ant.4	LTE Band 66	QPSK_1RB_0	132322	Axial (Z)	5.74	-48.35	54.09	T4	Pass
					Transverse (Y)	-2.85	-47.40	44.55	T4	
29	Ant.2	LTE Band 41	QPSK_1RB_0	40620	Axial (Z)	5.57	-36.78	42.35	T4	Pass
					Transverse (Y)	-6.66	-42.61	35.95	T4	
30	Ant.4	LTE Band 41	QPSK_1RB_0	40620	Axial (Z)	6.54	-34.13	40.67	T4	Pass
					Transverse (Y)	-5.66	-41.79	36.13	T4	

©Copyright. All rights reserved by SAICT.

10. T-Coil testing for VoNR

10.1. Test Data Summary

General Notes:
The yellow highlight section request for reuse.

1. According to KDB 285076 D03, for 5G Sub 6 calls that use the same protocol, Codec(s) and reference level as VoLTE over LTE (i.e. -16 dBm0).
2. For LTE, establish the ABM1S65G value by using the ABM1LTE magnetic intensity for an LTE call in the same band as the 5G sub6 band under test.
3. For VoNR, establish the ABM1S65G value by using an IP connection for magnetic intensity for a call in the same band as the 5G sub6 band under test.
4. Also note the actual ABM2LTE value and establish an ABM2S65G value, using a 5G manufacture test mode over 5G Sub6 channels for the same band under test.
5. Document in the test report matrix:
   a. Include columns for both ABM2LTE & ABM2S65G for comparison
   b. Establish the S+N1/N2 for the rating
      i. S+N1 = ABM1LTE (step 1) and
      ii. N2 = ABM2S65G (step 2).
      iii. Subtract 3 dB from S+N1/N2
   c. Rating based on (ABM1LTEI / ABM2S65G) -3dB.

©Copyright. All rights reserved by SAICT.

<Summary Tests Results>

Plot No.	Antenna	Band	Mode	Channel	Probe Position	ABM1 dB(A/m)	ABM2 dB(A/m)	SNR (dB)	T Rating	Frequency Response
14	Ant.4	LTE Band 2	QPSK_1RB_0	18900	Axial (Z)	6.34	-45.88	52.22	T4	Pass
					Transverse (Y)	-2.73	-47.60	44.87	T4	
/	Ant.4	NR n2	QPSK_108@54	376000	Axial (Z)	6.34	-48.22	51.56	T4	NA
					Transverse (Y)	-2.73	-48.87	43.14	T4	
17	Ant.2	LTE Band 5	QPSK_1RB_0	20525	Axial (Z)	5.69	-45.59	51.28	T4	Pass
					Transverse (Y)	-2.69	-47.72	45.03	T4	
/	Ant.2	NR n5	QPSK_50@25	167300	Axial (Z)	5.69	-48.56	51.25	T4	NA
					Transverse (Y)	-2.69	-48.70	43.01	T4	
20	Ant.4	LTE Band 7	QPSK_1RB_0	21100	Axial (Z)	2.86	-46.10	48.96	T4	Pass
					Transverse (Y)	-4.41	-46.84	42.43	T4	
/	Ant.4	NR n7	QPSK_50@25	507000	Axial (Z)	2.86	-48.15	48.01	T4	NA
					Transverse (Y)	-4.41	-49.47	42.06	T4	
29	Ant.2	LTE Band 41	QPSK_1RB_0	40620	Axial (Z)	5.57	-36.78	42.35	T4	Pass
					Transverse (Y)	-6.66	-42.61	35.95	T4	
/	Ant.1	NR n41	QPSK_135@67	518598	Axial (Z)	5.57	-44.63	47.20	T4	NA
					Transverse (Y)	-6.66	-49.69	40.03	T4	
28	Ant.4	LTE Band 66	QPSK_1RB_0	132322	Axial (Z)	5.74	-48.35	54.09	T4	Pass
					Transverse (Y)	-2.85	-47.40	44.55	T4	
/	Ant.4	NR n66	QPSK_108@54	349000	Axial (Z)	5.74	-49.10	51.84	T4	NA
					Transverse (Y)	-2.85	-49.38	43.53	T4	
29	Ant.2	LTE Band 41	QPSK_1RB_0	40620	Axial (Z)	5.57	-36.78	42.35	T4	Pass
					Transverse (Y)	-6.66	-42.61	35.95	T4	
/	Ant.1	NR n77 Part 27Q	QPSK_135@67	650000	Axial (Z)	5.57	-45.03	47.60	T4	NA
					Transverse (Y)	-6.66	-49.56	39.90	T4	
29	Ant.2	LTE Band 41	QPSK_1RB_0	40620	Axial (Z)	5.57	-36.78	42.35	T4	Pass
					Transverse (Y)	-6.66	-42.61	35.95	T4	
/	Ant.1	NR n77 Part 27O	QPSK_135@67	633334	Axial (Z)	5.57	-44.16	46.73	T4	NA
					Transverse (Y)	-6.66	-48.42	38.76	T4	
29	Ant.2	LTE Band 41	QPSK_1RB_0	40620	Axial (Z)	5.57	-36.78	42.35	T4	Pass
					Transverse (Y)	-6.66	-42.61	35.95	T4	
/	Ant.1	NR n78 Part 27Q	QPSK_135@67	636666	Axial (Z)	5.57	-44.54	47.11	T4	NA
					Transverse (Y)	-6.66	-49.50	39.84	T4	

©Copyright. All rights reserved by SAICT.

11. Measurement Uncertainty

No.	Error source	Type	Uncertainty Value a_i (%)	Prob. Dist.	Div.	ABM1 ci	ABM2 ci	Std. Unc. ABM1 u_i' (%)	Std. Unc. ABM2 u_i' (%)	Source
1	System Repeatability	A	0.016	N	1	1	1	0.016	0.016	Measurement
Probe Sensitivity										
2	Reference Level	B	3.0	R	√3	1	1	3.0	3.0	Manufacturer
3	AMCC Geometry	B	0.4	R	√3	1	1	0.2	0.2	Manufacturer
4	AMCC Current	B	0.6	R	√3	1	1	0.4	0.4	Manufacturer
5	Probe Positioning during Calibration	B	0.2	R	√3	1	1	0.1	0.1	Manufacturer
6	Noise Contribution	B	0.7	R	√3	0.0143	1	0.0	0.4	Measurement
7	Frequency Slope	B	5.9	R	√3	0.1	1	0.3	3.5	Manufacturer
Probe System										
8	Repeatability / Drift	B	1.0	R	√3	1	1	0.6	0.6	Manufacturer
9	Linearity / Dynamic Range	B	0.6	N	1	1	1	0.4	0.4	Manufacturer
10	Acoustic Noise	B	1.0	R	√3	0.1	1	0.1	0.6	Standard
11	Probe Angle	B	2.3	R	√3	1	1	1.4	1.4	Manufacturer
12	Spectral Processing	B	0.9	R	√3	1	1	0.5	0.5	Manufacturer
13	Integration Time	B	0.6	N	1	1	5	0.6	3.0	Manufacturer
14	Field Distribution	B	0.2	R	√3	1	1	0.1	0.1	Standard
Test Signal										
15	Ref. Signal Spectral Response	B	0.6	R	√3	0	1	0.0	0.4	Manufacturer
Positioning										
16	Probe Positioning	B	1.9	R	√3	1	1	1.1	1.1	Manufacturer
17	Phantom Thickness	B	0.9	R	√3	1	1	0.5	0.5	Manufacturer
18	DUT Positioning	B	1.9	R	√3	1	1	1.1	1.1	Measurement
External Contributions										
19	RF Interference	B	0.0	R	√3	1	0.3	0.0	0.0	Manufacturer
20	Test Signal Variation	B	2.0	R	√3	1	1	1.2	1.2	Manufacturer
Combined standard uncertainty (%)		$u_c' = \sqrt{\sum_{i=1}^{20} c_i^2 u_i^2}$						4.1	6.1	
Expanded uncertainty (Confidence interval of 95 %)		$u_e = 2u_c$		N	$k = 2$			8.2	12.2	

©Copyright. All rights reserved by SAICT.

12. Main Test Instruments

Table 12-1: List of Main Instruments

No.	Name	Type	Serial Number	Calibration Date	Valid Period
01	Audio Magnetic Calibration Coil	AMCC	1105	/	/
02	Audio Measuring Instrument	AMMI	1121	/	/
03	HAC Test Arch	N/A	1150	/	/
04	Audio Magnetic 1D Field Probe	AM1DV3	3086	2021-02-22	Three years
05	DAE	DAE4	1527	2023-08-07	One year
06	BTS	CMW500	152499	2023-07-14	One year
07	Software	DASY5	/	/	/

©Copyright. All rights reserved by SAICT.

ANNEX A: Test Plots

T-Coil Ant.2 - GSM850 Axial
Date: 2023-11-07
Electronics: DAE4 Sn1527
Medium: Air
Medium parameters used: $\sigma = 0$ S/m, $\varepsilon_r = 1$; $\rho = 1$ kg/m^3
Communication System: UID 0, GSM (0) Frequency: 836.6 MHz Duty Cycle: 1:8.3
Probe: AM1DV3 - 3086

z (axial) 4.2mm 50 x 50/ABM Interpolated Signal(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: 37.15
Measure Window Start: 300ms
Measure Window Length: 1000ms
BWC applied: 0.16 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1 = 3.46 dBA/m
BWC Factor = 0.16 dB
Location: 6, -15.5, 3.7 mm

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: 37.15
Measure Window Start: 300ms
Measure Window Length: 1000ms
BWC applied: 0.16 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1/ABM2 = 27.33 dB
ABM1 comp = 3.38 dBA/m
BWC Factor = 0.16 dB
Location: 5.5, -15, 3.7 mm

©Copyright. All rights reserved by SAICT.

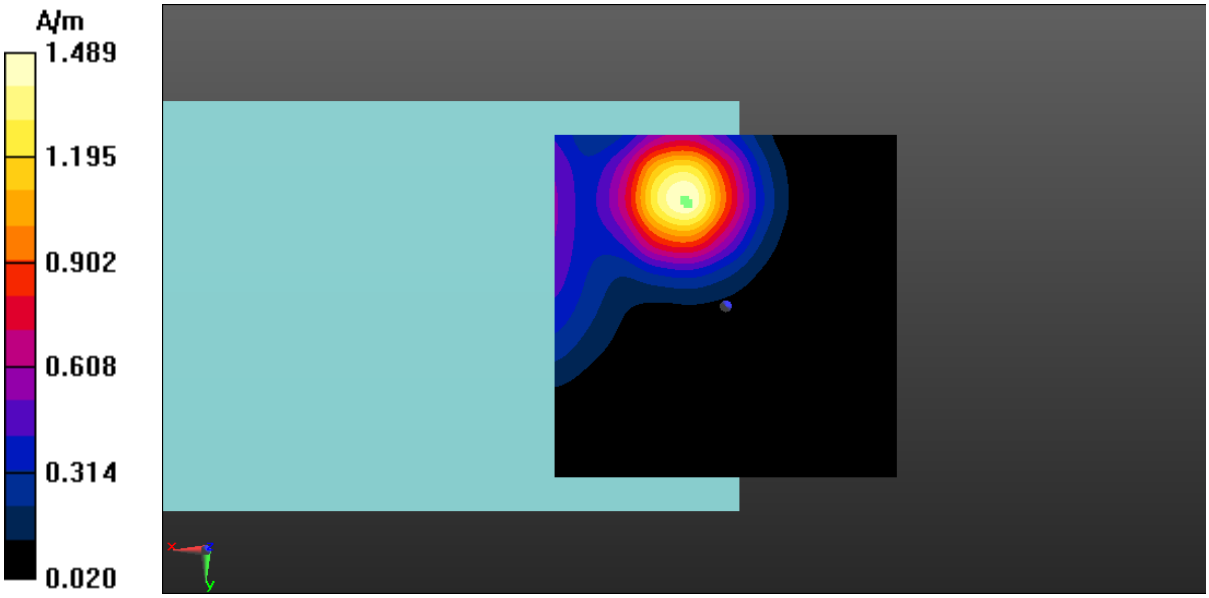


Fig A.1 T-Coil GSM850-Z

©Copyright. All rights reserved by SAICT.

T-Coil Ant.2 - GSM850 Transverse
Date: 2023-11-07
Electronics: DAE4 Sn1527
Medium: Air
Medium parameters used: σ = 0 S/m, ε_r = 1; ρ = 1 kg/m^3
Communication System: UID 0, GSM (0) Frequency: 836.6 MHz Duty Cycle: 1:8.3
Probe: AM1DV3 - 3086

y (transversal) 4.2mm 50 x 50/ABM Interpolated Signal(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: 37.15
Measure Window Start: 300ms
Measure Window Length: 1000ms
BWC applied: 0.16 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1 = -5.39 dBA/m
BWC Factor = 0.16 dB
Location: 7, -6.5, 3.7 mm

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: 37.15
Measure Window Start: 300ms
Measure Window Length: 1000ms
BWC applied: 0.16 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1/ABM2 = 31.82 dB
ABM1 comp = -9.25 dBA/m
BWC Factor = 0.16 dB
Location: 0, -10, 3.7 mm

©Copyright. All rights reserved by SAICT.

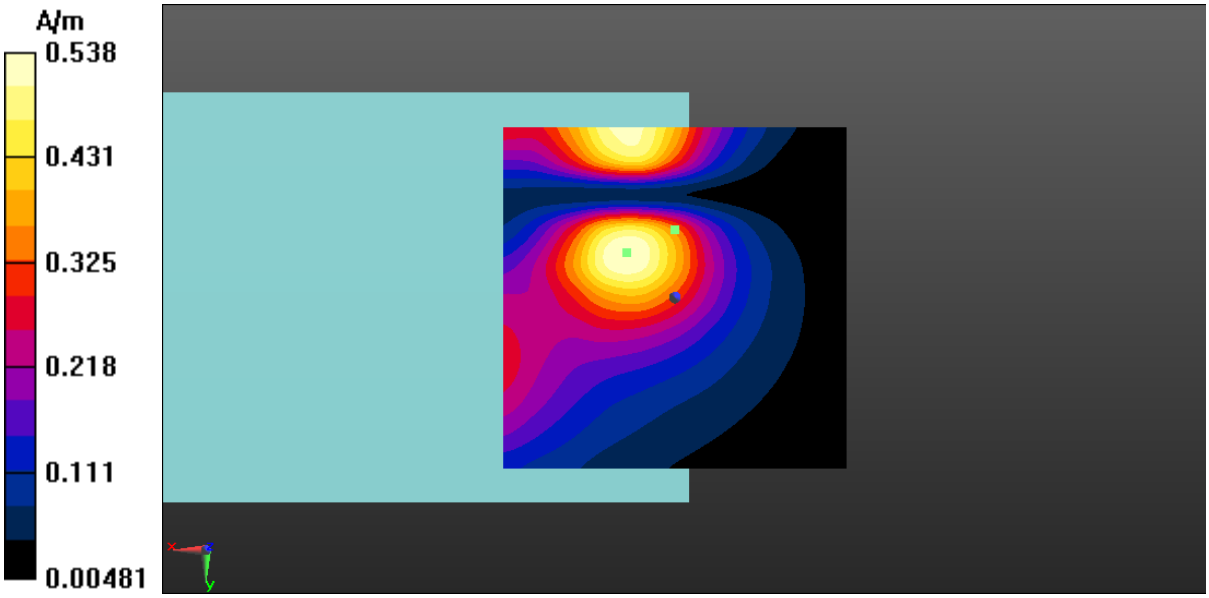


Fig A.1 T-Coil GSM850-Y

©Copyright. All rights reserved by SAICT.

T-Coil Ant.3 - GSM850 Axial
Date: 2023-11-07
Electronics: DAE4 Sn1527
Medium: Air
Medium parameters used: σ = 0 S/m, ε_r = 1; ρ = 1 kg/m^3
Communication System: UID 0, GSM (0) Frequency: 836.6 MHz Duty Cycle: 1:8.3
Probe: AM1DV3 - 3086

z (axial) 4.2mm 50 x 50/ABM Interpolated Signal(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: 37.15
Measure Window Start: 300ms
Measure Window Length: 1000ms
BWC applied: 0.16 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1 = 3.68 dBA/m
BWC Factor = 0.16 dB
Location: 8, -15.5, 3.7 mm

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: 37.15
Measure Window Start: 300ms
Measure Window Length: 1000ms
BWC applied: 0.16 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1/ABM2 = 28.14 dB
ABM1 comp = 2.19 dBA/m
BWC Factor = 0.16 dB
Location: 10, -19, 3.7 mm

©Copyright. All rights reserved by SAICT.

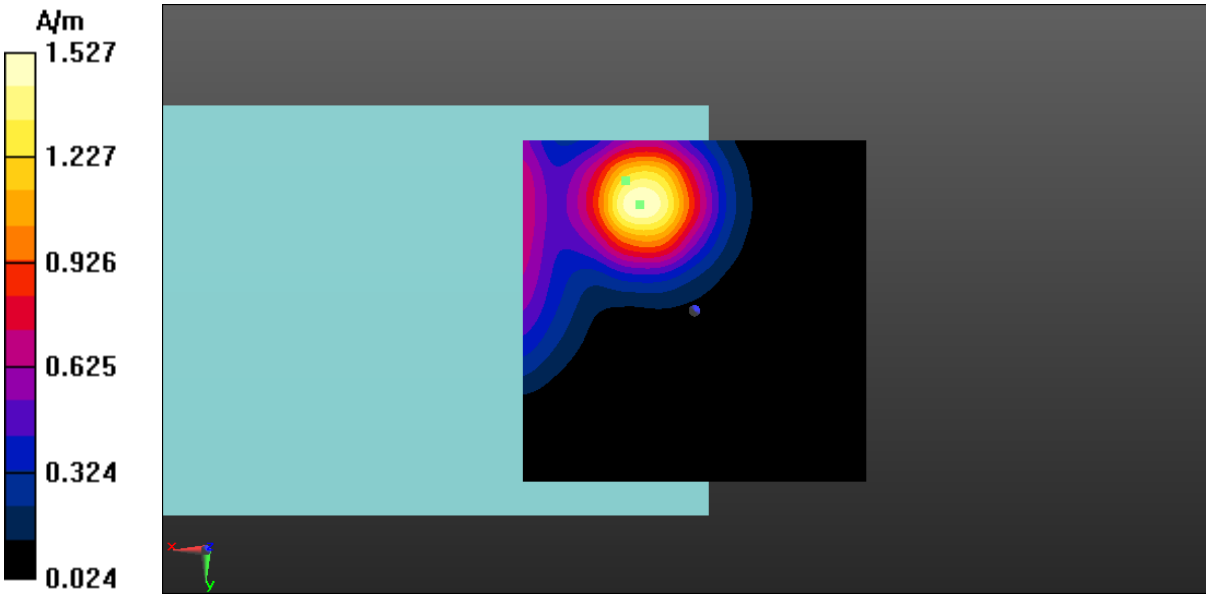


Fig A.2 T-Coil GSM850-Z

©Copyright. All rights reserved by SAICT.

T-Coil Ant.3 - GSM850 Transverse
Date: 2023-11-07
Electronics: DAE4 Sn1527
Medium: Air
Medium parameters used: σ = 0 S/m, ε_r = 1; ρ = 1 kg/m^3
Communication System: UID 0, GSM (0) Frequency: 836.6 MHz Duty Cycle: 1:8.3
Probe: AM1DV3 - 3086

y (transversal) 4.2mm 50 x 50/ABM Interpolated Signal(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: 37.15
Measure Window Start: 300ms
Measure Window Length: 1000ms
BWC applied: 0.16 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1 = -5.17 dBA/m
BWC Factor = 0.16 dB
Location: 7.5, -5.5, 3.7 mm

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: 37.15
Measure Window Start: 300ms
Measure Window Length: 1000ms
BWC applied: 0.16 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1/ABM2 = 28.31 dB
ABM1 comp = -9.65 dBA/m
BWC Factor = 0.16 dB
Location: 1, -10, 3.7 mm

©Copyright. All rights reserved by SAICT.

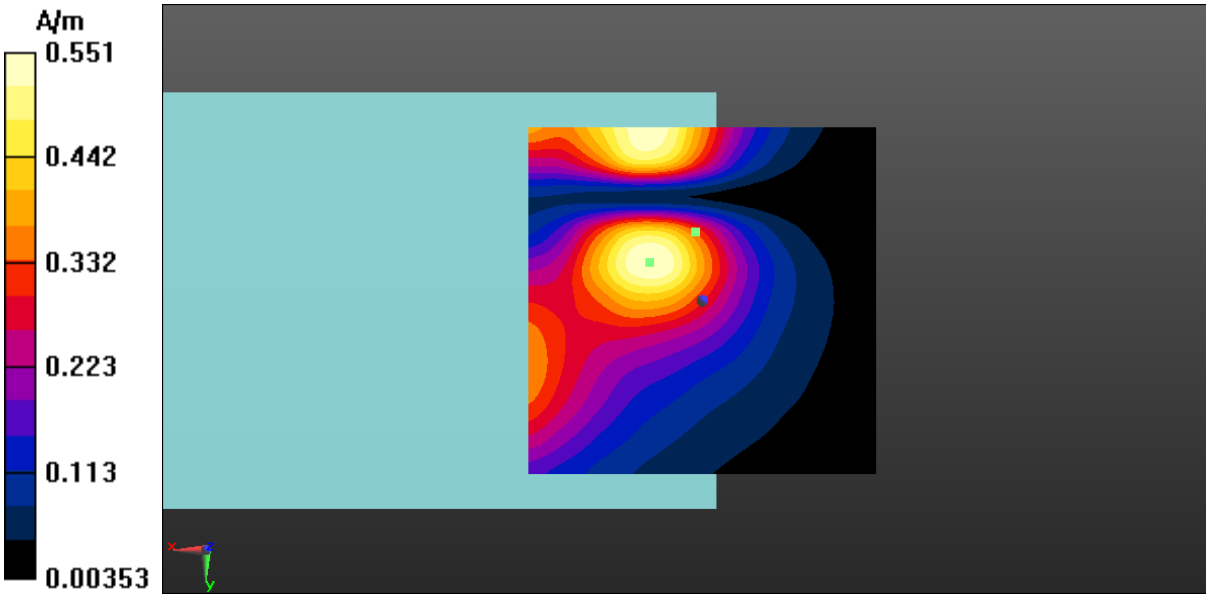


Fig A.2 T-Coil GSM850-Y

©Copyright. All rights reserved by SAICT.

T-Coil Ant.2 - GSM1900 Axial
Date: 2023-11-07
Electronics: DAE4 Sn1527
Medium: Air
Medium parameters used: σ = 0 S/m, ε_r = 1; ρ = 1 kg/m^3
Communication System: UID 0, GSM (0) Frequency: 1880 MHz Duty Cycle: 1:8.3
Probe: AM1DV3 - 3086

z (axial) 4.2mm 50 x 50/ABM Interpolated Signal(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: 37.15
Measure Window Start: 300ms
Measure Window Length: 1000ms
BWC applied: 0.16 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1 = 3.63 dBA/m
BWC Factor = 0.16 dB
Location: 7, -15.5, 3.7 mm

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: 37.15
Measure Window Start: 300ms
Measure Window Length: 1000ms
BWC applied: 0.16 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1/ABM2 = 32.37 dB
ABM1 comp = 2.14 dBA/m
BWC Factor = 0.16 dB
Location: 9.5, -19.5, 3.7 mm

©Copyright. All rights reserved by SAICT.

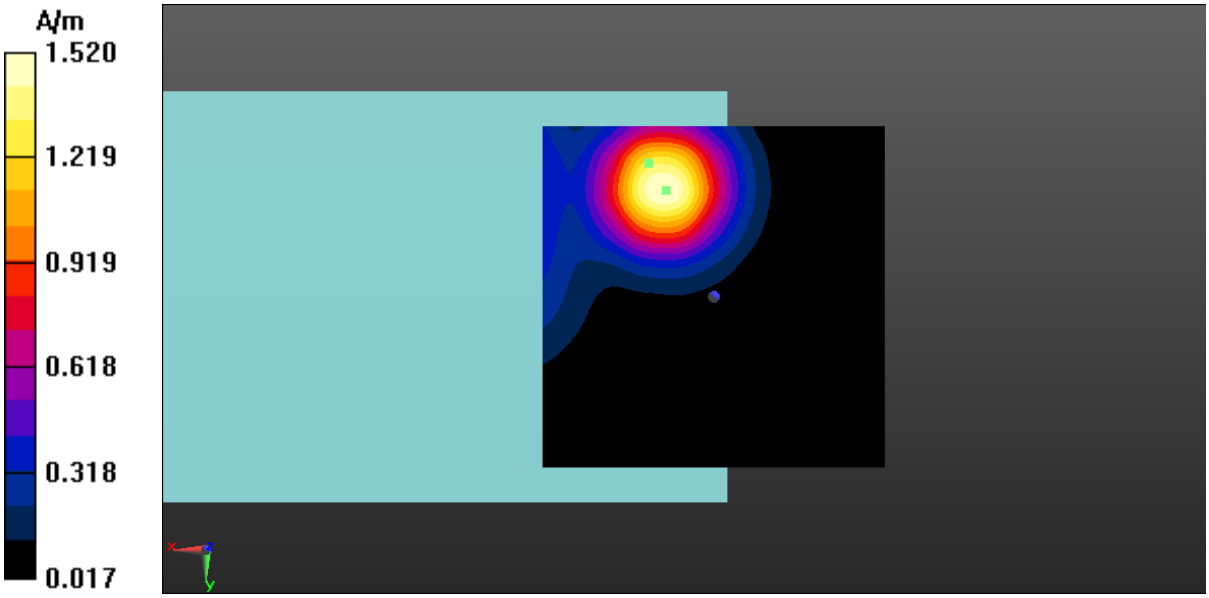


Fig A.3 T-Coil GSM1900-Z

©Copyright. All rights reserved by SAICT.

T-Coil Ant.2 - GSM1900 Transverse
Date: 2023-11-07
Electronics: DAE4 Sn1527
Medium: Air
Medium parameters used: $\sigma = 0$ S/m, $\varepsilon_r = 1$; $\rho = 1$ kg/m^3
Communication System: UID 0, GSM (0) Frequency: 1880 MHz Duty Cycle: 1:8.3
Probe: AM1DV3 - 3086

y (transversal) 4.2mm 50 x 50/ABM Interpolated Signal(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: 37.15
Measure Window Start: 300ms
Measure Window Length: 1000ms
BWC applied: 0.16 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1 = -5.15 dBA/m
BWC Factor = 0.16 dB
Location: 7.5, -6, 3.7 mm

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: 37.15
Measure Window Start: 300ms
Measure Window Length: 1000ms
BWC applied: 0.16 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1/ABM2 = 32.72 dB
ABM1 comp = -9.22 dBA/m
BWC Factor = 0.16 dB
Location: 1, -9.5, 3.7 mm

©Copyright. All rights reserved by SAICT.

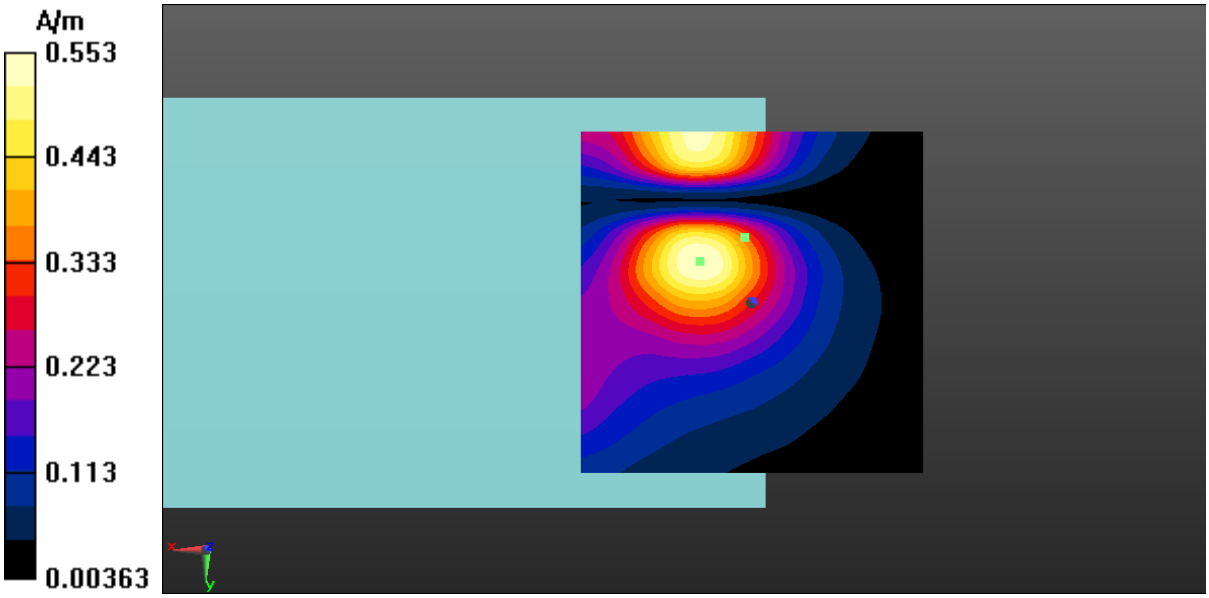


Fig A.4 T-Coil GSM1900-Z

©Copyright. All rights reserved by SAICT.

T-Coil Ant.4 - GSM1900 Axial
Date: 2023-11-07
Electronics: DAE4 Sn1527
Medium: Air
Medium parameters used: σ = 0 S/m, ε_r = 1; ρ = 1 kg/m^3
Communication System: UID 0, GSM (0) Frequency: 1880 MHz Duty Cycle: 1:8.3
Probe: AM1DV3 - 3086

z (axial) 4.2mm 50 x 50/ABM Interpolated Signal(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: 37.15
Measure Window Start: 300ms
Measure Window Length: 1000ms
BWC applied: 0.16 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1 = 3.51 dBA/m
BWC Factor = 0.16 dB
Location: 6, -16, 3.7 mm

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: 37.15
Measure Window Start: 300ms
Measure Window Length: 1000ms
BWC applied: 0.16 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1/ABM2 = 28.10 dB
ABM1 comp = 3.48 dBA/m
BWC Factor = 0.16 dB
Location: 5.5, -15.5, 3.7 mm

©Copyright. All rights reserved by SAICT.

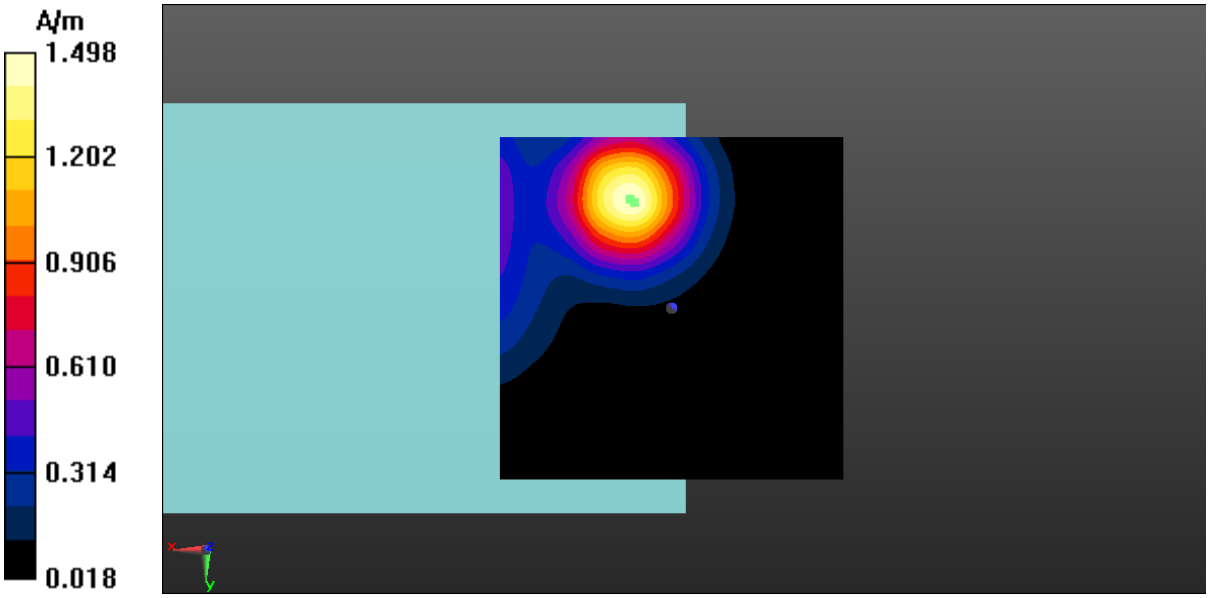


Fig A.3 T-Coil GSM1900-Z

©Copyright. All rights reserved by SAICT.

T-Coil Ant.4 - GSM1900 Transverse
Date: 2023-11-07
Electronics: DAE4 Sn1527
Medium: Air
Medium parameters used: $\sigma = 0$ S/m, $\varepsilon_r = 1$; $\rho = 1$ kg/m^3
Communication System: UID 0, GSM (0) Frequency: 1880 MHz Duty Cycle: 1:8.3
Probe: AM1DV3 - 3086

y (transversal) 4.2mm 50 x 50/ABM Interpolated Signal(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: 37.15
Measure Window Start: 300ms
Measure Window Length: 1000ms
BWC applied: 0.16 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1 = -5.25 dBA/m
BWC Factor = 0.16 dB
Location: 6.5, -6.5, 3.7 mm

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: 37.15
Measure Window Start: 300ms
Measure Window Length: 1000ms
BWC applied: 0.16 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1/ABM2 = 33.01 dB
ABM1 comp = -9.11 dBA/m
BWC Factor = 0.16 dB
Location: 0.5, -10, 3.7 mm

©Copyright. All rights reserved by SAICT.

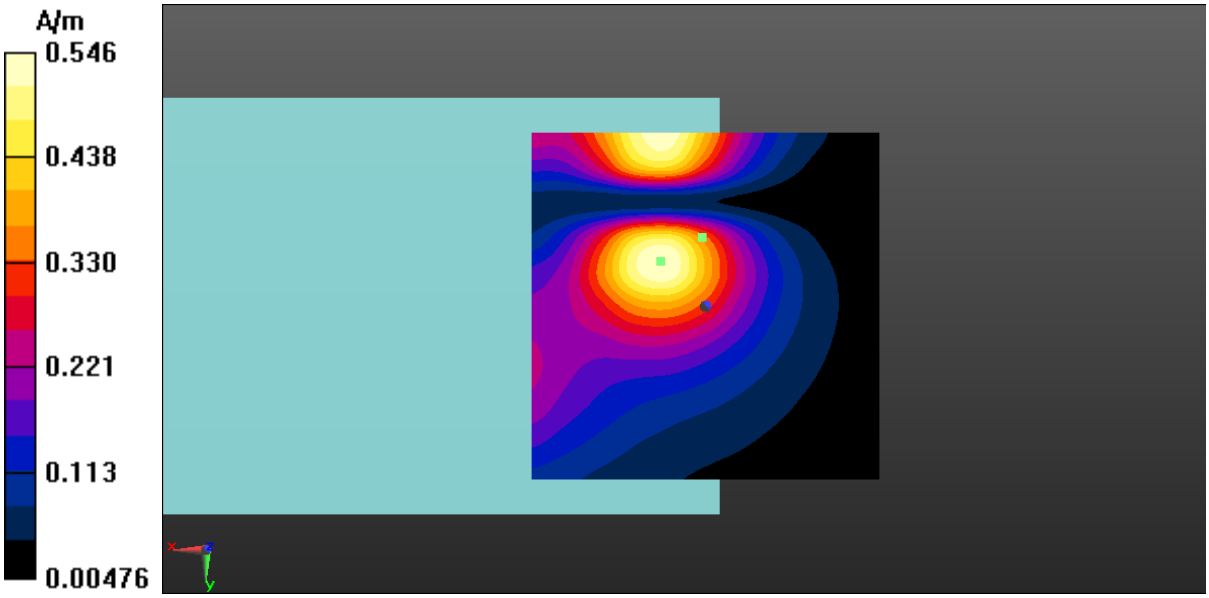


Fig A.4 T-Coil GSM1900-Z

©Copyright. All rights reserved by SAICT.

