SAR TEST REPORT

Applicant	MobiWire SAS
FCC ID	QPN-H6511
Product	4G Smart Phone
Brand	MobiWire; MobiWire; Vodafone
Model	MobiWire H6511; MBW Vodafone Smart T23; Vodafone Pro 4G
Report No.	R2209A0850-S1
Issue Date	November 23, 2022

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.

Wei Fangying　　　Fan Guangchang

Prepared by: Wei Fangying　　　*Approved by: Fan Guangchang*

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1 Test Laboratory

1.1 Notes of the Test Report

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

1.2 Test Facility

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

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

A2LA (Certificate Number: 3857.01)

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

1.3 Testing Location

Company:	TA Technology (Shanghai) Co., Ltd.
Address:	Building 3, No.145, Jintang Rd, Pudong Shanghai, P.R.China
City:	Shanghai
Post code:	201201
Country:	P. R. China
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E-mail:	fanguangchang@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 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	0.276	0.861	0.861	N/A
GSM 1900	0.141	0.566	0.566	N/A
LTE FDD 4	0.223	0.938	0.938	3.022
LTE FDD 5	0.370	0.530	0.530	N/A
LTE FDD 7	0.203	**1.284**	**1.284**	**3.114**
LTE TDD 40	0.073	1.049	1.049	N/A
Wi-Fi (2.4G)	0.729	0.298	0.298	N/A
Wi-Fi (5G)	**0.899**	0.729	0.729	NA
Bluetooth	0.128	0.070	0.070	NA

Date of Testing: September 30, 2022 ~ October 4, 2022

Date of Sample Received: September 15, 2022

Note:

1. The device is in compliance with SAR for Uncontrolled Environment /General Population exposure limits (1.6 W/kg and 4.0 W/kg) specified in ANSI C95.1: 1992/IEEE C95.1: 1991, and had been tested in accordance with the measurement methods and procedures specified in IEEE 1528-2013.
2. All indications of Pass/Fail in this report are opinions expressed by TA Technology (Shanghai) Co., Ltd. based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only.

Table 2: Highest Simultaneous Transmission SAR

Exposure Configuration	1g SAR Head	1g SAR Body-worn (Separation 15mm)	1g SAR Hotspot (Separation 10mm)	Product Specific 10-g SAR (Separation 0mm)
Highest Simultaneous Transmission SAR (W/kg)	1.207	1.590	1.590	3.114

Note: The detail for simultaneous transmission consideration is described in chapter 10.3.

3 Description of Equipment Under Test

Client Information

Applicant	MobiWire SAS
Applicant address	107 Boulevard de la Mission Marchand, 92400 Courbevoie, France.
Manufacturer	MobiWire SAS
Manufacturer address	107 Boulevard de la Mission Marchand, 92400 Courbevoie, France.

General Technologies

Application Purpose	Original Grant		
EUT Stage	Identical Prototype		
Model	MobiWire H6511; MBW Vodafone Smart T23; Vodafone Pro 4G		
IMEI	1#	Configure 1	356662530000220
	2#		356662530000238
	3#	Configure 2	356662530000246
Hardware Version	V00		
Software Version	MobiWire_H6511M_V01		
Antenna Type	Internal Antenna		
Device Class	B		
Wi-Fi Hotspot	Wi-Fi 2.4G Wi-Fi 5G U-NII-1& U-NII-2A& U-NII-2C& U-NII-3		
Power Class	GSM 850: 4 GSM 1900: 1 LTE FDD 4/5/7: 3 LTE TDD 40: 3		
Power Level	GSM 850: level 5 GSM 1900: level 0 LTE FDD 4/5/7: max power LTE TDD 40: max power		
EUT Accessory			
Adapter 1	Manufacturer: Jiangxi Jian Aohai Technology Co., Ltd. Model: A103A-050100U-AU2		
Adapter 2	Manufacturer: Dongguan Aohai Technology Co., Ltd. Model: A18A-050100U-US2		
Battery	Manufacturer: Shenzhen Aerospace Electronic Co.,Ltd. Model: 178249224		
Earphone	Manufacturer: JIU JIANG JUWEI ELECTRONICS CO.,LTD Model: JWEP0957-M01R		
USB Cable	Manufacturer: SHENZHEN FKY-QY HARDWARE ELECTRONIC CO.,LTD Model: AM/MICRO5P		
Note: The EUT is sent from the applicant to TA and the information of the EUT is declared by the applicant.			

Item	Configure 1	Configure 2
Components on PCB changes	/	add second flash
LCD changes	/	add second flash
Others	The same	The same

Three models: MobiWire H6511; Vodafone Pro 4G; MBW Vodafone Smart T23
The difference:
Vodafone Pro 4G; MBW Vodafone Smart T23:
1: Battery cover silkscreen logo is different.

MobiWire H6511 is same as Vodafone Pro 4G, no difference. And only the data for MobiWire H6511 is recorded in this report.

Wireless Technology and Frequency Range

<table>
<tr><th colspan="2">Wireless Technology</th><th>Modulation</th><th>Operating mode</th><th>Tx (MHz)</th></tr>
<tr><td rowspan="3">GSM</td><td>850</td><td rowspan="2">Voice(GMSK)
GPRS(GMSK)
EGPRS(GMSK,8PSK)</td><td rowspan="2">☐Multi-slot Class:8-1UP
☐Multi-slot Class:10-2UP
☒Multi-slot Class:12-4UP
☐Multi-slot Class:33-4UP</td><td>824 ~ 849</td></tr>
<tr><td>1900</td><td>1850 ~ 1910</td></tr>
<tr><td colspan="4">Does this device support DTM (Dual Transfer Mode)? ☐Yes ☒No</td></tr>
<tr><td rowspan="6">LTE</td><td>FDD 4</td><td rowspan="4">QPSK, 16QAM</td><td rowspan="4">Release 11</td><td>1710 ~ 1755</td></tr>
<tr><td>FDD 5</td><td>824 ~ 849</td></tr>
<tr><td>FDD 7</td><td>2500 ~ 2570</td></tr>
<tr><td>TDD 40</td><td>2300 ~ 2400</td></tr>
<tr><td colspan="4">Does this device support Carrier Aggregation (CA) ☐Yes ☒No</td></tr>
<tr><td colspan="4">Does this device support SV-LTE (1xRTT-LTE)? ☐Yes ☒No</td></tr>
<tr><td>Bluetooth</td><td>2.4G</td><td colspan="2">Version 5.0 BR/EDR + LE</td><td>2402 ~2480</td></tr>
<tr><td rowspan="3">Wi-Fi</td><td>2.4G</td><td>DSSS, OFDM</td><td>802.11b/g/n HT20</td><td>2412 ~ 2462</td></tr>
<tr><td>5G</td><td>OFDM</td><td>802.11a/n HT20/ HT40/
ac VHT20/ VHT40/ VHT80</td><td>5150 ~ 5350
5470 ~ 5850</td></tr>
<tr><td colspan="4">Does this device support MIMO ☐Yes ☒No</td></tr>
<tr><td colspan="5">Note: Radio equipment in band 40 is only allowed to operate from 2305 MHz to 2315 MHz for Subset 1; 2350 MHz to 2360 MHz for Subset 2 for the transmitter and receiver.</td></tr>
</table>

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:

Reference Standards

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

5 Operational Conditions during Test

5.1 Test Positions

5.1.1 Against Phantom Head

Measurements were made in “cheek” and “tilt” positions on both the left hand and right hand sides of the phantom.
The positions used in the measurements were according to IEEE 1528 - 2013 "IEEE Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques".

5.1.2 Body Worn Configuration

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

Per FCC KDB Publication 648474 D04, Body-worn accessory exposure is typically related to voice mode operations when handsets are carried in body-worn accessories. The body-worn accessory procedures in FCC KDB Publication 447498 D01 should be used to test for body-worn accessory SAR compliance, without a headset connected to it. 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, product specific 10-g 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. Product specific 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 product specific 10-g 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 3: The allowed power reduction in the multi-slot configuration

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

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

5.3.2 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. 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.

5.3.3 Additional Requirements for TDD LTE Specification

For Time-Division Duplex (TDD) systems, SAR must be tested using a fixed periodic duty factor according to the highest transmission duty factor implemented for the device and supported by the defined 3GPP LTE TDD configurations.

TDD LTE Band supports 3GPP TS 36.211 section 4.2 for Type 2 Frame Structure and Table: Uplink-downlink configurations for uplink-downlink configurations and Table: Configuration of special subframe (lengths of DwPTS/GP/UpPTS) for Special subframe configurations.

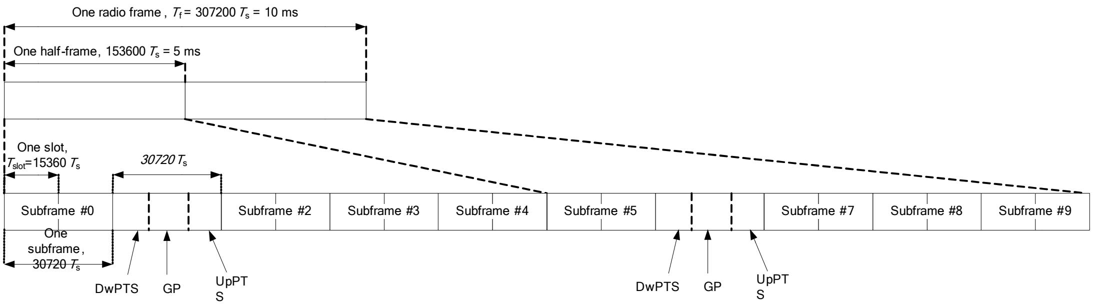


Figure 1: Frame structure type 2

Table 4: Configuration of Special Subframe (Lengths of DwPTS/GP/UpPTS)

<table>
<tr><th rowspan="3">Special subframe configuration</th><th colspan="3">Normal cyclic prefix in downlink</th><th colspan="3">Extended cyclic prefix in downlink</th></tr>
<tr><th rowspan="2">DwPTS</th><th colspan="2">UpPTS</th><th rowspan="2">DwPTS</th><th colspan="2">UpPTS</th></tr>
<tr><th>Normal cyclic prefix in uplink</th><th>Extended cyclic prefix in uplink</th><th>Normal cyclic prefix in uplink</th><th>Extended cyclic prefix in uplink</th></tr>
<tr><td>0</td><td>$6592 \cdot T_s$</td><td rowspan="5">$2192 \cdot T_s$</td><td rowspan="5">$2560 \cdot T_s$</td><td>$7680 \cdot T_s$</td><td rowspan="4">$2192 \cdot T_s$</td><td rowspan="4">$2560 \cdot T_s$</td></tr>
<tr><td>1</td><td>$19760 \cdot T_s$</td><td>$20480 \cdot T_s$</td></tr>
<tr><td>2</td><td>$21952 \cdot T_s$</td><td>$23040 \cdot T_s$</td></tr>
<tr><td>3</td><td>$24144 \cdot T_s$</td><td>$25600 \cdot T_s$</td></tr>
<tr><td>4</td><td>$26336 \cdot T_s$</td><td>$7680 \cdot T_s$</td><td rowspan="4">$4384 \cdot T_s$</td><td rowspan="4">$5120 \cdot T_s$</td></tr>
<tr><td>5</td><td>$6592 \cdot T_s$</td><td rowspan="5">$4384 \cdot T_s$</td><td rowspan="5">$5120 \cdot T_s$</td><td>$20480 \cdot T_s$</td></tr>
<tr><td>6</td><td>$19760 \cdot T_s$</td><td>$23040 \cdot T_s$</td></tr>
<tr><td>7</td><td>$21952 \cdot T_s$</td><td>$12800 \cdot T_s$</td></tr>
<tr><td>8</td><td>$24144 \cdot T_s$</td><td>-</td><td>-</td><td>-</td></tr>
<tr><td>9</td><td>$13168 \cdot T_s$</td><td>-</td><td>-</td><td>-</td></tr>
</table>

Table 5: Uplink-Downlink Configurations

Uplink-downlink configuration	Downlink-to-Uplink Switch-point periodicity	Subframe number									
		0	1	2	3	4	5	6	7	8	9
0	5 ms	D	S	U	U	U	D	S	U	U	U
1	5 ms	D	S	U	U	D	D	S	U	U	D
2	5 ms	D	S	U	D	D	D	S	U	D	D
3	10 ms	D	S	U	U	U	D	D	D	D	D
4	10 ms	D	S	U	U	D	D	D	D	D	D
5	10 ms	D	S	U	D	D	D	D	D	D	D
6	5 ms	D	S	U	U	U	D	S	U	U	D

According to Figure 1, one radio frame is configured by 10 subframes, which consist of Uplink-subframe, Downlink-subframe and Special subframe. For TDD-LTE, the Duty Cycle should be calculated on Uplink-subframes and Special subframes, due to Special subframe containing both Uplink transmissions. So for one radio frame, Duty Cycle can be calculated with formula as below. The count of Uplink subframes are according to Table: Uplink-downlink configurations:

Duty cycle = (30720Ts*Ups + Uplink Component*Specials)/(307200Ts)

About the uplink component of Special subframes, we can figure out by Table: Configuration of special subframe (lengths of DwPTS/GP/UpPTS):

Uplink Component = UpPTS

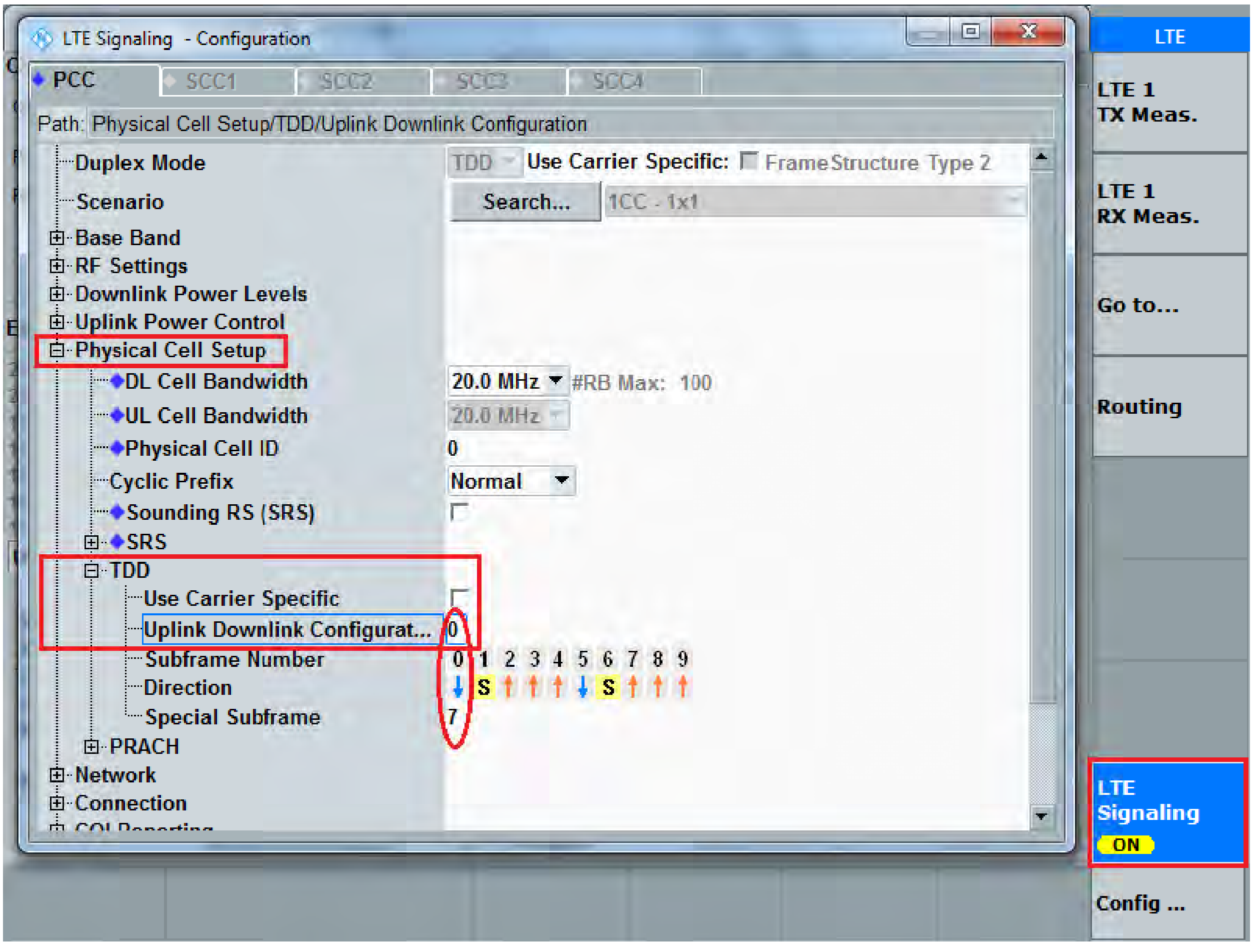
In conclusion, for the TDD LTE Band, Duty Cycle can be calculated with formula as below. All these sets are ok when we test, or we can set as below.

Duty cycle = [(30720Ts*Ups) + UpPTS *Specials]/(307200Ts)

And we can get different Duty cycles under different configurations:

Uplink-downlink configuration	Subframe number			Configuration of special subframe							
				Normal cyclic prefix in downlink				Extended cyclic prefix in downlink			
				Normal cyclic prefix in uplink		Extended cyclic prefix in uplink		Normal cyclic prefix in uplink		Extended cyclic prefix in uplink	
	D	S	U	configuration 0~4	configuration 5~9	configuration 0~4	configuration 5~9	configuration 0~3	configuration 4~7	configuration 0~3	configuration 4~7
0	2	2	6	61.43%	62.85%	61.67%	63.33%	61.43%	62.85%	61.67%	63.33%
1	4	2	4	41.43%	42.85%	41.67%	43.33%	41.43%	42.85%	41.67%	43.33%
2	6	2	2	21.43%	22.85%	21.67%	23.33%	21.43%	22.85%	21.67%	23.33%
3	6	1	3	30.71%	31.43%	30.83%	31.67%	30.71%	31.43%	30.83%	31.67%
4	7	1	2	20.71%	21.43%	20.83%	21.67%	20.71%	21.43%	20.83%	21.67%
5	8	1	1	10.71%	11.43%	10.83%	11.67%	10.71%	11.43%	10.83%	11.67%
6	3	2	5	51.43%	52.85%	51.67%	53.33%	51.43%	52.85%	51.67%	53.33%

SAR test Plan: For TDD LTE, SAR should be tested with the highest transmission duty factor (63.33%) using Uplink-downlink configuration 0 and Special subframe configuration 7 for Frame structure type



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.

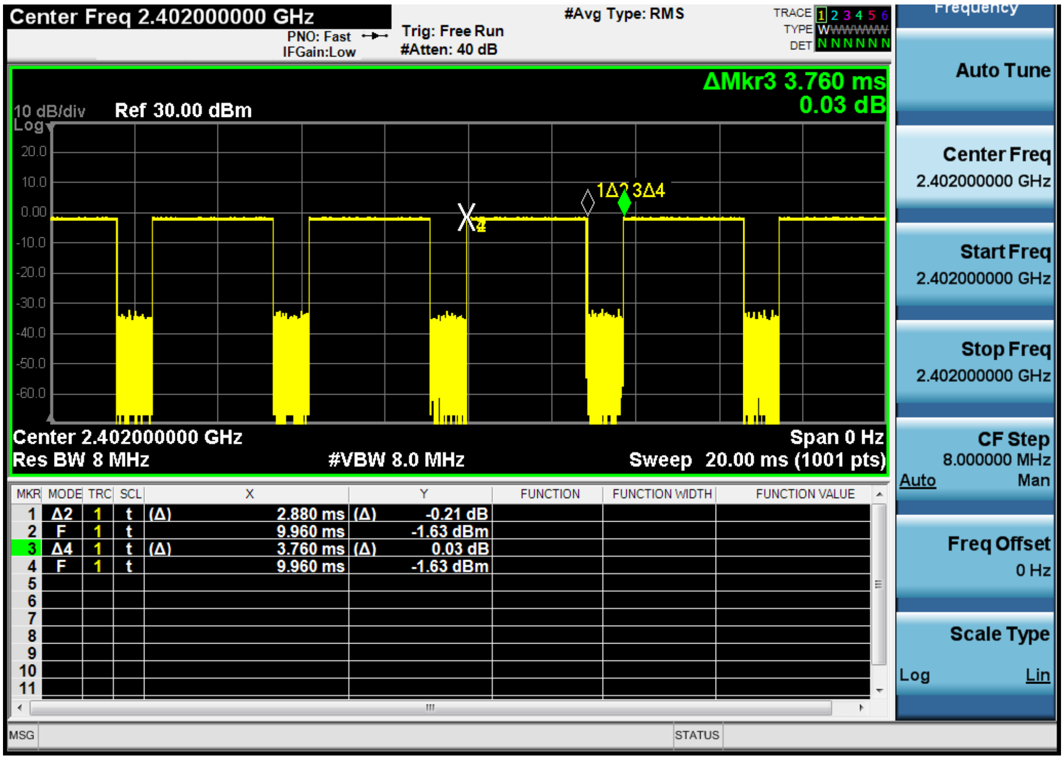
To determine the initial test position, Area Scans were performed to determine the position with the Maximum Value of SAR (measured). The position that produced the highest Maximum Value of SAR is considered the worst case position; thus used as the initial test position.

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 Bluetooth Test Configuration

For Bluetooth SAR testing, Bluetooth engineering testing software installed on the EUT can provide continuous transmitting RF signal with maximum output power. And the CBT control the EUT operating with hoping off and data rate set for DH5.

The SAR measurement takes full account of the Bluetooth duty cycle and is reflected in the report, and the duty factor of the device is as follow:



Note: Duty factor= Ton (ms)/ T(on+off) (ms)=2.880/3.760*100%=76.6%

5.3.6 SAR Detection Mechanism Specification

This device support the receiver detection mechanism, the main purpose is to minimize triggering associated with power reduction scenarios and provide enhanced user experience.

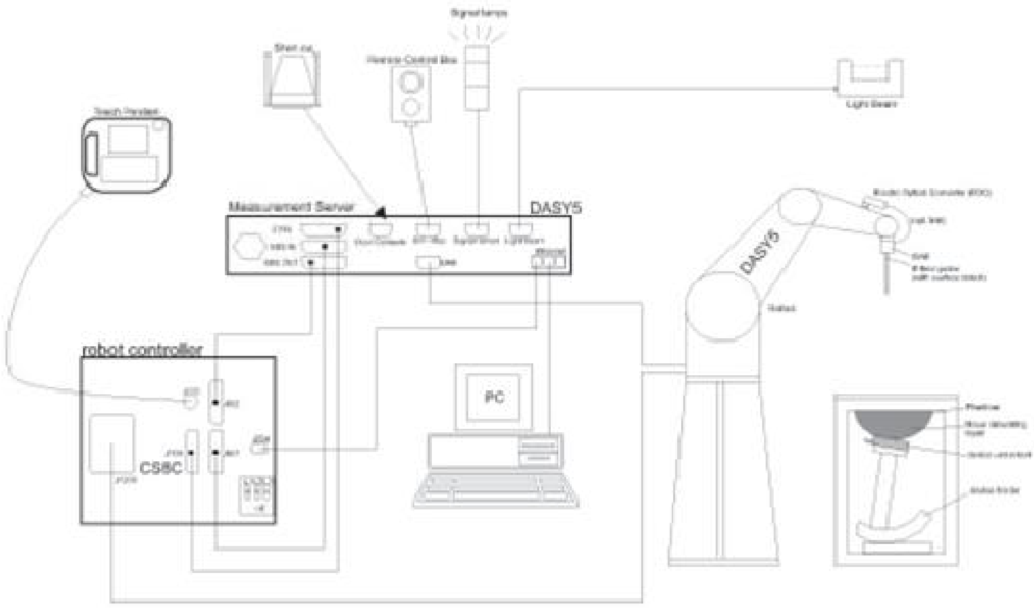
More details information followings:

Main Antenna		Power Reduction Level Amount (dB)					
Power Reduction Scenario	Receiver	GSM850	GSM1900	LTE B4	LTE B5	LTE B7	LTE B40
Full power	Full Power	34.00	30.50	24.50	24.50	24.50	24.50
Standalone	Receiver On	0.00	0.00	0.00	0.00	0.00	0.00
	Receiver Off	0.00	0.00	2.00	0.00	2.50	0.00

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=CΔT/Δt

Where: Δt = Exposure time (30 seconds),

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

ΔT = Temperature increase due to RF exposure.

Or

SAR=IEI^{2}σ/ρ

Where: σ = Simulated tissue conductivity,

ρ = Tissue density (kg/m^3).

6.3 SAR Measurement Procedure

Power Reference Measurement

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

Area Scan

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

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

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

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.

<table>
<tr><td colspan="3"></td><td>≤3GHz</td><td>> 3 GHz</td></tr>
<tr><td colspan="3">Maximum zoom scan spatial resolution: $\triangle x_{zoom} \triangle y_{zoom}$</td><td>≤2GHz: ≤8mm
2 – 3GHz: ≤5mm*</td><td>3 – 4GHz: ≤5mm*
4 – 6GHz: ≤4mm*</td></tr>
<tr><td rowspan="3">Maximum zoom scan spatial resolution, normal to phantom surface</td><td colspan="2">Uniform grid: $\triangle z_{zoom}(n)$</td><td>≤5mm</td><td>3 – 4GHz: ≤4mm
4 – 5GHz: ≤3mm
5 – 6GHz: ≤2mm</td></tr>
<tr><td rowspan="2">Graded grid</td><td>$\triangle z_{zoom}(1)$: between 1st two points closest to phantom surface</td><td>≤4mm</td><td>3 – 4GHz: ≤3mm
4 – 5GHz: ≤2.5mm
5 – 6GHz: ≤2mm</td></tr>
<tr><td>$\triangle z_{zoom}(n>1)$: between subsequent points</td><td colspan="2">$\leq 1.5 \cdot \triangle z_{zoom}(n-1)$</td></tr>
<tr><td>Minimum zoom scan volume</td><td colspan="2">X, y, z</td><td>≥30mm</td><td>3 – 4GHz: ≥28mm
4 – 5GHz: ≥25mm
5 – 6GHz: ≥22mm</td></tr>
<tr><td colspan="5">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 <u>reported</u> 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.</td></tr>
</table>

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	2022-05-14	2023-05-13
Dielectric Probe Kit	Agilent	85070E	US44020115	/	/
Power Meter	Agilent	E4417A	GB41291714	2022-05-14	2023-05-13
Power Sensor	Agilent	N8481H	MY50350004	2022-05-14	2023-05-13
Power Sensor	Agilent	E9327A	US40441622	2022-05-14	2023-05-13
Power Sensor	Agilent	NRP18S	101955	2022-05-14	2023-05-13
Signal Generator	Agilent	N5181A	MY50140143	2022-05-14	2023-05-13
Dual Directional Coupler	UCL	UCL-DDC056G-S	20010600118	/	/
Amplifier	INDEXSAR	TPA-005060G01	13030502	2022-05-14	2023-05-13
Wireless Communication Tester	Anritsu	MT8820C	6201342015	2021-12-12	2022-12-11
Wireless Communication Tester	Agilent	E5515C	MY48360988	2021-12-12	2022-12-11
Wireless Communication Tester	R&S	CMW 500	146734	2022-05-14	2023-05-13
E-field Probe	SPEAG	EX3DV4	3677	2022-07-08	2023-07-07
DAE	SPEAG	DAE4	1692	2021-10-04	2022-10-03
Validation Kit 835MHz	SPEAG	D835V2	4d020	2020-08-28	2023-08-27
Validation Kit 1750MHz	SPEAG	D1750V2	1033	2020-02-25	2023-02-24
Validation Kit 1900MHz	SPEAG	D1900V2	5d060	2020-08-27	2023-08-26
Validation Kit 2300MHz	SPEAG	D2300V2	1131	2022-09-09	2025-09-08
Validation Kit 2450MHz	SPEAG	D2450V2	786	2020-08-27	2023-08-26
Validation Kit 2600MHz	SPEAG	D2600V2	1025	2021-04-23	2024-04-22
Validation Kit 5GHz	SPEAG	D5GHzV2	1151	2020-02-27	2023-02-26
Software for Tissue	Agilent	85070	/	/	/
Temperature Probe	Tianjin jinming	JM222	381	2022-05-14	2023-05-13
Twin SAM Phantom	SPEAG	SAM2	1666	/	/
Hygrothermograph	Anymetr	HTC - 1	TY2020A003	2022-05-14	2023-05-13
TX90 XL	SPEAG	Staubli TX90 XL	/	/	/
Software for Test	SPEAG	DASY52	52.10.4.1527	/	/

8 Tissue Dielectric Parameter Measurements & System Check

8.1 Tissue Verification

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

Target values

Frequency (MHz)	ε_r	σ(s/m)
835	41.5	0.90
1750	40.1	1.37
1900	40.0	1.40
2300	39.5	1.67
2450	39.2	1.80
2600	39.0	1.96
5250	35.9	4.71
5600	35.5	5.07
5750	35.4	5.22

