

Variant SAR Test Report

Report No. : SF200428C03H
Applicant : DENSO WAVE INCORPORATED
Address : 1 Yoshiike Kusagi Agui-cho, Chita-gun Aichi 470-2297, Japan
Product : 2D Code Handy Terminal
FCC ID : PZWBHTM80QWG
Brand : DENSO
Model No. : BHT-M80-QWG
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 648474 D04 v01r03
KDB 941225 D01 v03r01, KDB 941225 D05 v02r05, KDB 941225 D06 v02r01
Sample Received Date : Feb. 04, 2021
Date of Testing : Mar. 08, 2021 ~ Mar. 19, 2021
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Test Location : No. 19, Hwa Ya 2nd Rd., Wen Hwa Vil., Kwei Shan Dist., Taoyuan City, Taiwan

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.

This report is issued as a supplementary report to BV CPS report no.: SF200428C03. The differences compared with original report is adding battery 3 and battery 4. The worst cases of original report was verified.

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FCC Accredited No.: TW0003

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Release Control Record

Report No.	Reason for Change	Date Issued
SF200428C03H	Initial release	Mar. 24, 2021

1. Summary of Maximum SAR Value

Equipment Class	Mode	Highest SAR-1g Head (W/kg)	Highest SAR-1g Body-worn Tested at 10 mm (W/kg)	Highest SAR-1g Hotspot Tested at 10 mm (W/kg)	Highest SAR-10g Product Specific Tested at 0 mm (W/kg)
PCB	GSM850	0.44	0.27	0.27	N/A
	GSM1900	0.58	0.57	0.69	N/A
	WCDMA II	0.63	0.57	0.74	N/A
	WCDMA V	0.32	0.28	0.28	N/A
	LTE 2	0.55	0.23	0.54	N/A
	LTE 4	0.32	0.21	0.28	N/A
	LTE 5	0.26	0.20	0.20	N/A
	LTE 7	0.16	0.67	1.11	N/A
	LTE 12	0.20	0.22	0.22	N/A
	LTE 13	0.21	0.21	0.21	N/A
	LTE 17	0.19	0.22	0.22	N/A
LTE 25	0.56	0.51	0.41	N/A	
DTS	2.4G WLAN	0.35	0.30	0.52	N/A
NII	5.2G WLAN	0.46	0.31	0.42	N/A
	5.3G WLAN	N/A	N/A	N/A	1.23
	5.6G WLAN	0.53	0.61	N/A	2.12
	5.8G WLAN	0.30	0.40	0.75	N/A
DSS	Bluetooth / EDR	N/A	N/A	N/A	N/A
DTS	Bluetooth / LE	0.00	0.00	0.00	N/A

Note:

1. 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. Since all the verified SAR values are less than the values in original report, the simultaneous transmission evaluation has no effect and the simultaneous transmission SAR is not required.

2. Description of Equipment Under Test

EUT Type	2D Code Handy Terminal
FCC ID	PZWBHTM80QWG
Brand Name	DENSO
Model Name	BHT-M80-QWG
Tx Frequency Bands (Unit: MHz)	GSM850 : 824.2 ~ 848.8 GSM1900 : 1850.2 ~ 1909.8 WCDMA Band II : 1852.4 ~ 1907.6 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) LTE Band 13 : 779.5 ~ 784.5 (BW: 5M, 10M) LTE Band 17 : 706.5 ~ 713.5 (BW: 5M, 10M) LTE Band 25 : 1850.7 ~ 1914.3 (BW: 1.4M, 3M, 5M, 10M, 15M, 20M) WLAN : 2412 ~ 2462, 5180 ~ 5240, 5260 ~ 5320, 5500 ~ 5720, 5745 ~ 5825 Bluetooth : 2402 ~ 2480 NFC : 13.56
Uplink Modulations	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
Maximum Tune-up Conducted Power (Unit: dBm)	Please refer to section 4.6.1 of this report
Antenna Type	PIFA Antenna Ant 0: Peak Antenna Gain : 1.36 dBi for 2.4GHz, 3.45 dBi for 5GHz Ant 1: Peak Antenna Gain : 1.47 dBi for 2.4GHz, 3.80 dBi for 5GHz
EUT Stage	Engineering Sample

Note:

1. 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.

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List of Accessory:

Battery 1	Brand Name	DENSO
	Model Name	BT1
	Power Rating	3.85Vdc, 4020mAh, 15.47Wh
	Type	Li-ion
Battery 2	Brand Name	DENSO
	Model Name	BT1S
	Power Rating	3.85Vdc, 2900mAh, 11.16Wh
	Type	Li-ion
Battery 3	Brand Name	DENSO
	Model Name	BT1L
	Power Rating	3.85Vdc, 5800mAh, 22.33Wh
	Type	Li-ion
Battery 4	Brand Name	DENSO
	Model Name	BT1S-W
	Power Rating	3.85Vdc, 2900mAh, 11.16Wh
	Type	Li-ion

Report Issue History Record:

Issue No.	Description	Date Issued
SF200428C03	Initial release	Oct. 22, 2020
SF200428C03H	Add battery 3 and battery 4	Mar. 24, 2021

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 (ρ). 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: σ is the conductivity of the tissue, ρ is the mass density of the tissue and E is the RMS electrical field strength.

3.2 SPEAG DASY6 System

DASY6 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 DASY6 software defined. The DASY6 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 from the optical into digital electric signal of the DAE and transfers data to the PC.

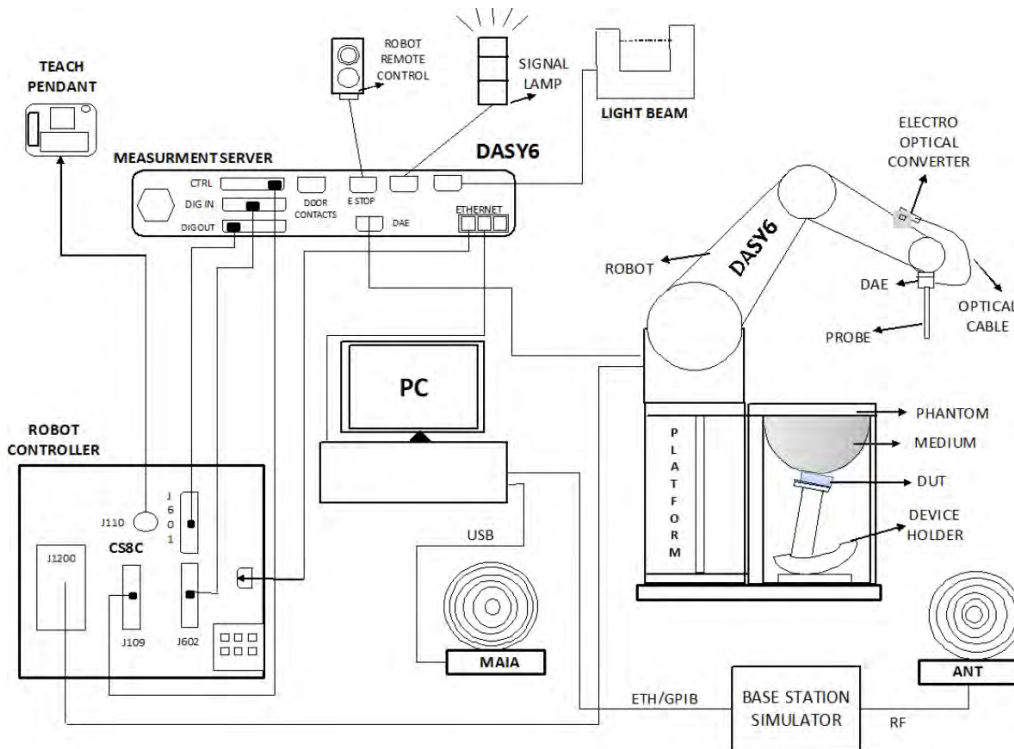


Fig-3.1 SPEAG DASY6 System Setup

3.2.1 Robot

The DASY6 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 ± 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 DASY6 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.

Model	EX3DV4	
Construction	Symmetrical design with triangular core. Built-in shielding against static charges. PEEK enclosure material (resistant to organic solvents, e.g., DGBE).	
Frequency	4 MHz to 10 GHz Linearity: ± 0.2 dB	
Directivity	± 0.1 dB in TSL (rotation around probe axis) ± 0.3 dB in TSL (rotation normal to probe axis)	
Dynamic Range	10 μ W/g to 100 mW/g Linearity: ± 0.2 dB (noise: typically < 1 μ W/g)	
Dimensions	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	

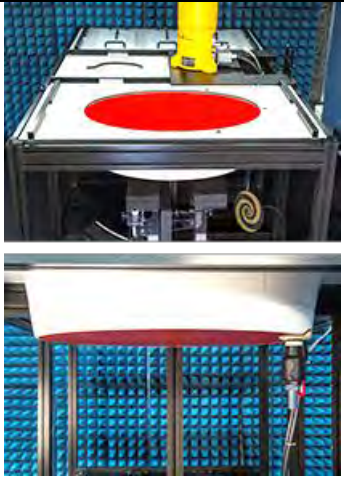
3.2.3 Data Acquisition Electronics (DAE)

Model	DAE3, DAE4	
Construction	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.	
Measurement Range	-100 to +300 mV (16 bit resolution and two range settings: 4mV, 400mV)	
Input Offset Voltage	< 5 μ V (with auto zero)	
Input Bias Current	< 50 fA	
Dimensions	60 x 60 x 68 mm	


3.2.4 Phantoms


Model	SAM-Twin Phantom	
Construction	The shell corresponds to the specifications of the Specific Anthropomorphic Mannequin (SAM) phantom defined in IEEE Std 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.	
Material	Vinylester, fiberglass reinforced (VE-GF)	
Shell Thickness	2 ± 0.2 mm (6 ± 0.2 mm at ear point)	
Dimensions	Length: 1000 mm Width: 500 mm Height: adjustable feet	
Filling Volume	approx. 25 liters	


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Model	ELI	
Construction	The ELI phantom is used for compliance testing of handheld and body-mounted wireless devices. 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.	
Material	Vinylester, fiberglass reinforced (VE-GF)	
Shell Thickness	2.0 ± 0.2 mm (bottom plate)	
Dimensions	Major axis: 600 mm Minor axis: 400 mm	
Filling Volume	approx. 30 liters	


3.2.5 Device Holder

Model	MD4HHTV5 - Mounting Device for Hand-Held Transmitters	
Construction	In combination with the Twin SAM or ELI phantoms, the Mounting Device for Hand-Held Transmitters enables rotation of the mounted transmitter device to specified spherical coordinates. At the heads, the rotation axis is at the ear opening. Transmitter devices can be easily and accurately positioned according to IEC 62209-1, IEEE 1528, FCC, or other specifications. The device holder can be locked for positioning at different phantom sections (left head, right head, flat).	
Material	Polyoxymethylene (POM)	


Model	MDA4WTV5 - Mounting Device Adaptor for Ultra Wide Transmitters	
Construction	An upgrade kit to Mounting Device to enable easy mounting of wider devices like big smart-phones, e-books, small tablets, etc. It holds devices with width up to 140 mm.	
Material	Polyoxymethylene (POM)	

Model	MDA4SPV6 - Mounting Device Adaptor for Smart Phones	
Construction	The solid low-density MDA4SPV6 adaptor assuring no impact on the DUT radiation performance and is conform with any DUT design and shape.	
Material	ROHACELL	


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Model	MD4LAPV5 - Mounting Device for Laptops and other Body-Worn Transmitters	
Construction	In combination with the Twin SAM or ELI phantoms, the Mounting Device (Body-Worn) enables testing of transmitter devices according to IEC 62209-2 specifications. The device holder can be locked for positioning at a flat phantom section.	
Material	Polyoxymethylene (POM), PET-G, Foam	

3.2.6 System Validation Dipoles

Model	D-Serial	
Construction	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.	
Frequency	750 MHz to 5800 MHz	
Return Loss	> 20 dB	
Power Capability	> 100 W (f < 1GHz), > 40 W (f > 1GHz)	

3.2.7 Power Source

Model	Powersource1	
Signal Type	Continuous Wave	
Operating Frequencies	600 MHz to 5850 MHz	
Output Power	-5.0 dBm to +17.0 dBm	
Power Supply	5V DC, via USB jack	
Power Consumption	<3 W	
Applications	System performance check and validation with a CW signal.	

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3.2.8 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 10 % are listed in Table-3.1.

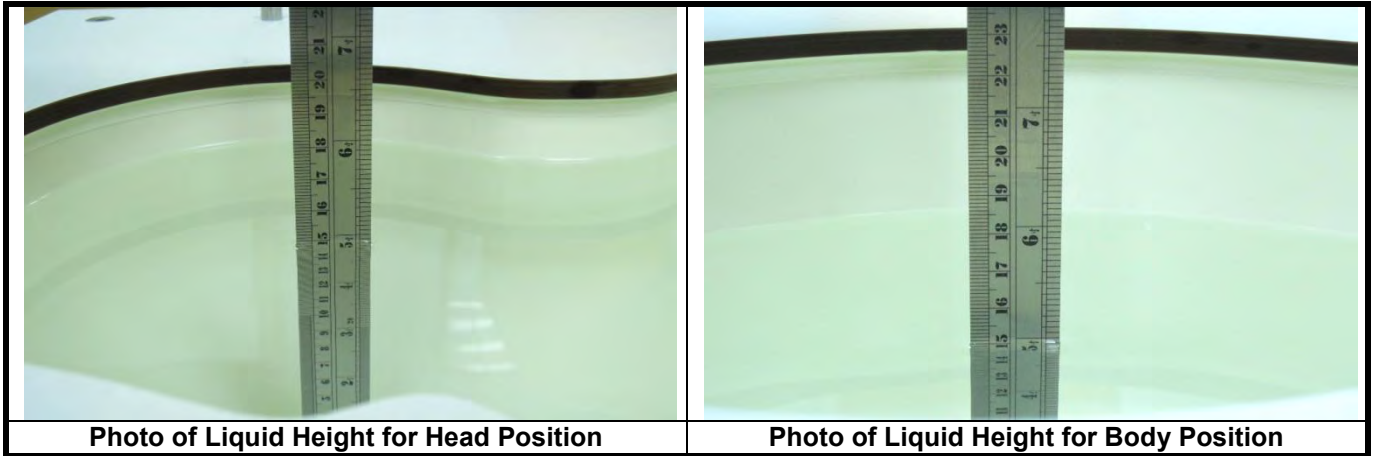


Table-3.1 Targets of Tissue Simulating Liquid

Frequency (MHz)	Target Permittivity	Range of $\pm 10\%$	Target Conductivity	Range of $\pm 10\%$
450	43.5	39.2 ~ 47.9	0.87	0.78 ~ 0.96
750	41.9	37.7 ~ 46.1	0.89	0.80 ~ 0.98
835	41.5	37.4 ~ 45.7	0.90	0.81 ~ 0.99
900	41.5	37.4 ~ 45.7	0.97	0.87 ~ 1.07
1450	40.5	36.5 ~ 44.6	1.20	1.08 ~ 1.32
1500	40.4	36.4 ~ 44.4	1.23	1.11 ~ 1.35
1640	40.2	36.2 ~ 44.2	1.31	1.18 ~ 1.44
1750	40.1	36.1 ~ 44.1	1.37	1.23 ~ 1.51
1800	40.0	36.0 ~ 44.0	1.40	1.26 ~ 1.54
1900	40.0	36.0 ~ 44.0	1.40	1.26 ~ 1.54
2000	40.0	36.0 ~ 44.0	1.40	1.26 ~ 1.54
2100	39.8	35.8 ~ 43.8	1.49	1.34 ~ 1.64
2300	39.5	35.6 ~ 43.5	1.67	1.50 ~ 1.84
2450	39.2	35.3 ~ 43.1	1.80	1.62 ~ 1.98
2600	39.0	35.1 ~ 42.9	1.96	1.76 ~ 2.16
3000	38.5	34.7 ~ 42.4	2.40	2.16 ~ 2.64
3500	37.9	34.1 ~ 41.7	2.91	2.62 ~ 3.20
4000	37.4	33.7 ~ 41.1	3.43	3.09 ~ 3.77
4500	36.8	33.1 ~ 40.5	3.94	3.55 ~ 4.33
5000	36.2	32.6 ~ 39.8	4.45	4.01 ~ 4.90
5200	36.0	32.4 ~ 39.6	4.66	4.19 ~ 5.13
5400	35.8	32.2 ~ 39.4	4.86	4.37 ~ 5.35
5600	35.5	32.0 ~ 39.1	5.07	4.56 ~ 5.58
5800	35.3	31.8 ~ 38.8	5.27	4.74 ~ 5.80
6000	35.1	31.6 ~ 38.6	5.48	4.93 ~ 6.03

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The dielectric properties of the tissue simulating liquids are defined in IEC 62209-1 and IEC 62209-2. The dielectric properties of the tissue simulating liquids were verified prior to the SAR evaluation using a dielectric assessment kit and a network analyzer.

Since the range of $\pm 10\%$ of the required target values is used to measure relative permittivity and conductivity, the SAR correction procedure is applied to correct measured SAR for the deviations in permittivity and conductivity. Only positive correction has been used to scale up the measured SAR, and SAR result would not be corrected if the correction Δ SAR has a negative sign.

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

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.

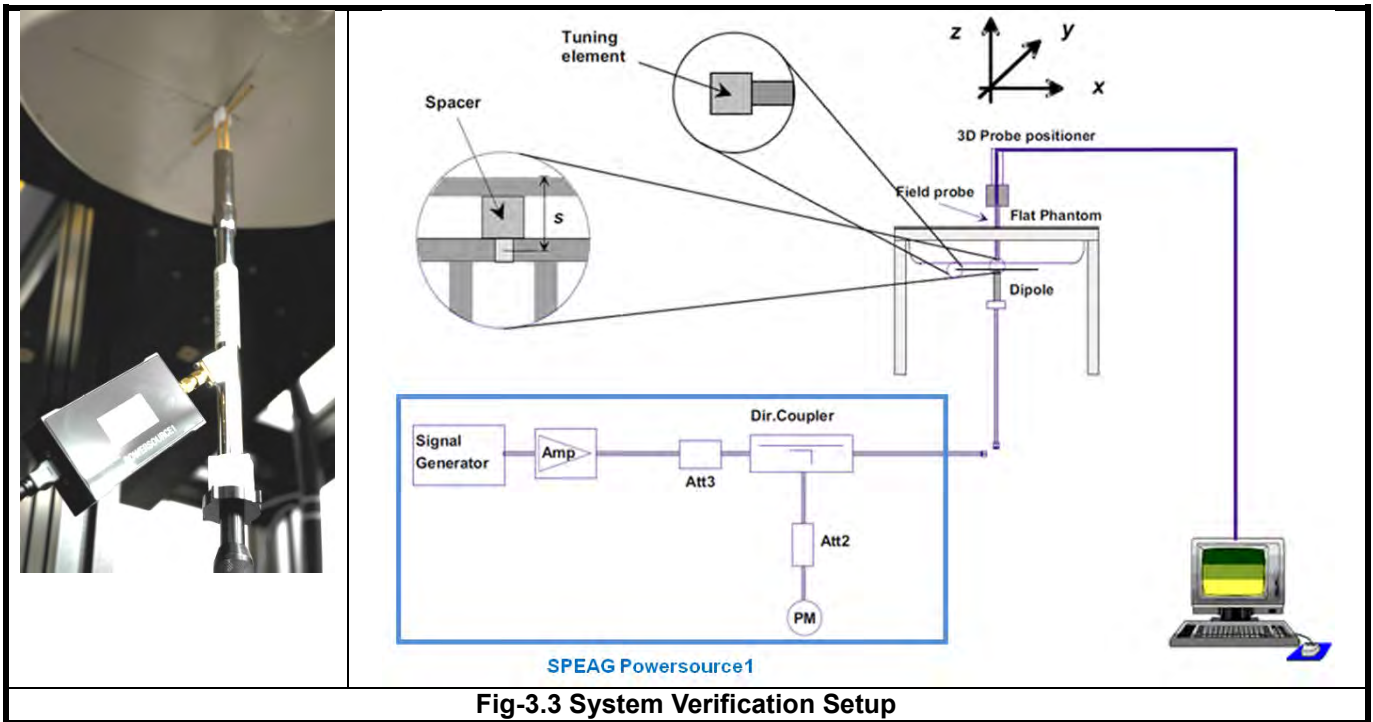


Fig-3.3 System Verification Setup

The SPEAG Powersource1 is a portable and very stable RF source providing a continuous wave (CW) signal. It is designed for conducting SAR system checks and SAR system validation of DASy and is compatible with IEC 62209-1, IEC 62209-2 and IEEE Std 1528 standards. The Powersource1 has been calibrated by SPEAG's ISO/IEC 17025-accredited calibration center. When using Powersource1, the setup can be simplified, as shown in Fig-3.3. The signal purity is warranted by design. Since the Powersource1 is calibrated, no additional equipment is needed and the Powersource1 can directly be connected to the SMA connector of the dipole without a cable as all separate components (signal generator, amplifier, coupler and power meter) are built into the unit.

