

# FCC SAR Test Report

**Report No.** : SA181205C03  
**Applicant** : Verifone, Inc.  
**Address** : 1400 West Stanford Ranch Road Suite 200 Rocklin CA 95765 USA  
**Product** : Point of Sale Terminal  
**FCC ID** : B32V400M4GWW  
**Brand** : Verifone  
**Model No.** : V400m Plus 4G WW  
**Standards** : FCC 47 CFR Part 2 (2.1093), IEEE C95.1:1992, IEEE Std 1528:2013  
 KDB 865664 D01 v01r04, KDB 865664 D02 v01r02, KDB 248227 D01 v02r02,  
 KDB 447498 D01 v06, KDB 941225 D01 v03r01, KDB 941225 D05 v02r05  
**Sample Received Date** : Nov. 09, 2018  
**Date of Testing** : Nov. 09, 2018 ~ Jan. 17, 2019  
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**CERTIFICATION:** The above equipment have been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch – Lin Kou Laboratories**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample’s SAR characteristics under the conditions specified in this report. It should not be reproduced except in full, without the written approval of our laboratory. The client should not use it to claim product certification, approval, or endorsement by TAF or any government agencies.

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 Gordon Lin / Assistant Manager



FCC Accredited No.: TW0003

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### Release Control Record

Report No.	Reason for Change	Date Issued
SA181205C03	Initial release	Jan. 19, 2019

**1. Summary of Maximum SAR Value**

Equipment Class	Mode	Highest SAR-1g Body Tested at 0 mm (W/kg)	Highest SAR-10g Extremity Tested at 0 mm (W/kg)
PCB	GSM850	1.30	1.39
	GSM1900	0.74	2.78
	WCDMA II	1.17	3.79
	WCDMA IV	1.19	3.23
	WCDMA V	0.89	0.99
	LTE 2	1.09	3.42
	LTE 4	1.03	2.16
	LTE 5	0.77	0.76
	LTE 7	1.31	1.86
	LTE 12	0.84	0.81
DTS	2.4G WLAN	0.09	0.66
NII	5.2G WLAN	0.02	0.73
	5.3G WLAN	0.02	0.73
	5.6G WLAN	0.04	0.61
	5.8G WLAN	0.03	0.68
DSS	Bluetooth	0.00	0.00
DXX	NFC	N/A	N/A

Highest Simultaneous Transmission SAR	Body	Extremity
	1.40	3.82

**Note:**

- The SAR criteria (**Head & Body: SAR-1g 1.6 W/kg, and Extremity: SAR-10g 4.0 W/kg**) for general population / uncontrolled exposure is specified in FCC 47 CFR part 2 (2.1093) and ANSI/IEEE C95.1-1992.

## 2. Description of Equipment Under Test

<b>EUT Type</b>	Point of Sale Terminal
<b>FCC ID</b>	B32V400M4GWW
<b>Brand Name</b>	Verifone
<b>Model Name</b>	V400m Plus 4G WW
<b>Tx Frequency Bands (Unit: MHz)</b>	GSM850 : 824.2 ~ 848.8 GSM1900 : 1850.2 ~ 1909.8 WCDMA Band II : 1852.4 ~ 1907.6 WCDMA Band IV : 1712.4 ~ 1752.6 WCDMA Band V : 826.4 ~ 846.6 LTE Band 2 : 1850.7 ~ 1909.3 (BW: 1.4M, 3M, 5M, 10M, 15M, 20M) LTE Band 4 : 1710.7 ~ 1754.3 (BW: 1.4M, 3M, 5M, 10M, 15M, 20M) LTE Band 5 : 824.7 ~ 848.3 (BW: 1.4M, 3M, 5M, 10M) LTE Band 7 : 2502.5 ~ 2567.5 (BW: 5M, 10M, 15M, 20M) LTE Band 12 : 699.7 ~ 715.3 (BW: 1.4M, 3M, 5M, 10M) WLAN : 2412 ~ 2462, 5180 ~ 5240, 5260 ~ 5320, 5500 ~ 5700, 5745 ~ 5825 Bluetooth : 2402 ~ 2480 NFC : 13.56
<b>Uplink Modulations</b>	GSM & GPRS : GMSK EDGE : 8PSK WCDMA : QPSK LTE : QPSK, 16QAM 802.11b : DSSS 802.11a/g/n/ac : OFDM Bluetooth : GFSK, $\pi/4$ -DQPSK, 8-DPSK NFC : ASK
<b>Maximum Tune-up Conducted Power (Unit: dBm)</b>	Please refer to section 4.6.1 of this report
<b>Antenna Type</b>	WWAN : Fixed Internal Antenna BT/WLAN : PCB Antenna NFC : Loop Antenna
<b>EUT Stage</b>	Identical Prototype

**Note:**

- The above EUT information is declared by manufacturer and for more detailed features description please refers to the manufacturer's specifications or User's Manual.

**List of Accessory:**

<b>Battery 1</b>	<b>Brand Name</b>	Verifone
	<b>Model Name</b>	BPK475-001
	<b>Power Rating</b>	3.85 Vdc, 2890 mAh
	<b>Type</b>	Li-ion
<b>Battery 2</b>	<b>Brand Name</b>	Verifone
	<b>Model Name</b>	BPK475-001
	<b>Power Rating</b>	3.85 Vdc, 2900 mAh
	<b>Type</b>	Li-ion

### **3. SAR Measurement System**

#### **3.1 Definition of Specific Absorption Rate (SAR)**

SAR is related to the rate at which energy is absorbed per unit mass in an object exposed to a radio field. The SAR distribution in a biological body is complicated and is usually carried out by experimental techniques or numerical modeling. The standard recommends limits for two tiers of groups, occupational/controlled and general population/uncontrolled, based on a person's awareness and ability to exercise control over his or her exposure. In general, occupational/controlled exposure limits are higher than the limits for general population/uncontrolled.

The SAR definition is the time derivative (rate) of the incremental energy (dW) absorbed by (dissipated in) an incremental mass (dm) contained in a volume element (dv) of a given density ( $\rho$ ). The equation description is as below:

$$\text{SAR} = \frac{d}{dt} \left( \frac{dW}{dm} \right) = \frac{d}{dt} \left( \frac{dW}{\rho dv} \right)$$

SAR is expressed in units of Watts per kilogram (W/kg)

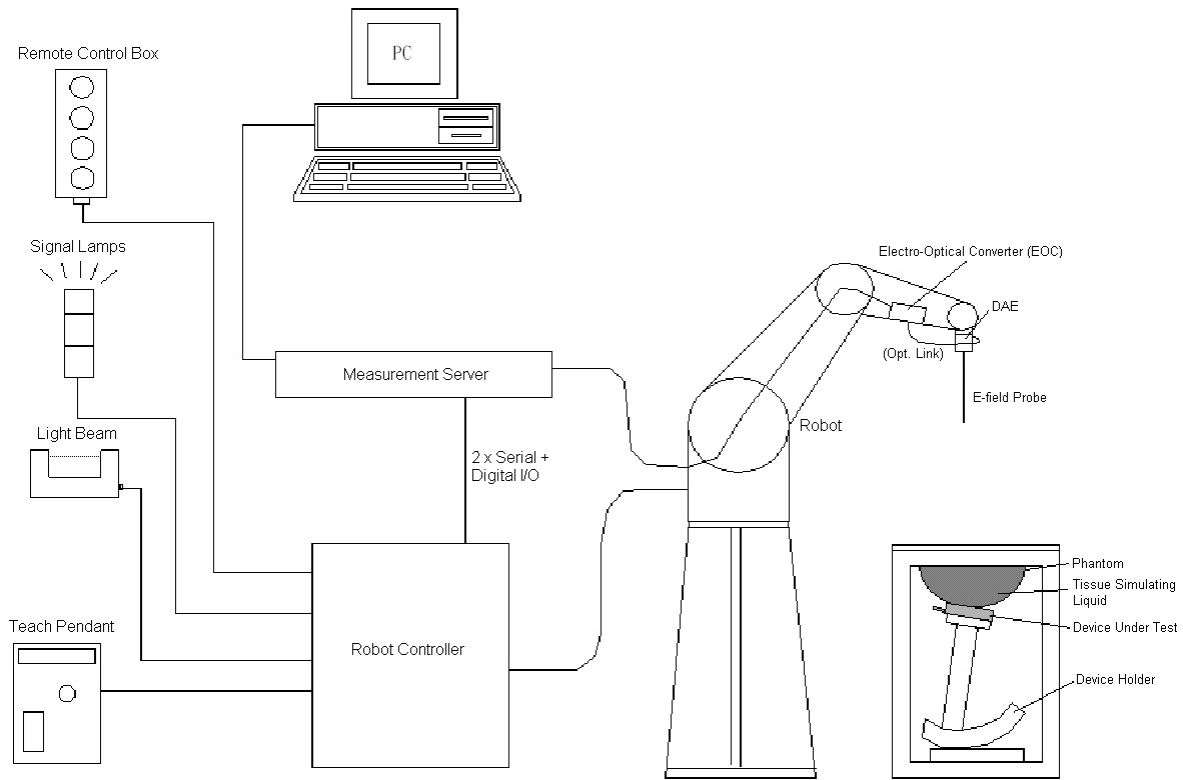
SAR measurement can be related to the electrical field in the tissue by

$$\text{SAR} = \frac{\sigma |E|^2}{\rho}$$

Where:  $\sigma$  is the conductivity of the tissue,  $\rho$  is the mass density of the tissue and E is the RMS electrical field strength.

#### **3.2 SPEAG DASY52 System**

DASY52 system consists of high precision robot, probe alignment sensor, phantom, robot controller, controlled measurement server and near-field probe. The robot includes six axes that can move to the precision position of the DASY52 software defined. The DASY52 software can define the area that is detected by the probe. The robot is connected to controlled box. Controlled measurement server is connected to the controlled robot box. The DAE includes amplifier, signal multiplexing, AD converter, offset measurement and surface detection. It is connected to the Electro-optical coupler (ECO). The ECO performs the conversion form the optical into digital electric signal of the DAE and transfers data to the PC.



**Fig-3.1 SPEAG DASY52 System Setup**

**3.2.1 Robot**

The DASY52 systems use the high precision robots from Stäubli SA (France). For the 6-axis controller system, the robot controller version of CS8c from Stäubli is used. The Stäubli robot series have many features that are important for our application:

- High precision (repeatability  $\pm 0.035$  mm)
- High reliability (industrial design)
- Jerk-free straight movements
- Low ELF interference (the closed metallic construction shields against motor control fields)





**Fig-3.2 SPEAG DASY52 System**


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### 3.2.2 Probes


The SAR measurement is conducted with the dosimetric probe. The probe is specially designed and calibrated for use in liquid with high permittivity. The dosimetric probe has special calibration in liquid at different frequency.

<b>Model</b>	EX3DV4	
<b>Construction</b>	Symmetrical design with triangular core. Built-in shielding against static charges. PEEK enclosure material (resistant to organic solvents, e.g., DGBE).	
<b>Frequency</b>	10 MHz to 6 GHz Linearity: $\pm 0.2$ dB	
<b>Directivity</b>	$\pm 0.3$ dB in HSL (rotation around probe axis) $\pm 0.5$ dB in tissue material (rotation normal to probe axis)	
<b>Dynamic Range</b>	10 $\mu$ W/g to 100 mW/g Linearity: $\pm 0.2$ dB (noise: typically $< 1$ $\mu$ W/g)	
<b>Dimensions</b>	Overall length: 337 mm (Tip: 20 mm) Tip diameter: 2.5 mm (Body: 12 mm) Typical distance from probe tip to dipole centers: 1 mm	

<b>Model</b>	ES3DV3	
<b>Construction</b>	Symmetrical design with triangular core. Interleaved sensors. Built-in shielding against static charges. PEEK enclosure material (resistant to organic solvents, e.g., DGBE).	
<b>Frequency</b>	10 MHz to 4 GHz Linearity: $\pm 0.2$ dB	
<b>Directivity</b>	$\pm 0.2$ dB in HSL (rotation around probe axis) $\pm 0.3$ dB in tissue material (rotation normal to probe axis)	
<b>Dynamic Range</b>	5 $\mu$ W/g to 100 mW/g Linearity: $\pm 0.2$ dB	
<b>Dimensions</b>	Overall length: 337 mm (Tip: 20 mm) Tip diameter: 3.9 mm (Body: 12 mm) Distance from probe tip to dipole centers: 2.0 mm	

<b>Model</b>	ET3DV6	
<b>Construction</b>	Symmetrical design with triangular core Built-in optical fiber for surface detection system. Built-in shielding against static charges. PEEK enclosure material (resistant to organic solvents, e.g., DGBE)	
<b>Frequency</b>	10 MHz to 2.3 GHz; Linearity: $\pm 0.2$ dB	
<b>Directivity</b>	$\pm 0.2$ dB in TSL (rotation around probe axis) $\pm 0.4$ dB in TSL (rotation normal to probe axis)	
<b>Dynamic Range</b>	5 $\mu$ W/g to 100 mW/g; Linearity: $\pm 0.2$ dB	
<b>Dimensions</b>	Overall length: 337 mm (Tip: 16 mm) Tip diameter: 6.8 mm (Body: 12 mm) Distance from probe tip to dipole centers: 2.7 mm	


### 3.2.3 Data Acquisition Electronics (DAE)


<b>Model</b>	DAE3, DAE4	
<b>Construction</b>	Signal amplifier, multiplexer, A/D converter and control logic. Serial optical link for communication with DASY embedded system (fully remote controlled). Two step probe touch detector for mechanical surface detection and emergency robot stop.	
<b>Measurement Range</b>	-100 to +300 mV (16 bit resolution and two range settings: 4mV, 400mV)	
<b>Input Offset Voltage</b>	$< 5\mu$ V (with auto zero)	
<b>Input Bias Current</b>	$< 50$ fA	
<b>Dimensions</b>	60 x 60 x 68 mm	



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### 3.2.4 Phantoms


<b>Model</b>	Twin SAM	
<b>Construction</b>	The shell corresponds to the specifications of the Specific Anthropomorphic Mannequin (SAM) phantom defined in IEEE 1528 and IEC 62209-1. It enables the dosimetric evaluation of left and right hand phone usage as well as body mounted usage at the flat phantom region. A cover prevents evaporation of the liquid. Reference markings on the phantom allow the complete setup of all predefined phantom positions and measurement grids by teaching three points with the robot.	
<b>Material</b>	Vinylester, glass fiber reinforced (VE-GF)	
<b>Shell Thickness</b>	$2 \pm 0.2$ mm ( $6 \pm 0.2$ mm at ear point)	
<b>Dimensions</b>	Length: 1000 mm Width: 500 mm Height: adjustable feet	
<b>Filling Volume</b>	approx. 25 liters	

<b>Model</b>	ELI	
<b>Construction</b>	Phantom for compliance testing of handheld and body-mounted wireless devices in the frequency range of 30 MHz to 6 GHz. ELI is fully compatible with the IEC 62209-2 standard and all known tissue simulating liquids. ELI has been optimized regarding its performance and can be integrated into our standard phantom tables. A cover prevents evaporation of the liquid. Reference markings on the phantom allow installation of the complete setup, including all predefined phantom positions and measurement grids, by teaching three points. The phantom is compatible with all SPEAG dosimetric probes and dipoles.	
<b>Material</b>	Vinylester, glass fiber reinforced (VE-GF)	
<b>Shell Thickness</b>	$2.0 \pm 0.2$ mm (bottom plate)	
<b>Dimensions</b>	Major axis: 600 mm Minor axis: 400 mm	
<b>Filling Volume</b>	approx. 30 liters	


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## 3.2.5 Device Holder

<b>Model</b>	Mounting Device	
<b>Construction</b>	In combination with the Twin SAM Phantom or ELI4, the Mounting Device enables the rotation of the mounted transmitter device in spherical coordinates. Rotation point is the ear opening point. Transmitter devices can be easily and accurately positioned according to IEC, IEEE, FCC or other specifications. The device holder can be locked for positioning at different phantom sections (left head, right head, flat).	
<b>Material</b>	POM	

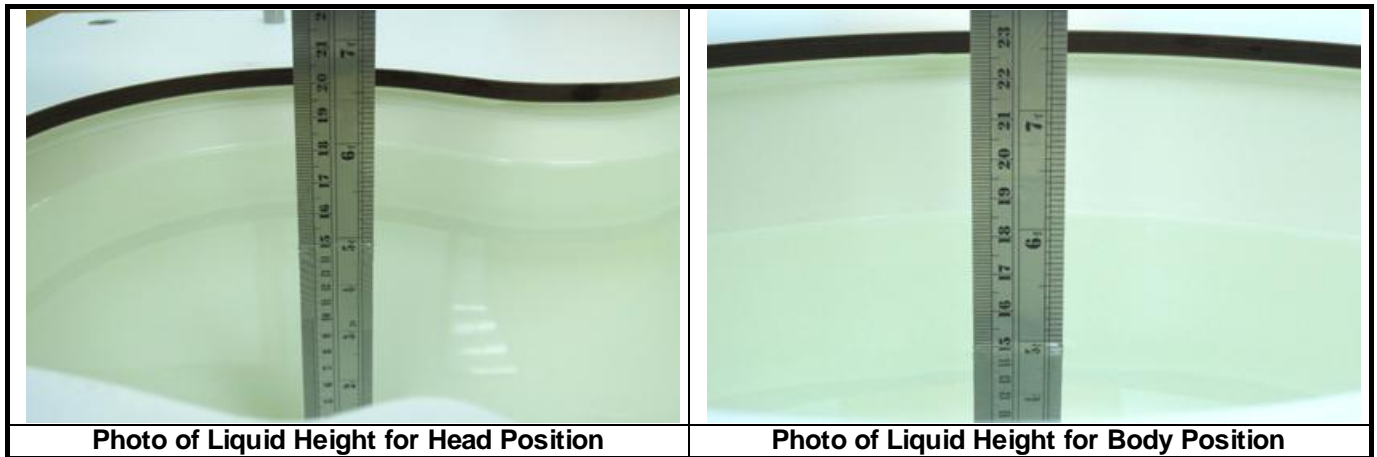
<b>Model</b>	Laptop Extensions Kit	
<b>Construction</b>	Simple but effective and easy-to-use extension for Mounting Device that facilitates the testing of larger devices according to IEC 62209-2 (e.g., laptops, cameras, etc.). It is lightweight and fits easily on the upper part of the Mounting Device in place of the phone positioner.	
<b>Material</b>	POM, Acrylic glass, Foam	

## 3.2.6 System Validation Dipoles

<b>Model</b>	D-Serial	
<b>Construction</b>	Symmetrical dipole with 1/4 balun. Enables measurement of feed point impedance with NWA. Matched for use near flat phantoms filled with tissue simulating solutions.	
<b>Frequency</b>	750 MHz to 5800 MHz	
<b>Return Loss</b>	> 20 dB	
<b>Power Capability</b>	> 100 W (f < 1GHz), > 40 W (f > 1GHz)	

### 3.2.7 Tissue Simulating Liquids

For SAR measurement of the field distribution inside the phantom, the phantom must be filled with homogeneous tissue simulating liquid to a depth of at least 15 cm. For head SAR testing, the liquid height from the ear reference point (ERP) of the phantom to the liquid top surface is larger than 15 cm. For body SAR testing, the liquid height from the center of the flat phantom to the liquid top surface is larger than 15 cm. The nominal dielectric values of the tissue simulating liquids in the phantom and the tolerance of 5% are listed in Table-3.1.



The dielectric properties of the head tissue simulating liquids are defined in IEEE 1528, and KDB 865664 D01 Appendix A. For the body tissue simulating liquids, the dielectric properties are defined in KDB 865664 D01 Appendix A. The dielectric properties of the tissue simulating liquids were verified prior to the SAR evaluation using a dielectric assessment kit and a network analyzer.

**Table-3.1 Targets of Tissue Simulating Liquid**

Frequency (MHz)	Target Permittivity	Range of $\pm 5\%$	Target Conductivity	Range of $\pm 5\%$
<b>For Head</b>				
750	41.9	39.8 ~ 44.0	0.89	0.85 ~ 0.93
835	41.5	39.4 ~ 43.6	0.90	0.86 ~ 0.95
900	41.5	39.4 ~ 43.6	0.97	0.92 ~ 1.02
1450	40.5	38.5 ~ 42.5	1.20	1.14 ~ 1.26
1640	40.3	38.3 ~ 42.3	1.29	1.23 ~ 1.35
1750	40.1	38.1 ~ 42.1	1.37	1.30 ~ 1.44
1800	40.0	38.0 ~ 42.0	1.40	1.33 ~ 1.47
1900	40.0	38.0 ~ 42.0	1.40	1.33 ~ 1.47
2000	40.0	38.0 ~ 42.0	1.40	1.33 ~ 1.47
2300	39.5	37.5 ~ 41.5	1.67	1.59 ~ 1.75
2450	39.2	37.2 ~ 41.2	1.80	1.71 ~ 1.89
2600	39.0	37.1 ~ 41.0	1.96	1.86 ~ 2.06
3500	37.9	36.0 ~ 39.8	2.91	2.76 ~ 3.06
5200	36.0	34.2 ~ 37.8	4.66	4.43 ~ 4.89
5300	35.9	34.1 ~ 37.7	4.76	4.52 ~ 5.00
5500	35.6	33.8 ~ 37.4	4.96	4.71 ~ 5.21
5600	35.5	33.7 ~ 37.3	5.07	4.82 ~ 5.32
5800	35.3	33.5 ~ 37.1	5.27	5.01 ~ 5.53
<b>For Body</b>				
750	55.5	52.7 ~ 58.3	0.96	0.91 ~ 1.01
835	55.2	52.4 ~ 58.0	0.97	0.92 ~ 1.02
900	55.0	52.3 ~ 57.8	1.05	1.00 ~ 1.10
1450	54.0	51.3 ~ 56.7	1.30	1.24 ~ 1.37
1640	53.8	51.1 ~ 56.5	1.40	1.33 ~ 1.47
1750	53.4	50.7 ~ 56.1	1.49	1.42 ~ 1.56
1800	53.3	50.6 ~ 56.0	1.52	1.44 ~ 1.60
1900	53.3	50.6 ~ 56.0	1.52	1.44 ~ 1.60
2000	53.3	50.6 ~ 56.0	1.52	1.44 ~ 1.60
2300	52.9	50.3 ~ 55.5	1.81	1.72 ~ 1.90
2450	52.7	50.1 ~ 55.3	1.95	1.85 ~ 2.05
2600	52.5	49.9 ~ 55.1	2.16	2.05 ~ 2.27
3500	51.3	48.7 ~ 53.9	3.31	3.14 ~ 3.48
5200	49.0	46.6 ~ 51.5	5.30	5.04 ~ 5.57
5300	48.9	46.5 ~ 51.3	5.42	5.15 ~ 5.69
5500	48.6	46.2 ~ 51.0	5.65	5.37 ~ 5.93
5600	48.5	46.1 ~ 50.9	5.77	5.48 ~ 6.06
5800	48.2	45.8 ~ 50.6	6.00	5.70 ~ 6.30

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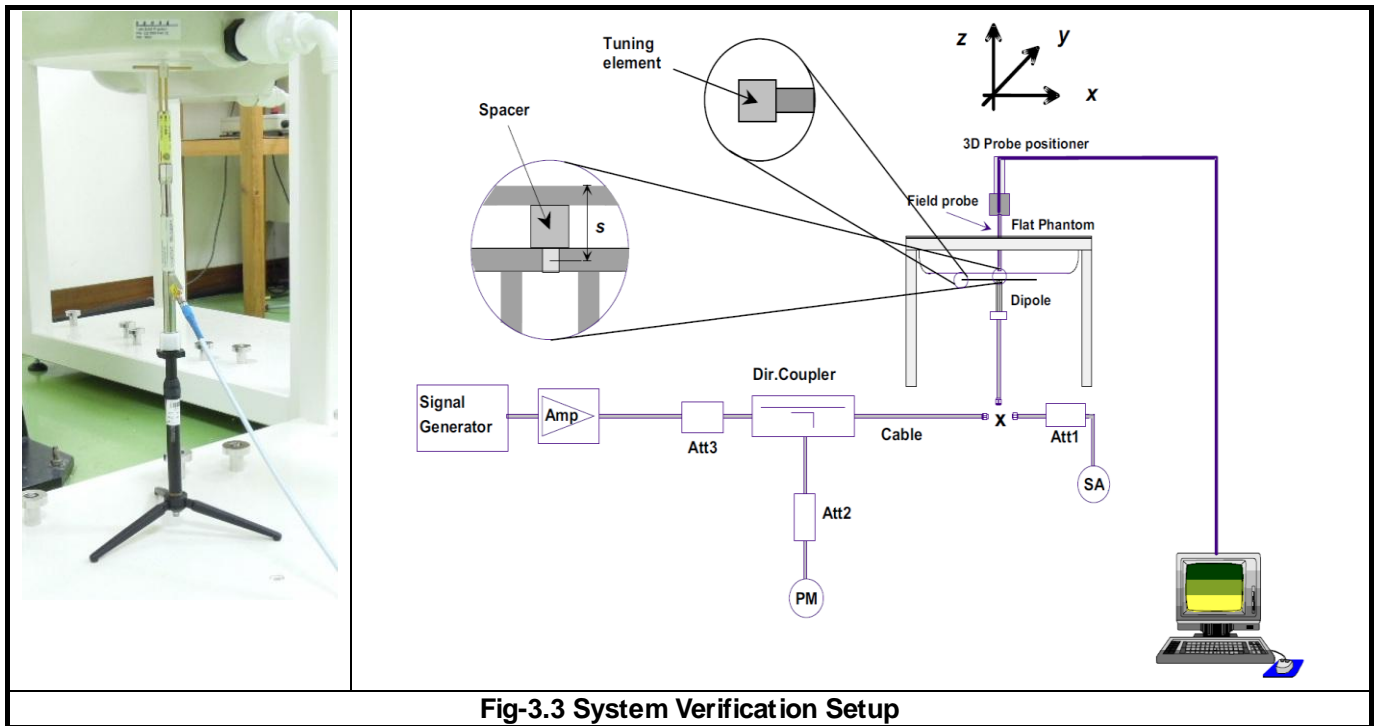
The following table gives the recipes for tissue simulating liquids.

**Table-3.2 Recipes of Tissue Simulating Liquid**

Tissue Type	Bactericide	DGBE	HEC	NaCl	Sucrose	Triton X-100	Water	Diethylene Glycol Mono-hexylether
H750	0.2	-	0.2	1.5	56.0	-	42.1	-
H835	0.2	-	0.2	1.5	57.0	-	41.1	-
H900	0.2	-	0.2	1.4	58.0	-	40.2	-
H1450	-	43.3	-	0.6	-	-	56.1	-
H1640	-	45.8	-	0.5	-	-	53.7	-
H1750	-	47.0	-	0.4	-	-	52.6	-
H1800	-	44.5	-	0.3	-	-	55.2	-
H1900	-	44.5	-	0.2	-	-	55.3	-
H2000	-	44.5	-	0.1	-	-	55.4	-
H2300	-	44.9	-	0.1	-	-	55.0	-
H2450	-	45.0	-	0.1	-	-	54.9	-
H2600	-	45.1	-	0.1	-	-	54.8	-
H3500	-	8.0	-	0.2	-	20.0	71.8	-
H5G	-	-	-	-	-	17.2	65.5	17.3
B750	0.2	-	0.2	0.8	48.8	-	50.0	-
B835	0.2	-	0.2	0.9	48.5	-	50.2	-
B900	0.2	-	0.2	0.9	48.2	-	50.5	-
B1450	-	34.0	-	0.3	-	-	65.7	-
B1640	-	32.5	-	0.3	-	-	67.2	-
B1750	-	31.0	-	0.2	-	-	68.8	-
B1800	-	29.5	-	0.4	-	-	70.1	-
B1900	-	29.5	-	0.3	-	-	70.2	-
B2000	-	30.0	-	0.2	-	-	69.8	-
B2300	-	31.0	-	0.1	-	-	68.9	-
B2450	-	31.4	-	0.1	-	-	68.5	-
B2600	-	31.8	-	0.1	-	-	68.1	-
B3500	-	28.8	-	0.1	-	-	71.1	-
B5G	-	-	-	-	-	10.7	78.6	10.7

### 3.3 SAR System Verification

The system check verifies that the system operates within its specifications. It is performed daily or before every SAR measurement. The system check uses normal SAR measurements in the flat section of the phantom with a matched dipole at a specified distance. The system verification setup is shown as below.



**Fig-3.3 System Verification Setup**

The validation dipole is placed beneath the flat phantom with the specific spacer in place. The distance spacer is touch the phantom surface with a light pressure at the reference marking and be oriented parallel to the long side of the phantom. The spectrum analyzer measures the forward power at the location of the system check dipole connector. The signal generator is adjusted for the desired forward power (250 mW is used for 700 MHz to 3 GHz, 100 mW is used for 3.5 GHz to 6 GHz) at the dipole connector and the power meter is read at that level. After connecting the cable to the dipole, the signal generator is readjusted for the same reading at power meter.

After system check testing, the SAR result will be normalized to 1W forward input power and compared with the reference SAR value derived from validation dipole certificate report. The deviation of system check should be within 10 %.

**3.4 SAR Measurement Procedure**

According to the SAR test standard, the recommended procedure for assessing the peak spatial-average SAR value consists of the following steps:

- (a) Power reference measurement
- (b) Area scan
- (c) Zoom scan
- (d) Power drift measurement

The SAR measurement procedures for each of test conditions are as follows:

- (a) Make EUT to transmit maximum output power
- (b) Measure conducted output power through RF cable
- (c) Place the EUT in the specific position of phantom
- (d) Perform SAR testing steps on the DASY system
- (e) Record the SAR value

**3.4.1 Area & Zoom Scan Procedure**

First Area Scan is used to locate the approximate location(s) of the local peak SAR value(s). The measurement grid within an Area Scan is defined by the grid extent, grid step size and grid offset. Next, in order to determine the EM field distribution in a three-dimensional spatial extension, Zoom Scan is required. The Zoom Scan is performed around the highest E-field value to determine the averaged SAR-distribution over 10 g. According to KDB 865664 D01, the resolution for Area and Zoom scan is specified in the table below.

Items	<= 2 GHz	2-3 GHz	3-4 GHz	4-5 GHz	5-6 GHz
Area Scan ( $\Delta x, \Delta y$ )	<= 15 mm	<= 12 mm	<= 12 mm	<= 10 mm	<= 10 mm
Zoom Scan ( $\Delta x, \Delta y$ )	<= 8 mm	<= 5 mm	<= 5 mm	<= 4 mm	<= 4 mm
Zoom Scan ( $\Delta z$ )	<= 5 mm	<= 5 mm	<= 4 mm	<= 3 mm	<= 2 mm
Zoom Scan Volume	>= 30 mm	>= 30 mm	>= 28 mm	>= 25 mm	>= 22 mm

**Note:**

When zoom scan is required and report SAR is <= 1.4 W/kg, the zoom scan resolution of  $\Delta x / \Delta y$  (2-3GHz: <= 8 mm, 3-4GHz: <= 7 mm, 4-6GHz: <= 5 mm) may be applied.

**3.4.2 Volume Scan Procedure**

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.

### 3.4.3 Power Drift Monitoring

All SAR testing is under the EUT install full charged battery and transmit maximum output power. In DASYS 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 drift more than 5%, the SAR will be retested.

### 3.4.4 Spatial Peak SAR Evaluation

The procedure for spatial peak SAR evaluation has been implemented according to the test standard. It can be conducted for 1g and 10g, as well as for user-specific masses. The DASYS software includes all numerical procedures necessary to evaluate the spatial peak SAR value.

The base for the evaluation is a "cube" measurement. The measured volume must include the 1g and 10g cubes with the highest averaged SAR values. For that purpose, the center of the measured volume is aligned to the interpolated peak SAR value of a previously performed area scan.

The entire evaluation of the spatial peak values is performed within the post-processing engine (SEMCAD). The system always gives the maximum values for the 1g and 10g cubes. The algorithm to find the cube with highest averaged SAR is divided into the following stages:

- (a) Extraction of the measured data (grid and values) from the Zoom Scan
- (b) Calculation of the SAR value at every measurement point based on all stored data (A/D values and measurement parameters)
- (c) Generation of a high-resolution mesh within the measured volume
- (d) Interpolation of all measured values from the measurement grid to the high-resolution grid
- (e) Extrapolation of the entire 3-D field distribution to the phantom surface over the distance from sensor to surface
- (f) Calculation of the averaged SAR within masses of 1g and 10g

### 3.4.5 SAR Averaged Methods

In DASYS, the interpolation and extrapolation are both based on the modified Quadratic Shepard's method. The interpolation scheme combines a least-square fitted function method and a weighted average method which are the two basic types of computational interpolation and approximation.

Extrapolation routines are used to obtain SAR values between the lowest measurement points and the inner phantom surface. The extrapolation distance is determined by the surface detection distance and the probe sensor offset. The uncertainty increases with the extrapolation distance. To keep the uncertainty within 1% for the 1 g and 10 g cubes, the extrapolation distance should not be larger than 5 mm.



## 4. SAR Measurement Evaluation

### 4.1 EUT Configuration and Setting

#### <Connections between EUT and System Simulator>

For WWAN SAR testing, the EUT was linked and controlled by base station emulator. Communication between the EUT and the emulator was established by air link. The distance between the EUT and the communicating antenna of the emulator is larger than 50 cm and the output power radiated from the emulator antenna is at least 30 dB smaller than the output power of EUT. The EUT was set from the emulator to radiate maximum output power during SAR testing.

#### <Considerations Related to GSM / GPRS / EDGE for Setup and Testing>

The maximum multi-slot capability supported by this device is as below.

1. This EUT is class B device
2. This EUT supports GPRS multi-slot class 12 (max. uplink: 4, max. downlink: 4, total timeslots: 5)
3. This EUT supports EDGE multi-slot class 12 (max. uplink: 4, max. downlink: 4, total timeslots: 5)

For GSM850 frequency band, the power control level is set to 5 for GSM mode and GPRS (GMSK: CS1), and set to 8 for EDGE (GMSK: MCS1, 8PSK: MCS9). For GSM1900 frequency band, the power control level is set to 0 for GSM mode and GPRS (GMSK: CS1), and set to 2 for EDGE (GMSK: MCS1, 8PSK: MCS9).

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.

**<Considerations Related to WCDMA for Setup and Testing>**

**Release 5 HSDPA Data Devices**

The 3G SAR test reduction procedure is applied to body SAR with 12.2 kbps RMC as the primary mode. Otherwise, body SAR for HSDPA is measured using an FRC with H-Set 1 in Sub-test 1 and a 12.2 kbps RMC configured in Test Loop Mode 1, for the highest reported SAR configuration in 12.2 kbps RMC without HSDPA. HSDPA is configured according to the applicable UE category of a test device. The number of HS-DSCH / HS-PDSCHs, HARQ processes, minimum inter-TTI interval, transport block sizes and RV coding sequence are defined by the H-set. To maintain a consistent test configuration and stable transmission conditions, QPSK is used in the H-set for SAR testing. HS-DPCCH should be configured with a CQI feedback cycle of 4 ms and a CQI repetition factor of 2 to maintain a constant rate of active CQI slots. DPCCH and DPDCH gain factors ( $\beta_c$ ,  $\beta_d$ ), and HS-DPCCH power offset parameters ( $\Delta_{ACK}$ ,  $\Delta_{NACK}$ ,  $\Delta_{CQI}$ ) are set according to values indicated in below. The CQI value is determined by the UE category, transport block size, number of HS-PDSCHs and modulation used in the H-set.

Sub-test	$\beta_c$	$\beta_d$	$\beta_d$ (SF)	$\beta_c/\beta_d$	$\beta_{HS}^{(1)(2)}$	CM <sup>(3)</sup> (dB)	MPR <sup>(3)</sup> (dB)
1	2/15	15/15	64	2/15	4/15	0.0	0.0
2	12/15 <sup>(4)</sup>	15/15 <sup>(4)</sup>	64	12/15 <sup>(4)</sup>	24/15	1.0	0.0
3	15/15	8/15	64	15/8	30/15	1.5	0.5
4	15/15	4/15	64	15/4	30/15	1.5	0.5

Note 1:  $\Delta_{ACK}$ ,  $\Delta_{NACK}$  and  $\Delta_{CQI}$  = 30/15 with  $\beta_{HS}$  = 30/15 \*  $\beta_c$ .  
 Note 2: For the HS-DPCCH power mask requirement test in clause 5.2C, 5.7A, and the Error Vector Magnitude (EVM) with HS-DPCCH test in clause 5.13.1A, and HSDPA EVM with phase discontinuity in clause 5.13.1AA,  $\Delta_{ACK}$  and  $\Delta_{NACK}$  = 30/15 with  $\beta_{HS}$  = 30/15 \*  $\beta_c$ , and  $\Delta_{CQI}$  = 24/15 with  $\beta_{HS}$  = 24/15 \*  $\beta_c$ .  
 Note 3: CM = 1 for  $\beta_c/\beta_d$  = 12/15,  $\beta_{HS}/\beta_c$  = 24/15. For all other combinations of DPDCH, DPCCH and HS-DPCCH the MPR is based on the relative CM difference. This is applicable for only UEs that support HSDPA in release 6 and later releases.  
 Note 4: For subtest 2 the  $\beta_c/\beta_d$  ratio of 12/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signalled gain factors for the reference TFC (TF1, TF1) to  $\beta_c$  = 11/15 and  $\beta_d$  = 15/15.

**Release 6 HSPA Data Devices**

The 3G SAR test reduction procedure is applied to body SAR with 12.2 kbps RMC as the primary mode. Otherwise, body SAR for HSPA is measured with E-DCH Sub-test 5, using H-Set 1 and QPSK for FRC and a 12.2 kbps RMC configured in Test Loop Mode 1 and power control algorithm 2, according to the highest reported body SAR configuration in 12.2 kbps RMC without HSPA. When VOIP applies to head exposure, the 3G SAR test reduction procedure is applied with 12.2 kbps RMC as the primary mode. Otherwise, the same HSPA configuration used for body SAR measurements are applied to head exposure testing. Due to inner loop power control requirements in HSPA, a communication test set is required for output power and SAR tests. The 12.2 kbps RMC, FRC H-set 1 and E-DCH configurations for HSPA are configured according to the  $\beta$  values indicated in below.

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Sub-test	$\beta_c$	$\beta_d$	$\beta_d$ (SF)	$\beta_c / \beta_d$	$\beta_{HS}^{(1)}$	$\beta_{ec}$	$\beta_{ed}^{(4)(5)}$	$\beta_{ed}$ (SF)	$\beta_{ed}$ (Codes)	CM <sup>(2)</sup> (dB)	MPR <sup>(2)(6)</sup> (dB)	AG <sup>(5)</sup> Index	E-TFCI
1	11/15 <sup>(3)</sup>	15/15 <sup>(3)</sup>	64	11/15 <sup>(3)</sup>	22/15	209/225	1309/225	4	1	1.0	0.0	20	75
2	6/15	15/15	64	6/15	12/15	12/15	94/75	4	1	3.0	2.0	12	67
3	15/15	9/15	64	15/9	30/15	30/15	$\beta_{ed1}$ : 47/15 $\beta_{ed2}$ : 47/15	4 4	2	2.0	1.0	15	92
4	2/15	15/15	64	2/15	4/15	2/15	56/75	4	1	3.0	2.0	17	71
5	15/15	0	-	-	5/15	5/15	47/15	4	1	1.0	0.0	12	67

Note 1: For sub-test 1 to 4,  $\Delta_{ACK}$ ,  $\Delta_{NACK}$  and  $\Delta_{CQI} = 30/15$  with  $\beta_{HS} = 30/15 * \beta_c$ . For sub-test 5,  $\Delta_{ACK}$ ,  $\Delta_{NACK}$  and  $\Delta_{CQI} = 5/15$  with  $\beta_{HS} = 5/15 * \beta_c$ .  
 Note 2: CM = 1 for  $\beta_c/\beta_d = 12/15$ ,  $\beta_{HS}/\beta_c = 24/15$ . For all other combinations of DPDCH, DPCCH, HS-DPCCH, E-DPDCH and E-DPCCH the MPR is based on the relative CM difference.  
 Note 3: For subtest 1 the  $\beta_c/\beta_d$  ratio of 11/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signalled gain factors for the reference TFC (TF1, TF1) to  $\beta_c = 10/15$  and  $\beta_d = 15/15$ .  
 Note 4: In case of testing by UE using E-DPDCH Physical Layer category 1, Sub-test 3 is omitted according to TS25.306 Table 5.1g.  
 Note 5:  $\beta_{ed}$  can not be set directly; it is set by Absolute Grant Value.  
 Note 6: For subtests 2, 3 and 4, UE may perform E-DPDCH power scaling at max power which could results in slightly smaller MPR values.

## <Considerations Related to LTE for Setup and Testing>

This device contains LTE transmitter which follows 3GPP standards, is category 3, supports both QPSK and QAM modulations, and supported LTE band and channel bandwidth is listed in below. The output power was tested per 3GPP TS 36.521-1 maximum transmit procedures for both QPSK and QAM modulation. The results please refer to section 4.6 of this report.

EUT Supported LTE Band and Channel Bandwidth						
LTE Band	BW 1.4 MHz	BW 3 MHz	BW 5 MHz	BW 10 MHz	BW 15 MHz	BW 20 MHz
2	V	V	V	V	V	V
4	V	V	V	V	V	V
5	V	V	V	V		
7			V	V	V	V
12	V	V	V	V		

The LTE maximum power reduction (MPR) in accordance with 3GPP TS 36.101 is active all times during LTE operation. The allowed MPR for the maximum output power is specified in below.

Modulation	Channel Bandwidth / RB Configurations						LTE MPR Setting (dB)
	BW 1.4 MHz	BW 3 MHz	BW 5 MHz	BW 10 MHz	BW 15 MHz	BW 20 MHz	
QPSK	> 5	> 4	> 8	> 12	> 16	> 18	1
16QAM	<= 5	<= 4	<= 8	<= 12	<= 16	<= 18	1
16QAM	> 5	> 4	> 8	> 12	> 16	> 18	2

**Note:** MPR is according to the standard and implemented in the circuit (mandatory).

In addition, the device is compliant with additional maximum power reduction (A-MPR) requirements defined in 3GPP TS 36.101 section 6.2.4 that was disabled for all FCC compliance testing.

During LTE SAR testing, the related parameters of operating band, channel bandwidth, uplink channel number, modulation type, and RB was set in base station simulator. When the EUT has registered and communicated to base station simulator, the simulator set to make EUT transmitting the maximum radiated power.

### <Considerations Related to WLAN for Setup and Testing>

In general, various vendor specific external test software and chipset based internal test modes are typically used for SAR measurement. These chipset based test mode utilities are generally hardware and manufacturer dependent, and often include substantial flexibility to reconfigure or reprogram a device. 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. The test frequencies established using test mode must correspond to the actual channel frequencies. When 802.11 frame gaps are accounted for in the transmission, a maximum transmission duty factor of 92 - 96% is typically achievable in most test mode configurations. A minimum transmission duty factor of 85% is required to avoid certain hardware and device implementation issues related to wide range SAR scaling. In addition, a periodic transmission duty factor is required for current generation SAR systems to measure SAR correctly. The reported SAR must be scaled to 100% transmission duty factor to determine compliance at the maximum tune-up tolerance limit.

According to KDB 248227 D01, this device has installed WLAN engineering testing software which can provide continuous transmitting RF signal. During WLAN SAR testing, this device was operated to transmit continuously at the maximum transmission duty with specified transmission mode, operating frequency, lowest data rate, and maximum output power.

### Initial Test Configuration

An initial test configuration is determined for OFDM transmission modes in 2.4 GHz and 5 GHz bands according to the channel bandwidth, modulation and data rate combination(s) with the highest maximum output power specified for production units in each standalone and aggregated frequency band. When the same maximum power is specified for multiple transmission modes in a frequency band, the largest channel bandwidth, lowest order modulation, lowest data rate and lowest order 802.11a/g/n/ac mode is used for SAR measurement, on the highest measured output power channel in the initial test configuration, for each frequency band.