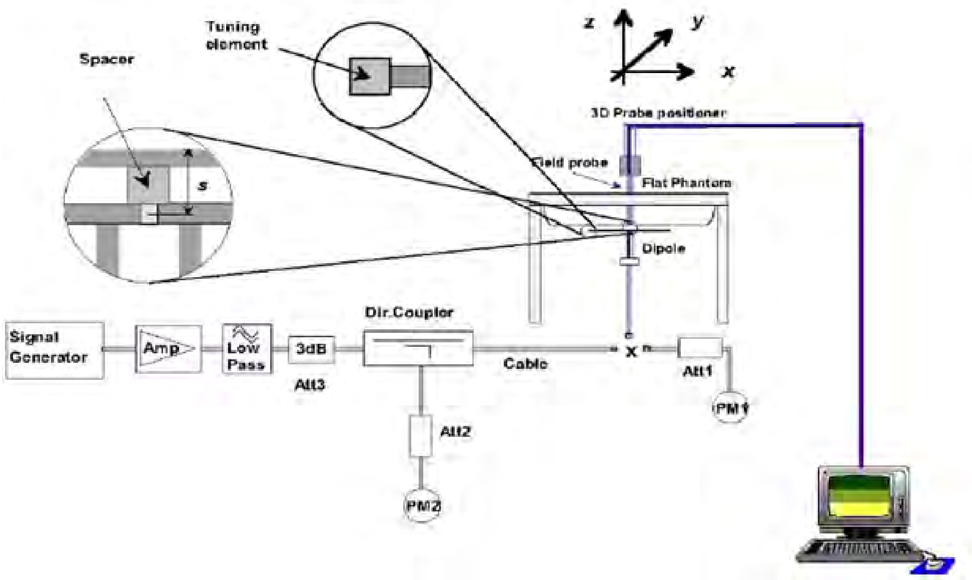
Measurements results

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	2022/9/27	21.5	41.4	0.88	41.5	0.90	-0.24	-2.22
1750	2022/9/28	21.5	40.2	1.34	40.1	1.37	0.25	-2.19
1900	2022/9/27	21.5	40.1	1.41	40.0	1.40	0.25	0.71
2300	2022/9/29	21.5	40.0	1.65	39.5	1.67	1.27	-1.20
2450	2022/9/30	21.5	38.6	1.81	39.2	1.80	-1.53	0.56
2600	2022/10/3	21.5	38.2	2.01	39.0	1.96	-2.05	2.55
	2022/10/4	21.5	38.4	1.94	39.0	1.96	-1.54	-1.02
5250	2022/10/1	21.5	35.5	4.80	35.9	4.71	-1.11	1.91
5600	2022/10/2	21.5	34.2	5.21	35.5	5.07	-3.66	2.76
5750	2022/10/2	21.5	34.9	5.21	35.4	5.22	-1.41	-0.19
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 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 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)			
					Real	ΔΩ	Imaginary	ΔΩ
Dipole D835V2 SN: 4d020	Head Liquid	8/28/2020	26.2	/	54.8	/	1.73	/
		8/27/2021	26.5	1.1	55.2	0.4	1.74	0.01
		8/26/2022	27.2	2.6	55.5	0.3	1.74	0
Dipole D1750V2 SN: 1033	Head Liquid	2/25/2020	38.3	/	48.8	/	-0.06	/
		2/24/2021	40.0	4.4	49.9	1.1	-0.06	0
		2/23/2022	40.6	1.5	51.1	1.2	-0.05	0.01
Dipole D1900V2 SN: 5d060	Head Liquid	8/27/2020	23.3	/	52.5	/	6.58	/
		8/26/2021	23.0	-1.3	51.9	-0.6	6.54	-0.04
		8/25/2022	22.2	-3.5	51.2	-0.7	6.53	-0.01
Dipole D2450V2 SN: 786	Head Liquid	8/27/2020	27.1	0.7	53.8	-0.7	1.43	-0.01
		8/26/2021	27.4	1.1	53.4	-0.4	1.43	0
		8/25/2022	22.9	/	50.1	/	-7.19	/
Dipole D2600V2 SN: 1025	Head Liquid	4/23/2021	22.4	-2.2	50.7	0.6	-7.23	-0.04
		4/22/2022	27.5	/	48.2	/	3.80	/
Dipole D5GHzV2 SN: 1151 (5250MHz)	Head Liquid	2/27/2020	23.4	/	52.4	/	-6.47	/
		2/26/2021	23.8	1.7	50.0	-2.4	-6.31	0.16
		2/25/2022	23.9	0.4	49.3	-0.7	-6.42	-0.11
Dipole D5GHzV2 SN: 1151 (5600MHz)	Head Liquid	2/27/2020	22.6	/	57.0	/	-3.86	/
		2/26/2021	21.5	-4.9	56.5	-0.9	-3.77	0.09
		2/25/2022	20.9	-2.8	56.3	-0.4	-3.83	-0.06
Dipole D5GHzV2 SN: 1151 (5750MHz)	Head Liquid	2/27/2020	25.0	/	55.9	/	0.16	/
		2/26/2021	26.8	-1.8	52.5	-3.4	0.15	-0.01
		2/25/2022	27.1	1.1	52.1	-0.4	0.16	0.01

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	2022/9/27	21.5	2.44	9.76	9.65	1.14	1
1750	2022/9/28	21.5	8.95	35.80	35.90	-0.28	2
1900	2022/9/27	21.5	9.88	39.52	39.50	0.05	3
2300	2022/9/29	21.5	12.36	49.44	50.10	-1.32	4
2450	2022/9/30	21.5	13.70	54.80	52.30	4.78	5
2600	2022/10/3	21.5	13.90	55.60	56.10	-0.89	6
	2022/10/4	21.5	13.88	55.52	56.10	-1.03	7
Frequency (MHz)	**Test Date**	**Temp ℃**	**100mW Measured SAR_{1g} (W/kg)**	**1W Normalized SAR_{1g} (W/kg)**	**1W Target SAR_{1g} (W/kg)**	**Δ % (Limit ±10%)**	**Plot No.**
5250	2022/10/1	21.5	7.87	78.70	78.00	0.90	8
5600	2022/10/2	21.5	7.67	76.70	80.50	-4.72	9
5750	2022/10/2	21.5	7.66	76.60	77.40	-1.03	10
Note: Target Values used derive from the calibration certificate Data Storage and Evaluation.							

8.3 SAR System Validation

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

Frequency [MHz]	Date	Probe SN	Probe Type	Probe Cal Point		PERM (Er)	COND (Σ)	CW Validation		
								Sensitivity	Probe Linearity	Probe Isotropy
835	2022/7/8	3677	EX3DV4	835	Head	41.5	0.90	PASS	PASS	PASS
1750	2022/7/8	3677	EX3DV4	1750	Head	40.1	1.37	PASS	PASS	PASS
1900	2022/7/8	3677	EX3DV4	1900	Head	40.0	1.40	PASS	PASS	PASS
2300	2022/7/8	3677	EX3DV4	2300	Head	39.5	1.67	PASS	PASS	PASS
2450	2022/7/8	3677	EX3DV4	2450	Head	39.2	1.80	PASS	PASS	PASS
2600	2022/7/8	3677	EX3DV4	2600	Head	39.0	1.96	PASS	PASS	PASS
5250	2022/7/8	3677	EX3DV4	5250	Head	35.9	4.71	PASS	PASS	PASS
5600	2022/7/8	3677	EX3DV4	5600	Head	35.5	5.07	PASS	PASS	PASS
5750	2022/7/8	3677	EX3DV4	5750	Head	35.4	5.22	PASS	PASS	PASS

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

9 Normal and Maximum Output Power

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

9.1 GSM Mode

GSM 850		Burst-Averaged Output Power(dBm)				Division Factors	Frame-Averaged Output Power(dBm)			
		Tune-up	Channel/Frequency(MHz)				Tune-up	Channel/Frequency(MHz)		
		MAX	128 /824.2	190 /836.6	251 /848.8		MAX	128 /824.2	190 /836.6	251 /848.8
GSM	CS	34.00	33.16	**33.28**	33.25	9.03	24.97	24.13	24.25	24.22
GPRS/ EGPRS (GMSK)	1 Tx Slot	34.00	33.16	33.30	33.26	9.03	24.97	24.13	24.27	24.23
	2 Tx Slots	32.00	31.09	31.20	31.19	6.02	25.98	25.07	25.18	25.17
	3 Tx Slots	30.00	29.06	29.15	29.13	4.26	25.74	24.80	24.89	24.87
	4 Tx Slots	29.00	**28.07**	**28.17**	**28.15**	3.01	**25.99**	25.06	25.16	25.14
EGPRS (8PSK)	1 Tx Slot	27.50	26.64	26.73	26.36	9.03	18.47	17.61	17.70	17.33
	2 Tx Slots	25.00	24.32	24.00	23.44	6.02	18.98	18.30	17.98	17.42
	3 Tx Slots	22.00	21.31	21.45	21.16	4.26	17.74	17.05	17.19	16.90
	4 Tx Slots	21.00	20.15	20.16	19.86	3.01	17.99	17.14	17.15	16.85
GSM 1900		Burst-Averaged Output Power(dBm)				Division Factors	Frame-Averaged Output Power(dBm)			
		Tune-up	Channel/Frequency(MHz)				Tune-up	Channel/Frequency(MHz)		
		MAX	512 /1850.2	661 /1880	810 /1909.8		MAX	512 /1850.2	661 /1880	810 /1909.8
GSM	CS	30.50	29.26	**29.61**	29.52	9.03	21.47	20.23	20.58	20.49
GPRS/ EGPRS (GMSK)	1 Tx Slot	30.50	29.04	29.60	29.57	9.03	21.47	20.01	20.57	20.54
	2 Tx Slots	28.50	27.08	28.03	27.56	6.02	22.48	21.06	22.01	21.54
	3 Tx Slots	26.50	25.03	25.54	25.61	4.26	22.24	20.77	21.28	21.35
	4 Tx Slots	25.50	23.97	**24.60**	24.65	3.01	**22.49**	20.96	21.59	21.64
EGPRS (8PSK)	1 Tx Slot	25.50	23.61	24.51	25.05	9.03	16.47	14.58	15.48	16.02
	2 Tx Slots	23.50	21.55	22.48	23.17	6.02	17.48	15.53	16.46	17.15
	3 Tx Slots	21.00	19.11	19.95	20.88	4.26	16.74	14.85	15.69	16.62
	4 Tx Slots	20.00	18.11	18.57	19.55	3.01	16.99	15.10	15.56	16.54
Notes: The worst-case configuration and mode for SAR testing is determined to be as follows: 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..										

9.2 LTE Mode

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

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

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

LTE Band 4							
Receiver on				Maximum Output Power (dBm)			Tune-up
Bandwidth	Modulation	RB allocation	offset	Channel/Frequency(MHz)			
				19957/1710.7	20175/1732.5	20393/1754.3	
1.4MHz	QPSK	1	0	23.30	23.47	23.33	24.50
		1	2	23.64	23.69	23.58	24.50
		1	5	23.18	23.20	23.19	24.50
		3	0	23.66	23.60	23.57	24.50
		3	2	23.48	23.60	23.50	24.50
		3	3	23.53	23.60	23.33	24.50
		6	0	22.67	22.71	22.55	23.50
	16QAM	1	0	22.56	22.75	22.63	23.50
		1	2	22.92	22.97	22.87	23.50
		1	5	22.53	22.48	22.47	23.50
		3	0	22.75	22.59	22.62	23.50
		3	2	22.69	22.60	22.58	23.50
		3	3	22.64	22.70	22.36	23.50
		6	0	21.76	21.74	21.63	22.50
Bandwidth	Modulation	RB allocation	offset	Channel/Frequency(MHz)			Tune-up
				19965/1711.5	20175/1732.5	20385/1753.5	
3MHz	QPSK	1	0	23.32	23.51	23.36	24.50
		1	7	23.62	23.72	23.62	24.50
		1	14	23.21	23.25	23.23	24.50
		8	0	22.76	22.72	22.70	23.50
		8	4	22.60	22.70	22.62	23.50
		8	7	22.63	22.71	22.43	23.50
		15	0	22.67	22.75	22.58	23.50
	16QAM	1	0	22.56	22.77	22.66	23.50
		1	7	22.92	22.97	22.91	23.50
		1	14	22.55	22.52	22.50	23.50
		8	0	21.86	21.72	21.74	22.50

		8	4	21.80	21.73	21.70	22.50
		8	7	21.74	21.82	21.49	22.50
		15	0	21.79	21.78	21.66	22.50
Bandwidth	Modulation	RB allocation	offset	Channel/Frequency(MHz)			Tune-up
				19975/1712.5	20175/1732.5	20375/1752.5	
5MHz	QPSK	1	0	23.29	23.49	23.32	24.50
		1	13	23.60	23.68	23.59	24.50
		1	24	23.18	23.20	23.19	24.50
		12	0	22.73	22.67	22.66	23.50
		12	6	22.58	22.66	22.57	23.50
		12	13	22.61	22.69	22.39	23.50
		25	0	22.67	22.74	22.56	23.50
	16QAM	1	0	22.56	22.73	22.63	23.50
		1	13	22.92	22.95	22.88	23.50
		1	24	22.52	22.50	22.46	23.50
		12	0	21.84	21.68	21.71	22.50
		12	6	21.77	21.68	21.66	22.50
		12	13	21.71	21.77	21.45	22.50
		25	0	21.77	21.74	21.61	22.50
Bandwidth	Modulation	RB allocation	offset	Channel/Frequency(MHz)			Tune-up
				20000/1715	20175/1732.5	20350/1750	
10MHz	QPSK	1	0	23.31	23.50	23.35	24.50
		1	25	23.63	23.73	23.63	24.50
		1	49	23.20	23.24	23.22	24.50
		25	0	22.76	22.72	22.70	23.50
		25	13	22.61	22.71	22.61	23.50
		25	25	22.63	22.73	22.44	23.50
		50	0	22.71	22.76	22.60	23.50
	16QAM	1	0	22.60	22.76	22.65	23.50
		1	25	22.96	22.99	22.91	23.50
		1	49	22.55	22.52	22.49	23.50
		25	0	21.87	21.73	21.75	22.50
		25	13	21.79	21.72	21.69	22.50
		25	25	21.74	21.82	21.49	22.50
		50	0	21.80	21.79	21.65	22.50
Bandwidth	Modulation	RB allocation	offset	Channel/Frequency(MHz)			Tune-up
				20025/1717.5	20175/1732.5	20325/1747.5	
15MHz	QPSK	1	0	23.30	23.46	23.33	24.50
		1	38	23.61	23.72	23.60	24.50
		1	74	23.17	23.19	23.18	24.50
		36	0	22.74	22.68	22.67	23.50
		36	18	22.58	22.66	22.57	23.50
		36	39	22.60	22.70	22.40	23.50

		75	0	22.69	22.72	22.55	23.50
	16QAM	1	0	22.58	22.74	22.63	23.50
		1	38	22.94	22.96	22.89	23.50
		1	74	22.53	22.48	22.46	23.50
		36	0	21.84	21.71	21.72	22.50
		36	18	21.76	21.67	21.65	22.50
		36	39	21.72	21.78	21.46	22.50
		75	0	21.77	21.74	21.61	22.50
Bandwidth	Modulation	RB allocation	offset	Channel/Frequency(MHz)			Tune-up
				20050/1720	20175/1732.5	20300/1745	
20MHz	QPSK	1	0	23.27	23.42	23.30	24.50
		1	50	23.60	**23.68**	23.58	24.50
		1	99	23.15	23.18	23.15	24.50
		50	0	**22.71**	22.63	22.63	23.50
		50	25	22.56	22.62	22.54	23.50
		50	50	22.57	22.65	22.36	23.50
		100	0	22.66	22.67	22.51	23.50
	16QAM	1	0	22.55	22.70	22.58	23.50
		1	50	22.91	22.94	22.85	23.50
		1	99	22.50	22.45	22.44	23.50
		50	0	21.81	21.67	21.69	22.50
		50	25	21.73	21.65	21.62	22.50
		50	50	21.69	21.73	21.42	22.50
		100	0	21.75	21.70	21.58	22.50

LTE Band 4							
Receiver off				Maximum Output Power (dBm)			Tune-up
Bandwidth	Modulation	RB allocation	offset	Channel/Frequency(MHz)			
				19957/1710.7	20175/1732.5	20393/1754.3	
1.4MHz	QPSK	1	0	21.66	21.71	21.62	22.50
		1	2	21.97	21.96	21.94	22.50
		1	5	21.48	21.44	21.46	22.50
		3	0	21.89	21.88	21.72	22.50
		3	2	21.82	21.87	21.83	22.50
		3	3	21.70	21.87	21.63	22.50
		6	0	20.89	20.99	20.79	21.50
	16QAM	1	0	21.00	21.08	21.04	21.50
		1	2	21.30	21.32	21.19	21.50
		1	5	20.83	20.89	20.82	21.50
		3	0	20.88	20.92	20.74	21.50
		3	2	20.89	20.86	20.86	21.50
		3	3	20.73	20.91	20.62	21.50
		6	0	19.90	20.00	19.81	20.50

Bandwidth	Modulation	RB allocation	offset	Channel/Frequency(MHz)			Tune-up
				19965/1711.5	20175/1732.5	20385/1753.5	
3MHz	QPSK	1	0	21.68	21.75	21.65	22.50
		1	7	21.95	21.97	21.98	22.50
		1	14	21.51	21.49	21.50	22.50
		8	0	20.94	21.08	20.85	21.50
		8	4	20.94	20.97	20.95	21.50
		8	7	20.80	20.98	20.73	21.50
		15	0	20.89	21.03	20.82	21.50
	16QAM	1	0	21.00	21.10	21.07	21.50
		1	7	21.30	21.32	21.23	21.50
		1	14	20.85	20.93	20.85	21.50
		8	0	19.99	20.05	19.86	20.50
		8	4	20.00	19.99	19.98	20.50
		8	7	19.83	20.03	19.75	20.50
		15	0	19.93	20.04	19.84	20.50
Bandwidth	Modulation	RB allocation	offset	Channel/Frequency(MHz)			Tune-up
				19975/1712.5	20175/1732.5	20375/1752.5	
5MHz	QPSK	1	0	21.65	21.73	21.61	22.50
		1	13	21.93	21.93	21.95	22.50
		1	24	21.48	21.44	21.46	22.50
		12	0	20.91	21.03	20.81	21.50
		12	6	20.92	20.93	20.90	21.50
		12	13	20.78	20.96	20.69	21.50
		25	0	20.89	21.02	20.80	21.50
	16QAM	1	0	21.00	21.06	21.04	21.50
		1	13	21.30	21.30	21.20	21.50
		1	24	20.82	20.91	20.81	21.50
		12	0	19.97	20.01	19.83	20.50
		12	6	19.97	19.94	19.94	20.50
		12	13	19.80	19.98	19.71	20.50
		25	0	19.91	20.00	19.79	20.50
Bandwidth	Modulation	RB allocation	offset	Channel/Frequency(MHz)			Tune-up
				20000/1715	20175/1732.5	20350/1750	
10MHz	QPSK	1	0	21.67	21.74	21.64	22.50
		1	25	21.96	21.98	21.99	22.50
		1	49	21.50	21.48	21.49	22.50
		25	0	20.94	21.08	20.85	21.50
		25	13	20.95	20.98	20.94	21.50
		25	25	20.80	21.00	20.74	21.50
		50	0	20.93	21.04	20.84	21.50
	16QAM	1	0	21.04	21.09	21.06	21.50
		1	25	21.34	21.34	21.23	21.50

		1	49	20.85	20.93	20.84	21.50
		25	0	20.00	20.06	19.87	20.50
		25	13	19.99	19.98	19.97	20.50
		25	25	19.83	20.03	19.75	20.50
		50	0	19.94	20.05	19.83	20.50
Bandwidth	Modulation	RB allocation	offset	Channel/Frequency(MHz)			Tune-up
				20025/1717.5	20175/1732.5	20325/1747.5	
15MHz	QPSK	1	0	21.66	21.70	21.62	22.50
		1	38	21.94	21.97	21.96	22.50
		1	74	21.47	21.43	21.45	22.50
		36	0	20.92	21.04	20.82	21.50
		36	18	20.92	20.93	20.90	21.50
		36	39	20.77	20.97	20.70	21.50
		75	0	20.91	21.00	20.79	21.50
	16QAM	1	0	21.02	21.07	21.04	21.50
		1	38	21.32	21.31	21.21	21.50
		1	74	20.83	20.89	20.81	21.50
		36	0	19.97	20.04	19.84	20.50
		36	18	19.96	19.93	19.93	20.50
		36	39	19.81	19.99	19.72	20.50
		75	0	19.91	20.00	19.79	20.50
Bandwidth	Modulation	RB allocation	offset	Channel/Frequency(MHz)			Tune-up
				20050/1720	20175/1732.5	20300/1745	
20MHz	QPSK	1	0	21.63	21.66	21.59	22.50
		1	50	**21.93**	**21.95**	**21.94**	22.50
		1	99	21.45	21.42	21.42	22.50
		50	0	**20.94**	20.91	20.78	21.50
		50	25	20.90	20.89	**20.87**	21.50
		50	50	20.74	**20.92**	20.66	21.50
		100	0	**20.88**	**20.95**	**20.75**	21.50
	16QAM	1	0	20.99	21.03	20.99	21.50
		1	50	21.29	21.29	21.17	21.50
		1	99	20.80	20.86	20.79	21.50
		50	0	19.94	20.00	19.81	20.50
		50	25	19.93	19.91	19.90	20.50
		50	50	19.78	19.94	19.68	20.50
		100	0	19.89	19.96	19.76	20.50

LTE Band 5							
Receiver on&Receiver off				Maximum Output Power (dBm)			Tune-up
Bandwidth	Modulation	RB allocation	offset	Channel/Frequency(MHz)			Tune-up
				20407/824.7	20525/836.5	20643/848.3	
1.4MHz	QPSK	1	0	23.67	23.72	23.68	24.50
		1	2	23.87	23.77	23.77	24.50
		1	5	23.73	23.69	23.72	24.50
		3	0	23.72	23.82	23.78	24.50
		3	2	23.73	23.85	23.81	24.50
		3	3	23.76	23.73	23.81	24.50
		6	0	22.84	22.87	22.91	23.50
	16QAM	1	0	22.92	23.05	22.97	23.50
		1	2	23.08	23.10	23.09	23.50
		1	5	23.01	23.04	22.94	23.50
		3	0	22.75	22.79	22.84	23.50
		3	2	22.81	22.82	22.81	23.50
		3	3	22.82	22.78	22.77	23.50
		6	0	21.87	21.90	21.88	22.50
Bandwidth	Modulation	RB allocation	offset	Channel/Frequency(MHz)			Tune-up
				20415/825.5	20525/836.5	20635/847.5	
3MHz	QPSK	1	0	23.68	23.75	23.70	24.50
		1	7	23.86	23.81	23.82	24.50
		1	14	23.75	23.73	23.75	24.50
		8	0	22.82	22.94	22.91	23.50
		8	4	22.86	22.96	22.92	23.50
		8	7	22.86	22.86	22.92	23.50
		15	0	22.88	22.92	22.96	23.50
	16QAM	1	0	22.96	23.06	22.99	23.50
		1	7	23.12	23.12	23.13	23.50
		1	14	23.03	23.08	22.96	23.50
		8	0	21.87	21.93	21.97	22.50
		8	4	21.91	21.94	21.92	22.50
		8	7	21.92	21.90	21.90	22.50
		15	0	21.91	21.95	21.90	22.50
Bandwidth	Modulation	RB allocation	offset	Channel/Frequency(MHz)			Tune-up
				20425/826.5	20525/836.5	20625/846.5	
5MHz	QPSK	1	0	23.67	23.71	23.68	24.50
		1	13	23.84	23.80	23.79	24.50
		1	24	23.72	23.68	23.71	24.50
		12	0	22.80	22.90	22.88	23.50
		12	6	22.83	22.91	22.88	23.50
		12	13	22.83	22.83	22.88	23.50

		25	0	22.86	22.88	22.91	23.50
	16QAM	1	0	22.94	23.04	22.97	23.50
		1	13	23.10	23.09	23.11	23.50
		1	24	23.01	23.04	22.93	23.50
		12	0	21.84	21.91	21.94	22.50
		12	6	21.88	21.89	21.88	22.50
		12	13	21.90	21.86	21.87	22.50
		25	0	21.88	21.90	21.86	22.50
Bandwidth	Modulation	RB allocation	offset	Channel/Frequency(MHz)			Tune-up
				20450/829	20525/836.5	20600/844	
10MHz	QPSK	1	0	23.64	23.67	23.65	24.50
		1	25	**23.83**	23.76	23.77	24.50
		1	49	23.70	23.67	23.68	24.50
		25	0	22.77	22.85	22.84	23.50
		25	13	22.81	**22.87**	22.85	23.50
		25	25	22.80	22.78	22.84	23.50
		50	0	22.83	22.83	22.87	23.50
	16QAM	1	0	22.91	23.00	22.92	23.50
		1	25	23.07	23.07	23.07	23.50
		1	49	22.98	23.01	22.91	23.50
		25	0	21.81	21.87	21.91	22.50
		25	13	21.85	21.87	21.85	22.50
		25	25	21.87	21.81	21.83	22.50
		50	0	21.86	21.86	21.83	22.50

LTE Band 7							
Full Power & Receiver on				Maximum Output Power (dBm)			Tune-up
Bandwidth	Modulation	RB allocation	offset	Channel/Frequency(MHz)			
				20775/2502.5	21100/2535	21425/2567.5	
5MHz	QPSK	1	0	23.69	23.71	23.68	24.50
		1	13	24.10	24.02	24.07	24.50
		1	24	23.76	23.75	23.77	24.50
		12	0	22.99	23.09	22.93	23.50
		12	6	23.05	23.08	23.10	23.50
		12	13	23.17	23.04	22.98	23.50
		25	0	23.07	23.08	23.02	23.50
	16QAM	1	0	22.98	22.97	23.14	23.50
		1	13	23.48	23.30	23.27	23.50
		1	24	23.07	23.13	23.12	23.50
		12	0	22.06	22.08	21.97	22.50
		12	6	22.12	22.10	22.09	22.50
		12	13	22.18	22.09	22.03	22.50
		25	0	22.10	22.05	22.01	22.50

Bandwidth	Modulation	RB allocation	offset	Channel/Frequency(MHz)			Tune-up
				20800/2505	21100/2535	21400/2565	
10MHz	QPSK	1	0	23.71	23.72	23.71	24.50
		1	25	24.13	24.07	24.11	24.50
		1	49	23.78	23.79	23.80	24.50
		25	0	23.02	23.14	22.97	23.50
		25	13	23.08	23.13	23.14	23.50
		25	25	23.19	23.08	23.03	23.50
		50	0	23.11	23.10	23.06	23.50
	16QAM	1	0	23.02	23.00	23.16	23.50
		1	25	23.27	23.34	23.30	23.50
		1	49	23.10	23.15	23.15	23.50
		25	0	22.09	22.13	22.01	22.50
		25	13	22.14	22.14	22.12	22.50
		25	25	22.21	22.14	22.07	22.50
		50	0	22.13	22.10	22.05	22.50
Bandwidth	Modulation	RB allocation	offset	Channel/Frequency(MHz)			Tune-up
				20825/2507.5	21100/2535	21375/2562.5	
15MHz	QPSK	1	0	23.70	23.68	23.69	24.50
		1	38	24.11	24.06	24.08	24.50
		1	74	23.75	23.74	23.76	24.50
		36	0	23.00	23.10	22.94	23.50
		36	18	23.05	23.08	23.10	23.50
		36	39	23.16	23.05	22.99	23.50
		75	0	23.09	23.06	23.01	23.50
	16QAM	1	0	23.00	22.98	23.14	23.50
		1	38	23.50	23.31	23.28	23.50
		1	74	23.08	23.11	23.12	23.50
		36	0	22.06	22.11	21.98	22.50
		36	18	22.11	22.09	22.08	22.50
		36	39	22.19	22.10	22.04	22.50
		75	0	22.10	22.05	22.01	22.50
Bandwidth	Modulation	RB allocation	offset	Channel/Frequency(MHz)			Tune-up
				20850/2510	21100/2535	21350/2560	
20MHz	QPSK	1	0	23.67	23.64	23.66	24.50
		1	50	**24.10**	24.02	24.06	24.50
		1	99	23.73	23.73	23.73	24.50
		50	0	22.97	23.05	22.90	23.50
		50	25	23.03	23.04	23.07	23.50
		50	50	**23.13**	23.00	22.95	23.50
		100	0	23.06	23.01	22.97	23.50
	16QAM	1	0	22.97	22.94	23.09	23.50
		1	50	23.47	23.29	23.24	23.50

		1	99	23.05	23.08	23.10	23.50
		50	0	22.03	22.07	21.95	22.50
		50	25	22.08	22.07	22.05	22.50
		50	50	22.16	22.05	22.00	22.50
		100	0	22.08	22.01	21.98	22.50

LTE Band 7							
Receiver off				Maximum Output Power (dBm)			Tune-up
Bandwidth	Modulation	RB allocation	offset	Channel/Frequency(MHz)			Tune-up
				20775/2502.5	21100/2535	21425/2567.5	
5MHz	QPSK	1	0	21.04	21.21	21.22	22.00
		1	13	21.52	21.57	21.62	22.00
		1	24	21.23	21.27	21.34	22.00
		12	0	21.42	21.56	21.49	22.00
		12	6	21.45	21.52	21.61	22.00
		12	13	21.65	21.59	21.55	22.00
		25	0	21.53	21.60	21.54	22.00
	16QAM	1	0	21.50	21.49	21.57	22.00
		1	13	21.94	21.87	21.93	22.00
		1	24	21.58	21.60	21.64	22.00
		12	0	21.45	21.57	21.48	22.00
		12	6	21.52	21.55	21.65	22.00
		12	13	21.61	21.58	21.59	22.00
		25	0	21.54	21.59	21.55	22.00
Bandwidth	Modulation	RB allocation	offset	Channel/Frequency(MHz)			Tune-up
				20800/2505	21100/2535	21400/2565	
10MHz	QPSK	1	0	21.06	21.22	21.25	22.00
		1	25	21.55	21.62	21.66	22.00
		1	49	21.25	21.31	21.37	22.00
		25	0	21.45	21.61	21.53	22.00
		25	13	21.48	21.57	21.65	22.00
		25	25	21.67	21.63	21.60	22.00
		50	0	21.57	21.62	21.58	22.00
	16QAM	1	0	21.54	21.52	21.59	22.00
		1	25	21.98	21.91	21.96	22.00
		1	49	21.61	21.62	21.67	22.00
		25	0	21.48	21.62	21.52	22.00
		25	13	21.54	21.59	21.68	22.00
		25	25	21.64	21.63	21.63	22.00
		50	0	21.57	21.64	21.59	22.00
Bandwidth	Modulation	RB allocation	offset	Channel/Frequency(MHz)			Tune-up
				20825/2507.5	21100/2535	21375/2562.5	
15MHz	QPSK	1	0	21.05	21.18	21.23	22.00