T-Coil Ant.2 - CDMA BC0 Axial
Date: 2023-11-10
Electronics: DAE4 Sn1527
Medium: Air
Medium parameters used: $\sigma = 0$ S/m, $\varepsilon_r = 1$; $\rho = 1$ kg/m^3
Communication System: UID 0, CDMA (0) Frequency: 836.52 MHz Duty Cycle: 1:1
Probe: AM1DV3 - 3086

z (axial) 4.2mm 50 x 50/ABM Interpolated Signal(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: 100
Measure Window Start: 300ms
Measure Window Length: 1000ms
BWC applied: 0.16 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1 = 5.44 dBA/m
BWC Factor = 0.16 dB
Location: 6, -16, 3.7 mm

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: 100
Measure Window Start: 300ms
Measure Window Length: 1000ms
BWC applied: 0.16 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1/ABM2 = 53.22 dB
ABM1 comp = 4.74 dBA/m
BWC Factor = 0.16 dB
Location: 5, -18, 3.7 mm

©Copyright. All rights reserved by SAICT.

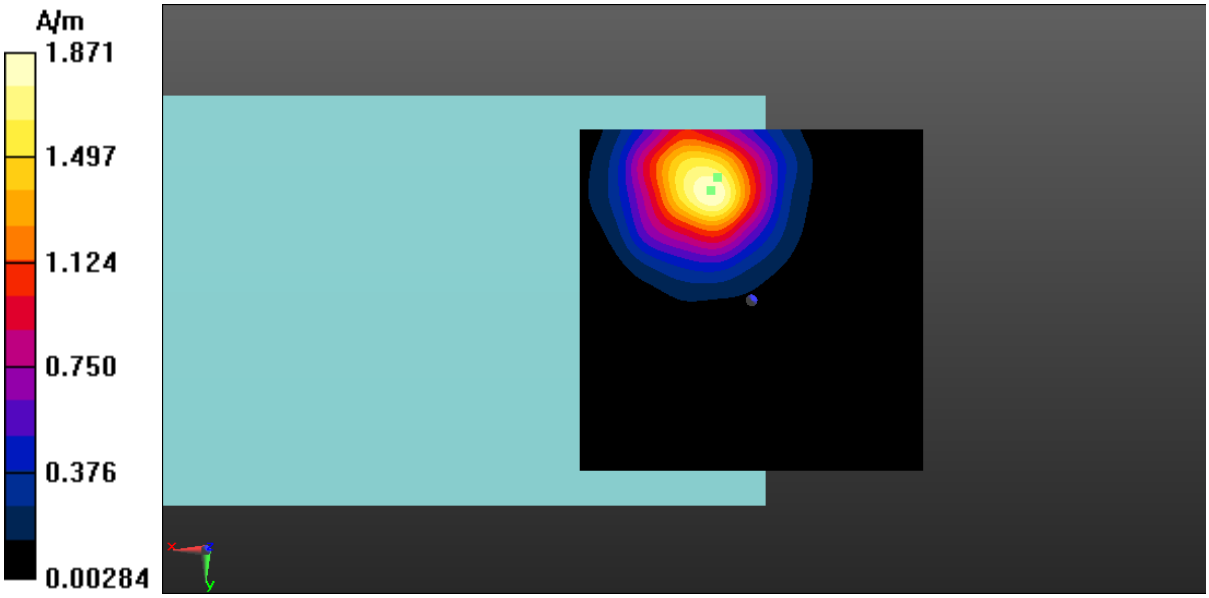


Fig A.5 T-Coil CDMA BC0-Z

©Copyright. All rights reserved by SAICT.

T-Coil Ant.2 - CDMA BC0 Transverse
Date: 2023-11-10
Electronics: DAE4 Sn1527
Medium: Air
Medium parameters used: $\sigma = 0$ S/m, $\varepsilon_r = 1$; $\rho = 1$ kg/m^3
Communication System: UID 0, CDMA (0) Frequency: 836.52 MHz Duty Cycle: 1:1
Probe: AM1DV3 - 3086

y (transversal) 4.2mm 50 x 50/ABM Interpolated Signal(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: 100
Measure Window Start: 300ms
Measure Window Length: 1000ms
BWC applied: 0.16 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1 = -2.47 dBA/m
BWC Factor = 0.16 dB
Location: 5.5, -25, 3.7 mm

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: 100
Measure Window Start: 300ms
Measure Window Length: 1000ms
BWC applied: 0.16 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1/ABM2 = 40.52 dB
ABM1 comp = -4.37 dBA/m
BWC Factor = 0.16 dB
Location: -1.5, -10, 3.7 mm

©Copyright. All rights reserved by SAICT.

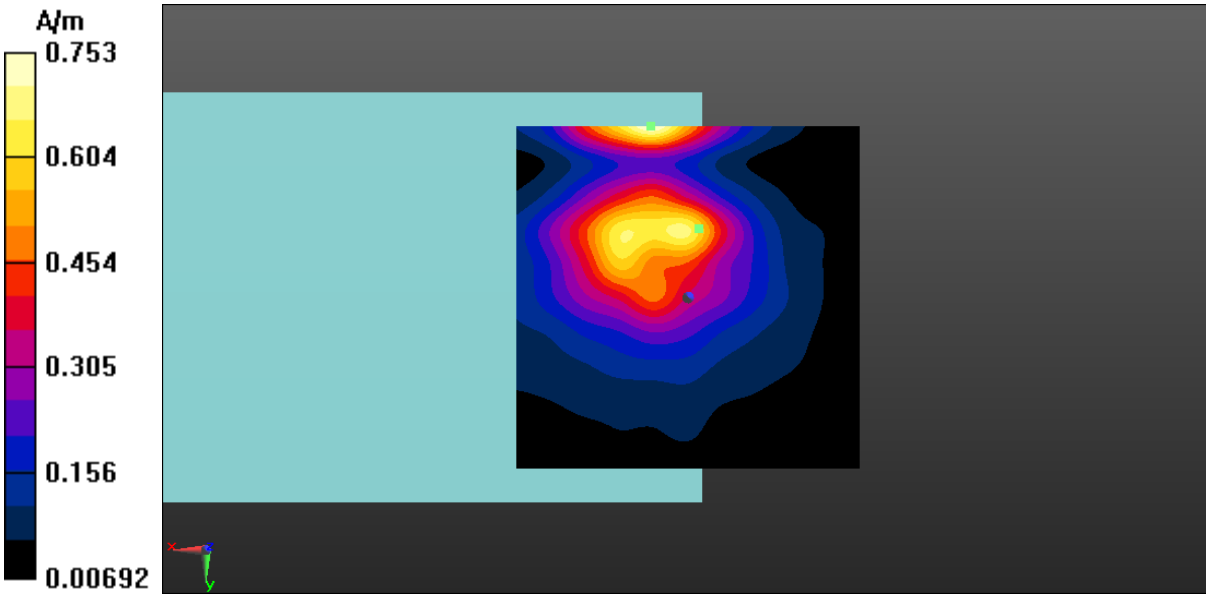


Fig A.5 T-Coil CDMA BC0-Y

©Copyright. All rights reserved by SAICT.

T-Coil Ant.3 - CDMA BC0 Axial
Date: 2023-11-10
Electronics: DAE4 Sn1527
Medium: Air
Medium parameters used: $\sigma = 0$ S/m, $\varepsilon_r = 1$; $\rho = 1$ kg/m^3
Communication System: UID 0, CDMA (0) Frequency: 836.52 MHz Duty Cycle: 1:1
Probe: AM1DV3 - 3086

z (axial) 4.2mm 50 x 50/ABM Interpolated Signal(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: 100
Measure Window Start: 300ms
Measure Window Length: 1000ms
BWC applied: 0.16 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1 = 6.43 dBA/m
BWC Factor = 0.16 dB
Location: 9.5, -15, 3.7 mm

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: 100
Measure Window Start: 300ms
Measure Window Length: 1000ms
BWC applied: 0.16 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1/ABM2 = 55.22 dB
ABM1 comp = 5.01 dBA/m
BWC Factor = 0.16 dB
Location: 5, -16.5, 3.7 mm

©Copyright. All rights reserved by SAICT.

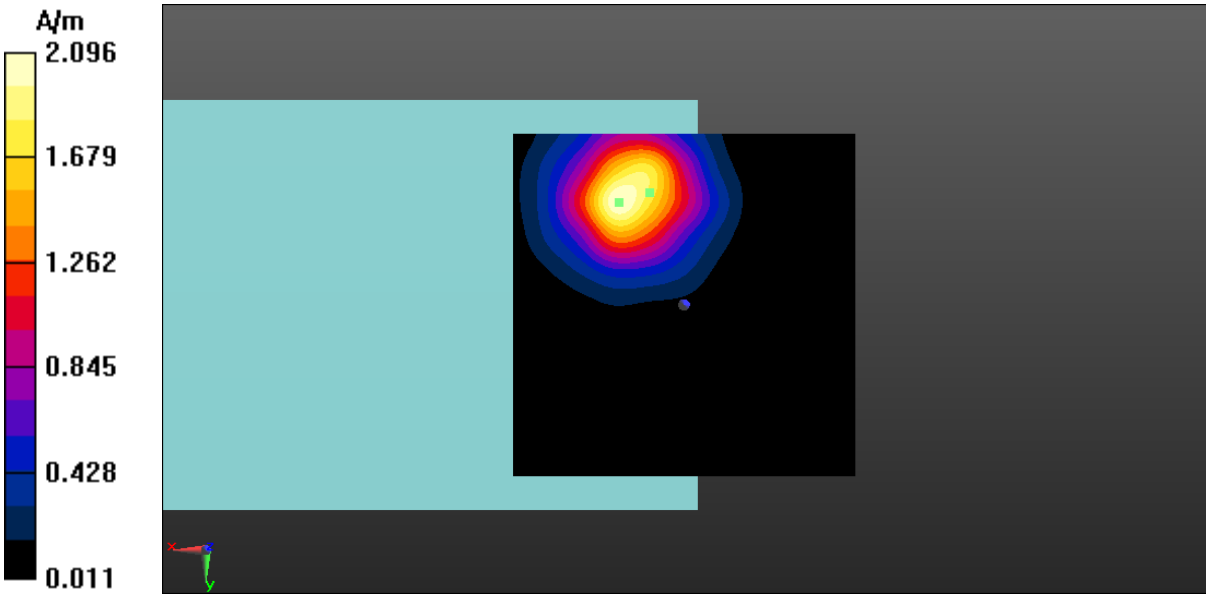


Fig A.6 T-Coil CDMA BC0-Z

©Copyright. All rights reserved by SAICT.

T-Coil Ant.3 - CDMA BC0 Transverse
Date: 2023-11-10
Electronics: DAE4 Sn1527
Medium: Air
Medium parameters used: σ = 0 S/m, ε_r = 1; ρ = 1 kg/m^3
Communication System: UID 0, CDMA (0) Frequency: 836.52 MHz Duty Cycle: 1:1
Probe: AM1DV3 - 3086

y (transversal) 4.2mm 50 x 50/ABM Interpolated Signal(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: 100
Measure Window Start: 300ms
Measure Window Length: 1000ms
BWC applied: 0.16 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1 = -1.67 dBA/m
BWC Factor = 0.16 dB
Location: 5.5, -9, 3.7 mm

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: 100
Measure Window Start: 300ms
Measure Window Length: 1000ms
BWC applied: 0.16 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1/ABM2 = 44.75 dB
ABM1 comp = -3.17 dBA/m
BWC Factor = 0.16 dB
Location: 2.5, -6.5, 3.7 mm

©Copyright. All rights reserved by SAICT.

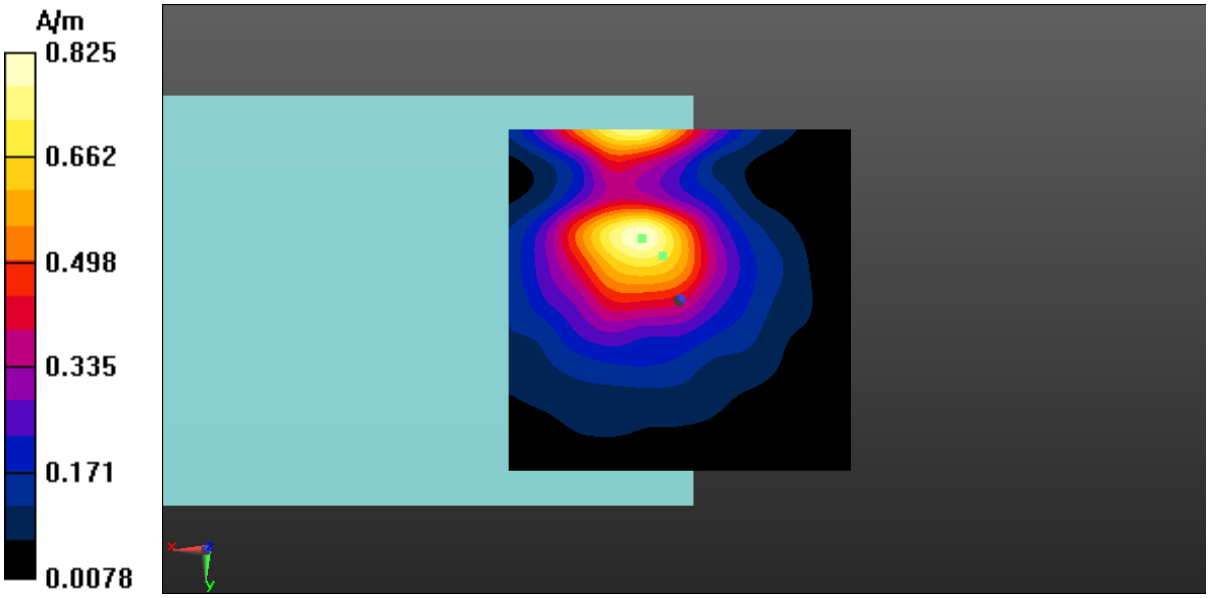


Fig A.6 T-Coil CDMA BC0-Y

©Copyright. All rights reserved by SAICT.

T-Coil Ant.2 - WCDMA Band 2 Axial
Date: 2023-11-08
Electronics: DAE4 Sn1527
Medium: Air
Medium parameters used: σ = 0 S/m, ε_r = 1; ρ = 1 kg/m^3
Communication System: UID 0, WCDMA (0) Frequency: 1880 MHz Duty Cycle: 1:1
Probe: AM1DV3 - 3086

z (axial) 4.2mm 50 x 50/ABM Interpolated Signal(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: 100
Measure Window Start: 300ms
Measure Window Length: 1000ms
BWC applied: 0.16 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1 = 8.03 dBA/m
BWC Factor = 0.16 dB
Location: 6.5, -15.5, 3.7 mm

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: 100
Measure Window Start: 300ms
Measure Window Length: 1000ms
BWC applied: 0.16 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1/ABM2 = 56.10 dB
ABM1 comp = 7.70 dBA/m
BWC Factor = 0.16 dB
Location: 5, -16.5, 3.7 mm

©Copyright. All rights reserved by SAICT.

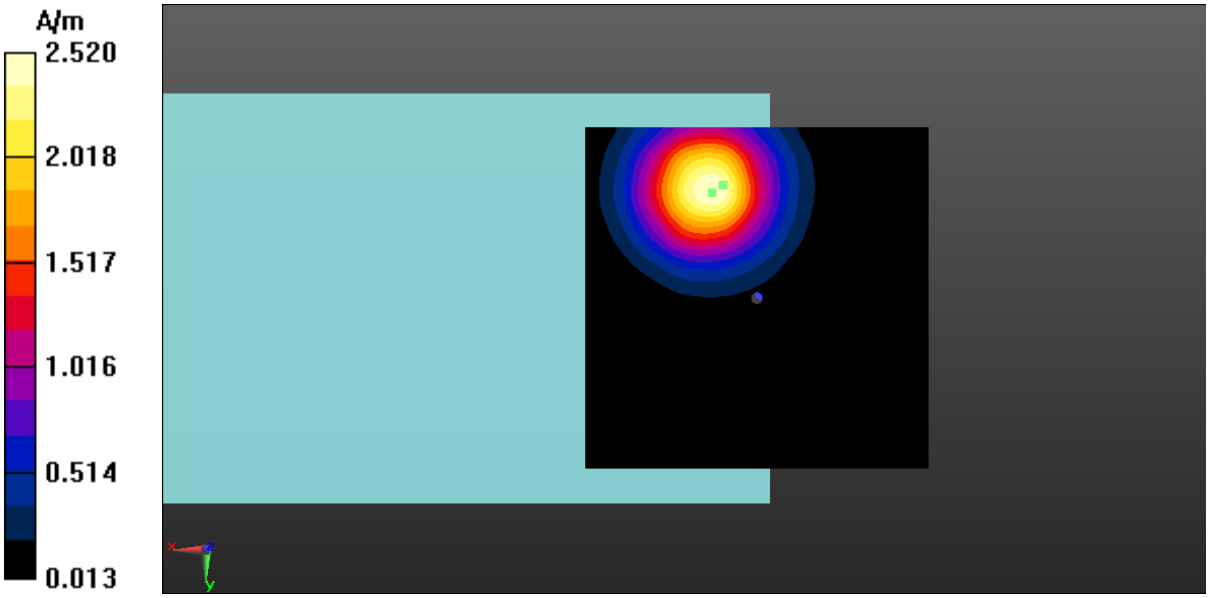


Fig A.7 T-Coil WCDMA Band 2-Z

©Copyright. All rights reserved by SAICT.

T-Coil Ant.2 - WCDMA Band 2 Transverse
Date: 2023-11-08
Electronics: DAE4 Sn1527
Medium: Air
Medium parameters used: σ = 0 S/m, ε_r = 1; ρ = 1 kg/m^3
Communication System: UID 0, WCDMA (0) Frequency: 1880 MHz Duty Cycle: 1:1
Probe: AM1DV3 - 3086

y (transversal) 4.2mm 50 x 50/ABM Interpolated Signal(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: 100
Measure Window Start: 300ms
Measure Window Length: 1000ms
BWC applied: 0.16 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1 = -0.97 dBA/m
BWC Factor = 0.16 dB
Location: 8, -6, 3.7 mm

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: 100
Measure Window Start: 300ms
Measure Window Length: 1000ms
BWC applied: 0.16 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1/ABM2 = 48.03 dB
ABM1 comp = -2.14 dBA/m
BWC Factor = 0.16 dB
Location: 3.5, -4, 3.7 mm

©Copyright. All rights reserved by SAICT.

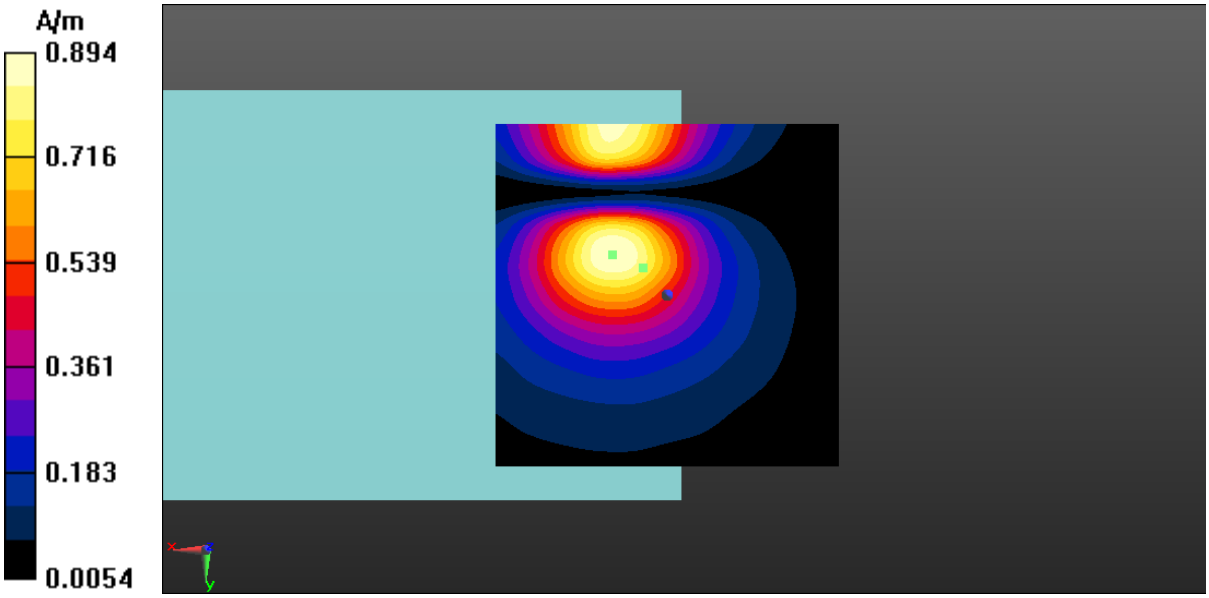


Fig A.7 T-Coil WCDMA Band 2-Y

©Copyright. All rights reserved by SAICT.

T-Coil Ant.4 - WCDMA Band 2 Axial
Date: 2023-11-08
Electronics: DAE4 Sn1527
Medium: Air
Medium parameters used: $\sigma = 0$ S/m, $\varepsilon_r = 1$; $\rho = 1$ kg/m^3
Communication System: UID 0, WCDMA (0) Frequency: 1880 MHz Duty Cycle: 1:1
Probe: AM1DV3 - 3086

z (axial) 4.2mm 50 x 50/ABM Interpolated Signal(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: 100
Measure Window Start: 300ms
Measure Window Length: 1000ms
BWC applied: 0.16 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1 = 7.56 dBA/m
BWC Factor = 0.16 dB
Location: 6, -16, 3.7 mm

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: 100
Measure Window Start: 300ms
Measure Window Length: 1000ms
BWC applied: 0.16 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1/ABM2 = 53.94 dB
ABM1 comp = 7.14 dBA/m
BWC Factor = 0.16 dB
Location: 4.5, -17.5, 3.7 mm

©Copyright. All rights reserved by SAICT.

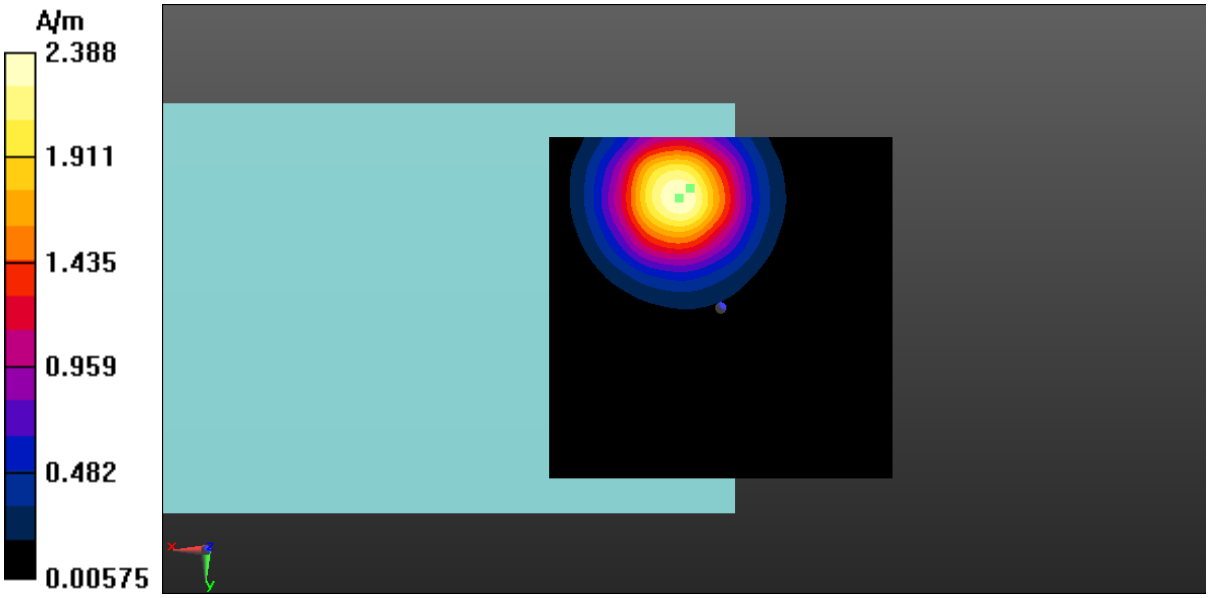


Fig A.8 T-Coil WCDMA Band 2-Z

©Copyright. All rights reserved by SAICT.

T-Coil Ant.4 - WCDMA Band 2 Transverse
Date: 2023-11-08
Electronics: DAE4 Sn1527
Medium: Air
Medium parameters used: σ = 0 S/m, ε_r = 1; ρ = 1 kg/m^3
Communication System: UID 0, WCDMA (0) Frequency: 1880 MHz Duty Cycle: 1:1
Probe: AM1DV3 - 3086

y (transversal) 4.2mm 50 x 50/ABM Interpolated Signal(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: 100
Measure Window Start: 300ms
Measure Window Length: 1000ms
BWC applied: 0.16 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1 = -1.29 dBA/m
BWC Factor = 0.16 dB
Location: 6.5, -25, 3.7 mm

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: 100
Measure Window Start: 300ms
Measure Window Length: 1000ms
BWC applied: 0.16 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1/ABM2 = 46.24 dB
ABM1 comp = -2.06 dBA/m
BWC Factor = 0.16 dB
Location: 4, -4, 3.7 mm

©Copyright. All rights reserved by SAICT.

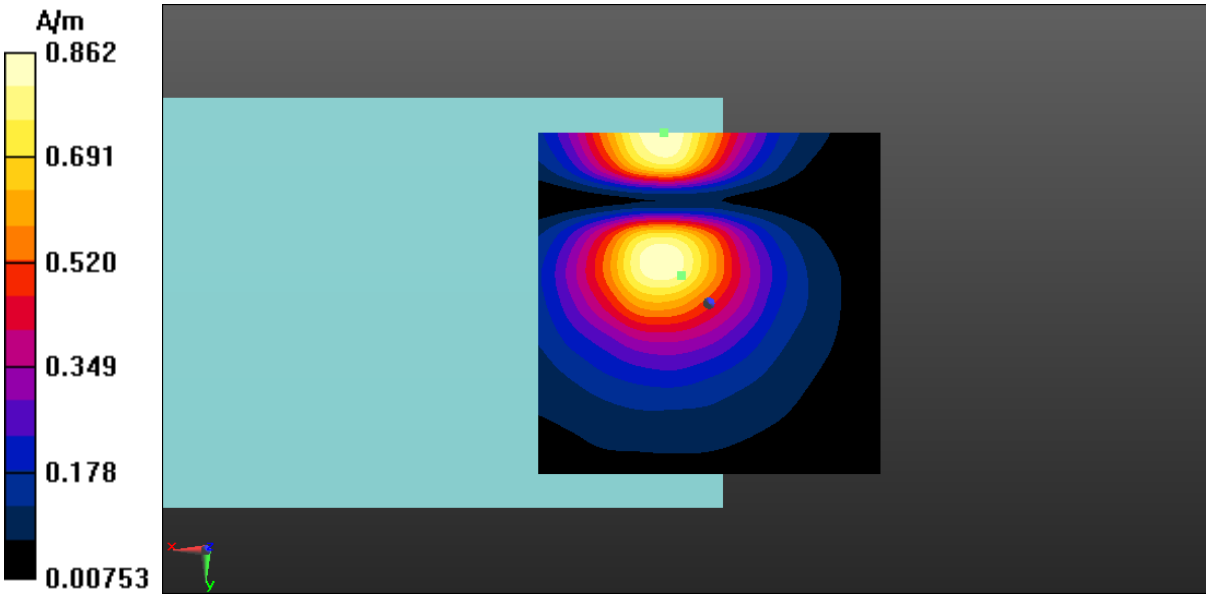


Fig A.8 T-Coil WCDMA Band 2-Y

©Copyright. All rights reserved by SAICT.

T-Coil Ant.2 - WCDMA Band 4 Axial
Date: 2023-11-08
Electronics: DAE4 Sn1527
Medium: Air
Medium parameters used: σ = 0 S/m, ε_r = 1; ρ = 1 kg/m^3
Communication System: UID 0, WCDMA (0) Frequency: 1732.6 MHz Duty Cycle: 1:1
Probe: AM1DV3 - 3086

z (axial) 4.2mm 50 x 50/ABM Interpolated Signal(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: 100
Measure Window Start: 300ms
Measure Window Length: 1000ms
BWC applied: 0.15 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1 = 7.99 dBA/m
BWC Factor = 0.15 dB
Location: 6.5, -15.5, 3.7 mm

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: 100
Measure Window Start: 300ms
Measure Window Length: 1000ms
BWC applied: 0.15 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1/ABM2 = 55.07 dB
ABM1 comp = 7.58 dBA/m
BWC Factor = 0.15 dB
Location: 4.5, -16, 3.7 mm

©Copyright. All rights reserved by SAICT.

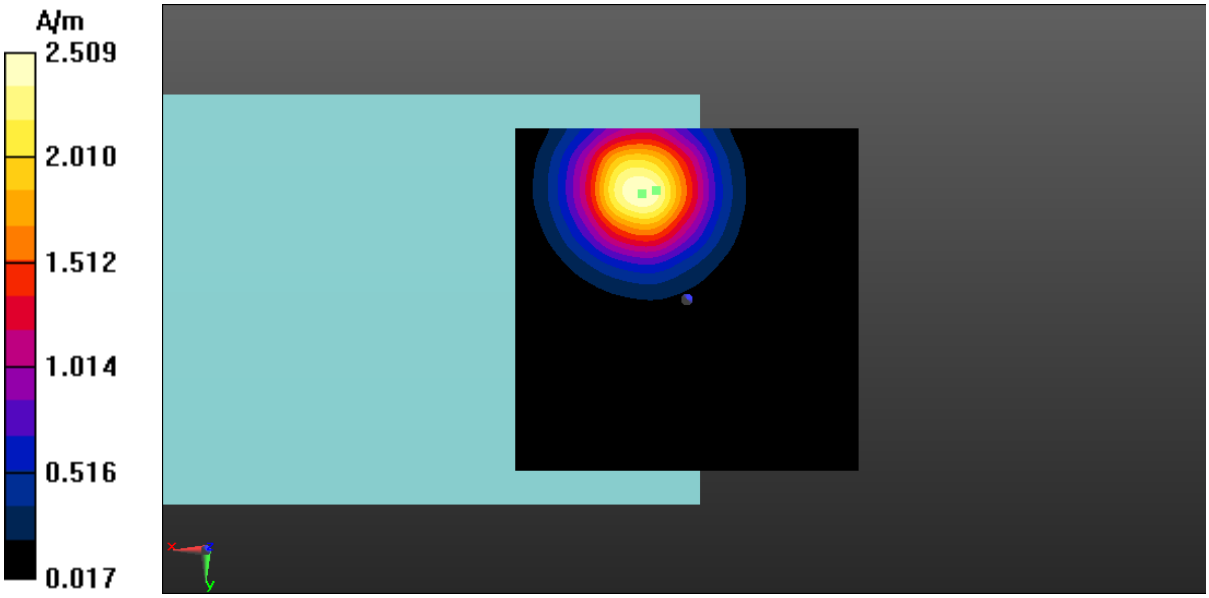


Fig A.9 T-Coil WCDMA Band 4-Z

©Copyright. All rights reserved by SAICT.

T-Coil Ant.2 - WCDMA Band 4 Transverse
Date: 2023-11-08
Electronics: DAE4 Sn1527
Medium: Air
Medium parameters used: σ = 0 S/m, ε_r = 1; ρ = 1 kg/m^3
Communication System: UID 0, WCDMA (0) Frequency: 1732.6 MHz Duty Cycle: 1:1
Probe: AM1DV3 - 3086

y (transversal) 4.2mm 50 x 50/ABM Interpolated Signal(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: 100
Measure Window Start: 300ms
Measure Window Length: 1000ms
BWC applied: 0.15 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1 = -0.83 dBA/m
BWC Factor = 0.15 dB
Location: 6, -6, 3.7 mm

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: 100
Measure Window Start: 300ms
Measure Window Length: 1000ms
BWC applied: 0.15 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1/ABM2 = 43.19 dB
ABM1 comp = -3.27 dBA/m
BWC Factor = 0.15 dB
Location: 0.5, -5.5, 3.7 mm

©Copyright. All rights reserved by SAICT.

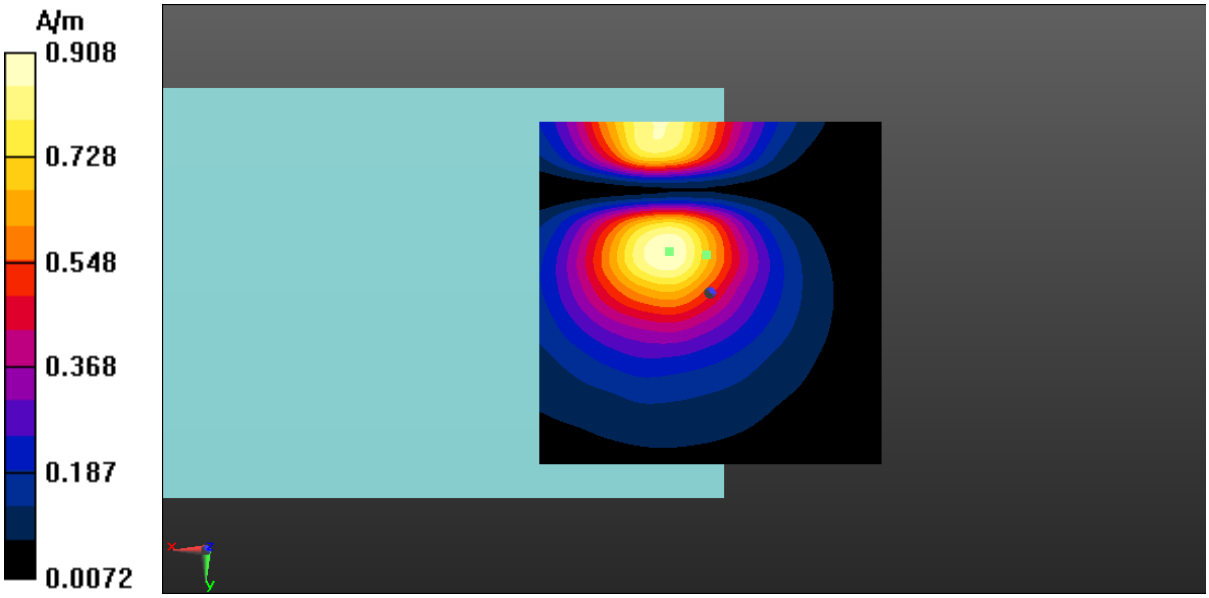


Fig A.9 T-Coil WCDMA Band 4-Y

©Copyright. All rights reserved by SAICT.

T-Coil Ant.4 - WCDMA Band 4 Axial
Date: 2023-11-08
Electronics: DAE4 Sn1527
Medium: Air
Medium parameters used: σ = 0 S/m, ε_r = 1; ρ = 1 kg/m^3
Communication System: UID 0, WCDMA (0) Frequency: 1732.6 MHz Duty Cycle: 1:1
Probe: AM1DV3 - 3086

z (axial) 4.2mm 50 x 50/ABM Interpolated Signal(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: 100
Measure Window Start: 300ms
Measure Window Length: 1000ms
BWC applied: 0.17 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1 = 7.68 dBA/m
BWC Factor = 0.17 dB
Location: 6, -16, 3.7 mm

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: 100
Measure Window Start: 300ms
Measure Window Length: 1000ms
BWC applied: 0.17 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1/ABM2 = 53.55 dB
ABM1 comp = 7.16 dBA/m
BWC Factor = 0.17 dB
Location: 4.5, -17.5, 3.7 mm

©Copyright. All rights reserved by SAICT.