### Subsequent Test Configuration

SAR measurement requirements for the remaining 802.11 transmission mode configurations that have not been tested in the initial test configuration are determined separately for each standalone and aggregated frequency band, in each exposure condition, according to the maximum output power specified for production units. Additional power measurements may be required to determine if SAR measurements are required for subsequent highest output power channels in a subsequent test configuration. When the highest reported SAR for the initial test configuration according to the initial test position or fixed exposure position requirements, is adjusted by the ratio of the subsequent test configuration to initial test configuration specified maximum output power and the adjusted SAR is  $\leq 1.2$  W/kg, SAR is not required for that subsequent test configuration.

### **SAR Test Configuration and Channel Selection**

When multiple channel bandwidth configurations in a frequency band have the same specified maximum output power, the initial test configuration is using largest channel bandwidth, lowest order modulation, lowest data rate, and lowest order 802.11 mode (i.e., 802.11a is chosen over 802.11n then 802.11ac or 802.11g is chosen over 802.11n). After an initial test configuration is determined, if multiple test channels have the same measured maximum output power, the channel chosen for SAR measurement is determined according to the following.

- 1) The channel closest to mid-band frequency is selected for SAR measurement.
- 2) For channels with equal separation from mid-band frequency; for example, high and low channels or two mid-band channels, the higher frequency (number) channel is selected for SAR measurement.

### **Test Reduction for U-NII-1 (5.2 GHz) and U-NII-2A (5.3 GHz) Bands**

For devices that operate in both U-NII bands using the same transmitter and antenna(s), SAR test reduction is determined according to the following.

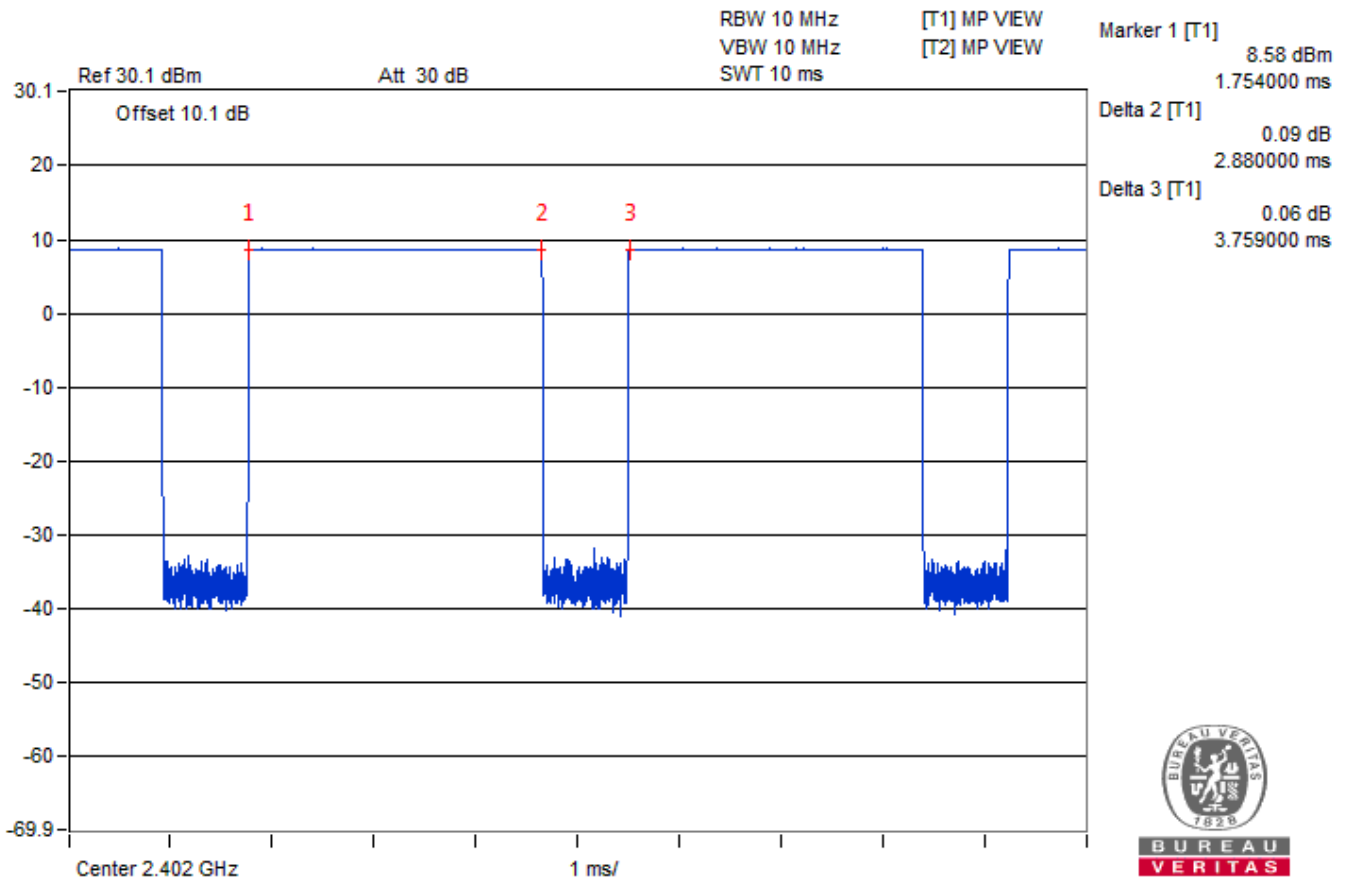
- 1) When the same maximum output power is specified for both bands, begin SAR measurement in U-NII-2A band by applying the OFDM SAR requirements. If the highest reported SAR for a test configuration is  $\leq 1.2$  W/kg, SAR is not required for U-NII-1 band for that configuration (802.11 mode and exposure condition).
- 2) When different maximum output power is specified for the bands, begin SAR measurement in the band with higher specified maximum output power. The highest reported SAR for the tested configuration is adjusted by the ratio of lower to higher specified maximum output power for the two bands. When the adjusted SAR is  $\leq 1.2$  W/kg, SAR is not required for the band with lower maximum output power in that test configuration.

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## <Considerations Related to Bluetooth for Setup and Testing>

This device has installed Bluetooth engineering testing software which can provide continuous transmitting RF signal. During Bluetooth SAR testing, this device was operated to transmit continuously at the maximum transmission duty with specified transmission mode, operating frequency, lowest data rate, and maximum output power.

The Bluetooth call box has been used during SAR measurement and the EUT was set to DH mode at the maximum output power. Its duty factor was calculated as below and the measured SAR for Bluetooth would be scaled to the 100% transmission duty factor to determine compliance.



**Time-domain plot for Bluetooth transmission signal**

The duty factor of Bluetooth signal has been calculated as following.

$$\text{Duty Factor} = \text{Pulse Width} / \text{Total Period} = 2.88 / 3.759 = 76.61 \%$$

**4.2 EUT Testing Position**

**4.2.1 Body Exposure Conditions**

This hand-held device was test on the body and extremity exposure conditions. Body SAR was tested on the Rear Face (the edge which is the closest to transmitting antenna) with 0 cm separation distance. Extremity SAR was tested on the Rear Face, Left Side and Right Side with 0 cm separation distance.

**4.3 Tissue Verification**

The measuring results for tissue simulating liquid are shown as below.

Test Date	Tissue Type	Frequency (MHz)	Liquid Temp. (°C)	Measured Conductivity (σ)	Measured Permittivity (ε <sub>r</sub> )	Target Conductivity (σ)	Target Permittivity (ε <sub>r</sub> )	Conductivity Deviation (%)	Permittivity Deviation (%)
Nov. 23, 2018	Body	750	23.1	0.961	53.2	0.96	55.5	0.10	-4.14
Nov. 23, 2018	Body	835	23.1	0.975	55.019	0.97	55.2	0.52	-0.33
Nov. 29, 2018	Body	835	23.1	0.973	57.716	0.97	55.2	0.31	4.56
Dec. 24, 2018	Body	835	23.2	1.009	54.282	0.97	55.2	4.02	-1.66
Nov. 21, 2018	Body	1750	23.3	1.437	52.601	1.49	53.4	-3.56	-1.50
Dec. 24, 2018	Body	1750	23.2	1.45	51.593	1.49	53.4	-2.68	-3.38
Nov. 09, 2018	Body	1900	23.3	1.452	52.869	1.52	53.3	-4.47	-0.81
Nov. 21, 2018	Body	1900	23.3	1.581	52.161	1.52	53.3	4.01	-2.14
Jan. 04, 2019	Body	2450	23.4	2.016	51.542	1.95	52.7	3.38	-2.20
Nov. 23, 2018	Body	2600	23.1	2.168	50.901	2.16	52.5	0.37	-3.05
Jan. 04, 2019	Body	5250	23.4	5.269	49.293	5.36	48.9	-1.70	0.80
Jan. 04, 2019	Body	5600	23.4	5.72	48.77	5.77	48.5	-0.87	0.56
Jan. 04, 2019	Body	5750	23.4	5.926	48.543	5.94	48.3	-0.24	0.50

Test Date	Tissue Type	Frequency (MHz)	Liquid Temp. (°C)	Measured Conductivity (σ)	Measured Permittivity (ε <sub>r</sub> )	Target Conductivity (σ)	Target Permittivity (ε <sub>r</sub> )	Conductivity Deviation (%)	Permittivity Deviation (%)
Nov. 15, 2018	Extremity	750	23.3	0.959	55.52	0.96	55.5	-0.10	0.04
Nov. 15, 2018	Extremity	835	23.3	0.979	56.29	0.97	55.2	0.93	1.97
Jan. 17, 2019	Extremity	835	23.2	0.977	55.992	0.97	55.2	0.72	1.43
Nov. 15, 2018	Extremity	1750	23.3	1.451	52.459	1.49	53.4	-2.62	-1.76
Jan. 17, 2019	Extremity	1750	23.2	1.434	52.018	1.49	53.4	-3.76	-2.59
Nov. 09, 2018	Extremity	1900	23.3	1.452	52.869	1.52	53.3	-4.47	-0.81
Jan. 16, 2019	Extremity	2450	23.1	2.021	52.11	1.95	52.7	3.64	-1.12
Nov. 15, 2018	Extremity	2600	23.3	2.194	50.921	2.16	52.5	1.57	-3.01
Jan. 16, 2019	Extremity	5250	23.1	5.475	47.871	5.36	48.9	2.15	-2.10
Jan. 16, 2019	Extremity	5600	23.1	5.961	47.19	5.77	48.5	3.31	-2.70
Jan. 16, 2019	Extremity	5750	23.1	6.166	46.843	5.94	48.3	3.80	-3.02

**Note:**

The dielectric properties of the tissue simulating liquid must be measured within 24 hours before the SAR testing and within ±5% of the target values. Liquid temperature during the SAR testing must be within ±2 °C .

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## 4.4 System Validation

The SAR measurement system was validated according to procedures in KDB 865664 D01. The validation status in tabulated summary is as below.

Test Date	Probe S/N	Calibration Point		Measured Conductivity ( $\sigma$ )	Measured Permittivity ( $\epsilon_r$ )	Validation for CW			Validation for Modulation		
						Sensitivity Range	Probe Linearity	Probe Isotropy	Modulation Type	Duty Factor	PAR
Nov. 23, 2018	3971	Body	750	0.961	53.2	Pass	Pass	Pass	N/A	N/A	N/A
Nov. 23, 2018	3971	Body	835	0.975	55.019	Pass	Pass	Pass	N/A	N/A	N/A
Nov. 29, 2018	7472	Body	835	0.973	57.716	Pass	Pass	Pass	GMSK	Pass	N/A
Dec. 24, 2018	3650	Body	835	1.009	54.282	Pass	Pass	Pass	N/A	N/A	N/A
Nov. 21, 2018	3971	Body	1750	1.437	52.601	Pass	Pass	Pass	N/A	N/A	N/A
Dec. 24, 2018	3650	Body	1750	1.45	51.593	Pass	Pass	Pass	N/A	N/A	N/A
Nov. 09, 2018	3898	Body	1900	1.452	52.869	Pass	Pass	Pass	GMSK	Pass	N/A
Nov. 21, 2018	3971	Body	1900	1.581	52.161	Pass	Pass	Pass	N/A	N/A	N/A
Jan. 04, 2019	7472	Body	2450	2.016	51.542	Pass	Pass	Pass	OFDM	N/A	Pass
Nov. 23, 2018	3971	Body	2600	2.168	50.901	Pass	Pass	Pass	N/A	N/A	N/A
Jan. 04, 2019	7472	Body	5250	5.269	49.293	Pass	Pass	Pass	OFDM	N/A	Pass
Jan. 04, 2019	7472	Body	5600	5.72	48.77	Pass	Pass	Pass	OFDM	N/A	Pass
Jan. 04, 2019	7472	Body	5750	5.926	48.543	Pass	Pass	Pass	OFDM	N/A	Pass

Test Date	Probe S/N	Calibration Point		Measured Conductivity ( $\sigma$ )	Measured Permittivity ( $\epsilon_r$ )	Validation for CW			Validation for Modulation		
						Sensitivity Range	Probe Linearity	Probe Isotropy	Modulation Type	Duty Factor	PAR
Nov. 15, 2018	7472	Extremity	750	0.959	55.52	Pass	Pass	Pass	N/A	N/A	N/A
Nov. 15, 2018	7472	Extremity	835	0.979	56.29	Pass	Pass	Pass	N/A	N/A	N/A
Jan. 17, 2019	3650	Extremity	835	0.977	55.992	Pass	Pass	Pass	GMSK	Pass	N/A
Nov. 15, 2018	7472	Extremity	1750	1.451	52.459	Pass	Pass	Pass	N/A	N/A	N/A
Jan. 17, 2019	3650	Extremity	1750	1.434	52.018	Pass	Pass	Pass	N/A	N/A	N/A
Nov. 09, 2018	3898	Extremity	1900	1.452	52.869	Pass	Pass	Pass	N/A	N/A	N/A
Jan. 16, 2019	3898	Extremity	2450	2.021	52.11	Pass	Pass	Pass	OFDM	N/A	Pass
Nov. 15, 2018	7472	Extremity	2600	2.194	50.921	Pass	Pass	Pass	GMSK	Pass	N/A
Jan. 16, 2019	3898	Extremity	5250	5.475	47.871	Pass	Pass	Pass	OFDM	N/A	Pass
Jan. 16, 2019	3898	Extremity	5600	5.961	47.19	Pass	Pass	Pass	OFDM	N/A	Pass
Jan. 16, 2019	3898	Extremity	5750	6.166	46.843	Pass	Pass	Pass	OFDM	N/A	Pass



**4.5 System Verification**

The measuring result for system verification is tabulated as below.

Test Date	Mode	Frequency (MHz)	1W Target SAR-1g (W/kg)	Measured SAR-1g (W/kg)	Normalized to 1W SAR-1g (W/kg)	Deviation (%)	Dipole S/N	Probe S/N	DAE S/N
Nov. 23, 2018	Body	750	8.62	2.31	9.24	7.19	1013	3971	1431
Nov. 23, 2018	Body	835	9.64	2.36	9.44	-2.07	4d121	3971	1431
Nov. 29, 2018	Body	835	9.64	2.25	9.00	-6.64	4d121	7472	1431
Dec. 24, 2018	Body	835	9.64	2.4	9.60	-0.41	4d121	3650	579
Nov. 21, 2018	Body	1750	36.90	8.94	35.76	-3.09	1055	3971	1431
Dec. 24, 2018	Body	1750	36.90	8.84	35.36	-4.17	1055	3650	579
Nov. 09, 2018	Body	1900	40.20	9.66	38.64	-3.88	5d036	3898	1277
Nov. 21, 2018	Body	1900	40.20	10.4	41.60	3.48	5d036	3971	1431
Jan. 04, 2019	Body	2450	50.50	11.9	47.60	-5.74	737	7472	1431
Nov. 23, 2018	Body	2600	55.30	13.5	54.00	-2.35	1020	3971	1431
Jan. 04, 2019	Body	5250	74.90	7.52	75.20	0.40	1019	7472	1431
Jan. 04, 2019	Body	5600	79.30	7.74	77.40	-2.40	1019	7472	1431
Jan. 04, 2019	Body	5750	74.50	7.84	78.40	5.23	1019	7472	1431

Test Date	Mode	Frequency (MHz)	1W Target SAR-10g (W/kg)	Measured SAR-10g (W/kg)	Normalized to 1W SAR-10g (W/kg)	Deviation (%)	Dipole S/N	Probe S/N	DAE S/N
Nov. 15, 2018	Extremity	750	5.71	1.5	6.00	5.08	1013	7472	861
Nov. 15, 2018	Extremity	835	6.32	1.62	6.48	2.53	4d121	7472	861
Jan. 17, 2019	Extremity	835	6.32	1.49	5.96	-5.70	4d121	3650	579
Nov. 15, 2018	Extremity	1750	19.70	4.79	19.16	-2.74	1055	7472	861
Jan. 17, 2019	Extremity	1750	19.70	4.67	18.68	-5.18	1055	3650	579
Nov. 09, 2018	Extremity	1900	21.20	5.09	20.36	-3.96	5d036	3898	1277
Jan. 16, 2019	Extremity	2450	23.80	5.99	23.96	0.67	737	3898	905
Nov. 15, 2018	Extremity	2600	24.70	5.77	23.08	-6.56	1020	7472	861
Jan. 16, 2019	Extremity	5250	20.80	2.05	20.50	-1.44	1019	3898	905
Jan. 16, 2019	Extremity	5600	22.20	2.37	23.70	6.76	1019	3898	905
Jan. 16, 2019	Extremity	5750	20.80	2.21	22.10	6.25	1019	3898	905

**Note:**

Comparing to the reference SAR value provided by SPEAG, the validation data should be within its specification of 10 %. The result indicates the system check can meet the variation criterion and the plots can be referred to Appendix A of this report.

**4.6 Maximum Output Power**

**4.6.1 Maximum Target Conducted Power**

The maximum conducted average power (Unit: dBm) including tune-up tolerance is shown as below.

Mode	Maximum Burst-Averaged Output Power		Maximum Frame-Averaged Output Power	
	GSM850	GSM1900	GSM850	GSM1900
GPRS (GMSK, 1Tx-slot)	34.00	31.00	25.00	22.00
GPRS (GMSK, 2Tx-slot)	31.50	28.00	25.50	22.00
GPRS (GMSK, 3Tx-slot)	29.50	26.00	25.24	21.74
GPRS (GMSK, 4Tx-slot)	<b>28.50</b>	<b>25.00</b>	25.50	22.00
EDGE (8PSK, 1Tx-slot)	28.00	26.00	19.00	17.00
EDGE (8PSK, 2Tx-slot)	26.00	24.00	20.00	18.00
EDGE (8PSK, 3Tx-slot)	24.00	22.00	19.74	17.74
EDGE (8PSK, 4Tx-slot)	22.00	21.00	19.00	18.00

**Note:**

- SAR testing was performed on the maximum frame-averaged power mode.
- The frame-averaged power is linearly proportion to the slot number configured and it is linearly scaled the maximum burst-averaged power based on time slots. The calculated method is shown as below:  

$$\text{Frame-averaged power} = 10 \times \log (\text{Burst-averaged power mW} \times \text{Slot used} / 8)$$

Mode	WCDMA Band II	WCDMA Band IV	WCDMA Band V
RMC 12.2K	<b>23.0</b>	<b>24.50</b>	<b>24.0</b>
HSDPA/ HSUPA/ DC-HSDPA	23.0	24.00	24.0

Mode	LTE 2	LTE 4	LTE 5	LTE 7
Maximum Target Power	<b>23.0</b>	<b>23.0</b>	<b>23.0</b>	<b>24.0</b>

Mode	LTE 12
Maximum Target Power	<b>23.0</b>

Mode	2.4G WLAN	5.2G WLAN	5.3G WLAN	5.6G WLAN	5.8G WLAN
802.11b	<b>16.0</b>	N/A	N/A	N/A	N/A
802.11g	14.5	N/A	N/A	N/A	N/A
802.11a	N/A	<b>13.0</b>	<b>12.0</b>	11.5	<b>12.5</b>
802.11n HT20	13.0	12.5	11.5	11.5	12.0
802.11n HT40	N/A	12.0	11.0	<b>12.0</b>	12.0
802.11ac VHT80	N/A	9.5	8.0	8.0	9.5

Mode	2.4G Bluetooth
Bluetooth DH	<b>8.5</b>
Bluetooth LE	8.0

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## 4.6.2 Measured Conducted Power Result

The measuring conducted average power (Unit: dBm) is shown as below.

Band	GSM850			GSM1900		
Channel	128	189	251	512	661	810
Frequency (MHz)	824.2	836.4	848.8	1850.2	1880.0	1909.8
<b>Maximum Burst- Averaged Output Power</b>						
GPRS (GMSK, 1Tx-slot)	32.47	32.71	<b>33.48</b>	29.63	29.55	<b>30.13</b>
GPRS (GMSK, 2Tx-slot)	30.20	30.43	31.20	26.69	26.61	27.19
GPRS (GMSK, 3Tx-slot)	28.38	28.61	29.38	24.89	24.81	25.39
GPRS (GMSK, 4Tx-slot)	<b>27.18</b>	<b>27.41</b>	<b>28.18</b>	<b>23.67</b>	<b>23.59</b>	<b>24.17</b>
EDGE (8PSK, 1Tx-slot)	26.34	26.57	27.34	25.31	25.23	25.81
EDGE (8PSK, 2Tx-slot)	24.03	24.23	25.02	22.94	22.86	23.44
EDGE (8PSK, 3Tx-slot)	22.15	22.38	23.15	21.00	20.92	21.50
EDGE (8PSK, 4Tx-slot)	20.95	21.18	21.95	19.80	19.72	20.30

Band	WCDMA Band II			WCDMA Band IV			WCDMA Band V			3GPP MPR (dB)
Channel	9262	9400	9538	1312	1413	1513	4132	4182	4233	
Frequency (MHz)	1852.4	1880.0	1907.6	1712.4	1732.6	1752.6	826.4	836.4	846.6	
RMC 12.2K	22.71	22.61	<b>22.88</b>	<b>24.08</b>	23.72	23.78	23.61	<b>23.63</b>	23.46	-
HSDPA Subtest-1	22.59	22.49	22.76	23.98	23.60	23.67	23.49	23.51	23.34	0
HSDPA Subtest-2	21.71	21.61	21.88	23.08	22.72	22.90	22.61	22.63	22.46	0
HSDPA Subtest-3	21.21	21.11	21.38	22.58	22.22	22.28	22.11	22.13	21.96	0.5
HSDPA Subtest-4	20.98	20.88	21.15	22.39	22.04	22.08	21.93	21.95	21.78	0.5
HSUPA Subtest-1	21.19	21.09	21.36	22.60	22.24	22.27	22.13	22.15	22.08	0
HSUPA Subtest-2	19.39	19.29	19.56	20.76	20.35	20.46	20.24	20.26	20.09	2
HSUPA Subtest-3	20.48	20.38	20.65	21.86	21.54	21.54	21.43	21.45	21.28	1
HSUPA Subtest-4	19.66	19.56	19.83	21.08	20.77	20.78	20.66	20.68	20.51	2
HSUPA Subtest-5	21.61	21.51	21.78	23.00	22.62	22.70	22.51	22.53	22.36	0

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LTE Band 2															
BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)	BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)
		Channel		18700	18900	19100				Channel		18675	18900	19125	
		Frequency (MHz)		1860.0	1880.0	1900.0				Frequency (MHz)		1857.5	1880.0	1902.5	
20M	QPSK	1	0	22.89	22.95	22.78	0	15M	QPSK	1	0	22.83	22.93	22.74	0
		1	50	22.37	22.43	22.26	0			1	37	22.29	22.34	22.24	0
		1	99	22.09	22.15	21.98	0			1	74	21.99	22.14	21.89	0
		50	0	21.86	21.92	21.75	1			36	0	21.78	21.87	21.73	1
		50	25	21.52	21.58	21.41	1			36	19	21.44	21.54	21.38	1
		50	50	21.50	21.56	21.39	1			36	39	21.40	21.48	21.38	1
		100	0	21.77	21.83	21.66	1			75	0	21.73	21.82	21.60	1
	16QAM	1	0	21.86	21.92	21.75	1		16QAM	1	0	21.77	21.90	21.71	1
		1	50	21.34	21.40	21.23	1			1	37	21.30	21.39	21.22	1
		1	99	21.06	21.12	20.95	1			1	74	21.06	21.10	20.92	1
		50	0	20.83	20.89	20.72	2			36	0	20.73	20.84	20.67	2
		50	25	20.49	20.55	20.38	2			36	19	20.41	20.45	20.33	2
		50	50	20.47	20.53	20.36	2			36	39	20.41	20.46	20.34	2
		100	0	20.74	20.80	20.63	2			75	0	20.69	20.80	20.62	2
10M	QPSK	1	0	22.82	22.79	22.67	0	5M	QPSK	1	0	22.64	22.79	22.55	0
		1	24	22.30	22.37	22.19	0			1	12	22.33	22.30	22.08	0
		1	49	21.92	22.07	21.82	0			1	24	21.92	21.94	21.69	0
		25	0	21.78	21.78	21.59	1			12	0	21.73	21.80	21.51	1
		25	12	21.45	21.36	21.26	1			12	6	21.43	21.41	21.28	1
		25	25	21.48	21.35	21.14	1			12	13	21.44	21.41	21.31	1
		50	0	21.67	21.73	21.50	1			25	0	21.67	21.70	21.58	1
	16QAM	1	0	21.75	21.84	21.75	1		16QAM	1	0	21.86	21.67	21.70	1
		1	24	21.22	21.22	21.08	1			1	12	21.29	21.31	21.08	1
		1	49	20.97	20.93	20.86	1			1	24	20.96	20.93	20.83	1
		25	0	20.70	20.80	20.58	2			12	0	20.64	20.73	20.61	2
		25	12	20.35	20.52	20.31	2			12	6	20.45	20.46	20.25	2
		25	25	20.27	20.46	20.11	2			12	13	20.34	20.45	20.26	2
		50	0	20.64	20.62	20.43	2			25	0	20.60	20.63	20.48	2
3M	QPSK	1	0	22.77	22.78	22.63	0	1.4M	QPSK	1	0	22.73	22.82	22.77	0
		1	7	22.30	22.28	22.09	0			1	2	22.21	22.28	22.10	0
		1	14	21.98	21.97	21.82	0			1	5	21.90	21.96	21.87	0
		8	0	21.78	21.82	21.64	1			3	0	22.79	22.76	22.70	0
		8	3	21.38	21.55	21.26	1			3	1	22.37	22.51	22.29	0
		8	7	21.33	21.41	21.32	1			3	3	22.45	22.39	22.24	0
		15	0	21.54	21.67	21.55	1			6	0	21.65	21.63	21.43	1
	16QAM	1	0	21.62	21.79	21.56	1		16QAM	1	0	21.66	21.84	21.58	1
		1	7	21.18	21.22	21.18	1			1	2	21.24	21.35	21.14	1
		1	14	20.81	21.01	20.84	1			1	5	20.96	20.96	20.81	1
		8	0	20.72	20.81	20.64	2			3	0	21.65	21.77	21.57	1
		8	3	20.37	20.51	20.20	2			3	1	21.44	21.39	21.23	1
		8	7	20.39	20.36	20.26	2			3	3	21.31	21.39	21.24	1
		15	0	20.72	20.58	20.57	2			6	0	20.57	20.69	20.45	2

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LTE Band 4															
BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)	BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)
		Channel		20050	20175	20300				Channel		20025	20175	20325	
		Frequency (MHz)		1720.0	1732.5	1745.0				Frequency (MHz)		1717.5	1732.5	1747.5	
20M	QPSK	1	0	22.83	22.86	22.81	0	15M	QPSK	1	0	22.83	22.85	22.72	0
		1	50	22.18	22.21	22.16	0			1	37	22.13	22.20	22.07	0
		1	99	21.86	21.89	21.84	0			1	74	21.83	21.85	21.77	0
		50	0	21.80	21.83	21.78	1			36	0	21.73	21.82	21.73	1
		50	25	21.50	21.53	21.48	1			36	19	21.47	21.51	21.41	1
		50	50	21.35	21.38	21.33	1			36	39	21.35	21.38	21.28	1
		100	0	21.64	21.67	21.62	1			75	0	21.60	21.64	21.52	1
	16QAM	1	0	21.81	21.84	21.79	1		16QAM	1	0	21.76	21.79	21.78	1
		1	50	21.16	21.19	21.14	1			1	37	21.15	21.12	21.05	1
		1	99	20.84	20.87	20.82	1			1	74	20.78	20.81	20.73	1
		50	0	20.78	20.81	20.76	2			36	0	20.68	20.76	20.67	2
		50	25	20.48	20.51	20.46	2			36	19	20.48	20.46	20.41	2
		50	50	20.33	20.36	20.31	2			36	39	20.28	20.36	20.23	2
		100	0	20.62	20.65	20.60	2			75	0	20.57	20.57	20.52	2
10M	QPSK	1	0	22.73	22.72	22.76	0	5M	QPSK	1	0	22.64	22.71	22.50	0
		1	24	22.10	22.07	22.10	0			1	12	22.08	22.05	21.93	0
		1	49	21.64	21.69	21.75	0			1	24	21.71	21.80	21.67	0
		25	0	21.73	21.63	21.74	1			12	0	21.77	21.83	21.64	1
		25	12	21.31	21.41	21.31	1			12	6	21.41	21.40	21.31	1
		25	25	21.23	21.20	21.18	1			12	13	21.12	21.26	21.06	1
		50	0	21.49	21.58	21.53	1			25	0	21.51	21.51	21.38	1
	16QAM	1	0	21.58	21.78	21.68	1		16QAM	1	0	21.68	21.73	21.65	1
		1	24	21.12	21.01	21.02	1			1	12	21.12	20.95	21.09	1
		1	49	20.70	20.68	20.59	1			1	24	20.69	20.80	20.71	1
		25	0	20.59	20.78	20.61	2			12	0	20.66	20.69	20.64	2
		25	12	20.31	20.35	20.42	2			12	6	20.36	20.28	20.40	2
		25	25	20.17	20.27	20.14	2			12	13	20.14	20.22	20.18	2
		50	0	20.51	20.53	20.49	2			25	0	20.58	20.47	20.49	2
3M	QPSK	1	0	22.71	22.81	22.66	0	1.4M	QPSK	1	0	22.74	22.74	22.63	0
		1	7	22.14	22.19	22.06	0			1	2	21.99	22.18	21.98	0
		1	14	21.74	21.81	21.69	0			1	5	21.72	21.81	21.78	0
		8	0	21.75	21.69	21.67	1			3	0	22.68	22.76	22.64	0
		8	3	21.38	21.44	21.43	1			3	1	22.39	22.50	22.28	0
		8	7	21.18	21.17	21.27	1			3	3	22.28	22.24	22.24	0
		15	0	21.43	21.55	21.52	1			6	0	21.61	21.60	21.47	1
	16QAM	1	0	21.67	21.64	21.59	1		16QAM	1	0	21.75	21.73	21.62	1
		1	7	21.11	20.95	21.02	1			1	2	20.93	20.97	21.05	1
		1	14	20.64	20.78	20.76	1			1	5	20.70	20.76	20.65	1
		8	0	20.62	20.57	20.62	2			3	0	21.68	21.74	21.68	1
		8	3	20.31	20.37	20.27	2			3	1	21.33	21.40	21.33	1
		8	7	20.14	20.17	20.20	2			3	3	21.22	21.19	21.24	1
		15	0	20.43	20.53	20.49	2			6	0	20.53	20.61	20.53	2

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LTE Band 5															
BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)	BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)
		Channel		20450	20525	20600				Channel		20425	20525	20625	
		Frequency (MHz)		829.0	836.5	844.0				Frequency (MHz)		826.5	836.5	846.5	
10M	QPSK	1	0	22.37	22.17	22.26	0	5M	QPSK	1	0	22.33	22.17	22.25	0
		1	24	22.23	22.03	22.12	0			1	12	22.21	21.96	22.07	0
		1	49	22.21	22.01	22.10	0			1	24	22.21	21.98	22.10	0
		25	0	21.67	21.47	21.56	1			12	0	21.64	21.38	21.48	1
		25	12	21.63	21.43	21.52	1			12	6	21.53	21.39	21.43	1
		25	25	21.58	21.38	21.47	1			12	13	21.48	21.30	21.45	1
	50	0	21.66	21.46	21.55	1	25		0	21.59	21.43	21.49	1		
	16QAM	1	0	21.32	21.12	21.21	1		16QAM	1	0	21.28	21.08	21.19	1
		1	24	21.18	20.98	21.07	1			1	12	21.10	20.98	20.99	1
		1	49	21.16	20.96	21.05	1			1	24	21.10	20.96	20.99	1
		25	0	20.62	20.42	20.51	2			12	0	20.54	20.32	20.44	2
		25	12	20.58	20.38	20.47	2			12	6	20.48	20.33	20.37	2
		25	25	20.53	20.33	20.42	2			12	13	20.46	20.27	20.41	2
	50	0	20.61	20.41	20.50	2	25		0	20.55	20.36	20.47	2		
BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)	BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)
		Channel		20415	20525	20635				Channel		20407	20525	20643	
		Frequency (MHz)		825.5	836.5	847.5				Frequency (MHz)		824.7	836.5	848.3	
3M	QPSK	1	0	22.21	21.98	22.12	0	1.4M	QPSK	1	0	22.16	22.06	22.12	0
		1	7	22.10	21.99	22.04	0			1	2	22.20	21.98	21.93	0
		1	14	22.03	21.87	21.93	0			1	5	22.15	21.89	21.96	0
		8	0	21.66	21.34	21.41	1			3	0	22.56	22.27	22.51	0
		8	3	21.40	21.29	21.46	1			3	1	22.46	22.25	22.39	0
		8	7	21.36	21.21	21.38	1			3	3	22.39	22.30	22.40	0
	15	0	21.49	21.21	21.44	1	6		0	21.52	21.34	21.47	1		
	16QAM	1	0	21.31	21.03	21.08	1		16QAM	1	0	21.12	21.02	21.08	1
		1	7	21.16	20.83	20.92	1			1	2	21.05	20.87	20.87	1
		1	14	20.99	20.81	20.90	1			1	5	21.04	20.92	20.91	1
		8	0	20.47	20.40	20.45	2			3	0	21.51	21.26	21.43	1
		8	3	20.38	20.21	20.34	2			3	1	21.42	21.24	21.26	1
		8	7	20.37	20.20	20.24	2			3	3	21.37	21.18	21.22	1
		15	0	20.51	20.20	20.33	2			6	0	20.44	20.36	20.34	2

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LTE Band 7															
BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)	BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)
		Channel		20850	21100	21350				Channel		20825	21100	21375	
		Frequency (MHz)		2510.0	2535.0	2560.0				Frequency (MHz)		2507.5	2535.0	2562.5	
20M	QPSK	1	0	23.02	23.07	<b>23.16</b>	0	15M	QPSK	1	0	22.93	23.05	23.14	0
		1	50	22.16	22.21	22.30	0			1	37	22.16	22.15	22.20	0
		1	99	22.26	22.31	22.40	0			1	74	22.17	22.23	22.39	0
		50	0	21.98	22.03	<b>22.12</b>	1			36	0	21.91	22.02	22.08	1
		50	25	21.60	21.65	21.74	1			36	19	21.55	21.63	21.71	1
		50	50	21.68	21.73	21.82	1			36	39	21.61	21.66	21.82	1
		100	0	21.88	21.93	<b>22.02</b>	1			75	0	21.81	21.83	22.02	1
	16QAM	1	0	22.03	22.08	22.17	1		16QAM	1	0	22.00	22.05	22.15	1
		1	50	21.17	21.22	21.31	1			1	37	21.10	21.16	21.28	1
		1	99	21.27	21.32	21.41	1			1	74	21.20	21.32	21.41	1
		50	0	20.99	21.04	21.13	2			36	0	20.90	21.00	21.05	2
		50	25	20.61	20.66	20.75	2			36	19	20.56	20.56	20.66	2
		50	50	20.69	20.74	20.83	2			36	39	20.69	20.67	20.75	2
		100	0	20.89	20.94	21.03	2			75	0	20.85	20.88	21.02	2
BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)	BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)
		Channel		20800	21100	21400				Channel		20775	21100	21425	
		Frequency (MHz)		2505.0	2535.0	2565.0				Frequency (MHz)		2502.5	2535.0	2567.5	
10M	QPSK	1	0	22.86	22.94	22.96	0	5M	QPSK	1	0	22.92	22.90	22.92	0
		1	24	22.08	22.03	22.12	0			1	12	22.09	22.05	22.18	0
		1	49	22.16	22.24	22.32	0			1	24	22.19	22.17	22.23	0
		25	0	21.82	21.88	22.04	1			12	0	21.94	21.79	21.92	1
		25	12	21.50	21.58	21.63	1			12	6	21.56	21.61	21.54	1
		25	25	21.54	21.53	21.72	1			12	13	21.60	21.55	21.66	1
		50	0	21.84	21.77	21.83	1			25	0	21.80	21.87	21.79	1
	16QAM	1	0	21.91	21.98	22.10	1		16QAM	1	0	21.99	21.94	22.01	1
		1	24	21.16	21.14	21.19	1			1	12	21.01	21.03	21.30	1
		1	49	21.06	21.27	21.30	1			1	24	21.20	21.20	21.28	1
		25	0	20.87	20.88	20.95	2			12	0	20.75	20.97	21.10	2
		25	12	20.52	20.52	20.59	2			12	6	20.50	20.52	20.60	2
		25	25	20.61	20.57	20.66	2			12	13	20.59	20.63	20.75	2
		50	0	20.81	20.85	20.88	2			25	0	20.71	20.81	21.00	2

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LTE Band 12															
BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)	BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)
		Channel		23060	23095	23130				Channel		23035	23095	23155	
		Frequency (MHz)		704.0	707.5	711.0				Frequency (MHz)		701.5	707.5	713.5	
10M	QPSK	1	0	22.25	<b>22.31</b>	22.23	0	5M	QPSK	1	0	22.25	22.24	22.15	0
		1	24	22.15	22.21	22.13	0			1	12	22.13	22.17	22.13	0
		1	49	21.96	22.02	21.94	0			1	24	21.96	22.00	21.86	0
		25	0	21.51	<b>21.57</b>	21.49	1			12	0	21.50	21.53	21.42	1
		25	12	21.47	21.53	21.45	1			12	6	21.40	21.45	21.44	1
		25	25	21.39	21.45	21.37	1			12	13	21.37	21.35	21.28	1
	50	0	21.41	21.47	21.39	1	25		0	21.39	21.45	21.30	1		
	16QAM	1	0	21.19	21.25	21.17	1		16QAM	1	0	21.14	21.25	21.16	1
		1	24	21.09	21.15	21.07	1			1	12	21.03	21.05	21.00	1
		1	49	20.90	20.96	20.88	1			1	24	20.87	20.95	20.84	1
		25	0	20.45	20.51	20.43	2			12	0	20.37	20.50	20.42	2
		25	12	20.41	20.47	20.39	2			12	6	20.41	20.46	20.35	2
		25	25	20.33	20.39	20.31	2			12	13	20.23	20.35	20.22	2
	50	0	20.35	20.41	20.33	2	25		0	20.30	20.33	20.30	2		
BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)	BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)
		Channel		23025	23095	23165				Channel		23017	23095	23173	
		Frequency (MHz)		700.5	707.5	714.5				Frequency (MHz)		699.7	707.5	715.3	
3M	QPSK	1	0	22.21	22.25	22.11	0	1.4M	QPSK	1	0	22.16	22.29	22.19	0
		1	7	21.97	22.18	22.06	0			1	2	22.08	21.99	22.04	0
		1	14	21.75	21.91	21.75	0			1	5	21.78	21.86	21.87	0
		8	0	21.43	21.36	21.39	1			3	0	22.35	<b>22.52</b>	22.36	0
		8	3	21.36	21.35	21.41	1			3	1	22.40	22.41	22.38	0
		8	7	21.24	21.42	21.19	1			3	3	22.26	22.40	22.20	0
	15	0	21.29	21.39	21.23	1	6		0	21.26	21.41	21.24	1		
	16QAM	1	0	21.09	21.08	21.04	1		16QAM	1	0	21.11	21.11	21.01	1
		1	7	20.87	21.05	20.87	1			1	2	20.91	20.98	21.01	1
		1	14	20.79	20.80	20.81	1			1	5	20.67	20.87	20.66	1
		8	0	20.33	20.32	20.29	2			3	0	21.27	21.41	21.29	1
		8	3	20.28	20.28	20.38	2			3	1	21.24	21.29	21.33	1
		8	7	20.15	20.30	20.18	2			3	3	21.32	21.20	21.12	1
	15	0	20.25	20.35	20.22	2	6		0	20.25	20.29	20.23	2		

## <WLAN 2.4G>

Mode	Channel	Frequency (MHz)	Average Power
802.11b	1	2412	14.95
	6	2437	14.88
	11	2462	<b>15.76</b>

## <WLAN 5.2G>

Mode	Channel	Frequency (MHz)	Average Power
802.11a	36	5180	12.43
	40	5200	12.24
	44	5220	<b>12.67</b>
	48	5240	12.07

## <WLAN 5.3G>

Mode	Channel	Frequency (MHz)	Average Power
802.11a	52	5260	<b>11.72</b>
	56	5280	11.45
	60	5300	11.21
	64	5320	11.05



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## <WLAN 5.6G>

Mode	Channel	Frequency (MHz)	Average Power
802.11n (HT40)	102	5510	10.38
	110	5550	10.83
	118	5590	10.34
	126	5630	10.53
	134	5670	<b>11.68</b>

## <WLAN 5.8G>

Mode	Channel	Frequency (MHz)	Average Power
802.11a	149	5745	11.95
	153	5765	12.12
	157	5785	<b>12.26</b>
	161	5805	12.09
	165	5825	12.11

## <Bluetooth>

Mode	Channel	Frequency (MHz)	Average Power
Bluetooth EDR	0	2402	7.25
	39	2441	<b>8.11</b>
	78	2480	5.18

## **4.7 SAR Testing Results**

### **4.7.1 SAR Test Reduction Considerations**

#### **<KDB 447498 D01, General RF Exposure Guidance>**

Testing of other required channels within the operating mode of a frequency band is not required when the reported SAR for the mid-band or highest output power channel is:

- (1)  $\leq 0.8$  W/kg or 2.0 W/kg, for 1-g or 10-g respectively, when the transmission band is  $\leq 100$  MHz
- (2)  $\leq 0.6$  W/kg or 1.5 W/kg, for 1-g or 10-g respectively, when the transmission band is between 100 MHz and 200 MHz
- (3)  $\leq 0.4$  W/kg or 1.0 W/kg, for 1-g or 10-g respectively, when the transmission band is  $\geq 200$  MHz

When SAR is not measured at the maximum power level allowed for production units, the measured SAR will be scaled to the maximum tune-up tolerance limit to determine compliance. The scaling factor for the tune-up power is defined as maximum tune-up limit (mW) / measured conducted power (mW). The reported SAR would be calculated by measured SAR x tune-up power scaling factor.

The SAR has been measured with highest transmission duty factor supported by the test mode tools for WLAN and/or Bluetooth. When the transmission duty factor could not achieve 100%, the reported SAR will be scaled to 100% transmission duty factor to determine compliance at the maximum tune-up power. The scaling factor for the duty factor is defined as 100% / transmission duty cycle (%). The reported SAR would be calculated by measured SAR x tune-up power scaling factor x duty cycle scaling factor.

#### **<KDB 941225 D01, 3G SAR Measurement Procedures>**

The mode tested for SAR is referred to as the primary mode. The equivalent modes considered for SAR test reduction are denoted as secondary modes. Both primary and secondary modes must be in the same frequency band. When the maximum output power and tune-up tolerance specified for production units in a secondary mode is  $\leq 1/4$  dB higher than the primary mode or when the highest reported SAR of the primary mode is scaled by the ratio of specified maximum output power and tune-up tolerance of secondary to primary mode and the adjusted SAR is  $\leq 1.2$  W/kg, SAR measurement is not required for the secondary mode.