		1	38	21.53	21.61	21.63	22.00
		1	74	21.22	21.26	21.33	22.00
		36	0	21.43	21.57	21.50	22.00
		36	18	21.45	21.52	21.61	22.00
		36	39	21.64	21.60	21.56	22.00
		75	0	21.55	21.58	21.53	22.00
	16QAM	1	0	21.52	21.50	21.57	22.00
		1	38	21.96	21.88	21.94	22.00
		1	74	21.59	21.58	21.64	22.00
		36	0	21.45	21.60	21.49	22.00
		36	18	21.51	21.54	21.64	22.00
		36	39	21.62	21.59	21.60	22.00
		75	0	21.54	21.59	21.55	22.00
Bandwidth	Modulation	RB allocation	offset	Channel/Frequency(MHz)			Tune-up
				20850/2510	21100/2535	21350/2560	
20MHz	QPSK	1	0	21.02	21.14	21.20	22.00
		1	50	**21.52**	**21.62**	**21.61**	22.00
		1	99	21.20	21.25	21.30	22.00
		50	0	21.40	21.52	21.46	22.00
		50	25	21.43	21.48	**21.58**	22.00
		50	50	**21.61**	**21.55**	21.52	22.00
		100	0	21.52	**21.53**	21.49	22.00
	16QAM	1	0	21.49	21.46	21.52	22.00
		1	50	21.93	21.86	21.90	22.00
		1	99	21.56	21.55	21.62	22.00
		50	0	21.42	21.56	21.46	22.00
		50	25	21.48	21.52	21.61	22.00
		50	50	21.59	21.54	21.56	22.00
		100	0	21.52	21.55	21.52	22.00

LTE Band 40 Subset 1							
Full Power & Receiver On & Receiver Off				Maximum Output Power (dBm)			Tune-up
Bandwidth	Modulation	RB allocation	offset	Channel/Frequency(MHz)			
				38725/2307.5	38750/2310.0	38775/2312.5	
5MHz	QPSK	1	0	23.74	23.72	23.65	24.50
		1	13	23.54	23.54	23.54	24.50
		1	24	23.83	23.80	23.78	24.50
		12	0	22.79	22.77	22.73	23.50
		12	6	22.81	22.79	22.75	23.50
		12	13	22.76	22.72	22.68	23.50
		25	0	22.84	22.83	22.76	23.50
	16QAM	1	0	22.94	22.93	22.90	23.50
		1	13	22.93	22.92	22.91	23.50

		1	24	22.97	22.95	22.90	23.50
		12	0	21.85	21.82	21.81	22.50
		12	6	21.90	21.86	21.83	22.50
		12	13	21.85	21.83	21.79	22.50
		25	0	21.85	21.83	21.79	22.50
Bandwidth	Modulation	RB allocation	offset	Channel/Frequency(MHz)			Tune-up
				/	38750/2310.0	/	
10MHz	QPSK	1	0	/	23.59	/	24.50
		1	25	/	23.50	/	24.50
		1	49	/	**23.70**	/	24.50
		25	0	/	22.66	/	23.50
		25	13	/	**22.67**	/	23.50
		25	25	/	22.61	/	23.50
		50	0	/	22.69	/	23.50
	16QAM	1	0	/	22.82	/	23.50
		1	25	/	22.85	/	23.50
		1	49	/	22.84	/	23.50
		25	0	/	21.76	/	22.50
		25	13	/	21.75	/	22.50
		25	25	/	21.72	/	22.50
		50	0	/	21.71	/	22.50

LTE Band 40 Subset 2							
Full Power & Receiver On & Receiver Off				Maximum Output Power (dBm)			Tune-up
Bandwidth	Modulation	RB allocation	offset	Channel/Frequency(MHz)			
				39175/2352.5	39200/2355.0	39225/2357.5	
5MHz	QPSK	1	0	23.78	23.85	23.87	24.50
		1	13	23.76	23.76	23.76	24.50
		1	24	23.71	23.73	23.76	24.50
		12	0	22.79	22.83	22.85	23.50
		12	6	22.80	22.84	22.86	23.50
		12	13	22.76	22.80	22.84	23.50
		25	0	22.74	22.81	22.82	23.50
	16QAM	1	0	22.95	22.98	22.99	23.50
		1	13	22.94	22.95	22.96	23.50
		1	24	22.87	22.92	22.94	23.50
		12	0	21.89	21.90	21.93	22.50
		12	6	21.85	21.88	21.92	22.50
		12	13	21.81	21.85	21.87	22.50
		25	0	21.84	21.88	21.90	22.50
Bandwidth	Modulation	RB allocation	offset	Channel/Frequency(MHz)			Tune-up
				/	39200/2355.0	/	
10MHz	QPSK	1	0	/	23.73	/	24.50

		1	25	/	**23.74**	/	24.50
		1	49	/	23.65	/	24.50
		25	0	/	22.74	/	23.50
		25	13	/	**22.76**	/	23.50
		25	25	/	22.70	/	23.50
		50	0	/	**22.73**	/	23.50
	16QAM	1	0	/	22.94	/	23.50
		1	25	/	22.93	/	23.50
		1	49	/	22.82	/	23.50
		25	0	/	21.84	/	22.50
		25	13	/	21.78	/	22.50
		25	25	/	21.76	/	22.50
		50	0	/	21.80	/	22.50

9.3 WLAN Mode

Wi-Fi 2.4G Full Power Mode	Channel /Frequency(MHz)	Maximum Output Power (dBm)	
		Tune-up	Meas.
802.11b (1M)	1/2412	18.00	17.35
	6/2437	18.00	**17.53**
	11/2462	18.00	17.51
802.11g (6M)	1/2412	16.00	15.34
	6/2437	16.00	15.29
	11/2462	16.00	15.36
802.11n-HT20 (MCS0)	1/2412	16.00	14.95
	6/2437	16.00	14.97
	11/2462	16.00	15.24
Note: Initial test configuration is 802.11b mode.			

5GHz Wi-Fi U-NII-1 Full Power	Channel /Freq.(MHz)	Maximum Output Power (dBm)	
		Tune-up	Meas.
802.11a(6M)	36/5180	14.00	13.75
	40/5200	14.00	13.47
	44/5220	14.00	13.52
	48/5240	14.00	13.41
802.11n HT20(MCS0)	36/5180	14.00	13.83
	40/5200	14.00	13.70
	44/5220	14.00	13.54
	48/5240	14.00	13.32
802.11n HT40(MCS0)	38/5190	14.00	**13.50**
	46/5230	14.00	13.30
802.11ac-VHT20(MCS0)	36/5180	14.00	13.91
	40/5200	14.00	13.59
	44/5220	14.00	13.69
	48/5240	14.00	13.44
802.11ac-VHT40(MCS0)	38/5190	14.00	13.61
	46/5230	14.00	13.43
802.11ac-VHT80(MCS0)	42/5210	12.00	10.28
Note: Initial test configuration is 802.11n-HT40 mode, since the highest maximum output power.			

5GHz Wi-Fi (U-NII-2A) Full Power	Channel /Freq.(MHz)	Maximum Output Power (dBm)	
		Tune-up	Meas.
802.11a(6M)	52/5260	14.00	13.73
	56/5280	14.00	13.55
	60/5300	14.00	13.34
	64/5320	14.00	13.38
802.11nHT20(MCS0)	52/5260	14.00	13.75
	56/5280	14.00	13.64
	60/5300	14.00	13.43
	64/5320	14.00	13.25
802.11nHT40(MCS0)	54/5270	14.00	12.85
	62/5310	14.00	12.74
802.11ac-VHT20(MCS0)	52/5260	14.00	13.32
	56/5280	14.00	13.17
	60/5300	14.00	12.97
	64/5320	14.00	12.88
802.11ac-VHT40(MCS0)	54/5270	14.00	13.15
	62/5310	14.00	12.96
802.11ac-VHT80(MCS0)	58/5290	14.00	**12.92**
Note: Initial test configuration is 802.11ac-VHT80 mode, since the highest maximum output power.			

5GHz Wi-Fi U-NII-2C Full Power	Channel /Freq.(MHz)	Maximum Output Power (dBm)	
		Tune-up	Meas.
802.11a (6M)	100/5500	14.00	12.65
	116/5580	14.00	13.43
	140/5700	14.00	12.94
	144/5720	14.00	11.91
802.11nHT20 (MCS0)	100/5500	14.00	12.67
	116/5580	14.00	13.41
	140/5700	14.00	12.94
	144/5720	14.00	11.83
802.11nHT40 (MCS0)	102/5510	14.00	11.75
	110/5550	14.00	12.99
	134/5670	14.00	13.15
	142/5710	14.00	12.43
802.11ac-VHT20 (MCS0)	100/5500	14.00	12.65
	116/5580	14.00	13.39
	140/5700	14.00	12.90
	144/5720	14.00	12.00

802.11ac-VHT40 (MCS0)	102/5510	14.00	11.91
	110/5550	14.00	12.99
	134/5670	14.00	13.09
	142/5710	14.00	12.38
802.11ac-VHT80 (MCS0)	106/5530	14.00	12.75
	138/5690	14.00	**12.83**
Note: Initial test configuration is 802.11ac-VHT80 mode, since the highest maximum output power.			

5GHz Wi-Fi U-NII-3 Full Power	Channel /Freq.(MHz)	Maximum Output Power (dBm)	
		Tune-up	Meas.
802.11a(6M)	149/5745	14.00	12.85
	157/5785	14.00	13.34
	165/5825	14.00	13.02
802.11nHT20(MCS0)	149/5745	14.00	12.90
	157/5785	14.00	13.05
	165/5825	14.00	12.62
802.11nHT40(MCS0)	151/5755	14.00	12.72
	159/5795	14.00	12.81
802.11ac-VHT20(MCS0)	149/5745	14.00	12.44
	157/5785	14.00	12.60
	165/5825	14.00	12.60
802.11ac-VHT40(MCS0)	151/5755	14.00	12.47
	159/5795	14.00	12.47
802.11ac-VHT80(MCS0)	155/5775	14.00	**12.91**
Note: Initial test configuration is 802.11ac-VHT80 mode, since the highest maximum output power.			

9.4 Bluetooth Mode

Bluetooth	Conducted Power(dBm)			Tune-up Limit (dBm)
	Channel/Frequency(MHz)			
	Ch 0/2402 MHz	Ch 39/2441 MHz	Ch 78/2480 MHz	
GFSK	9.86	10.01	**10.25**	11.00
π/4DQPSK	9.14	9.27	9.97	10.50
8DPSK	9.06	9.33	9.94	10.50
BLE	Ch 0/2402 MHz	Ch 19/2440 MHz	Ch 39/2480 MHz	Tune-up Limit (dBm)
GFSK	-3.19	-2.16	-3.23	1.00

10 Measured and Reported (Scaled) SAR Results

10.1 EUT Antenna Locations

The Detailed Antenna Locations refer to *Antenna Locations.*

<table>
<tr><td colspan="7">Overall (Length x Width): 170.3 mm x 77.9 mm
Overall Diagonal: 181.06 mm/Display Diagonal: 176mm</td></tr>
<tr><td colspan="7">Distance of the Antenna to the EUT Surface/Edge</td></tr>
<tr><td>Antenna</td><td>Back Side</td><td>Front Side</td><td>Left Edge</td><td>Right Edge</td><td>Top Edge</td><td>Bottom Edge</td></tr>
<tr><td>Main-Antenna</td><td>＜25mm</td><td>＜25mm</td><td>＜25mm</td><td>＜25mm</td><td>＞25mm</td><td>＜25mm</td></tr>
<tr><td>Bluetooth/Wi-Fi Antenna</td><td>＜25mm</td><td>＜25mm</td><td>＜25mm</td><td>＞25mm</td><td>＜25mm</td><td>＞25mm</td></tr>
<tr><td colspan="7">Hotspot mode, Positions for SAR Tests</td></tr>
<tr><td>Mode</td><td>Back Side</td><td>Front side</td><td>Left Edge</td><td>Right Edge</td><td>Top Edge</td><td>Bottom Edge</td></tr>
<tr><td>Main-Antenna</td><td>Yes</td><td>Yes</td><td>Yes</td><td>Yes</td><td>N/A</td><td>Yes</td></tr>
<tr><td>Bluetooth/Wi-Fi Antenna</td><td>Yes</td><td>Yes</td><td>Yes</td><td>N/A</td><td>Yes</td><td>N/A</td></tr>
<tr><td colspan="7">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 181.06mm. Per KDB 648474 D04, for smart phones with a display diagonal dimension > 15.0 cm or an overall diagonal dimension > 16.0 cm, product specific 10-g SAR must be tested as a phablet to determine SAR compliance. For Phablet, Since hotspot mode 1-g reported SAR <1.2W/kg, product specific 10-g SAR is no required.
3. Per FCC KDB 447498 D01, for each exposure position, testing of other requised channels within the operating mode of a frequency band is not required when the reported 1-g or 10-g SAR for the mid-band or highest output power channel is:
a) ≤ 0.8 W/kg or 2.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≤ 100MHz
b) ≤ 0.6 W/kg or 1.5 W/kg, for1-g or 10-g respectively, when the transmission band is between 100 MHz and 200 MHz.
c) ≤ 0.4 W/kg or 1.0 Wkg, for 1-g or 10-g respectively, when the transmission band is ≥ 200 MHz.
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.</td></tr>
</table>

10.2 Measured SAR Results

Note:

1. The value with blue color is the maximum SAR Value of each test band.
2. For GSM, when multiple slots are used, SAR should be tested to account for the maximum source-based time-averaged output power.
3. For LTE, QPSK with 100% RB allocation, SAR is required when and the highest reported SAR for 1 RB and 50% RB allocation in are≥ 50% limit(1g).
4. 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 EUT configuration.

Head SAR

Band	Antenna	Test Position	Dist. (mm)	Mode	Power Reduction	RB	Offset	Ch./Freq. (MHz)	Tune-up (dBm)	Measured power (dBm)	Measured SAR1g (W/Kg)	Power Drift (dB)	Scaling Factor	Report SAR1g (W/kg)	EUT No.	Plot No.
GSM 850	Main (Bottom)	Left cheek	0	GSM	Receiver On	-	-	190/836.6	34.00	33.28	0.234	0.170	1.18	0.276	1#	11
		Left Tilt	0	GSM	Receiver On	-	-	190/836.6	34.00	33.28	0.133	-0.010	1.18	0.157	1#	/
		Right cheek	0	GSM	Receiver On	-	-	190/836.6	34.00	33.28	0.210	0.029	1.18	0.248	1#	/
		Right Tilt	0	GSM	Receiver On	-	-	190/836.6	34.00	33.28	0.133	0.070	1.18	0.157	1#	/
GSM 1900	Main (Bottom)	Left cheek	0	GSM	Receiver On	-	-	661/1880	30.50	29.61	0.103	0.010	1.23	0.126	1#	/
		Left Tilt	0	GSM	Receiver On	-	-	661/1880	30.50	29.61	0.093	0.010	1.23	0.114	1#	/
		Right cheek	0	GSM	Receiver On	-	-	661/1880	30.50	29.61	0.115	0.010	1.23	0.141	1#	12
		Right Tilt	0	GSM	Receiver On	-	-	661/1880	30.50	29.61	0.102	0.010	1.23	0.125	1#	/
LTE 4	Main (Bottom)	Left cheek	0	QPSK	Receiver On	1	50	20175/1732.5	24.50	23.68	0.113	-0.070	1.21	0.136	1#	/
			0	QPSK	Receiver On	50%	0	20050/1720	23.50	22.71	0.089	0.120	1.20	0.107	1#	/
		Left Tilt	0	QPSK	Receiver On	1	50	20175/1732.5	24.50	23.68	0.130	0.080	1.21	0.157	1#	/
			0	QPSK	Receiver On	50%	0	20050/1720	23.50	22.71	0.099	0.025	1.20	0.119	1#	/
		Right cheek	0	QPSK	Receiver On	1	50	20175/1732.5	24.50	23.68	0.185	0.024	1.21	0.223	1#	13
			0	QPSK	Receiver On	50%	0	20050/1720	23.50	22.71	0.138	0.131	1.20	0.166	1#	/
		Right Tilt	0	QPSK	Receiver On	1	50	20175/1732.5	24.50	23.68	0.124	0.037	1.21	0.150	1#	/
			0	QPSK	Receiver On	50%	0	20050/1720	23.50	22.71	0.092	0.064	1.20	0.110	1#	/
LTE 5	Main (Bottom)	Left cheek	0	QPSK	Receiver On	1	25	20450/829	24.50	23.83	0.317	0.049	1.17	0.370	2#	14
			0	QPSK	Receiver On	50%	13	20525/836.5	23.50	22.87	0.265	0.081	1.16	0.306	2#	/
		Left Tilt	0	QPSK	Receiver On	1	25	20450/829	24.50	23.83	0.158	0.021	1.17	0.184	2#	/
			0	QPSK	Receiver On	50%	13	20525/836.5	23.50	22.87	0.127	-0.086	1.16	0.147	2#	/
		Right cheek	0	QPSK	Receiver On	1	25	20450/829	24.50	23.83	0.264	0.054	1.17	0.308	2#	/
			0	QPSK	Receiver On	50%	13	20525/836.5	23.50	22.87	0.201	0.027	1.16	0.232	2#	/
		Right Tilt	0	QPSK	Receiver On	1	25	20450/829	24.50	23.83	0.180	-0.187	1.17	0.210	2#	/
			0	QPSK	Receiver On	50%	13	20525/836.5	23.50	22.87	0.111	-0.100	1.16	0.128	2#	/
LTE 7	Main (Bottom)	Left cheek	0	QPSK	Receiver On	1	50	20850/2510	24.50	24.10	0.086	0.029	1.10	0.095	2#	/
			0	QPSK	Receiver On	50%	50	20850/2510	23.50	23.13	0.040	0.031	1.09	0.043	2#	/
		Left Tilt	0	QPSK	Receiver On	1	50	20850/2510	24.50	24.10	0.072	0.160	1.10	0.079	2#	/
			0	QPSK	Receiver On	50%	50	20850/2510	23.50	23.13	0.048	0.174	1.09	0.053	2#	/
		Right cheek	0	QPSK	Receiver On	1	50	20850/2510	24.50	24.10	0.185	0.088	1.10	0.203	1#	15

			0	QPSK	Receiver On	50%	50	20850/2510	23.50	23.13	0.122	0.126	1.09	0.133	2#	/
		Right Tilt	0	QPSK	Receiver On	1	50	20850/2510	24.50	24.10	0.131	0.088	1.10	0.144	2#	/
			0	QPSK	Receiver On	50%	50	20850/2510	23.50	23.13	0.037	0.076	1.09	0.041	2#	/
LTE 40	Main (Bottom)	Left cheek	0	QPSK	Receiver On	1	25	39200/2355.0	24.50	23.74	0.036	0.041	1.19	0.042	2#	/
			0	QPSK	Receiver On	50%	13	39200/2355.0	23.50	22.76	0.015	0.073	1.19	0.018	2#	/
		Left Tilt	0	QPSK	Receiver On	1	25	39200/2355.0	24.50	23.74	0.028	-0.046	1.19	0.033	2#	/
			0	QPSK	Receiver On	50%	13	39200/2355.0	23.50	22.76	0.025	0.030	1.19	0.030	2#	/
		Right cheek	0	QPSK	Receiver On	1	25	39200/2355.0	24.50	23.74	0.028	0.178	1.19	0.034	2#	/
			0	QPSK	Receiver On	50%	13	39200/2355.0	23.50	22.76	0.020	0.159	1.19	0.024	2#	/
		Right Tilt	0	QPSK	Receiver On	1	25	39200/2355.0	24.50	23.74	0.043	-0.026	1.19	0.051	2#	/
			0	QPSK	Receiver On	50%	13	39200/2355.0	23.50	22.76	0.035	0.039	1.19	0.041	2#	/
		Right Tilt	0	QPSK	Receiver On	1	49	38750/2310.0	24.50	23.70	0.061	-0.140	1.20	0.073	1#	16
			0	QPSK	Receiver On	50%	13	38750/2310.0	23.50	22.67	0.051	0.045	1.21	0.062	1#	/

Band	Antenna	Test Position	Dist. (mm)	Mode	Duty Cycle	Power Reduction	Ch./Freq. (MHz)	Tune-up (dBm)	Measured power (dBm)	Measured SAR1g (W/Kg)	Power Drift (dB)	Scaling Factor	Report SAR1g (W/kg)	EUT No.	Plot No.
Wi-Fi 2.4G	Wi-Fi	Left cheek	0	11b	100.0%	Full Power	6/2437	18.00	17.53	0.269	0.080	1.11	0.300	2#	/
		Left Tilt	0	11b	100.0%	Full Power	6/2437	18.00	17.53	0.317	0.030	1.11	0.353	2#	/
		Right cheek	0	11b	100.0%	Full Power	6/2437	18.00	17.53	0.654	-0.140	1.11	0.729	2#	17
		Right Tilt	0	11b	100.0%	Full Power	6/2437	18.00	17.53	0.454	-0.060	1.11	0.506	1#	/
Wi-Fi 5G U-NII-1	Wi-Fi	Left cheek	0	802.11nHT40	93.7%	Full Power	38/5190	14.00	13.50	0.382	0.024	1.20	0.457	1#	/
		Left Tilt	0	802.11nHT40	93.7%	Full Power	38/5190	14.00	13.50	0.419	-0.010	1.20	0.502	1#	/
		Right cheek	0	802.11nHT40	93.7%	Full Power	38/5190	14.00	13.50	0.546	0.038	1.20	0.654	1#	/
		Right Tilt	0	802.11nHT40	93.7%	Full Power	38/5190	14.00	13.50	0.408	0.039	1.20	0.489	1#	/
Wi-Fi 5G U-NII-2A	Wi-Fi	Left cheek	0	802.11ac-VHT80	88.3%	Full Power	58/5290	14.00	12.92	0.395	0.100	1.45	0.574	1#	/
		Left Tilt	0	802.11ac-VHT80	88.3%	Full Power	58/5290	14.00	12.92	0.432	0.100	1.45	0.627	1#	/
		Right cheek	0	802.11ac-VHT80	88.3%	Full Power	58/5290	14.00	12.92	0.619	0.054	1.45	0.899	1#	18
		Right Tilt	0	802.11ac-VHT80	88.3%	Full Power	58/5290	14.00	12.92	0.517	0.118	1.45	0.751	1#	/
		Right cheek Configure 2	0	802.11ac-VHT80	88.3%	Full Power	58/5290	14.00	12.92	0.545	0.037	1.45	0.791	3#	/
Wi-Fi 5G U-NII-2C	Wi-Fi	Left cheek	0	802.11ac-VHT80	88.3%	Full Power	138/5690	14.00	12.83	0.053	0.100	1.48	0.079	1#	/
		Left Tilt	0	802.11ac-VHT80	88.3%	Full Power	138/5690	14.00	12.83	0.076	0.031	1.48	0.112	1#	/
		Right cheek	0	802.11ac-VHT80	88.3%	Full Power	138/5690	14.00	12.83	0.087	0.077	1.48	0.130	1#	/
		Right Tilt	0	802.11ac-VHT80	88.3%	Full Power	138/5690	14.00	12.83	0.067	0.134	1.48	0.099	1#	/
Wi-Fi 5G U-NII-3	Wi-Fi	Left cheek	0	802.11ac-VHT80	88.3%	Full Power	155/5775	14.00	12.91	0.022	0.071	1.46	0.031	1#	/
		Left Tilt	0	802.11ac-VHT80	88.3%	Full Power	155/5775	14.00	12.91	0.022	0.138	1.46	0.031	1#	/
		Right cheek	0	802.11ac-VHT80	88.3%	Full Power	155/5775	14.00	12.91	0.103	0.132	1.46	0.150	1#	/
		Right Tilt	0	802.11ac-VHT80	88.3%	Full Power	155/5775	14.00	12.91	0.079	0.061	1.46	0.114	1#	/
Bluetooth	Bluetooth	Left cheek	0	DH5	76.6%	Full Power	78/2480	11.00	10.25	0.022	0.079	1.55	0.035	2#	/
		Left Tilt	0	DH5	76.6%	Full Power	78/2480	11.00	10.25	0.018	-0.070	1.55	0.027	2#	/
		Right cheek	0	DH5	76.6%	Full Power	78/2480	11.00	10.25	0.082	0.058	1.55	0.128	2#	19
		Right Tilt	0	DH5	76.6%	Full Power	78/2480	11.00	10.25	0.036	-0.020	1.55	0.056	2#	/

Hotspot SAR

Band	Antenna	Test Position	Dist. (mm)	Mode	Power Reduction	RB	Offset	Ch./Freq. (MHz)	Tune-up (dBm)	Measured power (dBm)	Measured SAR1g (W/Kg)	Power Drift (dB)	Scaling Factor	Report SAR1g (W/kg)	EUT No.	Plot No.
GSM850	Main (Bottom)	Back Side	10	4TX Slots	Receiver Off	-	-	190/836.6	29.00	28.17	0.711	0.000	1.21	0.861	1#	20
			10	4TX Slots	Receiver Off	-	-	128/824.2	29.00	28.07	0.569	-0.012	1.24	0.705	2#	/
			10	4TX Slots	Receiver Off	-	-	251/848.8	29.00	28.15	0.705	0.070	1.22	0.857	2#	/
		Front Side	10	4TX Slots	Receiver Off	-	-	190/836.6	29.00	28.17	0.342	-0.120	1.21	0.414	1#	/
		Left Edge	10	4TX Slots	Receiver Off	-	-	190/836.6	29.00	28.17	0.515	-0.022	1.21	0.623	1#	/
		Right Edge	10	4TX Slots	Receiver Off	-	-	190/836.6	29.00	28.17	0.144	0.035	1.21	0.174	1#	/
		Top Edge	10	4TX Slots	Receiver Off	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	/
		Bottom Edge	10	4TX Slots	Receiver Off	-	-	190/836.6	29.00	28.17	0.418	0.010	1.21	0.506	1#	/
		Back Side	10	CS	Receiver Off	-	-	190/836.6	34.00	33.28	0.395	0.030	1.18	0.466	2#	/
GSM1900	Main (Bottom)	Back Side	10	4TX Slots	Receiver Off	-	-	661/1880	25.50	24.60	0.460	-0.070	1.23	0.566	1#	21
		Front Side	10	4TX Slots	Receiver Off	-	-	661/1880	25.50	24.60	0.323	-0.023	1.23	0.397	1#	/
		Left Edge	10	4TX Slots	Receiver Off	-	-	661/1880	25.50	24.60	0.094	0.000	1.23	0.116	1#	/
		Right Edge	10	4TX Slots	Receiver Off	-	-	661/1880	25.50	24.60	0.194	-0.090	1.23	0.239	1#	/
		Top Edge	10	4TX Slots	Receiver Off	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	/
		Bottom Edge	10	4TX Slots	Receiver Off	-	-	661/1880	25.50	24.60	0.414	0.056	1.23	0.509	1#	/
		Back Side	10	CS	Receiver Off	-	-	661/1880	30.50	29.61	0.272	0.100	1.23	0.334	1#	/
LTE 4	Main (Bottom)	Back Side	10	QPSK	Receiver Off	1	50	20175/1732.5	22.50	21.95	0.826	0.090	1.14	0.938	2#	22
			10	QPSK	Receiver Off	1	50	20050/1720	22.50	21.93	0.810	0.010	1.14	0.924	2#	/
			10	QPSK	Receiver Off	1	50	20300/1745	22.50	21.94	0.787	0.025	1.14	0.895	2#	/
			10	QPSK	Receiver Off	50%	0	20050/1720	21.50	20.94	0.785	0.011	1.14	0.893	2#	/
			10	QPSK	Receiver Off	50%	50	20175/1732.5	21.50	20.92	0.799	0.100	1.14	0.913	2#	/
			10	QPSK	Receiver Off	50%	25	20300/1745	21.50	20.87	0.781	-0.032	1.16	0.903	2#	/
			10	QPSK	Receiver Off	100%	0	20175/1732.5	21.50	20.95	0.801	0.015	1.14	0.909	2#	/
			10	QPSK	Receiver Off	100%	0	20050/1720	21.50	20.88	0.805	0.026	1.15	0.929	2#	/
			10	QPSK	Receiver Off	100%	0	20300/1745	21.50	20.75	0.784	0.010	1.19	0.932	2#	/
		Back Side Repeat	10	QPSK	Receiver Off	1	50	20050/1720	22.50	21.93	0.810	0.038	1.14	0.924	2#	/
		Front Side	10	QPSK	Receiver Off	1	50	20175/1732.5	22.50	21.95	0.217	0.022	1.14	0.246	2#	/
			10	QPSK	Receiver Off	50%	0	20050/1720	21.50	20.94	0.209	0.018	1.14	0.238	2#	/
		Left Edge	10	QPSK	Receiver Off	1	50	20175/1732.5	22.50	21.95	0.000	0.000	1.14	0.000	2#	/
			10	QPSK	Receiver Off	50%	0	20050/1720	21.50	20.94	0.000	0.000	1.14	0.000	2#	/
		Right Edge	10	QPSK	Receiver Off	1	50	20175/1732.5	22.50	21.95	0.066	0.030	1.14	0.075	2#	/
			10	QPSK	Receiver Off	50%	0	20050/1720	21.50	20.94	0.079	0.012	1.14	0.090	2#	/
		Top Edge	10	QPSK	Receiver Off	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	/
			10	QPSK	Receiver Off	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	/
		Bottom Edge	10	QPSK	Receiver Off	1	50	20175/1732.5	22.50	21.95	0.499	0.035	1.14	0.566	2#	/
			10	QPSK	Receiver Off	50%	0	20050/1720	21.50	20.94	0.530	-0.100	1.14	0.603	2#	/
LTE 5	Main (Bottom)	Back Side	10	QPSK	Receiver Off	1	25	20450/829	24.50	23.83	0.454	-0.070	1.17	0.530	1#	23
			10	QPSK	Receiver Off	50%	13	20525/836.5	23.50	22.87	0.433	-0.080	1.16	0.501	2#	/