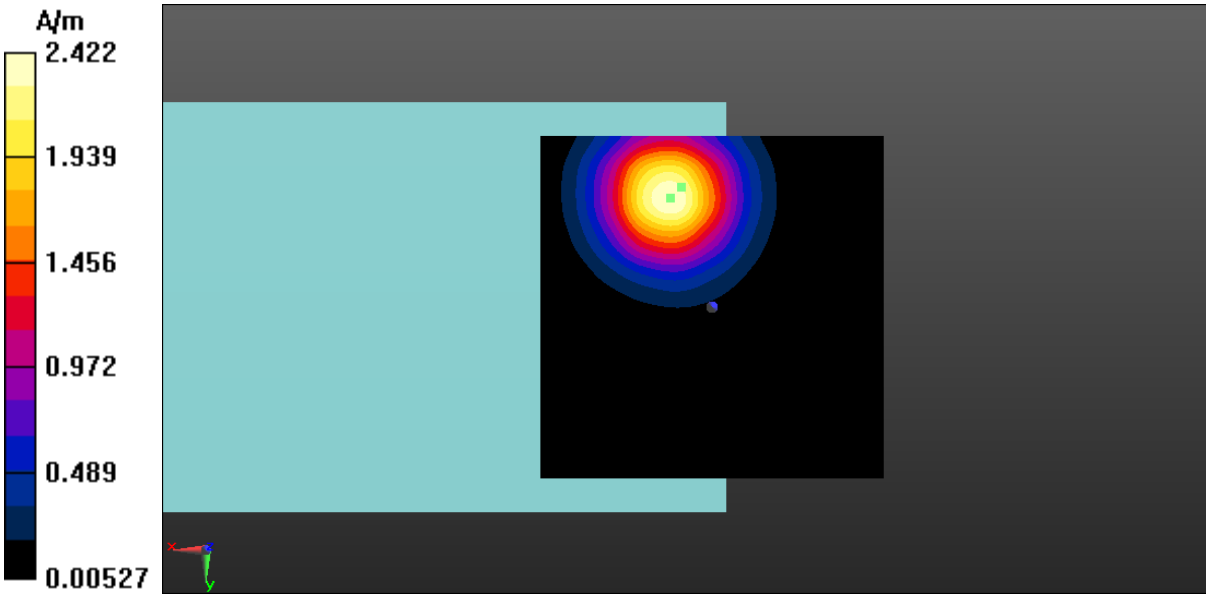


Fig A.10 T-Coil WCDMA Band 4-Z

©Copyright. All rights reserved by SAICT.

T-Coil Ant.4 - WCDMA Band 4 Transverse
Date: 2023-11-08
Electronics: DAE4 Sn1527
Medium: Air
Medium parameters used: σ = 0 S/m, ε_r = 1; ρ = 1 kg/m^3
Communication System: UID 0, WCDMA (0) Frequency: 1732.6 MHz Duty Cycle: 1:1
Probe: AM1DV3 - 3086

y (transversal) 4.2mm 50 x 50/ABM Interpolated Signal(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: 100
Measure Window Start: 300ms
Measure Window Length: 1000ms
BWC applied: 0.17 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1 = -1.19 dBA/m
BWC Factor = 0.17 dB
Location: 6.5, -25, 3.7 mm

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: 100
Measure Window Start: 300ms
Measure Window Length: 1000ms
BWC applied: 0.17 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1/ABM2 = 46.12 dB
ABM1 comp = -2.27 dBA/m
BWC Factor = 0.17 dB
Location: 4.5, -3, 3.7 mm

©Copyright. All rights reserved by SAICT.

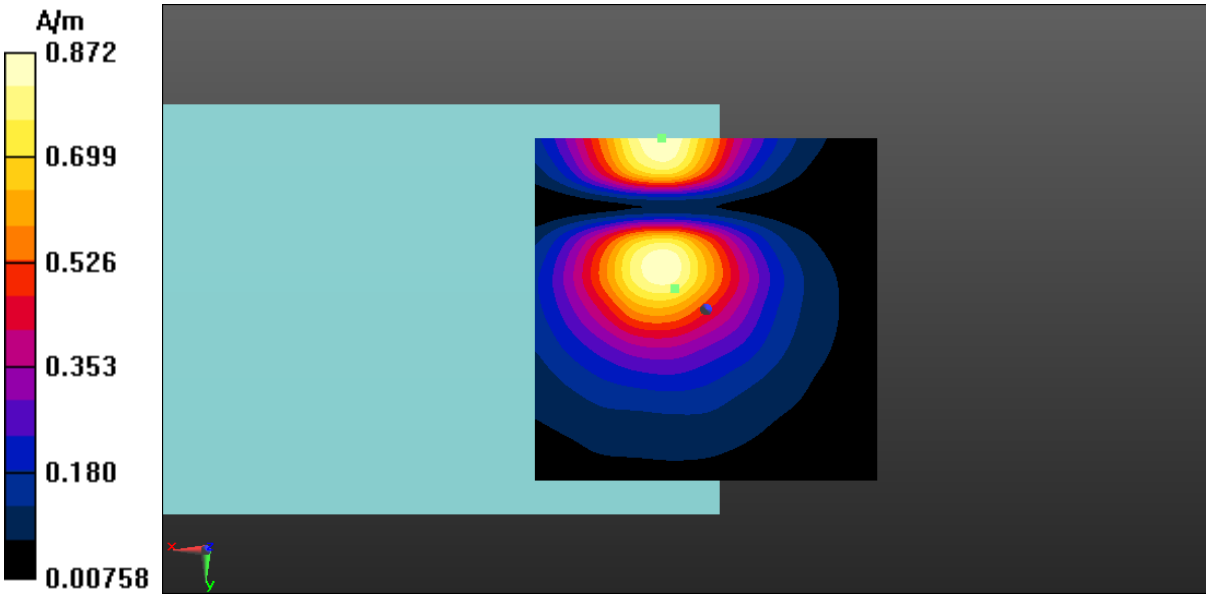


Fig A.10 T-Coil WCDMA Band 4-Y

©Copyright. All rights reserved by SAICT.

T-Coil Ant.2 - WCDMA Band 5 Axial
Date: 2023-11-08
Electronics: DAE4 Sn1527
Medium: Air
Medium parameters used: $\sigma = 0$ S/m, $\varepsilon_r = 1$; $\rho = 1$ kg/m^3
Communication System: UID 0, WCDMA (0) Frequency: 836.4 MHz Duty Cycle: 1:1
Probe: AM1DV3 - 3086

z (axial) 4.2mm 50 x 50/ABM Interpolated Signal(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: 100
Measure Window Start: 300ms
Measure Window Length: 1000ms
BWC applied: 0.16 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1 = 7.79 dBA/m
BWC Factor = 0.16 dB
Location: 6, -16, 3.7 mm

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: 100
Measure Window Start: 300ms
Measure Window Length: 1000ms
BWC applied: 0.16 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1/ABM2 = 56.20 dB
ABM1 comp = 7.30 dBA/m
BWC Factor = 0.16 dB
Location: 4.5, -17.5, 3.7 mm

©Copyright. All rights reserved by SAICT.

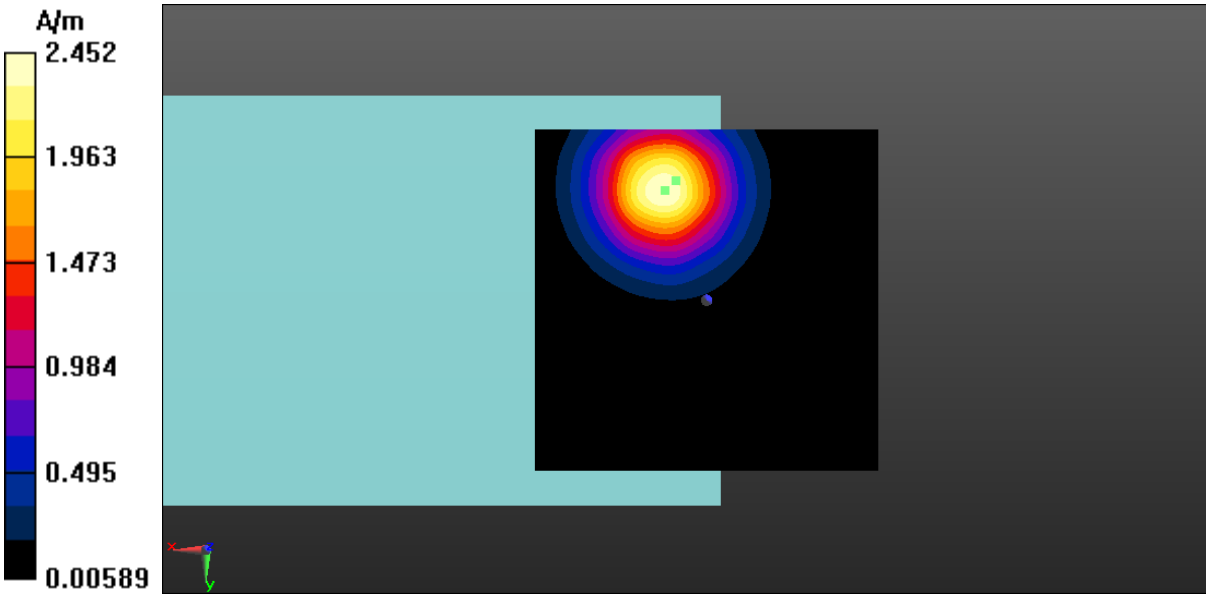


Fig A.11 T-Coil WCDMA Band 5-Z

©Copyright. All rights reserved by SAICT.

T-Coil Ant.2 - WCDMA Band 5 Transverse
Date: 2023-11-08
Electronics: DAE4 Sn1527
Medium: Air
Medium parameters used: σ = 0 S/m, ε_r = 1; ρ = 1 kg/m^3
Communication System: UID 0, WCDMA (0) Frequency: 836.4 MHz Duty Cycle: 1:1
Probe: AM1DV3 - 3086

y (transversal) 4.2mm 50 x 50/ABM Interpolated Signal(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: 100
Measure Window Start: 300ms
Measure Window Length: 1000ms
BWC applied: 0.16 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1 = -1.16 dBA/m
BWC Factor = 0.16 dB
Location: 6.5, -25, 3.7 mm

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: 100
Measure Window Start: 300ms
Measure Window Length: 1000ms
BWC applied: 0.16 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1/ABM2 = 46.56 dB
ABM1 comp = -2.51 dBA/m
BWC Factor = 0.16 dB
Location: 2.5, -4.5, 3.7 mm

©Copyright. All rights reserved by SAICT.

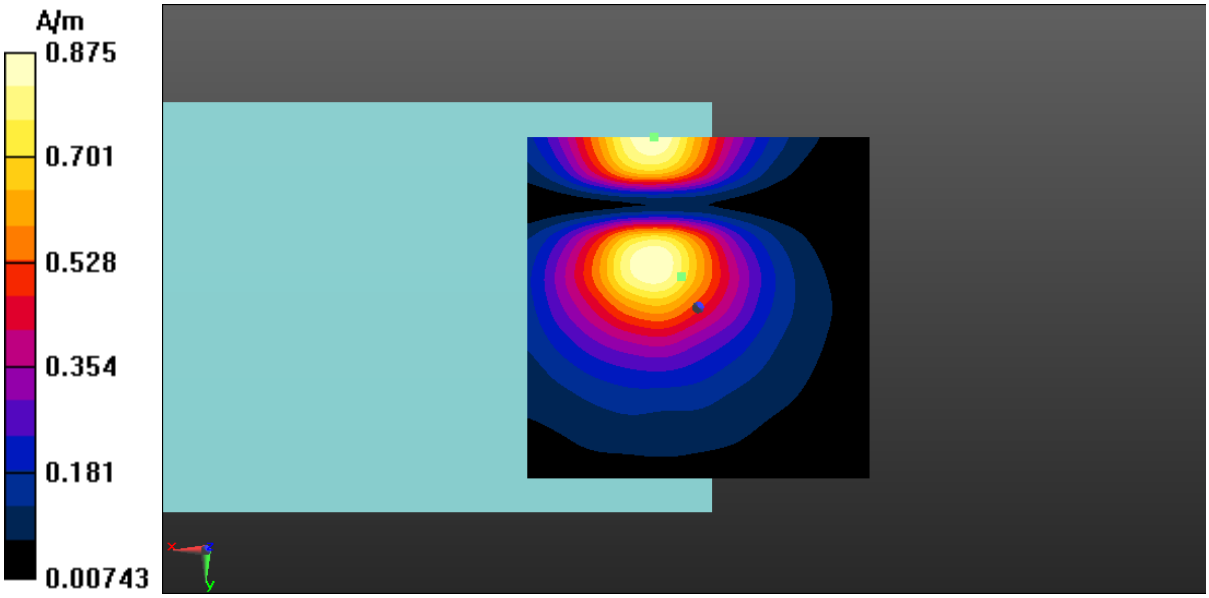


Fig A.11 T-Coil WCDMA Band 5-Y

©Copyright. All rights reserved by SAICT.

T-Coil Ant.3 - WCDMA Band 5 Axial
Date: 2023-11-08
Electronics: DAE4 Sn1527
Medium: Air
Medium parameters used: $\sigma = 0$ S/m, $\varepsilon_r = 1$; $\rho = 1$ kg/m^3
Communication System: UID 0, WCDMA (0) Frequency: 836.4 MHz Duty Cycle: 1:1
Probe: AM1DV3 - 3086

z (axial) 4.2mm 50 x 50/ABM Interpolated Signal(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: 100
Measure Window Start: 300ms
Measure Window Length: 1000ms
BWC applied: 0.16 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1 = 7.95 dBA/m
BWC Factor = 0.16 dB
Location: 7, -16, 3.7 mm

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: 100
Measure Window Start: 300ms
Measure Window Length: 1000ms
BWC applied: 0.16 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1/ABM2 = 57.12 dB
ABM1 comp = 7.66 dBA/m
BWC Factor = 0.16 dB
Location: 5, -16, 3.7 mm

©Copyright. All rights reserved by SAICT.

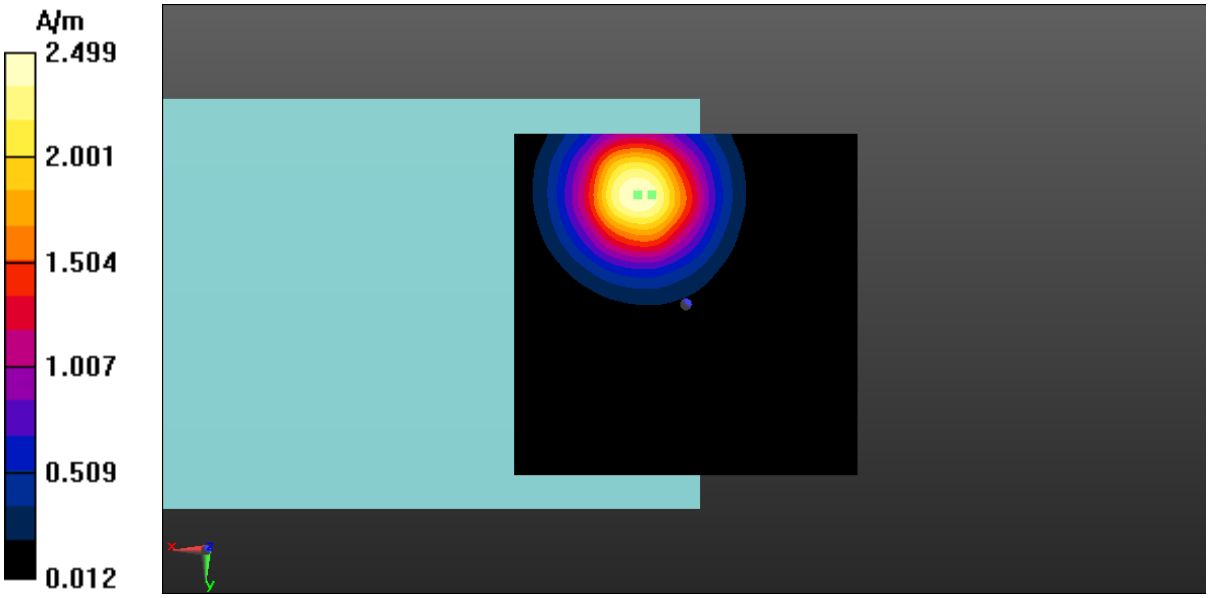


Fig A.12 T-Coil WCDMA Band 5-Z

©Copyright. All rights reserved by SAICT.

T-Coil Ant.3 - WCDMA Band 5 Transverse
Date: 2023-11-08
Electronics: DAE4 Sn1527
Medium: Air
Medium parameters used: σ = 0 S/m, ε_r = 1; ρ = 1 kg/m^3
Communication System: UID 0, WCDMA (0) Frequency: 836.4 MHz Duty Cycle: 1:1
Probe: AM1DV3 - 3086

y (transversal) 4.2mm 50 x 50/ABM Interpolated Signal(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: 100
Measure Window Start: 300ms
Measure Window Length: 1000ms
BWC applied: 0.16 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1 = -0.80 dBA/m
BWC Factor = 0.16 dB
Location: 6.5, -6, 3.7 mm

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: 100
Measure Window Start: 300ms
Measure Window Length: 1000ms
BWC applied: 0.16 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1/ABM2 = 48.12 dB
ABM1 comp = -1.15 dBA/m
BWC Factor = 0.16 dB
Location: 4.5, -4.5, 3.7 mm

©Copyright. All rights reserved by SAICT.

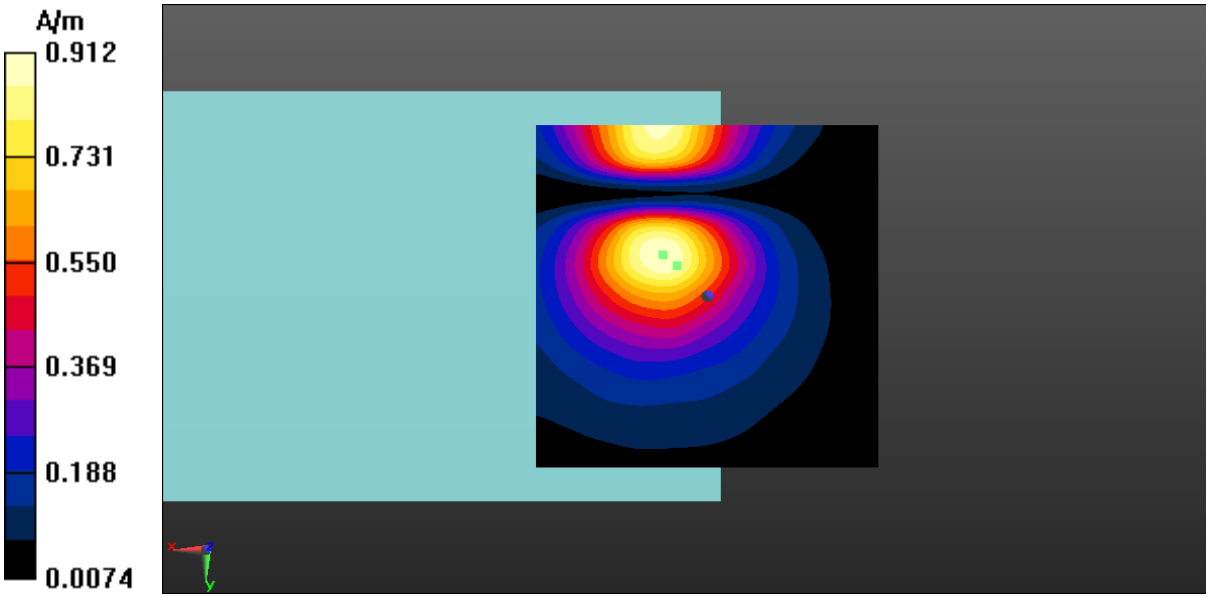


Fig A.12 T-Coil WCDMA Band 5-Y

©Copyright. All rights reserved by SAICT.

T-Coil Ant.2 - LTE Band 2 Axial
Date: 2023-11-09
Electronics: DAE4 Sn1527
Medium: Air
Medium parameters used: $\sigma = 0$ S/m, $\varepsilon_r = 1$; $\rho = 1$ kg/m^3
Communication System: UID 0, LTE (0) Frequency: 1880 MHz Duty Cycle: 1:1
Probe: AM1DV3 - 3086

z (axial) 4.2mm 50 x 50/ABM Interpolated Signal(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: 100
Measure Window Start: 300ms
Measure Window Length: 1000ms
BWC applied: 0.16 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1 = 7.04 dBA/m
BWC Factor = 0.16 dB
Location: 5.5, -15.5, 3.7 mm

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: 100
Measure Window Start: 300ms
Measure Window Length: 1000ms
BWC applied: 0.16 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1/ABM2 = 53.16 dB
ABM1 comp = 5.92 dBA/m
BWC Factor = 0.16 dB
Location: 4.5, -18.5, 3.7 mm

©Copyright. All rights reserved by SAICT.

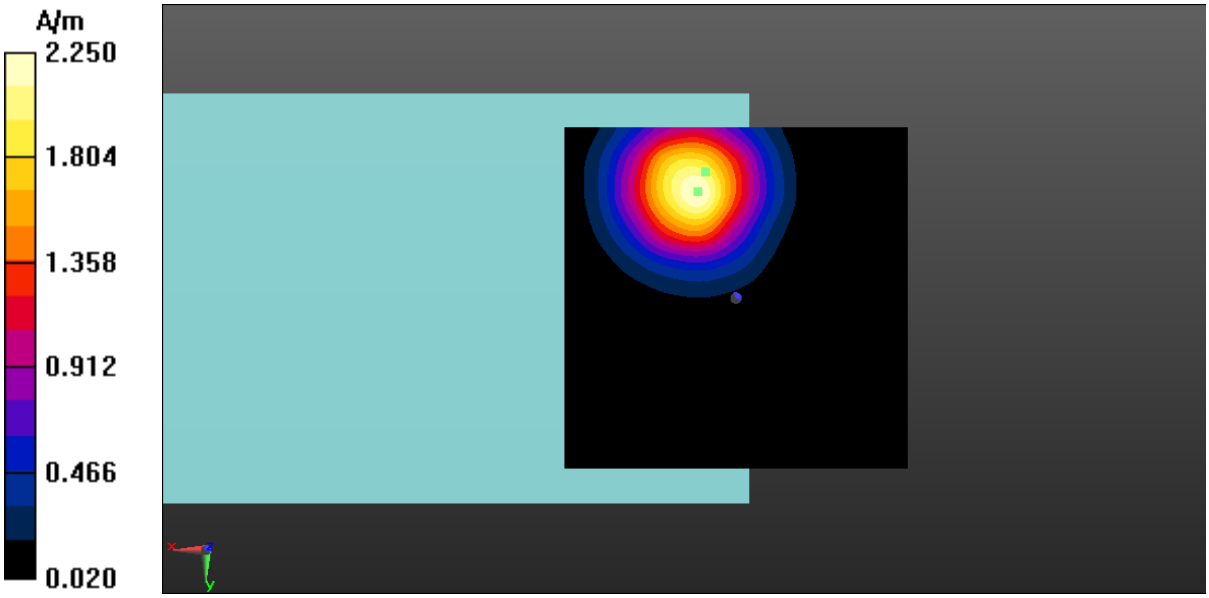


Fig A.13 T-Coil LTE Band 2-Z

©Copyright. All rights reserved by SAICT.

T-Coil Ant.2 - LTE Band 2 Transverse
Date: 2023-11-09
Electronics: DAE4 Sn1527
Medium: Air
Medium parameters used: $\sigma = 0$ S/m, $\varepsilon_r = 1$; $\rho = 1$ kg/m^3
Communication System: UID 0, LTE (0) Frequency: 1880 MHz Duty Cycle: 1:1
Probe: AM1DV3 - 3086

y (transversal) 4.2mm 50 x 50/ABM Interpolated Signal(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: 100
Measure Window Start: 300ms
Measure Window Length: 1000ms
BWC applied: 0.16 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1 = -2.11 dBA/m
BWC Factor = 0.16 dB
Location: 6.5, -25, 3.7 mm

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: 100
Measure Window Start: 300ms
Measure Window Length: 1000ms
BWC applied: 0.16 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1/ABM2 = 46.00 dB
ABM1 comp = -3.90 dBA/m
BWC Factor = 0.16 dB
Location: 1, -4.5, 3.7 mm

©Copyright. All rights reserved by SAICT.

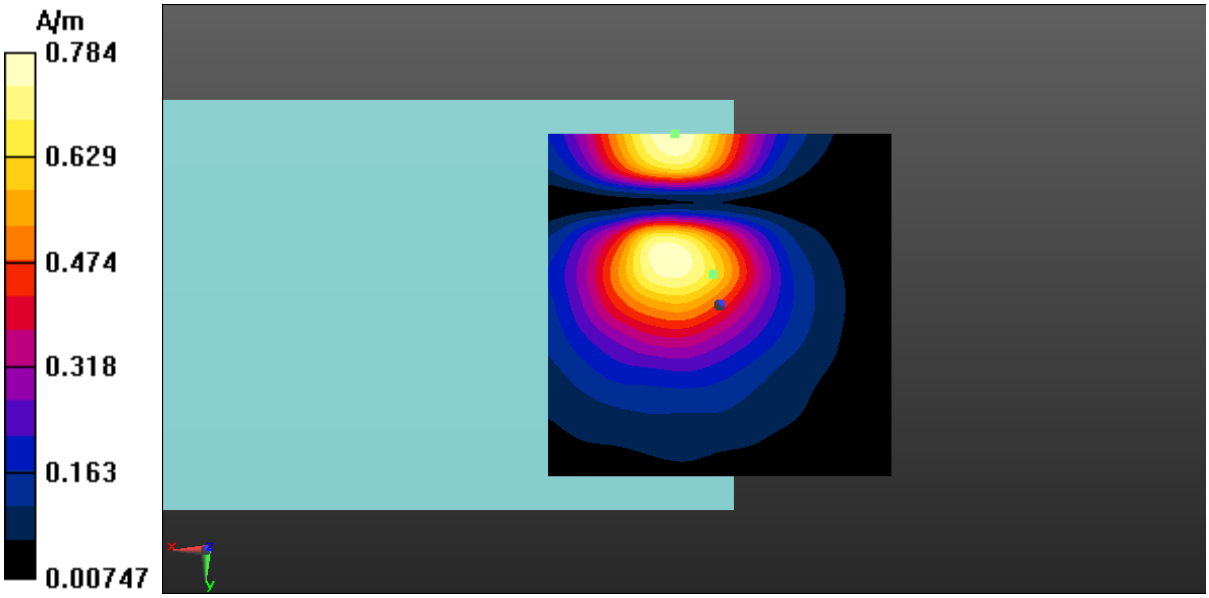


Fig A.13 T-Coil LTE Band 2-Y

©Copyright. All rights reserved by SAICT.

T-Coil Ant.4 - LTE Band 2 Axial
Date: 2023-11-09
Electronics: DAE4 Sn1527
Medium: Air
Medium parameters used: $\sigma = 0$ S/m, $\varepsilon_r = 1$; $\rho = 1$ kg/m^3
Communication System: UID 0, LTE (0) Frequency: 1880 MHz Duty Cycle: 1:1
Probe: AM1DV3 - 3086

z (axial) 4.2mm 50 x 50/ABM Interpolated Signal(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: 100
Measure Window Start: 300ms
Measure Window Length: 1000ms
BWC applied: 0.16 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1 = 7.08 dBA/m
BWC Factor = 0.16 dB
Location: 5.5, -16, 3.7 mm

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: 100
Measure Window Start: 300ms
Measure Window Length: 1000ms
BWC applied: 0.16 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1/ABM2 = 52.22 dB
ABM1 comp = 6.34 dBA/m
BWC Factor = 0.16 dB
Location: 5, -19, 3.7 mm

©Copyright. All rights reserved by SAICT.

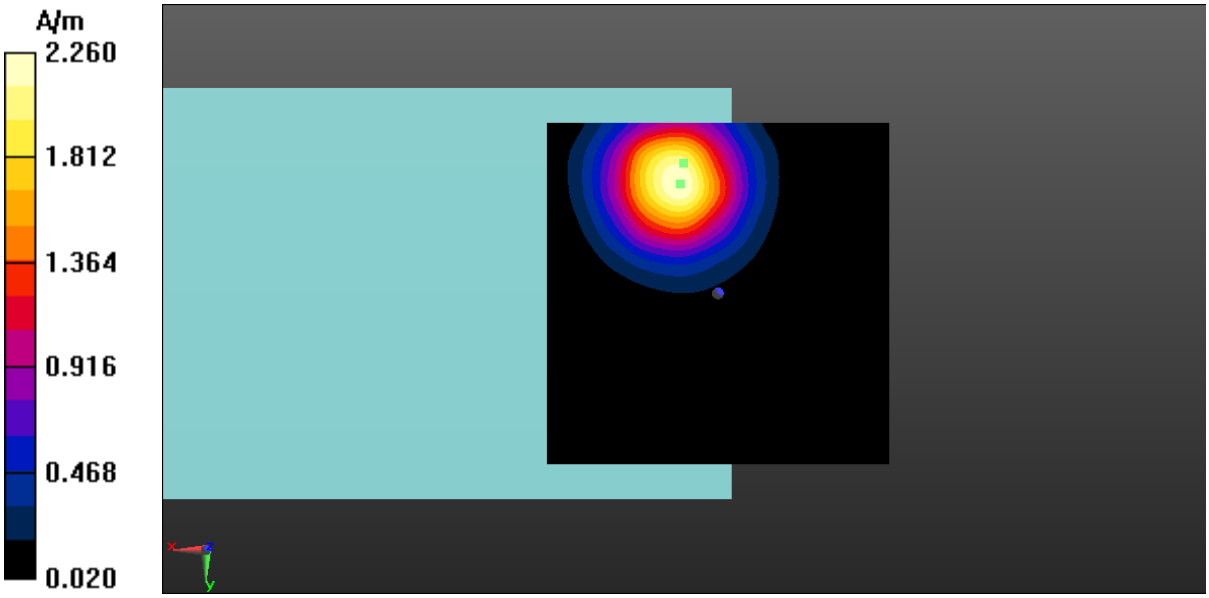


Fig A.14 T-Coil LTE Band 2-Z

©Copyright. All rights reserved by SAICT.

T-Coil Ant.4 - LTE Band 2 Transverse
Date: 2023-11-09
Electronics: DAE4 Sn1527
Medium: Air
Medium parameters used: $\sigma = 0$ S/m, $\varepsilon_r = 1$; $\rho = 1$ kg/m^3
Communication System: UID 0, LTE (0) Frequency: 1880 MHz Duty Cycle: 1:1
Probe: AM1DV3 - 3086

y (transversal) 4.2mm 50 x 50/ABM Interpolated Signal(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: 100
Measure Window Start: 300ms
Measure Window Length: 1000ms
BWC applied: 0.16 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1 = -2.07 dBA/m
BWC Factor = 0.16 dB
Location: 5.5, -6, 3.7 mm

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: 100
Measure Window Start: 300ms
Measure Window Length: 1000ms
BWC applied: 0.16 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1/ABM2 = 44.87 dB
ABM1 comp = -2.73 dBA/m
BWC Factor = 0.16 dB
Location: 3.5, -4.5, 3.7 mm

©Copyright. All rights reserved by SAICT.

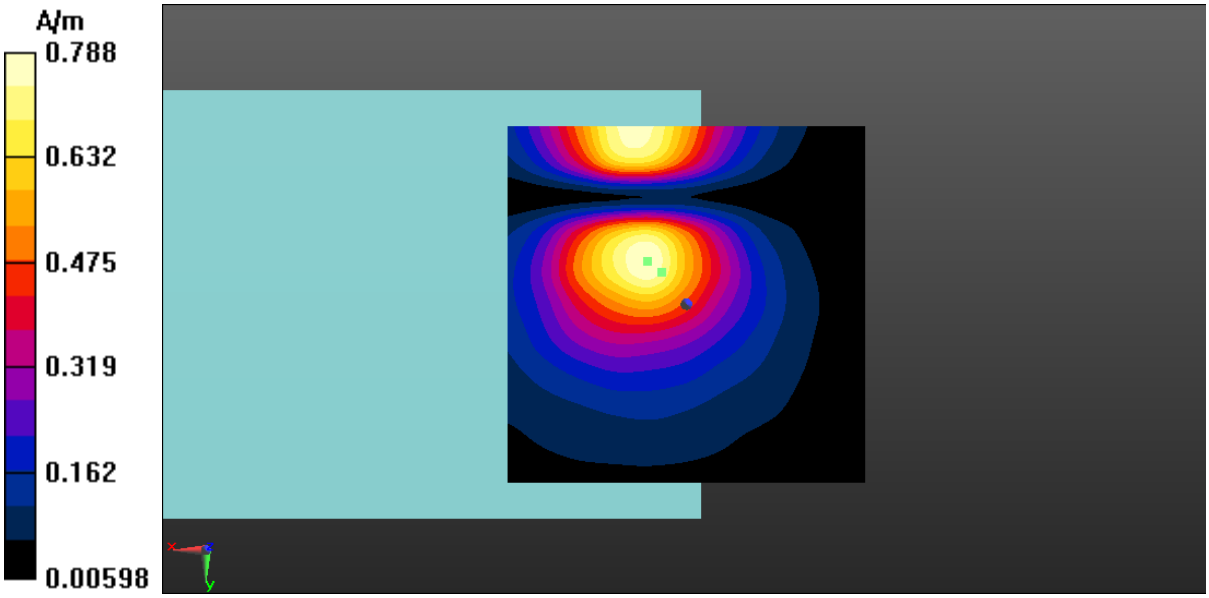


Fig A.14 T-Coil LTE Band 2-Y

©Copyright. All rights reserved by SAICT.

T-Coil Ant.2 - LTE Band 4 Axial
Date: 2023-11-09
Electronics: DAE4 Sn1527
Medium: Air
Medium parameters used: σ = 0 S/m, ε_r = 1; ρ = 1 kg/m^3
Communication System: UID 0, LTE (0) Frequency: 1732.5 MHz Duty Cycle: 1:1
Probe: AM1DV3 - 3086

z (axial) 4.2mm 50 x 50/ABM Interpolated Signal(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: 100
Measure Window Start: 300ms
Measure Window Length: 1000ms
BWC applied: 0.15 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1 = 7.02 dBA/m
BWC Factor = 0.15 dB
Location: 6, -16.5, 3.7 mm

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: 100
Measure Window Start: 300ms
Measure Window Length: 1000ms
BWC applied: 0.15 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1/ABM2 = 53.78 dB
ABM1 comp = 6.58 dBA/m
BWC Factor = 0.15 dB
Location: 5, -19, 3.7 mm

©Copyright. All rights reserved by SAICT.

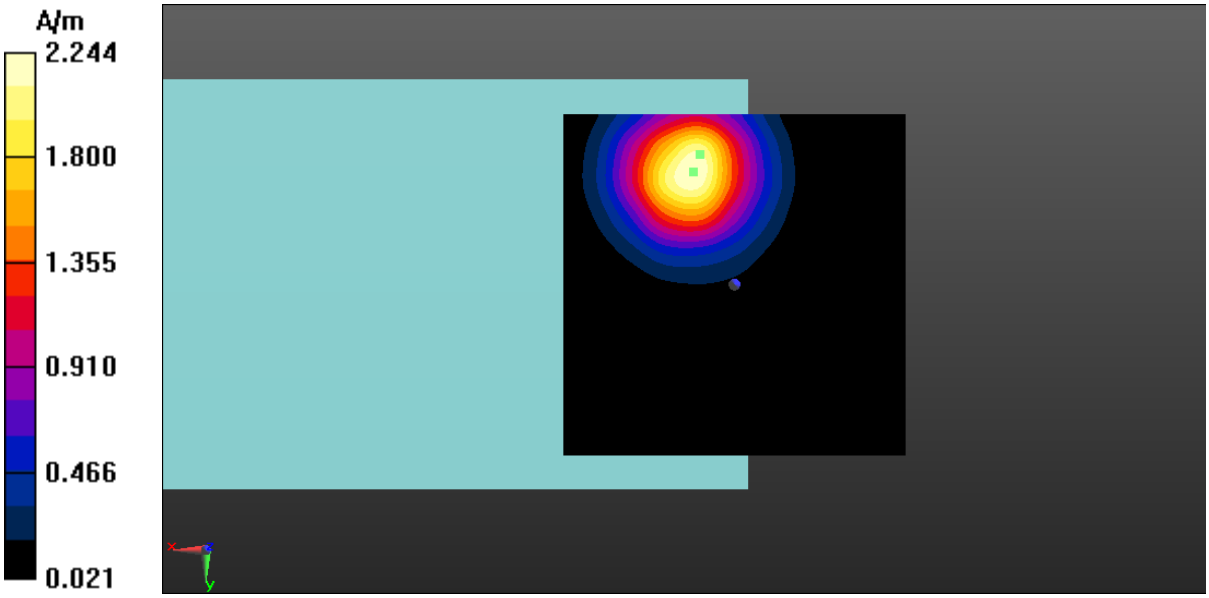


Fig A.15 T-Coil LTE Band 4-Z

©Copyright. All rights reserved by SAICT.