#### **<KDB 941225 D05, SAR Evaluation Considerations for LTE Devices>**

- (1) QPSK with 1 RB and 50% RB allocation

Start with the largest channel bandwidth and measure SAR, using the RB offset and required test channel combination with the highest maximum output power among RB offsets at the upper edge, middle and lower edge of each required test channel. When the reported SAR is  $\leq 0.8$  W/kg, testing of the remaining RB offset configurations and required test channels is not required; 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 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 are  $\leq 0.8$  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.

(3) Higher order modulations

SAR is required only when the highest maximum output power for the configuration in the higher order modulation is  $> 1/2$  dB higher than the same configuration in QPSK or when the reported SAR for the QPSK configuration is  $> 1.45$  W/kg.

(4) Other channel bandwidth

SAR is required when the highest maximum output power of the smaller channel bandwidth is  $> 1/2$  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.

### <KDB 248227 D01, SAR Guidance for Wi-Fi Transmitters>

- (1) For handsets operating next to ear, hotspot mode or mini-tablet configurations, the initial test position procedures were applied. The test position with the highest extrapolated peak SAR will be used as the initial test position. When the reported SAR of initial test position is  $\leq 0.4$  W/kg, SAR testing for remaining test positions is not required. Otherwise, SAR is evaluated at the subsequent highest peak SAR positions until the reported SAR result is  $\leq 0.8$  W/kg or all test positions are measured.
- (2) For WLAN 2.4 GHz, the highest measured maximum output power channel for DSSS was selected for SAR measurement. When the reported SAR is  $\leq 0.8$  W/kg, no further SAR testing is required. Otherwise, SAR is evaluated at the next highest measured output power channel. When any reported SAR is  $> 1.2$  W/kg, SAR is required for the third channel. For OFDM modes (802.11g/n), SAR is not required when the highest reported SAR for DSSS is adjusted by the ratio of OFDM to DSSS specified maximum output power and it is  $\leq 1.2$  W/kg.
- (3) For WLAN 5 GHz, the initial test configuration was selected according to the transmission mode with the highest maximum output power. When the reported SAR of initial test configuration is  $> 0.8$  W/kg, SAR is required for the subsequent highest measured output power channel until the reported SAR result is  $\leq 1.2$  W/kg or all required channels are measured. For other transmission modes, SAR is not required when the highest reported SAR for initial test configuration is adjusted by the ratio of subsequent test configuration to initial test configuration specified maximum output power and it is  $\leq 1.2$  W/kg.

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## 4.7.2 SAR Results for Body Exposure Condition (Test Separation Distance is 0 mm)

Plot No.	Band	Mode	Test Position	Ch.	Battery	Max. Tune-up Power (dBm)	Measured Conducted Power (dBm)	Scaling Factor	Power Drift (dB)	Measured SAR-1g (W/kg)	Scaled SAR-1g (W/kg)
01	GSM850	GPRS12	Rear Face	251	2	28.5	28.18	1.08	-0.06	1.20	<b>1.30</b>
	GSM850	GPRS12	Rear Face	128	2	28.5	27.18	1.36	0.05	0.942	1.28
	GSM850	GPRS12	Rear Face	189	2	28.5	27.41	1.29	0.10	0.996	1.28
	GSM850	GPRS12	Rear Face	251	1	28.5	28.18	1.08	0.05	0.966	1.04
	GSM850	GPRS12	Rear Face	251	2	28.5	28.18	1.08	0.03	1.11	1.20
02	GSM1900	GPRS12	Rear Face	810	2	25.0	24.17	1.21	-0.03	0.608	<b>0.74</b>
	GSM1900	GPRS12	Rear Face	512	2	25.0	23.67	1.36	0.01	0.533	0.72
	GSM1900	GPRS12	Rear Face	661	2	25.0	23.59	1.38	0.06	0.53	0.73
	GSM1900	GPRS12	Rear Face	810	1	25.0	24.17	1.21	0.03	0.537	0.65
03	WCDMA II	RMC122K	Rear Face	9538	2	23.0	22.88	1.03	-0.05	1.14	<b>1.17</b>
	WCDMA II	RMC122K	Rear Face	9262	2	23.0	22.71	1.07	0.13	1.04	1.11
	WCDMA II	RMC122K	Rear Face	9400	2	23.0	22.61	1.09	-0.05	1.07	1.17
	WCDMA II	RMC122K	Rear Face	9538	1	23.0	22.88	1.03	0.11	1.09	1.12
	WCDMA II	RMC122K	Rear Face	9538	2	23.0	22.88	1.03	0.07	1.08	1.11
04	WCDMA IV	RMC122K	Rear Face	1312	2	24.5	24.08	1.10	-0.01	1.08	<b>1.19</b>
	WCDMA IV	RMC122K	Rear Face	1413	2	24.5	23.72	1.20	0.03	0.957	1.15
	WCDMA IV	RMC122K	Rear Face	1513	2	24.5	23.78	1.18	0.12	0.993	1.17
	WCDMA IV	RMC122K	Rear Face	1312	1	24.5	24.08	1.10	-0.05	0.981	1.08
	WCDMA IV	RMC122K	Rear Face	1312	2	24.5	24.08	1.10	0.06	1.04	1.14
	WCDMA V	RMC122K	Rear Face	4182	2	24.0	23.63	1.09	-0.01	0.778	0.85
05	WCDMA V	RMC122K	Rear Face	4132	2	24.0	23.61	1.09	-0.06	0.816	<b>0.89</b>
	WCDMA V	RMC122K	Rear Face	4233	2	24.0	23.46	1.13	0.02	0.765	0.86
	WCDMA V	RMC122K	Rear Face	4132	1	24.0	23.61	1.09	0.17	0.808	0.88
	WCDMA V	RMC122K	Rear Face	4132	2	24.0	23.61	1.09	0.13	0.798	0.87

Plot No.	Band	Mode	Test Position	Ch.	RB#	RB Offset	Battery	Max. Tune-up Power (dBm)	Measured Conducted Power (dBm)	Scaling Factor	Power Drift (dB)	Measured SAR-1g (W/kg)	Scaled SAR-1g (W/kg)
06	LTE 2	QPSK20M	Rear Face	18900	1	0	2	23.0	22.95	1.01	0.16	1.01	1.02
	LTE 2	QPSK20M	Rear Face	18900	50	0	2	22.0	21.92	1.02	0.14	0.803	0.82
	LTE 2	QPSK20M	Rear Face	18700	1	0	2	23.0	22.89	1.03	0.03	0.988	1.02
	LTE 2	QPSK20M	Rear Face	19100	1	0	2	23.0	22.78	1.05	-0.01	1.04	<b>1.09</b>
	LTE 2	QPSK20M	Rear Face	18700	50	0	2	22.0	21.86	1.03	-0.01	0.819	0.84
	LTE 2	QPSK20M	Rear Face	19100	50	0	2	22.0	21.75	1.06	-0.16	0.811	0.86
	LTE 2	QPSK20M	Rear Face	18900	100	0	2	22.0	21.83	1.04	-0.08	0.800	0.83
	LTE 2	QPSK20M	Rear Face	19100	1	0	1	23.0	22.78	1.05	0.14	0.99	1.04
	LTE 2	QPSK20M	Rear Face	18700	1	0	1	23.0	22.89	1.03	-0.12	1.03	1.06
	LTE 2	QPSK20M	Rear Face	18900	1	0	1	23.0	22.95	1.01	0.10	1.03	1.04
07	LTE 2	QPSK20M	Rear Face	19100	1	0	2	23.0	22.78	1.05	0.17	0.959	1.01
	LTE 4	QPSK20M	Rear Face	20175	1	0	2	23.0	22.86	1.03	-0.06	1.00	<b>1.03</b>
	LTE 4	QPSK20M	Rear Face	20175	50	0	2	22.0	21.83	1.04	0.04	0.812	0.84
	LTE 4	QPSK20M	Rear Face	20050	1	0	2	23.0	22.83	1.04	-0.13	0.98	1.02
	LTE 4	QPSK20M	Rear Face	20300	1	0	2	23.0	22.81	1.04	-0.12	0.969	1.01
	LTE 4	QPSK20M	Rear Face	20050	50	0	2	22.0	21.80	1.05	-0.11	0.749	0.79
	LTE 4	QPSK20M	Rear Face	20300	50	0	2	22.0	21.78	1.05	0.06	0.719	0.75
	LTE 4	QPSK20M	Rear Face	20175	100	0	2	22.0	21.67	1.08	0.08	0.699	0.75
	LTE 4	QPSK20M	Rear Face	20175	1	0	1	23.0	22.86	1.03	-0.13	0.949	0.98
	LTE 4	QPSK20M	Rear Face	20050	1	0	1	23.0	22.83	1.04	0.14	0.897	0.93
	LTE 4	QPSK20M	Rear Face	20300	1	0	1	23.0	22.81	1.04	0.03	0.863	0.90
	LTE 4	QPSK20M	Rear Face	20175	1	0	2	23.0	22.86	1.03	-0.17	0.973	1.00

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Plot No.	Band	Mode	Test Position	Ch.	RB#	RB Offset	Battery	Max. Tune-up Power (dBm)	Measured Conducted Power (dBm)	Scaling Factor	Power Drift (dB)	Measured SAR-1g (W/kg)	Scaled SAR-1g (W/kg)
08	LTE 5	QPSK10M	Rear Face	20450	1	0	2	23.0	22.37	1.16	-0.17	0.665	<b>0.77</b>
	LTE 5	QPSK10M	Rear Face	20450	25	0	2	22.0	21.67	1.08	0.02	0.556	0.60
	LTE 5	QPSK10M	Rear Face	20525	1	0	2	23.0	22.17	1.21	0.15	0.638	0.77
	LTE 5	QPSK10M	Rear Face	20600	1	0	2	23.0	22.26	1.19	-0.06	0.643	0.77
	LTE 5	QPSK10M	Rear Face	20450	1	0	1	23.0	22.37	1.16	-0.10	0.658	0.76
09	LTE 7	QPSK20M	Rear Face	21350	1	0	2	24.0	23.16	1.21	0.04	0.884	1.07
	LTE 7	QPSK20M	Rear Face	21350	50	0	2	23.0	22.12	1.22	0.18	0.69	0.84
	LTE 7	QPSK20M	Rear Face	20850	1	0	2	24.0	23.02	1.25	0.13	1.05	<b>1.31</b>
	LTE 7	QPSK20M	Rear Face	21100	1	0	2	24.0	23.07	1.24	-0.07	0.958	1.19
	LTE 7	QPSK20M	Rear Face	20850	50	0	2	23.0	21.98	1.26	-0.14	0.728	0.92
	LTE 7	QPSK20M	Rear Face	21100	50	0	2	23.0	22.03	1.25	0.16	0.672	0.84
	LTE 7	QPSK20M	Rear Face	21350	100	0	2	23.0	22.02	1.25	0.01	0.591	0.74
	LTE 7	QPSK20M	Rear Face	20850	1	0	1	24.0	23.02	1.25	-0.01	0.971	1.21
10	LTE 7	QPSK20M	Rear Face	21100	1	0	1	24.0	23.07	1.24	0.16	0.817	1.01
	LTE 7	QPSK20M	Rear Face	21350	1	0	1	24.0	23.16	1.21	-0.17	0.797	0.96
	LTE 7	QPSK20M	Rear Face	20850	1	0	2	24.0	23.02	1.25	-0.01	1.02	1.28
	LTE 12	QPSK10M	Rear Face	23095	1	0	2	23.0	22.31	1.17	-0.13	0.716	<b>0.84</b>
	LTE 12	QPSK10M	Rear Face	23095	25	0	2	22.0	21.57	1.10	0.02	0.573	0.63
	LTE 12	QPSK10M	Rear Face	23060	1	0	2	23.0	22.25	1.19	0.10	0.664	0.79
	LTE 12	QPSK10M	Rear Face	23130	1	0	2	23.0	22.23	1.19	0.08	0.698	0.83
	LTE 12	QPSK10M	Rear Face	23095	1	0	1	23.0	22.31	1.17	0.02	0.666	0.78

Plot No.	Band	Mode	Test Position	Ch.	Battery	Duty Cycle	Crest Factor	Max. Tune-up Power (dBm)	Measured Conducted Power (dBm)	Scaling Factor	Power Drift (dB)	Measured SAR-1g (W/kg)	Scaled SAR-1g (W/kg)
11	WLAN 2.4G	802.11b	Rear Face	11	2	100.00	1.00	16.0	15.76	1.06	0.10	0.089	<b>0.09</b>
	WLAN 2.4G	802.11b	Rear Face	1	2	100.00	1.00	16.0	14.95	1.27	0.05	0.071	0.09
	WLAN 2.4G	802.11b	Rear Face	6	2	100.00	1.00	16.0	14.88	1.29	-0.09	0.065	0.08
	WLAN 2.4G	802.11b	Rear Face	11	1	100.00	1.00	16.0	15.76	1.06	0.13	0.074	0.08
12	WLAN 5.2G	802.11a	Rear Face	44	2	85.00	1.18	13.0	12.67	1.08	-0.09	0.014	<b>0.02</b>
	WLAN 5.2G	802.11a	Rear Face	36	2	85.00	1.18	13.0	12.43	1.14	0.08	0.012	0.02
	WLAN 5.2G	802.11a	Rear Face	40	2	85.00	1.18	13.0	12.24	1.19	-0.02	0.00996	0.01
	WLAN 5.2G	802.11a	Rear Face	48	2	85.00	1.18	13.0	12.07	1.24	0.01	0.00983	0.01
	WLAN 5.2G	802.11a	Rear Face	44	1	85.00	1.18	13.0	12.67	1.08	0.06	0.011	0.01
13	WLAN 5.3G	802.11a	Rear Face	52	2	85.00	1.18	12.0	11.72	1.07	0.09	0.013	<b>0.02</b>
	WLAN 5.3G	802.11a	Rear Face	56	2	85.00	1.18	12.0	11.45	1.14	0.01	0.011	0.01
	WLAN 5.3G	802.11a	Rear Face	60	2	85.00	1.18	12.0	11.21	1.20	-0.09	0.00985	0.01
	WLAN 5.3G	802.11a	Rear Face	64	2	85.00	1.18	12.0	11.05	1.24	0.03	0.00973	0.01
	WLAN 5.3G	802.11a	Rear Face	52	1	85.00	1.18	12.0	11.72	1.07	0.05	0.011	0.01
14	WLAN 5.6G	802.11nHT40	Rear Face	134	2	91.70	1.09	12.0	11.68	1.08	0.13	0.030	<b>0.04</b>
	WLAN 5.6G	802.11nHT40	Rear Face	102	2	91.70	1.09	12.0	10.38	1.45	-0.12	0.019	0.03
	WLAN 5.6G	802.11nHT40	Rear Face	110	2	91.70	1.09	12.0	10.83	1.31	0.07	0.021	0.03
	WLAN 5.6G	802.11nHT40	Rear Face	118	2	91.70	1.09	12.0	10.34	1.47	0.03	0.023	0.04
	WLAN 5.6G	802.11nHT40	Rear Face	126	2	91.70	1.09	12.0	10.53	1.40	-0.02	0.024	0.04
	WLAN 5.6G	802.11nHT40	Rear Face	134	1	91.70	1.09	12.0	11.68	1.08	0.09	0.021	0.02
15	WLAN 5.8G	802.11a	Rear Face	157	2	85.00	1.18	12.5	12.26	1.06	-0.01	0.026	<b>0.03</b>
	WLAN 5.8G	802.11a	Rear Face	149	2	85.00	1.18	12.5	11.95	1.14	0.08	0.023	0.03
	WLAN 5.8G	802.11a	Rear Face	153	2	85.00	1.18	12.5	12.12	1.09	-0.03	0.021	0.03
	WLAN 5.8G	802.11a	Rear Face	161	2	85.00	1.18	12.5	12.09	1.10	0.14	0.022	0.03
	WLAN 5.8G	802.11a	Rear Face	165	2	85.00	1.18	12.5	12.11	1.09	0.05	0.019	0.02
	WLAN 5.8G	802.11a	Rear Face	157	1	85.00	1.18	12.5	12.26	1.06	-0.02	0.023	0.03
	BT	BR / EDR	Rear Face	39	2	76.61	1.31	8.5	8.11	1.09	0.00	<0.001	0.00
BT	BR / EDR	Rear Face	0	2	76.61	1.31	8.5	7.25	1.33	0.00	<0.001	0.00	
BT	BR / EDR	Rear Face	78	2	76.61	1.31	8.5	5.18	2.15	0.00	<0.001	0.00	
BT	BR / EDR	Rear Face	39	1	76.61	1.31	8.5	8.11	1.09	0.00	<0.001	0.00	

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## 4.7.3 SAR Results for Extremity Exposure Condition (Test Separation Distance is 0 mm)

Plot No.	Band	Mode	Test Position	Ch.	Battery	Max. Tune-up Power (dBm)	Measured Conducted Power (dBm)	Scaling Factor	Power Drift (dB)	Measured SAR-10g (W/kg)	Scaled SAR-10g (W/kg)
	GSM850	GPRS12	Rear Face	251	2	28.5	28.18	1.08	0.05	0.871	0.94
	GSM850	GPRS12	Left Side	251	2	28.5	28.18	1.08	0.10	0.196	0.21
16	GSM850	GPRS12	Right Side	251	2	28.5	28.18	1.08	-0.12	1.29	1.39
	GSM850	GPRS12	Right Side	128	2	28.5	27.18	1.36	0.09	1.01	1.37
	GSM850	GPRS12	Right Side	189	2	28.5	27.41	1.29	-0.10	0.99	1.28
	GSM850	GPRS12	Right Side	251	1	28.5	28.18	1.08	0.03	1.12	1.21
	GSM1900	GPRS12	Rear Face	810	2	25.0	24.17	1.21	-0.03	0.347	0.42
	GSM1900	GPRS12	Left Side	810	2	25.0	24.17	1.21	-0.08	0.0792	0.10
17	GSM1900	GPRS12	Right Side	810	2	25.0	24.17	1.21	0.13	2.28	2.78
	GSM1900	GPRS12	Right Side	512	2	25.0	23.67	1.36	0.11	1.95	2.65
	GSM1900	GPRS12	Right Side	661	2	25.0	23.59	1.38	0.12	1.98	2.73
	GSM1900	GPRS12	Right Side	810	1	25.0	24.17	1.21	-0.05	2.17	2.63
	GSM1900	GPRS12	Right Side	512	1	25.0	23.67	1.36	0.01	1.79	2.43
	GSM1900	GPRS12	Right Side	661	1	25.0	23.59	1.38	0.07	2.07	2.86
	GSM1900	GPRS12	Right Side	810	2	25.0	24.17	1.21	0.02	2.23	2.70
	WCDMA II	RMC122K	Rear Face	9538	2	23.0	22.88	1.03	0.11	0.579	0.60
	WCDMA II	RMC122K	Left Side	9538	2	23.0	22.88	1.03	0.12	0.155	0.16
18	WCDMA II	RMC122K	Right Side	9538	2	23.0	22.88	1.03	-0.01	3.68	3.79
	WCDMA II	RMC122K	Right Side	9262	2	23.0	22.71	1.07	0.08	3.01	3.22
	WCDMA II	RMC122K	Right Side	9400	2	23.0	22.61	1.09	0.05	3.24	3.53
	WCDMA II	RMC122K	Right Side	9538	1	23.0	22.88	1.03	-0.1	3.57	3.68
	WCDMA II	RMC122K	Right Side	9262	1	23.0	22.71	1.07	0.07	2.81	3.01
	WCDMA II	RMC122K	Right Side	9400	1	23.0	22.61	1.09	-0.11	2.92	3.18
	WCDMA II	RMC122K	Right Side	9538	2	23.0	22.88	1.03	0.11	3.59	3.70
	WCDMA IV	RMC122K	Rear Face	1312	2	24.5	24.08	1.10	-0.05	0.816	0.90
	WCDMA IV	RMC122K	Left Side	1312	2	24.5	24.08	1.10	0.13	0.128	0.14
19	WCDMA IV	RMC122K	Right Side	1312	2	24.5	24.08	1.10	0.12	2.94	3.23
	WCDMA IV	RMC122K	Right Side	1413	2	24.5	23.72	1.20	0.02	2.68	3.22
	WCDMA IV	RMC122K	Right Side	1513	2	24.5	23.78	1.18	-0.07	2.70	3.19
	WCDMA IV	RMC122K	Right Side	1312	1	24.5	24.08	1.10	0.05	2.88	3.17
	WCDMA IV	RMC122K	Right Side	1413	1	24.5	23.72	1.20	0.01	2.66	3.19
	WCDMA IV	RMC122K	Right Side	1513	1	24.5	23.78	1.18	0.06	2.67	3.15
	WCDMA IV	RMC122K	Right Side	1312	2	24.5	24.08	1.10	-0.02	2.87	3.16
	WCDMA V	RMC122K	Rear Face	4182	2	24.0	23.63	1.09	0.03	0.521	0.57
	WCDMA V	RMC122K	Left Side	4182	2	24.0	23.63	1.09	-0.01	0.172	0.19
	WCDMA V	RMC122K	Right Side	4182	2	24.0	23.63	1.09	0.05	0.899	0.98
20	WCDMA V	RMC122K	Right Side	4132	2	24.0	23.61	1.09	0.02	0.909	0.99
	WCDMA V	RMC122K	Right Side	4233	2	24.0	23.46	1.13	0.11	0.868	0.98
	WCDMA V	RMC122K	Right Side	4132	1	24.0	23.61	1.09	0.06	0.875	0.95

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Plot No.	Band	Mode	Test Position	Ch.	RB#	RB Offset	Battery	Max. Tune-up Power (dBm)	Measured Conducted Power (dBm)	Scaling Factor	Power Drift (dB)	Measured SAR-10g (W/kg)	Scaled SAR-10g (W/kg)
	LTE 2	QPSK20M	Rear Face	18900	1	0	2	23.0	22.95	1.01	0.11	0.565	0.57
	LTE 2	QPSK20M	Left Side	18900	1	0	2	23.0	22.95	1.01	0.05	0.140	0.14
	LTE 2	QPSK20M	Right Side	18900	1	0	2	23.0	22.95	1.01	0.05	3.16	3.19
	LTE 2	QPSK20M	Rear Face	18900	50	0	2	22.0	21.92	1.02	0.06	0.455	0.46
	LTE 2	QPSK20M	Left Side	18900	50	0	2	22.0	21.92	1.02	0.14	0.108	0.11
	LTE 2	QPSK20M	Right Side	18900	50	0	2	22.0	21.92	1.02	0.06	2.59	2.64
	LTE 2	QPSK20M	Right Side	18700	1	0	2	23.0	22.89	1.03	0.14	2.93	3.02
21	LTE 2	QPSK20M	Right Side	19100	1	0	2	23.0	22.78	1.05	-0.17	3.26	3.42
	LTE 2	QPSK20M	Right Side	18700	50	0	2	22.0	21.86	1.03	0.11	2.52	2.60
	LTE 2	QPSK20M	Right Side	19100	50	0	2	22.0	21.75	1.06	0.13	2.31	2.45
	LTE 2	QPSK20M	Right Side	18900	100	0	2	22.0	21.83	1.04	0.02	2.69	2.80
	LTE 2	QPSK20M	Right Side	19100	1	0	1	23.0	22.78	1.05	0.11	3.12	3.28
	LTE 2	QPSK20M	Right Side	18700	1	0	1	23.0	22.89	1.03	-0.03	2.82	2.90
	LTE 2	QPSK20M	Right Side	18900	1	0	1	23.0	22.95	1.01	0.07	3.01	3.04
	LTE 2	QPSK20M	Right Side	19100	1	0	2	23.0	22.78	1.05	0.03	3.17	3.33
	LTE 4	QPSK20M	Rear Face	20175	1	0	2	23.0	22.86	1.03	0.03	0.544	0.56
	LTE 4	QPSK20M	Left Side	20175	1	0	2	23.0	22.86	1.03	0.10	0.091	0.09
22	LTE 4	QPSK20M	Right Side	20175	1	0	2	23.0	22.86	1.03	-0.18	2.1	2.16
	LTE 4	QPSK20M	Rear Face	20175	50	0	2	22.0	21.83	1.04	0.05	0.443	0.46
	LTE 4	QPSK20M	Left Side	20175	50	0	2	22.0	21.83	1.04	-0.10	0.078	0.08
	LTE 4	QPSK20M	Right Side	20175	50	0	2	22.0	21.83	1.04	0.05	1.69	1.76
	LTE 4	QPSK20M	Right Side	20050	1	0	2	23.0	22.83	1.04	0.09	1.89	1.97
	LTE 4	QPSK20M	Right Side	20300	1	0	2	23.0	22.81	1.04	-0.12	2.07	2.15
	LTE 4	QPSK20M	Right Side	20175	100	0	2	22.0	21.67	1.08	0.08	1.5	1.62
	LTE 4	QPSK20M	Right Side	20175	1	0	1	23.0	22.86	1.03	0.05	1.92	1.98
	LTE 4	QPSK20M	Right Side	20175	1	0	2	23.0	22.86	1.03	0.03	2.05	2.11
	LTE 5	QPSK10M	Rear Face	20450	1	0	2	23.0	22.37	1.16	0.03	0.393	0.46
	LTE 5	QPSK10M	Left Side	20450	1	0	2	23.0	22.37	1.16	-0.08	0.109	0.13
23	LTE 5	QPSK10M	Right Side	20450	1	0	2	23.0	22.37	1.16	-0.06	0.659	0.76
	LTE 5	QPSK10M	Rear Face	20450	25	0	2	22.0	21.67	1.08	-0.10	0.308	0.33
	LTE 5	QPSK10M	Left Side	20450	25	0	2	22.0	21.67	1.08	0.08	0.083	0.09
	LTE 5	QPSK10M	Right Side	20450	25	0	2	22.0	21.67	1.08	-0.11	0.524	0.57
	LTE 5	QPSK10M	Right Side	20525	1	0	2	23.0	22.17	1.21	0.05	0.592	0.72
	LTE 5	QPSK10M	Right Side	20600	1	0	2	23.0	22.26	1.19	0.08	0.612	0.73
	LTE 5	QPSK10M	Right Side	20450	1	0	1	23.0	22.37	1.16	-0.02	0.637	0.74
	LTE 7	QPSK20M	Rear Face	21350	1	0	2	24.0	23.16	1.21	0.03	0.386	0.47
	LTE 7	QPSK20M	Left Side	21350	1	0	2	24.0	23.16	1.21	-0.10	0.183	0.22
	LTE 7	QPSK20M	Right Side	21350	1	0	2	24.0	23.16	1.21	0.08	1.46	1.77
	LTE 7	QPSK20M	Rear Face	21350	50	0	2	23.0	22.12	1.22	0.12	0.304	0.37
	LTE 7	QPSK20M	Left Side	21350	50	0	2	23.0	22.12	1.22	-0.11	0.146	0.18
	LTE 7	QPSK20M	Right Side	21350	50	0	2	23.0	22.12	1.22	0.08	1.14	1.39
	LTE 7	QPSK20M	Right Side	20850	1	0	2	24.0	23.02	1.25	0.02	1.48	1.85
24	LTE 7	QPSK20M	Right Side	21100	1	0	2	24.0	23.07	1.24	-0.09	1.5	1.86
	LTE 7	QPSK20M	Right Side	21100	1	0	1	24.0	23.07	1.24	0.05	1.37	1.70
	LTE 12	QPSK10M	Rear Face	23095	1	0	2	23.0	22.31	1.17	0.09	0.421	0.49
	LTE 12	QPSK10M	Left Side	23095	1	0	2	23.0	22.31	1.17	-0.10	0.126	0.15
25	LTE 12	QPSK10M	Right Side	23095	1	0	2	23.0	22.31	1.17	-0.04	0.693	0.81
	LTE 12	QPSK10M	Rear Face	23095	25	0	2	22.0	21.57	1.10	0.05	0.355	0.39
	LTE 12	QPSK10M	Left Side	23095	25	0	2	22.0	21.57	1.10	0.08	0.106	0.12
	LTE 12	QPSK10M	Right Side	23095	25	0	2	22.0	21.57	1.10	0.01	0.541	0.60
	LTE 12	QPSK10M	Right Side	23060	1	0	2	23.0	22.25	1.19	-0.06	0.657	0.78
	LTE 12	QPSK10M	Right Side	23130	1	0	2	23.0	22.23	1.19	0.11	0.669	0.80
	LTE 12	QPSK10M	Right Side	23095	1	0	1	23.0	22.31	1.17	-0.05	0.655	0.77

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Plot No.	Band	Mode	Test Position	Ch.	Battery	Duty Cycle	Crest Factor	Max. Tune-up Power (dBm)	Measured Conducted Power (dBm)	Scaling Factor	Power Drift (dB)	Measured SAR-10g (W/kg)	Scaled SAR-10g (W/kg)
26	WLAN 2.4G	802.11b	Rear Face	11	2	100.00	1.00	16.0	15.76	1.06	-0.10	0.059	0.06
	WLAN 2.4G	802.11b	Left Side	11	2	100.00	1.00	16.0	15.76	1.06	0.06	0.627	0.66
	WLAN 2.4G	802.11b	Right Side	11	2	100.00	1.00	16.0	15.76	1.06	0.03	0.029	0.03
	WLAN 2.4G	802.11b	Left Side	1	2	100.00	1.00	16.0	14.95	1.27	-0.07	0.511	0.65
	WLAN 2.4G	802.11b	Left Side	6	2	100.00	1.00	16.0	14.88	1.29	0.11	0.455	0.59
	WLAN 2.4G	802.11b	Left Side	11	1	100.00	1.00	16.0	15.76	1.06	-0.01	0.611	0.65
27	WLAN 5.2G	802.11a	Rear Face	44	2	85.00	1.18	13.0	12.67	1.08	0.00	<0.001	0.00
	WLAN 5.2G	802.11a	Left Side	44	2	85.00	1.18	13.0	12.67	1.08	0.12	0.573	0.73
	WLAN 5.2G	802.11a	Right Side	44	2	85.00	1.18	13.0	12.67	1.08	0.00	<0.001	0.00
	WLAN 5.2G	802.11a	Left Side	36	2	85.00	1.18	13.0	12.43	1.14	-0.03	0.522	0.70
	WLAN 5.2G	802.11a	Left Side	40	2	85.00	1.18	13.0	12.24	1.19	0.10	0.499	0.70
	WLAN 5.2G	802.11a	Left Side	48	2	85.00	1.18	13.0	12.07	1.24	0.07	0.482	0.71
28	WLAN 5.3G	802.11a	Rear Face	52	2	85.00	1.18	12.0	11.72	1.07	0.00	<0.001	0.00
	WLAN 5.3G	802.11a	Left Side	52	2	85.00	1.18	12.0	11.72	1.07	0.17	0.581	0.73
	WLAN 5.3G	802.11a	Right Side	52	2	85.00	1.18	12.0	11.72	1.07	0.00	<0.001	0.00
	WLAN 5.3G	802.11a	Left Side	56	2	85.00	1.18	12.0	11.45	1.14	-0.03	0.531	0.71
	WLAN 5.3G	802.11a	Left Side	60	2	85.00	1.18	12.0	11.21	1.20	0.10	0.506	0.72
	WLAN 5.3G	802.11a	Left Side	64	2	85.00	1.18	12.0	11.05	1.24	-0.07	0.493	0.72
29	WLAN 5.3G	802.11a	Left Side	52	1	85.00	1.18	12.0	11.72	1.07	0.03	0.569	0.72
	WLAN 5.6G	802.11nHT40	Rear Face	134	2	91.70	1.09	12.0	11.68	1.08	0.00	<0.001	0.00
	WLAN 5.6G	802.11nHT40	Left Side	134	2	91.70	1.09	12.0	11.68	1.08	0.14	0.515	0.61
	WLAN 5.6G	802.11nHT40	Right Side	134	2	91.70	1.09	12.0	11.68	1.08	0.00	<0.001	0.00
	WLAN 5.6G	802.11nHT40	Left Side	102	2	91.70	1.09	12.0	10.38	1.45	0.03	0.333	0.53
	WLAN 5.6G	802.11nHT40	Left Side	110	2	91.70	1.09	12.0	10.83	1.31	-0.10	0.421	0.60
	WLAN 5.6G	802.11nHT40	Left Side	118	2	91.70	1.09	12.0	10.34	1.47	0.07	0.376	0.60
	WLAN 5.6G	802.11nHT40	Left Side	126	2	91.70	1.09	12.0	10.53	1.40	-0.11	0.385	0.59
30	WLAN 5.6G	802.11nHT40	Left Side	134	1	91.70	1.09	12.0	11.68	1.08	0.05	0.502	0.59
	WLAN 5.8G	802.11a	Rear Face	157	2	85.00	1.18	12.5	12.26	1.06	0.00	<0.001	0.00
	WLAN 5.8G	802.11a	Left Side	157	2	85.00	1.18	12.5	12.26	1.06	0.10	0.466	0.58
	WLAN 5.8G	802.11a	Right Side	157	2	85.00	1.18	12.5	12.26	1.06	0.00	<0.001	0.00
	WLAN 5.8G	802.11a	Right Side	149	2	85.00	1.18	12.5	11.95	1.14	0.03	0.431	0.58
	WLAN 5.8G	802.11a	Left Side	153	2	85.00	1.18	12.5	12.12	1.09	0.07	0.471	0.61
	WLAN 5.8G	802.11a	Left Side	161	2	85.00	1.18	12.5	12.09	1.10	-0.11	0.523	0.68
	WLAN 5.8G	802.11a	Left Side	165	2	85.00	1.18	12.5	12.11	1.09	0.12	0.518	0.67
BT	BR / EDR	802.11a	Left Side	161	1	85.00	1.18	12.5	12.09	1.10	-0.12	0.511	0.66
	BR / EDR	BR / EDR	Rear Face	39	2	76.61	1.31	8.5	8.11	1.09	0.00	<0.001	0.00
	BR / EDR	BR / EDR	Left Side	39	2	76.61	1.31	8.5	8.11	1.09	0.00	<0.001	0.00
	BR / EDR	BR / EDR	Right Side	39	2	76.61	1.31	8.5	8.11	1.09	0.00	<0.001	0.00
	BR / EDR	BR / EDR	Left Side	0	2	76.61	1.31	8.5	7.25	1.33	0.00	<0.001	0.00
	BR / EDR	BR / EDR	Left Side	78	2	76.61	1.31	8.5	5.18	2.15	0.00	<0.001	0.00
BT	BR / EDR	BR / EDR	Left Side	39	1	76.61	1.31	8.5	8.11	1.09	0.00	<0.001	0.00

**Note:**

- The "< 0.001" means there is no SAR value or the SAR is too low to be measured.



**4.7.4 SAR Measurement Variability**

According to KDB 865664 D01, SAR measurement variability was assessed for each frequency band, which is determined by the SAR probe calibration point and tissue-equivalent medium used for the device measurements. When both head and body tissue-equivalent media are required for SAR measurements in a frequency band, the variability measurement procedures should be applied to the tissue medium with the highest measured SAR, using the highest measured SAR configuration for that tissue-equivalent medium. Alternatively, if the highest measured SAR for both head and body tissue-equivalent media are  $\leq 1.45$  W/kg and the ratio of these highest SAR values, i.e., largest divided by smallest value, is  $\leq 1.10$ , the highest SAR configuration for either head or body tissue-equivalent medium may be used to perform the repeated measurement. These additional measurements are repeated after the completion of all measurements requiring the same head or body tissue-equivalent medium in a frequency band. The test device should be returned to ambient conditions (normal room temperature) with the battery fully charged before it is re-mounted on the device holder for the repeated measurement(s) to minimize any unexpected variations in the repeated results.

SAR repeated measurement procedure:

1. When the highest measured SAR is  $< 0.80$  W/kg, repeated measurement is not required.
2. When the highest measured SAR is  $\geq 0.80$  W/kg, repeat that measurement once.
3. If the ratio of largest to smallest SAR for the original and first repeated measurements is  $> 1.20$ , or when the original or repeated measurement is  $\geq 1.45$  W/kg, perform a second repeated measurement.
4. If the ratio of largest to smallest SAR for the original, first and second repeated measurements is  $> 1.20$ , and the original, first or second repeated measurement is  $\geq 1.5$  W/kg, perform a third repeated measurement.

Band	Mode	Test Position	Ch.	Original Measured SAR-1g (W/kg)	1st Repeated SAR-1g (W/kg)	L/S Ratio	2nd Repeated SAR-1g (W/kg)	L/S Ratio	3rd Repeated SAR-1g (W/kg)	L/S Ratio
GSM850	GPRS12	Rear Face	251	1.20	1.11	1.08	N/A	N/A	N/A	N/A
WCDMA II	RMC12.2K	Rear Face	9538	1.14	1.08	1.06	N/A	N/A	N/A	N/A
WCDMA IV	RMC12.2K	Rear Face	1312	1.08	1.04	1.04	N/A	N/A	N/A	N/A
WCDMA V	RMC12.2K	Rear Face	4132	0.816	0.798	1.02	N/A	N/A	N/A	N/A
LTE 2	QPSK20M	Rear Face	19100	1.04	0.959	1.08	N/A	N/A	N/A	N/A
LTE 4	QPSK20M	Rear Face	20525	1.00	0.973	1.03	N/A	N/A	N/A	N/A
LTE 7	QPSK20M	Rear Face	20850	1.05	1.02	1.03	N/A	N/A	N/A	N/A

Band	Mode	Test Position	Ch.	Original Measured SAR-10g (W/kg)	1st Repeated SAR-10g (W/kg)	L/S Ratio	2nd Repeated SAR-1g (W/kg)	L/S Ratio	3rd Repeated SAR-1g (W/kg)	L/S Ratio
GSM1900	GPRS12	Right Side	810	2.28	2.23	1.02	N/A	N/A	N/A	N/A
WCDMA II	RMC12.2K	Right Side	9538	3.68	3.59	1.03	N/A	N/A	N/A	N/A
WCDMA IV	RMC12.2K	Right Side	1312	2.94	2.87	1.02	N/A	N/A	N/A	N/A
LTE 2	QPSK20M	Right Side	19100	3.26	3.17	1.03	N/A	N/A	N/A	N/A
LTE 4	QPSK20M	Right Side	20175	2.10	2.05	1.02	N/A	N/A	N/A	N/A

# FCC SAR Test Report

## 4.7.5 Simultaneous Multi-band Transmission Evaluation

### <Possibilities of Simultaneous Transmission>

The simultaneous transmission possibilities for this device are listed as below.

Simultaneous TX Combination	Capable Transmit Configurations	Body Exposure Condition
1	GSM + WLAN 2.4G	Yes
2	GSM + WLAN 5G	Yes
3	GSM + BT (Data)	Yes
4	WCDMA + WLAN 2.4G	Yes
5	WCDMA + WLAN 5G	Yes
6	WCDMA + BT	Yes
7	LTE + WLAN 2.4G	Yes
8	LTE + WLAN 5G	Yes
9	LTE + BT	Yes

#### Note :

1. The WLAN 2.4G and WLAN 5G cannot transmit simultaneously.
2. The WLAN and Bluetooth cannot transmit simultaneously.
3. This device does not support voice transmission capability.

### <SAR Summation Analysis>

Simultaneous transmission SAR test exclusion is determined for each operating configuration and exposure condition according to the reported standalone SAR of each applicable simultaneous transmitting antenna. When the sum of SAR<sub>1g</sub> of all simultaneously transmitting antennas in an operating mode and exposure condition combination is within the SAR limit (SAR<sub>1g</sub> 1.6 W/kg), the simultaneous transmission SAR is not required. When the sum of SAR<sub>1g</sub> is greater than the SAR limit (SAR<sub>1g</sub> 1.6 W/kg), SAR test exclusion is determined by the SPLSR.

