SAR TEST REPORT

Applicant	Hytera Communications Corporation Limited
FCC ID	YAMPNC380S
Product	PoC Radio
Brand	Hytera
Model	PNC380S
Report No.	R2004A0208-S1
Issue Date	July 1, 2020

TA Technology (Shanghai) Co., Ltd. tested the above equipment in accordance with the requirements in **IEEE 1528- 2013, ANSI C95.1: 1992,IEEE C95.1: 1991.** The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

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1 Test Laboratory

1.1 Notes of the Test Report

This report shall not be reproduced in full or partial, without the written approval of **TA technology (shanghai) co., Ltd.** The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein .Measurement Uncertainties were not taken into account and are published for informational purposes only. This report is written to support regulatory compliance of the applicable standards stated above.

1.2. Test facility

FCC (Designation number: CN1179, Test Firm Registration Number: 446626)

TA Technology (Shanghai) Co., Ltd. has been listed on the US Federal Communications Commission list of test facilities recognized to perform electromagnetic emissions measurements.

A2LA (Certificate Number: 3857.01)

TA Technology (Shanghai) Co., Ltd. has been listed by American Association for Laboratory Accreditation to perform electromagnetic emission measurement.

1.3 Testing Location

Company:	TA Technology (Shanghai) Co., Ltd.
Address:	No.145, Jintang Rd, Tangzhen Industry Park, Pudong Shanghai, China
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1.4 Laboratory Environment

Temperature	Min. = 18°C, Max. = 25 °C
Relative humidity	Min. = 30%, Max. = 70%
Ground system resistance	< 0.5 Ω
Ambient noise is checked and found very low and in compliance with requirement of standards. Reflection of surrounding objects is minimized and in compliance with requirement of standards.	

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2 Statement of Compliance

The maximum results of Specific Absorption Rate (SAR) found during testing for the EUT are as follows:

Table 1: Highest Reported SAR

Mode	Highest Reported SAR (W/kg)		
	1g SAR Head (Separation 10mm)	1g SAR Body-worn (Separation 0mm)	10g SAR Extremities (Separation 0mm)
GSM 850	**1.278**	**1.278**	1.500
GSM 1900	0.582	0.458	0.952
WCDMA Band II	1.105	0.915	**1.969**
WCDMA Band IV	1.176	1.078	1.232
WCDMA Band V	1.125	0.885	1.113
LTE FDD 2	0.997	0.867	1.856
LTE FDD 4	0.949	0.937	1.129
LTE FDD 5	0.841	0.672	1.092
LTE FDD 7	1.076	0.912	1.813
LTE FDD 12	0.708	0.683	0.884
LTE FDD 13	0.852	0.904	1.118
LTE FDD 25	0.877	0.825	1.608
LTE FDD 26	0.744	0.483	1.080
Wi-Fi (2.4G)	0.128	0.199	0.412
Wi-Fi (5G)	0.112	0.180	0.256
BT	NA	0.044	NA
Date of Testing:	May 19, 2020~ May 27, 2020 and June 28, 2020 ~ June 29, 2020		
Note: All indications of Pass/Fail in this report are opinions expressed by TA Technology (Shanghai) Co., Ltd. based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only.			

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Table 2: Highest Simultaneous Transmission SAR

Exposure Configuration	1g SAR Head (Separation 10mm)	1g SAR Body-worn (Separation 0mm)	10g SAR Extremities (Separation 0mm)
Highest Simultaneous Transmission SAR (W/kg)	1.573	1.521	2.237
Note: 1. The detail for simultaneous transmission consideration is described in chapter 10.4.			

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3 Description of Equipment under Test

Client Information

Applicant	Hytera Communications Corporation Limited
Applicant address	Hytera Tower, Hi-Tech Industrial Park North, 9108# Beihuan Road, Nanshan District, Shenzhen, People's Republic of China
Manufacturer	Hytera Communications Corporation Limited
Manufacturer address	Hytera Tower, Hi-Tech Industrial Park North, 9108# Beihuan Road, Nanshan District, Shenzhen, People's Republic of China

General Technologies

Application Purpose:	Original Grant
EUT Stage:	Identical Prototype
Model:	PNC380S
IMEI:	860046040051346
Hardware Version:	5001010053083
Software Version:	V1.0.02.000.01
Antenna Type:	Internal Antenna
Device Class:	B
Power Class:	GSM 850:4 GSM 1900:1 UMTS Band II/IV/V:3 LTE FDD 2/4/5/7/12/13/25/26:3
Power Level:	GSM 850:level 5 GSM 1900:level 0 UMTS Band II/IV/V:all up bits LTE FDD 2/4/5/7/12/13/25/26:max power
EUT Accessory	
Battery	Manufacturer: FPR Connectivity Technology Inc. Model: BP4006 Power Rating: DC 3.85V, 4000mAh
Adapter	Manufacturer: HUIZHOU GOLDEN LAKE INDUSTRIAL CO., LTD. Model: S010WU0500200
USB Cable	10cm Cable, Shielded
Note: The EUT is sent from the applicant to TA and the information of the EUT is declared by the applicant.	

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Wireless Technology and Frequency Range

Wireless Technology		Modulation	Operating mode	Tx (MHz)
GSM	850	Voice(GMSK) GPRS(GMSK) EGPRS(GMSK/8PSK)	☐Multi-slot Class:8-1UP ☐Multi-slot Class:10-2UP ☐Multi-slot Class:12-4UP ☒Multi-slot Class:33-4UP	824 ~ 849
	1900			1850 ~ 1910
	Does this device support DTM (Dual Transfer Mode)? ☐Yes ☒No			
UMTS	Band II	QPSK, 16QAM	HSDPA UE Category:24 HSUPA UE Category:6 DC-HSDPA UE Category:24 HSPA+ Category:6	1850 ~ 1910
	Band IV			1710 ~ 1755
	Band V			824 ~ 849
LTE	FDD 2	QPSK, 16QAM	Rel.10 /Category 4	1850 ~ 1910
	FDD 4			1710 ~ 1755
	FDD 5			824 ~ 849
	FDD 7			2500 ~ 2570
	FDD 12			699 ~ 716
	FDD 13			777 ~ 787
	FDD 25			1850 ~ 1915
	FDD 26			814 ~ 849
	Does this device support Carrier Aggregation (CA) ☐Yes ☒No			
	Does this device support SV-LTE (1xRTT-LTE)? ☐Yes ☒No			
BT	2.4G	Version 4.2 LE		2402 ~2480
Wi-Fi	2.4G	DSSS,OFDM	802.11b/g/n HT20	2412 ~ 2462
		OFDM	802.11n HT40	2422 ~ 2452
	5G	OFDM	802.11a/n HT20/ HT40	5150 ~ 5350 5470 ~ 5600 5650 ~ 5850
	Does this device support Down Link MIMO ☒Yes ☐No			

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4 Test Specification, Methods and Procedures

The tests documented in this report were performed in accordance with FCC 47 CFR § 2.1093, IEEE 1528- 2013, ANSI C95.1: 1992,IEEE C95.1: 1991, the following FCC Published RF exposure KDB procedures:

IEC 62209-1

Reference Standards

KDB 248227 D01 802.11Wi-Fi SAR v02r02
KDB 447498 D01 General RF Exposure Guidance v06
KDB 648474 D04 Handset SAR v01r03
KDB 690783 D01 SAR Listings on Grants v01r03
KDB 865664 D01 SAR measurement 100 MHz to 6 GHz v01r04
KDB 865664 D02 RF Exposure Reporting v01r02
KDB 941225 D01 3G SAR Procedures v03r01
KDB 941225 D05 SAR for LTE Devices v02r05
KDB 941225 D05A LTE Rel.10 KDB Inquiry Sheet v01r02

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5 Operational Conditions during Test

5.1 Test Positions

5.1.1 Against Phantom Head

Measurements were made in “cheek” and “tilt” positions on both the left hand and right hand sides of the phantom.

The positions used in the measurements were according to IEEE 1528 - 2013 "IEEE Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate(SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques".

5.1.2 Body-worn Configuration

Body-worn operating configurations should be tested with the belt-clips and holsters attached to the device and positioned against a flat phantom in normal use configurations.

Per FCC KDB Publication 648474 D04, Body-worn accessory exposure is typically related to voice mode operations when handsets are carried in body-worn accessories. The body-worn accessory procedures in FCC KDB Publication 447498 D01 should be used to test for body-worn accessory SAR compliance, without a headset connected to it.When the reported SAR for a body-worn accessory, measured without a headset connected to the handset, is > 1.2 W/kg, the highest reported SAR configuration for that wireless mode and frequency band should be repeated for that body-worn accessory with a headset attached to the handset.

Accessories for Body-worn operation configurations are divided into two categories: those that do not contain metallic components and those that do contain metallic components. When multiple accessories that do not contain metallic components are supplied with the device, the device is tested with only the accessory that dictates the closest spacing to the body. Then multiple accessories that contain metallic components are tested with the device with each accessory. If multiple accessories share an identical metallic component (i.e. the same metallic belt-clip used with different holsters with no other metallic components) only the accessory that dictates the closest spacing to the body is tested.

Body-worn accessories may not always be supplied or available as options for some devices intended to be authorized for body-worn use. In this case, a test configuration with a separation distance between the back of the device and the flat phantom is used. Test position spacing was documented. Transmitters that are designed to operate in front of a person’s face, as in push-to-talk configurations, are tested for SAR compliance with the front of the device positioned to face the flat phantom in head fluid. For devices that are carried next to the body such as a shoulder, waist or chest-worn transmitters, SAR compliance is tested with the accessories, including headsets and microphones, attached to the device and positioned against a flat phantom in a normal use configuration.

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5.2 Measurement Variability

Per FCC KDB Publication 865664 D01, SAR measurement variability was assessed for each frequency band, which was determined by the SAR probe calibration point and tissue-equivalent medium used for the device measurements. When both head and body tissue-equivalent media were required for SAR measurements in a frequency band, the variability measurement procedures were applied to the tissue medium with the highest measured SAR, using the highest measured SAR configuration for that tissue-equivalent medium. These additional measurements were repeated after the completion of all measurements requiring the same head or body tissue-equivalent medium in a frequency band. The test device was returned to ambient conditions (normal room temperature) with the battery fully charged before it was re-mounted on the device holder for the repeated measurement(s) to minimize any unexpected variations in the repeated results.

SAR Measurement Variability was assessed using the following procedures for each frequency band:
1) When the original highest measured SAR is ≥ 0.80 W/kg, the measurement was repeated once.
2) A second repeated measurement was preformed only if the ratio of largest to smallest SAR for the original and first repeated measurements was > 1.20 or when the original or repeated measurement was ≥ 1.45 W/kg (~ 10% from the 1-g SAR limit).
3) A third repeated measurement was performed only if the original, first or second repeated measurement was ≥ 1.5 W/kg and the ratio of largest to smallest SAR for the original, first and second repeated measurements is > 1.20.
4) Repeated measurements are not required when the original highest measured SAR is < 0.80 W/kg

The same procedures should be adapted for measurements according to extremity and occupational exposure limits by applying a factor of 2.5 for extremity exposure and a factor of 5 for occupational exposure to the corresponding SAR thresholds.

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5.3 Test Configuration

5.3.1 GSM Test Configuration

According to specification 3GPP TS 51.010, the maximum power of the GSM can do the power reduction for the multi-slot. The allowed power reduction in the multi-slot configuration is as following:

Output power of reductions:

Table 3: The allowed power reduction in the multi-slot configuration

Number of timeslots in uplink assignment	Permissible nominal reduction of maximum output power,(dB)
1	0
2	0 to 3,0
3	1,8 to 4,8
4	3,0 to 6,0

SAR test reduction for GPRS and EDGE modes is determined by the source-based time-averaged output power specified for production units, including tune-up tolerance. The data mode with highest specified time-averaged output power should be tested for SAR compliance in the applicable exposure conditions. For modes with the same specified maximum output power and tolerance, the higher number time-slot configuration should be tested. GSM voice and GPRS data use GMSK, which is a constant amplitude modulation with minimal peak to average power difference within the time-slot burst. For EDGE, GMSK is used for MCS 1 – MCS 4 and 8-PSK is used for MCS 5 – MCS 9; where 8-PSK has an inherently higher peak-to-average power ratio. The GMSK and 8-PSK EDGE configurations are considered separately for SAR compliance. The GMSK EDGE configurations are grouped with GPRS and considered with respect to time-averaged maximum output power to determine compliance. The 3G SAR test reduction procedure is applied to 8-PSK EDGE with GMSK GPRS/EDGE as the primary mode.

5.3.2 UMTS Test Configuration

5.3.2.1 3G SAR Test Reduction Procedure

The default test configuration is to measure SAR with an established radio link between the EUT and a communication test set using a 12.2 kbps RMC (reference measurement channel) configured in Test Loop Mode 1. SAR is selectively confirmed for other physical channel configurations modes according to output power, exposure conditions and device operating capabilities. Maximum output power is verified by applying the applicable versions of 3GPP TS 34.121.

5.3.2.2 Head SAR

SAR for next to the ear head exposure is measured using a 12.2 kbps RMC with TPC bits configured to all “1’s”. The 3G SAR test reduction procedure is applied to AMR configurations with 12.2 kbps RMC as the primary mode. Otherwise, SAR is measured for 12.2 kbps AMR in 3.4 kbps SRB (signaling radio bearer) using the highest SAR configuration in 12.2 kbps RMC for head exposure.

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5.3.2.3 Body-worn accessory SAR

SAR for body-worn accessory configurations is measured using a 12.2 kbps RMC with TPC bits configured to all “1’s”. The 3G SAR test reduction procedure is applied to other spreading codes and multiple DPDCHn configurations supported by the EUT with 12.2 kbps RMC as the primary mode. Otherwise, SAR is measured using an applicable RMC configuration with the corresponding spreading code or DPDCHn, for the highest reported body-worn accessory exposure SAR configuration in 12.2 kbps RMC. When more than 2 DPDCHn are supported by the EUT, it may be necessary to configure additional DPDCHn using FTM (Factory Test Mode) or other chipset based test approaches with parameters similar to those used in 384 kbps and 768 kbps RMC

5.3.2.4 Release 5 HSDPA Test Configuration

The 3G SAR test reduction procedure is applied to HSDPA Body-worn accessory configurations with 12.2 kbps RMC as the primary mode. Otherwise, SAR is measured for HSDPA using the HSDPA Body-worn procedures in the “Release 5 HSDPA Data Devices” section of this document, for the highest SAR Body-worn accessory exposure configuration in 12.2 kbps RMC. EUT with both HSDPA and HSUPA are tested according to Release 6 HSPA test procedures.

HSDPA should be configured according to the UE category of a test device.The number of HSDSCH/ HS-PDSCHs, HARQ processes, minimum inter-TTI interval, transport block sizes and RV coding sequence are defined by the H-set. To maintain a consistent test configuration and stable transmission conditions, QPSK is used in the H-set for SAR testing. HS-DPCCH should be configured with a CQI feedback cycle of 4 ms with a CQI repetition factor of 2 to maintain a constant rate of active CQI slots. DPCCH and DPDCH gain factors(βc, βd), and HS-DPCCH power offset parameters (ΔACK, ΔNACK, ΔCQI) should be set according to values indicated in the Table below. The CQI value is determined by the UE category, transport block size, number of HS-PDSCHs and modulation used in the H-set.

Table 4: Subtests for UMTS Release 5 HSDPA

Sub-set	β_c	β_d	β_d (SF)	β_c/β_d	β_{hs} (note 1, note 2)	CM(dB) (note 3)	MPR(dB)
1	2/15	15/15	64	2/15	4/15	0.0	0.0
2	12/15 (note 4)	15/15 (note 4)	64	12/15 (note 4)	24/15	1.0	0.0
3	15/15	8/15	64	15/8	30/15	1.5	0.5
4	15/15	4/15	64	15/4	30/15	1.5	0.5

Note1: Δ_{ACK}, Δ_{NACK} and Δ_{CQI}= 8$\Leftrightarrow$$A_{hs}$ = β_{hs}/β_c=30/15$\Leftrightarrow$$\beta_{hs}$=30/15*$\beta_c$

Note2: CM=1 for β_c/β_d =12/15, β_{hs}/β_c=24/15.

Note3: For subtest 2 the $\beta_c\beta_d$ ratio of 12/15 for the TFC during the measurement period(TF1,TF0) is achieved by setting the signaled gain factors for the reference TFC (TFC1,TF1) to β_c=11/15 and β_d=15/15.

5.3.2.5 Release 6 HSUPA Test Configuration

The 3G SAR test reduction procedure is applied to HSPA (HSUPA/HSDPA with RMC) Body-worn accessory configurations with 12.2 kbps RMC as the primary mode. Otherwise, SAR is measured for

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HSPA using the HSPA Body-worn procedures in the "Release 6 HSPA Data Devices" section of this document, for the highest Body-worn accessory exposure SAR configuration in 12.2 kbps RMC. When VOIP is applicable for next to the ear head exposure in HSPA, the 3G SAR test reduction procedure is applied to HSPA with 12.2 kbps RMC as the primary mode; otherwise, the same HSPA configuration used for Body-worn accessory measurements is tested for next to the ear head exposure.

Due to inner loop power control requirements in HSPA, a communication test set is required for output power and SAR tests. The 12.2 kbps RMC, FRC H-set 1 and E-DCH configurations for HSPA are configured according to the β values indicated in Table 2 and other applicable procedures described in the 'WCDMA EUT and 'Release 5 HSDPA Data Devices' sections of this document

Table 5: Sub-Test 5 Setup for Release 6 HSUPA

Sub-set	β_c	β_d	β_d (SF)	β_c/β_d	β_{hs} (1)	β_{ec}	β_{ed}	β_{ed} (SF)	β_{ed} (codes)	CM (2) (dB)	MPR (dB)	AG(4) Index	E-TFCI
1	11/15(3)	15/15(3)	64	11/15(3)	22/15	209/225	1039/225	4	1	1.0	0.0	20	75
2	6/15	15/15	64	6/15	12/15	12/15	94/75	4	1	3.0	2.0	12	67
3	15/15	9/15	64	15/9	30/15	30/15	β_{ed1}:47/15 β_{ed2}:47/15	4	2	2.0	1.0	15	92
4	2/15	15/15	64	2/15	4/15	2/15	56/75	4	1	3.0	2.0	17	71
5	15/15(4)	15/15(4)	64	15/15(4)	30/15	24/15	134/15	4	1	1.0	0.0	21	81

Note 1: Δ_{ACK}, ΔNACK and Δ_{CQI} = 8 ⇔ $A_{hs} = \underline{\beta}_{hs}/\underline{\beta}_c$ = 30/15 ⇔$\underline{\beta}_{hs}$= 30/15 *β_c.

Note 2: CM = 1 for βc/βd =12/15, $\underline{\beta}_{hs}/\underline{\beta}_c$ =24/15. For all other combinations of DPDCH, DPCCH, HS- DPCCH, E-DPDCH and E-DPCCH the MPR is based on the relative CM difference.

Note 3: For subtest 1 the βc/βd ratio of 11/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signaled gain factors for the reference TFC (TF1, TF1) to βc = 10/15 and βd = 15/15.

Note 4: For subtest 5 the βc/βd ratio of 15/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signaled gain factors for the reference TFC (TF1, TF1) to βc = 14/15 and βd = 15/15.

Note 5: Testing UE using E-DPDCH Physical Layer category 1 Sub-test 3 is not required according to TS 25.306 Figure 5.1g.

Note 6: βed can not be set directly; it is set by Absolute Grant Value.

Table 6: HSUPA UE category

UE E-DCH Category	Maximum E-DCH Codes Transmitted	Number of HARQ Processes	E-DCH TTI (ms)	Minimum Spreading Factor	Maximum E-DCH Transport Block Bits	Max Rate (Mbps)
1	1	4	10	4	7110	0.7296
2	2	8	2	4	2798	1.4592
	2	4	10	4	14484	
3	2	4	10	4	14484	1.4592
4	2	8	2	2	5772	2.9185
	2	4	10	2	20000	2.00

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5	2	4	10	2	20000	2.00
6 (No DPDCH)	4	8	2	2 SF2 & 2 SF4	11484	5.76
	4	4	10		20000	2.00
7 (No DPDCH)	4	8	2	2 SF2 & 2 SF4	22996	?
	4	4	10		20000	?
NOTE: When 4 codes are transmitted in parallel, two codes shall be transmitted with SF2 and two with SF4. UE Categories 1 to 6 supports QPSK only. UE Category 7 supports QPSK and 16QAM. (TS25.306-7.3.0)						

5.3.2.6 HSPA, HSPA+ and DC-HSDPA Test Configuration

SAR test exclusion may apply to 3GPP Rel. 6 HSPA and Rel. 8 DC-HSDPA. When SAR measurement is required for HSPA or DC-HSDPA, a KDB inquiry is required to confirm that the wireless mode configurations in the test setup have remained stable throughout the SAR measurements. Without prior KDB confirmation to determine the SAR results are acceptable, a PAG is required for equipment approval.

SAR test exclusion for HSPA, HSPA+ and DC-HSDPA is determined according to the following:

1) The HSPA procedures are applied to configure 3GPP Rel. 6 HSPA devices in the required sub-test mode(s) to determine SAR test exclusion.

2) SAR is required for Rel. 7 HSPA+ when SAR is required for Rel. 6 HSPA; otherwise, the 3G SAR test reduction procedure is applied to (uplink) HSPA+ with 12.2 kbps RMC as the primary mode.36 Power is measured for HSPA+ that supports uplink 16 QAM according to configurations in Table C.11.1.4 of 3GPP TS 34.121-1 to determine SAR test reduction.

3) SAR is required for Rel. 8 DC-HSDPA when SAR is required for Rel. 5 HSDPA; otherwise, the 3G SAR test reduction procedure is applied to DC-HSDPA with 12.2 kbps RMC as the primary mode. Power is measured for DC-HSDPA according to the H-Set 12, FRC configuration in Table C.8.1.12 of 3GPP TS 34.121-1 to determine SAR test reduction. A primary and a secondary serving HS-DSCH Cell are required to perform the power measurement and for the results to be acceptable.

4) Regardless of whether a PBA is required, the following information must be verified and included in the SAR report for devices supporting HSPA, HSPA+ or DC-HSDPA: a) The output power measurement results and applicable release version(s) of 3GPP TS 34.121.

i) Power measurement difficulties due to test equipment setup or availability must be resolved between the grantee and its test lab.

b) The power measurement results are in agreement with the individual device implementation and specifications. When Enhanced MPR (E-MPR) applies, the normal MPR targets may be modified according to the Cubic Metric (CM) measured by the device, which must be taken into consideration.

c) The UE category, operating parameters, such as the β and Δ values used to configure the device for testing, power setback procedures described in 3GGPP TS 34.121 for the power measurements, and HSPA/HSPA+ channel conditions (active and stable) for the entire duration of the measurement according to the required E-TFCI and AG index values.

5) When SAR measurement is required, the test configurations, procedures and power measurement results must be clearly described to confirm that the required test parameters are used, including E-TFCI and AG index stability and output power conditions.

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Table 7: HS-DSCH UE category

Table 5.1a: FDD HS-DSCH physical layer categories

HS-DSCH category	Maximum number of HS-DSCH codes received	Minimum inter-TTI interval	Maximum number of bits of an HS-DSCH transport block received within an HS-DSCH TTI NOTE 1	Total number of soft channel bits	Supported modulations without MIMO operation or dual cell operation	Supported modulations with MIMO operation and without dual cell operation	Supported modulations with dual cell operation
Category 1	5	3	7298	19200	QPSK, 16QAM	Not applicable (MIMO not supported)	Not applicable (dual cell operation not supported)
Category 2	5	3	7298	28800			
Category 3	5	2	7298	28800			
Category 4	5	2	7298	38400			
Category 5	5	1	7298	57600			
Category 6	5	1	7298	67200			
Category 7	10	1	14411	115200			
Category 8	10	1	14411	134400			
Category 9	15	1	20251	172800			
Category 10	15	1	27952	172800			
Category 11	5	2	3630	14400	QPSK		
Category 12	5	1	3630	28800			
Category 13	15	1	35280	259200	QPSK, 16QAM, 64QAM		
Category 14	15	1	42192	259200			
Category 15	15	1	23370	345600	QPSK, 16QAM		
Category 16	15	1	27952	345600			
Category 17 NOTE 2	15	1	35280	259200	QPSK, 16QAM, 64QAM	–	
			23370	345600	–	QPSK, 16QAM	
Category 18 NOTE 3	15	1	42192	259200	QPSK, 16QAM, 64QAM	–	
			27952	345600	–	QPSK, 16QAM	
Category 19	15	1	35280	518400	QPSK, 16QAM, 64QAM		
Category 20	15	1	42192	518400			
Category 21	15	1	23370	345600	-	-	QPSK, 16QAM
Category 22	15	1	27952	345600			
Category 23	15	1	35280	518400			QPSK, 16QAM, 64QAM
Category 24	15	1	42192	518400			

5.3.3 LTE Test Configuration

LTE modes were tested according to FCC KDB 941225 D05 publication. Please see notes after the tabulated SAR data for required test configurations. Establishing connections with base station simulators ensure a consistent means for testing SAR and are recommended for evaluating SAR [4]. The R&S CMW500 was used for LTE output power measurements and SAR testing. Max power control was used so the UE transmits with maximum output power during SAR testing. SAR must be measured with the maximum TTI (transmit time interval) supported by the device in each LTE configuration.

A) Spectrum Plots for RB Configurations

A properly configured base station simulator was used for SAR tests and power measurements. Therefore, spectrum plots for RB configurations were not required to be included in this report.

B) MPR

MPR is permanently implemented for this device by the manufacturer. The specific manufacturer

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target MPR is indicated alongside the SAR results. MPR is enabled for this device, according to 3GPP TS36.101 Section 6.2.3 – 6.2.5 under Table 6.2.3-1.

C)A-MPR

A-MPR (Additional MPR) has been disabled for all SAR tests by setting NS=01 on the base station simulator.

D) Largest channel bandwidth standalone SAR test requirements

1) QPSK with 1 RB allocation

Start with the largest channel bandwidth and measure SAR for QPSK with 1 RB allocation, using the RB offset and required test channel combination with the highest maximum output power for RB offsets at the upper edge, middle and lower edge of each required test channel. When the reported SAR is ≤ 0.8 W/kg, testing of the remaining RB offset configurations and required test channels is not required for 1 RB allocation; otherwise, SAR is required for the remaining required test channels and only for the RB offset configuration with the highest output power for that channel. When the reported SAR of a required test channel is > 1.45 W/kg, SAR is required for all three RB offset configurations for that required test channel.

2) QPSK with 50% RB allocation

The procedures required for 1 RB allocation in 1) are applied to measure the SAR for QPSK with 50% RB allocation.

3) QPSK with 100% RB allocation

For QPSK with 100% RB allocation, SAR is not required when the highest maximum output power for 100 % RB allocation is less than the highest maximum output power in 50% and 1 RB allocations and the highest reported SAR for 1 RB and 50% RB allocation in 1) and 2) are ≤ 0.8 W/kg. Otherwise, SAR is measured for the highest output power channel and if the reported SAR is > 1.45 W/kg, the remaining required test channels must also be tested.

4) Higher order modulations

For each modulation besides QPSK; e.g., 16-QAM, 64-QAM, apply the QPSK procedures in above sections to determine the QAM configurations that may need SAR measurement. For each configuration identified as required for testing, SAR is required only when the highest maximum output power for the configuration in the higher order modulation is > ½ dB higher than the same configuration in QPSK or when the reported SAR for the QPSK configuration is > 1.45 W/kg.

E) Other channel bandwidth standalone SAR test requirements

For the other channel bandwidths used by the device in a frequency band, apply all the procedures required for the largest channel bandwidth in section A) to determine the channels and RB configurations that need SAR testing and only measure SAR when the highest maximum output power of a configuration requiring testing in the smaller channel bandwidth is > ½ dB higher than the equivalent channel configurations in the largest channel bandwidth configuration or the *reported* SAR of a configuration for the largest channel bandwidth is > 1.45 W/kg.

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5.3.4 Wi-Fi Test Configuration

SAR test reduction for 802.11 Wi-Fi transmission mode configurations are considered separately for DSSS and OFDM. An initial test position is determined to reduce the number of tests required for certain exposure configurations with multiple test positions. An initial test configuration is determined for each frequency band and aggregated band according to maximum output power, channel bandwidth, wireless mode configurations and other operating parameters to streamline the measurement requirements. For 2.4 GHz DSSS, either the initial test position or DSSS procedure is applied to reduce the number of SAR tests; these are mutually exclusive. For OFDM, an initial test position is only applicable to next to the ear, UMPC mini-tablet mode configurations, which is tested using the initial test configuration to facilitate test reduction. For other exposure conditions with a fixed test position, SAR test reduction is determined using only the initial test configuration.

The multiple test positions require SAR measurements in head mode or UMPC mini-tablet configurations may be reduced according to the highest reported SAR determined using the *initial test position(s)* by applying the DSSS or OFDM SAR measurement procedures in the required wireless mode test configuration(s). The *initial test position(s)* is measured using the highest measured maximum output power channel in the required wireless mode test configuration(s). When the *reported* SAR for the *initial test position* is:

- ≤ 0.4 W/kg, further SAR measurement is not required for the other test positions in that exposure configuration and wireless mode combination within the frequency band or aggregated band. DSSS and OFDM configurations are considered separately according to the required SAR procedures.
- 0.4 W/kg, SAR is repeated using the same wireless mode test configuration tested in the *initial test position* to measure the subsequent next closet/smallest test separation distance and maximum coupling test position, on the highest maximum output power channel, until the *reported* SAR is ≤ 0.8 W/kg or all required test positions are tested.
    - ✧ For subsequent test positions with equivalent test separation distance or when exposure is dominated by coupling conditions, the position for maximum coupling condition should be tested.
    - ✧ When it is unclear, all equivalent conditions must be tested.
- For all positions/configurations tested using the *initial test position* and subsequent test positions, when the *reported* SAR is > 0.8 W/kg, measure the SAR for these positions/configurations on the subsequent next highest measured output power channel(s) until the *reported* SAR is ≤ 1.2 W/kg or all required test channels are considered.
    - ✧ The additional power measurements required for this step should be limited to those necessary for identifying subsequent highest output power channels to apply the test reduction.

To determine the initial test position, Area Scans were performed to determine the position with the Maximum Value of SAR (measured). The position that produced the highest Maximum Value of SAR is considered the worst case position; thus used as the initial test position.

A Wi-Fi device must be configured to transmit continuously at the required data rate, channel bandwidth and signal modulation, using the highest transmission duty factor supported by the test mode tools for SAR measurement.

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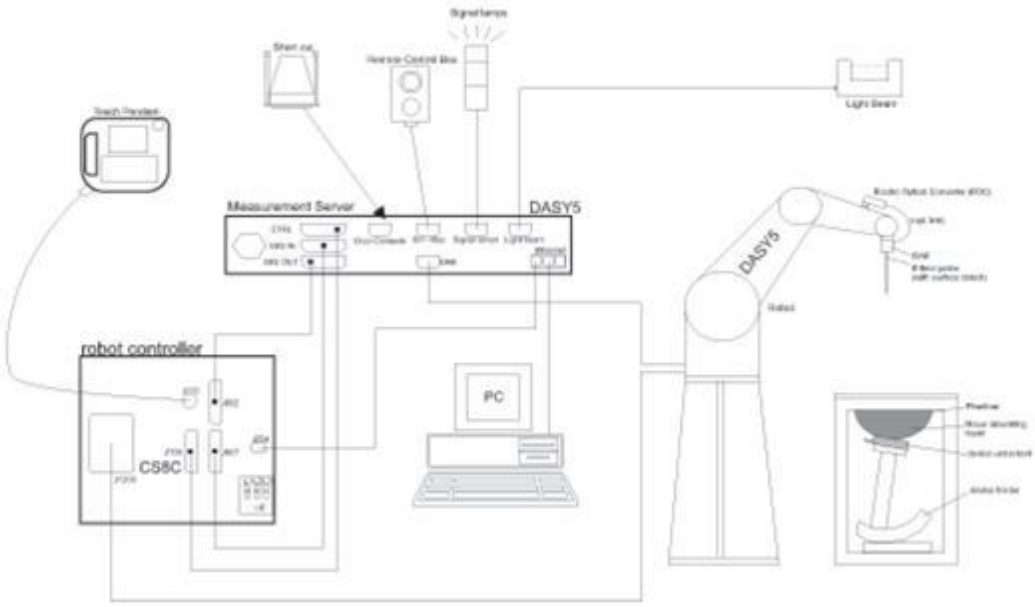
6 SAR Measurements System Configuration

6.1 SAR Measurement Set-up

The DASY system for performing compliance tests consists of the following items:



- A standard high precision 6-axis robot with controller, teach pendant and software. An arm extension for accommodating the data acquisition electronics (DAE).
- An isotropic Field probe optimized and calibrated for the targeted measurement.
- A data acquisition electronics (DAE) which performs the signal amplification, signal multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection, etc. The unit is battery powered with standard or rechargeable batteries. The signal is optically transmitted to the EOC.
- The Electro-optical converter (EOC) performs the conversion from optical to electrical signals for the digital communication to the DAE. To use optical surface detection, a special version of the EOC is required. The EOC signal is transmitted to the measurement server.
- The function of the measurement server is to perform the time critical tasks such as signal filtering, control of the robot operation and fast movement interrupts.
- The Light Beam used is for probe alignment. This improves the (absolute) accuracy of the probe positioning.
- A computer running WinXP or Win7 and the DASY software.
- Remote control and teach pendant as well as additional circuitry for robot safety such as warning lamps, etc.
- The phantom, the device holder and other accessories according to the targeted measurement.

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6.2 DASY5 E-field Probe System

The SAR measurements were conducted with the dosimetric probe EX3DV4(manufactured by SPEAG), designed in the classical triangular configuration and optimized for dosimetric evaluation.

EX3DV4 Probe Specification

Construction	Symmetrical design with triangular core Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., DGBE)
Calibration	ISO/IEC 17025 calibration service available
Frequency	10 MHz to > 6 GHz Linearity: ± 0.2 dB (30 MHz to 6 GHz)
Directivity	± 0.3 dB in HSL (rotation around probe axis) ± 0.5 dB in tissue material (rotation normal to probe axis)
Dynamic Range	10 µW/g to > 100 mW/g Linearity: ± 0.2dB (noise: typically < 1 µW/g)
Dimensions	Overall length: 330 mm (Tip: 20 mm) Tip diameter: 2.5 mm (Body: 12 mm) Typical distance from probe tip to dipole centers: 1 mm
Application	High precision dosimetric measurements in any exposure Scenario (e.g., very strong gradient fields). Only probe which enables compliance testing for frequencies up to 6 GHz with precision of better 30%.

E-field Probe Calibration

Each probe is calibrated according to a dosimetric assessment procedure with accuracy better than ± 10%. The spherical isotropy was evaluated and found to be better than ± 0.25dB. The sensitivity parameters (NormX, NormY, NormZ), the diode compression parameter (DCP) and the conversion factor (ConvF) of the probe are tested.

The free space E-field from amplified probe outputs is determined in a test chamber. This is performed in a TEM cell for frequencies bellow 1 GHz, and in a wave guide above 1 GHz for free space. For the free space calibration, the probe is placed in the volumetric center of the cavity and at the proper orientation with the field. The probe is then rotated 360 degrees.

E-field temperature correlation calibration is performed in a flat phantom filled with the appropriate simulated brain tissue. The measured free space E-field in the medium correlates to temperature rise in a dielectric medium. For temperature correlation calibration a RF transparent thermistor-based temperature probe is used in conjunction with the E-field probe.

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$$SAR=C\Delta T/\Delta t$$

Where: Δt = Exposure time (30 seconds),

C = Heat capacity of tissue (brain or muscle),

ΔT = Temperature increase due to RF exposure.

Or

$$SAR=|E|^2\sigma/\rho$$

Where: σ = Simulated tissue conductivity,

ρ = Tissue density (kg/m^3).

6.3 SAR Measurement Procedure

Power Reference Measurement

The Power Reference Measurement and Power Drift Measurements are for monitoring the power drift of the device under test in the batch process. The minimum distance of probe sensors to surface determines the closest measurement point to phantom surface. This distance cannot be smaller than the distance of sensor calibration points to probe tip as defined in the probe properties.

Area Scan

The area scan is used as a fast scan in two dimensions to find the area of high field values, before doing a fine measurement around the hot spot. The sophisticated interpolation routines implemented in DASY software can find the maximum found in the scanned area, within a range of the global maximum. The range (in dB) is specified in the standards for compliance testing. For example, a 2 dB range is required in IEEE standard 1528 and IEC 62209 standards, whereby 3 dB is a requirement when compliance is assessed in accordance with the ARIB standard (Japan), if only one zoom scan follows the area scan, then only the absolute maximum will be taken as reference. For cases where multiple maximums are detected, the number of zoom scans has to be increased accordingly.

Area scan parameters extracted from FCC KDB 865664 D01 SAR measurement 100 MHz to 6 GHz.

	≤3 GHz	> 3 GHz
Maximum distance from closest measurement point (geometric center of probe sensors) to phantom surface	5 ± 1 mm	½·δ·ln(2) ± 0.5 mm
Maximum probe angle from probe axis to phantom surface normal at the measurement location	30° ± 1°	20° ± 1°
Maximum area scan spatial resolution: ΔxArea, ΔyArea	≤ 2 GHz: ≤ 15 mm 2 – 3 GHz: ≤ 12 mm	3 – 4 GHz: ≤ 12 mm 4 – 6 GHz: ≤ 10 mm
	When the x or y dimension of the test device, in the measurement plane orientation, is smaller than the above, the measurement resolution must be ≤ the corresponding x or y dimension of the test device with at least one measurement point on the test device.	

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Zoom Scan

Zoom scans are used assess the peak spatial SAR values within a cubic averaging volume containing 1 gram and 10 gram of simulated tissue. The zoom scan measures points (refer to table below) within a cube shoes base faces are centered on the maxima found in a preceding area scan job within the same procedure. When the measurement is done, the zoom scan evaluates the averaged SAR for 1 gram and 10 gram and displays these values next to the job's label.

Zoom scan parameters extracted from FCC KDB 865664 D01 SAR measurement 100 MHz to 6 GHz.

			≤3GHz	> 3 GHz
Maximum zoom scan spatial resolution: $\triangle x_{zoom} \triangle y_{zoom}$			≤2GHz: ≤8mm 2 – 3GHz: ≤5mm*	3 – 4GHz: ≤5mm* 4 – 6GHz: ≤4mm*
Maximum zoom scan spatial resolution, normal to phantom surface	Uniform grid: $\triangle z_{zoom}(n)$		≤5mm	3 – 4GHz: ≤4mm 4 – 5GHz: ≤3mm 5 – 6GHz: ≤2mm
	Graded grid	$\triangle z_{zoom}(1)$: between 1st two points closest to phantom surface	≤4mm	3 – 4GHz: ≤3mm 4 – 5GHz: ≤2.5mm 5 – 6GHz: ≤2mm
		$\triangle z_{zoom}(n>1)$: between subsequent points	≤1.5•$\triangle z_{zoom}(n-1)$	
Minimum zoom scan volume	X, y, z		≥30mm	3 – 4GHz: ≥28mm 4 – 5GHz: ≥25mm 5 – 6GHz: ≥22mm
Note: δ is the penetration depth of a plane-wave at normal incidence to the tissue medium; see draft standard IEEE P1528-2011 for details. * When zoom scan is required and the *reported* SAR from the *area scan based 1-g SAR estimation* procedures of KDB 447498 is ≤ 1.4W/kg, ≤8mm, ≤7mm and ≤5mm zoom scan resolution may be applied, respectively, for 2GHz to 3GHz, 3GHz to 4GHz and 4GHz to 6GHz.				

Volume Scan Procedures

The volume scan is used for assess overlapping SAR distributions for antennas transmitting in different frequency bands. It is equivalent to an oversized zoom scan used in standalone measurements. The measurement volume will be used to enclose all the simultaneous transmitting antennas. For antennas transmitting simultaneously in different frequency bands, the volume scan is measured separately in each frequency band. In order to sum correctly to compute the 1g aggregate SAR, the EUT remain in the same test position for all measurements and all volume scan use the same spatial resolution and grid spacing. When all volume scan were completed, the software, SEMCAD postprocessor can combine and subsequently superpose these measurement data to calculating the multiband SAR.

Power Drift Monitoring

All SAR testing is under the EUT install full charged battery and transmit maximum output power. In DASY measurement software, the power reference measurement and power drift measurement procedures are used for monitoring the power drift of EUT during SAR test. Both these procedures measure the field at a specified reference position before and after the SAR testing. The software will calculate the field difference in dB. If the power drifts more than 5%, the SAR will be retested.

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7 Main Test Equipment

Name of Equipment	Manufacturer	Type/Model	Serial Number	Last Cal.	Cal. Due Date
Network analyzer	Agilent	E5071B	MY42404014	2020-05-17	2021-05-16
Dielectric Probe Kit	HP	85070E	US44020115	2020-05-17	2021-05-16
Power meter	Agilent	E4417A	GB41291714	2020-05-17	2021-05-16
Power sensor	Agilent	N8481H	MY50350004	2020-05-17	2021-05-16
Power sensor	Agilent	E9327A	US40441622	2020-05-17	2021-05-16
Dual directional coupler	Agilent	778D-012	50519	/	/
Dual directional coupler	Agilent	777D	50146	/	/
Amplifier	INDEXSAR	IXA-020	0401	2020-05-17	2021-05-16
Wireless communication tester	Anritsu	MT8820C	6201342015	2020-05-17	2021-05-16
Wideband radio communication tester	R&S	CMW 500	113645	2020-05-17	2021-05-16
Base Station Simulator	R&S	CMW270	100673	2020-05-17	2021-05-16
E-field Probe	SPEAG	EX3DV4	3677	2019-06-19	2020-06-18
E-field Probe	SPEAG	EX3DV4	7515	2019-10-22	2020-10-21
DAE	SPEAG	DAE4	1317	2019-10-23	2020-10-22
Validation Kit 750MHz	SPEAG	D750V3	1045	2017-08-27	2020-08-26
Validation Kit 835MHz	SPEAG	D835V2	4d020	2017-08-28	2020-08-27
Validation Kit 1750MHz	SPEAG	D1750V2	1033	2020-02-25	2023-02-24
Validation Kit 1900MHz	SPEAG	D1900V2	5d060	2017-08-26	2020-08-25
Validation Kit 2450MHz	SPEAG	D2450V2	786	2017-08-29	2020-08-28
Validation Kit 2600MHz	SPEAG	D2600V2	1025	2018-05-02	2021-05-01
Validation Kit 5GHz	SPEAG	D5GHzV2	1151	2020-02-27	2023-02-26
Temperature Probe	Tianjin jinming	JM222	AA1009129	2020-05-17	2021-05-16
Hygrothermograph	Anymetr	NT-311	20150731	2020-05-17	2021-05-16
Twin SAM Phantom	Speag	SAM1	TP-1534	/	/
Software for Test	Speag	DASY52	/	/	/

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Softwarefor Tissue	Agilent	85070	/	/	/

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8 Tissue Dielectric Parameter Measurements & System Verification

8.1 Tissue Verification

The temperature of the tissue-equivalent medium used during measurement must also be within 18°C to 25°C and within ± 2°C of the temperature when the tissue parameters are characterized. The dielectric parameters must be measured before the tissue-equivalent medium is used in a series of SAR measurements. The parameters should be re-measured after each 24 hours of use; or earlier if the dielectric parameters can become out of tolerance.

Target values

Frequency (MHz)	Water (%)	Salt (%)	Sugar (%)	Glycol (%)	Preventol (%)	Cellulose (%)	ε_r	σ(s/m)
750	41.448	1.452	56	0	0.1	1.0	41.9	0.89
835	41.45	1.45	56	0	0.1	1.0	41.5	0.90
1750	55.24	0.31	0	44.45	0	0	40.1	1.37
1900	55.242	0.306	0	44.452	0	0	40.0	1.40
2450	62.7	0.5	0	36.8	0	0	39.2	1.80
2600	55.242	0.306	0	44.452	0	0	39.0	1.96
Frequency (MHz)	**Water (%)**	**Diethylenglycol monohexylether**			**Triton X-100**		**ε_r**	**σ(s/m)**
5250	65.53	17.24			17.23		35.9	4.71
5600	65.53	17.24			17.23		35.5	5.07
5750	65.53	17.24			17.23		35.4	5.22

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Measurements results

Frequency (MHz)	Test Date	Temp ℃	Measured Dielectric Parameters		Target Dielectric Parameters		Limit (Within ±5%)	
			ε_r	σ(s/m)	ε_r	σ(s/m)	Dev ε_r(%)	Dev σ(%)
750	5/25/2020	21.5	42.3	0.88	41.9	0.89	0.95	-1.12
	6/28/2020	21.5	42.0	0.87	41.9	0.89	0.24	-2.25
835	5/20/2020	21.5	41.3	0.87	41.5	0.90	-0.48	-3.33
	5/23/2020	21.5	41.4	0.92	41.5	0.90	-0.24	2.22
	6/28/2020	21.5	41.4	0.88	41.5	0.90	-0.24	-2.22
1750	5/21/2020	21.5	40.1	1.34	40.1	1.37	0.00	-2.19
	6/28/2020	21.5	40.2	1.36	40.1	1.37	0.25	-0.73
1900	5/19/2020	21.5	40.2	1.43	40.0	1.40	0.50	2.14
	5/22/2020	21.5	40.0	1.40	40.0	1.40	0.00	0.00
	6/28/2020	21.5	40.1	1.41	40.0	1.40	0.25	0.71
2450	5/24/2020	21.5	38.6	1.81	39.2	1.80	-1.53	0.56
	6/28/2020	21.5	38.7	1.88	39.2	1.80	-1.28	4.44
2600	5/24/2020	21.5	38.4	1.94	39.0	1.96	-1.54	-1.02
	6/28/2020	21.5	38.2	2.01	39.0	1.96	-2.05	2.55
5250	5/26/2020	21.5	35.5	4.80	35.9	4.71	-1.11	1.91
	6/29/2020	21.5	36.0	4.86	35.9	4.71	0.28	3.18
5600	5/27/2020	21.5	34.2	5.21	35.5	5.07	-3.66	2.76
	6/29/2020	21.5	34.8	5.19	35.5	5.07	-1.97	2.37
5750	5/27/2020	21.5	34.9	5.21	35.4	5.22	-1.41	-0.19
	6/29/2020	21.5	34.0	5.30	35.4	5.22	-3.95	1.53
Note: The depth of tissue-equivalent liquid in a phantom must be ≥ 15.0 cm for SAR measurements ≤ 3 GHz and ≥ 10.0 cm for measurements > 3 GHz.								