T-Coil Ant.2 - LTE Band 4 Transverse
Date: 2023-11-09
Electronics: DAE4 Sn1527
Medium: Air
Medium parameters used: σ = 0 S/m, ε_r = 1; ρ = 1 kg/m^3
Communication System: UID 0, LTE (0) Frequency: 1732.5 MHz Duty Cycle: 1:1
Probe: AM1DV3 - 3086

y (transversal) 4.2mm 50 x 50/ABM Interpolated Signal(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: 100
Measure Window Start: 300ms
Measure Window Length: 1000ms
BWC applied: 0.15 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1 = -1.60 dBA/m
BWC Factor = 0.15 dB
Location: 7, -6, 3.7 mm

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: 100
Measure Window Start: 300ms
Measure Window Length: 1000ms
BWC applied: 0.15 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1/ABM2 = 42.60 dB
ABM1 comp = -4.06 dBA/m
BWC Factor = 0.15 dB
Location: 0, -5, 3.7 mm

©Copyright. All rights reserved by SAICT.

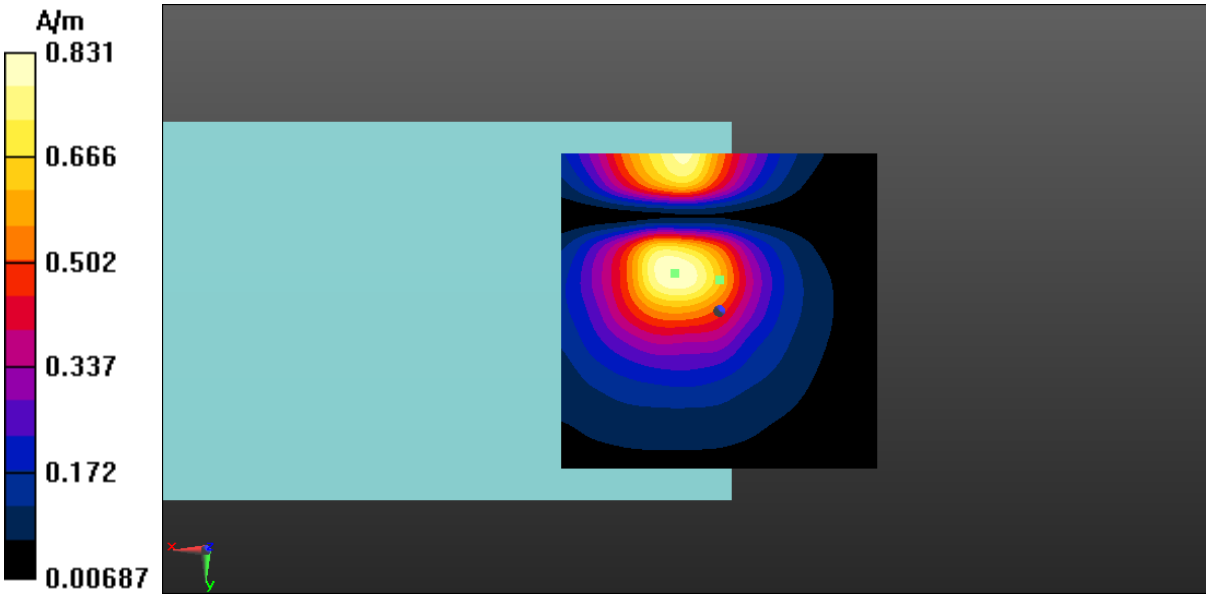


Fig A.15 T-Coil LTE Band 4-Y

©Copyright. All rights reserved by SAICT.

T-Coil Ant.4 - LTE Band 4 Axial
Date: 2023-11-09
Electronics: DAE4 Sn1527
Medium: Air
Medium parameters used: σ = 0 S/m, ε_r = 1; ρ = 1 kg/m^3
Communication System: UID 0, LTE (0) Frequency: 1732.5 MHz Duty Cycle: 1:1
Probe: AM1DV3 - 3086

z (axial) 4.2mm 50 x 50/ABM Interpolated Signal(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: 100
Measure Window Start: 300ms
Measure Window Length: 1000ms
BWC applied: 0.16 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1 = 7.20 dBA/m
BWC Factor = 0.16 dB
Location: 6, -15.5, 3.7 mm

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: 100
Measure Window Start: 300ms
Measure Window Length: 1000ms
BWC applied: 0.16 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1/ABM2 = 51.34 dB
ABM1 comp = 5.22 dBA/m
BWC Factor = 0.16 dB
Location: 4.5, -20, 3.7 mm

©Copyright. All rights reserved by SAICT.

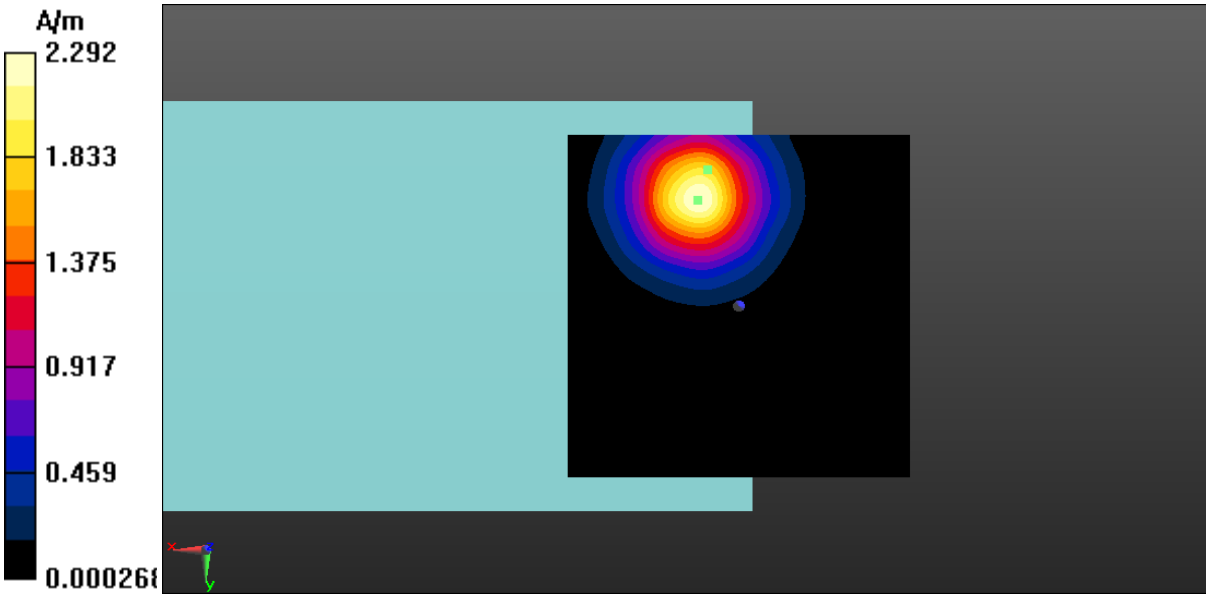


Fig A.16 T-Coil LTE Band 4-Z

©Copyright. All rights reserved by SAICT.

T-Coil Ant.4 - LTE Band 4 Transverse
Date: 2023-11-09
Electronics: DAE4 Sn1527
Medium: Air
Medium parameters used: σ = 0 S/m, ε_r = 1; ρ = 1 kg/m^3
Communication System: UID 0, LTE (0) Frequency: 1732.5 MHz Duty Cycle: 1:1
Probe: AM1DV3 - 3086

y (transversal) 4.2mm 50 x 50/ABM Interpolated Signal(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: 100
Measure Window Start: 300ms
Measure Window Length: 1000ms
BWC applied: 0.16 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1 = -1.72 dBA/m
BWC Factor = 0.16 dB
Location: 6, -5.5, 3.7 mm

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: 100
Measure Window Start: 300ms
Measure Window Length: 1000ms
BWC applied: 0.16 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1/ABM2 = 44.79 dB
ABM1 comp = -3.04 dBA/m
BWC Factor = 0.16 dB
Location: 2, -4.5, 3.7 mm

©Copyright. All rights reserved by SAICT.

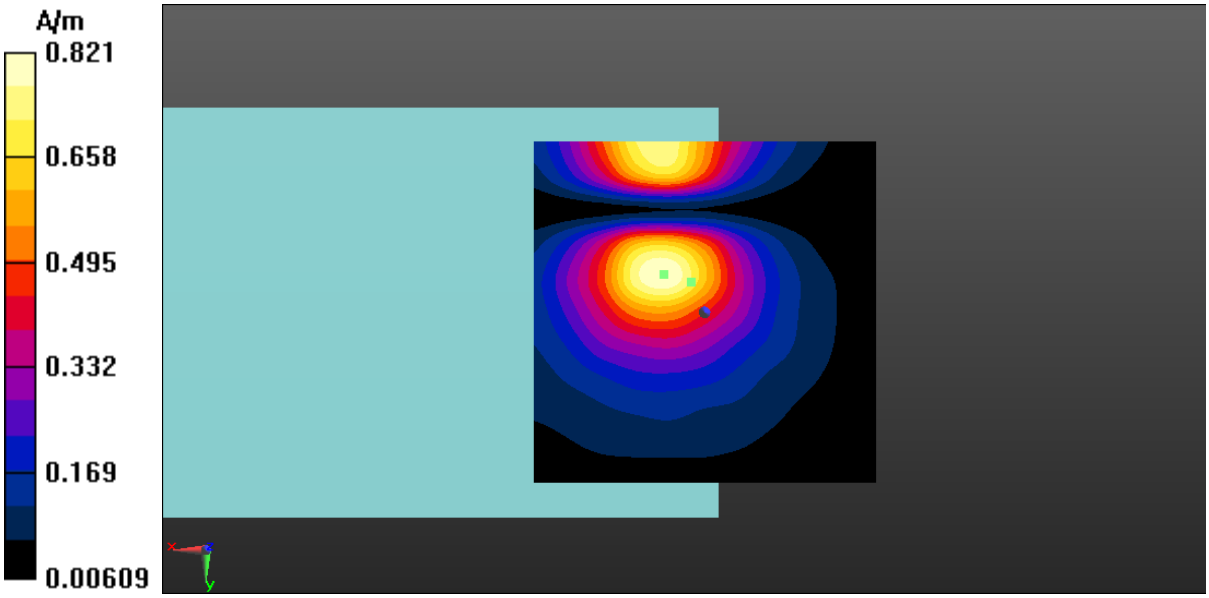


Fig A.16 T-Coil LTE Band 4-Y

©Copyright. All rights reserved by SAICT.

T-Coil Ant.2 - LTE-Band 5 Axial
Date: 2023-11-09
Electronics: DAE4 Sn1527
Medium: Air
Medium parameters used: σ = 0 S/m, ε_r = 1; ρ = 1 kg/m^3
Communication System: UID 0, LTE_FDD (0) Frequency: 836.5 MHz Duty Cycle: 1:1
Probe: AM1DV3 - 3086

z (axial) 4.2mm 50 x 50/ABM Interpolated Signal(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: 100
Measure Window Start: 300ms
Measure Window Length: 1000ms
BWC applied: 0.16 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1 = 6.49 dBA/m
BWC Factor = 0.16 dB
Location: 7, -16.5, 3.7 mm

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: 100
Measure Window Start: 300ms
Measure Window Length: 1000ms
BWC applied: 0.16 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1/ABM2 = 51.28 dB
ABM1 comp = 5.69 dBA/m
BWC Factor = 0.16 dB
Location: 4.5, -19, 3.7 mm

©Copyright. All rights reserved by SAICT.

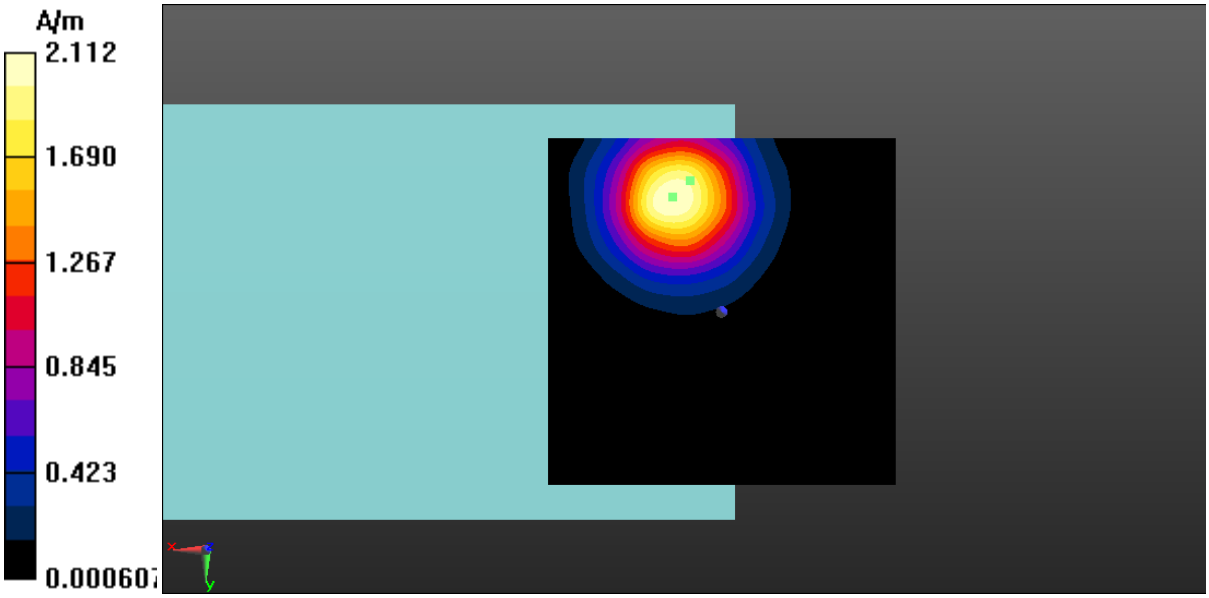


Fig A.17 T-Coil LTE-Band 5-Z

©Copyright. All rights reserved by SAICT.

T-Coil Ant.2 - LTE-Band 5 Transverse
Date: 2023-11-09
Electronics: DAE4 Sn1527
Medium: Air
Medium parameters used: σ = 0 S/m, ε_r = 1; ρ = 1 kg/m^3
Communication System: UID 0, LTE_FDD (0) Frequency: 836.5 MHz Duty Cycle: 1:1
Probe: AM1DV3 - 3086

y (transversal) 4.2mm 50 x 50/ABM Interpolated Signal(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: 100
Measure Window Start: 300ms
Measure Window Length: 1000ms
BWC applied: 0.16 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1 = -2.10 dBA/m
BWC Factor = 0.16 dB
Location: 6.5, -6, 3.7 mm

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: 100
Measure Window Start: 300ms
Measure Window Length: 1000ms
BWC applied: 0.16 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1/ABM2 = 45.03 dB
ABM1 comp = -2.69 dBA/m
BWC Factor = 0.16 dB
Location: 3.5, -5, 3.7 mm

©Copyright. All rights reserved by SAICT.

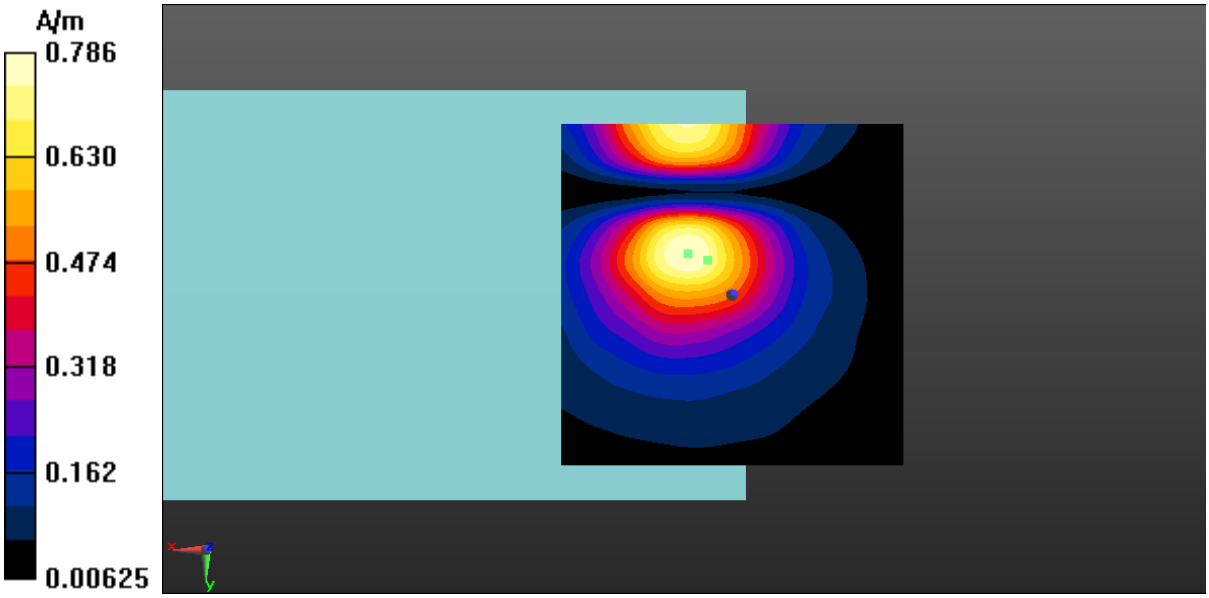


Fig A.17 T-Coil LTE-Band 5-Y

©Copyright. All rights reserved by SAICT.

T-Coil Ant.3 - LTE-Band 5 Axial
Date: 2023-11-09
Electronics: DAE4 Sn1527
Medium: Air
Medium parameters used: $\sigma = 0$ S/m, $\varepsilon_r = 1$; $\rho = 1$ kg/m^3
Communication System: UID 0, LTE_FDD (0) Frequency: 836.5 MHz Duty Cycle: 1:1
Probe: AM1DV3 - 3086

z (axial) 4.2mm 50 x 50/ABM Interpolated Signal(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: 100
Measure Window Start: 300ms
Measure Window Length: 1000ms
BWC applied: 0.15 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1 = 7.27 dBA/m
BWC Factor = 0.15 dB
Location: 6.5, -15.5, 3.7 mm

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: 100
Measure Window Start: 300ms
Measure Window Length: 1000ms
BWC applied: 0.15 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1/ABM2 = 50.42 dB
ABM1 comp = 6.85 dBA/m
BWC Factor = 0.15 dB
Location: 5, -16, 3.7 mm

©Copyright. All rights reserved by SAICT.

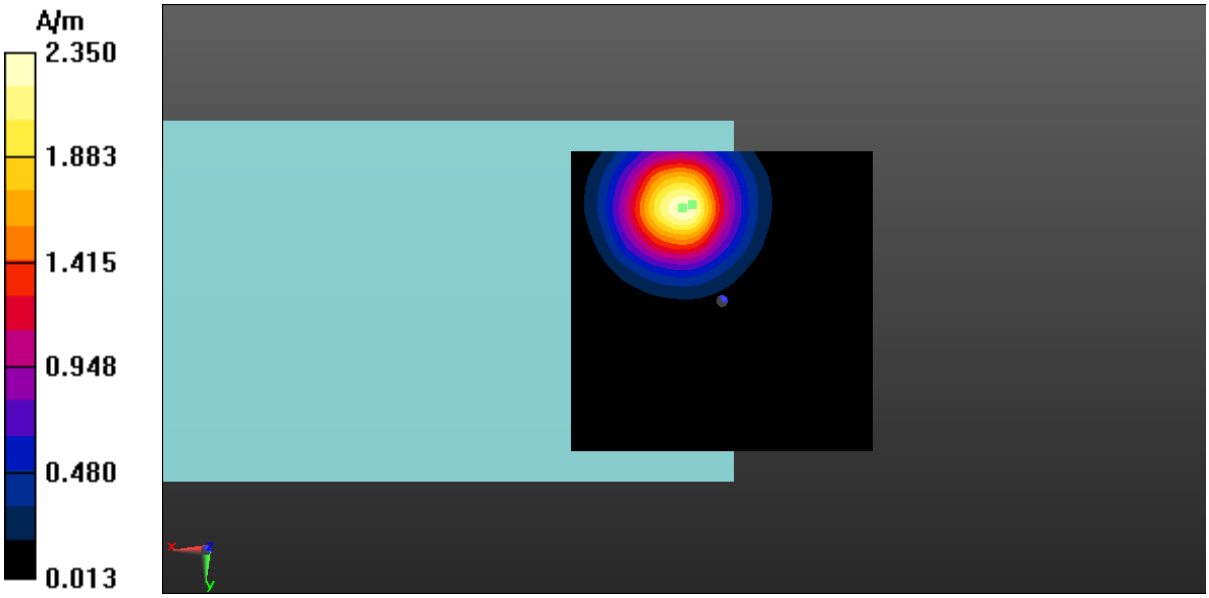


Fig A.18 T-Coil LTE-Band 5-Z

©Copyright. All rights reserved by SAICT.

T-Coil Ant.3 - LTE-Band 5 Transverse
Date: 2023-11-09
Electronics: DAE4 Sn1527
Medium: Air
Medium parameters used: σ = 0 S/m, ε_r = 1; ρ = 1 kg/m^3
Communication System: UID 0, LTE_FDD (0) Frequency: 836.5 MHz Duty Cycle: 1:1
Probe: AM1DV3 - 3086

y (transversal) 4.2mm 50 x 50/ABM Interpolated Signal(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: 100
Measure Window Start: 300ms
Measure Window Length: 1000ms
BWC applied: 0.15 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1 = -1.94 dBA/m
BWC Factor = 0.15 dB
Location: 7.5, -5.5, 3.7 mm

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: 100
Measure Window Start: 300ms
Measure Window Length: 1000ms
BWC applied: 0.15 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1/ABM2 = 44.36 dB
ABM1 comp = -3.39 dBA/m
BWC Factor = 0.15 dB
Location: 3, -5, 3.7 mm

©Copyright. All rights reserved by SAICT.

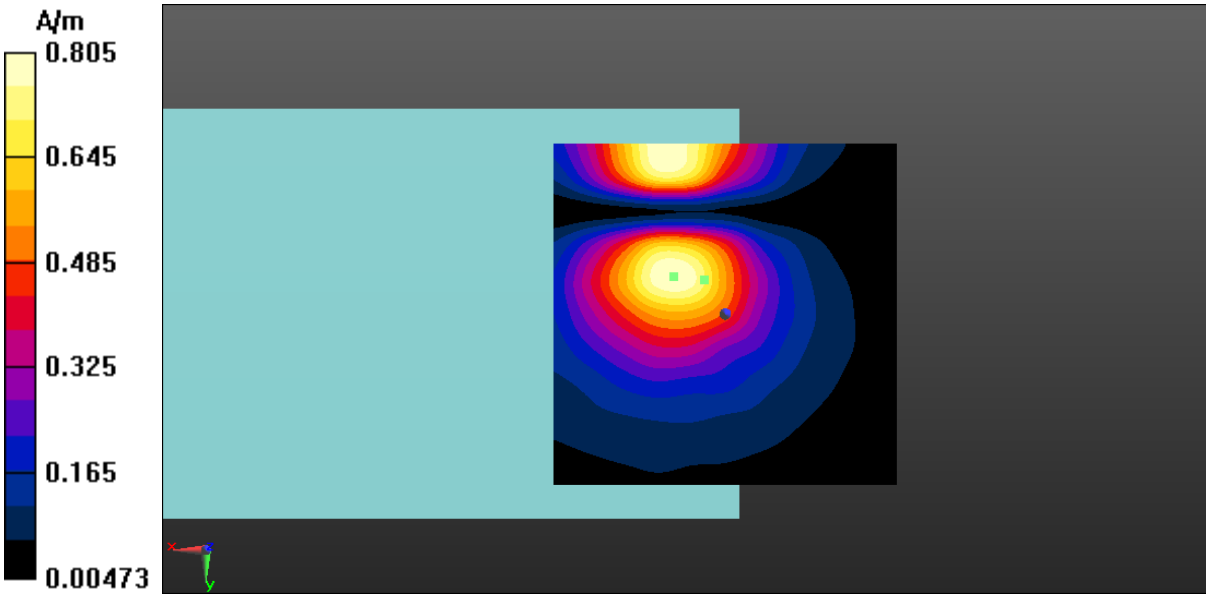


Fig A.18 T-Coil LTE-Band 5-Y

©Copyright. All rights reserved by SAICT.

T-Coil Ant.2 - LTE-Band 7 Axial
Date: 2023-11-09
Electronics: DAE4 Sn1527
Medium: Air
Medium parameters used: σ = 0 S/m, ε_r = 1; ρ = 1 kg/m^3
Communication System: UID 0, LTE_FDD (0) Frequency: 2535 MHz Duty Cycle: 1:1
Probe: AM1DV3 - 3086

z (axial) 4.2mm 50 x 50/ABM Interpolated Signal(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: 100
Measure Window Start: 300ms
Measure Window Length: 1000ms
BWC applied: 0.16 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1 = 7.20 dBA/m
BWC Factor = 0.16 dB
Location: 6, -16.5, 3.7 mm

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: 100
Measure Window Start: 300ms
Measure Window Length: 1000ms
BWC applied: 0.16 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1/ABM2 = 54.34 dB
ABM1 comp = 6.32 dBA/m
BWC Factor = 0.16 dB
Location: 5, -19.5, 3.7 mm

©Copyright. All rights reserved by SAICT.

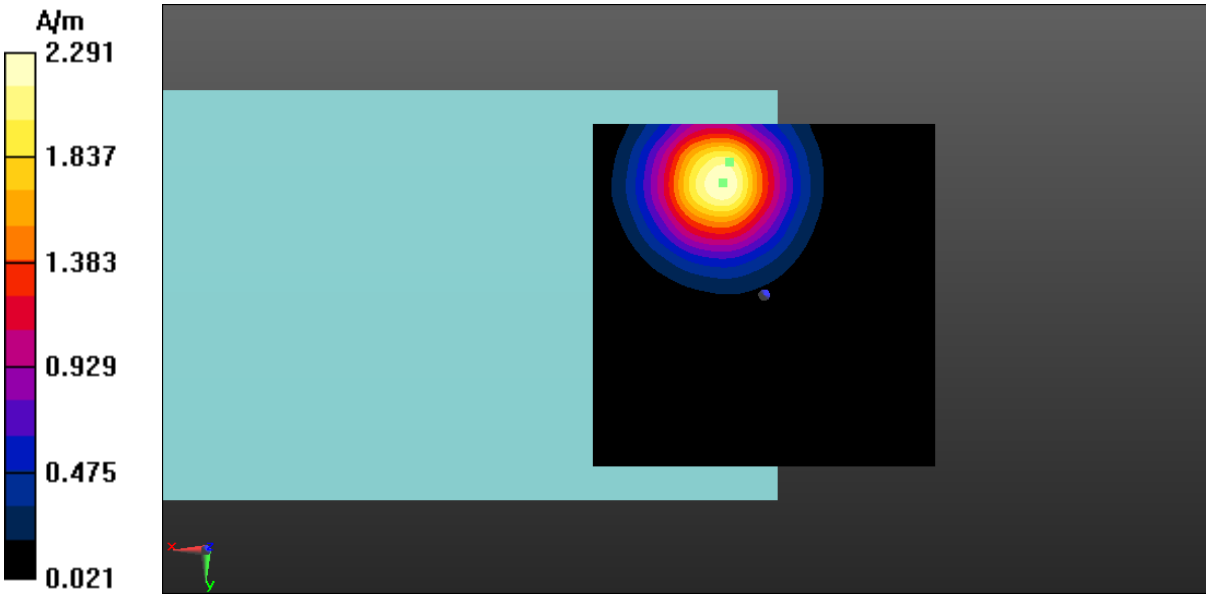


Fig A.19 T-Coil LTE-Band 7-Z

©Copyright. All rights reserved by SAICT.

T-Coil Ant.2 - LTE-Band 7 Transverse
Date: 2023-11-09
Electronics: DAE4 Sn1527
Medium: Air
Medium parameters used: σ = 0 S/m, ε_r = 1; ρ = 1 kg/m^3
Communication System: UID 0, LTE_FDD (0) Frequency: 2535 MHz Duty Cycle: 1:1
Probe: AM1DV3 - 3086

y (transversal) 4.2mm 50 x 50/ABM Interpolated Signal(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: 100
Measure Window Start: 300ms
Measure Window Length: 1000ms
BWC applied: 0.16 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1 = -1.84 dBA/m
BWC Factor = 0.16 dB
Location: 6.5, -6.5, 3.7 mm

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: 100
Measure Window Start: 300ms
Measure Window Length: 1000ms
BWC applied: 0.16 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1/ABM2 = 44.30 dB
ABM1 comp = -4.67 dBA/m
BWC Factor = 0.16 dB
Location: 2.5, -1, 3.7 mm

©Copyright. All rights reserved by SAICT.

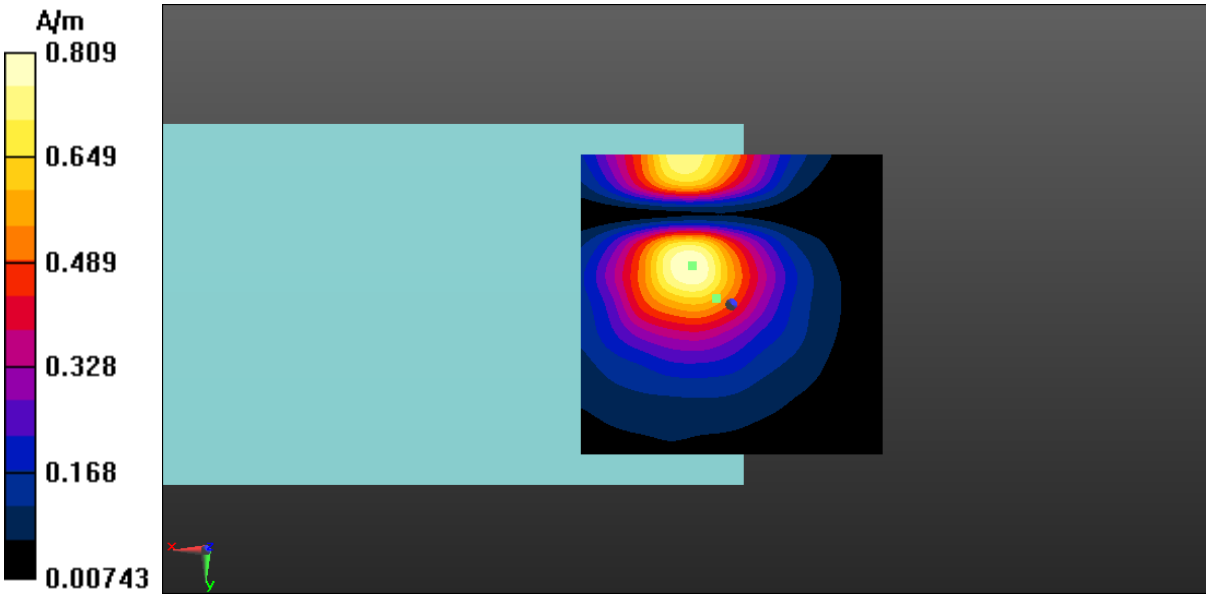


Fig A.19 T-Coil LTE-Band 7-Y

©Copyright. All rights reserved by SAICT.

T-Coil Ant.4 - LTE-Band 7 Axial
Date: 2023-11-09
Electronics: DAE4 Sn1527
Medium: Air
Medium parameters used: σ = 0 S/m, ε_r = 1; ρ = 1 kg/m^3
Communication System: UID 0, LTE_FDD (0) Frequency: 2535 MHz Duty Cycle: 1:1
Probe: AM1DV3 - 3086

z (axial) 4.2mm 50 x 50/ABM Interpolated Signal(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: 100
Measure Window Start: 300ms
Measure Window Length: 1000ms
BWC applied: 0.16 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1 = 6.43 dBA/m
BWC Factor = 0.16 dB
Location: 6, -16.5, 3.7 mm

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: 100
Measure Window Start: 300ms
Measure Window Length: 1000ms
BWC applied: 0.16 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1/ABM2 = 48.96 dB
ABM1 comp = 2.86 dBA/m
BWC Factor = 0.16 dB
Location: 0.5, -18, 3.7 mm

©Copyright. All rights reserved by SAICT.

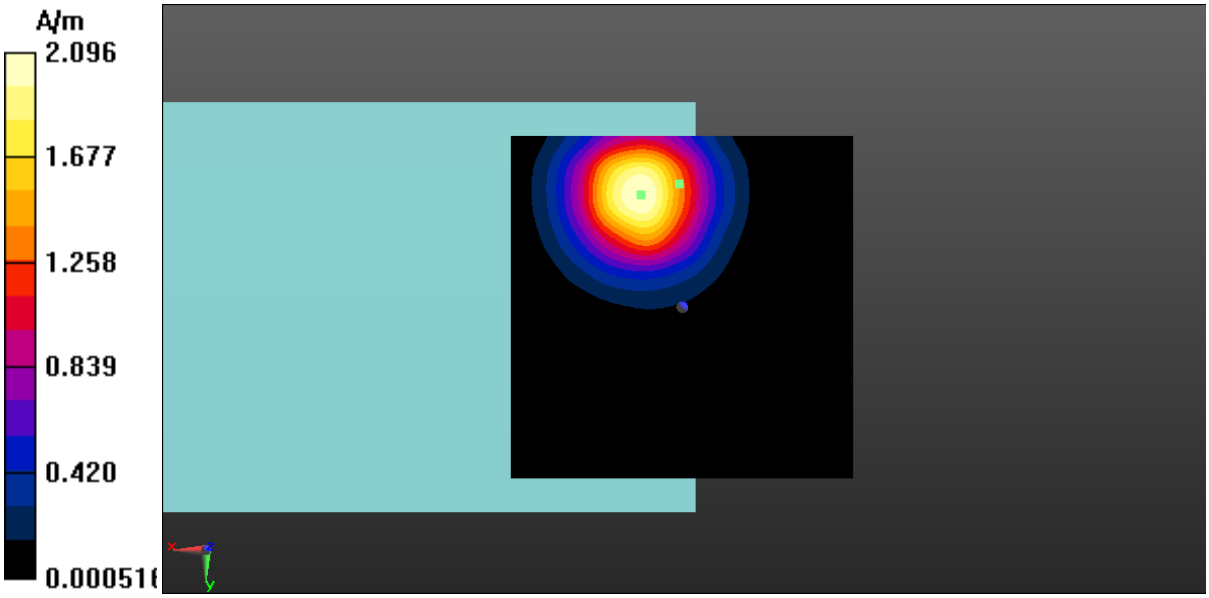


Fig A.20 T-Coil LTE-Band 7-Z

©Copyright. All rights reserved by SAICT.

T-Coil Ant.4 - LTE-Band 7 Transverse
Date: 2023-11-09
Electronics: DAE4 Sn1527
Medium: Air
Medium parameters used: σ = 0 S/m, ε_r = 1; ρ = 1 kg/m^3
Communication System: UID 0, LTE_FDD (0) Frequency: 2535 MHz Duty Cycle: 1:1
Probe: AM1DV3 - 3086

y (transversal) 4.2mm 50 x 50/ABM Interpolated Signal(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: 100
Measure Window Start: 300ms
Measure Window Length: 1000ms
BWC applied: 0.16 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1 = -2.48 dBA/m
BWC Factor = 0.16 dB
Location: 7, -25, 3.7 mm

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: 100
Measure Window Start: 300ms
Measure Window Length: 1000ms
BWC applied: 0.16 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1/ABM2 = 42.43 dB
ABM1 comp = -4.41 dBA/m
BWC Factor = 0.16 dB
Location: 2, -2.5, 3.7 mm

©Copyright. All rights reserved by SAICT.