No.	Conditions (SAR1 + SAR2)	Exposure Condition	Test Position	Max. SAR1	Max. SAR2	SAR Summation	SPLSR Analysis
1	GSM850 + WLAN (DTS)	Body	Rear Face	1.30	0.09	1.39	Σ SAR < 1.6, Not required
			Rear Face	0.94	0.06	1.00	Σ SAR < 4.0, Not required
		Extremity	Left Side	0.21	0.66	0.87	Σ SAR < 4.0, Not required
			Right Side	1.39	0.03	1.42	Σ SAR < 4.0, Not required
2	GSM850 + WLAN (NII)	Body	Rear Face	1.30	0.04	1.34	Σ SAR < 1.6, Not required
			Rear Face	0.94	0.00	0.94	Σ SAR < 4.0, Not required
		Extremity	Left Side	0.21	0.73	0.94	Σ SAR < 4.0, Not required
			Right Side	1.39	0.00	1.39	Σ SAR < 4.0, Not required
3	GSM850 + BT (DSS)	Body	Rear Face	1.30	0.00	1.30	Σ SAR < 1.6, Not required
			Rear Face	0.94	0.00	0.94	Σ SAR < 4.0, Not required
		Extremity	Left Side	0.21	0.00	0.21	Σ SAR < 4.0, Not required
			Right Side	1.39	0.00	1.39	Σ SAR < 4.0, Not required

# FCC SAR Test Report

No.	Conditions (SAR1 + SAR2)	Exposure Condition	Test Position	Max. SAR1	Max. SAR2	SAR Summation	SPLSR Analysis
4	GSM1900 + WLAN (DTS)	Body	Rear Face	0.74	0.09	0.83	$\Sigma$ SAR < 1.6, Not required
		Extremity	Rear Face	0.42	0.06	0.48	$\Sigma$ SAR < 4.0, Not required
			Left Side	0.10	0.66	0.79	$\Sigma$ SAR < 4.0, Not required
			Right Side	2.78	0.03	2.81	$\Sigma$ SAR < 4.0, Not required
5	GSM1900 + WLAN (NII)	Body	Rear Face	0.74	0.04	0.78	$\Sigma$ SAR < 1.6, Not required
		Extremity	Rear Face	0.42	0.00	0.42	$\Sigma$ SAR < 4.0, Not required
			Left Side	0.10	0.73	0.83	$\Sigma$ SAR < 4.0, Not required
			Right Side	2.78	0.00	2.78	$\Sigma$ SAR < 4.0, Not required
6	GSM1900 + BT (DSS)	Body	Rear Face	0.74	0.00	0.74	$\Sigma$ SAR < 1.6, Not required
		Extremity	Rear Face	0.42	0.00	0.42	$\Sigma$ SAR < 4.0, Not required
			Left Side	0.10	0.00	0.10	$\Sigma$ SAR < 4.0, Not required
			Right Side	2.78	0.00	2.78	$\Sigma$ SAR < 4.0, Not required
7	WCDMA II + WLAN (DTS)	Body	Rear Face	1.17	0.09	1.26	$\Sigma$ SAR < 1.6, Not required
		Extremity	Rear Face	0.60	0.06	0.66	$\Sigma$ SAR < 4.0, Not required
			Left Side	0.16	0.66	0.82	$\Sigma$ SAR < 4.0, Not required
			Right Side	3.79	0.03	3.82	$\Sigma$ SAR < 4.0, Not required
8	WCDMA II + WLAN (NII)	Body	Rear Face	1.17	0.04	1.21	$\Sigma$ SAR < 1.6, Not required
		Extremity	Rear Face	0.60	0.00	0.60	$\Sigma$ SAR < 4.0, Not required
			Left Side	0.16	0.73	0.89	$\Sigma$ SAR < 4.0, Not required
			Right Side	3.79	0.00	3.79	$\Sigma$ SAR < 4.0, Not required
9	WCDMA II + BT (DSS)	Body	Rear Face	1.17	0.00	1.17	$\Sigma$ SAR < 1.6, Not required
		Extremity	Rear Face	0.60	0.00	0.60	$\Sigma$ SAR < 4.0, Not required
			Left Side	0.16	0.00	0.16	$\Sigma$ SAR < 4.0, Not required
			Right Side	3.79	0.00	3.79	$\Sigma$ SAR < 4.0, Not required

# FCC SAR Test Report

No.	Conditions (SAR1 + SAR2)	Exposure Condition	Test Position	Max. SAR1	Max. SAR2	SAR Summation	SPLSR Analysis
10	WCDMA IV + WLAN (DTS)	Body	Rear Face	1.19	0.09	1.28	$\Sigma$ SAR < 1.6, Not required
		Extremity	Rear Face	0.90	0.06	0.96	$\Sigma$ SAR < 4.0, Not required
			Left Side	0.14	0.66	0.80	$\Sigma$ SAR < 4.0, Not required
			Right Side	3.23	0.03	3.26	$\Sigma$ SAR < 4.0, Not required
11	WCDMA IV + WLAN (NII)	Body	Rear Face	1.19	0.04	1.23	$\Sigma$ SAR < 1.6, Not required
		Extremity	Rear Face	0.90	0.00	0.90	$\Sigma$ SAR < 4.0, Not required
			Left Side	0.14	0.73	0.87	$\Sigma$ SAR < 4.0, Not required
			Right Side	3.23	0.00	3.23	$\Sigma$ SAR < 4.0, Not required
12	WCDMA IV + BT (DSS)	Body	Rear Face	1.19	0.00	1.19	$\Sigma$ SAR < 1.6, Not required
		Extremity	Rear Face	0.90	0.00	0.90	$\Sigma$ SAR < 4.0, Not required
			Left Side	0.14	0.00	0.14	$\Sigma$ SAR < 4.0, Not required
			Right Side	3.23	0.00	3.23	$\Sigma$ SAR < 4.0, Not required
13	WCDMA V + WLAN (DTS)	Body	Rear Face	0.89	0.09	0.98	$\Sigma$ SAR < 1.6, Not required
		Extremity	Rear Face	0.57	0.06	0.63	$\Sigma$ SAR < 4.0, Not required
			Left Side	0.19	0.66	0.85	$\Sigma$ SAR < 4.0, Not required
			Right Side	0.99	0.03	1.02	$\Sigma$ SAR < 4.0, Not required
14	WCDMA V + WLAN (NII)	Body	Rear Face	0.89	0.04	0.93	$\Sigma$ SAR < 1.6, Not required
		Extremity	Rear Face	0.57	0.00	0.57	$\Sigma$ SAR < 4.0, Not required
			Left Side	0.19	0.73	0.92	$\Sigma$ SAR < 4.0, Not required
			Right Side	0.99	0.00	0.99	$\Sigma$ SAR < 4.0, Not required
15	WCDMA V + BT (DSS)	Body	Rear Face	0.89	0.00	0.89	$\Sigma$ SAR < 1.6, Not required
		Extremity	Rear Face	0.57	0.00	0.57	$\Sigma$ SAR < 4.0, Not required
			Left Side	0.19	0.00	0.19	$\Sigma$ SAR < 4.0, Not required
			Right Side	0.99	0.00	0.99	$\Sigma$ SAR < 4.0, Not required

# FCC SAR Test Report

No.	Conditions (SAR1 + SAR2)	Exposure Condition	Test Position	Max. SAR1	Max. SAR2	SAR Summation	SPLSR Analysis
16	LTE 2 + WLAN (DTS)	Body	Rear Face	1.09	0.09	1.18	$\Sigma$ SAR < 1.6, Not required
		Extremity	Rear Face	0.57	0.06	0.63	$\Sigma$ SAR < 4.0, Not required
			Left Side	0.14	0.66	0.80	$\Sigma$ SAR < 4.0, Not required
			Right Side	3.42	0.03	3.45	$\Sigma$ SAR < 4.0, Not required
17	LTE 2 + WLAN (NII)	Body	Rear Face	1.09	0.04	1.13	$\Sigma$ SAR < 1.6, Not required
		Extremity	Rear Face	0.57	0.00	0.57	$\Sigma$ SAR < 4.0, Not required
			Left Side	0.14	0.73	0.87	$\Sigma$ SAR < 4.0, Not required
			Right Side	3.42	0.00	3.42	$\Sigma$ SAR < 4.0, Not required
18	LTE 2 + BT (DSS)	Body	Rear Face	1.09	0.00	1.09	$\Sigma$ SAR < 1.6, Not required
		Extremity	Rear Face	0.57	0.00	0.57	$\Sigma$ SAR < 4.0, Not required
			Left Side	0.14	0.00	0.14	$\Sigma$ SAR < 4.0, Not required
			Right Side	3.42	0.00	3.42	$\Sigma$ SAR < 4.0, Not required
19	LTE 4 + WLAN (DTS)	Body	Rear Face	1.03	0.09	1.12	$\Sigma$ SAR < 1.6, Not required
		Extremity	Rear Face	0.56	0.06	0.62	$\Sigma$ SAR < 4.0, Not required
			Left Side	0.09	0.66	0.75	$\Sigma$ SAR < 4.0, Not required
			Right Side	2.16	0.03	2.19	$\Sigma$ SAR < 4.0, Not required
20	LTE 4 + WLAN (NII)	Body	Rear Face	1.03	0.04	1.07	$\Sigma$ SAR < 1.6, Not required
		Extremity	Rear Face	0.56	0.00	0.56	$\Sigma$ SAR < 4.0, Not required
			Left Side	0.09	0.73	0.82	$\Sigma$ SAR < 4.0, Not required
			Right Side	2.16	0.00	2.16	$\Sigma$ SAR < 4.0, Not required
21	LTE 4 + BT (DSS)	Body	Rear Face	1.03	0.00	1.03	$\Sigma$ SAR < 1.6, Not required
		Extremity	Rear Face	0.56	0.00	0.56	$\Sigma$ SAR < 4.0, Not required
			Left Side	0.09	0.00	0.09	$\Sigma$ SAR < 4.0, Not required
			Right Side	2.16	0.00	2.16	$\Sigma$ SAR < 4.0, Not required

# FCC SAR Test Report

No.	Conditions (SAR1 + SAR2)	Exposure Condition	Test Position	Max. SAR1	Max. SAR2	SAR Summation	SPLSR Analysis
22	LTE 5 + WLAN (DTS)	Body	Rear Face	0.77	0.09	0.86	$\Sigma$ SAR < 1.6, Not required
		Extremity	Rear Face	0.46	0.06	0.50	$\Sigma$ SAR < 4.0, Not required
			Left Side	0.13	0.66	0.79	$\Sigma$ SAR < 4.0, Not required
			Right Side	0.76	0.03	0.79	$\Sigma$ SAR < 4.0, Not required
23	LTE 5 + WLAN (NII)	Body	Rear Face	0.77	0.04	0.81	$\Sigma$ SAR < 1.6, Not required
		Extremity	Rear Face	0.46	0.00	0.46	$\Sigma$ SAR < 4.0, Not required
			Left Side	0.13	0.73	0.86	$\Sigma$ SAR < 4.0, Not required
			Right Side	0.76	0.00	0.76	$\Sigma$ SAR < 4.0, Not required
24	LTE 5 + BT (DSS)	Body	Rear Face	0.77	0.00	0.77	$\Sigma$ SAR < 1.6, Not required
		Extremity	Rear Face	0.46	0.00	0.46	$\Sigma$ SAR < 4.0, Not required
			Left Side	0.13	0.00	0.13	$\Sigma$ SAR < 4.0, Not required
			Right Side	0.76	0.00	0.76	$\Sigma$ SAR < 4.0, Not required
25	LTE 7 + WLAN (DTS)	Body	Rear Face	1.31	0.09	1.40	$\Sigma$ SAR < 1.6, Not required
		Extremity	Rear Face	0.47	0.06	0.53	$\Sigma$ SAR < 4.0, Not required
			Left Side	0.22	0.66	0.88	$\Sigma$ SAR < 4.0, Not required
			Right Side	1.86	0.03	1.89	$\Sigma$ SAR < 4.0, Not required
26	LTE 7 + WLAN (NII)	Body	Rear Face	1.31	0.04	1.35	$\Sigma$ SAR < 1.6, Not required
		Extremity	Rear Face	0.47	0.00	0.47	$\Sigma$ SAR < 4.0, Not required
			Left Side	0.22	0.73	0.95	$\Sigma$ SAR < 4.0, Not required
			Right Side	1.86	0.00	1.86	$\Sigma$ SAR < 4.0, Not required
27	LTE 7 + BT (DSS)	Body	Rear Face	1.31	0.00	1.31	$\Sigma$ SAR < 1.6, Not required
		Extremity	Rear Face	0.47	0.00	0.47	$\Sigma$ SAR < 4.0, Not required
			Left Side	0.22	0.00	0.22	$\Sigma$ SAR < 4.0, Not required
			Right Side	1.86	0.00	1.86	$\Sigma$ SAR < 4.0, Not required

# FCC SAR Test Report

No.	Conditions (SAR1 + SAR2)	Exposure Condition	Test Position	Max. SAR1	Max. SAR2	SAR Summation	SPLSR Analysis
28	LTE 12 + WLAN (DTS)	Body	Rear Face	0.84	0.09	0.93	$\Sigma$ SAR < 1.6, Not required
		Extremity	Rear Face	0.49	0.06	0.55	$\Sigma$ SAR < 4.0, Not required
			Left Side	0.15	0.66	0.81	$\Sigma$ SAR < 4.0, Not required
			Right Side	0.81	0.03	0.84	$\Sigma$ SAR < 4.0, Not required
29	LTE 12 + WLAN (NII)	Body	Rear Face	0.84	0.04	0.88	$\Sigma$ SAR < 1.6, Not required
		Extremity	Rear Face	0.49	0.00	0.49	$\Sigma$ SAR < 4.0, Not required
			Left Side	0.15	0.73	0.88	$\Sigma$ SAR < 4.0, Not required
			Right Side	0.81	0.00	0.81	$\Sigma$ SAR < 4.0, Not required
30	LTE 12 + BT (DSS)	Body	Rear Face	0.84	0.00	0.84	$\Sigma$ SAR < 1.6, Not required
		Extremity	Rear Face	0.49	0.00	0.49	$\Sigma$ SAR < 4.0, Not required
			Left Side	0.15	0.00	0.15	$\Sigma$ SAR < 4.0, Not required
			Right Side	0.81	0.00	0.81	$\Sigma$ SAR < 4.0, Not required

Test Engineer : Willy Chang, and Isaac Liao

## 5. Calibration of Test Equipment

Equipment	Manufacturer	Model	SN	Cal. Date	Cal. Interval
System Validation Dipole	SPEAG	D750V3	1013	Aug. 23, 2018	1 Year
System Validation Dipole	SPEAG	D835V2	4d121	Aug. 23, 2018	1 Year
System Validation Dipole	SPEAG	D1750V2	1055	Aug. 27, 2018	1 Year
System Validation Dipole	SPEAG	D1900V2	5d036	Jan. 18, 2018	1 Year
System Validation Dipole	SPEAG	D2450V2	737	Aug. 24, 2018	1 Year
System Validation Dipole	SPEAG	D2600V2	1020	Aug. 24, 2018	1 Year
System Validation Dipole	SPEAG	D5GHzV2	1019	Mar. 22, 2018	1 Year
Dosimetric E-Field Probe	SPEAG	EX3DV4	3650	Jul. 27, 2018	1 Year
Dosimetric E-Field Probe	SPEAG	EX3DV4	3898	Jun. 26, 2018	1 Year
Dosimetric E-Field Probe	SPEAG	EX3DV4	3971	Mar. 26, 2018	1 Year
Dosimetric E-Field Probe	SPEAG	EX3DV4	7472	Aug. 29, 2018	1 Year
Data Acquisition Electronics	SPEAG	DAE3	579	Aug. 27, 2018	1 Year
Data Acquisition Electronics	SPEAG	DAE3	905	Jun. 26, 2018	1 Year
Data Acquisition Electronics	SPEAG	DAE4	861	May. 30, 2018	1 Year
Data Acquisition Electronics	SPEAG	DAE4	1431	Mar. 16, 2018	1 Year
Data Acquisition Electronics	SPEAG	DAE4	1277	Jan. 18, 2018	1 Year
Universal Radio Communication Tester	Anritsu	MT8821C	6201502978	Jul. 20, 2018	1 Year
Spectrum Analyzer	R&S	FSL6	102006	Mar. 23, 2018	1 Year
ENA Series Network Analyzer	Agilent	E5071C	MY46214281	Jun. 08, 2018	1 Year
MXG Analog Signal Generator	Agilent	N5181A	MY50143868	Jul. 03, 2018	1 Year
Vector Signal Generator	Anritsu	MG3710A	6201599977	Mar. 16, 2018	1 Year
Power Meter	Anritsu	ML2495A	1218009	Jul. 03, 2018	1 Year
Power Sensor	Anritsu	MA2411B	1207252	Jul. 03, 2018	1 Year
Thermometer	YFE	YF-160A	130504591	Mar. 23, 2018	1 Year



## 6. Measurement Uncertainty

Source of Uncertainty	Uncertainty (± %)	Probability Distribution	Divisor	Ci (1g)	Ci (10g)	Standard Uncertainty (± %, 1g)	Standard Uncertainty (± %, 10g)	Vi
<b>Measurement System</b>								
Probe Calibration	6.0	Normal	1	1	1	6.0	6.0	∞
Axial Isotropy	4.7	Rectangular	√3	√0.5	√0.5	1.9	1.9	∞
Hemispherical Isotropy	9.6	Rectangular	√3	√0.5	√0.5	3.9	3.9	∞
Boundary Effect	1.0	Rectangular	√3	1	1	0.6	0.6	∞
Linearity	4.7	Rectangular	√3	1	1	2.7	2.7	∞
Detection Limits	0.25	Rectangular	√3	1	1	0.14	0.14	∞
Probe Modulation Response	3.5	Rectangular	√3	1	1	2.0	2.0	∞
Readout Electronics	0.3	Normal	1	1	1	0.3	0.3	∞
Response Time	0.0	Rectangular	√3	1	1	0.0	0.0	∞
Integration Time	1.7	Rectangular	√3	1	1	1.0	1.0	∞
RF Ambient Conditions – Noise	3.0	Rectangular	√3	1	1	1.7	1.7	∞
RF Ambient Conditions – Reflections	3.0	Rectangular	√3	1	1	1.7	1.7	∞
Probe Positioner Mechanical Tolerance	0.4	Rectangular	√3	1	1	0.2	0.2	∞
Probe Positioning with Respect to Phantom	2.9	Rectangular	√3	1	1	1.7	1.7	∞
Post-processing	2.0	Rectangular	√3	1	1	1.2	1.2	∞
<b>Test Sample Related</b>								
Test Sample Positioning	2.82 / 1.60	Normal	1	1	1	2.8	1.6	35
Device Holder Uncertainty	2.55 / 2.76	Normal	1	1	1	2.6	2.8	7
Power Drift of Measurement	5.0	Rectangular	√3	1	1	2.9	2.9	∞
Power Scaling	0.0	Rectangular	√3	1	1	0.0	0.0	∞
<b>Phantom and Setup</b>								
Phantom Uncertainty (Shape and Thickness Tolerances)	6.1	Rectangular	√3	1	1	3.5	3.5	∞
Liquid Conductivity ( Temperature Uncertainty)	2.58	Rectangular	√3	0.78	0.71	1.2	1.1	∞
Liquid Conductivity (Measured)	2.95	Normal	1	0.78	0.71	2.3	2.1	61
Liquid Permittivity (Temperature Uncertainty)	1.97	Rectangular	√3	0.23	0.26	0.3	0.3	∞
Liquid Permittivity (Measured)	3.04	Normal	1	0.23	0.26	0.7	0.8	47
<b>Combined Standard Uncertainty</b>						± 11.0 %	± 10.7 %	
<b>Expanded Uncertainty (K=2)</b>						± 22.0 %	± 21.4 %	

Head SAR Uncertainty Budget for Frequency Range of 300 MHz to 3 GHz

# FCC SAR Test Report

Source of Uncertainty	Uncertainty (± %)	Probability Distribution	Divisor	Ci (1g)	Ci (10g)	Standard Uncertainty (± %, 1g)	Standard Uncertainty (± %, 10g)	Vi
<b>Measurement System</b>								
Probe Calibration	6.55	Normal	1	1	1	6.55	6.55	∞
Axial Isotropy	4.7	Rectangular	√3	0.7	0.7	1.9	1.9	∞
Hemispherical Isotropy	9.6	Rectangular	√3	0.7	0.7	3.9	3.9	∞
Boundary Effect	2.0	Rectangular	√3	1	1	1.2	1.2	∞
Linearity	4.7	Rectangular	√3	1	1	2.7	2.7	∞
Detection Limits	0.25	Rectangular	√3	1	1	0.14	0.14	∞
Probe Modulation Response	3.5	Rectangular	√3	1	1	2.0	2.0	∞
Readout Electronics	0.3	Normal	1	1	1	0.3	0.3	∞
Response Time	0.0	Rectangular	√3	1	1	0.0	0.0	∞
Integration Time	1.7	Rectangular	√3	1	1	1.0	1.0	∞
RF Ambient Conditions – Noise	3.0	Rectangular	√3	1	1	1.7	1.7	∞
RF Ambient Conditions – Reflections	3.0	Rectangular	√3	1	1	1.7	1.7	∞
Probe Positioner Mechanical Tolerance	0.4	Rectangular	√3	1	1	0.2	0.2	∞
Probe Positioning with Respect to Phantom	6.7	Rectangular	√3	1	1	3.9	3.9	∞
Post-processing	4.0	Rectangular	√3	1	1	2.3	2.3	∞
<b>Test Sample Related</b>								
Test Sample Positioning	2.82 / 1.60	Normal	1	1	1	2.8	1.6	35
Device Holder Uncertainty	2.55 / 2.76	Normal	1	1	1	2.6	2.8	7
Power Drift of Measurement	5.0	Rectangular	√3	1	1	2.9	2.9	∞
Power Scaling	0.0	Rectangular	√3	1	1	0.0	0.0	∞
<b>Phantom and Setup</b>								
Phantom Uncertainty (Shape and Thickness Tolerances)	6.6	Rectangular	√3	1	1	3.8	3.8	∞
Liquid Conductivity ( Temperature Uncertainty)	2.58	Rectangular	√3	0.78	0.71	1.2	1.1	∞
Liquid Conductivity (Measured)	2.95	Normal	1	0.78	0.71	2.3	2.1	61
Liquid Permittivity (Temperature Uncertainty)	1.97	Rectangular	√3	0.23	0.26	0.3	0.3	∞
Liquid Permittivity (Measured)	3.04	Normal	1	0.23	0.26	0.7	0.8	47
<b>Combined Standard Uncertainty</b>						± 12.1 %	± 11.9 %	
<b>Expanded Uncertainty (K=2)</b>						± 24.2 %	± 23.8 %	

## Head SAR Uncertainty Budget for Frequency Range of 3 GHz to 6 GHz

# FCC SAR Test Report

Source of Uncertainty	Uncertainty (± %)	Probability Distribution	Divisor	Ci (1g)	Ci (10g)	Standard Uncertainty (± %, 1g)	Standard Uncertainty (± %, 10g)	Vi
<b>Measurement System</b>								
Probe Calibration	6.0	Normal	1	1	1	6.0	6.0	∞
Axial Isotropy	4.7	Rectangular	√3	√0.5	√0.5	1.9	1.9	∞
Hemispherical Isotropy	9.6	Rectangular	√3	√0.5	√0.5	3.9	3.9	∞
Boundary Effect	1.0	Rectangular	√3	1	1	0.6	0.6	∞
Linearity	4.7	Rectangular	√3	1	1	2.7	2.7	∞
Detection Limits	0.25	Rectangular	√3	1	1	0.14	0.14	∞
Probe Modulation Response	3.5	Rectangular	√3	1	1	2.0	2.0	∞
Readout Electronics	0.3	Normal	1	1	1	0.3	0.3	∞
Response Time	0.0	Rectangular	√3	1	1	0.0	0.0	∞
Integration Time	1.7	Rectangular	√3	1	1	1.0	1.0	∞
RF Ambient Conditions – Noise	3.0	Rectangular	√3	1	1	1.7	1.7	∞
RF Ambient Conditions – Reflections	3.0	Rectangular	√3	1	1	1.7	1.7	∞
Probe Positioner Mechanical Tolerance	0.4	Rectangular	√3	1	1	0.2	0.2	∞
Probe Positioning with Respect to Phantom	2.9	Rectangular	√3	1	1	1.7	1.7	∞
Post-processing	2.0	Rectangular	√3	1	1	1.2	1.2	∞
<b>Test Sample Related</b>								
Test Sample Positioning	3.68 / 1.73	Normal	1	1	1	3.7	1.7	29
Device Holder Uncertainty	2.55 / 2.76	Normal	1	1	1	2.6	2.8	7
Power Drift of Measurement	5.0	Rectangular	√3	1	1	2.9	2.9	∞
Power Scaling	0.0	Rectangular	√3	1	1	0.0	0.0	∞
<b>Phantom and Setup</b>								
Phantom Uncertainty (Shape and Thickness Tolerances)	7.2	Rectangular	√3	1	1	4.2	4.2	∞
Liquid Conductivity ( Temperature Uncertainty)	2.58	Rectangular	√3	0.78	0.71	1.2	1.1	∞
Liquid Conductivity (Measured)	2.95	Normal	1	0.78	0.71	2.3	2.1	61
Liquid Permittivity (Temperature Uncertainty)	1.97	Rectangular	√3	0.23	0.26	0.3	0.3	∞
Liquid Permittivity (Measured)	3.04	Normal	1	0.23	0.26	0.7	0.8	47
<b>Combined Standard Uncertainty</b>						± 11.4 %	± 11.0 %	
<b>Expanded Uncertainty (K=2)</b>						± 22.8 %	± 22.0 %	

## Body SAR Uncertainty Budget for Frequency Range of 300 MHz to 3 GHz

# FCC SAR Test Report

Source of Uncertainty	Uncertainty (± %)	Probability Distribution	Divisor	Ci (1g)	Ci (10g)	Standard Uncertainty (± %, 1g)	Standard Uncertainty (± %, 10g)	Vi
<b>Measurement System</b>								
Probe Calibration	6.55	Normal	1	1	1	6.55	6.55	∞
Axial Isotropy	4.7	Rectangular	√3	0.7	0.7	1.9	1.9	∞
Hemispherical Isotropy	9.6	Rectangular	√3	0.7	0.7	3.9	3.9	∞
Boundary Effect	2.0	Rectangular	√3	1	1	1.2	1.2	∞
Linearity	4.7	Rectangular	√3	1	1	2.7	2.7	∞
Detection Limits	0.25	Rectangular	√3	1	1	0.14	0.14	∞
Probe Modulation Response	3.5	Rectangular	√3	1	1	2.0	2.0	∞
Readout Electronics	0.3	Normal	1	1	1	0.3	0.3	∞
Response Time	0.0	Rectangular	√3	1	1	0.0	0.0	∞
Integration Time	1.7	Rectangular	√3	1	1	1.0	1.0	∞
RF Ambient Conditions – Noise	3.0	Rectangular	√3	1	1	1.7	1.7	∞
RF Ambient Conditions – Reflections	3.0	Rectangular	√3	1	1	1.7	1.7	∞
Probe Positioner Mechanical Tolerance	0.4	Rectangular	√3	1	1	0.2	0.2	∞
Probe Positioning with Respect to Phantom	6.7	Rectangular	√3	1	1	3.9	3.9	∞
Post-processing	4.0	Rectangular	√3	1	1	2.3	2.3	∞
<b>Test Sample Related</b>								
Test Sample Positioning	3.68 / 1.73	Normal	1	1	1	3.7	1.7	29
Device Holder Uncertainty	2.55 / 2.76	Normal	1	1	1	2.6	2.8	7
Power Drift of Measurement	5.0	Rectangular	√3	1	1	2.9	2.9	∞
Power Scaling	0.0	Rectangular	√3	1	1	0.0	0.0	∞
<b>Phantom and Setup</b>								
Phantom Uncertainty (Shape and Thickness Tolerances)	7.6	Rectangular	√3	1	1	4.4	4.4	∞
Liquid Conductivity ( Temperature Uncertainty)	2.58	Rectangular	√3	0.78	0.71	1.2	1.1	∞
Liquid Conductivity (Measured)	2.95	Normal	1	0.78	0.71	2.3	2.1	61
Liquid Permittivity (Temperature Uncertainty)	1.97	Rectangular	√3	0.23	0.26	0.3	0.3	∞
Liquid Permittivity (Measured)	3.04	Normal	1	0.23	0.26	0.7	0.8	47
<b>Combined Standard Uncertainty</b>						± 12.5 %	± 12.1 %	
<b>Expanded Uncertainty (K=2)</b>						± 25.0 %	± 24.2 %	

## Body SAR Uncertainty Budget for Frequency Range of 3 GHz to 6 GHz

### **7. Information of the Testing Laboratories**

We, Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch, were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are accredited and approved according to ISO/IEC 17025.

If you have any comments, please feel free to contact us at the following:

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The road map of all our labs can be found in our web site also.

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## **Appendix A. SAR Plots of System Verification**

The plots for system verification with largest deviation for each SAR system combination are shown as follows.

## System Check\_B750\_181123

**DUT: Dipole 750 MHz; Type: D750V3; SN: 1013**

Communication System: CW; Frequency: 750 MHz; Duty Cycle: 1:1

Medium: B06T09N1\_1123 Medium parameters used:  $f = 750 \text{ MHz}$ ;  $\sigma = 0.961 \text{ S/m}$ ;  $\epsilon_r = 53.2$ ;  $\rho = 1000 \text{ kg/m}^3$

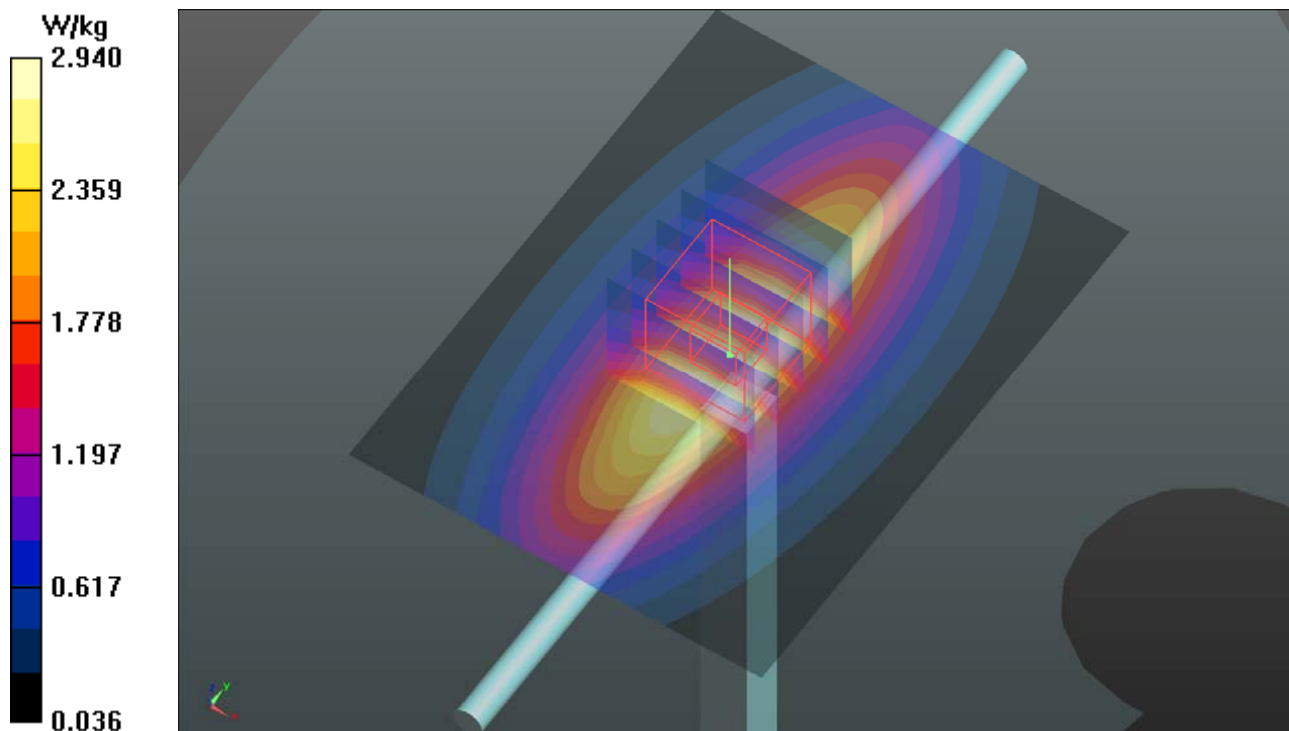
Ambient Temperature : 23. °C ; Liquid Temperature : 23.1 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3971; ConvF(10.43, 10.43, 10.43); Calibrated: 2018/03/26
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1431; Calibrated: 2018/03/16
- Phantom: Twin SAM Phantom\_1652; Type: QD000P40;
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7450)

**Pin=250mW/Area Scan (61x81x1):** Interpolated grid:  $dx=1.500 \text{ mm}$ ,  $dy=1.500 \text{ mm}$   
Maximum value of SAR (interpolated) = 2.94 W/kg

**Pin=250mW/Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$   
Reference Value = 56.63 V/m; Power Drift = 0.05 dB  
Peak SAR (extrapolated) = 3.53 W/kg  
**SAR(1 g) = 2.31 W/kg; SAR(10 g) = 1.5 W/kg**  
Maximum value of SAR (measured) = 2.96 W/kg



### System Check\_B835\_181129

**DUT: Dipole 835 MHz; Type: D835V2; SN: 4d121**

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

Medium: B07T10N1\_1129 Medium parameters used:  $f = 835 \text{ MHz}$ ;  $\sigma = 0.973 \text{ S/m}$ ;  $\epsilon_r = 57.716$ ;  $\rho = 1000 \text{ kg/m}^3$

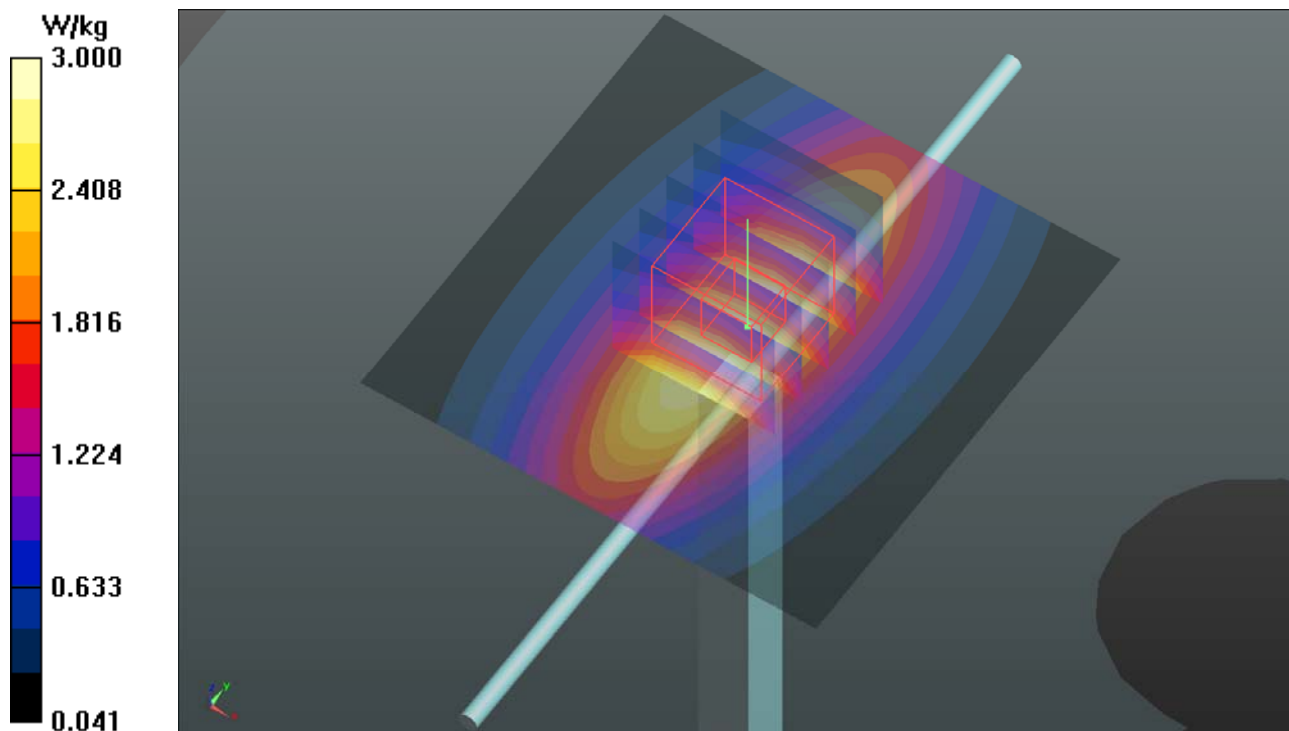
Ambient Temperature :  $23.5 \text{ }^\circ\text{C}$  ; Liquid Temperature :  $23.1 \text{ }^\circ\text{C}$

DASY5 Configuration:

- Probe: EX3DV4 - SN7472; ConvF(10.35, 10.35, 10.35); Calibrated: 2018/08/29
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1431; Calibrated: 2018/03/16
- Phantom: Twin SAM Phantom\_1653; Type: QD000P40CD;
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7450)

**Pin=250mW/Area Scan (61x61x1):** Interpolated grid:  $dx=1.500 \text{ mm}$ ,  $dy=1.500 \text{ mm}$   
Maximum value of SAR (interpolated) =  $3.00 \text{ W/kg}$

**Pin=250mW/Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$   
Reference Value =  $57.93 \text{ V/m}$ ; Power Drift =  $-0.06 \text{ dB}$   
Peak SAR (extrapolated) =  $3.35 \text{ W/kg}$   
**SAR(1 g) =  $2.25 \text{ W/kg}$ ; SAR(10 g) =  $1.48 \text{ W/kg}$**   
Maximum value of SAR (measured) =  $2.98 \text{ W/kg}$





### System Check\_B1750\_181224

**DUT: Dipole 1750 MHz; Type: D1750V2; SN: 1055**

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

Medium: B16T20N1\_1224 Medium parameters used:  $f = 1750$  MHz;  $\sigma = 1.45$  S/m;  $\epsilon_r = 51.593$ ;  $\rho = 1000$  kg/m<sup>3</sup>

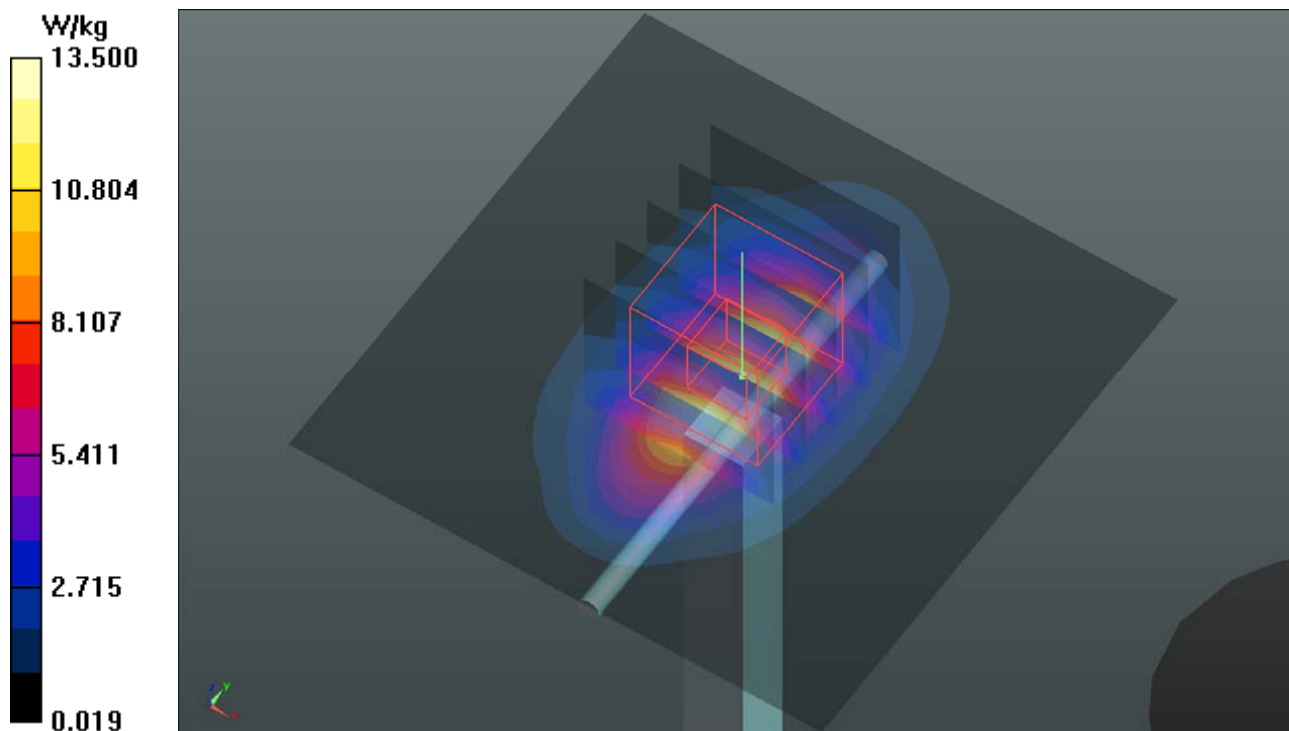
Ambient Temperature : 23.6 °C ; Liquid Temperature : 23.2 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3650; ConvF(8.2, 8.2, 8.2); Calibrated: 2018/07/27
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2018/08/27
- Phantom: Twin SAM Phantom\_1652; Type: QD000P40CD;
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7450)

**Pin=250mW/Area Scan (61x61x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm  
Maximum value of SAR (interpolated) = 13.5 W/kg

**Pin=250mW/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm  
Reference Value = 99.83 V/m; Power Drift = -0.09 dB  
Peak SAR (extrapolated) = 15.7 W/kg  
**SAR(1 g) = 8.84 W/kg; SAR(10 g) = 4.72 W/kg**  
Maximum value of SAR (measured) = 13.4 W/kg



## System Check\_B1900\_181109

**DUT: Dipole 1900 MHz; Type: D1900V2; SN: 5d036**

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

Medium: B19T27N1\_1109 Medium parameters used:  $f = 1900$  MHz;  $\sigma = 1.452$  S/m;  $\epsilon_r = 52.869$ ;  $\rho =$

$1000$  kg/m<sup>3</sup>

Ambient Temperature : 23.6 °C ; Liquid Temperature : 23.3 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3898; ConvF(7.97, 7.97, 7.97); Calibrated: 2018/06/26
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1277; Calibrated: 2018/01/18
- Phantom: Twin SAM Phantom\_1496; Type: QD000P40CA;
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7450)

**Pin=250mW/Area Scan (61x61x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 13.8 W/kg

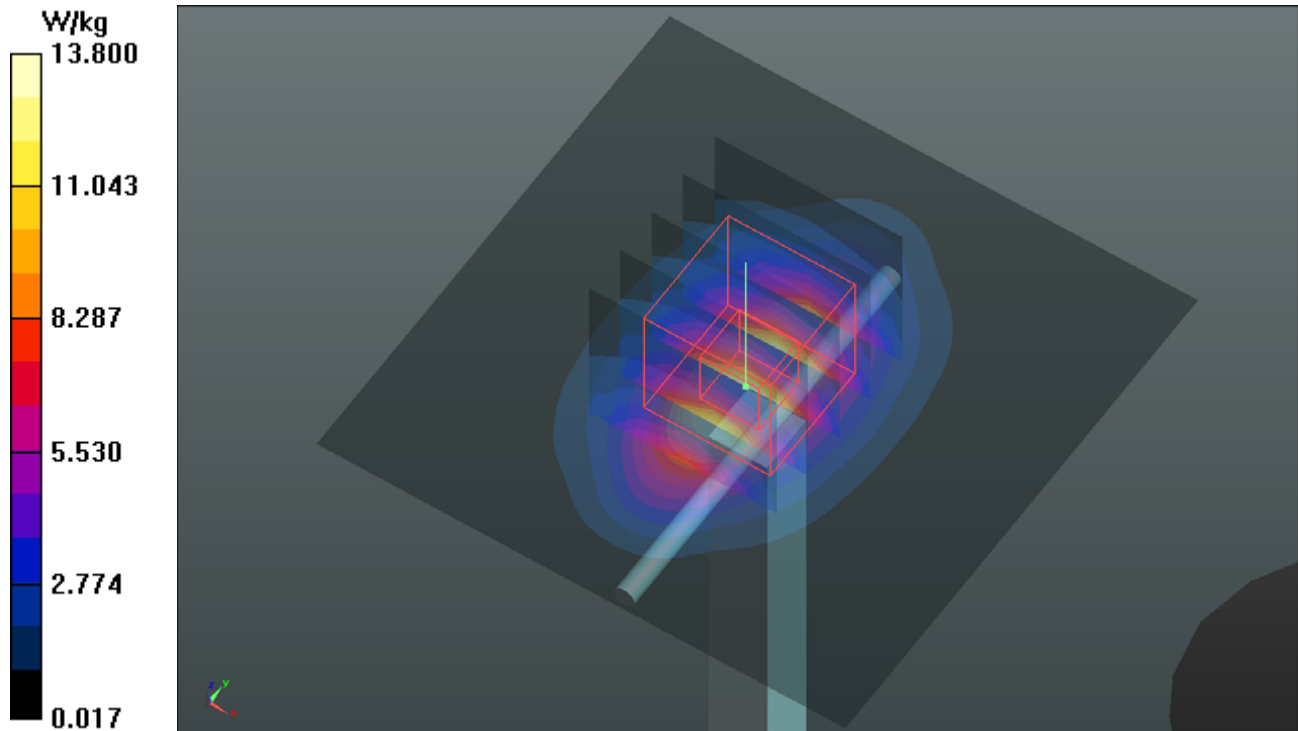
**Pin=250mW/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 99.12 V/m; Power Drift = -0.08 dB

Peak SAR (extrapolated) = 17.2 W/kg

**SAR(1 g) = 9.66 W/kg; SAR(10 g) = 5.09 W/kg**

Maximum value of SAR (measured) = 13.7 W/kg



### System Check\_B2450\_190104

**DUT: Dipole 2450 MHz; Type: D2450V2; SN: 737**

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

Medium: B19T27N1\_0104 Medium parameters used:  $f = 2450$  MHz;  $\sigma = 2.016$  S/m;  $\epsilon_r = 51.542$ ;  $\rho = 1000$  kg/m<sup>3</sup>

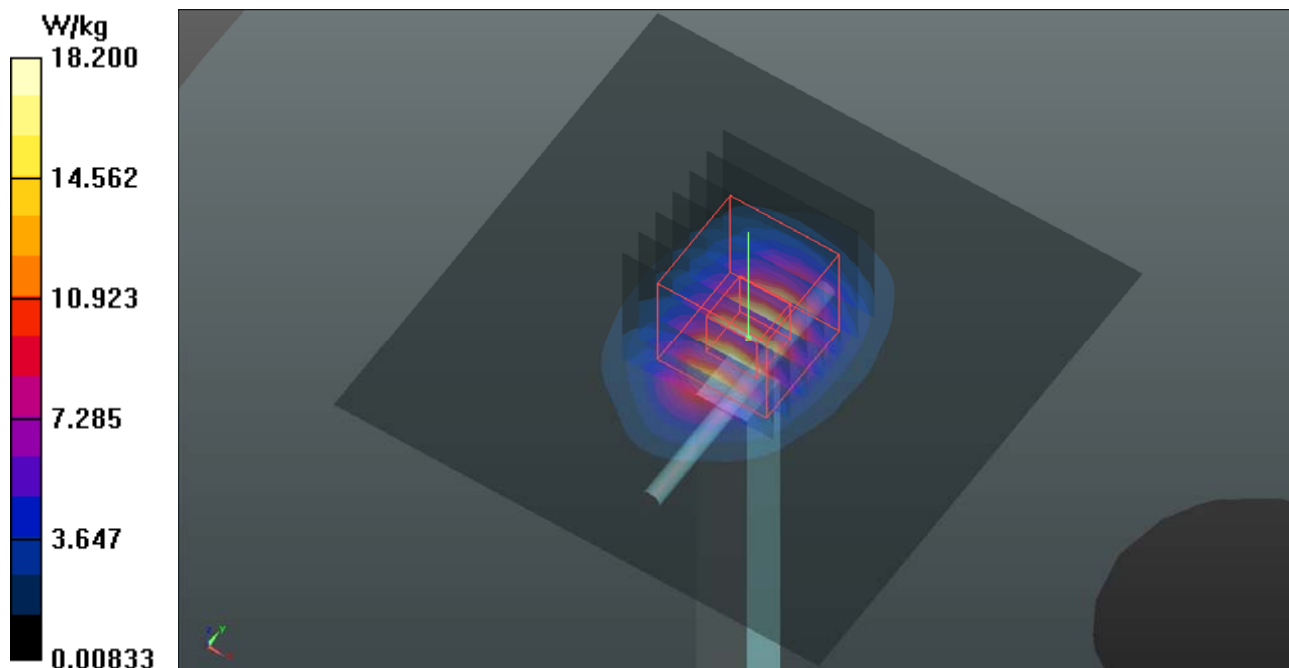
Ambient Temperature : 23.7 °C ; Liquid Temperature : 23.4 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN7472; ConvF(7.84, 7.84, 7.84); Calibrated: 2018/08/29
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1431; Calibrated: 2018/03/16
- Phantom: Twin SAM Phantom\_1822; Type: QD000P40CD;
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7450)