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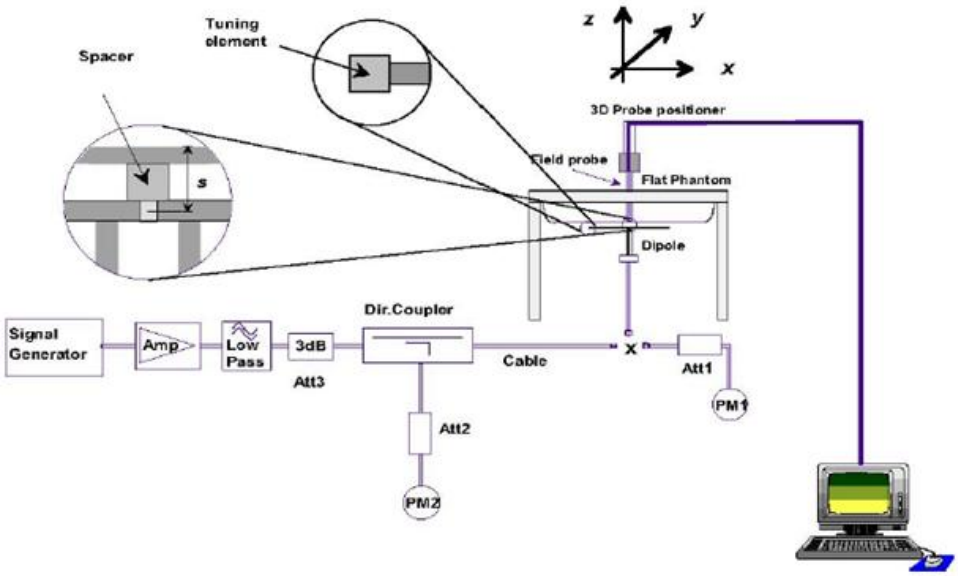
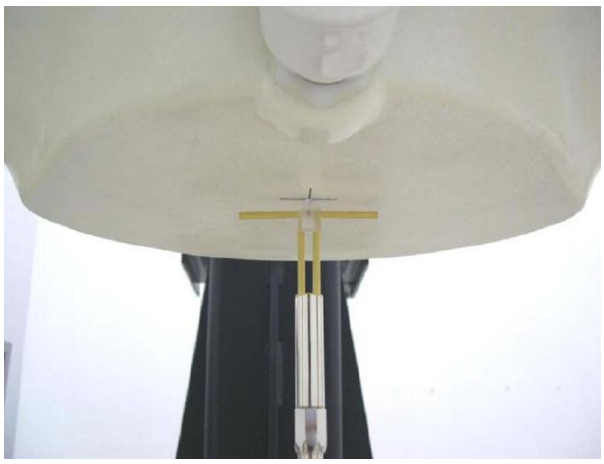
8.2 System Performance Check

The manufacturer calibrates the probes annually. Dielectric parameters of the tissue simulates were measured using the dielectric probe kit and the network analyzer. A system check measurement for every day was made following the determination of the dielectric parameters of the Tissue simulates, using the dipole validation kit. The dipole antenna was placed under the flat section of the twin SAM phantom.

System check is performed regularly on all frequency bands where tests are performed with the DASY system.



Picture 1System Performance Check setup



Picture 2 Setup Photo

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Justification for Extended SAR Dipole Calibrations

Usage of SAR dipoles calibrated less than 3 years ago but more than 1 year ago were confirmed in maintaining return loss (< - 20 dB, within 20% of prior calibration) and impedance (within 5 ohm from prior calibration) requirements per extended calibrations in KDB 865664 D01:

Dipole		Date of Measurement	Return Loss(dB)	Δ %	Impedance (Ω)	ΔΩ
Dipole D750V3 SN: 1045	Head Liquid	8/27/2017	-28.5	/	52.5	/
		8/26/2018	-27.6	3.3	53.2	-0.7
		8/25/2019	-27.5	0.4	54.1	-0.9
Dipole D835V2 SN: 4d020	Head Liquid	8/28/2017	-31.9	/	50.3	/
		8/27/2018	-29.0	10.0	46.6	3.7
		8/26/2019	-29.4	-1.4	45.9	0.7
Dipole D1900V2 SN: 5d060	Head Liquid	8/26/2017	-23.4	/	52.0	/
		8/25/2018	-24.7	-5.3	54.4	-2.4
		8/24/2019	-24.9	-0.8	56.2	-1.8
Dipole D2450V2 SN: 786	Head Liquid	8/29/2017	-25.5	/	53.4	/
		8/28/2018	-23.0	10.9	57.2	-3.8
		8/27/2019	-22.2	3.6	56.4	0.8
Dipole D2600V2 SN: 1025	Head Liquid	5/2/2018	-22.0	/	48.1	/
		5/1/2019	-22.5	-2.2	48.7	-0.6

System Check results

Frequency (MHz)	Test Date	Temp ℃	250mW /100mW Measured SAR_{1g} (W/kg)	1W Normalized SAR_{1g} (W/kg)	1W Target SAR_{1g} (W/kg)	Δ % (Limit ±10%)	Plot No.
750	5/25/2020	21.5	2.13	8.52	8.34	2.16	1
	6/28/2020	21.5	2.10	8.40	8.34	0.72	2
835	5/20/2020	21.5	2.46	9.84	9.45	4.13	3
	5/23/2020	21.5	2.43	9.72	9.45	2.86	4
	6/28/2020	21.5	2.44	9.76	9.45	3.28	5
1750	5/21/2020	21.5	9.11	36.44	35.90	1.50	6
	6/28/2020	21.5	8.96	35.84	35.90	-0.17	7
1900	5/19/2020	21.5	9.85	39.40	40.10	-1.75	8
	5/22/2020	21.5	10.55	42.20	40.10	5.24	9
	6/28/2020	21.5	9.88	39.52	40.10	-1.45	10
2450	5/24/2020	21.5	13.70	54.80	52.60	4.18	11
	6/28/2020	21.5	12.50	50.00	52.60	-4.94	12
2600	5/24/2020	21.5	13.88	55.52	54.10	2.62	13
	6/28/2020	21.5	13.90	55.60	54.10	2.77	14
5250	5/26/2020	21.5	7.87	78.7	78.00	0.90	15

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	6/29/2020	21.5	7.46	74.6	78.00	-4.36	16
5600	5/27/2020	21.5	7.67	76.7	80.50	-4.72	17
	6/29/2020	21.5	8.10	81.0	80.50	0.62	18
5750	5/27/2020	21.5	7.66	76.6	77.40	-1.03	19
	6/29/2020	21.5	7.15	71.5	77.40	-7.62	20
Note：Target Values used derive from the calibration certificate Data Storage and Evaluation.							

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8.3 SAR System Validation

Per FCC KDB 865664 D02v01, SAR system verification is required to confirm measurement accuracy. The SAR systems (including SAR probes, system components and software versions) used for this device were validated against its performance specifications prior to the SAR measurements. Reference dipoles are used with the required tissue-equivalent media for system validation, according to the procedures outlined in FCC KDB 865664 D01 and IEEE 1528-2013. Since SAR probe calibrations are frequency dependent, each probe calibration point must be validated at a frequency within the valid frequency range of the probe calibration point, using the system that normally operates with the probe for routine SAR measurements and according to the required tissue-equivalent media.

a tabulated summary of the system validation status, measurement frequencies, SAR probes, calibrated signal type(s) and tissue dielectric parameters has been included.

Frequency [MHz]	Date	Probe SN	Probe Type	Probe Cal Point		PERM (Er)	COND (Σ)	CW Validation			Mod. Validation		
								Sensitivity	Probe Linearity	Probe Isotropy	Mod. Type	Duty Factor	PAR
750	5/25/2020	3677	EX3DV4	750	Head	42.81	0.85	PASS	PASS	PASS	FDD	PASS	N/A
835	5/20/2020	3677	EX3DV4	835	Head	42.22	0.90	PASS	PASS	PASS	GMSK	PASS	N/A
1750	5/21/2020	3677	EX3DV4	1750	Head	39.91	1.32	PASS	PASS	PASS	NA	N/A	N/A
1900	5/19/2020	3677	EX3DV4	1900	Head	39.43	1.42	PASS	PASS	PASS	GMSK	PASS	N/A
2450	5/24/2020	3677	EX3DV4	2450	Head	38.19	1.83	PASS	PASS	PASS	OFDM	PASS	PASS
2600	5/24/2020	3677	EX3DV4	2600	Head	37.60	1.99	PASS	PASS	PASS	TDD	PASS	N/A
5250	5/26/2020	3677	EX3DV4	5250	Head	35.36	4.83	PASS	PASS	PASS	OFDM	N/A	PASS
5600	5/27/2020	3677	EX3DV4	5600	Head	34.43	5.29	PASS	PASS	PASS	OFDM	N/A	PASS
5750	5/27/2020	3677	EX3DV4	5750	Head	34.07	5.47	PASS	PASS	PASS	OFDM	N/A	PASS
750	5/25/2020	3677	EX3DV4	750	Body	55.35	0.99	PASS	PASS	PASS	FDD	PASS	N/A
835	5/23/2020	3677	EX3DV4	835	Body	54.88	0.98	PASS	PASS	PASS	GMSK	PASS	N/A
1750	5/21/2020	3677	EX3DV4	1750	Body	51.24	1.44	PASS	PASS	PASS	NA	N/A	N/A
1900	5/22/2020	3677	EX3DV4	1900	Body	50.98	1.56	PASS	PASS	PASS	GMSK	PASS	N/A
2450	5/24/2020	3677	EX3DV4	2450	Body	50.59	1.95	PASS	PASS	PASS	OFDM	PASS	PASS
2600	5/24/2020	3677	EX3DV4	2600	Body	50.14	2.13	PASS	PASS	PASS	TDD	PASS	N/A
5250	5/26/2020	3677	EX3DV4	5250	Body	47.37	5.44	PASS	PASS	PASS	OFDM	N/A	PASS
5600	5/27/2020	3677	EX3DV4	5600	Body	46.42	5.99	PASS	PASS	PASS	OFDM	N/A	PASS
5750	5/27/2020	3677	EX3DV4	5750	Body	46.02	6.23	PASS	PASS	PASS	OFDM	N/A	PASS
750	6/28/2020	7515	EX3DV4	750	Head	42.81	0.85	PASS	PASS	PASS	FDD	PASS	N/A
835	6/28/2020	7515	EX3DV4	835	Head	42.22	0.90	PASS	PASS	PASS	GMSK	PASS	N/A
1750	6/28/2020	7515	EX3DV4	1750	Head	39.91	1.32	PASS	PASS	PASS	NA	N/A	N/A
1900	6/28/2020	7515	EX3DV4	1900	Head	39.43	1.42	PASS	PASS	PASS	GMSK	PASS	N/A
2450	6/28/2020	7515	EX3DV4	2450	Head	38.19	1.83	PASS	PASS	PASS	OFDM	PASS	PASS
2600	6/28/2020	7515	EX3DV4	2600	Head	37.60	1.99	PASS	PASS	PASS	TDD	PASS	N/A
5250	6/29/2020	7515	EX3DV4	5250	Head	35.36	4.83	PASS	PASS	PASS	OFDM	N/A	PASS
5600	6/29/2020	7515	EX3DV4	5600	Head	34.43	5.29	PASS	PASS	PASS	OFDM	N/A	PASS
5750	6/29/2020	7515	EX3DV4	5750	Head	34.07	5.47	PASS	PASS	PASS	OFDM	N/A	PASS

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750	6/28/2020	7515	EX3DV4	750	Body	55.35	0.99	PASS	PASS	PASS	FDD	PASS	N/A
835	6/28/2020	7515	EX3DV4	835	Body	54.88	0.98	PASS	PASS	PASS	GMSK	PASS	N/A
1750	6/28/2020	7515	EX3DV4	1750	Body	51.24	1.44	PASS	PASS	PASS	NA	N/A	N/A
1900	6/28/2020	7515	EX3DV4	1900	Body	50.98	1.56	PASS	PASS	PASS	GMSK	PASS	N/A
2450	6/28/2020	7515	EX3DV4	2450	Body	50.59	1.95	PASS	PASS	PASS	OFDM	PASS	PASS
2600	6/28/2020	7515	EX3DV4	2600	Body	50.14	2.13	PASS	PASS	PASS	TDD	PASS	N/A
5250	6/29/2020	7515	EX3DV4	5250	Body	47.37	5.44	PASS	PASS	PASS	OFDM	N/A	PASS
5600	6/29/2020	7515	EX3DV4	5600	Body	46.42	5.99	PASS	PASS	PASS	OFDM	N/A	PASS
5750	6/29/2020	7515	EX3DV4	5750	Body	46.02	6.23	PASS	PASS	PASS	OFDM	N/A	PASS

NOTE: While the probes have been calibrated for both CW and modulated signals, all measurements were performed using communication systems calibrated for CW signals only. Modulations in the table above represent test configurations for which the measurement system has been validated per FCC KDB Publication 865664D01v01 for scenarios when CW probe calibrations are used with other signal types. SAR systems were validated for modulated signals with a periodic duty cycle, such as GMSK, or with a high peak to average ratio (>5dB), such as OFDM according to KDB 865664.

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9 Normal and Maximum Output Power

KDB 447498 D01 at the maximum rated output power and within the tune-up tolerance range specified for the product, but not more than 2 dB lower than the maximum tune-up tolerance limit.

9.1 GSM Mode

GSM 850		Burst-Averaged output power(dBm)				Division Factors	Frame-Averaged output power(dBm)			
		Tune-up	Channel/Frenqucy(MHz)				Tune-up	Channel/Frenqucy(MHz)		
		MAX	128 /824.2	190 /836.6	251 /848.8		MAX	128 /824.2	190 /836.6	251 /848.8
GPRS/ EGPRS (GMSK)	1 Tx Slot	34.00	33.42	33.33	33.34	9.03	24.97	24.39	24.30	24.31
	2 Tx Slots	34.00	33.26	33.18	33.24	6.02	27.98	27.24	27.16	27.22
	3 Tx Slots	32.00	31.48	31.57	31.52	4.26	27.74	27.22	27.31	27.26
	4 Tx Slots	31.00	30.13	30.31	30.07	3.01	**27.99**	27.12	27.10	27.06
EGPRS (8PSK)	1 Tx Slot	28.50	27.76	27.72	27.59	9.03	19.47	18.73	18.69	18.56
	2 Tx Slots	28.00	27.04	27.12	27.17	6.02	21.98	21.02	21.10	21.15
	3 Tx Slots	28.00	26.96	27.02	26.95	4.26	23.74	22.70	22.76	22.69
	4 Tx Slots	27.50	26.47	26.72	26.87	3.01	24.49	23.46	23.71	23.86
GSM 1900		Burst-Averaged output power(dBm)				Division Factors	Frame-Averaged output power(dBm)			
		Tune-up	Channel/Frenqucy(MHz)				Tune-up	Channel/Frenqucy(MHz)		
		MAX	512 /1850.2	661 /1880	810 /1909.8		MAX	512 /1850.2	661 /1880	810 /1909.8
GPRS/ EGPRS (GMSK)	1 Tx Slot	31.50	30.78	30.63	30.63	9.03	22.47	21.75	21.60	21.60
	2 Tx Slots	31.50	30.69	30.48	30.51	6.02	25.48	24.67	24.46	24.49
	3 Tx Slots	31.00	30.41	30.27	30.34	4.26	26.74	26.15	26.01	26.08
	4 Tx Slots	31.00	30.33	30.11	30.16	3.01	**27.99**	27.32	27.10	27.15
EGPRS (8PSK)	1 Tx Slot	27.50	26.72	26.84	26.74	9.03	18.47	17.69	17.81	17.71
	2 Tx Slots	27.00	26.27	26.32	26.28	6.02	20.98	20.25	20.30	20.26
	3 Tx Slots	27.00	26.07	25.96	26.02	4.26	22.74	21.81	21.70	21.76
	4 Tx Slots	27.00	25.92	25.76	25.72	3.01	23.99	22.91	22.75	22.71

Notes:The worst-case configuration and mode for SAR testing is determined to be as follows:
1. Standalone: GSM 850 GMSK (GPRS) mode with 4 time slots for Max power, GSM 1900 GMSK (GPRS) mode with 4 time slots for Max power,based on the output power measurements above.

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9.2 WCDMA Mode

The following tests were completed according to the test requirements outlined in the 3GPP TS34.121 specification.

WCDMA		Band II(dBm)				Band IV(dBm)				Band V(dBm)			
Tx Channel		9262	9400	9538	Tune-up Limit	1312	1413	1513	Tune-up Limit	4132	4183	4233	Tune-up Limit
Frequency(MHz)		1852.4	1880	1907.6		1712.4	1732.6	1752.6		826.4	836.6	846.6	
RMC	12.2kbps	22.98	22.96	22.79	24.00	23.01	23.01	23.03	24.00	23.19	23.28	23.21	24.00
AMR	12.2kbps	22.88	22.87	22.66	24.00	22.87	22.89	23.01	24.00	23.09	23.19	23.08	24.00
HSDPA	Sub 1	22.34	22.28	22.10	23.00	22.27	22.43	22.47	23.00	22.65	22.70	22.65	23.00
	Sub 2	22.33	22.30	22.07	23.00	22.26	22.45	22.44	23.00	22.64	22.72	22.62	23.00
	Sub 3	21.80	21.80	21.59	22.50	21.73	21.95	21.96	22.50	22.11	22.22	22.14	22.50
	Sub 4	21.81	21.81	21.57	22.50	21.74	21.96	21.94	22.50	22.12	22.23	22.12	22.50
HSUPA	Sub 1	22.30	22.27	22.05	23.00	22.23	22.42	22.42	23.00	22.61	22.69	22.60	23.00
	Sub 2	21.29	21.25	21.04	22.00	21.22	21.40	21.41	22.00	21.60	21.67	21.59	22.00
	Sub 3	21.76	21.73	21.53	22.50	21.69	21.88	21.90	22.50	22.07	22.15	22.08	22.50
	Sub 4	21.22	21.22	21.01	22.00	21.15	21.37	21.38	22.00	21.53	21.64	21.56	22.00
	Sub 5	22.23	22.20	21.99	23.00	22.16	22.35	22.36	23.00	22.54	22.62	22.54	23.00
DC-HSDPA	Sub 1	22.22	22.22	22.00	23.00	22.15	22.37	22.37	23.00	22.53	22.64	22.55	23.00
	Sub 2	22.21	22.21	21.99	23.00	22.14	22.36	22.36	23.00	22.52	22.63	22.54	23.00
	Sub 3	21.79	21.70	21.50	22.50	21.72	21.85	21.87	22.50	22.10	22.12	22.05	22.50
	Sub 4	21.78	21.69	21.49	22.50	21.71	21.84	21.86	22.50	22.09	22.11	22.04	22.50
HSPA+	16QAM	21.77	21.77	21.56	23.00	21.70	21.92	21.93	23.00	22.08	22.19	22.11	23.00

Note: 1.Per KDB 941225 D01, SAR for each exposure is measured using a 12.2 kbps RMC with TPC bits configured to all “1’s”.

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9.3 LTE Mode

UE Power Class: 3 (23 +/- 2dBm). The allowed Maximum Power Reduction (MPR) for the maximum output power due to higher order modulation and transmit bandwidth configuration (resource blocks) is specified in Table 6.2.3-1 of the 3GPP TS36.101.

Table 6.2.3-1: Maximum Power Reduction (MPR) for Power Class 3

Modulation	Channel bandwidth / Transmission bandwidth (N_{RB})						MPR (dB)
	1.4 MHz	3.0 MHz	5 MHz	10 MHz	15 MHz	20 MHz	
QPSK	> 5	> 4	> 8	> 12	> 16	> 18	≤ 1
16 QAM	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16	≤ 18	≤ 1
16 QAM	> 5	> 4	> 8	> 12	> 16	> 18	≤ 2

LTE FDD Band 2				Conducted Power(dBm)			Tune-up Limit
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency (MHz)			
				18607/1850.7	18900/1880	19193/1909.3	
1.4MHz	QPSK	1	0	22.41	22.62	22.38	23.50
		1	2	22.66	22.77	22.55	23.50
		1	5	22.53	22.67	22.41	23.50
		3	0	22.63	22.51	22.46	23.50
		3	2	22.64	22.49	22.35	23.50
		3	3	22.64	22.48	22.25	23.50
		6	0	21.61	21.56	21.51	22.50
	16QAM	1	0	21.93	21.78	21.50	22.50
		1	2	21.10	22.04	21.59	22.50
		1	5	20.96	21.86	21.49	22.50
		3	0	21.13	21.88	21.38	22.50
		3	2	21.93	21.87	21.48	22.50
		3	3	21.55	21.89	21.36	22.50
		6	0	20.63	20.82	20.49	21.50
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency (MHz)			Tune-up Limit
				18615/1851.5	18900/1880	19185/1908.5	
3MHz	QPSK	1	0	22.33	22.63	22.51	23.50
		1	7	22.30	22.44	22.40	23.50
		1	14	22.73	22.62	22.51	23.50
		8	0	21.64	21.67	21.48	22.50
		8	4	21.70	21.67	21.48	22.50
		8	7	21.66	21.64	21.53	22.50
		15	0	21.69	21.65	21.55	22.50
	16QAM	1	0	21.63	21.97	21.65	22.50
		1	7	21.42	21.66	21.45	22.50
		1	14	21.77	21.92	21.56	22.50
		8	0	20.45	20.61	20.76	21.50

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		8	4	20.48	20.62	20.44	21.50
		8	7	20.51	20.49	20.38	21.50
		15	0	20.31	20.38	20.39	21.50
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency (MHz)			Tune-up Limit
				18625/1852.5	18900/1880	19175/1907.5	
5MHz	QPSK	1	0	22.73	22.52	22.55	23.50
		1	13	22.49	22.48	22.38	23.50
		1	24	22.60	22.90	22.42	23.50
		12	0	21.65	21.67	21.59	22.50
		12	6	21.64	21.66	21.59	22.50
		12	13	21.68	21.69	21.50	22.50
		25	0	21.65	21.70	21.49	22.50
	16QAM	1	0	21.74	22.02	21.66	22.50
		1	13	21.69	21.49	21.61	22.50
		1	24	21.44	21.78	21.64	22.50
		12	0	20.81	20.88	20.78	21.50
		12	6	20.81	20.88	20.77	21.50
		12	13	20.92	20.90	20.72	21.50
		25	0	20.92	20.80	20.84	21.50
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency (MHz)			Tune-up Limit
				18650/1855	18900/1880	19150/1905	
10MHz	QPSK	1	0	22.58	22.70	22.58	23.50
		1	25	22.57	22.59	22.53	23.50
		1	49	22.85	22.64	22.47	23.50
		25	0	21.69	21.71	21.67	22.50
		25	13	21.69	21.70	21.67	22.50
		25	25	21.76	21.67	21.57	22.50
		50	0	21.67	21.74	21.58	22.50
	16QAM	1	0	21.68	21.81	21.17	22.50
		1	25	21.59	21.81	21.51	22.50
		1	49	21.95	21.85	21.28	22.50
		25	0	20.70	20.69	20.61	21.50
		25	13	20.70	20.70	20.60	21.50
		25	25	20.69	20.63	20.47	21.50
		50	0	20.72	20.65	20.61	21.50
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency (MHz)			Tune-up Limit
				18675/1857.5	18900/1880	19125/1902.5	
15MHz	QPSK	1	0	22.87	22.72	22.81	23.50
		1	38	22.54	22.49	22.56	23.50
		1	74	22.77	22.70	22.78	23.50
		36	0	21.78	21.76	21.60	22.50
		36	18	21.78	21.75	21.61	22.50
		36	39	21.78	21.72	21.74	22.50

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		75	0	21.69	21.73	21.71	22.50
	16QAM	1	0	21.71	22.45	21.63	22.50
		1	38	21.47	21.82	21.20	22.50
		1	74	21.72	22.46	21.92	22.50
		36	0	20.76	20.71	20.55	21.50
		36	18	20.76	20.72	20.55	21.50
		36	39	20.76	20.78	20.66	21.50
		75	0	20.77	20.79	20.66	21.50
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency (MHz)			Tune-up Limit
				18700/1860	18900/1880	19100/1900	
20MHz	QPSK	1	0	**22.70**	**22.99**	22.69	23.50
		1	50	**22.70**	22.91	22.68	23.50
		1	99	22.68	22.97	**22.73**	23.50
		50	0	21.72	**21.78**	21.65	22.50
		50	25	**21.77**	**21.78**	21.64	22.50
		50	50	21.72	21.70	**21.74**	22.50
		100	0	21.69	**21.75**	21.64	22.50
	16QAM	1	0	22.01	22.02	21.50	22.50
		1	50	21.96	21.76	21.18	22.50
		1	99	21.92	21.56	21.38	22.50
		50	0	20.78	20.71	20.53	21.50
		50	25	20.79	20.71	20.54	21.50
		50	50	20.80	20.64	20.61	21.50
		100	0	20.76	20.73	20.59	21.50

LTE FDD Band 4				**Conducted Power(dBm)**			Tune-up Limit
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency (MHz)			
				19957/1710.7	20175/1732.5	20393/1754.3	
1.4MHz	QPSK	1	0	22.89	22.72	22.65	23.50
		1	2	23.07	22.84	22.78	23.50
		1	5	22.87	22.70	22.60	23.50
		3	0	22.81	22.81	22.55	23.50
		3	2	22.81	22.82	22.55	23.50
		3	3	22.75	22.70	22.54	23.50
		6	0	21.82	21.84	21.72	22.50
	16QAM	1	0	22.08	21.88	21.64	22.50
		1	2	22.27	21.84	21.65	22.50
		1	5	22.09	21.75	21.54	22.50
		3	0	22.01	21.96	21.59	22.50
		3	2	22.00	22.05	21.47	22.50
		3	3	21.72	22.02	21.57	22.50
		6	0	20.86	20.84	20.81	21.50

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Bandwidth	Modulation	RB size	RB offset	Channel/Frequency (MHz)			Tune-up Limit
				19965/1711.5	20175/1732.5	20385/1753.5	
3MHz	QPSK	1	0	22.71	22.82	22.55	23.50
		1	7	22.61	22.66	22.54	23.50
		1	14	22.66	22.68	22.72	23.50
		8	0	21.88	21.83	21.70	22.50
		8	4	21.89	21.83	21.70	22.50
		8	7	21.76	21.74	21.77	22.50
		15	0	21.84	21.81	21.70	22.50
	16QAM	1	0	21.71	22.37	21.48	22.50
		1	7	21.68	21.97	21.44	22.50
		1	14	21.99	22.26	21.65	22.50
		8	0	20.68	20.87	20.55	21.50
		8	4	20.69	20.86	20.55	21.50
		8	7	20.67	20.69	20.75	21.50
		15	0	20.63	20.63	20.59	21.50
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency (MHz)			Tune-up Limit
				19975/1712.5	20175/1732.5	20375/1752.5	
5MHz	QPSK	1	0	22.70	22.63	22.53	23.50
		1	13	22.65	22.50	22.41	23.50
		1	24	22.92	22.91	22.82	23.50
		12	0	21.87	21.94	21.64	22.50
		12	6	21.87	21.94	21.64	22.50
		12	13	21.78	21.70	21.71	22.50
		25	0	21.88	21.77	21.64	22.50
	16QAM	1	0	21.50	21.82	21.33	22.50
		1	13	21.24	21.42	21.38	22.50
		1	24	21.19	21.35	21.44	22.50
		12	0	20.71	20.49	20.54	21.50
		12	6	20.89	20.58	20.68	21.50
		12	13	20.83	20.49	20.79	21.50
		25	0	20.90	20.50	20.73	21.50
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency (MHz)			Tune-up Limit
				20000/1715	20175/1732.5	20350/1750	
10MHz	QPSK	1	0	22.75	22.86	22.59	23.50
		1	25	22.52	22.90	22.37	23.50
		1	49	22.63	22.82	22.66	23.50
		25	0	21.85	21.72	21.56	22.50
		25	13	21.86	21.80	21.67	22.50
		25	25	21.77	21.76	21.77	22.50
		50	0	21.83	21.88	21.76	22.50
	16QAM	1	0	21.98	22.11	21.51	22.50
		1	25	21.83	21.92	21.46	22.50

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		1	49	21.87	21.83	21.69	22.50
		25	0	20.78	20.86	20.52	21.50
		25	13	20.79	20.76	20.62	21.50
		25	25	20.70	20.74	20.61	21.50
		50	0	20.72	20.68	20.71	21.50
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency (MHz)			Tune-up Limit
				20025/1717.5	20175/1732.5	20325/1747.5	
15MHz	QPSK	1	0	23.07	23.07	22.99	23.50
		1	38	22.72	22.72	22.37	23.50
		1	74	22.70	22.70	22.77	23.50
		36	0	21.75	21.75	21.65	22.50
		36	18	21.76	21.76	21.65	22.50
		36	39	21.69	21.69	21.58	22.50
		75	0	21.81	21.81	21.69	22.50
	16QAM	1	0	22.10	22.10	21.75	22.50
		1	38	21.60	21.60	21.31	22.50
		1	74	21.85	21.85	21.71	22.50
		36	0	20.82	20.82	20.69	21.50
		36	18	20.83	20.83	20.70	21.50
		36	39	20.76	20.76	20.62	21.50
		75	0	20.74	20.74	20.70	21.50
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency (MHz)			Tune-up Limit
				20050/1720	20175/1732.5	20300/1745	
20MHz	QPSK	1	0	22.89	23.01	**22.97**	23.50
		1	50	22.58	**23.06**	22.53	23.50
		1	99	**23.06**	22.82	22.71	23.50
		50	0	**21.75**	**21.82**	**21.87**	22.50
		50	25	21.74	21.80	**21.87**	22.50
		50	50	21.66	21.80	21.61	22.50
		100	0	21.71	**21.81**	21.69	22.50
	16QAM	1	0	22.11	21.68	21.70	22.50
		1	50	21.95	21.64	21.71	22.50
		1	99	21.82	21.87	21.93	22.50
		50	0	20.72	20.87	20.77	21.50
		50	25	20.71	20.73	20.77	21.50
		50	50	20.62	20.73	20.70	21.50
		100	0	20.69	20.79	20.73	21.50

LTE FDD Band 5				Conducted Power(dBm)			Tune-up Limit
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency (MHz)			
				20407/824.7	20525/836.5	20643/848.3	
1.4MHz	QPSK	1	0	23.03	23.19	23.00	24.00

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		1	2	23.15	23.26	23.13	24.00
		1	5	22.99	23.09	22.93	24.00
		3	0	23.09	23.25	23.07	24.00
		3	2	22.98	23.25	23.06	24.00
		3	3	23.02	23.15	22.97	24.00
		6	0	22.08	22.20	22.11	23.00
	16QAM	1	0	22.04	22.30	22.00	23.00
		1	2	22.25	22.40	22.03	23.00
		1	5	22.10	22.22	21.88	23.00
		3	0	21.83	22.09	21.85	23.00
		3	2	21.82	21.92	21.85	23.00
		3	3	22.01	21.86	21.76	23.00
		6	0	21.03	20.92	21.12	22.00
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency (MHz)			Tune-up Limit
				20415/825.5	20525/836.5	20635/847.5	
3MHz	QPSK	1	0	23.04	23.04	23.06	24.00
		1	7	22.99	22.89	22.96	24.00
		1	14	23.08	23.03	23.09	24.00
		8	0	22.22	22.18	22.13	23.00
		8	4	22.21	22.18	22.13	23.00
		8	7	22.11	22.14	22.10	23.00
		15	0	22.18	22.21	22.22	23.00
	16QAM	1	0	22.23	22.41	22.11	23.00
		1	7	21.85	22.10	22.05	23.00
		1	14	21.81	22.33	22.03	23.00
		8	0	21.26	21.40	21.29	22.00
		8	4	21.29	21.40	21.30	22.00
		8	7	21.19	21.27	21.26	22.00
		15	0	21.11	21.25	21.20	22.00
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency (MHz)			Tune-up Limit
				20425/826.5	20525/836.5	20625/846.5	
5MHz	QPSK	1	0	23.13	23.04	22.93	24.00
		1	13	23.01	22.99	22.85	24.00
		1	24	23.11	23.36	23.07	24.00
		12	0	22.26	22.22	22.19	23.00
		12	6	22.27	22.22	22.20	23.00
		12	13	22.09	22.14	22.15	23.00
		25	0	22.22	22.19	22.15	23.00
	16QAM	1	0	21.65	22.26	22.31	23.00
		1	13	21.50	21.85	22.18	23.00
		1	24	21.56	22.07	22.34	23.00
		12	0	21.19	20.86	21.31	22.00
		12	6	21.21	20.86	21.31	22.00

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		12	13	21.14	20.77	21.26	22.00
		25	0	21.13	20.77	21.18	22.00
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency (MHz)			Tune-up Limit
				20450/829	20525/836.5	20600/844	
10MHz	QPSK	1	0	**23.12**	**23.14**	**23.21**	24.00
		1	25	22.97	22.98	23.05	24.00
		1	49	23.05	22.89	23.16	24.00
		25	0	**22.29**	**22.20**	**22.20**	23.00
		25	13	**22.29**	**22.20**	22.15	23.00
		25	25	22.11	22.08	22.18	23.00
		50	0	22.16	22.22	**22.31**	23.00
	16QAM	1	0	21.95	22.50	22.22	23.00
		1	25	22.03	22.40	21.96	23.00
		1	49	21.96	22.20	22.07	23.00
		25	0	21.22	21.09	21.40	22.00
		25	13	21.22	21.00	21.41	22.00
		25	25	21.02	21.04	21.38	22.00
		50	0	21.08	21.03	21.30	22.00

LTE FDD Band 7				Conducted Power(dBm)			Tune-up Limit
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency (MHz)			
				20775/2502.5	21100/2535	21425/2567.5	
5MHz	QPSK	1	0	22.41	22.41	22.04	23.50
		1	13	21.95	22.38	22.15	23.50
		1	24	22.28	22.62	22.10	23.50
		12	0	21.10	21.54	21.22	22.50
		12	6	21.10	21.54	21.21	22.50
		12	13	21.03	21.56	21.17	22.50
		25	0	21.04	21.54	21.25	22.50
	16QAM	1	0	20.79	21.11	20.87	22.50
		1	13	21.48	21.14	21.02	22.50
		1	24	20.72	21.17	20.57	22.50
		12	0	19.97	20.50	20.04	21.50
		12	6	20.01	20.56	20.04	21.50
		12	13	20.01	20.56	20.02	21.50
		25	0	19.97	20.33	20.27	21.50
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency (MHz)			Tune-up Limit
				20800/2505	21100/2535	21400/2565	
10MHz	QPSK	1	0	22.14	22.68	22.42	23.50
		1	25	22.03	22.64	22.31	23.50
		1	49	22.27	22.79	22.23	23.50
		25	0	21.09	21.59	21.57	22.50

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		25	13	21.08	21.59	21.47	22.50
		25	25	21.17	21.58	21.33	22.50
		50	0	21.06	21.64	21.41	22.50
	16QAM	1	0	21.07	21.85	21.41	22.50
		1	25	20.93	21.74	21.28	22.50
		1	49	21.15	21.95	21.13	22.50
		25	0	20.00	20.68	20.43	21.50
		25	13	20.01	20.68	20.44	21.50
		25	25	20.05	20.67	20.20	21.50
		50	0	20.13	20.58	20.30	21.50
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency (MHz)			Tune-up Limit
				20825/2507.5	21100/2535	21375/2562.5	
15MHz	QPSK	1	0	22.24	22.57	22.66	23.50
		1	38	22.06	22.46	22.27	23.50
		1	74	22.21	22.52	22.44	23.50
		36	0	21.08	21.68	21.53	22.50
		36	18	21.08	21.69	21.54	22.50
		36	39	21.17	21.62	21.27	22.50
		75	0	21.08	21.58	21.44	22.50
	16QAM	1	0	21.37	21.85	21.52	22.50
		1	38	20.98	21.77	21.14	22.50
		1	74	21.30	22.09	21.21	22.50
		36	0	20.11	20.65	20.50	21.50
		36	18	20.12	20.65	20.51	21.50
		36	39	20.18	20.59	20.33	21.50
		75	0	20.10	20.65	20.46	21.50
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency (MHz)			Tune-up Limit
				20850/2510	21100/2535	21350/2560	
20MHz	QPSK	1	0	22.27	22.66	**22.73**	23.50
		1	50	22.31	22.65	22.36	23.50
		1	99	**22.48**	**22.93**	22.28	23.50
		50	0	**21.20**	21.60	21.41	22.50
		50	25	**21.20**	21.59	**21.42**	22.50
		50	50	21.11	**21.64**	21.21	22.50
		100	0	21.24	**21.56**	21.34	22.50
	16QAM	1	0	20.79	21.67	21.34	22.50
		1	50	20.66	21.64	21.49	22.50
		1	99	21.06	21.32	21.35	22.50
		50	0	20.36	20.42	20.51	21.50
		50	25	20.36	20.44	20.47	21.50
		50	50	20.21	20.48	20.23	21.50
		100	0	20.32	20.56	20.34	21.50

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LTE FDD Band 12				Conducted Power(dBm)			Tune-up Limit
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency (MHz)			
				23017/699.7	23095/707.5	23173/715.3	
1.4MHz	QPSK	1	0	23.02	23.04	23.03	24.00
		1	2	23.08	23.04	23.27	24.00
		1	5	23.15	23.03	23.10	24.00
		3	0	23.15	23.12	22.97	24.00
		3	2	23.14	23.02	22.96	24.00
		3	3	23.12	23.05	23.06	24.00
		6	0	22.09	22.10	22.23	23.00
	16QAM	1	0	22.14	22.59	21.58	23.00
		1	2	22.34	22.44	21.49	23.00
		1	5	22.22	22.52	21.52	23.00
		3	0	21.86	22.35	21.55	23.00
		3	2	22.30	22.35	21.55	23.00
		3	3	22.41	22.42	21.55	23.00
		6	0	21.11	21.25	21.09	22.00
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency (MHz)			Tune-up Limit
				23025/700.5	23095/707.5	23165/714.5	
3MHz	QPSK	1	0	22.86	22.99	22.78	24.00
		1	7	22.94	23.02	22.82	24.00
		1	14	22.91	22.98	23.07	24.00
		8	0	22.15	22.18	21.97	23.00
		8	4	22.15	22.19	21.98	23.00
		8	7	22.12	22.08	22.22	23.00
		15	0	22.24	22.13	22.14	23.00
	16QAM	1	0	22.19	22.16	21.39	23.00
		1	7	22.05	22.18	21.12	23.00
		1	14	22.04	22.12	21.34	23.00
		8	0	21.18	21.19	20.88	22.00
		8	4	21.18	21.20	20.90	22.00
		8	7	21.17	21.32	21.05	22.00
		15	0	21.12	21.25	21.02	22.00
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency (MHz)			Tune-up Limit
				23035/701.5	23095/707.5	23155/713.5	
5MHz	QPSK	1	0	22.86	22.90	22.80	24.00
		1	13	22.59	22.90	22.61	24.00
		1	24	22.97	23.02	22.91	24.00
		12	0	22.12	22.11	21.98	23.00
		12	6	22.12	22.12	21.99	23.00
		12	13	22.13	21.98	22.05	23.00
		25	0	22.11	22.00	22.10	23.00
	16QAM	1	0	21.59	22.08	22.24	23.00

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		1	13	21.53	21.85	21.98	23.00
		1	24	21.75	21.94	22.14	23.00
		12	0	20.82	20.80	20.74	22.00
		12	6	20.83	20.80	20.74	22.00
		12	13	20.90	20.76	20.83	22.00
		25	0	20.96	20.63	20.94	22.00
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency (MHz)			Tune-up Limit
				23060/704	23095/707.5	23130/711	
10MHz	QPSK	1	0	23.00	23.24	**23.15**	24.00
		1	25	**23.16**	**23.35**	23.04	24.00
		1	49	23.00	22.99	23.06	24.00
		25	0	**22.08**	**21.99**	22.10	23.00
		25	13	**22.08**	**21.99**	**22.11**	23.00
		25	25	22.06	21.88	22.00	23.00
		50	0	22.03	**22.06**	22.03	23.00
	16QAM	1	0	22.22	22.16	21.14	23.00
		1	25	22.09	22.30	22.25	23.00
		1	49	21.78	22.12	22.10	23.00
		25	0	21.06	20.96	20.94	22.00
		25	13	21.06	20.96	20.94	22.00
		25	25	21.06	20.84	20.86	22.00
		50	0	20.90	20.72	20.92	22.00

LTE FDD Band 13				Conducted Power(dBm)			Tune-up Limit
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency (MHz)			
				23205/779.5	23230/782	23255/784.5	
5MHz	QPSK	1	0	23.31	22.94	23.06	24.00
		1	13	23.13	22.80	22.76	24.00
		1	24	23.24	22.61	22.73	24.00
		12	0	22.20	22.12	22.05	23.00
		12	6	22.20	22.12	22.05	23.00
		12	13	22.18	21.92	22.08	23.00
		25	0	22.19	22.14	22.09	23.00
	16QAM	1	0	22.15	22.09	21.87	23.00
		1	13	21.51	21.71	21.59	23.00
		1	24	21.53	21.54	21.64	23.00
		12	0	20.90	21.09	21.08	22.00
		12	6	20.97	21.08	21.08	22.00
		12	13	21.08	20.88	20.90	22.00
		25	0	21.10	20.93	20.96	22.00
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency (MHz)			Tune-up Limit
				/	23230/782	/	

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10MHz	QPSK	1	0	/	22.96	/	24.00
		1	25	/	**23.25**	/	24.00
		1	49	/	22.89	/	24.00
		25	0	/	**22.20**	/	23.00
		25	13	/	22.19	/	23.00
		25	25	/	21.96	/	23.00
		50	0	/	**22.12**	/	23.00
	16QAM	1	0	/	21.72	/	23.00
		1	25	/	21.81	/	23.00
		1	49	/	21.50	/	23.00
		25	0	/	21.29	/	22.00
		25	13	/	21.29	/	22.00
		25	25	/	20.98	/	22.00
		50	0	/	21.11	/	22.00

LTE FDD Band 25				Conducted Power(dBm)			Tune-up
Bandwidth	Modulation	RB allocation	offset	Channel/Frequency(MHz)			
				26047/1850.7	26365/1882.5	26683/1914.3	
1.4MHz	QPSK	1	0	22.57	22.50	22.45	23.50
		1	2	22.67	22.74	22.50	23.50
		1	5	22.63	22.54	22.41	23.50
		3	0	22.58	22.66	22.32	23.50
		3	2	22.57	22.64	22.31	23.50
		3	3	22.51	22.51	22.38	23.50
		6	0	21.62	21.60	21.47	22.50
	16QAM	1	0	21.94	21.86	20.78	22.50
		1	2	22.09	21.87	20.84	22.50
		1	5	21.90	21.81	20.52	22.50
		3	0	21.82	21.51	21.07	22.50
		3	2	21.85	21.52	21.07	22.50
		3	3	21.89	21.61	20.99	22.50
		6	0	20.67	20.67	20.52	21.50
Bandwidth	Modulation	RB allocation	offset	Channel/Frequency(MHz)			Tune-up
				26055/1851.5	26365/1882.5	26675/1913.5	
3MHz	QPSK	1	0	22.36	22.29	22.35	23.50
		1	7	22.24	22.41	22.18	23.50
		1	14	22.21	22.41	22.38	23.50
		8	0	21.64	21.55	21.62	22.50
		8	4	21.63	21.56	21.62	22.50
		8	7	21.65	21.66	21.54	22.50
		15	0	21.69	21.54	21.51	22.50
	16QAM	1	0	21.51	21.11	21.46	22.50

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		1	7	21.27	20.55	21.10	22.50
		1	14	21.05	20.62	21.11	22.50
		8	0	20.58	20.62	20.34	21.50
		8	4	20.59	20.69	20.43	21.50
		8	7	20.61	20.73	20.38	21.50
		15	0	20.60	20.42	20.45	21.50
Bandwidth	Modulation	RB allocation	offset	Channel/Frequency(MHz)			Tune-up
				26065/1852.5	26365/1882.5	26665/1912.5	
5MHz	QPSK	1	0	22.35	22.76	22.16	23.50
		1	13	22.18	22.56	22.10	23.50
		1	24	22.38	22.61	22.30	23.50
		12	0	21.62	21.70	21.43	22.50
		12	6	21.62	21.70	21.44	22.50
		12	13	21.54	21.72	21.58	22.50
		25	0	21.51	21.63	21.49	22.50
	16QAM	1	0	21.46	21.68	21.18	22.50
		1	13	21.10	21.58	21.35	22.50
		1	24	21.11	21.65	21.67	22.50
		12	0	20.34	20.51	20.62	21.50
		12	6	20.43	20.51	20.63	21.50
		12	13	20.38	20.53	20.59	21.50
		25	0	20.45	20.53	20.56	21.50
Bandwidth	Modulation	RB allocation	offset	Channel/Frequency(MHz)			Tune-up
				26090/1855	26365/1882.5	26640/1910	
10MHz	QPSK	1	0	22.61	22.77	22.49	23.50
		1	25	22.53	22.92	22.53	23.50
		1	49	22.67	22.64	22.63	23.50
		25	0	21.58	21.77	21.57	22.50
		25	13	21.57	21.77	21.58	22.50
		25	25	21.74	21.75	21.49	22.50
		50	0	21.65	21.71	21.62	22.50
	16QAM	1	0	21.68	22.01	21.10	22.50
		1	25	21.56	22.09	20.88	22.50
		1	49	21.71	21.83	20.85	22.50
		25	0	20.48	20.84	20.61	21.50
		25	13	20.48	20.83	20.50	21.50
		25	25	20.74	20.82	20.36	21.50
		50	0	20.59	20.86	20.55	21.50
Bandwidth	Modulation	RB allocation	offset	Channel/Frequency(MHz)			Tune-up
				26115/1857.5	26365/1882.5	26615/1907.5	
15MHz	QPSK	1	0	22.65	22.80	22.63	23.50
		1	38	22.71	22.67	22.46	23.50
		1	74	22.63	22.63	22.32	23.50

