SAR TEST REPORT

Applicant	Huawei Technologies Co., Ltd.
FCC ID	QISSNE-LX1
Product	Smart Phone
Model	SNE-LX1
Report No.	R1807H0087-S1
Issue Date	July 31, 2018

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.

Jiangpeng Lan Kai Xu

Performed by: Jiangpeng Lan *Approved by: Kai Xu*

TA Technology (Shanghai) Co., Ltd.

No.145, Jintang Rd, Tangzhen Industry Park, Pudong Shanghai, China

TEL: +86-021-50791141/2/3

FAX: +86-021-50791141/2/3-8000

Table of Contents

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

CNAS (accreditation number:L2264)

TA Technology (Shanghai) Co., Ltd. has obtained the accreditation of China National Accreditation Service for Conformity Assessment (CNAS).

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.

IC (recognition number is 8510A)

TA Technology (Shanghai) Co., Ltd. has been listed by industry Canada to perform electromagnetic emission measurement.

VCCI (recognition number is C-4595, T-2154, R-4113, G-10766)

TA Technology (Shanghai) Co., Ltd. has been listed by industry Japan to perform electromagnetic emission measurement.

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
City:	Shanghai
Post code:	201201
Country:	P. R. China
Contact:	Xu Kai
Telephone:	+86-021-50791141/2/3
Fax:	+86-021-50791141/2/3-8000
Website:	http://www.ta-shanghai.com
E-mail:	xukai@ta-shanghai.com

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.	

2 Statement of Compliance

The maximum results of Specific Absorption Rate (SAR) found during testing for the EUT are as follows:
Table 2.1: Highest Reported SAR

Mode	Highest Reported SAR (W/kg)			
	1g SAR Head	1g SAR Body-worn (Separation 15mm)	1g SAR Hotspot (Separation 10mm)	Product Specific 10-g SAR (Separation 0mm)
GSM 850	0.73	0.38	0.74	NA
GSM 1900	0.49	0.13	0.45	NA
WCDMA Band II	**0.94**	0.36	0.75	NA
WCDMA Band IV	0.82	0.35	**0.79**	NA
WCDMA Band V	0.85	**0.41**	0.72	NA
LTE FDD 7	0.66	0.31	0.69	NA
Wi-Fi (2.4G)	0.43	0.13	0.25	NA
Wi-Fi (5G)	0.43	<0.10	0.16	**0.46**
BT	/	/	/	NA
Date of Testing:	July 16, 2018~ July 29, 2018			
Note: Stand-alone SAR evaluation is not required for BT, more details information see section 10.2.				

Note: 1) The highest Reported SAR for head, body-worn, hotspot, Product Specific 10-g SAR and simultaneous transmission exposure conditions are 0.94W/kg, 0.41W/kg, 0.79 W/kg, 0.46 W/kg and 1.14 W/kg.
2) For body worn operation, this device has been tested and meets FCC RF exposure guidelines when used with any accessory thatcontains no metal and that positions the handset a minimum of 15mm from the body. Use of other accessories may not ensure compliance with FCC RF exposure guidelines.

The device is in compliance with Specific Absorption Rate (SAR) for general population/uncontraolled exposure limits according to the FCC rule §2.1093, the ANSI C95.1: 1992/IEEE C95.1: 1991, had been tested in accordance with the measurement methods and procedures specified in IEEE Std 1528-2013.

3 Description of Equipment under Test

Client Information

Applicant	Huawei Technologies Co., Ltd.
Applicant address	Administration Building, Headquarters of Huawei Technologies Co., Ltd., Bantian, Longgang District, Shenzhen, 518129, P.R.China.
Manufacturer	Huawei Technologies Co., Ltd.
Manufacturer address	Administration Building, Headquarters of Huawei Technologies Co., Ltd., Bantian, Longgang District, Shenzhen, 518129, P.R.China.

General Technologies

Application Purpose:	Original Grant
EUT Stage	Identical Prototype
Model:	SNE-LX1
IMEI:	SIM 1:869814030030468 SIM 2:869814030031664
HardwareVersion:	HL2SNEL21M
Software Version:	SNE-LX1 8.2.0.110(C900)
Antenna Type:	Internal Antenna
Device Class:	B
Wi-Fi Hotspot	Wi-Fi 2.4G Wi-Fi 5G U-NII-1&U-NII-3
Power Class:	GSM 850:4 GSM 1900:1 UMTS Band II/IV/V:3 LTE FDD 7:3
Power Level	GSM 850:level 5 GSM 1900:level 0 UMTS Band II/IV/V:all up bits LTE FDD 7:max power
EUT Accessory	
Battery 1	Manufacturer: Huawei Technologies Co., Ltd. (Manufacturer: SCUD) Model: HB386589ECW
Battery 2	Manufacturer: Huawei Technologies Co., Ltd. (Manufacturer: Desay) Model: HB386589ECW
Earphone 1	Manufacturer: Jiangxi Lianchuang Hongsheng Electronic Co., LTD Model: MEND1532B528A02
Earphone 2	Manufacturer: GoerTek Inc. Model: HA1-3P
Earphone 3	Manufacturer:FOXCONN INTERCONNECT TECHNOLOGY LIMITED Model: EPAB542-2WH05-DH
Earphone 4	Manufacturer: Boluo County Quancheng Electronic Co.,ltd Model: 1293-3283-3.5MM-322

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	HSDPA UE Category:24 HSUPA UE Category:6	1850 ~ 1910
	Band IV			1710 ~ 1755
	Band V			824 ~ 849
LTE	FDD 7	QPSK, 16QAM, 64QAM	Rel.12/Category 13	2500 ~ 2570
	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/ ac VHT20/ VHT40/ VHT 80	5150 ~ 5350 5470 ~ 5850
	Does this device support MIMO ☐Yes ☒No			
NFC	13.56MHz			

FCC general description

SNE-LX1 is subscriber equipment in the GSM/WCDMA/LTE system. The GSM frequency band includes GSM850 and GSM900 and DCS1800 and PCS1900.The UMTS frequency band is B1 and B2 and B4 and B5 and B8. The LTE frequency band is B1 and B3 and B7 and B8 and B20. But only GSM850 and GSM1900, UMTS frequency B2 and B4 and B5, LTE frequency B7 bands test data included in this report. The Mobile Phone implements such functions as RF signal receiving/transmitting, LTE/HSPA/UMTS and GSM/GPRS/EDGE protocol processing, voice, video MMS service, GPS, AGPS, NFC and WIFI etc. Externally it provides one micro SD card interface (it can also used as SIM card interface), earphone port (to provide voice service) and one SIM card interface. It also provides Bluetooth module to synchronize data between a PC and the phone, or to use the built-in modem of the phone to access the Internet with a PC, or to exchange data with other Bluetooth devices. SNE-LX1 may support single SIM or double SIM .Model SNE-LX1 is a smart phone with dual SIM or single SIM. The difference of them is only for SIM CARD. SNE-LX1 single SIM is deleted one SIM by software. So SNE-LX1 single SIM share the same report and the certification with SNE-LX1 dual SIM.

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:

248227 D01 802.11 Wi-Fi SAR v02r02
447498 D01 General RF Exposure Guidance v06
648474 D04 Handset SAR v01r03
865664 D01 SAR measurement 100 MHz to 6 GHz v01r04
865664 D02 RF Exposure Reporting v01r02
941225 D01 3G SAR Procedures v03r01
941225 D05 SAR for LTE Devices v02r05
941225 D06 Hotspot Mode v02r01
941225 D05A LTE Rel.10 KDB Inquiry Sheet v01r02
690783 D01 SAR Listings on Grants v01r03

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.

Body-worn operating configurations are tested with the belt-clips and holsters attached to the device and positioned against a flat phantom in a normal use configuration. 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. This enables the test results for such configuration to be compatible with that required for hotspot mode when the body-worn accessory test separation distance is greater than or equal to that required for hotspot mode, when applicable. 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.

5.1.3 Phablet SAR test considerations

For smart phones, with a display diagonal dimension > 15.0 cm or an overall diagonal dimension > 16.0 cm, that can provide similar mobile web access and multimedia support found in mini-tablets or UMPC mini-tablets and support voice calls next to the ear, unless it is confirmed otherwise through KDB inquiries, the following phablet procedures should be applied to evaluate SAR compliance for each applicable wireless modes and frequency band. Devices marketed as phablets, regardless of form factors and operating characteristics must be tested as a phablet to determine SAR compliance.

a) The normally required head and body-worn accessory SAR test procedures for handsets, including hotspot mode, must be applied.

b) The UMPC mini-tablet procedures must also be applied to test the SAR of all surfaces and edges with an antenna located at ≤ 25 mm from that surface or edge, in direct contact with a flat phantom, for product specific 10-g SAR according to the body-equivalent tissue dielectric parameters in KDB Publication 865664 D01 to address interactive hand use exposure conditions. The 1-g SAR at 5 mm for UMPC mini-tablets is not required. When hotspot mode applies, 10-g extremity SAR is required only for the surfaces and edges with hotspot mode 1-g reported SAR > 1.2 W/kg; however, when power reduction applies to hotspot mode the measured SAR must be scaled to the maximum output power, including tolerance, allowed for phablet modes to compare with the 1.2 W/kg SAR test reduction threshold. The normal tablet procedures in KDB Publication 616217 are required when the overall diagonal dimension of the device is > 20.0 cm. Hotspot mode SAR is not required when normal tablet procedures are applied. Extremity 10-g SAR is also not required for the front (top) surface of larger form factor full size tablets. The more conservative normal tablet SAR results can be used to support phablet mode 10-g extremity SAR.

c) The simultaneous transmission operating configurations applicable to voice and data transmissions for both phone and mini-tablet modes must be taken into consideration separately for 1-g and 10-g SAR to determine the simultaneous transmission SAR test exclusion and measurement requirements for the relevant wireless modes and exposure conditions.

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.

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 5.1: 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

5.3.2 3G Test Configuration

3G SAR Test Reduction Procedure

In the following procedures, the mode tested for SAR is referred to as the primary mode. The equivalent modes considered for SAR test reduction are denoted as secondary modes. Both primary and secondary modes must be in the same frequency band. 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.3 This is referred to as the 3G SAR test reduction procedure in the following SAR test guidance, where the primary mode is identified in the applicable wireless mode test procedures and the secondary mode is wireless mode being considered for SAR test reduction by that procedure. When the 3G SAR test reduction procedure is not satisfied, it is identified as “otherwise” in the applicable procedures; SAR measurement is required for the secondary mode.

5.3.2.1 WCDMA Test Configuration

Output power Verification

Maximum output power is verified on the high, middle and low channels according to procedures described in section 5.2 of 3GPP TS 34.121, using the appropriate RMC or AMR with TPC (transmit power control) set to all “1’s” for WCDMA/HSDPA or by applying the required inner loop power control procedures to maintain maximum output power while HSUPA is active. Results for all applicable physical channel configurations (DPCCH, DPDCHn and spreading codes, HSDPA, HSPA) are requied in the SAR report. All configurations that are not supported by the handset or cannot be measured due to technical or equipment limitations must be clearly identified.

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 reported SAR configuration in 12.2 kbps RMC for head exposure.

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 handset with 12.2 kbps RMC as the primary mode. Otherwise, SAR is measured using an applicable RMC configuration with the corresponding spreaing 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 handset, 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.

Handsets with Release 5 HSDPA

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 SAR procedures in the “Release 5 HSDPA Data Devices” section of this document, for the highest reported SAR body-worn accessory exposure configuration in 12.2 kbps RMC. Handsets 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 5.2: 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 $\Leftrightarrow$ β_{hs}=30/15*β_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.

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 HSPA using the HSPA body SAR procedures in the “Release 6 HSPA Data Devices” section of this document, for the highest reported 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 Handset’ and ‘Release 5 HSDPA Data Devices’ sections of this document

Table 5.3：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 $\Leftrightarrow$ A_{hs} = β_{hs}/β_c = 30/15 $\Leftrightarrow$ β_{hs}= 30/15 *β_c.

Note 2: CM = 1 for βc/βd =12/15, β_{hs}/β_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 5.4: 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
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)

HSPA, DC-HSDPA Test Configuration

SAR test exclusion may apply to 3GPP Rel. 6 HSPA, 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 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. 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.
3) Regardless of whether a PBA is required, the following information must be verified and included in the SAR report for devices supporting HSP 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 channel conditions (active and stable) for the entire duration of the measurement according to the required E-TFCI and AG index values.

4) 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.

.

Table 5.5: 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 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.

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 and hotspot 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, hotspot 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.

5.3.5 LTE CA specification

The device supports LTE advanced Rel. 12, UE Category 13 Carrier Aggregation (CA) on downlink for Intra band. More details information is provided in tables below

Intra-band contiguous CA configurations

	E-UTRA CA configuration / Bandwidth combination set						
E-UTRA CA configuration	Uplink CA configurations (NOTE 3)	Component carriers in order of increasing carrier frequency				Maximum aggregated bandwidth [MHz]	Bandwidth combination set
		Channel bandwidths for carrier [MHz]	Channel bandwidths for carrier [MHz]	Channel bandwidths for carrier [MHz]	Channel bandwidths for carrier [MHz]		
CA_7C	NA	15	15	--	--	40	0
		20	20	--	--		
		10	20	--	--	40	1
		15	15, 20	--	--		
		20	10, 15, 20	--	--		
		15	10, 15	--	--	40	2
		20	15, 20	--	--		
NOTE 1: The CA configuration refers to an operating band and a CA bandwidth class specified in Table 5.6A-1 (the indexing letter). Absence of a CA bandwidth class for an operating band implies support of all classes.							

Par KDB 941225 D05A, for downlink carrier aggregation, SAR is not required for downlink carrier aggregation in active uplink maximum output power not more than 1/4dB higher than the maximum output power measured when downlink carrier aggregation inactive.

5.3.6 Dynamic antenna switching specification

The device supports the dynamic antenna switching function to optimize transmission efficiency for wide range frequency operations. It has two 2G/3G/4G TX antennas (Main Antenna and Secondary Antenna). It can transmit from either Main Antenna (Ant1) or Secondary Antenna (Ant 2).

Summary test plan: For Dynamic antenna switching SAR test, we will set the Main Antenna / Secondary Antenna to the MAX transmit power level respectively and test the SAR respectively in all applicable RF exposure conditions. Some AT commands or test scripts are supplied to fix the DPDT operation state and choose the antenna, so that only one TX antenna (the Main Antenna or Secondary Antenna) is chosen at a time. All independent antennas and modems will be completely covered by the appropriate SAR measurements and all simultaneous transmission possibilities will be fully considered.

5.3.7 Receiver detection mechanism specification

This device support the receiver detection mechanism, the main purpose is to minimize triggering associated with power reduction scenarios by receiver detection mechanisms and provide enhanced user experience. It uses the receiver to indicate whether the user is making a call in head scenario or not. The selection between head and body power levels is based on the receiver detection mechanism. It can determine proximity to head or body and set the relevant power level for 2G&3G&4G and Wi-Fi antennas accordingly.

More details information followings:

Main antenna		Power Reduction Level Amount (dB)					
Power Reduction Scenario	Receiver	GSM850	GSM1900	UMTS B2	UMTS B4	UMTS B5	LTE B7
Standalone	on	1.2	0.0	0.0	0.0	0.0	0.0
	off	0.0	0.0	0.5	0.0	0.0	3.0
Simultaneous with Wi-Fi on	on	1.2	0.0	0.0	0.0	0.0	0.0
	off	0.0	0.0	0.5	0.0	0.0	3.0

Second antenna		Power Reduction Level Amount (dB)					
Power Reduction Scenario	Receiver	GSM850	GSM1900	UMTS B2	UMTS B4	UMTS B5	LTE B7
Standalone	on	4.0	2.0	5.0	4.5	4.0	5.0
	off	0.0	0.0	0.0	0.0	0.0	0.0
Simultaneous with Wi-Fi on	on	4.0	2.0	5.0	4.5	4.0	5.0
	off	0.0	0.0	0.0	0.0	0.0	0.0

Wi-Fi antenna		Power Reduction Level Amount (dB)									
Power Reduction Scenario	Sensor	WIFI2.4G 11b	WIFI2.4G 11g	WIFI2.4G 11nHT20	WIFI2.4G 11nHT40	WIFI5G 11a	WIFI5G 11nHT20	WIFI5G 11nHT40	WIFI5G 11acHT20	WIFI5G 11acHT40	WIFI5G 11acHT80
Standalone	on	4.0	3.5	1.5	1.5	3.0	2.5	1.5	2.5	1.5	1.5
	off	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Simultaneous with 2G&3G&4G	on	4.0	3.5	3.5	1.5	3.0	2.5	1.5	2.5	1.5	1.5
	off	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

SAR test Plan

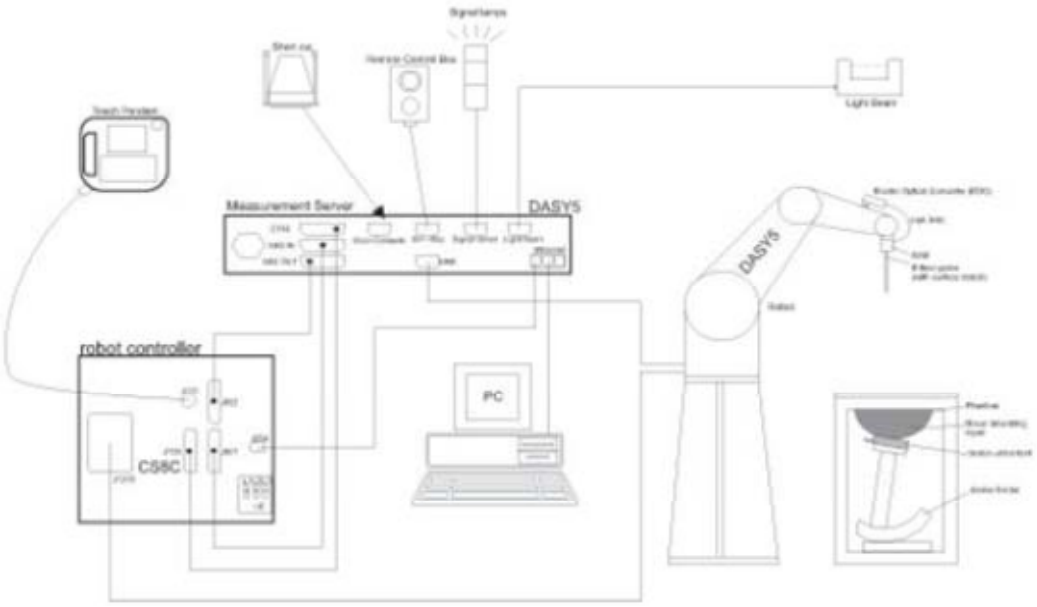
For Head SAR test, standalone SAR is evaluated with receiver on mode

For Body SAR test, standalone SAR is evaluated with receiver off mode.

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.

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.

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

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.

<table>
<tr><td></td><td>≤3 GHz</td><td>> 3 GHz</td></tr>
<tr><td>Maximum distance from closest measurement point (geometric center of probe sensors) to phantom surface</td><td>5 ± 1 mm</td><td>½·δ·ln(2) ± 0.5 mm</td></tr>
<tr><td>Maximum probe angle from probe axis to phantom surface normal at the measurement location</td><td>30° ± 1°</td><td>20° ± 1°</td></tr>
<tr><td rowspan="2">Maximum area scan spatial resolution: ΔxArea, ΔyArea</td><td>≤ 2 GHz: ≤ 15 mm
2 – 3 GHz: ≤ 12 mm</td><td>3 – 4 GHz: ≤ 12 mm
4 – 6 GHz: ≤ 10 mm</td></tr>
<tr><td colspan="2">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.</td></tr>
</table>

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.

7 Main Test Equipment

Name of Equipment	Manufacturer	Type/Model	Serial Number	Last Cal.	Cal. Due Date
Network analyzer	Agilent	E5071B	MY42404014	2018-05-20	2019-05-19
Dielectric Probe Kit	HP	85070E	US44020115	2018-05-20	2019-05-19
Power meter	Agilent	E4417A	GB41291714	2018-05-21	2019-05-20
Power sensor	Agilent	N8481H	MY50350004	2018-05-21	2019-05-20
Power sensor	Agilent	E9327A	US40441622	2018-05-20	2019-05-19
Dual directional coupler	Agilent	778D-012	50519	2018-05-21	2019-05-20
Dual directional coupler	Agilent	777D	50146	2018-05-20	2019-05-19
Amplifier	INDEXSAR	IXA-020	0401	2018-05-20	2019-05-19
Wideband radio communication tester	R&S	CMW 500	113645	2018-05-20	2019-05-19
BT Base Station Simulator	R&S	CBT	100271	2018-05-14	2019-05-13
E-field Probe	SPEAG	EX3DV4	3677	2018-05-29	2019-05-28
DAE	SPEAG	DAE4	1317	2018-03-23	2019-03-22
Validation Kit 835MHz	SPEAG	D835V2	4d020	2017-08-28	2020-08-27
Validation Kit 1750MHz	SPEAG	D1750V2	1033	2017-01-10	2020-01-09
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	2017-01-05	2020-01-04
Temperature Probe	Tianjin jinming	JM222	AA1009129	2018-05-17	2019-05-16
Hygrothermograph	Anymetr	NT-311	20150731	2018-05-17	2019-05-16
Software for Test	Speag	DASY5	52.8.8.1222	/	/
Software for Tissue	Agilent	85070	E06.01.36	/	/

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 3 – 4 days 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)
Head	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
Body	835	52.5	1.4	45	0	0.1	1.0	55.2	0.97
	1750	69.91	0.12	0	29.97	0	0	53.4	1.49
	1900	69.91	0.13	0	29.96	0	0	53.3	1.52
	2450	73.2	0.1	0	26.7	0	0	52.7	1.95
	2600	72.6	0.1	0	27.3	0	0	52.5	2.16

Frequency (MHz)		Water (%)	Diethylenglycol monohexylether	Triton X-100	ε_r	σ(s/m)
Head	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
Body	5250	72.52	13.74	13.74	48.9	5.36
	5600	72.52	13.74	13.74	48.5	5.77
	5750	72.52	13.74	13.74	48.3	5.94

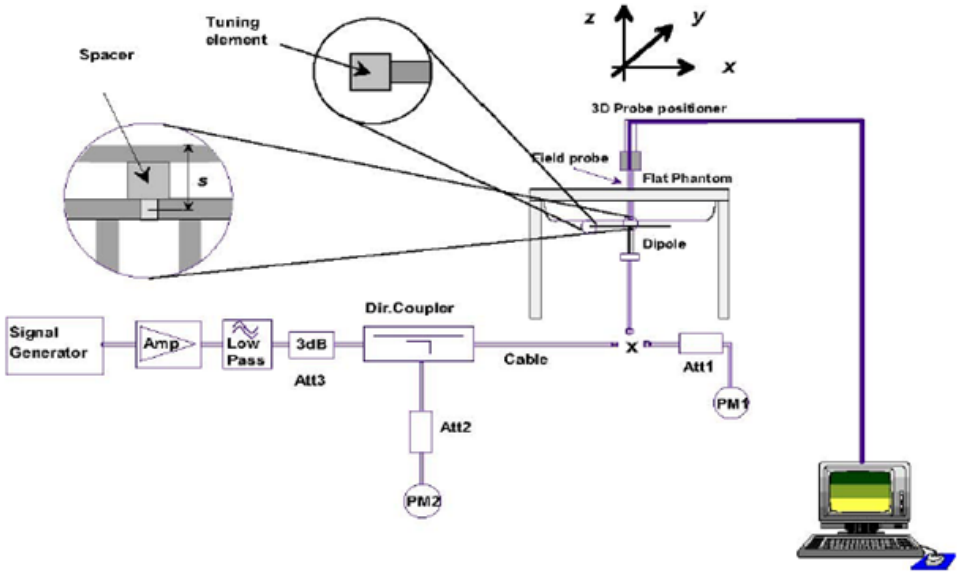
Measurements results

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(%)
835	Head	7/20/2018	21.5	42.0	0.91	41.5	0.90	1.20	1.11
	Body	7/28/2018	21.5	53.8	0.97	55.2	0.97	-2.54	0.00
1750	Head	7/22/2018	21.5	40.7	1.33	40.1	1.37	1.50	-2.92
	Body	7/20/2018	21.5	52.9	1.50	53.4	1.49	-0.94	0.67
1900	Head	7/16/2018	21.5	39.1	1.38	40.0	1.40	-2.25	-1.43
	Body	7/29/2018	21.5	52.8	1.51	53.3	1.52	-0.94	-0.66
2450	Head	7/25/2018	21.5	39.7	1.85	39.2	1.80	1.28	2.78
	Body	7/28/2018	21.5	51.8	1.93	52.7	1.95	-1.71	-1.03
2600	Head	7/25/2018	21.5	39.3	2.02	39.0	1.96	0.77	3.06
	Body	7/29/2018	21.5	51.4	2.12	52.5	2.16	-2.10	-1.85
5250	Head	7/26/2018	21.5	36.0	4.75	35.9	4.71	0.28	0.85
	Body	7/26/2018	21.5	46.7	5.42	48.9	5.36	-4.50	1.12
5600	Head	7/27/2018	21.5	35.1	5.20	35.5	5.07	-1.13	2.56
	Body	7/27/2018	21.5	46.4	6.00	48.5	5.77	-4.33	3.99
5750	Head	7/21/2018	21.5	34.9	5.21	35.4	5.22	-1.41	-0.19
	Body	7/23/2018	21.5	47.6	6.14	48.3	5.94	-1.45	3.37
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.									

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 1 System Performance Check setup

Picture 2 Setup Photo

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 D1750V2 SN: 1033	Head Liquid	1/10/2017	-40.3	/	49.8	/
		1/9/2018	-40.0	0.7%	49.9	0.1Ω
	Body Liquid	1/10/2017	-35.0	/	44.7	/
		1/9/2018	-34.7	0.9%	44.9	-0.2Ω
Dipole D5GHzV2 SN: 1151 (5250MHz)	Head Liquid	1/5/2017	-24.5	/	48.4	/
		1/4/2018	-24.2	1.2%	48.7	0.3Ω
	Body Liquid	1/5/2017	-24.7	/	50.4	/
		1/4/2018	-24.4	1.2%	49.9	-0.5Ω
Dipole D5GHzV2 SN: 1151 (5600MHz)	Head Liquid	1/5/2017	-22.8	/	55.5	/
		1/4/2018	-22.4	1.8%	55.2	-0.3Ω
	Body Liquid	1/5/2017	-23.3	/	57.2	/
		1/4/2018	-23.4	-0.4%	56.8	-0.4Ω
Dipole D5GHzV2 SN: 1151 (5750MHz)	Head Liquid	1/5/2017	-26.5	/	52.4	/
		1/4/2018	-26.8	-1.1%	52.5	0.1Ω
	Body Liquid	1/5/2017	-24.9	/	56.0	/
		1/4/2018	-25.2	-1.2%	56.4	0.4Ω

System Check results

Frequency (MHz)		Test Date	Temp ℃	250mW Measured SAR_{1g} (W/kg)	1W Normalized SAR_{1g} (W/kg)	1W Target SAR_{1g} (W/kg)	Δ % (Limit ±10%)	Plot No.
835	Head	7/20/2018	21.5	2.44	9.76	9.45	3.28	1
	Body	7/28/2018	21.5	2.41	9.64	9.75	-1.13	2
1750	Head	7/22/2018	21.5	8.95	35.80	37.20	-3.76	3
	Body	7/20/2018	21.5	9.24	36.96	37.60	-1.70	4
1900	Head	7/16/2018	21.5	9.88	39.52	40.10	-1.45	5
	Body	7/29/2018	21.5	9.93	39.72	39.50	0.56	6
2450	Head	7/25/2018	21.5	13.70	54.80	52.60	4.18	7
	Body	7/28/2018	21.5	12.50	50.00	50.80	-1.57	8
2600	Head	7/25/2018	21.5	13.90	55.60	54.10	2.77	9
	Body	7/29/2018	21.5	13.50	54.00	54.50	-0.92	10
5250	Head	7/26/2018	21.5	7.87	78.70	78.40	0.38	11
	Body	7/26/2018	21.5	7.46	74.60	75.60	-1.32	12
5600	Head	7/27/2018	21.5	7.67	76.70	81.50	-5.89	13
	Body	7/27/2018	21.5	8.10	81.00	80.20	1.00	14
5750	Head	7/21/2018	21.5	7.66	76.60	80.50	-4.84	15
	Body	7/23/2018	21.5	7.15	71.50	74.60	-4.16	16
Note：Target Values used derive from the calibration certificate Data Storage and Evaluation.								

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

Antenna 1

GSM 850 Receiver on		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
GSM	CS	33.80	32.25	32.30	32.40	9.03	24.77	23.22	23.27	23.37
GPRS (GMSK)	1 Tx Slot	33.80	32.34	32.32	32.41	9.03	24.77	23.31	23.29	23.38
	2 Tx Slots	30.80	29.33	29.30	29.34	6.02	24.78	23.31	23.28	23.32
	3 Tx Slots	29.00	27.56	27.53	27.52	4.26	24.74	23.30	23.27	23.26
	4 Tx Slots	27.80	26.40	26.37	26.54	3.01	24.79	23.39	23.36	23.53
EGPRS (8PSK)	1 Tx Slot	29.00	25.98	26.01	25.96	9.03	19.97	16.95	16.98	16.93
	2 Tx Slots	26.00	22.45	22.51	22.64	6.02	19.98	16.43	16.49	16.62
	3 Tx Slots	24.20	20.64	20.52	20.57	4.26	19.94	16.38	16.26	16.31
	4 Tx Slots	23.00	19.24	19.21	19.22	3.01	19.99	16.23	16.20	16.21
GSM 850 Receiver off		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
GSM	CS	32.60	31.13	31.07	31.12	9.03	23.57	22.10	22.04	22.09
GPRS (GMSK)	1 Tx Slot	32.60	31.07	31.02	31.17	9.03	23.57	22.04	21.99	22.14
	2 Tx Slots	29.60	28.16	28.11	28.25	6.02	23.58	22.14	22.09	22.23
	3 Tx Slots	27.80	26.37	26.34	26.50	4.26	23.54	22.11	22.08	22.24
	4 Tx Slots	26.60	25.16	25.12	25.29	3.01	**23.59**	**22.15**	**22.11**	**22.28**
EGPRS (8PSK)	1 Tx Slot	27.80	24.36	24.36	24.37	9.03	18.77	15.33	15.33	15.34
	2 Tx Slots	24.80	20.93	20.97	21.20	6.02	18.78	14.91	14.95	15.18
	3 Tx Slots	23.00	19.30	19.18	19.40	4.26	18.74	15.04	14.92	15.14
	4 Tx Slots	21.80	18.64	18.61	18.62	3.01	18.79	15.63	15.60	15.61
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
GSM	CS	31.00	30.21	30.10	30.00	9.03	21.97	21.18	21.07	20.97
GPRS	1 Tx Slot	31.00	30.31	30.08	30.09	9.03	21.97	21.28	21.05	21.06

(GMSK)	2 Tx Slots	28.00	27.07	26.78	26.63	6.02	21.98	21.05	20.76	20.61
	3 Tx Slots	26.20	25.23	24.98	24.86	4.26	21.94	20.97	20.72	20.60
	4 Tx Slots	25.00	24.12	23.71	23.60	3.01	**21.99**	**21.11**	**20.70**	**20.59**
EGPRS (8PSK)	1 Tx Slot	27.50	25.92	25.93	25.83	9.03	18.47	16.89	16.90	16.80
	2 Tx Slots	26.00	22.72	22.62	22.57	6.02	19.98	16.70	16.60	16.55
	3 Tx Slots	24.20	20.80	20.71	20.57	4.26	19.94	16.54	16.45	16.31
	4 Tx Slots	22.00	19.03	18.89	18.85	3.01	18.99	16.02	15.88	15.84

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.
2. SAR is not required for EGPRS (8PSK) mode because its output power is less than that of GPRS Mode.

Antenna 2

GSM 850 Receiver on		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
GSM	CS	29.80	28.15	28.17	28.26	9.03	20.77	19.12	19.14	19.23
GPRS (GMSK)	1 Tx Slot	29.80	28.14	28.16	28.34	9.03	20.77	19.11	19.13	19.31
	2 Tx Slots	26.80	25.16	25.20	25.33	6.02	20.78	19.14	19.18	19.31
	3 Tx Slots	25.00	23.33	23.37	23.58	4.26	20.74	19.07	19.11	19.32
	4 Tx Slots	23.80	22.05	22.10	22.33	3.01	20.79	19.04	19.09	19.32
EGPRS (8PSK)	1 Tx Slot	25.00	21.94	22.12	22.07	9.03	15.97	12.91	13.09	13.04
	2 Tx Slots	22.00	18.95	19.26	19.38	6.02	15.98	12.93	13.24	13.36
	3 Tx Slots	20.20	17.14	17.18	17.39	4.26	15.94	12.88	12.92	13.13
	4 Tx Slots	19.00	15.69	15.74	15.97	3.01	15.99	12.68	12.73	12.96
GSM 850 Receiver off		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
GSM	CS	33.80	32.04	32.10	32.38	9.03	24.77	23.01	23.07	23.35
GPRS (GMSK)	1 Tx Slot	33.80	32.00	32.09	32.37	9.03	24.77	22.97	23.06	23.34
	2 Tx Slots	30.80	29.05	29.09	29.28	6.02	24.78	23.03	23.07	23.26
	3 Tx Slots	29.00	27.27	27.33	27.54	4.26	24.74	23.01	23.07	23.28
	4 Tx Slots	27.80	26.10	26.16	26.37	3.01	**24.79**	**23.09**	**23.15**	**23.36**
EGPRS (8PSK)	1 Tx Slot	29.00	26.18	26.15	26.22	9.03	19.97	17.15	17.12	17.19
	2 Tx Slots	26.00	22.63	22.89	22.95	6.02	19.98	16.61	16.87	16.93
	3 Tx Slots	24.20	20.92	20.98	21.19	4.26	19.94	16.66	16.72	16.93
	4 Tx Slots	23.00	19.65	19.71	19.92	3.01	19.99	16.64	16.70	16.91
GSM 1900 Receiver on		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
GSM	CS	29.00	27.96	27.78	27.74	9.03	19.97	18.93	18.75	18.71
GPRS (GMSK)	1 Tx Slot	29.00	27.91	27.73	27.71	9.03	19.97	18.88	18.70	18.68
	2 Tx Slots	26.00	24.93	24.72	24.67	6.02	19.98	18.91	18.70	18.65
	3 Tx Slots	24.20	23.07	22.88	22.80	4.26	19.94	18.81	18.62	18.54
	4 Tx Slots	23.00	21.93	21.65	21.63	3.01	19.99	18.92	18.64	18.62
EGPRS (8PSK)	1 Tx Slot	26.50	23.99	23.96	23.70	9.03	17.47	14.96	14.93	14.67
	2 Tx Slots	23.50	20.72	20.60	20.44	6.02	17.48	14.70	14.58	14.42
	3 Tx Slots	21.70	18.52	18.33	18.25	4.26	17.44	14.26	14.07	13.99
	4 Tx Slots	20.50	17.00	16.72	16.70	3.01	17.49	13.99	13.71	13.69

GSM 1900 Receiver off		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
GSM	CS	31.00	29.95	29.87	29.92	9.03	21.97	20.92	20.84	20.89
GPRS (GMSK)	1 Tx Slot	31.00	29.93	29.84	29.91	9.03	21.97	20.90	20.81	20.88
	2 Tx Slots	28.00	26.81	26.62	26.61	6.02	21.98	20.79	20.60	20.59
	3 Tx Slots	26.20	25.03	24.83	24.85	4.26	21.94	20.77	20.57	20.59
	4 Tx Slots	25.00	23.92	23.83	23.90	3.01	**21.99**	**20.91**	**20.82**	**20.89**
EGPRS (8PSK)	1 Tx Slot	27.50	25.92	25.72	25.75	9.03	18.47	16.89	16.69	16.72
	2 Tx Slots	26.00	22.46	22.48	22.44	6.02	19.98	16.44	16.46	16.42
	3 Tx Slots	24.20	20.74	20.54	20.56	4.26	19.94	16.48	16.28	16.30
	4 Tx Slots	22.00	18.82	18.73	18.80	3.01	18.99	15.81	15.72	15.79

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.
2. SAR is not required for EGPRS (8PSK) mode because its output power is less than that of GPRS Mode.