**Pin=250mW/Area Scan (81x81x1):** Interpolated grid: dx=1.200 mm, dy=1.200 mm  
Maximum value of SAR (interpolated) = 18.2 W/kg

**Pin=250mW/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm  
Reference Value = 97.22 V/m; Power Drift = -0.02 dB  
Peak SAR (extrapolated) = 24.1 W/kg  
**SAR(1 g) = 11.9 W/kg; SAR(10 g) = 5.52 W/kg**  
Maximum value of SAR (measured) = 18.2 W/kg



### System Check\_B2600\_181123

**DUT: Dipole 2600 MHz; Type: D2600V2; SN: 1020**

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

Medium: B19T27N1\_1123 Medium parameters used:  $f = 2600$  MHz;  $\sigma = 2.168$  S/m;  $\epsilon_r = 50.901$ ;  $\rho = 1000$  kg/m<sup>3</sup>

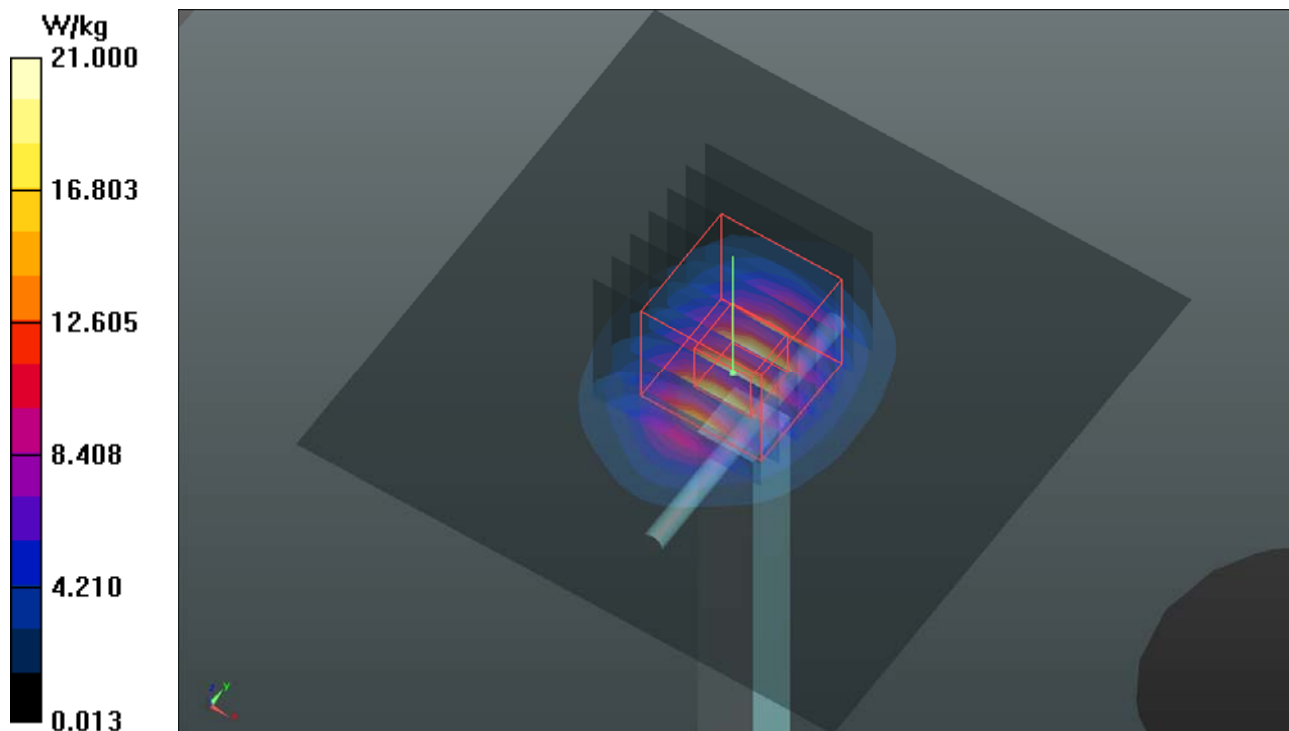
Ambient Temperature : 23. °C ; Liquid Temperature : 23.1 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3971; ConvF(7.36, 7.36, 7.36); Calibrated: 2018/03/26
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1431; Calibrated: 2018/03/16
- Phantom: Twin SAM Phantom\_1652; Type: QD000P40;
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7450)

**Pin=250mW/Area Scan (81x81x1):** Interpolated grid: dx=1.200 mm, dy=1.200 mm  
Maximum value of SAR (interpolated) = 21.0 W/kg

**Pin=250mW/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm  
Reference Value = 100.8 V/m; Power Drift = -0.02 dB  
Peak SAR (extrapolated) = 28.8 W/kg  
**SAR(1 g) = 13.5 W/kg; SAR(10 g) = 6 W/kg**  
Maximum value of SAR (measured) = 21.0 W/kg



### System Check\_B5250\_190104

**DUT: Dipole 5 GHz; Type: D5GHzV2; SN: 1019**

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

Medium: B34T60N1\_0104 Medium parameters used:  $f = 5250$  MHz;  $\sigma = 5.269$  S/m;  $\epsilon_r = 49.293$ ;  $\rho = 1000$  kg/m<sup>3</sup>

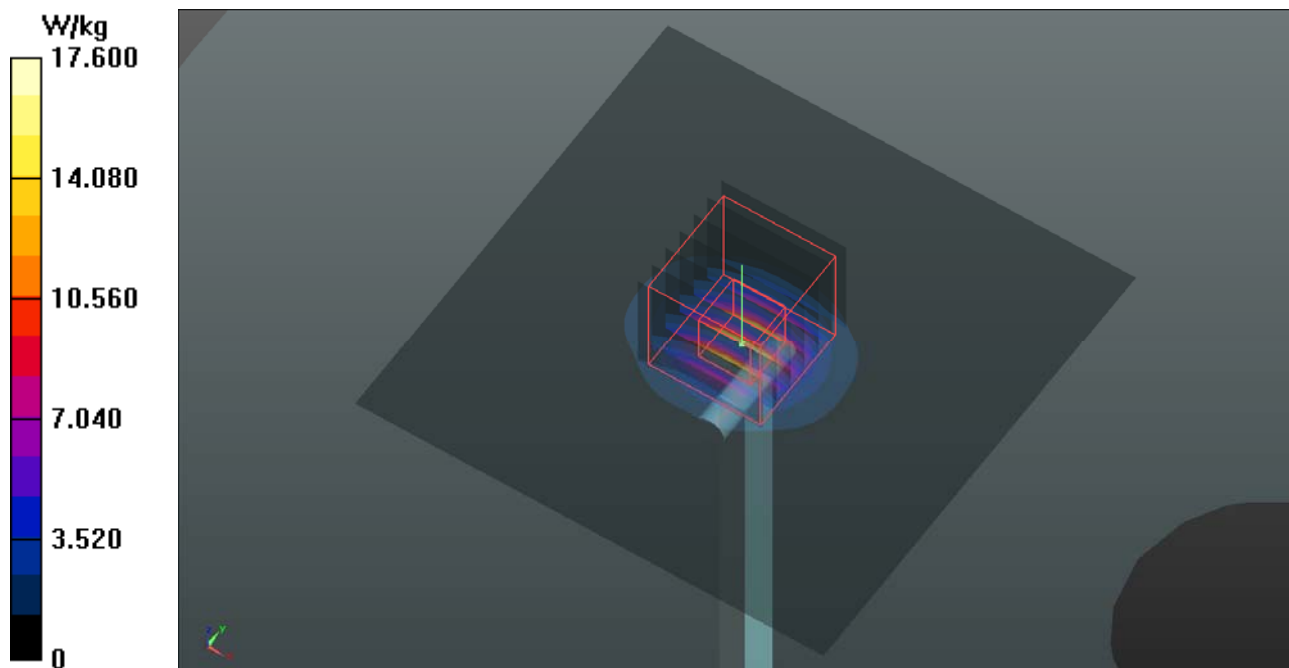
Ambient Temperature : 23.7 °C ; Liquid Temperature : 23.4 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN7472; ConvF(4.9, 4.9, 4.9); Calibrated: 2018/08/29
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1431; Calibrated: 2018/03/16
- Phantom: Twin SAM Phantom\_1822; Type: QD000P40CD;
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7450)

**Pin=100mW/Area Scan (91x91x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm  
Maximum value of SAR (interpolated) = 17.6 W/kg

**Pin=100mW/Zoom Scan (7x7x12)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=2mm  
Reference Value = 66.60 V/m; Power Drift = -0.03 dB  
Peak SAR (extrapolated) = 33.5 W/kg  
**SAR(1 g) = 7.52 W/kg; SAR(10 g) = 2.12 W/kg**  
Maximum value of SAR (measured) = 19.5 W/kg



## System Check\_B5600\_190104

**DUT: Dipole 5 GHz; Type: D5GHzV2; SN: 1019**

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

Medium: B34T60N1\_0104 Medium parameters used:  $f = 5600$  MHz;  $\sigma = 5.72$  S/m;  $\epsilon_r = 48.77$ ;  $\rho =$

$1000$  kg/m<sup>3</sup>

Ambient Temperature : 23.7 °C ; Liquid Temperature : 23.4 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN7472; ConvF(4.37, 4.37, 4.37); Calibrated: 2018/08/29
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1431; Calibrated: 2018/03/16
- Phantom: Twin SAM Phantom\_1822; Type: QD000P40CD;
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7450)

**Pin=100mW/Area Scan (91x91x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 18.2 W/kg

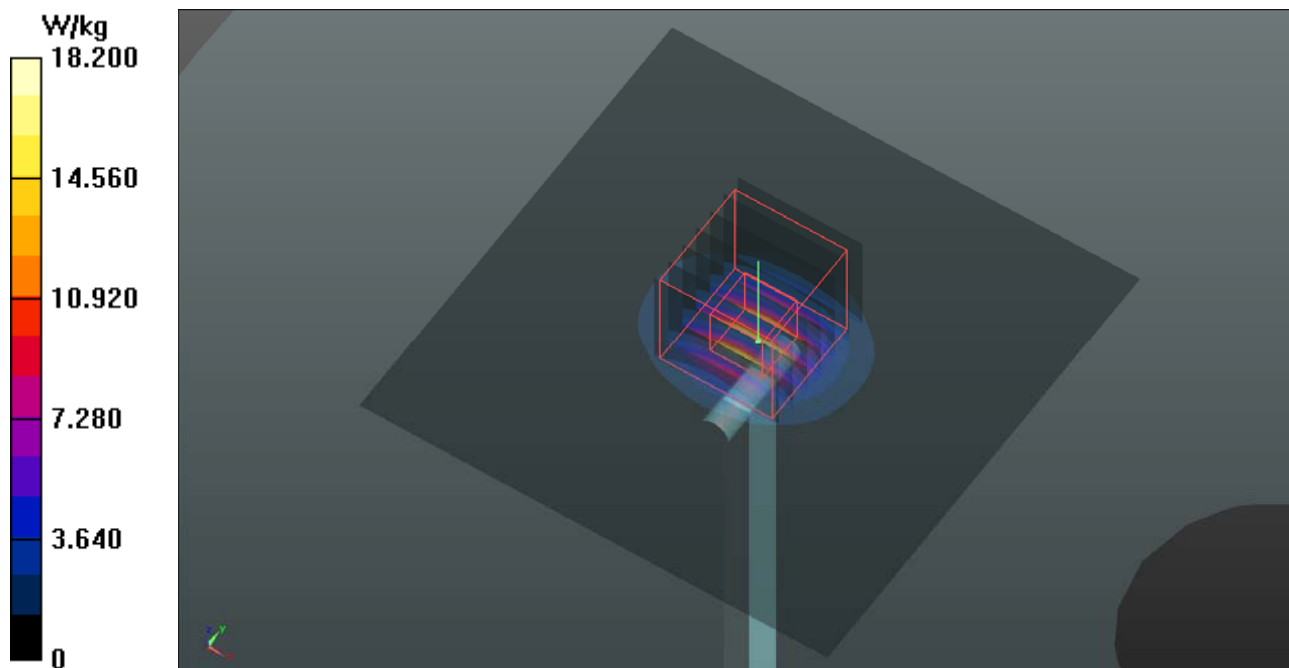
**Pin=100mW/Zoom Scan (7x7x12)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 66.02 V/m; Power Drift = -0.09 dB

Peak SAR (extrapolated) = 33.3 W/kg

**SAR(1 g) = 7.74 W/kg; SAR(10 g) = 2.18 W/kg**

Maximum value of SAR (measured) = 19.5 W/kg



### System Check\_B5750\_190104

**DUT: Dipole 5 GHz; Type: D5GHzV2; SN: 1019**

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

Medium: B34T60N1\_0104 Medium parameters used:  $f = 5750$  MHz;  $\sigma = 5.926$  S/m;  $\epsilon_r = 48.543$ ;  $\rho = 1000$  kg/m<sup>3</sup>

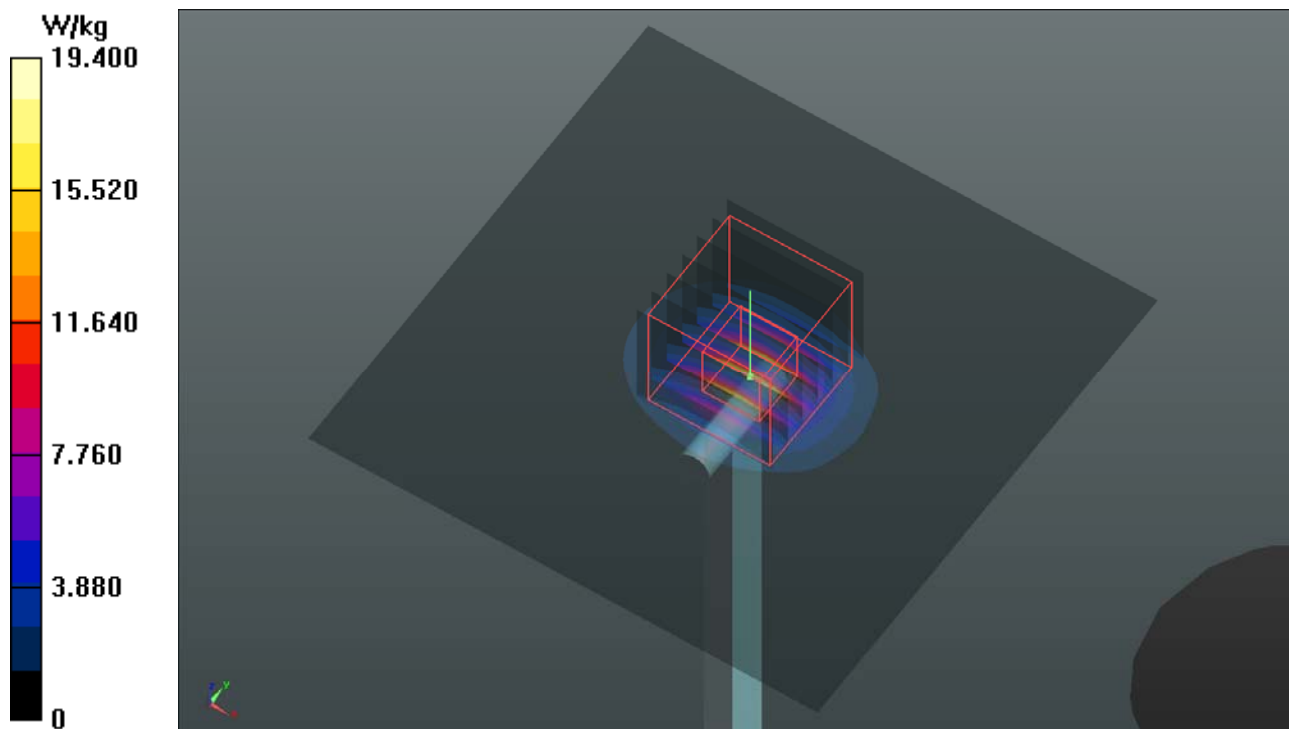
Ambient Temperature : 23.7 °C ; Liquid Temperature : 23.4 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN7472; ConvF(4.56, 4.56, 4.56); Calibrated: 2018/08/29
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1431; Calibrated: 2018/03/16
- Phantom: Twin SAM Phantom\_1822; Type: QD000P40CD;
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7450)

**Pin=100mW/Area Scan (91x91x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm  
Maximum value of SAR (interpolated) = 19.4 W/kg

**Pin=100mW/Zoom Scan (7x7x12)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=2mm  
Reference Value = 63.37 V/m; Power Drift = -0.05 dB  
Peak SAR (extrapolated) = 35.2 W/kg  
**SAR(1 g) = 7.84 W/kg; SAR(10 g) = 2.24 W/kg**  
Maximum value of SAR (measured) = 20.4 W/kg



### System Check\_B750\_181115

**DUT: Dipole 750 MHz; Type: D750V3; SN: 1013**

Communication System: CW; Frequency: 750 MHz; Duty Cycle: 1:1

Medium: B06T09N1\_1115 Medium parameters used:  $f = 750 \text{ MHz}$ ;  $\sigma = 0.959 \text{ S/m}$ ;  $\epsilon_r = 55.52$ ;  $\rho = 1000 \text{ kg/m}^3$

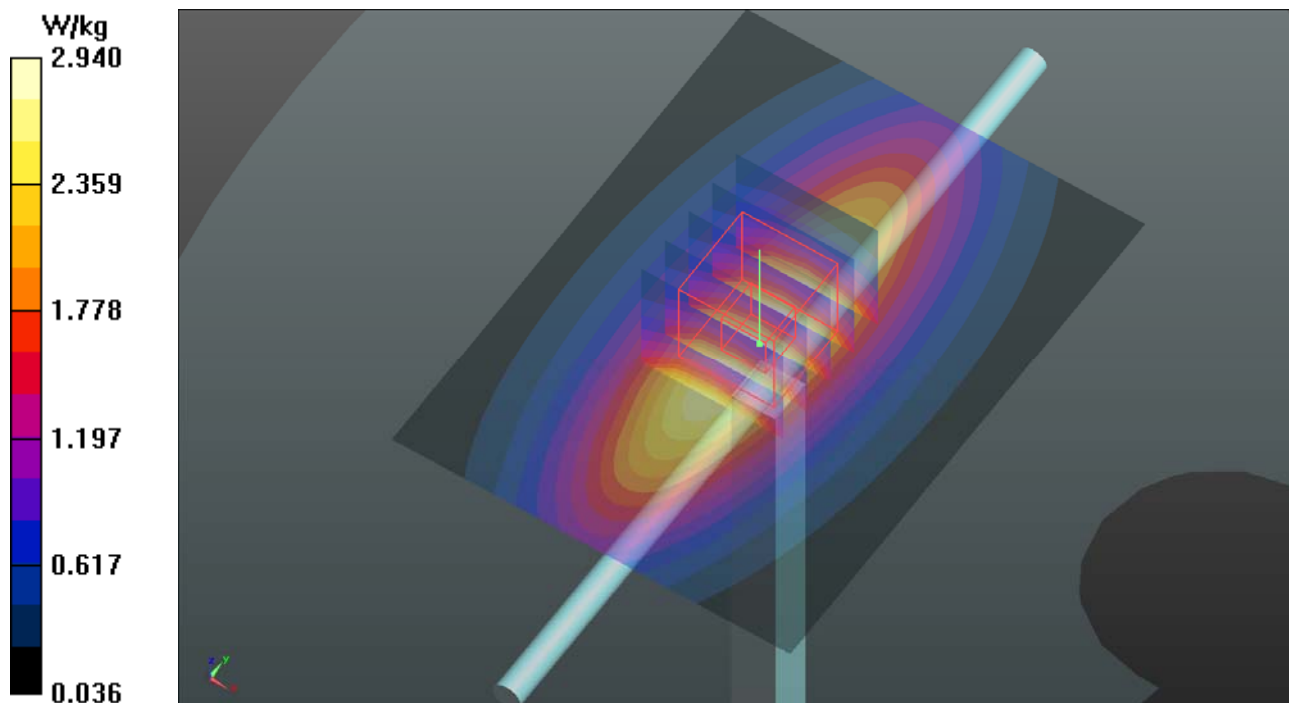
Ambient Temperature :  $23.7 \text{ }^\circ\text{C}$  ; Liquid Temperature :  $23.3 \text{ }^\circ\text{C}$

DASY5 Configuration:

- Probe: EX3DV4 - SN7472; ConvF(10.66, 10.66, 10.66); Calibrated: 2018/08/29
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn861; Calibrated: 2018/05/30
- Phantom: Twin SAM Phantom\_1823; Type: QD000P40CD;
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7450)

**Pin=250mW/Area Scan (61x81x1):** Interpolated grid:  $dx=1.500 \text{ mm}$ ,  $dy=1.500 \text{ mm}$   
Maximum value of SAR (interpolated) =  $2.94 \text{ W/kg}$

**Pin=250mW/Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$   
Reference Value =  $56.70 \text{ V/m}$ ; Power Drift =  $0.05 \text{ dB}$   
Peak SAR (extrapolated) =  $3.53 \text{ W/kg}$   
**SAR(1 g) =  $2.31 \text{ W/kg}$ ; SAR(10 g) =  $1.5 \text{ W/kg}$**   
Maximum value of SAR (measured) =  $2.96 \text{ W/kg}$





### System Check\_B835\_190117

**DUT: Dipole 835 MHz; Type: D835V2; SN: 4d121**

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

Medium: B07T10N1\_0117 Medium parameters used:  $f = 835 \text{ MHz}$ ;  $\sigma = 0.977 \text{ S/m}$ ;  $\epsilon_r = 55.992$ ;  $\rho = 1000 \text{ kg/m}^3$

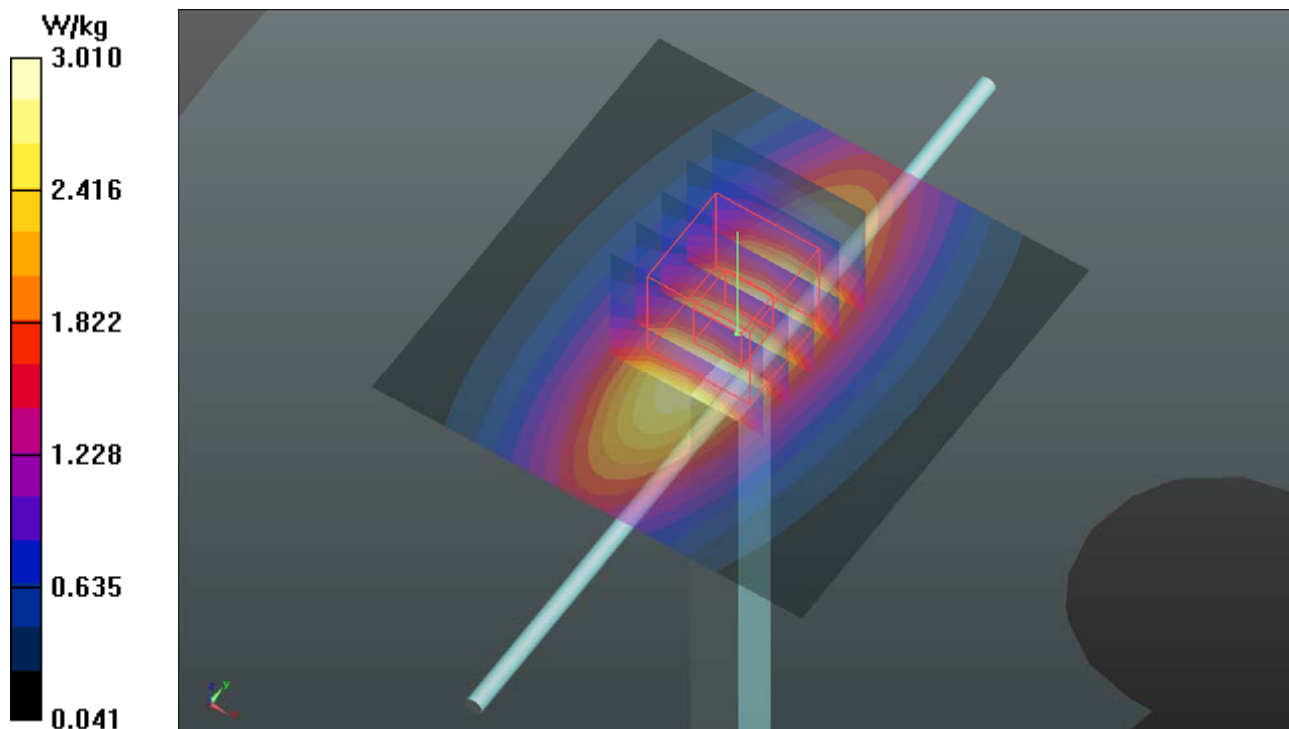
Ambient Temperature : 23.5 °C ; Liquid Temperature : 23.2 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3650; ConvF(9.74, 9.74, 9.74); Calibrated: 2018/07/27
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2018/08/27
- Phantom: Twin SAM Phantom\_1653; Type: QD000P40CD;
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7450)

**Pin=250mW/Area Scan (61x61x1):** Interpolated grid:  $dx=1.500 \text{ mm}$ ,  $dy=1.500 \text{ mm}$   
Maximum value of SAR (interpolated) = 3.01 W/kg

**Pin=250mW/Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$   
Reference Value = 57.91 V/m; Power Drift = -0.06 dB  
Peak SAR (extrapolated) = 3.36 W/kg  
**SAR(1 g) = 2.26 W/kg; SAR(10 g) = 1.49 W/kg**  
Maximum value of SAR (measured) = 2.99 W/kg



### System Check\_B1750\_190117

**DUT: Dipole 1750 MHz; Type: D1750V2; SN: 1055**

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

Medium: B16T20N1\_0117 Medium parameters used:  $f = 1750$  MHz;  $\sigma = 1.434$  S/m;  $\epsilon_r = 52.018$ ;  $\rho = 1000$  kg/m<sup>3</sup>

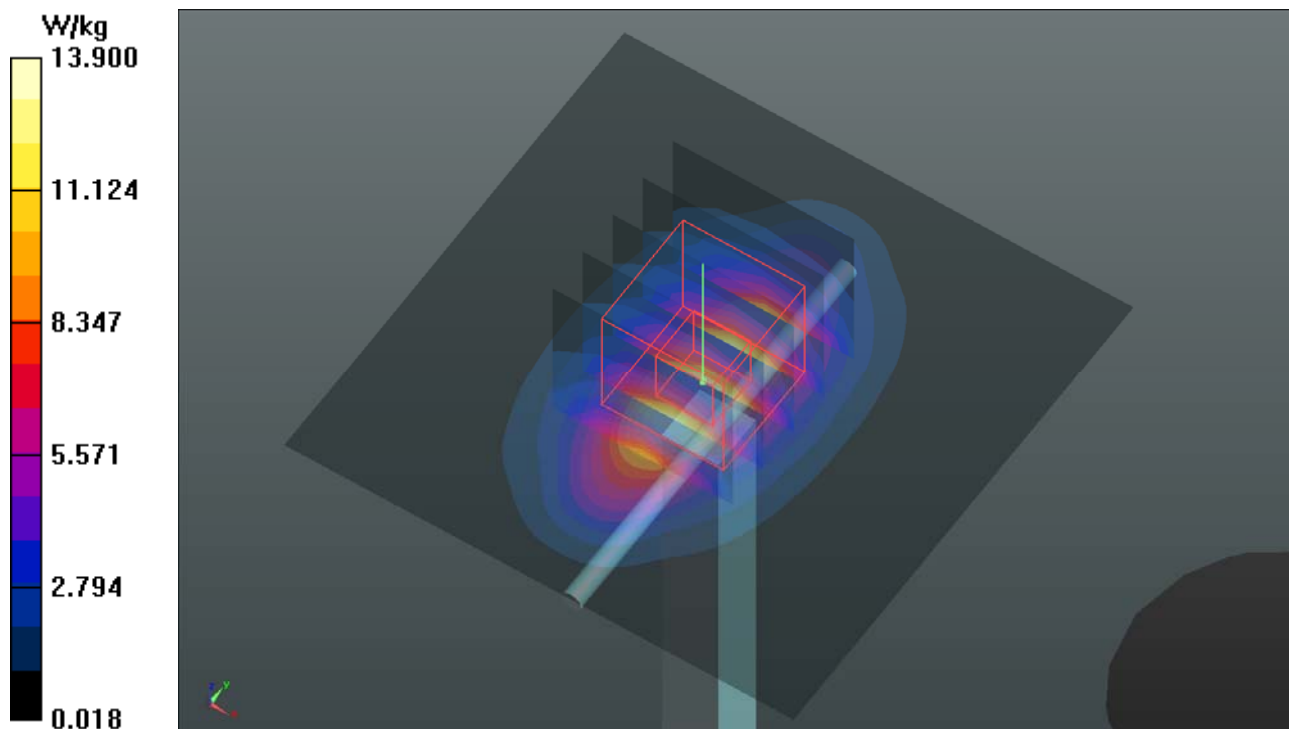
Ambient Temperature : 23.5 °C ; Liquid Temperature : 23.2 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3650; ConvF(8.2, 8.2, 8.2); Calibrated: 2018/07/27
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2018/08/27
- Phantom: Twin SAM Phantom\_1653; Type: QD000P40CD;
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7450)

**Pin=250mW/Area Scan (61x61x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm  
Maximum value of SAR (interpolated) = 13.9 W/kg

**Pin=250mW/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm  
Reference Value = 95.29 V/m; Power Drift = -0.08 dB  
Peak SAR (extrapolated) = 17.0 W/kg  
**SAR(1 g) = 8.91 W/kg; SAR(10 g) = 4.67 W/kg**  
Maximum value of SAR (measured) = 14.1 W/kg



## System Check\_B1900\_181109

**DUT: Dipole 1900 MHz; Type: D1900V2; SN: 5d036**

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

Medium: B19T27N1\_1109 Medium parameters used:  $f = 1900$  MHz;  $\sigma = 1.452$  S/m;  $\epsilon_r = 52.869$ ;  $\rho =$

$1000$  kg/m<sup>3</sup>

Ambient Temperature : 23.6 °C ; Liquid Temperature : 23.3 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3898; ConvF(7.97, 7.97, 7.97); Calibrated: 2018/06/26
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1277; Calibrated: 2018/01/18
- Phantom: Twin SAM Phantom\_1496; Type: QD000P40CA;
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7450)

**Pin=250mW/Area Scan (61x61x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 13.8 W/kg

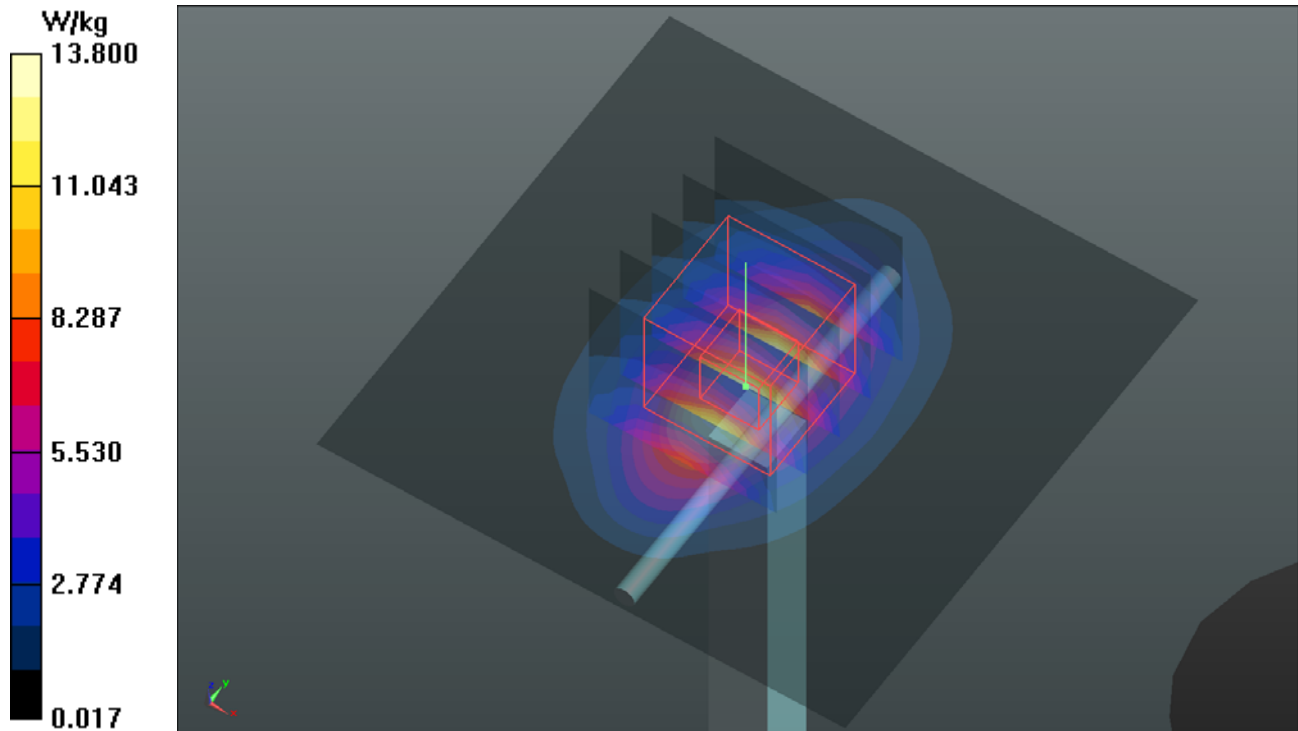
**Pin=250mW/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 99.12 V/m; Power Drift = -0.08 dB

Peak SAR (extrapolated) = 17.2 W/kg

**SAR(1 g) = 9.66 W/kg; SAR(10 g) = 5.09 W/kg**

Maximum value of SAR (measured) = 13.7 W/kg



## System Check\_B2450\_190116

**DUT: Dipole 2450 MHz; Type: D2450V2; SN: 737**

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

Medium: B19T27N1\_0116 Medium parameters used:  $f = 2450$  MHz;  $\sigma = 2.021$  S/m;  $\epsilon_r = 52.11$ ;  $\rho = 1000$  kg/m<sup>3</sup>

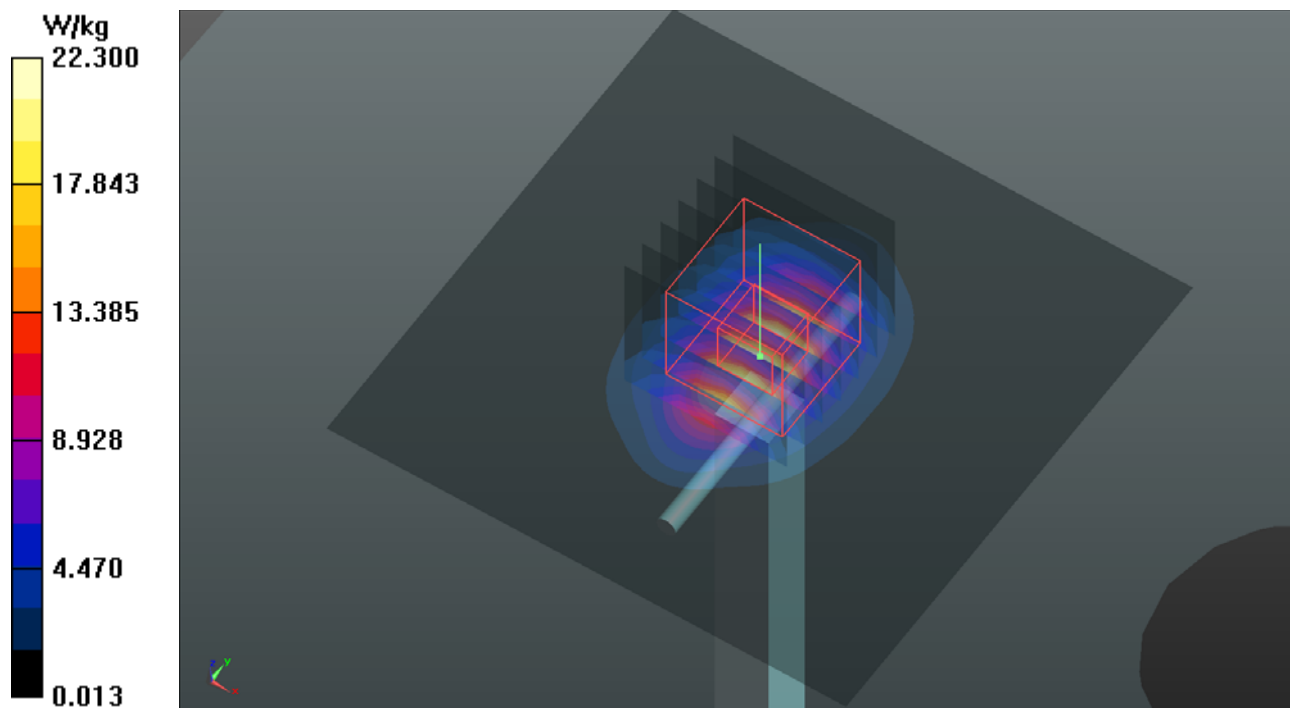
Ambient Temperature : 23.5 °C ; Liquid Temperature : 23.1 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3898; ConvF(7.61, 7.61, 7.61); Calibrated: 2018/06/26
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 2018/06/26
- Phantom: Twin SAM Phantom\_1496; Type: QD000P40CB;
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7450)

**Pin=250mW/Area Scan (81x81x1):** Interpolated grid: dx=1.200 mm, dy=1.200 mm  
Maximum value of SAR (interpolated) = 22.3 W/kg

**Pin=250mW/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm  
Reference Value = 109.1 V/m; Power Drift = -0.06 dB  
Peak SAR (extrapolated) = 27.5 W/kg  
**SAR(1 g) = 13.1 W/kg; SAR(10 g) = 5.99 W/kg**  
Maximum value of SAR (measured) = 22.1 W/kg



## System Check\_B2600\_181115

**DUT: Dipole 2600 MHz; Type: D2600V2; SN: 1020**

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

Medium: B19T27N1\_1115 Medium parameters used:  $f = 2600$  MHz;  $\sigma = 2.194$  S/m;  $\epsilon_r = 50.921$ ;  $\rho = 1000$  kg/m<sup>3</sup>

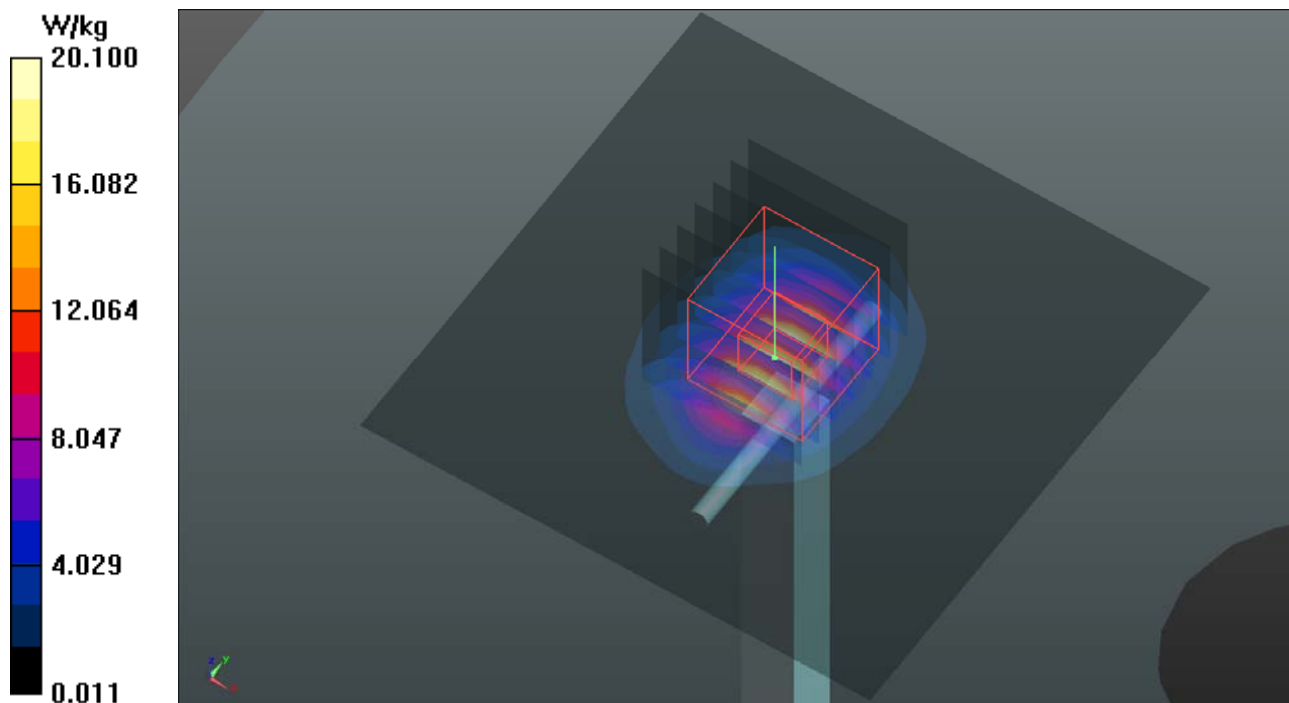
Ambient Temperature : 23.7 °C ; Liquid Temperature : 23.3 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN7472; ConvF(7.7, 7.7, 7.7); Calibrated: 2018/08/29
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn861; Calibrated: 2018/05/30
- Phantom: Twin SAM Phantom\_1823; Type: QD000P40CD;
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7450)

**Pin=250mW/Area Scan (81x81x1):** Interpolated grid: dx=1.200 mm, dy=1.200 mm  
Maximum value of SAR (interpolated) = 20.1 W/kg

**Pin=250mW/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm  
Reference Value = 98.00 V/m; Power Drift = -0.01 dB  
Peak SAR (extrapolated) = 27.3 W/kg  
**SAR(1 g) = 12.9 W/kg; SAR(10 g) = 5.77 W/kg**  
Maximum value of SAR (measured) = 20.0 W/kg



## System Check\_B5250\_190116

**DUT: Dipole 5 GHz; Type: D5GHzV2; SN: 1019**

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

Medium: B34T60N1\_0116 Medium parameters used:  $f = 5250$  MHz;  $\sigma = 5.475$  S/m;  $\epsilon_r = 47.871$ ;  $\rho = 1000$  kg/m<sup>3</sup>