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		36	0	21.62	21.77	21.55	22.50
		36	18	21.61	21.79	21.55	22.50
		36	39	21.80	21.78	21.40	22.50
		75	0	21.61	21.68	21.46	22.50
	16QAM	1	0	21.54	21.91	21.53	22.50
		1	38	21.57	21.85	21.39	22.50
		1	74	21.48	22.23	21.26	22.50
		36	0	20.57	20.82	20.55	21.50
		36	18	20.57	20.82	20.56	21.50
		36	39	20.76	20.71	20.36	21.50
		75	0	20.48	20.54	20.40	21.50
Bandwidth	Modulation	RB allocation	offset	Channel/Frequency(MHz)			Tune-up
				26140/1860	26365/1882.5	26590/1905	
20MHz	QPSK	1	0	22.74	22.70	22.54	23.50
		1	50	**23.02**	**22.85**	**22.65**	23.50
		1	99	22.66	22.66	22.23	23.50
		50	0	21.54	**21.74**	**21.49**	22.50
		50	25	21.64	**21.74**	**21.49**	22.50
		50	50	**21.66**	21.65	21.34	22.50
		100	0	21.53	**21.71**	21.54	22.50
	16QAM	1	0	21.43	21.53	21.24	22.50
		1	50	21.28	21.51	21.44	22.50
		1	99	21.02	21.49	21.20	22.50
		50	0	20.61	20.76	20.55	21.50
		50	25	20.62	20.76	20.55	21.50
		50	50	20.81	20.67	20.32	21.50
		100	0	20.58	20.58	20.47	21.50

LTE FDD Band 26				Conducted Power(dBm)			Tune-up Limit
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency (MHz)			
				26697/814.7	26865/831.5	27033/848.3	
1.4MHz	QPSK	1	0	22.90	23.25	22.79	24.00
		1	2	23.02	22.94	22.92	24.00
		1	5	23.03	23.04	22.72	24.00
		3	0	22.92	23.11	22.85	24.00
		3	2	22.90	23.12	22.85	24.00
		3	3	22.97	23.04	22.76	24.00
		6	0	22.00	22.12	21.93	23.00
	16QAM	1	0	21.90	22.59	21.81	23.00
		1	2	22.04	22.01	21.84	23.00
		1	5	21.84	22.34	21.69	23.00
		3	0	22.12	21.89	21.76	23.00

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		3	2	22.20	21.89	21.76	23.00
		3	3	22.21	21.96	21.66	23.00
		6	0	21.22	21.06	20.96	22.00
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency (MHz)			Tune-up Limit
				26705/815.5	26865/831.5	27025/847.5	
3MHz	QPSK	1	0	23.00	23.29	22.92	24.00
		1	7	22.94	22.97	22.80	24.00
		1	14	23.06	23.09	22.91	24.00
		8	0	22.22	22.23	22.00	23.00
		8	4	22.23	22.22	22.00	23.00
		8	7	22.11	22.15	21.88	23.00
		15	0	22.15	22.16	21.99	23.00
	16QAM	1	0	22.32	22.61	22.14	23.00
		1	7	21.99	22.01	21.41	23.00
		1	14	22.27	22.38	21.33	23.00
		8	0	21.03	21.02	21.08	22.00
		8	4	21.32	21.02	21.09	22.00
		8	7	21.22	21.08	20.97	22.00
		15	0	21.19	21.10	21.19	22.00
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency (MHz)			Tune-up Limit
				26715/816.5	26865/831.5	27015/846.5	
5MHz	QPSK	1	0	22.96	23.27	22.81	24.00
		1	13	22.86	22.93	22.64	24.00
		1	24	22.96	23.04	22.83	24.00
		12	0	22.08	22.18	22.12	23.00
		12	6	22.09	22.18	22.12	23.00
		12	13	22.11	22.13	21.96	23.00
		25	0	22.16	22.15	22.09	23.00
	16QAM	1	0	21.72	22.57	21.91	23.00
		1	13	21.45	21.99	21.60	23.00
		1	24	21.53	22.36	21.66	23.00
		12	0	20.96	20.98	21.08	22.00
		12	6	20.96	20.97	21.08	22.00
		12	13	20.92	21.03	20.82	22.00
		25	0	21.03	21.06	20.80	22.00
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency (MHz)			Tune-up Limit
				26750/820	26865/831.5	26990/844	
10MHz	QPSK	1	0	23.00	23.28	22.90	24.00
		1	25	23.01	22.98	23.04	24.00
		1	49	23.27	23.08	22.85	24.00
		25	0	22.20	22.23	22.19	23.00
		25	13	22.20	22.23	22.12	23.00
		25	25	22.04	22.17	22.04	23.00

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		50	0	22.11	22.17	22.15	23.00
	16QAM	1	0	22.22	22.60	21.47	23.00
		1	25	21.78	22.03	21.70	23.00
		1	49	21.98	22.38	21.41	23.00
		25	0	20.96	21.03	21.30	22.00
		25	13	20.96	21.01	21.22	22.00
		25	25	20.80	21.08	21.15	22.00
		50	0	20.85	21.11	21.04	22.00
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency (MHz)			Tune-up Limit
				26775/822.5	26865/831.5	26965/841.5	
15MHz	QPSK	1	0	**23.18**	**23.20**	**23.08**	24.00
		1	38	22.96	22.93	22.88	24.00
		1	74	22.92	23.02	22.90	24.00
		36	0	**22.08**	**22.14**	22.08	23.00
		36	18	22.07	**22.14**	**22.09**	23.00
		36	39	22.03	22.09	22.01	23.00
		75	0	22.09	22.08	**22.12**	23.00
	16QAM	1	0	22.29	22.54	22.14	23.00
		1	38	21.86	21.98	21.77	23.00
		1	74	22.04	22.31	21.77	23.00
		36	0	21.08	20.97	21.16	22.00
		36	18	21.08	20.94	21.15	22.00
		36	39	20.99	20.99	21.01	22.00
		75	0	20.98	21.02	21.20	22.00

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9.4 WLAN Mode

Wi-Fi 2.4G Mode	Channel /Frequency(MHz)	Maximum Output Power (dBm)		
		Tune-up	Meas.	TP Set Level
802.11b (1M)	1/2412	16.50	15.09	17
	6/2437	16.50	15.48	17
	11/2462	16.50	16.09	17
802.11g (6M)	1/2412	20.00	18.18	14.5
	6/2437	20.00	18.29	14.5
	11/2462	20.00	18.72	14.5
802.11n-HT20 (MCS0)	1/2412	20.00	18.21	14.5
	6/2437	20.00	18.41	14.5
	11/2462	20.00	18.54	14.5
802.11n-HT40 (MCS0)	3/2422	19.50	**19.05**	14
	6/2437	19.50	18.48	14
	9/2452	19.50	18.74	14
Note: Initial test configuration is 802.11n-HT40 mode.				

Wi-Fi 5G (U-NII-1) Mode	Channel /Frequency(MHz)	Maximum Output Power (dBm)		
		Tune-up	Meas.	TP Set Level
802.11a (6M)	36/5180	12.50	11.58	14
	40/5200	12.50	**12.23**	14
	44/5220	12.50	12.20	14
	48/5240	12.50	12.07	14
802.11n-HT20 (MCS0)	36/5180	12.00	11.55	13.5
	40/5200	12.00	11.83	13.5
	44/5220	12.00	11.59	13.5
	48/5240	12.00	11.68	13.5
802.11n-HT40 (MCS0)	38/5190	11.50	10.48	13
	46/5230	11.50	10.37	13
Note. Initial test configuration is 802.11a mode, since the highest maximum output power.				

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Wi-Fi 5G (U-NII-2A) Mode	Channel /Frequency(MHz)	Maximum Output Power (dBm)		
		Tune-up	Meas.	TP Set Level
802.11a (6M)	52/5260	12.50	**11.98**	14
	56/5280	12.50	11.32	14
	60/5300	12.50	10.96	14
	64/5320	12.50	10.05	14
802.11n-HT20 (MCS0)	52/5260	12.00	11.65	13.5
	56/5280	12.00	11.24	13.5
	60/5300	12.00	10.54	13.5
	64/5320	12.00	9.86	13.5
802.11n-HT40 (MCS0)	54/5270	11.50	10.41	13
	62/5310	11.50	8.76	13
Note. Initial test configuration is 802.11a mode, since the highest maximum output power.				

Wi-Fi 5G (U-NII-2C) Mode	Channel /Frequency(MHz)	Maximum Output Power (dBm)		
		Tune-up	Meas.	TP Set Level
802.11a (6M)	100/5500	11.00	10.12	14
	116/5580	11.00	**10.31**	14
	132/5660	11.00	9.87	14
	140/5700	11.00	9.54	14
802.11n-HT20 (MCS0)	100/5500	10.50	9.44	13.5
	116/5580	10.50	9.67	13.5
	132/5660	10.50	9.20	13.5
	140/5700	10.50	9.28	13.5
802.11n-HT40 (MCS0)	102/5510	10.00	8.51	13
	110/5550	10.00	8.31	13
	118/5590	10.00	8.06	13
	134/5670	10.00	7.81	13
Note. Initial test configuration is 802.11a mode, since the highest maximum output power.				

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Wi-Fi 5G (U-NII-3) Mode	Channel /Frequency(MHz)	Maximum Output Power (dBm)		
		Tune-up	Meas.	TP Set Level
802.11a (6M)	149/5745	11.00	10.37	14
	157/5785	11.00	**10.45**	14
	165/5825	11.00	9.54	14
802.11n-HT20 (MCS0)	149/5745	10.50	10.12	13.5
	157/5785	10.50	9.60	13.5
	165/5825	10.50	9.22	13.5
802.11n-HT40 (MCS0)	151/5755	10.00	9.09	13
	159/5795	10.00	8.94	13
Note. Initial test configuration is 802.11a mode, since the highest maximum output power.				

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9.5 Bluetooth Mode

BT	Conducted Power(dBm)			Tune-up Limit (dBm)
	Channel/Frequency(MHz)			
	Ch 0/2402 MHz	Ch 39/2441 MHz	Ch 78/2480 MHz	
GFSK	7.92	8.05	7.49	9.00
π/4DQPSK	7.34	7.98	7.33	9.00
8DPSK	7.84	8.03	7.43	9.00
BLE	**Ch 0/2402 MHz**	**Ch 19/2440 MHz**	**Ch 39/2480 MHz**	**Tune-up Limit (dBm)**
GFSK	-1.38	-1.17	-1.25	1.00

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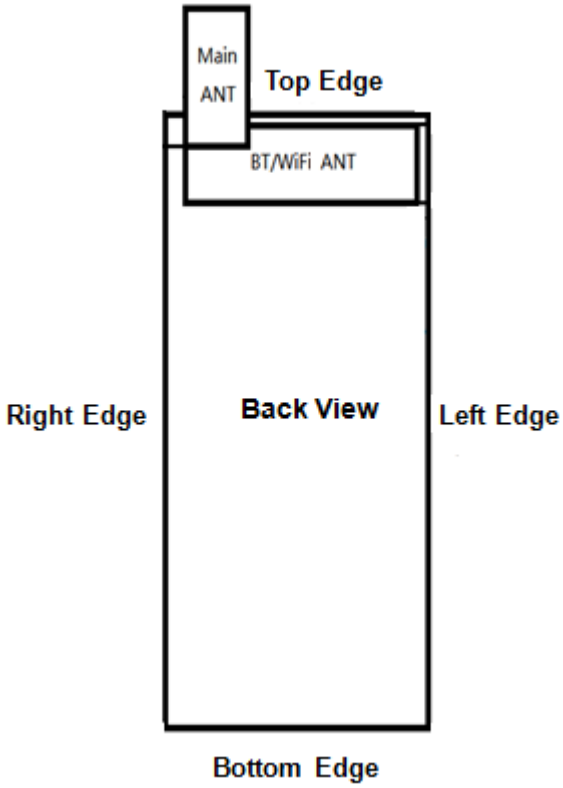
10 Measured and Reported (Scaled) SAR Results

10.1 EUT Antenna Locations



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Overall (Length x Width x height): 148.0 mm x 61.0 mm x 27.0mm Overall Diagonal: 154.0 mm/Display Diagonal: 51.0mm						
Distance of the Antenna to the EUT surface/edge						
Antenna	Back Side	Front side	Left Edge	Right Edge	Top Edge	Bottom Edge
Main-Antenna	<25mm	<25mm	>25mm	<25mm	<25mm	>25mm
BT/Wi-Fi Antenna	<25mm	<25mm	<25mm	<25mm	<25mm	>25mm
Positions for SAR tests						
Mode	Back Side	Front side	Left Edge	Right Edge	Top Edge	Bottom Edge
Main-Antenna	Yes	Yes	N/A	Yes	Yes	N/A
BT/Wi-Fi Antenna	Yes	Yes	Yes	Yes	Yes	N/A

Note: 1. Per KDB 941225 D06, when the overall device length and width are ≥ 9cm*5cm, the test distance is 10mm. SAR must be measured for all sides and surfaces with a transmitting antenna located within 25mm from that surface or edge.

2. Per FCC KDB 447498 D01,

for each exposure position, testing of other requised channels within the operating mode of a frequency band is not required when the reported 1-g or 10-g SAR for the mid-band or highest output power channel is:

a) ≤0.8 W/kg or 2.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≤ 100MHz

b) ≤0.6 W/kg or 1.5 W/kg, for1-g or 10-g respectively, when the transmission band is between 100 MHz and 200 MHz.

c) ≤ 0.4 W/kg or 1.0 Wkg, for 1-g or 10-g respectively, when the transmission band is ≥ 200 MHz.

3.When the original highest measured SAR is ≥ 0.80 W/kg, the measurement was repeated once.

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10.2 Standalone SAR test exclusion considerations

Per KDB 447498 D01, the 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances ≤ 50 mm are determined by:
[(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm)] ·[√f(GHz)] ≤ 3.0 for 1-g SAR and ≤ 7.5 for product specific 10-g SAR

- f(GHz) is the RF channel transmit frequency in GHz
- Power and distance are rounded to the nearest mW and mm before calculation
- The result is rounded to one decimal place for comparison

Per KDB 447498 D01, when the minimum test separation distance is < 5 mm, a distance of 5 mm is applied to determine SAR test exclusion.

Bluetooth	Distance (mm)	MAXPower (dBm)	Frequency (MHz)	Ratio	Evaluation
Head SAR	10	9.00	2480	1.25	No
Extremities SAR	5	9.00	2480	2.50	No

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10.3 Measured SAR Results

Table 8: GSM 850

Test Position	Cover Type	Time slot	Duty Cycle	Channel/ Frequency (MHz)	Tune-up (dBm)	Measured power (dBm)	Limit of SAR 1.6 W/kg (mW/g)					Plot No.
							Measured SAR10g	Measured SAR1g	Power Drift (dB)	Scaling Factor	Report SAR1g	
Head SAR(Distance 10mm)												
Front Side	Standard	4Txslots	1:2.07	128/824.2	31.00	30.13	0.661	0.917	-0.072	1.22	1.120	/
	Standard	4Txslots	1:2.07	190/836.6	31.00	30.31	0.794	1.090	0.060	1.17	1.278	21
	Standard	4Txslots	1:2.07	251/848.8	31.00	30.07	0.720	0.977	-0.052	1.24	1.210	/
Front Side	Repeated	4Txslots	1:2.07	190/836.6	31.00	30.31	0.782	1.020	0.061	1.17	1.196	/
Body-worn(Distance 0mm)												
Back Side	Standard	4Txslots	1:2.07	128/824.2	31.00	30.13	0.682	0.935	-0.130	1.22	1.142	/
Back Side	Standard	4Txslots	1:2.07	190/836.6	31.00	30.31	0.791	1.090	0.000	1.17	1.278	22
Back Side	Standard	4Txslots	1:2.07	251/848.8	31.00	30.07	0.893	1.010	0.010	1.24	1.251	/
Back Side	Repeated	4Txslots	1:2.07	190/836.6	31.00	30.31	0.773	0.983	0.020	1.17	1.152	/
Test Position	Cover Type	Time slot	Duty Cycle	Channel/ Frequency (MHz)	Tune-up (dBm)	Measured power (dBm)	Limit of 10g SAR 4 W/kg (mW/g)					Plot No.
							Measured SAR10g	Measured SAR1g	Power Drift (dB)	Scaling Factor	Report SAR10g	
Extremities SAR(Distance 0mm)												
Back Side	Standard	4Txslots	1:2.07	190/836.6	31.00	30.31	1.140	2.080	-0.170	1.17	1.336	/
Front Side	Standard	4Txslots	1:2.07	190/836.6	31.00	30.31	1.280	2.200	-0.060	1.17	1.500	23
Right Edge	Standard	4Txslots	1:2.07	190/836.6	31.00	30.31	1.030	1.540	0.060	1.17	1.207	/
Top Edge	Standard	4Txslots	1:2.07	190/836.6	31.00	30.31	0.729	2.190	-0.090	1.17	0.855	/
Left Edge	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Bottom Edge	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Note: 1.The value with blue color is the maximum SAR Value of each test band.

2.When multiple slots are used, SAR should be tested to account for the maximum source-based time-averaged output power.

Measurement Variability				
Test Position	Channel/ Frequency(MHz)	MAX Measured SAR_{1g} (W/kg)	1st Repeated SAR_{1g} (W/kg)	Ratio
Front Side	190/836.6	1.090	1.020	1.07
Back Side	190/836.6	1.090	0.983	1.12

Note: 1) A second repeated measurement was preformed only if the ratio of largest to smallest SAR for the original and first repeated measurements was > 1.20 or when the original or repeated measurement was ≥ 1.45 W/kg (~ 10% from the 1-g SAR limit).

2) A third repeated measurement was performed only if the original, first or second repeated measurement was ≥ 1.5 W/kg and the ratio of largest to smallest SAR for the original, first and second repeated measurements is > 1.20.

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Table 9: GSM 1900

Test Position	Cover Type	Time slot	Duty Cycle	Channel/ Frequency (MHz)	Tune-up (dBm)	Measured power (dBm)	Limit of SAR 1.6 W/kg (mW/g)					Plot No.
							Measured SAR10g	Measured SAR1g	Power Drift (dB)	Scaling Factor	Report SAR1g	
Head SAR(Distance 10mm)												
Front Side	standard	4 Tx Slots	1:2.07	661/1880	31.00	30.11	0.299	0.474	0.120	1.23	0.582	24
Body-worn(Distance 0mm)												
Back Side	Standard	4 Tx Slots	1:2.07	661/1880	31.00	30.11	0.223	0.373	-0.060	1.23	0.458	25
Test Position	**Cover Type**	**Time slot**	**Duty Cycle**	**Channel/ Frequency (MHz)**	**Tune-up (dBm)**	**Measured power (dBm)**	**Limit of 10g SAR 4 W/kg (mW/g)**					**Plot No.**
							Measured SAR10g	**Measured SAR1g**	**Power Drift (dB)**	**Scaling Factor**	**Report SAR10g**	
Extremities SAR(Distance 0mm)												
Back Side	Standard	4 Tx Slots	1:2.07	661/1880	31.00	30.11	0.358	0.631	-0.027	1.23	0.439	/
Front Side	Standard	4 Tx Slots	1:2.07	661/1880	31.00	30.11	0.776	1.500	0.020	1.23	0.952	26
Right Edge	Standard	4 Tx Slots	1:2.07	661/1880	31.00	30.11	0.666	1.300	0.090	1.23	0.817	/
Top Edge	Standard	4 Tx Slots	1:2.07	661/1880	31.00	30.11	0.163	0.348	0.010	1.23	0.200	/
Left Edge	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Bottom Edge	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Note: 1.The value with blue color is the maximum SAR Value of each test band.

2.When multiple slots are used, SAR should be tested to account for the maximum source-based time-averaged output power.

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Table 10: UMTS Band II

Test Position	Cover Type	Channel Type	Duty Cycle	Channel/ Frequency (MHz)	Tune-up (dBm)	Measured power (dBm)	Limit of SAR 1.6 W/kg (mW/g)					Plot No.
							Measured SAR10g	Measured SAR1g	Power Drift (dB)	Scaling Factor	Report SAR1g	
Head SAR(Distance 10mm)												
Front Side	Standard	RMC 12.2K	1:1	9262/1852.4	24.00	22.98	0.476	0.746	0.000	1.26	0.943	/
	Standard	RMC 12.2K	1:1	9400/1880	24.00	22.96	0.540	0.859	0.040	1.27	1.091	27
	Standard	RMC 12.2K	1:1	9538/1907.6	24.00	22.79	0.504	0.836	-0.030	1.32	1.105	/
Front Side	Repeated	RMC 12.2K	1:1	9538/1907.6	24.00	22.79	0.495	0.819	0.010	1.32	1.082	/
Body-worn(Distance 0mm)												
Back Side	Standard	RMC 12.2K	1:1	9262/1852.4	24.00	22.98	0.439	0.715	-0.150	1.26	0.904	/
Back Side	Standard	RMC 12.2K	1:1	9400/1880	24.00	22.96	0.446	0.720	-0.080	1.27	0.915	28
Back Side	Standard	RMC 12.2K	1:1	9538/1907.6	24.00	22.79	0.430	0.688	0.130	1.32	0.909	/
Back Side	Repeated	RMC 12.2K	1:1	9400/1880	24.00	22.96	0.446	0.713	0.029	1.27	0.906	/
Test Position	**Cover Type**	**Channel Type**	**Duty Cycle**	**Channel/ Frequency (MHz)**	**Tune-up (dBm)**	**Measured power (dBm)**	**Limit of 10g SAR 4 W/kg (mW/g)**					**Plot No.**
							Measured SAR10g	**Measured SAR1g**	**Power Drift (dB)**	**Scaling Factor**	**Report SAR10g**	
Extremities SAR(Distance 0mm)												
Back Side	standard	RMC 12.2K	1:1	9400/1880	24.00	22.96	0.708	1.260	-0.130	1.27	0.900	/
Front Side	standard	RMC 12.2K	1:1	9400/1880	24.00	22.96	1.550	3.030	0.010	1.27	1.969	29
Right Edge	standard	RMC 12.2K	1:1	9400/1880	24.00	22.96	1.110	2.060	0.000	1.27	1.410	/
Top Edge	standard	RMC 12.2K	1:1	9400/1880	24.00	22.96	0.298	0.620	-0.025	1.27	0.379	/
Left Edge	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Bottom Edge	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Note: 1.The value with blue color is the maximum SAR Value of each test band.

2. When the maximum output power and tune-up tolerance specified for production units in a secondary mode is ≤ ¼ dB higher than the primary mode or when the highest reported SAR of the primary mode is scaled by the ratio of specified maximum output power and tune-up tolerance of secondary to primary mode and the adjusted SAR is ≤ 1.2 W/kg, SAR measurement is not required for the secondary mode.

Measurement Variability				
Test Position	**Channel/ Frequency(MHz)**	**MAX Measured SAR_{1g} (W/kg)**	**1st Repeated SAR_{1g} (W/kg)**	**Ratio**
Front Side	9538/1907.6	0.836	0.819	1.02
Back Side	9400/1880	0.720	0.713	1.01

Note: 1) A second repeated measurement was preformed only if the ratio of largest to smallest SAR for the original and first repeated measurements was > 1.20 or when the original or repeated measurement was ≥ 1.45 W/kg (~ 10% from the 1-g SAR limit).

2) A third repeated measurement was performed only if the original, first or second repeated measurement was ≥ 1.5 W/kg and the ratio of largest to smallest SAR for the original, first and second repeated measurements is > 1.20.

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Table 11: UMTS Band IV

Test Position	Cover Type	Channel Type	Duty Cycle	Channel/ Frequency (MHz)	Tune-up (dBm)	Measured power (dBm)	Limit of SAR 1.6 W/kg (mW/g)					Plot No.
							Measured SAR10g	Measured SAR1g	Power Drift (dB)	Scaling Factor	Report SAR1g	
	Head SAR(Distance 10mm)											
Front Side	Standard	RMC 12.2K	1:1	1413/1732.6	24.00	23.01	0.529	0.815	0.021	1.26	1.024	/
	Standard	RMC 12.2K	1:1	1312/1712.4	24.00	23.01	0.608	0.936	-0.020	1.26	1.176	30
	Standard	RMC 12.2K	1:1	1513/1752.6	24.00	23.03	0.406	0.677	0.027	1.25	0.846	/
Front Side	Repeated	RMC 12.2K	1:1	1312/1712.4	24.00	23.01	0.612	0.928	0.030	1.26	1.166	/
Body-worn(Distance 0mm)												
Back Side	Standard	RMC 12.2K	1:1	1413/1732.6	24.00	23.01	0.542	0.858	0.130	1.26	1.078	31
Back Side	Standard	RMC 12.2K	1:1	1312/1712.4	24.00	23.01	0.525	0.831	0.026	1.26	1.044	/
Back Side	Standard	RMC 12.2K	1:1	1513/1752.6	24.00	23.03	0.464	0.703	0.110	1.25	0.879	/
Back Side	Repeated	RMC 12.2K	1:1	1413/1732.6	24.00	23.01	0.565	0.833	0.160	1.26	1.046	/
Test Position	Cover Type	Channel Type	Duty Cycle	Channel/ Frequency (MHz)	Tune-up (dBm)	Measured power (dBm)	Limit of 10g SAR 4 W/kg (mW/g)					Plot No.
							Measured SAR10g	Measured SAR1g	Power Drift (dB)	Scaling Factor	Report SAR10g	
	Extremities SAR(Distance 0mm)											
Back Side	Standard	RMC 12.2K	1:1	1413/1732.6	24.00	23.01	0.751	1.290	0.034	1.26	0.943	/
Front Side	Standard	RMC 12.2K	1:1	1413/1732.6	24.00	23.01	0.981	1.850	0.070	1.26	1.232	32
Right Edge	Standard	RMC 12.2K	1:1	1413/1732.6	24.00	23.01	0.574	1.030	0.020	1.26	0.721	/
Top Edge	Standard	RMC 12.2K	1:1	1413/1732.6	24.00	23.01	0.369	0.858	0.150	1.26	0.463	/
Left Edge	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Bottom Edge	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Note: 1.The value with blue color is the maximum SAR Value of each test band.

2. When the maximum output power and tune-up tolerance specified for production units in a secondary mode is ≤ ¼ dB higher than the primary mode or when the highest reported SAR of the primary mode is scaled by the ratio of specified maximum output power and tune-up tolerance of secondary to primary mode and the adjusted SAR is ≤ 1.2 W/kg, SAR measurement is not required for the secondary mode.

Measurement Variability				
Test Position	Channel/ Frequency(MHz)	MAX Measured SAR_{1g} (W/kg)	1st Repeated SAR_{1g} (W/kg)	Ratio
Front Side	1312/1712.4	0.936	0.928	1.01
Back Side	1413/1732.6	0.858	0.833	1.03

Note: 1) A second repeated measurement was preformed only if the ratio of largest to smallest SAR for the original and first repeated measurements was > 1.20 or when the original or repeated measurement was ≥ 1.45 W/kg (~ 10% from the 1-g SAR limit).

2) A third repeated measurement was performed only if the original, first or second repeated measurement was ≥ 1.5 W/kg and the ratio of largest to smallest SAR for the original, first and second repeated measurements is > 1.20.

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Table 12: UMTS Band V

Test Position	Cover Type	Channel Type	Duty Cycle	Channel/ Frequency (MHz)	Tune-up (dBm)	Measured power (dBm)	Limit of SAR 1.6 W/kg (mW/g)					Plot No.
							Measured SAR10g	Measured SAR1g	Power Drift (dB)	Scaling Factor	Report SAR1g	
Head SAR(Distance 10mm)												
Front Side	Standard	RMC 12.2K	1:1	4132/826.4	24.00	23.19	0.679	0.930	-0.160	1.21	1.121	/
	Standard	RMC 12.2K	1:1	4183/836.6	24.00	23.28	0.695	0.953	0.010	1.18	1.125	33
	Standard	RMC 12.2K	1:1	4233/846.6	24.00	23.21	0.661	0.906	0.010	1.20	1.087	/
Front Side	Repeated	RMC 12.2K	1:1	4183/836.6	24.00	23.28	0.673	0.948	0.028	1.18	1.119	/
Body-worn(Distance 0mm)												
Back Side	Standard	RMC 12.2K	1:1	4132/826.4	24.00	23.19	0.539	0.733	0.126	1.21	0.883	/
Back Side	Standard	RMC 12.2K	1:1	4183/836.6	24.00	23.28	0.544	0.750	0.040	1.18	0.885	34
Back Side	Standard	RMC 12.2K	1:1	4233/846.6	24.00	23.21	0.506	0.721	0.030	1.20	0.865	/
Back Side	Repeated	RMC 12.2K	1:1	4183/836.6	24.00	23.28	0.549	0.734	0.023	1.18	0.866	/
Test Position	Cover Type	Channel Type	Duty Cycle	Channel/ Frequency (MHz)	Tune-up (dBm)	Measured power (dBm)	Limit of 10g SAR 4 W/kg (mW/g)					Plot No.
							Measured SAR10g	Measured SAR1g	Power Drift (dB)	Scaling Factor	Report SAR10g	
Extremities SAR(Distance 0mm)												
Back Side	Standard	RMC 12.2K	1:1	4183/836.6	24.00	23.28	0.869	1.490	-0.060	1.18	1.026	/
Front Side	Standard	RMC 12.2K	1:1	4183/836.6	24.00	23.28	0.943	1.580	-0.040	1.18	1.113	35
Right Edge	Standard	RMC 12.2K	1:1	4183/836.6	24.00	23.28	0.837	1.260	-0.060	1.18	0.988	/
Top Edge	Standard	RMC 12.2K	1:1	4183/836.6	24.00	23.28	0.507	1.590	-0.070	1.18	0.598	/
Left Edge	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Bottom Edge	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Note: 1.The value with blue color is the maximum SAR Value of each test band.

2. When the maximum output power and tune-up tolerance specified for production units in a secondary mode is ≤ ¼ dB higher than the primary mode or when the highest reported SAR of the primary mode is scaled by the ratio of specified maximum output power and tune-up tolerance of secondary to primary mode and the adjusted SAR is ≤ 1.2 W/kg, SAR measurement is not required for the secondary mode.

Measurement Variability				
Test Position	Channel/ Frequency(MHz)	MAX Measured SAR_{1g} (W/kg)	1st Repeated SAR_{1g} (W/kg)	Ratio
Front Side	4183/836.6	0.953	0.948	1.01
Back Side	4183/836.6	0.750	0.734	1.02

Note: 1) A second repeated measurement was preformed only if the ratio of largest to smallest SAR for the original and first repeated measurements was > 1.20 or when the original or repeated measurement was ≥ 1.45 W/kg (~ 10% from the 1-g SAR limit).

2) A third repeated measurement was performed only if the original, first or second repeated measurement was ≥ 1.5 W/kg and the ratio of largest to smallest SAR for the original, first and second repeated measurements is > 1.20.

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Table 13: LTE Band 2 (20MHz)

Test Position	Cover Type	Duty Cycle	RB allocation	RB offset	Channel/ Frequency (MHz)	Tune-up (dBm)	Measured power (dBm)	Limit of SAR 1.6 W/kg (mW/g)					Plot No.
								Measured SAR10g	Measured SAR1g	Power Drift (dB)	Scaling Factor	Report SAR1g	
Head SAR(QPSK, Distance 10mm)													
Front Side	Standard	1:1	1	0	18700/1860	23.50	22.70	0.458	0.726	0.010	1.20	0.873	/
	Standard	1:1	1	0	18900/1880	23.50	22.99	0.424	0.684	-0.080	1.12	0.769	/
	Standard	1:1	1	99	19100/1900	23.50	22.73	0.524	0.835	-0.100	1.19	0.997	36
Front Side	Standard	1:1	50%	0	18900/1880	22.50	21.78	0.323	0.521	-0.020	1.18	0.615	/
Front Side	Standard	1:1	100%	0	18900/1880	22.50	21.75	0.384	0.611	0.040	1.19	0.726	/
Front Side	Repeated	1:1	1	99	19100/1900	23.50	22.73	0.531	0.828	0.011	1.19	0.989	/
Body-worn(QPSK, Distance 0mm)													
Back Side	Standard	1:1	1	0	18700/1860	23.50	22.70	0.426	0.720	0.031	1.20	0.866	/
Back Side	Standard	1:1	1	0	18900/1880	23.50	22.99	0.478	0.771	-0.028	1.12	0.867	37
Back Side	Standard	1:1	1	99	19100/1900	23.50	22.73	0.415	0.715	0.000	1.19	0.854	/
Back Side	Standard	1:1	50%	0	18900/1880	22.50	21.78	0.377	0.613	0.030	1.18	0.724	/
Back Side	Standard	1:1	100%	0	18900/1880	22.50	21.75	0.385	0.602	0.121	1.19	0.715	/
Back Side	Repeated	1:1	1	0	18900/1880	23.50	22.99	0.470	0.755	0.110	1.12	0.849	/
Test Position	Cover Type	Duty Cycle	RB allocation	RB offset	Channel/ Frequency (MHz)	Tune-up (dBm)	Measured power (dBm)	Limit of 10g SAR 4 W/kg (mW/g)					Plot No.
								Measured SAR10g	Measured SAR1g	Power Drift (dB)	Scaling Factor	Report SAR10g	
Extremities SAR(QPSK, Distance 0mm)													
Back Side	standard	1:1	1	0	18900/1880	23.50	22.99	0.702	1.230	0.080	1.12	0.789	/
Front Side	standard	1:1	1	0	18900/1880	23.50	22.99	1.650	3.200	-0.060	1.12	1.856	38
Right Edge	standard	1:1	1	0	18900/1880	23.50	22.99	1.080	1.950	-0.023	1.12	1.215	/
Top Edge	standard	1:1	1	0	18900/1880	23.50	22.99	0.305	0.627	-0.140	1.12	0.343	/
Left Edge	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Bottom Edge	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Back Side	standard	1:1	50%	0	18900/1880	22.50	21.78	0.526	0.923	0.150	1.18	0.621	/
Front Side	standard	1:1	50%	0	18900/1880	22.50	21.78	1.280	2.510	0.130	1.18	1.511	/
Right Edge	standard	1:1	50%	0	18900/1880	22.50	21.78	0.872	1.650	-0.040	1.18	1.029	/
Top Edge	standard	1:1	50%	0	18900/1880	22.50	21.78	0.222	0.457	-0.070	1.18	0.262	/
Left Edge	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Bottom Edge	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Note: 1.The value with blue color is the maximum SAR Value of each test band.

2.For QPSK with 100% RB allocation, SAR is required when and the highest reported SAR for 1 RB and 50% RB allocation in are≥ 50% limit(1g).

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Measurement Variability				
Test Position	**Channel/ Frequency(MHz)**	**MAX Measured SAR_{1g} (W/kg)**	**1st Repeated SAR_{1g} (W/kg)**	**Ratio**
Front Side	19100/1900	0.835	0.828	1.01
Back Side	18900/1880	0.771	0.755	1.02
Note: 1) A second repeated measurement was preformed only if the ratio of largest to smallest SAR for the original and first repeated measurements was > 1.20 or when the original or repeated measurement was ≥ 1.45 W/kg (~ 10% from the 1-g SAR limit). 2) A third repeated measurement was performed only if the original, first or second repeated measurement was ≥ 1.5 W/kg and the ratio of largest to smallest SAR for the original, first and second repeated measurements is > 1.20.				

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Table 14: LTE Band 4 (20MHz)

Test Position	Cover Type	Duty Cycle	RB allocation	RB offset	Channel/ Frequency (MHz)	Tune-up (dBm)	Measured power (dBm)	Limit of SAR 1.6 W/kg (mW/g)					Plot No.
								Measured SAR10g	Measured SAR1g	Power Drift (dB)	Scaling Factor	Report SAR1g	
Head SAR(QPSK, Distance 10mm)													
Front Side	Standard	1:1	1	99	20050/1720	23.50	23.06	0.508	0.798	-0.050	1.11	0.883	/
	Standard	1:1	1	50	20175/1732.5	23.50	23.06	0.495	0.777	-0.022	1.11	0.860	/
	Standard	1:1	1	0	20300/1745	23.50	22.97	0.541	0.840	-0.240	1.13	0.949	39
Front Side	Standard	1:1	50%	0	20300/1745	22.50	21.87	0.376	0.587	0.020	1.16	0.679	/
Front Side	Standard	1:1	100%	0	20175/1732.5	22.50	21.81	0.390	0.606	-0.050	1.17	0.710	/
Front Side	Repeated	1:1	1	0	20300/1745	23.50	22.97	0.537	0.832	0.026	1.13	0.940	/
Body-worn(QPSK, Distance 0mm)													
Back Side	Standard	1:1	1	99	20050/1720	23.50	23.06	0.496	0.792	-0.030	1.11	0.876	/
Back Side	Standard	1:1	1	50	20175/1732.5	23.50	23.06	0.531	0.847	-0.050	1.11	0.937	40
Back Side	Standard	1:1	1	0	20300/1745	23.50	22.97	0.511	0.825	0.032	1.13	0.932	/
Back Side	Standard	1:1	50%	0	20300/1745	22.50	21.87	0.364	0.559	0.042	1.16	0.646	/
Back Side	Standard	1:1	100%	0	20175/1732.5	22.50	21.81	0.382	0.566	0.140	1.17	0.663	/
Back Side	Repeated	1:1	1	50	20175/1732.5	23.50	23.06	0.533	0.816	0.100	1.11	0.903	/
Test Position	Cover Type	Duty Cycle	RB allocation	RB offset	Channel/ Frequency (MHz)	Tune-up (dBm)	Measured power (dBm)	Limit of 10g SAR 4 W/kg (mW/g)					Plot No.
								Measured SAR10g	Measured SAR1g	Power Drift (dB)	Scaling Factor	Report SAR10g	
Extremities SAR(QPSK, Distance 0mm)													
Back Side	standard	1:1	1	50	20175/1732.5	23.50	23.06	0.608	1.040	0.160	1.11	0.673	/
Front Side	standard	1:1	1	50	20175/1732.5	23.50	23.06	1.020	2.000	-0.090	1.11	1.129	41
Right Edge	standard	1:1	1	50	20175/1732.5	23.50	23.06	0.568	1.040	-0.160	1.11	0.629	/
Top Edge	standard	1:1	1	50	20175/1732.5	23.50	23.06	0.354	0.823	0.036	1.11	0.392	/
Left Edge	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Bottom Edge	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Back Side	standard	1:1	50%	0	20300/1745	22.50	21.87	0.373	0.630	0.028	1.16	0.431	/
Front Side	standard	1:1	50%	0	20300/1745	22.50	21.87	0.664	1.360	0.070	1.16	0.768	/
Right Edge	standard	1:1	50%	0	20300/1745	22.50	21.87	0.243	0.437	-0.020	1.16	0.281	/
Top Edge	standard	1:1	50%	0	20300/1745	22.50	21.87	0.276	0.650	0.160	1.16	0.319	/
Left Edge	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Bottom Edge	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Note: 1.The value with blue color is the maximum SAR Value of each test band.

2.For QPSK with 100% RB allocation, SAR is required when and the highest reported SAR for 1 RB and 50% RB allocation in are⩾ 50% limit(1g).

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Measurement Variability				
Test Position	**Channel/ Frequency(MHz)**	**MAX Measured SAR_{1g} (W/kg)**	**1st Repeated SAR_{1g} (W/kg)**	**Ratio**
Front Side	20300/1745	0.840	0.832	1.01
Back Side	20175/1732.5	0.847	0.816	1.04

Note: 1) A second repeated measurement was preformed only if the ratio of largest to smallest SAR for the original and first repeated measurements was > 1.20 or when the original or repeated measurement was ≥ 1.45 W/kg (~ 10% from the 1-g SAR limit).
2) A third repeated measurement was performed only if the original, first or second repeated measurement was ≥ 1.5 W/kg and the ratio of largest to smallest SAR for the original, first and second repeated measurements is > 1.20.

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Table 15: LTE Band 5 (10MHz)

Test Position	Cover Type	Duty Cycle	RB allocation	RB offset	Channel/ Frequency (MHz)	Tune-up (dBm)	Measured power (dBm)	Limit of SAR 1.6 W/kg (mW/g)					Plot No.
								Measured SAR10g	Measured SAR1g	Power Drift (dB)	Scaling Factor	Report SAR1g	
Head SAR(QPSK, Distance 10mm)													
Front Side	Standard	1:1	1	0	20450/829	24.00	23.12	0.443	0.599	0.090	1.22	0.734	/
	Standard	1:1	1	0	20525/836.5	24.00	23.14	0.428	0.585	-0.022	1.22	0.713	/
	Standard	1:1	1	0	20600/844	24.00	23.21	0.512	0.701	-0.040	1.20	0.841	42
Front Side	Standard	1:1	50%	0	20450/829	23.00	22.29	0.350	0.472	0.020	1.18	0.556	/
Front Side	Standard	1:1	100%	0	20600/844	23.00	22.31	0.442	0.603	0.050	1.17	0.707	/
Front Side	Repeated	1:1	1	0	20600/844	24.00	23.21	0.518	0.695	-0.020	1.20	0.834	/
Body-worn(QPSK, Distance 0mm)													
Back Side	Standard	1:1	1	0	20600/844	24.00	23.21	0.410	0.560	-0.120	1.20	0.672	43
Back Side	Standard	1:1	50%	0	20450/829	23.00	22.29	0.384	0.463	0.070	1.18	0.545	/
Test Position	Cover Type	Duty Cycle	RB allocation	RB offset	Channel/ Frequency (MHz)	Tune-up (dBm)	Measured power (dBm)	Limit of 10g SAR 4 W/kg (mW/g)					Plot No.
								Measured SAR10g	Measured SAR1g	Power Drift (dB)	Scaling Factor	Report SAR10g	
Extremities SAR(QPSK, Distance 0mm)													
Back Side	standard	1:1	1	0	20600/844	24.00	23.21	0.870	1.470	0.040	1.20	1.044	/
Front Side	standard	1:1	1	0	20600/844	24.00	23.21	0.910	1.540	0.033	1.20	1.092	44
Right Edge	standard	1:1	1	0	20600/844	24.00	23.21	0.620	0.910	-0.070	1.20	0.744	/
Top Edge	standard	1:1	1	0	20600/844	24.00	23.21	0.316	0.981	-0.190	1.20	0.379	/
Left Edge	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Bottom Edge	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Back Side	standard	1:1	50%	0	20450/829	24.00	22.29	0.691	1.210	-0.040	1.48	1.024	/
Front Side	standard	1:1	50%	0	20450/829	24.00	22.29	0.669	1.110	0.130	1.48	0.992	/
Right Edge	standard	1:1	50%	0	20450/829	24.00	22.29	0.505	0.745	0.070	1.48	0.749	/
Top Edge	standard	1:1	50%	0	20450/829	24.00	22.29	0.260	0.824	-0.120	1.48	0.385	/
Left Edge	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Bottom Edge	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Note: 1.The value with blue color is the maximum SAR Value of each test band.

2.For QPSK with 100% RB allocation, SAR is required when and the highest reported SAR for 1 RB and 50% RB allocation in are ⩾ 50% limit(1g).

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Measurement Variability				
Test Position	**Channel/ Frequency(MHz)**	**MAX Measured SAR_{1g} (W/kg)**	**1st Repeated SAR_{1g} (W/kg)**	**Ratio**
Front Side	20600/844	0.701	0.695	1.01
Note: 1) A second repeated measurement was preformed only if the ratio of largest to smallest SAR for the original and first repeated measurements was > 1.20 or when the original or repeated measurement was ≥ 1.45 W/kg (~ 10% from the 1-g SAR limit). 2) A third repeated measurement was performed only if the original, first or second repeated measurement was ≥ 1.5 W/kg and the ratio of largest to smallest SAR for the original, first and second repeated measurements is > 1.20.				