		Front Side	10	QPSK	Receiver Off	1	25	20450/829	24.50	23.83	0.449	-0.050	1.17	0.524	2#	/
			10	QPSK	Receiver Off	50%	13	20525/836.5	23.50	22.87	0.354	-0.010	1.16	0.409	2#	/
		Left Edge	10	QPSK	Receiver Off	1	25	20450/829	24.50	23.83	0.275	-0.070	1.17	0.321	2#	/
			10	QPSK	Receiver Off	50%	13	20525/836.5	23.50	22.87	0.221	-0.070	1.16	0.256	2#	/
		Right Edge	10	QPSK	Receiver Off	1	25	20450/829	24.50	23.83	0.183	-0.030	1.17	0.214	2#	/
			10	QPSK	Receiver Off	50%	13	20525/836.5	23.50	22.87	0.147	-0.015	1.16	0.170	2#	/
		Top Edge	10	QPSK	Receiver Off	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	/
			10	QPSK	Receiver Off	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	/
		Bottom Edge	10	QPSK	Receiver Off	1	25	20450/829	24.50	23.83	0.398	0.020	1.17	0.464	2#	/
			10	QPSK	Receiver Off	50%	13	20525/836.5	23.50	22.87	0.337	0.020	1.16	0.390	2#	/
LTE 7	Main (Bottom)	Back Side	10	QPSK	Receiver Off	1	50	21100/2535	22.00	21.62	0.818	-0.040	1.09	0.893	2#	/
			10	QPSK	Receiver Off	1	50	20850/2510	22.00	21.52	1.150	0.026	1.12	1.284	1#	24
			10	QPSK	Receiver Off	1	50	21350/2560	22.00	21.61	0.986	0.050	1.09	1.079	1#	/
			10	QPSK	Receiver Off	50%	50	20850/2510	22.00	21.61	0.832	0.020	1.09	0.910	2#	/
			10	QPSK	Receiver Off	50%	50	21100/2535	22.00	21.55	1.070	0.120	1.11	1.187	1#	/
			10	QPSK	Receiver Off	50%	25	21350/2560	22.00	21.58	0.988	0.100	1.10	1.088	1#	/
			10	QPSK	Receiver Off	100%	0	21100/2535	22.00	21.55	0.680	-0.024	1.11	0.754	2#	/
		Back Side Repeat	10	QPSK	Receiver Off	1	50	20850/2510	22.00	21.52	1.100	0.037	1.12	1.229	2#	/
		Front Side	10	QPSK	Receiver Off	1	50	21100/2535	22.00	21.62	0.283	-0.035	1.09	0.309	2#	/
			10	QPSK	Receiver Off	50%	50	20850/2510	22.00	21.61	0.216	0.022	1.09	0.236	2#	/
		Left Edge	10	QPSK	Receiver Off	1	50	21100/2535	22.00	21.62	0.084	0.060	1.09	0.092	2#	/
			10	QPSK	Receiver Off	50%	50	20850/2510	22.00	21.61	0.085	0.060	1.09	0.093	2#	/
		Right Edge	10	QPSK	Receiver Off	1	50	21100/2535	22.00	21.62	0.146	-0.177	1.09	0.159	2#	/
			10	QPSK	Receiver Off	50%	50	20850/2510	22.00	21.61	0.083	0.161	1.09	0.091	2#	/
		Top Edge	10	QPSK	Receiver Off	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	/
			10	QPSK	Receiver Off	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	/
		Bottom Edge	10	QPSK	Receiver Off	1	50	21100/2535	22.00	21.62	0.879	0.044	1.09	0.959	2#	/
			10	QPSK	Receiver Off	1	50	20850/2510	22.00	21.52	0.868	0.070	1.12	0.969	1#	/
			10	QPSK	Receiver Off	1	50	21350/2560	22.00	21.61	0.949	0.020	1.09	1.038	1#	/
			10	QPSK	Receiver Off	50%	50	20850/2510	22.00	21.61	0.870	0.150	1.09	0.952	2#	/
			10	QPSK	Receiver Off	50%	50	21100/2535	22.00	21.55	0.930	0.000	1.11	1.032	1#	/
			10	QPSK	Receiver Off	50%	25	21350/2560	22.00	21.58	0.942	0.010	1.10	1.038	1#	/
		Back Side Configure 2	10	QPSK	Receiver Off	1	50	20850/2510	22.00	21.52	0.849	0.020	1.12	0.948	3#	/
		Back Side Earphone	10	QPSK	Receiver Off	1	50	20850/2510	22.00	21.52	0.980	0.118	1.12	1.095	1#	/
LTE 40	Main (Bottom)	Back Side	10	QPSK	Receiver Off	1	25	39200/2355.0	24.50	23.74	0.881	0.160	1.19	1.049	2#	25
			10	QPSK	Receiver Off	50%	13	39200/2355.0	23.50	22.76	0.699	-0.100	1.19	0.829	2#	/
			10	QPSK	Receiver Off	100%	0	39200/2355.0	23.50	22.73	0.852	0.020	1.19	1.017	2#	/
		Back Side Repeat	10	QPSK	Receiver Off	1	25	39200/2355.0	24.50	23.74	0.872	-0.022	1.19	1.039	2#	/
		Front Side	10	QPSK	Receiver Off	1	25	39200/2355.0	24.50	23.74	0.135	-0.130	1.19	0.161	2#	/

			10	QPSK	Receiver Off	50%	13	39200/2355.0	23.50	22.76	0.134	-0.036	1.19	0.159	2#	/
		Left Edge	10	QPSK	Receiver Off	1	25	39200/2355.0	24.50	23.74	0.044	0.041	1.19	0.053	2#	/
			10	QPSK	Receiver Off	50%	13	39200/2355.0	23.50	22.76	0.044	-0.041	1.19	0.052	2#	/
		Right Edge	10	QPSK	Receiver Off	1	25	39200/2355.0	24.50	23.74	0.024	0.037	1.19	0.028	2#	/
			10	QPSK	Receiver Off	50%	13	39200/2355.0	23.50	22.76	0.019	0.040	1.19	0.022	2#	/
		Top Edge	10	QPSK	Receiver Off	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	/
			10	QPSK	Receiver Off	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	/
		Bottom Edge	10	QPSK	Receiver Off	1	25	39200/2355.0	24.50	23.74	0.528	0.070	1.19	0.629	2#	/
			10	QPSK	Receiver Off	50%	13	39200/2355.0	23.50	22.76	0.403	0.040	1.19	0.478	2#	/
		Back Side	10	QPSK	Receiver Off	1	49	38750/2310.0	24.50	23.70	0.538	-0.010	1.20	0.647	1#	/
			10	QPSK	Receiver Off	50%	13	38750/2310.0	23.50	22.67	0.553	-0.020	1.21	0.669	1#	/

Band	Antenna	Test Position	Dist. (mm)	Mode	Duty Cycle	Power Reduction	Ch./Freq. (MHz)	Tune-up (dBm)	Measured power (dBm)	Measured SAR1g (W/Kg)	Power Drift (dB)	Scaling Factor	Report SAR1g (W/kg)	EUT No.	Plot No.
Wi-Fi 2.4G	Wi-Fi	Back Side	10	11b	100.0%	Full Power	6/2437	18.00	17.53	0.267	0.070	1.11	0.298	2#	26
		Front Side	10	11b	100.0%	Full Power	6/2437	18.00	17.53	0.220	0.030	1.11	0.245	2#	/
		Left Edge	10	11b	100.0%	Full Power	6/2437	18.00	17.53	0.186	0.020	1.11	0.207	2#	/
		Right Edge	10	11b	100.0%	Full Power	6/2437	18.00	17.53	0.020	0.040	1.11	0.022	2#	/
		Top Edge	10	11b	100.0%	Full Power	6/2437	18.00	17.53	0.227	-0.026	1.11	0.253	2#	/
		Bottom Edge	10	N/A	N/A	Full Power	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	/
Wi-Fi 5G U-NII-1	Wi-Fi	Back Side	10	802.11nHT40	93.7%	Full Power	38/5190	14.00	13.50	0.589	0.067	1.20	0.705	2#	27
		Front Side	10	802.11nHT40	93.7%	Full Power	38/5190	14.00	13.50	0.118	0.034	1.20	0.141	2#	/
		Left Edge	10	802.11nHT40	93.7%	Full Power	38/5190	14.00	13.50	0.192	0.000	1.20	0.230	2#	/
		Right Edge	10	802.11nHT40	93.7%	Full Power	38/5190	14.00	13.50	0.007	-0.052	1.20	0.008	2#	/
		Top Edge	10	802.11nHT40	93.7%	Full Power	38/5190	14.00	13.50	0.393	0.033	1.20	0.471	2#	/
		Bottom Edge	10	N/A	N/A	Full Power	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	/
Wi-Fi 5G U-NII-2A	Wi-Fi	Back Side	10	802.11ac-VHT80	88.3%	Full Power	58/5290	14.00	12.92	0.502	0.090	1.45	0.729	2#	/
		Front Side	10	802.11ac-VHT80	88.3%	Full Power	58/5290	14.00	12.92	0.105	-0.140	1.45	0.152	2#	/
		Left Edge	10	802.11ac-VHT80	88.3%	Full Power	58/5290	14.00	12.92	0.136	0.050	1.45	0.198	2#	/
		Right Edge	10	802.11ac-VHT80	88.3%	Full Power	58/5290	14.00	12.92	0.010	0.085	1.45	0.015	2#	/
		Top Edge	10	802.11ac-VHT80	88.3%	Full Power	58/5290	14.00	12.92	0.421	0.010	1.45	0.611	2#	/
		Bottom Edge	10	N/A	N/A	Full Power	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2#	/
Wi-Fi 5G U-NII-2C	Wi-Fi	Back Side	10	802.11ac-VHT80	88.3%	Full Power	138/5690	14.00	12.83	0.181	0.090	1.48	0.269	2#	/
		Front Side	10	802.11ac-VHT80	88.3%	Full Power	138/5690	14.00	12.83	0.024	-0.051	1.48	0.036	2#	/
		Left Edge	10	802.11ac-VHT80	88.3%	Full Power	138/5690	14.00	12.83	0.000	0.032	1.48	0.000	2#	/
		Right Edge	10	802.11ac-VHT80	88.3%	Full Power	138/5690	14.00	12.83	0.000	0.010	1.48	0.000	2#	/
		Top Edge	10	802.11ac-VHT80	88.3%	Full Power	138/5690	14.00	12.83	0.075	0.024	1.48	0.111	2#	/
		Bottom Edge	10	N/A	N/A	Full Power	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2#	/
Wi-Fi 5G U-NII-3	Wi-Fi	Back Side	10	802.11ac-VHT80	88.3%	Full Power	155/5775	14.00	12.91	0.067	-0.156	1.46	0.098	2#	/
		Front Side	10	802.11ac-VHT80	88.3%	Full Power	155/5775	14.00	12.91	0.036	0.011	1.46	0.052	2#	/
		Left Edge	10	802.11ac-VHT80	88.3%	Full Power	155/5775	14.00	12.91	0.028	0.099	1.46	0.041	2#	/
		Right Edge	10	802.11ac-VHT80	88.3%	Full Power	155/5775	14.00	12.91	0.021	0.020	1.46	0.031	2#	/

		Top Edge	10	802.11ac-VHT80	88.3%	Full Power	155/5775	14.00	12.91	0.036	0.068	1.46	0.052	2#	/
		Bottom Edge	10	N/A	N/A	Full Power	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	/
Bluetooth	Bluetooth	Back Side	10	DH5	76.6%	Full Power	78/2480	11.00	10.25	0.045	0.024	1.55	0.070	2#	28
		Front Side	10	DH5	76.6%	Full Power	78/2480	11.00	10.25	0.039	0.164	1.55	0.061	2#	/
		Left Edge	10	DH5	76.6%	Full Power	78/2480	11.00	10.25	0.030	0.033	1.55	0.047	2#	/
		Right Edge	10	DH5	76.6%	Full Power	78/2480	11.00	10.25	0.007	0.199	1.55	0.012	2#	/
		Top Edge	10	DH5	76.6%	Full Power	78/2480	11.00	10.25	0.021	-0.040	1.55	0.032	2#	/
		Bottom Edge	10	N/A	N/A	Full Power	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	/

Product-specific 10g SAR Evaluation

Band	Antenna	Test Position	Mode	Power Reduction	RB	Offset	Channel Frequency(MHz)	Tune-up (dBm)	Measured power (dBm)	Measured SAR1g(W/Kg)	Scaling Factor	Report SAR1g(W/kg)	0mm SAR
LTE 4	Main (Bottom)	Back Side	QPSK	Full Power	1	50	20175/1732.5	24.50	22.50	0.938	1.58	1.486	Yes
			QPSK	Full Power	1	50	20050/1720	24.50	22.50	0.924	1.58	1.464	Yes
			QPSK	Full Power	1	50	20300/1745	24.50	22.50	0.895	1.58	1.419	Yes
			QPSK	Full Power	50%	0	20050/1720	23.50	21.50	0.893	1.58	1.415	Yes
			QPSK	Full Power	50%	50	20175/1732.5	23.50	21.50	0.913	1.58	1.447	Yes
			QPSK	Full Power	50%	25	20300/1745	23.50	21.50	0.903	1.58	1.431	Yes
			QPSK	Full Power	100%	0	20175/1732.5	23.50	21.50	0.909	1.58	1.441	Yes
			QPSK	Full Power	100%	0	20050/1720	23.50	21.50	0.929	1.58	1.472	Yes
			QPSK	Full Power	100%	0	20300/1745	23.50	21.50	0.932	1.58	1.477	Yes
		Front Side	QPSK	Full Power	1	50	20175/1732.5	24.50	22.50	0.246	1.58	0.390	No
			QPSK	Full Power	50%	0	20050/1720	23.50	21.50	0.238	1.58	0.377	No
		Left Edge	QPSK	Full Power	1	50	20175/1732.5	24.50	22.50	0.000	1.58	0.000	No
			QPSK	Full Power	50%	0	20050/1720	23.50	21.50	0.000	1.58	0.000	No
		Right Edge	QPSK	Full Power	1	50	20175/1732.5	24.50	22.50	0.075	1.58	0.119	No
			QPSK	Full Power	50%	0	20050/1720	23.50	21.50	0.090	1.58	0.142	No
		Bottom Edge	QPSK	Full Power	1	50	20175/1732.5	24.50	22.50	0.566	1.58	0.898	No
			QPSK	Full Power	50%	0	20050/1720	23.50	21.50	0.530	1.58	0.840	No

Product-specific 10g SAR

Band	Antenna	Test Position	Dist. (mm)	Mode	Power Reduction	RB	Offset	Ch./Freq. (MHz)	Tune-up (dBm)	Measured power (dBm)	Measured SAR10g(W/Kg)	Power Drift (dB)	Scaling Factor	Report SAR10g(W/kg)	EUT No.	Plot No.
LTE 4	Main (Bottom)	Back Side	0	QPSK	Full Power	1	50	20175/1732.5	22.50	21.95	2.640	0.027	1.14	2.996	1#	/
			0	QPSK	Full Power	1	50	20050/1720	22.50	21.93	2.650	0.053	1.14	3.022	1#	29
			0	QPSK	Full Power	1	50	20300/1745	22.50	21.94	2.540	0.047	1.14	2.890	1#	/
			0	QPSK	Full Power	50%	0	20050/1720	21.50	20.94	2.160	0.043	1.14	2.457	1#	/
			0	QPSK	Full Power	50%	50	20175/1732.5	21.50	20.92	2.080	0.047	1.14	2.377	1#	/
			0	QPSK	Full Power	50%	25	20300/1745	21.50	20.87	2.130	0.031	1.16	2.463	1#	/
			0	QPSK	Full Power	100%	0	20175/1732.5	21.50	20.95	2.230	-0.017	1.14	2.531	1#	/
			0	QPSK	Full Power	100%	0	20050/1720	21.50	20.88	2.100	0.070	1.15	2.422	1#	/
			0	QPSK	Full Power	100%	0	20300/1745	21.50	20.75	2.000	0.039	1.19	2.377	1#	/
		Back Side Repeat	0	QPSK	Full Power	1	50	20050/1720	22.50	21.93	2.580	0.014	1.14	2.942	1#	/
LTE 7	Main (Bottom)	Back Side	0	QPSK	Full Power	1	50	20850/2510	24.50	24.10	2.770	0.054	1.10	3.037	2#	/
			0	QPSK	Full Power	1	50	21100/2535	24.50	24.02	2.420	0.036	1.12	2.703	2#	/
			0	QPSK	Full Power	1	50	21350/2560	24.50	24.06	2.120	0.022	1.11	2.346	2#	/
			0	QPSK	Full Power	50%	50	20850/2510	23.50	23.13	2.400	0.050	1.09	2.613	2#	/
			0	QPSK	Full Power	50%	0	21100/2535	23.50	23.05	2.200	0.029	1.11	2.440	2#	/
			0	QPSK	Full Power	50%	25	21350/2560	23.50	23.07	1.790	0.140	1.10	1.976	2#	/
			0	QPSK	Full Power	100%	0	20850/2510	23.50	23.06	2.430	0.120	1.11	2.689	2#	/
			0	QPSK	Full Power	100%	0	21100/2535	23.50	23.01	2.040	0.047	1.12	2.284	2#	/
			0	QPSK	Full Power	100%	0	21350/2560	23.50	22.97	1.690	0.050	1.13	1.909	2#	/
		Bottom Edge	0	QPSK	Full Power	1	50	20850/2510	24.50	24.10	2.350	0.160	1.10	2.577	2#	/
			0	QPSK	Full Power	1	50	21100/2535	24.50	24.02	2.470	0.120	1.12	2.759	2#	/
			0	QPSK	Full Power	1	50	21350/2560	24.50	24.06	2.470	0.160	1.11	2.733	2#	/
			0	QPSK	Full Power	50%	50	20850/2510	23.50	23.13	1.970	0.130	1.09	2.145	2#	/
			0	QPSK	Full Power	50%	0	21100/2535	23.50	23.05	2.010	0.140	1.11	2.229	2#	/
			0	QPSK	Full Power	50%	25	21350/2560	23.50	23.07	2.000	0.170	1.10	2.208	2#	/
		Back Side Repeat	0	QPSK	Full Power	1	50	20850/2510	24.50	24.10	2.790	-0.100	1.10	3.059	2#	/
		Back Side Configure 2	0	QPSK	Full Power	1	50	20850/2510	24.50	24.10	2.840	0.087	1.10	3.114	3#	30
		Back Side Earphone	0	QPSK	Full Power	1	50	20850/2510	24.50	24.10	1.650	0.192	1.10	1.809	1#	/

10.3 Simultaneous Transmission Analysis

Simultaneous Transmission Configurations	Head	Body-worn	Hotspot	Product Specific 10-g SAR
Main Antenna + Bluetooth	Yes	Yes	Yes	Yes
Main Antenna + Wi-Fi 2.4G	Yes	Yes	Yes	Yes
Main Antenna + Wi-Fi 5G	Yes	Yes	Yes	Yes
Wi-Fi 2.4GHz + Wi-Fi 5G	NA	NA	NA	NA
Wi-Fi 2.4GHz + Bluetooth	NA	NA	NA	NA
Wi-Fi 5GHz + Bluetooth	NA	NA	NA	NA

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

Test Position	$SAR_{1g/10g}$ (W/kg)	GSM 850	GSM 1900	LTE FDD 4	LTE FDD 5	LTE FDD 7	LTE TDD 40	MAX. $SAR_{1g/10g}$
Head	Left Cheek	0.276	0.126	0.136	0.370	0.095	0.042	0.370
	Left Tilt	0.157	0.114	0.157	0.184	0.079	0.033	0.184
	Right Cheek	0.248	0.141	0.223	0.308	0.203	0.034	0.308
	Right Tilt	0.157	0.125	0.150	0.210	0.144	0.073	0.210
Body worn	Back Side	0.861	0.566	0.938	0.530	1.284	1.049	1.284
	Front Side	0.414	0.397	0.246	0.524	0.309	0.161	0.524
Hotspot	Back Side	0.861	0.566	0.938	0.530	1.284	1.049	1.284
	Front Side	0.414	0.397	0.246	0.524	0.309	0.161	0.524
	Left Edge	0.623	0.116	0.000	0.321	0.093	0.053	0.623
	Right Edge	0.174	0.239	0.090	0.214	0.159	0.028	0.239
	Top Edge	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Bottom Edge	0.506	0.509	0.603	0.464	1.038	0.629	1.038
Product Specific 10-g SAR	Back Side	N/A	N/A	3.022	N/A	3.114	N/A	3.114
	Front Side	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Left Edge	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Right Edge	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Top Edge	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Bottom Edge	N/A	N/A	N/A	N/A	N/A	N/A	N/A

About Bluetooth Antenna and Wi-Fi Antenna and Main-Antenna

Test Position / $SAR_{1g/10g}$(W/kg)		Main-Antenna	Wi-Fi 2.4G	Wi-Fi 5G				Bluetooth	MAX. $\Sigma SAR_{1g/10g}$
				U-NII-1	U-NII-2A	U-NII-2C	U-NII-3		
Head	Left, Cheek	**0.370**	0.300	0.457	**0.574**	0.079	0.031	0.035	0.944
	Left, Tilt	**0.184**	0.353	0.502	**0.627**	0.112	0.031	0.027	0.811
	Right, Cheek	**0.308**	0.729	0.654	**0.899**	0.130	0.150	0.128	1.207
	Right, Tilt	**0.210**	0.506	0.489	**0.751**	0.099	0.114	0.056	0.961
Body worn	Back Side	**1.284**	0.298	0.705	**0.729**	0.269	0.098	0.070	2.013
	Front Side	**0.524**	**0.245**	0.141	0.152	0.036	0.052	0.061	0.769
Hotspot	Back Side	**1.284**	0.298	0.705	**0.729**	0.269	0.098	0.070	2.013
	Front Side	**0.524**	**0.245**	0.141	0.152	0.036	0.052	0.061	0.769
	Left Edge	**0.623**	0.207	**0.230**	0.198	0.000	0.041	0.047	0.853
	Right Edge	**0.239**	0.022	0.008	0.015	0.000	**0.031**	0.012	0.270
	Top Edge	N/A	0.253	0.471	**0.611**	0.111	0.052	0.032	0.611
	Bottom Edge	**1.038**	N/A	N/A	N/A	N/A	N/A	N/A	1.038
Product Specific 10-g SAR	Back Side	**3.114**	N/A	N/A	N/A	N/A	N/A	N/A	3.114
	Front Side	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Left Edge	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Right Edge	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Top Edge	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Bottom Edge	NA	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Note:
1. The value with blue color is the maximum ΣSAR1g/10g Value.
2. MAX. $\Sigma SAR_{1g/10g}$ =Unlicensed SAR_{MAX} +Licensed SAR_{MAX}
3. MAX. ΣSAR_{1g} =2.013W/kg>1.6W/kg and MAX. ΣSAR_{10g} =3.114W/kg<4 W/kg.

MAX. ΣSAR_{1g} = 2.013W/kg>1.6W/kg, so the SAR to peak location separation ratio should be considered

Test Position \ Reported SAR_{1g}(W/kg)	GSM 850	GSM 1900	LTE FDD 4	LTE FDD 5	LTE FDD 7	LTE FDD 40	Max Wi-Fi 2.4G & Bluetooth	Max Wi-Fi 5G (U-NII-2C&UNII-3)	Wi-Fi 5G (U-NII-1)	Wi-Fi 5G (U-NII-2A)	MAX. ΣSAR_{1g}
Back Side	0.861	--	--	--	--	--	0.298	--	--	--	1.159
	--	0.566	--	--	--	--	0.298	--	--	--	0.864
	--	--	0.938	--	--	--	0.298	--	--	--	1.236
	--	--	--	0.530	--	--	0.298	--	--	--	0.828
	--	--	--	--	1.284	--	0.298	--	--	--	1.582
	--	--	--	--	--	1.049	0.298	--	--	--	1.347
	0.861	--	--	--	--	--	--	0.269	--	--	1.130
	--	0.566	--	--	--	--	--	0.269	--	--	0.835
	--	--	0.938	--	--	--	--	0.269	--	--	1.207
	--	--	--	0.530	--	--	--	0.269	--	--	0.799
	--	--	--	--	1.284	--	--	0.269	--	--	1.553
	--	--	--	--	--	1.049	--	0.269	--	--	1.318
	0.861	--	--	--	--	--	--	--	0.705	--	1.566
	--	0.566	--	--	--	--	--	--	0.705	--	1.271
	--	--	0.938	--	--	--	--	--	0.705	--	1.643
	--	--	--	0.530	--	--	--	--	0.705	--	1.235
	--	--	--	--	1.284	--	--	--	0.705	--	1.989
	--	--	--	--	--	1.049	--	--	0.705	--	1.754
	0.861	--	--	--	--	--	--	--	--	0.729	1.590
	--	0.566	--	--	--	--	--	--	--	0.729	1.295
	--	--	0.938	--	--	--	--	--	--	0.729	1.667
	--	--	--	0.530	--	--	--	--	--	0.729	1.259
	--	--	--	--	1.284	--	--	--	--	0.729	2.013
	--	--	--	--	--	1.049	--	--	--	0.729	1.778

Note:

1. The value with blue color is the SAR_{1g}>1.6 W/kg.

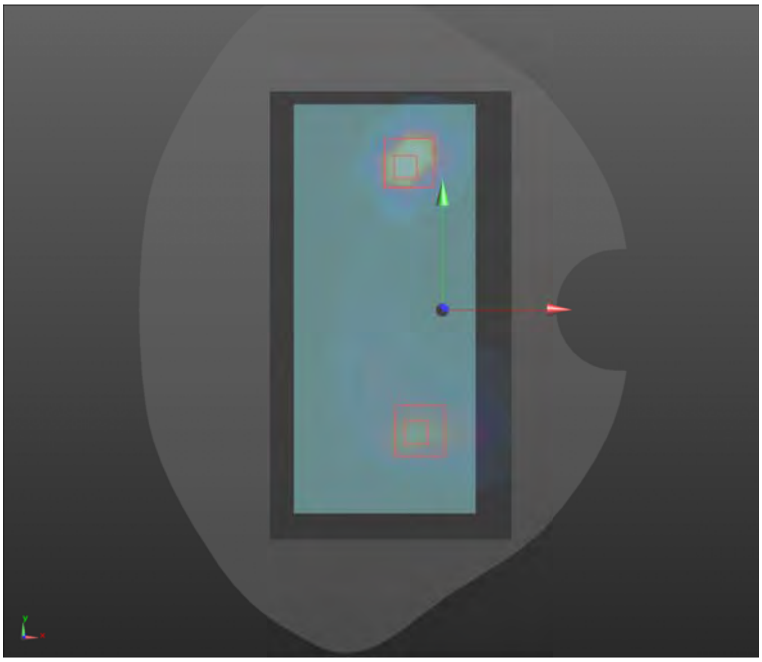
2. When the MAX. Σ SAR_{1g}>4 W/kg in a position, Ratio need consideration in this position.

(SAR_{Max} =1.643W/Kg)

The position $SAR_{LTE\ band\ 4}$ is (x_1= 4, y_1= -78, z_1= -205.5),

The position $SAR_{U\text{-}NII\text{-}1}$ is (x_2= 4.5, y_2=63.5, z_2= -207.4)

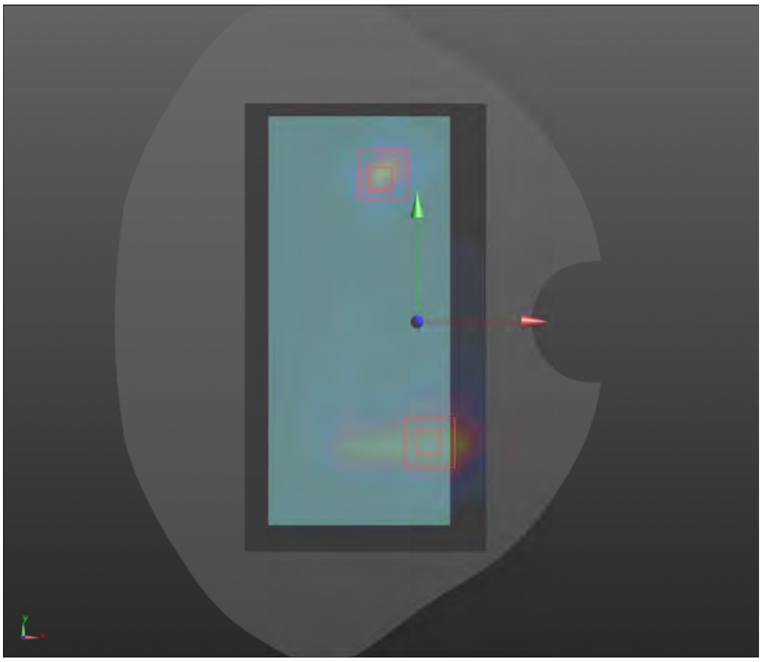
so the distance is 141.51mm.