9.2 WCDMA Mode

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

Antenna 1

WCDMA		Band II(dBm) Receiver on				Band II(dBm) Receiver off			
Tx Channel		9262	9400	9538	Tune-up Limit (dBm)	9262	9400	9538	Tune-up Limit (dBm)
Frequency(MHz)		1852.4	1880	1907.6		1852.4	1880	1907.6	
RMC	12.2kbps	23.27	23.34	23.32	24.00	22.74	22.84	22.78	23.50
AMR	12.2kbps	23.17	23.25	23.19	24.00	22.64	22.75	22.65	23.50
HSDPA	Sub 1	22.69	22.76	22.74	23.50	22.16	22.26	22.20	23.00
	Sub 2	22.18	22.25	22.23	23.00	21.65	21.75	21.69	22.50
	Sub 3	21.47	21.54	21.52	22.30	20.94	21.04	20.98	21.80
	Sub 4	21.46	21.53	21.51	22.30	20.93	21.03	20.97	21.80
HSUPA	Sub 1	21.65	21.72	21.70	22.50	21.12	21.22	21.16	22.00
	Sub 2	19.64	19.71	19.69	20.50	19.11	19.21	19.15	20.00
	Sub 3	19.62	19.70	19.68	20.50	19.09	19.20	19.14	20.00
	Sub 4	19.61	19.69	19.67	20.50	19.08	19.19	19.13	20.00
	Sub 5	23.10	23.18	23.16	24.00	22.57	22.68	22.62	23.50
DC-HSDPA	Sub 1	22.61	22.70	22.66	23.50	22.08	22.20	22.12	23.00
	Sub 2	22.10	22.19	22.15	23.00	21.57	21.69	21.61	22.50
	Sub 3	21.48	21.48	21.46	22.30	20.95	20.98	20.92	21.80
	Sub 4	21.47	21.47	21.45	22.30	20.94	20.97	20.91	21.80

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

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.

WCDMA		Band IV(dBm) Receiver on/ Receiver off				Band V(dBm) Receiver on/ Receiver off			
Tx Channel		1312	1413	1513	Tune-up Limit (dBm)	4132	4183	4233	Tune-up Limit (dBm)
Frequency(MHz)		1712.4	1732.6	1752.6		826.4	836.6	846.6	
RMC	12.2kbps	21.97	21.91	21.82	23.00	23.72	23.62	23.63	25.00
AMR	12.2kbps	21.87	21.82	21.69	23.00	23.62	23.53	23.50	25.00
HSDPA	Sub 1	21.39	21.33	21.24	22.50	23.14	23.04	23.05	24.50
	Sub 2	20.88	20.82	20.73	22.00	22.63	22.53	22.54	24.00
	Sub 3	20.17	20.11	20.02	21.30	21.92	21.82	21.83	23.30
	Sub 4	20.16	20.10	20.01	21.30	21.91	21.81	21.82	23.30
HSUPA	Sub 1	20.35	20.29	20.20	21.50	22.10	22.00	22.01	23.50
	Sub 2	18.34	18.28	18.19	19.50	20.09	19.99	20.00	21.50
	Sub 3	18.32	18.27	18.18	19.50	20.07	19.98	19.99	21.50
	Sub 4	18.31	18.26	18.17	19.50	20.06	19.97	19.98	21.50
	Sub 5	21.80	21.75	21.66	23.00	23.55	23.46	23.47	25.00
DC-HSDPA	Sub 1	21.31	21.27	21.16	22.50	23.06	22.98	22.97	24.50
	Sub 2	20.80	20.76	20.65	22.00	22.55	22.47	22.46	24.00
	Sub 3	20.18	20.05	19.96	21.30	21.93	21.76	21.77	23.30
	Sub 4	20.17	20.04	19.95	21.30	21.92	21.75	21.76	23.30

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

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.

Antenna 2

WCDMA		Band II(dBm) Receiver off				Band IV(dBm) Receiver off				Band V(dBm) Receiver off			
Tx Channel		9262	9400	9538	Tune-up Limit (dBm)	1312	1413	1513	Tune-up Limit (dBm)	4132	4183	4233	Tune-up Limit (dBm)
Frequency(MHz)		1852.4	1880	1907.6		1712.4	1732.6	1752.6		826.4	836.6	846.6	
RMC	12.2kbps	23.29	23.37	23.24	24.50	21.90	21.85	21.74	23.00	23.64	23.35	23.54	25.00
AMR	12.2kbps	23.19	23.28	23.11	24.50	21.80	21.76	21.61	23.00	23.54	23.26	23.41	25.00
HSDPA	Sub 1	22.71	22.79	22.66	24.00	21.32	21.27	21.16	22.50	23.06	22.77	22.96	24.50
	Sub 2	21.70	21.78	21.65	23.00	20.81	20.76	20.65	22.00	22.55	22.26	22.45	24.00
	Sub 3	21.49	21.57	21.44	22.80	20.10	20.05	19.94	21.30	21.84	21.55	21.74	23.30
	Sub 4	21.48	21.56	21.43	22.80	20.09	20.04	19.93	21.30	21.83	21.54	21.73	23.30
HSUPA	Sub 1	21.67	21.75	21.62	23.00	20.28	20.23	20.12	21.50	22.02	21.73	21.92	23.50
	Sub 2	19.66	19.74	19.61	21.00	18.27	18.22	18.11	19.50	20.01	19.72	19.91	21.50
	Sub 3	19.64	19.73	19.60	21.00	18.25	18.21	18.10	19.50	19.99	19.71	19.90	21.50
	Sub 4	19.63	19.72	19.59	21.00	18.24	18.20	18.09	19.50	19.98	19.70	19.89	21.50
	Sub 5	23.12	23.21	23.08	24.50	21.73	21.69	21.58	23.00	23.47	23.19	23.38	25.00
DC-HSDPA	Sub 1	22.63	22.73	22.58	24.00	21.24	21.21	21.08	22.50	22.98	22.71	22.88	24.50
	Sub 2	21.62	21.72	21.57	23.00	20.73	20.70	20.57	22.00	22.47	22.20	22.37	24.00
	Sub 3	21.50	21.51	21.38	22.80	20.11	19.99	19.88	21.30	21.85	21.49	21.68	23.30
	Sub 4	21.49	21.50	21.37	22.80	20.10	19.98	19.87	21.30	21.84	21.48	21.67	23.30

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

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.

WCDMA		Band II(dBm) Receiver on				Band IV(dBm) Receiver on				Band V(dBm) Receiver on			
Tx Channel		9262	9400	9538	Tune-up Limit (dBm)	1312	1413	1513	Tune-up Limit (dBm)	4132	4183	4233	Tune-up Limit (dBm)
Frequency(MHz)		1852.4	1880	1907.6		1712.4	1732.6	1752.6		826.4	836.6	846.6	
RMC	12.2kbps	18.26	18.35	18.30	19.50	17.44	17.37	17.29	18.50	19.64	19.38	19.58	21.00
AMR	12.2kbps	18.16	18.26	18.17	19.50	17.34	17.28	17.16	18.50	19.54	19.29	19.45	21.00
HSDPA	Sub 1	17.68	17.77	17.72	19.00	16.86	16.79	16.71	18.00	19.06	18.80	19.00	20.50
	Sub 2	16.67	16.76	16.71	18.00	16.35	16.28	16.20	17.50	18.55	18.29	18.49	20.00
	Sub 3	16.46	16.55	16.50	17.80	15.64	15.57	15.49	16.80	17.84	17.58	17.78	19.30
	Sub 4	16.45	16.54	16.49	17.80	15.63	15.56	15.48	16.80	17.83	17.57	17.77	19.30
HSUPA	Sub 1	16.64	16.73	16.68	18.00	15.82	15.75	15.67	17.00	18.02	17.76	17.96	19.50
	Sub 2	14.63	14.72	14.67	16.00	13.81	13.74	13.66	15.00	16.01	15.75	15.95	17.50
	Sub 3	14.61	14.71	14.66	16.00	13.79	13.73	13.65	15.00	15.99	15.74	15.94	17.50
	Sub 4	14.60	14.70	14.65	16.00	13.78	13.72	13.64	15.00	15.98	15.73	15.93	17.50
	Sub 5	18.09	18.19	18.14	19.50	17.27	17.21	17.13	18.50	19.47	19.22	19.42	21.00
DC-HSDPA	Sub 1	17.60	17.71	17.64	19.00	16.78	16.73	16.63	18.00	18.98	18.74	18.92	20.50
	Sub 2	16.59	16.70	16.63	18.00	16.27	16.22	16.12	17.50	18.47	18.23	18.41	20.00
	Sub 3	16.47	16.49	16.44	17.80	15.65	15.51	15.43	16.80	17.85	17.52	17.72	19.30
	Sub 4	16.46	16.48	16.43	17.80	15.64	15.50	15.42	16.80	17.84	17.51	17.71	19.30

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

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.

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
64 QAM	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16	≤ 18	≤ 2
64 QAM	> 5	> 4	> 8	> 12	> 16	> 18	≤ 3

Antenna 1

LTE FDD Band 7 Receiver on				Conducted Power(dBm)			Tune-up Limit (dBm)
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency (MHz)			
				20775/2502.5	21100/2535	21425/2567.5	
5MHz	QPSK	1	0	22.86	22.85	22.72	24.30
		1	13	22.83	22.96	22.85	24.30
		1	24	23.02	23.10	22.97	24.30
		12	0	21.85	22.09	21.89	23.30
		12	6	21.90	22.07	21.94	23.30
		12	13	21.96	22.02	22.04	23.30
		25	0	21.91	22.06	21.98	23.30
	16QAM	1	0	22.11	22.21	22.15	23.30
		1	13	22.09	22.20	22.10	23.30
		1	24	22.22	22.34	22.16	23.30
		12	0	20.96	21.16	20.98	22.30
		12	6	21.01	21.15	21.04	22.30
		12	13	21.02	21.10	21.12	22.30
		25	0	20.99	21.06	20.99	22.30
	64QAM	1	0	21.24	21.18	21.10	22.30
		1	13	21.06	21.19	21.07	22.30
		1	24	21.20	21.29	21.14	22.30
		12	0	19.93	20.15	19.96	21.30
		12	6	19.97	20.12	20.00	21.30
		12	13	20.00	20.06	20.09	21.30
		25	0	19.97	20.02	19.96	21.30

Bandwidth	Modulation	RB size	RB offset	Channel/Frequency (MHz)			Tune-up Limit (dBm)
				20800/2505	21100/2535	21400/2565	
10MHz	QPSK	1	0	22.88	22.86	22.75	24.30
		1	25	22.86	23.01	22.89	24.30
		1	49	23.04	23.14	23.00	24.30
		25	0	21.88	22.14	21.93	23.30
		25	13	21.93	22.12	21.98	23.30
		25	25	21.98	22.06	22.09	23.30
		50	0	21.99	22.08	22.02	23.30
	16QAM	1	0	22.13	22.24	22.17	23.30
		1	25	22.12	22.24	22.13	23.30
		1	49	22.25	22.36	22.19	23.30
		25	0	20.99	21.21	21.02	22.30
		25	13	21.03	21.19	21.07	22.30
		25	25	21.05	21.15	21.16	22.30
		50	0	21.02	21.11	21.03	22.30
	64QAM	1	0	21.26	21.21	21.12	22.30
		1	25	21.09	21.23	21.10	22.30
		1	49	21.23	21.31	21.17	22.30
		25	0	19.96	20.20	20.00	21.30
		25	13	19.99	20.16	20.03	21.30
		25	25	20.03	20.11	20.13	21.30
		50	0	20.00	20.07	20.00	21.30

Bandwidth	Modulation	RB size	RB offset	Channel/Frequency (MHz)			Tune-up Limit (dBm)
				20825/2507.5	21100/2535	21375/2562.5	
15MHz	QPSK	1	0	22.87	22.82	22.73	24.30
		1	38	22.84	23.00	22.86	24.30
		1	74	23.01	23.09	22.96	24.30
		36	0	21.86	22.10	21.90	23.30
		36	18	21.90	22.07	21.94	23.30
		36	39	21.95	22.03	22.05	23.30
		75	0	21.97	22.04	21.97	23.30
	16QAM	1	0	22.08	22.22	22.15	23.30
		1	38	22.10	22.21	22.11	23.30
		1	74	22.22	22.32	22.16	23.30
		36	0	20.96	21.19	20.99	22.30
		36	18	21.00	21.14	21.03	22.30
		36	39	21.03	21.11	21.13	22.30
		75	0	20.99	21.06	20.99	22.30
	64QAM	1	0	21.21	21.19	21.10	22.30
		1	38	21.07	21.20	21.08	22.30

		1	74	21.20	21.27	21.14	22.30
		36	0	19.93	20.18	19.97	21.30
		36	18	19.96	20.11	19.99	21.30
		36	39	20.01	20.07	20.10	21.30
		75	0	19.97	20.02	19.96	21.30
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency (MHz)			Tune-up Limit (dBm)
				20850/2510	21100/2535	21350/2560	
20MHz	QPSK	1	0	22.84	22.78	22.70	24.30
		1	50	22.83	22.96	22.84	24.30
		1	99	22.99	23.08	22.93	24.30
		50	0	21.83	22.05	21.86	23.30
		50	25	21.88	22.03	21.91	23.30
		50	50	21.92	21.98	22.01	23.30
		100	0	21.94	21.99	21.93	23.30
	16QAM	1	0	22.24	22.18	22.10	23.30
		1	50	22.06	22.19	22.07	23.30
		1	99	22.20	22.29	22.14	23.30
		50	0	20.93	21.15	20.96	22.30
		50	25	20.97	21.12	21.00	22.30
		50	50	21.00	21.06	21.09	22.30
		100	0	20.97	21.02	20.96	22.30
	64QAM	1	0	21.19	21.15	21.05	22.30
		1	50	21.03	21.18	21.04	22.30
		1	99	21.18	21.24	21.12	22.30
		50	0	19.90	20.14	19.94	21.30
		50	25	19.93	20.09	19.96	21.30
		50	50	19.98	20.02	20.06	21.30
		100	0	19.95	19.98	19.93	21.30

LTE FDD Band 7 Receiver off				**Conducted Power(dBm)**			Tune-up Limit (dBm)
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency (MHz)			
				20775/2502.5	21100/2535	21425/2567.5	
5MHz	QPSK	1	0	20.85	20.87	20.94	21.30
		1	13	20.86	20.84	20.96	21.30
		1	24	21.00	20.95	21.13	21.30
		12	0	20.89	21.02	21.21	21.30
		12	6	20.86	21.00	21.17	21.30
		12	13	20.96	21.13	21.22	21.30
		25	0	20.77	21.05	20.98	21.30
	16QAM	1	0	20.86	20.93	20.93	21.30
		1	13	20.84	20.84	20.84	21.30

		1	24	20.90	20.90	20.90	21.30
		12	0	20.82	20.82	20.82	21.30
		12	6	20.87	20.87	20.87	21.30
		12	13	20.89	20.89	20.89	21.30
		25	0	20.91	20.91	20.91	21.30
	64QAM	1	0	20.88	20.90	20.88	21.30
		1	13	20.81	20.83	20.81	21.30
		1	24	20.88	20.85	20.88	21.30
		12	0	19.88	19.90	19.89	20.30
		12	6	19.83	19.84	19.83	20.30
		12	13	19.87	19.85	19.86	20.30
		25	0	19.89	19.87	19.88	20.30
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency (MHz)			Tune-up Limit (dBm)
				20800/2505	21100/2535	21400/2565	
10MHz	QPSK	1	0	20.87	20.88	20.97	21.30
		1	25	20.89	20.89	21.00	21.30
		1	49	21.02	20.99	21.16	21.30
		25	0	20.92	21.07	21.25	21.30
		25	13	20.89	21.05	21.21	21.30
		25	25	20.98	21.17	21.27	21.30
		50	0	20.85	21.07	21.02	21.30
	16QAM	1	0	20.88	20.96	20.95	21.30
		1	25	20.87	20.88	20.87	21.30
		1	49	20.93	20.92	20.93	21.30
		25	0	20.85	20.87	20.86	21.30
		25	13	20.89	20.91	20.90	21.30
		25	25	20.92	20.94	20.93	21.30
		50	0	20.94	20.96	20.95	21.30
	64QAM	1	0	20.90	20.93	20.90	21.30
		1	25	20.84	20.87	20.84	21.30
		1	49	20.91	20.87	20.91	21.30
		25	0	19.91	19.95	19.93	20.30
		25	13	19.85	19.88	19.86	20.30
		25	25	19.90	19.90	19.90	20.30
		50	0	19.92	19.92	19.92	20.30
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency (MHz)			Tune-up Limit (dBm)
				20825/2507.5	21100/2535	21375/2562.5	
15MHz	QPSK	1	0	20.86	20.84	20.95	21.30
		1	38	20.87	20.88	20.97	21.30
		1	74	20.99	20.94	21.12	21.30
		36	0	20.90	21.03	21.22	21.30

		36	18	20.86	21.00	21.17	21.30
		36	39	20.95	21.14	21.23	21.30
		75	0	20.83	21.03	20.97	21.30
	16QAM	1	0	20.83	20.94	20.93	21.30
		1	38	20.85	20.85	20.85	21.30
		1	74	20.90	20.88	20.90	21.30
		36	0	20.82	20.85	20.83	21.30
		36	18	20.86	20.86	20.86	21.30
		36	39	20.90	20.90	20.90	21.30
		75	0	20.91	20.91	20.91	21.30
	64QAM	1	0	20.85	20.91	20.88	21.30
		1	38	20.82	20.84	20.82	21.30
		1	74	20.88	20.83	20.88	21.30
		36	0	19.88	19.93	19.90	20.30
		36	18	19.82	19.83	19.82	20.30
		36	39	19.88	19.86	19.87	20.30
		75	0	19.89	19.87	19.88	20.30

Bandwidth	Modulation	RB size	RB offset	Channel/Frequency (MHz)			Tune-up Limit (dBm)
				20850/2510	21100/2535	21350/2560	
20MHz	QPSK	1	0	20.83	20.80	20.92	21.30
		1	50	20.86	20.84	20.95	21.30
		1	99	20.97	20.93	21.09	21.30
		50	0	20.87	20.98	21.18	21.30
		50	25	20.84	20.96	21.14	21.30
		50	50	20.92	21.09	21.19	21.30
		100	0	20.80	20.98	20.93	21.30
	16QAM	1	0	20.88	20.90	20.88	21.30
		1	50	20.81	20.83	20.81	21.30
		1	99	20.88	20.85	20.88	21.30
		50	0	20.79	20.81	20.80	21.30
		50	25	20.83	20.84	20.83	21.30
		50	50	20.87	20.85	20.86	21.30
		100	0	20.89	20.87	20.88	21.30
	64QAM	1	0	20.83	20.87	20.83	21.30
		1	50	20.78	20.82	20.78	21.30
		1	99	20.86	20.80	20.86	21.30
		50	0	19.76	19.80	19.78	20.30
		50	25	19.79	19.81	19.79	20.30
		50	50	19.85	19.81	19.83	20.30
		100	0	19.87	19.83	19.85	20.30

CA configuration				DL				UL									Receiver
CA config#.	Band		Mod#.	PCC		SCC		PCC									
	PCC	SCC		BW (MHz)	CH#.	BW (MHz)	CH#.	CH#.	RB	Offset	MPR	Tune-up	CA inactive	CA active	Delta	3GPP Rel.#	
CA_7C(0)(1)(2)	7C	7C	QPSK	20	3100	20	3298	21100	1	99	0	24.30	23.08	23.00	-0.08	12	on
	7C	7C	QPSK	20	3350	20	3152	21350	50	50	0	21.30	21.19	21.05	-0.14	12	off

Note: 1. For downlink carrier aggregation, power measurements were performed on the configuration with the highest maximum output power from standalone mode on each ANT.

2. SAR is not required when downlink carrier aggregation in active uplink maximum output power not more than 1/4dB higher than the maximum output power measured when downlink carrier aggregation inactive.

Antenna 2

LTE FDD Band 7 Receiver off				Conducted Power(dBm)			Tune-up Limit (dBm)
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency (MHz)			
				20775/2502.5	21100/2535	21425/2567.5	
5MHz	QPSK	1	0	20.69	21.06	20.58	22.30
		1	13	20.81	21.04	20.87	22.30
		1	24	20.88	21.02	20.81	22.30
		12	0	20.83	20.88	20.94	21.30
		12	6	20.84	20.87	21.03	21.30
		12	13	20.80	20.88	20.88	21.30
		25	0	20.74	20.92	20.87	21.30
	16QAM	1	0	20.81	21.03	20.62	21.30
		1	13	20.79	21.00	20.84	21.30
		1	24	20.95	21.13	20.87	21.30
		12	0	20.13	20.14	20.14	20.30
		12	6	20.15	20.15	20.13	20.30
		12	13	19.94	20.04	20.04	20.30
		25	0	19.90	20.00	19.96	20.30
	64QAM	1	0	19.68	20.00	19.57	20.30
		1	13	19.76	19.99	19.81	20.30
		1	24	19.93	20.08	19.85	20.30
		12	0	19.10	19.13	19.20	19.30
		12	6	19.11	19.12	19.19	19.30
		12	13	18.92	19.00	19.01	19.30
		25	0	18.88	18.96	18.93	19.30
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency (MHz)			Tune-up Limit (dBm)
				20800/2505	21100/2535	21400/2565	
10MHz	QPSK	1	0	20.71	21.07	20.61	22.30
		1	25	20.84	21.09	20.91	22.30
		1	49	20.90	21.06	20.84	22.30
		25	0	20.86	20.93	20.98	21.30
		25	13	20.87	20.92	21.07	21.30
		25	25	20.82	20.92	20.93	21.30
		50	0	20.82	20.94	20.91	21.30
	16QAM	1	0	20.83	21.06	20.64	21.30
		1	25	20.82	21.04	20.87	21.30
		1	49	20.98	21.15	20.90	21.30
		25	0	20.16	20.19	20.18	20.30
		25	13	20.17	20.19	20.16	20.30
		25	25	19.97	20.09	20.08	20.30

		50	0	19.93	20.05	20.00	20.30
	64QAM	1	0	19.70	20.03	19.59	20.30
		1	25	19.79	20.03	19.84	20.30
		1	49	19.96	20.10	19.88	20.30
		25	0	19.13	19.18	19.24	19.30
		25	13	19.13	19.16	19.22	19.30
		25	25	18.95	19.05	19.05	19.30
		50	0	18.91	19.01	18.97	19.30
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency (MHz)			Tune-up Limit (dBm)
				20825/2507.5	21100/2535	21375/2562.5	
15MHz	QPSK	1	0	20.70	21.03	20.59	22.30
		1	38	20.82	21.08	20.88	22.30
		1	74	20.87	21.01	20.80	22.30
		36	0	20.84	20.89	20.95	21.30
		36	18	20.84	20.87	21.03	21.30
		36	39	20.79	20.89	20.89	21.30
		75	0	20.80	20.90	20.86	21.30
	16QAM	1	0	20.78	21.04	20.62	21.30
		1	38	20.80	21.01	20.85	21.30
		1	74	20.95	21.11	20.87	21.30
		36	0	20.13	20.17	20.15	20.30
		36	18	20.14	20.14	20.12	20.30
		36	39	19.95	20.05	20.05	20.30
		75	0	19.90	20.00	19.96	20.30
	64QAM	1	0	19.65	20.01	19.57	20.30
		1	38	19.77	20.00	19.82	20.30
		1	74	19.93	20.06	19.85	20.30
		36	0	19.10	19.16	19.21	19.30
		36	18	19.10	19.11	19.18	19.30
		36	39	18.93	19.01	19.02	19.30
		75	0	18.88	18.96	18.93	19.30
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency (MHz)			Tune-up Limit (dBm)
				20850/2510	21100/2535	21350/2560	
20MHz	QPSK	1	0	20.67	20.99	20.56	22.30
		1	50	20.81	21.04	20.86	22.30
		1	99	20.85	21.00	20.77	22.30
		50	0	20.81	20.84	20.91	21.30
		50	25	20.82	20.83	21.00	21.30
		50	50	20.76	20.84	20.85	21.30
		100	0	20.77	20.85	20.82	21.30
	16QAM	1	0	20.68	21.00	20.57	21.30

		1	50	20.76	20.99	20.81	21.30
		1	99	20.93	21.08	20.85	21.30
		50	0	20.10	20.13	20.12	20.30
		50	25	20.11	20.12	20.09	20.30
		50	50	19.92	20.00	20.01	20.30
		100	0	19.88	19.96	19.93	20.30
	64QAM	1	0	19.63	19.97	19.52	20.30
		1	50	19.73	19.98	19.78	20.30
		1	99	19.91	20.03	19.83	20.30
		50	0	19.07	19.12	19.18	19.30
		50	25	19.07	19.09	19.15	19.30
		50	50	18.90	18.96	18.98	19.30
		100	0	18.86	18.92	18.90	19.30

LTE FDD Band 7 Receiver on				Conducted Power(dBm)			Tune-up Limit (dBm)
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency (MHz)			
				20775/2502.5	21100/2535	21425/2567.5	
5MHz	QPSK	1	0	16.05	16.49	16.43	17.30
		1	13	16.13	16.37	16.41	17.30
		1	24	16.26	16.40	16.41	17.30
		12	0	16.23	16.39	16.44	17.30
		12	6	16.18	16.41	16.48	17.30
		12	13	16.21	16.46	16.31	17.30
		25	0	16.19	16.51	16.43	17.30
	16QAM	1	0	16.40	16.38	16.42	17.30
		1	13	16.38	16.33	16.37	17.30
		1	24	16.46	16.47	16.41	17.30
		12	0	16.21	16.16	16.19	17.30
		12	6	16.21	16.16	16.18	17.30
		12	13	16.16	16.16	16.13	17.30
		25	0	16.15	16.15	16.12	17.30
	64QAM	1	0	16.40	16.35	16.34	17.30
		1	13	16.35	16.32	16.33	17.30
		1	24	16.44	16.42	16.34	17.30
		12	0	16.18	16.15	16.16	17.30
		12	6	16.17	16.13	16.11	17.30
		12	13	16.14	16.12	16.06	17.30
		25	0	16.13	16.11	16.05	17.30
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency (MHz)			Tune-up Limit (dBm)
				20800/2505	21100/2535	21400/2565	
10MHz	QPSK	1	0	16.07	16.50	16.46	17.30

		1	25	16.16	16.42	16.45	17.30
		1	49	16.28	16.44	16.44	17.30
		25	0	16.26	16.44	16.48	17.30
		25	13	16.21	16.46	16.52	17.30
		25	25	16.23	16.50	16.36	17.30
		50	0	16.27	16.53	16.47	17.30
	16QAM	1	0	16.42	16.41	16.44	17.30
		1	25	16.41	16.37	16.40	17.30
		1	49	16.49	16.49	16.44	17.30
		25	0	16.24	16.21	16.23	17.30
		25	13	16.23	16.20	16.21	17.30
		25	25	16.19	16.21	16.17	17.30
		50	0	16.18	16.20	16.16	17.30
	64QAM	1	0	16.42	16.38	16.36	17.30
		1	25	16.38	16.36	16.36	17.30
		1	49	16.47	16.44	16.37	17.30
		25	0	16.21	16.20	16.20	17.30
		25	13	16.19	16.17	16.14	17.30
		25	25	16.17	16.17	16.10	17.30
		50	0	16.16	16.16	16.09	17.30

Bandwidth	Modulation	RB size	RB offset	Channel/Frequency (MHz)			Tune-up Limit (dBm)
				20825/2507.5	21100/2535	21375/2562.5	
15MHz	QPSK	1	0	16.06	16.46	16.44	17.30
		1	38	16.14	16.41	16.42	17.30
		1	74	16.25	16.39	16.40	17.30
		36	0	16.24	16.40	16.45	17.30
		36	18	16.18	16.41	16.48	17.30
		36	39	16.20	16.47	16.32	17.30
		75	0	16.25	16.49	16.42	17.30
	16QAM	1	0	16.37	16.39	16.42	17.30
		1	38	16.39	16.34	16.38	17.30
		1	74	16.46	16.45	16.41	17.30
		36	0	16.21	16.19	16.20	17.30
		36	18	16.20	16.15	16.17	17.30
		36	39	16.17	16.17	16.14	17.30
		75	0	16.15	16.15	16.12	17.30
	64QAM	1	0	16.37	16.36	16.34	17.30
		1	38	16.36	16.33	16.34	17.30
		1	74	16.44	16.40	16.34	17.30
		36	0	16.18	16.18	16.17	17.30
		36	18	16.16	16.12	16.10	17.30
		36	39	16.15	16.13	16.07	17.30

		75	0	16.13	16.11	16.05	17.30
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency (MHz)			Tune-up Limit (dBm)
				20850/2510	21100/2535	21350/2560	
20MHz	QPSK	1	0	16.03	16.42	16.41	17.30
		1	50	16.13	16.37	16.40	17.30
		1	99	16.23	16.38	16.37	17.30
		50	0	16.21	16.35	16.41	17.30
		50	25	16.16	16.37	16.45	17.30
		50	50	16.17	16.42	16.28	17.30
		100	0	16.22	16.44	16.38	17.30
	16QAM	1	0	16.40	16.35	16.37	17.30
		1	50	16.35	16.32	16.34	17.30
		1	99	16.44	16.42	16.39	17.30
		50	0	16.18	16.15	16.17	17.30
		50	25	16.17	16.13	16.14	17.30
		50	50	16.14	16.12	16.10	17.30
		100	0	16.13	16.11	16.09	17.30
	64QAM	1	0	16.35	16.32	16.29	17.30
		1	50	16.32	16.31	16.30	17.30
		1	99	16.42	16.37	16.32	17.30
		50	0	16.15	16.14	16.14	17.30
		50	25	16.13	16.10	16.07	17.30
		50	50	16.12	16.08	16.03	17.30
		100	0	16.11	16.07	16.02	17.30

CA configuration				DL				UL									Receiver
CA config#.	Band		Mod#.	PCC		SCC		PCC									
	PCC	SCC		BW (MHz)	CH#.	BW (MHz)	CH#.	CH#.	RB	Offset	MPR	Tune-up	CA inactive	CA active	Delta	3GPP Rel.#	
CA_7C(0)(1)(2)	7C	7C	QPSK	20	3350	20	3152	21350	50	25	0	17.30	16.45	16.38	-0.07	12	on
	7C	7C	QPSK	20	3100	20	3298	21100	1	50	0	22.30	21.04	21.01	-0.03	12	off

Note: 1. For downlink carrier aggregation, power measurements were performed on the configuration with the highest maximum output power from standalone mode on each ANT.

2. SAR is not required when downlink carrier aggregation in active uplink maximum output power not more than 1/4dB higher than the maximum output power measured when downlink carrier aggregation inactive.

9.4 WLAN Mode

Wi-Fi 2.4G **Receiver off** Mode	Channel	Frequency (MHz)	Data Rates (bps)	Average Conducted Power Measured (dBm)	Tune-up Limit (dBm)	TX Power Setting level
802.11b	1	2412	1M	15.66	17.00	15
	6	2437	1M	15.72	17.00	15
	11	2462	1M	15.64	17.00	15
Mode	Channel	Frequency (MHz)	/	Average Conducted Power Measured (dBm)	Tune-up Limit (dBm)	TX Power Setting level
802.11g	1	2412	6M	11.09	14.00	12
	2	2417	6M	12.90	16.00	14
	6	2437	6M	13.07	16.00	14
	10	2457	6M	12.89	16.00	14
	11	2462	6M	11.53	14.00	12
Mode	Channel	Frequency (MHz)	/	Average Conducted Power Measured (dBm)	Tune-up Limit (dBm)	TX Power Setting level
802.11n (HT20)	1	2412	6.5M	9.23	12.00	10
	2	2417	6.5M	11.09	14.00	12
	6	2437	6.5M	11.50	14.00	12
	10	2457	6.5M	11.01	14.00	12
	11	2462	6.5M	9.64	12.00	10
Mode	Channel	Frequency (MHz)	/	Average Conducted Power Measured (dBm)	Tune-up Limit (dBm)	TX Power Setting level
802.11n (HT40)	3	2422	13.5M	9.31	12.00	10
	5	2432	13.5M	11.65	14.00	12
	6	2437	13.5M	11.88	14.00	12
	7	2447	13.5M	11.81	14.00	12
	9	2452	13.5M	8.97	12.00	10

Wi-Fi 2.4G **Receiver on** Mode	Channel	Frequency (MHz)	Data Rates (bps)	Average Conducted Power Measured (dBm)	Tune-up Limit (dBm)	TX Power Setting level
802.11b	1	2412	1M	11.87	13.00	11
	6	2437	1M	11.55	13.00	11
	11	2462	1M	11.61	13.00	11
Mode	Channel	Frequency (MHz)	/	Average Conducted Power Measured (dBm)	Tune-up Limit (dBm)	TX Power Setting level
802.11g	1	2412	6M	8.75	12.50	9
	2	2417	6M	10.14	12.50	11

	6	2437	6M	10.65	12.50	11
	10	2457	6M	10.20	12.50	11
	11	2462	6M	8.72	12.50	9
Mode	Channel	Frequency (MHz)	/	Average Conducted Power Measured (dBm)	Tune-up Limit (dBm)	TX Power Setting level
802.11n (HT20)	1	2412	6.5M	8.28	12.50	9
	2	2417	6.5M	10.23	12.50	11
	6	2437	6.5M	10.44	12.50	11
	10	2457	6.5M	10.18	12.50	11
	11	2462	6.5M	10.64	12.50	11
Mode	Channel	Frequency (MHz)	/	Average Conducted Power Measured (dBm)	Tune-up Limit (dBm)	TX Power Setting level
802.11n (HT40)	3	2422	13.5M	8.39	12.50	9
	5	2432	13.5M	10.59	12.50	11
	6	2437	13.5M	10.81	12.50	11
	7	2447	13.5M	10.75	12.50	11
	9	2452	13.5M	8.06	12.50	9

5GHz Wi-Fi Mode **Receiver off**	Band	Channel	Frequency (MHz)	Average Conducted Power (dBm)		
				1M	Tune-up	TP Set Level
802.11a	U-NII-1	36	5180	14.78	16.00	14
		40	5200	14.83	16.00	14
		44	5220	14.86	16.00	14
		48	5240	14.86	16.00	14
	U-NII-2A	52	5260	14.71	16.00	14
		56	5280	14.76	16.00	14
		60	5300	14.82	16.00	14
		64	5320	14.81	16.00	14
	U-NII-2C	100	5500	14.79	16.00	14
		116	5580	14.80	16.00	14
		132	5660	14.78	16.00	14
		140	5700	14.81	16.00	14
	U-NII-3	149	5745	15.08	16.00	14
		157	5785	14.71	16.00	14
		165	5825	14.26	16.00	14
Mode	Band	Channel	Frequency (MHz)	MCS0	Tune-up	TP Set Level
802.11n HT20	U-NII-1	36	5180	11.80	15.00	13
		40	5200	11.83	15.00	13
		44	5220	11.80	15.00	13
		48	5240	11.78	15.00	13
	U-NII-2A	52	5260	11.51	15.00	13
		56	5280	11.58	15.00	13
		60	5300	11.60	15.00	13
		64	5320	11.58	15.00	13
	U-NII-2C	100	5500	11.53	15.00	13
		116	5580	11.28	15.00	13
		132	5660	11.39	15.00	13
		140	5700	11.19	15.00	13
	U-NII-3	149	5745	11.76	15.00	13
		157	5785	11.44	15.00	13
		165	5825	11.08	15.00	13
Mode	Band	Channel	Frequency (MHz)	MCS0	Tune-up	TP Set Level
802.11n HT40	U-NII-1	38	5190	10.75	14.00	12
		46	5230	10.90	14.00	12
	U-NII-2A	54	5270	10.70	14.00	12
		62	5310	10.81	14.00	12
	U-NII-2C	102	5510	10.65	14.00	12

		110	5550	10.29	14.00	12
		118	5590	10.48	14.00	12
		134	5670	10.44	14.00	12
	U-NII-3	151	5755	10.94	14.00	12
		159	5795	10.65	14.00	12
Mode	Band	Channel	Frequency (MHz)	6M	Tune-up	TP Set Level
802.11ac VHT20	U-NII-1	36	5180	11.36	15.00	13
		40	5200	11.46	15.00	13
		44	5220	11.52	15.00	13
		48	5240	11.55	15.00	13
	U-NII-2A	52	5260	11.32	15.00	13
		56	5280	11.40	15.00	13
		60	5300	11.47	15.00	13
		64	5320	11.46	15.00	13
	U-NII-2C	100	5500	11.40	15.00	13
		116	5580	11.18	15.00	13
		132	5660	11.32	15.00	13
		140	5700	11.09	15.00	13
	U-NII-3	149	5745	11.68	15.00	13
		157	5785	11.38	15.00	13
		165	5825	11.02	15.00	13
Mode	Band	Channel	Frequency (MHz)	MCS0	Tune-up	TP Set Level
802.11ac VHT40	U-NII-1	38	5190	10.72	14.00	12
		46	5230	10.85	14.00	12
	U-NII-2A	54	5270	10.64	14.00	12
		62	5310	10.79	14.00	12
	U-NII-2C	102	5510	10.64	14.00	12
		110	5550	10.27	14.00	12
		118	5590	10.48	14.00	12
		134	5670	10.57	14.00	12
	U-NII-3	151	5755	10.94	14.00	12
		159	5795	10.61	14.00	12
Mode	Band	Channel	Frequency (MHz)	MCS0	Tune-up	TP Set Level
802.11ac VHT80	U-NII-1	42	5210	10.75	14.00	12
	U-NII-2A	58	5290	10.70	14.00	12
	U-NII-2C	106	5530	10.49	14.00	12
	U-NII-3	155	5775	10.89	14.00	12
Note. Initial test configuration is 802.11a mode, since the highest maximum output power.						