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Table 16: LTE Band 7 (20MHz)

Test Position	Cover Type	Duty Cycle	RB allocation	RB offset	Channel/ Frequency (MHz)	Tune-up (dBm)	Measured power (dBm)	Limit of SAR 1.6 W/kg (mW/g)					Plot No.
								Measured SAR10g	Measured SAR1g	Power Drift (dB)	Scaling Factor	Report SAR1g	
Head SAR(QPSK, Distance 10mm)													
Front Side	Standard	1:1	1	99	20850/2510	23.50	22.48	0.449	0.851	0.130	1.26	1.076	45
	Standard	1:1	1	99	21100/2535	23.50	22.93	0.388	0.744	0.110	1.14	0.848	/
	Standard	1:1	1	0	21350/2560	23.50	22.73	0.402	0.777	0.100	1.19	0.928	/
Front Side	Standard	1:1	50%	50	21100/2535	22.50	21.64	0.311	0.599	0.027	1.22	0.730	/
Front Side	Standard	1:1	100%	0	21100/2535	22.50	21.56	0.341	0.657	0.037	1.24	0.816	/
Front Side	Repeated	1:1	1	99	20850/2510	23.50	22.48	0.452	0.849	0.028	1.26	1.074	/
Body-worn(QPSK, Distance 0mm)													
Back Side	Standard	1:1	1	99	20850/2510	23.50	22.48	0.359	0.721	0.040	1.26	0.912	/
Back Side	Standard	1:1	1	99	21100/2535	23.50	22.93	0.383	0.766	-0.032	1.14	0.873	46
Back Side	Standard	1:1	1	0	21350/2560	23.50	22.73	0.397	0.725	-0.110	1.19	0.866	/
Back Side	Standard	1:1	50%	50	21100/2535	22.50	21.64	0.301	0.588	-0.110	1.22	0.717	/
Back Side	Standard	1:1	100%	0	21100/2535	22.50	21.56	0.313	0.602	0.010	1.24	0.747	/
Back Side	Repeated	1:1	1	99	20850/2510	23.50	22.48	0.349	0.711	0.037	1.26	0.899	/
Test Position	Cover Type	Duty Cycle	RB allocation	RB offset	Channel/ Frequency (MHz)	Tune-up (dBm)	Measured power (dBm)	Limit of 10g SAR 4 W/kg (mW/g)					Plot No.
								Measured SAR10g	Measured SAR1g	Power Drift (dB)	Scaling Factor	Report SAR10g	
Extremities SAR(QPSK, Distance 0mm)													
Back Side	Standard	1:1	1	99	21100/2535	23.50	22.93	0.503	0.988	-0.059	1.14	0.574	/
Front Side	Standard	1:1	1	99	21100/2535	23.50	22.93	1.590	3.750	-0.100	1.14	1.813	47
Right Edge	Standard	1:1	1	99	21100/2535	23.50	22.93	0.848	1.890	0.024	1.14	0.967	/
Top Edge	Standard	1:1	1	99	21100/2535	23.50	22.93	0.571	1.290	-0.031	1.14	0.651	/
Left Edge	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Bottom Edge	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Back Side	Standard	1:1	50%	50	21100/2535	22.50	21.64	0.401	0.786	0.090	1.22	0.489	/
Front Side	Standard	1:1	50%	50	21100/2535	22.50	21.64	1.350	3.200	0.029	1.22	1.646	/
Right Edge	Standard	1:1	50%	50	21100/2535	22.50	21.64	0.791	1.790	0.010	1.22	0.964	/
Top Edge	Standard	1:1	50%	50	21100/2535	22.50	21.64	0.452	1.030	-0.120	1.22	0.551	/
Left Edge	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Bottom Edge	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Note: 1.The value with blue color is the maximum SAR Value of each test band.

2.For QPSK with 100% RB allocation, SAR is required when and the highest reported SAR for 1 RB and 50% RB allocation in are≥ 50% limit(1g).

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Measurement Variability				
Test Position	**Channel/ Frequency(MHz)**	**MAX Measured SAR_{1g} (W/kg)**	**1st Repeated SAR_{1g} (W/kg)**	**Ratio**
Front Side	20850/2510	0.851	0.849	1.00
Back Side	20850/2510	0.721	0.711	1.01

Note: 1) A second repeated measurement was preformed only if the ratio of largest to smallest SAR for the original and first repeated measurements was > 1.20 or when the original or repeated measurement was ≥ 1.45 W/kg (~ 10% from the 1-g SAR limit).
2) A third repeated measurement was performed only if the original, first or second repeated measurement was ≥ 1.5 W/kg and the ratio of largest to smallest SAR for the original, first and second repeated measurements is > 1.20.

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Table 17: LTE Band 12 (10MHz)

Test Position	Cover Type	Duty Cycle	RB allocation	RB offset	Channel/ Frequency (MHz)	Tune-up (dBm)	Measured power (dBm)	Limit of SAR 1.6 W/kg (mW/g)					Plot No.
								Measured SAR10g	Measured SAR1g	Power Drift (dB)	Scaling Factor	Report SAR1g	
Head SAR(QPSK, Distance 10mm)													
Front Side	standard	1:1	1	25	23095/707.5	24.00	23.35	0.435	0.610	-0.035	1.16	0.708	48
Front Side	standard	1:1	50%	13	23130/711	23.00	22.11	0.365	0.515	0.140	1.23	0.632	/
Body-worn(QPSK, Distance 0mm)													
Back Side	Standard	1:1	1	25	23095/707.5	24.00	23.35	0.407	0.588	-0.010	1.16	0.683	49
Back Side	Standard	1:1	50%	13	23130/711	23.00	22.11	0.315	0.449	0.030	1.23	0.551	/
Test Position	Cover Type	Duty Cycle	RB allocation	RB offset	Channel/ Frequency (MHz)	Tune-up (dBm)	Measured power (dBm)	Limit of 10g SAR 4 W/kg (mW/g)					Plot No.
								Measured SAR10g	Measured SAR1g	Power Drift (dB)	Scaling Factor	Report SAR10g	
Extremities SAR(QPSK, Distance 0mm)													
Back Side	Standard	1:1	1	25	23095/707.5	24.00	23.35	0.532	0.858	0.034	1.16	0.618	/
Front Side	Standard	1:1	1	25	23095/707.5	24.00	23.35	0.761	1.180	0.190	1.16	0.884	50
Right Edge	Standard	1:1	1	25	23095/707.5	24.00	23.35	0.734	1.060	-0.060	1.16	0.853	/
Top Edge	Standard	1:1	1	25	23095/707.5	24.00	23.35	0.288	0.942	-0.120	1.16	0.334	/
Left Edge	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Bottom Edge	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Back Side	Standard	1:1	50%	13	23130/711	23.00	22.11	0.465	0.779	-0.090	1.23	0.571	/
Front Side	Standard	1:1	50%	13	23130/711	23.00	22.11	0.602	0.926	0.130	1.23	0.739	/
Right Edge	Standard	1:1	50%	13	23130/711	23.00	22.11	0.577	0.839	0.020	1.23	0.708	/
Top Edge	Standard	1:1	50%	13	23130/711	23.00	22.11	0.228	0.750	-0.090	1.23	0.280	/
Left Edge	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Bottom Edge	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Note: 1.The value with blue color is the maximum SAR Value of each test band.

2.For QPSK with 100% RB allocation, SAR is required when and the highest reported SAR for 1 RB and 50% RB allocation in are≥ 50% limit(1g).

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Table 18: LTE Band 13 (10MHz)

Test Position	Cover Type	Duty Cycle	RB allocation	RB offset	Channel/ Frequency (MHz)	Tune-up (dBm)	Measured power (dBm)	Limit of SAR 1.6 W/kg (mW/g)					Plot No.
								Measured SAR10g	Measured SAR1g	Power Drift (dB)	Scaling Factor	Report SAR1g	
Head SAR(QPSK, Distance 10mm)													
Front Side	Standard	1:1	1	25	23230/782	24.00	23.25	0.530	0.717	0.080	1.19	0.852	51
Front Side	Standard	1:1	50%	0	23230/782	23.00	22.20	0.429	0.581	0.010	1.20	0.699	/
Front Side	Standard	1:1	100%	0	23230/782	23.00	22.12	0.500	0.678	0.010	1.22	0.830	/
Front Side	Repeated	1:1	1	25	23230/782	24.00	23.25	0.516	0.702	-0.021	1.19	0.834	/
Body-worn(QPSK, Distance 0mm)													
Back Side	Standard	1:1	1	25	23230/782	24.00	23.25	0.559	0.761	-0.190	1.19	0.904	52
Back Side	Standard	1:1	50%	0	23230/782	23.00	22.20	0.463	0.595	0.020	1.20	0.715	/
Back Side	Standard	1:1	100%	0	23230/782	23.00	22.12	0.504	0.665	-0.033	1.22	0.814	/
Back Side	Repeated	1:1	1	25	23230/782	24.00	23.25	0.547	0.732	0.140	1.19	0.870	/
Test Position	**Cover Type**	**Duty Cycle**	**RB allocation**	**RB offset**	**Channel/ Frequency (MHz)**	**Tune-up (dBm)**	**Measured power (dBm)**	**Limit of 10g SAR 4 W/kg (mW/g)**					**Plot No.**
								Measured SAR10g	**Measured SAR1g**	**Power Drift (dB)**	**Scaling Factor**	**Report SAR10g**	
Extremities SAR(QPSK, Distance 0mm)													
Back Side	Standard	1:1	1	25	23230/782	24.00	23.25	0.825	1.290	0.100	1.19	0.981	/
Front Side	Standard	1:1	1	25	23230/782	24.00	23.25	0.941	1.470	0.080	1.19	1.118	53
Right Edge	Standard	1:1	1	25	23230/782	24.00	23.25	0.827	1.240	-0.037	1.19	0.983	/
Top Edge	Standard	1:1	1	25	23230/782	24.00	23.25	0.267	0.862	-0.170	1.19	0.317	/
Left Edge	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Bottom Edge	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Back Side	Standard	1:1	50%	0	23230/782	23.00	22.20	0.640	0.990	-0.020	1.20	0.769	/
Front Side	Standard	1:1	50%	0	23230/782	23.00	22.20	0.716	1.120	-0.030	1.20	0.861	/
Right Edge	Standard	1:1	50%	0	23230/782	23.00	22.20	0.641	0.967	0.020	1.20	0.771	/
Top Edge	Standard	1:1	50%	0	23230/782	23.00	22.20	0.202	0.650	-0.140	1.20	0.243	/
Left Edge	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Bottom Edge	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Note: 1.The value with blue color is the maximum SAR Value of each test band.

2.For QPSK with 100% RB allocation, SAR is required when and the highest reported SAR for 1 RB and 50% RB allocation in are≥ 50% limit(1g).

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Measurement Variability				
Test Position	**Channel/ Frequency(MHz)**	**MAX Measured SAR_{1g} (W/kg)**	**1st Repeated SAR_{1g} (W/kg)**	**Ratio**
Front Side	23230/782	0.717	0.702	1.02
Back Side	23230/782	0.761	0.732	1.04

Note: 1) A second repeated measurement was preformed only if the ratio of largest to smallest SAR for the original and first repeated measurements was > 1.20 or when the original or repeated measurement was ≥ 1.45 W/kg (~ 10% from the 1-g SAR limit).
2) A third repeated measurement was performed only if the original, first or second repeated measurement was ≥ 1.5 W/kg and the ratio of largest to smallest SAR for the original, first and second repeated measurements is > 1.20.

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Table 19: LTE Band 25 (20MHz)

Test Position	Cover Type	Duty Cycle	RB allocation	RB offset	Channel/ Frequency (MHz)	Tune-up (dBm)	Measured power (dBm)	Limit of SAR 1.6 W/kg (mW/g)					Plot No.
								Measured SAR10g	Measured SAR1g	Power Drift (dB)	Scaling Factor	Report SAR1g	
Head SAR(QPSK, Distance 10mm)													
Front Side	Standard	1:1	1	50	26140/1860	23.50	23.02	0.478	0.758	-0.050	1.12	0.847	54
	Standard	1:1	1	50	26365/1882.5	23.50	22.85	0.432	0.698	0.110	1.16	0.811	/
	Standard	1:1	1	50	26590/1905	23.50	22.65	0.446	0.721	-0.080	1.22	0.877	/
Front Side	Standard	1:1	50%	25	26365/1882.5	22.50	21.74	0.374	0.607	-0.040	1.19	0.723	/
Front Side	Standard	1:1	100%	0	26365/1882.5	22.50	21.71	0.339	0.551	0.170	1.20	0.661	/
Front Side	Repeated	1:1	1	50	26590/1905	23.50	22.65	0.438	0.715	0.012	1.22	0.870	/
Body-worn(QPSK, Distance 0mm)													
Back Side	Standard	1:1	1	50	26140/1860	23.50	23.02	0.457	0.739	0.160	1.12	0.825	55
Back Side	Standard	1:1	1	50	26365/1882.5	23.50	22.85	0.403	0.700	0.021	1.16	0.813	/
Back Side	Standard	1:1	1	50	26590/1905	23.50	22.65	0.421	0.652	0.116	1.22	0.793	/
Back Side	Standard	1:1	50%	25	26365/1882.5	22.50	21.74	0.353	0.594	0.030	1.19	0.708	/
Back Side	Standard	1:1	100%	0	26365/1882.5	22.50	21.71	0.381	0.609	-0.100	1.20	0.730	/
Back Side	Repeated	1:1	1	50	26140/1860	23.50	23.02	0.412	0.728	-0.011	1.12	0.813	/
Test Position	Cover Type	Duty Cycle	RB allocation	RB offset	Channel/ Frequency (MHz)	Tune-up (dBm)	Measured power (dBm)	Limit of 10g SAR 4 W/kg (mW/g)					Plot No.
								Measured SAR10g	Measured SAR1g	Power Drift (dB)	Scaling Factor	Report SAR10g	
Extremities SAR(QPSK, Distance 0mm)													
Back Side	Standard	1:1	1	50	26140/1860	23.50	23.02	0.673	1.180	-0.070	1.12	0.752	/
Front Side	Standard	1:1	1	50	26140/1860	23.50	23.02	1.440	2.710	-0.021	1.12	1.608	56
Right Edge	Standard	1:1	1	50	26140/1860	23.50	23.02	0.283	0.570	0.025	1.12	0.316	/
Top Edge	Standard	1:1	1	50	26140/1860	23.50	23.02	0.283	0.570	0.025	1.12	0.316	/
Left Edge	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Bottom Edge	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Back Side	Standard	1:1	50%	25	26365/1882.5	22.50	21.74	0.508	0.880	0.100	1.19	0.605	/
Front Side	Standard	1:1	50%	25	26365/1882.5	22.50	21.74	1.120	2.160	0.050	1.19	1.334	/
Right Edge	Standard	1:1	50%	25	26365/1882.5	22.50	21.74	0.900	1.670	-0.040	1.19	1.072	/
Top Edge	Standard	1:1	50%	25	26365/1882.5	22.50	21.74	0.212	0.437	0.020	1.19	0.253	/
Left Edge	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Bottom Edge	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Note: 1.The value with blue color is the maximum SAR Value of each test band.

2.For QPSK with 100% RB allocation, SAR is required when and the highest reported SAR for 1 RB and 50% RB allocation in are≥ 50% limit(1g).

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Measurement Variability				
Test Position	**Channel/ Frequency(MHz)**	**MAX Measured SAR_{1g} (W/kg)**	**1st Repeated SAR_{1g} (W/kg)**	**Ratio**
Front Side	26590/1905	0.721	0.715	1.01
Back Side	26140/1860	0.739	0.728	1.02

Note: 1) A second repeated measurement was preformed only if the ratio of largest to smallest SAR for the original and first repeated measurements was > 1.20 or when the original or repeated measurement was ≥ 1.45 W/kg (~ 10% from the 1-g SAR limit).
2) A third repeated measurement was performed only if the original, first or second repeated measurement was ≥ 1.5 W/kg and the ratio of largest to smallest SAR for the original, first and second repeated measurements is > 1.20.

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Table 20: LTE Band 26 (15MHz)

Test Position	Cover Type	Duty Cycle	RB allocation	RB offset	Channel/ Frequency (MHz)	Tune-up (dBm)	Measured power (dBm)	Limit of SAR 1.6 W/kg (mW/g)					Plot No.
								Measured SAR10g	Measured SAR1g	Power Drift (dB)	Scaling Factor	Report SAR1g	
Head SAR(QPSK, Distance 10mm)													
Front Side	Standard	1:1	1	0	26765/821.5	24.00	23.18	0.328	0.447	0.000	1.21	0.540	/
	Standard	1:1	1	0	26865/831.5	24.00	23.20	0.416	0.565	0.140	1.20	0.679	/
	Standard	1:1	1	0	26965/841.5	24.00	23.08	0.444	0.602	-0.050	1.24	0.744	57
Front Side	Standard	1:1	50%	0	26865/831.5	23.00	22.14	0.407	0.555	0.100	1.22	0.677	/
Body-worn(QPSK, Distance 0mm)													
Back Side	Standard	1:1	1	0	26865/831.5	24.00	23.20	0.295	0.402	-0.050	1.20	0.483	58
Back Side	Standard	1:1	50%	0	26865/831.5	23.00	22.14	0.211	0.358	0.120	1.22	0.436	/
Test Position	**Cover Type**	**Duty Cycle**	**RB allocation**	**RB offset**	**Channel/ Frequency (MHz)**	**Tune-up (dBm)**	**Measured power (dBm)**	**Limit of 10g SAR 4 W/kg (mW/g)**					**Plot No.**
								Measured SAR10g	**Measured SAR1g**	**Power Drift (dB)**	**Scaling Factor**	**Report SAR10g**	
Extremities SAR(QPSK, Distance 0mm)													
Back Side	Standard	1:1	1	0	26865/831.5	24.00	23.20	0.756	1.240	-0.080	1.20	0.909	/
Front Side	Standard	1:1	1	0	26865/831.5	24.00	23.20	0.840	1.360	0.030	1.20	1.010	/
Right Edge	Standard	1:1	1	0	26865/831.5	24.00	23.20	0.898	1.360	0.060	1.20	1.080	59
Top Edge	Standard	1:1	1	0	26865/831.5	24.00	23.20	0.294	0.876	-0.100	1.20	0.353	/
Left Edge	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Bottom Edge	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Back Side	Standard	1:1	50%	0	26865/831.5	23.00	22.14	0.565	0.935	0.010	1.22	0.689	/
Front Side	Standard	1:1	50%	0	26865/831.5	23.00	22.14	0.632	1.040	0.060	1.22	0.770	/
Right Edge	Standard	1:1	50%	0	26865/831.5	23.00	22.14	0.644	0.975	-0.020	1.22	0.785	/
Top Edge	Standard	1:1	50%	0	26865/831.5	23.00	22.14	0.233	0.695	0.030	1.22	0.284	/
Left Edge	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Bottom Edge	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Note: 1.The value with blue color is the maximum SAR Value of each test band.

2.For QPSK with 100% RB allocation, SAR is required when and the highest reported SAR for 1 RB and 50% RB allocation in are≥ 50% limit(1g).

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Table 21: Wi-Fi (2.4G)

Test Position	Cover Type	Mode 802.11b	Duty Cycle	Channel/ Frequency (MHz)	Tune-up dBm)	Measured power (dBm)	Limit of SAR 1.6 W/kg (mW/g)					Plot No.
							Measured SAR10g	Measured SAR1g	Power Drift (dB)	Scaling Factor	Report SAR 1g	
Head SAR(Distance 10mm)												
Front Side	standard	DSSS	100.0%	6/2437	16.50	15.48	0.057	0.101	0.148	1.26	0.128	60
Body-worn(Distance 0mm)												
Back Side	standard	DSSS	100.0%	6/2437	16.50	15.48	0.083	0.157	-0.140	1.26	0.199	61
Test Position	**Cover Type**	**Mode 802.11b**	**Duty Cycle**	**Channel/ Frequency (MHz)**	**Tune-up dBm)**	**Measured power (dBm)**	**Limit of 10g SAR 4 W/kg (mW/g)**					**Plot No.**
							Measured SAR10g	**Measured SAR1g**	**Power Drift (dB)**	**Scaling Factor**	**Report SAR10g**	
Extremities SAR(Distance 0mm)												
Back Side	standard	DSSS	100.0%	6/2437	16.50	15.48	0.326	0.776	-0.190	1.26	0.412	62
Front Side	standard	DSSS	100.0%	6/2437	16.50	15.48	0.107	0.197	0.046	1.26	0.135	/
Left Edge	standard	DSSS	100.0%	6/2437	16.50	15.48	0.104	0.227	0.180	1.26	0.132	/
Right Edge	standard	DSSS	100.0%	6/2437	16.50	15.48	0.021	0.039	0.050	1.26	0.026	/
Top Edge	standard	DSSS	100.0%	6/2437	16.50	15.48	0.016	0.030	0.040	1.26	0.020	/
Bottom Edge	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Note: 1. The value with blue color is the maximum SAR Value of each test band.

MAX Adjusted SAR							
Mode	**Test Position**	**Channel/ Frequency (MHz)**	**MAX Reported SAR_{1g} (W/kg)**	**802.11b Tune-up limit (dBm)**	**Tune-up limit (dBm)**	**Scaling Factor**	**Adjusted SAR_{1g} (W/kg)**
802.11g	Back Side	6/2437	0.199	16.50	20.00	2.24	0.446
802.11n HT20	Back Side	6/2437	0.199	16.50	20.00	2.24	0.446
802.11n HT40	Back Side	6/2437	0.199	16.50	19.50	2.00	0.397
Note: SAR is not required for OFDM when the highest reported SAR for DSSS is adjusted by the ratio of OFDM to DSSS specified maximum output power and the adjusted SAR is ≤ 1.2 W/kg.							

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Table 22: Wi-Fi (5G,U-NII-1)

Test Position	Cover Type	Mode 802.11a	Duty Cycle	Channel/ Frequency (MHz)	Tune-up dBm)	Measured power (dBm)	Limit of SAR 1.6 W/kg (mW/g)					Plot No.
							Measured SAR10g	Measured SAR1g	Power Drift (dB)	Scaling Factor	Report SAR 1g	
Head SAR(Distance 10mm)												
Front Side	standard	OFDM	100.0%	40/5200	12.50	12.23	0.031	0.080	0.110	1.06	0.085	63
Body-worn(Distance 0mm)												
Back Side	standard	OFDM	100.0%	40/5200	12.50	12.23	0.024	0.069	0.057	1.06	0.074	64
Test Position	**Cover Type**	**Mode 802.11a**	**Duty Cycle**	**Channel/ Frequency (MHz)**	**Tune-up dBm)**	**Measured power (dBm)**	**Limit of 10gSAR 4 W/kg (mW/g)**					**Plot No.**
							Measured SAR10g	**Measured SAR1g**	**Power Drift (dB)**	**Scaling Factor**	**Report SAR10g**	
Extremities SAR(Distance 0mm)												
Back Side	standard	OFDM	100.0%	40/5200	12.50	12.23	0.089	0.270	0.000	1.06	0.095	/
Front Side	standard	OFDM	100.0%	40/5200	12.50	12.23	0.076	0.190	0.021	1.06	0.081	/
Left Edge	standard	OFDM	100.0%	40/5200	12.50	12.23	0.216	0.651	0.012	1.06	0.230	65
Right Edge	standard	OFDM	100.0%	40/5200	12.50	12.23	0.014	0.041	0.117	1.06	0.015	/
Top Edge	standard	OFDM	100.0%	40/5200	12.50	12.23	0.029	0.069	0.037	1.06	0.031	/
Bottom Edge	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Note: 1. The value with blue color is the maximum SAR Value of each test band.

The highest reported SAR for a test configuration is > 1.2 W/kg, SAR is required for U-NII-1 band for that configuration (802.11 mode and exposure condition); otherwise, each band is tested independently for SAR.

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Table 23: Wi-Fi (5G,U-NII-2A)

Per 248227, for band U-NII-1 and U-NII-2A, when the same maximum output power is specified for both bands, begin SAR measurement in U-NII-2A band by applying the OFDM SAR requirements. If the highest reported SAR for a test configuration is ≤ 1.2 W/kg, SAR is not required for U-NII-1 band for that configuration (802.11 mode and exposure condition); otherwise, each band is tested independently for SAR.

Test Position	Cover Type	Mode 802.11a	Duty Cycle	Channel/ Frequency (MHz)	Tune-up dBm)	Measured power (dBm)	Limit of SAR 1.6 W/kg (mW/g)					Plot No.
							Measured SAR10g	Measured SAR1g	Power Drift (dB)	Scaling Factor	Report SAR 1g	
Head SAR(Distance 10mm)												
Front Side	standard	OFDM	100.0%	52/5260	12.50	11.98	0.038	0.099	0.099	1.13	0.112	66
Body-worn(Distance 0mm)												
Back Side	standard	OFDM	100.0%	52/5260	12.50	11.98	0.031	0.090	0.081	1.13	0.035	67
Test Position	**Cover Type**	**Mode 802.11a**	**Duty Cycle**	**Channel/ Frequency (MHz)**	**Tune-up dBm)**	**Measured power (dBm)**	**Limit of 10gSAR 4 W/kg (mW/g)**					**Plot No.**
							Measured SAR10g	**Measured SAR1g**	**Power Drift (dB)**	**Scaling Factor**	**Report SAR10g**	
Extremities SAR(Distance 0mm)												
Back Side	standard	OFDM	100.0%	52/5260	12.50	11.98	0.091	0.280	0.015	1.13	0.103	/
Front Side	standard	OFDM	100.0%	52/5260	12.50	11.98	0.085	0.219	0.063	1.13	0.096	/
Left Edge	standard	OFDM	100.0%	52/5260	12.50	11.98	0.227	0.689	0.020	1.13	0.256	68
Right Edge	standard	OFDM	100.0%	52/5260	12.50	11.98	0.016	0.053	0.034	1.13	0.018	/
Top Edge	standard	OFDM	100.0%	52/5260	12.50	11.98	0.028	0.063	0.104	1.13	0.031	/
Bottom Edge	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Note: 1. The value with blue color is the maximum SAR Value of each test band.												

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Table 24: Wi-Fi (5G,U-NII-2C)

Test Position	Cover Type	Mode 802.11a	Duty Cycle	Channel/ Frequency (MHz)	Tune-up dBm)	Measured power (dBm)	Limit of SAR 1.6 W/kg (mW/g)					Plot No.
							Measured SAR10g	Measured SAR1g	Power Drift (dB)	Scaling Factor	Report SAR 1g	
Head SAR(Distance 10mm)												
Front Side	standard	OFDM	100.0%	116/5580	11.00	10.31	0.037	0.088	0.139	1.17	0.103	69
Body-worn(Distance 0mm)												
Back Side	standard	OFDM	100.0%	116/5580	11.00	10.31	0.078	0.208	0.189	1.17	0.091	70
Test Position	**Cover Type**	**Mode 802.11a**	**Duty Cycle**	**Channel/ Frequency (MHz)**	**Tune-up dBm)**	**Measured power (dBm)**	**Limit of 10gSAR 4 W/kg (mW/g)**					**Plot No.**
							Measured SAR10g	**Measured SAR1g**	**Power Drift (dB)**	**Scaling Factor**	**Report SAR10g**	
Extremities SAR(Distance 0mm)												
Back Side	standard	OFDM	100.0%	116/5580	11.00	10.31	0.136	0.421	0.015	1.17	0.159	/
Front Side	standard	OFDM	100.0%	116/5580	11.00	10.31	0.094	0.236	0.194	1.17	0.110	/
Left Edge	standard	OFDM	100.0%	116/5580	11.00	10.31	0.184	0.489	0.020	1.17	0.216	71
Right Edge	standard	OFDM	100.0%	116/5580	11.00	10.31	0.022	0.073	0.110	1.17	0.026	/
Top Edge	standard	OFDM	100.0%	116/5580	11.00	10.31	0.022	0.054	0.197	1.17	0.025	/
Bottom Edge	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Note: 1. The value with blue color is the maximum SAR Value of each test band.

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Table 25: Wi-Fi (5G,U-NII-3)

Test Position	Cover Type	Mode 802.11a	Duty Cycle	Channel/ Frequency (MHz)	Tune-up dBm)	Measured power (dBm)	Limit of SAR 1.6 W/kg (mW/g)					Plot No.
							Measured SAR10g	Measured SAR1g	Power Drift (dB)	Scaling Factor	Report SAR 1g	
Head SAR(Distance 10mm)												
Front Side	standard	OFDM	100.0%	157/5785	11.00	10.45	0.033	0.083	0.034	1.14	0.094	72
Body-worn(Distance 0mm)												
Back Side	standard	OFDM	100.0%	157/5785	11.00	10.45	0.060	0.159	0.100	1.14	0.180	73
Test Position	**Cover Type**	**Mode 802.11a**	**Duty Cycle**	**Channel/ Frequency (MHz)**	**Tune-up dBm)**	**Measured power (dBm)**	**Limit of 10gSAR 4 W/kg (mW/g)**					**Plot No.**
							Measured SAR10g	**Measured SAR1g**	**Power Drift (dB)**	**Scaling Factor**	**Report SAR10g**	
Extremities SAR(Distance 0mm)												
Back Side	standard	OFDM	100.0%	157/5785	11.00	10.45	0.117	0.344	0.036	1.14	0.133	/
Front Side	standard	OFDM	100.0%	157/5785	11.00	10.45	0.093	0.250	0.040	1.14	0.105	/
Left Edge	standard	OFDM	100.0%	157/5785	11.00	10.45	0.118	0.320	0.080	1.14	0.134	74
Right Edge	standard	OFDM	100.0%	157/5785	11.00	10.45	0.014	0.051	0.099	1.14	0.016	/
Top Edge	standard	OFDM	100.0%	157/5785	11.00	10.45	0.016	0.046	-0.170	1.14	0.018	/
Bottom Edge	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Note: 1. The value with blue color is the maximum SAR Value of each test band.												

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Table 26: BT

Test Position	Cover Type	Mode	Duty Cycle	Channel/ Frequency (MHz)	Tune-up dBm)	Measured power (dBm)	Limit of SAR 1.6 W/kg (mW/g)					Plot No.
							Measured SAR10g	Measured SAR1g	Power Drift (dB)	Scaling Factor	Report SAR 1g	
Body-worn(Distance 0mm)												
Back Side	standard	GFSK	76.0%	39/2441	9.00	8.05	0.013	0.027	0.070	1.64	0.044	75

Band	Configuration	Frequency (MHz)	Maximum Power (dBm)	Separation Distance (mm)	Estimated SAR (W/kg)
Bluetooth	Head SAR	2480	9.00	10	0.167
	Extremities SAR	2480	9.00	5	0.133
For simultaneous transmission analysis, Bluetooth SAR is estimated per KDB 447498 D01 based on the formula below. (max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm)]·[√f(GHz)/x] W/kg for test separation distances ≤ 50 mm; where x = 7.5 for 1-g SAR, and x = 18.75 for 10-g SAR.					

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10.4 Simultaneous Transmission Analysis

Simultaneous Transmission Configurations	Head SAR	Extremities SAR
GSM + Bluetooth	Yes	Yes
WCDMA + Bluetooth	Yes	Yes
LTE + Bluetooth	Yes	Yes
GSM + Wi-Fi-2.4GHz	Yes	Yes
WCDMA + Wi-Fi-2.4GHz	Yes	Yes
LTE + Wi-Fi-2.4GHz	Yes	Yes
GSM + Wi-Fi-5GHz	Yes	Yes
WCDMA + Wi-Fi-5GHz	Yes	Yes
LTE + Wi-Fi-5GHz	Yes	Yes
Wi-Fi-2.4GHz + Bluetooth	Yes	Yes
Wi-Fi-5GHz + Bluetooth	Yes	Yes

General Note:

1. The Scaled SAR summation is calculated based on the same configuration and test position.
2. Per KDB 447498 D01, simultaneous transmission SAR is compliant if,

i) Scalar SAR summation < 1.6W/kg, simultaneously transmission SAR measurement is not necessary.

ii) SPLSR = (SAR1 + SAR2)^1.5 / (min. separation distance, mm), and the peak separation distance is determined from the square root of [(x1-x2)2 + (y1-y2)2 + (z1-z2)2], where (x1, y1, z1) and (x2, y2, z2) are the coordinates of the extrapolated peak SAR locations in the zoom scan.

iii) If SPLSR ≤ 0.04, simultaneously transmission SAR measurement is not necessary.

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The maximum $SAR_{1g/10g}$ Value for Main-Antenna

Test Position \ $SAR_{1g/10g}$(W/kg)		GSM 850	GSM 1900	WCDMA Band II	WCDMA Band IV	WCDMA Band V	LTE FDD 2	LTE FDD 4	LTE FDD 5	LTE FDD 7	LTE FDD 12	LTE FDD 13	LTE FDD 25	LTE FDD 26	MAX. $SAR_{1g/10g}$
Head SAR		1.278	0.582	1.105	1.176	1.125	0.997	0.949	0.841	1.076	0.708	0.852	0.877	0.744	1.278
Body-worn		1.278	0.458	0.915	1.078	0.885	0.867	0.937	0.672	0.912	0.683	0.904	0.825	0.483	1.278
Extremities SAR	Back Side	1.336	0.439	0.900	0.943	1.026	0.789	0.673	1.044	0.574	0.618	0.981	0.752	0.909	1.336
	Front Side	1.500	0.952	1.969	1.232	1.113	1.856	1.129	1.092	1.813	0.884	1.118	1.608	1.010	1.969
	Right Edge	1.207	0.817	1.410	0.721	0.988	1.215	0.629	0.749	0.967	0.853	0.983	1.072	1.080	1.410
	Top Edge	0.855	0.200	0.379	0.463	0.598	0.343	0.392	0.385	0.651	0.334	0.317	0.316	0.353	0.855
	Left Edge	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Bottom Edge	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

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About BT , Wi-Fi 2.4G and Main- Antenna

$SAR_{1g/10g}$(W/kg) Test Position		Main-antenna	BT	Wi-Fi 2.4G	MAX. $\Sigma SAR_{1g/10g}$
Head SAR	Front Side	1.278	0.167	0.128	1.573
Body-worn	Back Side	1.278	0.044	0.199	1.521
Extremities SAR	Back Side	1.336	0.133	0.412	1.881
	Front Side	1.969	0.133	0.135	2.237
	Right Edge	1.410	0.133	0.132	1.675
	Top Edge	0.855	0.133	0.026	1.014
	Left Edge	NA	0.133	0.020	0.153
	Bottom Edge	NA	NA	NA	NA

Note: 1.The value with blue color is the maximum $\Sigma SAR_{1g/10g}$ Value.
2.MAX. $\Sigma SAR_{1g/10g}$ =Unlicensed SAR_{MAX} +Licensed SAR_{MAX}

MAX. ΣSAR_{1g} =1.573W/kg<1.6W/kg and MAX. ΣSAR_{10g} =2.237W/kg<4 W/kg, so the Simultaneous transimition SAR with volum scan are not required for BT and Main-Antenna.

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About BT , Wi-Fi 5G and Main-Antenna

Test Position \ $SAR_{1g/10g}$(W/kg)		Main-antenna	BT	Wi-Fi 5G	MAX. $\Sigma SAR_{1g/10g}$
Head SAR	Front Side	1.278	0.167	0.112	1.557
Body-worn	Back Side	1.278	0.044	0.180	1.502
Extremities SAR	Back Side	1.336	0.133	0.159	1.628
	Front Side	1.969	0.133	0.110	2.212
	Right Edge	1.410	0.133	0.256	1.799
	Top Edge	0.855	0.133	0.026	1.014
	Left Edge	NA	0.133	0.031	0.164
	Bottom Edge	NA	NA	NA	NA

Note: 1.The value with blue color is the maximum $\Sigma SAR_{1g/10g}$ Value.
2.MAX. $\Sigma SAR_{1g/10g}$ =Unlicensed SAR_{MAX} +Licensed SAR_{MAX}

MAX. ΣSAR_{1g} = 1.557W/kg<1.6W/kg and MAX. ΣSAR_{10g} = 2.212W/kg<4 W/kg, so the Simultaneous transimition SAR with volum scan are not required for Wi-Fi and Main-Antenna.

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11 Measurement Uncertainty

Per KDB 865664 D01 SAR Measurement 100 MHz to 6 GHz, when the highest measured 1-g SAR within a frequency band is < 1.5 W/kg, the extensive SAR measurement uncertainty analysis described in IEEE Std 1528- 2013 is not required in SAR reports submitted for equipment approval. This also applies to the 10-g SAR required for phablets in KDB Publication 648474.

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ANNEX A: Test Layout

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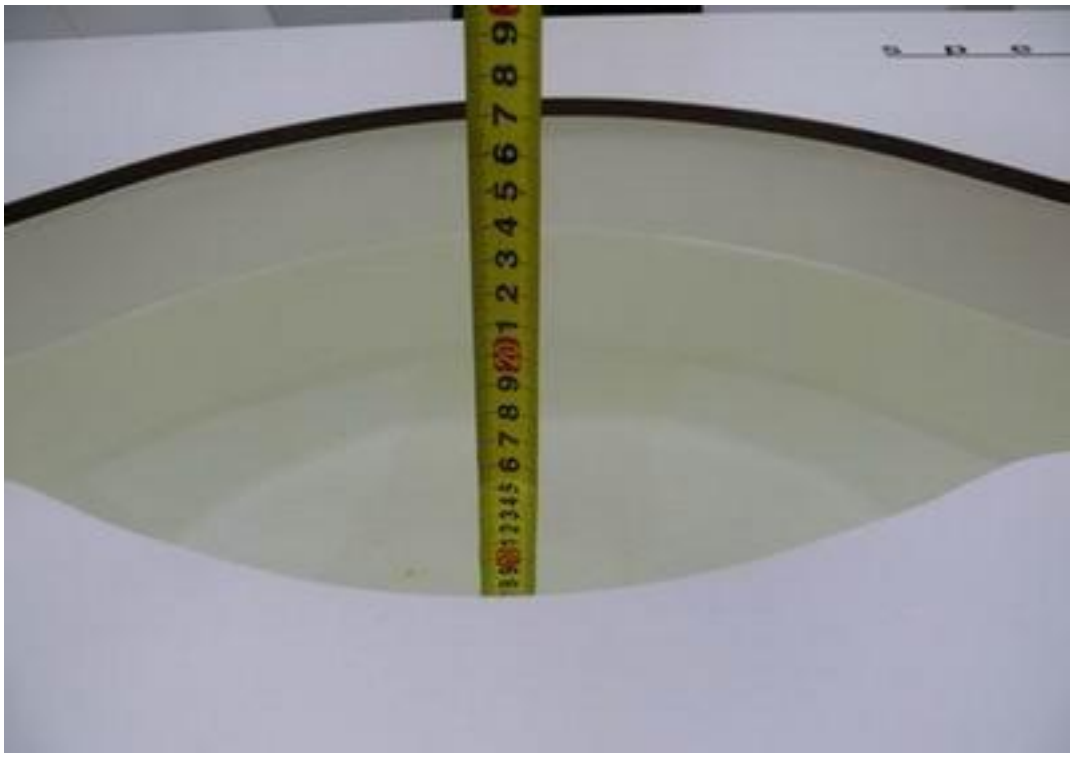
Tissue Simulating Liquids

For the measurement of the field distribution inside the flat phantom with DASY, the phantom must be filled with around 25 liters of homogeneous body tissue simulating liquid. For Head and Body-worn testing, the liquid height from the center of the flat phantom to the liquid top surface is larger than 15 cm, which is shown in Picture 3 and Picture 4.

Picture 3: liquid depth in the head Phantom



Picture 4: Liquid depth in the flat Phantom

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ANNEX B: System Check Results

Plot 1 System Performance Check at 750 MHz TSL

DUT: Dipole 750 MHz; Type: D750V3; Serial: D750V3

Date: 5/25/2020

Communication System:CW (0); Frequency: 750 MHz;Duty Cycle: 1:1

Medium parameters used: f = 750 MHz; σ = 0.88 S/m; ε_r = 42.3; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(9.54, 9.54, 9.54); Calibrated: 6/19/2019;

Electronics: DAE4 SN1317; Calibrated: 10/23/2019

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7439)

d=15mm,Pin=250mW/Area Scan (4x12x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 2.29 W/kg

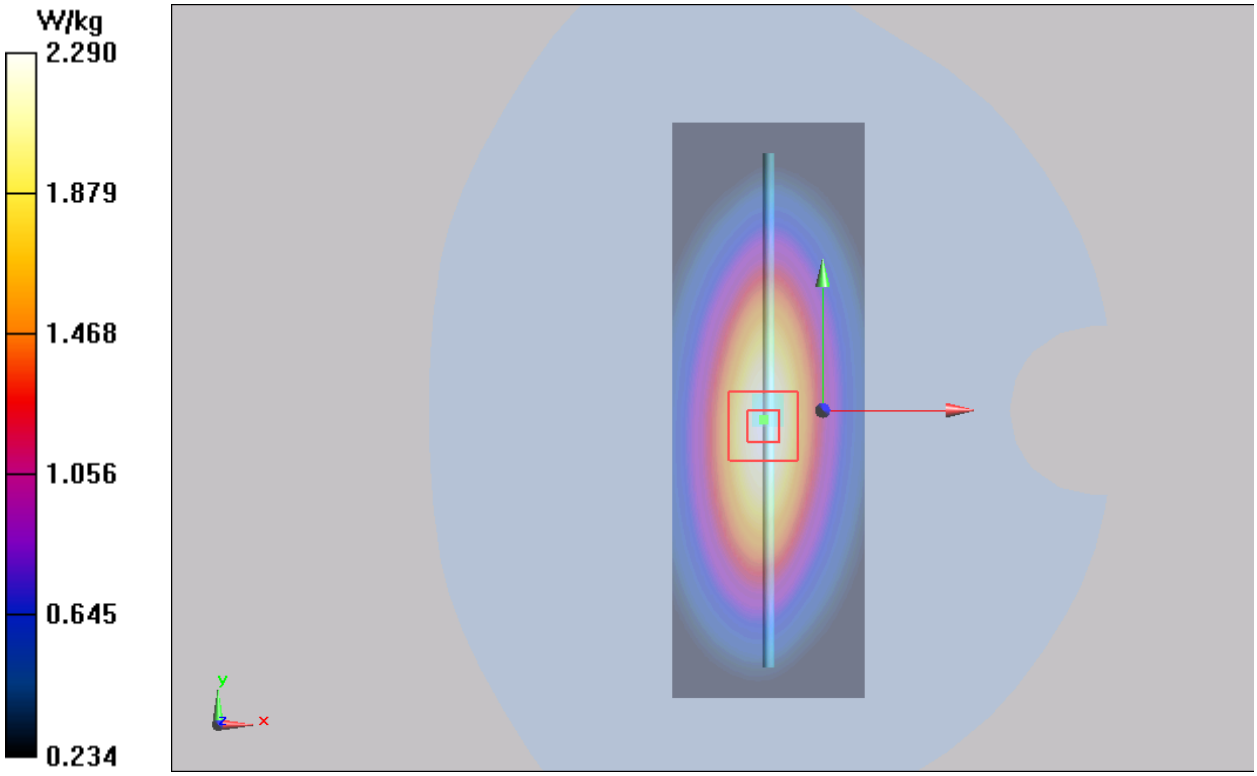
d=15mm,Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 50.653 V/m; Power Drift = -0.08 dB

Peak SAR (extrapolated) = 3.16 W/kg

SAR(1 g) = 2.13 W/kg; SAR(10 g) = 1.41 W/kg

Maximum value of SAR (measured) = 2.29 W/kg



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Plot 2 System Performance Check at 750 MHz TSL

DUT: Dipole 750 MHz; Type: D750V3; Serial: D750V3

Date: 6/28/2020

Communication System:CW (0); Frequency: 750 MHz;Duty Cycle: 1:1

Medium parameters used: f = 750 MHz; σ = 0.87 S/m; ε_r = 42.0; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN7515; ConvF(9.88, 9.88, 9.88); Calibrated: 10/22/2019;

Electronics: DAE4 SN1317; Calibrated: 10/23/2019

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7439)

d=15mm,Pin=250mW/Area Scan (4x12x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 2.31 W/kg

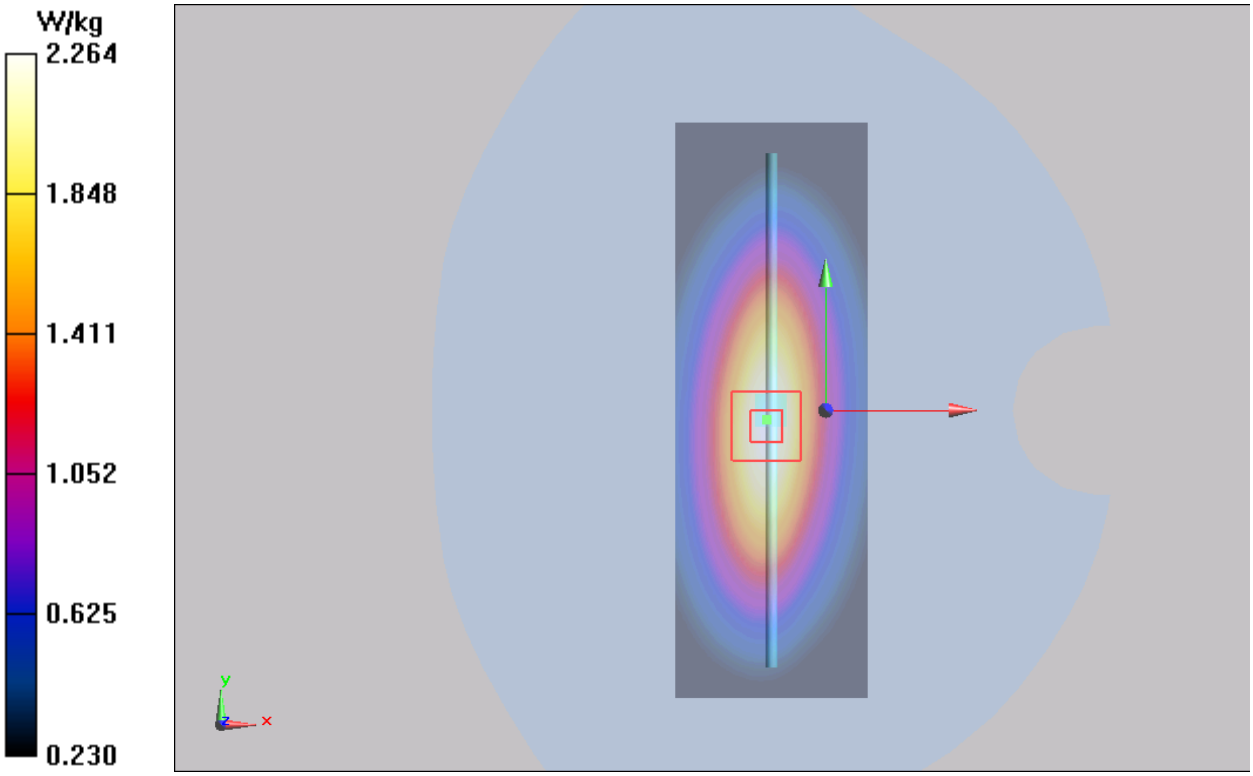
d=15mm,Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 50.557 V/m; Power Drift = 0.11 dB

Peak SAR (extrapolated) = 3.14 W/kg

SAR(1 g) = 2.10 W/kg; SAR(10 g) = 1.37 W/kg

Maximum value of SAR (measured) = 2.264 W/kg



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Plot 3 System Performance Check at 835 MHz TSL

DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2

Date: 5/20/2020

Communication System: CW; Frequency: 835 MHz;Duty Cycle: 1:1

Medium parameters used: f = 835 MHz; σ =0.87 S/m; ε_r = 41.3; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(9.20, 9.20, 9.20); Calibrated: 6/19/2019;

Electronics: DAE4 SN1317; Calibrated: 10/23/2019

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7439)

d=15mm, Pin=250mW/Area Scan (4x12x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 2.59 mW/g