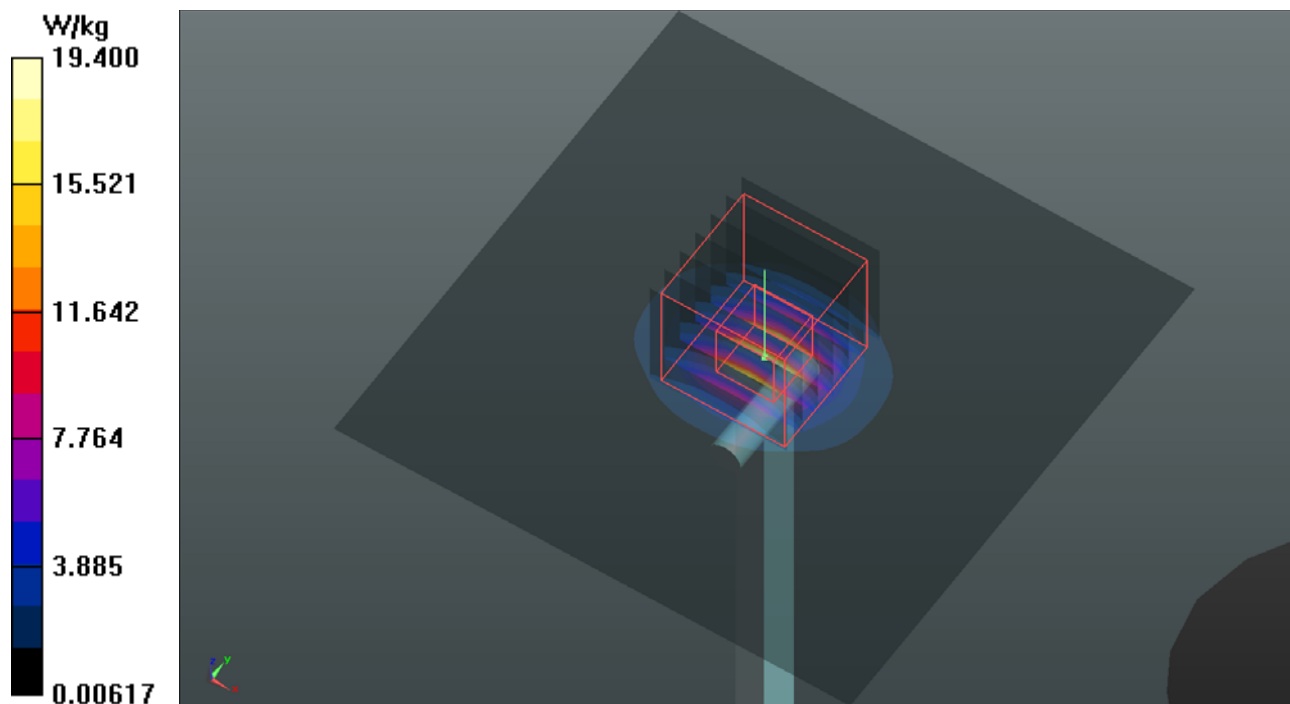
Ambient Temperature : 23.5 °C ; Liquid Temperature : 23.1 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3898; ConvF(4.95, 4.95, 4.95); Calibrated: 2018/06/26
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 2018/06/26
- Phantom: Twin SAM Phantom\_1496; Type: QD000P40CB;
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7450)

**Pin=100mW/Area Scan (91x91x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm  
Maximum value of SAR (interpolated) = 19.4 W/kg

**Pin=100mW/Zoom Scan (7x7x12)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=2mm  
Reference Value = 71.46 V/m; Power Drift = 0.01 dB  
Peak SAR (extrapolated) = 34.4 W/kg  
**SAR(1 g) = 7.48 W/kg; SAR(10 g) = 2.05 W/kg**  
Maximum value of SAR (measured) = 21.3 W/kg



## System Check\_B5600\_190116

**DUT: Dipole 5 GHz; Type: D5GHzV2; SN: 1019**

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

Medium: B34T60N1\_0116 Medium parameters used:  $f = 5600$  MHz;  $\sigma = 5.961$  S/m;  $\epsilon_r = 47.19$ ;  $\rho = 1000$  kg/m<sup>3</sup>

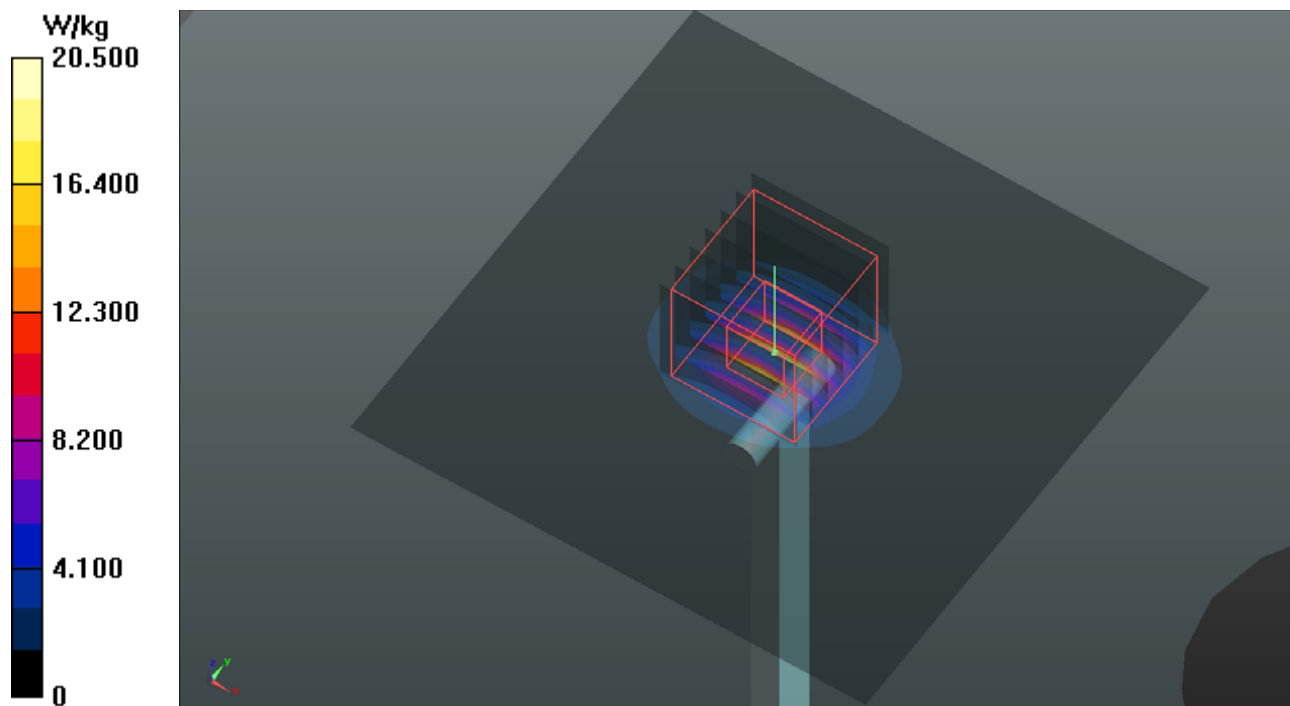
Ambient Temperature : 23.5 °C ; Liquid Temperature : 23.1 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3898; ConvF(4.17, 4.17, 4.17); Calibrated: 2018/06/26
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 2018/06/26
- Phantom: Twin SAM Phantom\_1496; Type: QD000P40CB;
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7450)

**Pin=100mW/Area Scan (91x91x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm  
Maximum value of SAR (interpolated) = 20.5 W/kg

**Pin=100mW/Zoom Scan (7x7x12)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=2mm  
Reference Value = 69.75 V/m; Power Drift = 0.03 dB  
Peak SAR (extrapolated) = 38.0 W/kg  
**SAR(1 g) = 8.48 W/kg; SAR(10 g) = 2.37 W/kg**  
Maximum value of SAR (measured) = 22.2 W/kg



## System Check\_B5750\_190116

**DUT: Dipole 5 GHz; Type: D5GHzV2; SN: 1019**

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

Medium: B34T60N1\_0116 Medium parameters used:  $f = 5750$  MHz;  $\sigma = 6.166$  S/m;  $\epsilon_r = 46.843$ ;  $\rho = 1000$  kg/m<sup>3</sup>

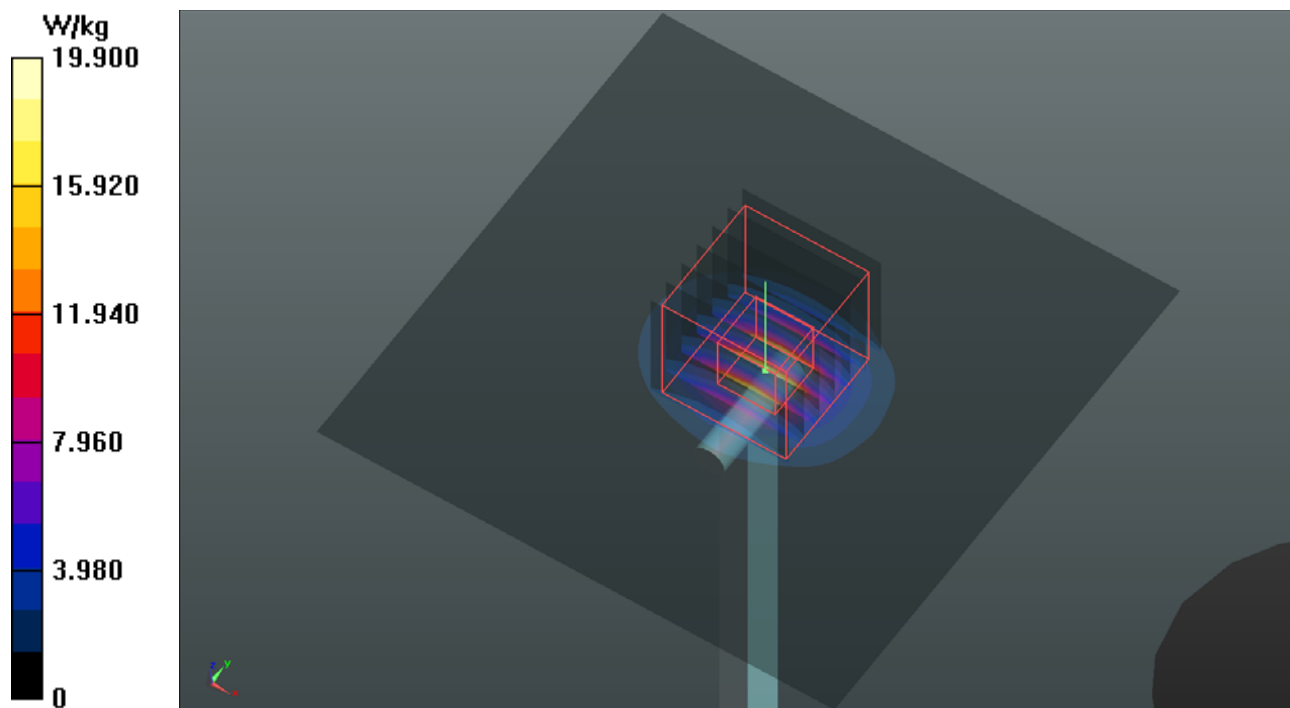
Ambient Temperature : 23.5 °C ; Liquid Temperature : 23.1 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3898; ConvF(4.45, 4.45, 4.45); Calibrated: 2018/06/26
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 2018/06/26
- Phantom: Twin SAM Phantom\_1496; Type: QD000P40CB;
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7450)

**Pin=100mW/Area Scan (91x91x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm  
Maximum value of SAR (interpolated) = 19.9 W/kg

**Pin=100mW/Zoom Scan (7x7x12)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=2mm  
Reference Value = 62.70 V/m; Power Drift = -0.17 dB  
Peak SAR (extrapolated) = 36.1 W/kg  
**SAR(1 g) = 8 W/kg; SAR(10 g) = 2.21 W/kg**  
Maximum value of SAR (measured) = 20.7 W/kg







### Appendix B. SAR Plots of SAR Measurement

The SAR plots for highest measured SAR in each exposure configuration, wireless mode and frequency band combination, and measured SAR > 1.5 W/kg are shown as follows.

## P01 GSM850\_GPRS12\_Rear Face\_0mm\_Ch251\_Battery 2

### DUT: 181205C03

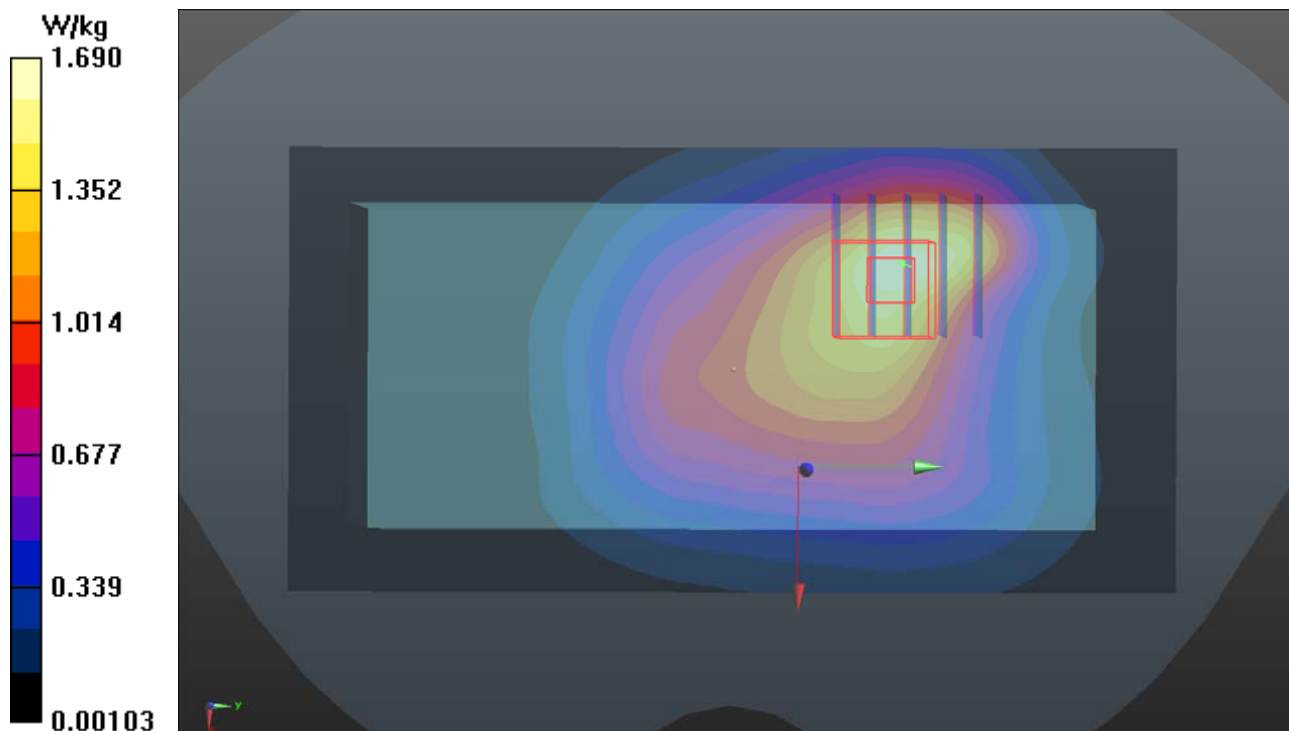
Communication System: GPRS12; Frequency: 848.8 MHz; Duty Cycle: 1:2  
Medium: B07T10N1\_1129 Medium parameters used:  $f = 848.8$  MHz;  $\sigma = 0.985$  S/m;  $\epsilon_r = 57.607$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Ambient Temperature : 23.5 °C ; Liquid Temperature : 23.1 °C

#### DASY5 Configuration:

- Probe: EX3DV4 - SN7472; ConvF(10.35, 10.35, 10.35); Calibrated: 2018/08/29
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1431; Calibrated: 2018/03/16
- Phantom: Twin SAM Phantom\_1653; Type: QD000P40CD;
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7450)

- **Area Scan (71x141x1):** Interpolated grid: dx=2.000 mm, dy=2.000 mm  
Maximum value of SAR (interpolated) = 1.69 W/kg

- **Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm  
Reference Value = 39.72 V/m; Power Drift = -0.06 dB  
Peak SAR (extrapolated) = 1.78 W/kg  
**SAR(1 g) = 1.2 W/kg; SAR(10 g) = 0.819 W/kg**  
Maximum value of SAR (measured) = 1.56 W/kg



## P02 GSM1900\_GPRS12\_Rear Face\_0mm\_Ch810\_Battery 2

**DUT: 181205C03**

Communication System: GPRS12; Frequency: 1909.8 MHz; Duty Cycle: 1:2

Medium: B19T27N1\_1109 Medium parameters used:  $f = 1910$  MHz;  $\sigma = 1.462$  S/m;  $\epsilon_r = 52.84$ ;  $\rho =$

$1000$  kg/m<sup>3</sup>

Ambient Temperature : 23.6 °C ; Liquid Temperature : 23.3 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3898; ConvF(7.97, 7.97, 7.97); Calibrated: 2018/06/26
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1277; Calibrated: 2018/01/18
- Phantom: Twin SAM Phantom\_1496; Type: QD000P40CA;
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7450)

- **Area Scan (71x141x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.895 W/kg

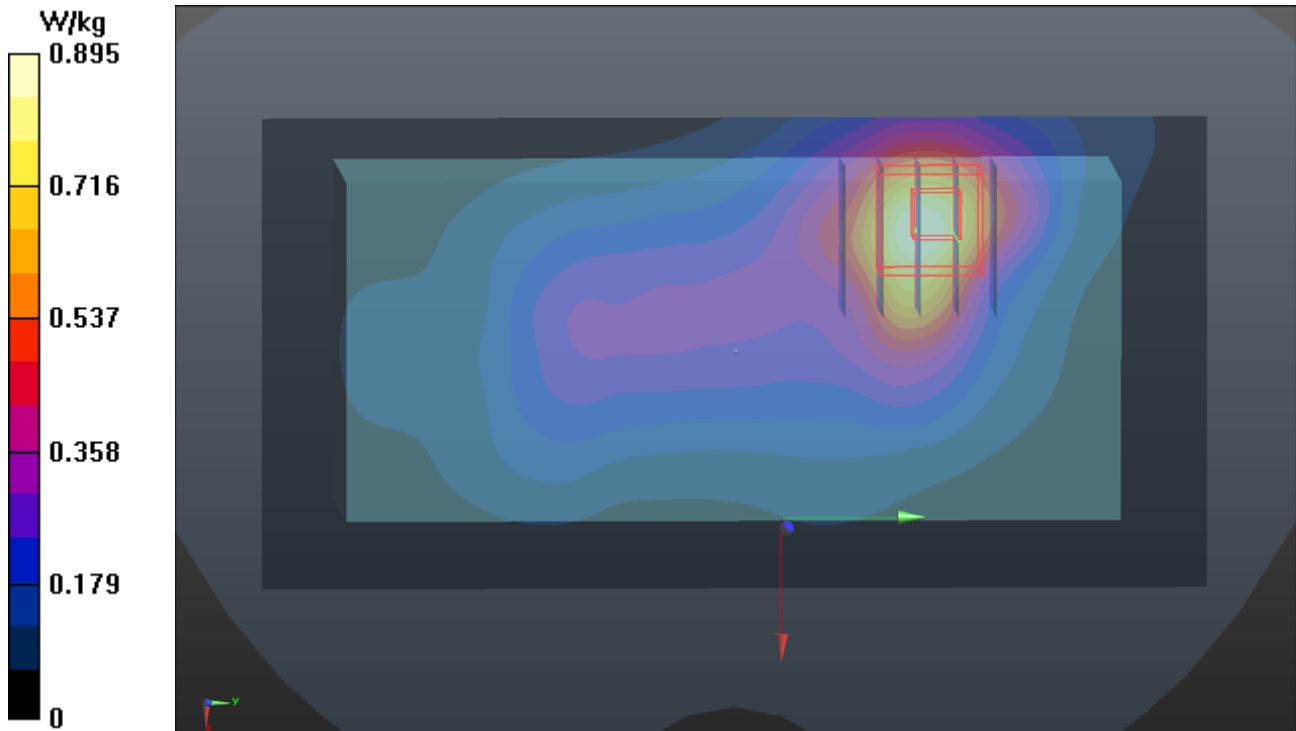
- **Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 25.21 V/m; Power Drift = -0.03 dB

Peak SAR (extrapolated) = 1.02 W/kg

**SAR(1 g) = 0.608 W/kg; SAR(10 g) = 0.347 W/kg**

Maximum value of SAR (measured) = 0.819 W/kg



## P03 WCDMA II\_RMC12.2K\_Rear Face\_0mm\_Ch9538\_Battery 2

### DUT: 181205C03

Communication System: WCDMA; Frequency: 1907.6 MHz; Duty Cycle: 1:1

Medium: B16T20N1\_1121 Medium parameters used:  $f = 1908$  MHz;  $\sigma = 1.589$  S/m;  $\epsilon_r = 52.134$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature : 23.6 °C ; Liquid Temperature : 23.3 °C

#### DASY5 Configuration:

- Probe: EX3DV4 - SN3971; ConvF(8.08, 8.08, 8.08); Calibrated: 2018/03/26
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1431; Calibrated: 2018/03/16
- Phantom: Twin SAM Phantom\_1652; Type: QD000P40;
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7450)

- **Area Scan (71x141x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm

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

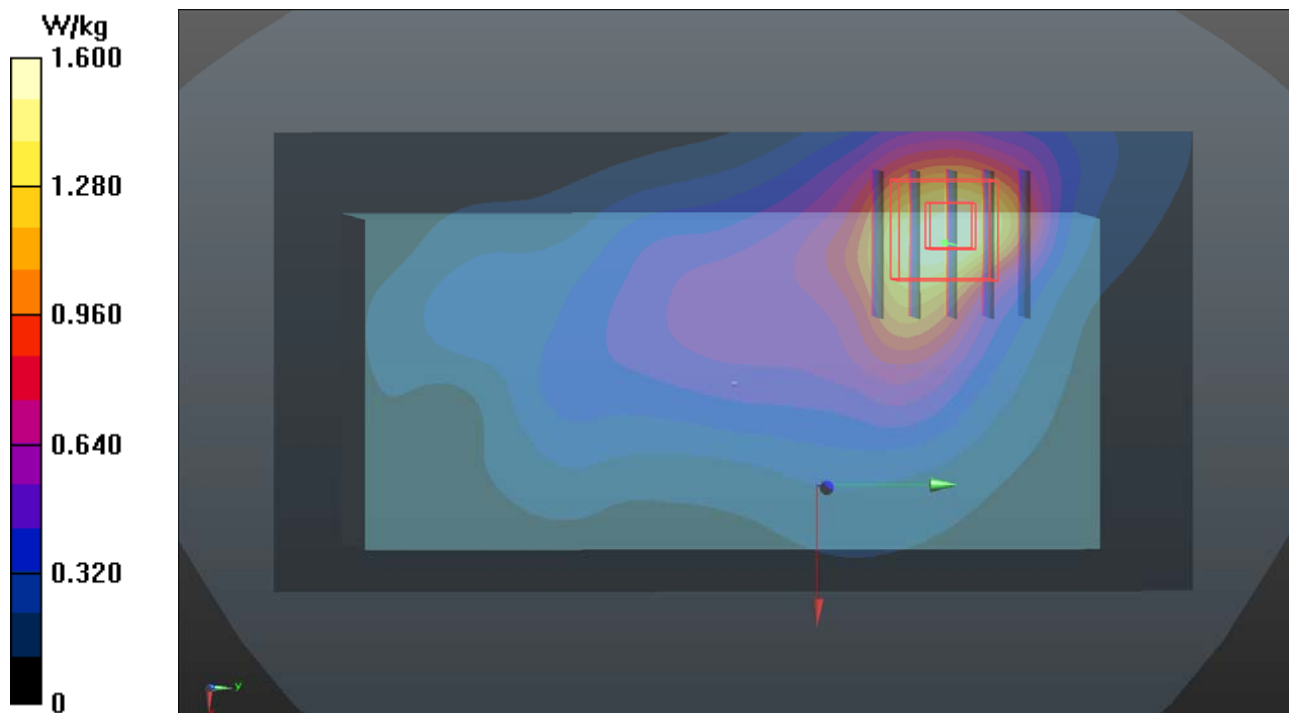
- **Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 31.71 V/m; Power Drift = -0.05 dB

Peak SAR (extrapolated) = 1.97 W/kg

**SAR(1 g) = 1.14 W/kg; SAR(10 g) = 0.641 W/kg**

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



## P04 WCDMA IV\_RMC12.2K\_Rear Face\_0mm\_Ch1312\_Battery 2

### DUT: 181205C03

Communication System: WCDMA; Frequency: 1712.4 MHz; Duty Cycle: 1:1

Medium: B16T20N1\_1224 Medium parameters used:  $f = 1712.4$  MHz;  $\sigma = 1.426$  S/m;  $\epsilon_r = 51.659$ ;  $\rho$

$= 1000$  kg/m<sup>3</sup>

Ambient Temperature : 23.6 °C ; Liquid Temperature : 23.2 °C

#### DASY5 Configuration:

- Probe: EX3DV4 - SN3650; ConvF(8.2, 8.2, 8.2); Calibrated: 2018/07/27
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2018/08/27
- Phantom: Twin SAM Phantom\_1652; Type: QD000P40CD;
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7450)

- **Area Scan (71x141x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 1.64 W/kg

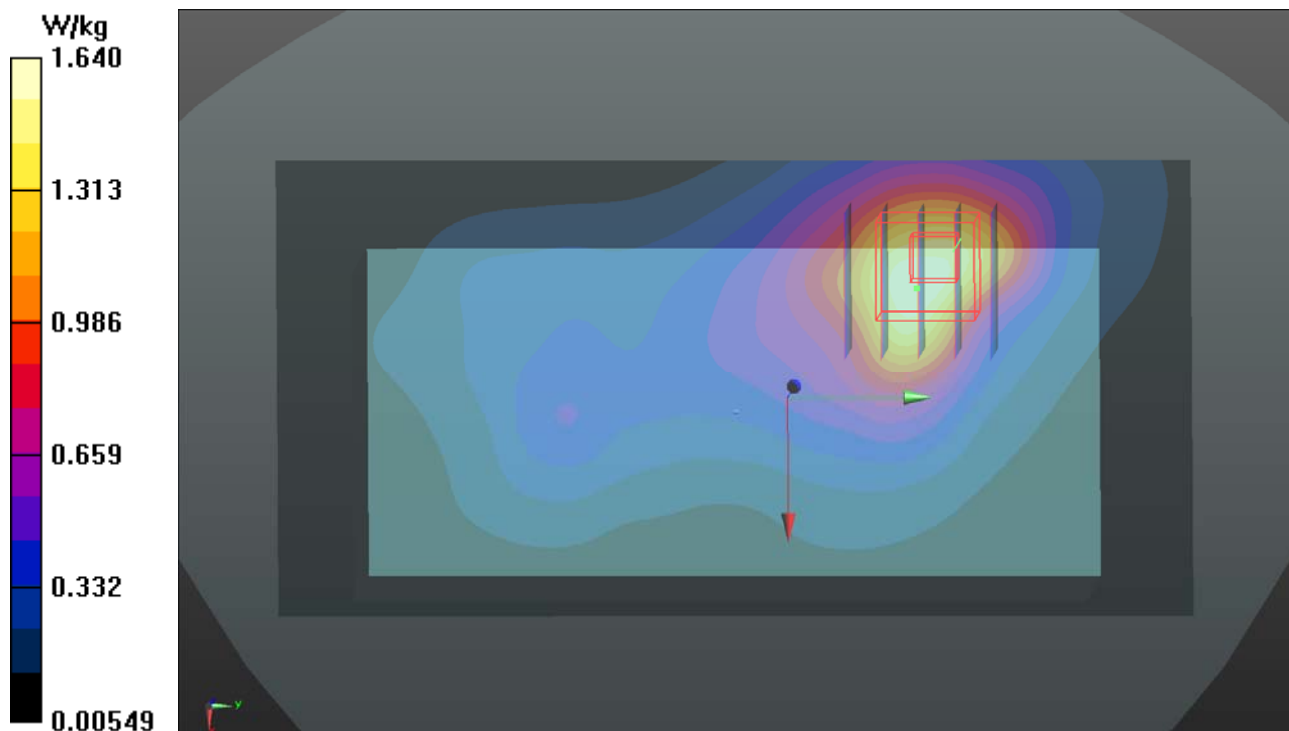
- **Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 33.37 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 1.87 W/kg

**SAR(1 g) = 1.08 W/kg; SAR(10 g) = 0.643 W/kg**

Maximum value of SAR (measured) = 1.55 W/kg



## P05 WCDMA V\_RMC12.2K\_Rear Face\_0mm\_Ch4132\_Battery 2

### DUT: 181205C03

Communication System: WCDMA; Frequency: 826.4 MHz; Duty Cycle: 1:1

Medium: B07T10N2\_1224 Medium parameters used:  $f = 826.4$  MHz;  $\sigma = 1$  S/m;  $\epsilon_r = 54.368$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature : 23.6 °C ; Liquid Temperature : 23.2 °C

#### DASY5 Configuration:

- Probe: EX3DV4 - SN3650; ConvF(9.74, 9.74, 9.74); Calibrated: 2018/07/27
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2018/08/27
- Phantom: Twin SAM Phantom\_1652; Type: QD000P40CD;
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7450)

- **Area Scan (71x141x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 1.14 W/kg

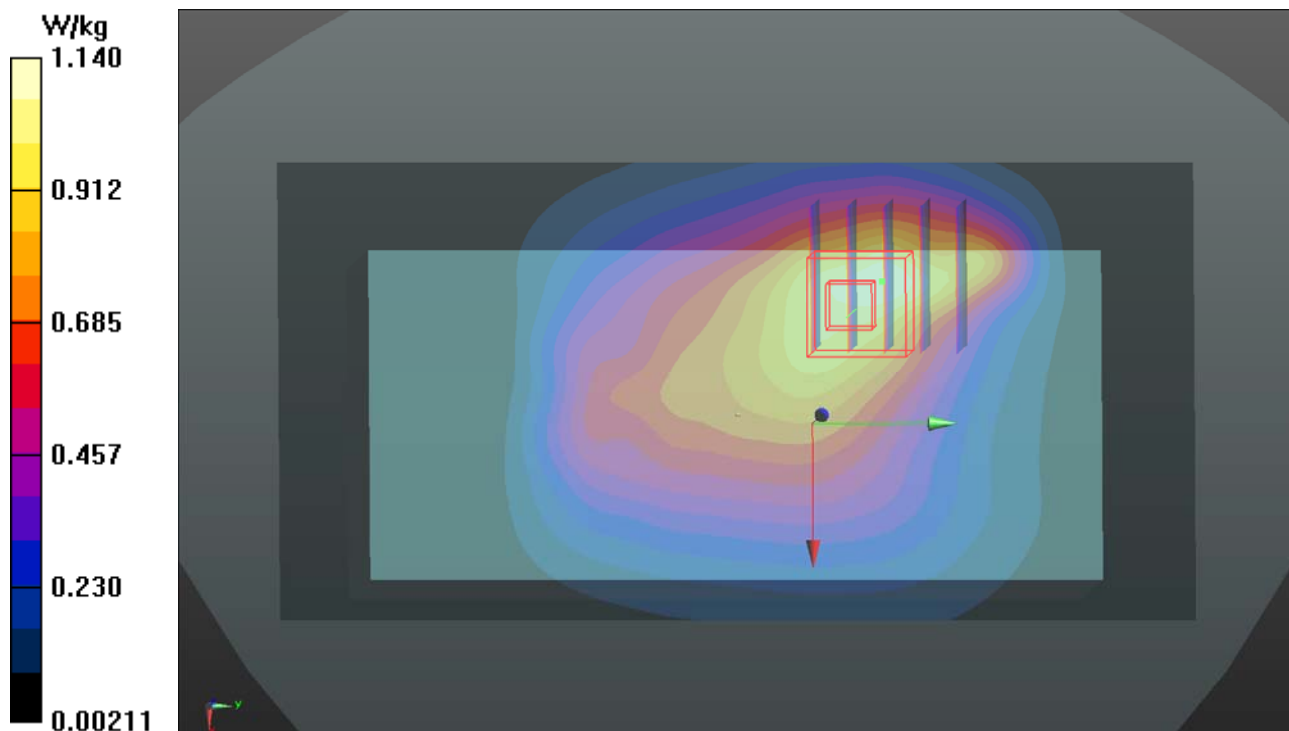
- **Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 33.14 V/m; Power Drift = -0.06 dB

Peak SAR (extrapolated) = 1.24 W/kg

**SAR(1 g) = 0.816 W/kg; SAR(10 g) = 0.544 W/kg**

Maximum value of SAR (measured) = 1.08 W/kg



## P06 LTE 2\_QPSK20M\_Rear Face\_0mm\_Ch19100\_1RB\_OS0\_Battery 2

### DUT: 181205C03

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

Medium: B16T20N1\_1121 Medium parameters used:  $f = 1900$  MHz;  $\sigma = 1.581$  S/m;  $\epsilon_r = 52.161$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature : 23.6 °C ; Liquid Temperature : 23.3 °C

#### DASY5 Configuration:

- Probe: EX3DV4 - SN3971; ConvF(8.08, 8.08, 8.08); Calibrated: 2018/03/26
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1431; Calibrated: 2018/03/16
- Phantom: Twin SAM Phantom\_1652; Type: QD000P40;
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7450)

- **Area Scan (71x141x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 1.30 W/kg

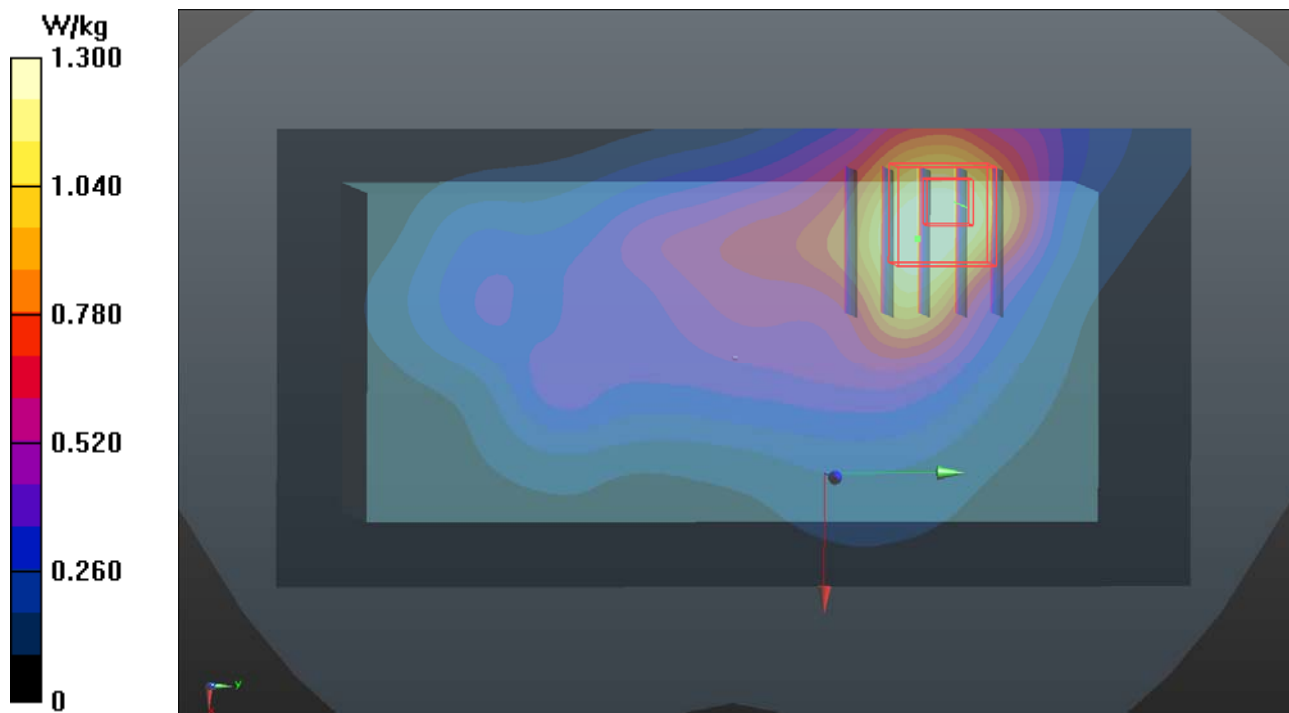
- **Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 29.49 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 1.82 W/kg

**SAR(1 g) = 1.04 W/kg; SAR(10 g) = 0.589 W/kg**

Maximum value of SAR (measured) = 1.53 W/kg



## P07 LTE 4\_QPSK20M\_Rear Face\_0mm\_Ch20175\_1RB\_OS0\_Battery 2

### DUT: 181205C03

Communication System: LTE; Frequency: 1732.5 MHz; Duty Cycle: 1:1

Medium: B16T20N1\_1121 Medium parameters used:  $f = 1733$  MHz;  $\sigma = 1.421$  S/m;  $\epsilon_r = 52.632$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature : 23.6 °C ; Liquid Temperature : 23.3 °C

#### DASY5 Configuration:

- Probe: EX3DV4 - SN3971; ConvF(8.34, 8.34, 8.34); Calibrated: 2018/03/26
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1431; Calibrated: 2018/03/16
- Phantom: Twin SAM Phantom\_1652; Type: QD000P40;
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7450)

- **Area Scan (71x141x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 1.46 W/kg

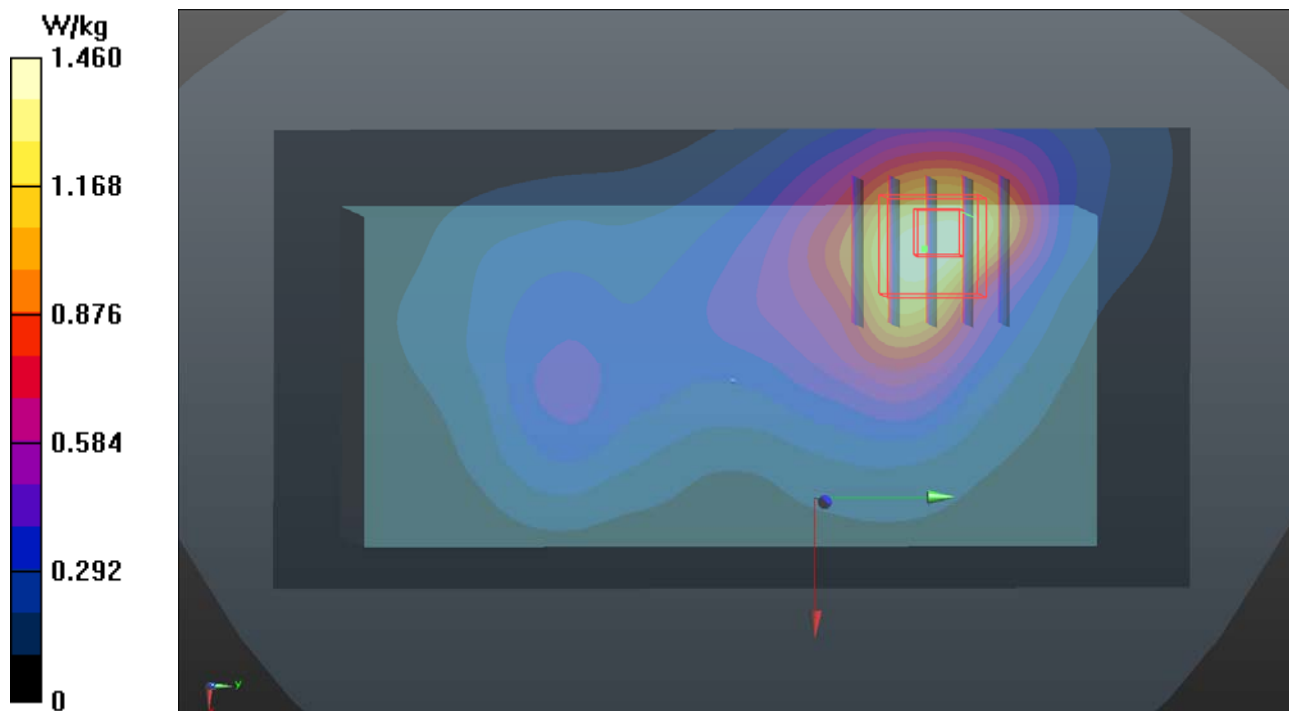
- **Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 31.65 V/m; Power Drift = -0.06 dB

Peak SAR (extrapolated) = 1.69 W/kg

**SAR(1 g) = 1 W/kg; SAR(10 g) = 0.610 W/kg**

Maximum value of SAR (measured) = 1.35 W/kg





## P08 LTE 5\_QPSK10M\_Rear Face\_0mm\_Ch20450\_1RB\_OS0\_Battery 2

### DUT: 181205C03

Communication System: LTE; Frequency: 829 MHz; Duty Cycle: 1:1

Medium: B07T10N1\_1123 Medium parameters used:  $f = 829 \text{ MHz}$ ;  $\sigma = 0.969 \text{ S/m}$ ;  $\epsilon_r = 55.071$ ;  $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature : 23. °C ; Liquid Temperature : 23.1 °C

#### DASY5 Configuration:

- Probe: EX3DV4 - SN3971; ConvF(10.15, 10.15, 10.15); Calibrated: 2018/03/26
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1431; Calibrated: 2018/03/16
- Phantom: Twin SAM Phantom\_1652; Type: QD000P40;
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7450)

- **Area Scan (71x141x1):** Interpolated grid:  $dx=1.500 \text{ mm}$ ,  $dy=1.500 \text{ mm}$

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

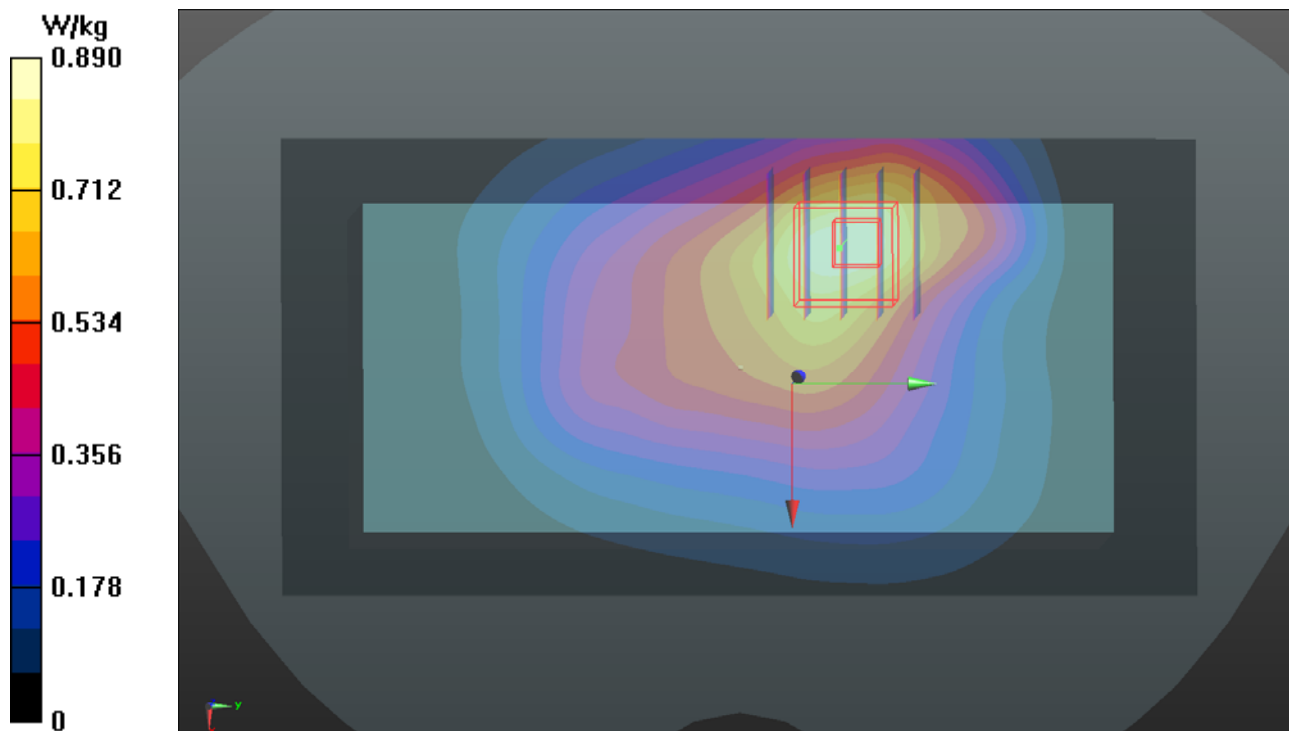
- **Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 30.77 V/m; Power Drift = -0.17 dB