5GHz Wi-Fi Mode **Receiver on**	Band	Channel	Frequency (MHz)	Average Conducted Power (dBm)		
				1M	Tune-up	TP Set Level
802.11a	U-NII-1	36	5180	11.27	13.00	11
		40	5200	11.44	13.00	11
		44	5220	11.56	13.00	11
		48	5240	11.63	13.00	11
	U-NII-2A	52	5260	11.15	13.00	11
		56	5280	11.31	13.00	11
		60	5300	11.40	13.00	11
		64	5320	11.47	13.00	11
	U-NII-2C	100	5500	11.48	13.00	11
		116	5580	11.02	13.00	11
		132	5660	11.18	13.00	11
		140	5700	11.13	13.00	11
	U-NII-3	149	5745	11.54	13.00	11
		157	5785	11.38	13.00	11
		165	5825	11.14	13.00	11
Mode	Band	Channel	Frequency (MHz)	MCS0	Tune-up	TP Set Level
802.11n HT20	U-NII-1	36	5180	8.97	12.50	11
		40	5200	9.15	12.50	11
		44	5220	9.26	12.50	11
		48	5240	9.32	12.50	11
	U-NII-2A	52	5260	8.90	12.50	11
		56	5280	9.02	12.50	11
		60	5300	9.13	12.50	11
		64	5320	9.18	12.50	11
	U-NII-2C	100	5500	8.93	12.50	11
		116	5580	8.37	12.50	11
		132	5660	8.62	12.50	11
		140	5700	8.54	12.50	11
	U-NII-3	149	5745	9.40	12.50	11
		157	5785	9.24	12.50	11
		165	5825	9.01	12.50	11
Mode	Band	Channel	Frequency (MHz)	MCS0	Tune-up	TP Set Level
802.11n HT40	U-NII-1	38	5190	9.59	12.50	11
		46	5230	9.78	12.50	11
	U-NII-2A	54	5270	9.53	12.50	11
		62	5310	9.66	12.50	11
	U-NII-2C	102	5510	9.36	12.50	11

		110	5550	9.07	12.50	11
		118	5590	9.09	12.50	11
		134	5670	9.41	12.50	11
	U-NII-3	151	5755	9.84	12.50	11
		159	5795	9.60	12.50	11
Mode	Band	Channel	Frequency (MHz)	6M	Tune-up	TP Set Level
802.11ac VHT20	U-NII-1	36	5180	9.03	12.50	11
		40	5200	9.21	12.50	11
		44	5220	9.33	12.50	11
		48	5240	9.37	12.50	11
	U-NII-2A	52	5260	8.92	12.50	11
		56	5280	9.08	12.50	11
		60	5300	9.15	12.50	11
		64	5320	9.22	12.50	11
	U-NII-2C	100	5500	8.97	12.50	11
		116	5580	8.38	12.50	11
		132	5660	8.66	12.50	11
		140	5700	8.58	12.50	11
	U-NII-3	149	5745	9.45	12.50	11
		157	5785	9.28	12.50	11
		165	5825	9.03	12.50	11
Mode	Band	Channel	Frequency (MHz)	MCS0	Tune-up	TP Set Level
802.11ac VHT40	U-NII-1	38	5190	9.64	12.50	11
		46	5230	9.82	12.50	11
	U-NII-2A	54	5270	9.58	12.50	11
		62	5310	9.74	12.50	11
	U-NII-2C	102	5510	9.43	12.50	11
		110	5550	9.13	12.50	11
		118	5590	9.12	12.50	11
		134	5670	9.47	12.50	11
	U-NII-3	151	5755	9.93	12.50	11
		159	5795	9.69	12.50	11
Mode	Band	Channel	Frequency (MHz)	MCS0	Tune-up	TP Set Level
802.11ac VHT80	U-NII-1	42	5210	9.81	12.50	11
	U-NII-2A	58	5290	9.75	12.50	11
	U-NII-2C	106	5530	9.28	12.50	11
	U-NII-3	155	5775	9.84	12.50	11
Note. Initial test configuration is 802.11a mode, since the highest maximum output power.						

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	6.61	7.23	6.22	9.50
π/4DQPSK	4.43	5.31	4.32	7.50
8DPSK	4.41	5.33	4.80	7.50
BLE	**Ch 0/2402 MHz**	**Ch 19/2440 MHz**	**Ch 39/2480 MHz**	**Tune-up Limit (dBm)**
GFSK	1.63	2.45	1.25	6.50

10 Measured and Reported (Scaled) SAR Results

10.1 EUT Antenna Locations

The Detailed Antenna Locations refer to SAR Test Setup and Antenna Locations.

Overall (Length x Width): 158.2 mm x 75.5 mm Overall Diagonal: 175.16 mm/Display Diagonal: 156mm						
Distance of the Antenna to the EUT surface/edge						
Antenna	Back Side	Front side	Left Edge	Right Edge	Top Edge	Bottom Edge
Main-Antenna (Antenna 1)	<25mm	<25mm	<25mm	<25mm	>25mm	<25mm
Second-Antenna (Antenna 2)	<25mm	<25mm	<25mm	<25mm	<25mm	>25mm
BT/Wi-Fi Antenna	<25mm	<25mm	>25mm	<25mm	<25mm	>25mm
Hotspot mode, Positions for SAR tests						
Mode	Back Side	Front side	Left Edge	Right Edge	Top Edge	Bottom Edge
Main-Antenna(Antenna 1)	Yes	Yes	Yes	Yes	N/A	Yes
Second-Antenna(Antenna 2)	Yes	Yes	Yes	Yes	Yes	N/A
BT/Wi-Fi Antenna	Yes	Yes	N/A	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. For smart phones with an overall diagonal dimension is 175.16 mm. Per KDB 648474 D04, for smart phones with a display diagonal dimension > 15.0 cm or an overall diagonal dimension> 16.0 cm, 10-g extremity SAR must be tested as a phablet to determine SAR compliance. For Phablet, Since hotspot mode 1-g *reported* SAR < 1.2 W/kg, 10-g extremity SAR is no required.

3. Per KDB 447498 D01. Testing of other required 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 powerchannel is:

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

b)≤ 0.6 W/kg or 15W/kg, for 1-g or 10-g respectvely. when the transmission band is between 100 MHz and 200 MHz

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

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

5. Per FCC KDB Publication 648474 D04, SAR was evaluated without a headset connected to the device. Since the reported SAR was ≤ 1.2 W/kg, no additional SAR evaluations using a headset cable were required.

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 10-g extremity 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)	MAX Power (dBm)	Frequency (MHz)	Ratio	Evaluation
Head	5	9.50	2480	2.81	No
Body-worn	15	9.50	2480	0.94	No
Extremity	5	9.50	2480	2.81	No

10.3 Measured SAR Results

Table 1: GSM 850 (Antenna 1)

Test Position	Cover Type	Channel/ Frequency (MHz)	Time slot	Duty Cycle	Tune-up limit (dBm)	Conducted Power (dBm)	Drift (dB)	Measured SAR_{1g} (W/kg)	Scaling Factor	Reported SAR_{1g} (W/kg)	Plot No.
Head SAR(Receiver on)											
Left Cheek	standard	190/836.6	GSM	1:8.3	33.80	32.30	0.074	0.051	1.41	0.072	17
Left Tilt	standard	190/836.6	GSM	1:8.3	33.80	32.30	0.054	0.023	1.41	0.032	/
Right Cheek	standard	190/836.6	GSM	1:8.3	33.80	32.30	0.142	0.029	1.41	0.041	/
Right Tilt	standard	190/836.6	GSM	1:8.3	33.80	32.30	0.065	0.021	1.41	0.030	/
Body-worn (Distance 15mm) (Receiver off)											
Back Side	standard	190/836.6	GSM	1:8.3	32.60	31.07	0.080	0.262	1.42	0.373	18
Front Side	standard	190/836.6	GSM	1:8.3	32.60	31.07	0.013	0.224	1.42	0.319	/
Hotspot (Distance 10mm) (Receiver off)											
Back Side	standard	190/836.6	4Txslots	1:2.07	26.60	25.12	-0.060	0.373	1.41	0.524	19
Front Side	standard	190/836.6	4Txslots	1:2.07	26.60	25.12	0.030	0.324	1.41	0.456	/
Left Edge	standard	190/836.6	4Txslots	1:2.07	26.60	25.12	0.090	0.301	1.41	0.423	/
Right Edge	standard	190/836.6	4Txslots	1:2.07	26.60	25.12	-0.050	0.167	1.41	0.235	/
Top Edge	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Bottom Edge	standard	190/836.6	4Txslots	1:2.07	26.60	25.12	0.060	0.261	1.41	0.367	/

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

2.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 (1g), SAR measurement is not required for the secondary mode.

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

Table 2: GSM 1900 (Antenna 1)

Test Position	Cover Type	Channel/ Frequency (MHz)	Time slot	Duty Cycle	Tune-up limit (dBm)	Conducted Power (dBm)	Drift (dB)	Measured SAR_{1g} (W/kg)	Scaling Factor	Reported SAR_{1g} (W/kg)	Plot No.
Head SAR(Receiver on)											
Left Cheek	standard	661/1880	GSM	1:8.3	31.00	30.10	0.062	0.076	1.23	0.093	20
Left Tilt	standard	661/1880	GSM	1:8.3	31.00	30.10	0.110	0.026	1.23	0.031	/
Right Cheek	standard	661/1880	GSM	1:8.3	31.00	30.10	0.114	0.053	1.23	0.066	/
Right Tilt	standard	661/1880	GSM	1:8.3	31.00	30.10	0.044	0.032	1.23	0.039	/
Body-worn (Distance 15mm) (Receiver off)											
Back Side	standard	661/1880	GSM	1:8.3	31.00	30.10	-0.020	0.102	1.23	0.125	21
Front Side	standard	661/1880	GSM	1:8.3	31.00	30.10	0.041	0.095	1.23	0.117	/
Hotspot (Distance 10mm) (Receiver off)											
Back Side	standard	661/1880	4Txslots	1:2.07	25.00	23.71	-0.100	0.178	1.35	0.240	/
Front Side	standard	661/1880	4Txslots	1:2.07	25.00	23.71	0.100	0.125	1.35	0.168	/
Left Edge	standard	661/1880	4Txslots	1:2.07	25.00	23.71	0.060	0.088	1.35	0.118	/
Right Edge	standard	661/1880	4Txslots	1:2.07	25.00	23.71	0.028	0.072	1.35	0.097	/
Top Edge	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Bottom Edge	standard	661/1880	4Txslots	1:2.07	25.00	23.71	-0.050	0.331	1.35	0.445	22

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

2.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 (1g), SAR measurement is not required for the secondary mode.

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

Table 3: UMTS Band II (Antenna 1)

Test Position	Cover Type	Channel/ Frequency (MHz)	Channel Type	Duty Cycle	Tune-up limit (dBm)	Conducted Power (dBm)	Drift (dB)	Measured SAR_{1g} (W/kg)	Scaling Factor	Reported SAR_{1g} (W/kg)	Plot No.
Head SAR(Receiver on)											
Left Cheek	standard	9400/1880	RMC 12.2K	1:1	24.00	23.34	0.033	0.214	1.16	0.249	23
Left Tilt	standard	9400/1880	RMC 12.2K	1:1	24.00	23.34	0.100	0.054	1.16	0.063	/
Right Cheek	standard	9400/1880	RMC 12.2K	1:1	24.00	23.34	0.076	0.103	1.16	0.120	/
Right Tilt	standard	9400/1880	RMC 12.2K	1:1	24.00	23.34	0.031	0.081	1.16	0.094	/
Body-worn (Distance 15mm) (Receiver off)											
Back Side	standard	9400/1880	RMC 12.2K	1:1	23.50	22.84	-0.030	0.216	1.16	0.251	24
Front Side	standard	9400/1880	RMC 12.2K	1:1	23.50	22.84	0.008	0.194	1.16	0.226	/
Hotspot (Distance 10mm) (Receiver off)											
Back Side	standard	9400/1880	RMC 12.2K	1:1	23.50	22.84	-0.070	0.414	1.16	0.482	/
Front Side	standard	9400/1880	RMC 12.2K	1:1	23.50	22.84	0.010	0.335	1.16	0.390	/
Left Edge	standard	9400/1880	RMC 12.2K	1:1	23.50	22.84	-0.040	0.249	1.16	0.290	/
Right Edge	standard	9400/1880	RMC 12.2K	1:1	23.50	22.84	0.130	0.165	1.16	0.192	/
Top Edge	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Bottom Edge	standard	9400/1880	RMC 12.2K	1:1	23.50	22.84	-0.090	0.648	1.16	0.754	25
Bottom Edge	SIM2	9400/1880	RMC 12.2K	1:1	23.50	22.84	0.017	0.591	1.16	0.688	/
Bottom Edge	Battery 2	9400/1880	RMC 12.2K	1:1	23.50	22.84	0.005	0.610	1.16	0.710	/

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.

3. For accessories that do not contain RF transmitters and have been proven to increase the peak SAR by less than 5 %, such as hands-free kits, do not need SAR tests separate from the SAR tests attached to a main DUT configuration.

Table 4: UMTS Band IV (Antenna 1)

Test Position	Cover Type	Channel/ Frequency (MHz)	Channel Type	Duty Cycle	Tune-up limit (dBm)	Conducted Power (dBm)	Drift (dB)	Measured SAR_{1g} (W/kg)	Scaling Factor	Reported SAR_{1g} (W/kg)	Plot No.
Head SAR(Receiver on)											
Left Cheek	standard	1413/1732.6	RMC 12.2K	1:1	23.00	21.91	0.088	0.130	1.29	0.167	26
Left Tilt	standard	1413/1732.6	RMC 12.2K	1:1	23.00	21.91	0.048	0.037	1.29	0.047	/
Right Cheek	standard	1413/1732.6	RMC 12.2K	1:1	23.00	21.91	0.067	0.066	1.29	0.084	/
Right Tilt	standard	1413/1732.6	RMC 12.2K	1:1	23.00	21.91	0.050	0.036	1.29	0.047	/
Body-worn (Distance 15mm) (Receiver off)											
Back Side	standard	1413/1732.6	RMC 12.2K	1:1	23.00	21.91	0.040	0.136	1.29	0.175	27
Front Side	standard	1413/1732.6	RMC 12.2K	1:1	23.00	21.91	-0.022	0.114	1.29	0.147	/
Hotspot (Distance 10mm) (Receiver off)											
Back Side	standard	1413/1732.6	RMC 12.2K	1:1	23.00	21.91	-0.160	0.263	1.29	0.338	/
Front Side	standard	1413/1732.6	RMC 12.2K	1:1	23.00	21.91	0.060	0.224	1.29	0.288	/
Left Edge	standard	1413/1732.6	RMC 12.2K	1:1	23.00	21.91	0.022	0.146	1.29	0.188	/
Right Edge	standard	1413/1732.6	RMC 12.2K	1:1	23.00	21.91	0.024	0.077	1.29	0.099	/
Top Edge	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Bottom Edge	standard	1413/1732.6	RMC 12.2K	1:1	23.00	21.91	-0.110	0.435	1.29	0.559	28

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.

Table 5: UMTS Band V (Antenna 1)

Test Position	Cover Type	Channel/ Frequency (MHz)	Channel Type	Duty Cycle	Tune-up limit (dBm)	Conducted Power (dBm)	Drift (dB)	Measured SAR_{1g} (W/kg)	Scaling Factor	Reported SAR_{1g} (W/kg)	Plot No.
Head SAR(Receiver on)											
Left Cheek	standard	4183/836.6	RMC 12.2K	1:1	25.00	23.62	0.041	0.080	1.37	0.110	29
Left Tilt	standard	4183/836.6	RMC 12.2K	1:1	25.00	23.62	0.100	0.045	1.37	0.062	/
Right Cheek	standard	4183/836.6	RMC 12.2K	1:1	25.00	23.62	0.066	0.060	1.37	0.082	/
Right Tilt	standard	4183/836.6	RMC 12.2K	1:1	25.00	23.62	0.055	0.033	1.37	0.045	/
Body-worn (Distance 15mm) (Receiver off)											
Back Side	standard	4183/836.6	RMC 12.2K	1:1	25.00	23.62	-0.060	0.297	1.37	0.408	30
Front Side	standard	4183/836.6	RMC 12.2K	1:1	25.00	23.62	0.020	0.244	1.37	0.335	/
Back Side	SIM2	4183/836.6	RMC 12.2K	1:1	25.00	23.62	-0.040	0.275	1.37	0.378	/
Back Side	Battery 2	4183/836.6	RMC 12.2K	1:1	25.00	23.62	0.066	0.280	1.37	0.385	/
Hotspot (Distance 10mm) (Receiver off)											
Back Side	standard	4183/836.6	RMC 12.2K	1:1	25.00	23.62	-0.180	0.398	1.37	0.547	31
Front Side	standard	4183/836.6	RMC 12.2K	1:1	25.00	23.62	0.070	0.367	1.37	0.504	/
Left Edge	standard	4183/836.6	RMC 12.2K	1:1	25.00	23.62	0.070	0.337	1.37	0.463	/
Right Edge	standard	4183/836.6	RMC 12.2K	1:1	25.00	23.62	0.180	0.178	1.37	0.245	/
Top Edge	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Bottom Edge	standard	4183/836.6	RMC 12.2K	1:1	25.00	23.62	0.180	0.243	1.37	0.334	/

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.
3. For accessories that do not contain RF transmitters and have been proven to increase the peak SAR by less than 5 %, such as hands-free kits, do not need SAR tests separate from the SAR tests attached to a main DUT configuration.

Table 6: LTE Band 7 (Antenna 1)

Test Position	Cover Type	RB size	RB offset	Channel/ Frequency (MHz)	Maximum Allowed Power (dBm)	Conducted Power (dBm)	Drift (dB)	Measured SAR_{1g} (W/kg)	Scaling Factor	Reported SAR_{1g} (W/kg)	Plot No.
Head SAR (QPSK) (Receiver on)											
Left Cheek	standard	1RB	99	21100/2535	24.30	22.58	0.154	0.202	1.49	0.300	32
Left Tilt	standard	1RB	99	21100/2535	24.30	22.58	0.045	0.076	1.49	0.112	/
Right Cheek	standard	1RB	99	21100/2535	24.30	22.58	0.152	0.152	1.49	0.226	/
Right Tilt	standard	1RB	99	21100/2535	24.30	22.58	0.079	0.137	1.49	0.204	/
Left Cheek	standard	50%RB	0	21100/2535	23.30	21.55	0.166	0.176	1.50	0.263	/
Left Tilt	standard	50%RB	0	21100/2535	23.30	21.55	0.069	0.068	1.50	0.102	/
Right Cheek	standard	50%RB	0	21100/2535	23.30	21.55	0.031	0.134	1.50	0.200	/
Right Tilt	standard	50%RB	0	21100/2535	23.30	21.55	0.084	0.112	1.50	0.168	/
Left Cheek	SIM2	1RB	99	21100/2535	24.30	22.58	0.026	0.187	1.49	0.278	/
Left Cheek	Battery 2	1RB	99	21100/2535	24.30	22.58	0.001	0.194	1.49	0.288	/
Body-worn (QPSK, Distance 15mm) (Receiver off)											
Back Side	standard	1RB	99	21350/2560	21.30	20.89	-0.011	0.161	1.10	0.177	/
Front Side	standard	1RB	99	21350/2560	21.30	20.89	0.006	0.133	1.10	0.146	/
Back Side	standard	50%RB	50	21350/2560	21.30	20.99	0.029	0.179	1.07	0.192	33
Front Side	standard	50%RB	50	21350/2560	21.30	20.99	0.104	0.150	1.07	0.161	/
Hotspot (QPSK, Distance 10mm) (Receiver off)											
Back Side	standard	1RB	99	21350/2560	21.30	20.89	0.030	0.369	1.10	0.406	/
Front Side	standard	1RB	99	21350/2560	21.30	20.89	0.020	0.239	1.10	0.263	/
Left Edge	standard	1RB	99	21350/2560	21.30	20.89	0.021	0.101	1.10	0.111	/
Right Edge	standard	1RB	99	21350/2560	21.30	20.89	0.190	0.044	1.10	0.049	/
Top Edge	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Bottom Edge	standard	1RB	99	21350/2560	21.30	20.89	-0.041	0.500	1.10	0.550	34
Back Side	standard	50%RB	50	21350/2560	21.30	20.99	0.137	0.384	1.07	0.412	/
Front Side	standard	50%RB	50	21350/2560	21.30	20.99	0.035	0.243	1.07	0.261	/
Left Edge	standard	50%RB	50	21350/2560	21.30	20.99	0.160	0.103	1.07	0.111	/
Right Edge	standard	50%RB	50	21350/2560	21.30	20.99	0.043	0.044	1.07	0.047	/
Top Edge	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Bottom Edge	standard	50%RB	50	21350/2560	21.30	20.99	-0.180	0.479	1.07	0.514	/

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 ≥ 0.8 W/kg.

3. For accessories that do not contain RF transmitters and have been proven to increase the peak SAR by less than 5 %, such as hands-free kits, do not need SAR tests separate from the SAR tests attached to a main DUT configuration.

Table 7: GSM 850 (Antenna 2)

Test Position	Cover Type	Channel/ Frequency (MHz)	Time slot	Duty Cycle	Tune-up limit (dBm)	Conducted Power (dBm)	Drift (dB)	Measured SAR_{1g} (W/kg)	Scaling Factor	Reported SAR_{1g} (W/kg)	Plot No.
Head SAR(Receiver on)											
Left Cheek	standard	190/836.6	GSM	1:8.3	29.80	28.17	0.068	0.441	1.46	0.642	/
Left Tilt	standard	190/836.6	GSM	1:8.3	29.80	28.17	0.080	0.358	1.46	0.521	/
Right Cheek	standard	190/836.6	GSM	1:8.3	29.80	28.17	0.025	0.502	1.46	0.731	35
Right Tilt	standard	190/836.6	GSM	1:8.3	29.80	28.17	0.030	0.407	1.46	0.592	/
Body-worn (Distance 15mm) (Receiver off)											
Back Side	standard	190/836.6	GSM	1:8.3	33.80	32.10	-0.070	0.259	1.48	0.383	36
Front Side	standard	190/836.6	GSM	1:8.3	33.80	32.10	0.012	0.130	1.48	0.192	/
Back Side	SIM2	190/836.6	GSM	1:8.3	33.80	32.10	0.006	0.236	1.48	0.349	/
Back Side	Battery 2	190/836.6	GSM	1:8.3	33.80	32.10	0.107	0.241	1.48	0.356	/
Hotspot (Distance 10mm) (Receiver off)											
Back Side	standard	190/836.6	4Txslots	1:2.07	27.80	26.16	-0.140	0.505	1.46	0.737	37
Front Side	standard	190/836.6	4Txslots	1:2.07	27.80	26.16	0.110	0.398	1.46	0.581	/
Left Edge	standard	190/836.6	4Txslots	1:2.07	27.80	26.16	0.070	0.393	1.46	0.573	/
Right Edge	standard	190/836.6	4Txslots	1:2.07	27.80	26.16	0.040	0.054	1.46	0.079	/
Top Edge	standard	190/836.6	4Txslots	1:2.07	27.80	26.16	-0.150	0.360	1.46	0.525	/
Bottom Edge	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 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 (1g), SAR measurement is not required for the secondary mode.

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

4. For accessories that do not contain RF transmitters and have been proven to increase the peak SAR by less than 5 %, such as hands-free kits, do not need SAR tests separate from the SAR tests attached to a main DUT configuration.

Table 8: GSM 1900 (Antenna 2)

Test Position	Cover Type	Channel/ Frequency (MHz)	Time slot	Duty Cycle	Tune-up limit (dBm)	Conducted Power (dBm)	Drift (dB)	Measured SAR_{1g} (W/kg)	Scaling Factor	Reported SAR_{1g} (W/kg)	Plot No.
Head SAR(Receiver on)											
Left Cheek	standard	661/1880	GSM	1:8.3	29.00	27.78	0.070	0.370	1.32	0.490	38
Left Tilt	standard	661/1880	GSM	1:8.3	29.00	27.78	0.040	0.271	1.32	0.359	/
Right Cheek	standard	661/1880	GSM	1:8.3	29.00	27.78	-0.040	0.115	1.32	0.152	/
Right Tilt	standard	661/1880	GSM	1:8.3	29.00	27.78	0.080	0.134	1.32	0.177	/
Body-worn (Distance 15mm) (Receiver off)											
Back Side	standard	661/1880	GSM	1:8.3	31.00	29.87	0.130	0.065	1.30	0.084	39
Front Side	standard	661/1880	GSM	1:8.3	31.00	29.87	0.070	0.061	1.30	0.079	/
Hotspot (Distance 10mm) (Receiver off)											
Back Side	Standard	661/1880	4 Txslots	1:2.07	25.00	23.83	0.110	0.167	1.31	0.219	/
Front Side	Standard	661/1880	4 Txslots	1:2.07	25.00	23.83	-0.037	0.120	1.31	0.157	/
Left Edge	Standard	661/1880	4 Txslots	1:2.07	25.00	23.83	0.070	0.200	1.31	0.262	40
Right Edge	Standard	661/1880	4 Txslots	1:2.07	25.00	23.83	0.060	0.010	1.31	0.013	/
Top Edge	Standard	661/1880	4 Txslots	1:2.07	25.00	23.83	0.070	0.156	1.31	0.204	/
Bottom Edge	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 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 (1g), SAR measurement is not required for the secondary mode.

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

Table 9: UMTS Band II (Antenna 2)

Test Position	Cover Type	Channel/ Frequency (MHz)	Channel Type	Duty Cycle	Tune-up limit (dBm)	Conducted Power (dBm)	Drift (dB)	Measured SAR_{1g} (W/kg)	Scaling Factor	Reported SAR_{1g} (W/kg)	Plot No.
Head SAR(Receiver on)											
Left Cheek	standard	9400/1880	RMC 12.2K	1:1	19.50	18.35	-0.060	0.208	1.30	0.271	/
Left Tilt	standard	9400/1880	RMC 12.2K	1:1	19.50	18.35	-0.020	0.237	1.30	0.309	/
Right Cheek	standard	9538/1907.6	RMC 12.2K	1:1	19.50	18.30	0.180	0.628	1.32	0.828	/
	standard	9400/1880	RMC 12.2K	1:1	19.50	18.35	0.047	0.595	1.30	0.775	/
	standard	9262/1852.4	RMC 12.2K	1:1	19.50	18.26	0.160	0.622	1.33	0.828	/
Right Tilt	standard	9538/1907.6	RMC 12.2K	1:1	19.50	18.30	0.060	0.682	1.32	0.899	/
	standard	9400/1880	RMC 12.2K	1:1	19.50	18.35	0.120	0.601	1.30	0.783	/
	standard	9262/1852.4	RMC 12.2K	1:1	19.50	18.26	0.060	0.704	1.33	0.937	41
Right Tilt	SIM2	9262/1852.4	RMC 12.2K	1:1	19.50	18.26	-0.014	0.681	1.33	0.906	/
Right Tilt	Battery 2	9262/1852.4	RMC 12.2K	1:1	19.50	18.26	0.083	0.690	1.33	0.918	/
Body-worn (Distance 15mm) (Receiver off)											
Back Side	standard	9400/1880	RMC 12.2K	1:1	24.50	23.37	-0.024	0.277	1.30	0.359	42
Front Side	standard	9400/1880	RMC 12.2K	1:1	24.50	23.37	0.105	0.210	1.30	0.272	/
Hotspot (Distance 10mm) (Receiver off)											
Back Side	Standard	9400/1880	RMC 12.2K	1:1	24.50	23.37	-0.025	0.578	1.30	0.750	43
Front Side	Standard	9400/1880	RMC 12.2K	1:1	24.50	23.37	0.170	0.412	1.30	0.534	/
Left Edge	Standard	9400/1880	RMC 12.2K	1:1	24.50	23.37	-0.120	0.568	1.30	0.737	/
Right Edge	Standard	9400/1880	RMC 12.2K	1:1	24.50	23.37	-0.040	0.042	1.30	0.054	/
Top Edge	Standard	9400/1880	RMC 12.2K	1:1	24.50	23.37	-0.140	0.558	1.30	0.724	/
Bottom Edge	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.

3. For accessories that do not contain RF transmitters and have been proven to increase the peak SAR by less than 5 %, such as hands-free kits, do not need SAR tests separate from the SAR tests attached to a main DUT configuration.

Table 10: UMTS Band IV (Antenna 2)

Test Position	Cover Type	Channel/ Frequency (MHz)	Channel Type	Duty Cycle	Tune-up limit (dBm)	Conducted Power (dBm)	Drift (dB)	Measured SAR_{1g} (W/kg)	Scaling Factor	Reported SAR_{1g} (W/kg)	Plot No.
Head SAR(Receiver on)											
Left Cheek	standard	1413/1732.6	RMC 12.2K	1:1	18.50	17.37	0.042	0.210	1.30	0.272	/
Left Tilt	standard	1413/1732.6	RMC 12.2K	1:1	18.50	17.37	0.110	0.262	1.30	0.340	/
Right Cheek	standard	1413/1732.6	RMC 12.2K	1:1	18.50	17.37	0.044	0.598	1.30	0.776	/
Right Tilt	standard	1513/1752.6	RMC 12.2K	1:1	18.50	17.29	-0.101	0.610	1.32	0.806	/
	standard	1413/1732.6	RMC 12.2K	1:1	18.50	17.37	0.030	0.634	1.30	0.822	44
	standard	1312/1712.4	RMC 12.2K	1:1	18.50	17.44	0.008	0.628	1.28	0.802	/
Body-worn (Distance 15mm) (Receiver off)											
Back Side	standard	1413/1732.6	RMC 12.2K	1:1	23.00	21.85	-0.050	0.271	1.30	0.353	45
Front Side	standard	1413/1732.6	RMC 12.2K	1:1	23.00	21.85	0.041	0.215	1.30	0.280	/
Hotspot (Distance 10mm) (Receiver off)											
Back Side	Standard	1413/1732.6	RMC 12.2K	1:1	23.00	21.85	0.040	0.525	1.30	0.684	/
Front Side	Standard	1413/1732.6	RMC 12.2K	1:1	23.00	21.85	0.150	0.341	1.30	0.444	/
Left Edge	Standard	1413/1732.6	RMC 12.2K	1:1	23.00	21.85	0.060	0.487	1.30	0.635	/
Right Edge	Standard	1413/1732.6	RMC 12.2K	1:1	23.00	21.85	0.024	0.023	1.30	0.030	/
Top Edge	Standard	1413/1732.6	RMC 12.2K	1:1	23.00	21.85	-0.040	0.608	1.30	0.792	46
Bottom Edge	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Top Edge	SIM2	1413/1732.6	RMC 12.2K	1:1	23.00	21.85	0.107	0.594	1.30	0.774	/
Top Edge	Battery 2	1413/1732.6	RMC 12.2K	1:1	23.00	21.85	0.022	0.580	1.30	0.756	/

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.

3. For accessories that do not contain RF transmitters and have been proven to increase the peak SAR by less than 5 %, such as hands-free kits, do not need SAR tests separate from the SAR tests attached to a main DUT configuration.

Table 11: UMTS Band V (Antenna 2)

Test Position	Cover Type	Channel/ Frequency (MHz)	Channel Type	Duty Cycle	Tune-up limit (dBm)	Conducted Power (dBm)	Drift (dB)	Measured SAR_{1g} (W/kg)	Scaling Factor	Reported SAR_{1g} (W/kg)	Plot No.
Head SAR(Receiver on)											
Left Cheek	Standard	4183/836.6	RMC 12.2K	1:1	21.00	19.38	0.036	0.490	1.45	0.712	/
Left Tilt	Standard	4183/836.6	RMC 12.2K	1:1	21.00	19.38	0.070	0.422	1.45	0.613	/
Right Cheek	Standard	4233/846.6	RMC 12.2K	1:1	21.00	19.58	0.040	0.584	1.39	0.810	/
	Standard	4183/836.6	RMC 12.2K	1:1	21.00	19.38	0.080	0.588	1.45	0.854	47
	Standard	4132/826.4	RMC 12.2K	1:1	21.00	19.64	0.160	0.571	1.37	0.781	/
Right Tilt	Standard	4183/836.6	RMC 12.2K	1:1	21.00	19.38	0.110	0.472	1.45	0.685	/
Body-worn (Distance 15mm) (Receiver off)											
Back Side	standard	4183/836.6	RMC 12.2K	1:1	25.00	23.35	-0.024	0.221	1.46	0.323	/
Front Side	standard	4183/836.6	RMC 12.2K	1:1	25.00	23.35	0.100	0.237	1.46	0.347	48
Hotspot (Distance 10mm) (Receiver off)											
Back Side	Standard	4183/836.6	RMC 12.2K	1:1	25.00	23.35	-0.040	0.486	1.46	0.711	/
Front Side	Standard	4183/836.6	RMC 12.2K	1:1	25.00	23.35	0.160	0.492	1.46	0.719	49
Left Edge	Standard	4183/836.6	RMC 12.2K	1:1	25.00	23.35	0.070	0.421	1.46	0.616	/
Right Edge	Standard	4183/836.6	RMC 12.2K	1:1	25.00	23.35	0.080	0.066	1.46	0.097	/
Top Edge	Standard	4183/836.6	RMC 12.2K	1:1	25.00	23.35	0.040	0.402	1.46	0.588	/
Bottom Edge	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.

Table 12: LTE Band 7 (Antenna 2)

Test Position	Cover Type	RB size	RB offset	Channel/ Frequency (MHz)	Maximum Allowed Power (dBm)	Conducted Power (dBm)	Drift (dB)	Measured SAR_{1g} (W/kg)	Scaling Factor	Reported SAR_{1g} (W/kg)	Plot No.
Head SAR (QPSK) (Receiver on)											
Left Cheek	standard	1RB	0	21100/2535	17.30	16.42	0.048	0.155	1.22	0.190	/
Left Tilt	standard	1RB	0	21100/2535	17.30	16.42	0.031	0.142	1.22	0.174	/
Right Cheek	standard	1RB	0	21100/2535	17.30	16.42	0.057	0.534	1.22	0.654	/
Right Tilt	standard	1RB	0	21100/2535	17.30	16.42	0.064	0.129	1.22	0.158	/
Left Cheek	standard	50%RB	25	21350/2560	17.30	16.45	0.036	0.145	1.22	0.176	/
Left Tilt	standard	50%RB	25	21350/2560	17.30	16.45	0.029	0.546	1.22	0.664	50
Right Cheek	standard	50%RB	25	21350/2560	17.30	16.45	0.042	0.131	1.22	0.159	/
Right Tilt	standard	50%RB	25	21350/2560	17.30	16.45	0.082	0.112	1.22	0.136	/
Body-worn (QPSK, Distance 15mm) (Receiver off)											
Back Side	standard	1RB	50	21100/2535	22.30	21.04	0.025	0.232	1.34	0.310	51
Front Side	standard	1RB	50	21100/2535	22.30	21.04	-0.090	0.194	1.34	0.259	/
Back Side	standard	50%RB	25	21350/2560	21.30	21.00	-0.044	0.215	1.07	0.230	/
Front Side	standard	50%RB	25	21350/2560	21.30	21.00	0.100	0.197	1.07	0.211	/
Hotspot (QPSK, Distance 10mm) (Receiver off)											
Back Side	standard	1RB	50	21100/2535	22.30	21.04	0.025	0.513	1.34	0.686	52
Front Side	standard	1RB	50	21100/2535	22.30	21.04	0.120	0.371	1.34	0.496	/
Left Edge	standard	1RB	50	21100/2535	22.30	21.04	0.050	0.447	1.34	0.597	/
Right Edge	standard	1RB	50	21100/2535	22.30	21.04	0.000	0.004	1.34	0.005	/
Top Edge	standard	1RB	50	21100/2535	22.30	21.04	0.022	0.144	1.34	0.192	/
Bottom Edge	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	50%RB	25	21350/2560	21.30	21.00	0.024	0.362	1.07	0.388	/
Front Side	standard	50%RB	25	21350/2560	21.30	21.00	0.028	0.277	1.07	0.297	/
Left Edge	standard	50%RB	25	21350/2560	21.30	21.00	-0.010	0.444	1.07	0.476	/
Right Edge	standard	50%RB	25	21350/2560	21.30	21.00	0.000	0.002	1.07	0.002	/
Top Edge	standard	50%RB	25	21350/2560	21.30	21.00	0.020	0.140	1.07	0.150	/
Bottom Edge	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 ≥ 0.8 W/kg.