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 Powersource1 is adjusted for the desired forward power of 17 dBm at the dipole connector and the RF output power would be turned on. 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 Scan and 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.

Measure the local SAR at a test point at 1.4 mm of the inner surface of the phantom recommended by SEPAG. The area scan (two-dimensional SAR distribution) is performed cover at least an area larger than the projection of the EUT or antenna. The measurement resolution and spatial resolution for interpolation shall be chosen to allow identification of the local peak locations to within one-half of the linear dimension of the corresponding side of the zoom scan volume. Following table provides the measurement parameters required for the area scan.

Parameter	$f \leq 3 \text{ GHz}$	$3 \text{ GHz} < f \leq 6 \text{ GHz}$
Maximum distance from closest measurement point to phantom surface	5 ± 1	$\delta \ln(2)/2 \pm 0.5$
Maximum probe angle from probe axis to phantom surface normal at the measurement location	$30^\circ \pm 1^\circ$	$20^\circ \pm 1^\circ$
Maximum area scan spatial resolution: $\Delta x_{\text{Area}}, \Delta y_{\text{Area}}$	$\leq 2 \text{ GHz: } \leq 15 \text{ mm}$ $2 - 3 \text{ GHz: } \leq 12 \text{ mm}$	$3 - 4 \text{ GHz: } \leq 12 \text{ mm}$ $4 - 6 \text{ GHz: } \leq 10 \text{ mm}$

From the scanned SAR distribution, identify the position of the maximum SAR value, in addition identify the positions of any local maxima with SAR values within 2 dB of the maximum value that will not be within the zoom scan of other peaks. Additional peaks shall be measured only when the primary peak is within 2 dB of the SAR compliance limit (e.g. 1 W/kg for 1.6 W/kg, 1 g limit; or 1.26 W/kg for 2 W/kg, 10 g limit).

The zoom scan (three-dimensional SAR distribution) is performed at the local maxima locations identified in previous area scan procedure. The zoom scan volume must be larger than the required minimum dimensions. When graded grids are used, which only applies in the direction normal to the phantom surface, the initial grid separation closest to the phantom surface and subsequent graded grid increment ratios must satisfy the required protocols. The 1-g SAR averaging volume must be fully contained within the zoom scan measurement volume boundaries; otherwise, the measurement must be repeated by shifting or expanding the zoom scan volume. The similar requirements also apply to 10-g SAR measurements. Following table provides the measurement parameters required for the zoom scan.

Parameter		$f \leq 3$ GHz	$3 \text{ GHz} < f \leq 6$ GHz
Maximum zoom scan spatial resolution: $\Delta x_{\text{zoom}}, \Delta y_{\text{zoom}}$		≤ 2 GHz: ≤ 8 mm 2 – 3 GHz: ≤ 5 mm	3 – 4 GHz: ≤ 5 mm 4 – 6 GHz: ≤ 4 mm
Maximum zoom scan spatial resolution, normal to phantom surface	<i>uniform grid:</i> $\Delta z_{\text{zoom}}(n)$	≤ 5 mm	3 – 4 GHz: ≤ 4 mm 4 – 5 GHz: ≤ 3 mm 5 – 6 GHz: ≤ 2 mm
	<i>graded grids:</i> $\Delta z_{\text{zoom}}(1)$	≤ 4 mm	3 – 4 GHz: ≤ 3.0 mm 4 – 5 GHz: ≤ 2.5 mm 5 – 6 GHz: ≤ 2.0 mm
	$\Delta z_{\text{zoom}}(n>1)$	$\leq 1.5 \cdot \Delta z_{\text{zoom}}(n-1)$ mm	
Minimum zoom scan volume (x, y, z)		≥ 30 mm	3 – 4 GHz: ≥ 28 mm 4 – 5 GHz: ≥ 25 mm 5 – 6 GHz: ≥ 22 mm

Per IEC 62209-2 AMD1, the successively higher resolution zoom scan is required if the zoom scan measured as defined above complies with both of the following criteria, or if the peak spatial-average SAR is below 0.1 W/kg, no additional measurements are needed:

- (1) The smallest horizontal distance from the local SAR peaks to all points 3 dB below the SAR peak shall be larger than the horizontal grid steps in both x and y directions ($\Delta x, \Delta y$). This shall be checked for the measured zoom scan plane conformal to the phantom at the distance z_{M1} .
- (2) The ratio of the SAR at the second measured point (M2) to the SAR at the closest measured point (M1) at the x-y location of the measured maximum SAR value shall be at least 30 %.

If one or both of the above criteria are not met, the zoom scan measurement shall be repeated using a finer resolution. New horizontal and vertical grid steps shall be determined from the measured SAR distribution so that the above criteria are met. Compliance with the above two criteria shall be demonstrated for the new measured zoom scan.

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 DASY measurement software, the power reference measurement and power drift measurement procedures are used for monitoring the power drift of EUT during SAR test. Both these procedures measure the field at a specified reference position before and after the SAR testing. The software will calculate the field difference in dB. If the power 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 DASY 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 DASY, 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>

WCDMA Handsets Head SAR

SAR for next to the ear head exposure is measured using a 12.2 kbps RMC with TPC bits configured to all “1’s”. The 3G SAR test reduction procedure is applied to AMR configurations with 12.2 kbps RMC as the primary mode.

WCDMA Handsets Body-worn SAR

SAR for body-worn configurations is measured using a 12.2 kbps RMC with TPC bits configured to all “1’s”. The 3G SAR test reduction procedure is applied to other spreading codes and multiple DPDCH_n configurations supported by the handset with 12.2 kbps RMC as the primary mode.

Handsets with Release 5 HSDPA

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

Handsets with Release 6 HSUPA

The 3G SAR test reduction procedure is applied to HSPA (HSUPA/HSDPA with RMC) body-worn configurations with 12.2 kbps RMC as the primary mode. Otherwise, SAR is measured for HSPA using the HSPA body SAR procedures in the “Release 6 HSPA Data Devices”, for the highest reported body-worn exposure SAR configuration in 12.2 kbps RMC. When VOIP is applicable for next to the ear head exposure in HSPA, the 3G SAR test reduction procedure is applied to HSPA with 12.2 kbps RMC as the primary mode; otherwise, the same HSPA configuration used for body-worn measurements is tested for next to the ear head exposure.

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 (β_c , β_d), and HS-DPCCH power offset parameters (Δ_{ACK} , Δ_{NACK} , Δ_{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	β_c	β_d	β_d (SF)	β_c/β_d	$\beta_{HS}^{(1)/(2)}$	CM ⁽³⁾ (dB)	MPR ⁽³⁾ (dB)
1	2/15	15/15	64	2/15	4/15	0.0	0.0
2	12/15 ⁽⁴⁾	15/15 ⁽⁴⁾	64	12/15 ⁽⁴⁾	24/15	1.0	0.0
3	15/15	8/15	64	15/8	30/15	1.5	0.5
4	15/15	4/15	64	15/4	30/15	1.5	0.5

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Note 1: Δ_{ACK} , Δ_{NACK} and $\Delta_{COI} = 30/15$ 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, Δ_{ACK} and $\Delta_{NACK} = 30/15$ with $\beta_{HS} = 30/15 * \beta_c$, and $\Delta_{COI} = 24/15$ 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 β_c/β_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 β values indicated in below.

Sub-test	β_c	β_d	β_d (SF)	β_c/β_d	$\beta_{HS}^{(1)}$	β_{ec}	$\beta_{ed}^{(4)(5)}$	β_{ed} (SF)	β_{ed} (Codes)	CM ⁽²⁾ (dB)	MPR ⁽²⁾⁽⁶⁾ (dB)	AG ⁽⁵⁾ Index	E-TFCI
1	11/15 ⁽³⁾	15/15 ⁽³⁾	64	11/15 ⁽³⁾	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, Δ_{ACK} , Δ_{NACK} and $\Delta_{COI} = 30/15$ with $\beta_{HS} = 30/15 * \beta_c$. For sub-test 5, Δ_{ACK} , Δ_{NACK} and $\Delta_{COI} = 5/15$ 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 β_c/β_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: β_{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.

HSPA+ SAR Guidance

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

Sub-test	$\beta_c^{(3)}$	β_d	$\beta_{HS}^{(1)}$	β_{ec}	$\beta_{ed}^{(4)}$ (2xSF2)	$\beta_{ed}^{(4)}$ (2xSF4)	CM ⁽²⁾ (dB)	MPR ⁽²⁾ (dB)	AG ⁽⁴⁾ Index	E-TFCI ⁽⁵⁾	E-TFCI (boost)
1	1	0	30/15	30/15	$\beta_{ed1}: 30/15$ $\beta_{ed2}: 30/15$	$\beta_{ed3}: 24/15$ $\beta_{ed4}: 24/15$	3.5	2.5	14	105	105

Note 1: Δ_{ACK} , Δ_{NACK} and $\Delta_{COI} = 30/15$ with $\beta_{HS} = 30/15 * \beta_c$.

Note 2: CM = 3.5 and the MPR is based on the relative CM difference, MPR = MAX(CM-1,0).

Note 3: DPDCH is not configured, therefore the β_c is set to 1 and $\beta_d = 0$ by default.

Note 4: β_{ed} can not be set directly; it is set by Absolute Grant Value.

Note 5: All the sub-tests require the UE to transmit 2SF2+2SF4 16QAM EDCH and they apply for UE using E-DPDCH category 7. E-DCH TTI is set to 2ms TTI and E-DCH table index = 2. To support these E-DCH configurations DPDCH is not allocated. The UE is signalled to use the extrapolation algorithm.

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DC-HSDPA SAR Guidance

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

<Considerations Related to LTE for Setup and Testing>

This device contains LTE transmitter which follows 3GPP standards, is category 3, supports both QPSK and 16QAM 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 16QAM 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		
13			V	V		
17			V	V		
25	V	V	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.

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<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 ≤ 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

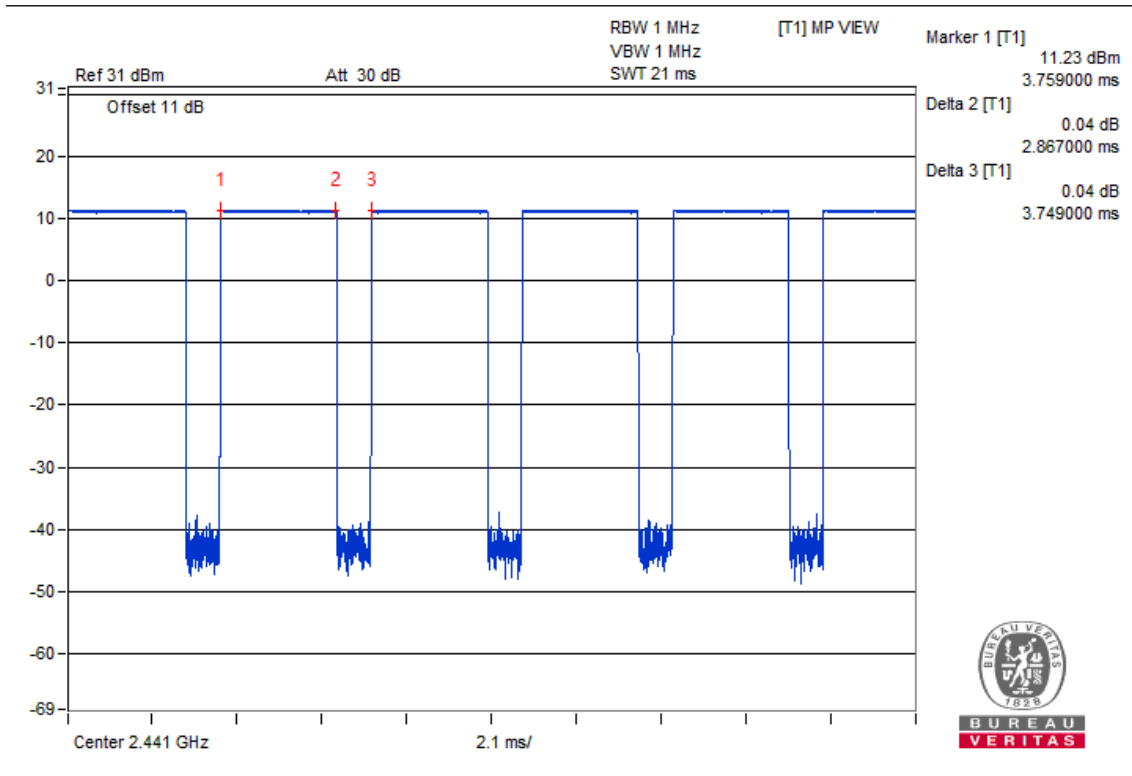
For devices that operate in both U-NII bands using the same transmitter and antenna(s), SAR test reduction is determined according to the following.

- 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 ≤ 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 ≤ 1.2 W/kg, SAR is not required for the band with lower maximum output power in that test configuration.

SAR Test Report

<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.



Time-domain plot for Bluetooth transmission signal

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

$$\text{Duty Factor} = \text{Pulse Width} / \text{Total Period} = 2.867 / 3.749 = 76.47 \%$$

SAR Test Report

4.2 EUT Testing Position

This variant report is made for verification. All the worst SAR configurations specified in the original SAR report was repeated and verified to ensure the device remains compliant.

4.3 Tissue Verification

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

Head / Body-worn/ Hotspot

Plot	Frequency (MHz)	Liquid Temp. (°C)	Measured Conductivity (σ)	Measured Permittivity (ϵ_r)	Target Conductivity (σ)	Target Permittivity (ϵ_r)	Conductivity Deviation (%)	Permittivity Deviation (%)	Test Date
S01	835	23.4	0.922	41.397	0.9	41.5	2.44	-0.25	Mar. 18, 2021
S02	1900	23.4	1.458	38.53	1.4	40	4.14	-3.68	Mar. 18, 2021
S03	1900	23.4	1.458	38.53	1.4	40	4.14	-3.68	Mar. 18, 2021
S04	835	23.4	0.922	41.397	0.9	41.5	2.44	-0.25	Mar. 18, 2021
S05	1900	23.4	1.458	38.53	1.4	40	4.14	-3.68	Mar. 18, 2021
S06	1750	23.4	1.329	39.098	1.37	40.1	-2.99	-2.50	Mar. 18, 2021
S07	835	23.4	0.922	41.397	0.9	41.5	2.44	-0.25	Mar. 18, 2021
S08	2600	23.4	2.029	38.503	1.96	39	3.52	-1.27	Mar. 18, 2021
S09	750	23.4	0.894	43.432	0.89	41.9	0.45	3.66	Mar. 18, 2021
S10	750	23.4	0.894	43.432	0.89	41.9	0.45	3.66	Mar. 18, 2021
S11	750	23.4	0.894	43.432	0.89	41.9	0.45	3.66	Mar. 18, 2021
S12	1900	23.4	1.458	38.53	1.4	40	4.14	-3.68	Mar. 18, 2021
S13	2450	23.1	1.864	38.07	1.8	39.2	3.56	-2.88	Apr. 01, 2021
S14	5250	23.4	4.564	36.045	4.71	35.9	-3.10	0.40	Mar. 18, 2021
S15	5600	23.3	5.21	36.221	5.07	35.5	2.76	2.03	Mar. 19, 2021
S16	5750	23.4	5.037	35.37	5.22	35.4	-3.51	-0.08	Mar. 18, 2021
S17	835	23.1	0.914	42.593	0.9	41.5	1.56	2.63	Mar. 10, 2021
S18	1900	23.3	1.457	39.83	1.4	40	4.07	-0.43	Mar. 08, 2021
S19	1900	23.1	1.46	38.262	1.4	40	4.29	-4.35	Mar. 10, 2021
S20	835	23.1	0.914	42.593	0.9	41.5	1.56	2.63	Mar. 10, 2021
S21	1900	23.3	1.457	39.83	1.4	40	4.07	-0.43	Mar. 08, 2021
S22	1750	23.3	1.322	40.39	1.37	40.1	-3.50	0.72	Mar. 08, 2021
S23	835	23.3	0.921	42.338	0.9	41.5	2.33	2.02	Mar. 08, 2021
S24	2600	23.3	2.048	38.471	1.96	39	4.49	-1.36	Mar. 08, 2021
S25	750	23.3	0.889	42.67	0.89	41.9	-0.11	1.84	Mar. 09, 2021
S26	750	23.3	0.889	42.67	0.89	41.9	-0.11	1.84	Mar. 09, 2021
S27	750	23.3	0.889	42.67	0.89	41.9	-0.11	1.84	Mar. 09, 2021
S28	1900	23.3	1.459	39.968	1.4	40	4.21	-0.08	Mar. 09, 2021
S29	2450	23.3	1.886	38.313	1.8	39.2	4.78	-2.26	Mar. 12, 2021
S30	5250	23.1	4.767	36.978	4.71	35.9	1.21	3.00	Apr. 01, 2021
S31	5600	23.1	5.211	36.23	5.07	35.5	2.78	2.06	Apr. 01, 2021
S32	5750	23.1	5.384	35.949	5.22	35.4	3.14	1.55	Apr. 01, 2021
S33	835	23.1	0.914	42.593	0.9	41.5	1.56	2.63	Mar. 10, 2021
S34	1900	23.3	1.457	39.83	1.4	40	4.07	-0.43	Mar. 08, 2021
S35	1900	23.1	1.46	38.262	1.4	40	4.29	-4.35	Mar. 10, 2021
S36	835	23.1	0.914	42.593	0.9	41.5	1.56	2.63	Mar. 10, 2021
S37	1900	23.3	1.459	39.968	1.4	40	4.21	-0.08	Mar. 09, 2021
S38	1750	23.3	1.322	40.39	1.37	40.1	-3.50	0.72	Mar. 08, 2021
S39	835	23.3	0.921	42.338	0.9	41.5	2.33	2.02	Mar. 08, 2021
S40	2600	23.3	2.048	38.471	1.96	39	4.49	-1.36	Mar. 08, 2021
S41	750	23.3	0.889	42.67	0.89	41.9	-0.11	1.84	Mar. 09, 2021
S42	750	23.3	0.889	42.67	0.89	41.9	-0.11	1.84	Mar. 09, 2021
S43	750	23.3	0.889	42.67	0.89	41.9	-0.11	1.84	Mar. 09, 2021
S44	1900	23.3	1.459	39.968	1.4	40	4.21	-0.08	Mar. 09, 2021
S45	2450	23.3	1.886	38.313	1.8	39.2	4.78	-2.26	Mar. 12, 2021
S46	5250	23.4	4.564	36.045	4.71	35.9	-3.10	0.40	Mar. 18, 2021
S47	5750	23.4	5.037	35.37	5.22	35.4	-3.51	-0.08	Mar. 18, 2021
S50	2450	23.1	1.864	38.07	1.8	39.2	3.56	-2.88	Apr. 01, 2021
S51	2450	23.1	1.864	38.07	1.8	39.2	3.56	-2.88	Apr. 01, 2021
S52	2450	23.1	1.864	38.07	1.8	39.2	3.56	-2.88	Apr. 01, 2021

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Plot	Frequency (MHz)	Liquid Temp. (°C)	Measured Conductivity (σ)	Measured Permittivity (ϵ_r)	Target Conductivity (σ)	Target Permittivity (ϵ_r)	Conductivity Deviation (%)	Permittivity Deviation (%)	Test Date
S48	5250	23.4	4.564	36.045	4.71	35.9	-3.10	0.40	Mar. 18, 2021
S49	5600	23.3	5.21	36.221	5.07	35.5	2.76	2.03	Mar. 19, 2021

Note:

The dielectric properties of the tissue simulating liquid have been measured within 24 hours before the SAR testing and within $\pm 10\%$ of the target values. Liquid temperature during the SAR testing has kept within $\pm 2^\circ\text{C}$.

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.