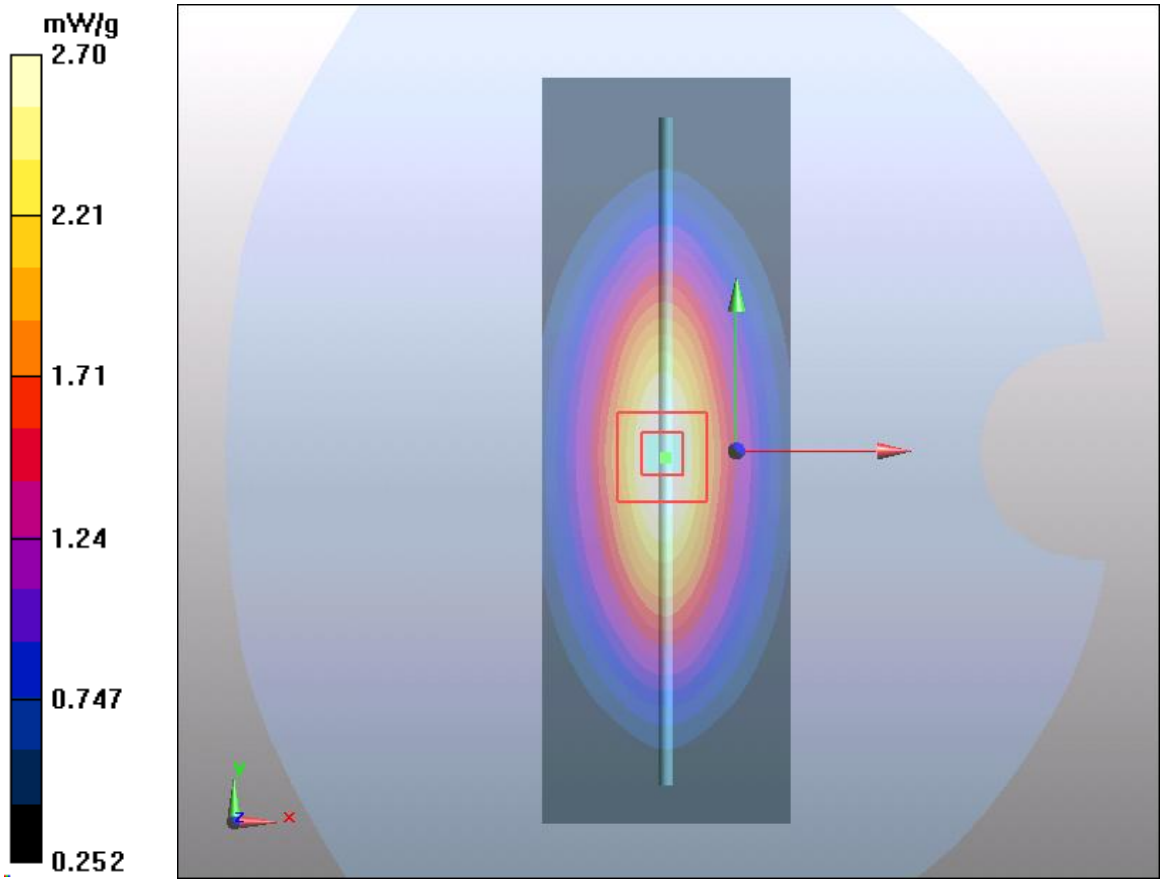
d=15mm, Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 54.3 V/m; Power Drift = -0.06 dB

Peak SAR (extrapolated) = 3.67 W/kg

SAR(1 g) = 2.46 mW/g; SAR(10 g) = 1.65 mW/g

Maximum value of SAR (measured) = 2.70 mW/g



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Plot 4 System Performance Check at 835 MHz TSL

DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2

Date: 5/23/2020

Communication System: CW; Frequency: 835 MHz;Duty Cycle: 1:1

Medium parameters used: f = 835 MHz; σ = 0.92 S/m; ε_r = 41.4; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(9.20, 9.20, 9.20); Calibrated: 6/19/2019;

Electronics: DAE4 SN1317; Calibrated: 10/23/2019

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7439)

d=15mm, Pin=250mW/Area Scan (4x12x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 2.64 mW/g

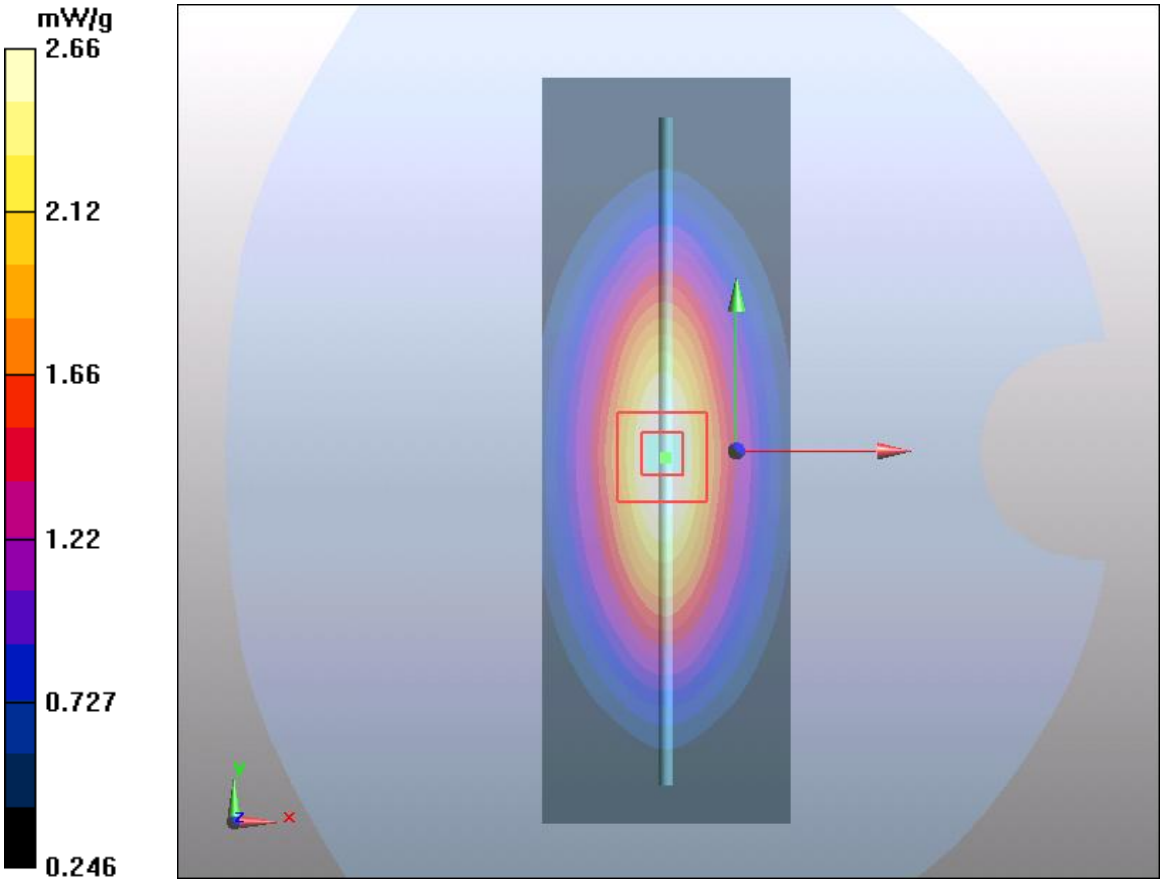
d=15mm, Pin=250mW/Zoom Scan(5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 54.4 V/m; Power Drift = -0.076 dB

Peak SAR (extrapolated) = 3.67 W/kg

SAR(1 g) = 2.43 mW/g; SAR(10 g) = 1.61 mW/g

Maximum value of SAR (measured) = 2.66 mW/g



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Plot 5 System Performance Check at 835 MHz TSL

DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2

Date: 6/28/2020

Communication System: CW; Frequency: 835 MHz;Duty Cycle: 1:1

Medium parameters used: f = 835 MHz; σ = 0.88 S/m; ε_r = 41.4; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Probe: EX3DV4 -SN7515; ConvF(9.60, 9.60, 9.60); Calibrated: 10/22/2019;

Electronics: DAE4 SN1317; Calibrated: 10/23/2019

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7439)

d=15mm, Pin=250mW/Area Scan (4x12x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 2.64 mW/g

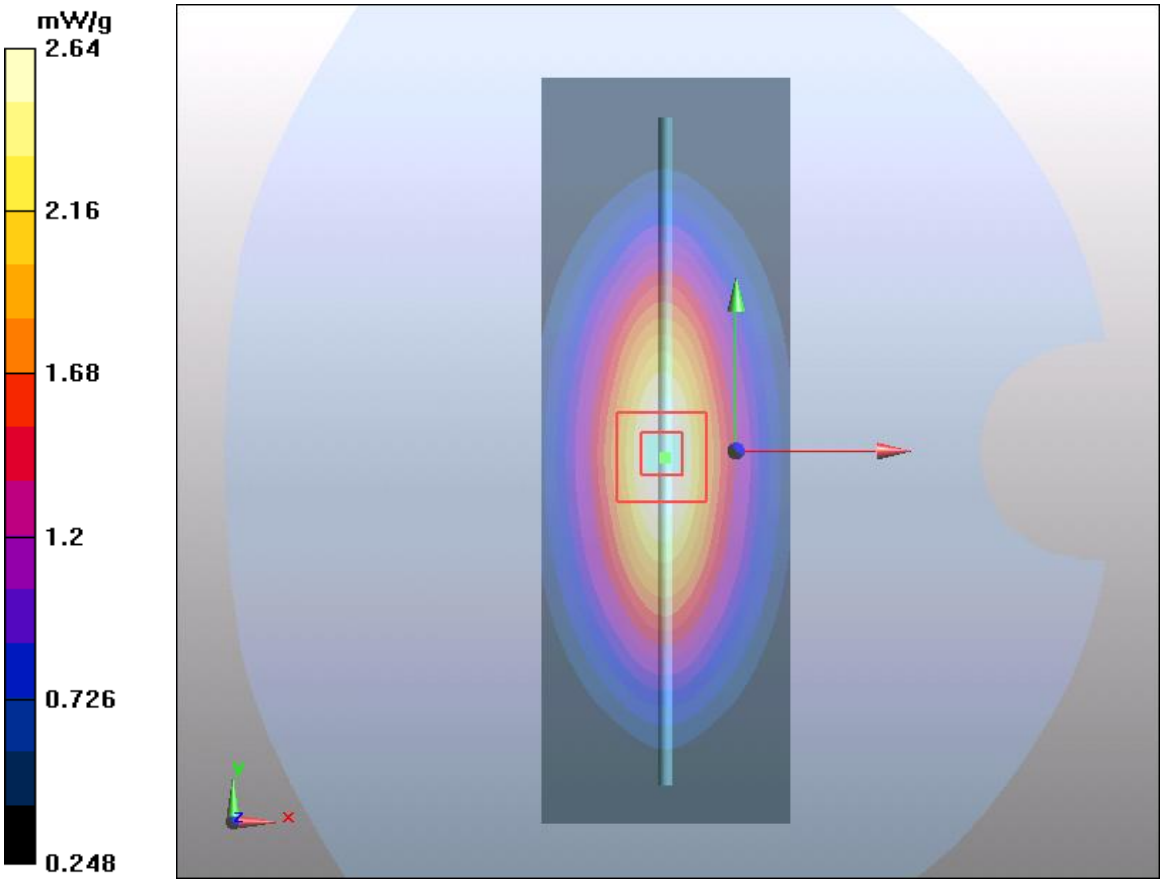
d=15mm, Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 54.4 V/m; Power Drift = -0.076 dB

Peak SAR (extrapolated) = 3.67 W/kg

SAR(1 g) = 2.44 mW/g; SAR(10 g) = 1.6 mW/g

Maximum value of SAR (measured) = 2.64 mW/g



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Plot 6 System Performance Check at 1750 MHz TSL

DUT: Dipole 1750 MHz; Type: D1750V2; Serial: D1750V2

Date: 5/21/2020

Communication System: CW; Frequency: 1750 MHz;Duty Cycle: 1:1

Medium parameters used: f = 1750 MHz; σ = 1.34 S/m; ε_r = 40.1; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(8.21, 8.21, 8.21); Calibrated: 6/19/2019;

Electronics: DAE4 SN1317; Calibrated: 10/23/2019

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7439)

d=10mm, Pin=250mW/Area Scan (5x8x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 9.77 mW/g

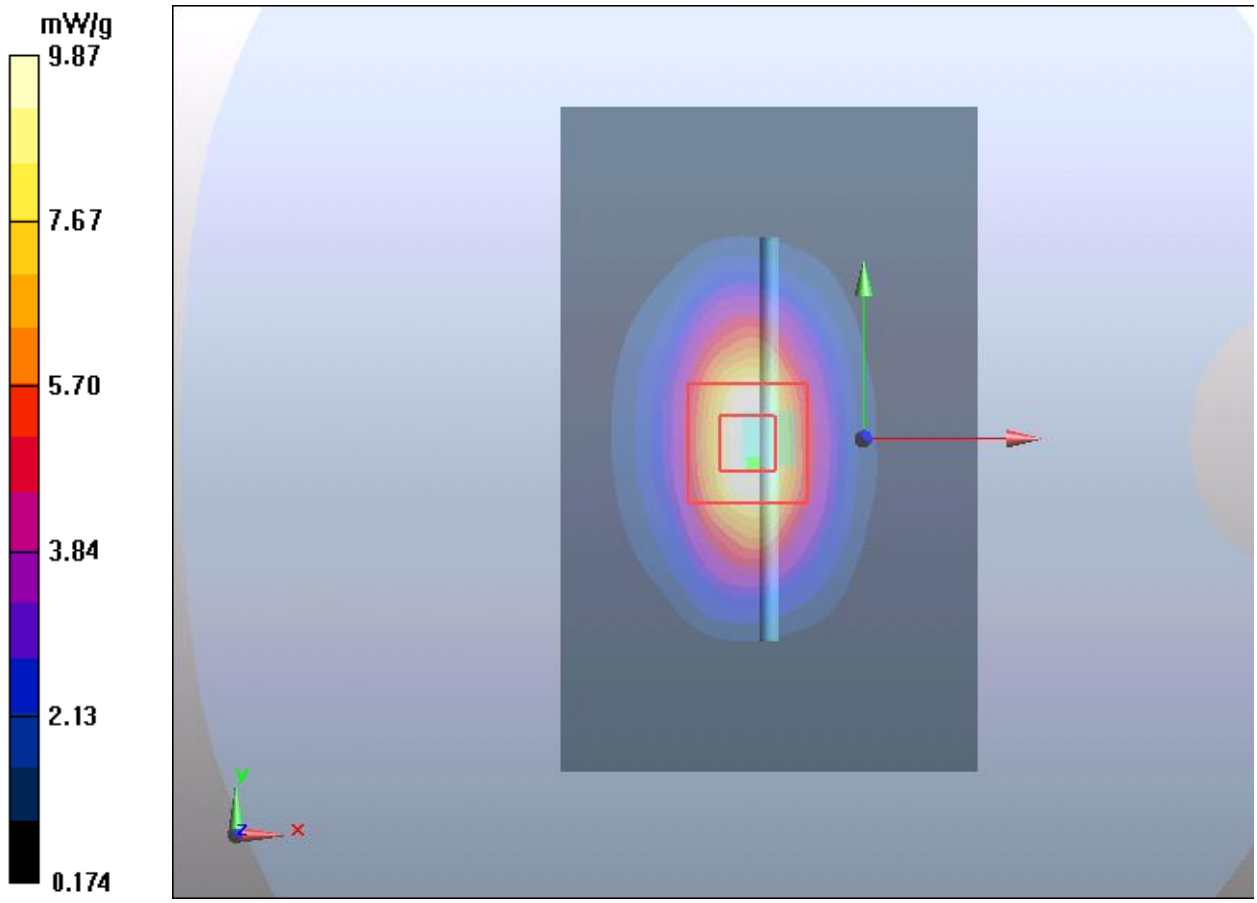
d=10mm, Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 80 V/m; Power Drift = 0.055 dB

Peak SAR (extrapolated) = 15.51 W/kg

SAR(1 g) = 9.11 mW/g; SAR(10 g) = 4.77 mW/g

Maximum value of SAR (measured) = 9.87 mW/g



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Plot 7 System Performance Check at 1750 MHz TSL

DUT: Dipole 1750 MHz; Type: D1750V2; Serial: D1750V2

Date: 6/28/2020

Communication System: CW; Frequency: 1750 MHz;Duty Cycle: 1:1

Medium parameters used: f = 1750 MHz; σ = 1.36 mho/m; ε_r = 40.2; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Probe: EX3DV4 -SN7515; ConvF(8.55, 8.55, 8.55); Calibrated: 10/22/2019;

Electronics: DAE4 SN1317; Calibrated: 10/23/2019

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7439)

d=10mm, Pin=250mW/Area Scan (5x8x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 9.11 mW/g

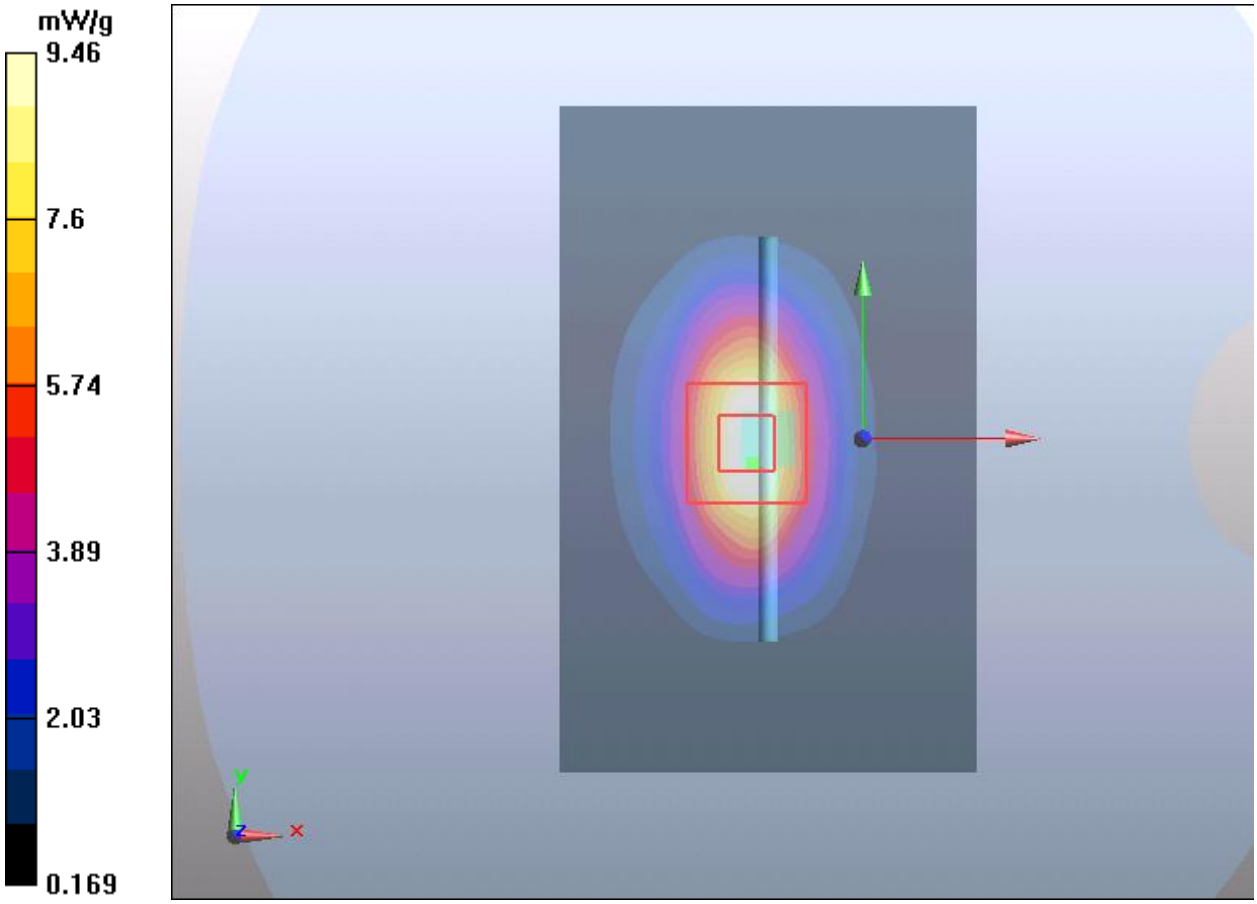
d=10mm, Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 80 V/m; Power Drift = 0.075 dB

Peak SAR (extrapolated) = 15.47 W/kg

SAR(1 g) = 8.96 mW/g; SAR(10 g) = 4.75 mW/g

Maximum value of SAR (measured) = 9.46 mW/g



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Plot 8 System Performance Check at 1900 MHz TSL

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2

Date: 5/19/2020

Communication System: CW; Frequency: 1900 MHz;Duty Cycle: 1:1

Medium parameters used: f = 1900 MHz; σ = 1.43 S/m; ε_r = 40.2; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(7.79, 7.79, 7.79); Calibrated: 6/19/2019;

Electronics: DAE4 SN1317; Calibrated: 10/23/2019

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7439)

d=10mm, Pin=250mW/Area Scan (4x7x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 11.23 mW/g

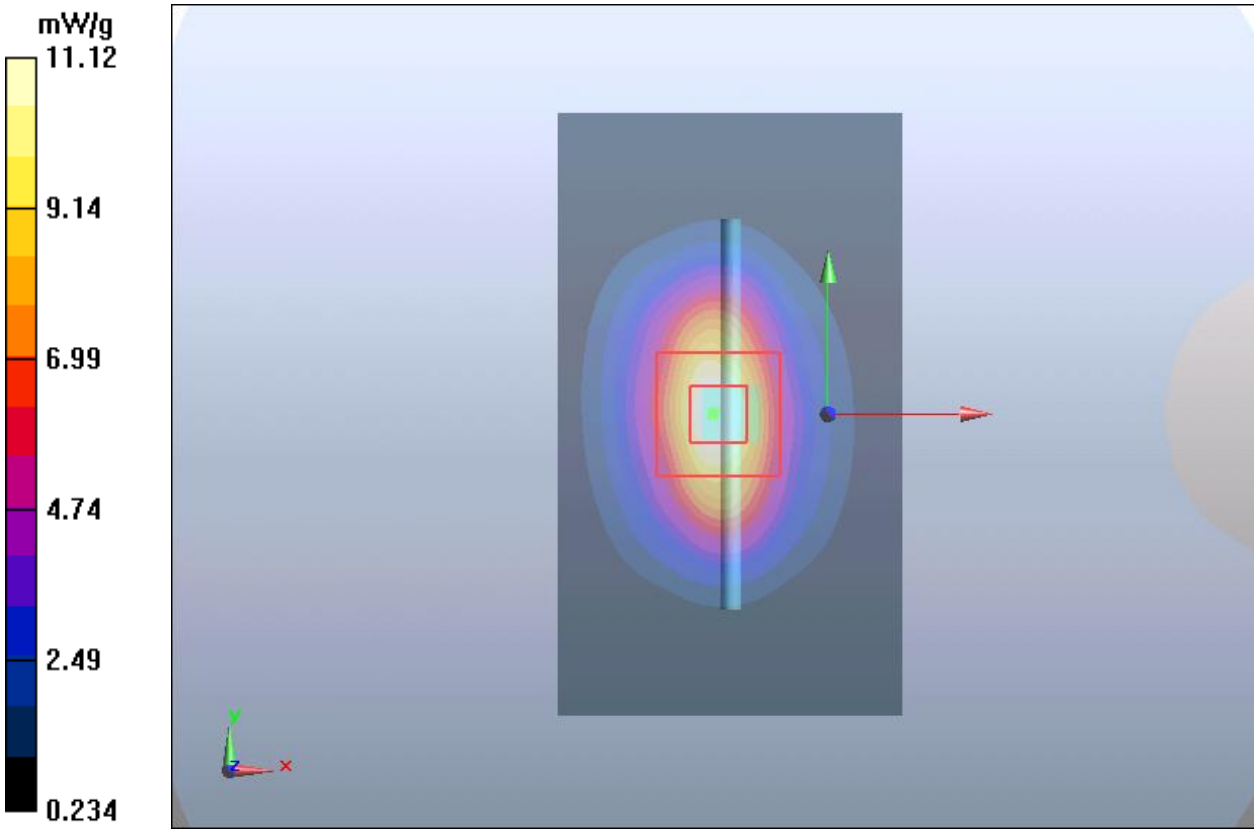
d=10mm, Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 85.0 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 17.8 W/kg

SAR(1 g) = 9.85 mW/g; SAR(10 g) = 4.93 mW/g

Maximum value of SAR (measured) = 11.12 mW/g



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Plot 9 System Performance Check at 1900 MHz

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2

Date: 5/22/2020

Communication System: CW; Frequency: 1900 MHz;Duty Cycle: 1:1

Medium parameters used: f = 1900 MHz; σ = 1.40 mho/m; ε_r = 40.0; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃

DASY5 Configuration:

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(7.79, 7.79, 7.79); Calibrated: 6/19/2019;

Electronics: DAE4 SN1317; Calibrated: 10/23/2019

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7439)

d=10mm, Pin=250mW/Area Scan (4x7x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 12.9 mW/g

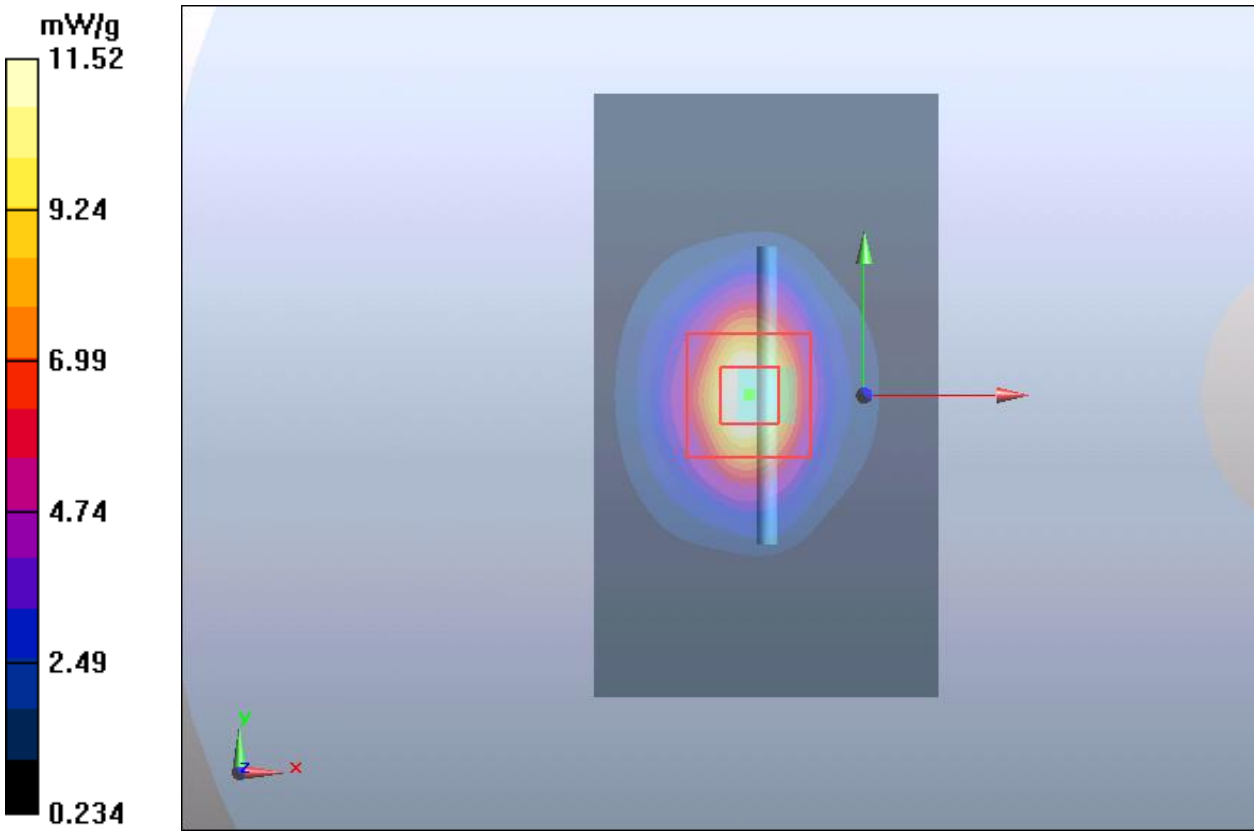
d=10mm, Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 87.8 V/m; Power Drift = 0.030 dB

Peak SAR (extrapolated) = 20.1 W/kg

SAR(1 g) = 10.55 mW/g; SAR(10 g) = 5.39 mW/g

Maximum value of SAR (measured) = 11.52 mW/g



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Plot 10 System Performance Check at 1900 MHz TSL

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2

Date: 6/28/2020

Communication System: CW; Frequency: 1900 MHz;Duty Cycle: 1:1

Medium parameters used: f = 1900 MHz; σ = 1.41 S/m; ε_r = 40.1; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Probe: EX3DV4 -SN7515; ConvF(8.18, 8.18, 8.18); Calibrated: 10/22/2019;

Electronics: DAE4 SN1317; Calibrated: 10/23/2019

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7439)

d=10mm, Pin=250mW/Area Scan (4x7x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 11.3 mW/g

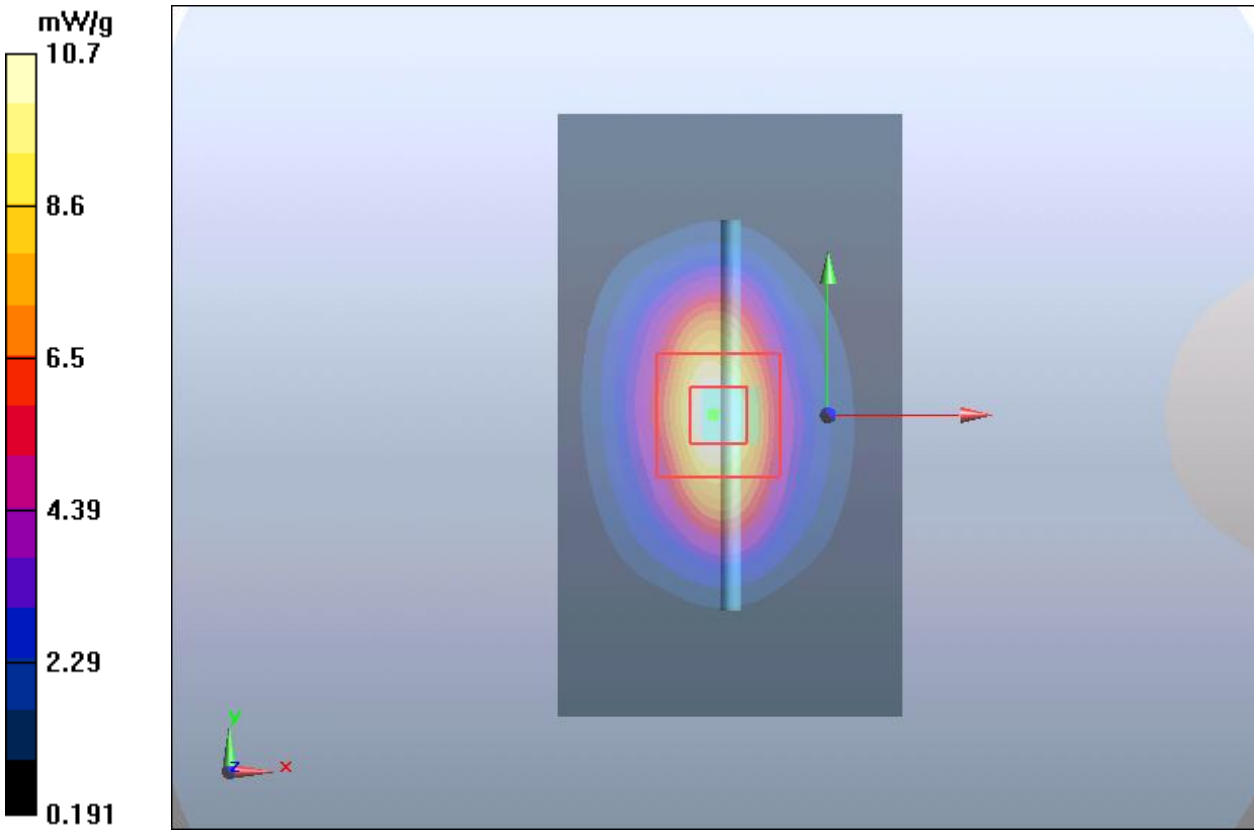
d=10mm, Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 85.5 V/m; Power Drift = 0.028 dB

Peak SAR (extrapolated) = 17.8 W/kg

SAR(1 g) = 9.88 mW/g; SAR(10 g) = 4.9 mW/g

Maximum value of SAR (measured) = 10.7 mW/g



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Plot 11 System Performance Check at 2450 MHz TSL

DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2

Date: 5/24/2020

Communication System: CW; Frequency: 2450 MHz;Duty Cycle: 1:1

Medium parameters used: f = 2450 MHz; σ = 1.81 S/m; ε_r = 38.6; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(7.50, 7.50, 7.50); Calibrated: 6/19/2019;

Electronics: DAE4 SN1317; Calibrated: 10/23/2019

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7439)

d=10mm, Pin=250mW/Area Scan (4x7x1): Measurement grid: dx=12mm, dy=12mm

Maximum value of SAR (measured) = 18.2 mW/g

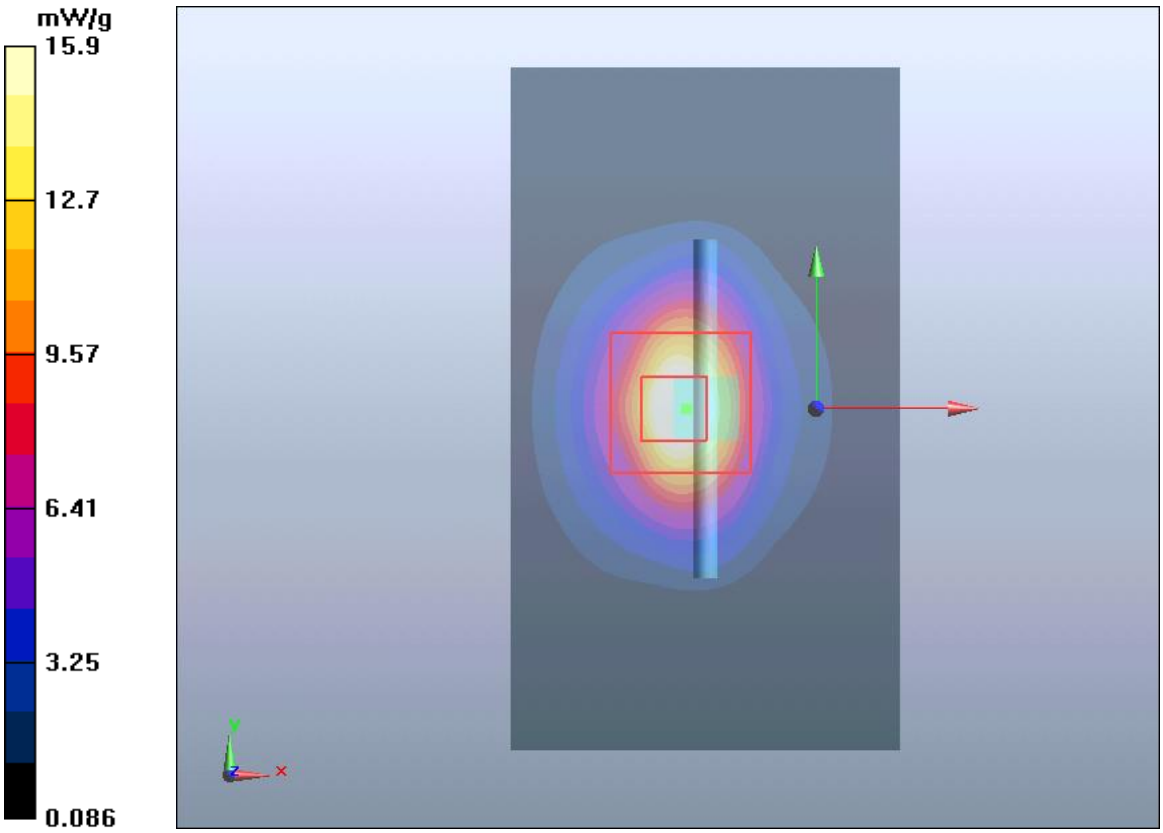
d=10mm, Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 88.8 V/m; Power Drift = 0.075 dB

Peak SAR (extrapolated) = 30 W/kg

SAR(1 g) = 13.7 mW/g; SAR(10 g) = 6.22 mW/g

Maximum value of SAR (measured) = 15.9 mW/g



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Plot 12 System Performance Check at 2450 MHz Body TSL

DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2

Date: 6/28/2020

Communication System: CW; Frequency: 2450 MHz;Duty Cycle: 1:1

Medium parameters used: f = 2450 MHz; σ = 1.88 S/m; ε_r = 38.7; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Probe: EX3DV4 -SN7515; ConvF(7.45, 7.45,7.45); Calibrated: 10/22/2019;

Electronics: DAE4 SN1317; Calibrated: 10/23/2019

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7439)

d=10mm, Pin=250mW/Area Scan (41x71x1): Measurement grid: dx=12mm, dy=12mm

Maximum value of SAR (interpolated) = 16 mW/g

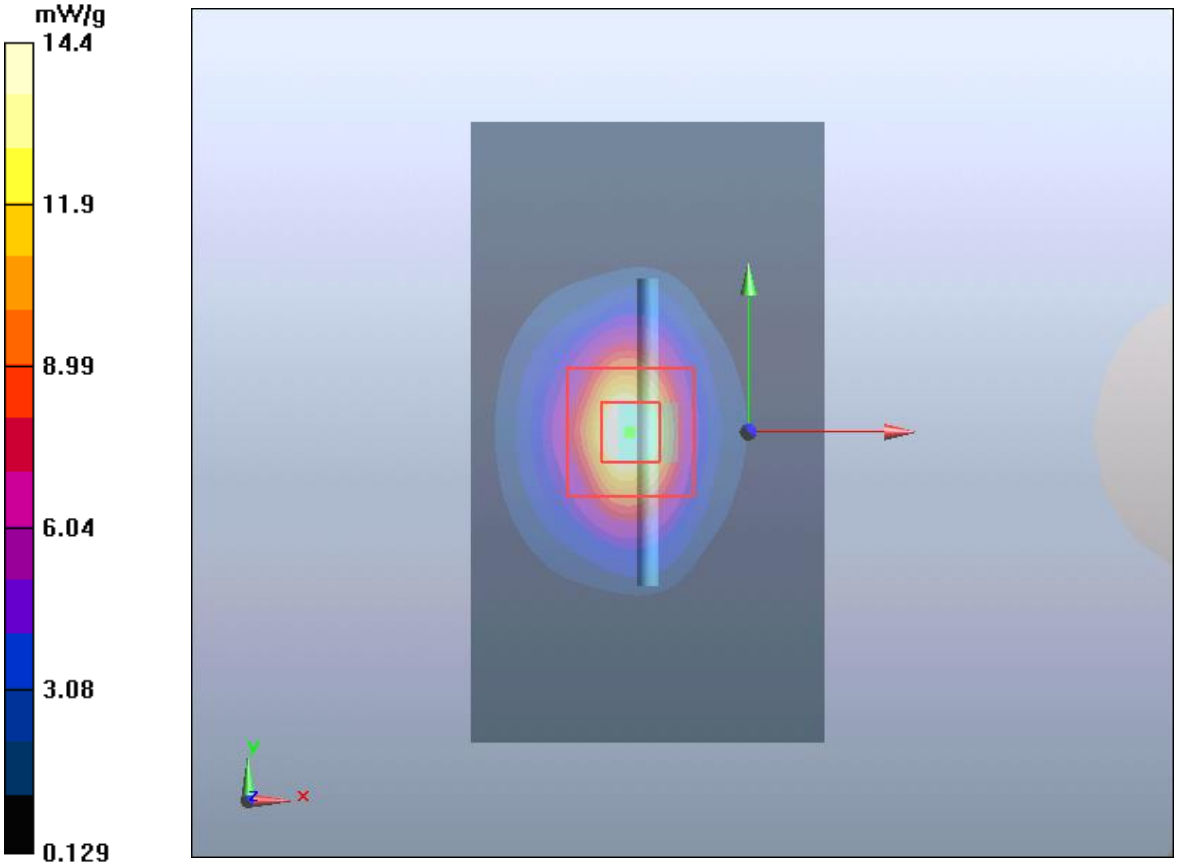
d=10mm, Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 81.2 V/m; Power Drift = 0.003 dB

Peak SAR (extrapolated) = 25.4 W/kg

SAR(1 g) = 12.5 mW/g; SAR(10 g) = 6.20 mW/g

Maximum value of SAR (measured) = 14.4 mW/g



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Plot 13 System Performance Check at 2600 MHz TSL

DUT: Dipole 2600 MHz; Type: D2600V2; Serial: D2600V2

Date: 5/24/2020

Communication System: CW; Frequency: 2600 MHz;Duty Cycle: 1:1

Medium parameters used: f = 2600 MHz; σ =1.94S/m; ε_r = 38.4; ρ = 1000 kg/m^3

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(7.20, 7.20, 7.20); Calibrated: 6/19/2019;

Electronics: DAE4 SN1317; Calibrated: 10/23/2019

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7439)

d=10mm, Pin=250mW/Area Scan (4x7x1): Measurement grid:dx=12mm, dy=12mm

Maximum value of SAR (measured) = 17.59 mW/g

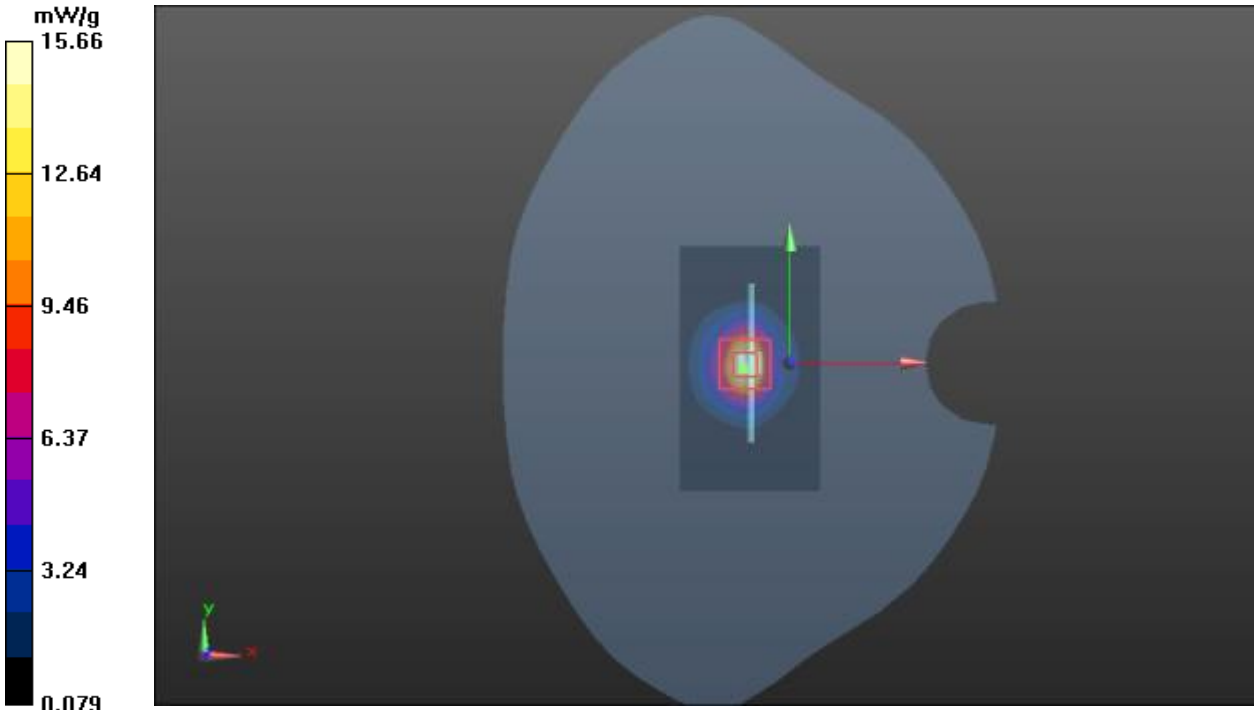
d=10mm, Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 87.998 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 31.858 W/kg

SAR(1 g) = 13.88 mW/g; SAR(10 g) = 6.09 mW/g

Maximum value of SAR (measured) = 15.66 mW/g



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Plot 14 System Performance Check at 2600 MHz Head TSL

DUT: Dipole 2600 MHz; Type: D2600V2; Serial: D2600V2

Date: 6/28/2020

Communication System: CW; Frequency: 2600 MHz;Duty Cycle: 1:1

Medium parameters used: f = 2600 MHz; σ = 2.01 S/m; ε_r = 38.2; ρ = 1000 kg/m^3

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Probe: EX3DV4 -SN7515; ConvF(7.30, 7.30,7.30); Calibrated: 10/22/2019;