Table 13: Wi-Fi (2.4G)

Test Position	Cover Type	Channel/ Frequency (MHz)	Mode 802.11b	Duty Cycle	Tune-up limit (dBm)	Conducted Power (dBm)	Drift (dB)	Area Scan Max.SAR (W/Kg)	Measured SAR_{1g} (W/kg)	Scaling Factor	Reported SAR_{1g} (W/kg)	Plot No.
Head SAR(Receiver on)												
Left Cheek	standard	1/2412	DSSS	99.4%	13.00	11.87	0.027	0.333	0.330	1.31	0.431	53
Left Tilt	standard	1/2412	DSSS	99.4%	13.00	11.87	0.031	0.261	0.281	1.31	0.367	/
Right Cheek	standard	1/2412	DSSS	99.4%	13.00	11.87	0.049	0.100	0.113	1.31	0.147	/
Right Tilt	standard	1/2412	DSSS	99.4%	13.00	11.87	0.033	0.098	0.141	1.31	0.184	/
Left Cheek	Battery 2	1/2412	DSSS	99.4%	13.00	11.87	-0.062	0.297	0.302	1.31	0.394	/
Body-worn (Distance 15mm) (Receiver off)												
Back Side	standard	6/2437	DSSS	99.4%	17.00	15.72	0.109	0.098	0.098	1.35	0.133	54
Front Side	standard	6/2437	DSSS	99.4%	17.00	15.72	0.085	0.077	0.080	1.35	0.108	/
Back Side	Battery 2	6/2437	DSSS	99.4%	17.00	15.72	0.004	0.090	0.092	1.35	0.124	/
Hotspot (Distance 10mm) (Receiver off)												
Back Side	standard	6/2437	DSSS	99.4%	17.00	15.72	0.110	0.176	0.181	1.35	0.245	55
Front Side	standard	6/2437	DSSS	99.4%	17.00	15.72	0.050	0.115	0.128	1.35	0.173	/
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
Right Edge	standard	6/2437	DSSS	99.4%	17.00	15.72	0.050	0.141	0.174	1.35	0.235	/
Top Edge	standard	6/2437	DSSS	99.4%	17.00	15.72	0.150	0.102	0.110	1.35	0.149	/
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
Back Side	Battery 2	6/2437	DSSS	99.4%	17.00	15.72	0.021	0.165	0.177	1.35	0.239	/

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

2. For accessories that do not contain RF transmitters and have been proven to increase the peak SAR by less than 5 %, such as hands-free kits, do not need SAR tests separate from the SAR tests attached to a main DUT configuration.

3. Initial test configuraton is 802.11b mode, since the highest maximum output power.

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	Left Cheek	1/2412	0.431	13.00	12.50	0.89	0.384
802.11n HT20	Left Cheek	1/2412	0.431	13.00	12.50	0.89	0.384
802.11n HT40	Left Cheek	1/2412	0.431	13.00	12.50	0.89	0.384
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.							

Table 14: Wi-Fi (5G, U-NII-1)

Test Position	Cover Type	Channel/ Frequency (MHz)	Mode 802.11a	Duty Cycle	Tune-up limit (dBm)	Conducted Power (dBm)	Drift (dB)	Area Scan Max.SAR (W/Kg)	Measured SAR_{1g} (W/kg)	Scaling Factor	Reported SAR_{1g} (W/kg)	Plot No.
Hotspot (Distance 10mm) (Receiver off)												
Back Side	standard	48/5240	OFDM	97.8%	16.00	14.86	0.061	0.092	0.091	1.33	0.121	/
Front Side	standard	48/5240	OFDM	97.8%	16.00	14.86	-0.024	0.154	0.119	1.33	0.158	56
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
Right Edge	standard	48/5240	OFDM	97.8%	16.00	14.86	-0.010	0.097	0.097	1.33	0.129	/
Top Edge	standard	48/5240	OFDM	97.8%	16.00	14.86	0.142	0.038	0.045	1.33	0.060	/
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. Per 248227 D01, 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-NI-1 band for that configuration (802.11 mode and exposure condition); otherwise, each band is tested independently for SAR.
3. Since the band UNI-2A does not support hotspot function, hotspot SAR for U-NI-1 is required.
4. Initial test configuration is 802.11a mode, since the highest maximum output power.

Table 15: Wi-Fi (5G, U-NII-2A)

Test Position	Cover Type	Channel/ Frequency (MHz)	Mode 802.11a	Duty Cycle	Tune-up limit (dBm)	Conducted Power (dBm)	Drift (dB)	Area Scan Max.SAR (W/Kg)	Measured SAR_{1g} (W/kg)	Scaling Factor	Reported SAR_{1g} (W/kg)	Plot No.
Head SAR(Receiver on)												
Left Cheek	standard	64/5320	OFDM	97.8%	13.00	11.47	0.146	0.295	0.294	1.45	0.428	57
Left Tilt	standard	64/5320	OFDM	97.8%	13.00	11.47	0.089	0.155	0.154	1.45	0.224	/
Right Cheek	standard	64/5320	OFDM	97.8%	13.00	11.47	0.199	0.081	0.096	1.45	0.140	/
Right Tilt	standard	64/5320	OFDM	97.8%	13.00	11.47	0.076	0.060	0.083	1.45	0.120	/
Body-worn (Distance 15mm) (Receiver off)												
Back Side	standard	60/5300	OFDM	97.8%	16.00	14.82	-0.014	0.041	0.039	1.34	0.052	/
Front Side	standard	60/5300	OFDM	97.8%	16.00	14.82	0.080	0.044	0.042	1.34	0.056	58
Test Position	**Cover Type**	**Channel/ Frequency (MHz)**	**Mode 802.11a**	**Duty Cycle**	**Tune-up limit (dBm)**	**Conducted Power (dBm)**	**Drift (dB)**	**Area Scan Max.SAR (W/Kg)**	**Measured SAR_{10g} (W/kg)**	**Scaling Factor**	**Reported SAR_{10g} (W/kg)**	**Plot No.**
Product Specific 10-g SAR (Distance 0mm)(Receiver off)												
Back Side	standard	60/5300	OFDM	97.8%	16.00	14.82	0.050	0.292	0.290	1.34	0.389	/
Front Side	standard	60/5300	OFDM	97.8%	16.00	14.82	0.011	0.196	0.207	1.34	0.278	/
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
Right Edge	standard	60/5300	OFDM	97.8%	16.00	14.82	0.008	0.315	0.341	1.34	0.458	59
Top Edge	standard	60/5300	OFDM	97.8%	16.00	14.82	-0.033	0.210	0.224	1.34	0.301	/
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
Right Edge	Battery 2	60/5300	OFDM	97.8%	16.00	14.82	0.107	0.294	0.326	1.34	0.437	/

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

2. Initial test configuration is 802.11a mode, since the highest maximum output power.

3. Since the band does not support hotspot function, Product Specific 10-g SAR is required.

4. For accessories that do not contain RF transmitters and have been proven to increase the peak SAR by less than 5 %, such as hands-free kits, do not need SAR tests separate from the SAR tests attached to a main DUT configuration.

Table 16: Wi-Fi (5G, U-NII-2C)

Test Position	Cover Type	Channel/ Frequency (MHz)	Mode 802.11a	Duty Cycle	Tune-up limit (dBm)	Conducted Power (dBm)	Drift (dB)	Area Scan Max.SAR (W/Kg)	Measured SAR_{1g} (W/kg)	Scaling Factor	Reported SAR_{1g} (W/kg)	Plot No.
Head SAR(Receiver on)												
Left Cheek	standard	100/5500	OFDM	97.8%	13.00	11.48	0.043	0.224	0.210	1.45	0.305	60
Left Tilt	standard	100/5500	OFDM	97.8%	13.00	11.48	0.024	0.108	0.133	1.45	0.193	/
Right Cheek	standard	100/5500	OFDM	97.8%	13.00	11.48	0.116	0.060	0.086	1.45	0.125	/
Right Tilt	standard	100/5500	OFDM	97.8%	13.00	11.48	0.045	0.056	0.084	1.45	0.122	/
Body-worn (Distance 15mm) (Receiver off)												
Back Side	standard	140/5700	OFDM	97.8%	16.00	14.81	0.074	0.030	0.037	1.34	0.050	/
Front Side	standard	140/5700	OFDM	97.8%	16.00	14.81	0.158	0.035	0.044	1.34	0.059	61
Test Position	**Cover Type**	**Channel/ Frequency (MHz)**	**Mode 802.11a**	**Duty Cycle**	**Tune-up limit (dBm)**	**Conducted Power (dBm)**	**Drift (dB)**	**Area Scan Max.SAR (W/Kg)**	**Measured SAR_{10g} (W/kg)**	**Scaling Factor**	**Reported SAR_{10g} (W/kg)**	**Plot No.**
Product Specific 10-g SAR (Distance 0mm)(Receiver off)												
Back Side	standard	140/5700	OFDM	97.8%	16.00	14.81	0.061	0.220	0.213	1.34	0.286	/
Front Side	standard	140/5700	OFDM	97.8%	16.00	14.81	0.002	0.285	0.304	1.34	0.409	62
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
Right Edge	standard	140/5700	OFDM	97.8%	16.00	14.81	0.083	0.261	0.219	1.34	0.295	/
Top Edge	standard	140/5700	OFDM	97.8%	16.00	14.81	-0.027	0.194	0.192	1.34	0.258	/
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. Initial test configuration is 802.11a mode, since the highest maximum output power.

3. Since the band does not support hotspot function, Product Specific 10-g SAR is required.

Table 17: Wi-Fi (5G, U-NII-3)

Test Position	Cover Type	Channel/ Frequency (MHz)	Mode 802.11a	Duty Cycle	Tune-up limit (dBm)	Conducted Power (dBm)	Drift (dB)	Area Scan Max.SAR (W/Kg)	Measured SAR_{1g} (W/kg)	Scaling Factor	Reported SAR_{1g} (W/kg)	Plot No.
Head SAR(Receiver on)												
Left Cheek	standard	149/5745	OFDM	97.8%	13.00	11.54	0.026	0.240	0.280	1.43	0.401	63
Left Tilt	standard	149/5745	OFDM	97.8%	13.00	11.54	0.043	0.160	0.212	1.43	0.303	/
Right Cheek	standard	149/5745	OFDM	97.8%	13.00	11.54	0.074	0.096	0.115	1.43	0.165	/
Right Tilt	standard	149/5745	OFDM	97.8%	13.00	11.54	0.126	0.080	0.132	1.43	0.189	/
Body-worn (Distance 15mm) (Receiver off)												
Back Side	standard	149/5745	OFDM	97.8%	16.00	15.08	-0.054	0.057	0.035	1.26	0.044	/
Front Side	standard	149/5745	OFDM	97.8%	16.00	15.08	0.036	0.063	0.040	1.26	0.050	64
Hotspot (Distance 10mm) (Receiver off)												
Back Side	standard	149/5745	OFDM	97.8%	16.00	15.08	0.001	0.092	0.094	1.26	0.119	/
Front Side	standard	149/5745	OFDM	97.8%	16.00	15.08	0.025	0.104	0.067	1.26	0.084	/
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
Right Edge	standard	149/5745	OFDM	97.8%	16.00	15.08	-0.075	0.103	0.110	1.26	0.139	65
Top Edge	standard	149/5745	OFDM	97.8%	16.00	15.08	0.009	0.074	0.082	1.26	0.104	/
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. Initial test configuration is 802.11a mode, since the highest maximum output power.

Table 18: BT

Band	Configuration	Frequency (MHz)	Maximum Power (dBm)	Separation Distance (mm)	Estimated SAR (W/kg)
Bluetooth	Head SAR	2480	9.50	5	0.374
	Body-worn	2480	9.50	15	0.125
	Extremity	2480	9.50	0	0.150
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.					

10.4 Simultaneous Transmission Analysis

Simultaneous Transmission Configurations	Head	Body-worn	Hotspot	Product Specific 10-g SAR
GSM Voice(Antenna 1) + BT	Yes	Yes	N/A	/
GSM DATA(Antenna 1) + BT	N/A	Yes	N/A	/
GSM Voice(Antenna 2) + BT	Yes	Yes	N/A	/
GSM DATA (Antenna 2)+ BT	N/A	Yes	N/A	/
GSM Voice(Antenna 1) + WiFi 2.4G	Yes	Yes	Yes	/
GSM DATA(Antenna 1) + WiFi 2.4G	N/A	Yes	Yes	/
GSM Voice(Antenna 2) + WiFi 2.4G	Yes	Yes	Yes	/
GSM DATA(Antenna 2) + WiFi 2.4G	N/A	Yes	Yes	/
GSM Voice(Antenna 1) + WiFi 5G	Yes	Yes	Yes	/
GSM DATA(Antenna 1) + WiFi 5G	N/A	Yes	Yes	/
GSM Voice(Antenna 2) + WiFi 5G	Yes	Yes	Yes	/
GSM DATA(Antenna 2) + WiFi 5G	N/A	Yes	Yes	/
UMTS (Antenna 1) + BT	Yes	Yes	N/A	/
UMTS (Antenna 2) + BT	Yes	Yes	N/A	/
UMTS (Antenna 1) + WiFi 2.4G	Yes	Yes	Yes	/
UMTS (Antenna 2) + WiFi 2.4G	Yes	Yes	Yes	/
UMTS (Antenna 1) + WiFi 5G	Yes	Yes	Yes	/
UMTS (Antenna 2) + WiFi 5G	Yes	Yes	Yes	/
LTE (Antenna 1) + WiFi 2.4G	Yes	Yes	Yes	/
LTE(Antenna 1) + BT	Yes	Yes	N/A	/
LTE (Antenna 2) + WiFi 2.4G	Yes	Yes	Yes	/
LTE (Antenna 2) + BT	Yes	Yes	N/A	/
LTE (Antenna 1) + WiFi 5G	Yes	Yes	Yes	/
LTE (Antenna 2) + WiFi 5G	Yes	Yes	Yes	/
BT+ WiFi 2.4G	N/A	N/A	N/A	N/A
BT+ WiFi 5G	N/A	N/A	N/A	N/A
WiFi 2.4G+ WiFi 5G	N/A	N/A	N/A	N/A
Antenna 1 + Antenna 2	N/A	N/A	N/A	N/A

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.

The maximum SAR_{1g} Value for Antenna 1

SAR_{1g}(W/kg) Test Position		GSM 850	GSM 1900	WCDMA Band II	WCDMA Band IV	WCDMA Band V	LTE FDD 7	MAX. SAR_{1g}
Left Cheek		0.072	0.093	0.249	0.167	0.110	0.300	0.300
Left Tilt		0.032	0.031	0.063	0.047	0.062	0.112	0.112
Right Cheek		0.041	0.066	0.120	0.084	0.082	0.226	0.226
Right Tilt		0.030	0.039	0.094	0.047	0.045	0.204	0.204
Body worn	Back Side	0.373	0.125	0.251	0.175	0.408	0.192	0.408
	Front Side	0.319	0.117	0.226	0.147	0.335	0.161	0.335
Hotspot	Back Side	0.524	0.240	0.482	0.338	0.547	0.412	0.547
	Front Side	0.456	0.168	0.390	0.288	0.504	0.263	0.504
	Left Edge	0.423	0.118	0.290	0.188	0.463	0.111	0.463
	Right Edge	0.235	0.097	0.192	0.099	0.245	0.049	0.245
	Top Edge	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Bottom Edge	0.367	0.445	0.754	0.559	0.334	0.550	0.754

The maximum SAR_{1g} Value for Antenna 2

SAR_{1g}(W/kg) Test Position		GSM 850	GSM 1900	WCDMA Band II	WCDMA Band IV	WCDMA Band V	LTE FDD 7	MAX. SAR_{1g}
Left Cheek		0.642	0.490	0.271	0.272	0.712	0.190	0.712
Left Tilt		0.521	0.359	0.309	0.340	0.613	0.664	0.664
Right Cheek		0.731	0.152	0.828	0.776	0.854	0.654	0.854
Right Tilt		0.592	0.177	0.937	0.822	0.685	0.158	0.937
Body worn	Back Side	0.383	0.084	0.359	0.353	0.323	0.310	0.383
	Front Side	0.192	0.079	0.272	0.280	0.347	0.259	0.347
Hotspot	Back Side	0.737	0.219	0.750	0.684	0.711	0.686	0.750
	Front Side	0.581	0.157	0.534	0.444	0.719	0.496	0.719
	Left Edge	0.573	0.262	0.737	0.635	0.616	0.597	0.737
	Right Edge	0.079	0.013	0.054	0.030	0.097	0.005	0.097
	Top Edge	0.525	0.204	0.724	0.792	0.588	0.192	0.792
	Bottom Edge	N/A	N/A	N/A	N/A	N/A	N/A	N/A

The maximum SAR_{1g} Value for Wi-Fi

$SAR_{1g/10g}$ (W/kg) Test Position		Wi-Fi 2.4G	Wi-Fi 5G (U-NII-1)	Wi-Fi 5G (U-NII-2A)	Wi-Fi 5G (U-NII-2C)	Wi-Fi 5G (U-NII-3)	MAX. $\Sigma SAR_{1g/10g}$
Left Cheek		0.431	N/A	0.428	0.305	0.401	0.431
Left Tilt		0.367	N/A	0.224	0.193	0.303	0.367
Right Cheek		0.147	N/A	0.140	0.125	0.165	0.165
Right Tilt		0.184	N/A	0.120	0.122	0.189	0.189
Body worn	Back Side	0.133	N/A	0.052	0.050	0.044	0.133
	Front Side	0.108	N/A	0.056	0.059	0.050	0.108
Hotspot	Back Side	0.245	0.121	N/A	N/A	0.119	0.245
	Front Side	0.173	0.158	N/A	N/A	0.084	0.173
	Left Edge	N/A	N/A	N/A	N/A	N/A	N/A
	Right Edge	0.235	0.129	N/A	N/A	0.139	0.235
	Top Edge	0.149	0.060	N/A	N/A	0.104	0.149
	Bottom Edge	N/A	N/A	N/A	N/A	N/A	N/A
Product Specific 10-g SAR	Back Side	N/A	N/A	0.389	0.286	N/A	0.389
	Front Side	N/A	N/A	0.278	0.409	N/A	0.409
	Left Edge	N/A	N/A	N/A	N/A	N/A	N/A
	Right Edge	N/A	N/A	0.458	0.295	N/A	0.458
	Top Edge	N/A	N/A	0.301	0.258	N/A	0.301
	Bottom Edge	N/A	N/A	N/A	N/A	N/A	N/A

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}

About BT and Antenna 1

SAR_{1g} (W/kg) Test Position		Antenna 1	BT	MAX. ΣSAR_{1g}
Left Cheek		0.300	0.374	0.674
Left Tilt		0.112	0.374	0.486
Right Cheek		0.226	0.374	0.600
Right Tilt		0.204	0.374	0.578
Body worn	Back Side	0.408	0.125	0.533
	Front Side	0.335	0.125	0.460
Note: 1.The value with blue color is the maximum ΣSAR_{1g} Value. 2. MAX. ΣSAR_{1g} =Unlicensed SAR_{MAX} +Licensed SAR_{MAX}				

MAX. ΣSAR_{1g} = 0.674W/kg <1.6 W/kg, so the Simultaneous transimition SAR with volum scan are not required for BT and Antenna 1.

About BT and Antenna 2

SAR_{1g} (W/kg) Test Position		Antenna 2	BT	MAX. ΣSAR_{1g}
Left Cheek		0.712	0.374	1.086
Left Tilt		0.664	0.374	1.038
Right Cheek		0.854	0.374	1.228
Right Tilt		0.937	0.374	1.311
Body worn	Back Side	0.383	0.125	0.508
	Front Side	0.347	0.125	0.472
Note: 1.The value with blue color is the maximum ΣSAR_{1g} Value. 2. MAX. ΣSAR_{1g} =Unlicensed SAR_{MAX} +Licensed SAR_{MAX}				

MAX. ΣSAR_{1g} = 1.311 W/kg <1.6 W/kg, so the Simultaneous transimition SAR with volum scan are not required for BT and Antenna 2.

About Wi-Fi and Antenna 1

Test Position \ SAR_{1g}(W/kg)		Antenna 1	Wi-Fi	MAX. ΣSAR_{1g}
Left, Cheek		0.300	0.431	0.731
Left, Tilt		0.112	0.367	0.479
Right, Cheek		0.226	0.165	0.391
Right, Tilt		0.204	0.189	0.393
Body worn	Back Side	0.408	0.133	0.541
	Front Side	0.335	0.108	0.443
Hotspot	Back Side	0.547	0.245	0.792
	Front Side	0.504	0.173	0.677
	Left Edge	0.463	N/A	0.463
	Right Edge	0.245	0.235	0.480
	Top Edge	N/A	0.149	0.149
	Bottom Edge	0.754	N/A	0.754
Note: 1.The value with blue color is the maximum ΣSAR_{1g} Value. 2. MAX. ΣSAR_{1g} =Unlicensed SAR_{MAX} +Licensed SAR_{MAX}				

MAX. ΣSAR_{1g} = 0.792W/kg <1.6 W/kg, so the Simultaneous transimition SAR with volum scan are not required for Wi-Fi and Antenna 1.

About Wi-Fi and Antenna 2

Test Position \ SAR_{1g}(W/kg)		Antenna 2	Wi-Fi	MAX. ΣSAR_{1g}
Left, Cheek		0.712	0.431	1.143
Left, Tilt		0.664	0.367	1.031
Right, Cheek		0.854	0.165	1.019
Right, Tilt		0.937	0.189	1.126
Body worn	Back Side	0.383	0.133	0.516
	Front Side	0.347	0.108	0.455
Hotspot	Back Side	0.750	0.245	0.995
	Front Side	0.719	0.173	0.892
	Left Edge	0.737	N/A	0.737
	Right Edge	0.097	0.235	0.332
	Top Edge	0.792	0.149	0.941
	Bottom Edge	N/A	N/A	N/A
Note: 1.The value with blue color is the maximum ΣSAR_{1g} Value. 2. MAX. ΣSAR_{1g}=Unlicensed SAR_{MAX} +Licensed SAR_{MAX}				

MAX. ΣSAR_{1g} = 1.143W/kg <1.6 W/kg, so the Simultaneous transimition SAR with volum scan are not required for Wi-Fi and Second-Antenna.

Conclusion:

According to the KDB 690783 D01 section 1) d) i), when the sum of 1-g SAR applies for simultaneous transmission SAR test exclusion, the highest sum of 1-g SAR according to the highest reported stand-alone SAR values is used, and the highest Reported SAR for simultaneous transmission exposure conditions is 1.143 W/kg

11 Measurement Uncertainty

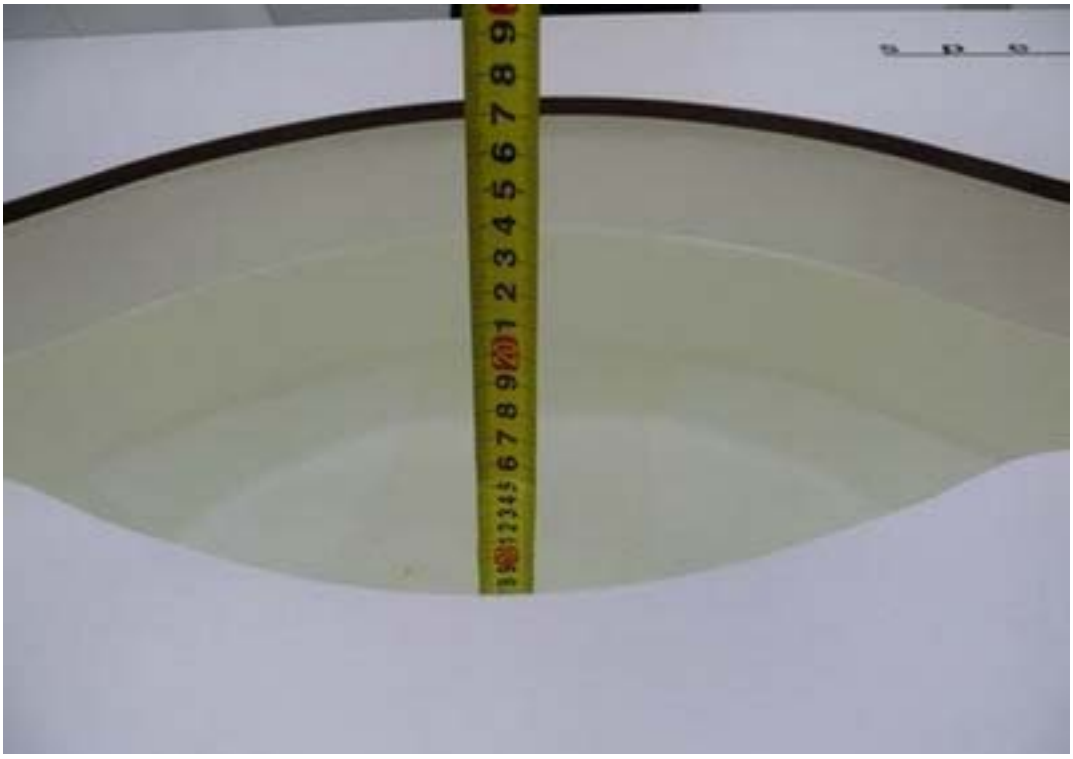
Per KDB 865664 D01 SAR Measurement 100 MHz to 6 GHz, when the highest measured 1-g SAR within a frequency band is < 1.5 W/kg, the extensive SAR measurement uncertainty analysis described in IEEE Std 1528- 2013 is not required in SAR reports submitted for equipment approval.

ANNEX A: Test Layout

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 SAR 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

ANNEX B: System Check Results

Plot 1 System Performance Check at 835 MHz Head TSL

DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN: 4d020

Date: 7/20/2018

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

Medium parameters used: f = 835 MHz; σ = 0.91 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: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(9.10, 9.10, 9.10); Calibrated: 5/29/2018;

Electronics: DAE4 SN1317; Calibrated: 3/23/2018

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 (41x121x1): Measurement grid: dx=1.500 mm, dy=1.500 mm

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

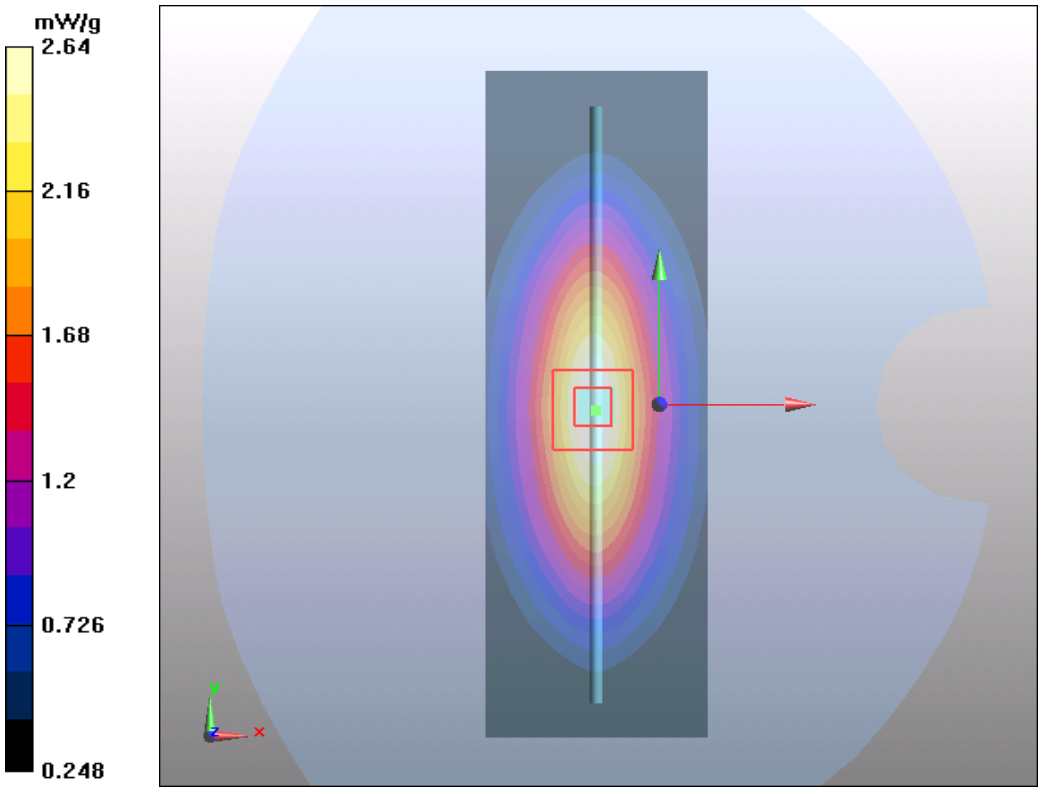
d=15mm, Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

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



Plot 2 System Performance Check at 835 MHz Body TSL

DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN: 4d020

Date: 7/28/2018

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

Medium parameters used: f = 835 MHz; σ = 0.97 s/m; ε_r = 53.8; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(9.32, 9.32, 9.32); Calibrated: 5/29/2018;

Electronics: DAE4 SN1317; Calibrated: 3/23/2018

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 (41x121x1): Measurement grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 2.58 mW/g

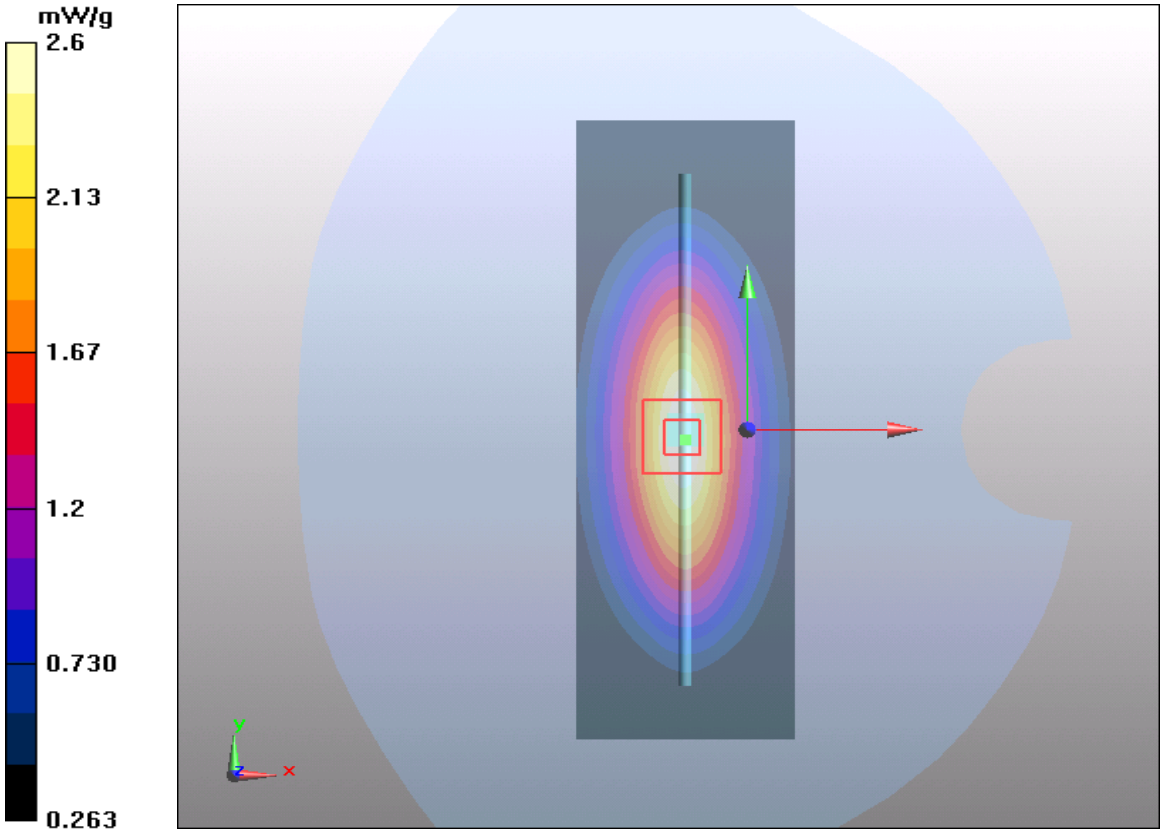
d=15mm, Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 51.9 V/m; Power Drift = -0.058 dB

Peak SAR (extrapolated) = 3.5 W/kg

SAR(1 g) = 2.41 mW/g; SAR(10 g) = 1.6 mW/g

Maximum value of SAR (measured) = 2.6 mW/g



Plot 3 System Performance Check at 1750 MHz Head TSL

DUT: Dipole 1750 MHz; Type: D1750V2; Serial: D1750V2 - SN: 1033

Date: 7/22/2018

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

Medium parameters used: f = 1750 MHz; σ = 1.33 s/m; ε_r = 40.7; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(8.19, 8.19, 8.19); Calibrated: 5/29/2018;

Electronics: DAE4 SN1317; Calibrated: 3/23/2018

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 (51x81x1): Measurement grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 9.78 mW/g

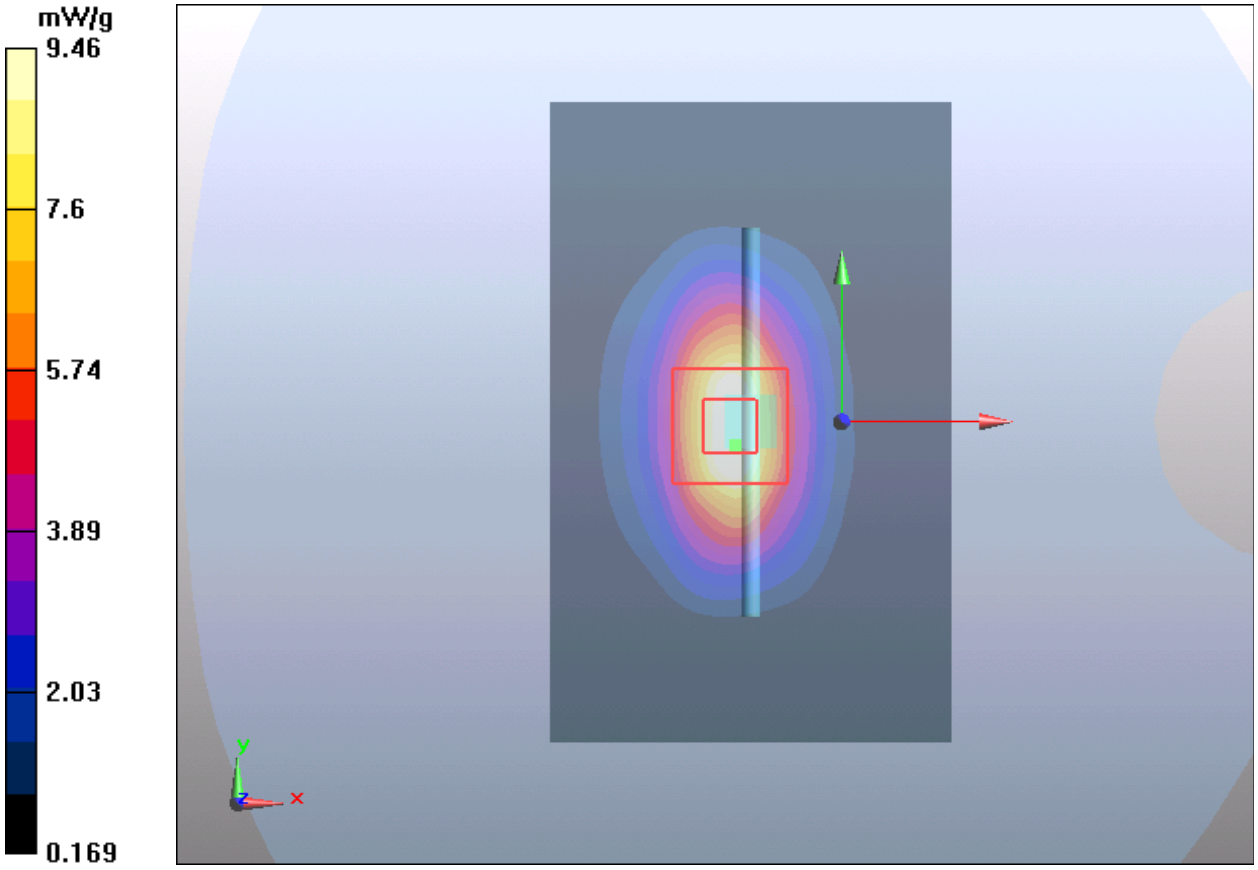
d=10mm, Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