PSLS=Peak SAR Location Separation

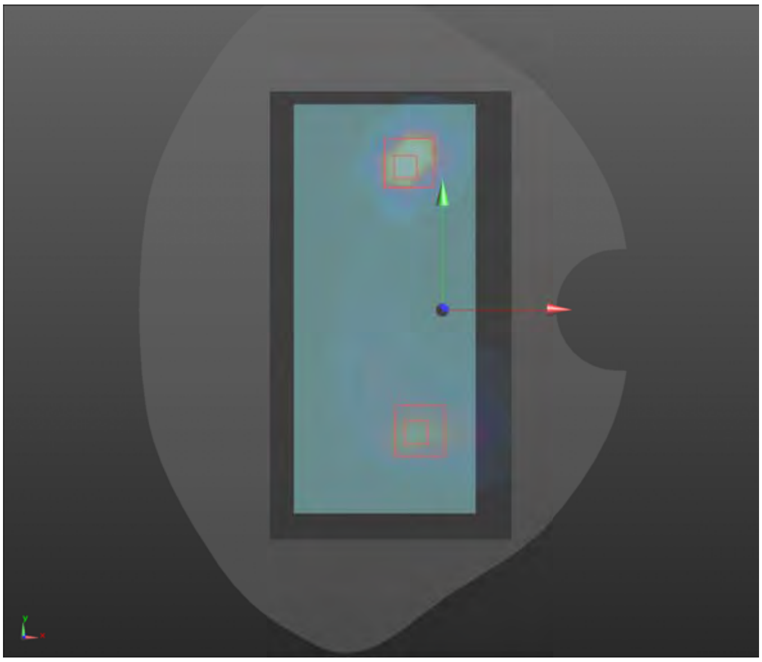
Ratio =[(Reported $SAR_{LTE\ band\ 4}$) 0.938W/kg +(Reported SAR $_{Wi\text{-}Fi\ 5G\ UNII\text{-}1}$) 0.705W/kg]$^{3/2}$ /PSLS =0.01 <0.04 (for 1-g SAR)

(SAR_{Max} =1.989W/Kg)
The position $SAR_{LTE\ band\ 7}$ is (x_1= -9, y_1= -82.8, z_1= -204.6),
The position $SAR_{Max.U-NII-1}$ is (x_2= 4.5, y_2=63.5, z_2= -207.4)
so the distance is 146.95mm.



PSLS=Peak SAR Location Separation
Ratio =[(Reported $SAR_{Max.LTE\ band\ 7}$) 1.284W/kg +(Reported $SAR_{WIFI\ 5G\ UNII-1}$) 0.705W/kg]$^{3/2}$ /PSLS = 0.02 <0.04 (for 1-g SAR)

(SAR_{Max} =1.754W/Kg)
The position $SAR_{LTE\ band\ 40}$ is (x_1= 4.5, y_1= -52, z_1= -207.8),
The position $SAR_{Max.U\text{-}NII\text{-}1}$ is (x_2= 4.5, y_2=63.5, z_2= -207.4)
so the distance is 115.50mm.



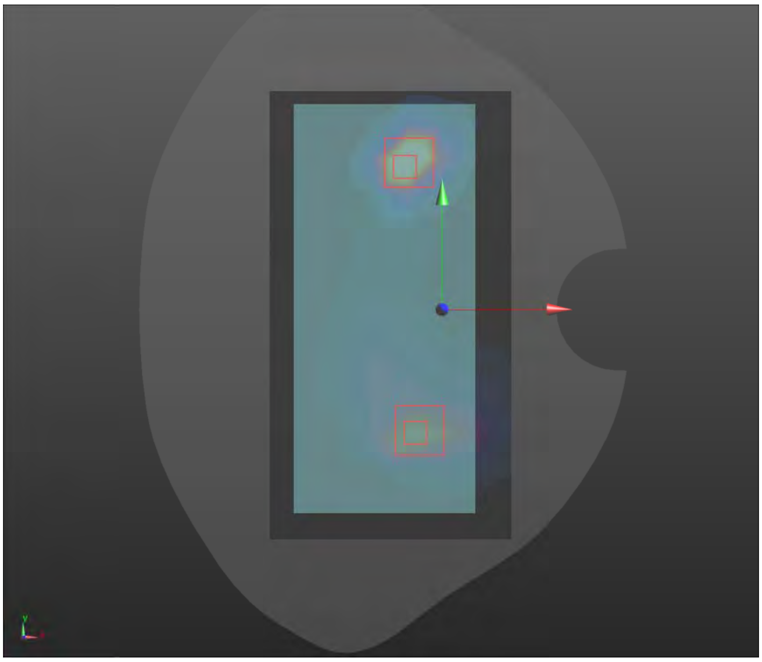
PSLS=Peak SAR Location Separation
Ratio =[(Reported $SAR_{Max.\ LTE\ band\ 40}$) 1.049W/kg +(Reported SAR $_{Wi\text{-}Fi\ 5G\ UNII\text{-}1}$) 0.705W/kg]$^{3/2}$ /PSLS =0.02 <0.04 (for 1-g SAR)

(SAR_{Max} =1.667W/Kg)

The position $SAR_{LTE\ band\ 4}$ is (x_1=-9, y_1= -82.8, z_1= -204.6),

The position $SAR_{U-NII-2A}$ is (x_2= -9, y_2=54.5, z_2= -206)

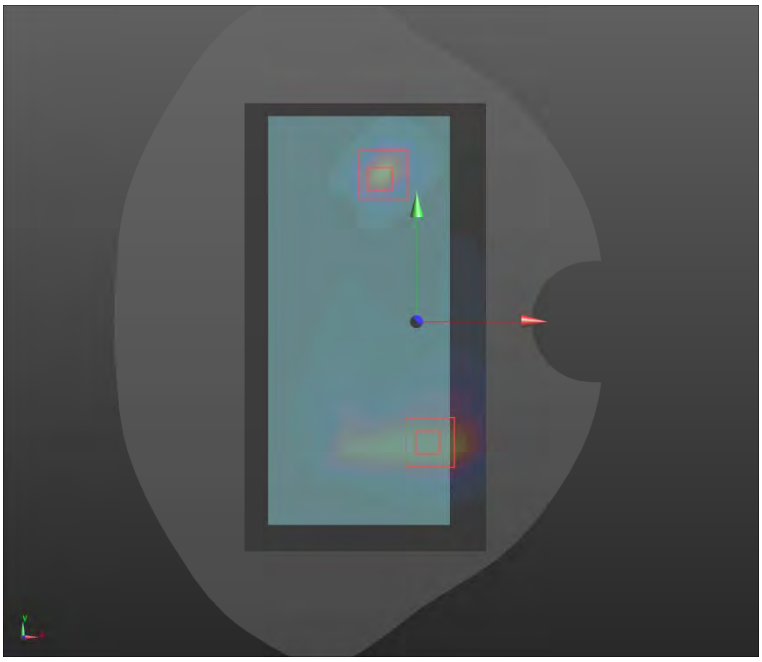
so the distance is 137.31mm.



PSLS=Peak SAR Location Separation

Ratio =[(Reported SAR $_{LTE\ band\ 4}$) 0.938W/kg + (Reported SAR $_{Wi\text{-}Fi\ 5G\ UNII\text{-}2A}$) 0.729W/kg]$^{3/2}$ /PSLS =0.02 <0.04 (for 1-g SAR)

(SAR_{Max} =2.013W/Kg)
The position $SAR_{LTE\ band\ 7}$ is (x_1=4.5, y_1= -52, z_1= -207.8),
The position $SAR_{U\text{-}NII\text{-}2A}$ is (x_2= -9, y_2=54.5, z_2= -206)
so the distance is 107.37mm.



PSLS=Peak SAR Location Separation

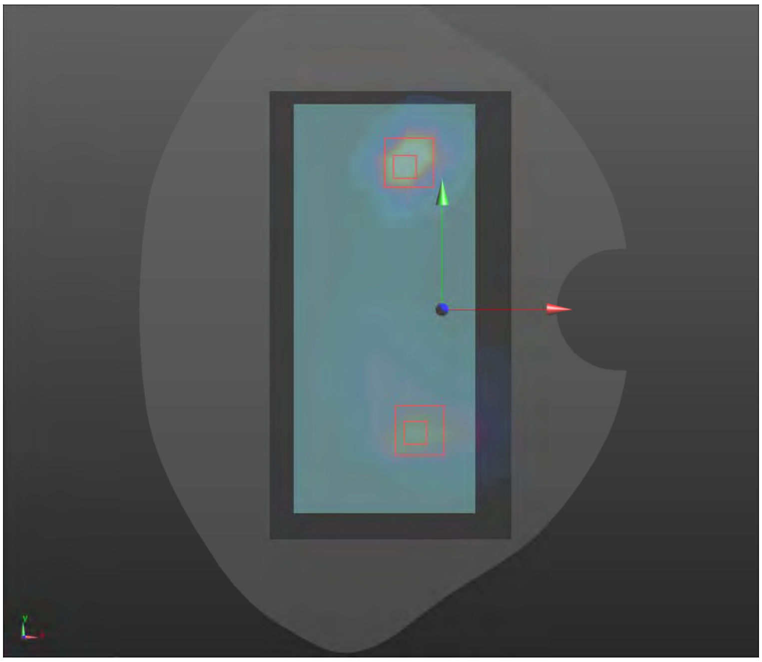
Ratio =[(Reported $SAR_{LTE\ band\ 7}$) 1.284W/kg +(Reported SAR $_{Wi\text{-}Fi\ 5G\ UNII\text{-}2A}$) 0.729W/kg]$^{3/2}$ /PSLS =0.03 <0.04 (for 1-g SAR)

(SAR_{Max} =1.778W/Kg)

The position $SAR_{LTE\ band\ 40}$ is (x_1=-12, y_1= -53.5, z_1= -208),

The position $SAR_{Max.U\text{-}NII\text{-}2A}$ is (x_2= -9, y_2=54.5, z_2= -206)

so the distance is 108.06mm.



PSLS=Peak SAR Location Separation

Ratio =[(Reported $SAR_{Max.LTE\ band\ 40}$) 1.049W/kg +(Reported SAR $_{Wi\text{-}Fi\ 5G\ UNII\text{-}2A}$) 0.729W/kg]$^{3/2}$ /PSLS =0.02 <0.04 (for 1-g SAR)

So the Simultaneous transmission SAR with volume scan are not required for Bluetooth and Main-Antenna.

11 Measurement Uncertainty

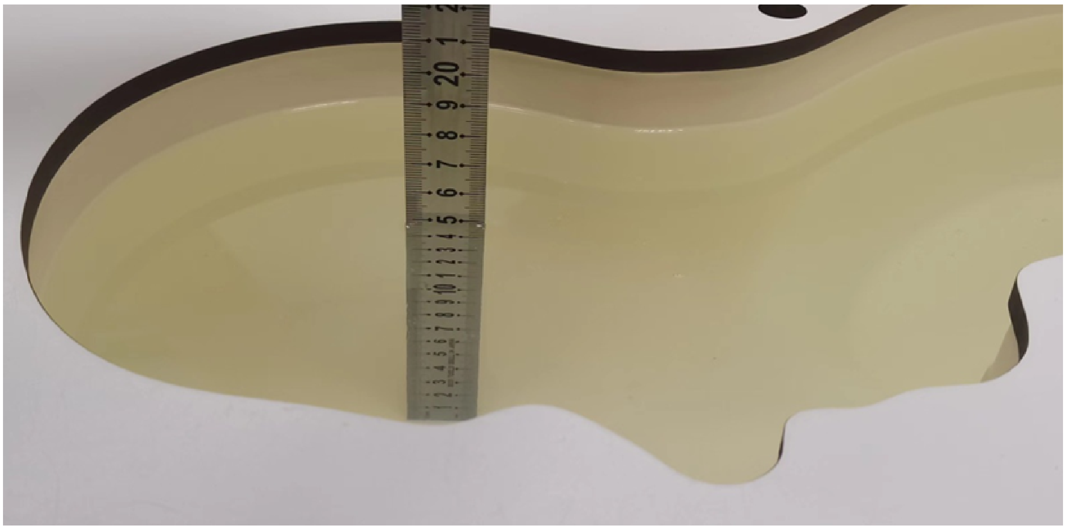
Per KDB 865664 D01 SAR Measurement 100 MHz to 6 GHz, when the highest measured 1-g SAR within a frequency band is < 1.5 W/kg, the extensive SAR measurement uncertainty analysis described in IEEE Std 1528- 2013 is not required in SAR reports submitted for equipment approval. This also applies to the 10-g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

********END OF REPORT ********

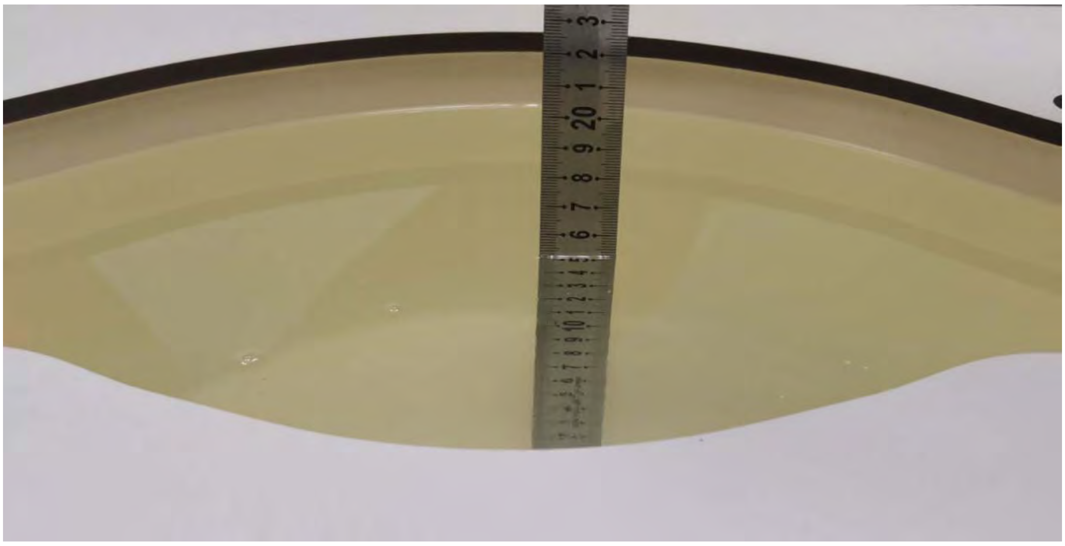
ANNEX A: Test Layout

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 tissue simulating liquid. For SAR testing, the liquid height from the center of the flat phantom to the liquid top surface is ＞15 cm, which is shown as below.



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 TSL

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

Date: 2022/9/27

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

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

Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(9.34, 9.34, 9.34); Calibrated: 2022/7/8

Electronics: DAE4 SN1692; Calibrated: 2021/10/4

Phantom: SAM 2; Type: QD000P40CD; Serial: TP:1666

Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

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

Maximum value of SAR (measured) = 2.58 W/kg

d=15mm, Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

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

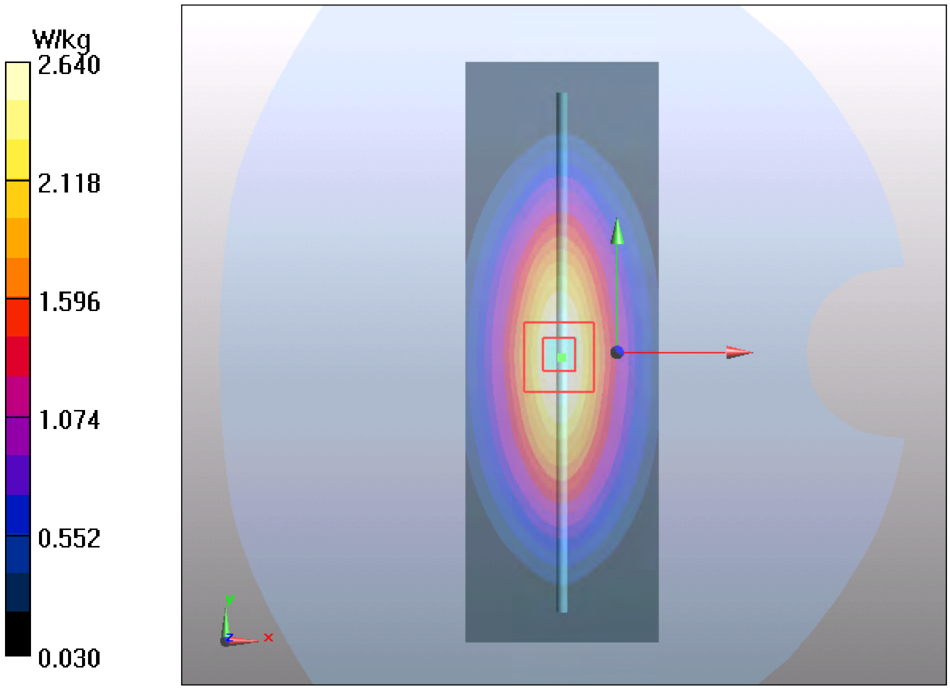
Peak SAR (extrapolated) = 2.58 W/kg

SAR(1 g) = 2.44 W/kg; SAR(10 g) = 1.6 W/kg

Smallest distance from peaks to all points 3 dB below = 16.6 mm

Ratio of SAR at M2 to SAR at M1 = 68.1%

Maximum value of SAR (measured) = 2.64 W/kg



Plot 2 System Performance Check at 1750 MHz TSL

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

Date: 2022/9/28

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

Medium parameters used: f = 1750 MHz; σ = 1.34 S/m; ε_r = 40.2; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(8.25, 8.25, 8.25); Calibrated: 2022/7/8

Electronics: DAE4 SN1692; Calibrated: 2021/10/4

Phantom: SAM 2; Type: QD000P40CD; Serial: TP:1666

Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

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

Maximum value of SAR (measured) = 8.98 W/kg

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

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

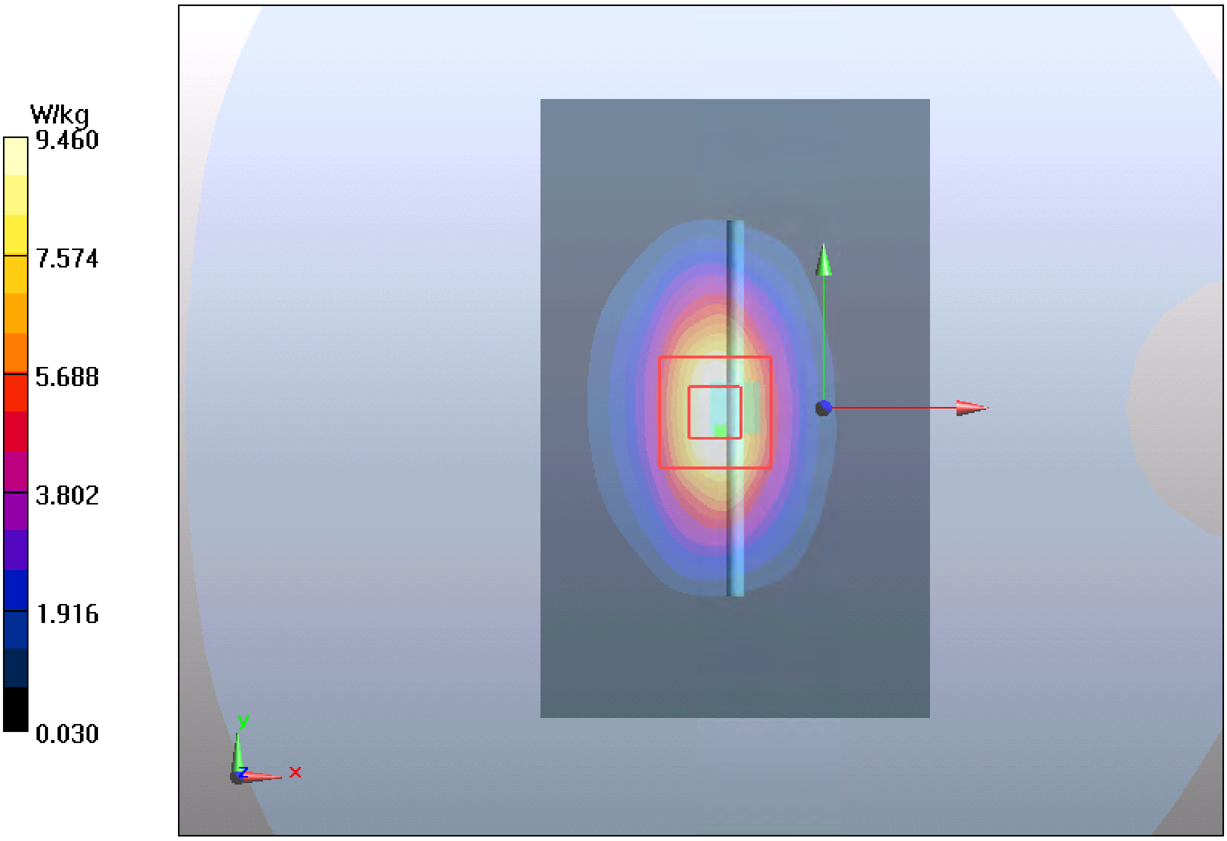
Peak SAR (extrapolated) = 15.5 W/kg

SAR(1 g) = 8.95 W/kg; SAR(10 g) = 4.5 W/kg

Smallest distance from peaks to all points 3 dB below = 10mm

Ratio of SAR at M2 to SAR at M1 = 53.5%

Maximum value of SAR (measured) = 9.46 W/kg



Plot 3 System Performance Check at 1900 MHz TSL

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

Date: 2022/9/27

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

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

Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(7.84, 7.84, 7.84); Calibrated: 2022/7/8

Electronics: DAE4 SN1692; Calibrated: 2021/10/4

Phantom: SAM 2; Type: QD000P40CD; Serial: TP:1666

Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

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

Maximum value of SAR (measured) = 10.3 W/kg

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

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

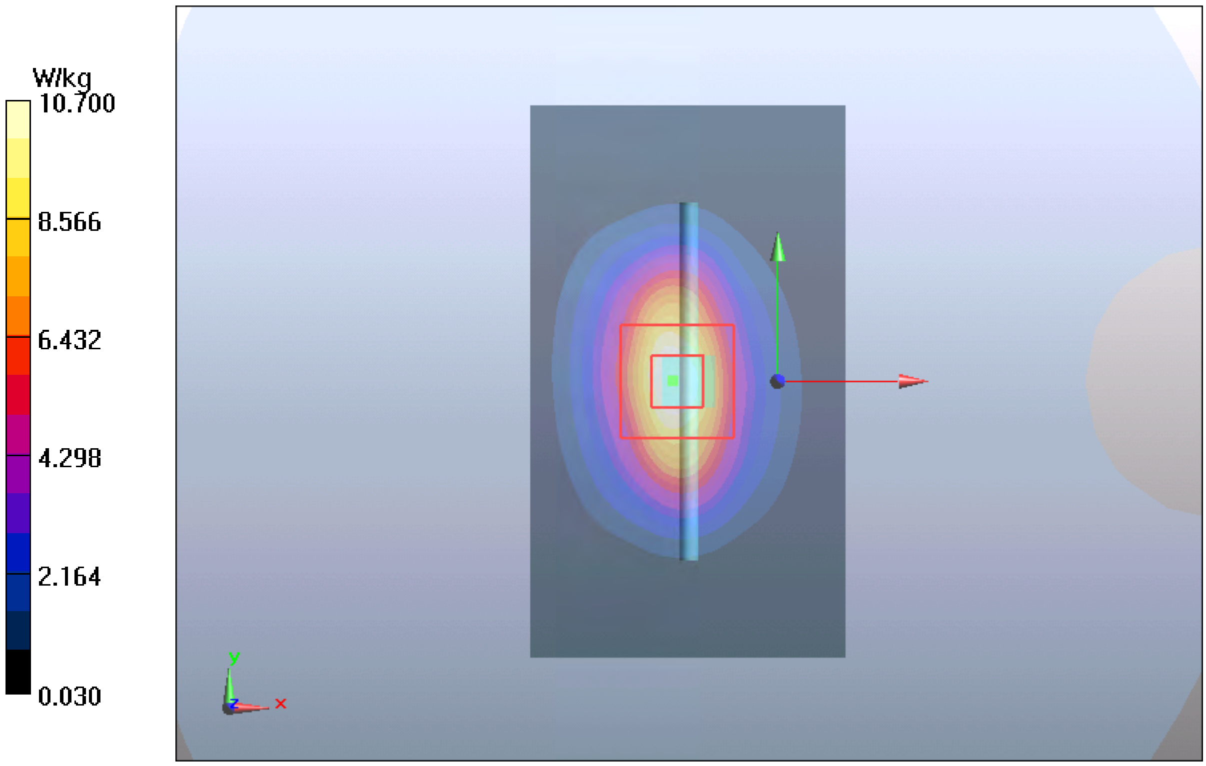
Peak SAR (extrapolated) = 17.8 W/kg

SAR(1 g) = 9.88 W/kg; SAR(10 g) = 4.9 W/kg

Smallest distance from peaks to all points 3 dB below = 10 mm

Ratio of SAR at M2 to SAR at M1 = 51.9%

Maximum value of SAR (measured) = 10.7 W/kg



Plot 4 System Performance Check at 2300 MHz TSL

DUT: Dipole 2300 MHz; Type: D2300V2; Serial: D2300V2

Date: 2022/9/29

Communication System: CW Frequency: 2300 MHz;Duty Cycle: 1:1

Medium parameters used: f = 2300 MHz; σ = 1.65 S/m; ε_r = 40.0; 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(7.76, 7.76, 7.76); Calibrated: 2022/7/8

Electronics: DAE4 SN1692; Calibrated: 2021/10/4

Phantom: SAM 2; Type: QD000P40CD; Serial: TP:1666

Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

d=10mm, Pin=250mW/Area Scan (6x10x1): Measurement grid: dx=12mm, dy=12mm

Maximum value of SAR (measured) = 13.1 W/kg

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

Reference Value = 85.188 V/m; Power Drift = 0.09 dB

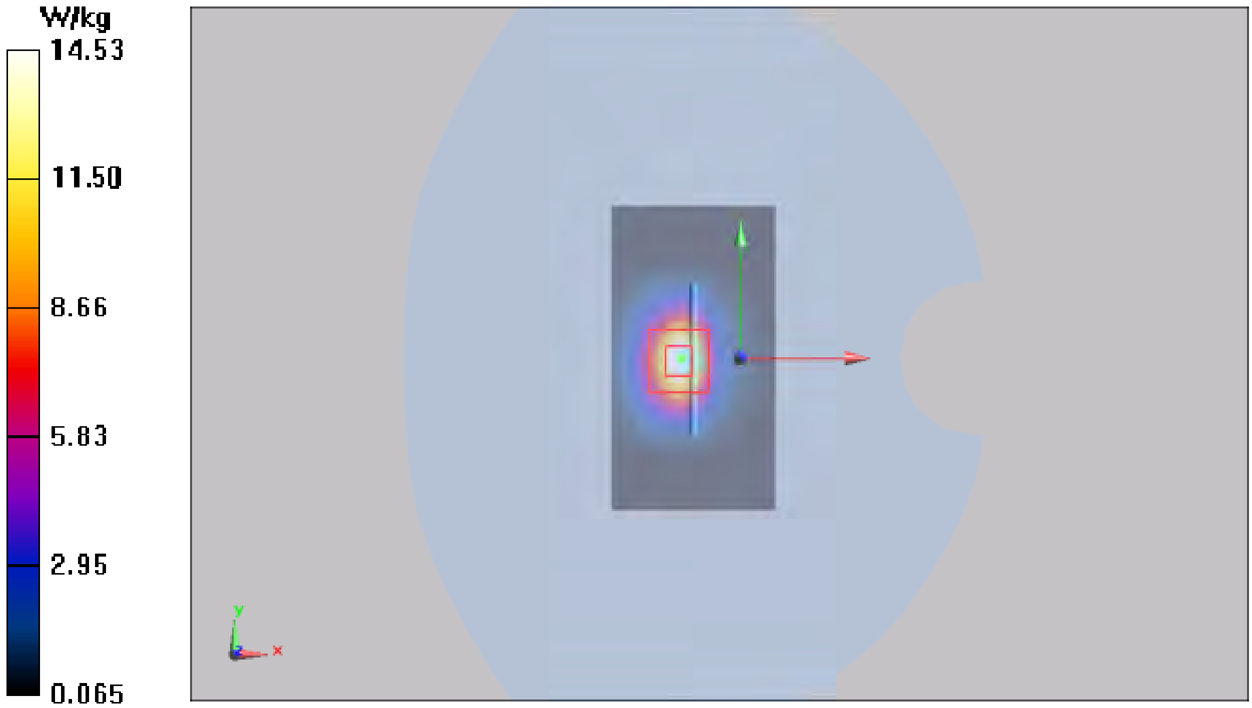
Peak SAR (extrapolated) = 26.4 W/kg

SAR(1 g) = 12.36 W/kg; SAR(10 g) = 5.90 W/kg

Smallest distance from peaks to all points 3 dB below = 9 mm

Ratio of SAR at M2 to SAR at M1 = 51.8%

Maximum value of SAR (measured) = 14.53 W/kg



Plot 5 System Performance Check at 2450 MHz TSL

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

Date: 2022/9/30

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

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

Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(7.46, 7.46, 7.46); Calibrated: 2022/7/8