Head / Body-worn/ Hotspot

Plot	Test Date	Probe S/N	Calibration Point	Measured Conductivity (σ)	Measured Permittivity (ϵ_r)	Validation for CW			Validation for Modulation		
						Sensitivity Range	Probe Linearity	Probe Isotropy	Modulation Type	Duty Factor	PAR
S01	Mar. 18, 2021	3971	835	0.922	41.397	Pass	Pass	Pass	N/A	N/A	N/A
S02	Mar. 18, 2021	3971	1900	1.458	38.53	Pass	Pass	Pass	N/A	N/A	N/A
S03	Mar. 18, 2021	3971	1900	1.458	38.53	Pass	Pass	Pass	N/A	N/A	N/A
S04	Mar. 18, 2021	3971	835	0.922	41.397	Pass	Pass	Pass	N/A	N/A	N/A
S05	Mar. 18, 2021	3971	1900	1.458	38.53	Pass	Pass	Pass	N/A	N/A	N/A
S06	Mar. 18, 2021	3971	1750	1.329	39.098	Pass	Pass	Pass	N/A	N/A	N/A
S07	Mar. 18, 2021	3971	835	0.922	41.397	Pass	Pass	Pass	N/A	N/A	N/A
S08	Mar. 18, 2021	3971	2600	2.029	38.503	Pass	Pass	Pass	N/A	N/A	N/A
S09	Mar. 18, 2021	3971	750	0.894	43.432	Pass	Pass	Pass	N/A	N/A	N/A
S10	Mar. 18, 2021	3971	750	0.894	43.432	Pass	Pass	Pass	N/A	N/A	N/A
S11	Mar. 18, 2021	3971	750	0.894	43.432	Pass	Pass	Pass	N/A	N/A	N/A
S12	Mar. 18, 2021	3971	1900	1.458	38.53	Pass	Pass	Pass	N/A	N/A	N/A
S13	Apr. 01, 2021	7554	2450	1.864	38.07	Pass	Pass	Pass	OFDM	N/A	Pass
S14	Mar. 18, 2021	3971	5250	4.564	36.045	Pass	Pass	Pass	OFDM	N/A	Pass
S15	Mar. 19, 2021	3971	5600	5.21	36.221	Pass	Pass	Pass	OFDM	N/A	Pass
S16	Mar. 18, 2021	3971	5750	5.037	35.37	Pass	Pass	Pass	OFDM	N/A	Pass
S17	Mar. 10, 2021	3887	835	0.914	42.593	Pass	Pass	Pass	N/A	N/A	N/A
S18	Mar. 08, 2021	3887	1900	1.457	39.83	Pass	Pass	Pass	N/A	N/A	N/A
S19	Mar. 10, 2021	3887	1900	1.46	38.262	Pass	Pass	Pass	N/A	N/A	N/A
S20	Mar. 10, 2021	3887	835	0.914	42.593	Pass	Pass	Pass	N/A	N/A	N/A
S21	Mar. 08, 2021	3887	1900	1.457	39.83	Pass	Pass	Pass	N/A	N/A	N/A
S22	Mar. 08, 2021	3887	1750	1.322	40.39	Pass	Pass	Pass	N/A	N/A	N/A
S23	Mar. 08, 2021	3887	835	0.921	42.338	Pass	Pass	Pass	N/A	N/A	N/A
S24	Mar. 08, 2021	3650	2600	2.048	38.471	Pass	Pass	Pass	N/A	N/A	N/A
S25	Mar. 09, 2021	3971	750	0.889	42.67	Pass	Pass	Pass	N/A	N/A	N/A
S26	Mar. 09, 2021	3971	750	0.889	42.67	Pass	Pass	Pass	N/A	N/A	N/A
S27	Mar. 09, 2021	3887	750	0.889	42.67	Pass	Pass	Pass	N/A	N/A	N/A
S28	Mar. 09, 2021	3887	1900	1.459	39.968	Pass	Pass	Pass	N/A	N/A	N/A

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Plot	Test Date	Probe S/N	Calibration Point	Measured Conductivity (σ)	Measured Permittivity (ϵ_r)	Validation for CW			Validation for Modulation		
						Sensitivity Range	Probe Linearity	Probe Isotropy	Modulation Type	Duty Factor	PAR
S29	Mar. 12, 2021	3971	2450	1.886	38.313	Pass	Pass	Pass	OFDM	N/A	Pass
S30	Apr. 01, 2021	7554	5250	4.767	36.978	Pass	Pass	Pass	OFDM	N/A	Pass
S31	Apr. 01, 2021	7554	5600	5.211	36.23	Pass	Pass	Pass	OFDM	N/A	Pass
S32	Apr. 01, 2021	7554	5750	5.384	35.949	Pass	Pass	Pass	OFDM	N/A	Pass
S33	Mar. 10, 2021	3887	835	0.914	42.593	Pass	Pass	Pass	N/A	N/A	N/A
S34	Mar. 08, 2021	3887	1900	1.457	39.83	Pass	Pass	Pass	N/A	N/A	N/A
S35	Mar. 10, 2021	3887	1900	1.46	38.262	Pass	Pass	Pass	N/A	N/A	N/A
S36	Mar. 10, 2021	3887	835	0.914	42.593	Pass	Pass	Pass	N/A	N/A	N/A
S37	Mar. 09, 2021	3887	1900	1.459	39.968	Pass	Pass	Pass	N/A	N/A	N/A
S38	Mar. 08, 2021	3650	1750	1.322	40.39	Pass	Pass	Pass	N/A	N/A	N/A
S39	Mar. 08, 2021	3887	835	0.921	42.338	Pass	Pass	Pass	N/A	N/A	N/A
S40	Mar. 08, 2021	3650	2600	2.048	38.471	Pass	Pass	Pass	N/A	N/A	N/A
S41	Mar. 09, 2021	3971	750	0.889	42.67	Pass	Pass	Pass	N/A	N/A	N/A
S42	Mar. 09, 2021	3971	750	0.889	42.67	Pass	Pass	Pass	N/A	N/A	N/A
S43	Mar. 09, 2021	3887	750	0.889	42.67	Pass	Pass	Pass	N/A	N/A	N/A
S44	Mar. 09, 2021	3887	1900	1.459	39.968	Pass	Pass	Pass	N/A	N/A	N/A
S45	Mar. 12, 2021	3971	2450	1.886	38.313	Pass	Pass	Pass	OFDM	N/A	Pass
S46	Mar. 18, 2021	3971	5250	4.564	36.045	Pass	Pass	Pass	OFDM	N/A	Pass
S47	Mar. 18, 2021	3971	5750	5.037	35.37	Pass	Pass	Pass	OFDM	N/A	Pass
S50	Apr. 01, 2021	7554	2450	1.864	38.07	Pass	Pass	Pass	N/A	N/A	N/A
S51	Apr. 01, 2021	7554	2450	1.864	38.07	Pass	Pass	Pass	N/A	N/A	N/A
S52	Apr. 01, 2021	7554	2450	1.864	38.07	Pass	Pass	Pass	N/A	N/A	N/A

Product Specific

Plot	Test Date	Probe S/N	Calibration Point	Measured Conductivity (σ)	Measured Permittivity (ϵ_r)	Validation for CW			Validation for Modulation		
						Sensitivity Range	Probe Linearity	Probe Isotropy	Modulation Type	Duty Factor	PAR
S48	Mar. 18, 2021	3971	5250	4.564	36.045	Pass	Pass	Pass	OFDM	N/A	Pass
S49	Mar. 19, 2021	3971	5600	5.21	36.221	Pass	Pass	Pass	OFDM	N/A	Pass

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4.5 System Verification

The measuring result for system verification is tabulated as below.

Head / Body-worn/ Hotspot

Plot	Test Date	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
S01	Mar. 18, 2021	835	9.52	0.436	8.72	-8.40	4d121	3971	1277
S02	Mar. 18, 2021	1900	40.40	1.97	39.40	-2.48	5d036	3971	1277
S03	Mar. 18, 2021	1900	40.40	1.97	39.40	-2.48	5d036	3971	1277
S04	Mar. 18, 2021	835	9.52	0.436	8.72	-8.40	4d121	3971	1277
S05	Mar. 18, 2021	1900	40.40	1.97	39.40	-2.48	5d036	3971	1277
S06	Mar. 18, 2021	1750	36.00	1.76	35.20	-2.22	1055	3971	1277
S07	Mar. 18, 2021	835	9.52	0.436	8.72	-8.40	4d121	3971	1277
S08	Mar. 18, 2021	2600	55.50	2.66	53.20	-4.14	1020	3971	1277
S09	Mar. 18, 2021	750	8.48	0.421	8.42	-0.71	1013	3971	1277
S10	Mar. 18, 2021	750	8.48	0.421	8.42	-0.71	1013	3971	1277
S11	Mar. 18, 2021	750	8.48	0.421	8.42	-0.71	1013	3971	1277
S12	Mar. 18, 2021	1900	40.40	1.97	39.40	-2.48	5d036	3971	1277
S13	Apr. 01, 2021	2450	51.60	2.47	49.40	-4.26	737	7554	1590
S14	Mar. 18, 2021	5250	77.50	3.74	74.80	-3.48	1145	3971	1277
S15	Mar. 19, 2021	5600	80.30	4.04	80.80	0.62	1145	3971	1277
S16	Mar. 18, 2021	5750	77.50	3.99	79.80	2.97	1145	3971	1277
S17	Mar. 10, 2021	835	9.52	0.492	9.84	3.36	4d121	3887	905
S18	Mar. 08, 2021	1900	40.40	1.85	37.00	-8.42	5d036	3887	905
S19	Mar. 10, 2021	1900	40.40	1.91	38.20	-5.45	5d036	3887	905
S20	Mar. 10, 2021	835	9.52	0.492	9.84	3.36	4d121	3887	905
S21	Mar. 08, 2021	1900	40.40	1.85	37.00	-8.42	5d036	3887	905
S22	Mar. 08, 2021	1750	36.00	1.88	37.60	4.44	1055	3887	905
S23	Mar. 08, 2021	835	9.52	0.507	10.14	6.51	4d121	3887	905
S24	Mar. 08, 2021	2600	55.50	2.65	53.00	-4.50	1020	3650	861
S25	Mar. 09, 2021	750	8.48	0.434	8.68	2.36	1013	3971	1277
S26	Mar. 09, 2021	750	8.48	0.434	8.68	2.36	1013	3971	1277
S27	Mar. 09, 2021	750	8.48	0.434	8.68	2.36	1013	3887	905
S28	Mar. 09, 2021	1900	40.40	2.09	41.80	3.47	5d036	3887	905
S29	Mar. 12, 2021	2450	51.60	2.42	48.40	-6.20	737	3971	1277
S30	Apr. 01, 2021	5250	77.50	3.55	71.00	-8.39	1145	7554	1590
S31	Apr. 01, 2021	5600	80.30	3.69	73.80	-8.09	1145	7554	1590
S32	Apr. 01, 2021	5750	77.50	3.71	74.20	-4.26	1145	7554	1590
S33	Mar. 10, 2021	835	9.52	0.492	9.84	3.36	4d121	3887	905
S34	Mar. 08, 2021	1900	40.40	1.85	37.00	-8.42	5d036	3887	905
S35	Mar. 10, 2021	1900	40.40	1.91	38.20	-5.45	5d036	3887	905
S36	Mar. 10, 2021	835	9.52	0.492	9.84	3.36	4d121	3887	905
S37	Mar. 09, 2021	1900	40.40	2.09	41.80	3.47	5d036	3887	905
S38	Mar. 08, 2021	1750	36.00	1.96	39.20	8.89	1055	3650	861
S39	Mar. 08, 2021	835	9.52	0.507	10.14	6.51	4d121	3887	905
S40	Mar. 08, 2021	2600	55.50	2.65	53.00	-4.50	1020	3650	861
S41	Mar. 09, 2021	750	8.48	0.434	8.68	2.36	1013	3971	1277
S42	Mar. 09, 2021	750	8.48	0.434	8.68	2.36	1013	3971	1277
S43	Mar. 09, 2021	750	8.48	0.434	8.68	2.36	1013	3887	905
S44	Mar. 09, 2021	1900	40.40	2.09	41.80	3.47	5d036	3887	905
S45	Mar. 12, 2021	2450	51.60	2.42	48.40	-6.20	737	3971	1277
S46	Mar. 18, 2021	5250	77.50	3.74	74.80	-3.48	1145	3971	1277
S47	Mar. 18, 2021	5750	77.50	3.99	79.80	2.97	1145	3971	1277
S50	Apr. 01, 2021	2450	51.60	2.47	49.40	-4.26	737	7554	1590
S51	Apr. 01, 2021	2450	51.60	2.47	49.40	-4.26	737	7554	1590
S52	Apr. 01, 2021	2450	51.60	2.47	49.40	-4.26	737	7554	1590

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Plot	Test Date	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
S48	Mar. 18, 2021	5250	22.10	1.11	22.20	0.45	1145	3971	1277
S49	Mar. 19, 2021	5600	22.90	1.15	23.00	0.44	1145	3971	1277

Note:

Comparing to the reference SAR value provided by SPEAG in dipole calibration certificate, the deviation of system check results is within its specification of 10 %. The result indicates the system check can meet the variation criterion and the plots please refer to Appendix A of this report.

4.6 Maximum Output Power

4.6.1 Maximum Target Conducted Power

Refer to Appendix E.

4.6.2 Measured Conducted Power Result

Refer to Appendix F.

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4.7 SAR Testing Results

4.7.1 SAR Results for Head Exposure Condition

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)
1	GSM850	GPRS12	Right Cheek	189	3	29.00	28.75	1.06	-0.06	0.418	0.44
	GSM850	GPRS12	Right Cheek	189	4	29.00	28.75	1.06	0.07	0.405	0.43
2	GSM1900	GPRS11	Right Cheek	810	3	28.50	28.23	1.06	-0.05	0.543	0.58
	GSM1900	GPRS11	Right Cheek	810	4	28.50	28.23	1.06	0.08	0.512	0.54
3	WCDMA II	RMC12.2K	Right Cheek	9538	3	24.50	24.33	1.04	-0.05	0.601	0.63
	WCDMA II	RMC12.2K	Right Cheek	9538	4	24.50	24.33	1.04	0.08	0.555	0.58
4	WCDMA V	RMC12.2K	Right Cheek	4233	3	24.50	24.35	1.04	-0.05	0.303	0.32
	WCDMA V	RMC12.2K	Right Cheek	4233	4	24.50	24.35	1.04	-0.04	0.283	0.29

Note: The SAR testing above was verified based on the worst case of original report.

Plot No.	Band	Mode	Test Position	Ch.	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)
5	LTE 2	QPSK20M	Right Cheek	19100	1	0	3	23.50	23.43	1.02	-0.03	0.542	0.55
	LTE 2	QPSK20M	Right Cheek	19100	1	0	4	23.50	23.43	1.02	0.04	0.449	0.46
6	LTE 4	QPSK20M	Right Cheek	20300	1	0	3	23.50	23.42	1.02	-0.03	0.309	0.32
	LTE 4	QPSK20M	Right Cheek	20300	1	0	4	23.50	23.42	1.02	0.09	0.274	0.28
7	LTE 5	QPSK10M	Right Cheek	20600	1	0	3	23.50	23.46	1.01	-0.04	0.255	0.26
	LTE 5	QPSK10M	Right Cheek	20600	1	0	4	23.50	23.46	1.01	0.12	0.236	0.24
8	LTE 7	QPSK20M	Right Cheek	21350	1	0	3	24.00	23.74	1.06	-0.07	0.15	0.16
	LTE 7	QPSK20M	Right Cheek	21350	1	0	4	24.00	23.74	1.06	0.04	0.119	0.13
9	LTE 12	QPSK10M	Right Cheek	23130	1	0	3	23.50	23.47	1.01	-0.06	0.197	0.20
	LTE 12	QPSK10M	Right Cheek	23130	1	0	4	23.50	23.47	1.01	0.05	0.173	0.17
10	LTE 13	QPSK10M	Right Cheek	23230	1	0	3	23.50	23.37	1.03	-0.04	0.206	0.21
	LTE 13	QPSK10M	Right Cheek	23230	1	0	4	23.50	23.37	1.03	0.08	0.184	0.19
11	LTE 17	QPSK10M	Right Cheek	23780	1	0	3	23.50	23.43	1.02	-0.06	0.185	0.19
	LTE 17	QPSK10M	Right Cheek	23780	1	0	4	23.50	23.43	1.02	0.14	0.163	0.17
12	LTE 25	QPSK20M	Right Cheek	26365	1	0	3	23.50	23.48	1.00	0.09	0.559	0.56
	LTE 25	QPSK20M	Right Cheek	26365	1	0	4	23.50	23.48	1.00	-0.1	0.518	0.52

Note: The SAR testing above was verified based on the worst case of original report.

Plot No.	Band	Mode	Test Position	Ch.	Ant Status	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)
13	WLAN2.4G	802.11b	Right Cheek	6	Ant 0+1	3	98.76	1.01	23.50	23.37	1.03	-0.09	0.334	0.35
	WLAN2.4G	802.11b	Right Cheek	6	Ant 0+1	4	98.76	1.01	23.50	23.37	1.03	0.05	0.319	0.33
14	WLAN5.2G	802.11n HT40	Left Cheek	46	Ant 1	3	91.12	1.10	21.50	21.10	1.10	0.05	0.384	0.46
	WLAN5.2G	802.11n HT40	Left Cheek	46	Ant 1	4	91.12	1.10	21.50	21.10	1.10	0.02	0.356	0.43
15	WLAN5.6G	802.11ac VHT80	Left Cheek	138	Ant 0	3	83.95	1.19	20.50	20.41	1.02	-0.02	0.439	0.53
	WLAN5.6G	802.11ac VHT80	Left Cheek	138	Ant 0	4	83.95	1.19	20.50	20.41	1.02	0.07	0.416	0.50
16	WLAN5.8G	802.11ac VHT80	Left Cheek	155	Ant 1	3	83.95	1.19	19.00	18.93	1.02	-0.05	0.249	0.30
	WLAN5.8G	802.11ac VHT80	Left Cheek	155	Ant 1	4	83.95	1.19	19.00	18.93	1.02	0.04	0.242	0.29
	BT	LE	Right Cheek	19	Ant 0	3	76.47	1.31	1.00	0.97	1.01	0	<0.001	0.00
	BT	LE	Right Cheek	19	Ant 0	4	76.47	1.31	1.00	0.97	1.01	0	<0.001	0.00

Note:

1. The SAR testing above was verified based on the worst case of original report.
2. The "< 0.001" means there is no SAR value or the SAR is too low to be measured.

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4.7.2 SAR Results for Body-worn Exposure Condition (Test Separation Distance is 10 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)
17	GSM850	GPRS12	Front Face	189	3	29.00	28.75	1.06	-0.05	0.259	0.27
	GSM850	GPRS12	Front Face	189	4	29.00	28.75	1.06	-0.08	0.183	0.19
18	GSM1900	GPRS11	Rear Face	810	3	28.50	28.23	1.06	0.1	0.536	0.57
	GSM1900	GPRS11	Rear Face	810	4	28.50	28.23	1.06	0.12	0.375	0.40
19	WCDMA II	RMC12.2K	Rear Face	9538	3	24.50	24.33	1.04	0.02	0.55	0.57
	WCDMA II	RMC12.2K	Rear Face	9538	4	24.50	24.33	1.04	0.04	0.333	0.35
20	WCDMA V	RMC12.2K	Front Face	4233	3	24.50	24.35	1.04	-0.04	0.265	0.28
	WCDMA V	RMC12.2K	Front Face	4233	4	24.50	24.35	1.04	-0.14	0.208	0.22

Note: The SAR testing above was verified based on the worst case of original report.

Plot No.	Band	Mode	Test Position	Ch.	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)
21	LTE 2	QPSK20M	Rear Face	19100	1	0	3	23.50	23.43	1.02	0.03	0.227	0.23
	LTE 2	QPSK20M	Rear Face	19100	1	0	4	23.50	23.43	1.02	0.15	0.08	0.08
22	LTE 4	QPSK20M	Rear Face	20175	1	0	3	23.50	23.41	1.02	0.1	0.205	0.21
	LTE 4	QPSK20M	Rear Face	20175	1	0	4	23.50	23.41	1.02	0.02	0.162	0.17
23	LTE 5	QPSK10M	Front Face	20600	1	0	3	23.50	23.46	1.01	-0.14	0.199	0.20
	LTE 5	QPSK10M	Front Face	20600	1	0	4	23.50	23.46	1.01	0.04	0.197	0.20
24	LTE 7	QPSK20M	Rear Face	21350	1	0	3	24.00	23.74	1.06	-0.05	0.63	0.67
	LTE 7	QPSK20M	Rear Face	21350	1	0	4	24.00	23.74	1.06	-0.02	0.389	0.41
25	LTE 12	QPSK10M	Front Face	23130	1	0	3	23.50	23.47	1.01	0.09	0.221	0.22
	LTE 12	QPSK10M	Front Face	23130	1	0	4	23.50	23.47	1.01	0.06	0.212	0.21
26	LTE 13	QPSK10M	Front Face	23230	1	0	3	23.50	23.37	1.03	-0.03	0.204	0.21
	LTE 13	QPSK10M	Front Face	23230	1	0	4	23.50	23.37	1.03	-0.02	0.171	0.18
27	LTE 17	QPSK10M	Front Face	23780	1	0	3	23.50	23.43	1.02	0.02	0.216	0.22
	LTE 17	QPSK10M	Front Face	23780	1	0	4	23.50	23.43	1.02	0.15	0.214	0.22
28	LTE 25	QPSK20M	Rear Face	26590	1	0	3	23.50	23.46	1.01	-0.17	0.503	0.51
	LTE 25	QPSK20M	Rear Face	26590	1	0	4	23.50	23.46	1.01	-0.01	0.207	0.21

Note: The SAR testing above was verified based on the worst case of original report.