Electronics: DAE4 SN1317; Calibrated: 10/23/2019

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7439)

d=10mm, Pin=250mW/Area Scan (41x71x1): Measurement grid:dx=12mm, dy=12mm

Maximum value of SAR (interpolated) = 17.439 mW/g

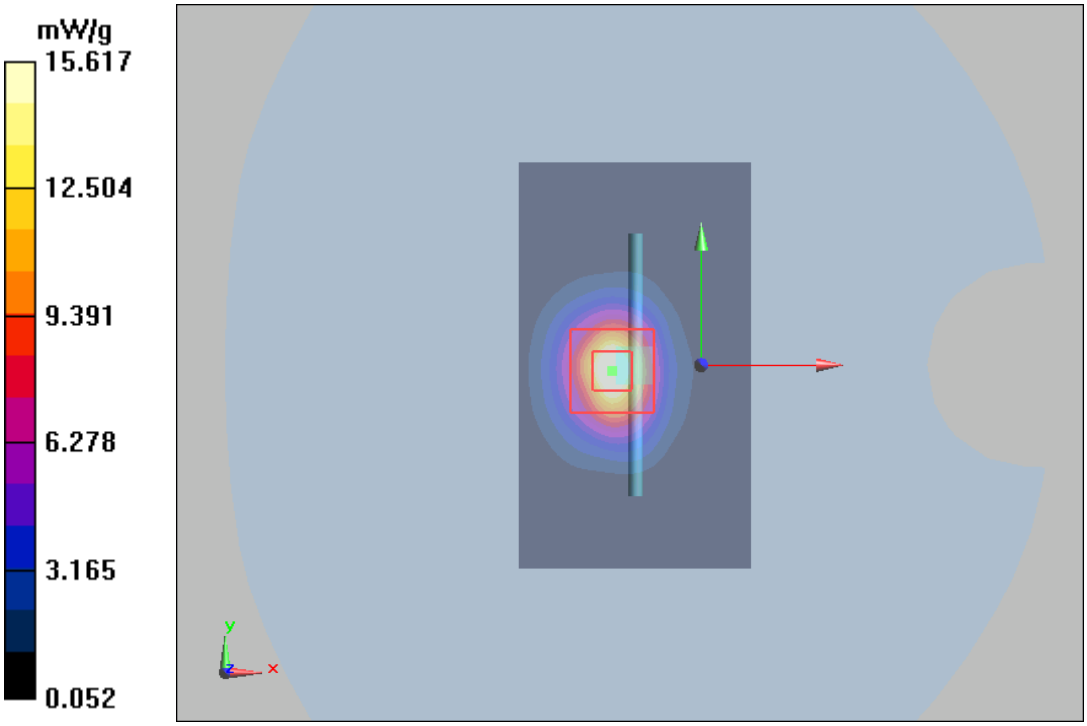
d=10mm, Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 87.998 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 31.858 W/kg

SAR(1 g) = 13.9 mW/g; SAR(10 g) = 6.07 mW/g

Maximum value of SAR (measured) = 15.617 mW/g



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Plot 15 System Performance Check at 5250 MHz TSL

DUT: Dipole 5250 MHz; Type: D5GHzV2; Serial: D5GHzV2

Date: 5/26/2020

Communication System: CW; Frequency: 5250 MHz;Duty Cycle: 1:1

Medium parameters used: f = 5250 MHz; σ = 4.80 S/m; ε_r = 35.5; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(5.56, 5.56, 5.56); Calibrated: 6/19/2019;

Electronics: DAE4 SN1317; Calibrated: 10/23/2019

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7439)

d=10mm, Pin=100mW/Area Scan (6x10x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (measured) = 9.14 mW/g

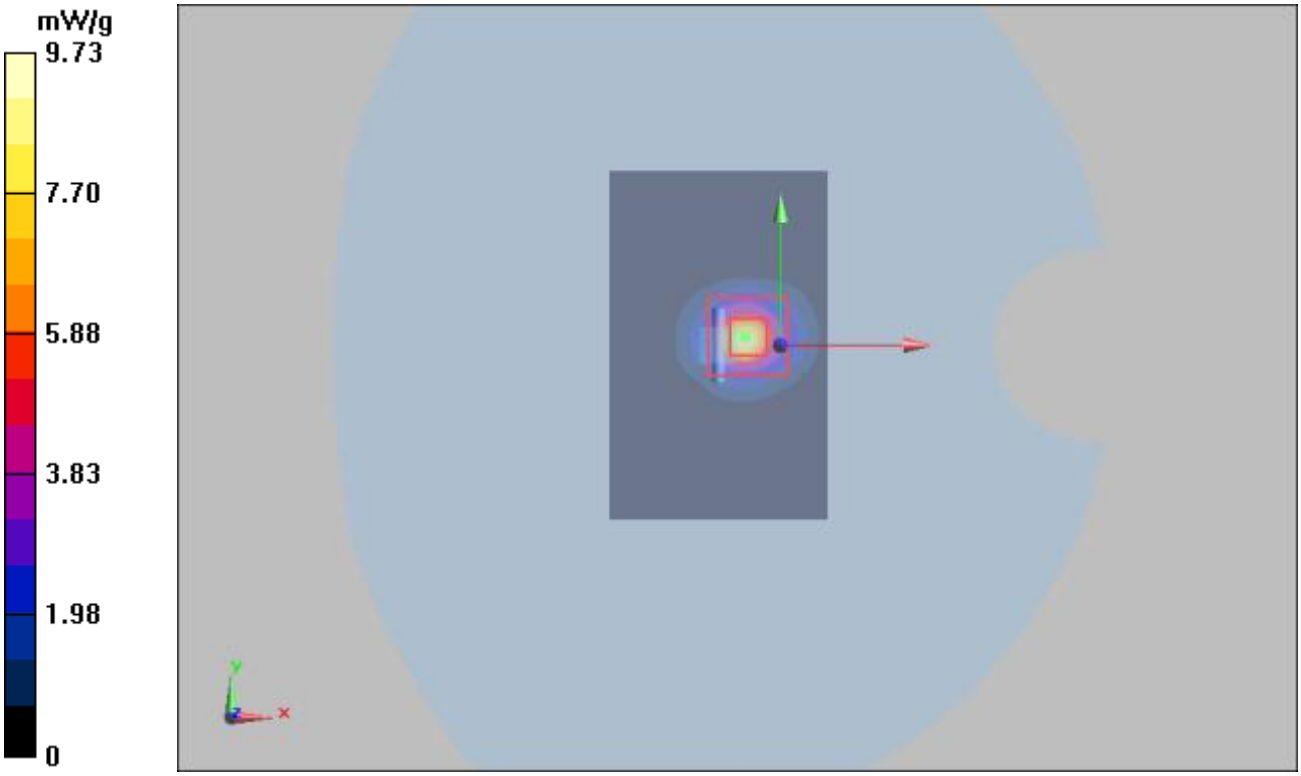
d=10mm, Pin=100mW/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 33.6 V/m; Power Drift = -0.095 dB

Peak SAR (extrapolated) = 52.2 W/kg

SAR(1 g) = 7.87 mW/g; SAR(10 g) = 2.25 mW/g

Maximum value of SAR (measured) = 9.73 mW/g



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Plot 16 System Performance Check at 5250 MHz Body TSL

DUT: Dipole 5250 MHz; Type: D5GHzV2; Serial: D5GHzV2

Date: 6/29/2020

Communication System: CW; Frequency: 5250 MHz;Duty Cycle: 1:1

Medium parameters used: f = 5250 MHz; σ = 4.86 S/m; ε_r = 36.0; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Probe: EX3DV4 -SN7515; ConvF(5.38, 5.38,5.38); Calibrated: 10/22/2019;

Electronics: DAE4 SN1317; Calibrated: 10/23/2019

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7439)

d=10mm, Pin=100mW/Area Scan (61x101x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 7.69 mW/g

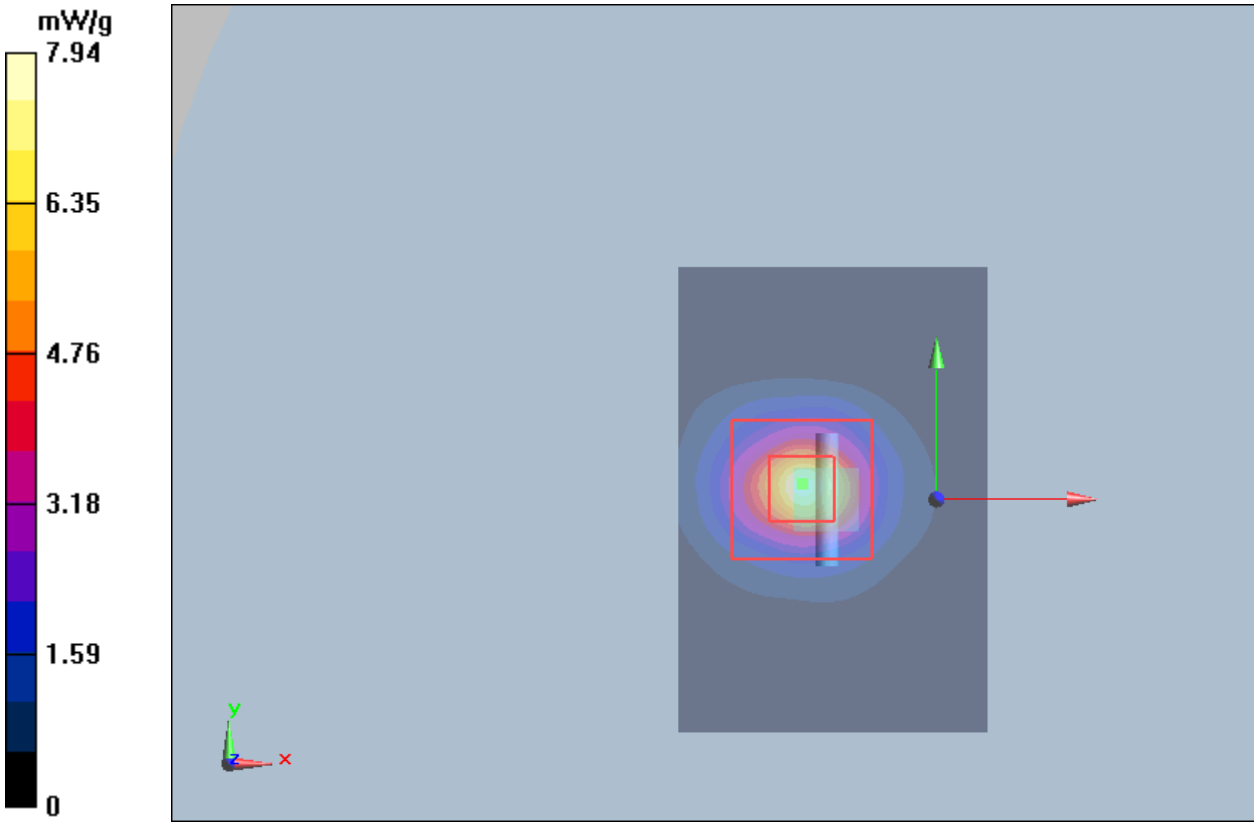
d=10mm, Pin=100mW/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 36.3 V/m; Power Drift = 0.0277 dB

Peak SAR (extrapolated) = 47.7 W/kg

SAR(1 g) = 7.46 mW/g; SAR(10 g) = 2.26 mW/g

Maximum value of SAR (measured) = 7.94 mW/g



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Plot 17 System Performance Check at 5600 MHz TSL

DUT: Dipole 5600 MHz; Type: D5GHzV2; Serial: D5GHzV2

Date: 5/27/2020

Communication System: CW; Frequency: 5600 MHz;Duty Cycle: 1:1

Medium parameters used: f = 5600 MHz; σ = 5.21 S/m; ε_r = 34.2; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(4.90, 4.90, 4.90); Calibrated: 6/19/2019;

Electronics: DAE4 SN1317; Calibrated: 10/23/2019

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7439)

d=10mm, Pin=100mW/Area Scan (6x10x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (measured) = 8.25 mW/g

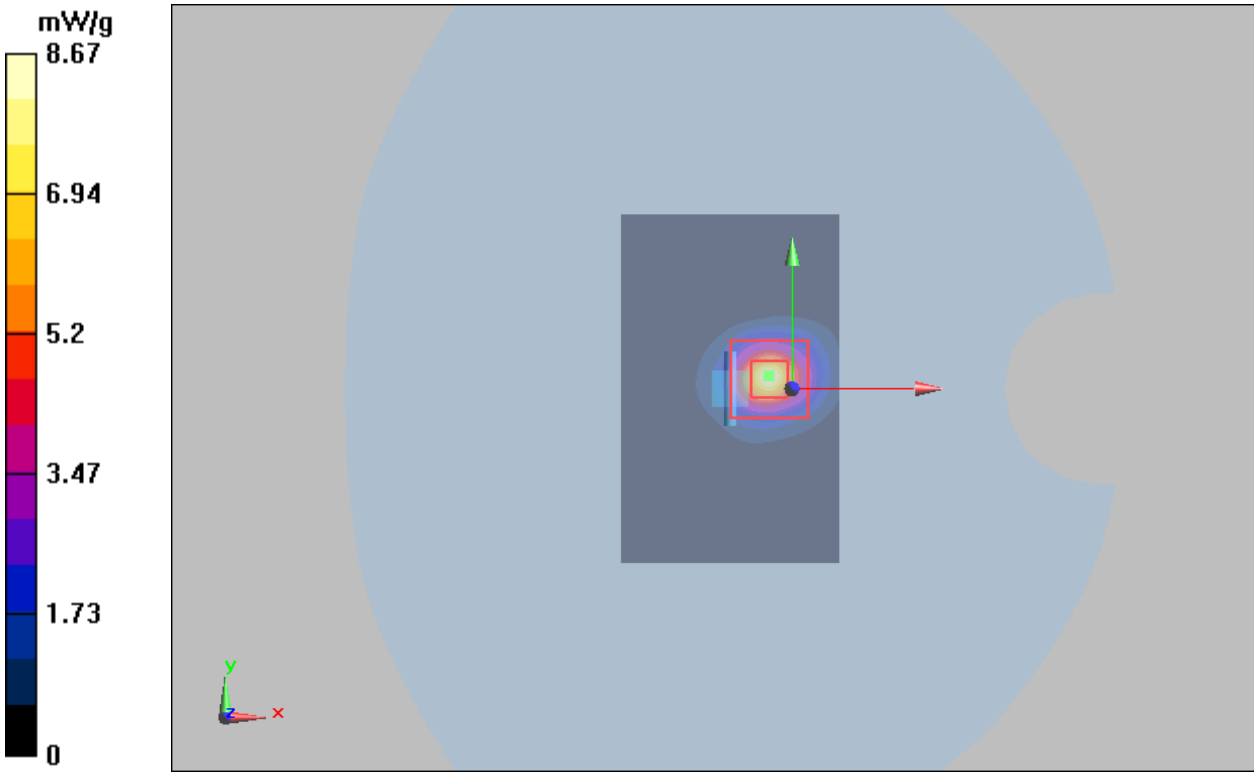
d=10mm, Pin=100mW/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 23.1 V/m; Power Drift = -0.028 dB

Peak SAR (extrapolated) = 22.9 W/kg

SAR(1 g) = 7.67 mW/g; SAR(10 g) = 2.27 mW/g

Maximum value of SAR (measured) = 8.67 mW/g



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Plot 18 System Performance Check at 5600 MHz Body TSL

DUT: Dipole 5600 MHz; Type: D5GHzV2; Serial: D5GHzV2

Date:6/29/2020

Communication System: CW; Frequency: 5600 MHz;Duty Cycle: 1:1

Medium parameters used: f = 5600 MHz; σ = 5.19 S/m; ε_r = 34.8; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Probe: EX3DV4 -SN7515; ConvF(4.77, 4.77,4.77); Calibrated: 10/22/2019;

Electronics: DAE4 SN1317; Calibrated: 10/23/2019

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7439)

d=10mm, Pin=100mW/Area Scan (61x101x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 7.84 mW/g

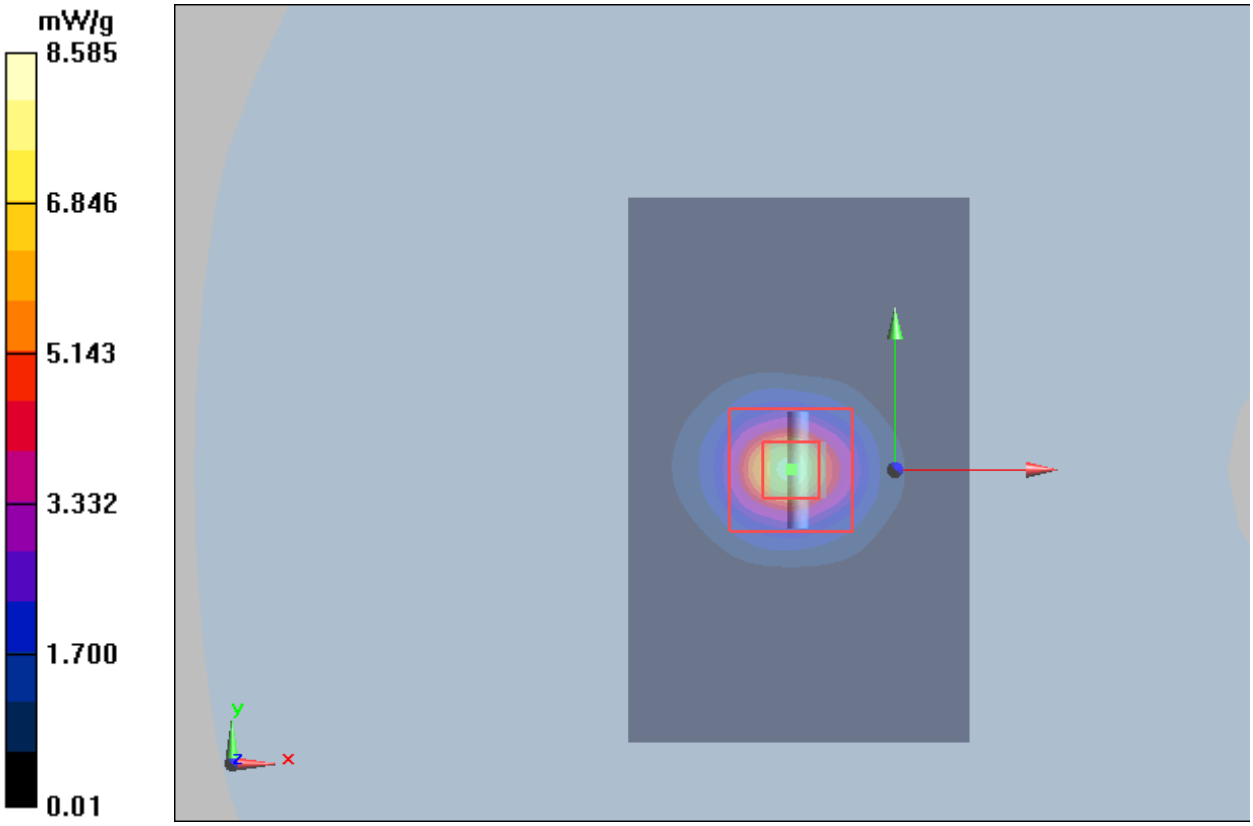
d=10mm, Pin=100mW/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 38 V/m; Power Drift = -0.018 dB

Peak SAR (extrapolated) = 22.6 W/kg

SAR(1 g) = 8.10 mW/g; SAR(10 g) = 2.11 mW/g

Maximum value of SAR (measured) = 8.585 mW/g



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Plot 19 System Performance Check at 5750 MHz TSL

DUT: Dipole 5750 MHz; Type: D5GHzV2; Serial: D5GHzV2

Date: 5/27/2020

Communication System: CW; Frequency: 5750 MHz;Duty Cycle: 1:1

Medium parameters used: f = 5750 MHz; σ = 5.21 S/m; ε_r = 34.9; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(4.99, 4.99, 4.99); Calibrated: 6/19/2019;

Electronics: DAE4 SN1317; Calibrated: 10/23/2019

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7439)

d=10mm, Pin=100mW/Area Scan (6x10x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (measured) = 8.31 mW/g

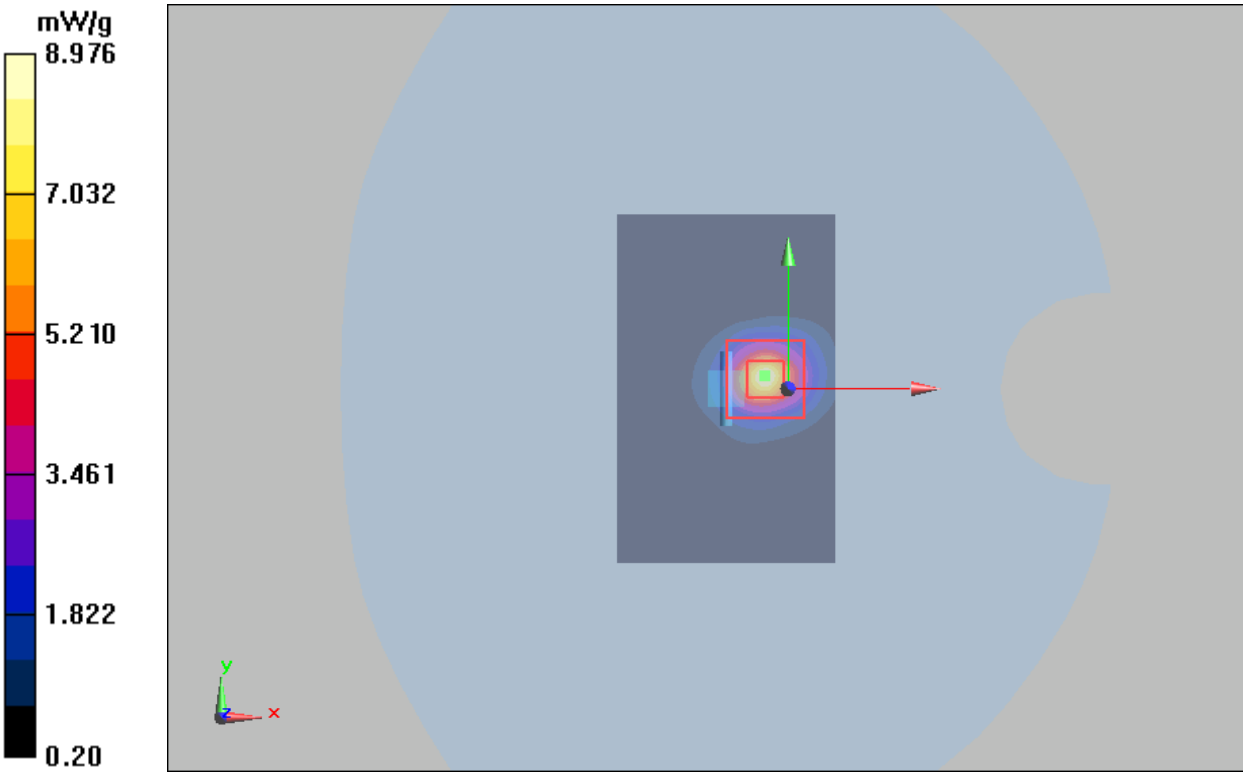
d=10mm, Pin=100mW/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 23.1 V/m; Power Drift = 0.044 dB

Peak SAR (extrapolated) = 23.4 W/kg

SAR(1 g) = 7.66 mW/g; SAR(10 g) = 2.27 mW/g

Maximum value of SAR (measured) = 8.976 mW/g



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Plot 20 System Performance Check at 5750 MHz Body TSL

DUT: Dipole 5750 MHz; Type: D5GHzV2; Serial: D5GHzV2

Date:6/29/2020

Communication System: CW; Frequency: 5750 MHz;Duty Cycle: 1:1

Medium parameters used: f = 5750 MHz; σ = 5.30 S/m; ε_r = 34.0; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Probe: EX3DV4 -SN7515; ConvF(4.94, 4.94,4.94); Calibrated: 10/22/2019;

Electronics: DAE4 SN1317; Calibrated: 10/23/2019

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7439)

d=10mm, Pin=100mW/Area Scan (61x101x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 7.84 mW/g

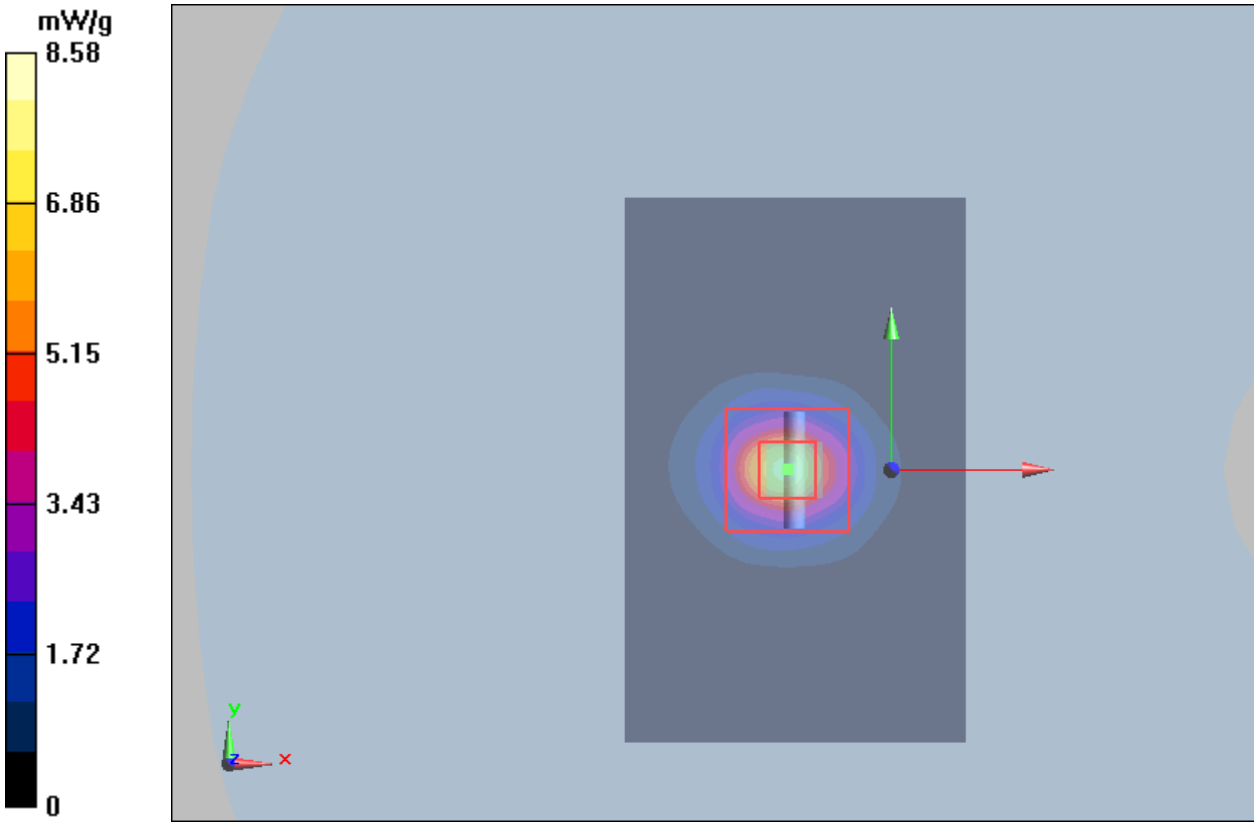
d=10mm, Pin=100mW/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 38 V/m; Power Drift = -0.018 dB

Peak SAR (extrapolated) = 22.6 W/kg

SAR(1 g) = 7.15 mW/g; SAR(10 g) = 1.99 mW/g

Maximum value of SAR (measured) = 8.58 mW/g



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ANNEX C: Highest Graph Results

Plot 21 GSM 850 GPRS (4Txslots) Front Side Middle (Distance 10mm)

Date: 5/20/2020

Communication System: UID 0, GPRS-4UP (0); Frequency: 836.6 MHz;Duty Cycle: 1:2.07

Medium parameters used: f = 837 MHz; σ = 0.923 S/m; εr = 42.201; ρ = 1000 kg/m3

Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(9.20, 9.20, 9.20); Calibrated: 6/19/2019;

Electronics: DAE4 SN1317; Calibrated: 10/23/2019

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7439)

Front Side Middle/Area Scan (8x13x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 1.11 W/kg

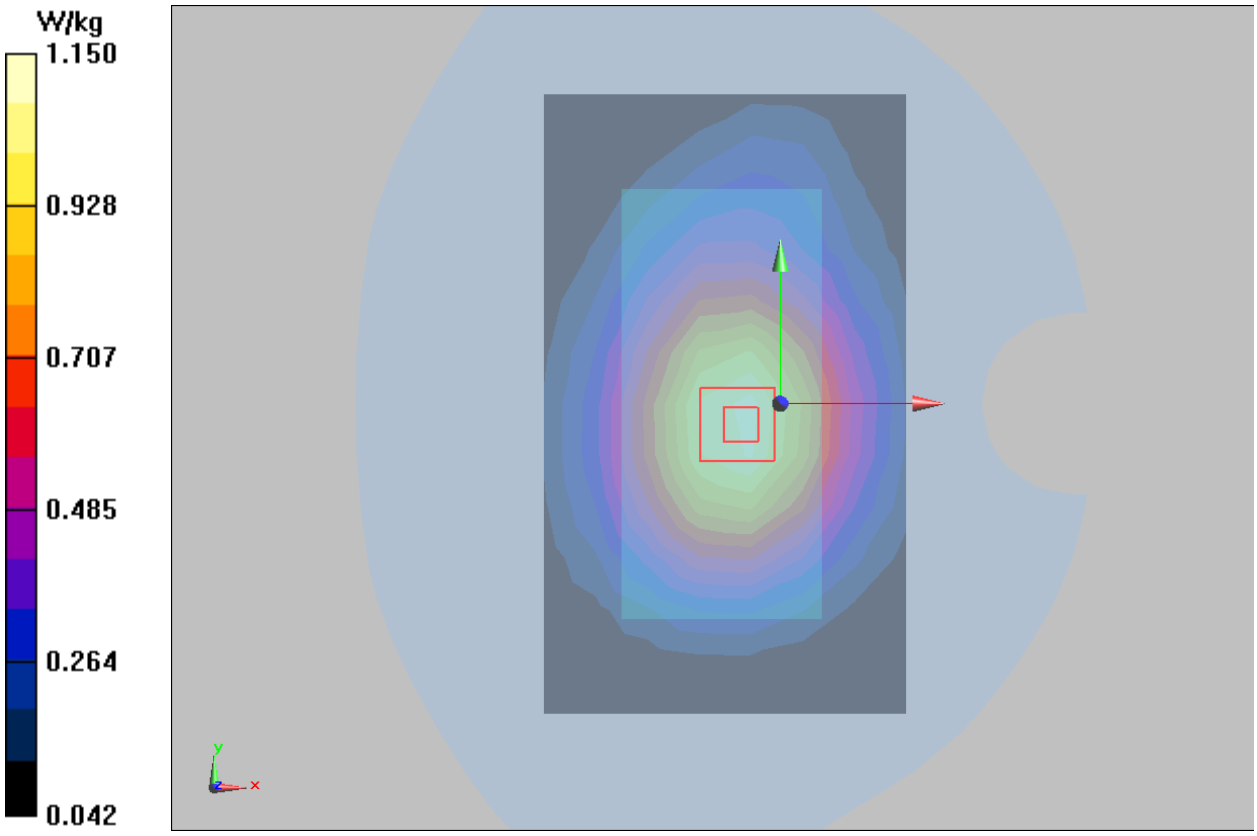
Front Side Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 34.95 V/m; Power Drift = 0.06 dB

Peak SAR (extrapolated) = 1.43 W/kg

SAR(1 g) = 1.09 W/kg; SAR(10 g) = 0.794 W/kg

Maximum value of SAR (measured) = 1.15 W/kg



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Plot 22 GSM 850 GPRS (4Txslots) Back Side Middle (Distance 0mm)

Date: 6/28/2020

Communication System: UID 0, GPRS 4TX (0); Frequency: 836.6 MHz;Duty Cycle: 1:2.07

Medium parameters used: f = 837 MHz; σ = 0.923 S/m; εr = 42.201; ρ = 1000 kg/m3

Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Probe: EX3DV4 -SN7515; ConvF(9.60, 9.60, 9.60); Calibrated: 10/22/2019;

Electronics: DAE4 SN1317; Calibrated: 10/23/2019

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7439)

Back Side Middle/Area Scan (8x13x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 1.17 W/kg

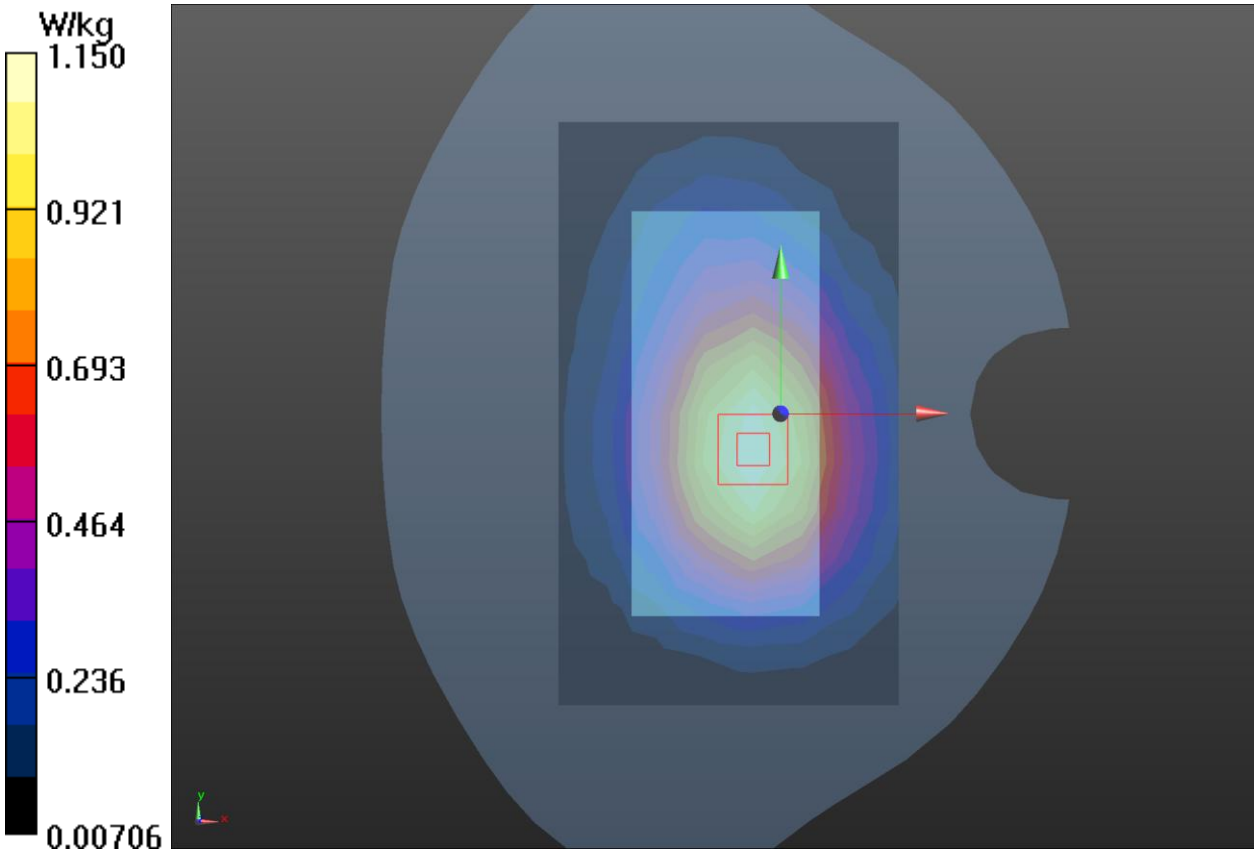
Back Side Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 33.46 V/m; Power Drift = 0.00 dB

Peak SAR (extrapolated) = 1.43 W/kg

SAR(1 g) = 1.09 W/kg; SAR(10 g) = 0.791 W/kg

Maximum value of SAR (measured) = 1.15 W/kg



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Plot 23 GSM 850 GPRS (4Txslots) Front Side Middle (Distance 0mm)

Date: 5/20/2020

Communication System: UID 0, GPRS-4UP (0); Frequency: 836.6 MHz;Duty Cycle: 1:2.07

Medium parameters used: f = 837 MHz; σ = 0.923 S/m; εr = 42.201; ρ = 1000 kg/m3

Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(9.20, 9.20, 9.20); Calibrated: 6/19/2019;

Electronics: DAE4 SN1317; Calibrated: 10/23/2019

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7439)

Front Side Middle/Area Scan (8x13x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 2.01 W/kg

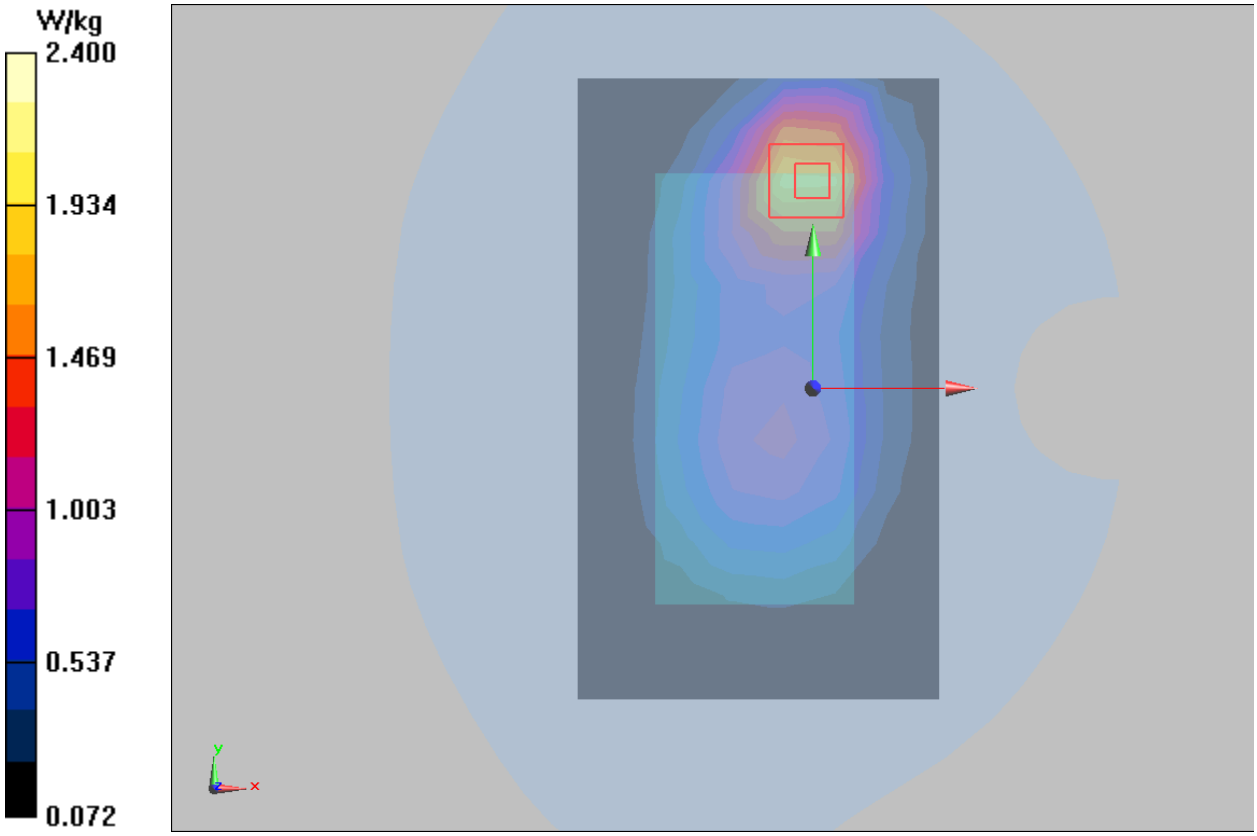
Front Side Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 33.27 V/m; Power Drift = -0.06 dB

Peak SAR (extrapolated) = 6.11 W/kg

SAR(1 g) = 2.2 W/kg; SAR(10 g) = 1.28 W/kg

Maximum value of SAR (measured) = 2.400 W/kg



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Plot 24 GSM 1900 GPRS (4Txslots) Front Side Middle (Distance 10mm)

Date: 5/19/2020

Communication System: UID 0, GPRS-4UP (0); Frequency: 1880 MHz;Duty Cycle: 1:2.07

Medium parameters used: f = 1880 MHz; σ = 1.42 S/m; εr = 38.948; ρ = 1000 kg/m3

Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(7.79, 7.79, 7.79); Calibrated: 6/19/2019;

Electronics: DAE4 SN1317; Calibrated: 10/23/2019

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7439)

Front Side Middle/Area Scan (8x13x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 0.489 W/kg

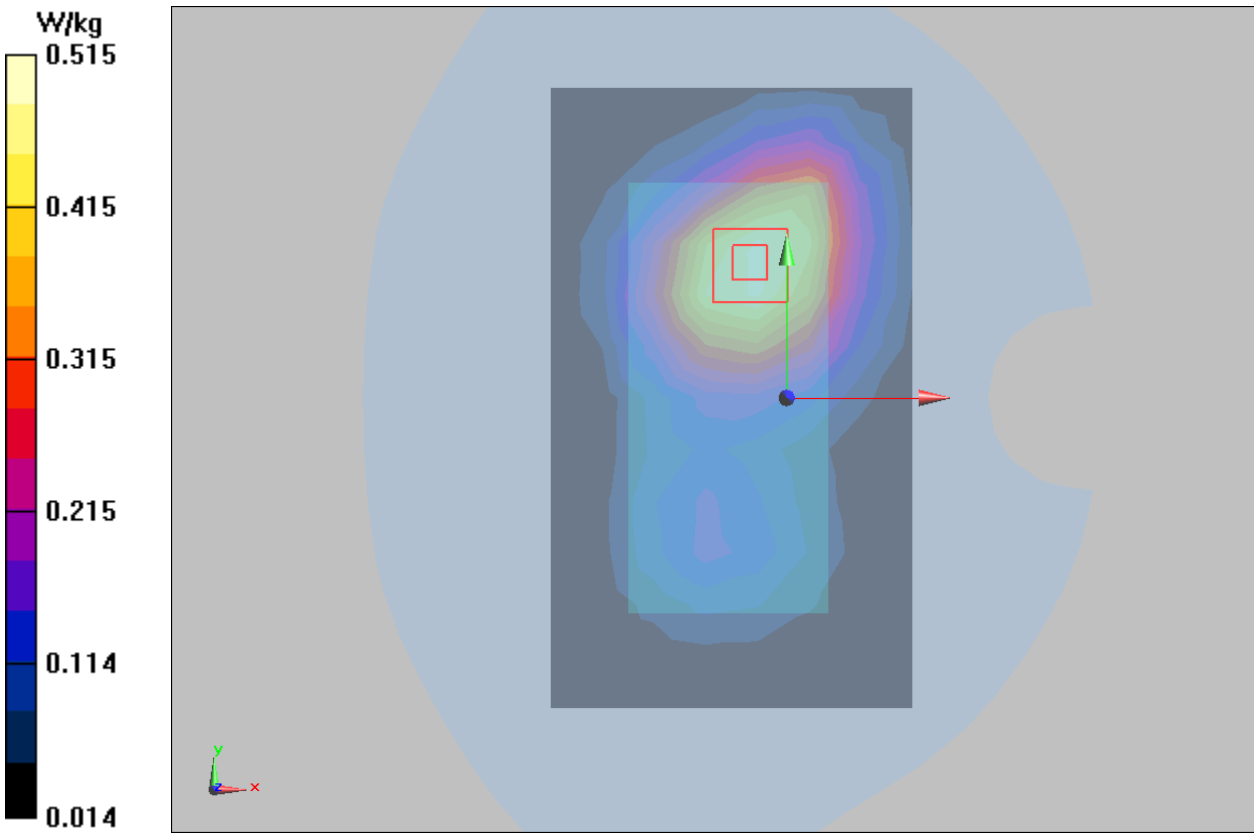
Front Side Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 11.14 V/m; Power Drift = 0.12 dB

Peak SAR (extrapolated) = 0.751 W/kg

SAR(1 g) = 0.474 W/kg; SAR(10 g) = 0.299 W/kg

Maximum value of SAR (measured) = 0.515 W/kg



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Plot 25 GSM 1900 GPRS (4Txslots) Back Side Middle (Distance 0mm)

Date: 6/28/2020

Communication System: UID 0, GPRS 4TX (0); Frequency: 1880 MHz;Duty Cycle: 1:2.07

Medium parameters used: f = 1880 MHz; σ = 1.393 S/m; εr = 38.344; ρ = 1000 kg/m3

Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Probe: EX3DV4 -SN7515; ConvF(8.18, 8.18, 8.18); Calibrated: 10/22/2019;

Electronics: DAE4 SN1317; Calibrated: 10/23/2019

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7439)

Back Side Middle/Area Scan (8x13x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 0.419 W/kg

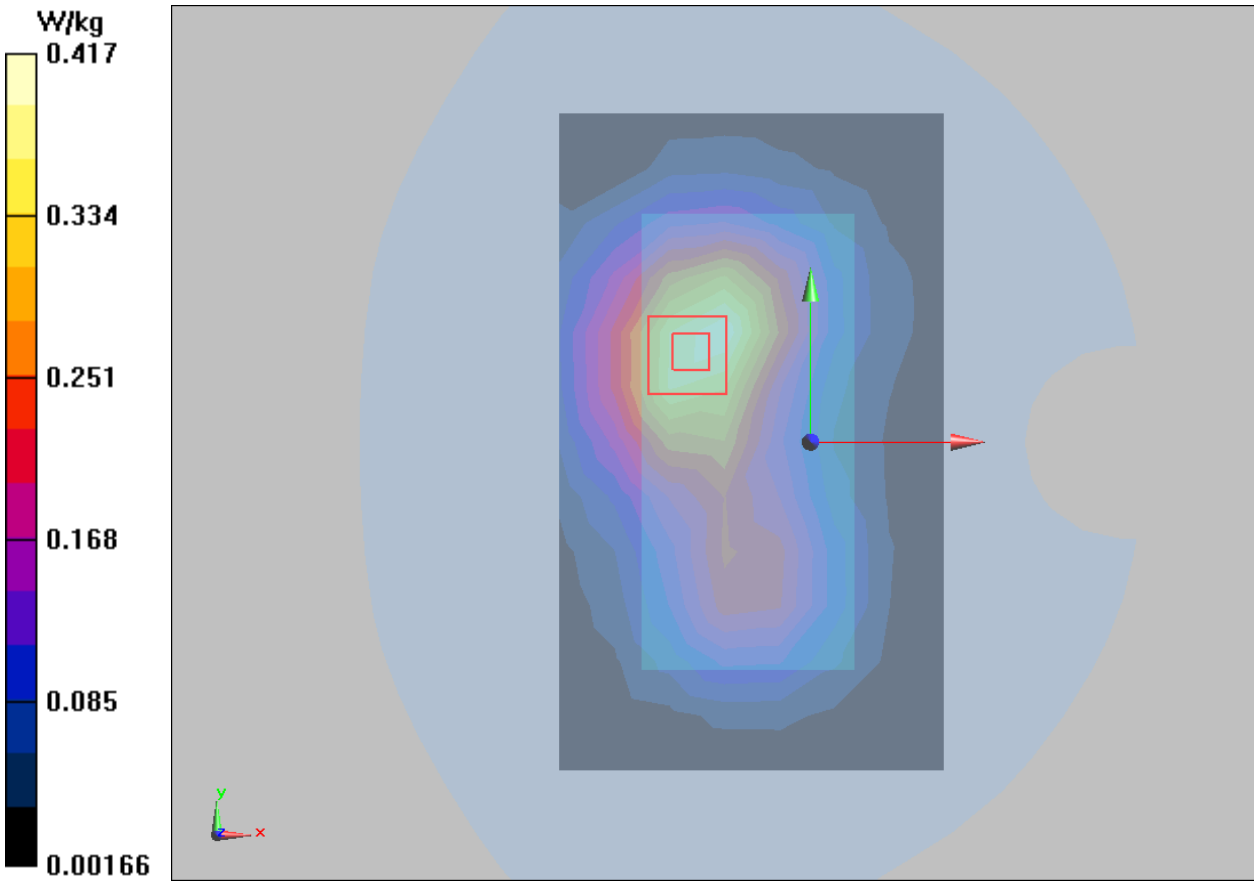
Back Side Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 12.98 V/m; Power Drift = -0.06 dB