Electronics: DAE4 SN1692; Calibrated: 2021/10/4

Phantom: SAM 2; Type: QD000P40CD; Serial: TP:1666

Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

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

Maximum value of SAR (measured) = 14.2 W/kg

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

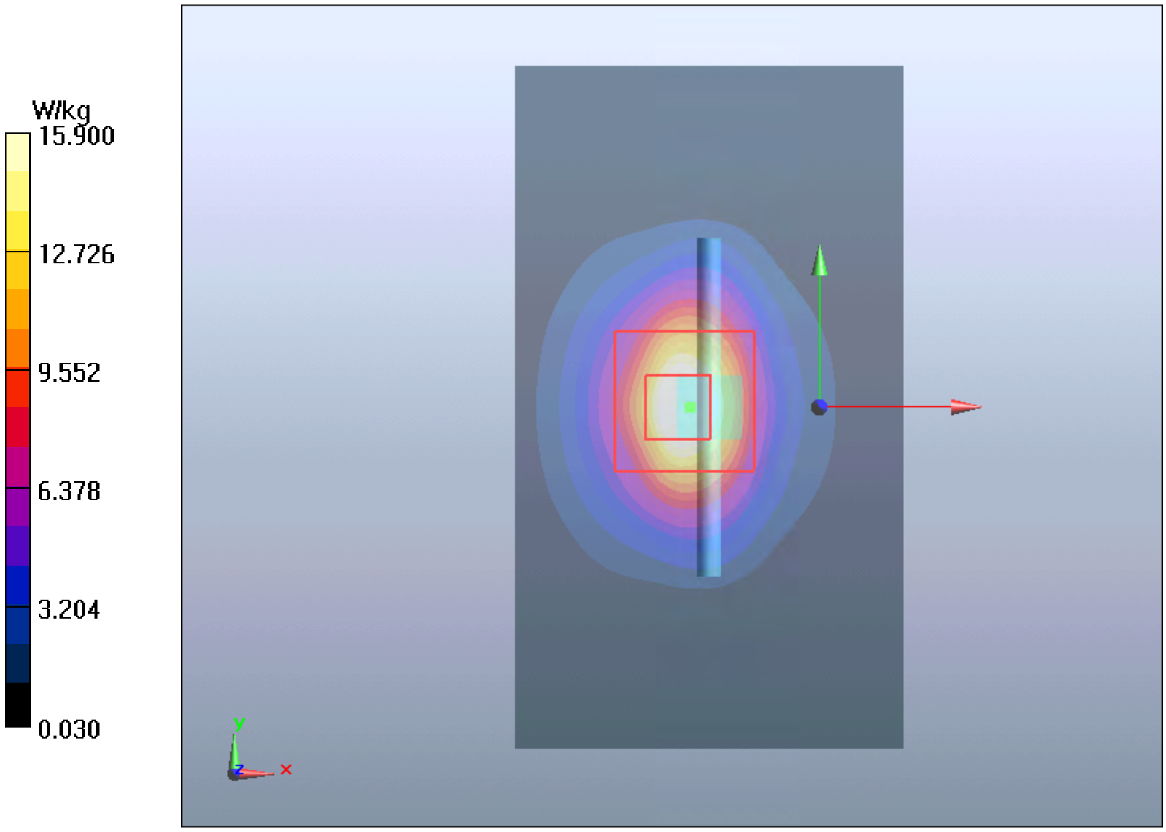
Peak SAR (extrapolated) = 30 W/kg

SAR(1 g) = 13.7 W/kg; SAR(10 g) = 6.22 W/kg

Smallest distance from peaks to all points 3 dB below = 8.9 mm

Ratio of SAR at M2 to SAR at M1 = 47%

Maximum value of SAR (measured) = 15.9 W/kg



Plot 6 System Performance Check at 2600 MHz TSL

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

Date: 2022/10/3

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

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

Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(7.27, 7.27, 7.27); Calibrated: 2022/7/8

Electronics: DAE4 SN1692; Calibrated: 2021/10/4

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

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

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

Maximum value of SAR (measured) = 14.40 W/kg

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

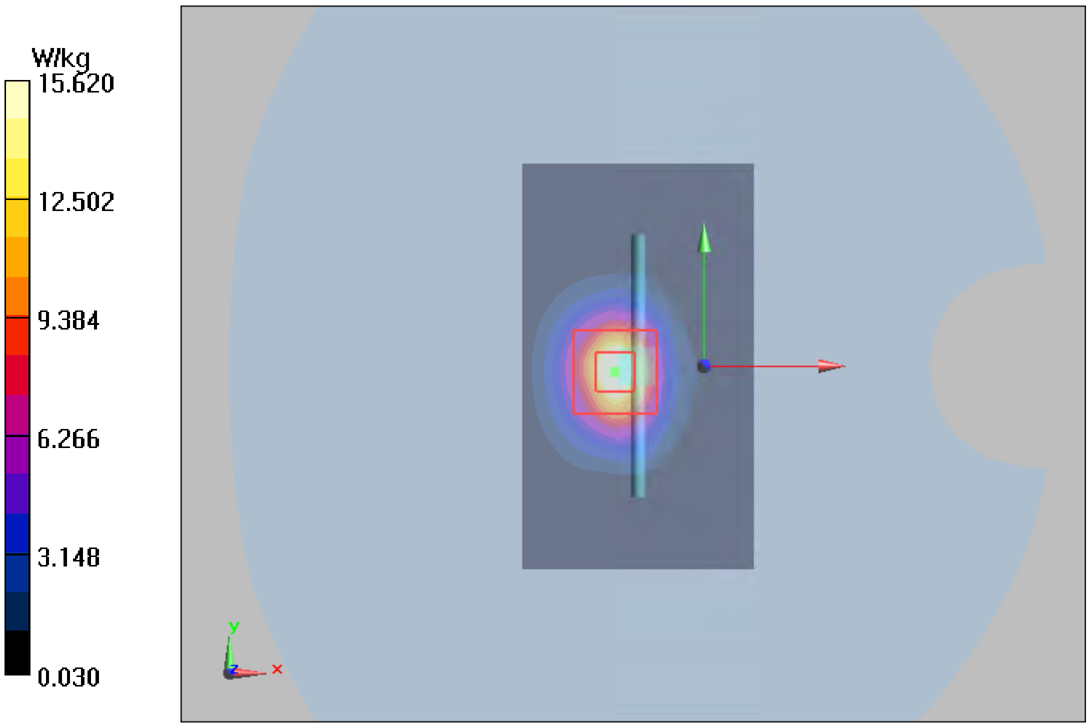
Peak SAR (extrapolated) = 31.858 W/kg

SAR(1 g) = 13.9 W/kg; SAR(10 g) = 6.07 W/kg

Smallest distance from peaks to all points 3 dB below = 9 mm

Ratio of SAR at M2 to SAR at M1 = 44%

Maximum value of SAR (measured) = 15.62 W/kg



Plot 7 System Performance Check at 2600 MHz TSL

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

Date: 2022/10/4

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

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

Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(7.27, 7.27, 7.27); Calibrated: 2022/7/8

Electronics: DAE4 SN1692; Calibrated: 2021/10/4

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

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

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

Maximum value of SAR (measured) = 13.98 W/kg

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

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

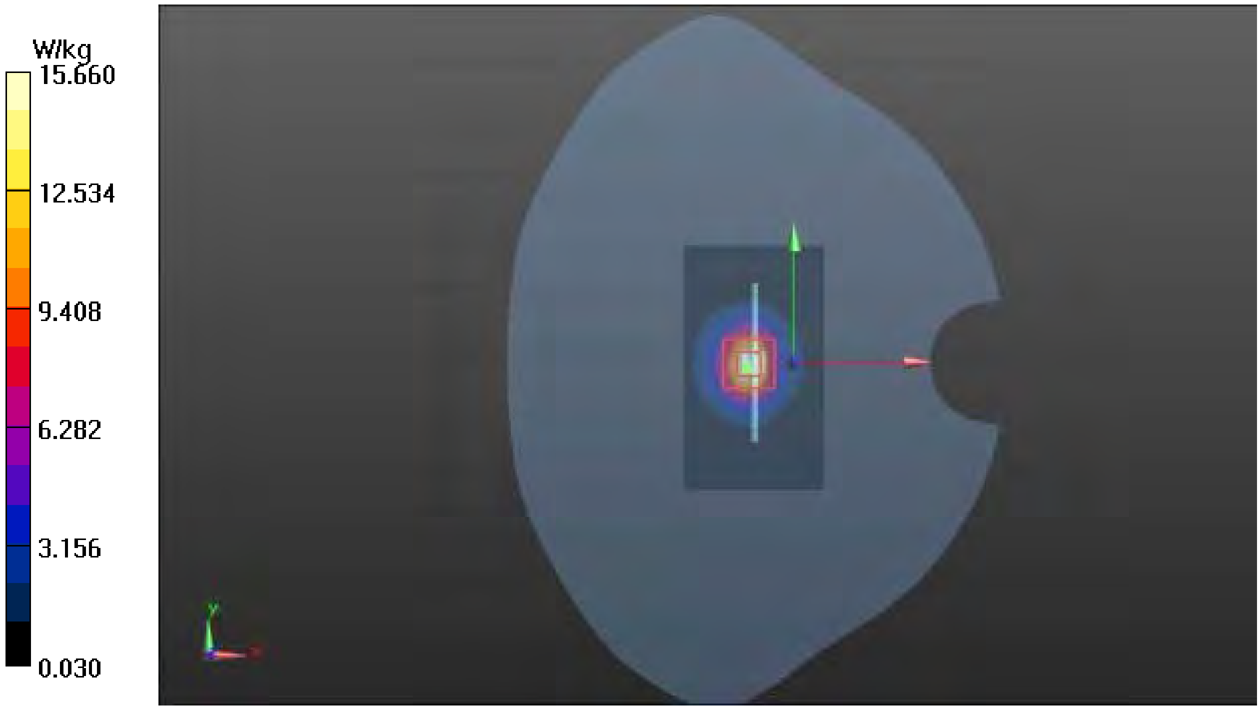
Peak SAR (extrapolated) = 31.858 W/kg

SAR(1 g) = 13.88 W/kg; SAR(10 g) = 6.09 W/kg

Smallest distance from peaks to all points 3 dB below = 9 mm

Ratio of SAR at M2 to SAR at M1 = 44%

Maximum value of SAR (measured) = 15.66 W/kg



Plot 8 System Performance Check at 5250 MHz TSL

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

Date: 2022/10/1

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

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

Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(5.48, 5.48, 5.48); Calibrated: 2022/7/8

Electronics: DAE4 SN1692; Calibrated: 2021/10/4

Phantom: SAM 2; Type: QD000P40CD; Serial: TP:1666

Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

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

Maximum value of SAR (measured) = 9.14 W/kg

d=10mm, Pin=100mW/Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

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

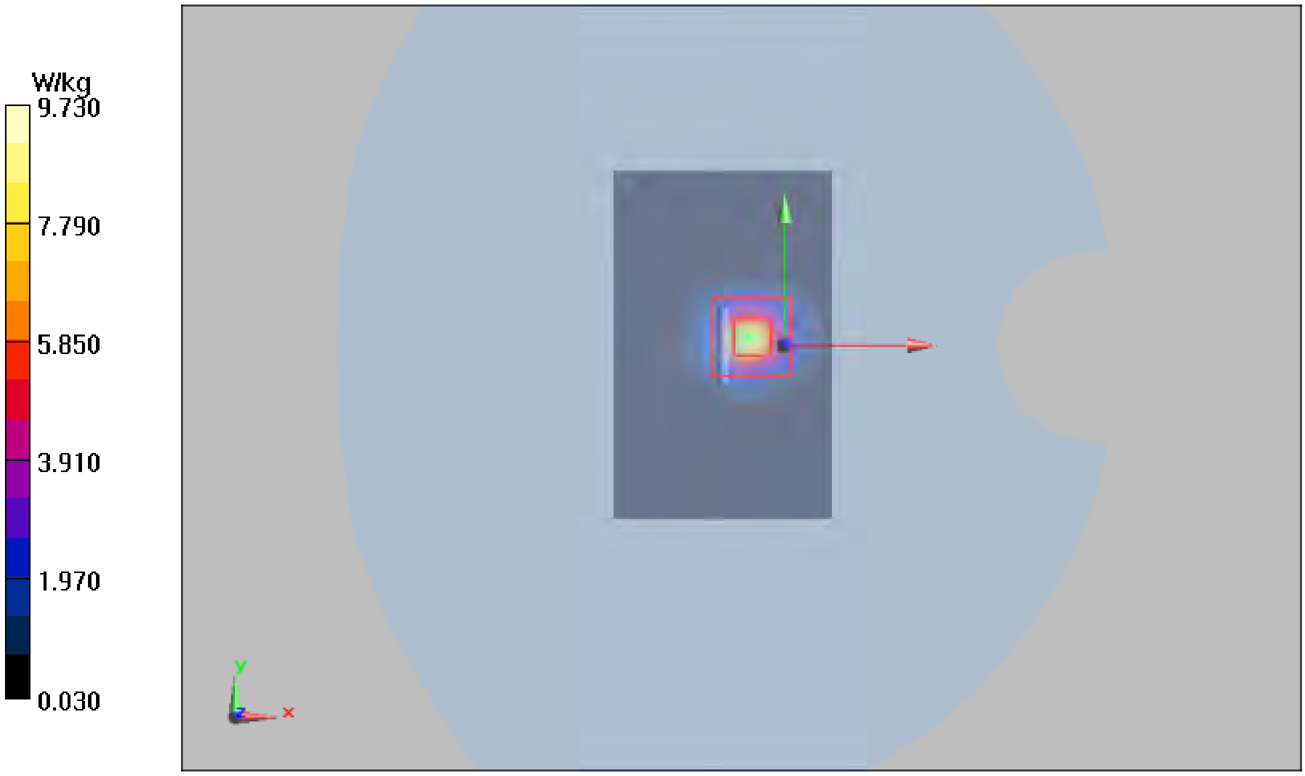
Peak SAR (extrapolated) = 52.2 W/kg

SAR(1 g) = 7.87 W/kg; SAR(10 g) = 2.25 W/kg

Smallest distance from peaks to all points 3 dB below = 7.2 mm

Ratio of SAR at M2 to SAR at M1 = 63%

Maximum value of SAR (measured) = 9.73 W/kg



Plot 9 System Performance Check at 5600 MHz TSL

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

Date: 2022/10/2

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

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

Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(4.97, 4.97, 4.97); Calibrated: 2022/7/8

Electronics: DAE4 SN1692; Calibrated: 2021/10/4

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

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

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

Maximum value of SAR (measured) = 8.25 W/kg

d=10mm, Pin=100mW/Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

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

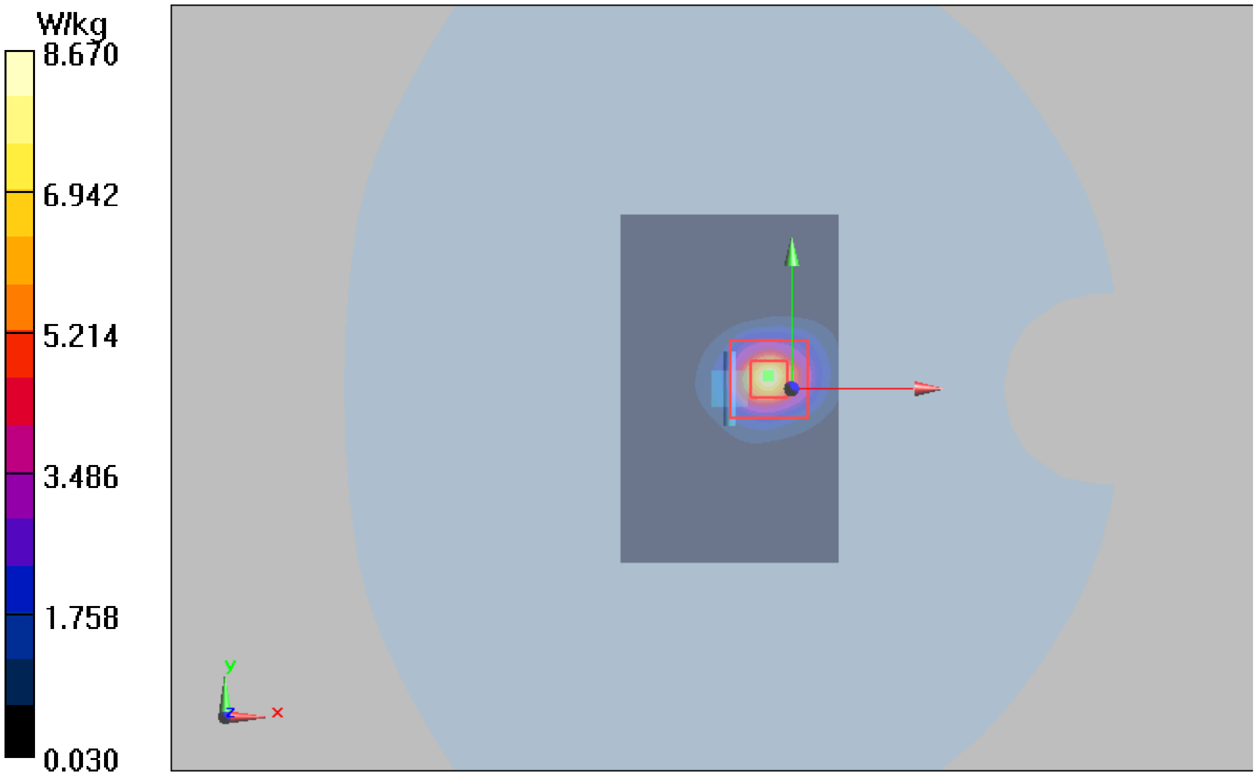
Peak SAR (extrapolated) = 22.9 W/kg

SAR(1 g) = 7.67 W/kg; SAR(10 g) = 2.27 W/kg

Smallest distance from peaks to all points 3 dB below = 7.2 mm

Ratio of SAR at M2 to SAR at M1 = 61.4%

Maximum value of SAR (measured) = 8.67 W/kg



Plot 10 System Performance Check at 5750 MHz TSL

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

Date: 2022/10/2

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(5.00, 5.00, 5.00); Calibrated: 2022/7/8

Electronics: DAE4 SN1692; Calibrated: 2021/10/4

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

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

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

Maximum value of SAR (measured) = 8.31 W/kg

d=10mm, Pin=100mW/Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

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

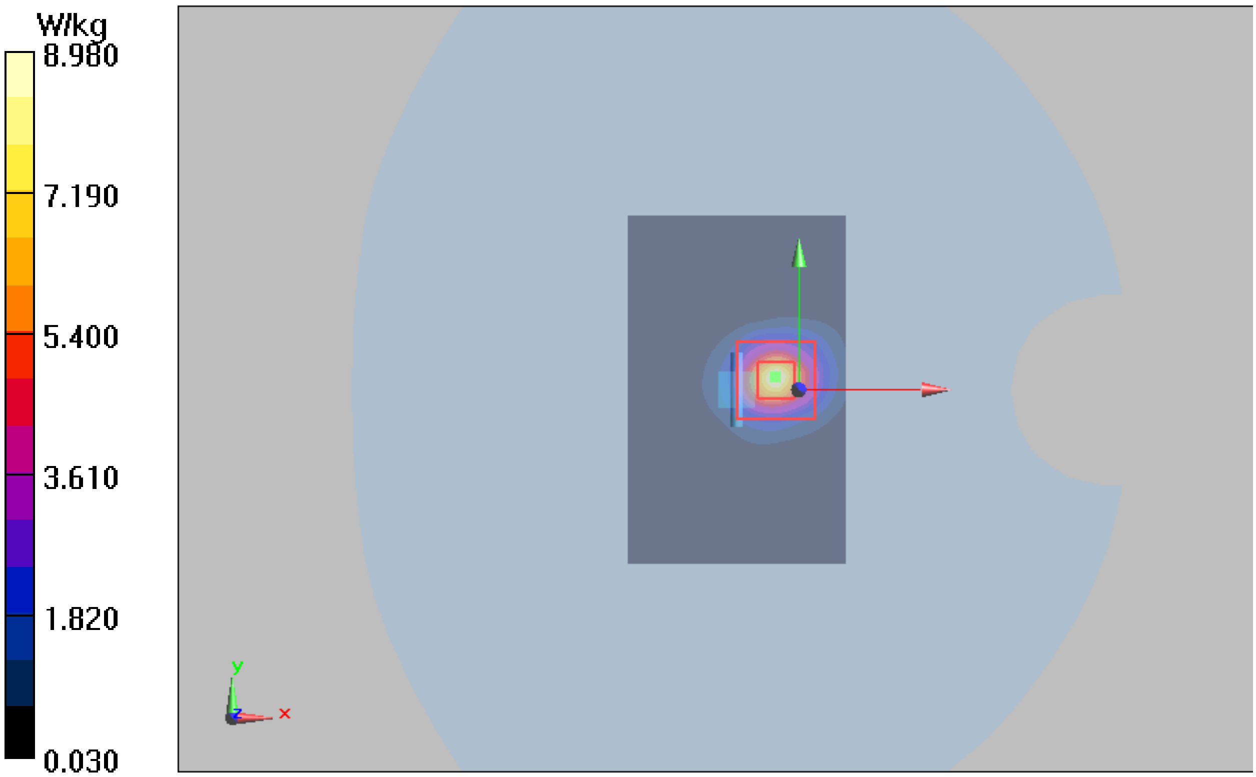
Peak SAR (extrapolated) = 23.4 W/kg

SAR(1 g) = 7.66 W/kg; SAR(10 g) = 2.27 W/kg

Smallest distance from peaks to all points 3 dB below = 7.2 mm

Ratio of SAR at M2 to SAR at M1 = 59.9%

Maximum value of SAR (measured) = 8.98 W/kg



ANNEX C: Highest Graph Results

Plot 11 GSM 850 Left Cheek Middle

Date: 2022/9/27

Communication System: UID 0, GSM (0); Frequency: 836.6 MHz;Duty Cycle: 1:8.3

Medium parameters used: f = 836.6 MHz; σ = 0.939 S/m; ε_r = 41.856; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃

Phantom section: Left Section

DASY5 Configuration:

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(9.34, 9.34, 9.34); Calibrated: 2022/7/8

Electronics: DAE4 SN1692; Calibrated: 2021/10/4

Phantom: SAM 2; Type: QD000P40CD; Serial: TP:1666

Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Left Cheek Middle/Area Scan (7x15x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 0.253 W/kg

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

Reference Value = 4.472 V/m; Power Drift = 0.17 dB

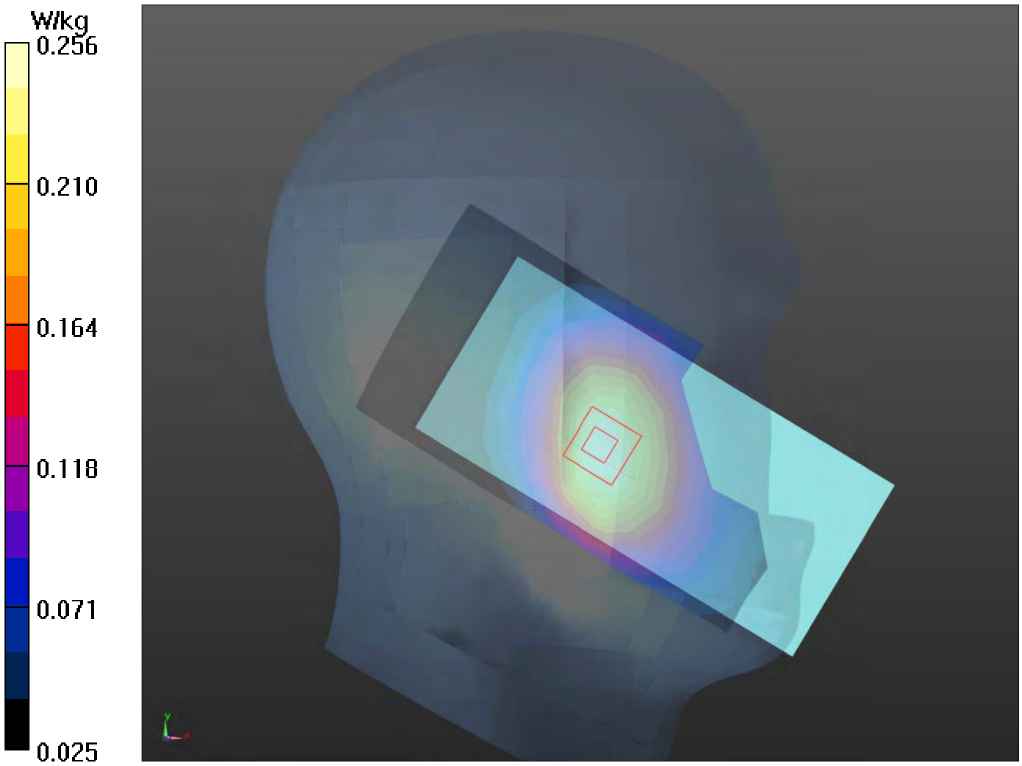
Peak SAR (extrapolated) = 0.392 W/kg

SAR(1 g) = 0.234 W/kg; SAR(10 g) = 0.177 W/kg

Smallest distance from peaks to all points 3 dB below = 23.2 mm

Ratio of SAR at M2 to SAR at M1 = 79.4%

Maximum value of SAR (measured) = 0.256 W/kg



Plot 12 GSM 1900 Right Cheek Middle

Date: 2022/9/27

Communication System: UID 0, GSM (0); Frequency: 1880 MHz;Duty Cycle: 1:8.3

Medium parameters used: f = 1880 MHz; σ = 1.437 S/m; ε_r = 37.208; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃

Phantom section: Right Section

DASY5 Configuration:

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(7.84, 7.84, 7.84); Calibrated: 2022/7/8

Electronics: DAE4 SN1692; Calibrated: 2021/10/4

Phantom: SAM 2; Type: QD000P40CD; Serial: TP:1666

Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Right Cheek Middle/Area Scan (8x15x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 0.130 W/kg

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

Reference Value = 0.7730 V/m; Power Drift = 0.01 dB

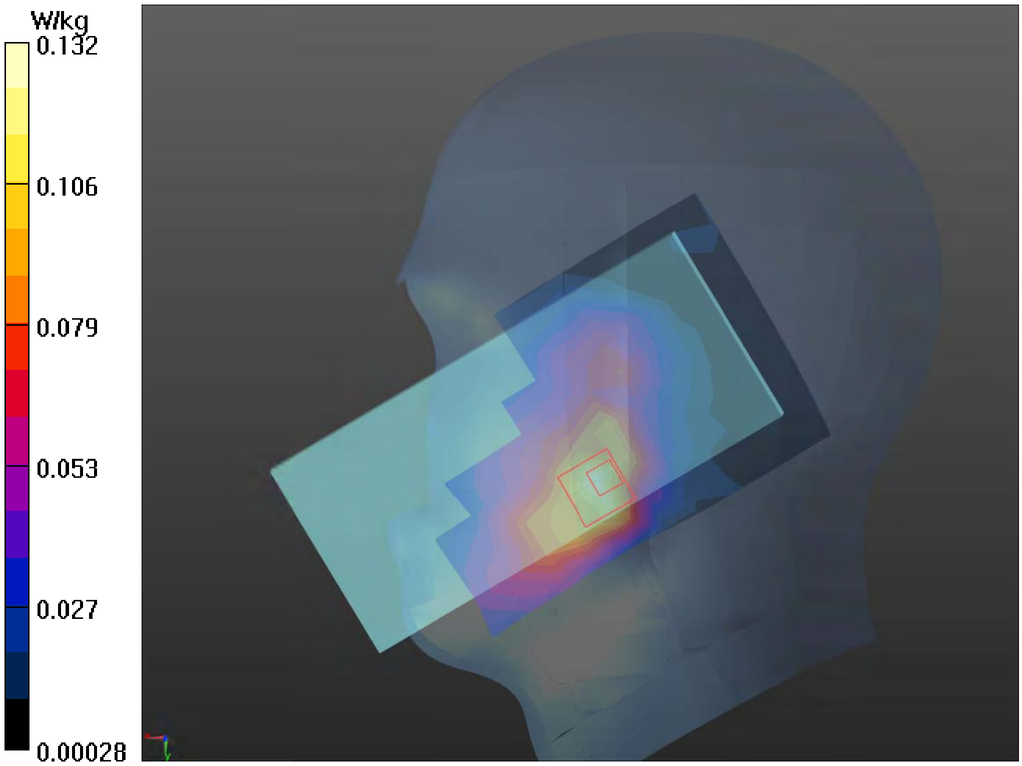
Peak SAR (extrapolated) = 0.206 W/kg

SAR(1 g) = 0.115 W/kg; SAR(10 g) = 0.068 W/kg

Smallest distance from peaks to all points 3 dB below = 21.6 mm

Ratio of SAR at M2 to SAR at M1 = 70.9%

Maximum value of SAR (measured) = 0.132 W/kg



Plot 13 LTE Band 4 1RB Right Cheek Middle

Date: 2022/9/28

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

Medium parameters used (interpolated): f = 1732.5 MHz; σ = 1.313 S/m; ε_r = 39.384; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃

Phantom section: Right Section

DASY5 Configuration:

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(8.25, 8.25, 8.25); Calibrated: 2022/7/8

Electronics: DAE4 SN1692; Calibrated: 2021/10/4

Phantom: SAM 2; Type: QD000P40CD; Serial: TP:1666

Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Right Cheek Middle/Area Scan (8x15x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 0.190 W/kg

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

Reference Value = 2.278 V/m; Power Drift = 0.024 dB

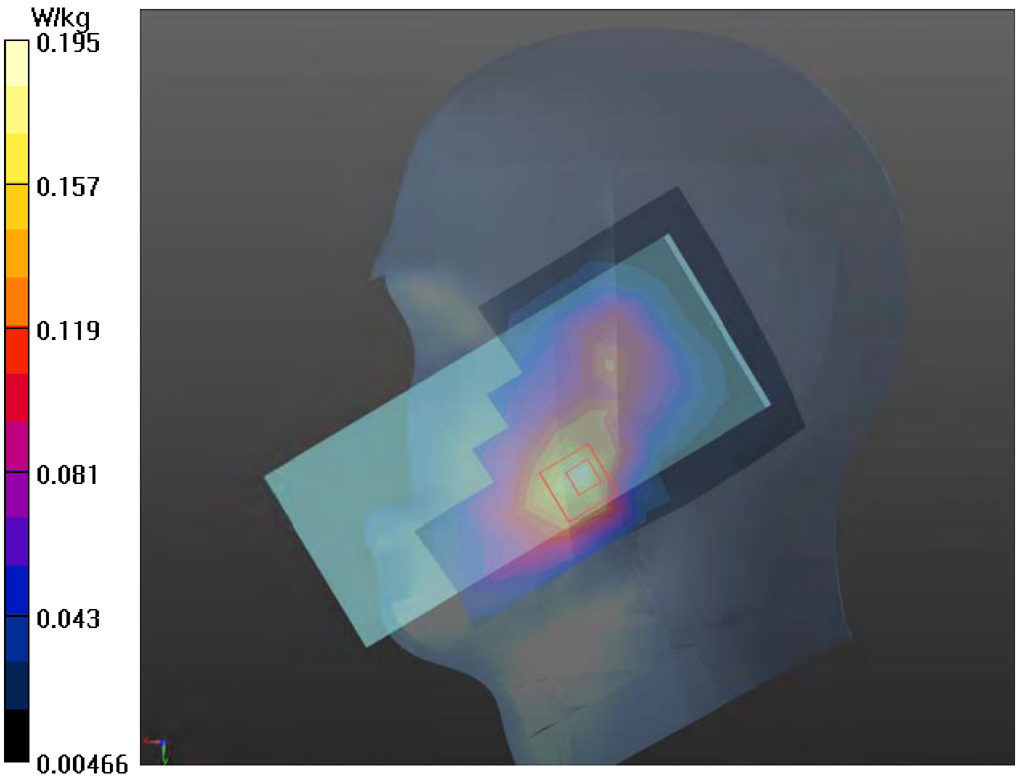
Peak SAR (extrapolated) = 0.284 W/kg

SAR(1 g) = 0.185 W/kg; SAR(10 g) = 0.117 W/kg

Smallest distance from peaks to all points 3 dB below = 16.4 mm

Ratio of SAR at M2 to SAR at M1 = 69.5%

Maximum value of SAR (measured) = 0.195 W/kg



Plot 14 LTE Band 5 1RB Left Cheek Low

Date: 2022/9/27

Communication System: UID 0, LTE (0); Frequency: 829 MHz;Duty Cycle: 1:1

Medium parameters used: f = 829 MHz; σ = 0.936 S/m; ε_r = 41.882; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃

Phantom section: Left Section

DASY5 Configuration:

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(9.34, 9.34, 9.34); Calibrated: 2022/7/8

Electronics: DAE4 SN1692; Calibrated: 2021/10/4

Phantom: SAM 2; Type: QD000P40CD; Serial: TP:1666

Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Left Cheek Low/Area Scan (7x15x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 0.324 W/kg

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

Reference Value = 4.430 V/m; Power Drift = 0.049 dB

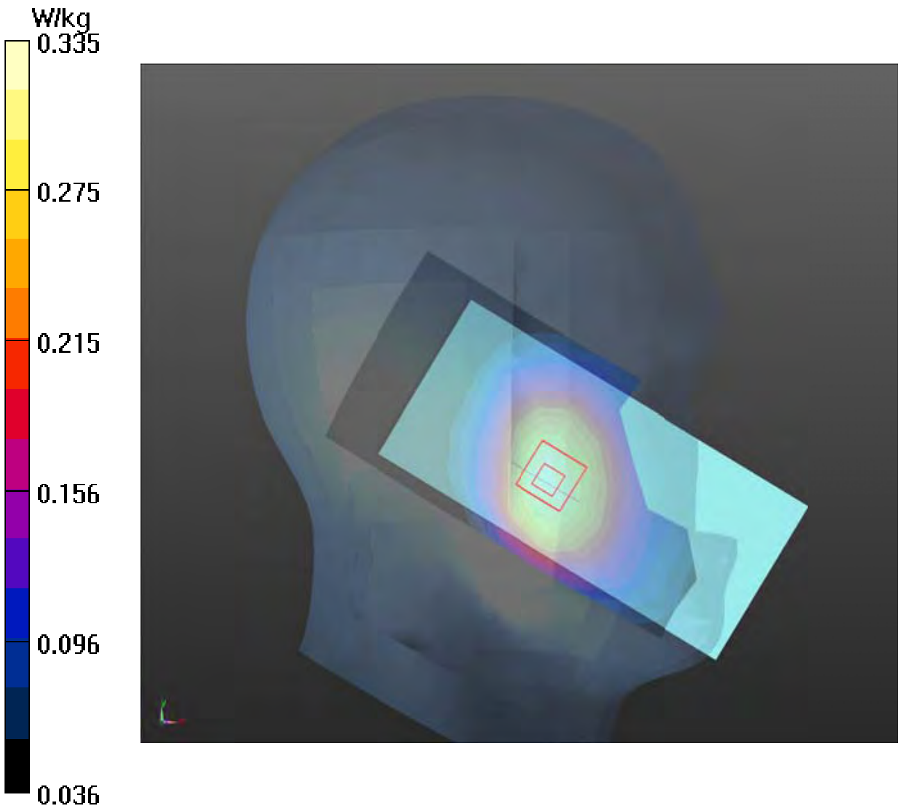
Peak SAR (extrapolated) = 0.593 W/kg

SAR(1 g) = 0.317 W/kg; SAR(10 g) = 0.243 W/kg

Smallest distance from peaks to all points 3 dB below = 23.4 mm

Ratio of SAR at M2 to SAR at M1 = 80.1%

Maximum value of SAR (measured) = 0.335 W/kg



Plot 15 LTE Band 7 1RB Right Cheek Low

Date: 2022/10/3

Communication System: UID 0, LTE (0); Frequency: 2510 MHz;Duty Cycle: 1:1

Medium parameters used: f = 2510 MHz; σ = 1.94 S/m; ε_r = 37.31; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃

Phantom section: Right Section

DASY5 Configuration:

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(7.27, 7.27, 7.27); Calibrated: 2022/7/8

Electronics: DAE4 SN1692; Calibrated: 2021/10/4

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

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

Right Cheek Low/Area Scan (10x18x1): Measurement grid: dx=12mm, dy=12mm

Maximum value of SAR (measured) = 0.198 W/kg

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

Reference Value = 3.052 V/m; Power Drift = 0.088 dB

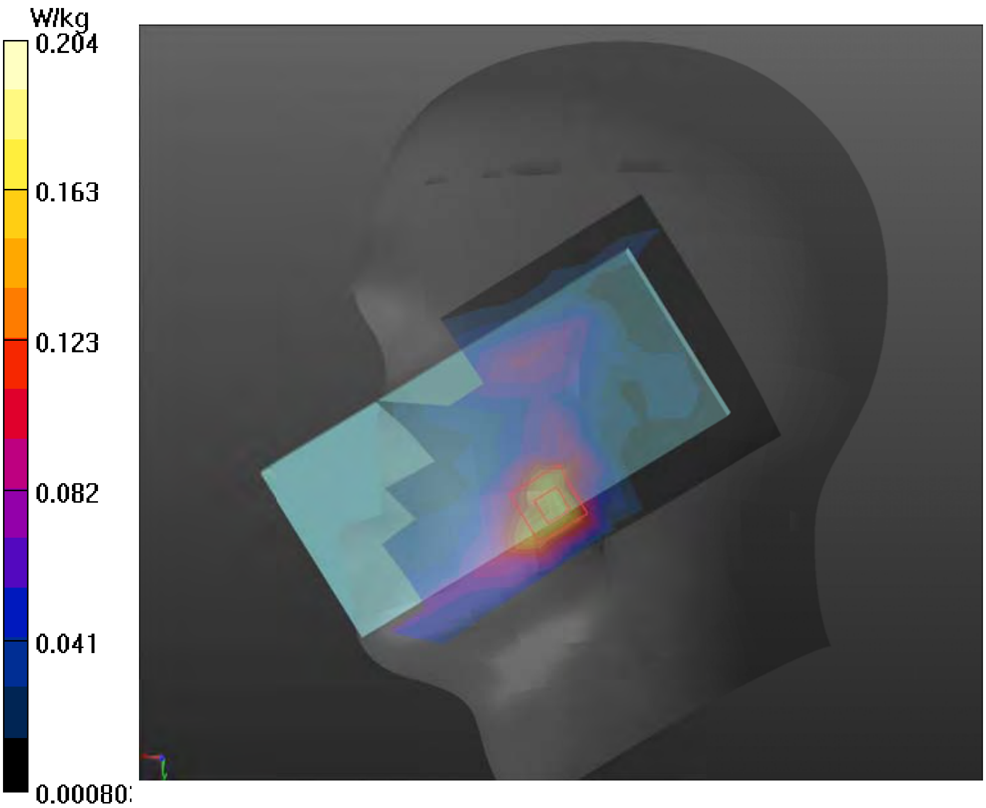
Peak SAR (extrapolated) = 0.343 W/kg

SAR(1 g) = 0.185 W/kg; SAR(10 g) = 0.096 W/kg

Smallest distance from peaks to all points 3 dB below = 11.6 mm

Ratio of SAR at M2 to SAR at M1 = 56.7%

Maximum value of SAR (measured) = 0.204 W/kg



Plot 16 LTE Band 40 1RB Right Tilt Middle

Date: 2022/9/29

Communication System: UID 0, LTE (0); Frequency: 2310 MHz;Duty Cycle: 1:1.58

Medium parameters used: f = 2310 MHz; σ = 1.69 S/m; ε_r = 38.105; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃

Phantom section: Right Section

DASY5 Configuration:

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(7.76, 7.76, 7.76); Calibrated: 2022/7/8

Electronics: DAE4 SN1692; Calibrated: 2021/10/4

Phantom: SAM 2; Type: QD000P40CD; Serial: TP:1666

Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Right Tilt Middle/Area Scan (10x19x1): Measurement grid: dx=12mm, dy=12mm

Maximum value of SAR (measured) = 0.066 W/kg

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

Reference Value = 4.208 V/m; Power Drift = -0.14 dB

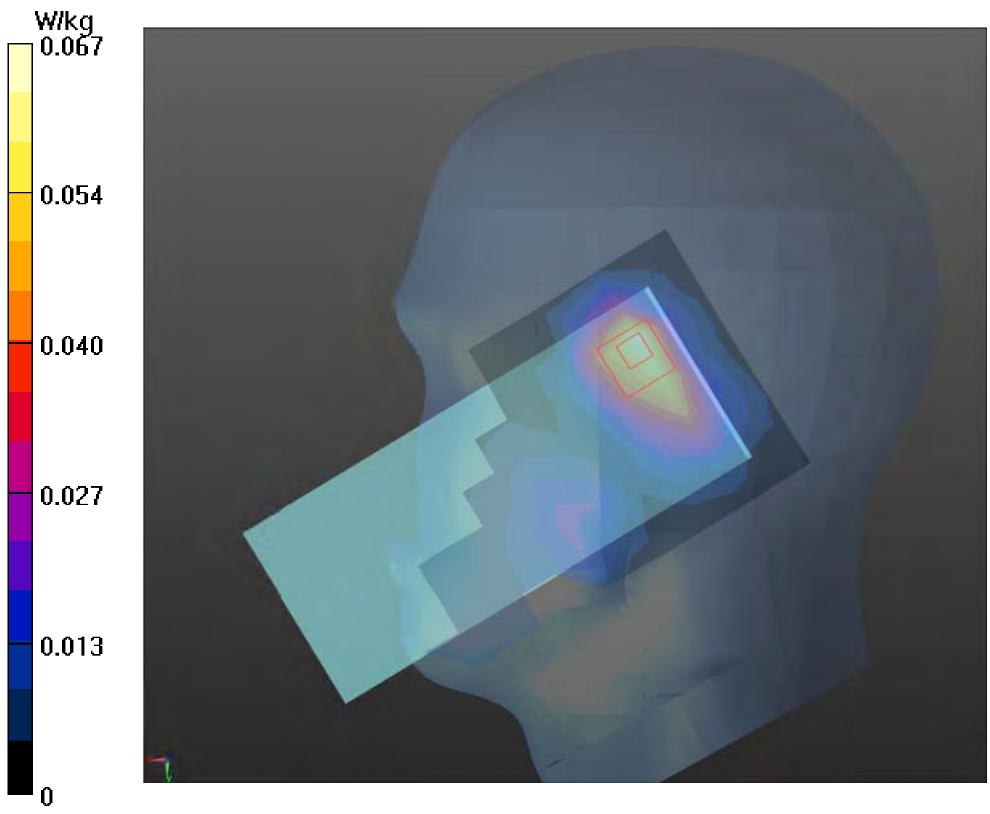
Peak SAR (extrapolated) = 0.098 W/kg

SAR(1 g) = 0.061 W/kg; SAR(10 g) = 0.034 W/kg

Smallest distance from peaks to all points 3 dB below = 25.1 mm

Ratio of SAR at M2 to SAR at M1 = 62.4%

Maximum value of SAR (measured) = 0.067 W/kg



Plot 17 802.11b Right Cheek Middle

Date: 2022/9/30

Communication System: UID 0, 802.11b (0); Frequency: 2437 MHz;Duty Cycle: 1:1

Medium parameters used: f = 2437 MHz; σ = 1.831 S/m; ε_r = 37.663; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃

Phantom section: Right Section

DASY5 Configuration:

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(7.46, 7.46, 7.46); Calibrated: 2022/7/8

Electronics: DAE4 SN1692; Calibrated: 2021/10/4

Phantom: SAM 2; Type: QD000P40CD; Serial: TP:1666

Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Right Cheek Middle 2/Area Scan (10x18x1): Measurement grid: dx=12mm, dy=12mm

Maximum value of SAR (measured) = 0.703 W/kg

Right Cheek Middle 2/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 5.607 V/m; Power Drift = -0.14 dB

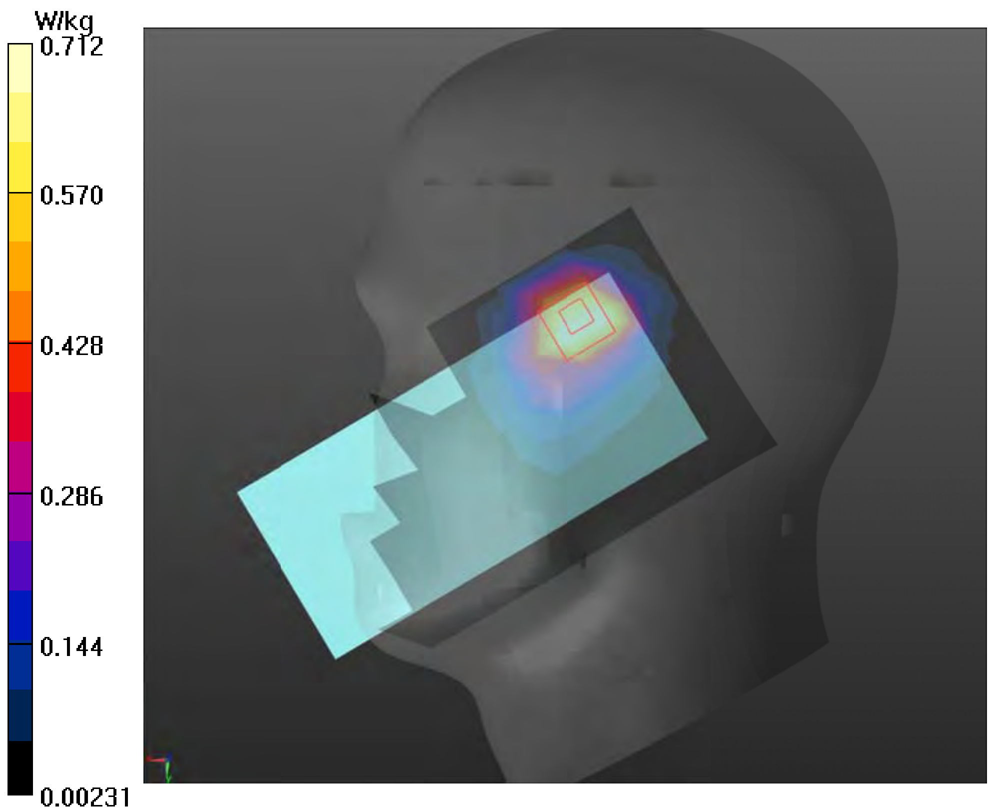
Peak SAR (extrapolated) = 1.33 W/kg

SAR(1 g) = 0.654 W/kg; SAR(10 g) = 0.318 W/kg

Smallest distance from peaks to all points 3 dB below = 9.4 mm

Ratio of SAR at M2 to SAR at M1 = 49%

Maximum value of SAR (measured) = 0.712 W/kg



Plot 18 802.11a U-NII-2A Right Cheek Middle

Date: 2022/10/1

Communication System: UID 0, 802.11ac 80M (0); Frequency: 5290 MHz;Duty Cycle: 1:1.32

Medium parameters used: f = 5290 MHz; σ = 4.825 S/m; ε_r = 36.579; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃

Phantom section: Right Section

DASY5 Configuration:

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(5.48, 5.48, 5.48); Calibrated: 2022/7/8

Electronics: DAE4 SN1692; Calibrated: 2021/10/4

Phantom: SAM 2; Type: QD000P40CD; Serial: TP:1666

Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Right Cheek Middle /Area Scan (12x21x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (measured) = 0.678 W/kg

Right Cheek Middle/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 0.7500 V/m; Power Drift = 0.054 dB

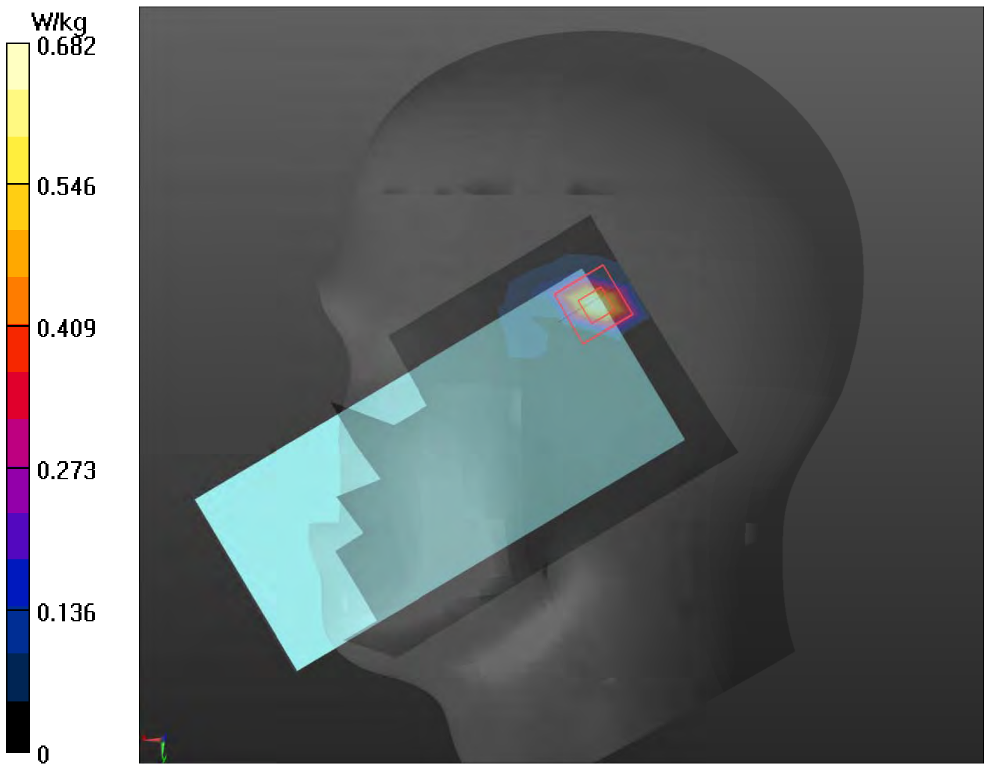
Peak SAR (extrapolated) = 2.46 W/kg

SAR(1 g) = 0.619 W/kg; SAR(10 g) = 0.169 W/kg

Smallest distance from peaks to all points 3 dB below = 5.8 mm

Ratio of SAR at M2 to SAR at M1 = 23.3%

Maximum value of SAR (measured) = 0.682 W/kg



Plot 19 Bluetooth Right Cheek High

Date: 2022/9/30

Communication System: UID 0, BT (0); Frequency: 2480 MHz;Duty Cycle: 1:1.31

Medium parameters used: f = 2480 MHz; σ = 1.878 S/m; ε_r = 37.511; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃

Phantom section: Right Section

DASY5 Configuration:

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(7.27, 7.27, 7.27); Calibrated: 2022/7/8

Electronics: DAE4 SN1692; Calibrated: 2021/10/4

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

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

Right Cheek High/Area Scan (10x18x1): Measurement grid: dx=12mm, dy=12mm

Maximum value of SAR (measured) = 0.101 W/kg

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

Reference Value = 0.7770 V/m; Power Drift = 0.058 dB

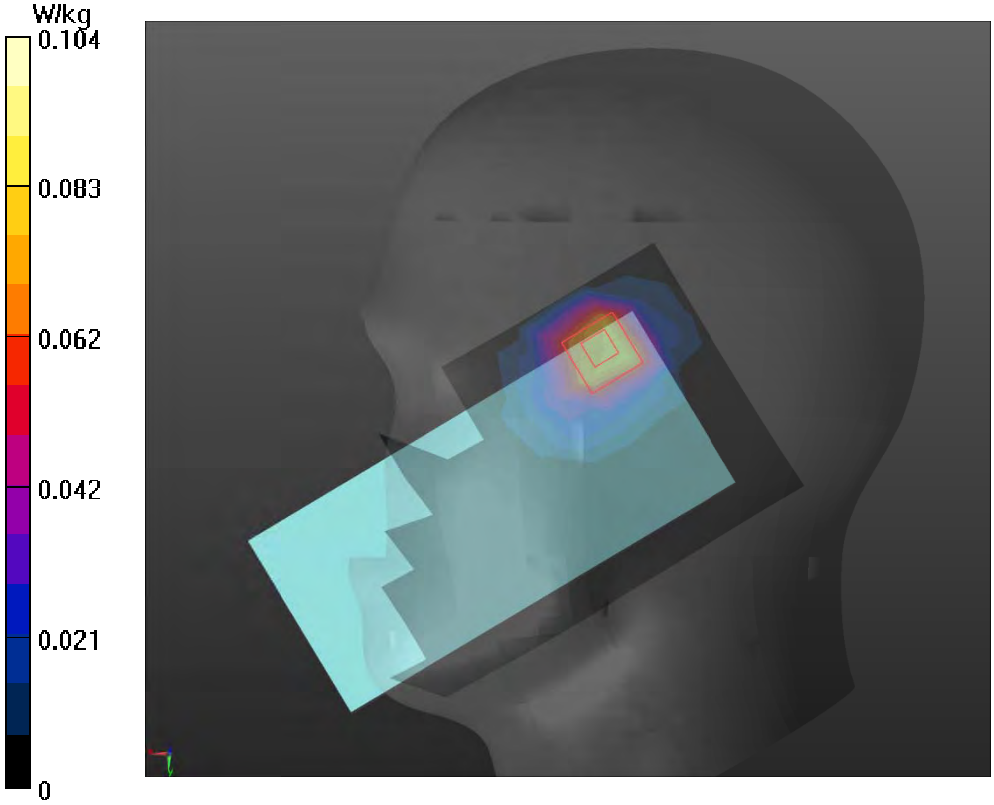
Peak SAR (extrapolated) = 0.155 W/kg

SAR(1 g) = 0.082 W/kg; SAR(10 g) = 0.035 W/kg

Smallest distance from peaks to all points 3 dB below = 11.3 mm

Ratio of SAR at M2 to SAR at M1 = 43.9%

Maximum value of SAR (measured) = 0.104 W/kg



Plot 20 GSM 850 GPRS (4Txslots) Back Side Middle (Distance 10mm)

Date: 2022/9/27

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

Medium parameters used: f = 836.6 MHz; σ = 0.939 S/m; ε_r = 41.856; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(9.34, 9.34, 9.34); Calibrated: 2022/7/8

Electronics: DAE4 SN1692; Calibrated: 2021/10/4

Phantom: SAM 2; Type: QD000P40CD; Serial: TP:1666

Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Back Side Middle/Area Scan (8x14x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 0.746 W/kg

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

Reference Value = 22.08 V/m; Power Drift = 0.00 dB

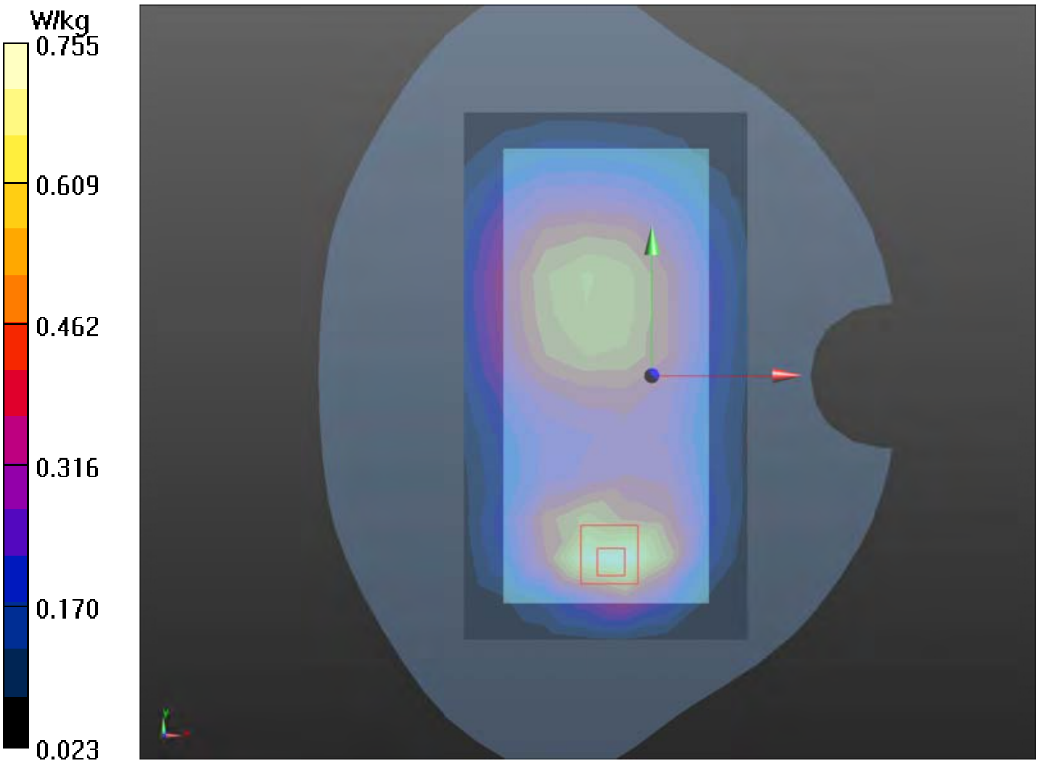
Peak SAR (extrapolated) = 1.29 W/kg

SAR(1 g) = 0.711 W/kg; SAR(10 g) = 0.407 W/kg

Smallest distance from peaks to all points 3 dB below = 11.3 mm

Ratio of SAR at M2 to SAR at M1 = 57%

Maximum value of SAR (measured) = 0.755 W/kg



Plot 21 GSM 1900 GPRS (4Txslots) Back Side Middle (Distance 10mm)

Date: 2022/9/27

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

Medium parameters used: f = 1880 MHz; σ = 1.437 S/m; ε_r = 37.208; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(7.84, 7.84, 7.84); Calibrated: 2022/7/8

Electronics: DAE4 SN1692; Calibrated: 2021/10/4

Phantom: SAM 2; Type: QD000P40CD; Serial: TP:1666

Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Back Side Middle/Area Scan (8x14x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 0.497 W/kg

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

Reference Value = 9.994 V/m; Power Drift = -0.07 dB

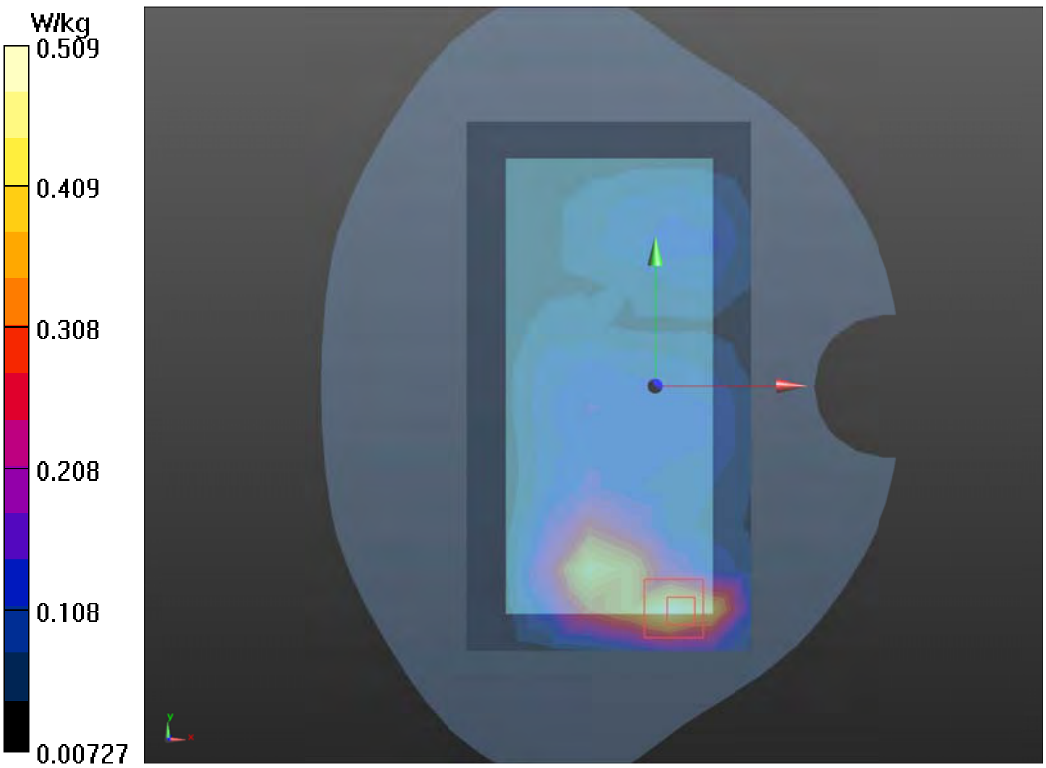
Peak SAR (extrapolated) = 0.830 W/kg

SAR(1 g) = 0.460 W/kg; SAR(10 g) = 0.245 W/kg

Smallest distance from peaks to all points 3 dB below = 10.7 mm

Ratio of SAR at M2 to SAR at M1 = 57%

Maximum value of SAR (measured) = 0.509 W/kg



Plot 22 LTE Band 4 1RB Back Side Middle (Distance 10mm)