Plot No.	Band	Mode	Test Position	Ch.	Ant Status	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)
29	WLAN2.4G	802.11b	Rear Face	6	Ant 0+1	3	98.76	1.01	23.50	23.37	1.03	-0.02	0.288	0.30
	WLAN2.4G	802.11b	Rear Face	6	Ant 0+1	4	98.76	1.01	23.50	23.37	1.03	0.12	0.271	0.28
30	WLAN5.2G	802.11n HT40	Rear Face	46	Ant 1	3	91.12	1.10	21.50	21.10	1.10	-0.07	0.255	0.31
	WLAN5.2G	802.11n HT40	Rear Face	46	Ant 1	4	91.12	1.10	21.50	21.10	1.10	0.03	0.248	0.30
31	WLAN5.6G	802.11ac VHT80	Rear Face	138	Ant 0+1	3	83.95	1.19	24.00	23.70	1.07	-0.11	0.482	0.61
	WLAN5.6G	802.11ac VHT80	Rear Face	138	Ant 0+1	4	83.95	1.19	24.00	23.70	1.07	0.02	0.475	0.60
32	WLAN5.8G	802.11ac VHT80	Rear Face	155	Ant 1	3	83.95	1.19	19.00	18.93	1.02	0.1	0.327	0.40
	WLAN5.8G	802.11ac VHT80	Rear Face	155	Ant 1	4	83.95	1.19	19.00	18.93	1.02	-0.08	0.315	0.38
BT	LE		Rear Face	19	Ant 0	3	76.47	1.31	1.00	0.97	1.01	0	<0.001	0.00
BT	LE		Rear Face	19	Ant 0	4	76.47	1.31	1.00	0.97	1.01	0	<0.001	0.00

Note:

- The SAR testing above was verified based on the worst case of original report.
- The "< 0.001" means there is no SAR value or the SAR is too low to be measured.

SAR Test Report

4.7.3 SAR Results for Hotspot Exposure Condition (Test Separation Distance is 10 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)
33	GSM850	GPRS12	Front Face	189	3	29.00	28.75	1.06	-0.05	0.259	0.27
	GSM850	GPRS12	Front Face	189	4	29.00	28.75	1.06	-0.08	0.175	0.19
34	GSM1900	GPRS11	Bottom Side	810	3	28.50	28.23	1.06	-0.16	0.655	0.69
	GSM1900	GPRS11	Bottom Side	810	4	28.50	28.23	1.06	0.06	0.304	0.32
35	WCDMA II	RMC12.2K	Bottom Side	9538	3	24.50	24.33	1.04	-0.02	0.708	0.74
	WCDMA II	RMC12.2K	Bottom Side	9538	4	24.50	24.33	1.04	0.04	0.338	0.35
36	WCDMA V	RMC12.2K	Front Face	4233	3	24.50	24.35	1.04	-0.04	0.265	0.28
	WCDMA V	RMC12.2K	Front Face	4233	4	24.50	24.35	1.04	0.01	0.209	0.22

Note: The SAR testing above was verified based on the worst case of original report.

Plot No.	Band	Mode	Test Position	Ch.	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)
37	LTE 2	QPSK20M	Bottom Side	19100	1	0	3	23.50	23.43	1.02	-0.05	0.529	0.54
	LTE 2	QPSK20M	Bottom Side	19100	1	0	4	23.50	23.43	1.02	0.09	0.254	0.26
38	LTE 4	QPSK20M	Bottom Side	20300	1	0	3	23.50	23.42	1.02	0.02	0.274	0.28
	LTE 4	QPSK20M	Bottom Side	20300	1	0	4	23.50	23.42	1.02	0.05	0.151	0.15
39	LTE 5	QPSK10M	Front Face	20600	1	0	3	23.50	23.46	1.01	-0.14	0.199	0.20
	LTE 5	QPSK10M	Front Face	20600	1	0	4	23.50	23.46	1.01	0.04	0.197	0.20
40	LTE 7	QPSK20M	Bottom Side	21350	1	0	3	24.00	23.74	1.06	-0.09	1.05	1.11
	LTE 7	QPSK20M	Bottom Side	21350	1	0	4	24.00	23.74	1.06	-0.01	0.836	0.89
	LTE 7	QPSK20M	Bottom Side	20850	1	0	3	24.00	23.68	1.08	0.12	0.925	1.00
	LTE 7	QPSK20M	Bottom Side	21100	1	0	3	24.00	23.78	1.05	0.07	0.917	0.96
	LTE 7	QPSK20M	Bottom Side	20850	1	0	4	24.00	23.68	1.08	0.03	0.889	0.96
	LTE 7	QPSK20M	Bottom Side	21100	1	0	4	24.00	23.78	1.05	-0.05	0.991	1.04
	LTE 7	QPSK20M	Bottom Side	21350	1	0	3	24.00	23.74	1.06	-0.09	1.03	1.09
41	LTE 12	QPSK10M	Front Face	23130	1	0	3	23.50	23.47	1.01	0.09	0.221	0.22
	LTE 12	QPSK10M	Front Face	23130	1	0	4	23.50	23.47	1.01	0.12	0.082	0.08
42	LTE 13	QPSK10M	Front Face	23230	1	0	3	23.50	23.37	1.03	-0.03	0.204	0.21
	LTE 13	QPSK10M	Front Face	23230	1	0	4	23.50	23.37	1.03	-0.04	0.1	0.10
43	LTE 17	QPSK10M	Front Face	23780	1	0	3	23.50	23.43	1.02	0.02	0.216	0.22
	LTE 17	QPSK10M	Front Face	23780	1	0	4	23.50	23.43	1.02	-0.05	0.169	0.17
44	LTE 25	QPSK20M	Bottom Side	26140	1	0	3	23.50	23.44	1.01	-0.16	0.401	0.41
	LTE 25	QPSK20M	Bottom Side	26140	1	0	4	23.50	23.44	1.01	-0.02	0.157	0.16

Note: The SAR testing above was verified based on the worst case of original report.

Plot No.	Band	Mode	Test Position	Ch.	Ant Status	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)
45	WLAN2.4G	802.11b	Right Side	6	Ant 1	3	98.76	1.01	20.50	20.27	1.05	-0.09	0.487	0.52
	WLAN2.4G	802.11b	Right Side	6	Ant 1	4	98.76	1.01	20.50	20.27	1.05	0.01	0.472	0.50
46	WLAN5.2G	802.11n HT40	Right Side	46	Ant 0+1	3	91.12	1.10	24.00	23.99	1.00	-0.06	0.385	0.42
	WLAN5.2G	802.11n HT40	Right Side	46	Ant 0+1	4	91.12	1.10	24.00	23.99	1.00	0.05	0.365	0.40
47	WLAN5.8G	802.11ac VHT80	Left Side	155	Ant 0	3	83.95	1.19	17.00	16.97	1.01	0.03	0.622	0.75
	WLAN5.8G	802.11ac VHT80	Left Side	155	Ant 0	4	83.95	1.19	17.00	16.97	1.01	0.02	0.577	0.69
	BT	LE	Left Side	19	Ant 0	3	76.47	1.31	1.00	0.97	1.01	0	<0.001	0.00
	BT	LE	Left Side	19	Ant 0	4	76.47	1.31	1.00	0.97	1.01	0	<0.001	0.00

Note:

- The SAR testing above was verified based on the worst case of original report.
- The "< 0.001" means there is no SAR value or the SAR is too low to be measured.

4.7.4 SAR Results for Product Specific Exposure Condition (Test Separation Distance is 0 mm)

Plot No.	Band	Mode	Test Position	Ch.	Ant Status	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)
48	WLAN5.3G	802.11n HT40	Right Side	54	Ant 0+1	3	91.12	1.10	24.00	23.59	1.10	0.05	1.02	1.23
	WLAN5.3G	802.11n HT40	Right Side	54	Ant 0+1	4	91.12	1.10	24.00	23.59	1.10	-0.08	0.99	1.20
49	WLAN5.6G	802.11ac VHT80	Left Side	138	Ant 0	3	83.95	1.19	20.50	20.41	1.02	-0.02	1.75	2.12
	WLAN5.6G	802.11ac VHT80	Left Side	138	Ant 0	4	83.95	1.19	20.50	20.41	1.02	0.07	1.66	2.01
	WLAN5.6G	802.11ac VHT80	Left Side	106	Ant 0	3	83.95	1.19	19.00	18.73	1.06	0.03	1.55	1.96
	WLAN5.6G	802.11ac VHT80	Left Side	122	Ant 0	3	83.95	1.19	20.50	20.40	1.02	0.05	1.61	1.95
	WLAN5.6G	802.11ac VHT80	Left Side	106	Ant 0	4	83.95	1.19	19.00	18.73	1.06	0.08	1.48	1.87
	WLAN5.6G	802.11ac VHT80	Left Side	122	Ant 0	4	83.95	1.19	20.50	20.40	1.02	0.07	1.39	1.69

Note: The SAR testing above was verified based on the worst case of original report.

4.7.5 Simultaneous Multi-band Transmission Evaluation

Since all the verified SAR values are less than the values in original report, the simultaneous transmission evaluation has no effect and the simultaneous transmission SAR is not required.

Test Engineer : Jacob Wu, and John Huang

SAR Test Report

4.7.6 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 ≤ 1.45 W/kg and the ratio of these highest SAR values, i.e., largest divided by smallest value, is ≤ 1.10 , the highest SAR configuration for either head or body tissue-equivalent medium maybe 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 ≥ 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 ≥ 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 ≥ 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
LTE 7	QPSK20M	Bottom Side	21350	1.05	1.03	1.02	N/A	N/A	N/A	N/A

5. Calibration of Test Equipment

Equipment	Manufacturer	Model	SN	Cal. Date	Cal. Interval
System Validation Dipole	SPEAG	D750V3	1013	Aug. 13, 2020	1 Year
System Validation Dipole	SPEAG	D835V2	4d121	Aug. 13, 2020	1 Year
System Validation Dipole	SPEAG	D1750V2	1055	Aug. 14, 2020	1 Year
System Validation Dipole	SPEAG	D1900V2	5d036	Jan. 22, 2021	1 Year
System Validation Dipole	SPEAG	D2450V2	737	Aug. 13, 2020	1 Year
System Validation Dipole	SPEAG	D2600V2	1020	Aug. 13, 2020	1 Year
System Validation Dipole	SPEAG	D5GHzV2	1145	Nov. 09, 2020	1 Year
Dosimetric E-Field Probe	SPEAG	EX3DV4	3650	Mar. 25, 2020	1 Year
Dosimetric E-Field Probe	SPEAG	EX3DV4	3887	Oct. 22, 2020	1 Year
Dosimetric E-Field Probe	SPEAG	EX3DV4	3971	Jan. 27, 2021	1 Year
Dosimetric E-Field Probe	SPEAG	EX3DV4	7554	Sep. 28, 2020	1 Year
Data Acquisition Electronics	SPEAG	DAE4	861	May 27, 2020	1 Year
Data Acquisition Electronics	SPEAG	DAE4	905	Jun. 22, 2020	1 Year
Data Acquisition Electronics	SPEAG	DAE4	1277	Jan. 19, 2021	1 Year
Data Acquisition Electronics	SPEAG	DAE4	1590	Sep. 15, 2020	1 Year
Universal Radio Communication Tester	Anritsu	MT8821C	6201381727	Jun. 11, 2020	1 Year
Spectrum Analyzer	R&S	FSL6	102006	Mar. 26, 2020	1 Year
Universal Wireless Test Set	Anritsu	MT8870A/MU8 87000A	6201699387	Sep. 28, 2020	1 Year
Dielectric Assessment Kit	SPEAG	DAKS-3.5	1092	May 26, 2020	1 Year
Powersource1	SPEAG	SE_UMS_160 BA	4010	Aug. 13, 2020	1 Year

6. Measurement Uncertainty

Source of Uncertainty	Uncertainty (± %)	Probability Distribution	Divisor	Ci (1g)	Ci (10g)	Standard Uncertainty (± %, 1g)	Standard Uncertainty (± %, 10g)	Vi
Measurement System								
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	4.8	Rectangular	√3	1	1	2.8	2.8	∞
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	0.02	Rectangular	√3	1	1	0.01	0.01	∞
Probe Positioning with Respect to Phantom	0.4	Rectangular	√3	1	1	0.2	0.2	∞
Post-processing	2.0	Rectangular	√3	1	1	1.2	1.2	∞
Test Sample Related								
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	∞
PowerScaling	0.0	Rectangular	√3	1	1	0.0	0.0	∞
Phantom and Setup								
Phantom Uncertainty (Shape and Thickness Tolerances)	5.7	Rectangular	√3	1	1	3.3	3.3	∞
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
Combined Standard Uncertainty						± 10.9 %	± 10.7 %	
Expanded Uncertainty (K=2)						± 21.8 %	± 21.4 %	

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

SAR Test Report

Source of Uncertainty	Uncertainty (± %)	Probability Distribution	Divisor	Ci (1g)	Ci (10g)	Standard Uncertainty (± %, 1g)	Standard Uncertainty (± %, 10g)	Vi
Measurement System								
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	4.8	Rectangular	√3	1	1	2.8	2.8	∞
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	0.04	Rectangular	√3	1	1	0.02	0.02	∞
Probe Positioning with Respect to Phantom	0.8	Rectangular	√3	1	1	0.5	0.5	∞
Post-processing	4.0	Rectangular	√3	1	1	2.3	2.3	∞
Test Sample Related								
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	∞
PowerScaling	0.0	Rectangular	√3	1	1	0.0	0.0	∞
Phantom and Setup								
Phantom Uncertainty (Shape and Thickness Tolerances)	6.2	Rectangular	√3	1	1	3.6	3.6	∞
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
Combined Standard Uncertainty						± 11.6 %	± 11.3 %	
Expanded Uncertainty (K=2)						± 23.2 %	± 22.6 %	

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

SAR Test Report

Source of Uncertainty	Uncertainty (± %)	Probability Distribution	Divisor	Ci (1g)	Ci (10g)	Standard Uncertainty (± %, 1g)	Standard Uncertainty (± %, 10g)	Vi
Measurement System								
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	4.8	Rectangular	√3	1	1	2.8	2.8	∞
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	0.02	Rectangular	√3	1	1	0.01	0.01	∞
Probe Positioning with Respect to Phantom	0.4	Rectangular	√3	1	1	0.2	0.2	∞
Post-processing	2.0	Rectangular	√3	1	1	1.2	1.2	∞
Test Sample Related								
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	∞
PowerScaling	0.0	Rectangular	√3	1	1	0.0	0.0	∞
Phantom and Setup								
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
Combined Standard Uncertainty						± 11.5 %	± 11.0 %	
Expanded Uncertainty (K=2)						± 23.0 %	± 22.0 %	

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

SAR Test Report

Source of Uncertainty	Uncertainty (± %)	Probability Distribution	Divisor	Ci (1g)	Ci (10g)	Standard Uncertainty (± %, 1g)	Standard Uncertainty (± %, 10g)	Vi
Measurement System								
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	4.8	Rectangular	√3	1	1	2.8	2.8	∞
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	0.04	Rectangular	√3	1	1	0.02	0.02	∞
Probe Positioning with Respect to Phantom	0.8	Rectangular	√3	1	1	0.5	0.5	∞
Post-processing	4.0	Rectangular	√3	1	1	2.3	2.3	∞
Test Sample Related								
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	∞
PowerScaling	0.0	Rectangular	√3	1	1	0.0	0.0	∞
Phantom and Setup								
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
Combined Standard Uncertainty						± 12.1 %	± 11.6 %	
Expanded Uncertainty (K=2)						± 24.2 %	± 23.2 %	

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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Web Site: <https://ee.bureauveritas.com.tw/BVInternet/Default>

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.

S01 System Check_H835_210318

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

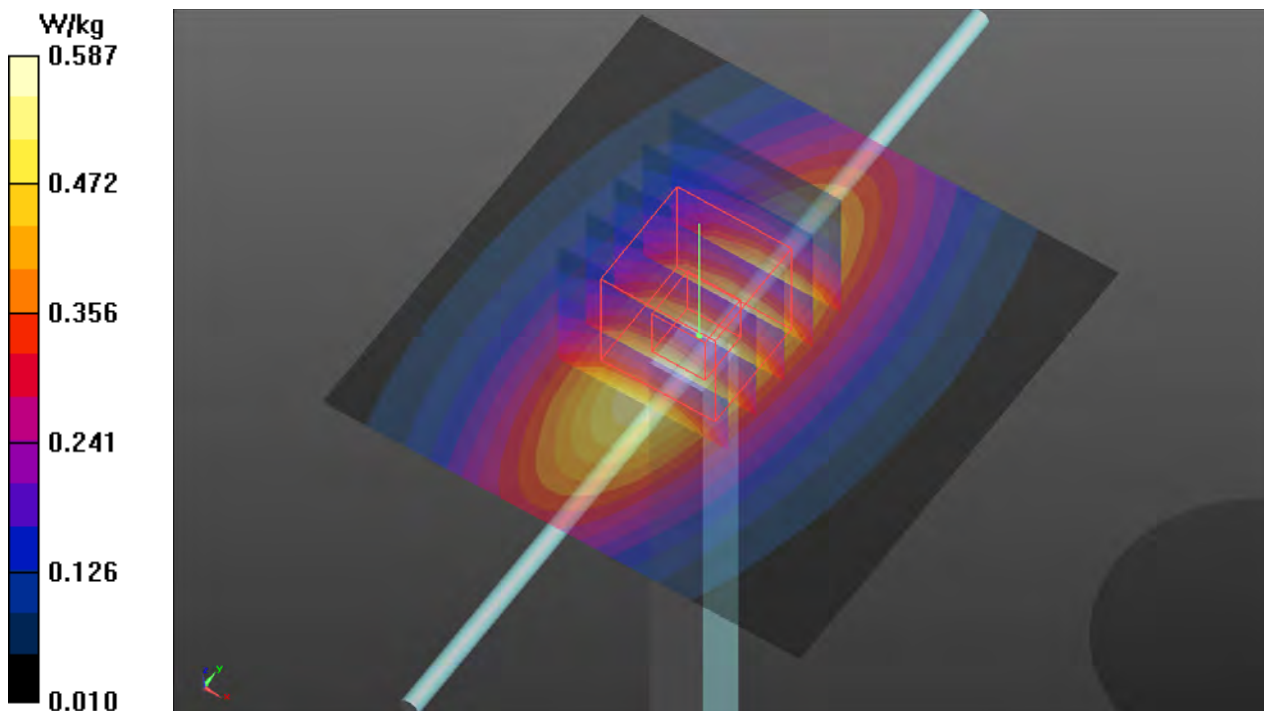
Communication System: UID 0, CW; Frequency: 835 MHz; Duty Cycle: 1:1
Medium: H07T10N1_0318 Medium parameters used: $f = 835 \text{ MHz}$; $\sigma = 0.922 \text{ S/m}$; $\epsilon_r = 41.397$; $\rho = 1000 \text{ kg/m}^3$
Ambient Temperature : $23.6 \text{ }^\circ\text{C}$; Liquid Temperature : $23.4 \text{ }^\circ\text{C}$

DASY5 Configuration:

- Probe: EX3DV4 - SN3971; ConvF(10.17, 10.17, 10.17) @ 835 MHz; Calibrated: 2021/01/27
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1277; Calibrated: 2021/01/19
- Phantom: Twin SAM Phantom_1986; Type: QD 000 P40 CD;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Pin=50mW/Area Scan (61x61x1): Interpolated grid: $dx=1.500 \text{ mm}$, $dy=1.500 \text{ mm}$
Maximum value of SAR (interpolated) = 0.587 W/kg

Pin=50mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$
Reference Value = 26.16 V/m ; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 0.664 W/kg
SAR(1 g) = 0.436 W/kg ; SAR(10 g) = 0.291 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 0.586 W/kg



S02 System Check_H1900_210318

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

Communication System: UID 0, CW; Frequency: 1900 MHz; Duty Cycle: 1:1

Medium: H16T20N1_0318 Medium parameters used: $f = 1900$ MHz; $\sigma = 1.458$ S/m; $\epsilon_r = 38.53$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.6 °C ; Liquid Temperature : 23.4 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3971; ConvF(8.35, 8.35, 8.35) @ 1900 MHz; Calibrated: 2021/01/27
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1277; Calibrated: 2021/01/19
- Phantom: Twin SAM Phantom_1986; Type: QD 000 P40 CD;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Pin=50mW/Area Scan (61x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 3.06 W/kg