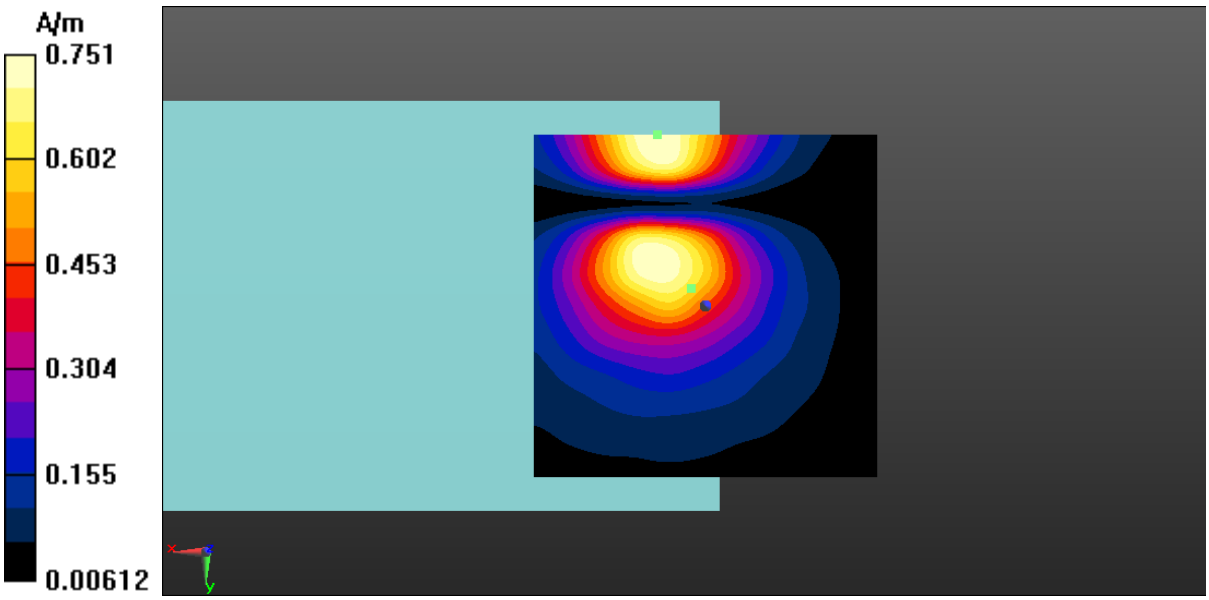


Fig A.20 T-Coil LTE-Band 7-Y

©Copyright. All rights reserved by SAICT.

T-Coil Ant.2 - LTE-Band 12 Axial
Date: 2023-11-09
Electronics: DAE4 Sn1527
Medium: Air
Medium parameters used: $\sigma = 0$ S/m, $\varepsilon_r = 1$; $\rho = 1$ kg/m^3
Communication System: UID 0, LTE_FDD (0) Frequency: 707.5 MHz Duty Cycle: 1:1
Probe: AM1DV3 - 3086

z (axial) 4.2mm 50 x 50/ABM Interpolated Signal(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: 100
Measure Window Start: 300ms
Measure Window Length: 1000ms
BWC applied: 0.16 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1 = 6.95 dBA/m
BWC Factor = 0.16 dB
Location: 5.5, -15.5, 3.7 mm

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: 100
Measure Window Start: 300ms
Measure Window Length: 1000ms
BWC applied: 0.16 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1/ABM2 = 52.29 dB
ABM1 comp = 5.15 dBA/m
BWC Factor = 0.16 dB
Location: 4.5, -19.5, 3.7 mm

©Copyright. All rights reserved by SAICT.

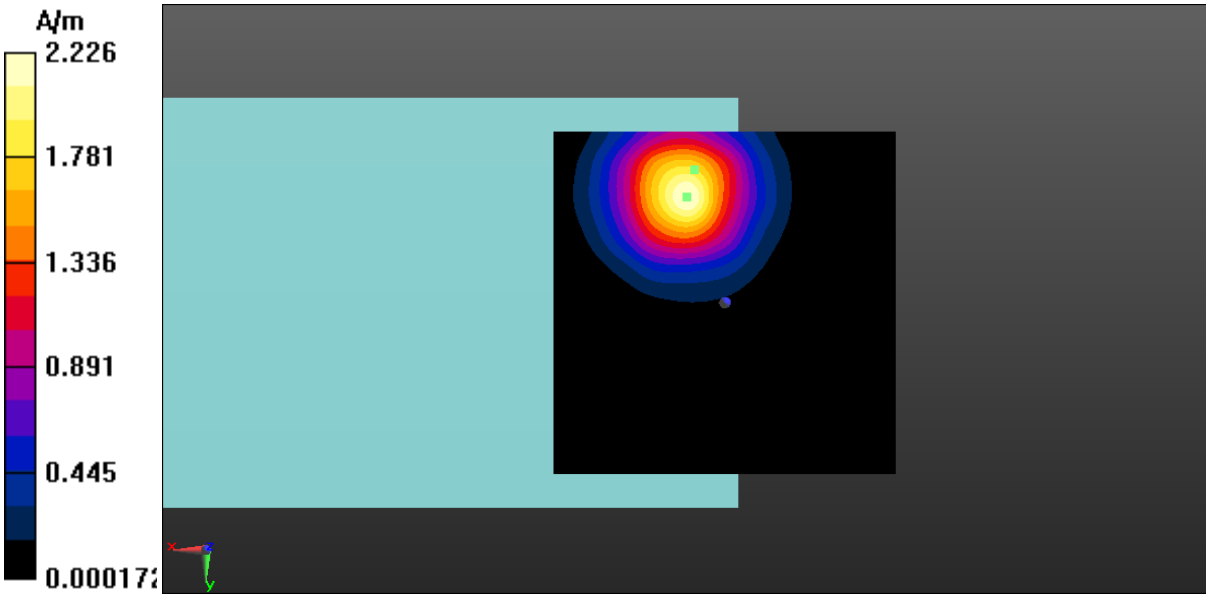


Fig A.21 T-Coil LTE-Band 12-Z

©Copyright. All rights reserved by SAICT.

T-Coil Ant.2 - LTE-Band 12 Transverse
Date: 2023-11-09
Electronics: DAE4 Sn1527
Medium: Air
Medium parameters used: σ = 0 S/m, ε_r = 1; ρ = 1 kg/m^3
Communication System: UID 0, LTE_FDD (0) Frequency: 707.5 MHz Duty Cycle: 1:1
Probe: AM1DV3 - 3086

y (transversal) 4.2mm 50 x 50/ABM Interpolated Signal(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: 100
Measure Window Start: 300ms
Measure Window Length: 1000ms
BWC applied: 0.16 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1 = -2.14 dBA/m
BWC Factor = 0.16 dB
Location: 6, -6.5, 3.7 mm

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: 100
Measure Window Start: 300ms
Measure Window Length: 1000ms
BWC applied: 0.16 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1/ABM2 = 44.54 dB
ABM1 comp = -2.93 dBA/m
BWC Factor = 0.16 dB
Location: 3.5, -4.5, 3.7 mm

©Copyright. All rights reserved by SAICT.

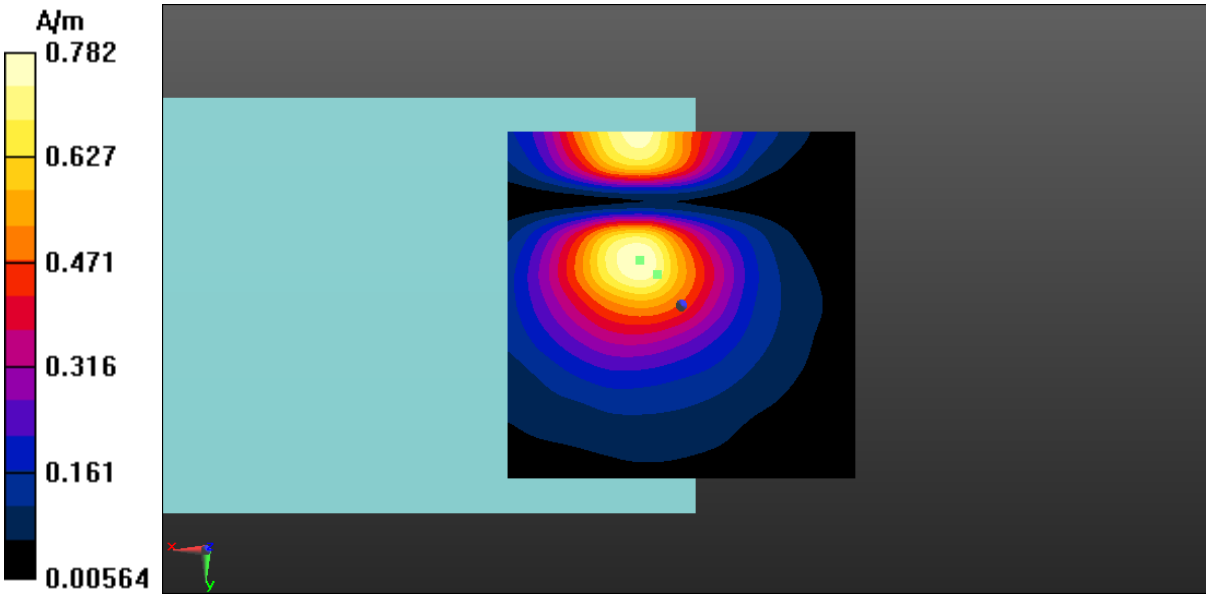


Fig A.21 T-Coil LTE-Band 12-Y

©Copyright. All rights reserved by SAICT.

T-Coil Ant.3 - LTE-Band 12 Axial
Date: 2023-11-09
Electronics: DAE4 Sn1527
Medium: Air
Medium parameters used: $\sigma = 0$ S/m, $\varepsilon_r = 1$; $\rho = 1$ kg/m^3
Communication System: UID 0, LTE_FDD (0) Frequency: 707.5 MHz Duty Cycle: 1:1
Probe: AM1DV3 - 3086

z (axial) 4.2mm 50 x 50/ABM Interpolated Signal(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: 100
Measure Window Start: 300ms
Measure Window Length: 1000ms
BWC applied: 0.16 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1 = 7.17 dBA/m
BWC Factor = 0.16 dB
Location: 6, -15.5, 3.7 mm

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: 100
Measure Window Start: 300ms
Measure Window Length: 1000ms
BWC applied: 0.16 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1/ABM2 = 52.55 dB
ABM1 comp = 6.12 dBA/m
BWC Factor = 0.16 dB
Location: 4, -17.5, 3.7 mm

©Copyright. All rights reserved by SAICT.

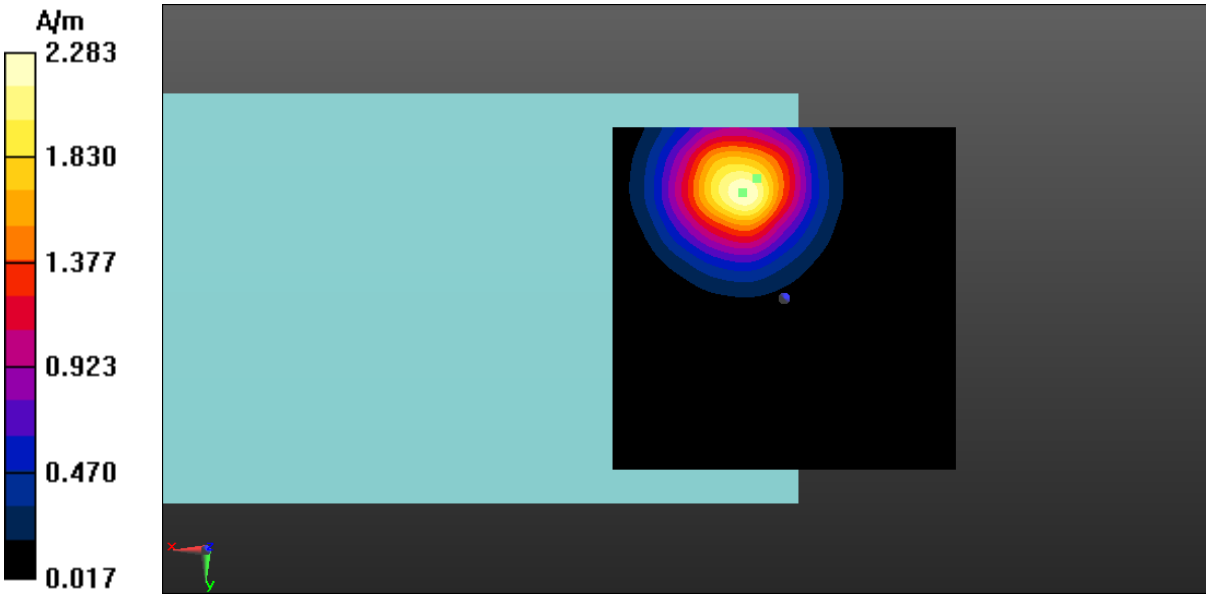


Fig A.22 T-Coil LTE-Band 12-Z

©Copyright. All rights reserved by SAICT.

T-Coil Ant.3 - LTE-Band 12 Transverse
Date: 2023-11-09
Electronics: DAE4 Sn1527
Medium: Air
Medium parameters used: σ = 0 S/m, ε_r = 1; ρ = 1 kg/m^3
Communication System: UID 0, LTE_FDD (0) Frequency: 707.5 MHz Duty Cycle: 1:1
Probe: AM1DV3 - 3086

y (transversal) 4.2mm 50 x 50/ABM Interpolated Signal(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: 100
Measure Window Start: 300ms
Measure Window Length: 1000ms
BWC applied: 0.16 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1 = -2.06 dBA/m
BWC Factor = 0.16 dB
Location: 7, -7, 3.7 mm

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: 100
Measure Window Start: 300ms
Measure Window Length: 1000ms
BWC applied: 0.16 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1/ABM2 = 43.22 dB
ABM1 comp = -3.56 dBA/m
BWC Factor = 0.16 dB
Location: 3, -3, 3.7 mm

©Copyright. All rights reserved by SAICT.

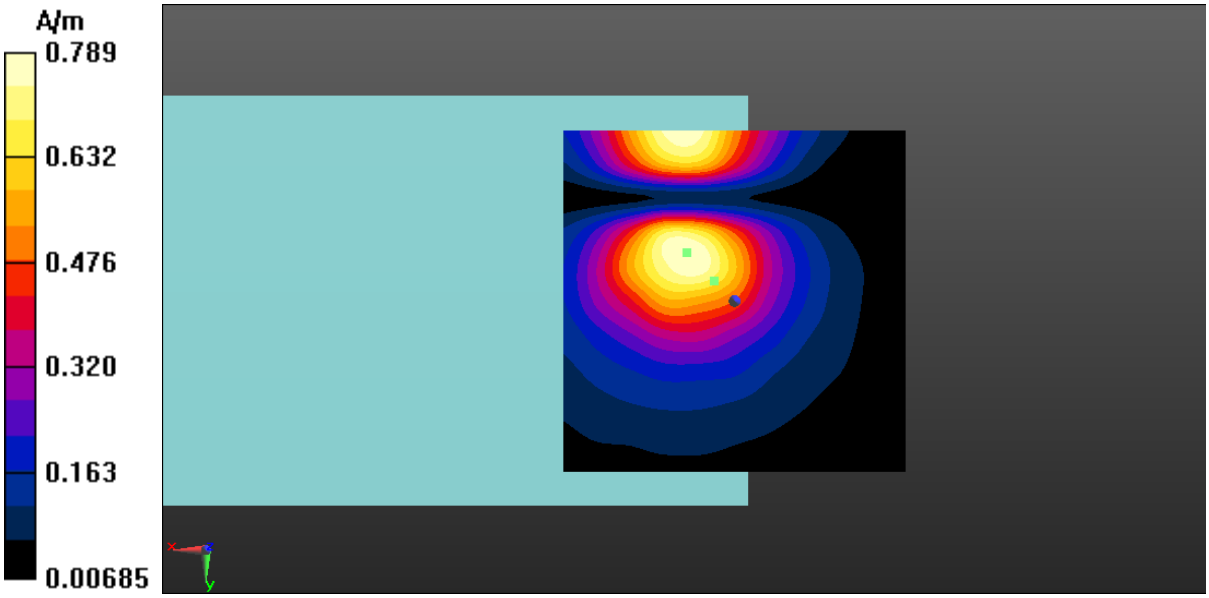


Fig A.22 T-Coil LTE-Band 12-Y

©Copyright. All rights reserved by SAICT.

T-Coil Ant.2 - LTE-Band 17 Axial
Date: 2023-11-09
Electronics: DAE4 Sn1527
Medium: Air
Medium parameters used: σ = 0 S/m, ε_r = 1; ρ = 1 kg/m^3
Communication System: UID 0, LTE_FDD (0) Frequency: 710 MHz Duty Cycle: 1:1
Probe: AM1DV3 - 3086

z (axial) 4.2mm 50 x 50/ABM Interpolated Signal(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: 100
Measure Window Start: 300ms
Measure Window Length: 1000ms
BWC applied: 0.16 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1 = 6.65 dBA/m
BWC Factor = 0.16 dB
Location: 6, -16, 3.7 mm

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: 100
Measure Window Start: 300ms
Measure Window Length: 1000ms
BWC applied: 0.16 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1/ABM2 = 53.40 dB
ABM1 comp = 5.53 dBA/m
BWC Factor = 0.16 dB
Location: 4.5, -19.5, 3.7 mm

©Copyright. All rights reserved by SAICT.

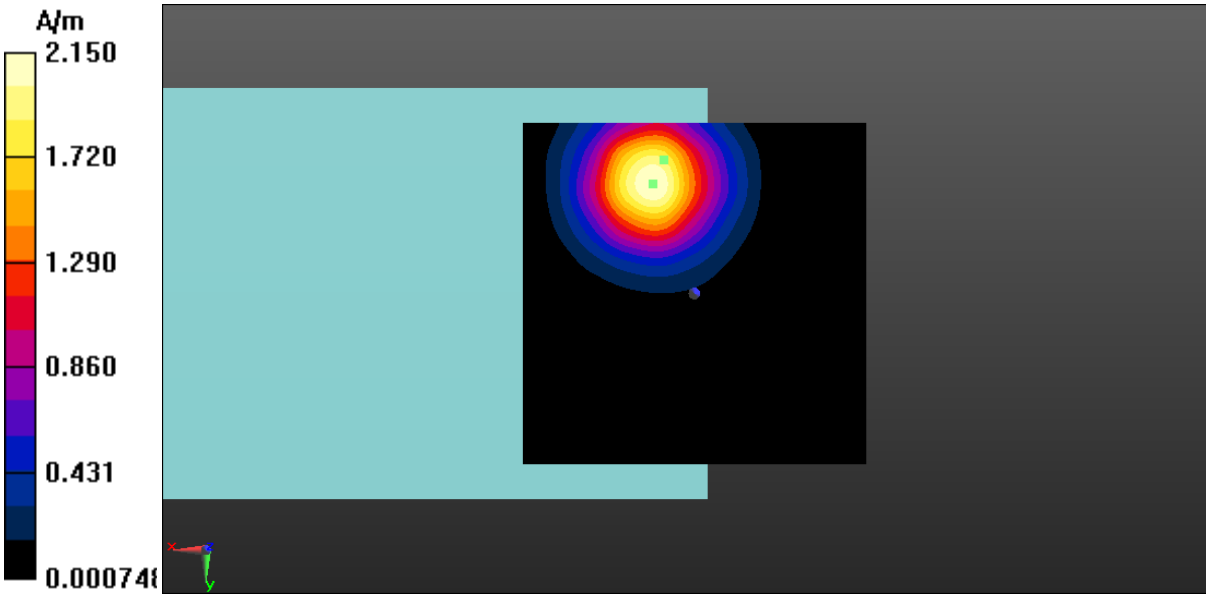


Fig A.23 T-Coil LTE-Band 17-Z

©Copyright. All rights reserved by SAICT.

T-Coil Ant.2 - LTE-Band 17 Transverse
Date: 2023-11-09
Electronics: DAE4 Sn1527
Medium: Air
Medium parameters used: σ = 0 S/m, ε_r = 1; ρ = 1 kg/m^3
Communication System: UID 0, LTE_FDD (0) Frequency: 710 MHz Duty Cycle: 1:1
Probe: AM1DV3 - 3086

y (transversal) 4.2mm 50 x 50/ABM Interpolated Signal(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: 100
Measure Window Start: 300ms
Measure Window Length: 1000ms
BWC applied: 0.16 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1 = -2.04 dBA/m
BWC Factor = 0.16 dB
Location: 6.5, -6.5, 3.7 mm

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: 100
Measure Window Start: 300ms
Measure Window Length: 1000ms
BWC applied: 0.16 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1/ABM2 = 45.11 dB
ABM1 comp = -2.75 dBA/m
BWC Factor = 0.16 dB
Location: 3.5, -4.5, 3.7 mm

©Copyright. All rights reserved by SAICT.

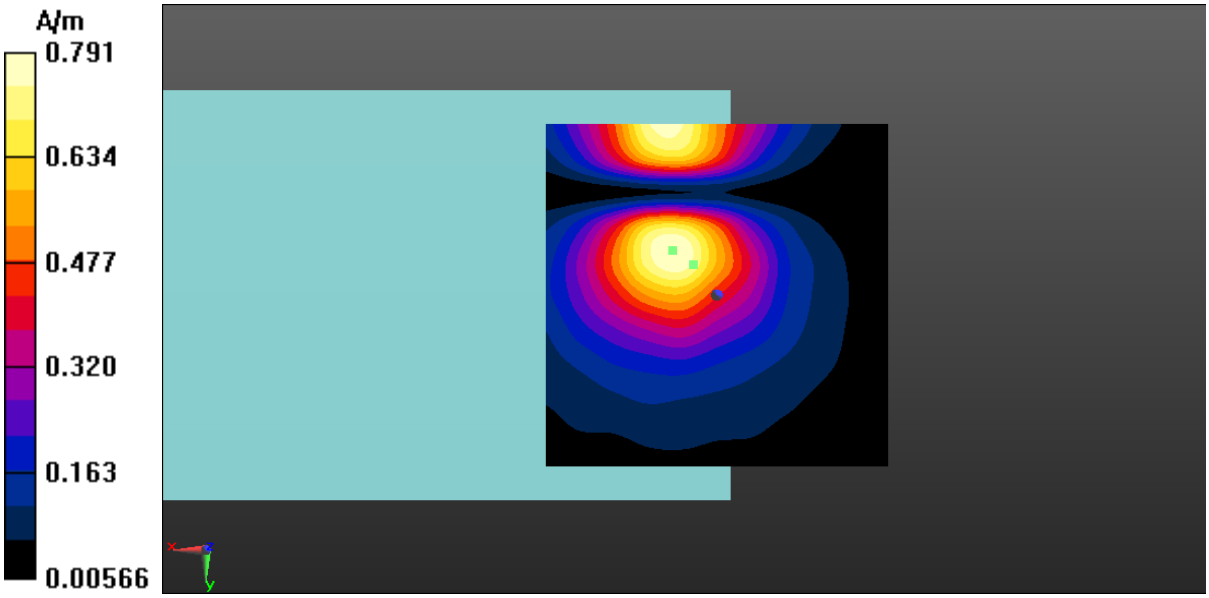


Fig A.23 T-Coil LTE-Band 17-Y

©Copyright. All rights reserved by SAICT.

T-Coil Ant.3 - LTE-Band 17 Axial
Date: 2023-11-09
Electronics: DAE4 Sn1527
Medium: Air
Medium parameters used: σ = 0 S/m, ε_r = 1; ρ = 1 kg/m^3
Communication System: UID 0, LTE_FDD (0) Frequency: 710 MHz Duty Cycle: 1:1
Probe: AM1DV3 - 3086

z (axial) 4.2mm 50 x 50/ABM Interpolated Signal(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: 100
Measure Window Start: 300ms
Measure Window Length: 1000ms
BWC applied: 0.15 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1 = 7.28 dBA/m
BWC Factor = 0.15 dB
Location: 6.5, -15.5, 3.7 mm

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: 100
Measure Window Start: 300ms
Measure Window Length: 1000ms
BWC applied: 0.15 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1/ABM2 = 51.58 dB
ABM1 comp = 6.97 dBA/m
BWC Factor = 0.15 dB
Location: 5, -16, 3.7 mm

©Copyright. All rights reserved by SAICT.

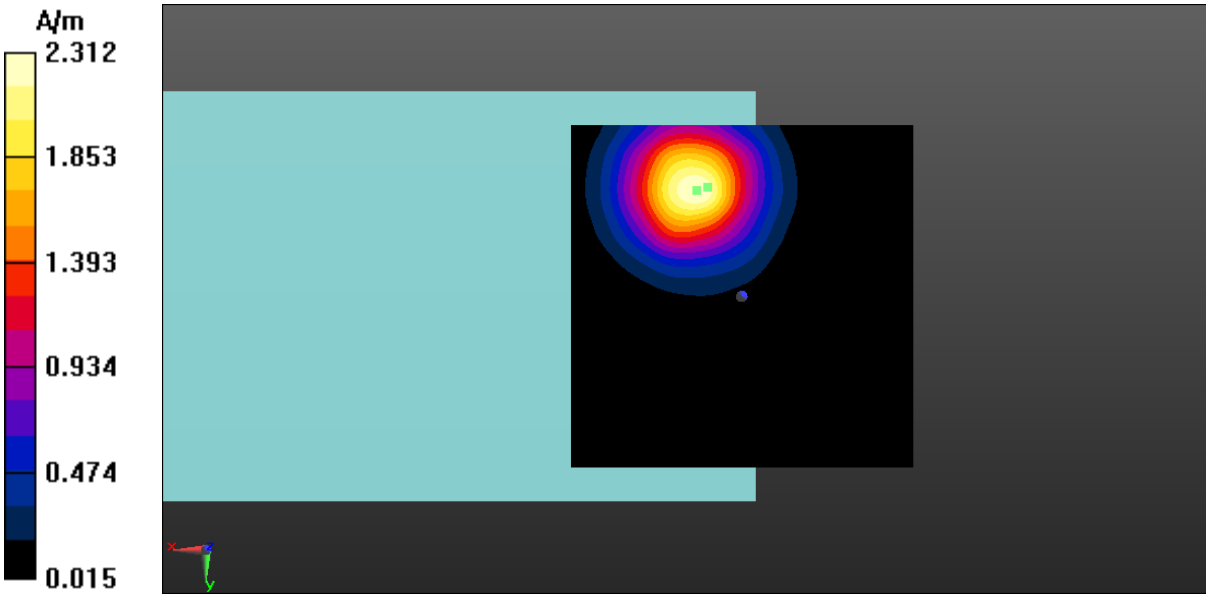


Fig A.24 T-Coil LTE-Band 17-Z

©Copyright. All rights reserved by SAICT.

T-Coil Ant.3 - LTE-Band 17 Transverse
Date: 2023-11-09
Electronics: DAE4 Sn1527
Medium: Air
Medium parameters used: σ = 0 S/m, ε_r = 1; ρ = 1 kg/m^3
Communication System: UID 0, LTE_FDD (0) Frequency: 710 MHz Duty Cycle: 1:1
Probe: AM1DV3 - 3086

y (transversal) 4.2mm 50 x 50/ABM Interpolated Signal(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: 100
Measure Window Start: 300ms
Measure Window Length: 1000ms
BWC applied: 0.15 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1 = -1.84 dBA/m
BWC Factor = 0.15 dB
Location: 9, -25, 3.7 mm

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: 100
Measure Window Start: 300ms
Measure Window Length: 1000ms
BWC applied: 0.15 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1/ABM2 = 41.88 dB
ABM1 comp = -4.44 dBA/m
BWC Factor = 0.15 dB
Location: 1, -5, 3.7 mm

©Copyright. All rights reserved by SAICT.

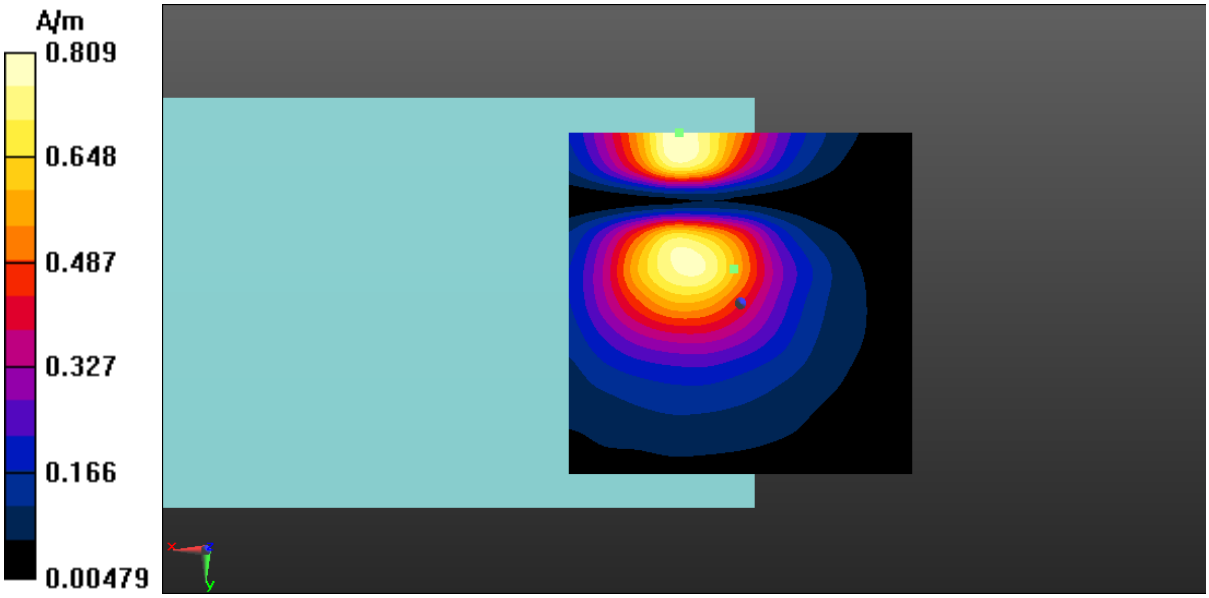


Fig A.24 T-Coil LTE-Band 17-Y

©Copyright. All rights reserved by SAICT.

T-Coil Ant.2 - LTE-Band 26 Axial
Date: 2023-11-09
Electronics: DAE4 Sn1527
Medium: Air
Medium parameters used: σ = 0 S/m, ε_r = 1; ρ = 1 kg/m^3
Communication System: UID 0, LTE_FDD (0) Frequency: 831.5 MHz Duty Cycle: 1:1
Probe: AM1DV3 - 3086

z (axial) 4.2mm 50 x 50/ABM Interpolated Signal(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: 100
Measure Window Start: 300ms
Measure Window Length: 1000ms
BWC applied: 0.15 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1 = 7.22 dBA/m
BWC Factor = 0.15 dB
Location: 5.5, -15.5, 3.7 mm

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: 100
Measure Window Start: 300ms
Measure Window Length: 1000ms
BWC applied: 0.15 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1/ABM2 = 53.11 dB
ABM1 comp = 6.40 dBA/m
BWC Factor = 0.15 dB
Location: 4.5, -18, 3.7 mm

©Copyright. All rights reserved by SAICT.

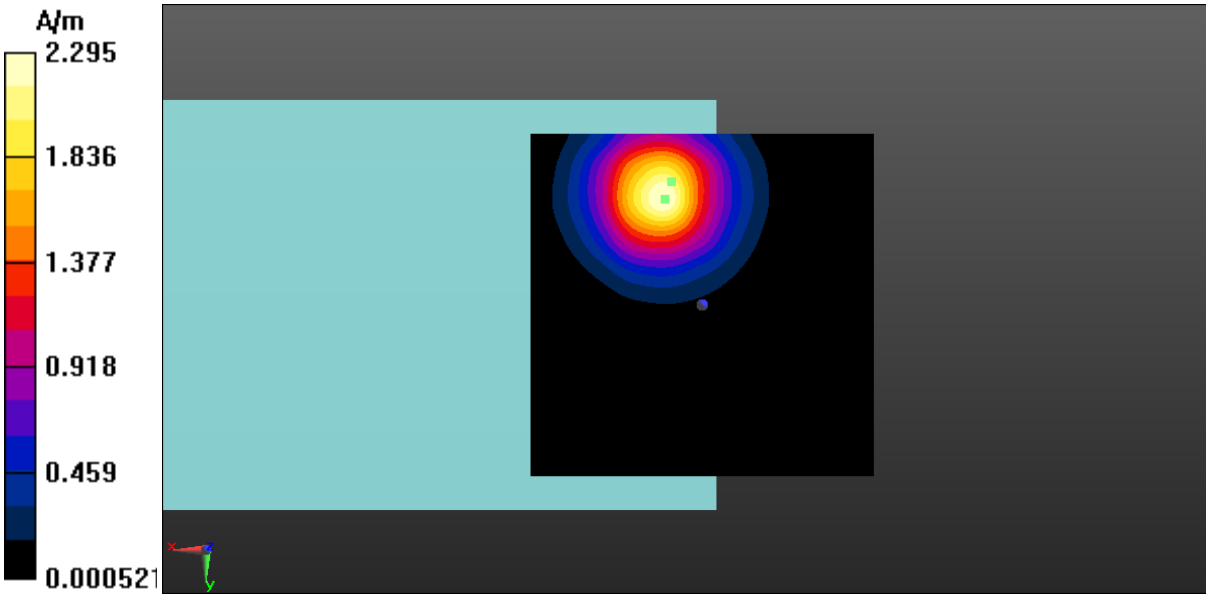


Fig A.25 T-Coil LTE-Band 26-Z

©Copyright. All rights reserved by SAICT.

T-Coil Ant.2 - LTE-Band 26 Transverse
Date: 2023-11-09
Electronics: DAE4 Sn1527
Medium: Air
Medium parameters used: σ = 0 S/m, ε_r = 1; ρ = 1 kg/m^3
Communication System: UID 0, LTE_FDD (0) Frequency: 831.5 MHz Duty Cycle: 1:1
Probe: AM1DV3 - 3086

y (transversal) 4.2mm 50 x 50/ABM Interpolated Signal(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: 100
Measure Window Start: 300ms
Measure Window Length: 1000ms
BWC applied: 0.15 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1 = -1.95 dBA/m
BWC Factor = 0.15 dB
Location: 6.5, -6, 3.7 mm

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: 100
Measure Window Start: 300ms
Measure Window Length: 1000ms
BWC applied: 0.15 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1/ABM2 = 44.95 dB
ABM1 comp = -2.67 dBA/m
BWC Factor = 0.15 dB
Location: 3.5, -5, 3.7 mm

©Copyright. All rights reserved by SAICT.

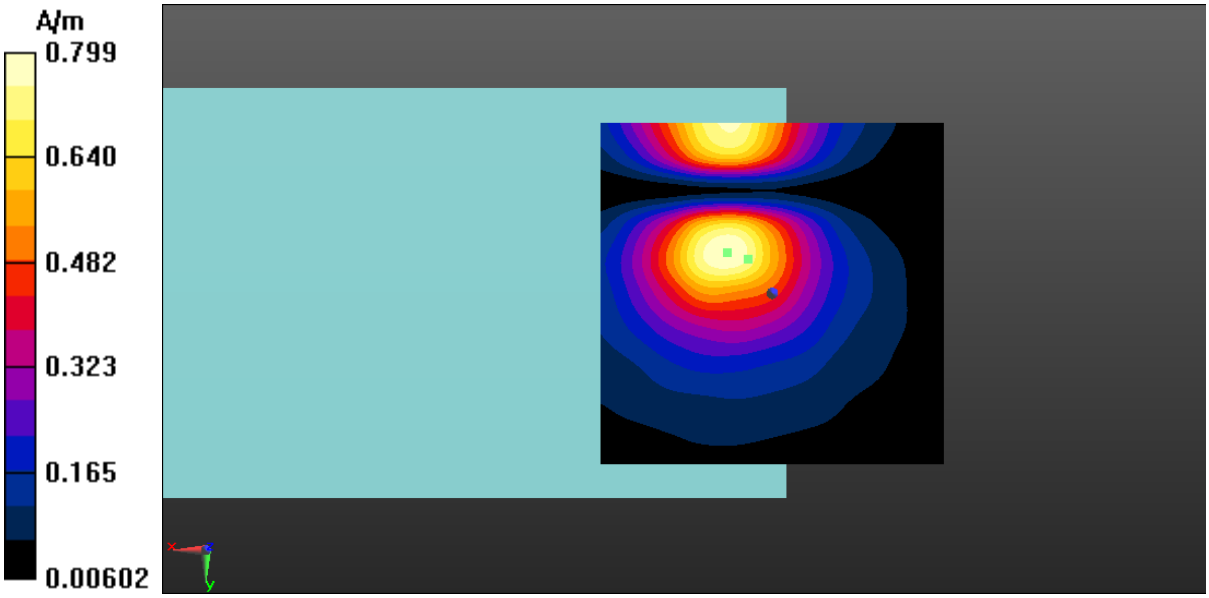


Fig A.25 T-Coil LTE-Band 26-Y

©Copyright. All rights reserved by SAICT.