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

Peak SAR (extrapolated) = 15.5 W/kg

SAR(1 g) = 8.95 mW/g; SAR(10 g) = 4.5 mW/g

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



Plot 4 System Performance Check at 1750 MHz Body TSL

DUT: Dipole 1750 MHz; Type: D1750V2; Serial: D1750V2 - SN: 1033

Date: 7/20/2018

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

Medium parameters used: f = 1750 MHz; σ = 1.50 s/m; ε_r = 52.9; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃ Liquid Temperature: 21.7℃

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(7.91, 7.91, 7.91); Calibrated: 5/29/2018;

Electronics: DAE4 SN1317; Calibrated: 3/23/2018

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 (51x81x1): Measurement grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 10.6 mW/g

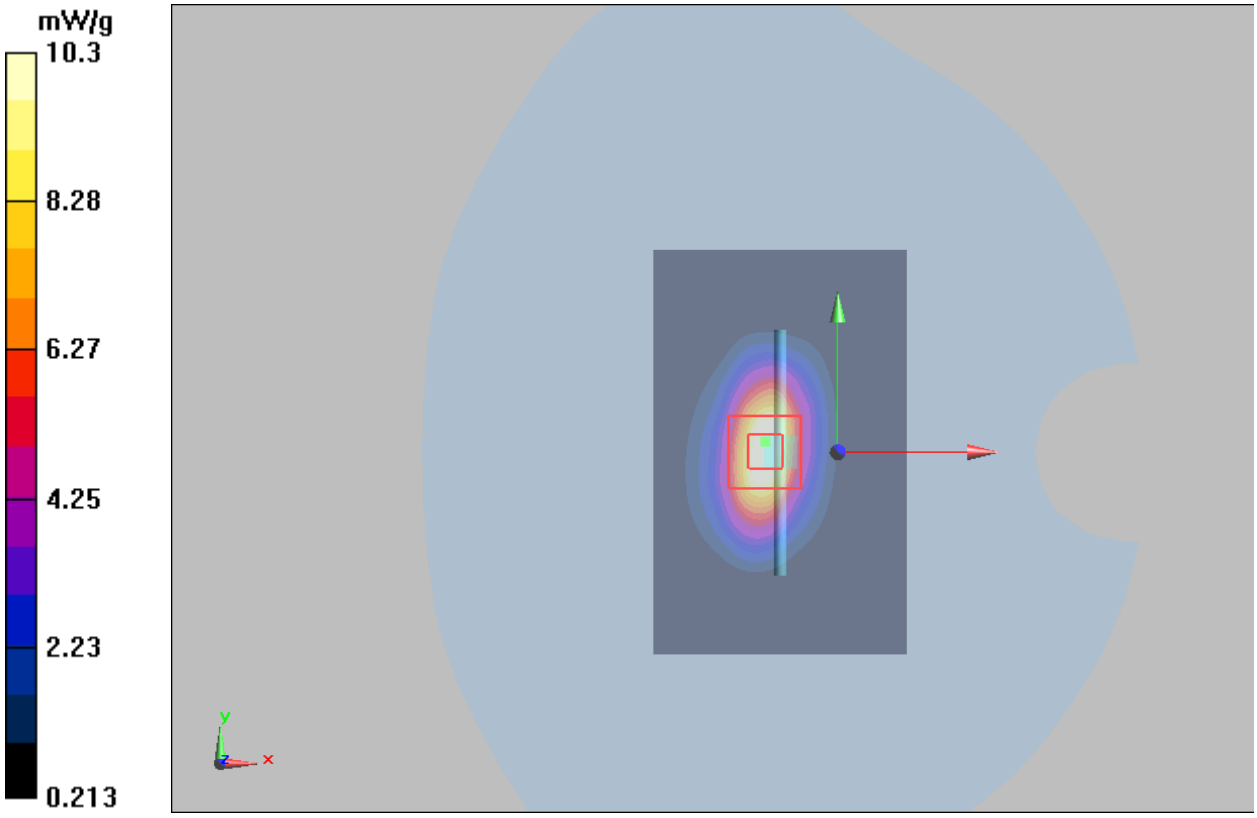
d=10mm, Pin=250mW/Area Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 77.7 V/m; Power Drift = 0.097 dB

Peak SAR (extrapolated) = 16.8 W/kg

SAR(1 g) = 9.24 mW/g; SAR(10 g) = 4.9 mW/g

Maximum value of SAR (measured) = 10.3 mW/g



Plot 5 System Performance Check at 1900 MHz Head TSL

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN: 5d060

Date: 7/16/2018

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

Medium parameters used: f = 1900 MHz; σ = 1.38 s/m; ε_r = 39.1; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(7.96, 7.96, 7.96); Calibrated: 5/29/2018;

Electronics: DAE4 SN1317; Calibrated: 3/23/2018

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=1.500 mm, dy=1.500 mm

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

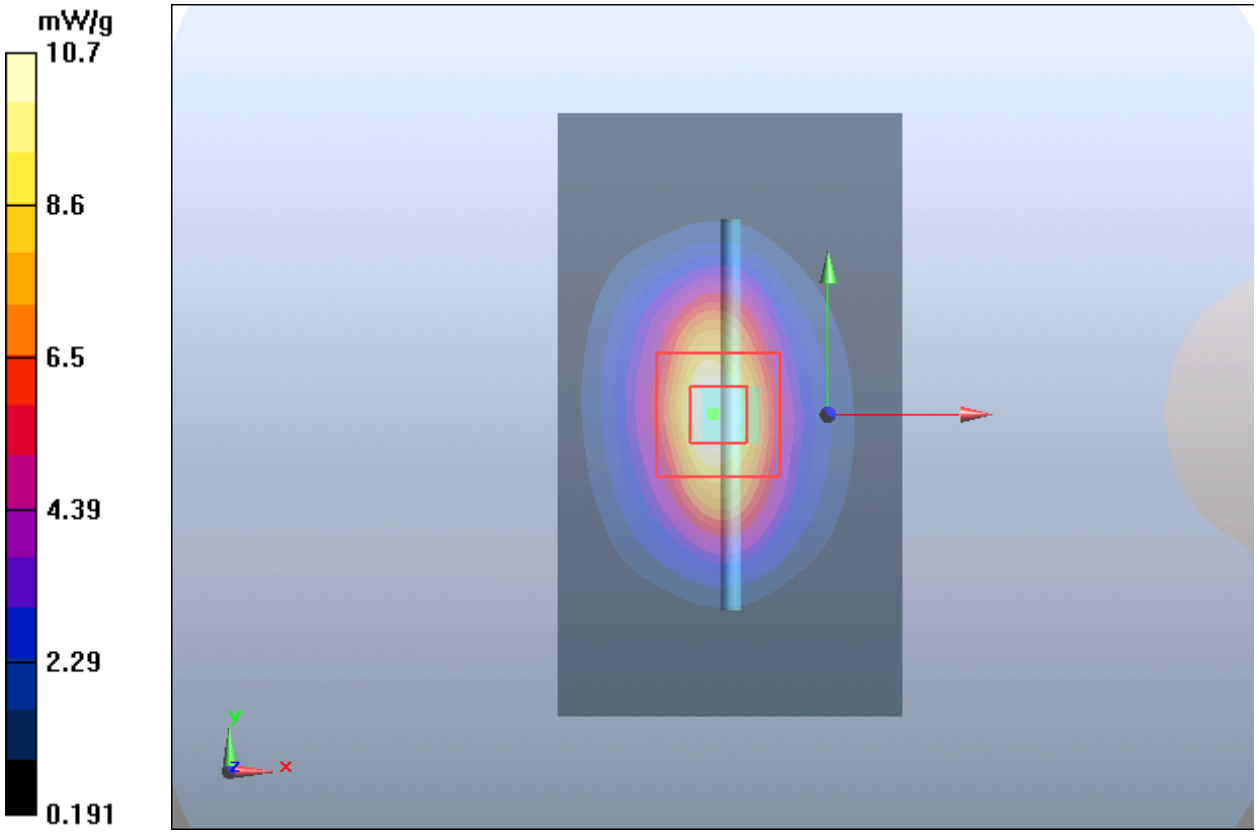
d=10mm, Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

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



Plot 6 System Performance Check at 1900 MHz Body TSL

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN: 5d060

Date: 7/29/2018

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

Medium parameters used: f = 1900 MHz; σ = 1.51 s/m; ε_r = 52.8; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(7.70, 7.70, 7.70); Calibrated: 5/29/2018;

Electronics: DAE4 SN1317; Calibrated: 3/23/2018

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=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 12.2 mW/g

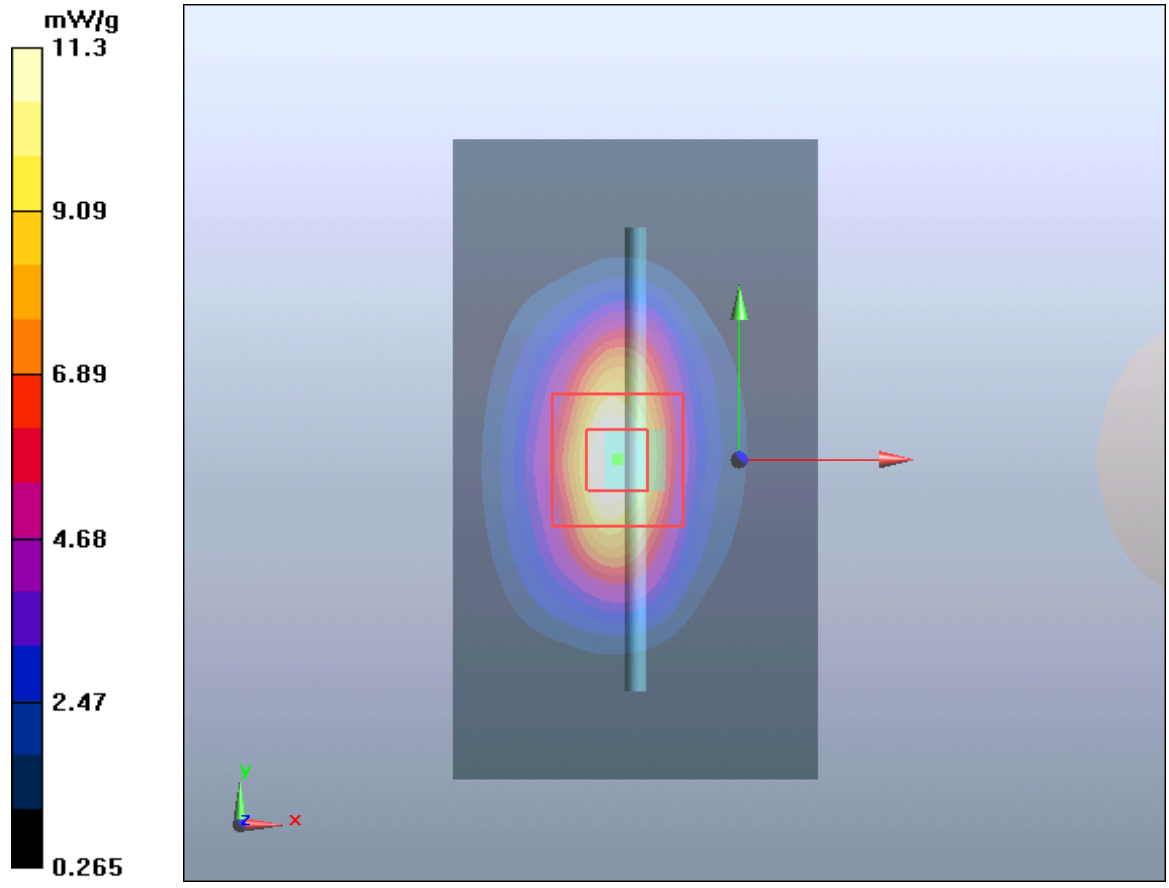
d=10mm, Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 82.3 V/m; Power Drift = 0.068 dB

Peak SAR (extrapolated) = 17.8 W/kg

SAR(1 g) = 9.93 mW/g; SAR(10 g) = 5.25 mW/g

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



Plot 7 System Performance Check at 2450 MHz Head TSL

DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN: 786

Date: 7/25/2018

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

Medium parameters used: f = 2450 MHz; σ = 1.85 s/m; ε_r = 39.7; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(7.57, 7.57, 7.57); Calibrated: 5/29/2018;

Electronics: DAE4 SN1317; Calibrated: 3/23/2018

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=1.200 mm, dy=1.200 mm

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

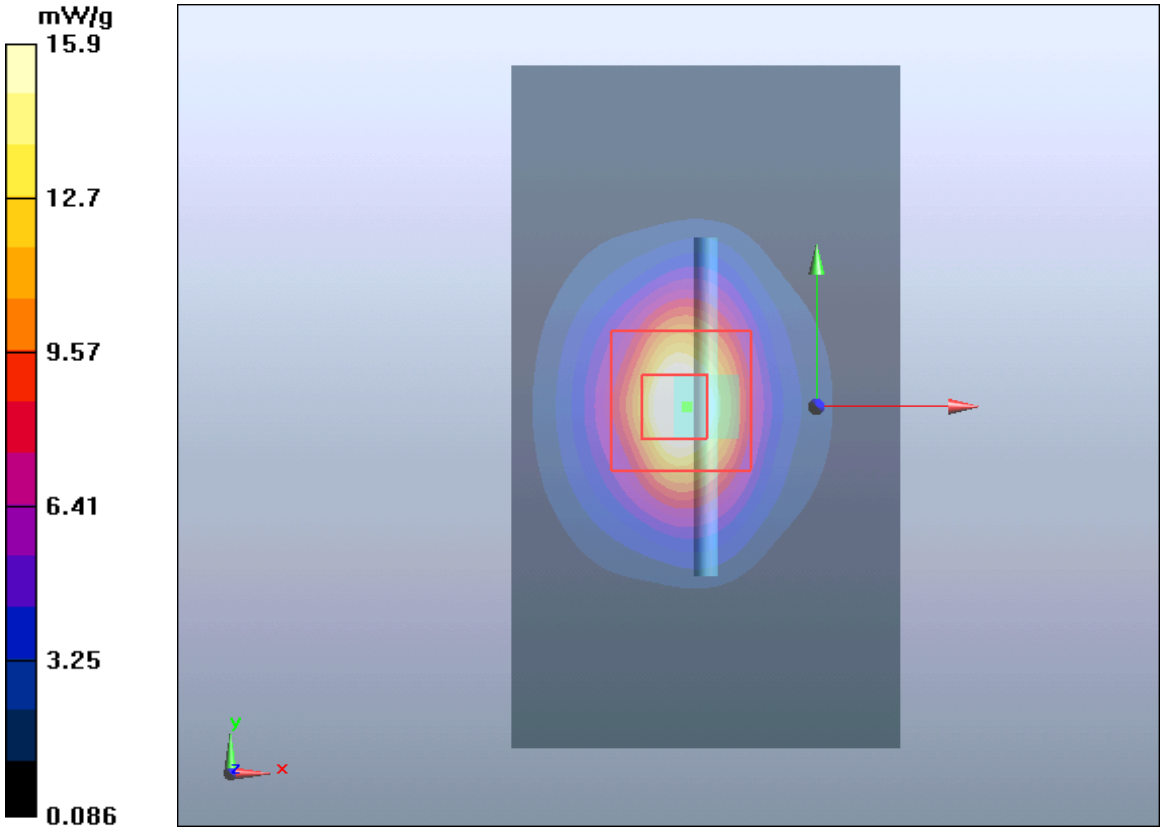
d=10mm, Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

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



Plot 8 System Performance Check at 2450 MHz Body TSL

DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN: 786

Date: 7/28/2018

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

Medium parameters used: f = 2450 MHz; σ = 1.93 s/m; ε_r = 51.8; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(7.53, 7.53, 7.53); Calibrated: 5/29/2018;

Electronics: DAE4 SN1317; Calibrated: 3/23/2018

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=1.200 mm, dy=1.200 mm

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

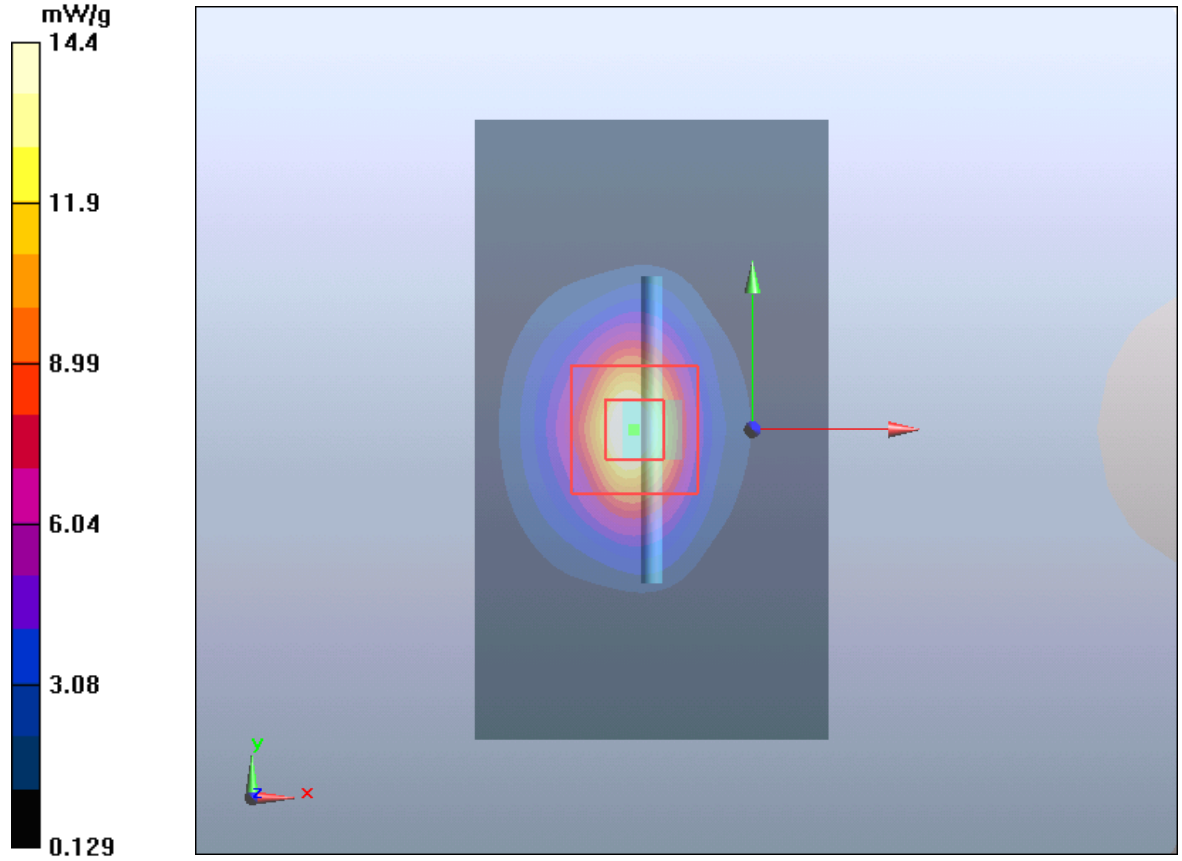
d=10mm, Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

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



Plot 9 System Performance Check at 2600 MHz Head TSL

DUT: Dipole 2600 MHz; Type: D2600V2; Serial: D2600V2 - SN: 1058

Date: 7/25/2018

Communication System: CW; Frequency: 2600 MHz

Medium parameters used: f = 2600 MHz; σ = 2.02 s/m; ε_r = 39.3; ρ = 1000 kg/m^3

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(7.28, 7.28, 7.28); Calibrated: 5/29/2018;

Electronics: DAE4 SN1317; Calibrated: 3/23/2018

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=1.200 mm, dy=1.200 mm

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

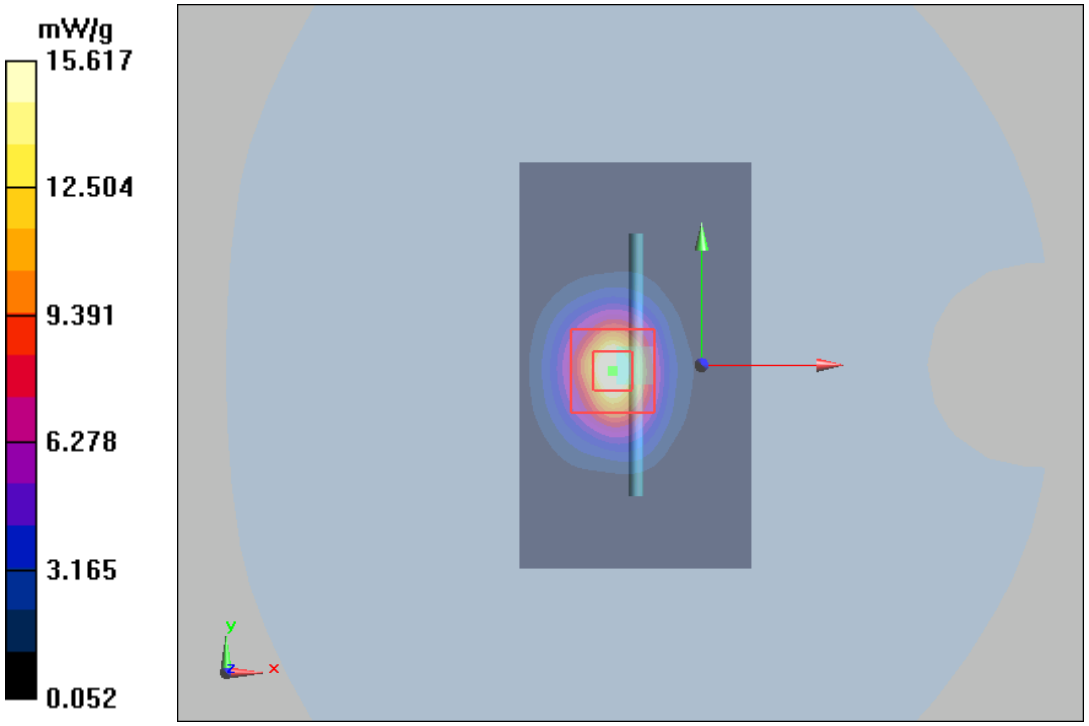
d=10mm, Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

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



Plot 10 System Performance Check at 2600 MHz Body TSL

DUT: Dipole 2600 MHz; Type: D2600V2; Serial: D2600V2 - SN: 1058

Date: 7/29/2018

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

Medium parameters used: f = 2600 MHz; σ = 2.12 s/m; ε_r = 51.4; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(7.16, 7.16, 7.16); Calibrated: 5/29/2018;

Electronics: DAE4 SN1317; Calibrated: 3/23/2018

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=1.200 mm, dy=1.200 mm

Maximum value of SAR (interpolated) = 17.7 mW/g

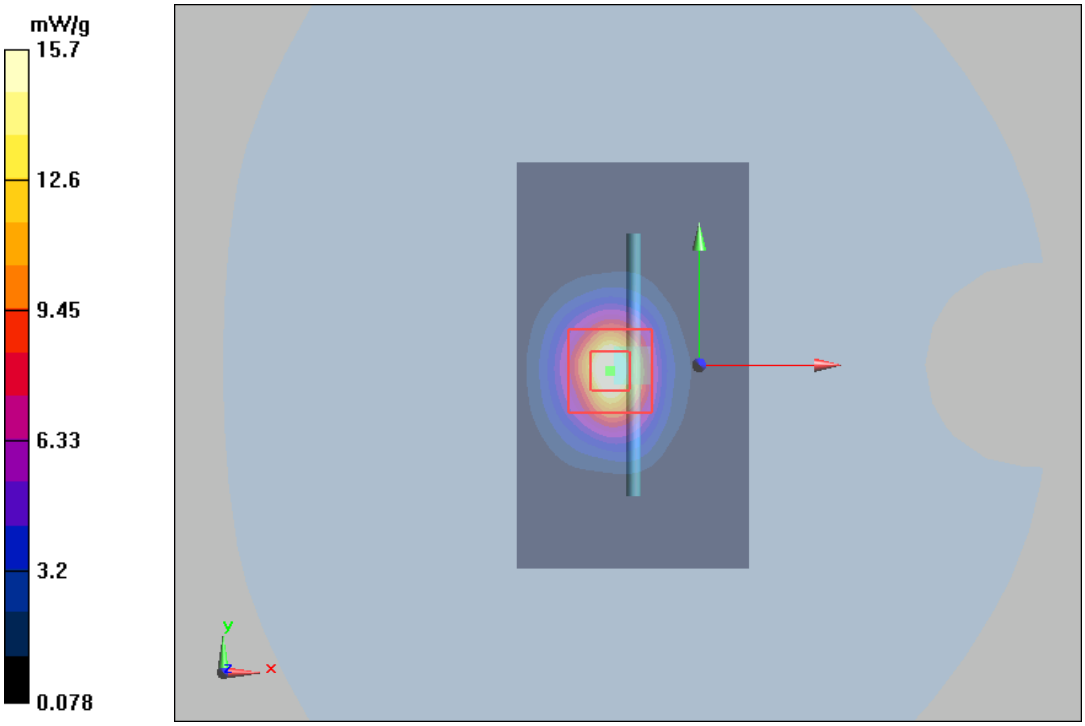
d=10mm, Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 74 V/m; Power Drift = -0.0027 dB

Peak SAR (extrapolated) = 28.5 W/kg

SAR(1 g) = 13.5 mW/g; SAR(10 g) = 5.99 mW/g

Maximum value of SAR (measured) = 15.7 mW/g



Plot 11 System Performance Check at 5250 MHz Head TSL

DUT: Dipole 5250 MHz; Type: D5GHzV2; Serial: D5GHzV2 - SN: 1151

Date: 7/26/2018

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

Medium parameters used: f = 5250 MHz; σ = 4.75 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 - SN3677; ConvF(5.60, 5.60, 5.60); Calibrated: 5/29/2018;

Electronics: DAE4 SN1317; Calibrated: 3/23/2018

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=1.000mm, dy=1.000mm

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

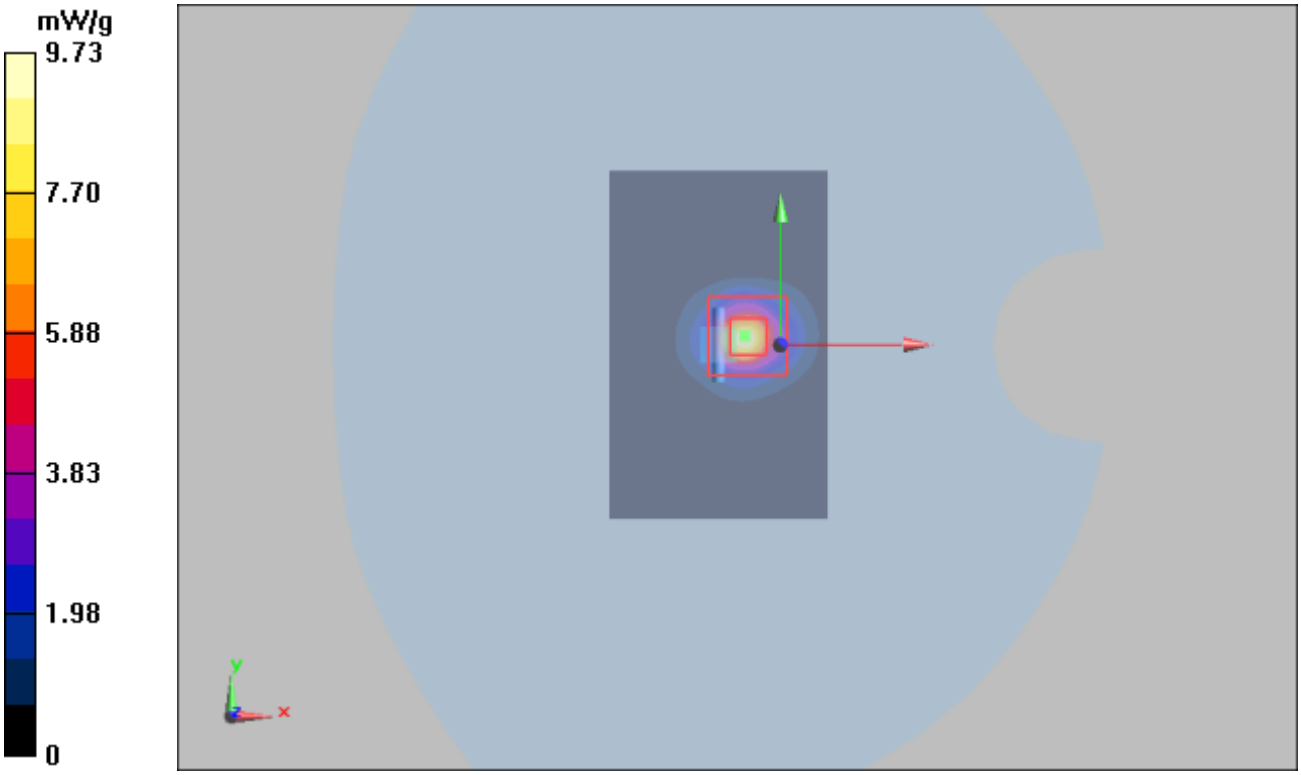
d=10mm, Pin=100mW/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm

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



Plot 12 System Performance Check at 5250 MHz Body TSL

DUT: Dipole 5250 MHz; Type: D5GHzV2; Serial: D5GHzV2 - SN: 1151

Date: 7/26/2018

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

Medium parameters used: f = 5250 MHz; σ = 5.42 s/m; ε_r = 46.7; 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 - SN3677; ConvF(5.04, 5.04, 5.04); Calibrated: 5/29/2018;

Electronics: DAE4 SN1317; Calibrated: 3/23/2018

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=1.000mm, dy=1.000mm

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

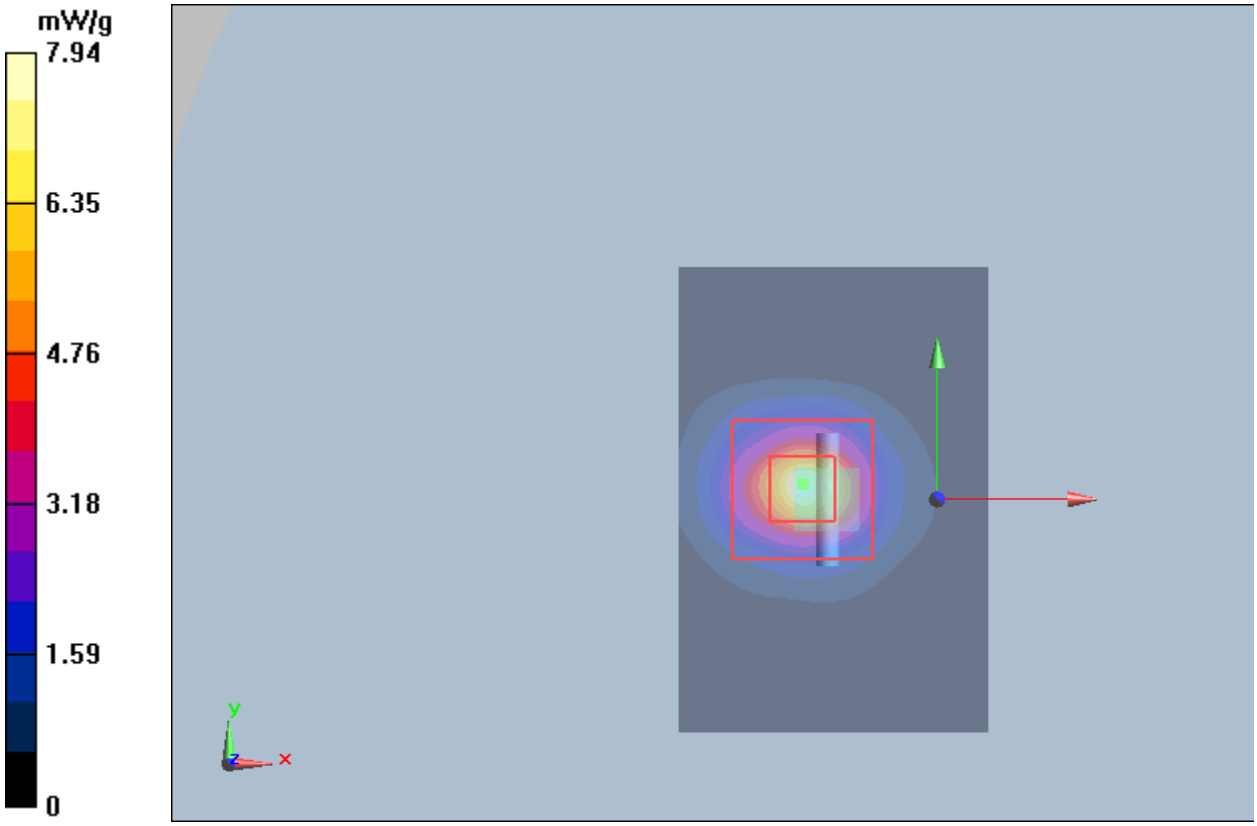
d=10mm, Pin=100mW/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm

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



Plot 13 System Performance Check at 5600 MHz Head TSL

DUT: Dipole 5600 MHz; Type: D5GHzV2; Serial: D5GHzV2 - SN: 1151

Date: 7/27/2018

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

Medium parameters used: f = 5600 MHz; σ = 5.20 s/m; ε_r = 35.1; 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(4.87, 4.87, 4.87); Calibrated: 5/29/2018;

Electronics: DAE4 SN1317; Calibrated: 3/23/2018

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=1.000mm, dy=1.000mm

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

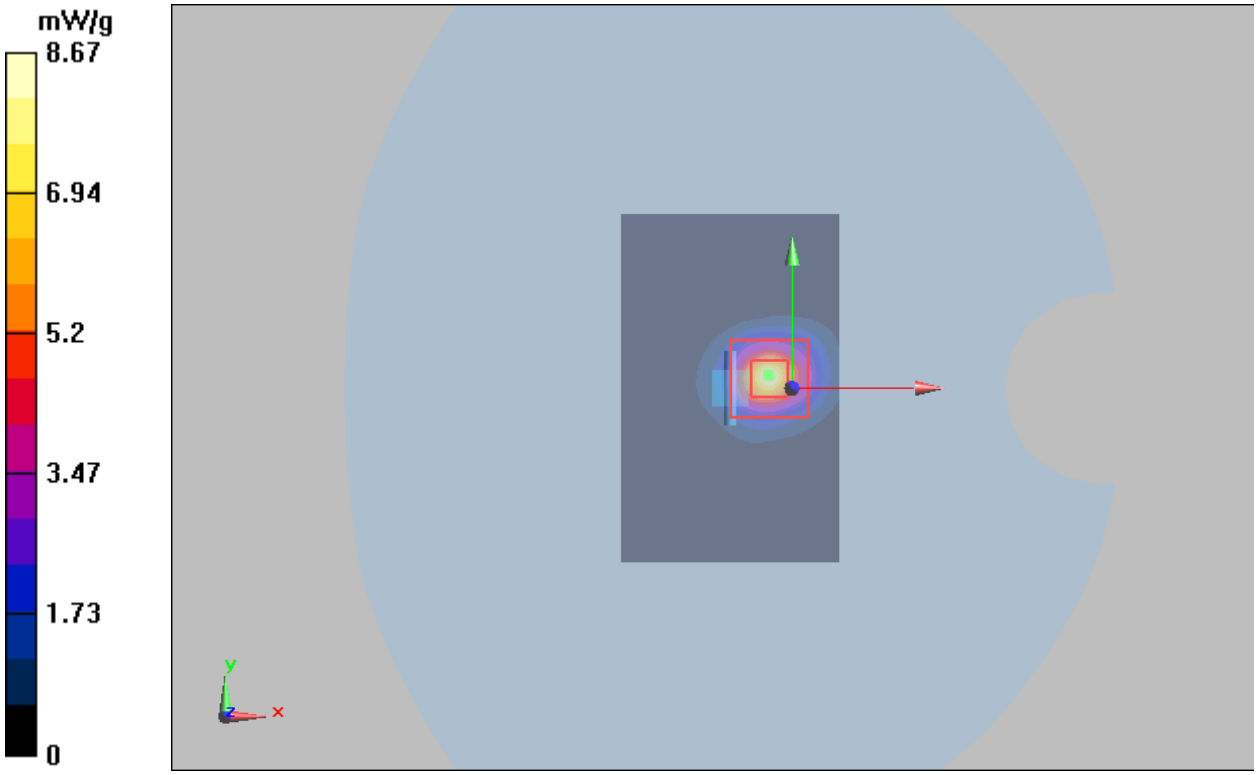
d=10mm, Pin=100mW/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm

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



Plot 14 System Performance Check at 5600 MHz Body TSL

DUT: Dipole 5600 MHz; Type: D5GHzV2; Serial: D5GHzV2 - SN: 1151

Date: 7/27/2018

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

Medium parameters used: f = 5600 MHz; σ = 6.00 s/m; ε_r = 46.4; 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(4.27, 4.27, 4.27); Calibrated: 5/29/2018;

Electronics: DAE4 SN1317; Calibrated: 3/23/2018

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=1.000mm, dy=1.000mm

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

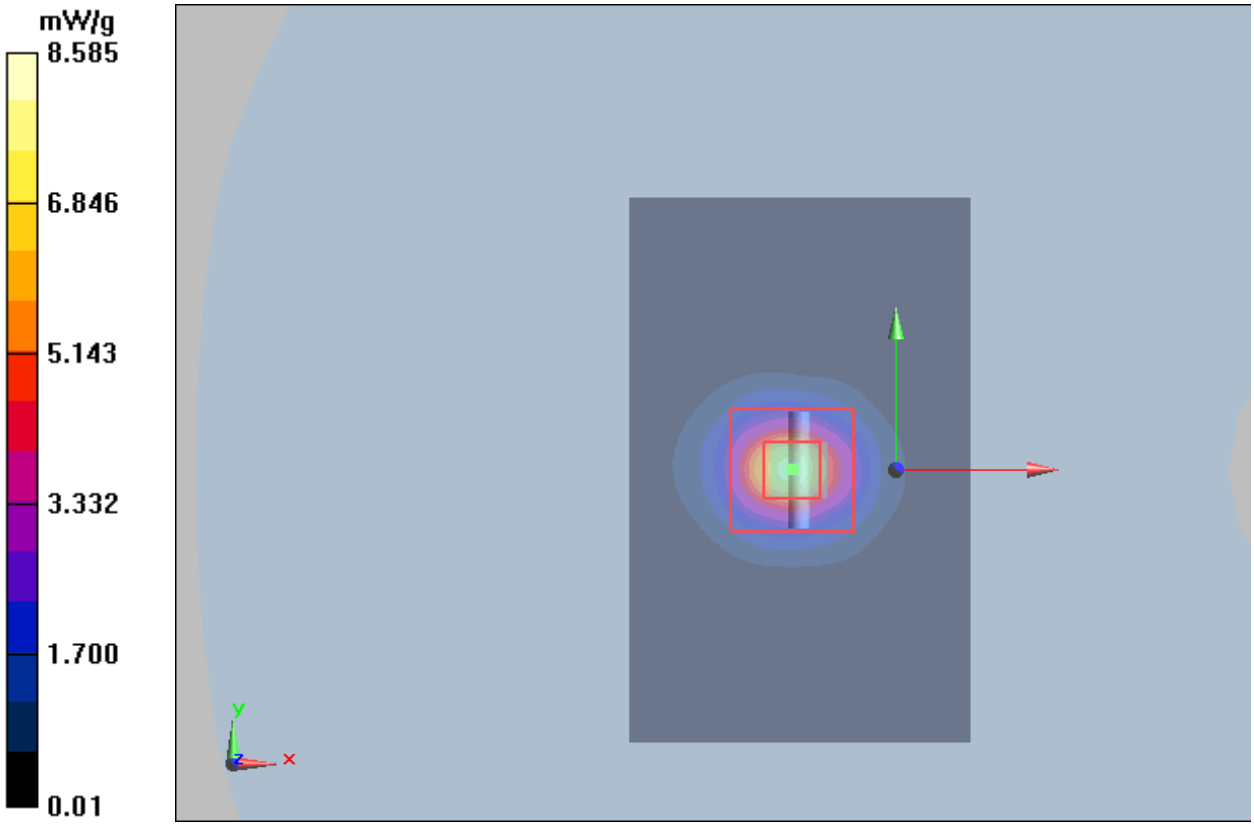
d=10mm, Pin=100mW/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm

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



Plot 15 System Performance Check at 5750 MHz Head TSL

DUT: Dipole 5750 MHz; Type: D5GHzV2; Serial: D5GHzV2 - SN: 1151

Date: 7/21/2018

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: 5/29/2018;

Electronics: DAE4 SN1317; Calibrated: 3/23/2018

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=1.000mm, dy=1.000mm

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

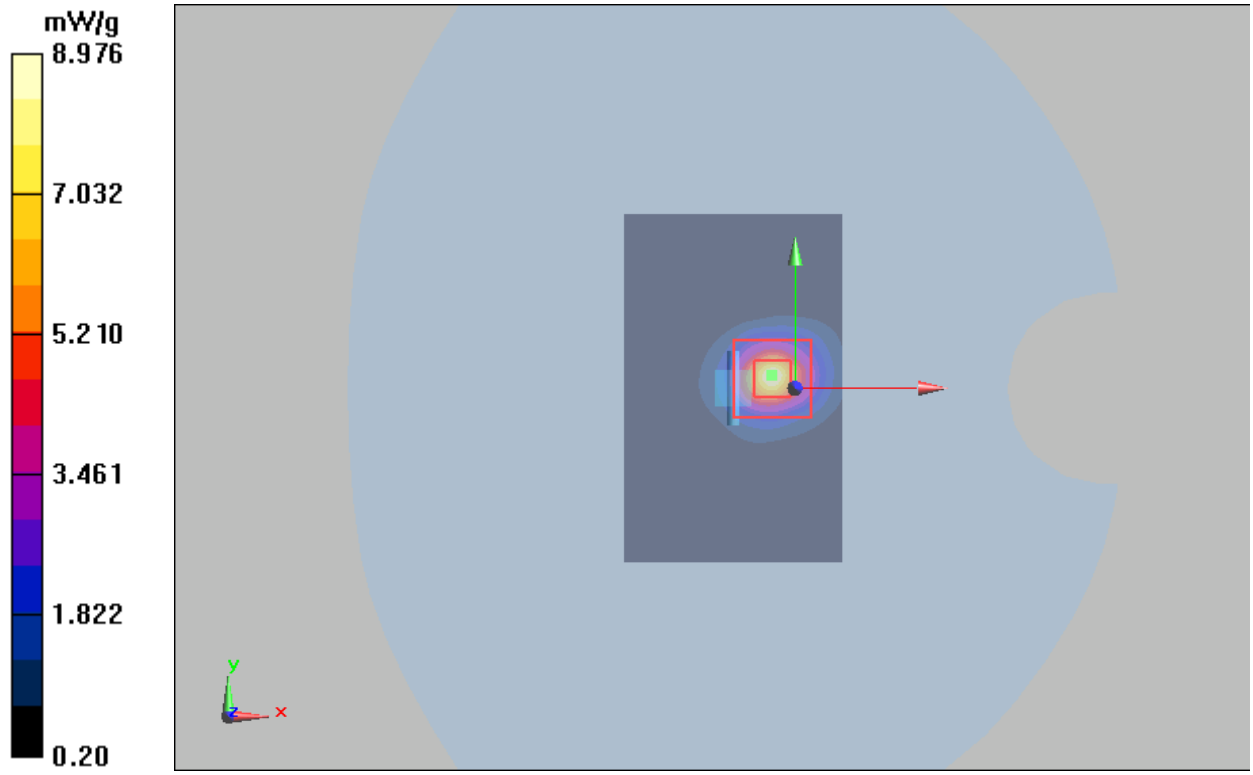
d=10mm, Pin=100mW/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm

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



Plot 16 System Performance Check at 5750 MHz Body TSL

DUT: Dipole 5750 MHz; Type: D5GHzV2; Serial: D5GHzV2 - SN: 1151

Date: 7/23/2018

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

Medium parameters used: f = 5750 MHz; σ = 6.14 s/m; ε_r = 47.6; 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(4.43, 4.43, 4.43); Calibrated: 5/29/2018;

Electronics: DAE4 SN1317; Calibrated: 3/23/2018

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=1.000mm, dy=1.000mm

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

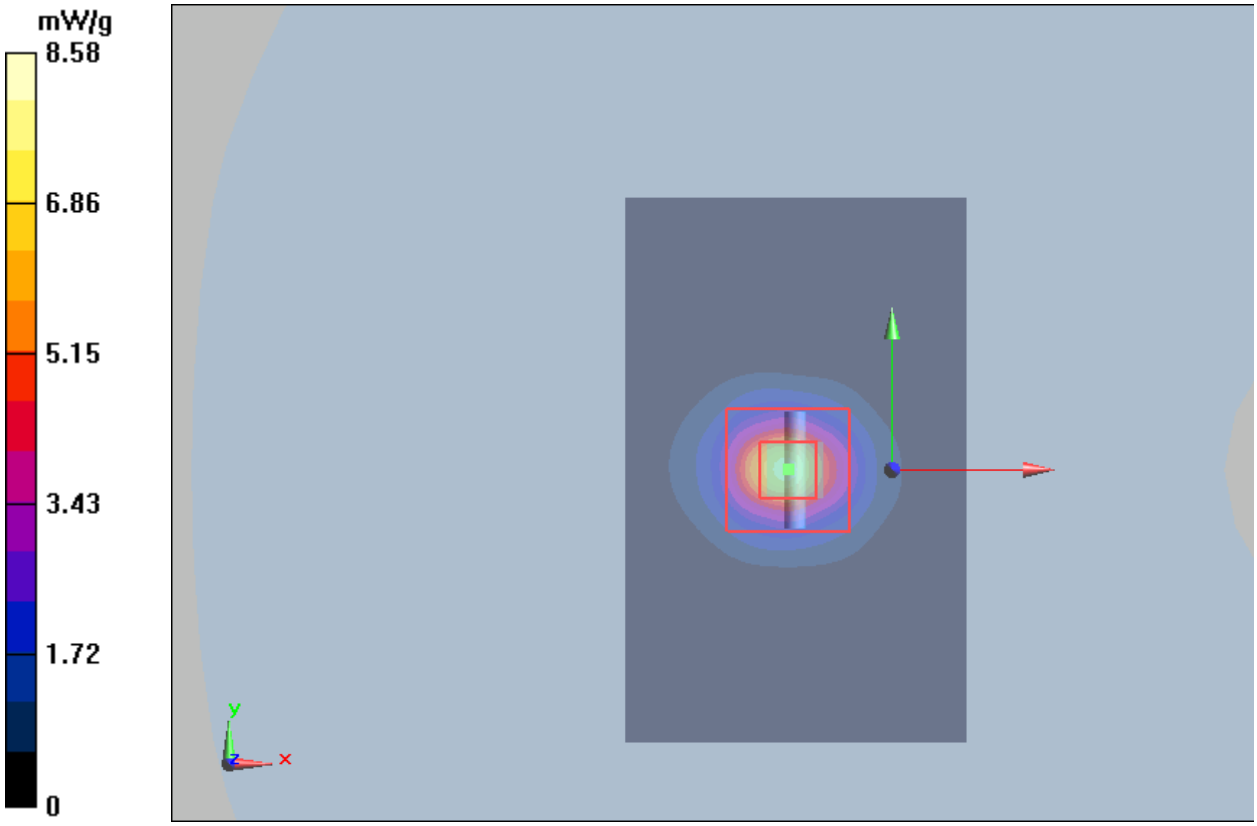
d=10mm, Pin=100mW/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm

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



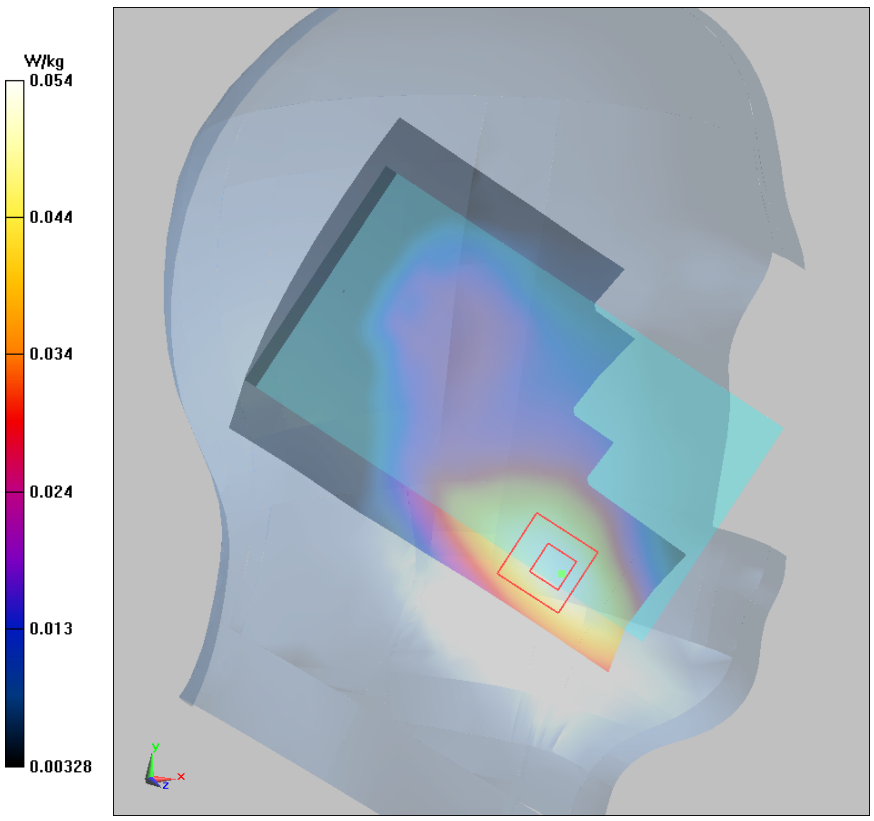
ANNEX C: Highest Graph Results

Plot 17 GSM 850 Left Cheek Middle

Date: 7/20/2018
Communication System: UID 0, GSM 850 (0); Frequency: 836.6 MHz;Duty Cycle: 1:8.30042
Medium parameters used: f = 837 MHz; σ = 0.916 S/m; ε_r = 41.951; ρ = 1000 kg/m^3
Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃
Phantom section: Left Section
DASY5 Configuration:
Sensor-Surface: 4mm (Mechanical Surface Detection)
Probe: EX3DV4 - SN3677; ConvF(9.10, 9.10, 9.10); Calibrated: 5/29/2018;
Electronics: DAE4 SN1317; Calibrated: 3/23/2018
Phantom: SAM1; Type: SAM; Serial: TP-1534
Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7439)

Left Cheek Middle/Area Scan (71x131x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.0548 W/kg

Left Cheek Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 2.081 V/m; Power Drift = 0.074 dB
Peak SAR (extrapolated) = 0.0680 W/kg
SAR(1 g) = 0.051 W/kg; SAR(10 g) = 0.036 W/kg
Maximum value of SAR (measured) = 0.054 W/kg



Plot 18 GSM 850 Back Side Middle (Distance 15mm)

Date: 7/28/2018

Communication System: UID 0, GSM (0); Frequency: 836.6 MHz;Duty Cycle: 1:8.30042

Medium parameters used: f = 837 MHz; σ = 0.974 S/m; ε_r = 53.795; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(9.32, 9.32, 9.32); Calibrated: 5/29/2018;

Electronics: DAE4 SN1317; Calibrated: 3/23/2018

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 (71x131x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.278 W/kg

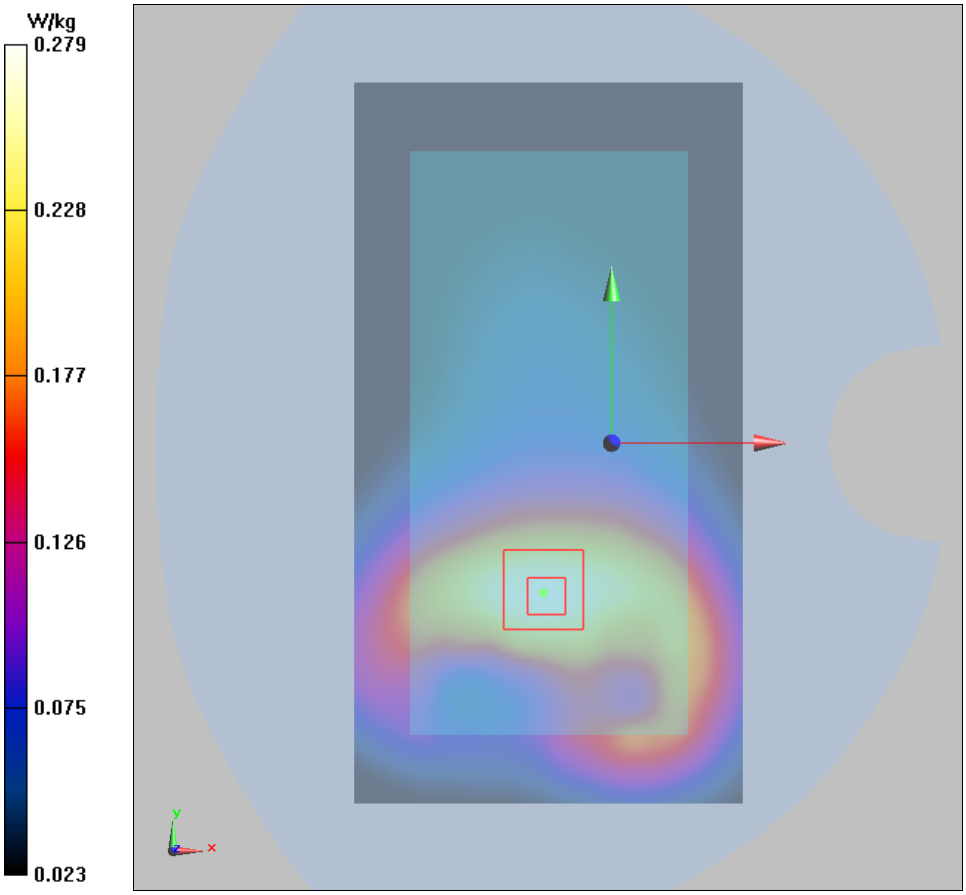
Back Side Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 9.058 V/m; Power Drift = 0.08 dB

Peak SAR (extrapolated) = 0.342 W/kg

SAR(1 g) = 0.262 W/kg; SAR(10 g) = 0.186 W/kg

Maximum value of SAR (measured) = 0.279 W/kg



Plot 19 GSM 850 GPRS (4Txslots) Back Side Middle (Distance 10mm)

Date: 7/28/2018

Communication System: UID 0, 4 slot GPRS (0); Frequency: 836.6 MHz;Duty Cycle: 1:2.07491

Medium parameters used: f = 837 MHz; σ = 0.974 S/m; ε_r = 53.795; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(9.32, 9.32, 9.32); Calibrated: 5/29/2018;

Electronics: DAE4 SN1317; Calibrated: 3/23/2018

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 (71x131x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.433 W/kg

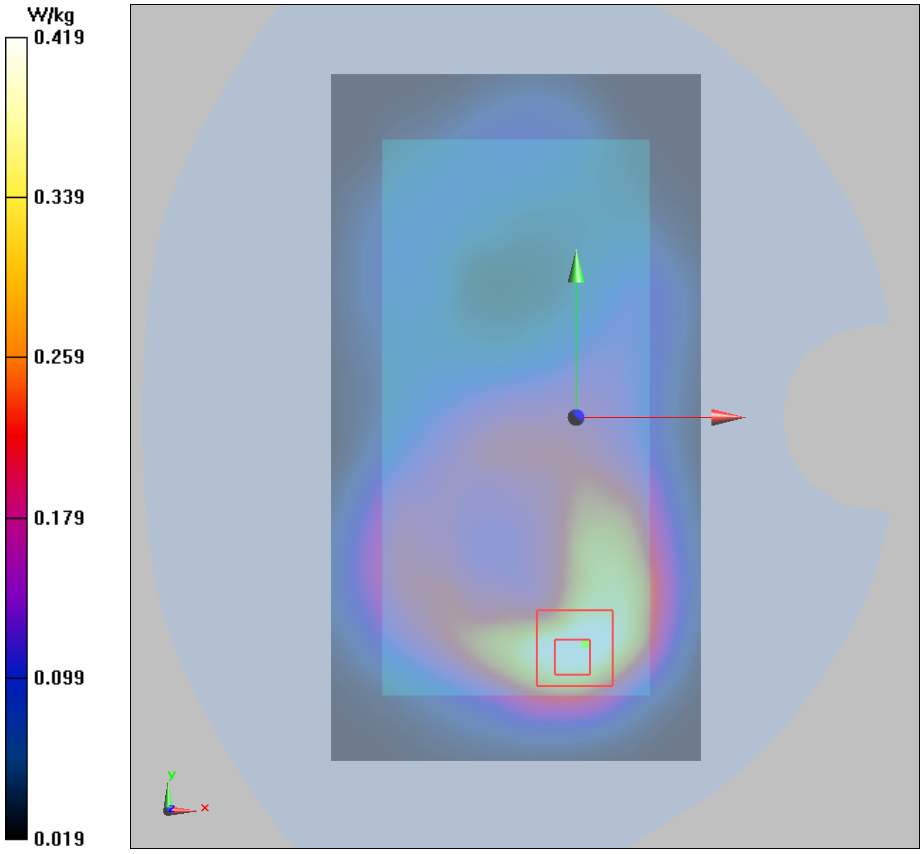
Back Side Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 9.083 V/m; Power Drift = -0.06 dB

Peak SAR (extrapolated) = 0.673 W/kg

SAR(1 g) = 0.373 W/kg; SAR(10 g) = 0.214 W/kg

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



Plot 20 GSM 1900 Left Cheek Middle

Date: 7/16/2018

Communication System: UID 0, GSM (0); Frequency: 1880 MHz;Duty Cycle: 1:8.30042

Medium parameters used: f = 1880 MHz; σ = 1.36 S/m; ε_r = 39.14; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃

Phantom section: Left Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(7.96, 7.96, 7.96); Calibrated: 5/29/2018;

Electronics: DAE4 SN1317; Calibrated: 3/23/2018

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

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

Left Cheek Middle/Area Scan (71x131x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.0822 W/kg

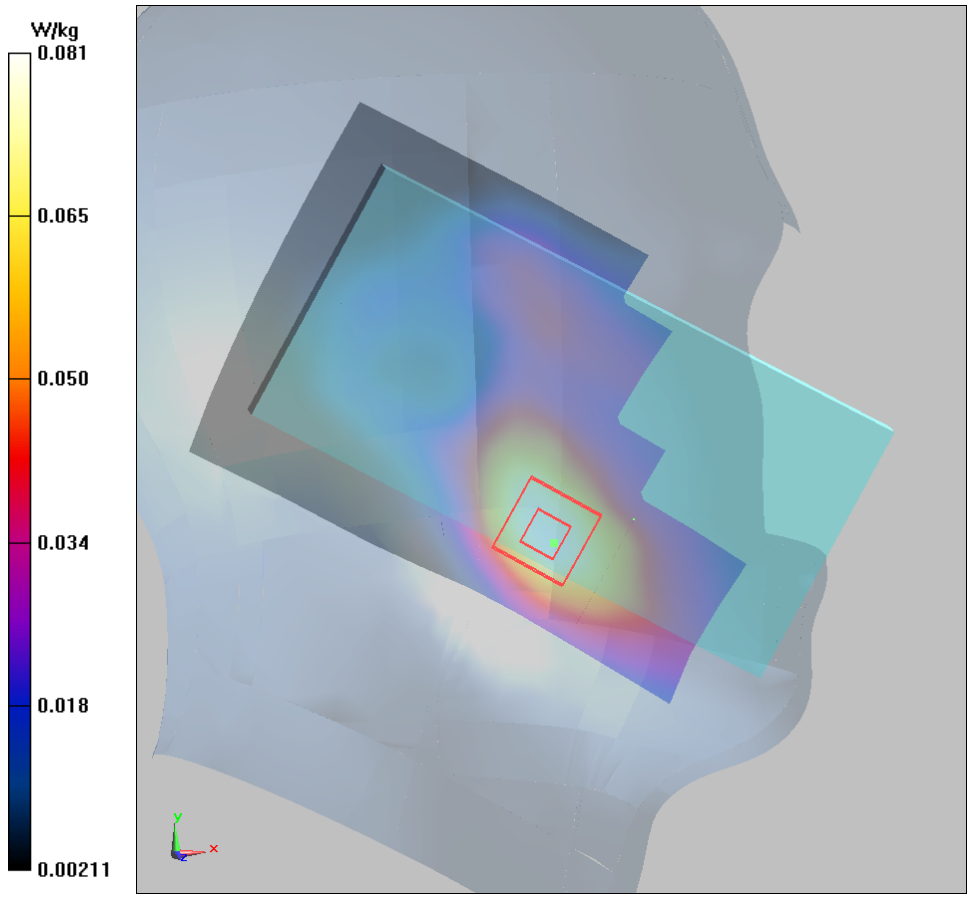
Left Cheek Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 3.024 V/m; Power Drift = 0.062 dB

Peak SAR (extrapolated) = 0.114 W/kg

SAR(1 g) = 0.076 W/kg; SAR(10 g) = 0.048 W/kg

Maximum value of SAR (measured) = 0.081 W/kg



Plot 21 GSM 1900 Back Side Middle (Distance 15mm)

Date: 7/29/2018

Communication System: UID 0, GSM 1900 (0); Frequency: 1880 MHz;Duty Cycle: 1:8.30042

Medium parameters used: f = 1880 MHz; σ = 1.489 S/m; ε_r = 52.896; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(7.70, 7.70, 7.70); Calibrated: 5/29/2018;

Electronics: DAE4 SN1317; Calibrated: 3/23/2018

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 (71x131x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.118 W/kg

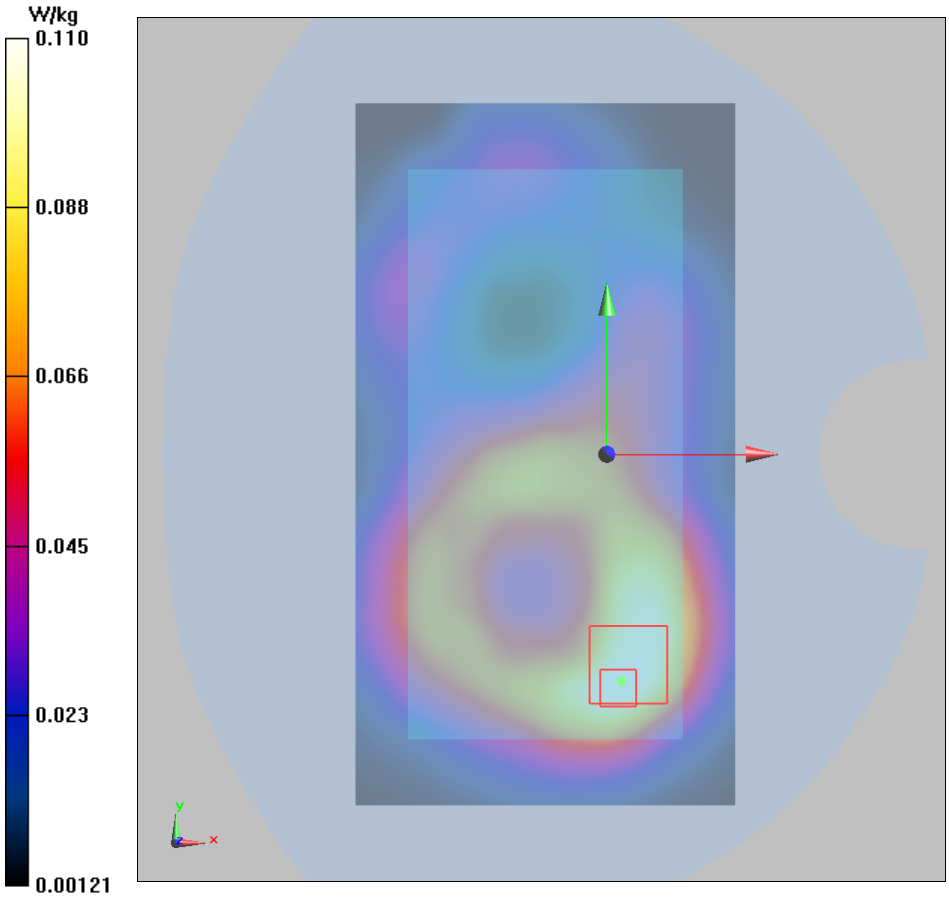
Back Side Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 6.910 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 0.160 W/kg

SAR(1 g) = 0.102 W/kg; SAR(10 g) = 0.063 W/kg

Maximum value of SAR (measured) = 0.110 W/kg



Plot 22 GSM 1900 GPRS (4Txslots) Bottom Edge Middle (Distance 10mm)

Date: 7/29/2018

Communication System: UID 0, GPRS 4TX (0); Frequency: 1880 MHz;Duty Cycle: 1:2.07491

Medium parameters used: f = 1880 MHz; σ = 1.489 S/m; ε_r = 52.896; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(7.70, 7.70, 7.70); Calibrated: 5/29/2018;

Electronics: DAE4 SN1317; Calibrated: 3/23/2018

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

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

Bottom Edge Middle/Area Scan (51x111x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.376 W/kg

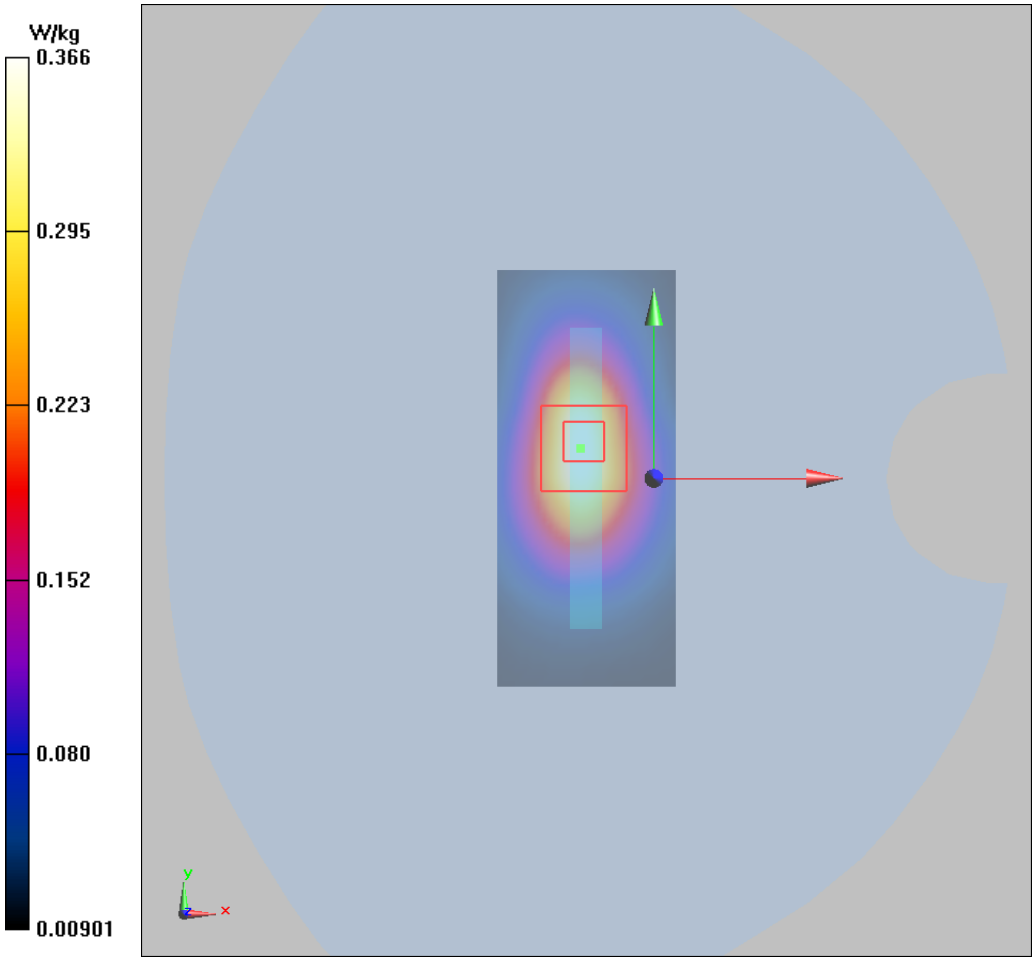
Bottom Edge Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 15.23 V/m; Power Drift = -0.05 dB

Peak SAR (extrapolated) = 0.576 W/kg

SAR(1 g) = 0.331 W/kg; SAR(10 g) = 0.183 W/kg

Maximum value of SAR (measured) = 0.366 W/kg



Plot 23 UMTS Band II Left Cheek Middle

Date: 7/16/2018

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

Medium parameters used: f = 1880 MHz; σ = 1.36 S/m; ε_r = 39.14; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃

Phantom section: Left Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(7.96, 7.96, 7.96); Calibrated: 5/29/2018;

Electronics: DAE4 SN1317; Calibrated: 3/23/2018

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

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

Left Cheek Middle/Area Scan (71x131x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.226 W/kg

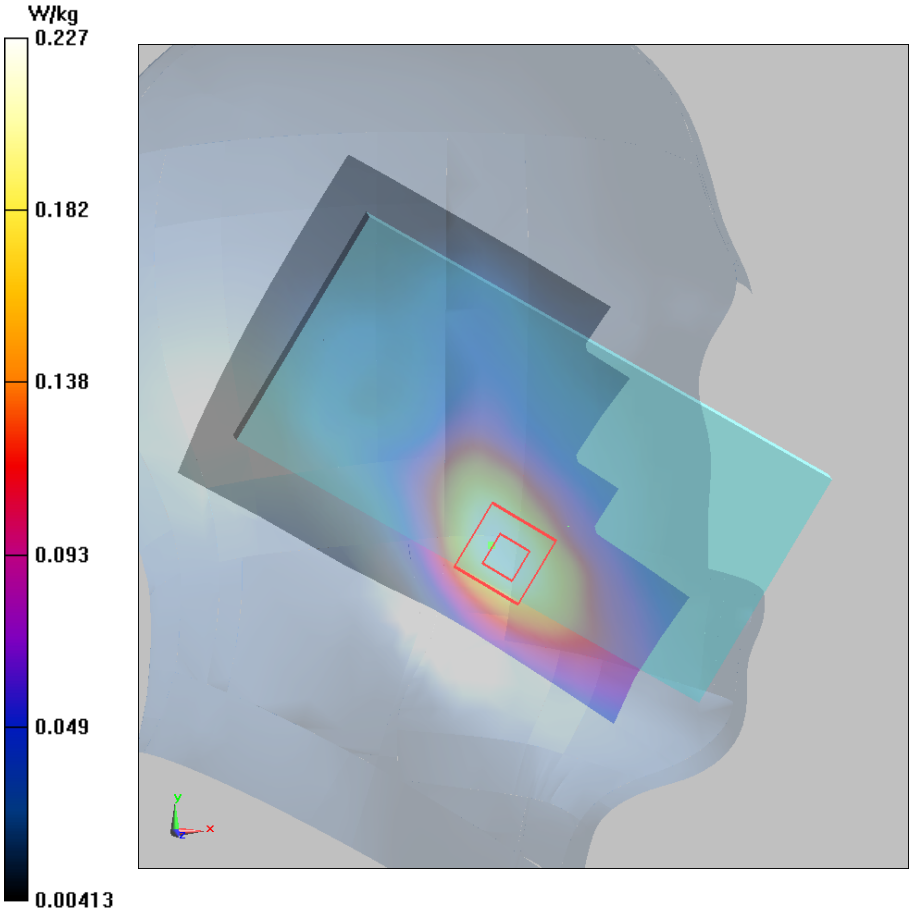
Left Cheek Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 4.390 V/m; Power Drift = 0.033 dB

Peak SAR (extrapolated) = 0.326 W/kg

SAR(1 g) = 0.214 W/kg; SAR(10 g) = 0.135 W/kg

Maximum value of SAR (measured) = 0.227 W/kg



Plot 24 UMTS Band II Back Side Middle (Distance 15mm)

Date: 7/29/2018

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

Medium parameters used: f = 1880 MHz; σ = 1.489 S/m; ε_r = 52.896; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(7.70, 7.70, 7.70); Calibrated: 5/29/2018;

Electronics: DAE4 SN1317; Calibrated: 3/23/2018

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 (71x131x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.238 W/kg