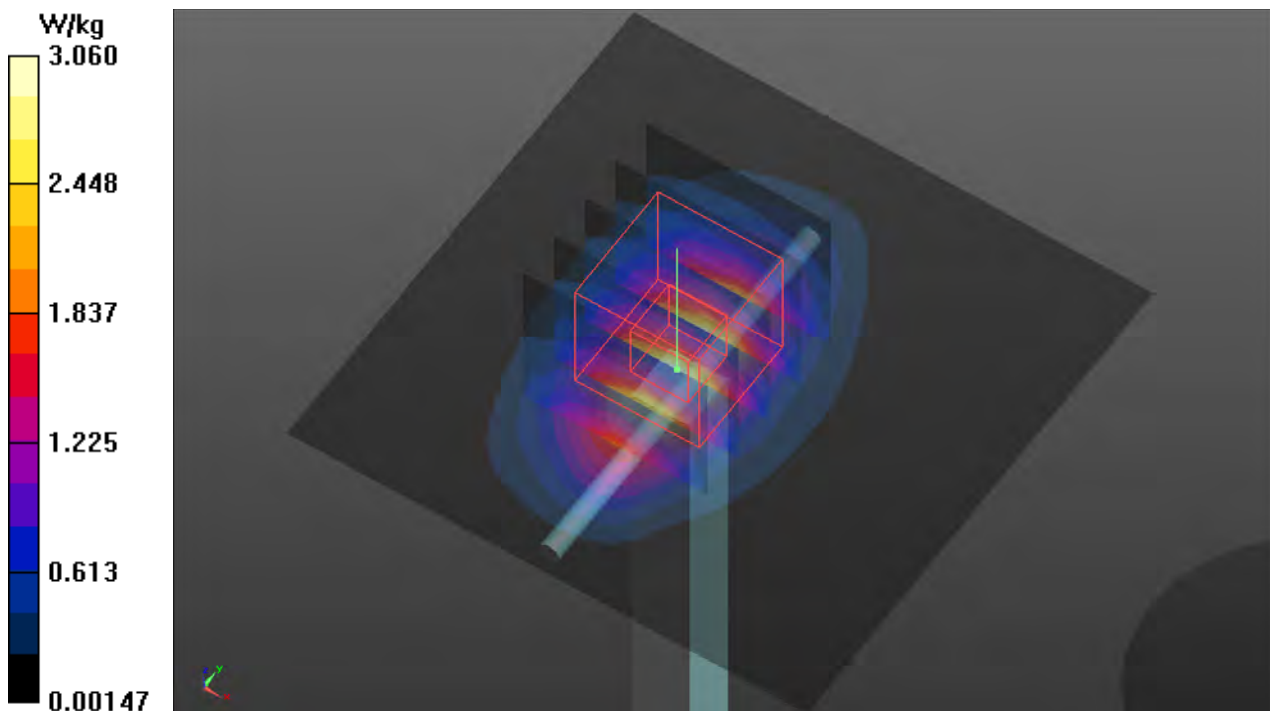
Pin=50mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 42.17 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 3.69 W/kg

SAR(1 g) = 1.97 W/kg; SAR(10 g) = 1.06 W/kg (SAR corrected for target medium)

Maximum value of SAR (measured) = 3.11 W/kg



S03 System Check_H1900_210318

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

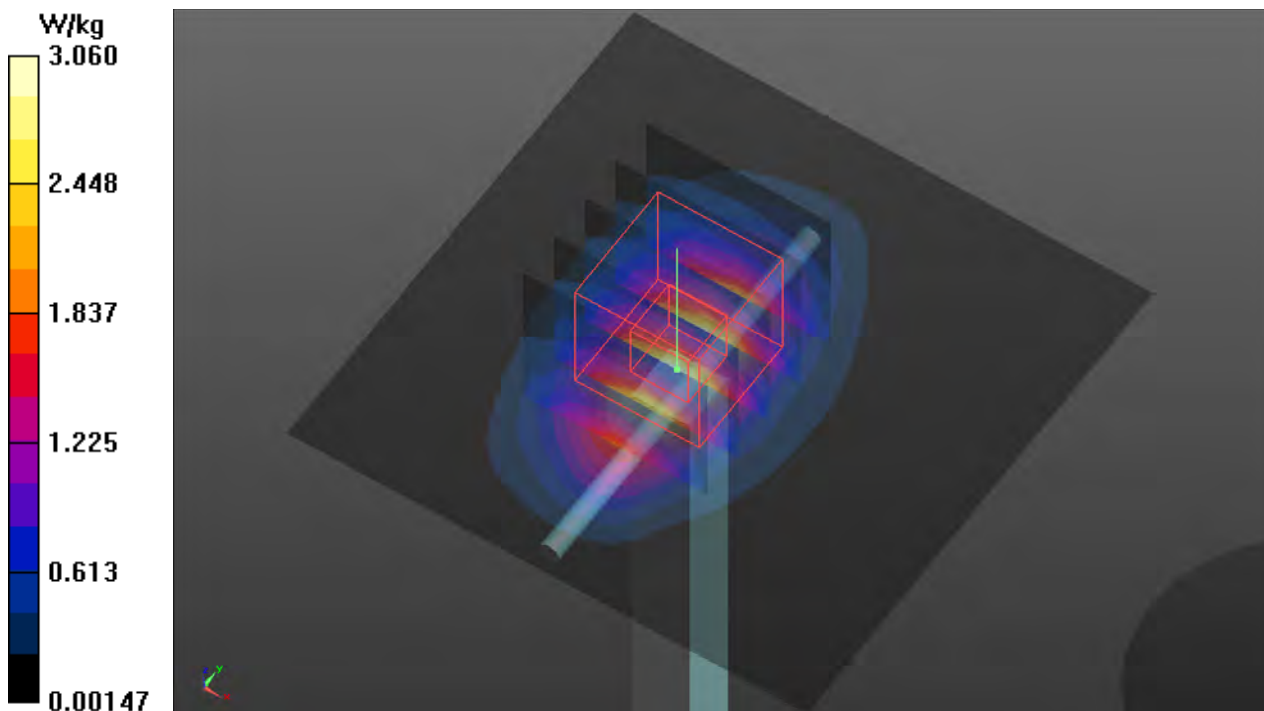
Communication System: UID 0, CW; Frequency: 1900 MHz; Duty Cycle: 1:1
Medium: H16T20N1_0318 Medium parameters used: $f = 1900$ MHz; $\sigma = 1.458$ S/m; $\epsilon_r = 38.53$; $\rho = 1000$ kg/m³
Ambient Temperature : 23.6 °C ; Liquid Temperature : 23.4 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3971; ConvF(8.35, 8.35, 8.35) @ 1900 MHz; Calibrated: 2021/01/27
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1277; Calibrated: 2021/01/19
- Phantom: Twin SAM Phantom_1986; Type: QD 000 P40 CD;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Pin=50mW/Area Scan (61x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 3.06 W/kg

Pin=50mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 42.17 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 3.69 W/kg
SAR(1 g) = 1.97 W/kg; SAR(10 g) = 1.06 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 3.11 W/kg



S04 System Check_H835_210318

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

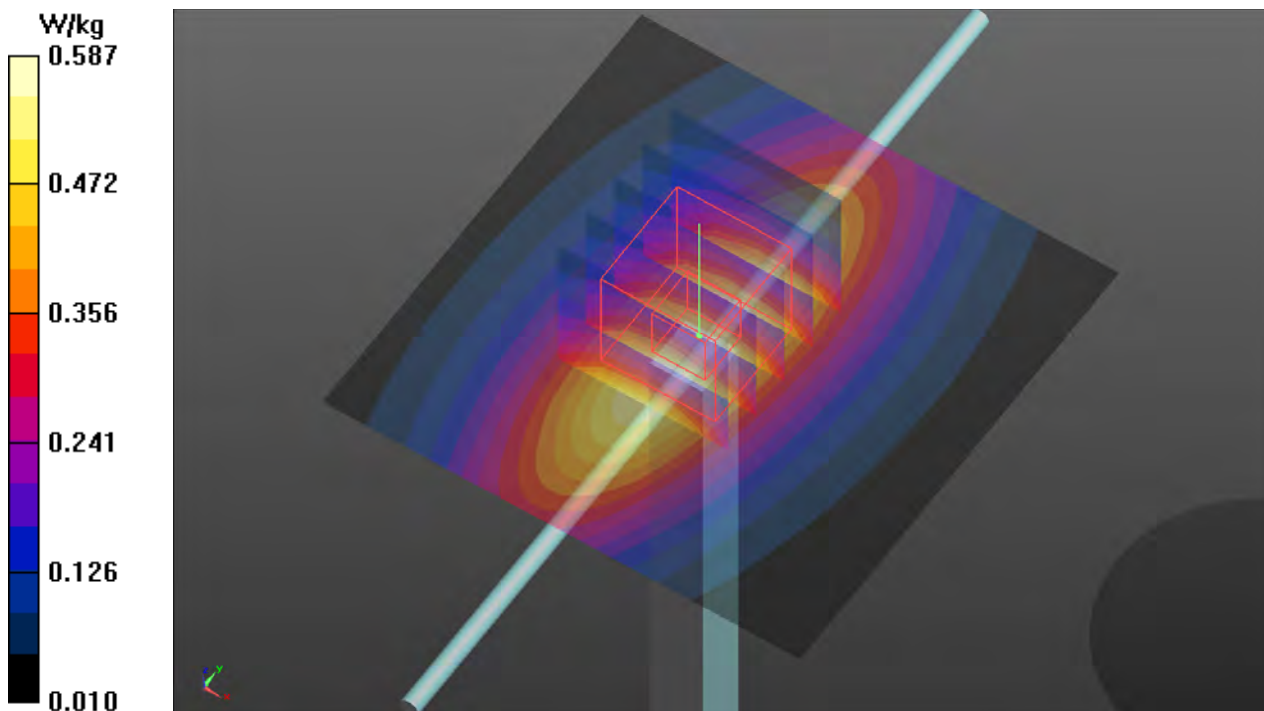
Communication System: UID 0, CW; Frequency: 835 MHz; Duty Cycle: 1:1
Medium: H07T10N1_0318 Medium parameters used: $f = 835 \text{ MHz}$; $\sigma = 0.922 \text{ S/m}$; $\epsilon_r = 41.397$; $\rho = 1000 \text{ kg/m}^3$
Ambient Temperature : $23.6 \text{ }^\circ\text{C}$; Liquid Temperature : $23.4 \text{ }^\circ\text{C}$

DASY5 Configuration:

- Probe: EX3DV4 - SN3971; ConvF(10.17, 10.17, 10.17) @ 835 MHz; Calibrated: 2021/01/27
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1277; Calibrated: 2021/01/19
- Phantom: Twin SAM Phantom_1986; Type: QD 000 P40 CD;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Pin=50mW/Area Scan (61x61x1): Interpolated grid: $dx=1.500 \text{ mm}$, $dy=1.500 \text{ mm}$
Maximum value of SAR (interpolated) = 0.587 W/kg

Pin=50mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$
Reference Value = 26.16 V/m ; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 0.664 W/kg
SAR(1 g) = 0.436 W/kg ; SAR(10 g) = 0.291 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 0.586 W/kg



S05 System Check_H1900_210318

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

Communication System: UID 0, CW; Frequency: 1900 MHz; Duty Cycle: 1:1

Medium: H16T20N1_0318 Medium parameters used: $f = 1900$ MHz; $\sigma = 1.458$ S/m; $\epsilon_r = 38.53$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.6 °C ; Liquid Temperature : 23.4 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3971; ConvF(8.35, 8.35, 8.35) @ 1900 MHz; Calibrated: 2021/01/27
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1277; Calibrated: 2021/01/19
- Phantom: Twin SAM Phantom_1986; Type: QD 000 P40 CD;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Pin=50mW/Area Scan (61x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 3.06 W/kg

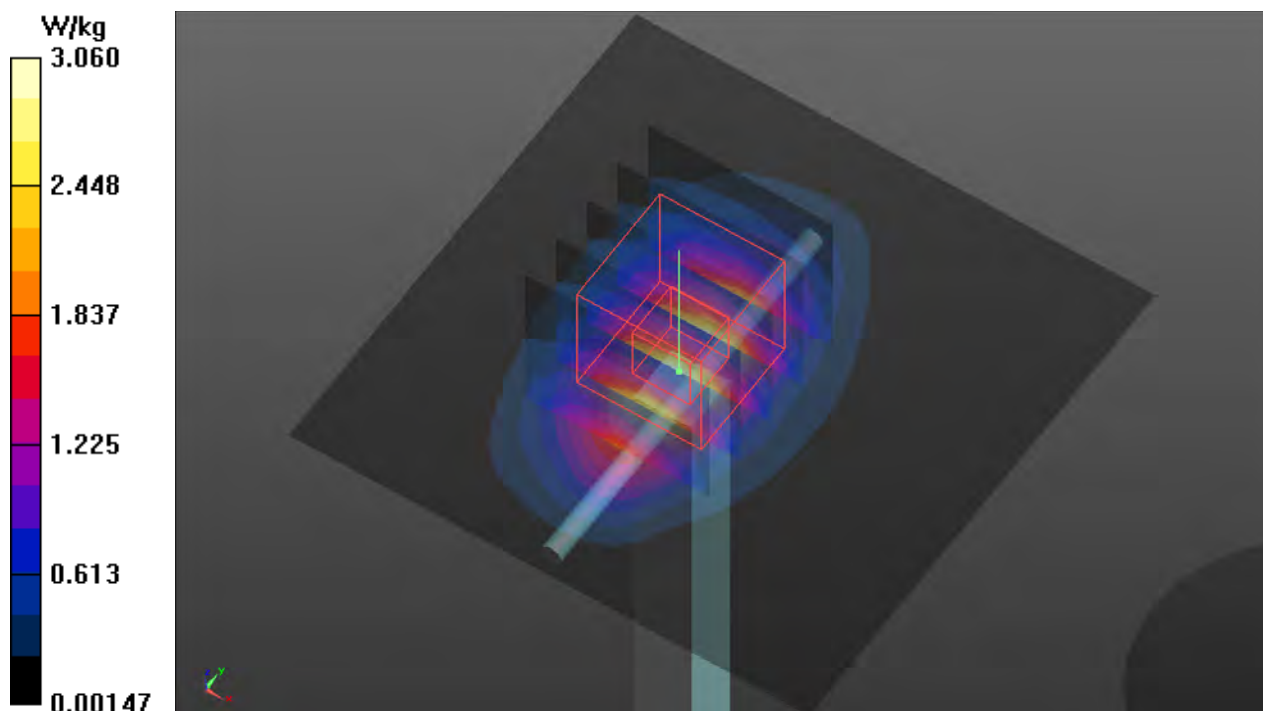
Pin=50mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 42.17 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 3.69 W/kg

SAR(1 g) = 1.97 W/kg; SAR(10 g) = 1.06 W/kg (SAR corrected for target medium)

Maximum value of SAR (measured) = 3.11 W/kg



S06 System Check_H1750_210318

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

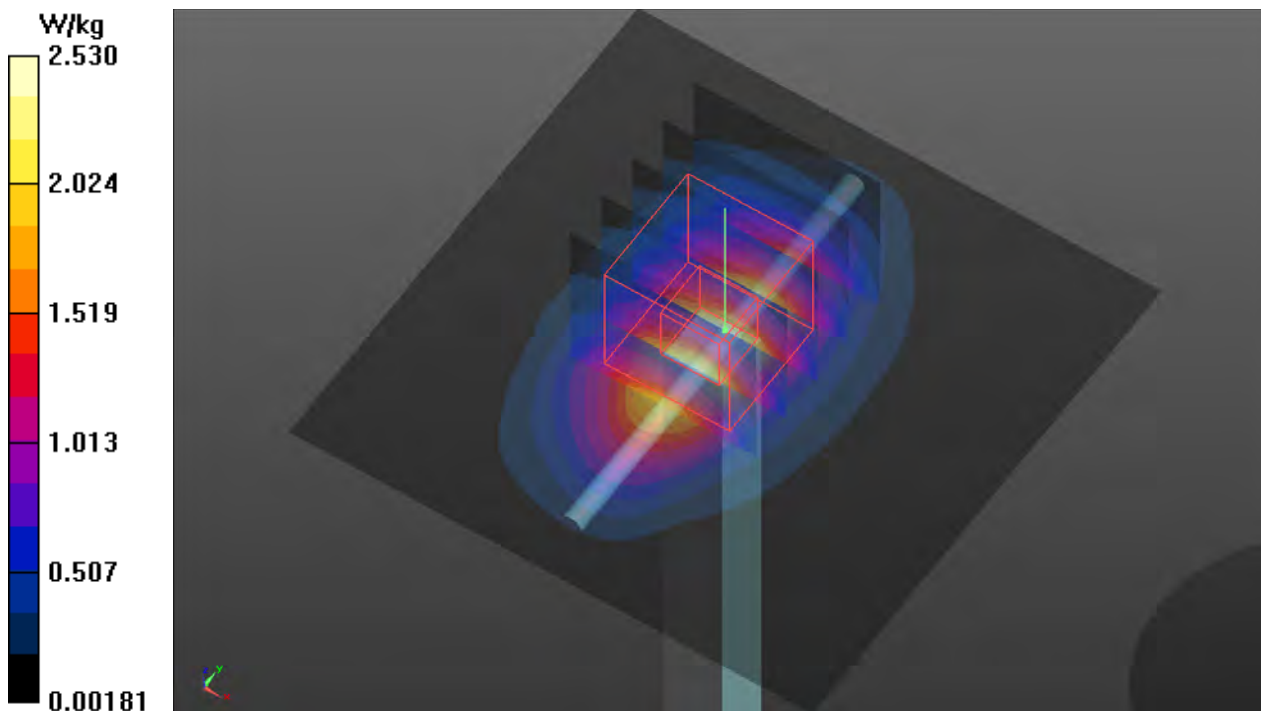
Communication System: UID 0, CW; Frequency: 1750 MHz; Duty Cycle: 1:1
Medium: H16T20N1_0318 Medium parameters used: $f = 1750$ MHz; $\sigma = 1.329$ S/m; $\epsilon_r = 39.098$; $\rho = 1000$ kg/m³
Ambient Temperature : 23.6 °C ; Liquid Temperature : 23.4 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3971; ConvF(8.64, 8.64, 8.64) @ 1750 MHz; Calibrated: 2021/01/27
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1277; Calibrated: 2021/01/19
- Phantom: Twin SAM Phantom_1986; Type: QD 000 P40 CD;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Pin=50mW/Area Scan (61x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 2.53 W/kg

Pin=50mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 43.21 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 3.02 W/kg
SAR(1 g) = 1.76 W/kg; SAR(10 g) = 0.958 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 2.57 W/kg



S07 System Check_H835_210318

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

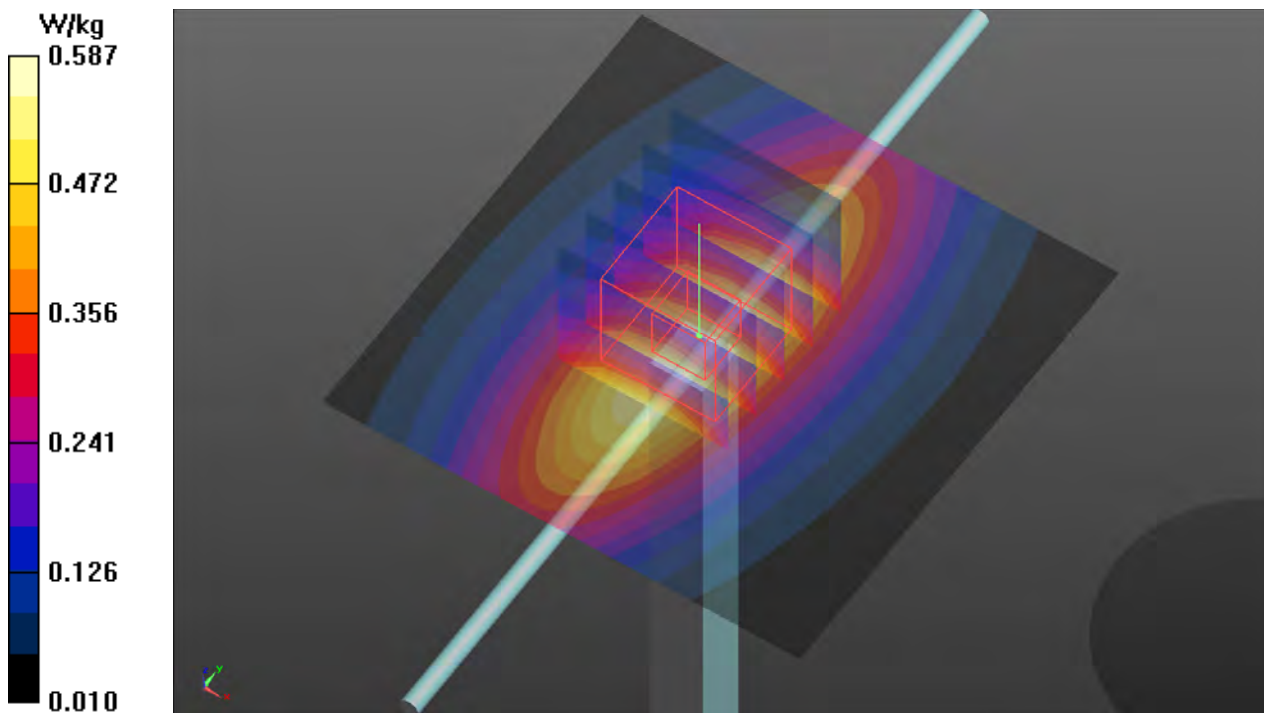
Communication System: UID 0, CW; Frequency: 835 MHz; Duty Cycle: 1:1
Medium: H07T10N1_0318 Medium parameters used: $f = 835 \text{ MHz}$; $\sigma = 0.922 \text{ S/m}$; $\epsilon_r = 41.397$; $\rho = 1000 \text{ kg/m}^3$
Ambient Temperature : $23.6 \text{ }^\circ\text{C}$; Liquid Temperature : $23.4 \text{ }^\circ\text{C}$