Peak SAR (extrapolated) = 0.999 W/kg

**SAR(1 g) = 0.665 W/kg; SAR(10 g) = 0.448 W/kg**

Maximum value of SAR (measured) = 0.867 W/kg



## P09 LTE 7\_QPSK20M\_Rear Face\_0mm\_Ch20850\_1RB\_OS0\_Battery 2

### DUT: 181205C03

Communication System: LTE; Frequency: 2510 MHz; Duty Cycle: 1:1

Medium: B19T27N1\_1123 Medium parameters used:  $f = 2510$  MHz;  $\sigma = 2.065$  S/m;  $\epsilon_r = 51.169$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature : 23. °C ; Liquid Temperature : 23.1 °C

#### DASY5 Configuration:

- Probe: EX3DV4 - SN3971; ConvF(7.36, 7.36, 7.36); Calibrated: 2018/03/26
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1431; Calibrated: 2018/03/16
- Phantom: Twin SAM Phantom\_1652; Type: QD000P40;
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7450)

- **Area Scan (91x171x1):** Interpolated grid: dx=1.200 mm, dy=1.200 mm

Maximum value of SAR (interpolated) = 1.23 W/kg

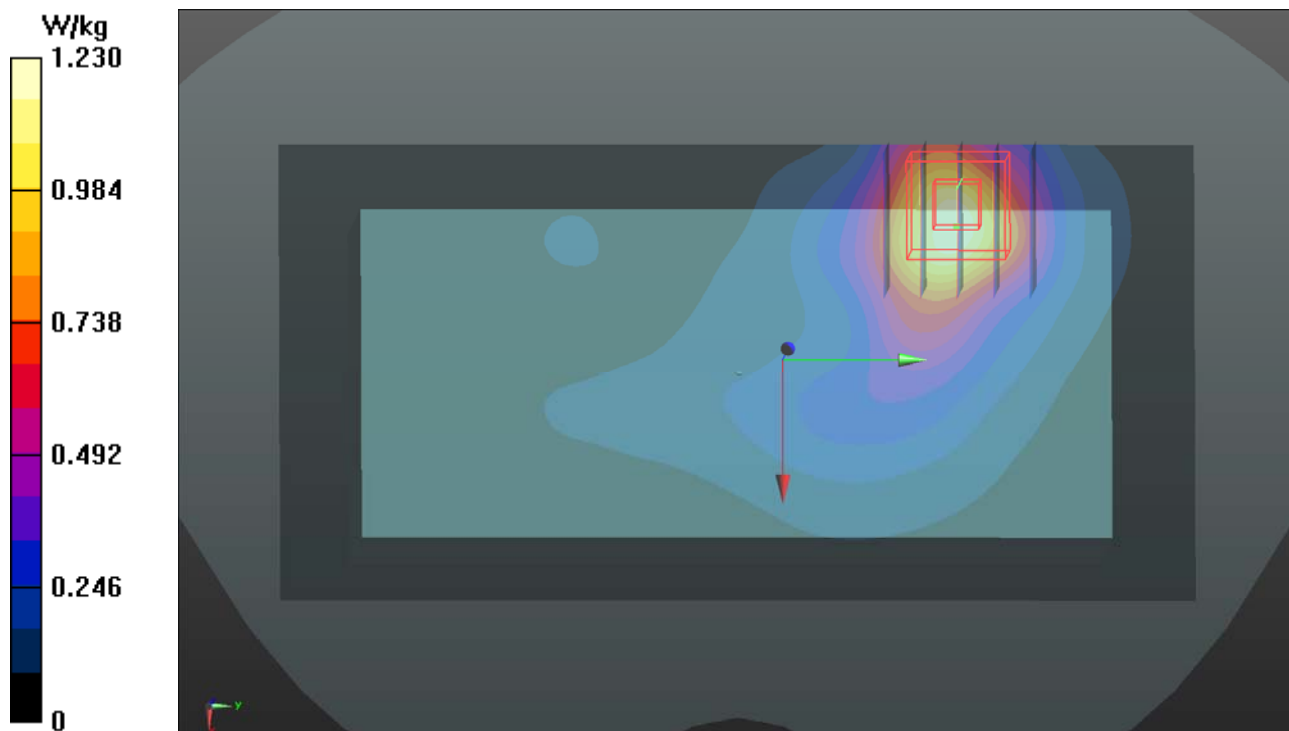
- **Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 23.72 V/m; Power Drift = 0.13 dB

Peak SAR (extrapolated) = 2.07 W/kg

**SAR(1 g) = 1.05 W/kg; SAR(10 g) = 0.520 W/kg**

Maximum value of SAR (measured) = 1.61 W/kg



## P10 LTE 12\_QPSK10M\_Rear Face\_0mm\_Ch23095\_1RB\_OS0\_Battery 2

**DUT: 181205C03**

Communication System: LTE; Frequency: 707.5 MHz; Duty Cycle: 1:1

Medium: B06T09N1\_1123 Medium parameters used:  $f = 707.5$  MHz;  $\sigma = 0.921$  S/m;  $\epsilon_r = 53.672$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature : 23. °C ; Liquid Temperature : 23.1 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3971; ConvF(10.43, 10.43, 10.43); Calibrated: 2018/03/26
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1431; Calibrated: 2018/03/16
- Phantom: Twin SAM Phantom\_1652; Type: QD000P40;
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7450)

- **Area Scan (71x141x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.936 W/kg

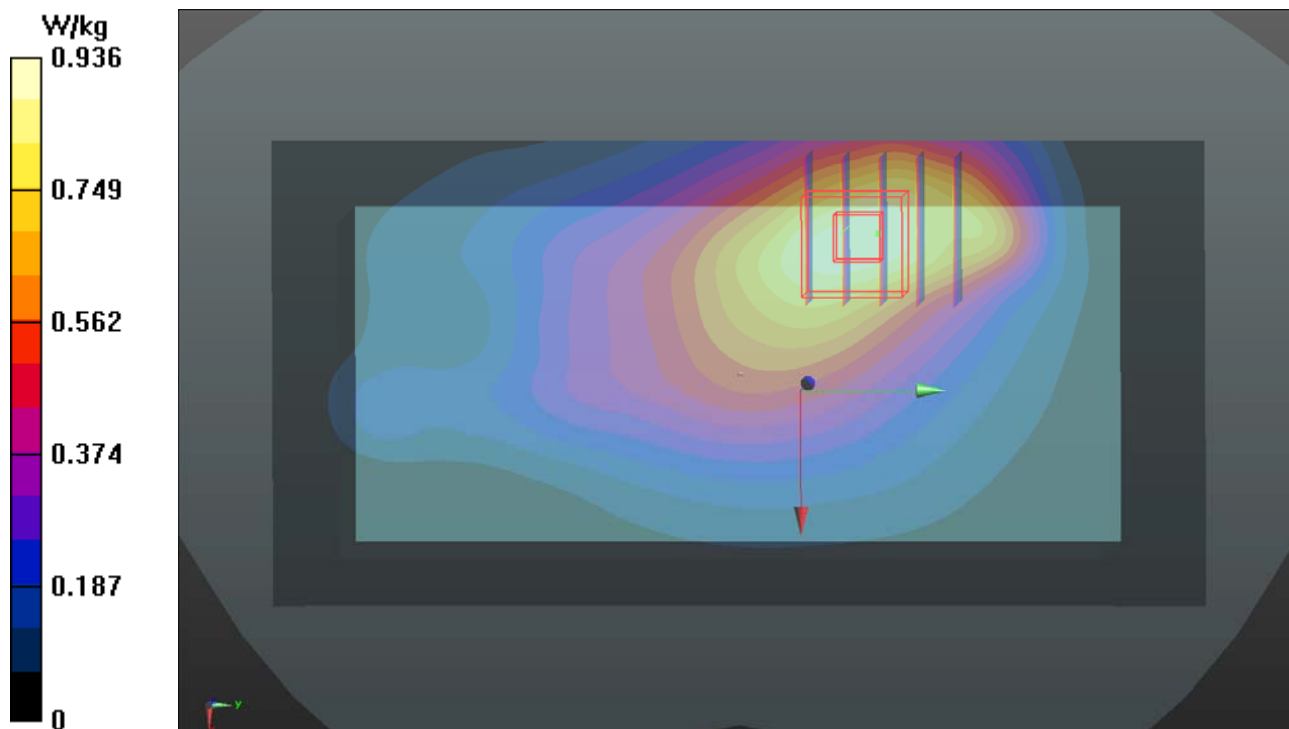
- **Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 32.68 V/m; Power Drift = -0.13 dB

Peak SAR (extrapolated) = 1.03 W/kg

**SAR(1 g) = 0.716 W/kg; SAR(10 g) = 0.498 W/kg**

Maximum value of SAR (measured) = 0.913 W/kg



## P11 WLAN2.4G\_802.11b\_Rear Face\_0mm\_Ch11\_Battery 2

### DUT: 181205C03

Communication System: WLAN\_2.4G; Frequency: 2462 MHz; Duty Cycle: 1:1

Medium: B19T27N1\_0104 Medium parameters used:  $f = 2462$  MHz;  $\sigma = 2.029$  S/m;  $\epsilon_r = 51.52$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature : 23.7 °C ; Liquid Temperature : 23.4 °C

#### DASY5 Configuration:

- Probe: EX3DV4 - SN7472; ConvF(7.84, 7.84, 7.84); Calibrated: 2018/08/29
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1431; Calibrated: 2018/03/16
- Phantom: Twin SAM Phantom\_1822; Type: QD000P40CD;
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7450)

- **Area Scan (91x171x1):** Interpolated grid: dx=1.200 mm, dy=1.200 mm

Maximum value of SAR (interpolated) = 0.133 W/kg

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

Reference Value = 8.006 V/m; Power Drift = 0.10 dB

Peak SAR (extrapolated) = 0.156 W/kg

**SAR(1 g) = 0.089 W/kg; SAR(10 g) = 0.052 W/kg**

Maximum value of SAR (measured) = 0.129 W/kg

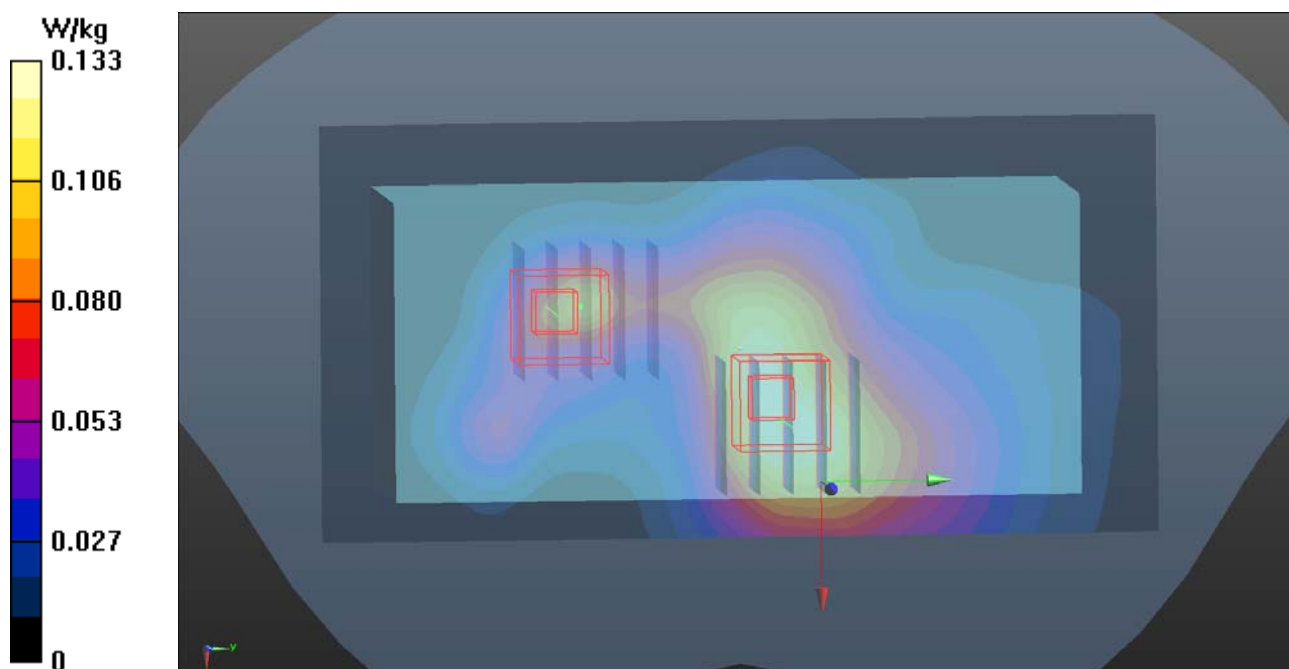
- **Zoom Scan (5x5x7)/Cube 1:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 8.006 V/m; Power Drift = 0.10 dB

Peak SAR (extrapolated) = 0.116 W/kg

**SAR(1 g) = 0.064 W/kg; SAR(10 g) = 0.033 W/kg**

Maximum value of SAR (measured) = 0.0946 W/kg



## P12 WLAN5.2G\_802.11a\_Rear Face\_0mm\_Ch44\_Battery 2

**DUT: 181205C03**

Communication System: WLAN\_5G; Frequency: 5220 MHz; Duty Cycle: 1:1.18

Medium: B34T60N1\_0104 Medium parameters used:  $f = 5220$  MHz;  $\sigma = 5.229$  S/m;  $\epsilon_r = 49.336$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature : 23.7 °C ; Liquid Temperature : 23.4 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN7472; ConvF(4.9, 4.9, 4.9); Calibrated: 2018/08/29
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1431; Calibrated: 2018/03/16
- Phantom: Twin SAM Phantom\_1822; Type: QD000P40CD;
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7450)

- **Area Scan (101x201x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.0500 W/kg

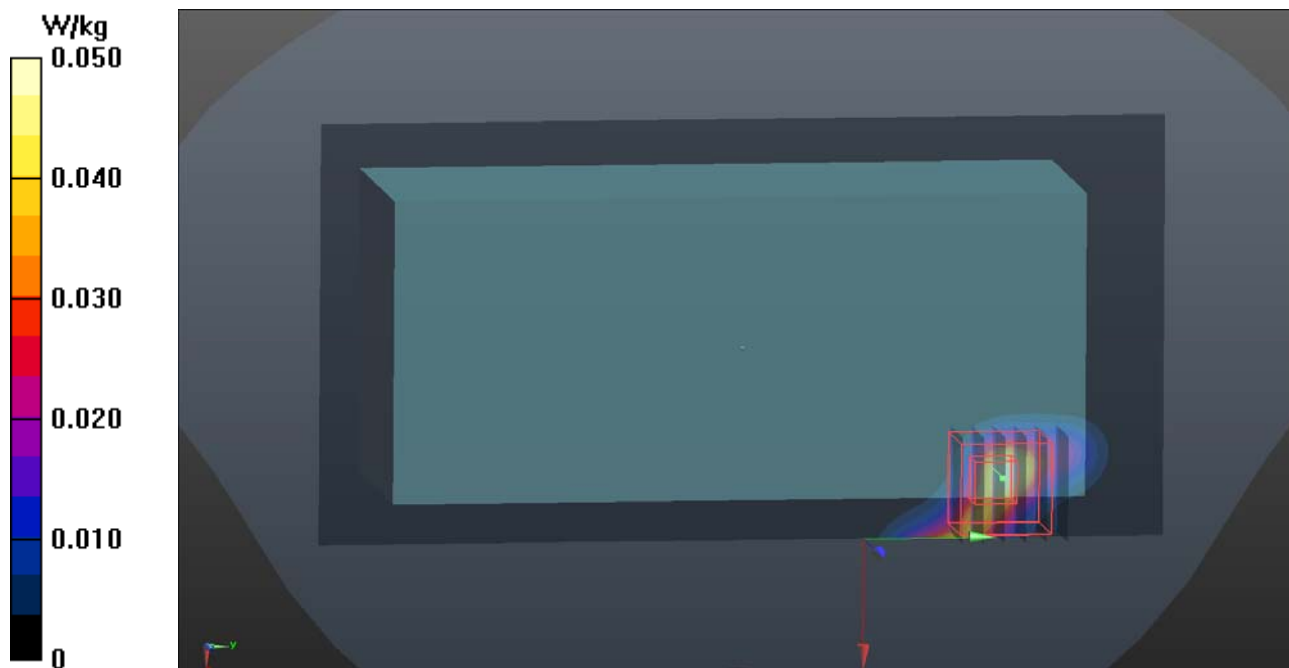
- **Zoom Scan (6x6x12)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=2mm

Reference Value = 3.117 V/m; Power Drift = -0.09 dB

Peak SAR (extrapolated) = 0.0990 W/kg

**SAR(1 g) = 0.014 W/kg; SAR(10 g) = 0.00545 W/kg**

Maximum value of SAR (measured) = 0.0431 W/kg



## P13 WLAN5.3G\_802.11a\_Rear Face\_0mm\_Ch52\_Battery 2

### DUT: 181205C03

Communication System: WLAN\_5G; Frequency: 5260 MHz; Duty Cycle: 1:1.18

Medium: B34T60N1\_0104 Medium parameters used:  $f = 5260$  MHz;  $\sigma = 5.282$  S/m;  $\epsilon_r = 49.28$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature : 23.7 °C ; Liquid Temperature : 23.4 °C

#### DASY5 Configuration:

- Probe: EX3DV4 - SN7472; ConvF(4.9, 4.9, 4.9); Calibrated: 2018/08/29
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1431; Calibrated: 2018/03/16
- Phantom: Twin SAM Phantom\_1822; Type: QD000P40CD;
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7450)

- **Area Scan (101x201x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.0523 W/kg

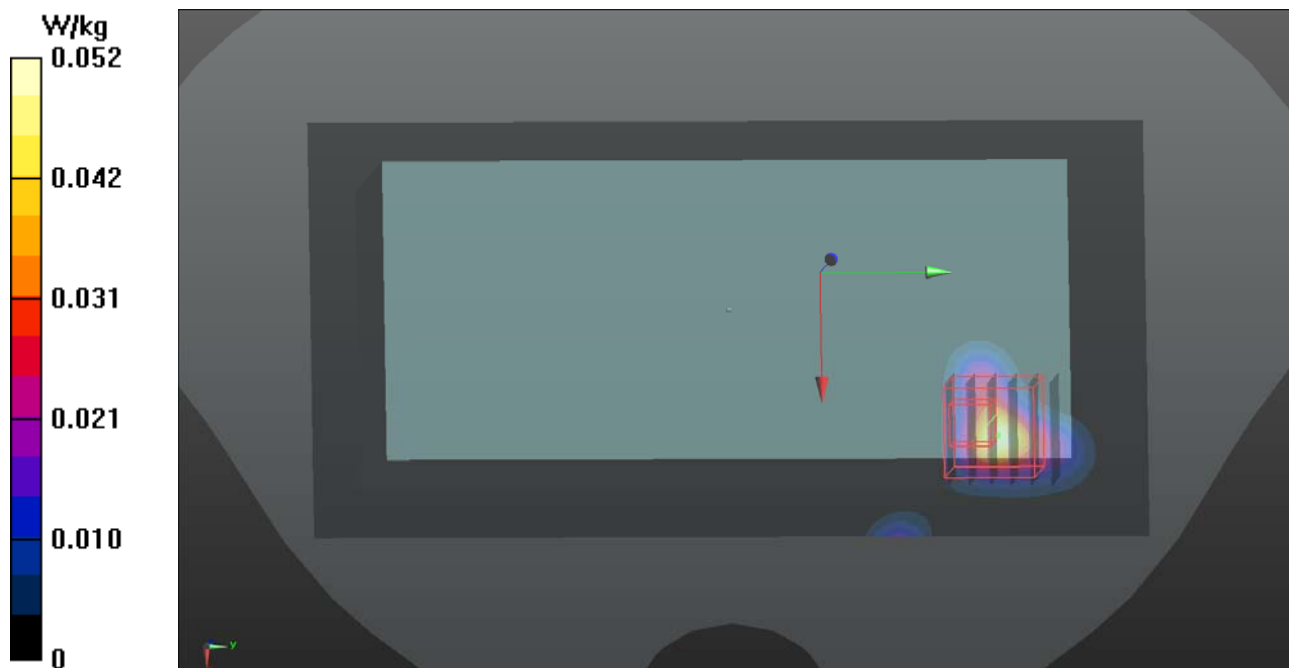
- **Zoom Scan (6x6x12)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=2mm

Reference Value = 2.995 V/m; Power Drift = 0.09 dB

Peak SAR (extrapolated) = 0.0950 W/kg

**SAR(1 g) = 0.013 W/kg; SAR(10 g) = 0.00514 W/kg**

Maximum value of SAR (measured) = 0.0422 W/kg



## P14 WLAN5.6G\_802.11n HT40\_Rear Face\_0mm\_Ch134\_Battery 2

### DUT: 181205C03

Communication System: WLAN\_5G; Frequency: 5670 MHz; Duty Cycle: 1:1.09

Medium: B34T60N1\_0104 Medium parameters used:  $f = 5670$  MHz;  $\sigma = 5.817$  S/m;  $\epsilon_r = 48.652$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature : 23.7 °C ; Liquid Temperature : 23.4 °C

#### DASY5 Configuration:

- Probe: EX3DV4 - SN7472; ConvF(4.37, 4.37, 4.37); Calibrated: 2018/08/29
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1431; Calibrated: 2018/03/16
- Phantom: Twin SAM Phantom\_1822; Type: QD000P40CD;
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7450)

- **Area Scan (101x201x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.0671 W/kg

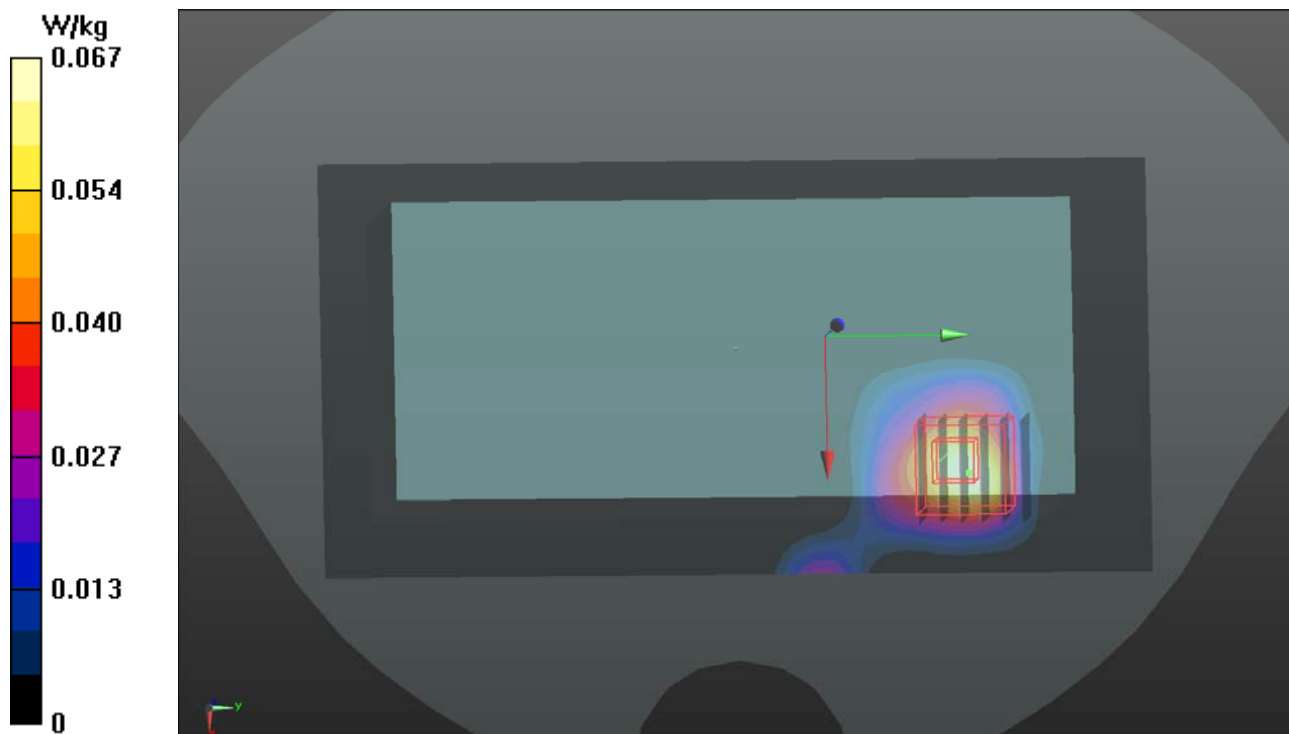
- **Zoom Scan (6x6x12)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=2mm

Reference Value = 3.839 V/m; Power Drift = 0.13 dB

Peak SAR (extrapolated) = 0.113 W/kg

**SAR(1 g) = 0.030 W/kg; SAR(10 g) = 0.011 W/kg**

Maximum value of SAR (measured) = 0.0948 W/kg



## P15 WLAN5.8G\_802.11a\_Rear Face\_0mm\_Ch157\_Battery 2

**DUT: 181205C03**

Communication System: WLAN\_5G; Frequency: 5785 MHz; Duty Cycle: 1:1.18

Medium: B34T60N1\_0104 Medium parameters used:  $f = 5785$  MHz;  $\sigma = 5.976$  S/m;  $\epsilon_r = 48.481$ ;  $\rho =$

$1000$  kg/m<sup>3</sup>

Ambient Temperature : 23.7 °C ; Liquid Temperature : 23.4 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN7472; ConvF(4.56, 4.56, 4.56); Calibrated: 2018/08/29
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1431; Calibrated: 2018/03/16
- Phantom: Twin SAM Phantom\_1822; Type: QD000P40CD;
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7450)

- **Area Scan (101x201x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.0815 W/kg

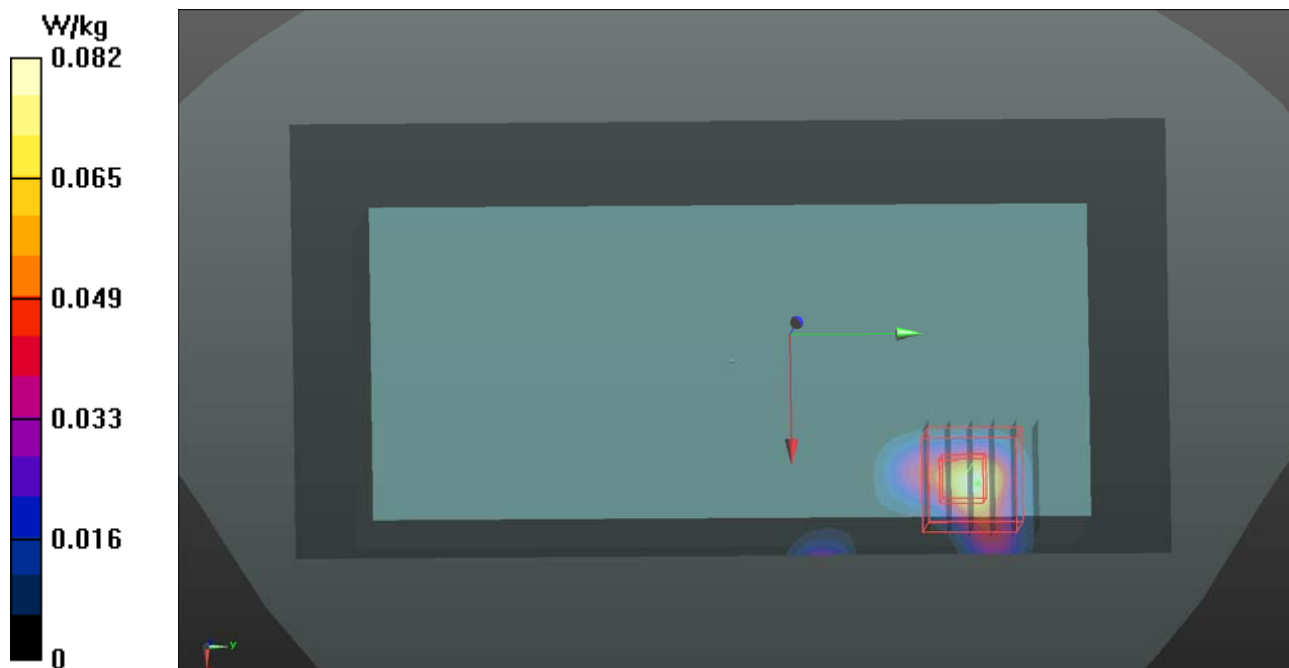
- **Zoom Scan (6x6x12)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=2mm

Reference Value = 3.617 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 0.112 W/kg

**SAR(1 g) = 0.026 W/kg; SAR(10 g) = 0.00905 W/kg**

Maximum value of SAR (measured) = 0.0823 W/kg





## P16 GSM850\_GPRS12\_Right Side\_0cm\_Ch251\_Battery 2

**DUT: 181031C06**

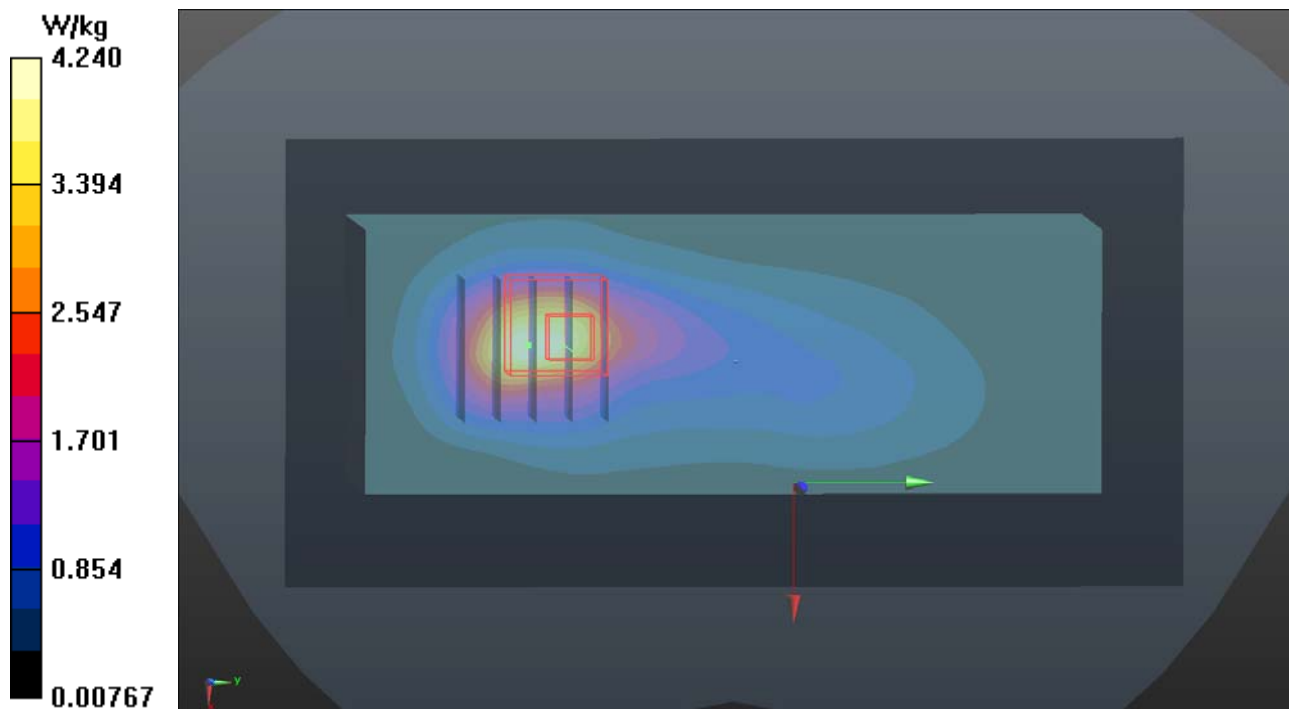
Communication System: GPRS12; Frequency: 848.8 MHz; Duty Cycle: 1:2  
Medium: B07T10N1\_1115 Medium parameters used:  $f = 849$  MHz;  $\sigma = 0.993$  S/m;  $\epsilon_r = 56.165$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Ambient Temperature : 23.7 °C ; Liquid Temperature : 23.3 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN7472; ConvF(10.35, 10.35, 10.35); Calibrated: 2018/08/29
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn861; Calibrated: 2018/05/30
- Phantom: Twin SAM Phantom\_1823; Type: QD000P40CD;
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7450)

- **Area Scan (71x141x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm  
Maximum value of SAR (interpolated) = 4.24 W/kg

- **Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm  
Reference Value = 62.42 V/m; Power Drift = -0.12 dB  
Peak SAR (extrapolated) = 5.06 W/kg  
**SAR(1 g) = 2.54 W/kg; SAR(10 g) = 1.29 W/kg**  
Maximum value of SAR (measured) = 4.12 W/kg



## P17 GSM1900\_GPRS12\_Right Side\_0mm\_Ch810\_Battery 2

**DUT: 181031C06**

Communication System: GPRS12; Frequency: 1909.8 MHz; Duty Cycle: 1:2

Medium: B19T27N1\_1109 Medium parameters used:  $f = 1910$  MHz;  $\sigma = 1.462$  S/m;  $\epsilon_r = 52.84$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature : 23.6 °C ; Liquid Temperature : 23.3 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3898; ConvF(7.97, 7.97, 7.97); Calibrated: 2018/06/26
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1277; Calibrated: 2018/01/18
- Phantom: Twin SAM Phantom\_1496; Type: QD000P40CA;
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7450)

- **Area Scan (71x141x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 5.86 W/kg

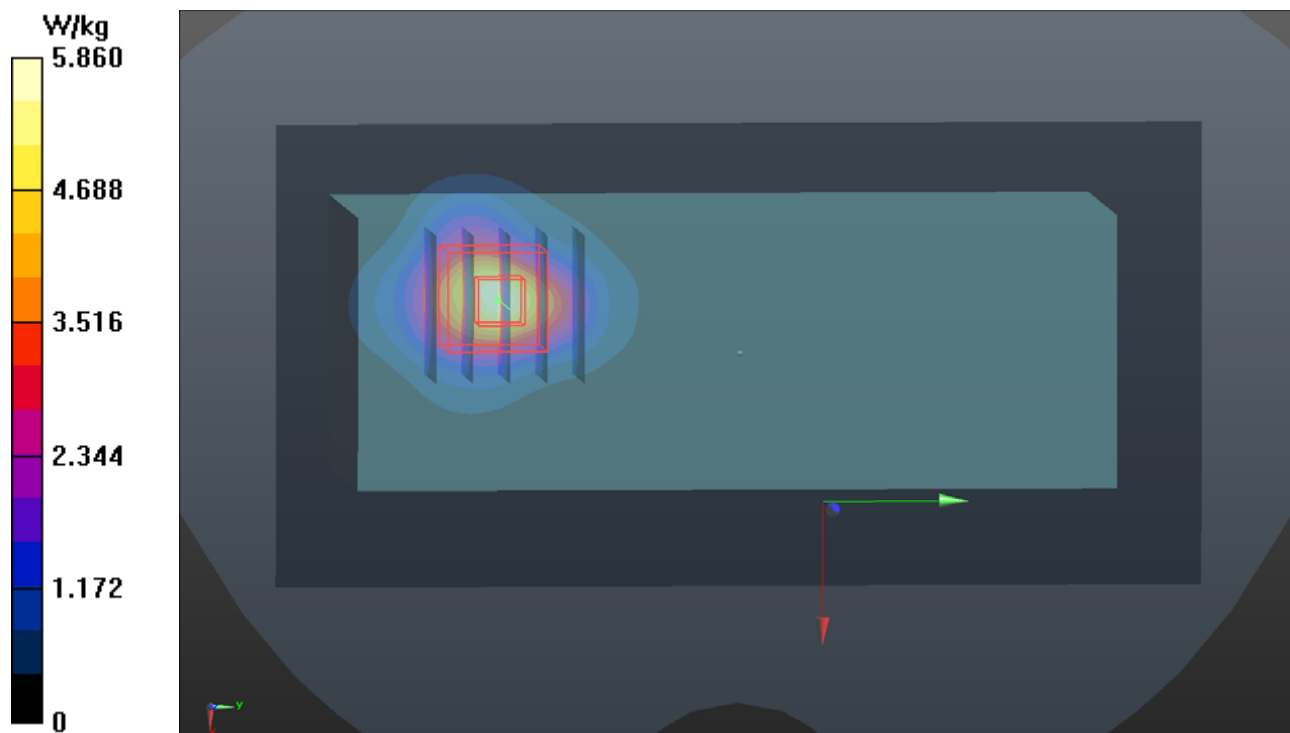
- **Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 57.23 V/m; Power Drift = 0.13 dB

Peak SAR (extrapolated) = 7.36 W/kg

**SAR(1 g) = 4.39 W/kg; SAR(10 g) = 2.28 W/kg**

Maximum value of SAR (measured) = 6.39 W/kg



## P18 WCDMA II\_RMC12.2K\_Right Side\_0mm\_Ch9538\_Battery 2

**DUT: 181031C06**

Communication System: WCDMA ; Frequency: 1907.6 MHz; Duty Cycle: 1:1

Medium: B19T27N1\_1109 Medium parameters used:  $f = 1908$  MHz;  $\sigma = 1.46$  S/m;  $\epsilon_r = 52.846$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature : 23.6 °C ; Liquid Temperature : 23.3 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3898; ConvF(7.97, 7.97, 7.97); Calibrated: 2018/06/26
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1277; Calibrated: 2018/01/18
- Phantom: Twin SAM Phantom\_1496; Type: QD000P40CA;
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7450)

- **Area Scan (71x141x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 12.2 W/kg

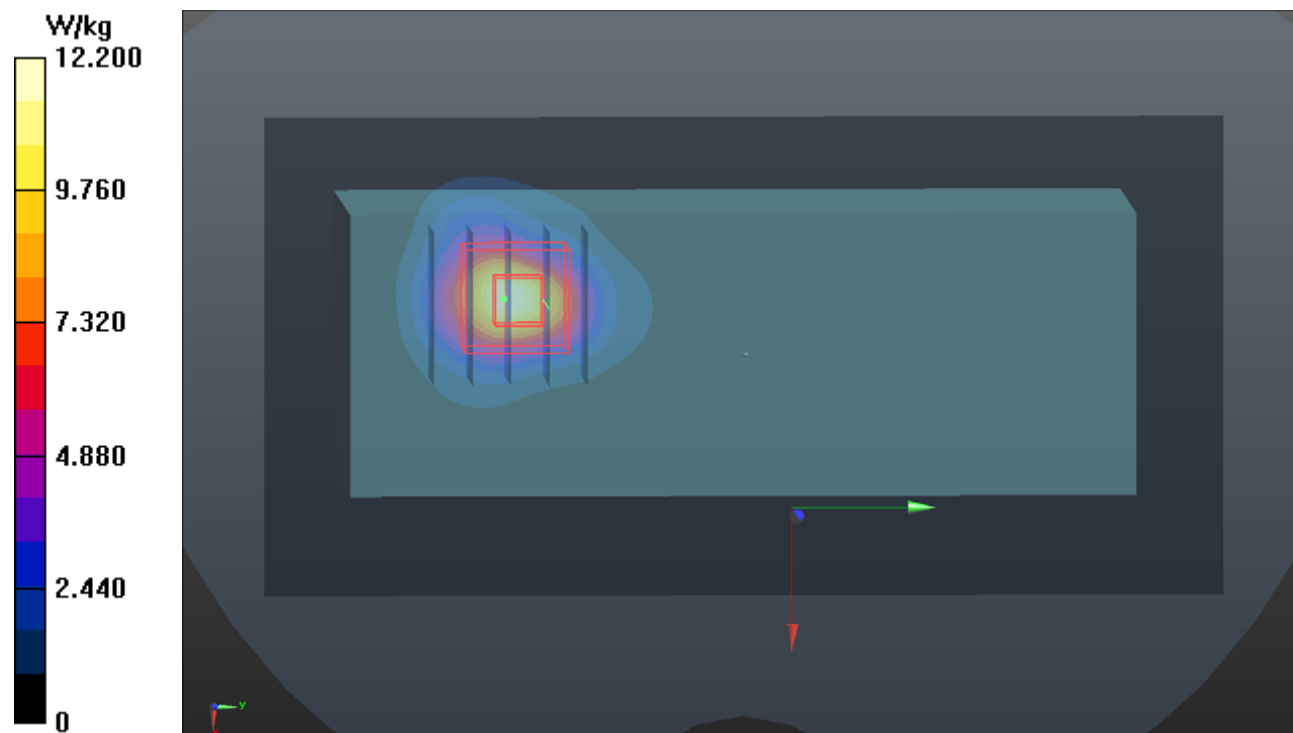
- **Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 81.10 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 12.3 W/kg

**SAR(1 g) = 7.19 W/kg; SAR(10 g) = 3.68 W/kg**

Maximum value of SAR (measured) = 9.90 W/kg



## P19 WCDMA IV\_RMC12.2K\_Right Side\_0mm\_Ch1312\_Battery 2

### DUT: 181205C02

Communication System: WCDMA; Frequency: 1712.4 MHz; Duty Cycle: 1:1

Medium: B16T20N1\_0117 Medium parameters used:  $f = 1712.4$  MHz;  $\sigma = 1.398$  S/m;  $\epsilon_r = 52.149$ ;  $\rho$

$= 1000$  kg/m<sup>3</sup>

Ambient Temperature : 23.5 °C ; Liquid Temperature : 23.2 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3650; ConvF(8.2, 8.2, 8.2); Calibrated: 2018/07/27

- Sensor-Surface: 1.4mm (Mechanical Surface Detection)

- Electronics: DAE3 Sn579; Calibrated: 2018/08/27

- Phantom: Twin SAM Phantom\_1653; Type: QD000P40CD;

- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7450)

- **Area Scan (71x141x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm

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

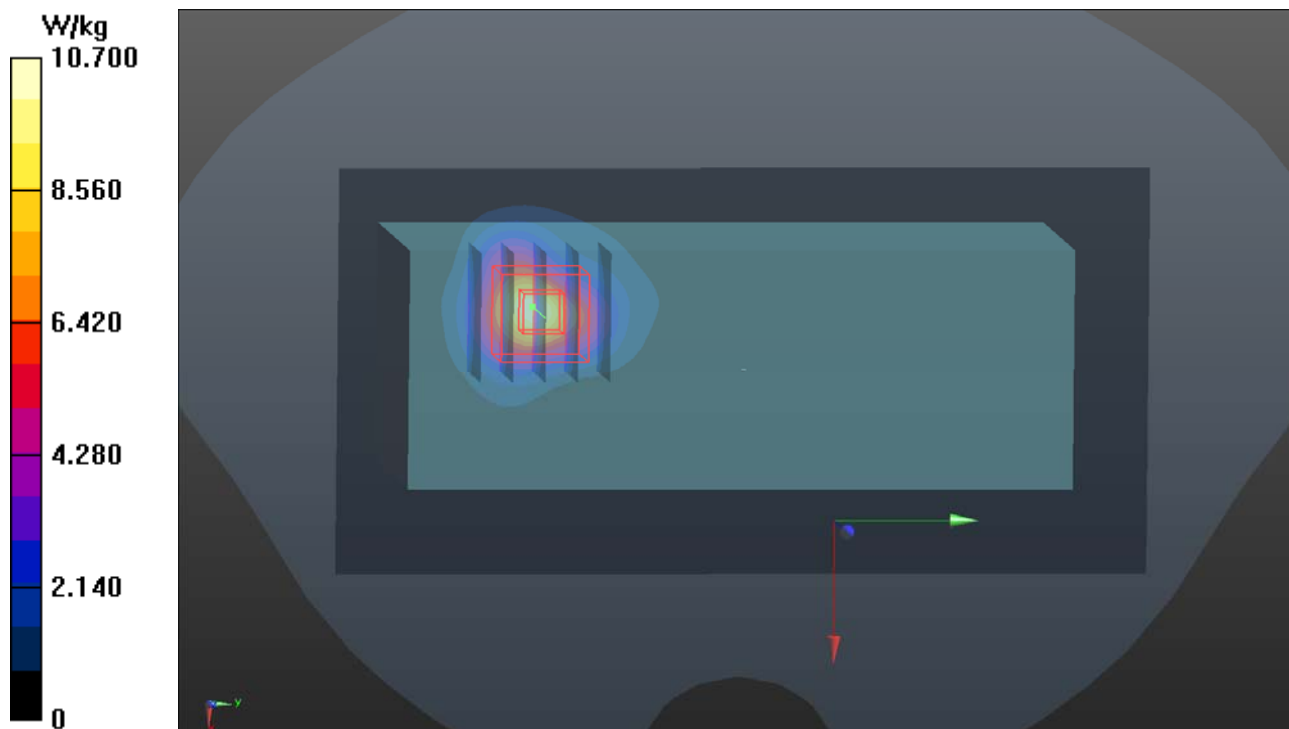
- **Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 68.93 V/m; Power Drift = 0.12 dB