Date: 2022/9/28

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

Medium parameters used (interpolated): f = 1732.5 MHz; σ = 1.313 S/m; ε_r = 39.384; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(8.25, 8.25, 8.25); Calibrated: 2022/7/8

Electronics: DAE4 SN1692; Calibrated: 2021/10/4

Phantom: SAM 2; Type: QD000P40CD; Serial: TP:1666

Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Back Side Middle/Area Scan (8x15x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 0.833 W/kg

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

Reference Value = 4.526 V/m; Power Drift = 0.09 dB

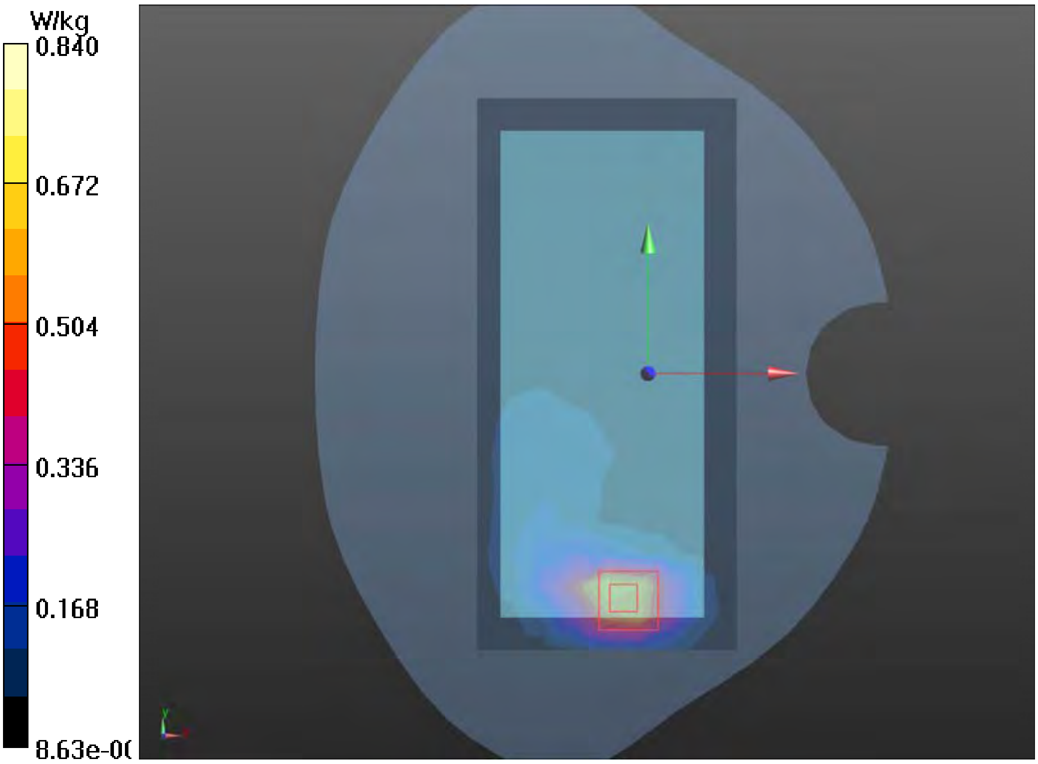
Peak SAR (extrapolated) = 1.26 W/kg

SAR(1 g) = 0.826 W/kg; SAR(10 g) = 0.414 W/kg

Smallest distance from peaks to all points 3 dB below = 10.5 mm

Ratio of SAR at M2 to SAR at M1 = 58.5%

Maximum value of SAR (measured) = 0.840 W/kg



Plot 23 LTE Band 5 1RB Back Side Low (Distance 10mm)

Date: 2022/9/27

Communication System: UID 0, LTE (0); Frequency: 829 MHz;Duty Cycle: 1:1

Medium parameters used: f = 829 MHz; σ = 0.936 S/m; ε_r = 41.882; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(9.34, 9.34, 9.34); Calibrated: 2022/7/8

Electronics: DAE4 SN1692; Calibrated: 2021/10/4

Phantom: SAM 2; Type: QD000P40CD; Serial: TP:1666

Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

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

Maximum value of SAR (measured) = 0.465 W/kg

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

Reference Value = 22.95 V/m; Power Drift = -0.07 dB

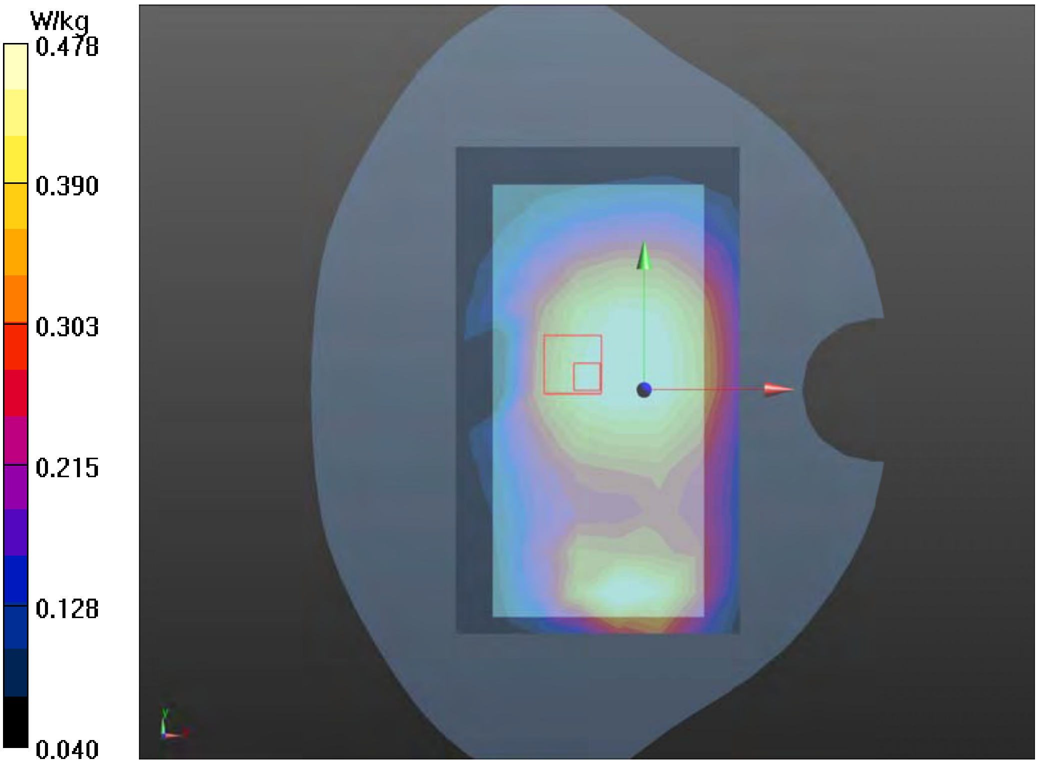
Peak SAR (extrapolated) = 0.577 W/kg

SAR(1 g) = 0.454 W/kg; SAR(10 g) = 0.313 W/kg

Smallest distance from peaks to all points 3 dB below = 29.9 mm

Ratio of SAR at M2 to SAR at M1 = 76.9%

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



Plot 24 LTE Band 7 1RB Back Side Low (Distance 10mm)

Date: 2022/10/4

Communication System: UID 0, LTE (0); Frequency: 2510 MHz;Duty Cycle: 1:1

Medium parameters used: f = 2510 MHz; σ = 1.91 S/m; ε_r = 37.398; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(7.27, 7.27, 7.27); Calibrated: 2022/7/8

Electronics: DAE4 SN1692; Calibrated: 2021/10/4

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

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

Back Side Low/Area Scan (10x18x1): Measurement grid: dx=12mm, dy=12mm

Maximum value of SAR (measured) = 1.60 W/kg

Back Side Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 5.801 V/m; Power Drift = 0.026 dB

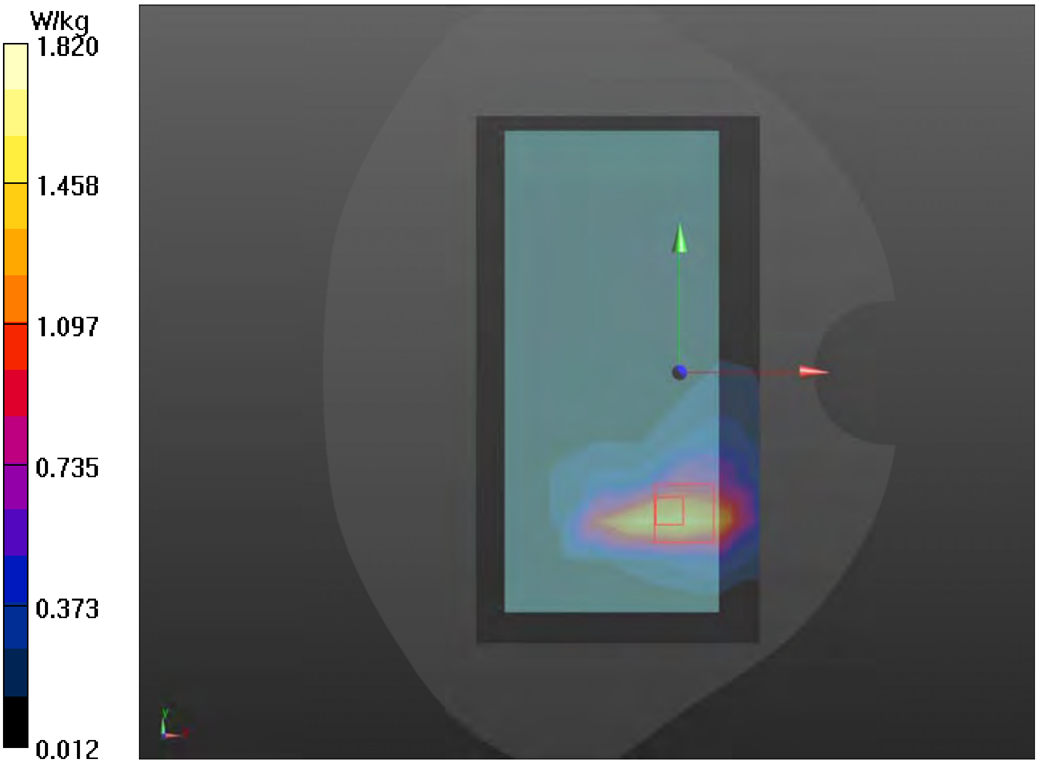
Peak SAR (extrapolated) = 2.46 W/kg

SAR(1 g) = 1.15 W/kg; SAR(10 g) = 0.571 W/kg

Smallest distance from peaks to all points 3 dB below = 12.5 mm

Ratio of SAR at M2 to SAR at M1 = 49.8%

Maximum value of SAR (measured) = 1.82 W/kg



Plot 25 LTE Band 40 1RB Back Side Middle (Distance 10mm)

Date: 2022/9/29

Communication System: UID 0, LTE (0); Frequency: 2355 MHz;Duty Cycle: 1:1.58

Medium parameters used: f = 2355 MHz; σ = 1.738 S/m; ε_r = 37.936; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(7.76, 7.76, 7.76); Calibrated: 2022/7/8

Electronics: DAE4 SN1692; Calibrated: 2021/10/4

Phantom: SAM 2; Type: QD000P40CD; Serial: TP:1666

Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Back Side Middle/Area Scan (10x18x1): Measurement grid: dx=12mm, dy=12mm

Maximum value of SAR (measured) = 1.25 W/kg

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

Reference Value = 6.160 V/m; Power Drift = 0.16 dB

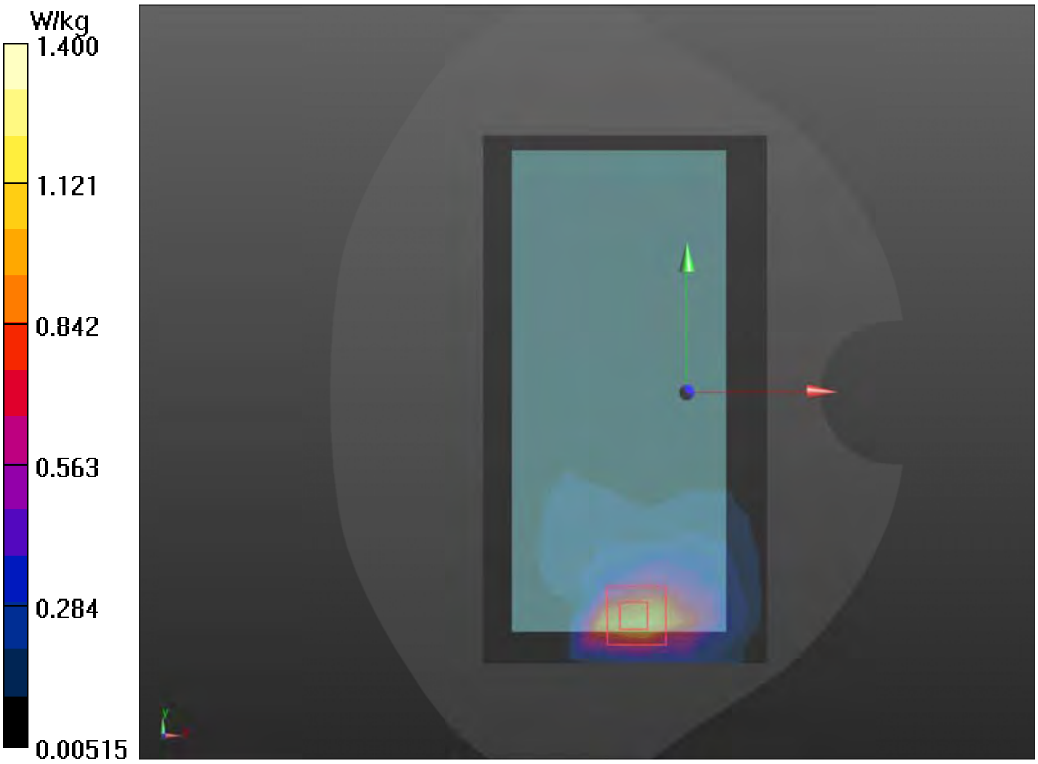
Peak SAR (extrapolated) = 1.81 W/kg

SAR(1 g) = 0.881 W/kg; SAR(10 g) = 0.425 W/kg

Smallest distance from peaks to all points 3 dB below = 19.6 mm

Ratio of SAR at M2 to SAR at M1 = 49%

Maximum value of SAR (measured) = 1.40 W/kg



Plot 26 802.11b Back Side Middle (Distance 10mm)

Date: 2022/9/30

Communication System: UID 0, 802.11b (0); Frequency: 2437 MHz;Duty Cycle: 1:1

Medium parameters used: f = 2437 MHz; σ = 1.831 S/m; ε_r = 37.663; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(7.46, 7.46, 7.46); Calibrated: 2022/7/8

Electronics: DAE4 SN1692; Calibrated: 2021/10/4

Phantom: SAM 2; Type: QD000P40CD; Serial: TP:1666

Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Back Side Middle/Area Scan (10x18x1): Measurement grid: dx=12mm, dy=12mm

Maximum value of SAR (measured) = 0.339 W/kg

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

Reference Value = 4.299 V/m; Power Drift = 0.07 dB

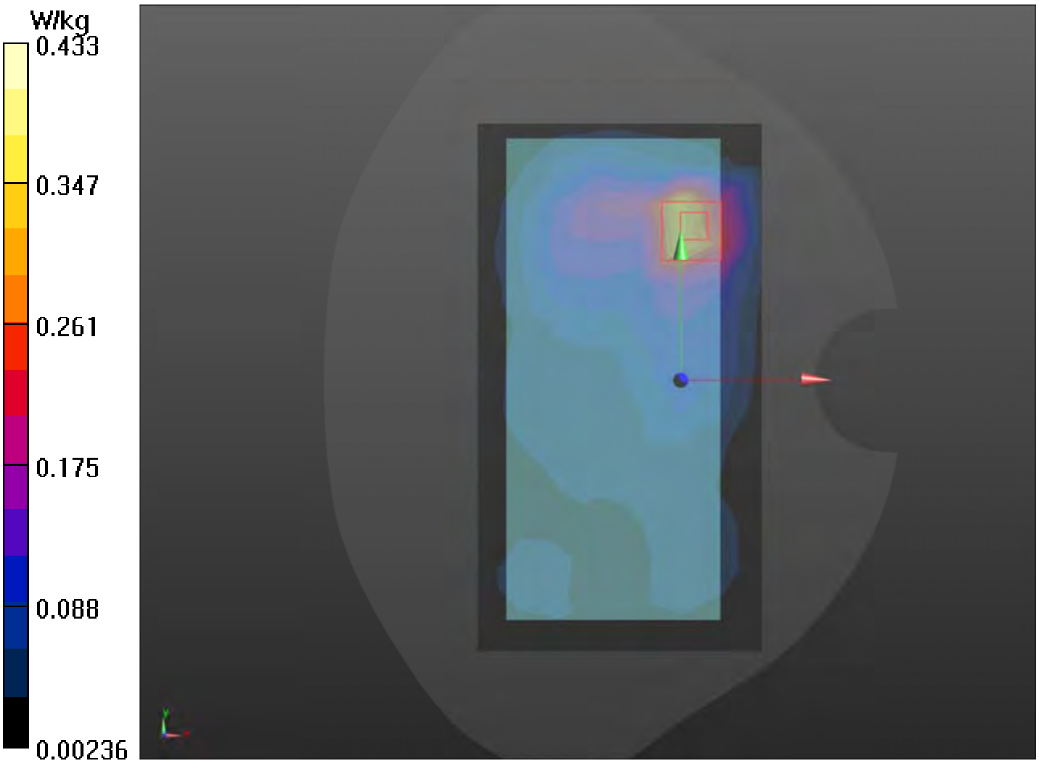
Peak SAR (extrapolated) = 0.541 W/kg

SAR(1 g) = 0.267 W/kg; SAR(10 g) = 0.131 W/kg

Smallest distance from peaks to all points 3 dB below = 12.9 mm

Ratio of SAR at M2 to SAR at M1 = 48.7%

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



Plot 27 802.11a U-NII-1 Back Side Low (Distance 10mm)

Date/Time: 2022/10/1

Communication System: UID 0, 802.11n HT40 (0); Frequency: 5190 MHz;Duty Cycle: 1:1.07

Medium parameters used: f = 5190 MHz; σ = 4.79 S/m; ε_r = 36.719; 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 - SN7543; ConvF(5.44, 5.44, 5.44) @ 5210 MHz; Calibrated: 2021/12/28

Electronics: DAE4 Sn1317; Calibrated: 2022/6/13

Phantom: SAM 1; Type: QD 000 P40 CD; Serial: xxxx

Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Back Side Low/Area Scan (12x21x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (measured) = 1.20 W/kg

Back Side Low/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 0.3920 V/m; Power Drift = 0.067dB

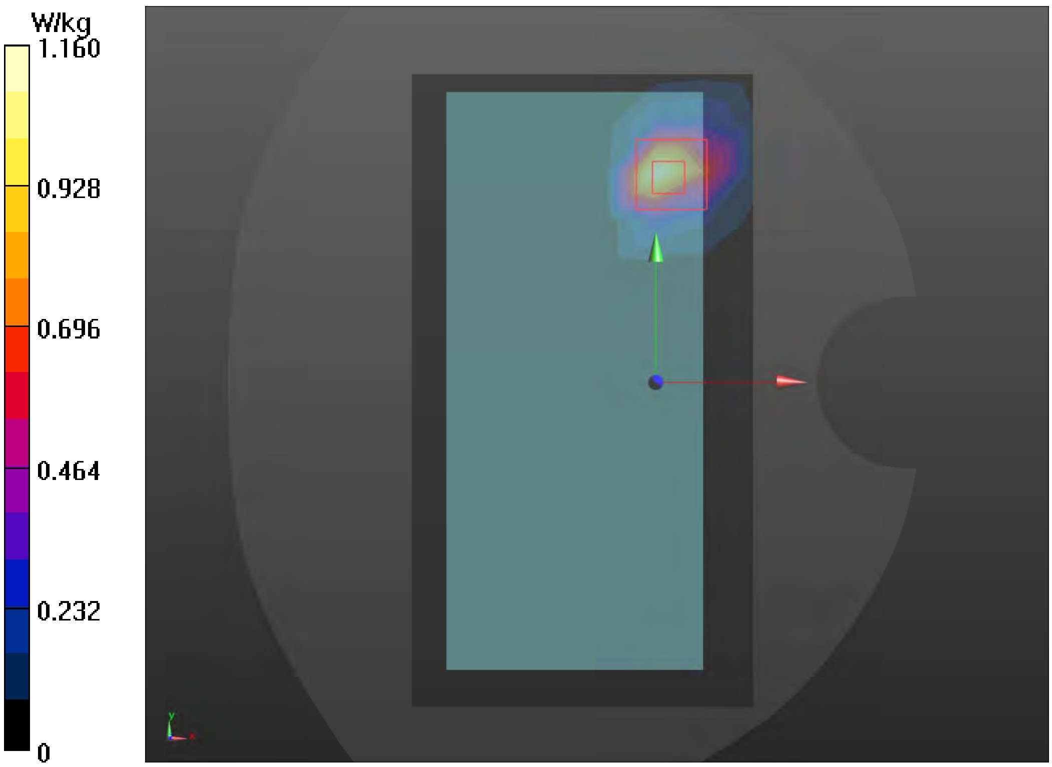
Peak SAR (extrapolated) = 2.05 W/kg

SAR(1 g) = 0.589 W/kg; SAR(10 g) = 0.194 W/kg

Smallest distance from peaks to all points 3 dB below = 8.6 mm

Ratio of SAR at M2 to SAR at M1 = 35.4%

Maximum value of SAR (measured) = 1.16 W/kg



Plot 28 Bluetooth Back Side High (Distance 10mm)

Date: 2022/9/30

Communication System: UID 0, BT (0); Frequency: 2480 MHz;Duty Cycle: 1:1.30

Medium parameters used: f = 2480 MHz; σ = 1.878 S/m; ε_r = 37.511; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(7.27, 7.27, 7.27); Calibrated: 2022/7/8

Electronics: DAE4 SN1692; Calibrated: 2021/10/4

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 (10x18x1): Measurement grid: dx=12mm, dy=12mm

Maximum value of SAR (measured) = 0.052 W/kg

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

Reference Value = 1.621 V/m; Power Drift = 0.024 dB

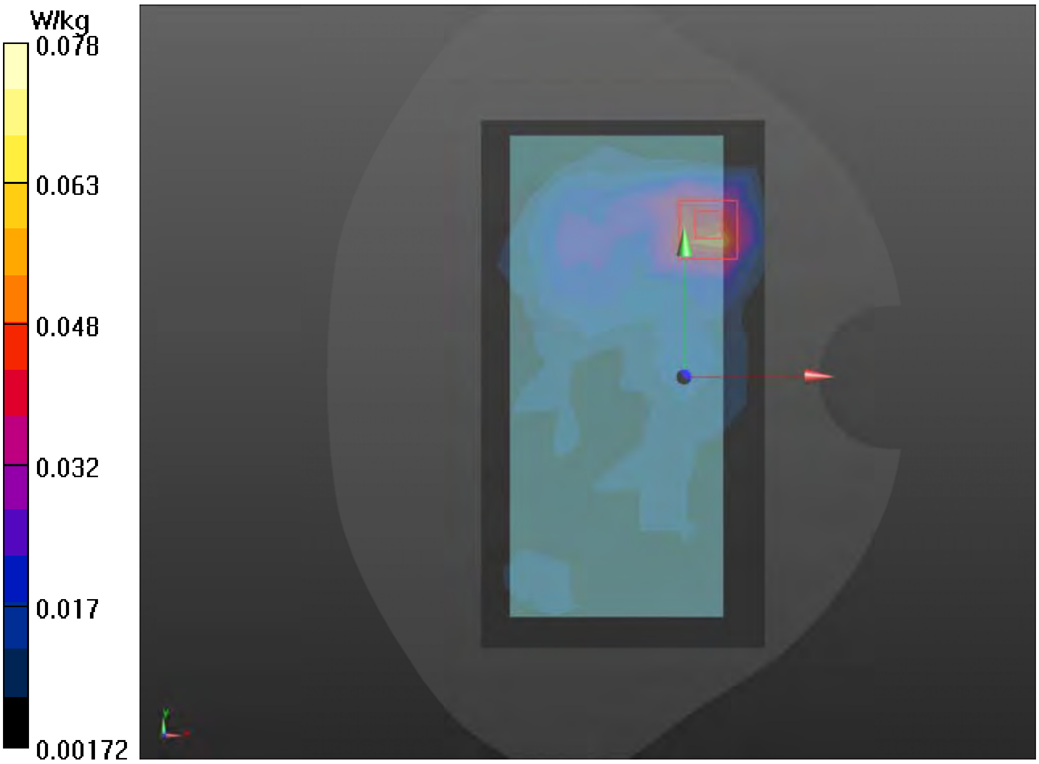
Peak SAR (extrapolated) = 0.108 W/kg

SAR(1 g) = 0.045 W/kg; SAR(10 g) = 0.022 W/kg

Smallest distance from peaks to all points 3 dB below = 16 mm

Ratio of SAR at M2 to SAR at M1 = 42.7%

Maximum value of SAR (measured) = 0.078 W/kg



Plot 29 LTE Band 4 1RB Back Side Low (Distance 0mm)

Date: 2022/9/28

Communication System: UID 0, LTE (0); Frequency: 1720 MHz;Duty Cycle: 1:1

Medium parameters used: f = 1720 MHz; σ = 1.318 S/m; ε_r = 37.81; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(8.25, 8.25, 8.25); Calibrated: 2022/7/8

Electronics: DAE4 SN1692; Calibrated: 2021/10/4

Phantom: SAM 2; Type: QD000P40CD; Serial: TP:1666

Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Back Side Low/Area Scan (8x14x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 6.63 W/kg

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

Reference Value = 4.861 V/m; Power Drift = 0.053 dB

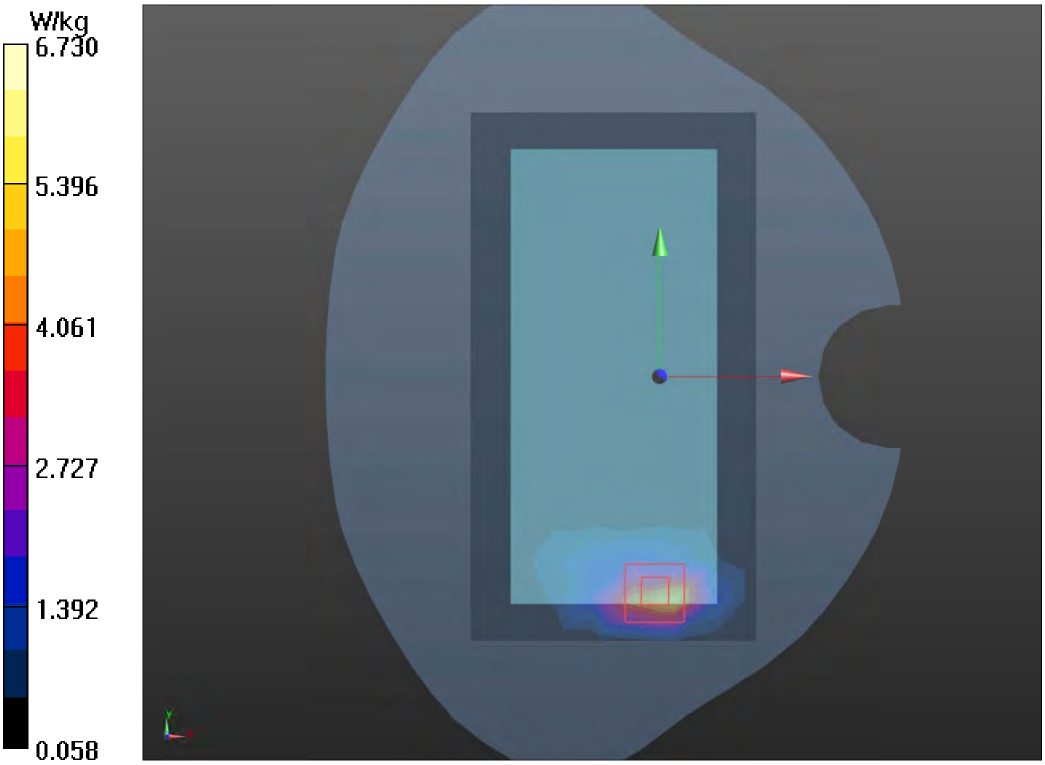
Peak SAR (extrapolated) = 12.8 W/kg

SAR(1 g) = 5.93 W/kg; SAR(10 g) = 2.65 W/kg

Smallest distance from peaks to all points 3 dB below = 12 mm

Ratio of SAR at M2 to SAR at M1 = 51.4%

Maximum value of SAR (measured) = 6.73 W/kg



Plot 30 LTE Band 7 1RB Back Side Middle (Distance 0mm)

Date: 2022/10/4

Communication System: UID 0, LTE (0); Frequency: 2510 MHz;Duty Cycle: 1:1

Medium parameters used: f = 2510 MHz; σ = 1.91 S/m; ε_r = 37.398; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(7.27, 7.27, 7.27); Calibrated: 2022/7/8

Electronics: DAE4 SN1692; Calibrated: 2021/10/4

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

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

Back Side Low/Area Scan (10x18x1): Measurement grid: dx=12mm, dy=12mm

Maximum value of SAR (measured) = 12.9 W/kg

Back Side Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 6.584 V/m; Power Drift = 0.087 dB

Peak SAR (extrapolated) = 27.7 W/kg

SAR(1 g) = 8.28 W/kg; SAR(10 g) = 2.84 W/kg

Smallest distance from peaks to all points 3 dB below = 19.6 mm

Ratio of SAR at M2 to SAR at M1 = 41.6%

Maximum value of SAR (measured) = 16.8 W/kg