DASY5 Configuration:

- Probe: EX3DV4 - SN3971; ConvF(10.17, 10.17, 10.17) @ 835 MHz; Calibrated: 2021/01/27
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1277; Calibrated: 2021/01/19
- Phantom: Twin SAM Phantom_1986; Type: QD 000 P40 CD;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Pin=50mW/Area Scan (61x61x1): Interpolated grid: $dx=1.500 \text{ mm}$, $dy=1.500 \text{ mm}$
Maximum value of SAR (interpolated) = 0.587 W/kg

Pin=50mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$
Reference Value = 26.16 V/m ; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 0.664 W/kg
SAR(1 g) = 0.436 W/kg ; SAR(10 g) = 0.291 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 0.586 W/kg



S08 System Check_H2600_210318

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

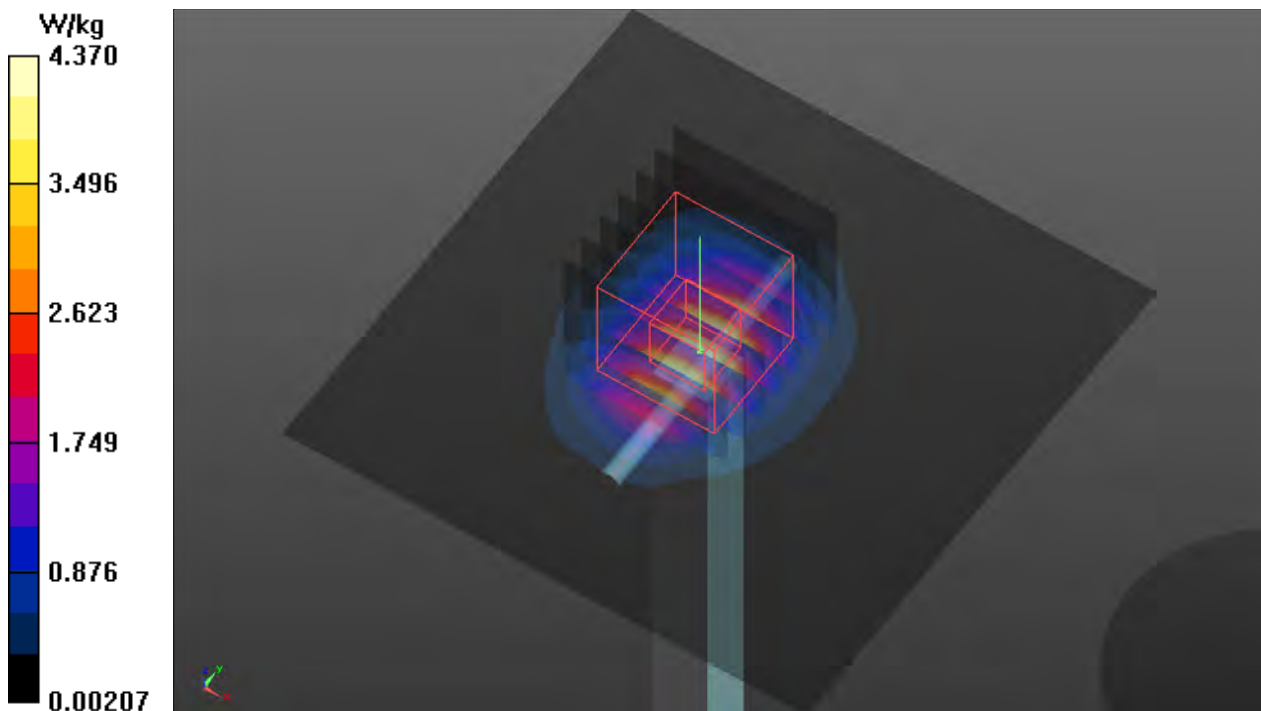
Communication System: UID 0, CW; Frequency: 2600 MHz; Duty Cycle: 1:1
Medium: H19T27N1_0318 Medium parameters used: $f = 2600$ MHz; $\sigma = 2.029$ S/m; $\epsilon_r = 38.503$; $\rho = 1000$ kg/m³
Ambient Temperature : 23.6 °C ; Liquid Temperature : 23.4 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3971; ConvF(7.72, 7.72, 7.72) @ 2600 MHz; Calibrated: 2021/01/27
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1277; Calibrated: 2021/01/19
- Phantom: Twin SAM Phantom_1986; Type: QD 000 P40 CD;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Pin=50mW/Area Scan (81x81x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 4.37 W/kg

Pin=50mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 45.31 V/m; Power Drift = 0.16 dB
Peak SAR (extrapolated) = 5.54 W/kg
SAR(1 g) = 2.66 W/kg; SAR(10 g) = 1.23 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 4.51 W/kg



S09 System Check_H750_210318

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

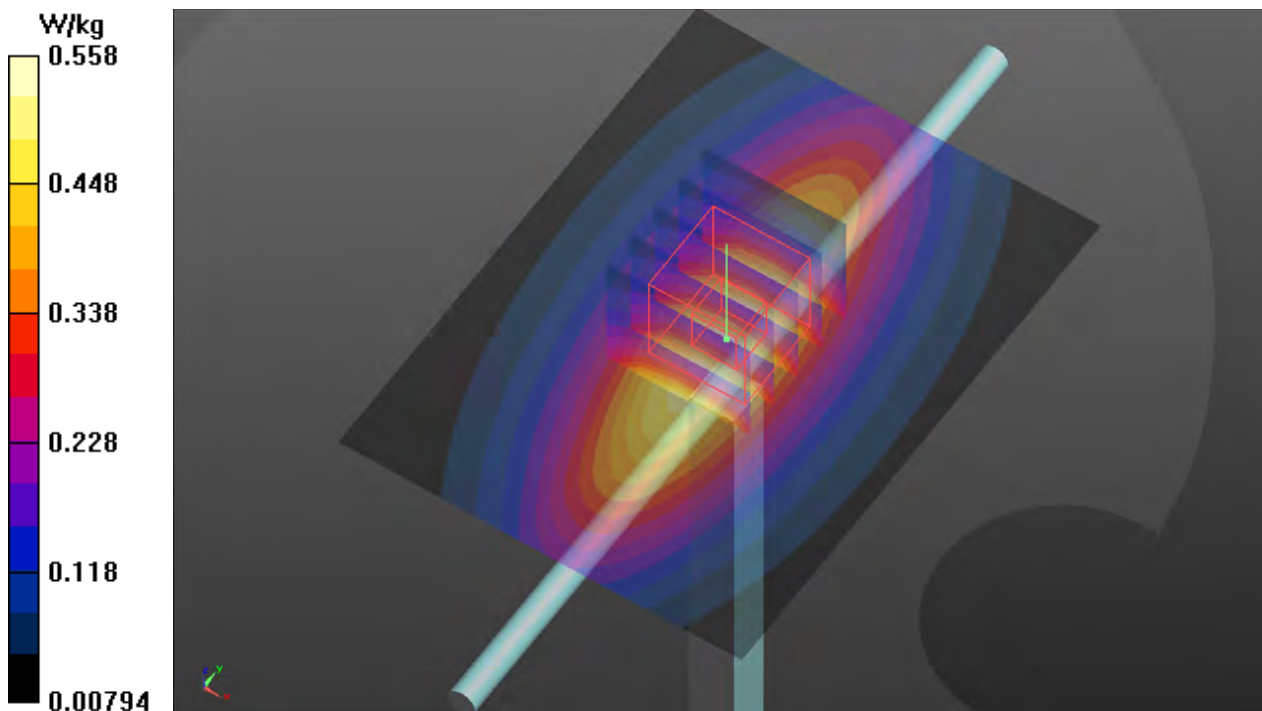
Communication System: UID 0, CW; Frequency: 750 MHz; Duty Cycle: 1:1
Medium: H06T09N1_0318 Medium parameters used: $f = 750$ MHz; $\sigma = 0.894$ S/m; $\epsilon_r = 43.432$; $\rho = 1000$ kg/m³
Ambient Temperature : 23.6 °C ; Liquid Temperature : 23.4 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3971; ConvF(10.45, 10.45, 10.45) @ 750 MHz; Calibrated: 2021/01/27
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1277; Calibrated: 2021/01/19
- Phantom: Twin SAM Phantom_1986; Type: QD 000 P40 CD;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Pin=50mW/Area Scan (61x81x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.558 W/kg

Pin=50mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 26.04 V/m; Power Drift = -0.06 dB
Peak SAR (extrapolated) = 0.625 W/kg
SAR(1 g) = 0.421 W/kg; SAR(10 g) = 0.280 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 0.555 W/kg



S10 System Check_H750_210318

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

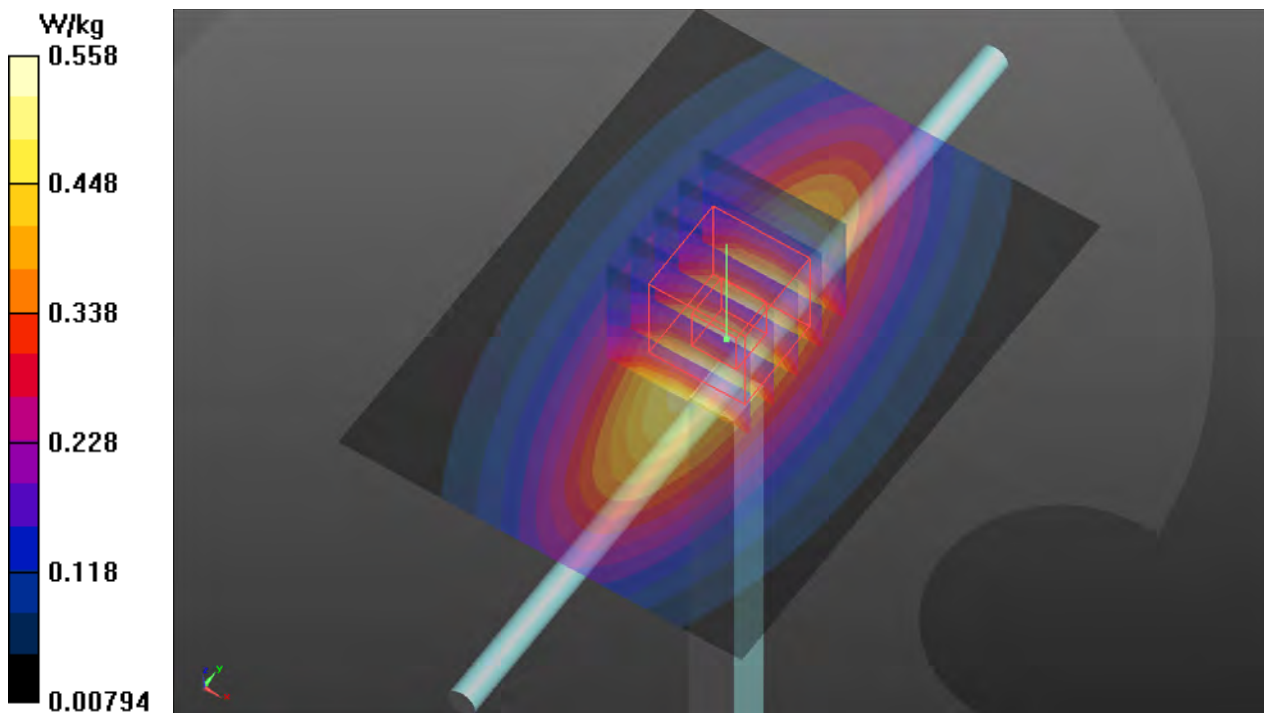
Communication System: UID 0, CW; Frequency: 750 MHz; Duty Cycle: 1:1
Medium: H06T09N1_0318 Medium parameters used: $f = 750$ MHz; $\sigma = 0.894$ S/m; $\epsilon_r = 43.432$; $\rho = 1000$ kg/m³
Ambient Temperature : 23.6 °C ; Liquid Temperature : 23.4 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3971; ConvF(10.45, 10.45, 10.45) @ 750 MHz; Calibrated: 2021/01/27
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1277; Calibrated: 2021/01/19
- Phantom: Twin SAM Phantom_1986; Type: QD 000 P40 CD;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Pin=50mW/Area Scan (61x81x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.558 W/kg

Pin=50mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 26.04 V/m; Power Drift = -0.06 dB
Peak SAR (extrapolated) = 0.625 W/kg
SAR(1 g) = 0.421 W/kg; SAR(10 g) = 0.280 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 0.555 W/kg



S11 System Check_H750_210318

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

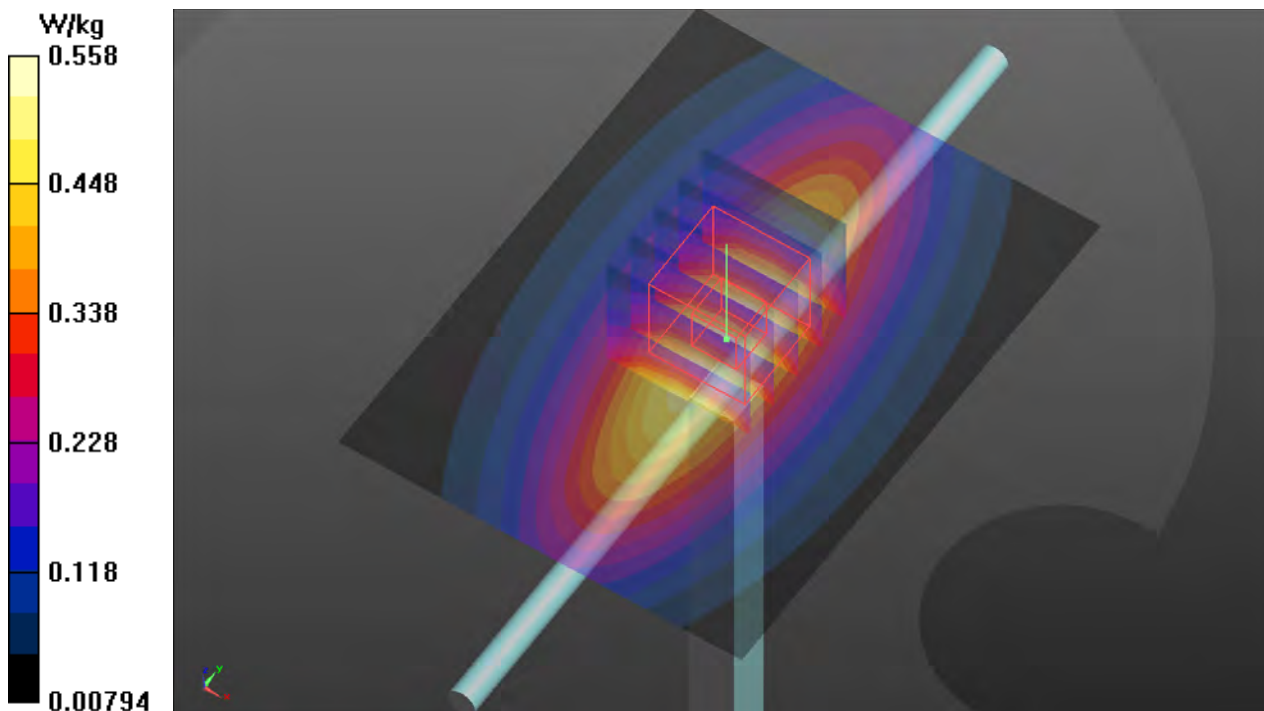
Communication System: UID 0, CW; Frequency: 750 MHz; Duty Cycle: 1:1
Medium: H06T09N1_0318 Medium parameters used: $f = 750$ MHz; $\sigma = 0.894$ S/m; $\epsilon_r = 43.432$; $\rho = 1000$ kg/m³
Ambient Temperature : 23.6 °C ; Liquid Temperature : 23.4 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3971; ConvF(10.45, 10.45, 10.45) @ 750 MHz; Calibrated: 2021/01/27
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1277; Calibrated: 2021/01/19
- Phantom: Twin SAM Phantom_1986; Type: QD 000 P40 CD;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Pin=50mW/Area Scan (61x81x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.558 W/kg

Pin=50mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 26.04 V/m; Power Drift = -0.06 dB
Peak SAR (extrapolated) = 0.625 W/kg
SAR(1 g) = 0.421 W/kg; SAR(10 g) = 0.280 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 0.555 W/kg



S12 System Check_H1900_210318

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

Communication System: UID 0, CW; Frequency: 1900 MHz; Duty Cycle: 1:1

Medium: H16T20N1_0318 Medium parameters used: $f = 1900$ MHz; $\sigma = 1.458$ S/m; $\epsilon_r = 38.53$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.6 °C ; Liquid Temperature : 23.4 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3971; ConvF(8.35, 8.35, 8.35) @ 1900 MHz; Calibrated: 2021/01/27
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1277; Calibrated: 2021/01/19
- Phantom: Twin SAM Phantom_1986; Type: QD 000 P40 CD;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Pin=50mW/Area Scan (61x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 3.06 W/kg

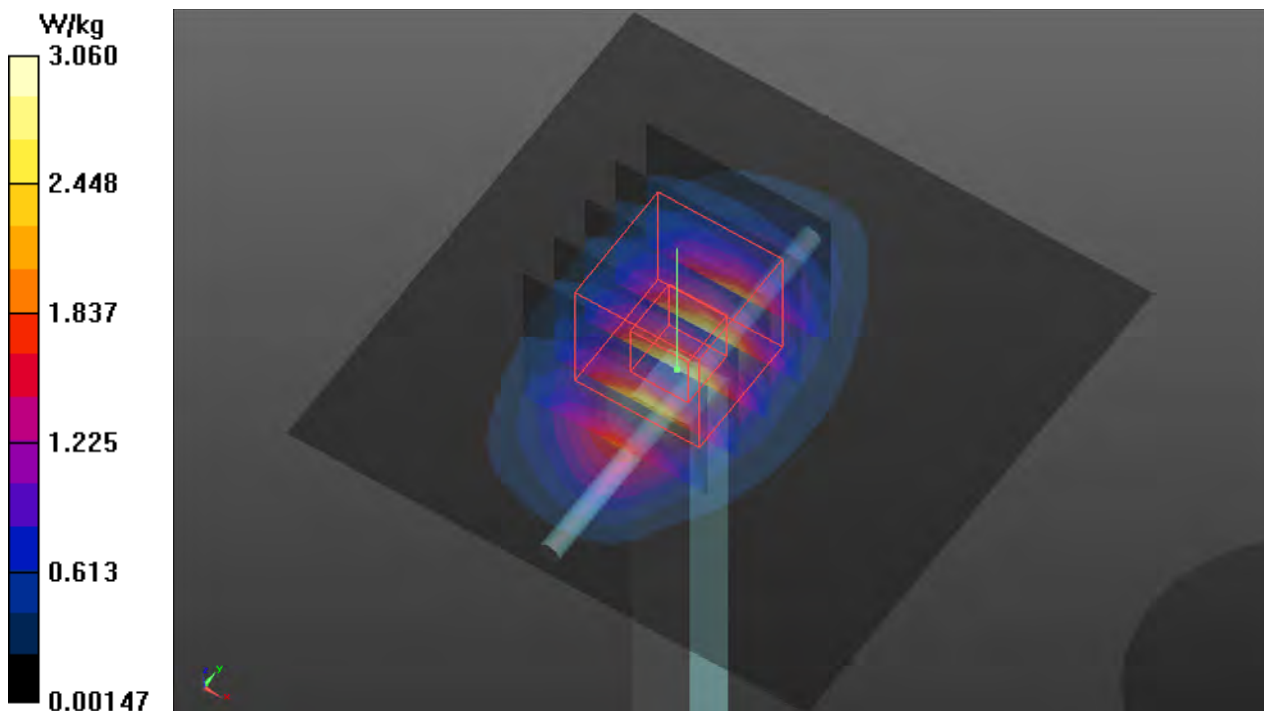
Pin=50mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 42.17 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 3.69 W/kg

SAR(1 g) = 1.97 W/kg; SAR(10 g) = 1.06 W/kg (SAR corrected for target medium)

Maximum value of SAR (measured) = 3.11 W/kg



S13 System Check_H2450_210401

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

Communication System: UID 0, CW; Frequency: 2450 MHz; Duty Cycle: 1:1

Medium: H19T27N1_0401 Medium parameters used (interpolated): $f = 2450$ MHz; $\sigma = 1.864$ S/m;

$\epsilon_r = 38.07$; $\rho = 1000$ kg/m³

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

DASY5 Configuration:

- Probe: EX3DV4 - SN7554; ConvF(7.41, 7.41, 7.41) @ 2450 MHz; Calibrated: 2020/09/28
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1590; Calibrated: 2020/09/15
- Phantom: SAM Phantom_1985; Type: QD 000 P41 AA;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Pin=50mW/Area Scan (81x81x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm

Maximum value of SAR (interpolated) = 2.15 W/kg

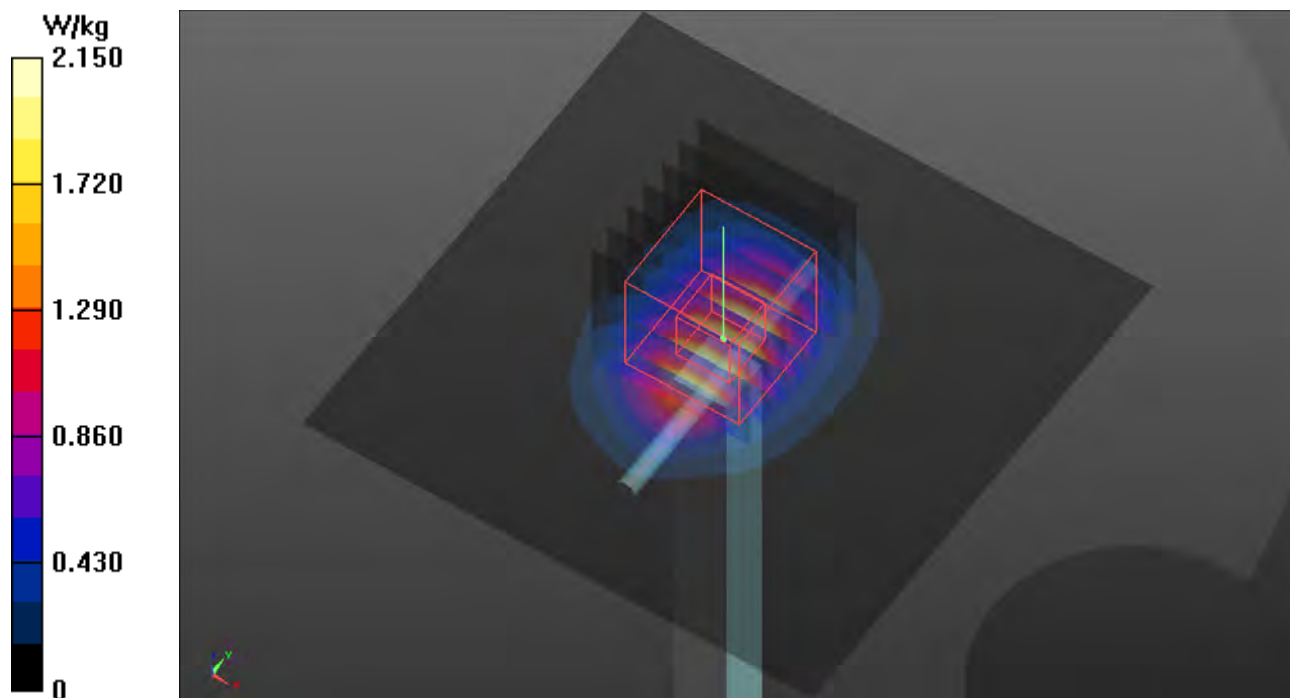
Pin=50mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 34.72 V/m; Power Drift = 0.10 dB

Peak SAR (extrapolated) = 2.65 W/kg

SAR(1 g) = 2.47 W/kg; SAR(10 g) = 1.16 W/kg (SAR corrected for target medium)

Maximum value of SAR (measured) = 2.15 W/kg



S14 System Check_H5250_210318

DUT: Dipole 5 GHz; Type: D5GHzV2; SN: 1145

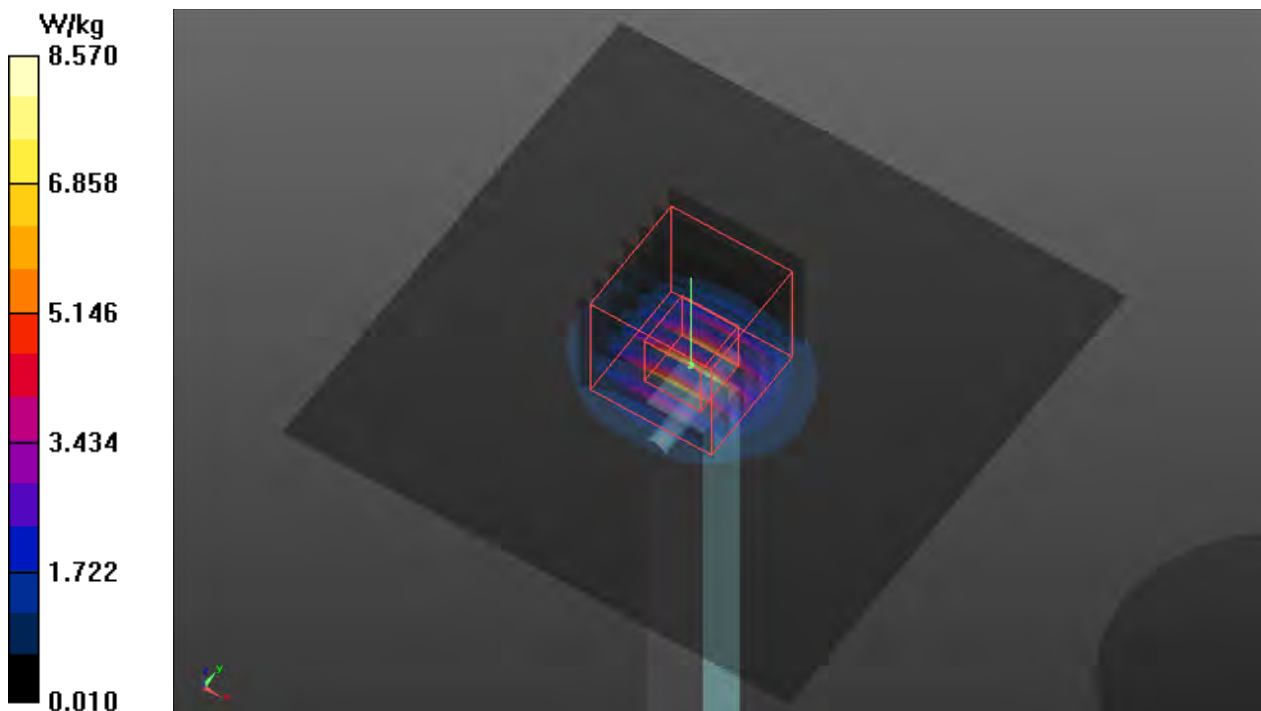
Communication System: UID 0, CW; Frequency: 5250 MHz; Duty Cycle: 1:1
Medium: H34T60N1_0318 Medium parameters used (interpolated): $f = 5250$ MHz; $\sigma = 4.564$ S/m;
 $\epsilon_r = 36.045$; $\rho = 1000$ kg/m³
Ambient Temperature : 23.6 °C ; Liquid Temperature : 23.4 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3971; ConvF(5.2, 5.2, 5.2) @ 5250 MHz; Calibrated: 2021/01/27
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1277; Calibrated: 2021/01/19
- Phantom: Twin SAM Phantom_1986; Type: QD 000 P40 CD;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Pin=50mW/Area Scan (91x91x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 8.57 W/kg

Pin=50mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 48.65 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 13.9 W/kg
SAR(1 g) = 3.74 W/kg; SAR(10 g) = 1.11 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 9.05 W/kg



S15 System Check_H5600_210319

DUT: Dipole 5 GHz; Type: D5GHzV2; SN: 1145

Communication System: UID 0, CW; Frequency: 5600 MHz; Duty Cycle: 1:1

Medium: H34T60N1_0319 Medium parameters used: $f = 5600$ MHz; $\sigma = 5.21$ S/m; $\epsilon_r = 36.221$; $\rho = 1000$ kg/m³

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

DASY5 Configuration:

- Probe: EX3DV4 - SN3971; ConvF(4.9, 4.9, 4.9) @ 5600 MHz; Calibrated: 2021/01/27
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1277; Calibrated: 2021/01/19
- Phantom: Twin SAM Phantom_1986; Type: QD 000 P40 CD;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

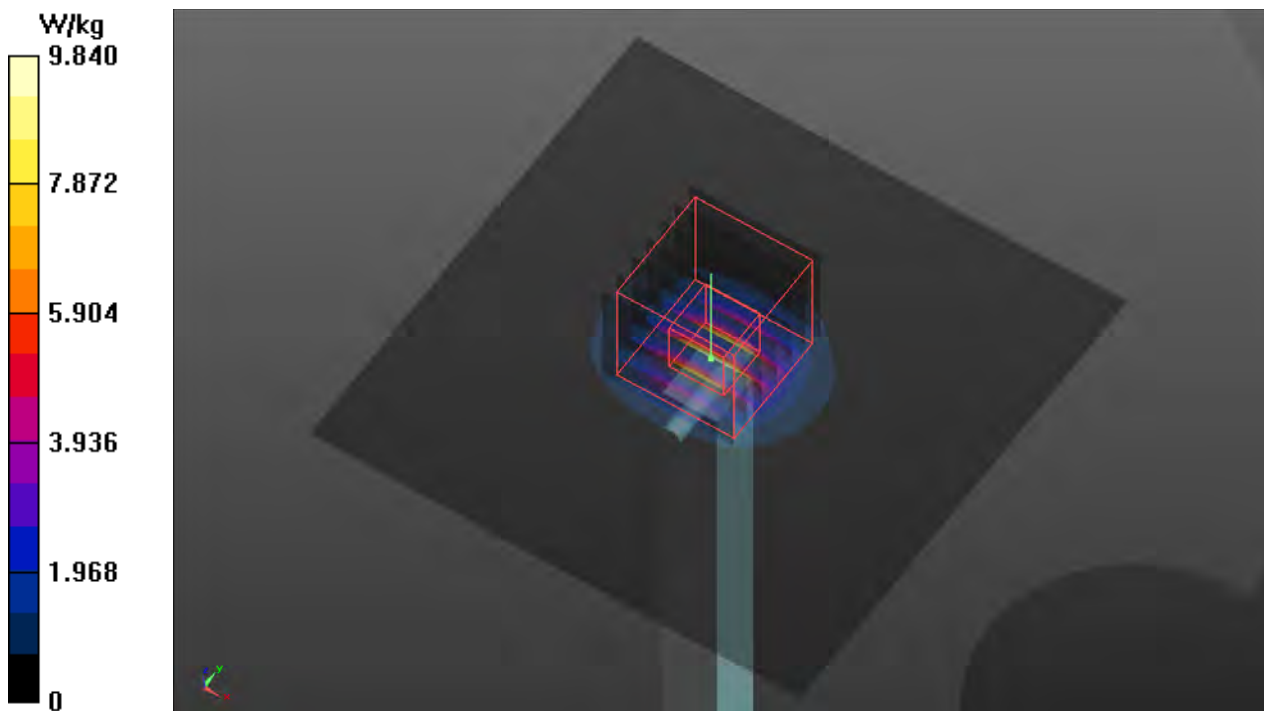
Pin=50mW/Area Scan (91x91x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 9.84 W/kg

Pin=50mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 47.84 V/m; Power Drift = 0.11 dB

Peak SAR (extrapolated) = 17.6 W/kg

SAR(1 g) = 4.04 W/kg; SAR(10 g) = 1.15 W/kg (SAR corrected for target medium)

Maximum value of SAR (measured) = 10.4 W/kg



S16 System Check_H5750_210318

DUT: Dipole 5 GHz; Type: D5GHzV2; SN: 1145

Communication System: UID 0, CW; Frequency: 5750 MHz; Duty Cycle: 1:1

Medium: H34T60N1_0318 Medium parameters used: $f = 5750$ MHz; $\sigma = 5.037$ S/m; $\epsilon_r = 35.37$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.6 °C ; Liquid Temperature : 23.4 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3971; ConvF(4.95, 4.95, 4.95) @ 5750 MHz; Calibrated: 2021/01/27
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1277; Calibrated: 2021/01/19
- Phantom: Twin SAM Phantom_1986; Type: QD 000 P40 CD;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Pin=50mW/Area Scan (91x91x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 9.43 W/kg

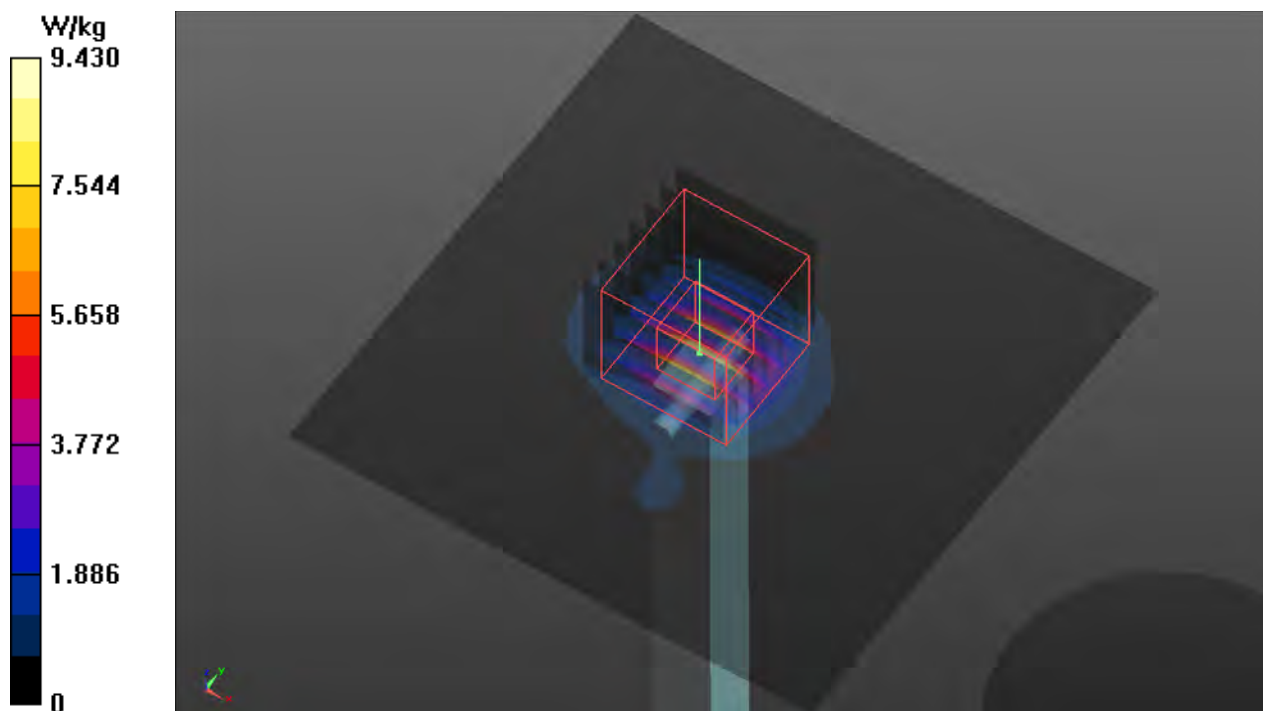
Pin=50mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 45.52 V/m; Power Drift = 0.15 dB

Peak SAR (extrapolated) = 16.9 W/kg

SAR(1 g) = 3.99 W/kg; SAR(10 g) = 1.25 W/kg (SAR corrected for target medium)

Maximum value of SAR (measured) = 10.2 W/kg



S17 System Check_H835_210310

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

Communication System: UID 0, CW; Frequency: 835 MHz; Duty Cycle: 1:1

Medium: H07T10N1_0310 Medium parameters used: $f = 835$ MHz; $\sigma = 0.914$ S/m; $\epsilon_r = 42.593$; $\rho = 1000$ kg/m³

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

DASY5 Configuration:

- Probe: EX3DV4 - SN3887; ConvF(9.2, 9.2, 9.2) @ 835 MHz; Calibrated: 2020/10/22
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 2020/06/22
- Phantom: Twin SAM Phantom_1653; Type: QD000P40CD;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Pin=50mW/Area Scan (61x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.658 W/kg

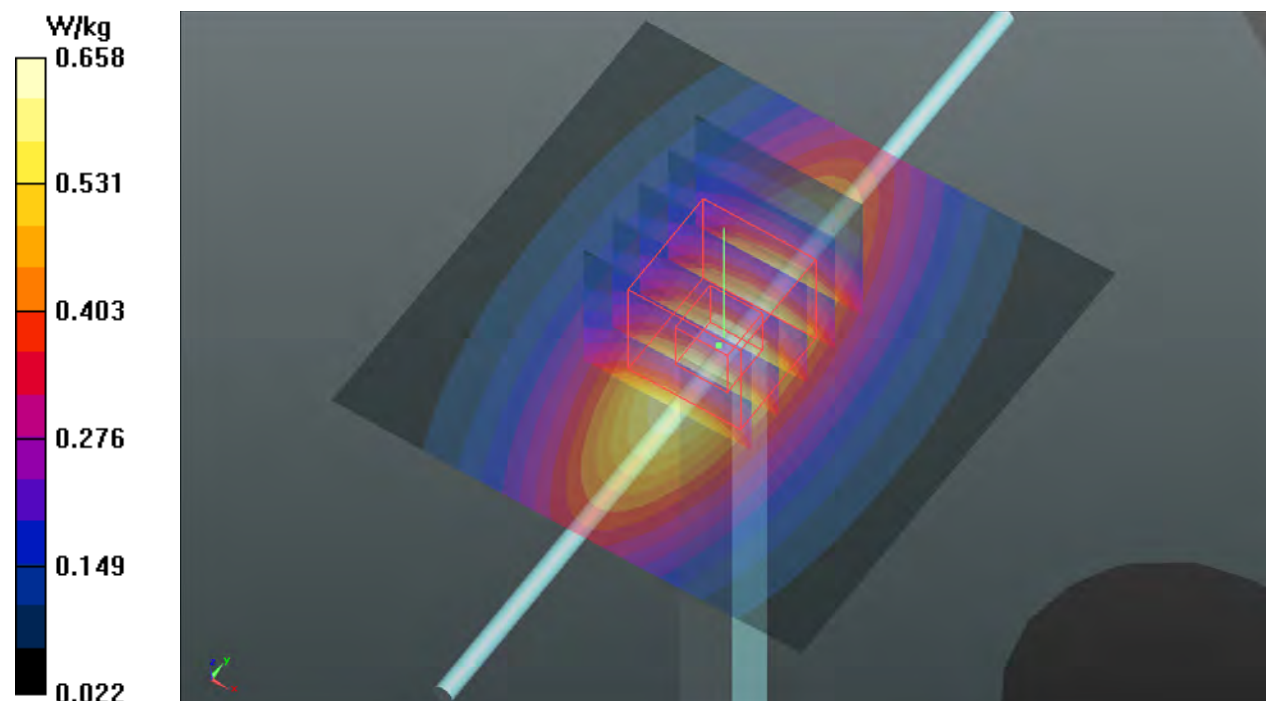
Pin=50mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 28.13 V/m; Power Drift = -0.03 dB

Peak SAR (extrapolated) = 0.753 W/kg

SAR(1 g) = 0.492 W/kg; SAR(10 g) = 0.321 W/kg (SAR corrected for target medium)

Maximum value of SAR (measured) = 0.661 W/kg



S18 System Check_H1900_210308

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

Communication System: UID 0, CW; Frequency: 1900 MHz; Duty Cycle: 1:1

Medium: H16T20N1_0308 Medium parameters used: $f = 1900$ MHz; $\sigma = 1.457$ S/m; $\epsilon_r = 39.83$; $\rho = 1000$ kg/m³

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

DASY5 Configuration:

- Probe: EX3DV4 - SN3887; ConvF(7.98, 7.98, 7.98) @ 1900 MHz; Calibrated: 2020/10/22
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 2020/06/22
- Phantom: Twin SAM Phantom_1653; Type: QD000P40CD;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Pin=50mW/Area Scan (61x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 4.67 W/kg