T-Coil Ant.3 - LTE-Band 26 Axial
Date: 2023-11-09
Electronics: DAE4 Sn1527
Medium: Air
Medium parameters used: σ = 0 S/m, ε_r = 1; ρ = 1 kg/m^3
Communication System: UID 0, LTE_FDD (0) Frequency: 831.5 MHz Duty Cycle: 1:1
Probe: AM1DV3 - 3086

z (axial) 4.2mm 50 x 50/ABM Interpolated Signal(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: 100
Measure Window Start: 300ms
Measure Window Length: 1000ms
BWC applied: 0.15 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1 = 7.42 dBA/m
BWC Factor = 0.15 dB
Location: 6.5, -15.5, 3.7 mm

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: 100
Measure Window Start: 300ms
Measure Window Length: 1000ms
BWC applied: 0.15 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1/ABM2 = 51.10 dB
ABM1 comp = 7.15 dBA/m
BWC Factor = 0.15 dB
Location: 5, -16, 3.7 mm

©Copyright. All rights reserved by SAICT.

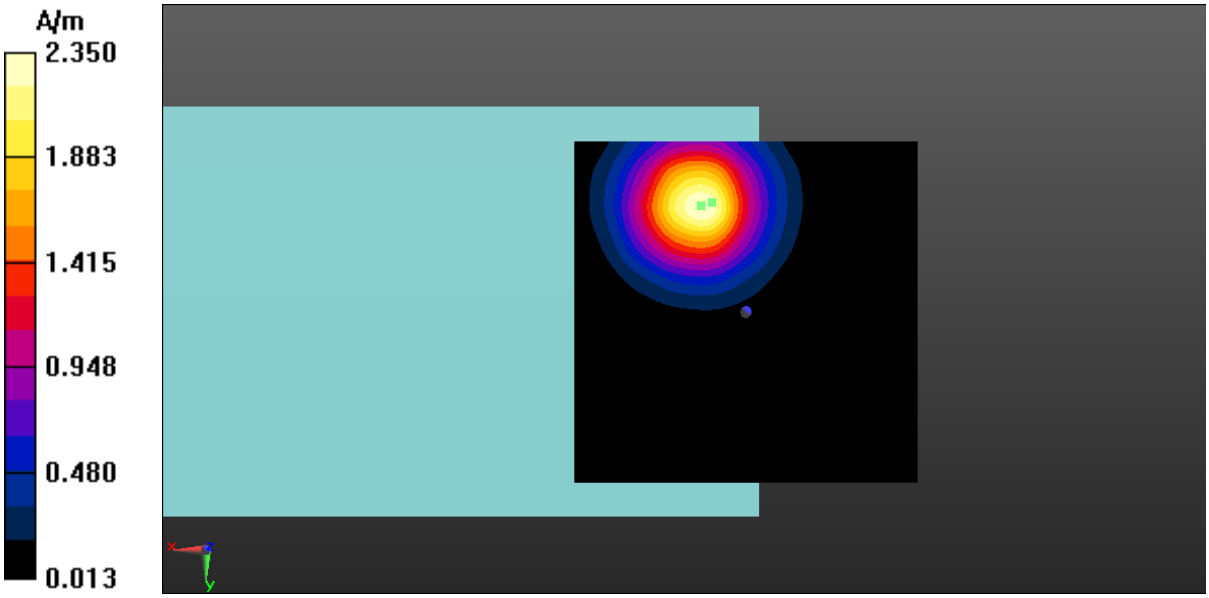


Fig A.26 T-Coil LTE-Band 26-Z

©Copyright. All rights reserved by SAICT.

T-Coil Ant.3 - LTE-Band 26 Transverse
Date: 2023-11-09
Electronics: DAE4 Sn1527
Medium: Air
Medium parameters used: σ = 0 S/m, ε_r = 1; ρ = 1 kg/m^3
Communication System: UID 0, LTE_FDD (0) Frequency: 831.5 MHz Duty Cycle: 1:1
Probe: AM1DV3 - 3086

y (transversal) 4.2mm 50 x 50/ABM Interpolated Signal(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: 100
Measure Window Start: 300ms
Measure Window Length: 1000ms
BWC applied: 0.15 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1 = -1.89 dBA/m
BWC Factor = 0.15 dB
Location: 7.5, -5.5, 3.7 mm

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: 100
Measure Window Start: 300ms
Measure Window Length: 1000ms
BWC applied: 0.15 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1/ABM2 = 45.02 dB
ABM1 comp = -3.08 dBA/m
BWC Factor = 0.15 dB
Location: 3, -5, 3.7 mm

©Copyright. All rights reserved by SAICT.

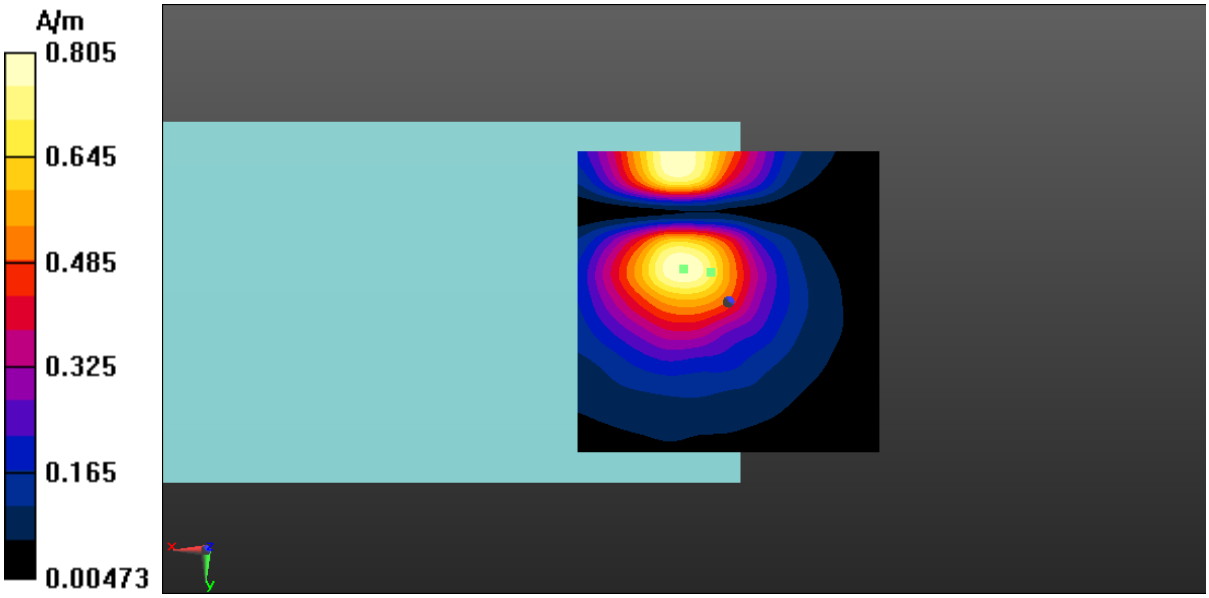


Fig A.26 T-Coil LTE-Band 26-Y

©Copyright. All rights reserved by SAICT.

T-Coil Ant.2 - LTE-Band 66 Axial
Date: 2023-11-09
Electronics: DAE4 Sn1527
Medium: Air
Medium parameters used: σ = 0 S/m, ε_r = 1; ρ = 1 kg/m^3
Communication System: UID 0, LTE_FDD (0) Frequency: 1745 MHz Duty Cycle: 1:1
Probe: AM1DV3 - 3086

z (axial) 4.2mm 50 x 50/ABM Interpolated Signal(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: 100
Measure Window Start: 300ms
Measure Window Length: 1000ms
BWC applied: 0.15 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1 = 7.33 dBA/m
BWC Factor = 0.15 dB
Location: 7.5, -16, 3.7 mm

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: 100
Measure Window Start: 300ms
Measure Window Length: 1000ms
BWC applied: 0.15 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1/ABM2 = 53.24 dB
ABM1 comp = 6.82 dBA/m
BWC Factor = 0.15 dB
Location: 5, -15.5, 3.7 mm

©Copyright. All rights reserved by SAICT.

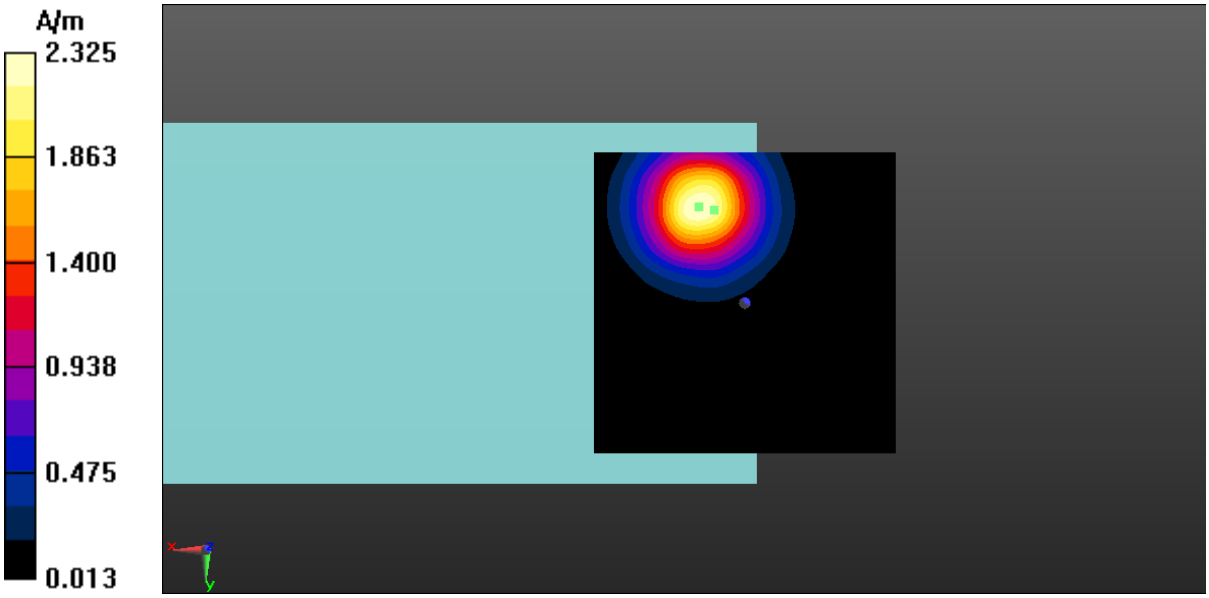


Fig A.27 T-Coil LTE-Band 66-Z

©Copyright. All rights reserved by SAICT.

T-Coil Ant.2 - LTE-Band 66 Transverse
Date: 2023-11-09
Electronics: DAE4 Sn1527
Medium: Air
Medium parameters used: σ = 0 S/m, ε_r = 1; ρ = 1 kg/m^3
Communication System: UID 0, LTE_FDD (0) Frequency: 1745 MHz Duty Cycle: 1:1
Probe: AM1DV3 - 3086

y (transversal) 4.2mm 50 x 50/ABM Interpolated Signal(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: 100
Measure Window Start: 300ms
Measure Window Length: 1000ms
BWC applied: 0.15 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1 = -1.49 dBA/m
BWC Factor = 0.15 dB
Location: 8.5, -6, 3.7 mm

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: 100
Measure Window Start: 300ms
Measure Window Length: 1000ms
BWC applied: 0.15 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1/ABM2 = 45.23 dB
ABM1 comp = -3.07 dBA/m
BWC Factor = 0.15 dB
Location: 3.5, -4.5, 3.7 mm

©Copyright. All rights reserved by SAICT.

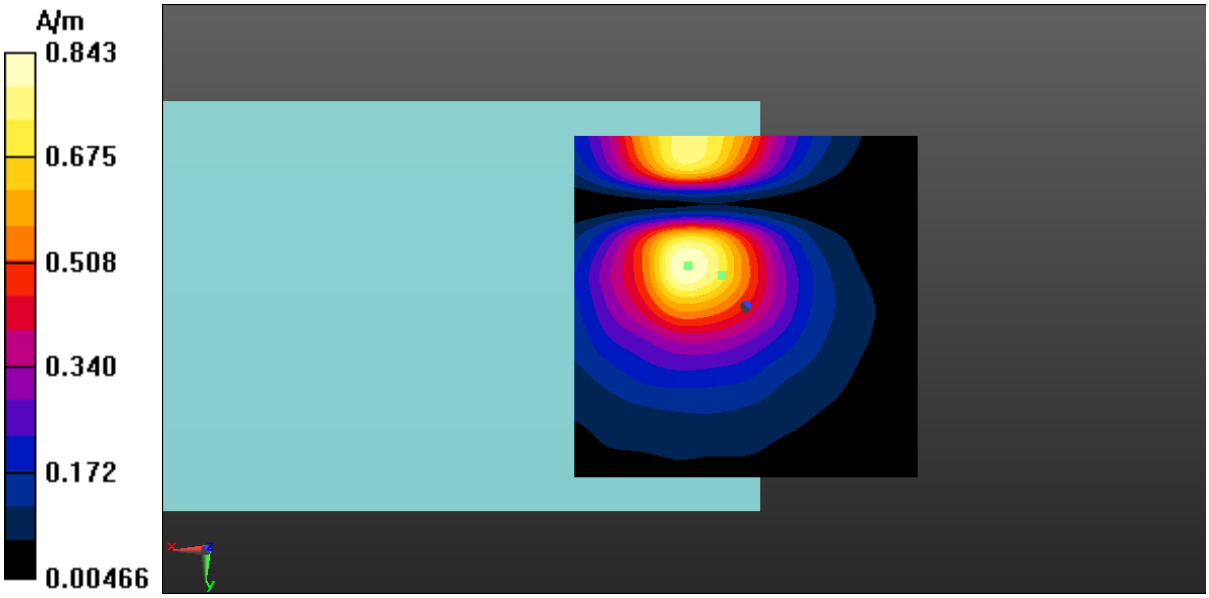


Fig A.27 T-Coil LTE-Band 66-Y

©Copyright. All rights reserved by SAICT.

T-Coil Ant.4 - LTE-Band 66 Axial
Date: 2023-11-09
Electronics: DAE4 Sn1527
Medium: Air
Medium parameters used: σ = 0 S/m, ε_r = 1; ρ = 1 kg/m^3
Communication System: UID 0, LTE_FDD (0) Frequency: 1745 MHz Duty Cycle: 1:1
Probe: AM1DV3 - 3086

z (axial) 4.2mm 50 x 50/ABM Interpolated Signal(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: 100
Measure Window Start: 300ms
Measure Window Length: 1000ms
BWC applied: 0.16 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1 = 7.18 dBA/m
BWC Factor = 0.16 dB
Location: 5.5, -15.5, 3.7 mm

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: 100
Measure Window Start: 300ms
Measure Window Length: 1000ms
BWC applied: 0.16 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1/ABM2 = 54.09 dB
ABM1 comp = 5.74 dBA/m
BWC Factor = 0.16 dB
Location: 4.5, -19, 3.7 mm

©Copyright. All rights reserved by SAICT.

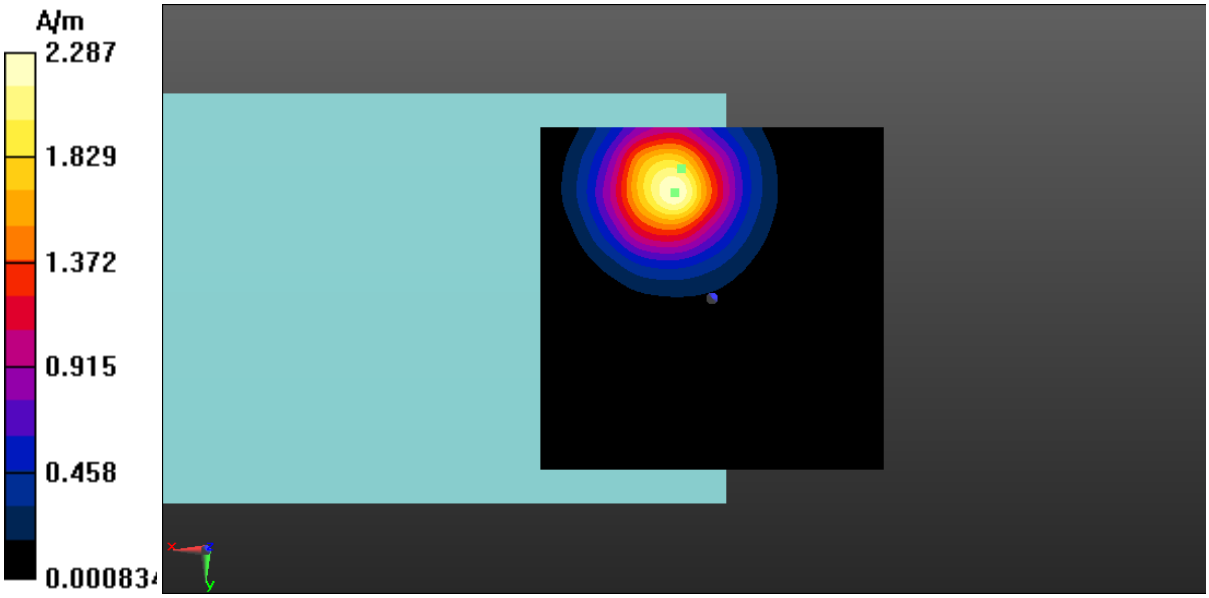


Fig A.28 T-Coil LTE-Band 66-Z

©Copyright. All rights reserved by SAICT.

T-Coil Ant.4 - LTE-Band 66 Transverse
Date: 2023-11-09
Electronics: DAE4 Sn1527
Medium: Air
Medium parameters used: σ = 0 S/m, ε_r = 1; ρ = 1 kg/m^3
Communication System: UID 0, LTE_FDD (0) Frequency: 1745 MHz Duty Cycle: 1:1
Probe: AM1DV3 - 3086

y (transversal) 4.2mm 50 x 50/ABM Interpolated Signal(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: 100
Measure Window Start: 300ms
Measure Window Length: 1000ms
BWC applied: 0.16 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1 = -1.97 dBA/m
BWC Factor = 0.16 dB
Location: 6, -6.5, 3.7 mm

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: 100
Measure Window Start: 300ms
Measure Window Length: 1000ms
BWC applied: 0.16 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1/ABM2 = 44.55 dB
ABM1 comp = -2.85 dBA/m
BWC Factor = 0.16 dB
Location: 3, -4.5, 3.7 mm

©Copyright. All rights reserved by SAICT.

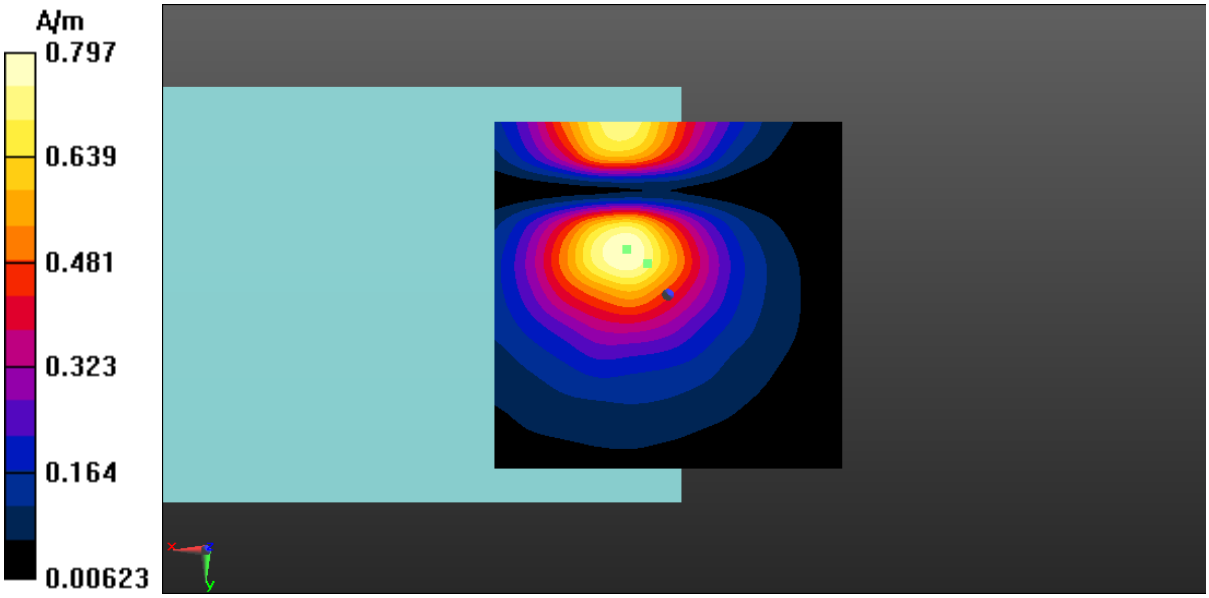


Fig A.28 T-Coil LTE-Band 66-Y

©Copyright. All rights reserved by SAICT.

T-Coil Ant.2 - LTE-Band 41 Axial
Date: 2023-11-09
Electronics: DAE4 Sn1527
Medium: Air
Medium parameters used: σ = 0 S/m, ε_r = 1; ρ = 1 kg/m^3
Communication System: UID 0, LTE_TDD (0) Frequency:2593 MHz Duty Cycle: 1:1.58
Probe: AM1DV3 - 3086

z (axial) 4.2mm 50 x 50/ABM Interpolated Signal(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: 100
Measure Window Start: 300ms
Measure Window Length: 1000ms
BWC applied: 0.15 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1 = 7.04 dBA/m
BWC Factor = 0.15 dB
Location: 6.5, -16.5, 3.7 mm

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: 100
Measure Window Start: 300ms
Measure Window Length: 1000ms
BWC applied: 0.15 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1/ABM2 = 42.35 dB
ABM1 comp = 5.57 dBA/m
BWC Factor = 0.15 dB
Location: 9.5, -19.5, 3.7 mm

©Copyright. All rights reserved by SAICT.

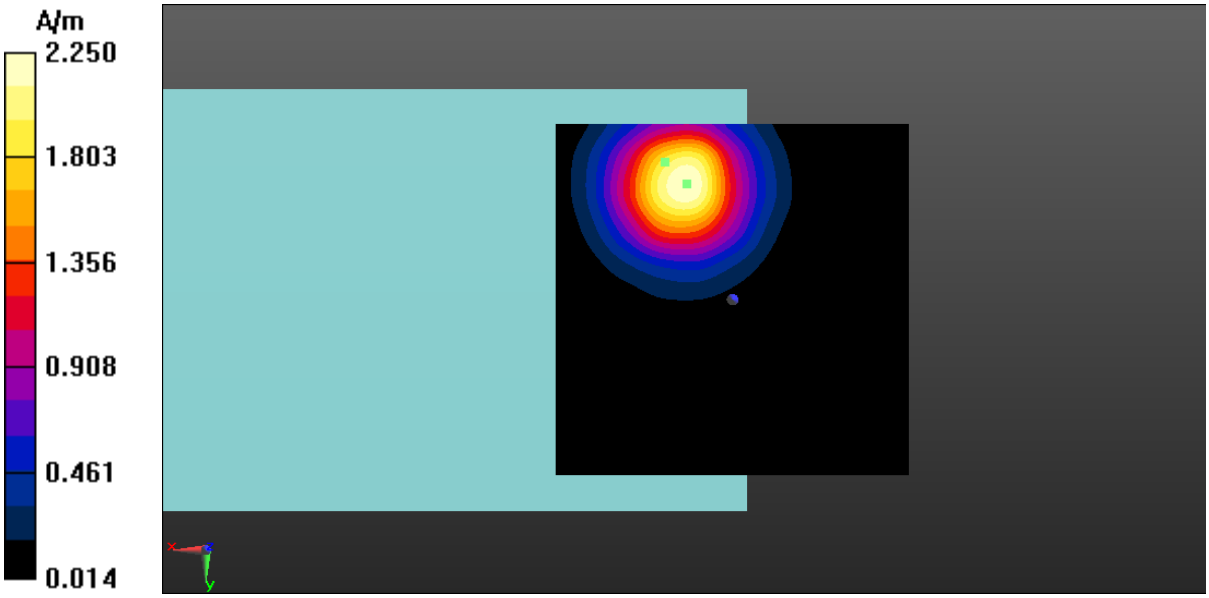


Fig A.29 T-Coil LTE-Band 41-Z

©Copyright. All rights reserved by SAICT.

T-Coil Ant.2 - LTE-Band 41 Transverse
Date: 2023-11-09
Electronics: DAE4 Sn1527
Medium: Air
Medium parameters used: σ = 0 S/m, ε_r = 1; ρ = 1 kg/m^3
Communication System: UID 0, LTE_TDD (0) Frequency:2593 MHz Duty Cycle: 1:1.58
Probe: AM1DV3 - 3086

y (transversal) 4.2mm 50 x 50/ABM Interpolated Signal(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: 100
Measure Window Start: 300ms
Measure Window Length: 1000ms
BWC applied: 0.15 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1 = -1.87 dBA/m
BWC Factor = 0.15 dB
Location: 8, -5.5, 3.7 mm

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: 100
Measure Window Start: 300ms
Measure Window Length: 1000ms
BWC applied: 0.15 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1/ABM2 = 35.95 dB
ABM1 comp = -6.66 dBA/m
BWC Factor = 0.15 dB
Location: -1, -7.5, 3.7 mm

©Copyright. All rights reserved by SAICT.

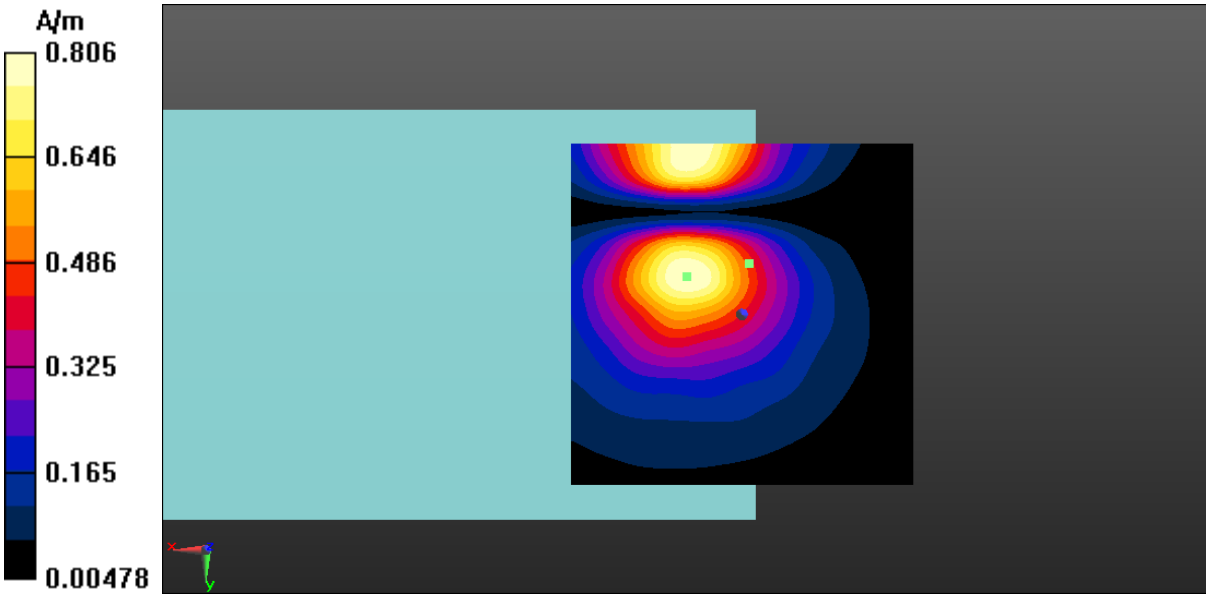


Fig A.29 T-Coil LTE-Band 41-Y

©Copyright. All rights reserved by SAICT.

T-Coil Ant.4 - LTE-Band 41 Axial
Date: 2023-11-09
Electronics: DAE4 Sn1527
Medium: Air
Medium parameters used: σ = 0 S/m, ε_r = 1; ρ = 1 kg/m^3
Communication System: UID 0, LTE_TDD (0) Frequency:2593 MHz Duty Cycle: 1:1.58
Probe: AM1DV3 - 3086

z (axial) 4.2mm 50 x 50/ABM Interpolated Signal(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: 100
Measure Window Start: 300ms
Measure Window Length: 1000ms
BWC applied: 0.16 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1 = 6.73 dBA/m
BWC Factor = 0.16 dB
Location: 6.5, -16, 3.7 mm

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: 100
Measure Window Start: 300ms
Measure Window Length: 1000ms
BWC applied: 0.16 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1/ABM2 = 40.67 dB
ABM1 comp = 6.54 dBA/m
BWC Factor = 0.16 dB
Location: 5, -15.5, 3.7 mm

©Copyright. All rights reserved by SAICT.

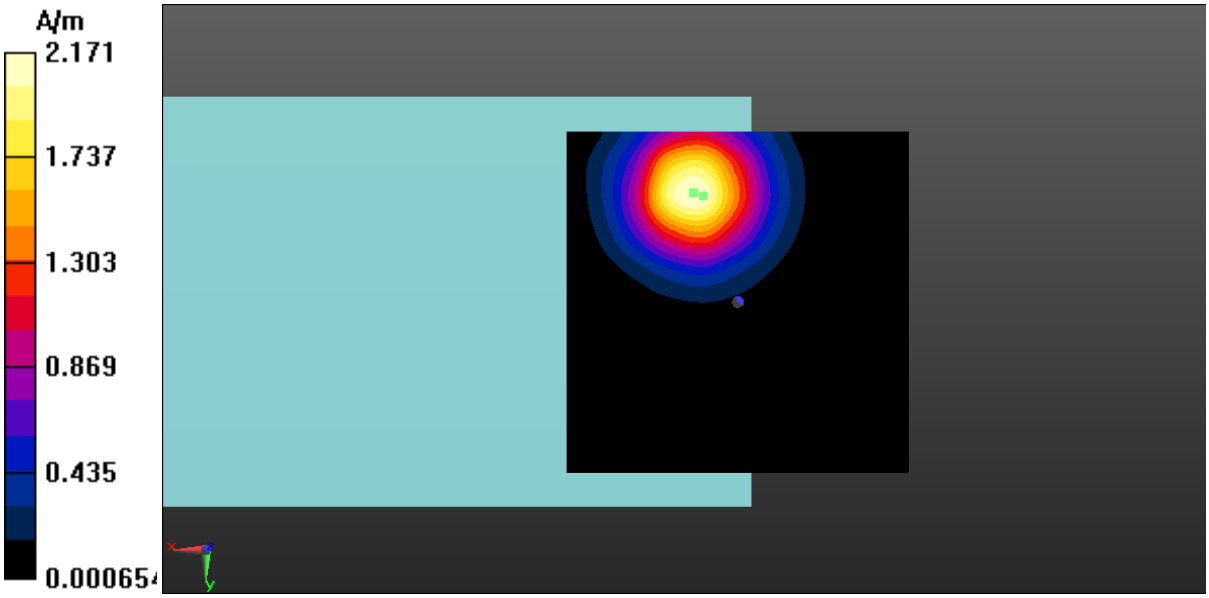


Fig A.30 T-Coil LTE-Band 41-Z

©Copyright. All rights reserved by SAICT.

T-Coil Ant.4 - LTE-Band 41 Transverse
Date: 2023-11-09
Electronics: DAE4 Sn1527
Medium: Air
Medium parameters used: σ = 0 S/m, ε_r = 1; ρ = 1 kg/m^3
Communication System: UID 0, LTE_TDD (0) Frequency:2593 MHz Duty Cycle: 1:1.58
Probe: AM1DV3 - 3086

y (transversal) 4.2mm 50 x 50/ABM Interpolated Signal(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: 100
Measure Window Start: 300ms
Measure Window Length: 1000ms
BWC applied: 0.16 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1 = -2.16 dBA/m
BWC Factor = 0.16 dB
Location: 6.5, -6.5, 3.7 mm

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: 100
Measure Window Start: 300ms
Measure Window Length: 1000ms
BWC applied: 0.16 dB
Device Reference Point: 0, 0, -6.3 mm

Cursor:
ABM1/ABM2 = 36.13 dB
ABM1 comp = -5.66 dBA/m
BWC Factor = 0.16 dB
Location: -0.5, -8.5, 3.7 mm

©Copyright. All rights reserved by SAICT.

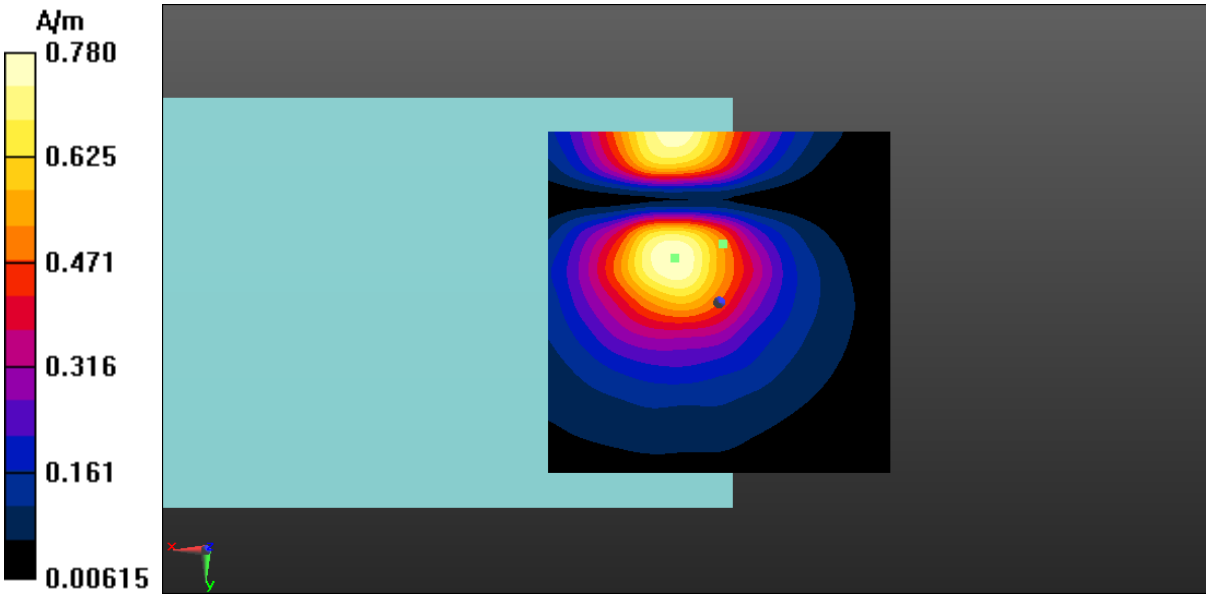


Fig A.30 T-Coil LTE-Band 41-Y

©Copyright. All rights reserved by SAICT.