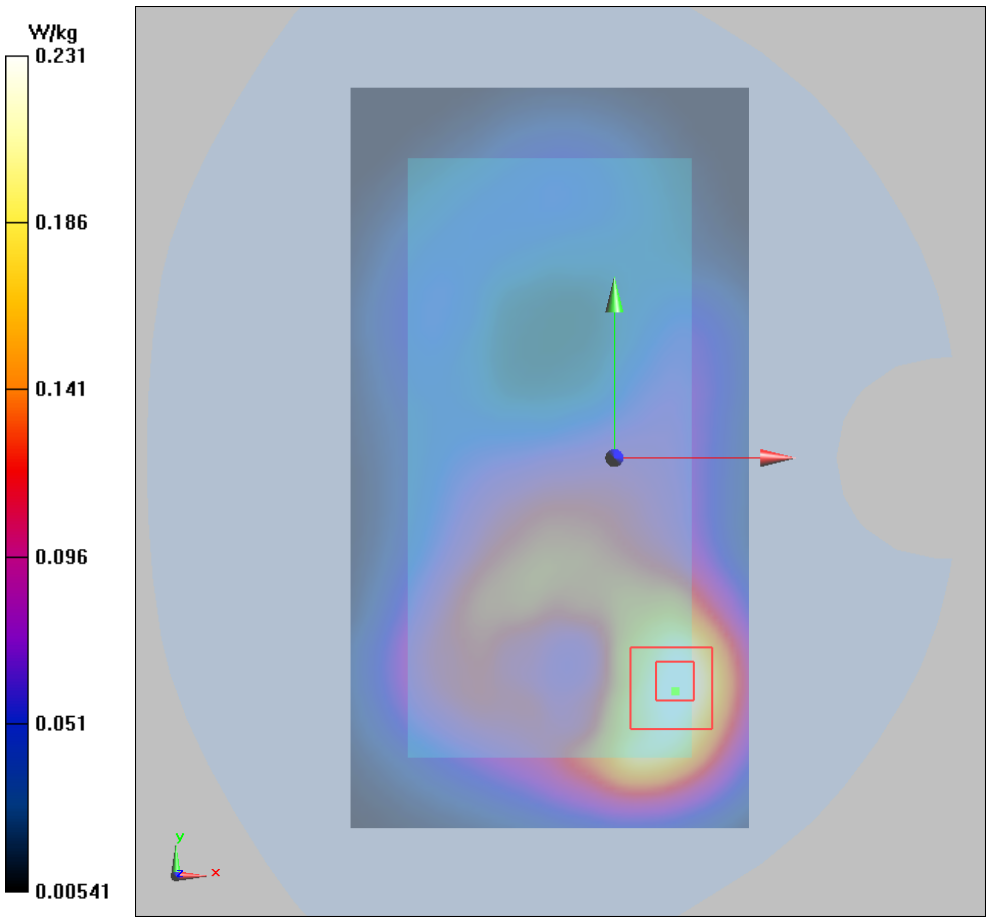
Back Side Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 7.337 V/m; Power Drift = -0.03 dB

Peak SAR (extrapolated) = 0.326 W/kg

SAR(1 g) = 0.216 W/kg; SAR(10 g) = 0.136 W/kg

Maximum value of SAR (measured) = 0.231 W/kg



Plot 25 UMTS Band II Bottom Edge Middle (Distance 10mm)

Date: 7/29/2018

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

Medium parameters used: f = 1880 MHz; σ = 1.489 S/m; ε_r = 52.896; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(7.70, 7.70, 7.70); Calibrated: 5/29/2018;

Electronics: DAE4 SN1317; Calibrated: 3/23/2018

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

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

Bottom Edge Middle/Area Scan (51x91x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.741 W/kg

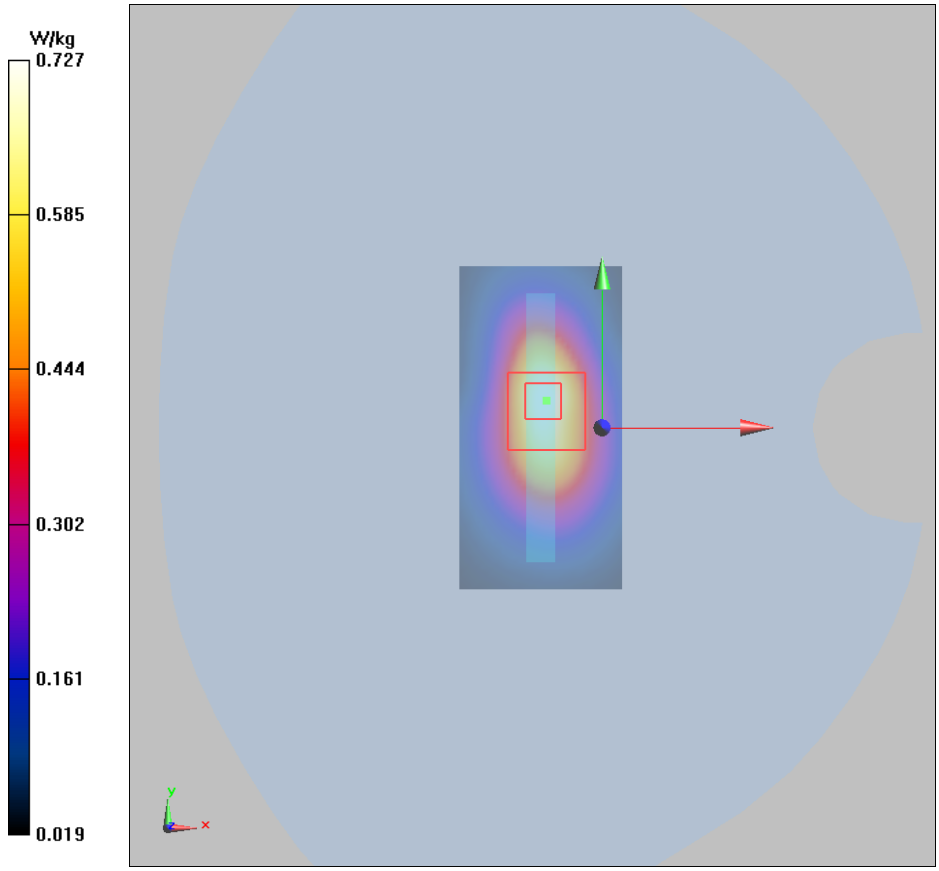
Bottom Edge Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 21.79 V/m; Power Drift = -0.09 dB

Peak SAR (extrapolated) = 1.13 W/kg

SAR(1 g) = 0.648 W/kg; SAR(10 g) = 0.362 W/kg

Maximum value of SAR (measured) = 0.727 W/kg



Plot 26 UMTS Band IV Left Cheek Middle

Date: 7/22/2018

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

Medium parameters used: f = 1733 MHz; σ = 1.393 S/m; ε_r = 40.051; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃

Phantom section: Left Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(8.19, 8.19, 8.19); Calibrated: 5/29/2018;

Electronics: DAE4 SN1317; Calibrated: 3/23/2018

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

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

Left Cheek Middle/Area Scan (71x131x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.138 W/kg

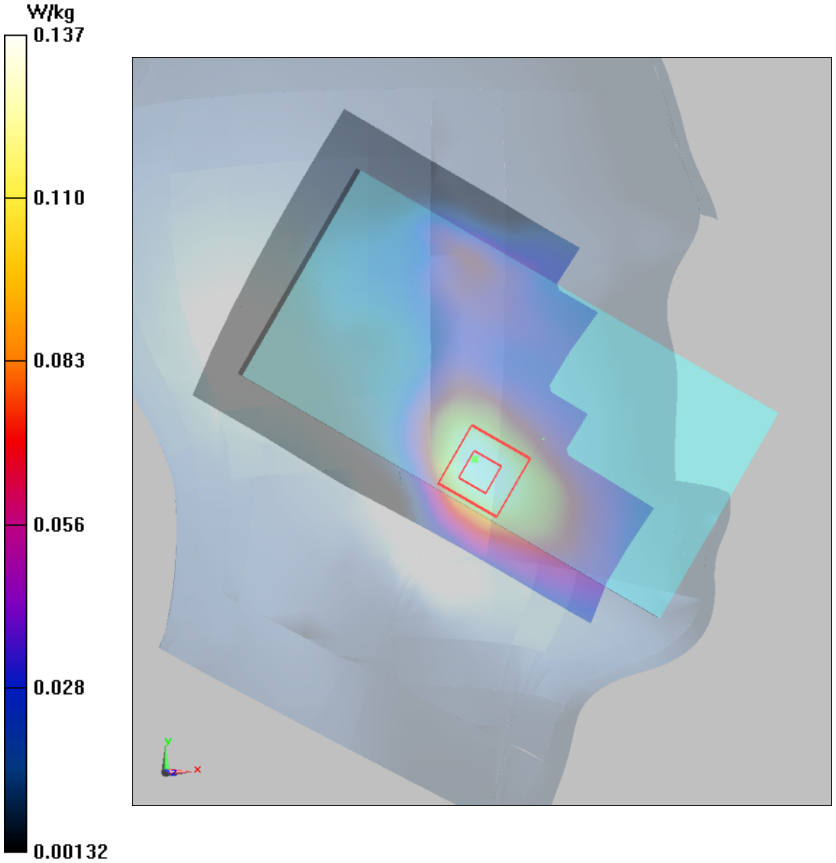
Left Cheek Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 3.041 V/m; Power Drift = 0.088 dB

Peak SAR (extrapolated) = 0.192 W/kg

SAR(1 g) = 0.130 W/kg; SAR(10 g) = 0.083 W/kg

Maximum value of SAR (measured) = 0.137 W/kg



Plot 27 UMTS Band IV Back Side Middle (Distance 15mm)

Date: 7/20/2018

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

Medium parameters used: f = 1733 MHz; σ = 1.421 S/m; ε_r = 51.484; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(7.91, 7.91, 7.91); Calibrated: 5/29/2018;

Electronics: DAE4 SN1317; Calibrated: 3/23/2018

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 (71x131x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.150 W/kg

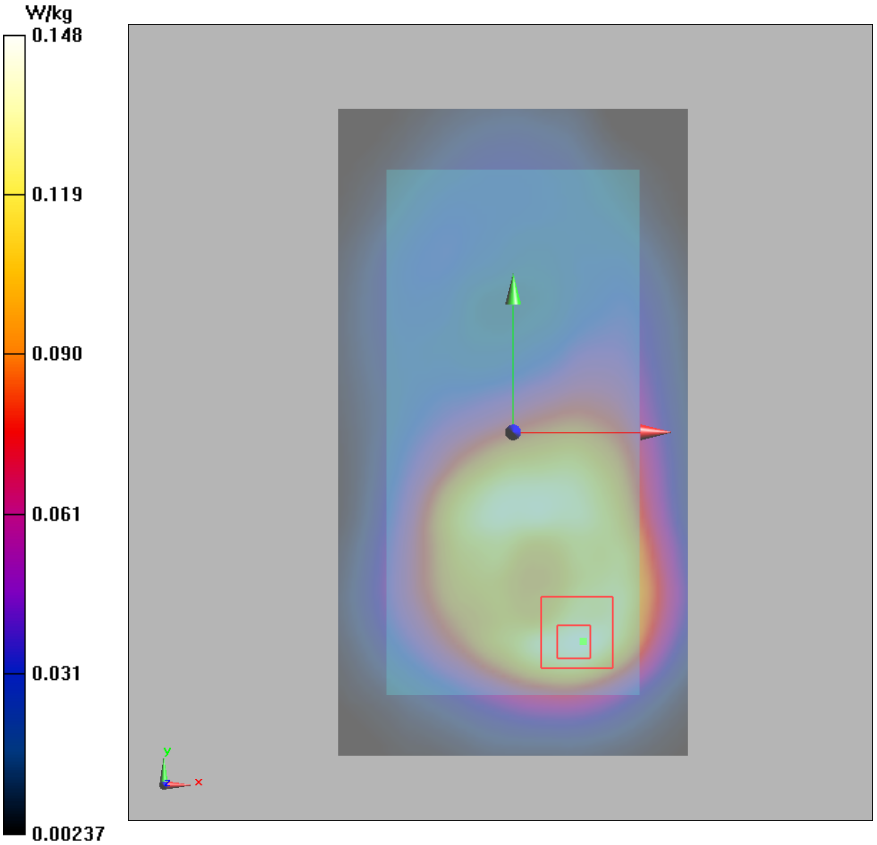
Back Side Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 7.476 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 0.215 W/kg

SAR(1 g) = 0.136 W/kg; SAR(10 g) = 0.084 W/kg

Maximum value of SAR (measured) = 0.148 W/kg



Plot 28 UMTS Band IV Bottom Edge Middle (Distance 10mm)

Date: 7/20/2018

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

Medium parameters used: f = 1733 MHz; σ = 1.421 S/m; ε_r = 51.484; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(7.91, 7.91, 7.91); Calibrated: 5/29/2018;

Electronics: DAE4 SN1317; Calibrated: 3/23/2018

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

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

Bottom Edge Middle/Area Scan (51x111x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.479 W/kg

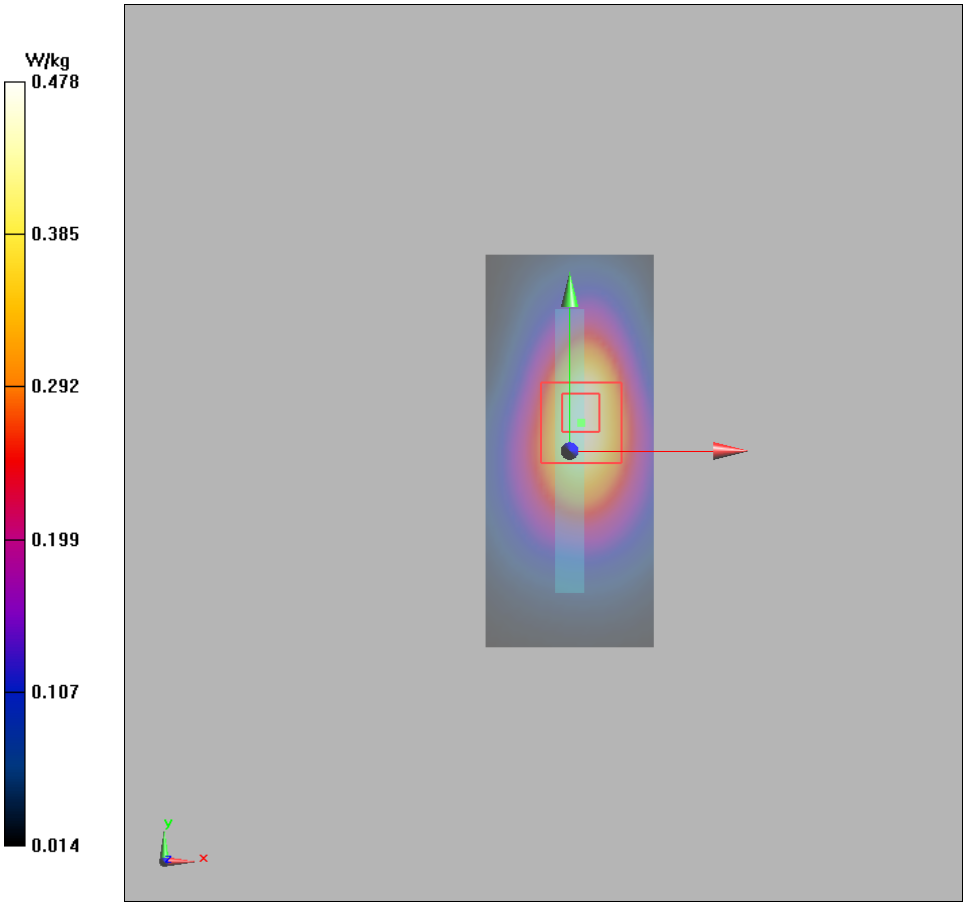
Bottom Edge Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 17.46 V/m; Power Drift = -0.11 dB

Peak SAR (extrapolated) = 0.751 W/kg

SAR(1 g) = 0.435 W/kg; SAR(10 g) = 0.246 W/kg

Maximum value of SAR (measured) = 0.478 W/kg



Plot 29 UMTS Band V Left Cheek Middle

Date: 7/20/2018

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

Medium parameters used: f = 837 MHz; σ = 0.916 S/m; ε_r = 41.951; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃

Phantom section: Left Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(9.10, 9.10, 9.10); Calibrated: 5/29/2018;

Electronics: DAE4 SN1317; Calibrated: 3/23/2018

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

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

Left Cheek Middle/Area Scan (71x131x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.0866 W/kg

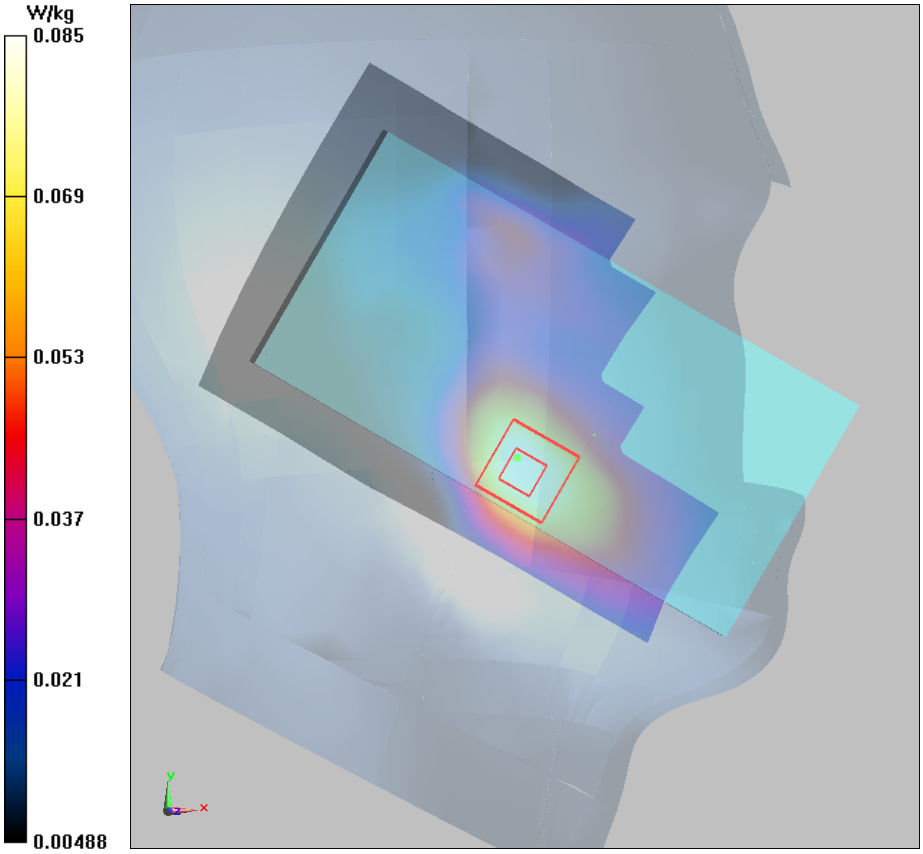
Left Cheek Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 4.257 V/m; Power Drift = 0.041 dB

Peak SAR (extrapolated) = 0.110 W/kg

SAR(1 g) = 0.080 W/kg; SAR(10 g) = 0.055 W/kg

Maximum value of SAR (measured) = 0.085 W/kg



Plot 30 UMTS Band V Back Side Middle (Distance 15mm)

Date: 7/28/2018

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

Medium parameters used: f = 837 MHz; σ = 0.974 S/m; ε_r = 53.795; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(9.32, 9.32, 9.32); Calibrated: 5/29/2018;

Electronics: DAE4 SN1317; Calibrated: 3/23/2018

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 (71x131x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.322 W/kg

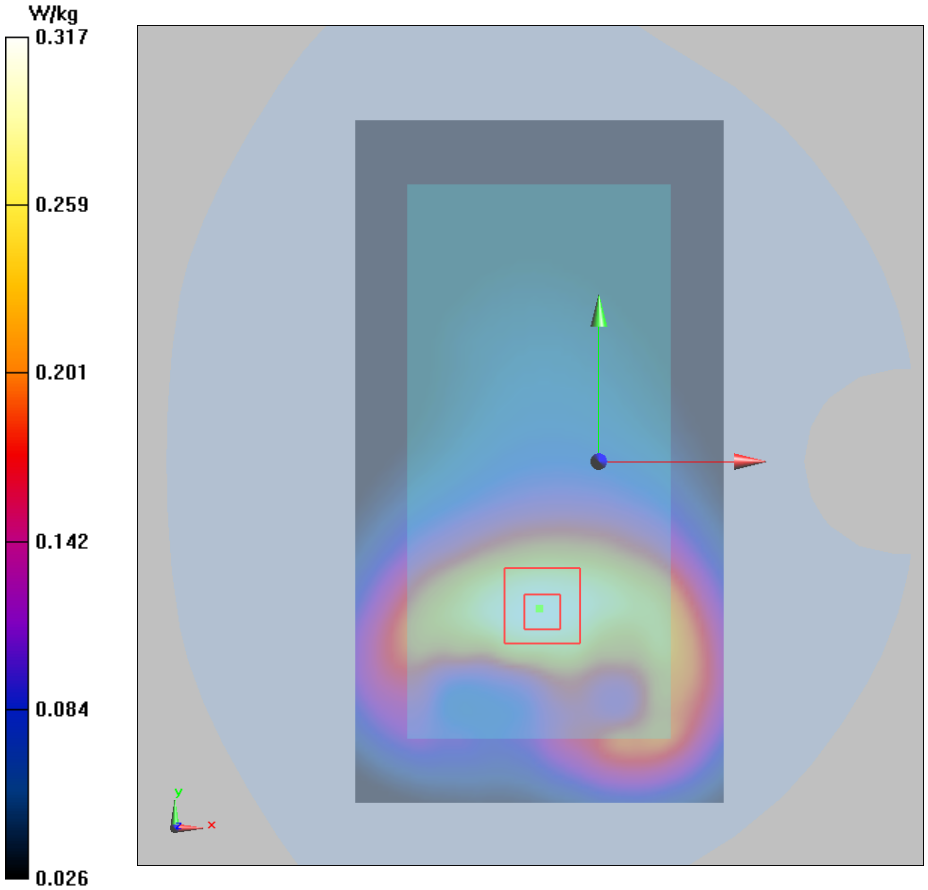
Back Side Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 9.359 V/m; Power Drift = -0.06 dB

Peak SAR (extrapolated) = 0.387 W/kg

SAR(1 g) = 0.297 W/kg; SAR(10 g) = 0.211 W/kg

Maximum value of SAR (measured) = 0.317 W/kg



Plot 31 UMTS Band V Back Side Middle (Distance 10mm)

Date: 7/28/2018

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

Medium parameters used: f = 837 MHz; σ = 0.974 S/m; ε_r = 53.795; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(9.32, 9.32, 9.32); Calibrated: 5/29/2018;

Electronics: DAE4 SN1317; Calibrated: 3/23/2018

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 (71x131x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.451 W/kg

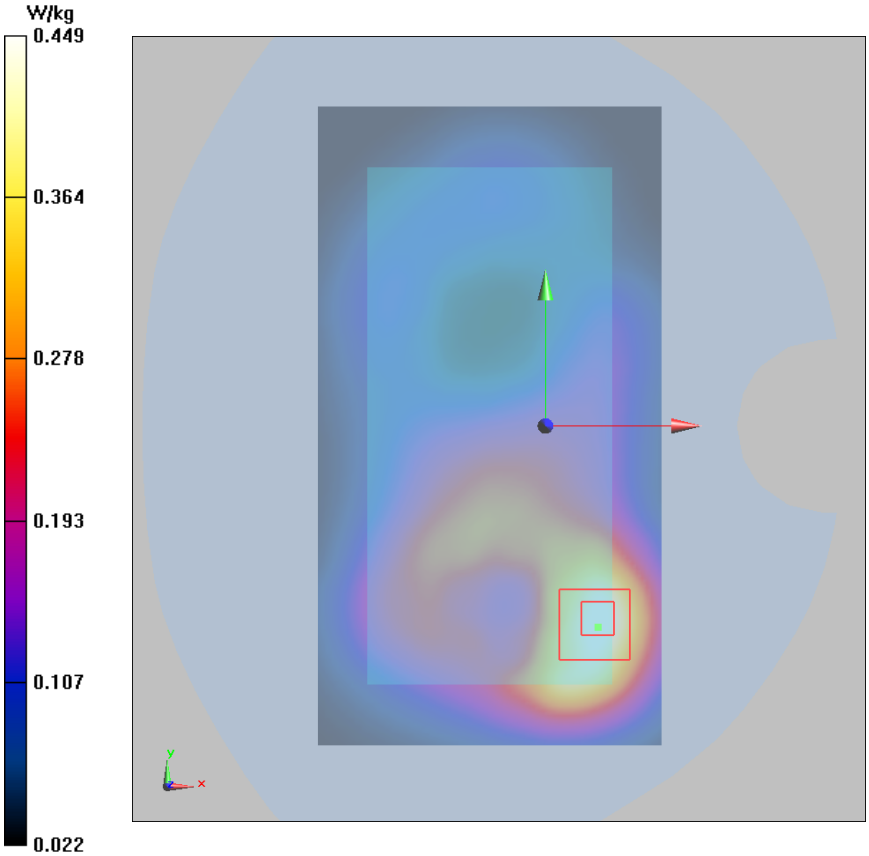
Back Side Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 9.104 V/m; Power Drift = -0.18 dB

Peak SAR (extrapolated) = 0.730 W/kg

SAR(1 g) = 0.398 W/kg; SAR(10 g) = 0.230 W/kg

Maximum value of SAR (measured) = 0.449 W/kg



Plot 32 LTE Band 7 1RB Left Cheek Middle

Date: 7/25/2018

Communication System: UID 0, LTE_FDD (0); Frequency: 2535 MHz;Duty Cycle: 1:1

Medium parameters used: f = 2535 MHz; σ = 1.941 S/m; ε_r = 39.41; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃

Phantom section: Left Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(7.28, 7.28, 7.28); Calibrated: 5/29/2018;

Electronics: DAE4 SN1317; Calibrated: 3/23/2018

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

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

Left Cheek Middle/Area Scan (91x171x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm

Maximum value of SAR (interpolated) = 0.233 W/kg

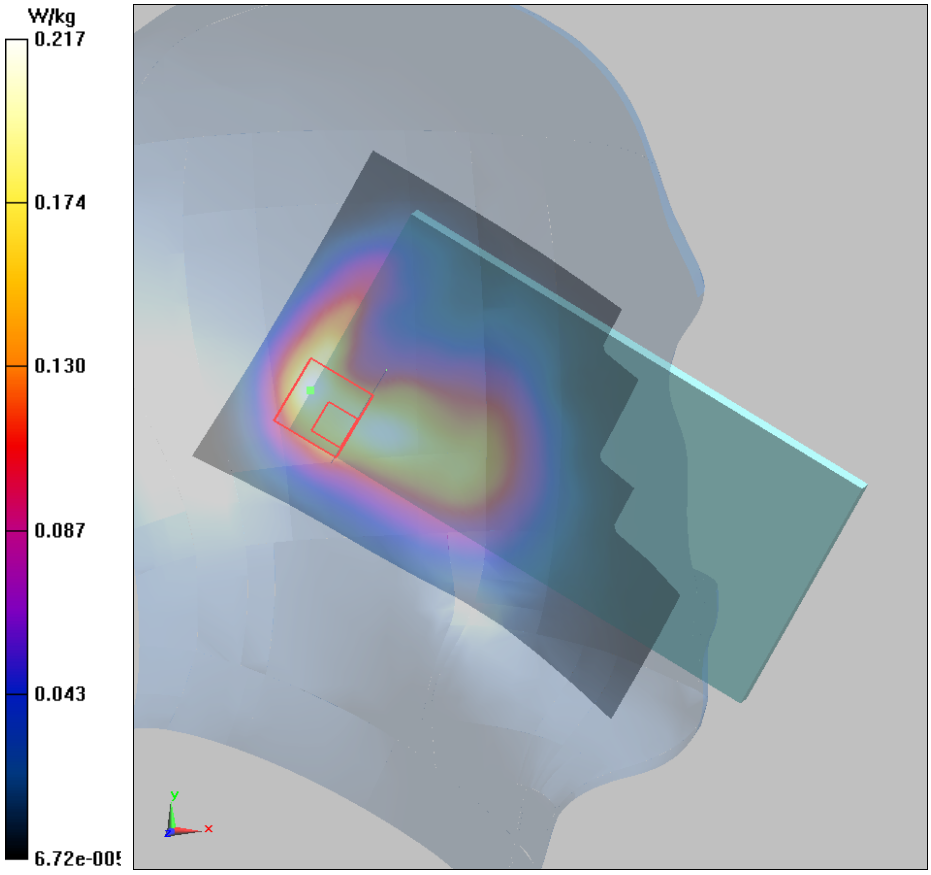
Left Cheek Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 2.890 V/m; Power Drift = 0.154 dB

Peak SAR (extrapolated) = 0.384 W/kg

SAR(1 g) = 0.202 W/kg; SAR(10 g) = 0.104 W/kg

Maximum value of SAR (measured) = 0.217 W/kg



Plot 33 LTE Band 7 50%RB Back Side High (Distance 15mm)

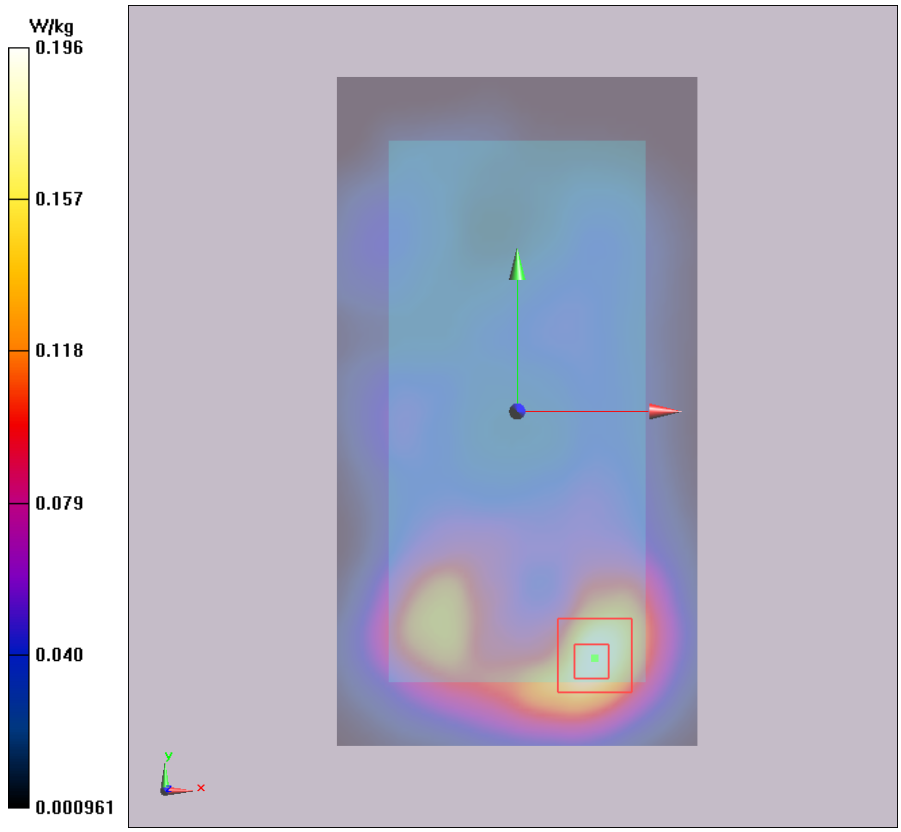
Date: 7/29/2018

Communication System: UID 0, LTE_FDD (0); Frequency: 2560 MHz;Duty Cycle: 1:1

Medium parameters used: f = 2560 MHz; σ = 2.069 S/m; ε_r = 51.495; ρ = 1000 kg/m^3
Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃
Phantom section: Flat Section
DASY5 Configuration:
Sensor-Surface: 4mm (Mechanical Surface Detection)
Probe: EX3DV4 - SN3677; ConvF(7.16, 7.16, 7.16); Calibrated: 5/29/2018;
Electronics: DAE4 SN1317; Calibrated: 3/23/2018
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 (91x171x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 0.197 W/kg

Back Side High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 2.410 V/m; Power Drift = 0.029 dB
Peak SAR (extrapolated) = 0.332 W/kg
SAR(1 g) = 0.179 W/kg; SAR(10 g) = 0.097 W/kg
Maximum value of SAR (measured) = 0.196 W/kg



Plot 34 LTE Band 7 1RB Bottom Edge High (Distance 10mm)

Date: 7/29/2018

Communication System: UID 0, LTE_FDD (0); Frequency: 2560 MHz;Duty Cycle: 1:1

Medium parameters used: f = 2560 MHz; σ = 2.069 S/m; ε_r = 51.495; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(7.16, 7.16, 7.16); Calibrated: 5/29/2018;

Electronics: DAE4 SN1317; Calibrated: 3/23/2018

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

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

Bottom Edge High/Area Scan (51x91x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.576 W/kg

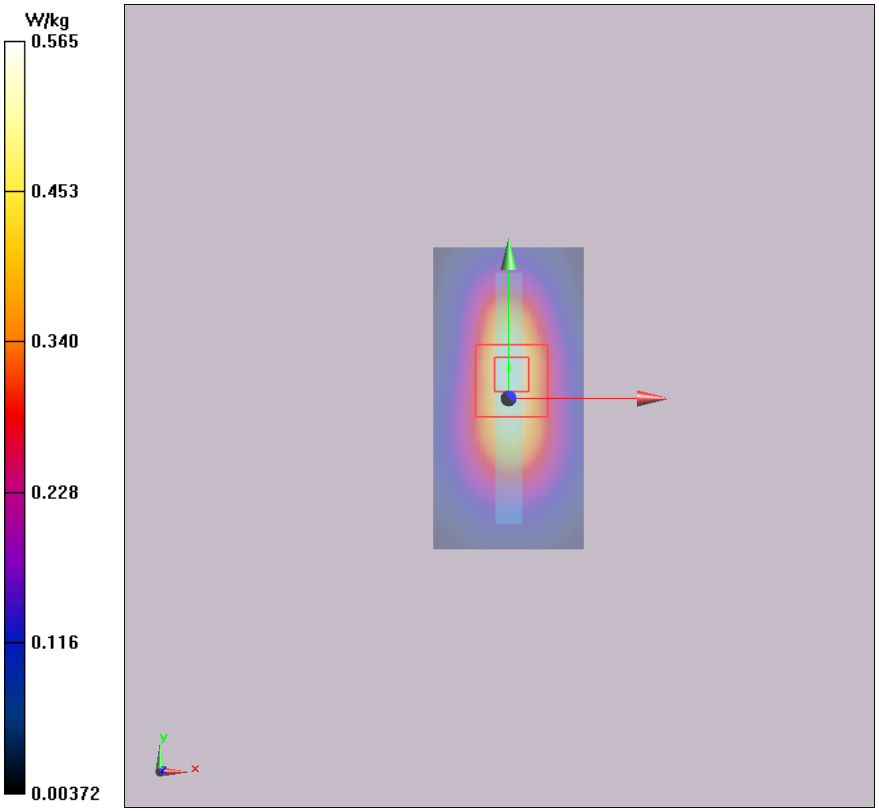
Bottom Edge High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 17.01 V/m; Power Drift = -0.041 dB

Peak SAR (extrapolated) = 0.998 W/kg

SAR(1 g) = 0.500 W/kg; SAR(10 g) = 0.252 W/kg

Maximum value of SAR (measured) = 0.565 W/kg



Plot 35 GSM 850 Right Cheek Middle

Date: 7/20/2018

Communication System: UID 0, GSM 850 (0); Frequency: 836.6 MHz;Duty Cycle: 1:8.30042

Medium parameters used: f = 837 MHz; σ = 0.916 S/m; ε_r = 41.951; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃

Phantom section: Right Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(9.10, 9.10, 9.10); Calibrated: 5/29/2018;

Electronics: DAE4 SN1317; Calibrated: 3/23/2018

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

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

Right Cheek Middle/Area Scan (71x131x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.534 W/kg