Peak SAR (extrapolated) = 0.598 W/kg

SAR(1 g) = 0.373 W/kg; SAR(10 g) = 0.223 W/kg

Maximum value of SAR (measured) = 0.417 W/kg



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Plot 26 GSM 1900 GPRS (4Txslots) Front Side Middle (Distance 0mm)

Date: 5/19/2020

Communication System: UID 0, GPRS-4UP (0); Frequency: 1880 MHz;Duty Cycle: 1:2.07

Medium parameters used: f = 1880 MHz; σ = 1.42 S/m; εr = 38.948; ρ = 1000 kg/m3

Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(7.79, 7.79, 7.79); Calibrated: 6/19/2019;

Electronics: DAE4 SN1317; Calibrated: 10/23/2019

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7439)

Front Side Middle/Area Scan (8x13x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 1.44 W/kg

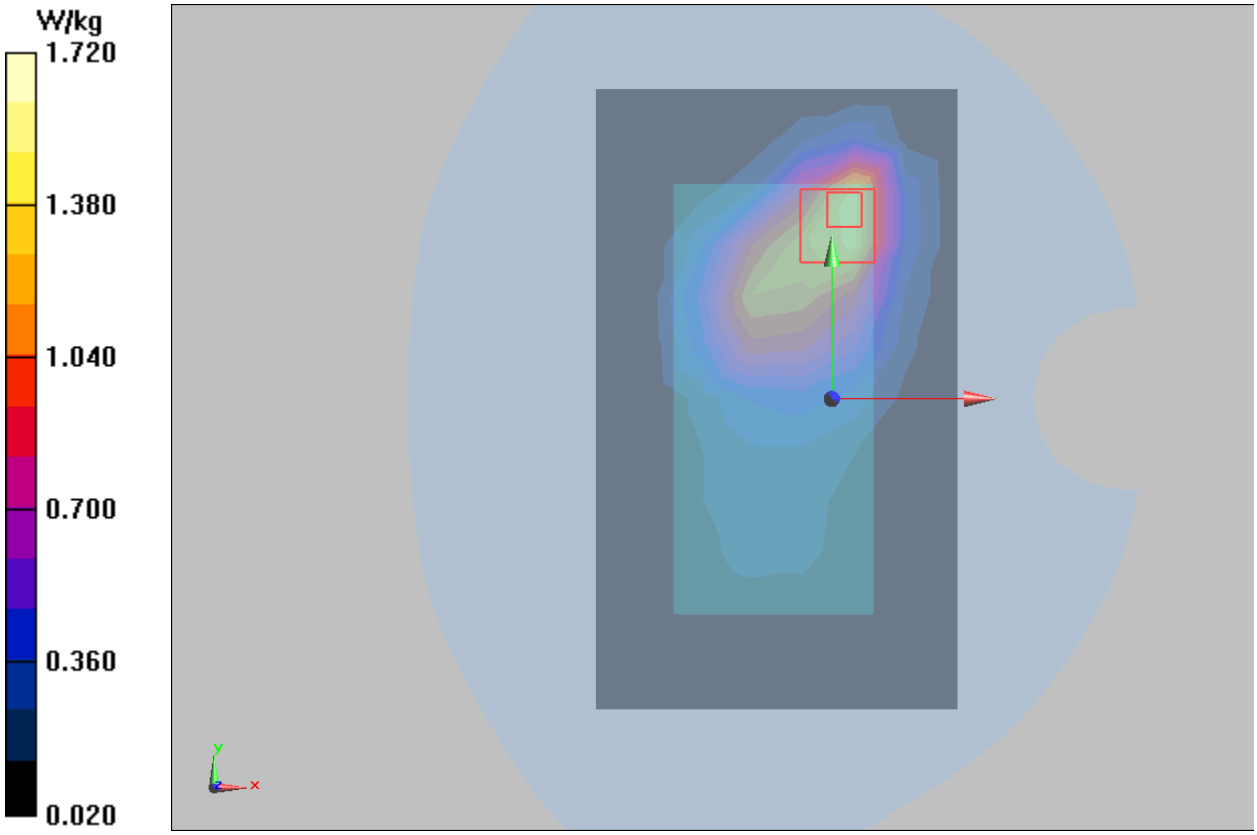
Front Side Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 16.90 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 2.85 W/kg

SAR(1 g) = 1.5 W/kg; SAR(10 g) = 0.776 W/kg

Maximum value of SAR (measured) = 1.720 W/kg



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Plot 27 UMTS Band II Front Side Middle (Distance 10mm)

Date: 5/19/2020

Communication System: UID 0, WCDMA 1900 (0); Frequency: 1880 MHz;Duty Cycle: 1:1

Medium parameters used: f = 1880 MHz; σ = 1.42 S/m; εr = 38.948; ρ = 1000 kg/m3

Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(7.79, 7.79, 7.79); Calibrated: 6/19/2019;

Electronics: DAE4 SN1317; Calibrated: 10/23/2019

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7439)

Front Side Middle/Area Scan (8x13x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 0.866 W/kg

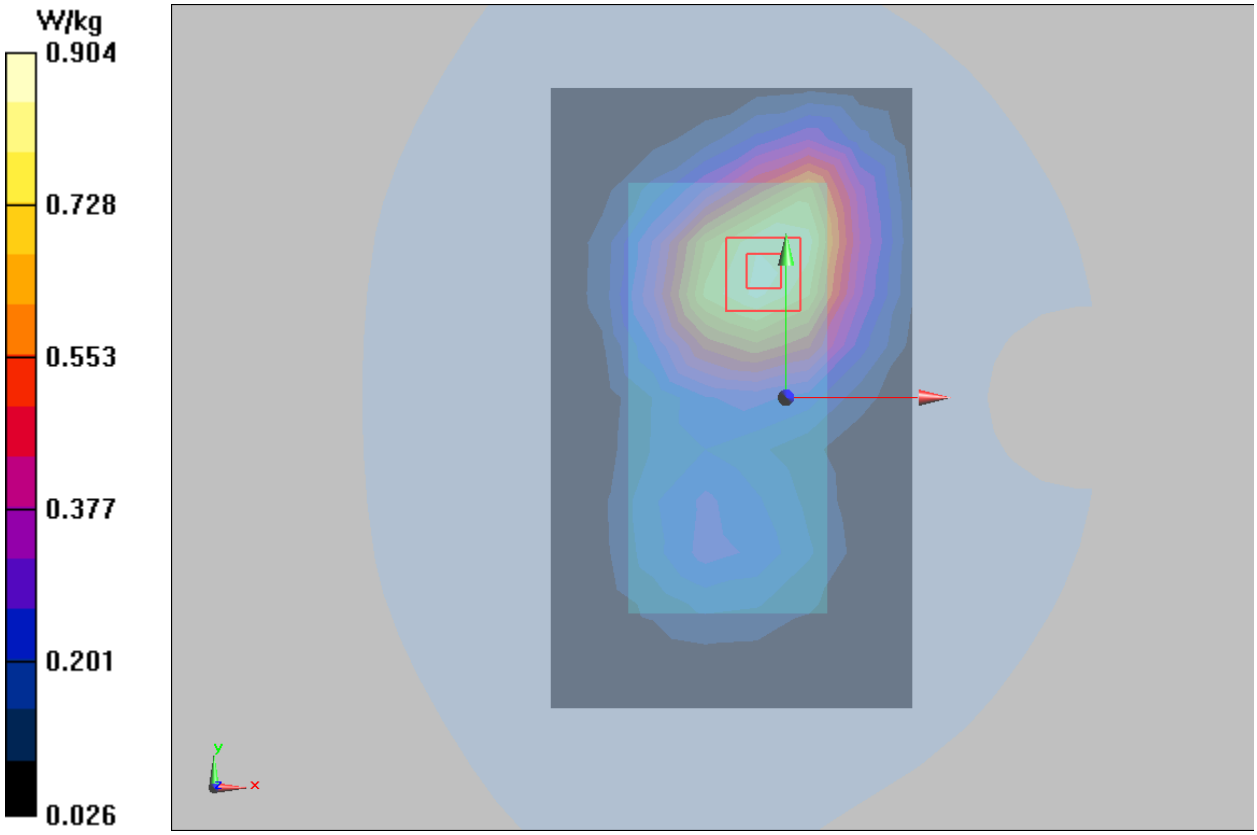
Front Side Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 14.08 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 1.38 W/kg

SAR(1 g) = 0.859 W/kg; SAR(10 g) = 0.540 W/kg

Maximum value of SAR (measured) = 0.904 W/kg



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Plot 28 UMTS Band II Back Side Middle (Distance 0mm)

Date: 6/28/2020

Communication System: UID 0, WCDMA (0); Frequency: 1880 MHz;Duty Cycle: 1:1

Medium parameters used: f = 1880 MHz; σ = 1.393 S/m; εr = 38.344; ρ = 1000 kg/m3

Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Probe: EX3DV4 -SN7515; ConvF(8.18, 8.18, 8.18); Calibrated: 10/22/2019;

Electronics: DAE4 SN1317; Calibrated: 10/23/2019

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7439)

Back Side Middle/Area Scan (8x13x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 0.740 W/kg

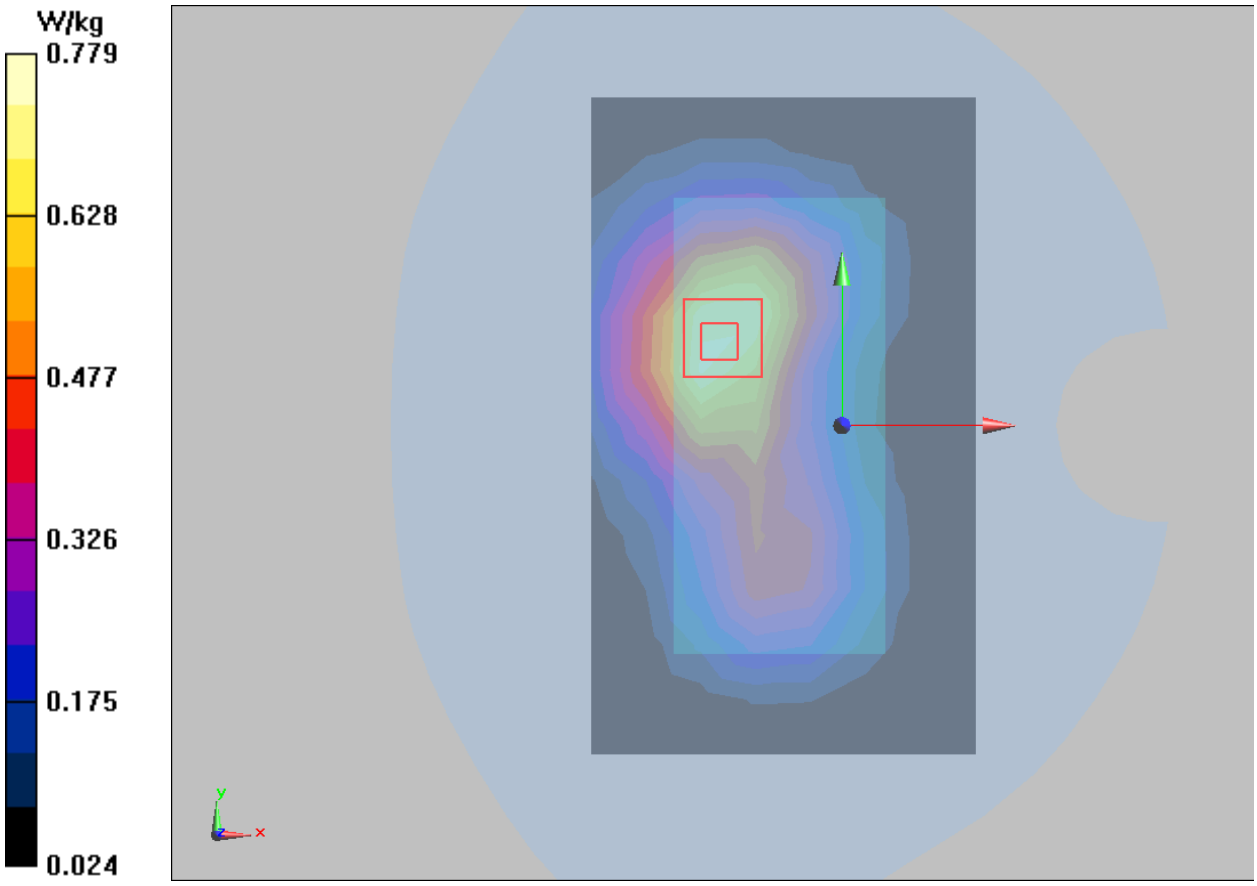
Back Side Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 18.20 V/m; Power Drift = -0.08 dB

Peak SAR (extrapolated) = 1.13 W/kg

SAR(1 g) = 0.720 W/kg; SAR(10 g) = 0.446 W/kg

Maximum value of SAR (measured) = 0.779 W/kg



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Plot 29 UMTS Band II Front Side Middle (Distance 0mm)

Date: 5/19/2020

Communication System: UID 0, WCDMA 1900 (0); Frequency: 1880 MHz;Duty Cycle: 1:1

Medium parameters used: f = 1880 MHz; σ = 1.42 S/m; εr = 38.948; ρ = 1000 kg/m3

Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(7.79, 7.79, 7.79); Calibrated: 6/19/2019;

Electronics: DAE4 SN1317; Calibrated: 10/23/2019

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7439)

Front Side Middle/Area Scan (8x13x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 3.12 W/kg

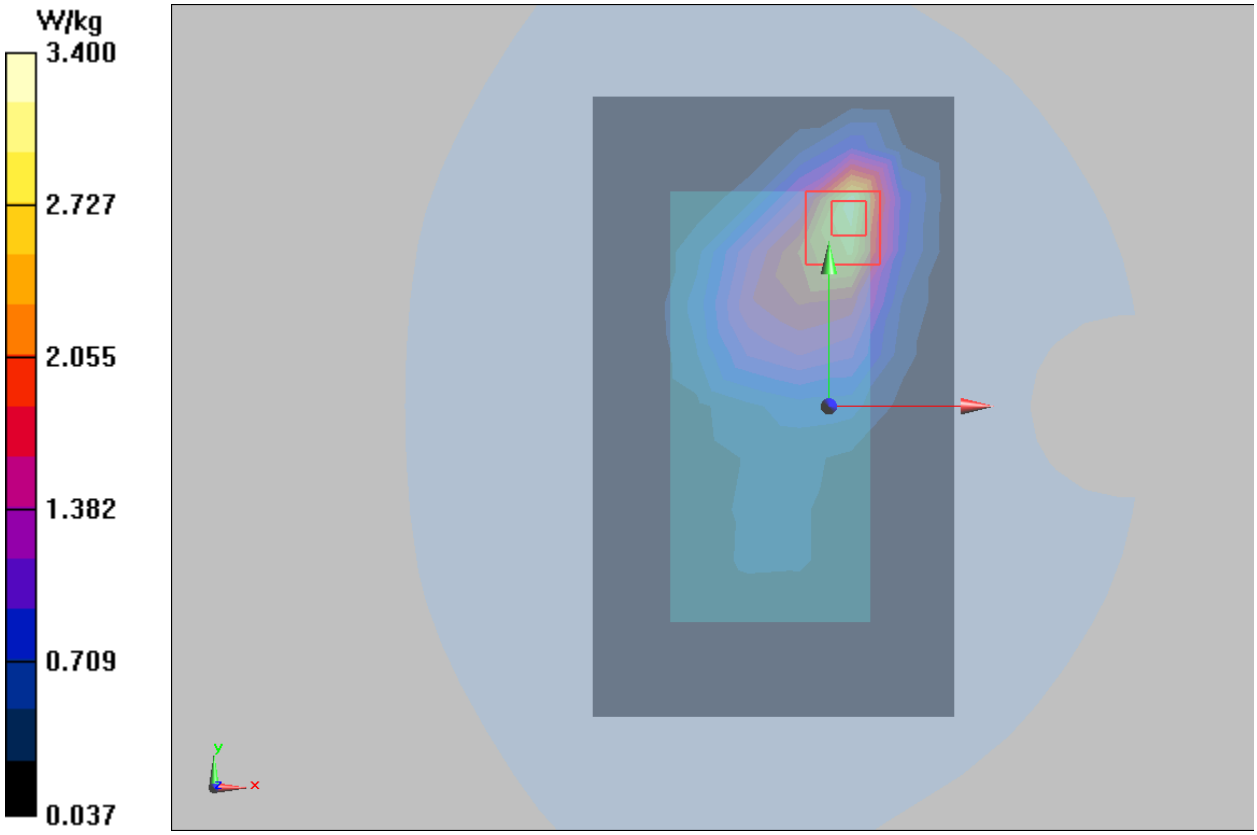
Front Side Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 19.06 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 6.02 W/kg

SAR(1 g) = 3.03 W/kg; SAR(10 g) = 1.55 W/kg

Maximum value of SAR (measured) = 3.400 W/kg



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Plot 30 UMTS Band IV Front Side Low (Distance 10mm)

Date: 5/21/2020

Communication System: UID 0, WCDMA (0); Frequency: 1712.4 MHz;Duty Cycle: 1:1

Medium parameters used (interpolated): f = 1712.4 MHz; σ = 1.298 S/m; εr = 39.443; ρ = 1000 kg/m3

Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(8.21, 8.21, 8.21); Calibrated: 6/19/2019;

Electronics: DAE4 SN1317; Calibrated: 10/23/2019

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7439)

Front Side Low/Area Scan (8x13x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 0.973 W/kg

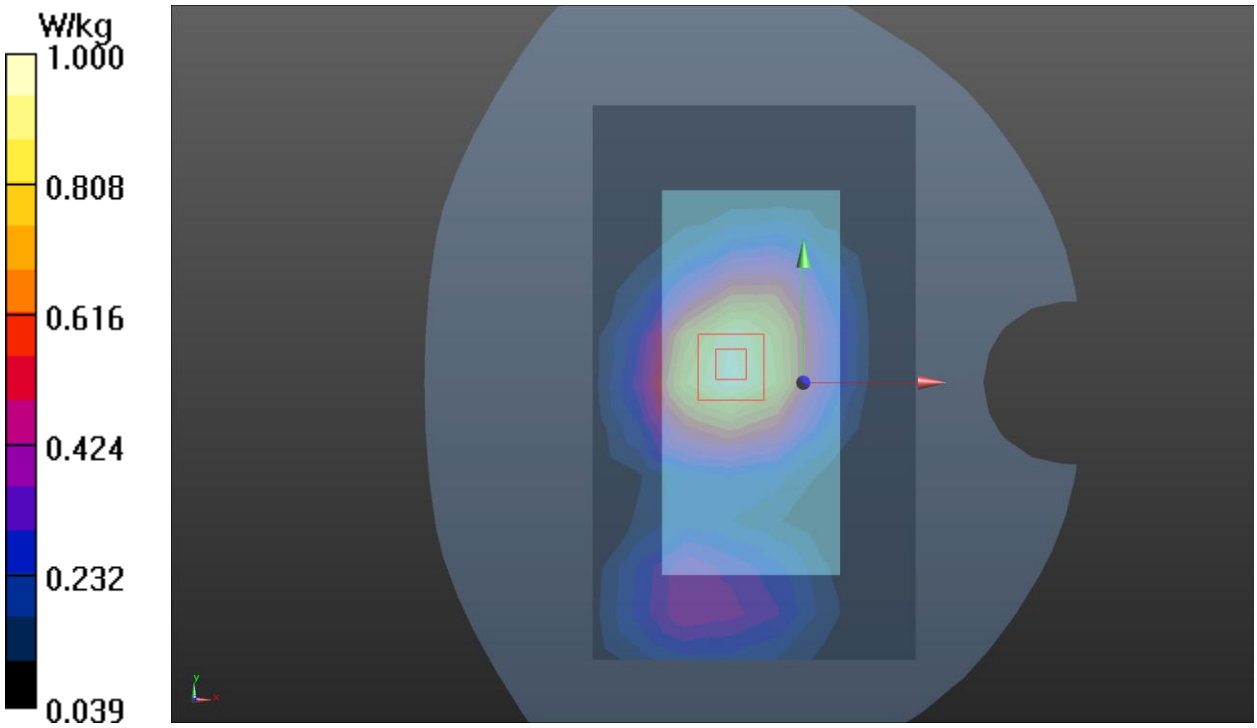
Front Side Low/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 27.04 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 1.38 W/kg

SAR(1 g) = 0.936 W/kg; SAR(10 g) = 0.608 W/kg

Maximum value of SAR (measured) = 1.00 W/kg



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Plot 31 UMTS Band IV Back Side Middle (Distance 0mm)

Date: 6/28/2020

Communication System: UID 0, WCDMA (0); Frequency: 1732.6 MHz;Duty Cycle: 1:1

Medium parameters used: f = 1733 MHz; σ = 1.293 S/m; εr = 38.782; ρ = 1000 kg/m3

Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Probe: EX3DV4 -SN7515; ConvF(8.55, 8.55, 8.55); Calibrated: 10/22/2019;

Electronics: DAE4 SN1317; Calibrated: 10/23/2019

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7439)

Back Side Middle/Area Scan (8x13x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 0.838 W/kg

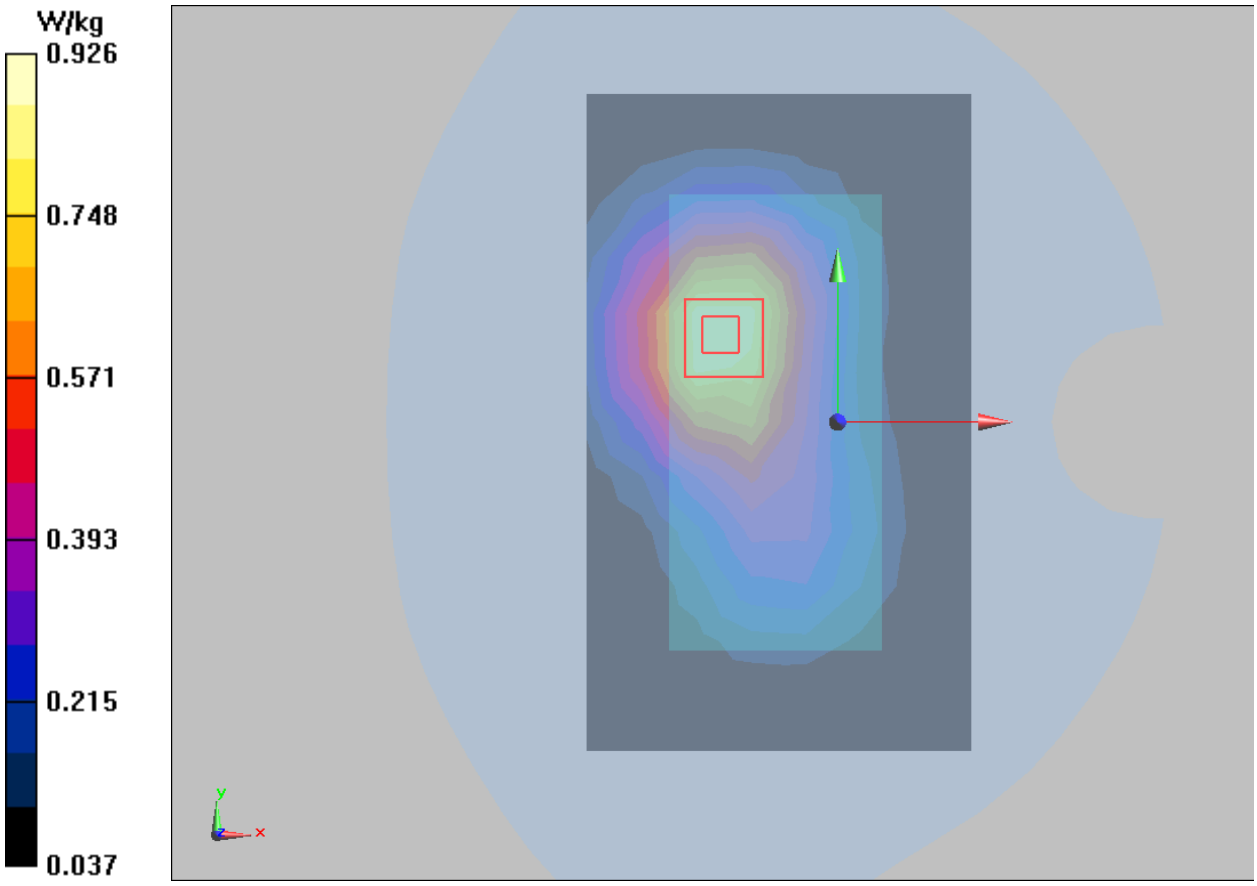
Back Side Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 21.10 V/m; Power Drift = 0.13 dB

Peak SAR (extrapolated) = 1.30 W/kg

SAR(1 g) = 0.858 W/kg; SAR(10 g) = 0.542 W/kg

Maximum value of SAR (measured) = 0.926 W/kg



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Plot 32 UMTS Band IV Front Side Middle (Distance 0mm)

Date: 5/21/2020

Communication System: UID 0, WCDMA (0); Frequency: 1732.6 MHz;Duty Cycle: 1:1

Medium parameters used: f = 1733 MHz; σ = 1.312 S/m; εr = 39.365; ρ = 1000 kg/m3

Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(8.21, 8.21, 8.21); Calibrated: 6/19/2019;

Electronics: DAE4 SN1317; Calibrated: 10/23/2019

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7439)

Front Side Middle/Area Scan (8x13x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 1.98 W/kg

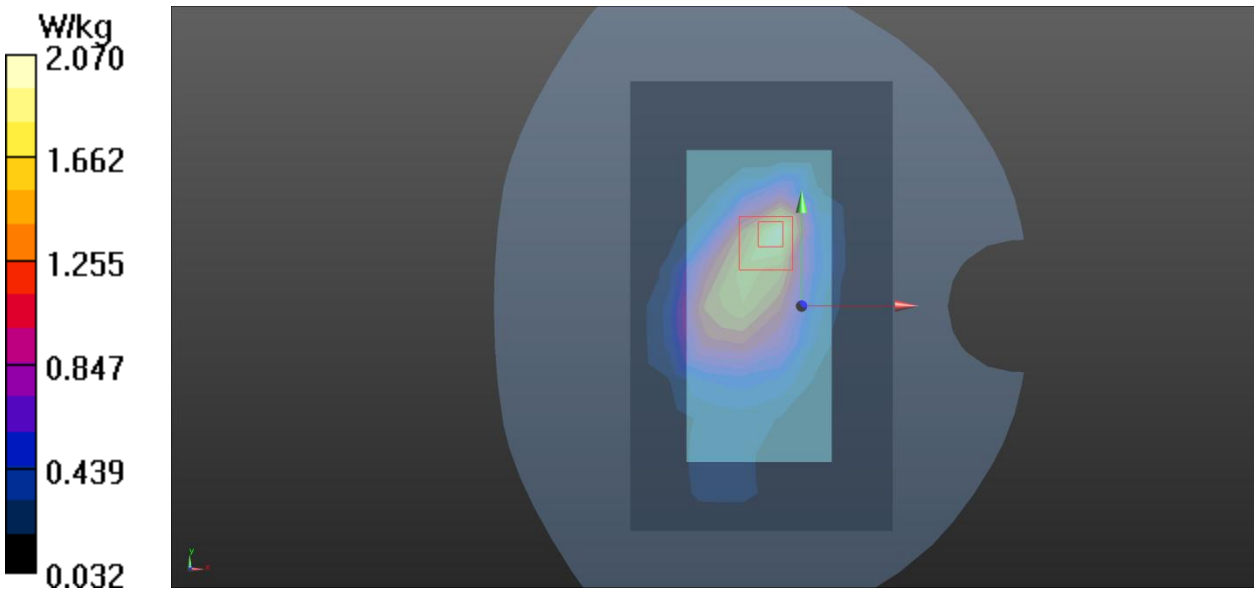
Front Side Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 32.54 V/m; Power Drift = 0.07 dB

Peak SAR (extrapolated) = 3.57 W/kg

SAR(1 g) = 1.85 W/kg; SAR(10 g) = 0.981 W/kg

Maximum value of SAR (measured) = 2.07 W/kg



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Plot 33 UMTS Band V Front Side Middle (Distance 10mm)

Date: 5/20/2020

Communication System: UID 0, WCDMA 850 (0); Frequency: 836.6 MHz;Duty Cycle: 1:1

Medium parameters used: f = 837 MHz; σ = 0.99 S/m; εr = 42.922; ρ = 1000 kg/m3

Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(9.20, 9.20, 9.20); Calibrated: 6/19/2019;

Electronics: DAE4 SN1317; Calibrated: 10/23/2019

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7439)

Front Side Middle/Area Scan (8x13x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 0.970 W/kg

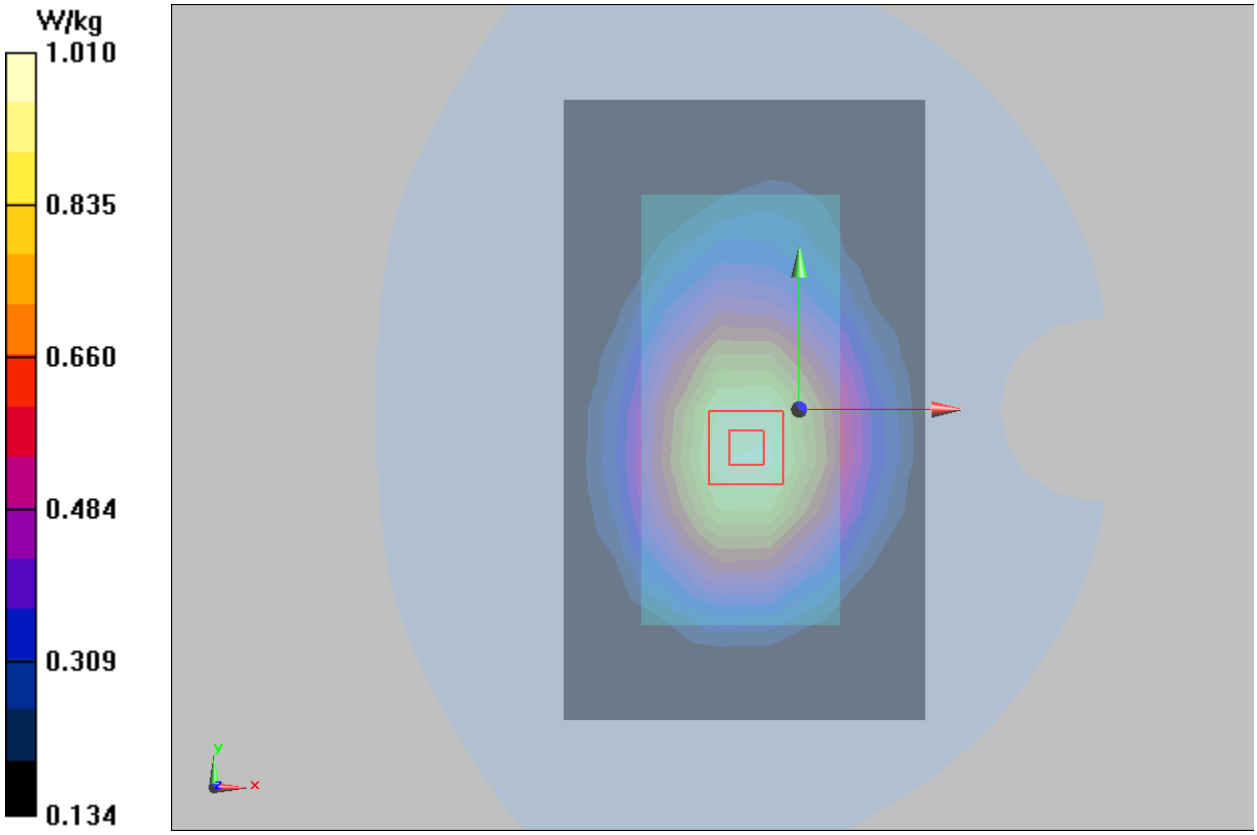
Front Side Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 31.49 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 1.23 W/kg

SAR(1 g) = 0.953 W/kg; SAR(10 g) = 0.695 W/kg

Maximum value of SAR (measured) = 1.010 W/kg



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Plot 34 UMTS Band V Back Side Middle (Distance 0mm)

Date: 6/28/2020

Communication System: UID 0, WCDMA 850 (0); Frequency: 836.6 MHz;Duty Cycle: 1:1

Medium parameters used: f = 837 MHz; σ = 0.923 S/m; εr = 42.201; ρ = 1000 kg/m3

Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Probe: EX3DV4 -SN7515; ConvF(9.60, 9.60, 9.60); Calibrated: 10/22/2019;

Electronics: DAE4 SN1317; Calibrated: 10/23/2019

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7439)

Back Side Middle/Area Scan (8x13x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 0.800 W/kg

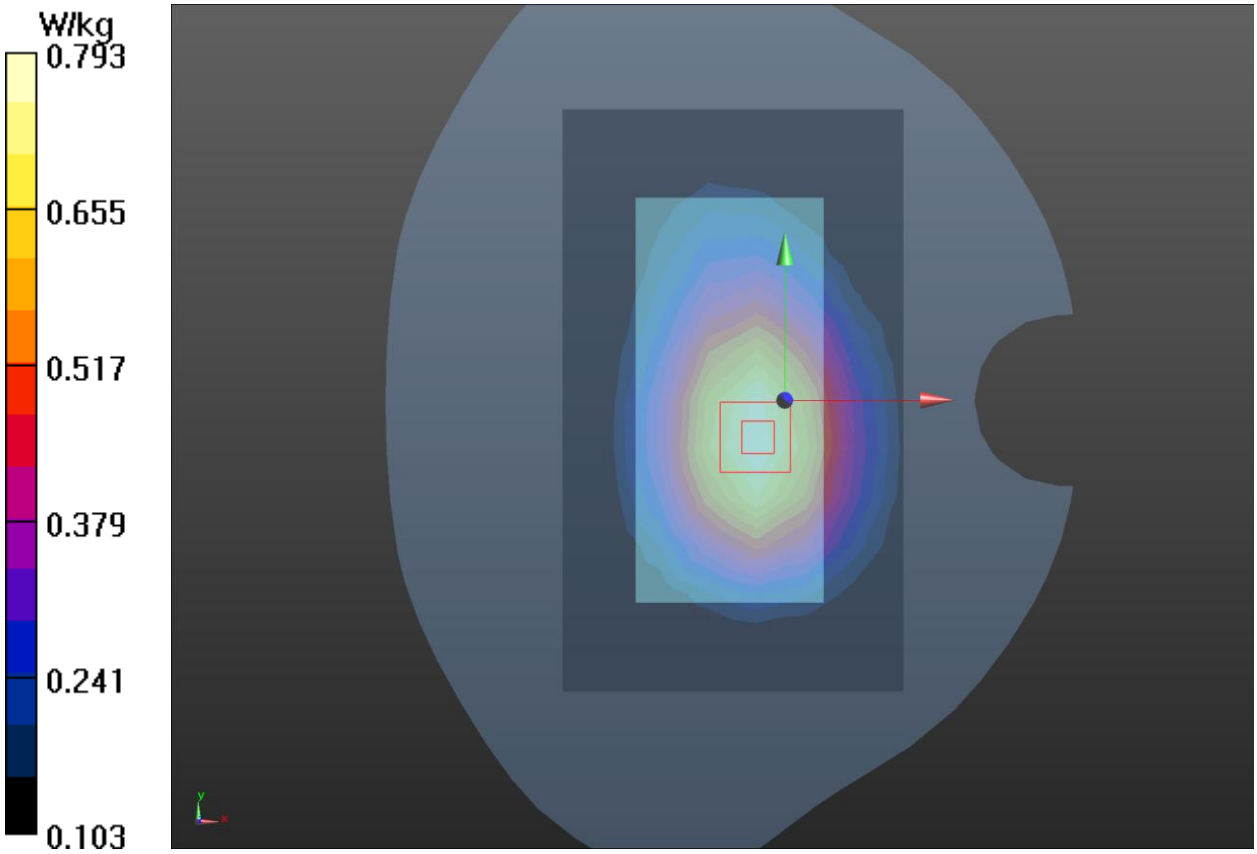
Back Side Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 28.04 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 0.971 W/kg

SAR(1 g) = 0.750 W/kg; SAR(10 g) = 0.544 W/kg

Maximum value of SAR (measured) = 0.793 W/kg



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Plot 35 UMTS Band V Front Side Middle (Distance 0mm)

Date: 5/20/2020

Communication System: UID 0, WCDMA 850 (0); Frequency: 836.6 MHz;Duty Cycle: 1:1

Medium parameters used: f = 837 MHz; σ = 0.99 S/m; εr = 42.922; ρ = 1000 kg/m3

Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(9.20, 9.20, 9.20); Calibrated: 6/19/2019;

Electronics: DAE4 SN1317; Calibrated: 10/23/2019

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7439)

Front Side Middle/Area Scan (8x13x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 1.56 W/kg

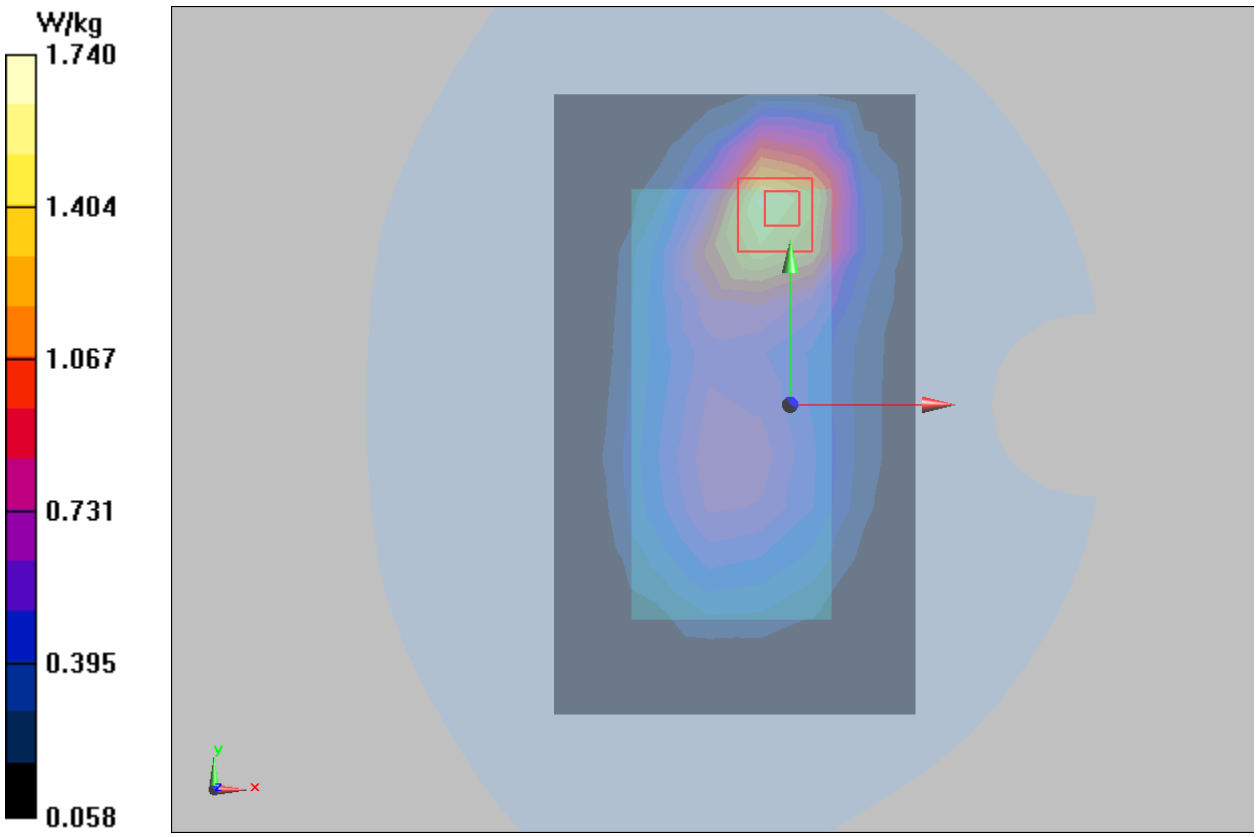
Front Side Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 28.28 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 2.64 W/kg

SAR(1 g) = 1.58 W/kg; SAR(10 g) = 0.943 W/kg

Maximum value of SAR (measured) = 1.740 W/kg



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Plot 36 LTE Band 2 1RB Front Side High (Distance 10mm)

Date: 5/22/2020

Communication System: UID 0, LTE-FDD (0); Frequency: 1900 MHz;Duty Cycle: 1:1

Medium parameters used: f = 1900 MHz; σ = 1.434 S/m; εr = 38.861; ρ = 1000 kg/m3

Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(7.79, 7.79, 7.79); Calibrated: 6/19/2019;

Electronics: DAE4 SN1317; Calibrated: 10/23/2019

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7439)

Front Side High/Area Scan (8x13x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 0.873 W/kg

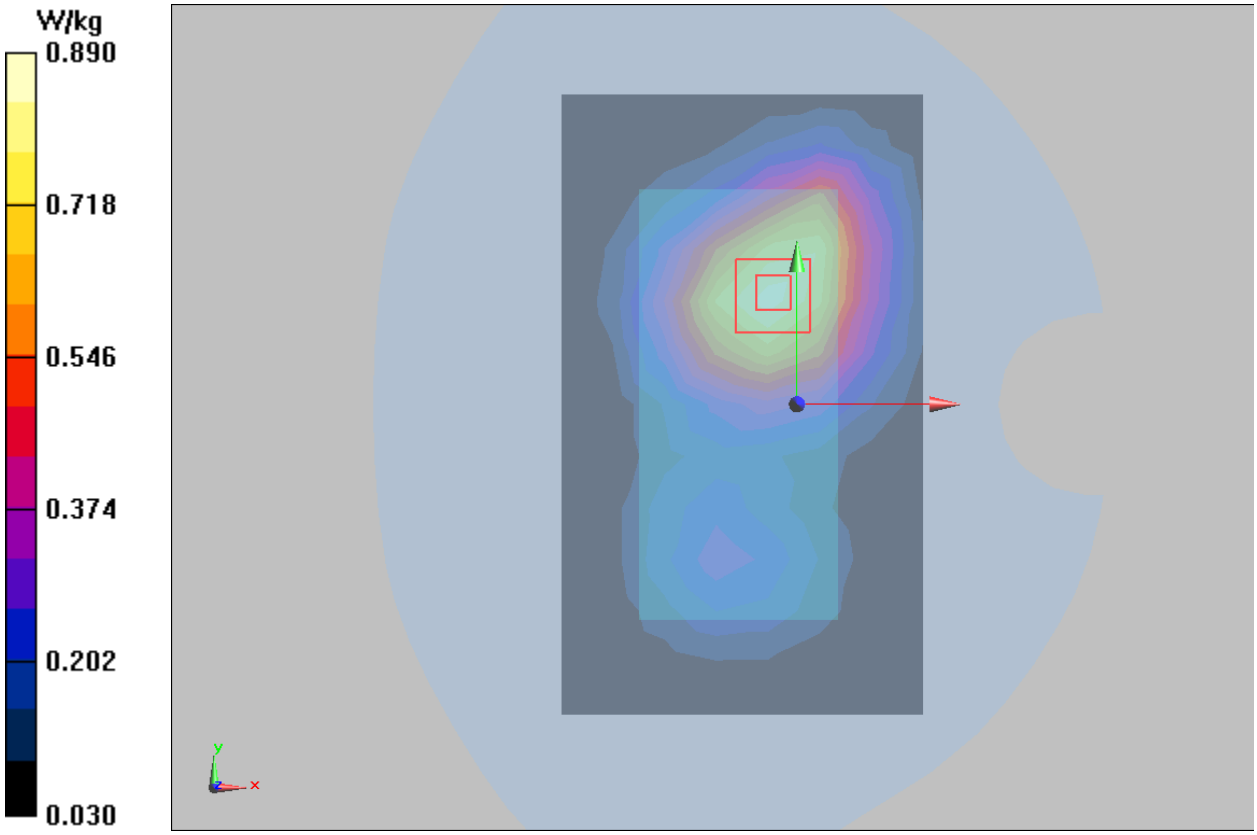
Front Side High/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 15.34 V/m; Power Drift = -0.10 dB

Peak SAR (extrapolated) = 1.35 W/kg

SAR(1 g) = 0.835 W/kg; SAR(10 g) = 0.524 W/kg

Maximum value of SAR (measured) = 0.890 W/kg



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Plot 37 LTE Band 2 1RB Back Side Middle (Distance 0mm)