ANNEX B: Frequency Response Curves

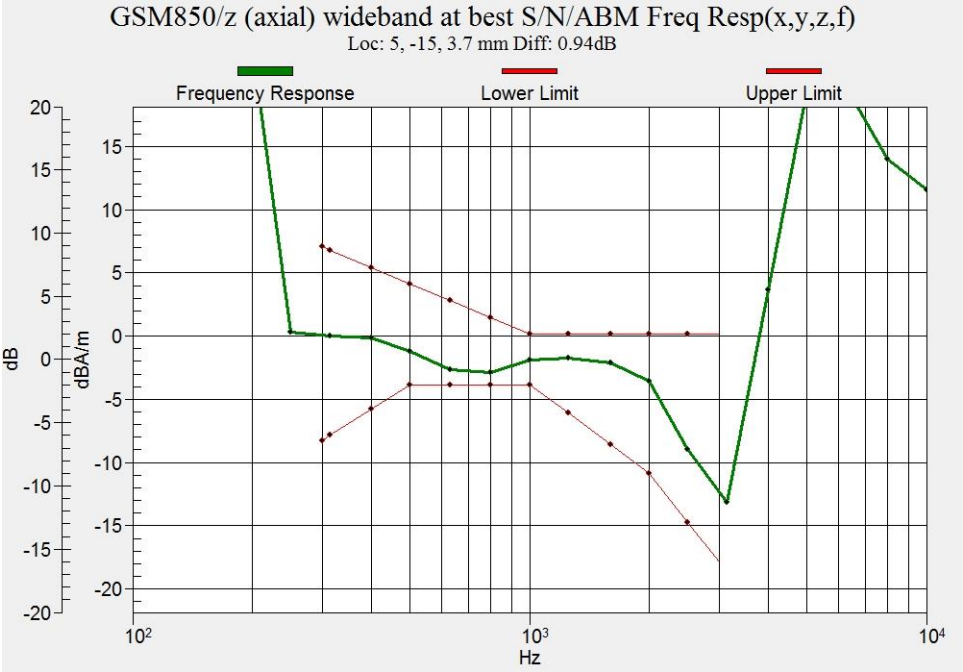


Figure B.1 Frequency Response of GSM850 (Ant.2)

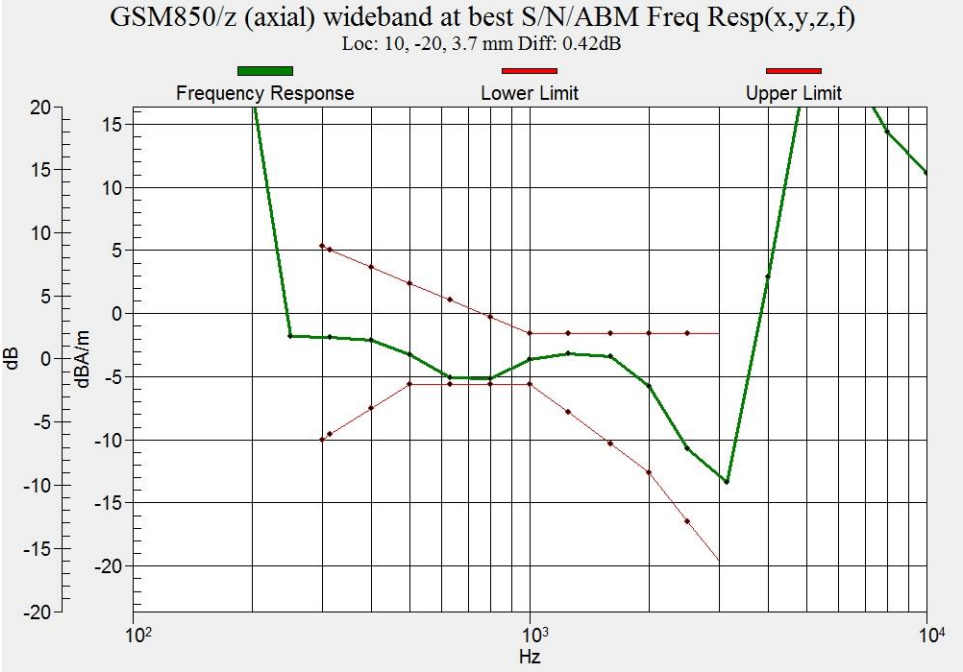


Figure B.2 Frequency Response of GSM850 (Ant.3)

©Copyright. All rights reserved by SAICT.

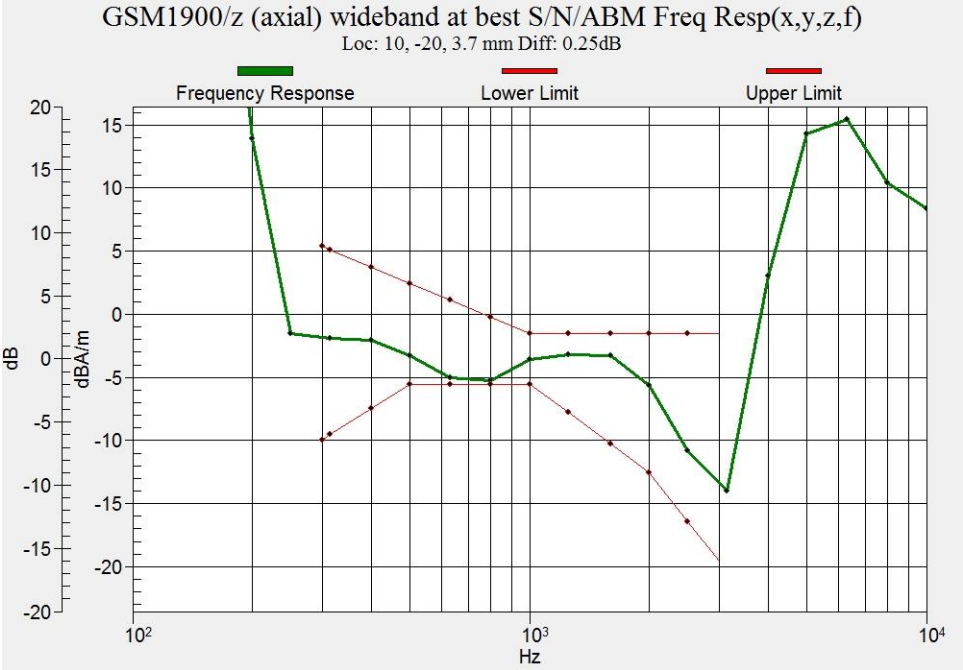


Figure B.3 Frequency Response of GSM1900 (Ant.2)

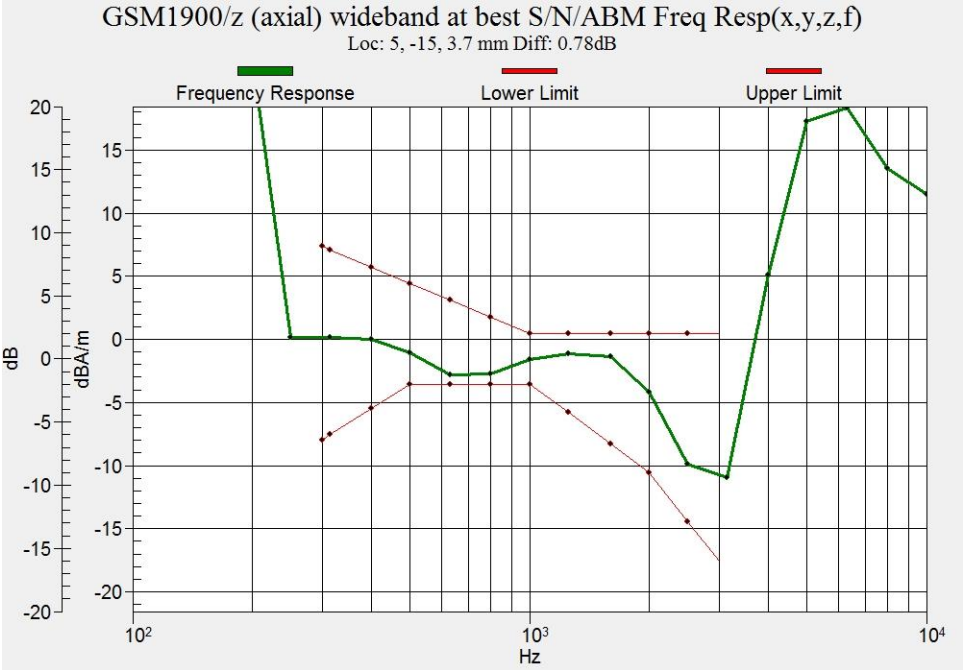


Figure B.4 Frequency Response of GSM1900 (Ant.4)

©Copyright. All rights reserved by SAICT.

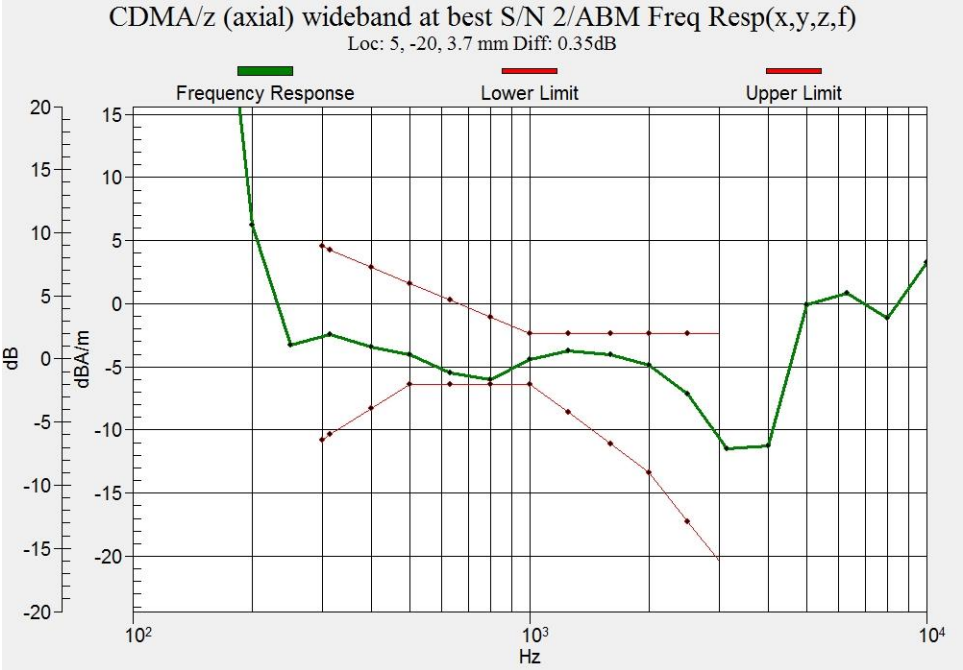
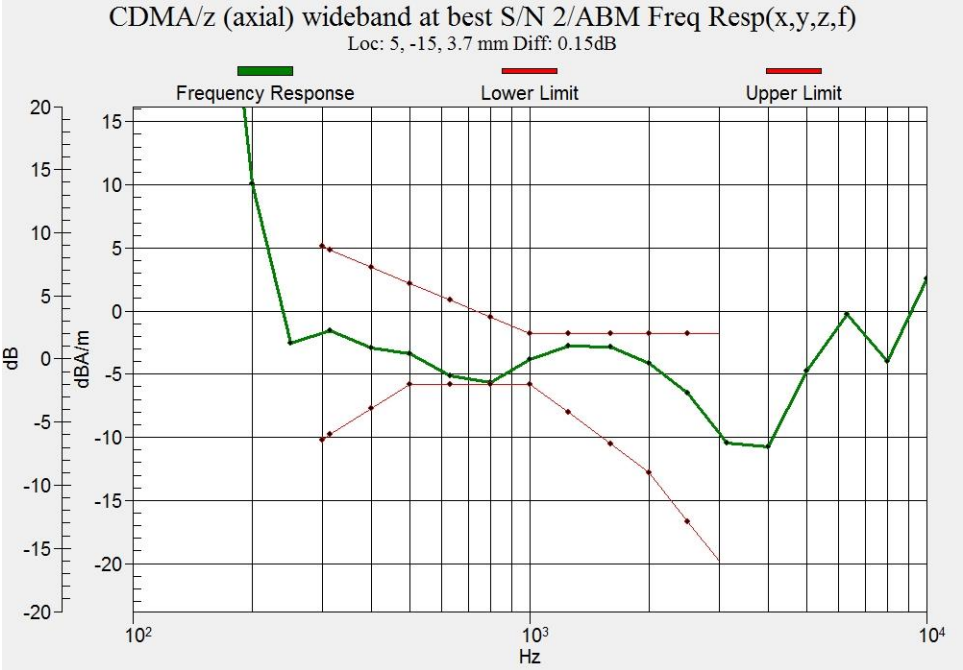


Figure B.5 Frequency Response of CDMA BC0 (Ant.2)

©Copyright. All rights reserved by SAICT.



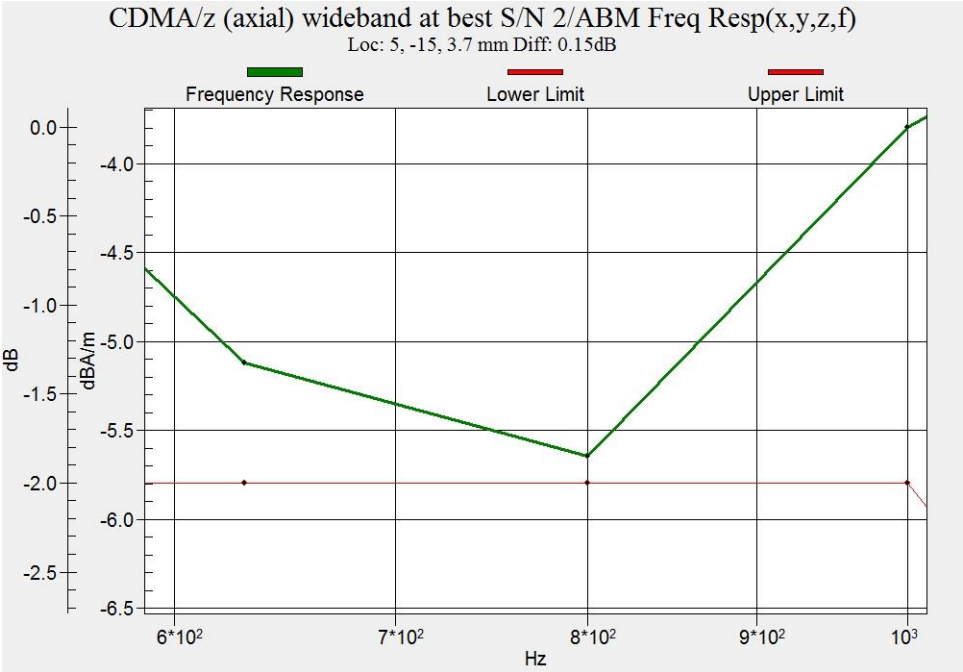


Figure B.6 Frequency Response of CDMA BC0 (Ant.3)

©Copyright. All rights reserved by SAICT.

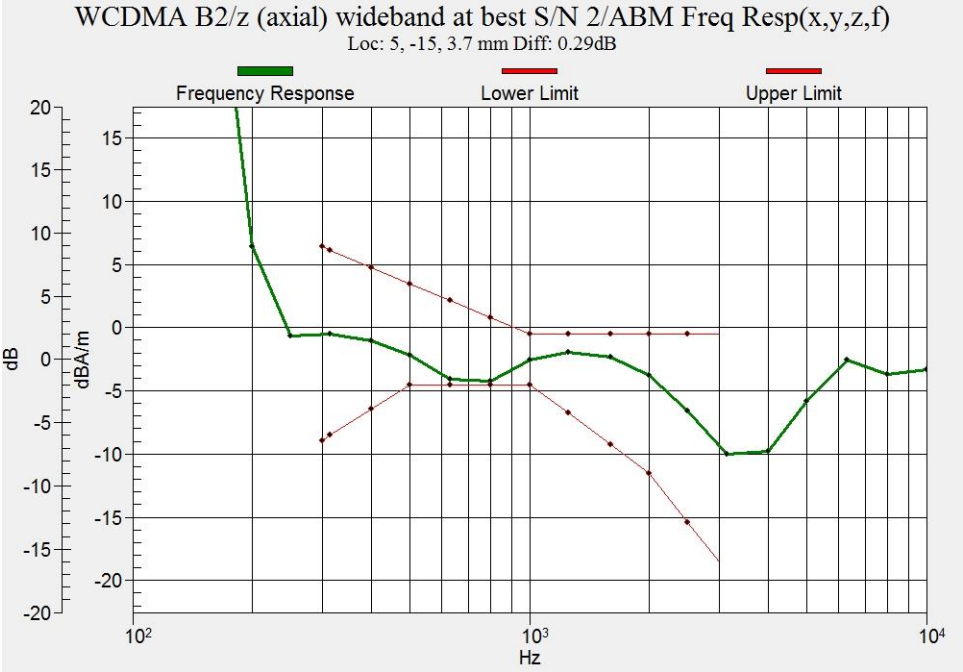


Figure B.7 Frequency Response of WCDMA Band 2 (Ant.2)

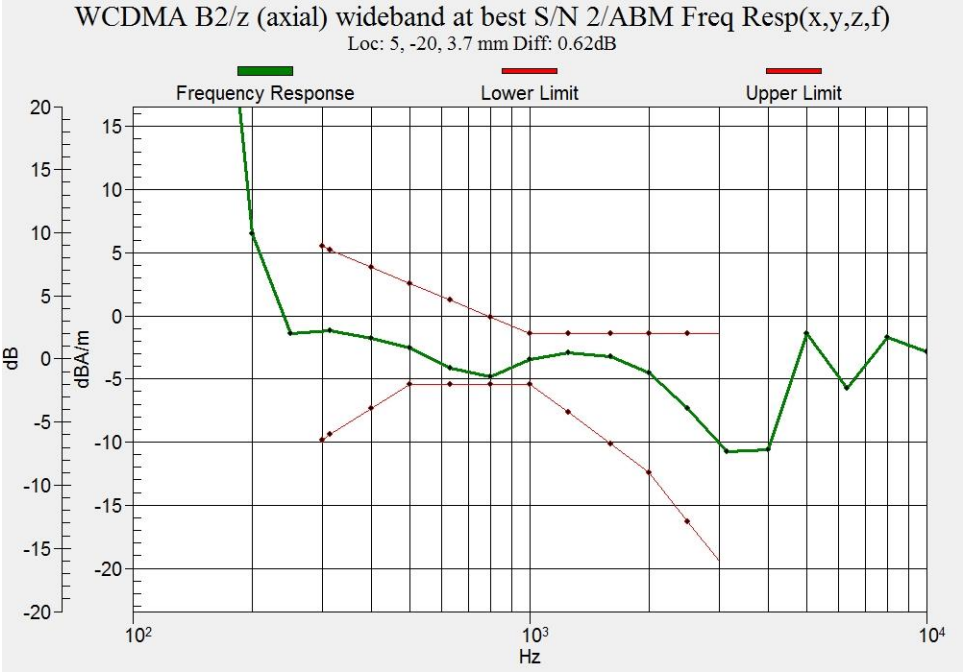


Figure B.8 Frequency Response of WCDMA Band 2 (Ant.4)

©Copyright. All rights reserved by SAICT.

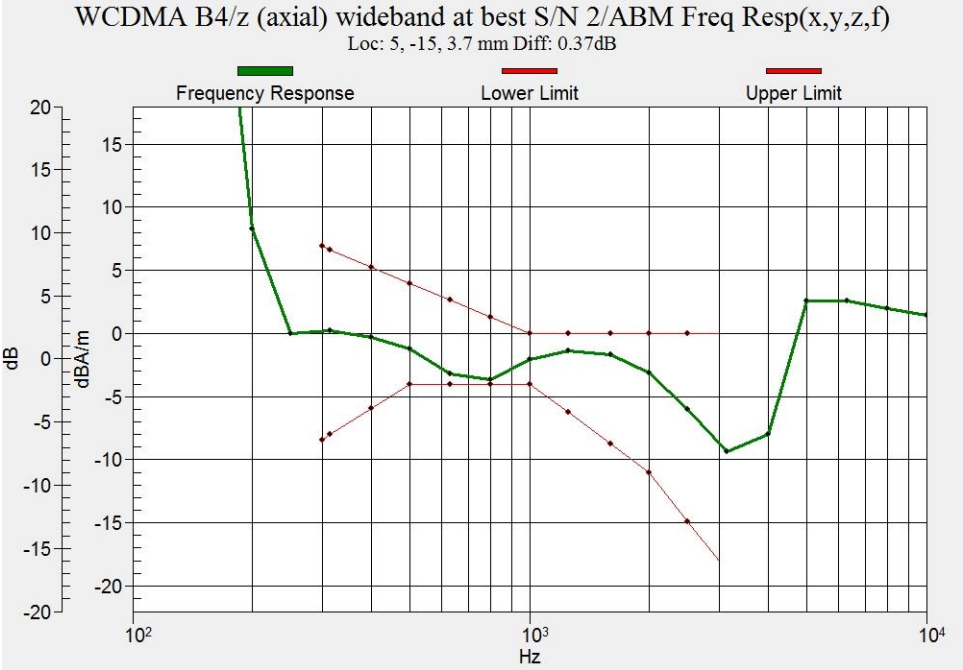


Figure B.9 Frequency Response of WCDMA Band 4 (Ant.2)

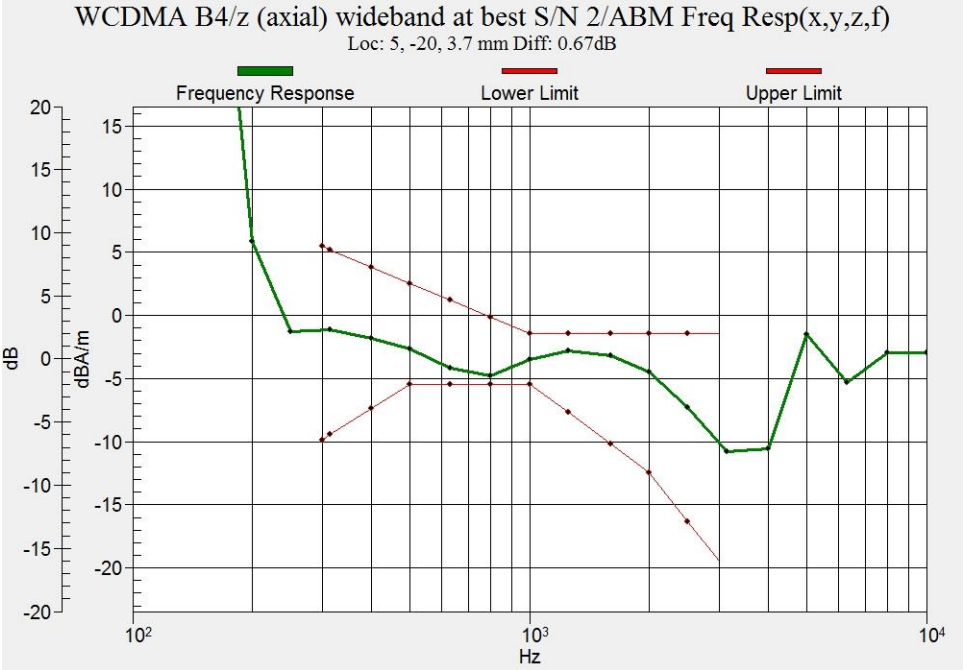


Figure B.10 Frequency Response of WCDMA Band 4 (Ant.4)

©Copyright. All rights reserved by SAICT.

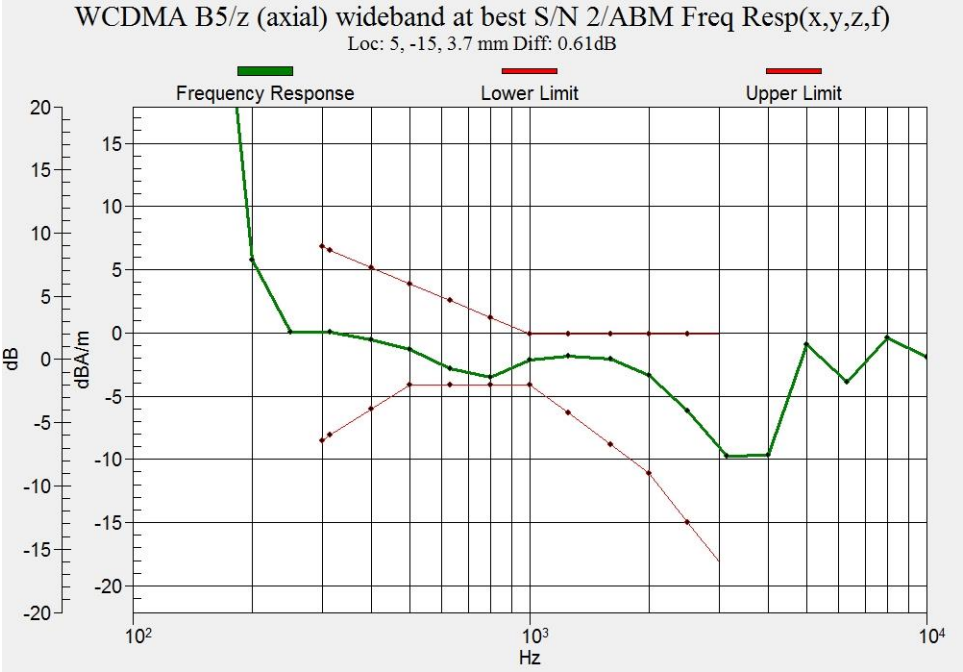


Figure B.11 Frequency Response of WCDMA Band 5 (Ant.2)

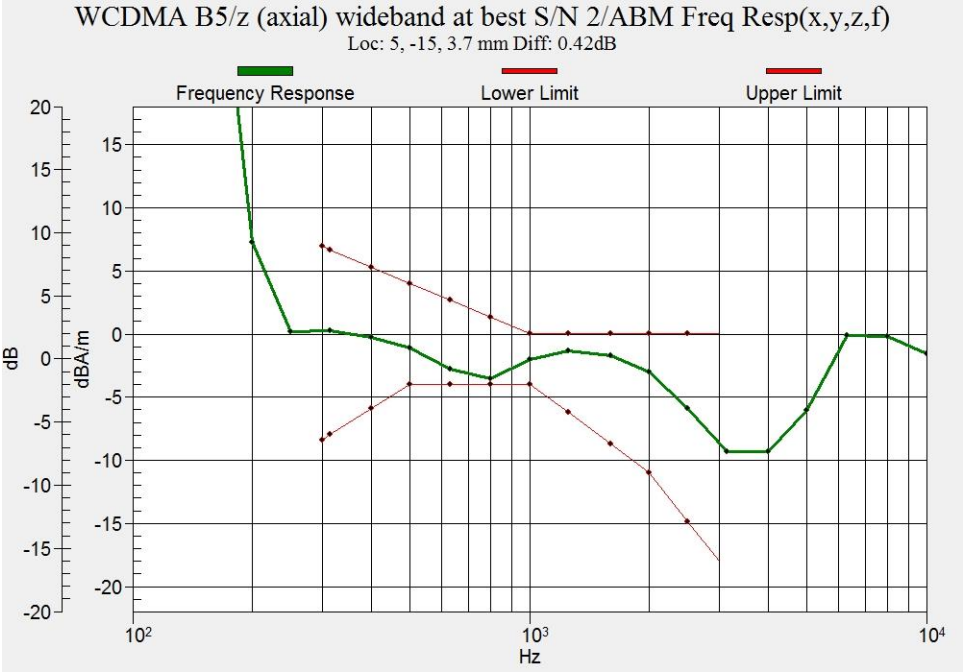


Figure B.12 Frequency Response of WCDMA Band 5 (Ant.3)

©Copyright. All rights reserved by SAICT.

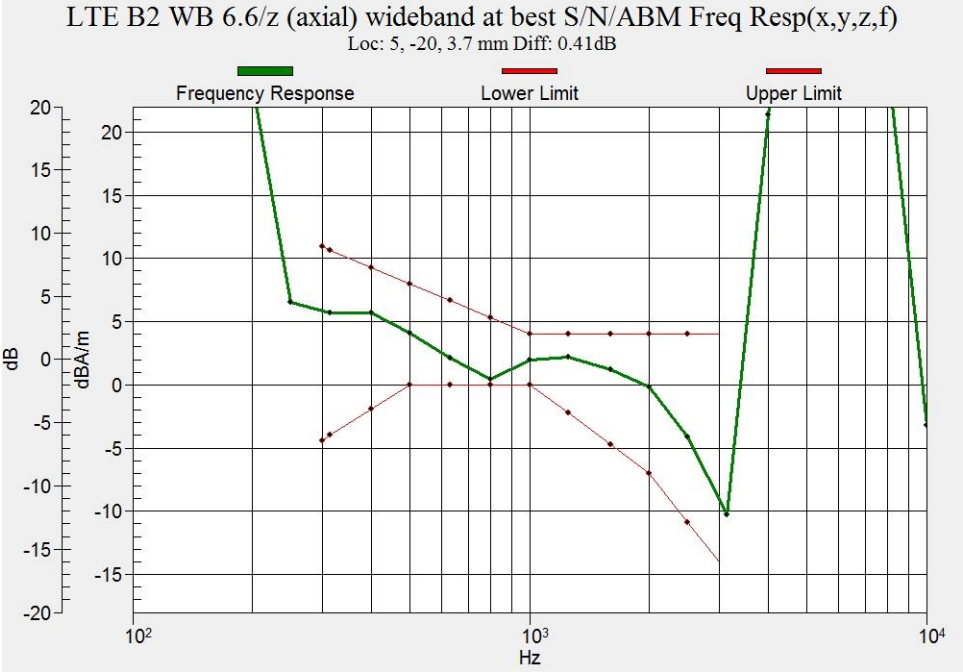


Figure B.13 Frequency Response of LTE Band 2 (Ant.2)

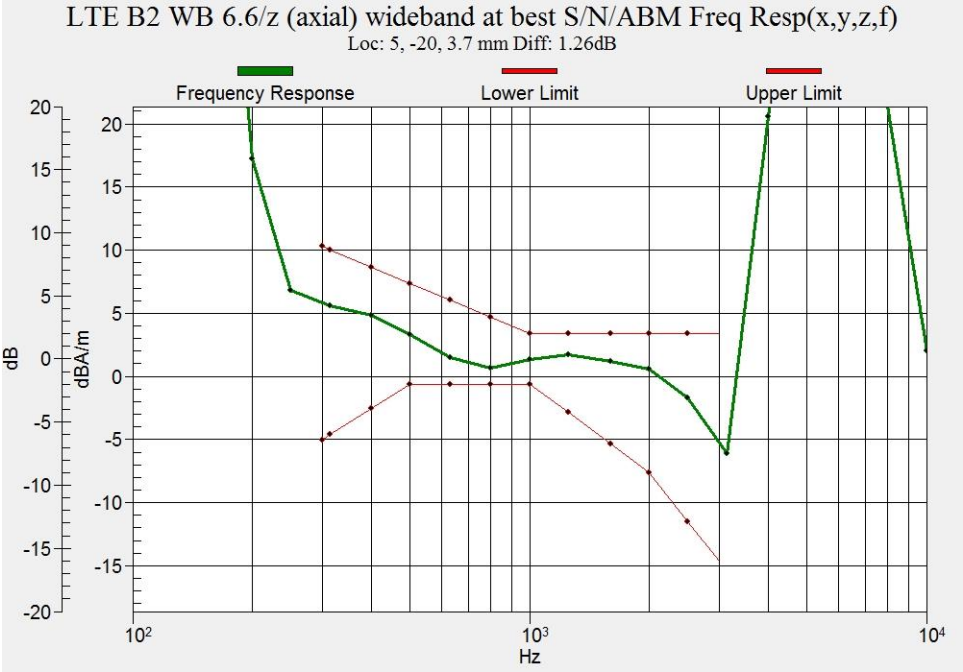


Figure B.14 Frequency Response of LTE Band 2 (Ant.4)

©Copyright. All rights reserved by SAICT.

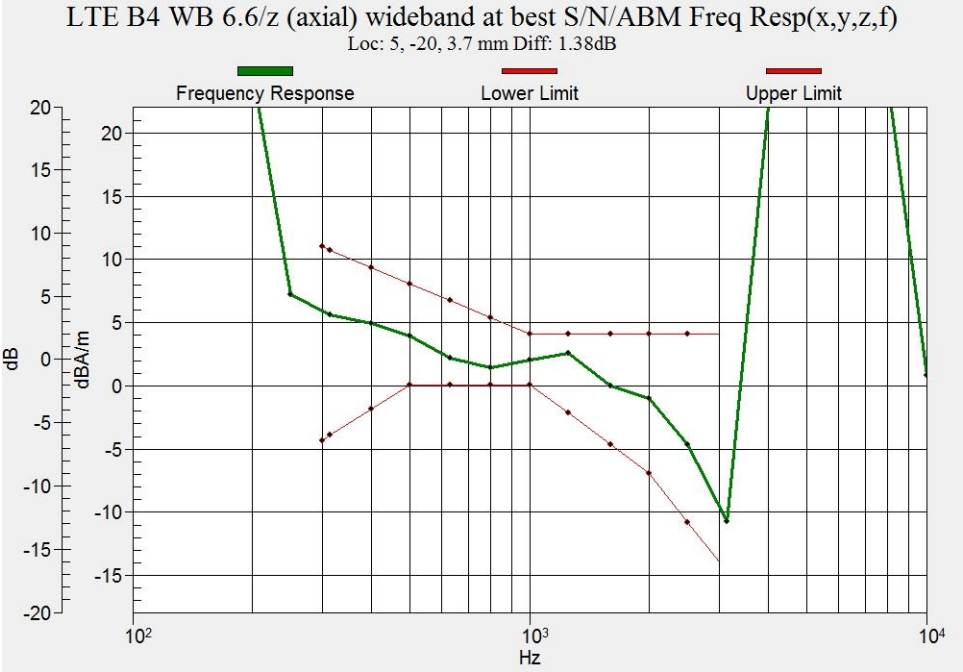


Figure B.15 Frequency Response of LTE Band 4 (Ant.2)

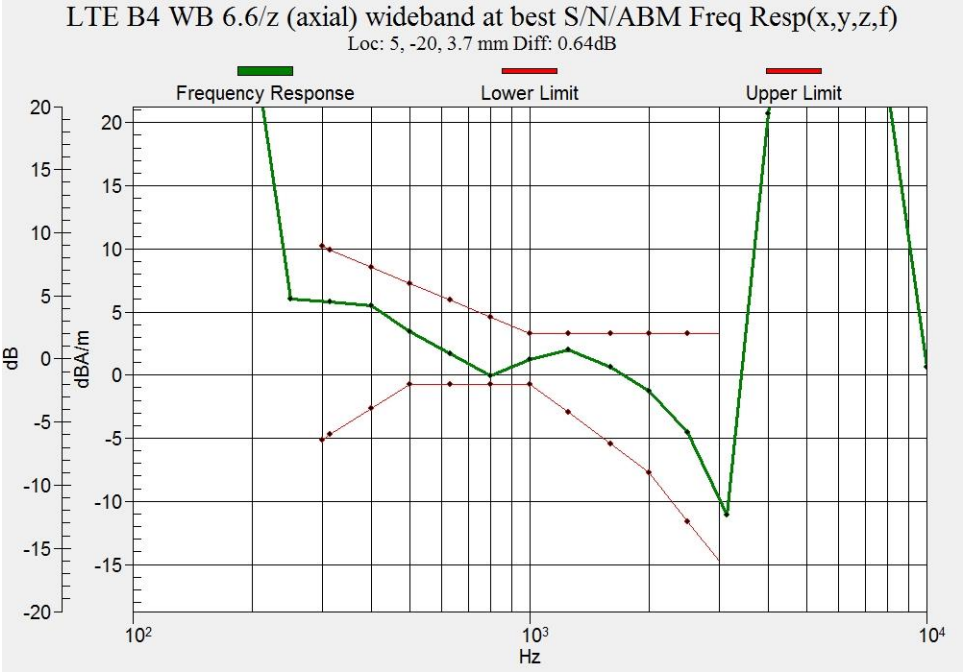


Figure B.16 Frequency Response of LTE Band 4 (Ant.4)

©Copyright. All rights reserved by SAICT.