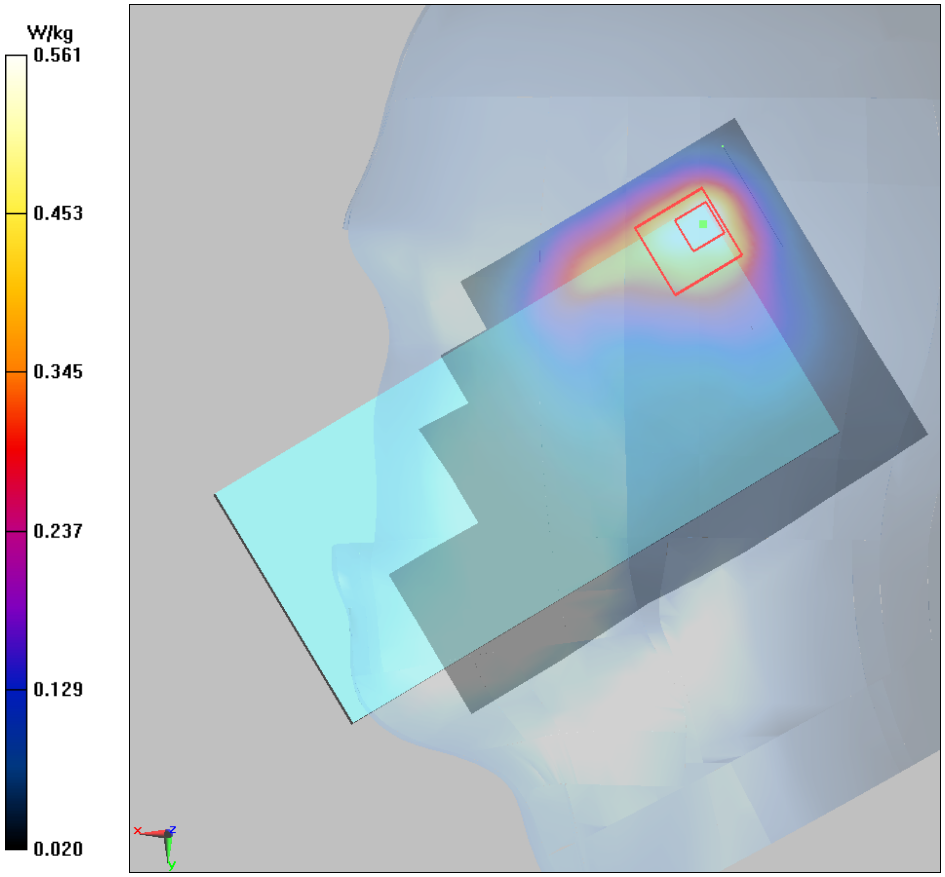
Right Cheek Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 17.09 V/m; Power Drift = 0.025 dB

Peak SAR (extrapolated) = 0.919 W/kg

SAR(1 g) = 0.502 W/kg; SAR(10 g) = 0.288 W/kg

Maximum value of SAR (measured) = 0.561 W/kg



Plot 36 GSM 850 Back Side Middle (Distance 15mm)

Date: 7/28/2018

Communication System: UID 0, GSM (0); Frequency: 836.6 MHz;Duty Cycle: 1:8.30042

Medium parameters used: f = 837 MHz; σ = 0.974 S/m; ε_r = 53.795; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(9.32, 9.32, 9.32); Calibrated: 5/29/2018;

Electronics: DAE4 SN1317; Calibrated: 3/23/2018

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 (71x131x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.274 W/kg

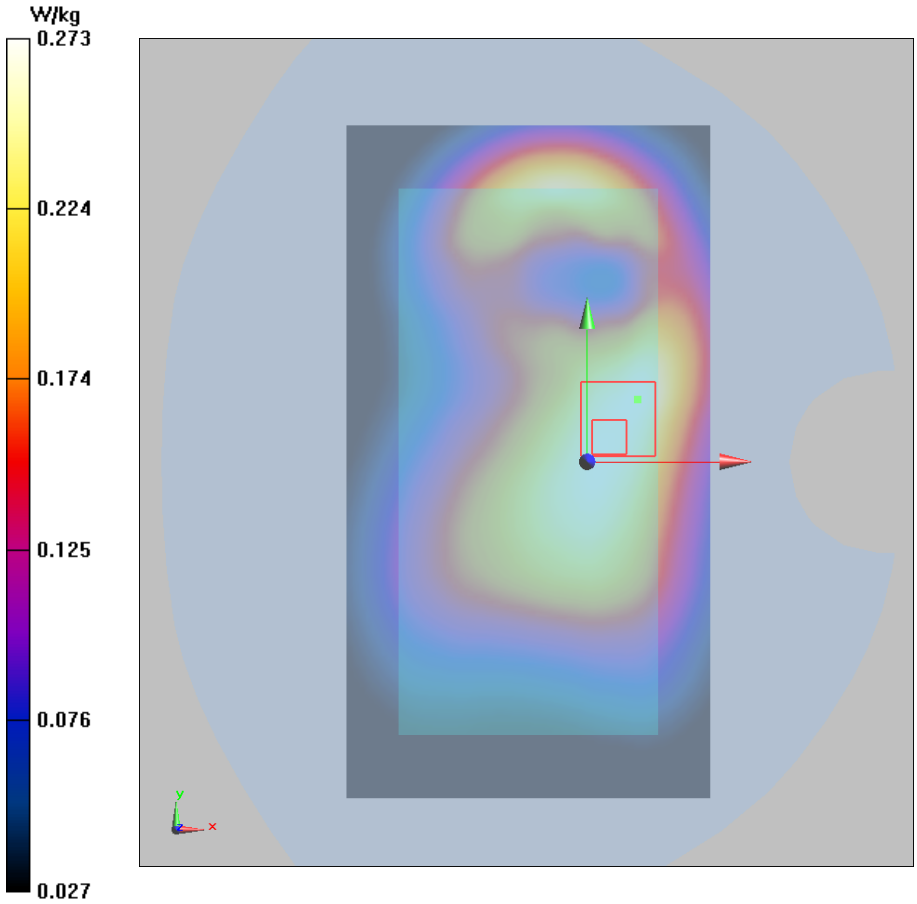
Back Side Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 14.89 V/m; Power Drift = -0.07 dB

Peak SAR (extrapolated) = 0.337 W/kg

SAR(1 g) = 0.259 W/kg; SAR(10 g) = 0.194 W/kg

Maximum value of SAR (measured) = 0.273 W/kg



Plot 37 GSM 850 GPRS (4Txslots) Back Side Middle (Distance 10mm)

Date: 7/28/2018

Communication System: UID 0, 2 slot GPRS (0); Frequency: 836.6 MHz;Duty Cycle: 1:2.07

Medium parameters used: f = 837 MHz; σ = 0.974 S/m; ε_r = 53.795; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(9.32, 9.32, 9.32); Calibrated: 5/29/2018;

Electronics: DAE4 SN1317; Calibrated: 3/23/2018

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 (71x131x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.514 W/kg

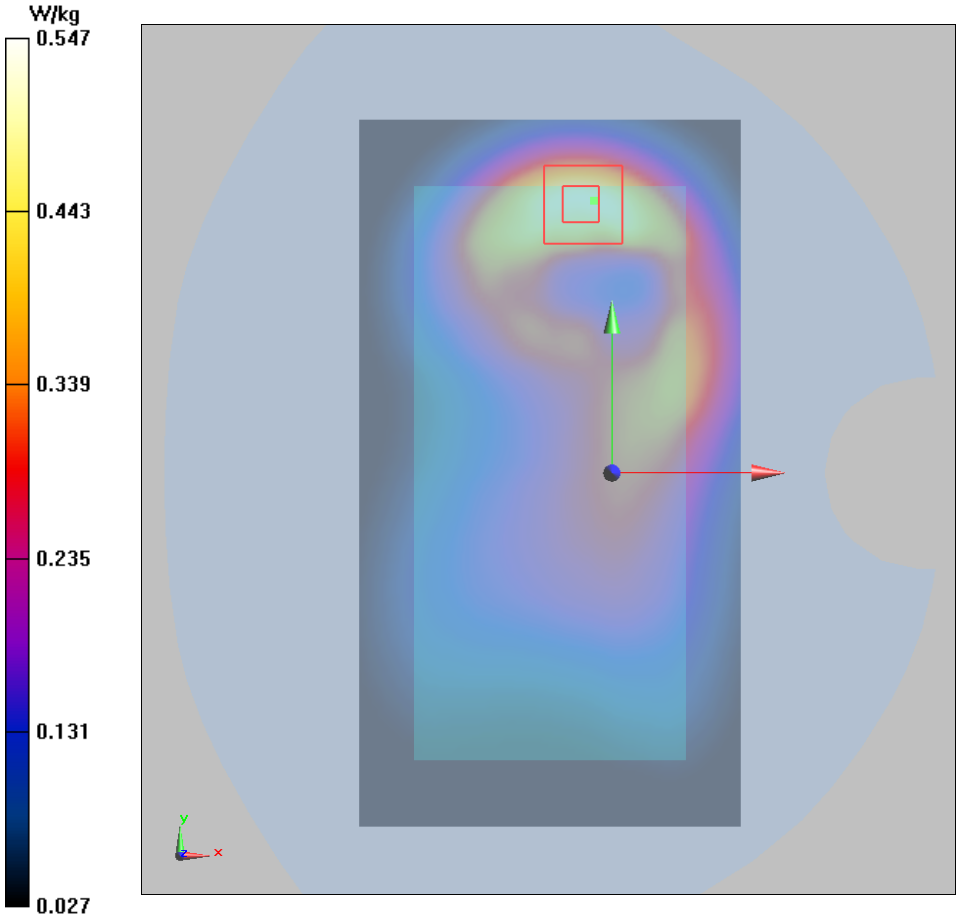
Back Side Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 15.26 V/m; Power Drift = -0.14 dB

Peak SAR (extrapolated) = 0.825 W/kg

SAR(1 g) = 0.505 W/kg; SAR(10 g) = 0.300 W/kg

Maximum value of SAR (measured) = 0.547 W/kg

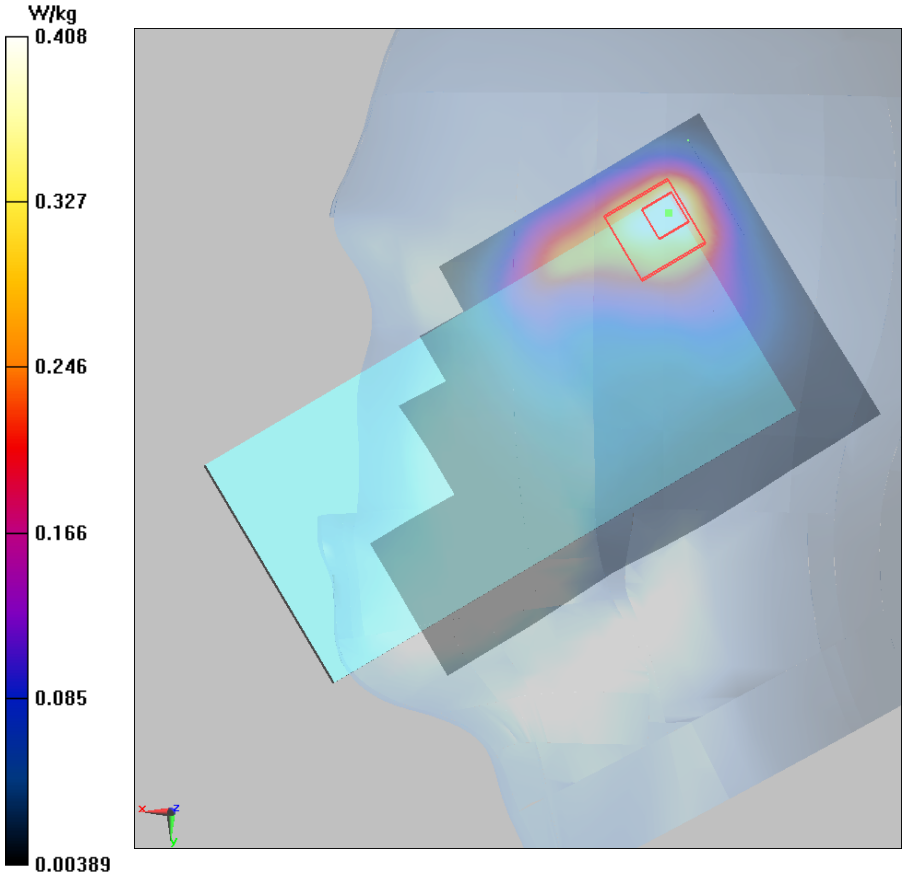


Plot 38 GSM 1900 Right Cheek Middle

Date/Time: 2018/7/18 5:27:16
Communication System: UID 0, GSM (0); Frequency: 1880 MHz;Duty Cycle: 1:8.30042
Medium parameters used: f = 1880 MHz; σ = 1.36 S/m; ε_r = 39.14; ρ = 1000 kg/m^3
Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃
Phantom section: Right Section
DASY5 Configuration:
Sensor-Surface: 4mm (Mechanical Surface Detection)
Probe: EX3DV4 - SN3677; ConvF(7.96, 7.96, 7.96); Calibrated: 5/29/2018;
Electronics: DAE4 SN1317; Calibrated: 3/23/2018
Phantom: SAM1; Type: SAM; Serial: TP-1534
Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7439)

Right Cheek Middle/Area Scan (71x131x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.457 W/kg

Right Cheek Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 10.01 V/m; Power Drift = 0.07 dB
Peak SAR (extrapolated) = 0.808 W/kg
SAR(1 g) = 0.370 W/kg; SAR(10 g) = 0.191 W/kg
Maximum value of SAR (measured) = 0.408 W/kg

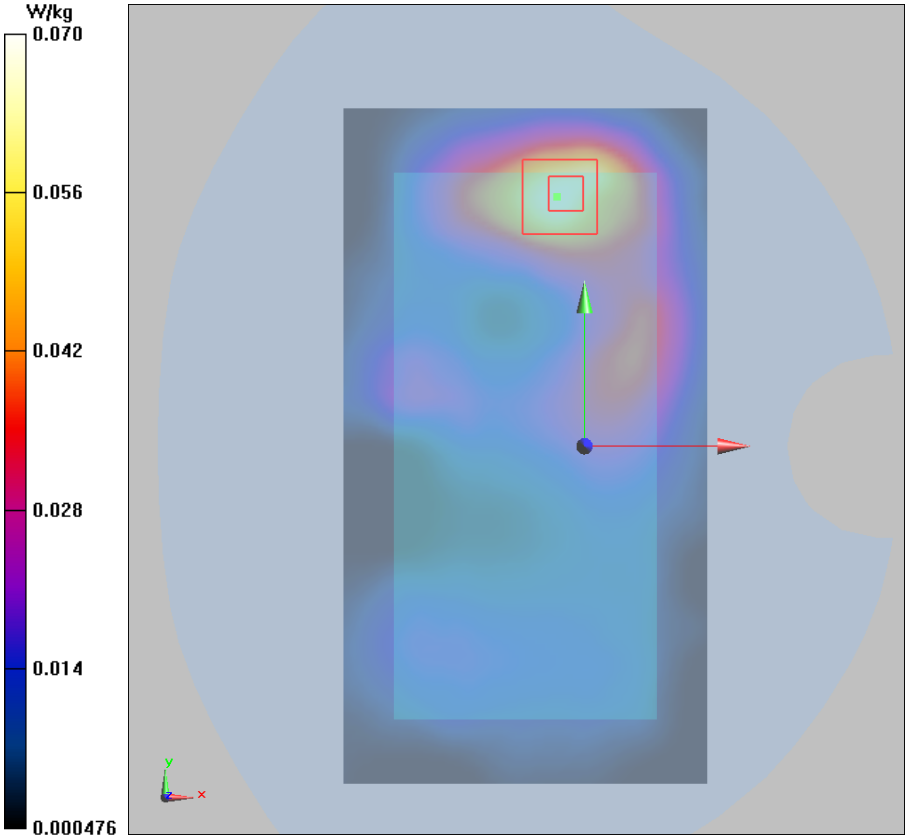


Plot 39 GSM 1900 Back Side Middle (Distance 15mm)

Date/Time: 2018/7/23 11:07:56
Communication System: UID 0, GSM 1900 (0); Frequency: 1880 MHz;Duty Cycle: 1:8.30042
Medium parameters used: f = 1880 MHz; σ = 1.489 S/m; ε_r = 52.896; ρ = 1000 kg/m^3
Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃
Phantom section: Flat Section
DASY5 Configuration:
Sensor-Surface: 4mm (Mechanical Surface Detection)
Probe: EX3DV4 - SN3677; ConvF(7.70, 7.70, 7.70); Calibrated: 5/29/2018;
Electronics: DAE4 SN1317; Calibrated: 3/23/2018
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 (71x131x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.0661 W/kg

Back Side Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 3.085 V/m; Power Drift = 0.13 dB
Peak SAR (extrapolated) = 0.111 W/kg
SAR(1 g) = 0.065 W/kg; SAR(10 g) = 0.037 W/kg
Maximum value of SAR (measured) = 0.070 W/kg

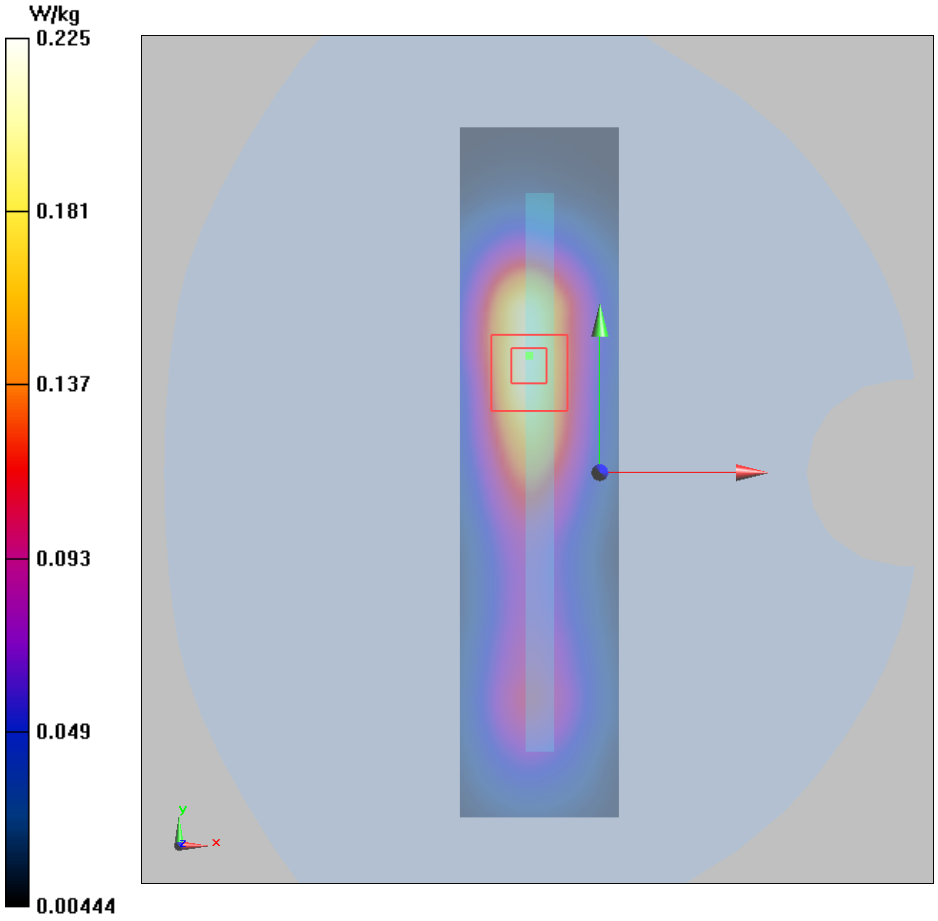


Plot 40 GSM 1900 GPRS (4Txslots) Left Edge Middle (Distance 10mm)

Date/Time: 2018/7/23 13:08:25
Communication System: UID 0, GPRS 4TX (0); Frequency: 1880 MHz;Duty Cycle: 1:2.07491
Medium parameters used: f = 1880 MHz; σ = 1.489 S/m; ε_r = 52.896; ρ = 1000 kg/m^3
Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃
Phantom section: Flat Section
DASY5 Configuration:
Sensor-Surface: 4mm (Mechanical Surface Detection)
Probe: EX3DV4 - SN3677; ConvF(7.70, 7.70, 7.70); Calibrated: 5/29/2018;
Electronics: DAE4 SN1317; Calibrated: 3/23/2018
Phantom: SAM1; Type: SAM; Serial: TP-1534
Measurement SW: DASY52, Version 52.10 (1); SEMCAD X Version 14.6.11 (7439)

Left Edge Middle/Area Scan (51x201x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.232 W/kg

Left Edge Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 9.651 V/m; Power Drift = 0.07 dB
Peak SAR (extrapolated) = 0.332 W/kg
SAR(1 g) = 0.200 W/kg; SAR(10 g) = 0.115 W/kg
Maximum value of SAR (measured) = 0.225 W/kg



Plot 41 UMTS Band II Right Tilt Low

Date: 7/16/2018

Communication System: UID 0, WCDMA (0); Frequency: 1852.4 MHz;Duty Cycle: 1:1

Medium parameters used (interpolated): f = 1852.4 MHz; σ = 1.335 S/m; ε_r = 39.226; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃

Phantom section: Right Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(7.96, 7.96, 7.96); Calibrated: 5/29/2018;

Electronics: DAE4 SN1317; Calibrated: 3/23/2018

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

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

Right Tilt Low/Area Scan (71x131x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.919 W/kg

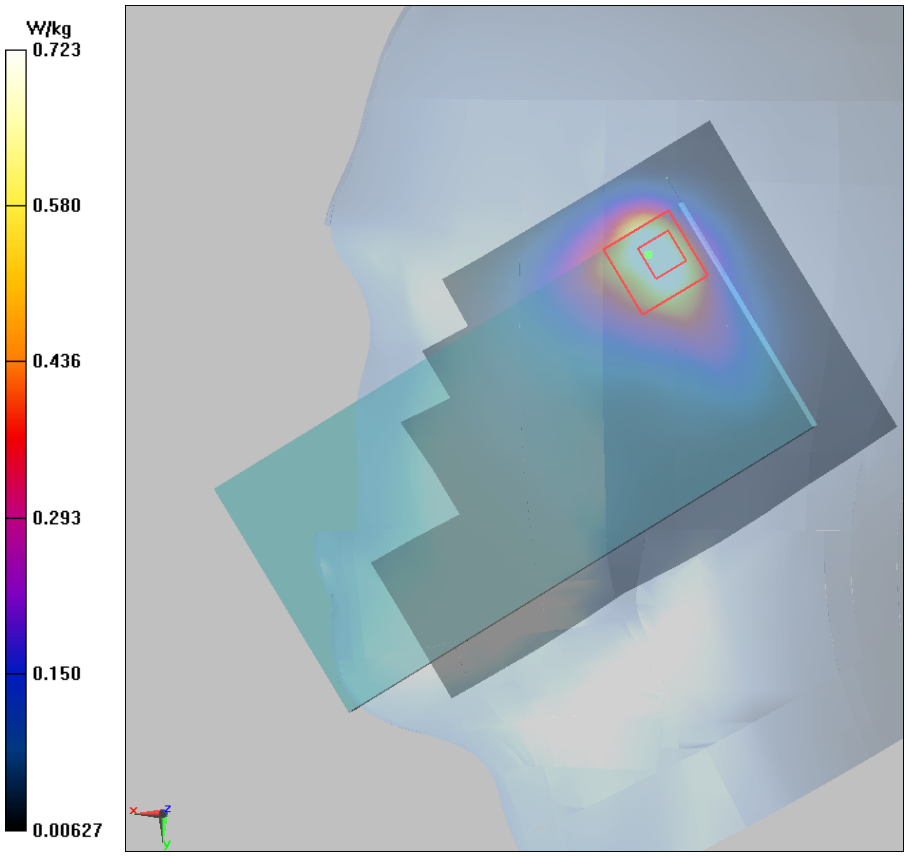
Right Tilt Low/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 14.63 V/m; Power Drift = 0.06 dB

Peak SAR (extrapolated) = 1.71 W/kg

SAR(1 g) = 0.704 W/kg; SAR(10 g) = 0.326 W/kg

Maximum value of SAR (measured) = 0.723 W/kg



Plot 42 UMTS Band II Back Side Middle (Distance 15mm)

Date: 7/29/2018

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

Medium parameters used: f = 1880 MHz; σ = 1.489 S/m; ε_r = 52.896; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(7.70, 7.70, 7.70); Calibrated: 5/29/2018;

Electronics: DAE4 SN1317; Calibrated: 3/23/2018

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 (71x131x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.296 W/kg

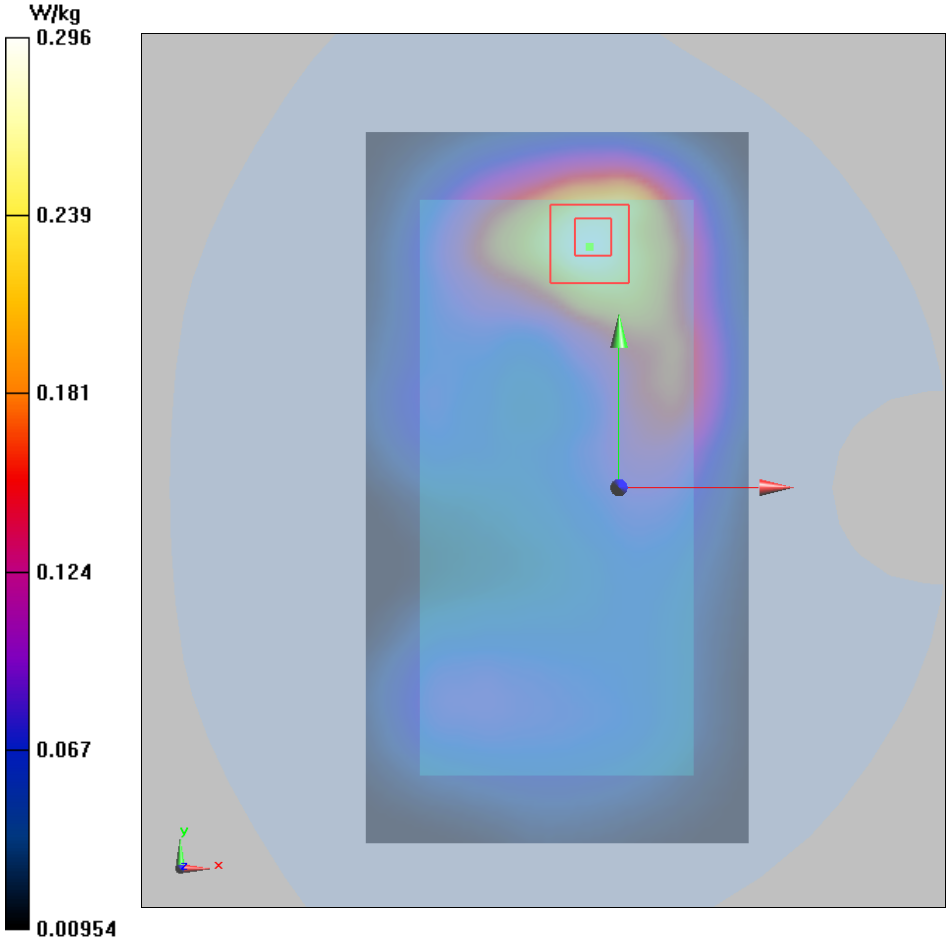
Back Side Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 6.483 V/m; Power Drift = -0.024 dB

Peak SAR (extrapolated) = 0.457 W/kg

SAR(1 g) = 0.277 W/kg; SAR(10 g) = 0.166 W/kg

Maximum value of SAR (measured) = 0.296 W/kg



Plot 43 UMTS Band II Back Side Middle (Distance 10mm)

Date: 7/29/2018

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

Medium parameters used: f = 1880 MHz; σ = 1.489 S/m; ε_r = 52.896; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(7.70, 7.70, 7.70); Calibrated: 5/29/2018;

Electronics: DAE4 SN1317; Calibrated: 3/23/2018

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 (71x131x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.646 W/kg

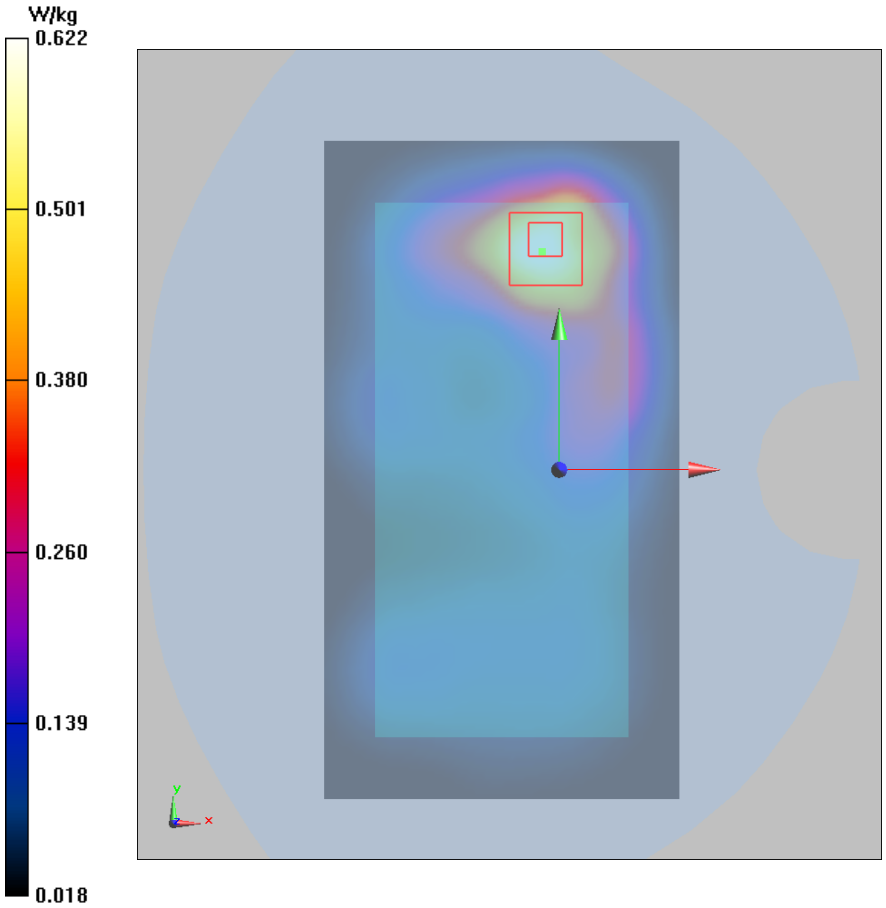
Back Side Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 8.101 V/m; Power Drift = -0.025 dB

Peak SAR (extrapolated) = 1.05 W/kg

SAR(1 g) = 0.578 W/kg; SAR(10 g) = 0.331 W/kg

Maximum value of SAR (measured) = 0.622 W/kg



Plot 44 UMTS Band IV Right Tilt Middle

Date: 7/22/2018

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

Medium parameters used: f = 1733 MHz; σ = 1.393 S/m; ε_r = 40.051; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃

Phantom section: Right Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(8.19, 8.19, 8.19); Calibrated: 5/29/2018;

Electronics: DAE4 SN1317; Calibrated: 3/23/2018

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

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

Right Tilt Middle/Area Scan (71x131x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.798 W/kg

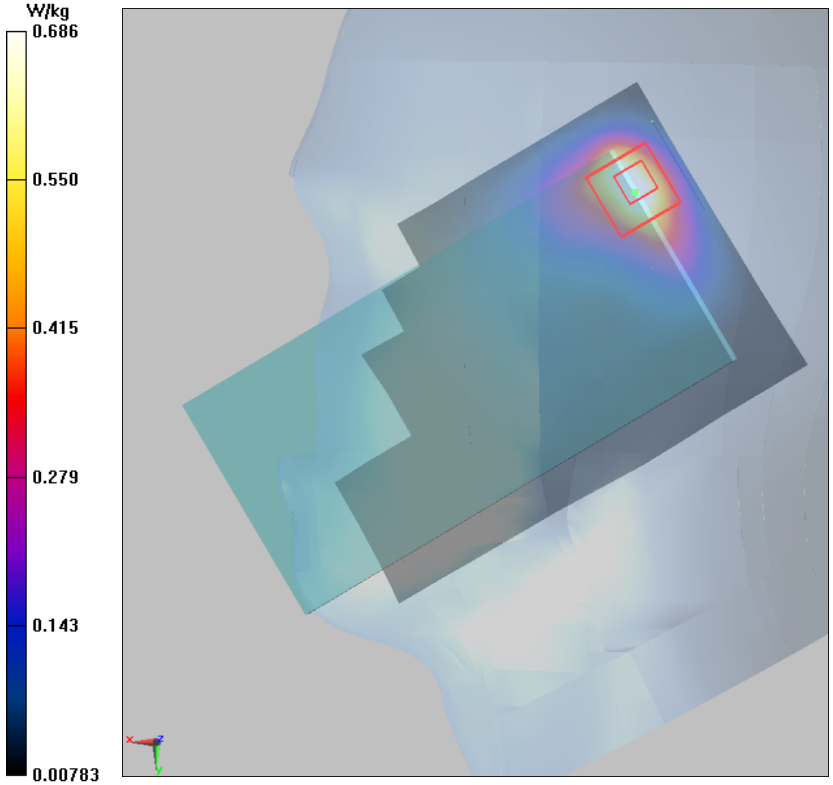
Right Tilt Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 12.32 V/m; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 1.53 W/kg

SAR(1 g) = 0.634 W/kg; SAR(10 g) = 0.287 W/kg

Maximum value of SAR (measured) = 0.686 W/kg



Plot 45 UMTS Band IV Back Side Middle (Distance 15mm)

Date: 7/20/2018

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

Medium parameters used: f = 1733 MHz; σ = 1.421 S/m; ε_r = 51.484; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(7.91, 7.91, 7.91); Calibrated: 5/29/2018;

Electronics: DAE4 SN1317; Calibrated: 3/23/2018

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 (71x131x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.285 W/kg

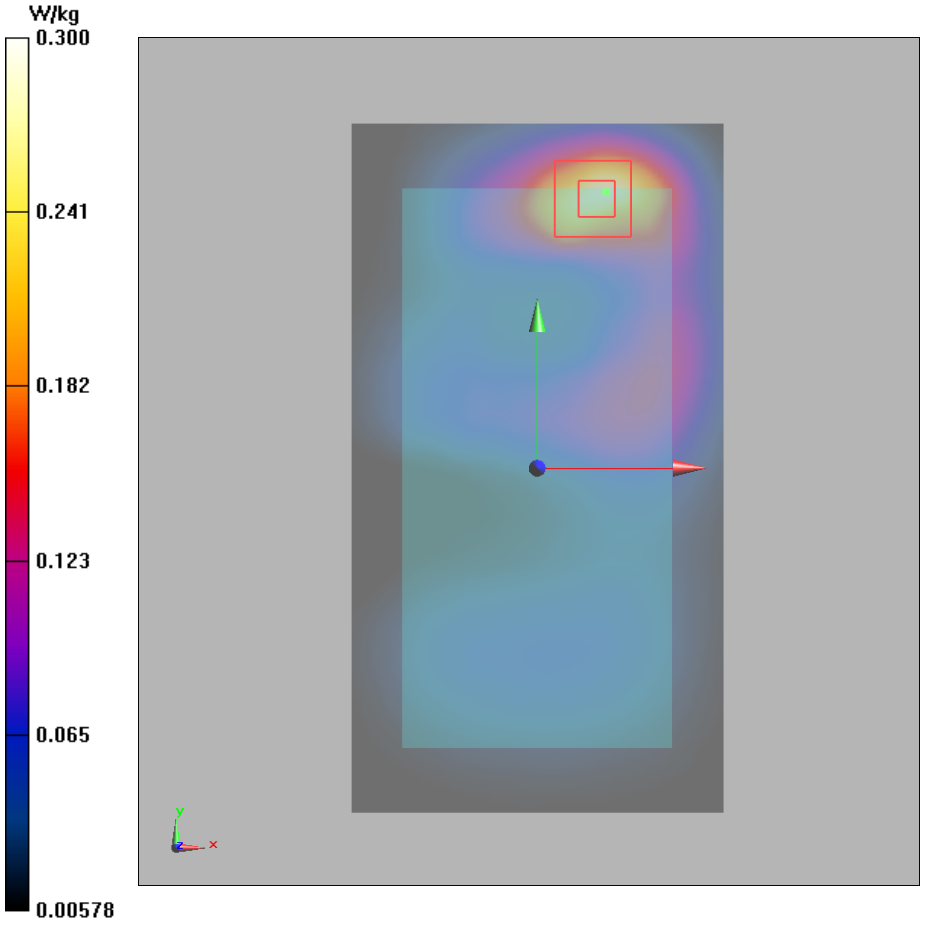
Back Side Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 5.591 V/m; Power Drift = -0.06 dB

Peak SAR (extrapolated) = 0.467 W/kg

SAR(1 g) = 0.271 W/kg; SAR(10 g) = 0.149 W/kg

Maximum value of SAR (measured) = 0.300 W/kg



Plot 46 UMTS Band IV Top Edge Middle (Distance 10mm)

Date: 7/20/2018

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

Medium parameters used: f = 1733 MHz; σ = 1.421 S/m; ε_r = 51.484; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(7.91, 7.91, 7.91); Calibrated: 5/29/2018;

Electronics: DAE4 SN1317; Calibrated: 3/23/2018

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

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

Top Edge Middle/Area Scan (51x111x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.725 W/kg

Top Edge Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 21.39 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 1.10 W/kg

SAR(1 g) = 0.608 W/kg; SAR(10 g) = 0.328 W/kg

Maximum value of SAR (measured) = 0.677 W/kg