Peak SAR (extrapolated) = 9.05 W/kg

**SAR(1 g) = 5.4 W/kg; SAR(10 g) = 2.94 W/kg**

Maximum value of SAR (measured) = 7.25 W/kg



## P20 WCDMA V\_RMC12.2K\_Right Side\_0mm\_Ch4132\_Battery 2

### DUT: 181205C02

Communication System: WCDMA; Frequency: 826.4 MHz; Duty Cycle: 1:1

Medium: B07T10N1\_0117 Medium parameters used:  $f = 826.4$  MHz;  $\sigma = 0.969$  S/m;  $\epsilon_r = 56.071$ ;  $\rho =$

$1000$  kg/m<sup>3</sup>

Ambient Temperature : 23.5 °C ; Liquid Temperature : 23.2 °C

#### DASY5 Configuration:

- Probe: EX3DV4 - SN3650; ConvF(9.74, 9.74, 9.74); Calibrated: 2018/07/27
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2018/08/27
- Phantom: Twin SAM Phantom\_1653; Type: QD000P40CD;
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7450)

- **Area Scan (71x141x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 2.82 W/kg

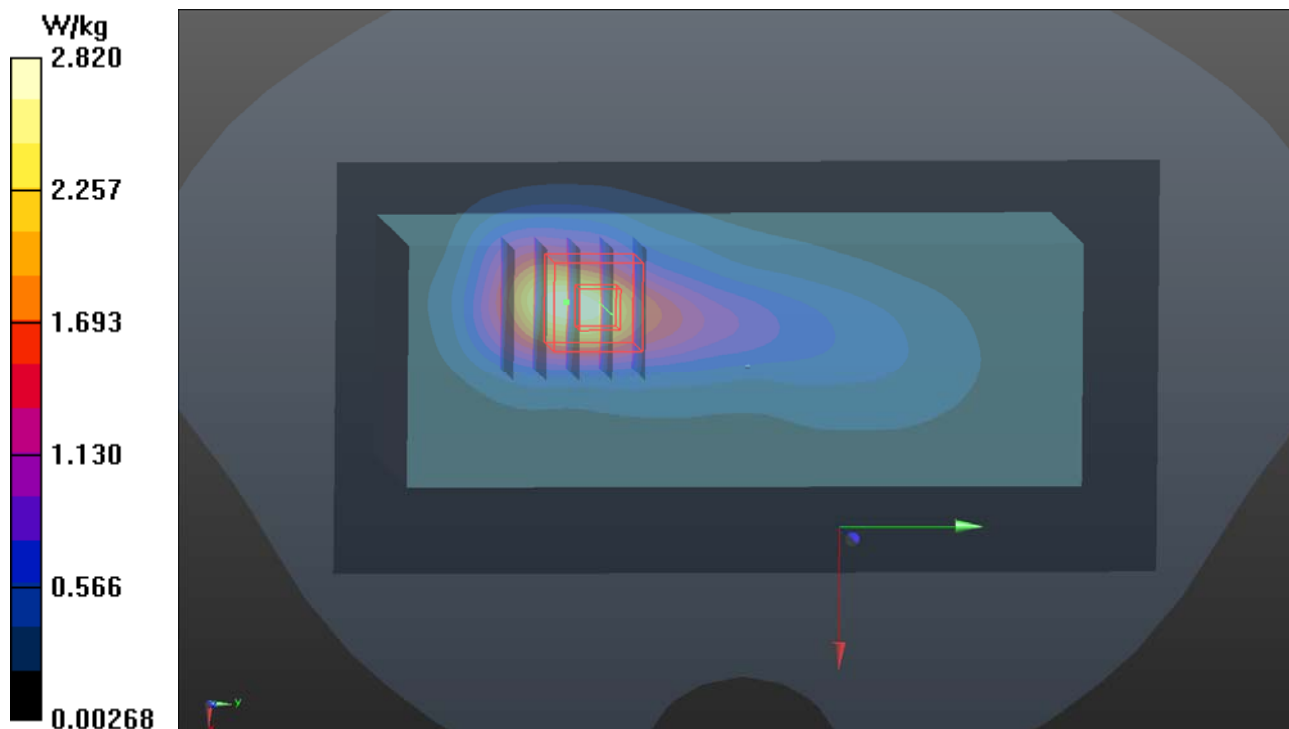
- **Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 53.11 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 3.81 W/kg

**SAR(1 g) = 1.81 W/kg; SAR(10 g) = 0.909 W/kg**

Maximum value of SAR (measured) = 2.96 W/kg



## P21 LTE 2\_QPSK20M\_Right Side\_0cm\_Ch19100\_1RB\_OS0\_Battery 2

**DUT: 181031C06**

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

Medium: B19T27N1\_1109 Medium parameters used:  $f = 1900$  MHz;  $\sigma = 1.452$  S/m;  $\epsilon_r = 52.869$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature : 23.6 °C ; Liquid Temperature : 23.3 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3898; ConvF(7.97, 7.97, 7.97); Calibrated: 2018/06/26
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1277; Calibrated: 2018/01/18
- Phantom: Twin SAM Phantom\_1496; Type: QD000P40CA;
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7450)

- **Area Scan (71x141x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 10.8 W/kg

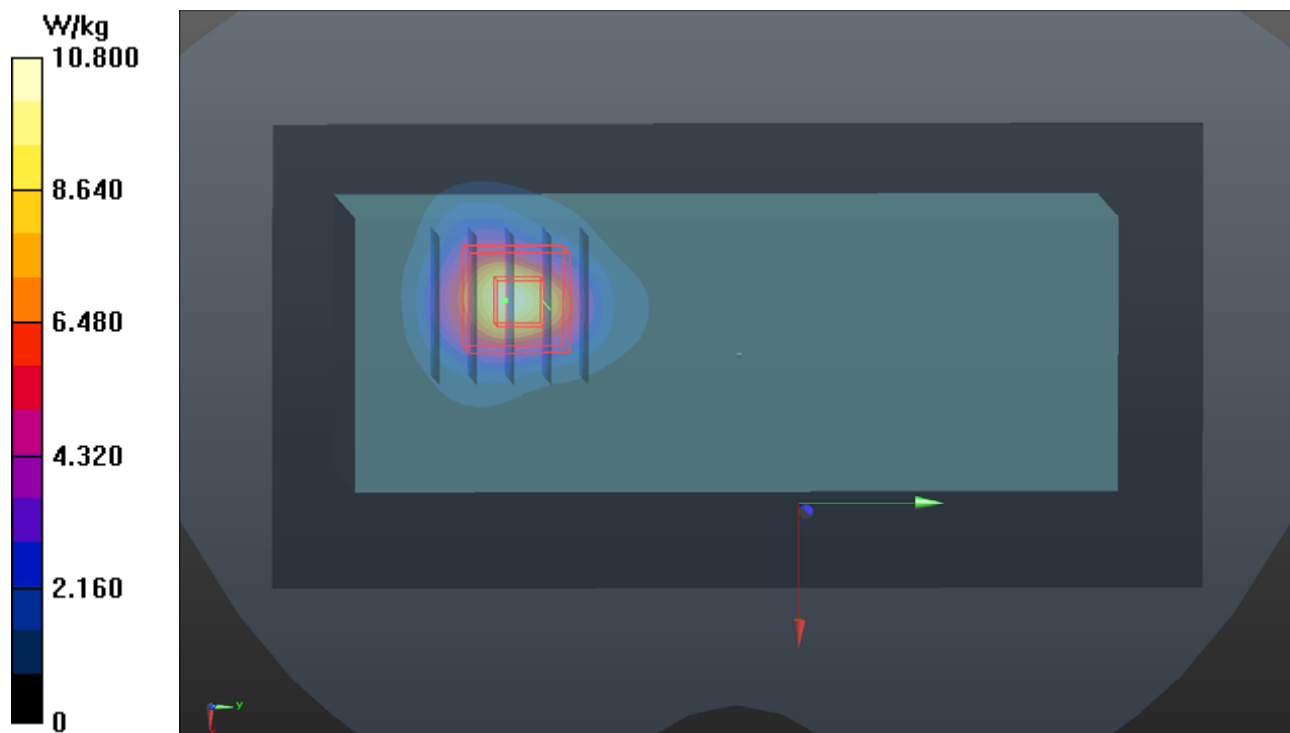
- **Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 76.05 V/m; Power Drift = -0.17 dB

Peak SAR (extrapolated) = 10.6 W/kg

**SAR(1 g) = 6.27 W/kg; SAR(10 g) = 3.26 W/kg**

Maximum value of SAR (measured) = 8.60 W/kg



## P22 LTE 4\_QPSK20M\_Right Side\_0cm\_Ch20175\_1RB\_OS0\_Battery 2

### DUT: 181031C06

Communication System: LTE; Frequency: 1732.5 MHz; Duty Cycle: 1:1

Medium: B16T20N1\_1115 Medium parameters used:  $f = 1733$  MHz;  $\sigma = 1.419$  S/m;  $\epsilon_r = 52.038$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature : 23.7 °C ; Liquid Temperature : 23.3 °C

#### DASY5 Configuration:

- Probe: EX3DV4 - SN7472; ConvF(8.42, 8.42, 8.42); Calibrated: 2018/08/29
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn861; Calibrated: 2018/05/30
- Phantom: Twin SAM Phantom\_1823; Type: QD000P40CD;
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7450)

- **Area Scan (71x141x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 5.18 W/kg

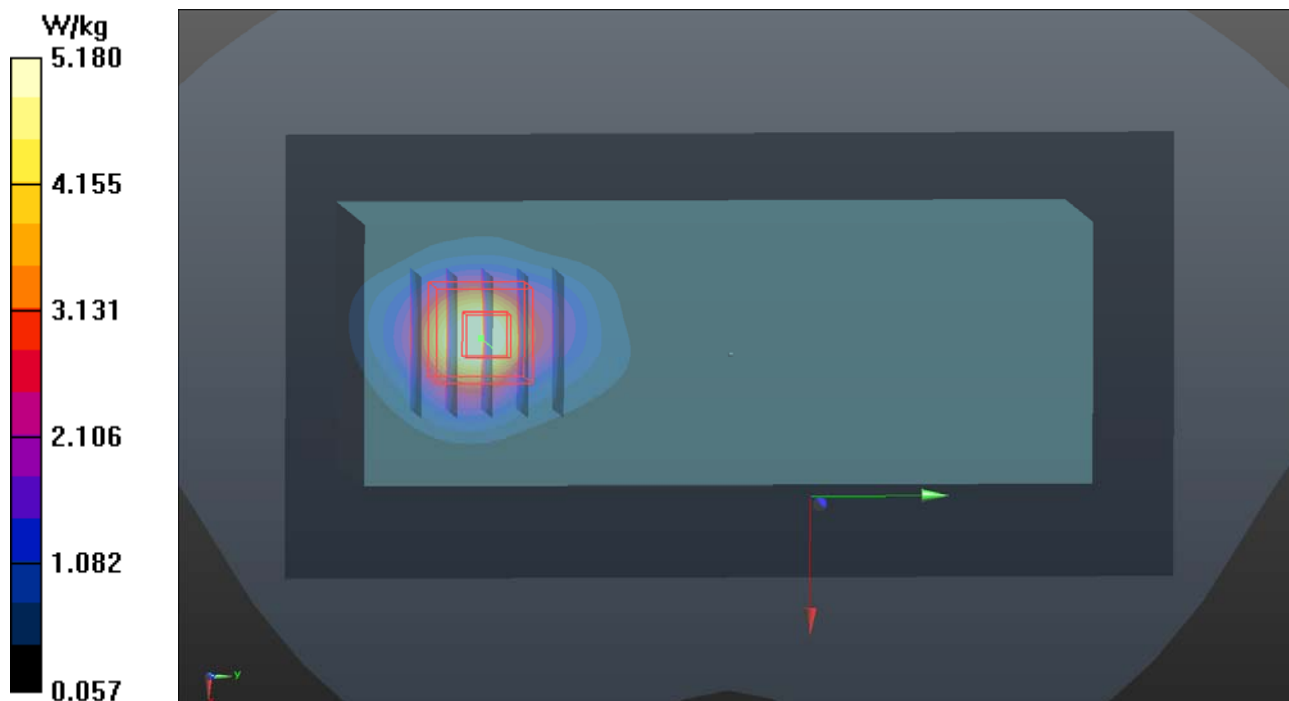
- **Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 58.78 V/m; Power Drift = -0.18 dB

Peak SAR (extrapolated) = 5.95 W/kg

**SAR(1 g) = 3.87 W/kg; SAR(10 g) = 2.1 W/kg**

Maximum value of SAR (measured) = 5.18 W/kg



## P23 LTE 5\_QPSK10M\_Right Side\_0cm\_Ch20450\_1RB\_OS0\_Battery 2

### DUT: 181031C06

Communication System: LTE; Frequency: 829 MHz; Duty Cycle: 1:1

Medium: B07T10N1\_1115 Medium parameters used:  $f = 829 \text{ MHz}$ ;  $\sigma = 0.974 \text{ S/m}$ ;  $\epsilon_r = 56.349$ ;  $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature :  $23.7 \text{ }^\circ\text{C}$  ; Liquid Temperature :  $23.3 \text{ }^\circ\text{C}$

#### DASY5 Configuration:

- Probe: EX3DV4 - SN7472; ConvF(10.35, 10.35, 10.35); Calibrated: 2018/08/29
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn861; Calibrated: 2018/05/30
- Phantom: Twin SAM Phantom\_1823; Type: QD000P40CD;
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7450)

- **Area Scan (71x141x1):** Interpolated grid:  $dx=1.500 \text{ mm}$ ,  $dy=1.500 \text{ mm}$

Maximum value of SAR (interpolated) =  $2.17 \text{ W/kg}$

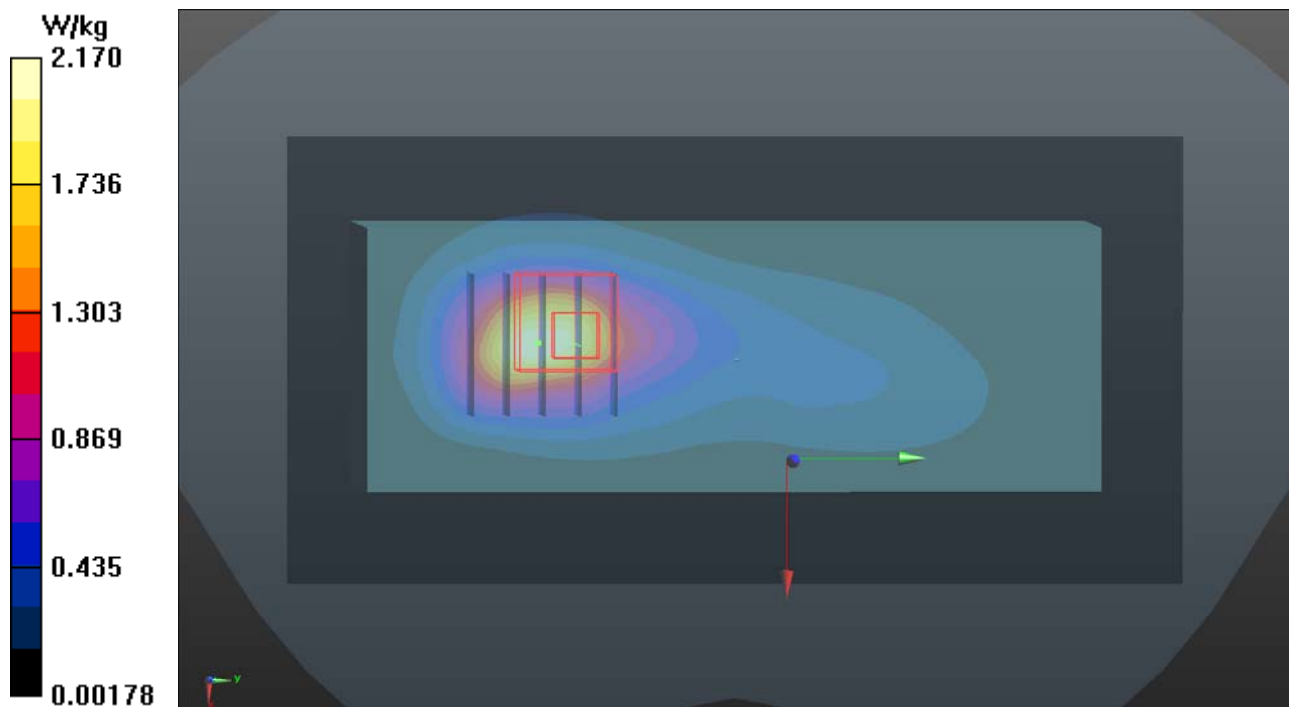
- **Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$

Reference Value =  $45.47 \text{ V/m}$ ; Power Drift =  $-0.06 \text{ dB}$

Peak SAR (extrapolated) =  $2.60 \text{ W/kg}$

**SAR(1 g) =  $1.29 \text{ W/kg}$ ; SAR(10 g) =  $0.659 \text{ W/kg}$**

Maximum value of SAR (measured) =  $2.12 \text{ W/kg}$





## P24 LTE 7\_QPSK20M\_Right Side\_0cm\_Ch21100\_1RB\_OS0\_Battery 2

### DUT: 181031C06

Communication System: LTE; Frequency: 2535 MHz; Duty Cycle: 1:1

Medium: B19T27N1\_1115 Medium parameters used:  $f = 2535$  MHz;  $\sigma = 2.114$  S/m;  $\epsilon_r = 51.093$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature : 23.7 °C ; Liquid Temperature : 23.3 °C

#### DASY5 Configuration:

- Probe: EX3DV4 - SN7472; ConvF(7.7, 7.7, 7.7); Calibrated: 2018/08/29
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn861; Calibrated: 2018/05/30
- Phantom: Twin SAM Phantom\_1823; Type: QD000P40CD;
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7450)

- **Area Scan (91x171x1):** Interpolated grid: dx=1.200 mm, dy=1.200 mm

Maximum value of SAR (interpolated) = 6.56 W/kg

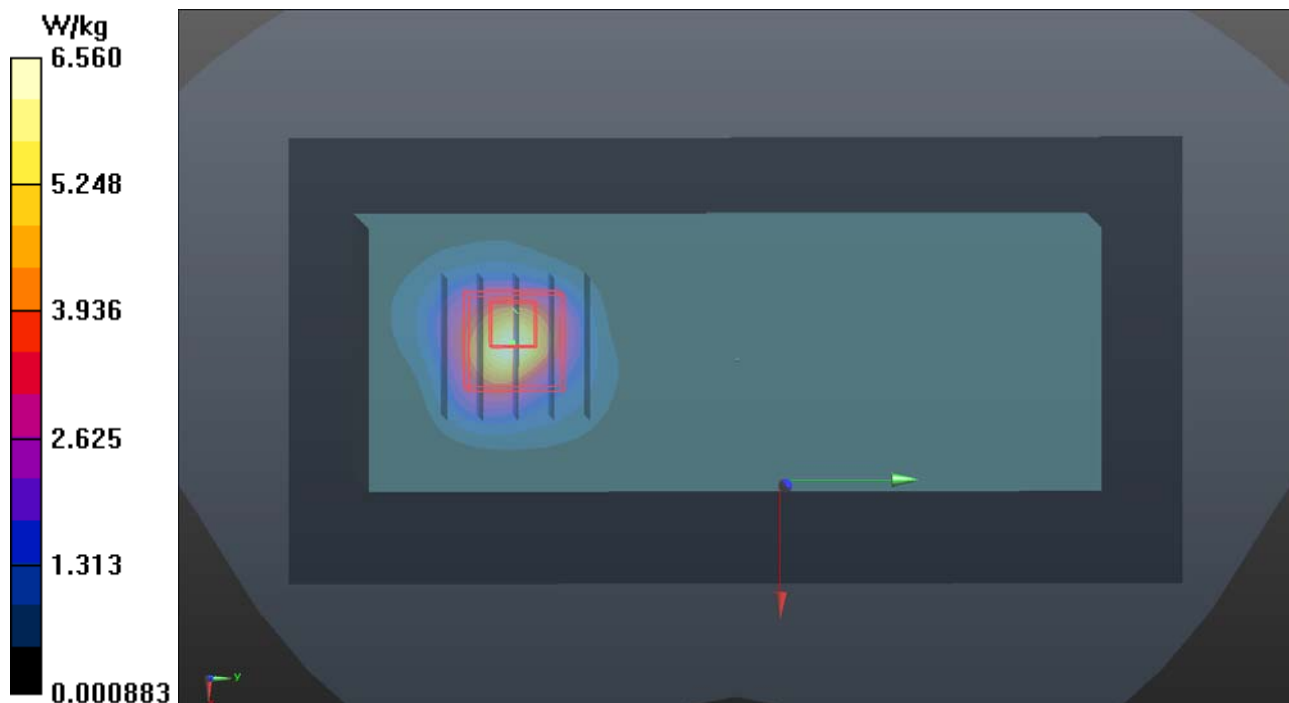
- **Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 38.91 V/m; Power Drift = -0.09 dB

Peak SAR (extrapolated) = 8.84 W/kg

**SAR(1 g) = 3.61 W/kg; SAR(10 g) = 1.5 W/kg**

Maximum value of SAR (measured) = 6.27 W/kg



## P25 LTE 12\_QPSK10M\_Right Side\_0cm\_Ch23095\_1RB\_OS0\_Battery 2

### DUT: 181031C06

Communication System: LTE; Frequency: 707.5 MHz; Duty Cycle: 1:1

Medium: B06T09N1\_1115 Medium parameters used:  $f = 707.5$  MHz;  $\sigma = 0.922$  S/m;  $\epsilon_r = 55.912$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature : 23.7 °C ; Liquid Temperature : 23.3 °C

#### DASY5 Configuration:

- Probe: EX3DV4 - SN7472; ConvF(10.66, 10.66, 10.66); Calibrated: 2018/08/29
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn861; Calibrated: 2018/05/30
- Phantom: Twin SAM Phantom\_1823; Type: QD000P40CD;
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7450)

- **Area Scan (71x141x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 2.34 W/kg

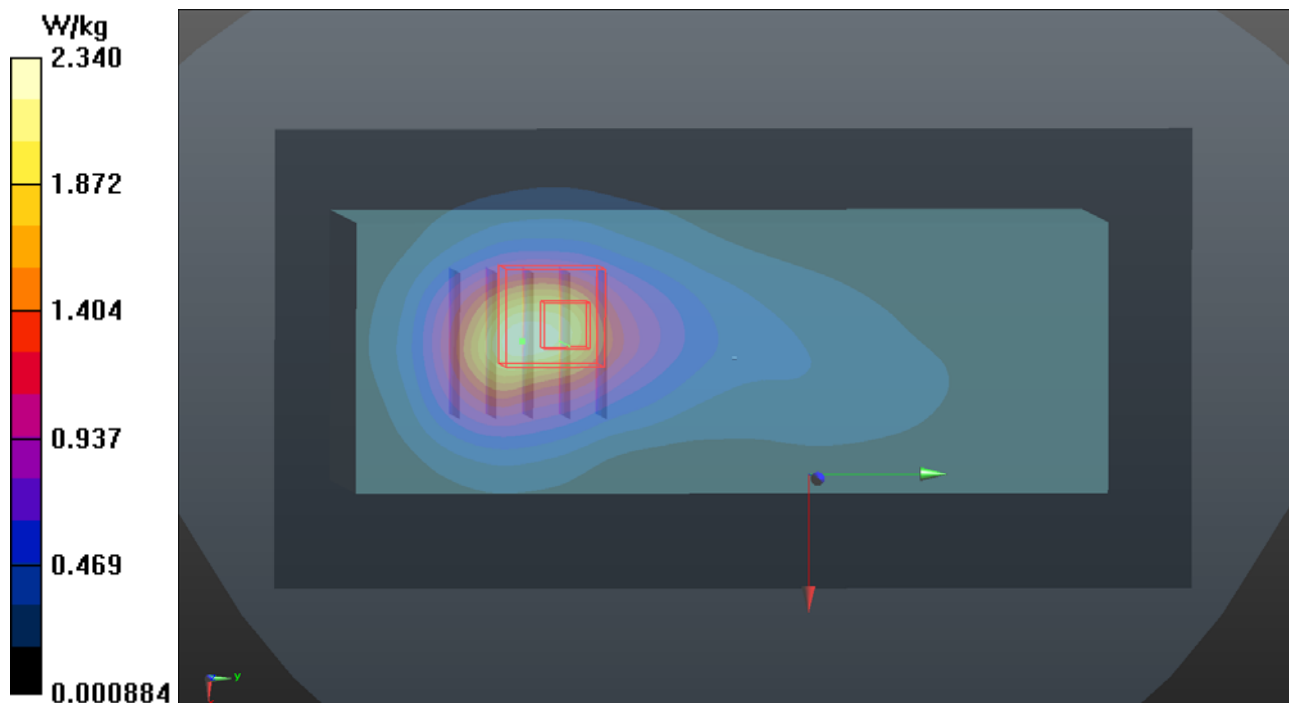
- **Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 49.71 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 2.73 W/kg

**SAR(1 g) = 1.35 W/kg; SAR(10 g) = 0.693 W/kg**

Maximum value of SAR (measured) = 2.14 W/kg



## P26 WLAN2.4G\_802.11b\_Left Side\_0mm\_Ch11\_Battery 2

### DUT: 181205C02

Communication System: WLAN\_2.4G; Frequency: 2462 MHz; Duty Cycle: 1:1

Medium: B19T27N1\_0116 Medium parameters used:  $f = 2462$  MHz;  $\sigma = 2.034$  S/m;  $\epsilon_r = 52.078$ ;  $\rho =$

$1000$  kg/m<sup>3</sup>

Ambient Temperature : 23.5 °C ; Liquid Temperature : 23.2 °C

#### DASY5 Configuration:

- Probe: EX3DV4 - SN3898; ConvF(7.61, 7.61, 7.61); Calibrated: 2018/06/26
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 2018/06/26
- Phantom: Twin SAM Phantom\_1496; Type: QD000P40CB;
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7450)

- **Area Scan (91x171x1):** Interpolated grid: dx=1.200 mm, dy=1.200 mm

Maximum value of SAR (interpolated) = 2.16 W/kg

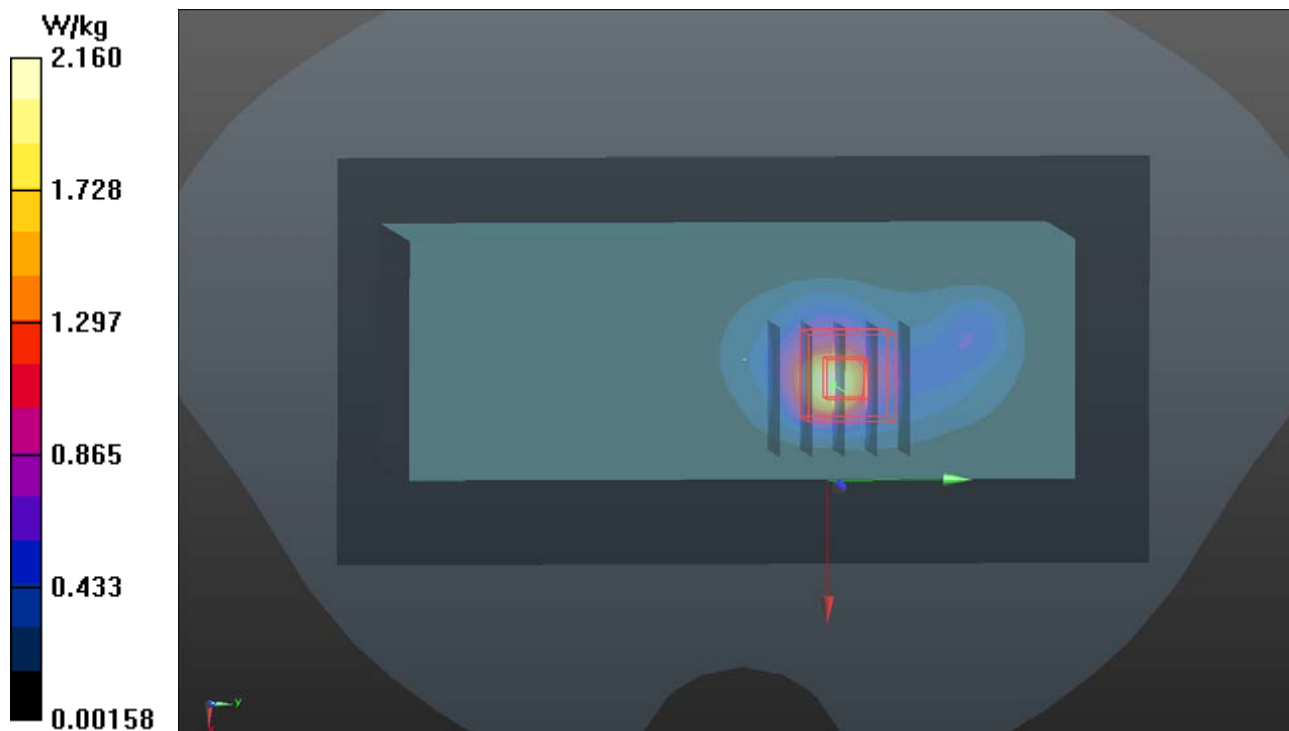
- **Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 30.64 V/m; Power Drift = 0.06 dB

Peak SAR (extrapolated) = 5.87 W/kg

**SAR(1 g) = 1.92 W/kg; SAR(10 g) = 0.627 W/kg**

Maximum value of SAR (measured) = 3.92 W/kg



## P27 WLAN5.2G\_802.11a\_Left Side\_0mm\_Ch44\_Battery 2

**DUT: 181205C02**

Communication System: WLAN\_5G; Frequency: 5220 MHz; Duty Cycle: 1:1.18

Medium: B34T60N1\_0116 Medium parameters used:  $f = 5220$  MHz;  $\sigma = 5.206$  S/m;  $\epsilon_r = 47.033$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature : 23.5 °C ; Liquid Temperature : 23.1 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3898; ConvF(4.95, 4.95, 4.95); Calibrated: 2018/06/26
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 2018/06/26
- Phantom: Twin SAM Phantom\_1496; Type: QD000P40CB;
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7450)

- **Area Scan (101x201x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 3.59 W/kg

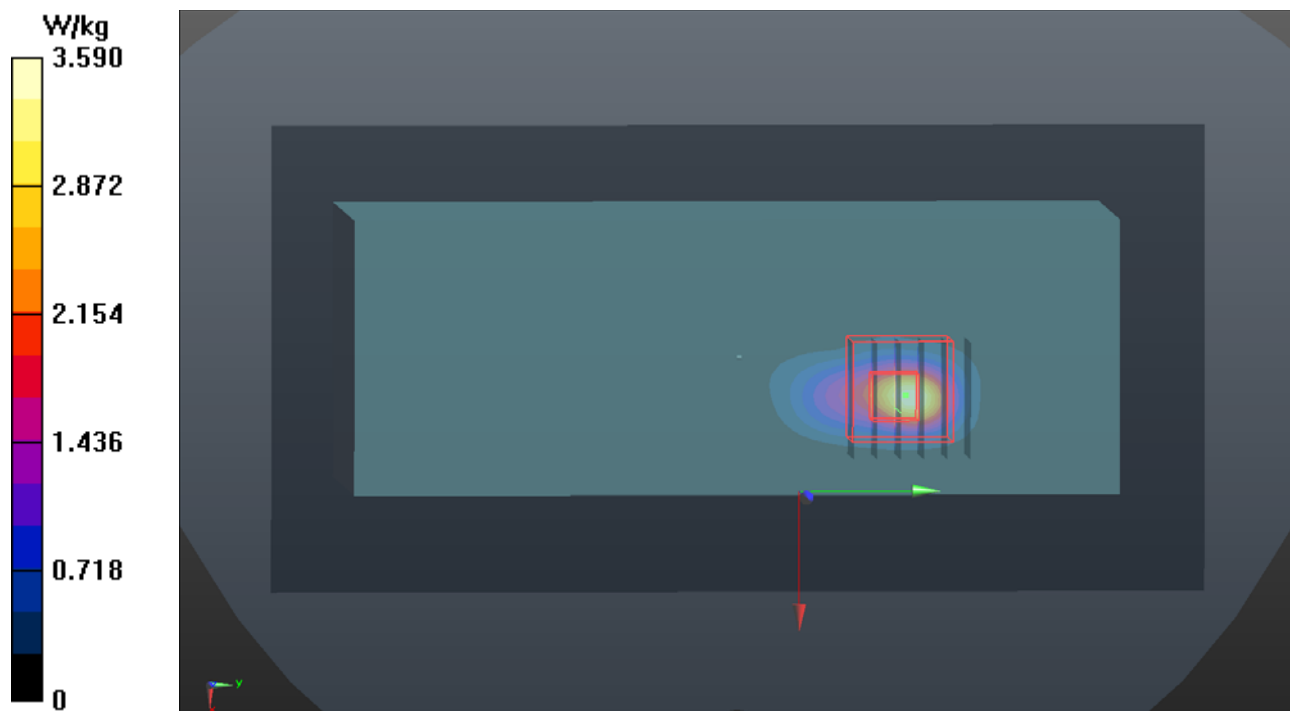
- **Zoom Scan (6x6x12)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=2mm

Reference Value = 27.47 V/m; Power Drift = 0.12 dB

Peak SAR (extrapolated) = 14.1 W/kg

**SAR(1 g) = 2.69 W/kg; SAR(10 g) = 0.573 W/kg**

Maximum value of SAR (measured) = 6.84 W/kg



## P28 WLAN5.3G\_802.11a\_Left Side\_0mm\_Ch52\_Battery 2

**DUT: 181205C02**

Communication System: WLAN\_5G; Frequency: 5260 MHz; Duty Cycle: 1:1.18

Medium: B34T60N1\_0116 Medium parameters used:  $f = 5260$  MHz;  $\sigma = 5.487$  S/m;  $\epsilon_r = 47.862$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature : 23.5 °C ; Liquid Temperature : 23.1 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3898; ConvF(4.95, 4.95, 4.95); Calibrated: 2018/06/26
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 2018/06/26
- Phantom: Twin SAM Phantom\_1496; Type: QD000P40CB;
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7450)

- **Area Scan (101x201x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 2.12 W/kg

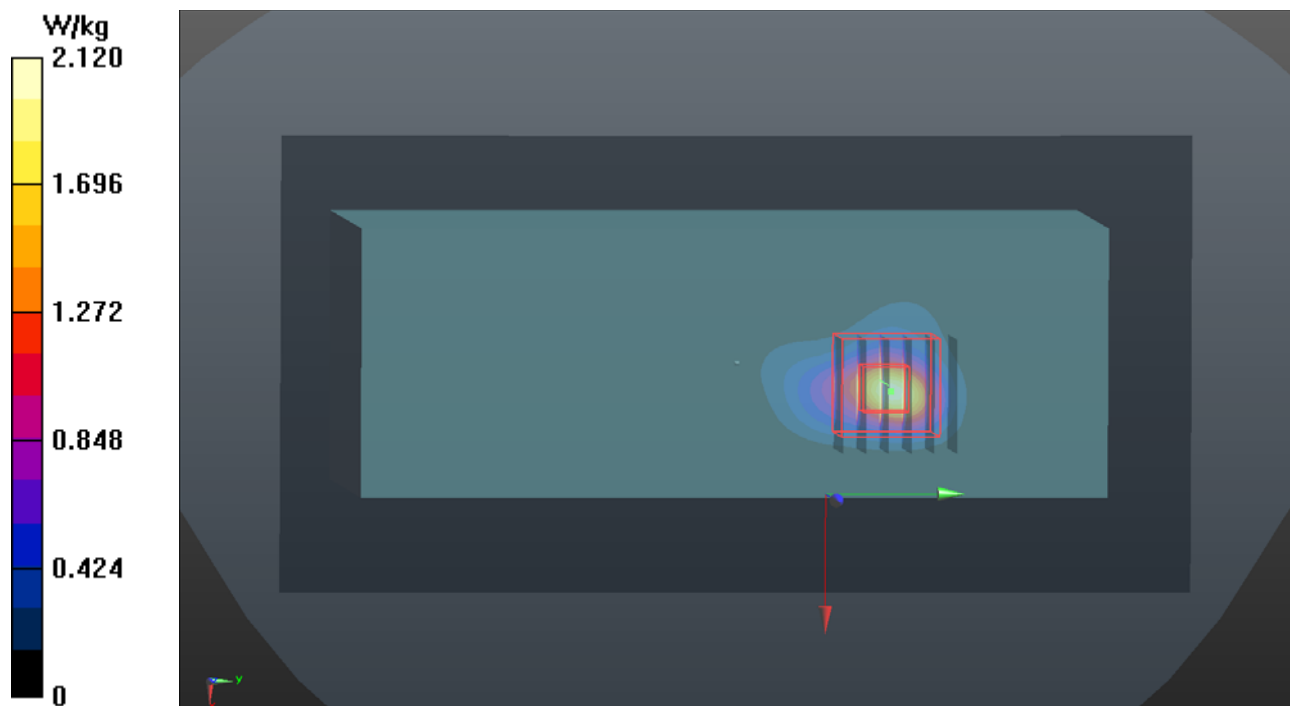
- **Zoom Scan (6x6x12)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=2mm

Reference Value = 17.98 V/m; Power Drift = 0.17 dB

Peak SAR (extrapolated) = 16.5 W/kg

**SAR(1 g) = 2.85 W/kg; SAR(10 g) = 0.581 W/kg**

Maximum value of SAR (measured) = 7.97 W/kg



## P29 WLAN5.6G\_802.11n HT40\_Left Side\_0mm\_Ch134\_Battery 2

**DUT: 181205C02**

Communication System: WLAN\_5G; Frequency: 5670 MHz; Duty Cycle: 1:1.09

Medium: B34T60N1\_0116 Medium parameters used:  $f = 5670$  MHz;  $\sigma = 5.707$  S/m;  $\epsilon_r = 46.481$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature : 23.5 °C ; Liquid Temperature : 23.1 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3898; ConvF(4.17, 4.17, 4.17); Calibrated: 2018/06/26
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 2018/06/26
- Phantom: Twin SAM Phantom\_1496; Type: QD000P40CB;
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7450)

- **Area Scan (51x101x1):** Interpolated grid: dx=2.000 mm, dy=2.000 mm

Maximum value of SAR (interpolated) = 2.14 W/kg

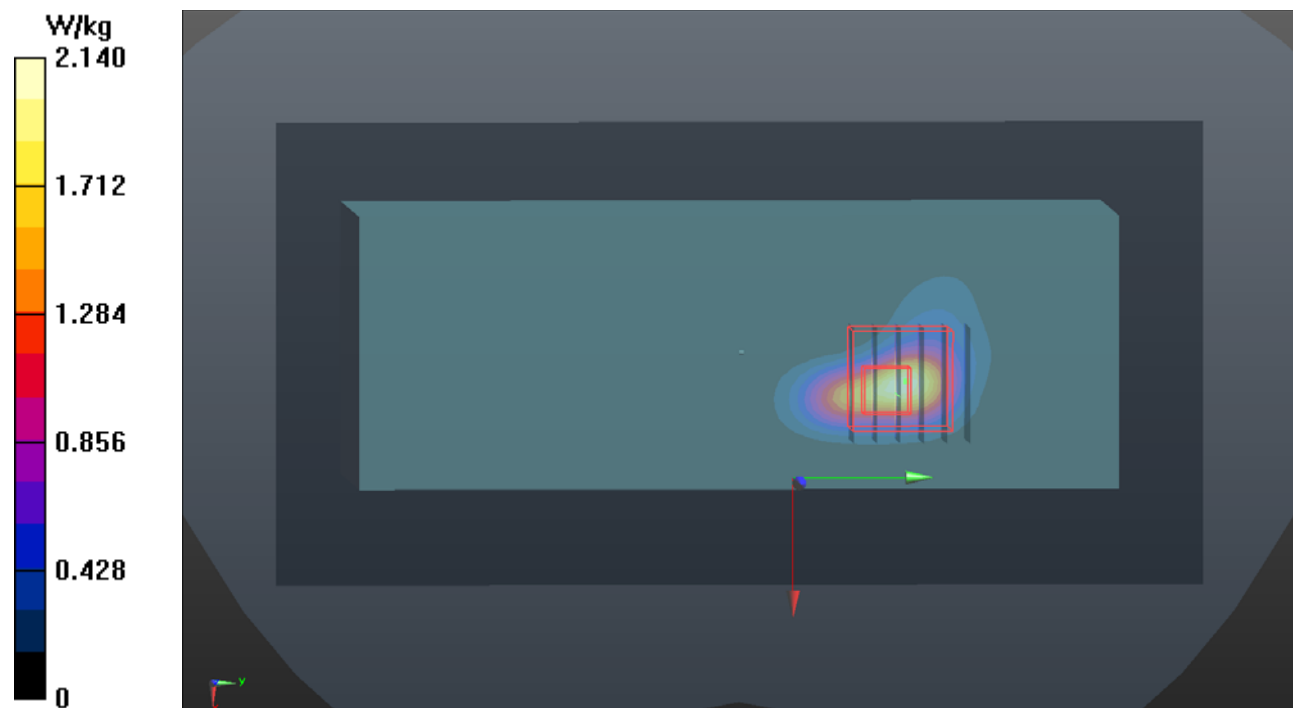
- **Zoom Scan (6x6x12)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=2mm

Reference Value = 19.00 V/m; Power Drift = 0.14 dB

Peak SAR (extrapolated) = 15.5 W/kg

**SAR(1 g) = 2.56 W/kg; SAR(10 g) = 0.515 W/kg**

Maximum value of SAR (measured) = 7.72 W/kg



## P30 WLAN5.8G\_802.11a\_Left Side\_0mm\_Ch161\_Battery 2

**DUT: 181205C02**

Communication System: WLAN\_5G; Frequency: 5805 MHz; Duty Cycle: 1:1.18

Medium: B34T60N1\_0116 Medium parameters used:  $f = 5805$  MHz;  $\sigma = 5.912$  S/m;  $\epsilon_r = 46.471$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature : 23.5 °C ; Liquid Temperature : 23.1 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3898; ConvF(4.45, 4.45, 4.45); Calibrated: 2018/06/26
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 2018/06/26
- Phantom: Twin SAM Phantom\_1496; Type: QD000P40CB;
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7450)

- **Area Scan (101x201x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm  
Maximum value of SAR (interpolated) = 1.74 W/kg

- **Zoom Scan (6x6x12)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=2mm  
Reference Value = 13.65 V/m; Power Drift = -0.11 dB  
Peak SAR (extrapolated) = 17.7 W/kg  
**SAR(1 g) = 2.57 W/kg; SAR(10 g) = 0.523 W/kg**  
Maximum value of SAR (measured) = 8.34 W/kg