Date: 6/28/2020

Communication System: UID 0, LTE (0); Frequency: 1880 MHz;Duty Cycle: 1:1

Medium parameters used: f = 1880 MHz; σ = 1.393 S/m; εr = 38.344; ρ = 1000 kg/m3

Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Probe: EX3DV4 -SN7515; ConvF(8.18, 8.18, 8.18); Calibrated: 10/22/2019;

Electronics: DAE4 SN1317; Calibrated: 10/23/2019

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7439)

Back Side Middle/Area Scan (8x13x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 0.843 W/kg

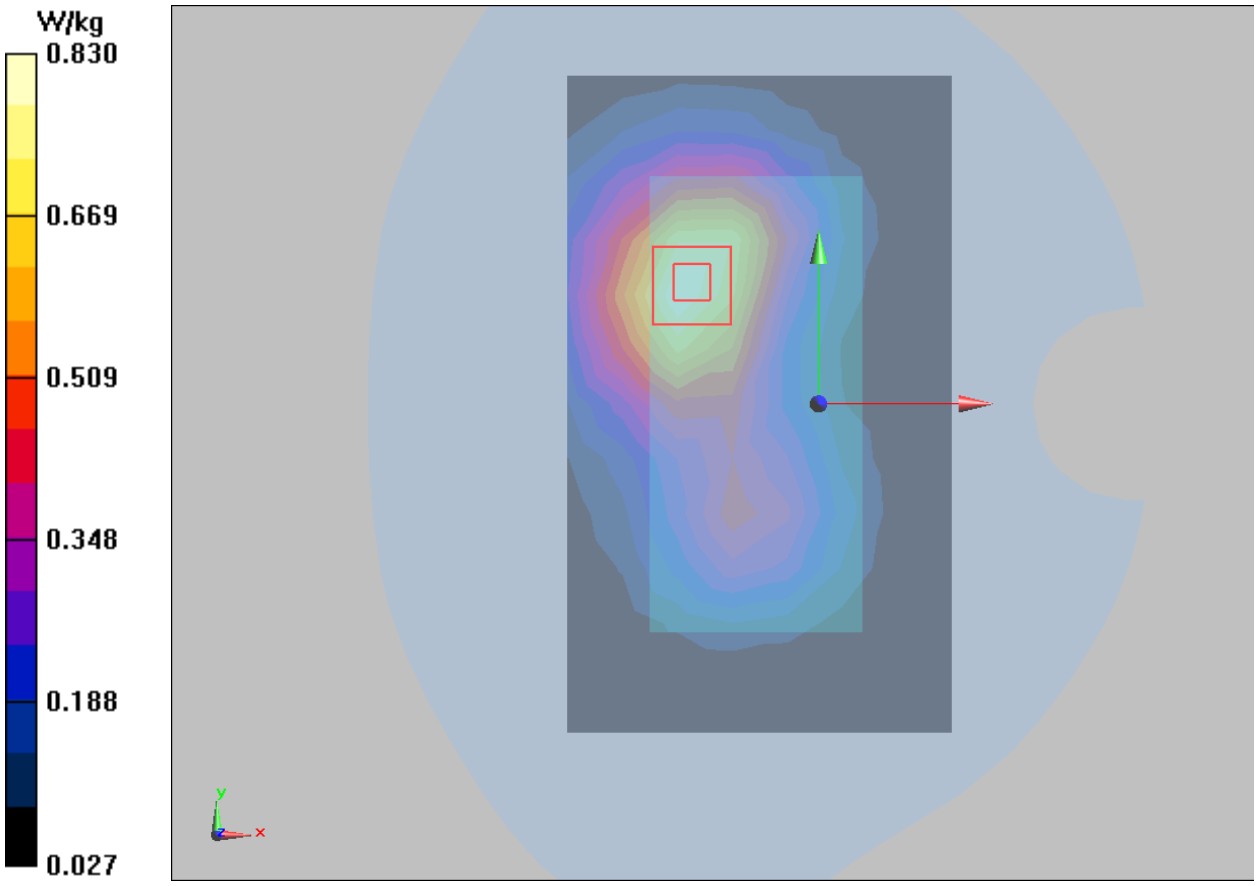
Back Side Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 16.69 V/m; Power Drift = -0.028 dB

Peak SAR (extrapolated) = 1.22 W/kg

SAR(1 g) = 0.771 W/kg; SAR(10 g) = 0.478 W/kg

Maximum value of SAR (measured) = 0.830 W/kg



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Plot 38 LTE Band 2 1RB Front Side Middle (Distance 0mm)

Date: 5/22/2020

Communication System: UID 0, LTE-FDD (0); Frequency: 1880 MHz;Duty Cycle: 1:1

Medium parameters used: f = 1880 MHz; σ = 1.42 S/m; εr = 38.948; ρ = 1000 kg/m3

Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(7.79, 7.79, 7.79); Calibrated: 6/19/2019;

Electronics: DAE4 SN1317; Calibrated: 10/23/2019

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7439)

Front Side Middle/Area Scan (8x13x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 3.32 W/kg

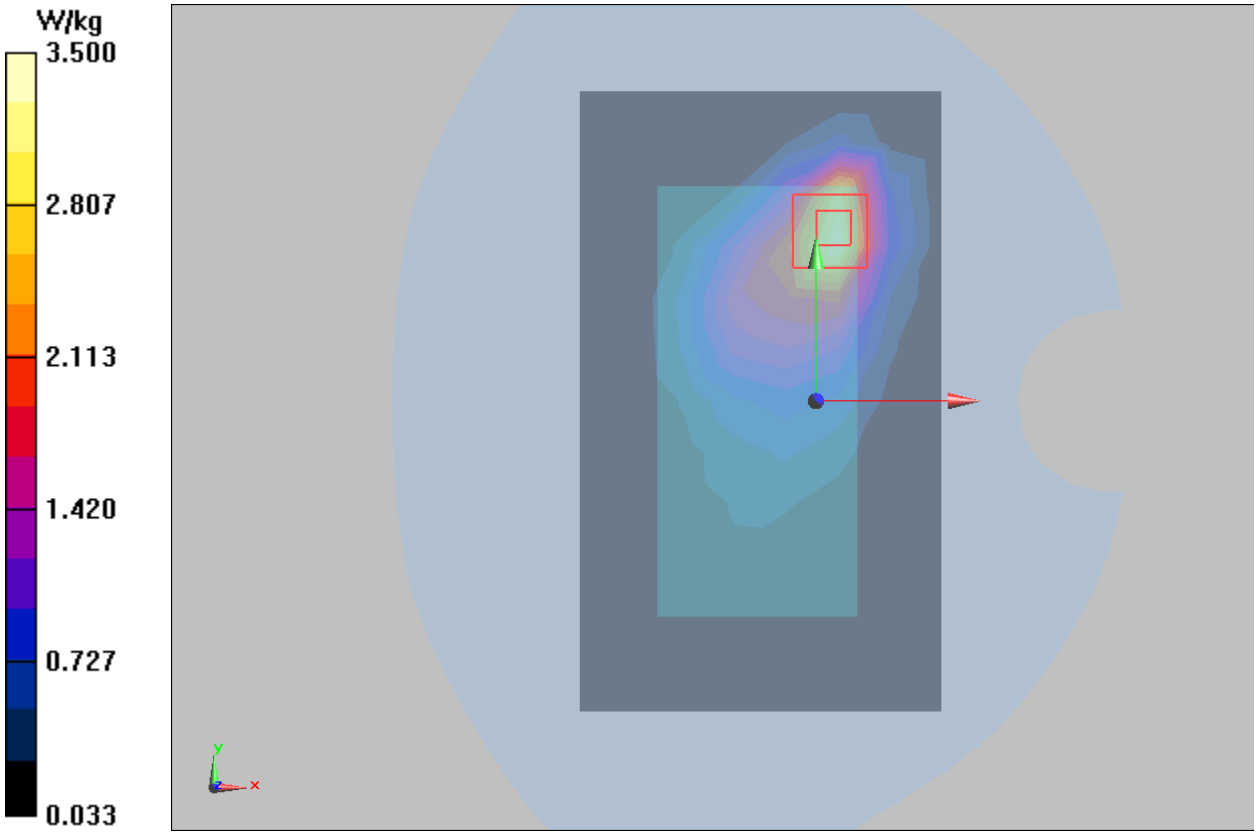
Front Side Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 23.37 V/m; Power Drift = -0.06 dB

Peak SAR (extrapolated) = 6.27 W/kg

SAR(1 g) = 3.2 W/kg; SAR(10 g) = 1.65 W/kg

Maximum value of SAR (measured) = 3.500 W/kg



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Plot 39 LTE Band 4 1RB Front Side High (Distance 10mm)

Date: 5/21/2020

Communication System: UID 0, LTE-FDD (0); Frequency: 1745 MHz;Duty Cycle: 1:1

Medium parameters used: f = 1745 MHz; σ = 1.323 S/m; εr = 39.378; ρ = 1000 kg/m3

Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(8.21, 8.21, 8.21); Calibrated: 6/19/2019;

Electronics: DAE4 SN1317; Calibrated: 10/23/2019

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7439)

Front Side High/Area Scan (8x13x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 0.868 W/kg

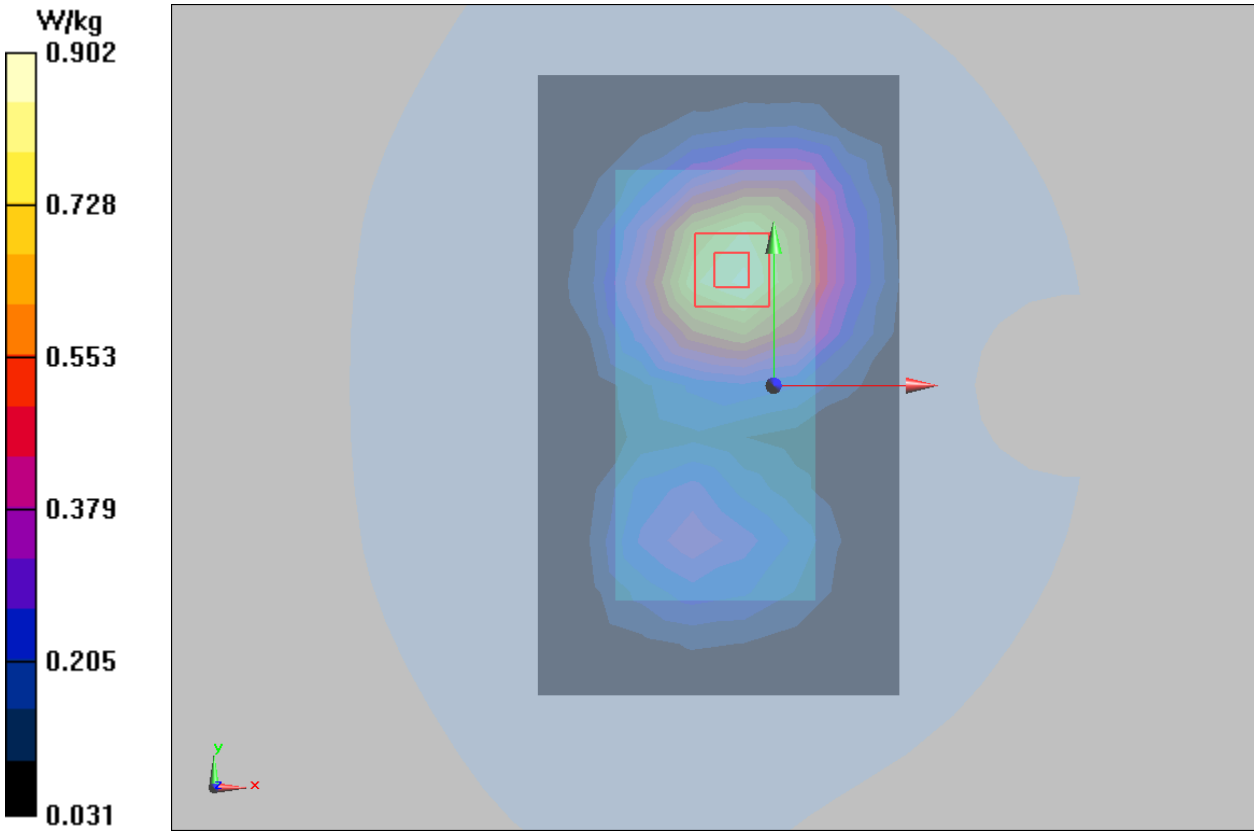
Front Side /Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 13.89 V/m; Power Drift = -0.024 dB

Peak SAR (extrapolated) = 1.26 W/kg

SAR(1 g) = 0.840 W/kg; SAR(10 g) = 0.541 W/kg

Maximum value of SAR (measured) = 0.902 W/kg



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Plot 40 LTE Band 4 1RB Back Side Middle (Distance 0mm)

Date: 6/28/2020

Communication System: UID 0, LTE (0); Frequency: 1732.5 MHz;Duty Cycle: 1:1

Medium parameters used (interpolated): f = 1732.5 MHz; σ = 1.293 S/m; εr = 38.785; ρ = 1000 kg/m3

Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Probe: EX3DV4 -SN7515; ConvF(8.55, 8.55, 8.55); Calibrated: 10/22/2019;

Electronics: DAE4 SN1317; Calibrated: 10/23/2019

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7439)

Back Side Middle/Area Scan (8x13x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 0.825 W/kg

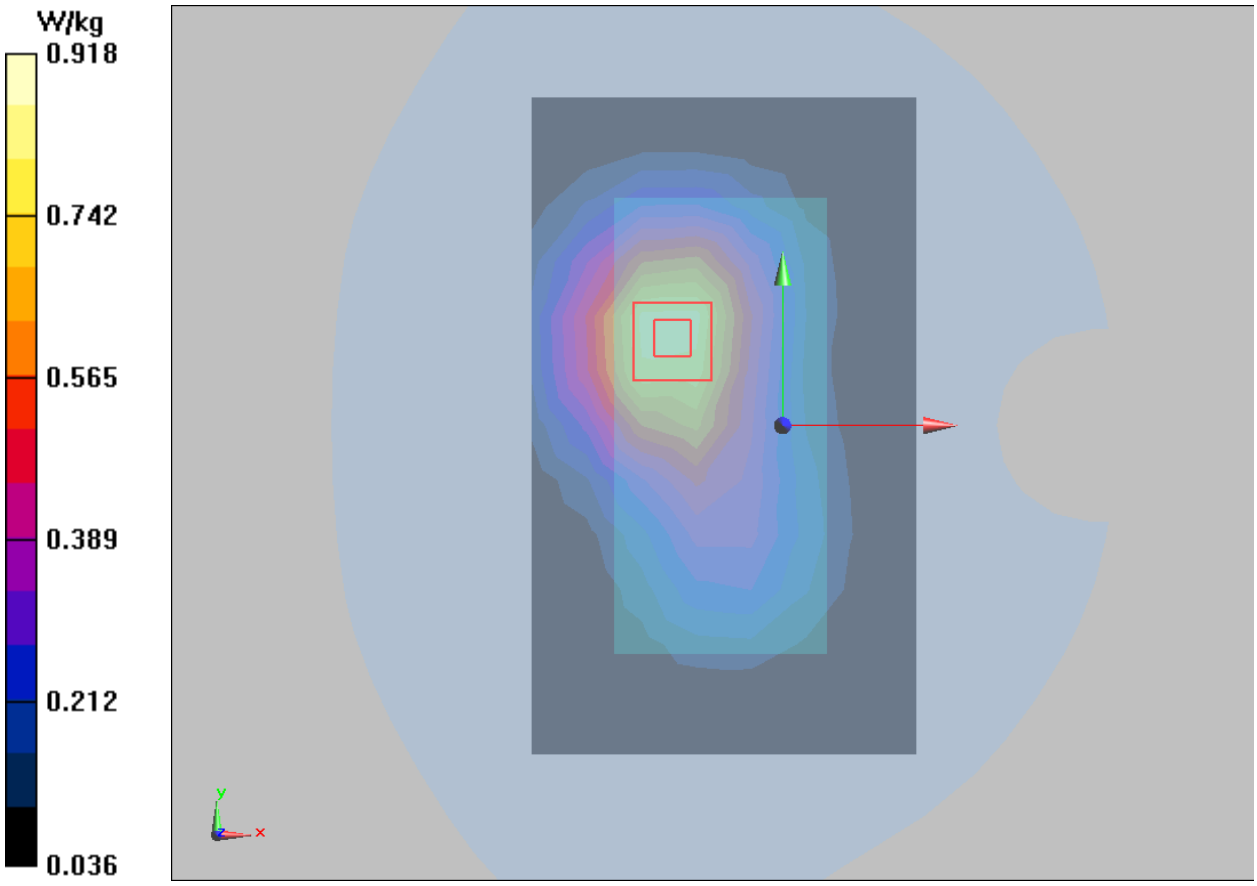
Back Side Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 21.43 V/m; Power Drift = -0.05 dB

Peak SAR (extrapolated) = 1.30 W/kg

SAR(1 g) = 0.847 W/kg; SAR(10 g) = 0.531 W/kg

Maximum value of SAR (measured) = 0.918 W/kg



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Plot 41 LTE Band 4 1RB Front Side Middle (Distance 0mm)

Date: 5/21/2020

Communication System: UID 0, LTE-FDD (0); Frequency: 1732.5 MHz;Duty Cycle: 1:1

Medium parameters used (interpolated): f = 1732.5 MHz; σ = 1.313 S/m; εr = 39.384; ρ = 1000 kg/m3

Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(8.21, 8.21, 8.21); Calibrated: 6/19/2019;

Electronics: DAE4 SN1317; Calibrated: 10/23/2019

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7439)

Front Side Middle/Area Scan (8x13x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 2.31 W/kg

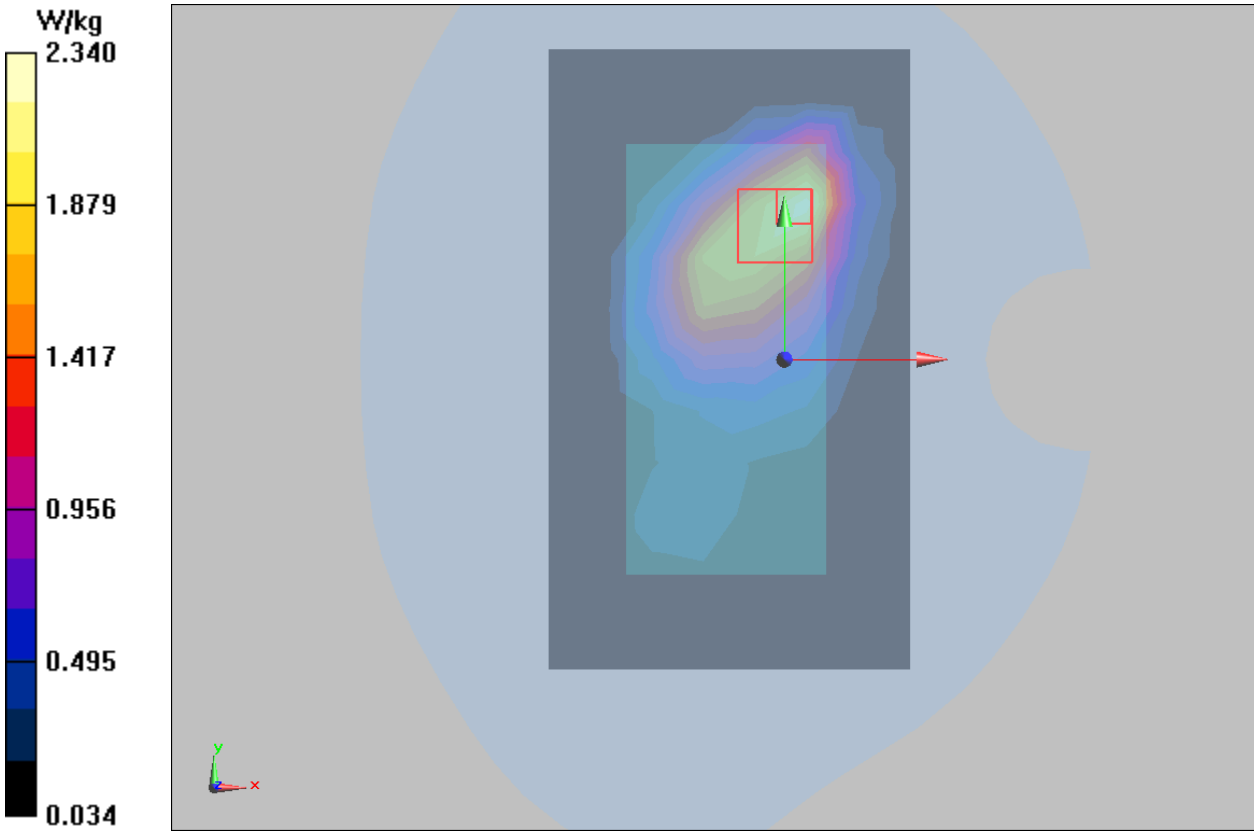
Front Side Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 27.62 V/m; Power Drift = -0.09 dB

Peak SAR (extrapolated) = 4.08 W/kg

SAR(1 g) = 2.000 W/kg; SAR(10 g) = 1.020 W/kg

Maximum value of SAR (measured) = 2.340 W/kg



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Plot 42 LTE Band 5 1RB Front Side High (Distance 10mm)

Date: 5/23/2020

Communication System: UID 0, LTE-FDD (0); Frequency: 844 MHz;Duty Cycle: 1:1

Medium parameters used: f = 844 MHz; σ = 0.928 S/m; εr = 42.206; ρ = 1000 kg/m3

Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(9.20, 9.20, 9.20); Calibrated: 6/19/2019;

Electronics: DAE4 SN1317; Calibrated: 10/23/2019

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7439)

Front Side High/Area Scan (8x13x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 0.729 W/kg

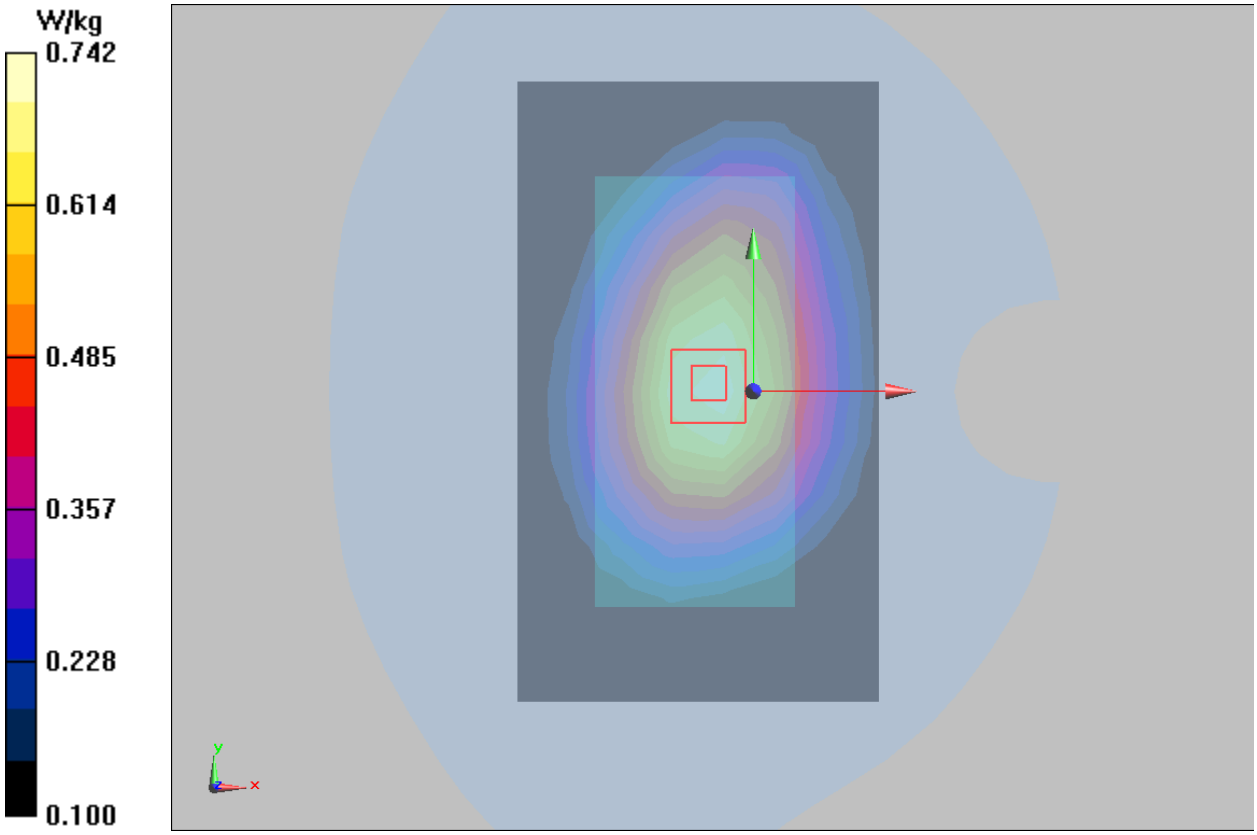
Front Side High/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 28.40 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 0.903 W/kg

SAR(1 g) = 0.701 W/kg; SAR(10 g) = 0.512 W/kg

Maximum value of SAR (measured) = 0.742 W/kg



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Plot 43 LTE Band 5 1RB Back Side High (Distance 0mm)

Date: 6/28/2020

Communication System: UID 0, LTE (0); Frequency: 844 MHz;Duty Cycle: 1:1

Medium parameters used: f = 844 MHz; σ = 0.928 S/m; εr = 42.206; ρ = 1000 kg/m3

Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Probe: EX3DV4 -SN7515; ConvF(9.60, 9.60, 9.60); Calibrated: 10/22/2019;

Electronics: DAE4 SN1317; Calibrated: 10/23/2019

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7439)

Back Side High/Area Scan (8x13x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 0.594 W/kg

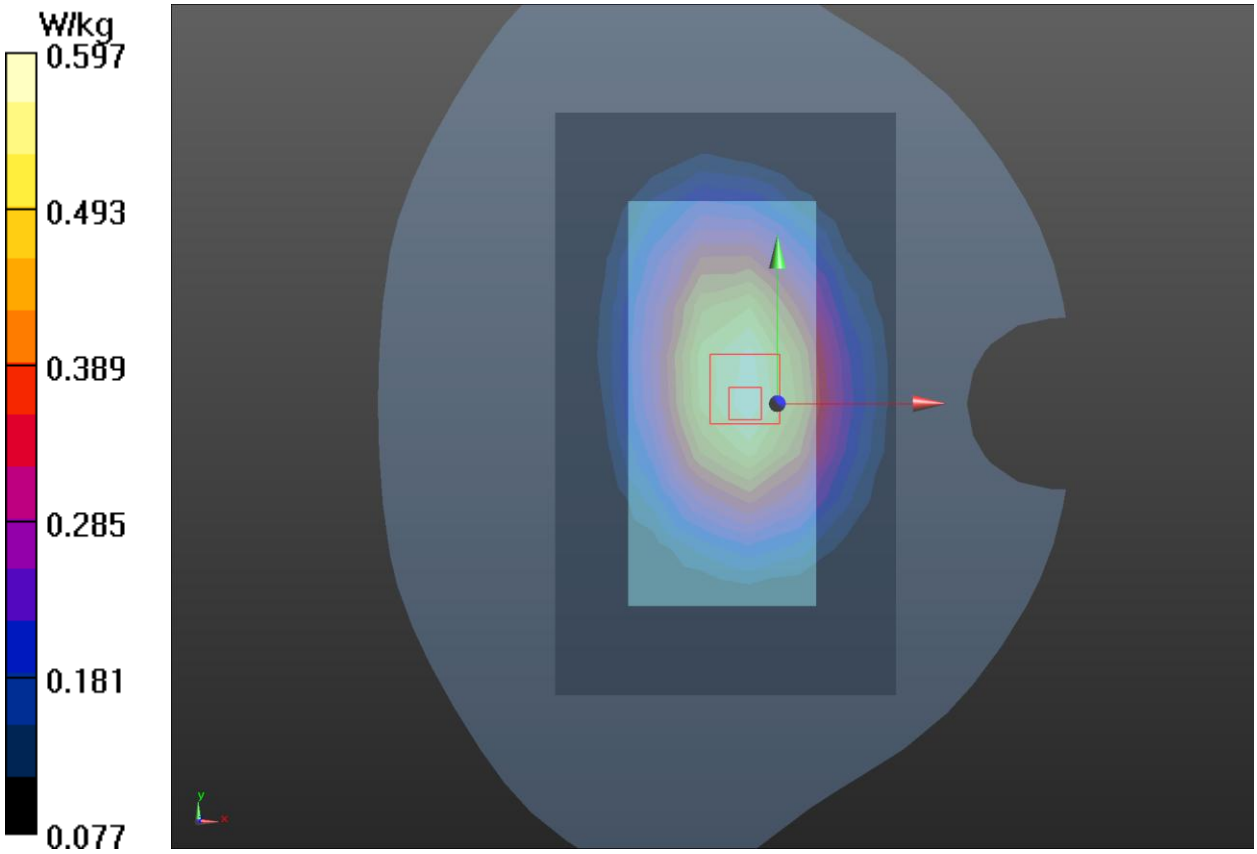
Back Side High/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 25.04 V/m; Power Drift = -0.12 dB

Peak SAR (extrapolated) = 0.729 W/kg

SAR(1 g) = 0.560 W/kg; SAR(10 g) = 0.410 W/kg

Maximum value of SAR (measured) = 0.597 W/kg



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Plot 44 LTE Band 5 1RB Front Side High (Distance 0mm)

Date: 5/23/2020

Communication System: UID 0, LTE-FDD (0); Frequency: 844 MHz;Duty Cycle: 1:1

Medium parameters used: f = 844 MHz; σ = 0.928 S/m; εr = 42.206; ρ = 1000 kg/m3

Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(9.20, 9.20, 9.20); Calibrated: 6/19/2019;

Electronics: DAE4 SN1317; Calibrated: 10/23/2019

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7439)

Front Side High/Area Scan (8x13x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 1.43 W/kg

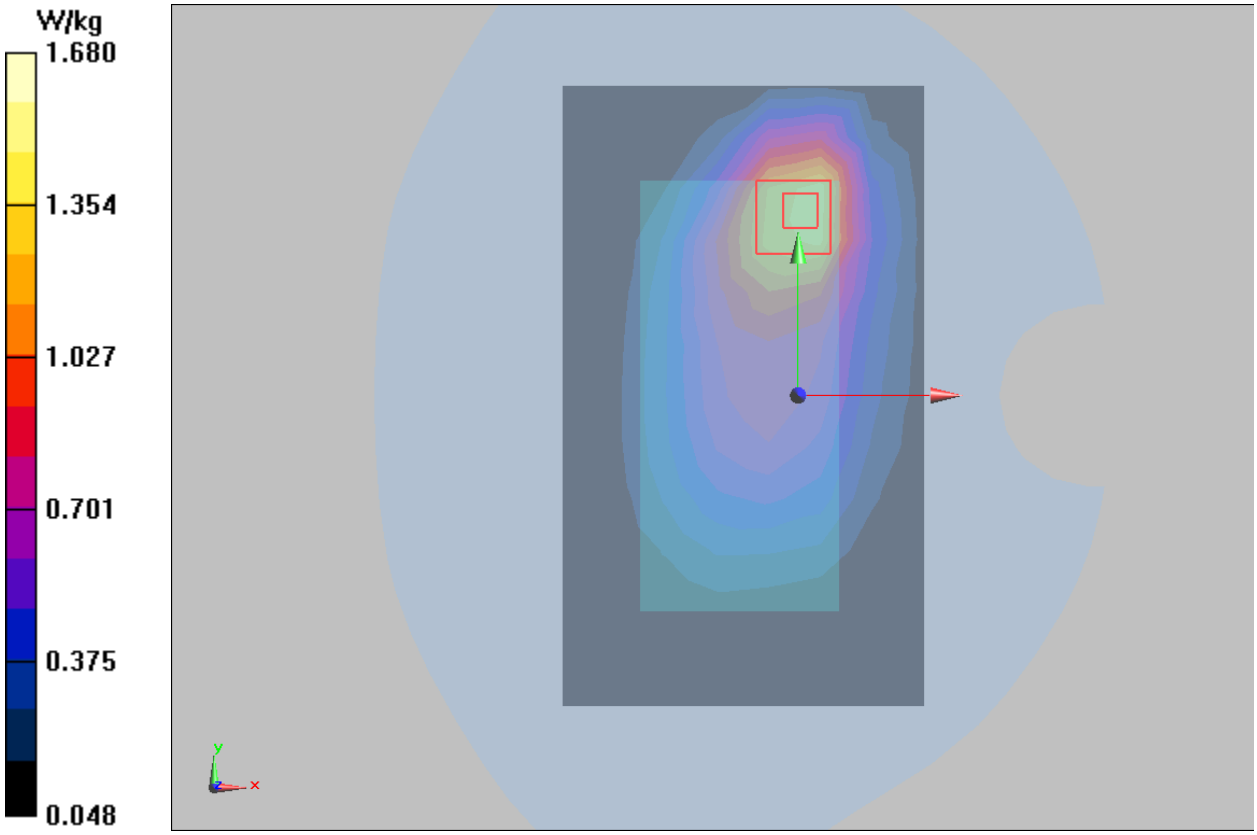
Front Side High/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 27.94 V/m; Power Drift = 0.033 dB

Peak SAR (extrapolated) = 2.61 W/kg

SAR(1 g) = 1.54 W/kg; SAR(10 g) = 0.910 W/kg

Maximum value of SAR (measured) = 1.680 W/kg



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Plot 45 LTE Band 7 1RB Front Side Low (Distance 10mm)

Date: 5/24/2020

Communication System: UID 0, LTE-FDD (0); Frequency: 2510 MHz;Duty Cycle: 1:1

Medium parameters used: f = 2510 MHz; σ = 1.866 S/m; εr = 40.379; ρ = 1000 kg/m3

Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(7.20, 7.20, 7.20); Calibrated: 6/19/2019;

Electronics: DAE4 SN1317; Calibrated: 10/23/2019

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7439)

Front Side Low/Area Scan (10x17x1): Measurement grid: dx=12mm, dy=12mm

Maximum value of SAR (measured) = 0.931 W/kg

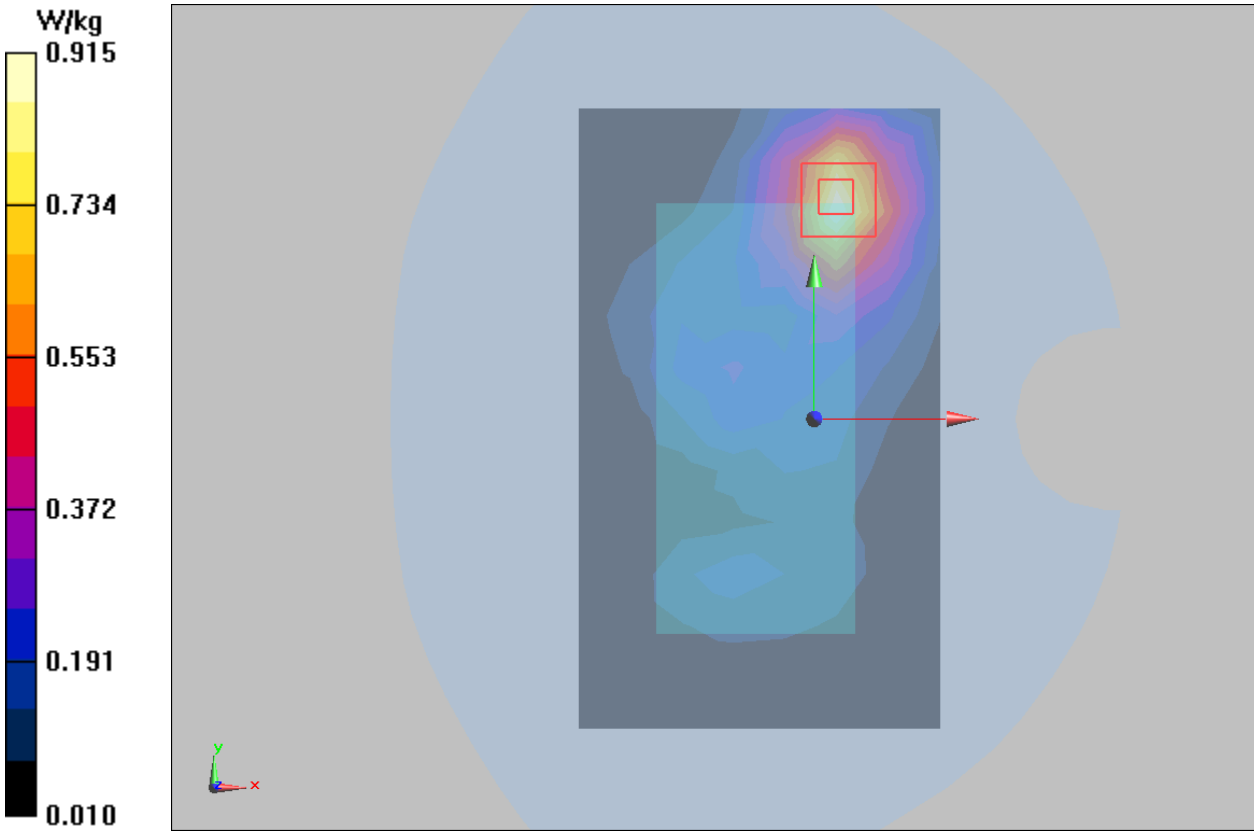
Front Side Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 11.03 V/m; Power Drift = 0.13 dB

Peak SAR (extrapolated) = 1.67 W/kg

SAR(1 g) = 0.851 W/kg; SAR(10 g) = 0.449 W/kg

Maximum value of SAR (measured) = 0.915 W/kg



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Plot 46 LTE Band 7 1RB Back Side Middle (Distance 0mm)

Date: 6/28/2020

Communication System: UID 0, LTE (0); Frequency: 2535 MHz;Duty Cycle: 1:1

Medium parameters used: f = 2535 MHz; σ = 1.904 S/m; εr = 39.093; ρ = 1000 kg/m3

Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Probe: EX3DV4 -SN7515; ConvF(7.30, 7.30,7.30); Calibrated: 10/22/2019;

Electronics: DAE4 SN1317; Calibrated: 10/23/2019

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7439)

Back Side Middle/Area Scan (10x17x1): Measurement grid: dx=12mm, dy=12mm

Maximum value of SAR (measured) = 0.815 W/kg

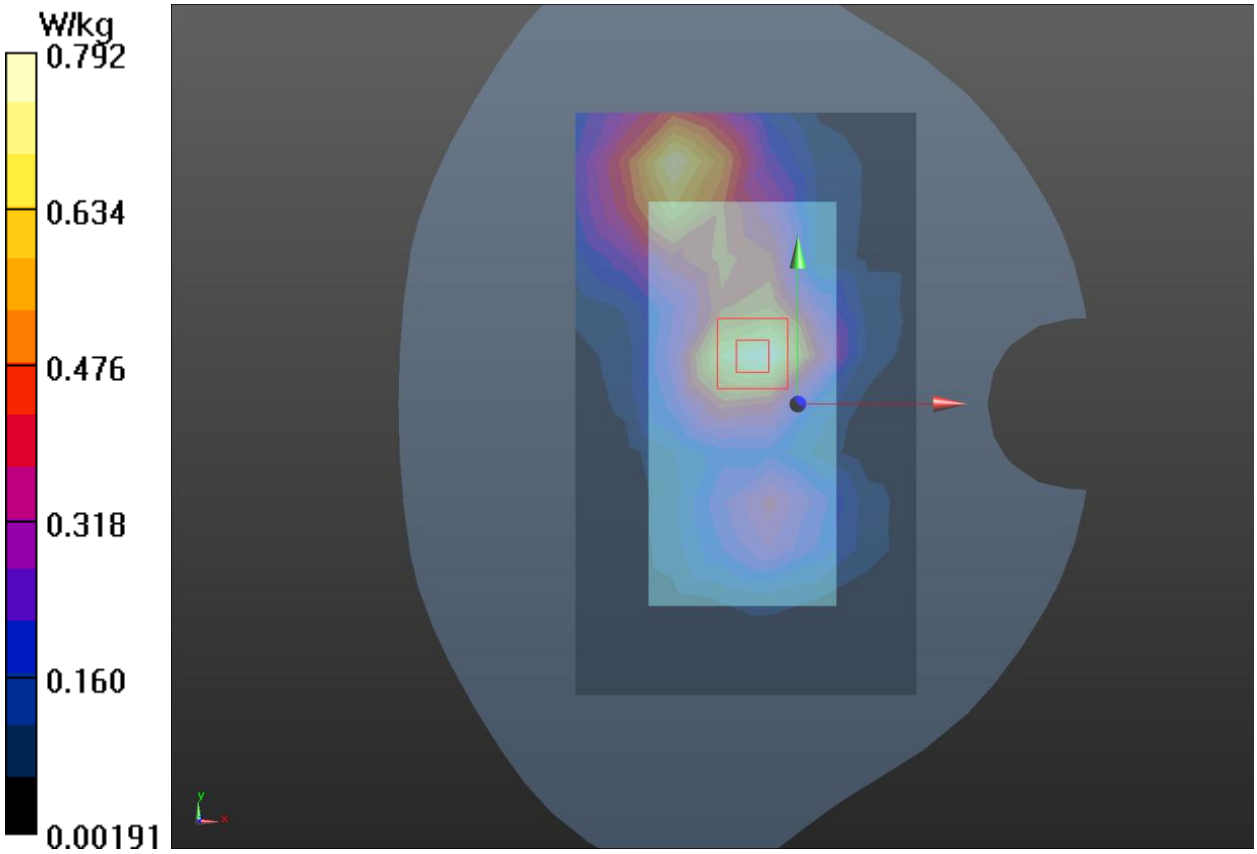
Back Side Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 12.06 V/m; Power Drift = -0.032 dB

Peak SAR (extrapolated) = 0.857 W/kg

SAR(1 g) = 0.766 W/kg; SAR(10 g) = 0.383 W/kg

Maximum value of SAR (measured) = 0.792 W/kg



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Plot 47 LTE Band 7 1RB Front Side Middle (Distance 0mm)

Date: 5/24/2020

Communication System: UID 0, LTE-FDD (0); Frequency: 2535 MHz;Duty Cycle: 1:1

Medium parameters used: f = 2535 MHz; σ = 1.894 S/m; εr = 40.308; ρ = 1000 kg/m3

Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(7.20, 7.20, 7.20); Calibrated: 6/19/2019;

Electronics: DAE4 SN1317; Calibrated: 10/23/2019

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7439)

Front Side Middle/Area Scan (10x17x1): Measurement grid: dx=12mm, dy=12mm

Maximum value of SAR (measured) = 4.34 W/kg

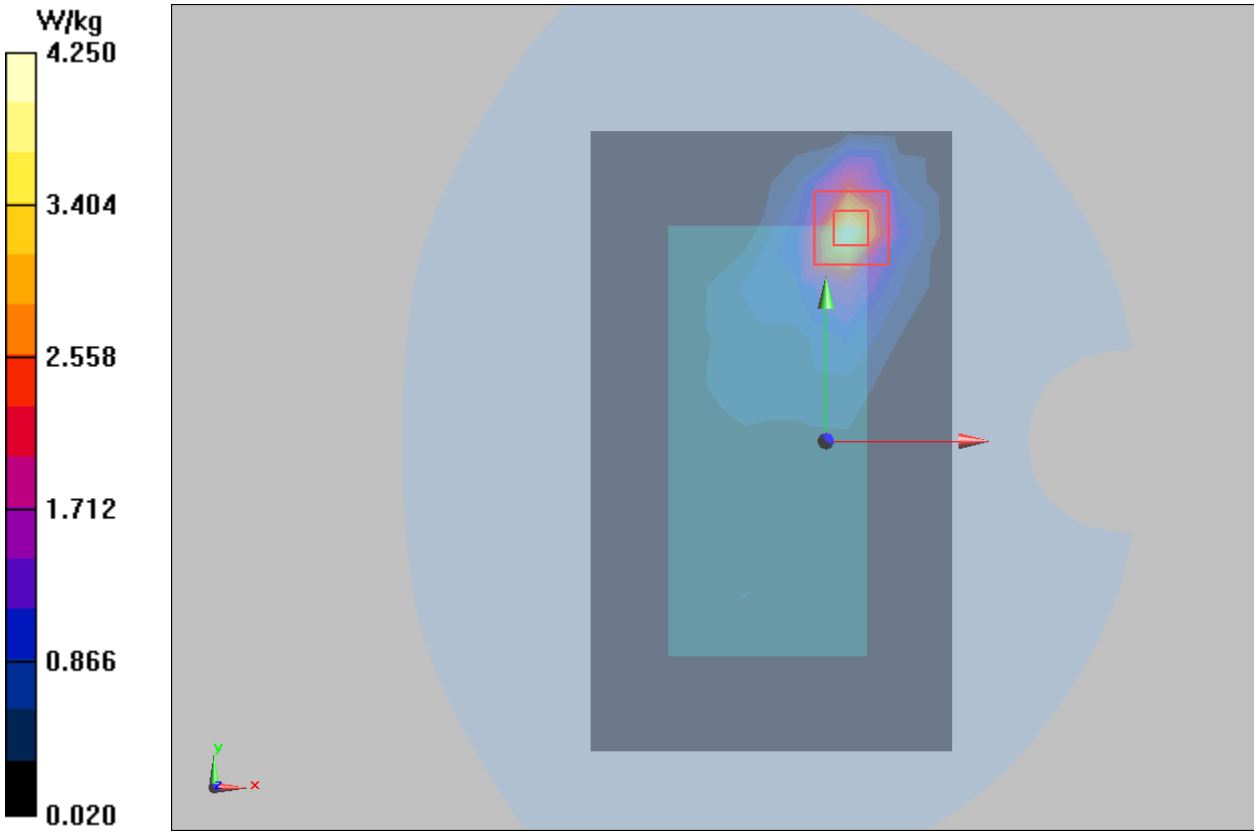
Front Side Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 11.92 V/m; Power Drift = -0.10 dB

Peak SAR (extrapolated) = 8.92 W/kg

SAR(1 g) = 3.75 W/kg; SAR(10 g) = 1.59 W/kg

Maximum value of SAR (measured) = 4.250 W/kg



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