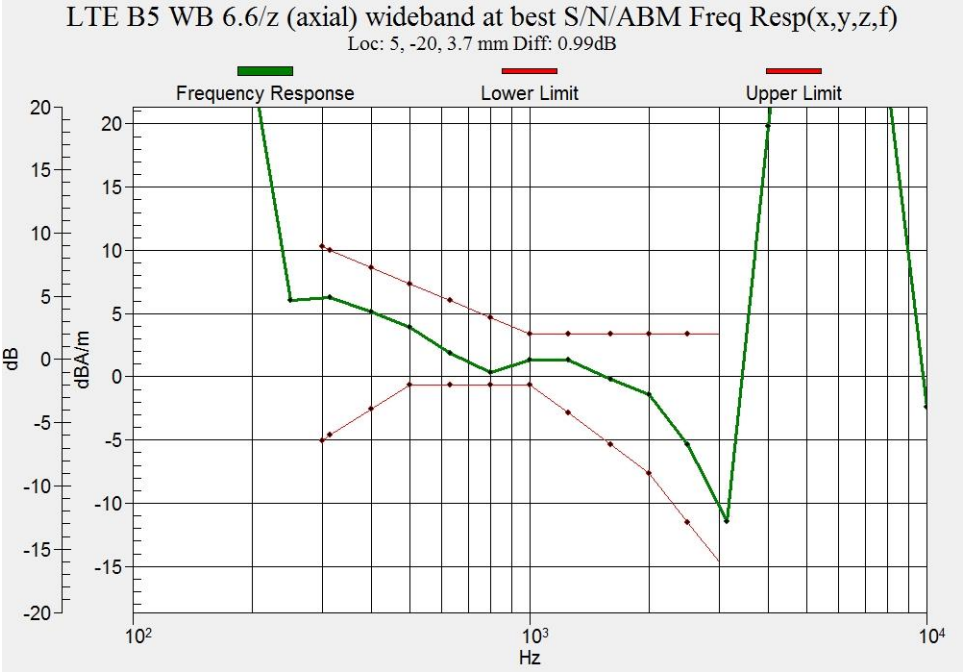
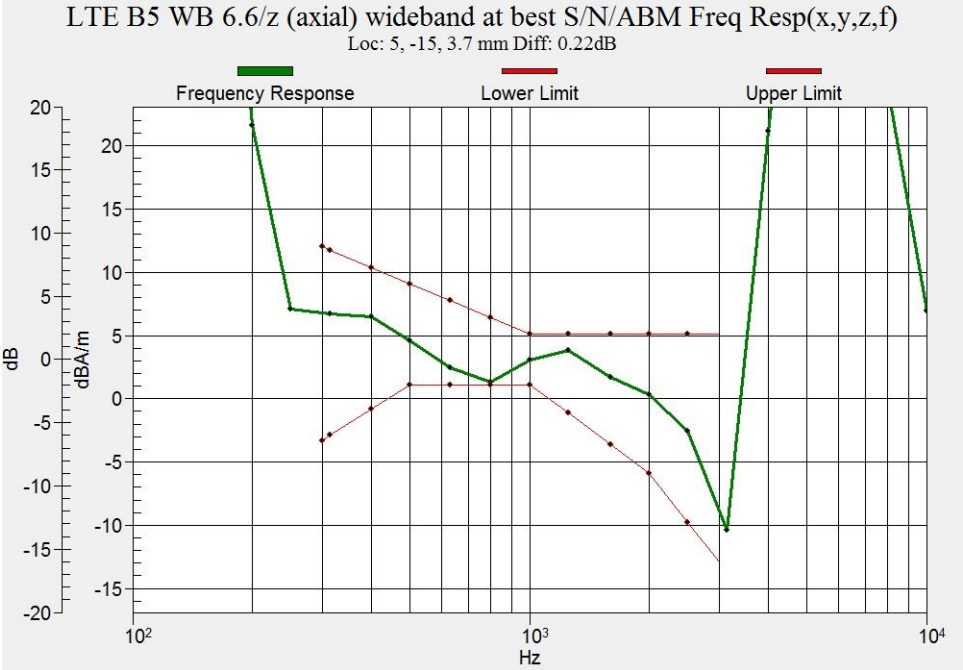


Figure B.17 Frequency Response of LTE Band 5 (Ant.2)

©Copyright. All rights reserved by SAICT.



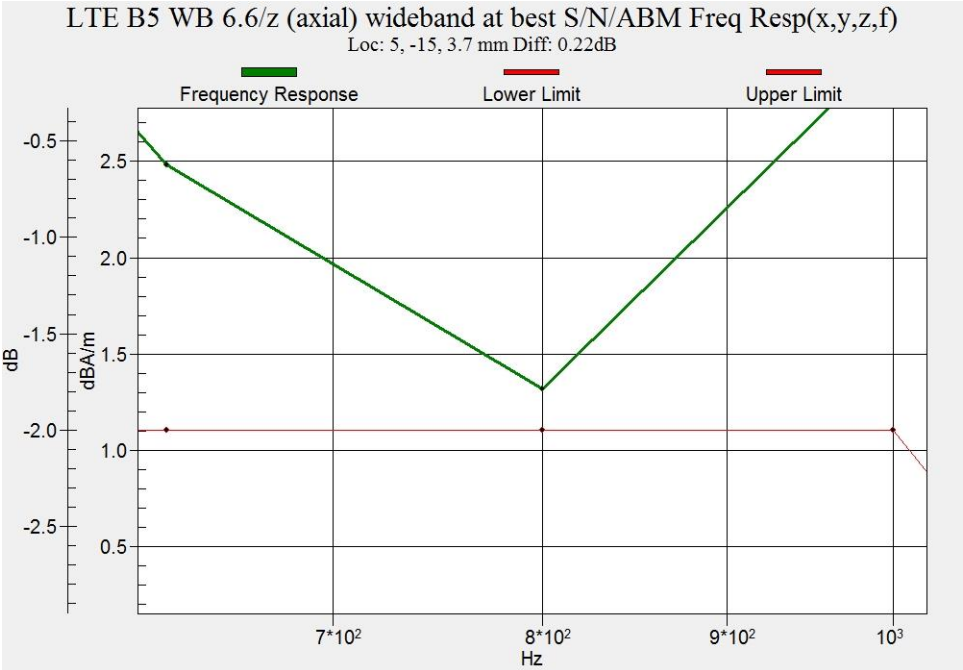


Figure B.18 Frequency Response of LTE Band 5 (Ant.3)

©Copyright. All rights reserved by SAICT.

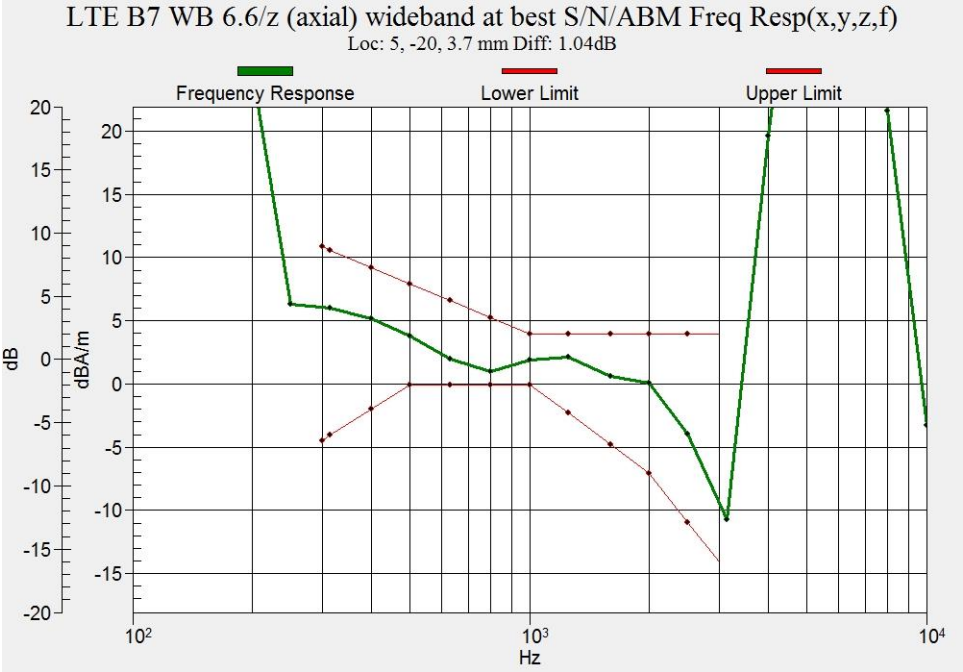


Figure B.19 Frequency Response of LTE Band 7 (Ant.2)

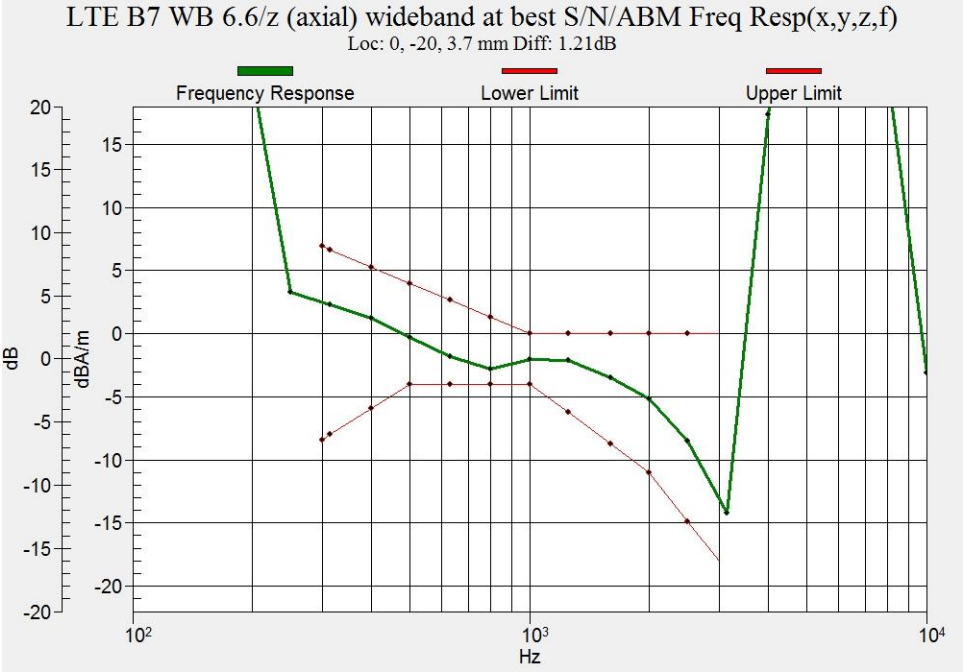


Figure B.20 Frequency Response of LTE Band 7 (Ant.4)

©Copyright. All rights reserved by SAICT.

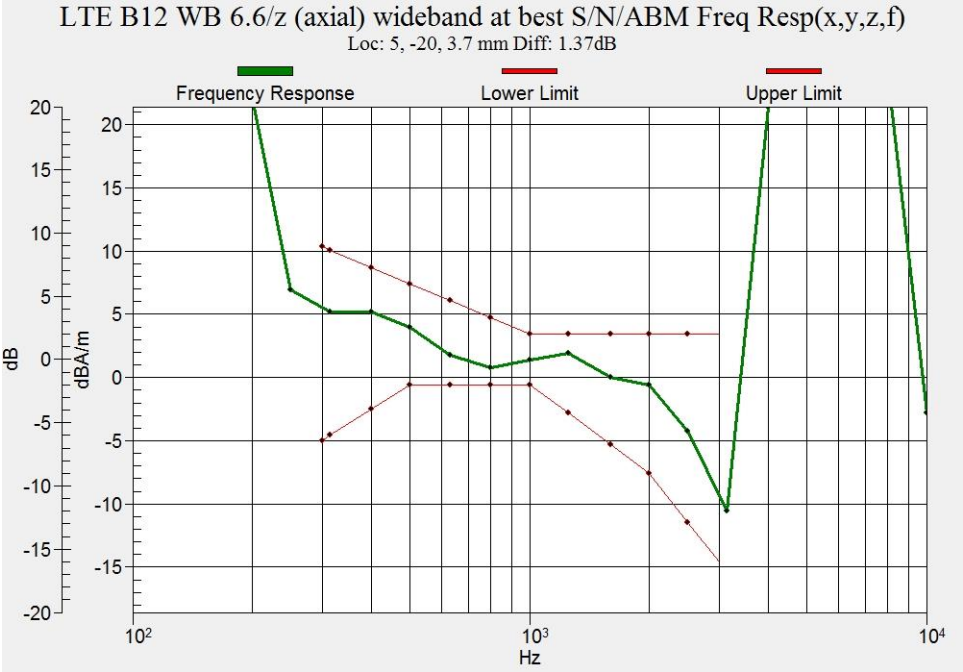


Figure B.21 Frequency Response of LTE Band 12 (Ant.2)

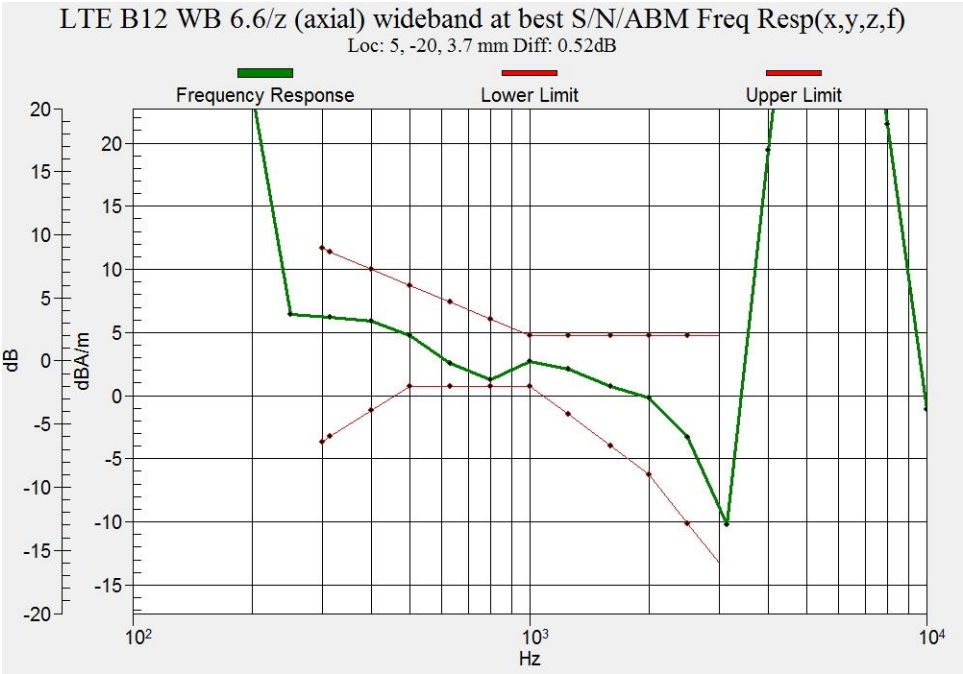


Figure B.22 Frequency Response of LTE Band 12 (Ant.3)

©Copyright. All rights reserved by SAICT.

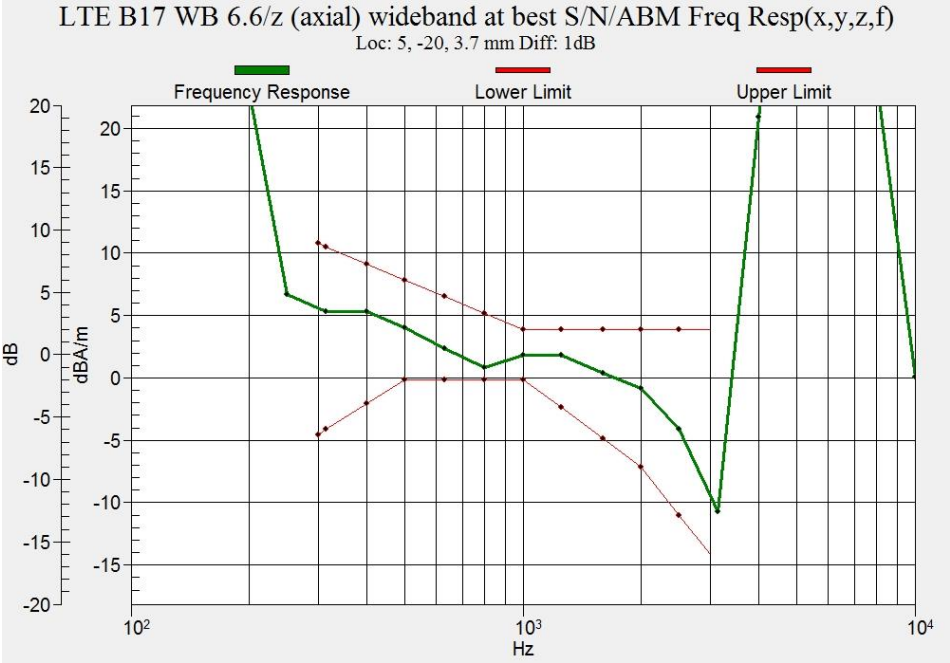


Figure B.23 Frequency Response of LTE Band 17 (Ant.2)

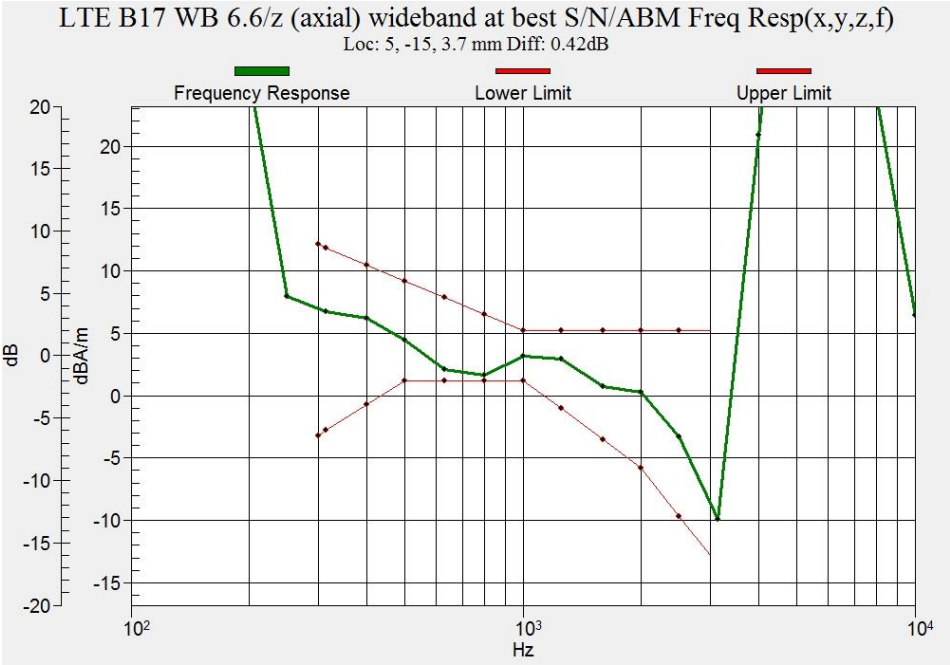


Figure B.24Frequency Response of LTE Band 17 (Ant.3)

©Copyright. All rights reserved by SAICT.

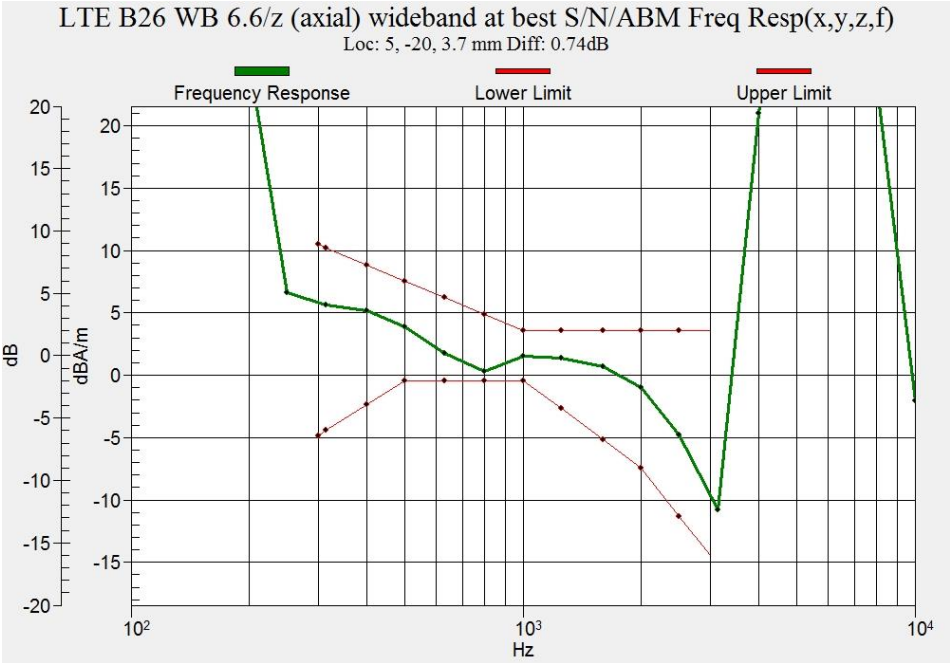
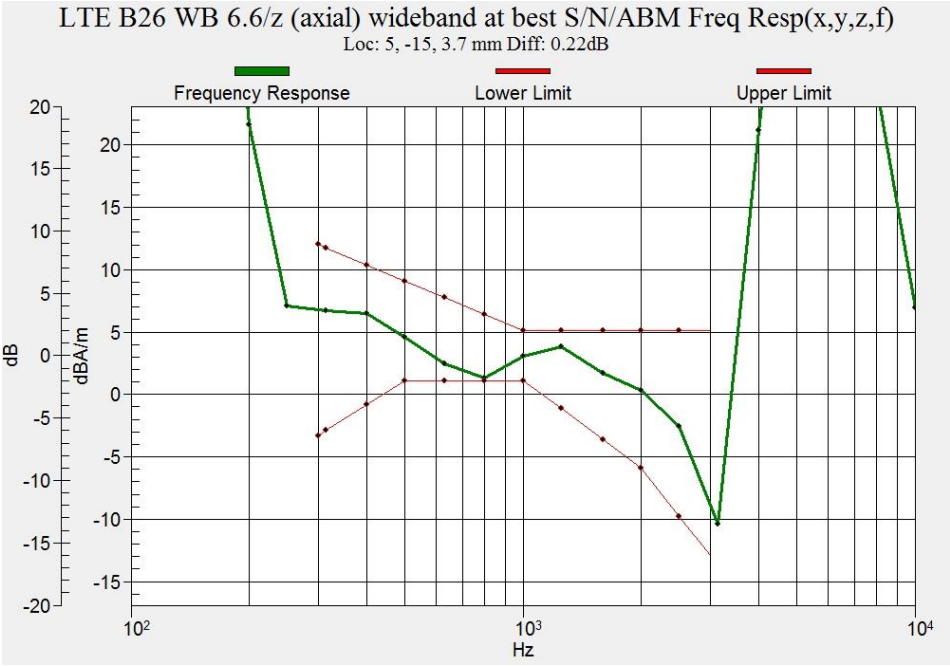


Figure B.25 Frequency Response of LTE Band 26 (Ant.2)

©Copyright. All rights reserved by SAICT.



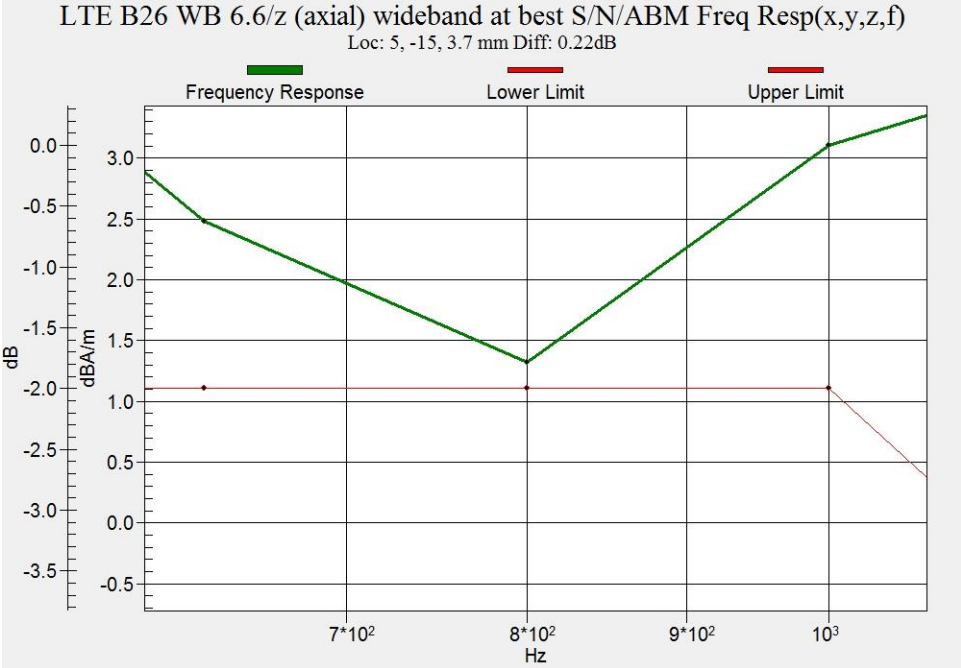
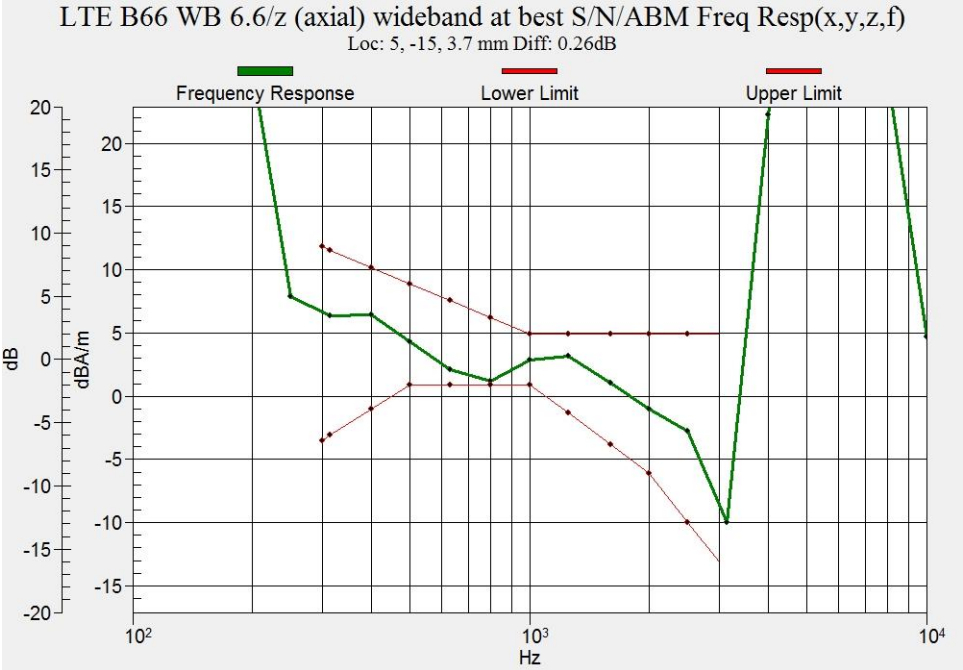


Figure B.26 Frequency Response of LTE Band 26 (Ant.3)

©Copyright. All rights reserved by SAICT.



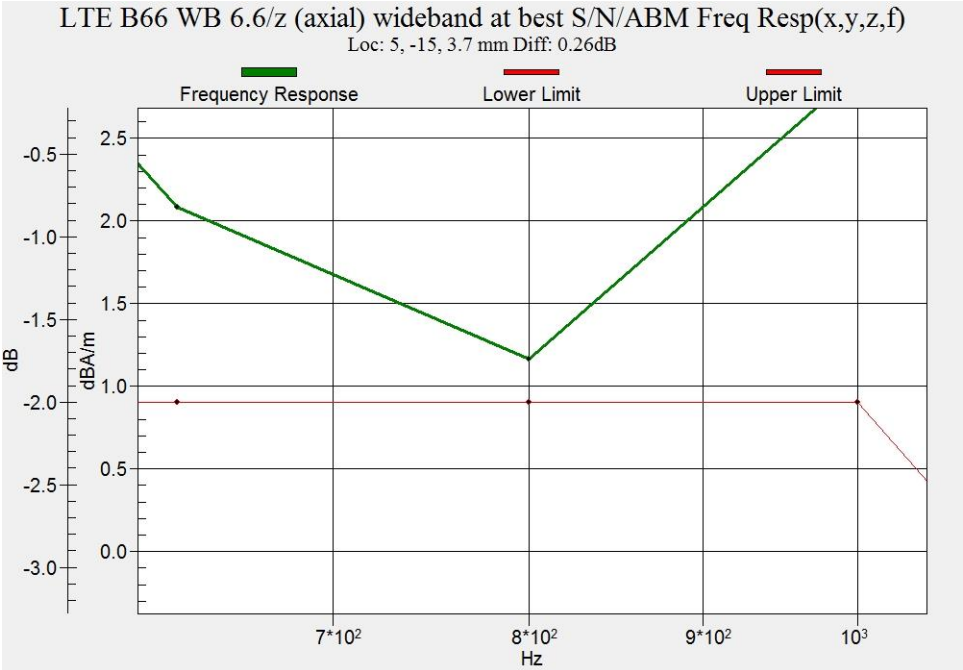


Figure B.27 Frequency Response of LTE Band 66 (Ant.2)

©Copyright. All rights reserved by SAICT.

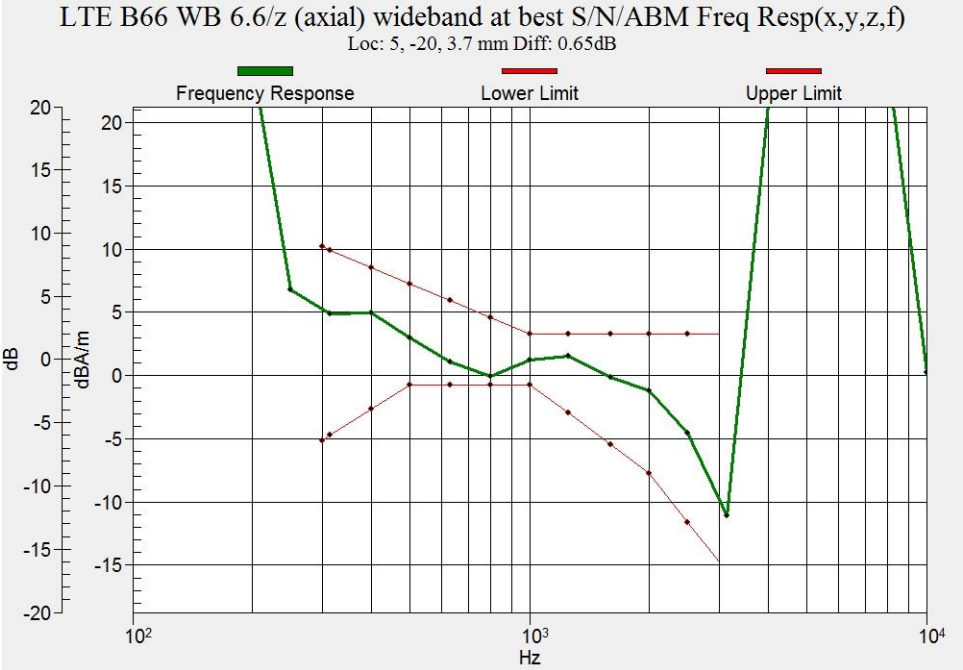


Figure B.28 Frequency Response of LTE Band 66 (Ant.4)

©Copyright. All rights reserved by SAICT.

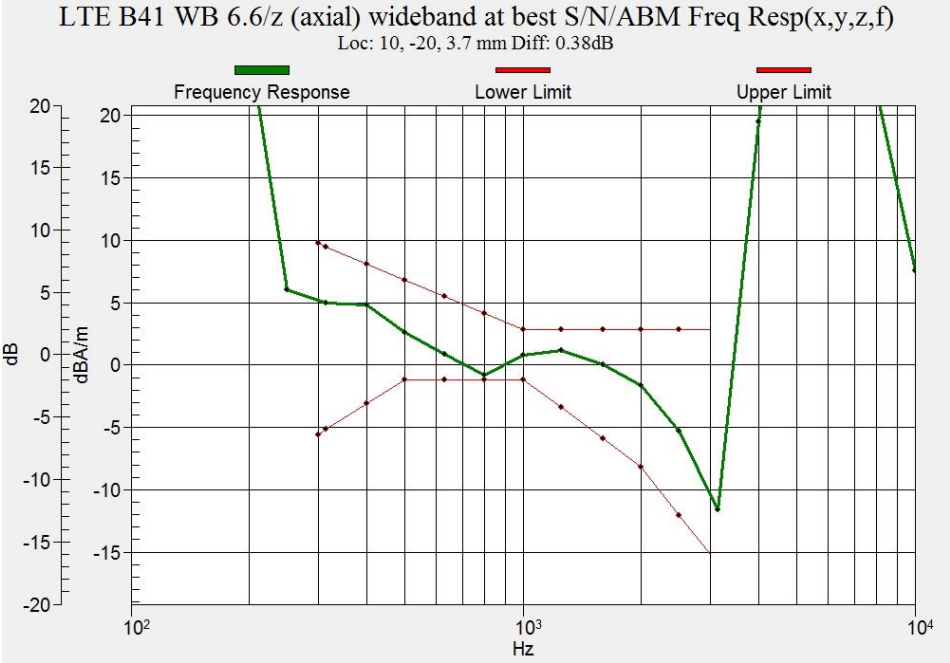


Figure B.29 Frequency Response of LTE Band 41 (Ant.2)

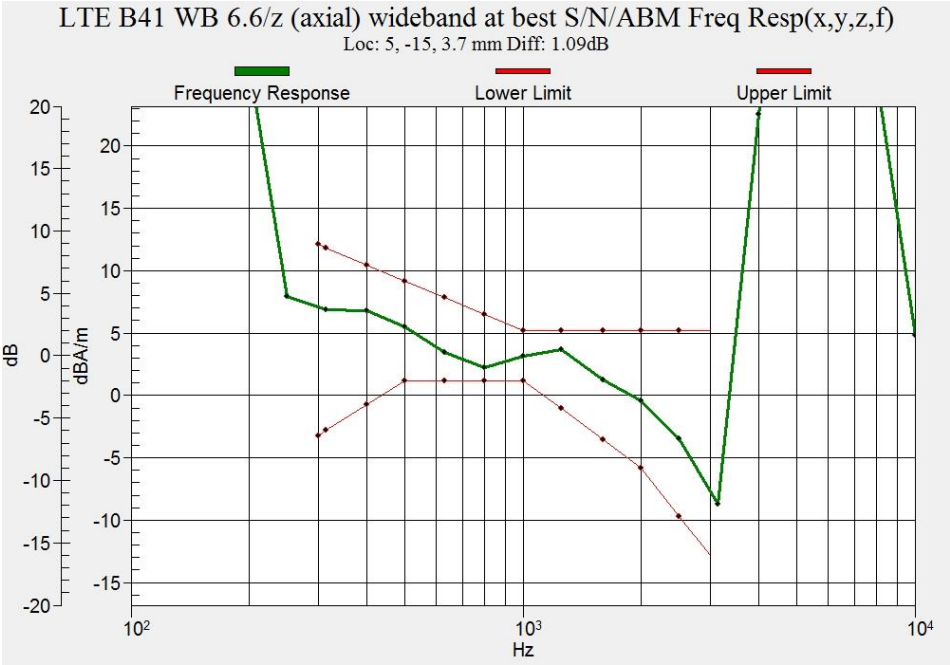


Figure B.30 Frequency Response of LTE Band 41 (Ant.4)

©Copyright. All rights reserved by SAICT.

ANNEX C: Probe Calibration Certificate

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

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

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

Accreditation No.: SCS 0108

Client **TMC-SZ (Auden)** Certificate No: **AM1DV3-3086_Feb21**

CALIBRATION CERTIFICATE

Object	AM1DV3 - SN: 3086
Calibration procedure(s)	QA CAL-24.v4 Calibration procedure for AM1D magnetic field probes and TMFS in the audio range
Calibration date:	February 22, 2021

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	07-Sep-20 (No. 28647)	Sep-21
Reference Probe AM1DV2	SN: 1008	15-Dec-20 (No. AM1DV2-1008_Dec20)	Dec-21
DAE4	SN: 781	23-Dec-20 (No. DAE4-781_Dec20)	Dec-21

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
AMCC	SN: 1050	01-Oct-13 (in house check Oct-20)	Oct-23
AMMI Audio Measuring Instrument	SN: 1062	26-Sep-12 (in house check Oct-20)	Oct-23

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

Issued: February 22, 2021

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

Certificate No: AM1DV3-3086_Feb21 Page 1 of 3

©Copyright. All rights reserved by SAICT.

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.

©Copyright. All rights reserved by SAICT.