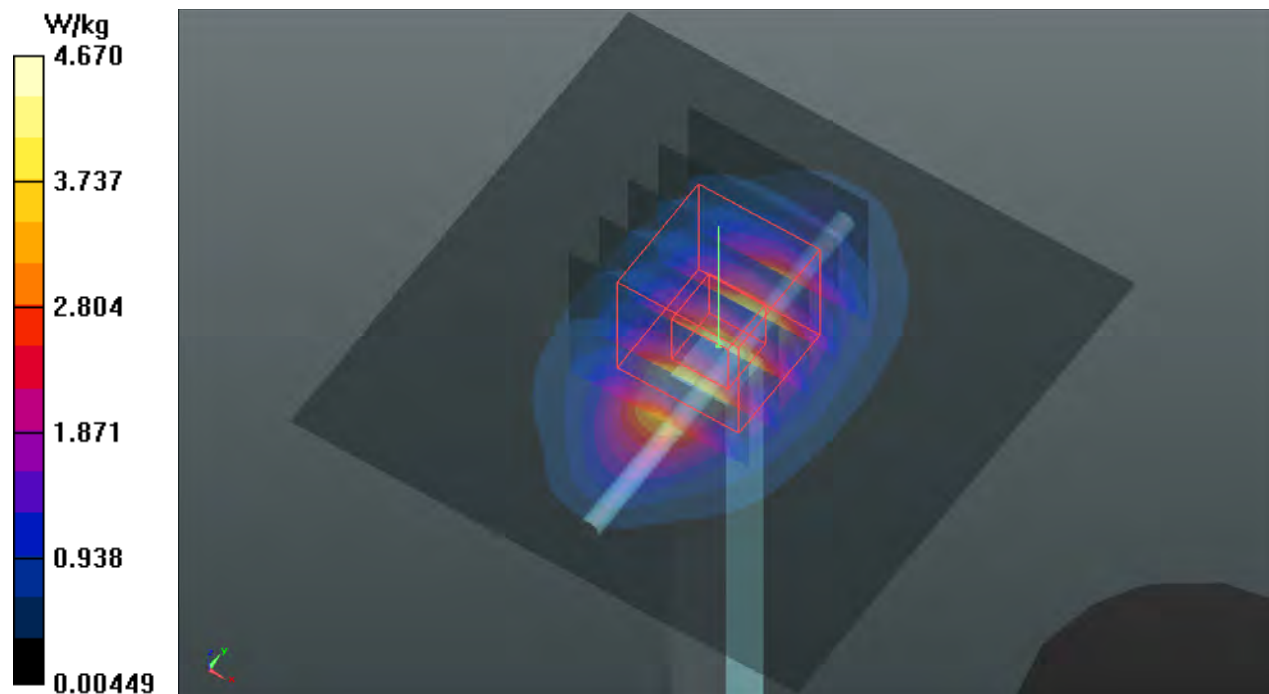
Pin=50mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 58.49 V/m; Power Drift = -0.05 dB

Peak SAR (extrapolated) = 5.62 W/kg

SAR(1 g) = 1.85 W/kg; SAR(10 g) = 0.973 W/kg (SAR corrected for target medium)

Maximum value of SAR (measured) = 4.68 W/kg



S19 System Check_H1900_210310

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

Communication System: UID 0, CW; Frequency: 1900 MHz; Duty Cycle: 1:1

Medium: H16T20N1_0310 Medium parameters used: $f = 1900$ MHz; $\sigma = 1.46$ S/m; $\epsilon_r = 38.262$; $\rho = 1000$ kg/m³

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

DASY5 Configuration:

- Probe: EX3DV4 - SN3887; ConvF(7.98, 7.98, 7.98) @ 1900 MHz; Calibrated: 2020/10/22
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 2020/06/22
- Phantom: Twin SAM Phantom_1653; Type: QD000P40CD;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Pin=50mW/Area Scan (61x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 2.95 W/kg

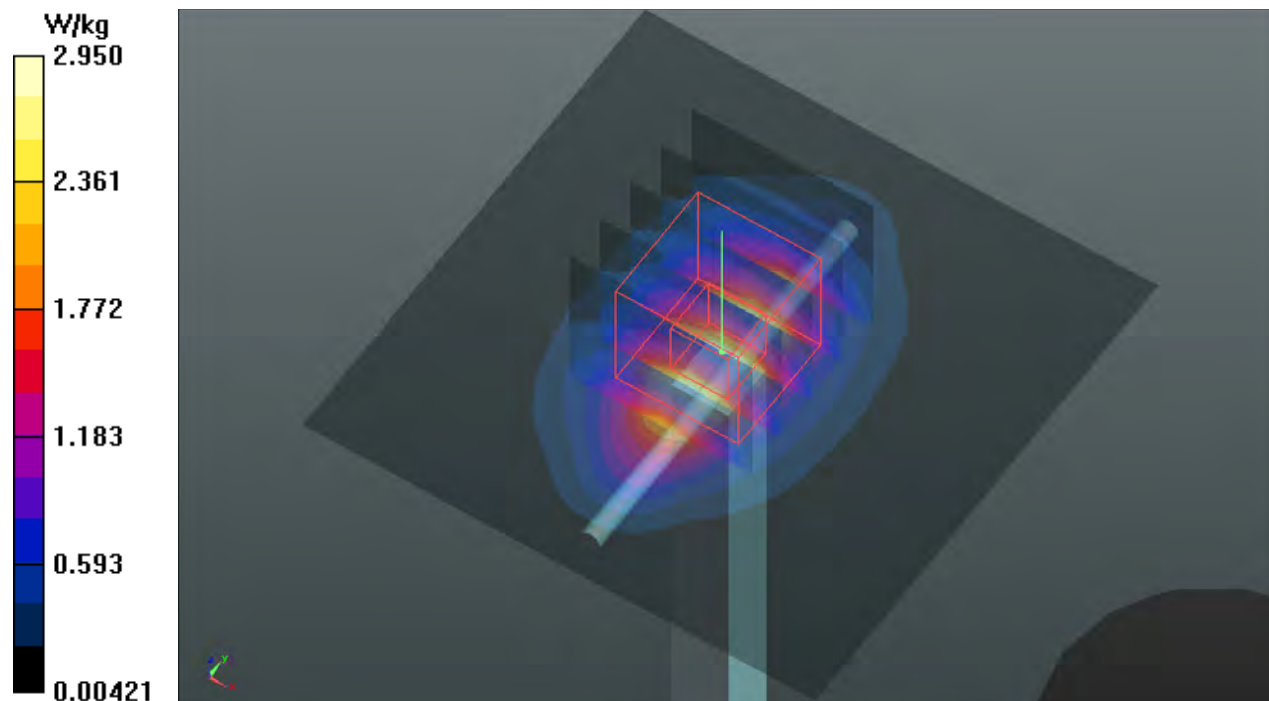
Pin=50mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 45.86 V/m; Power Drift = 0.07 dB

Peak SAR (extrapolated) = 3.69 W/kg

SAR(1 g) = 1.91 W/kg; SAR(10 g) = 0.997 W/kg (SAR corrected for target medium)

Maximum value of SAR (measured) = 3.10 W/kg



S20 System Check_H835_210310

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

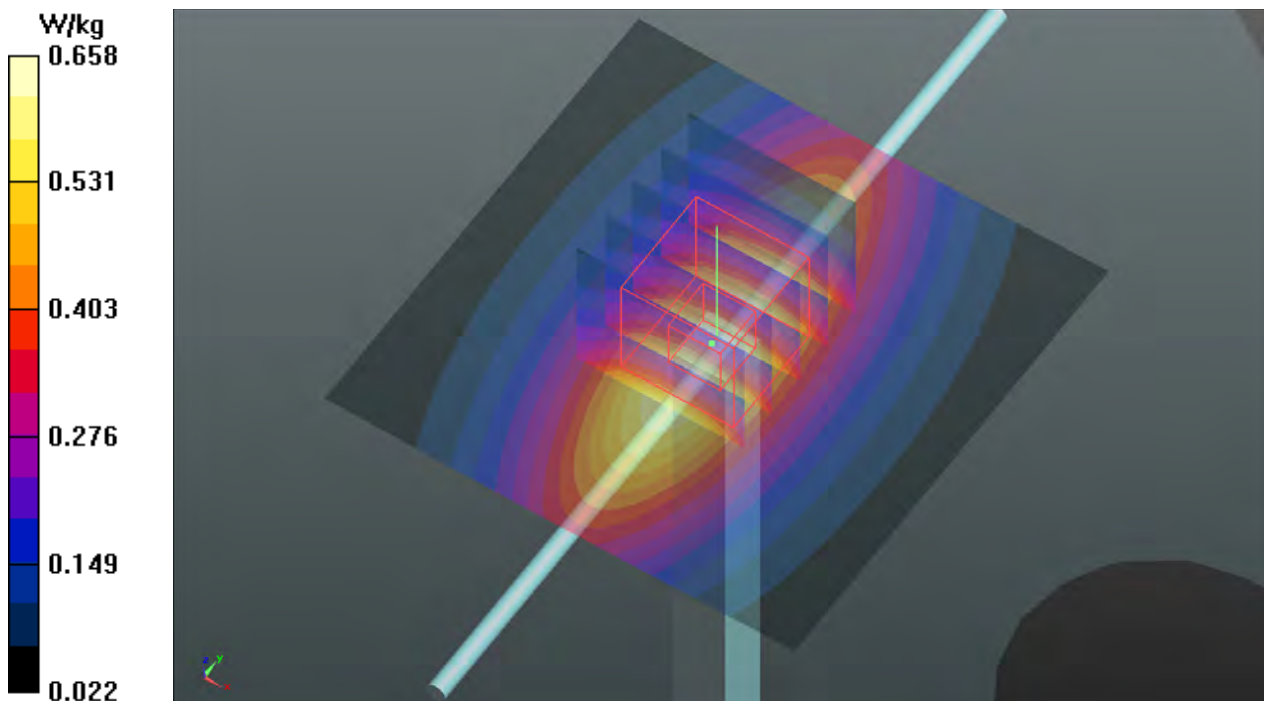
Communication System: UID 0, CW; Frequency: 835 MHz; Duty Cycle: 1:1
Medium: H07T10N1_0310 Medium parameters used: $f = 835$ MHz; $\sigma = 0.914$ S/m; $\epsilon_r = 42.593$; $\rho = 1000$ kg/m³
Ambient Temperature : 23.5 °C ; Liquid Temperature : 23.1 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3887; ConvF(9.2, 9.2, 9.2) @ 835 MHz; Calibrated: 2020/10/22
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 2020/06/22
- Phantom: Twin SAM Phantom_1653; Type: QD000P40CD;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Pin=50mW/Area Scan (61x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.658 W/kg

Pin=50mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 28.13 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 0.753 W/kg
SAR(1 g) = 0.492 W/kg; SAR(10 g) = 0.321 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 0.661 W/kg



S21 System Check_H1900_210308

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

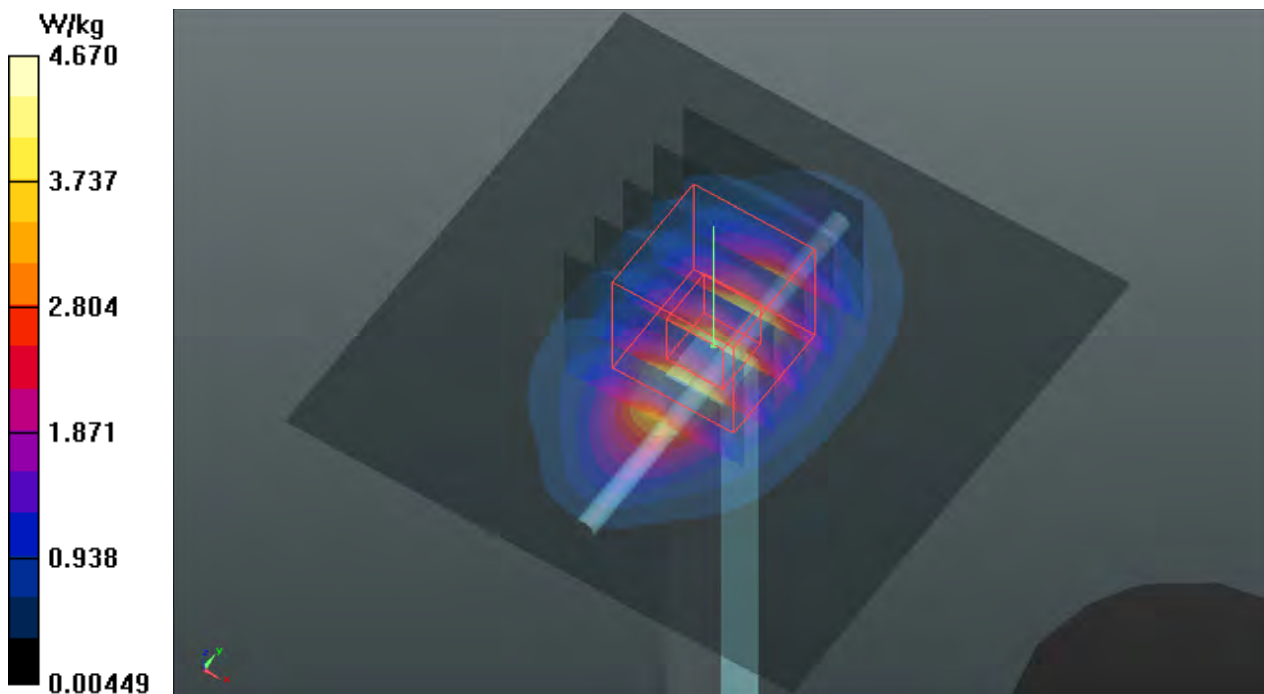
Communication System: UID 0, CW; Frequency: 1900 MHz; Duty Cycle: 1:1
Medium: H16T20N1_0308 Medium parameters used: $f = 1900$ MHz; $\sigma = 1.457$ S/m; $\epsilon_r = 39.83$; $\rho = 1000$ kg/m³
Ambient Temperature : 23.7 °C ; Liquid Temperature : 23.3 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3887; ConvF(7.98, 7.98, 7.98) @ 1900 MHz; Calibrated: 2020/10/22
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 2020/06/22
- Phantom: Twin SAM Phantom_1653; Type: QD000P40CD;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Pin=50mW/Area Scan (61x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 4.67 W/kg

Pin=50mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 58.49 V/m; Power Drift = -0.05 dB
Peak SAR (extrapolated) = 5.62 W/kg
SAR(1 g) = 1.85 W/kg; SAR(10 g) = 0.973 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 4.68 W/kg



S22 System Check_H1750_210308

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

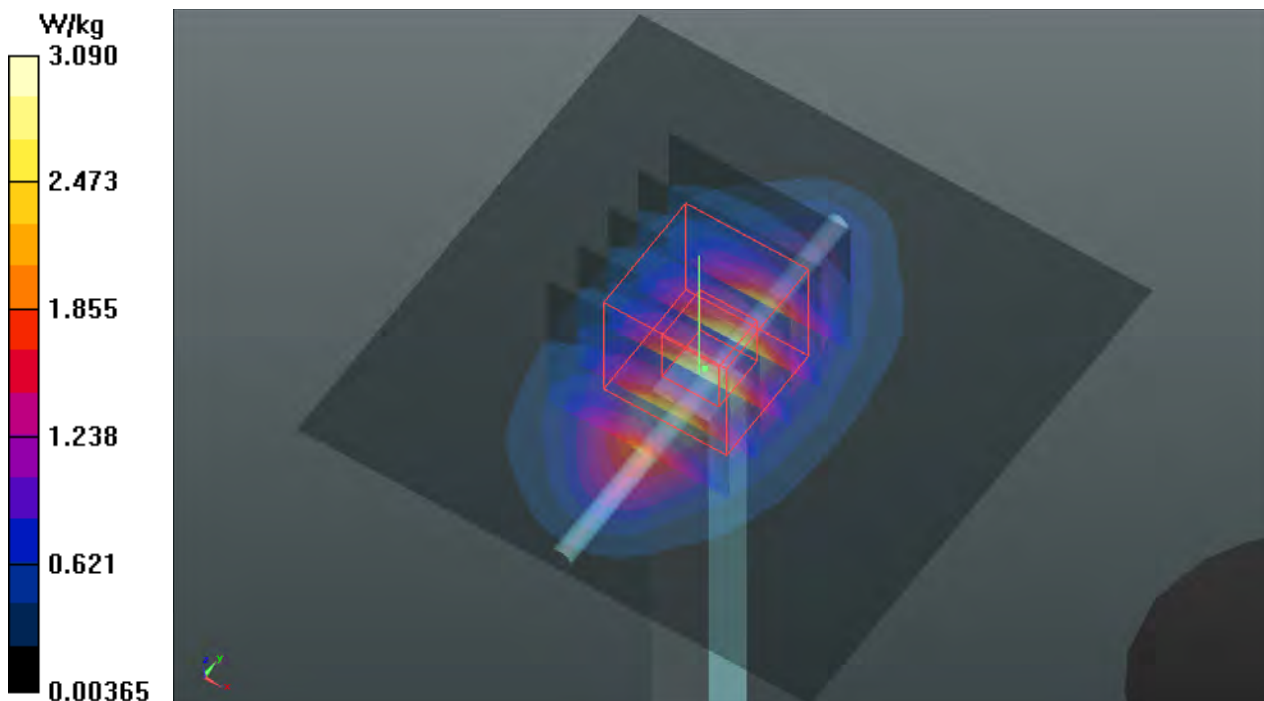
Communication System: UID 0, CW; Frequency: 1750 MHz; Duty Cycle: 1:1
Medium: H16T20N1_0308 Medium parameters used: $f = 1750$ MHz; $\sigma = 1.322$ S/m; $\epsilon_r = 40.39$; $\rho = 1000$ kg/m³
Ambient Temperature : 23.7 °C ; Liquid Temperature : 23.3 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3887; ConvF(8.24, 8.24, 8.24) @ 1750 MHz; Calibrated: 2020/10/22
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 2020/06/22
- Phantom: Twin SAM Phantom_1653; Type: QD000P40CD;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Pin=50mW/Area Scan (61x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 3.09 W/kg

Pin=50mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 49.39 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 3.68 W/kg
SAR(1 g) = 1.88 W/kg; SAR(10 g) = 1.01 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 3.07 W/kg



S23 System Check_H835_210308

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

Communication System: UID 0, CW; Frequency: 835 MHz; Duty Cycle: 1:1

Medium: H07T10N1_0308 Medium parameters used: $f = 835$ MHz; $\sigma = 0.921$ S/m; $\epsilon_r = 42.338$; $\rho = 1000$ kg/m³

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

DASY5 Configuration:

- Probe: EX3DV4 - SN3887; ConvF(9.2, 9.2, 9.2) @ 835 MHz; Calibrated: 2020/10/22
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 2020/06/22
- Phantom: Twin SAM Phantom_1653; Type: QD000P40CD;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Pin=50mW/Area Scan (61x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.681 W/kg

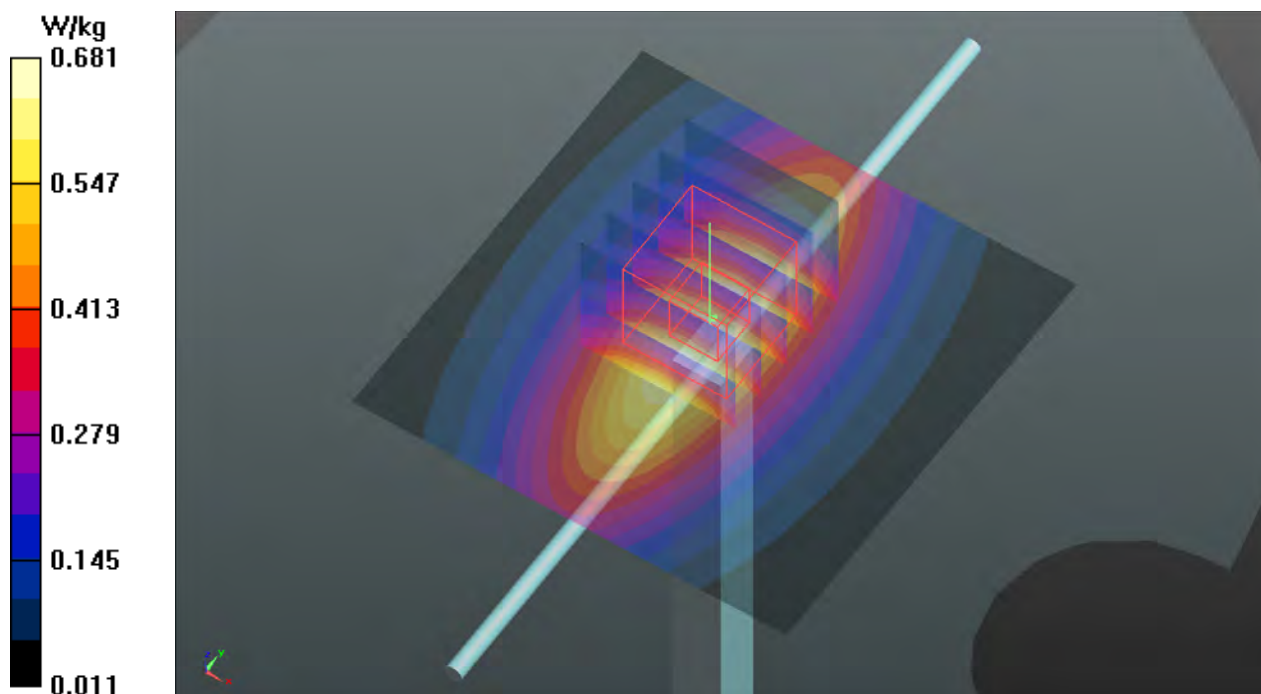
Pin=50mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 28.28 V/m; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 0.792 W/kg

SAR(1 g) = 0.507 W/kg; SAR(10 g) = 0.329 W/kg (SAR corrected for target medium)

Maximum value of SAR (measured) = 0.694 W/kg



S24 System Check_H2600_210308

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

Communication System: UID 0, CW; Frequency: 2600 MHz; Duty Cycle: 1:1

Medium: H19T27N1_0308 Medium parameters used: $f = 2600$ MHz; $\sigma = 2.048$ S/m; $\epsilon_r = 38.471$; $\rho = 1000$ kg/m³

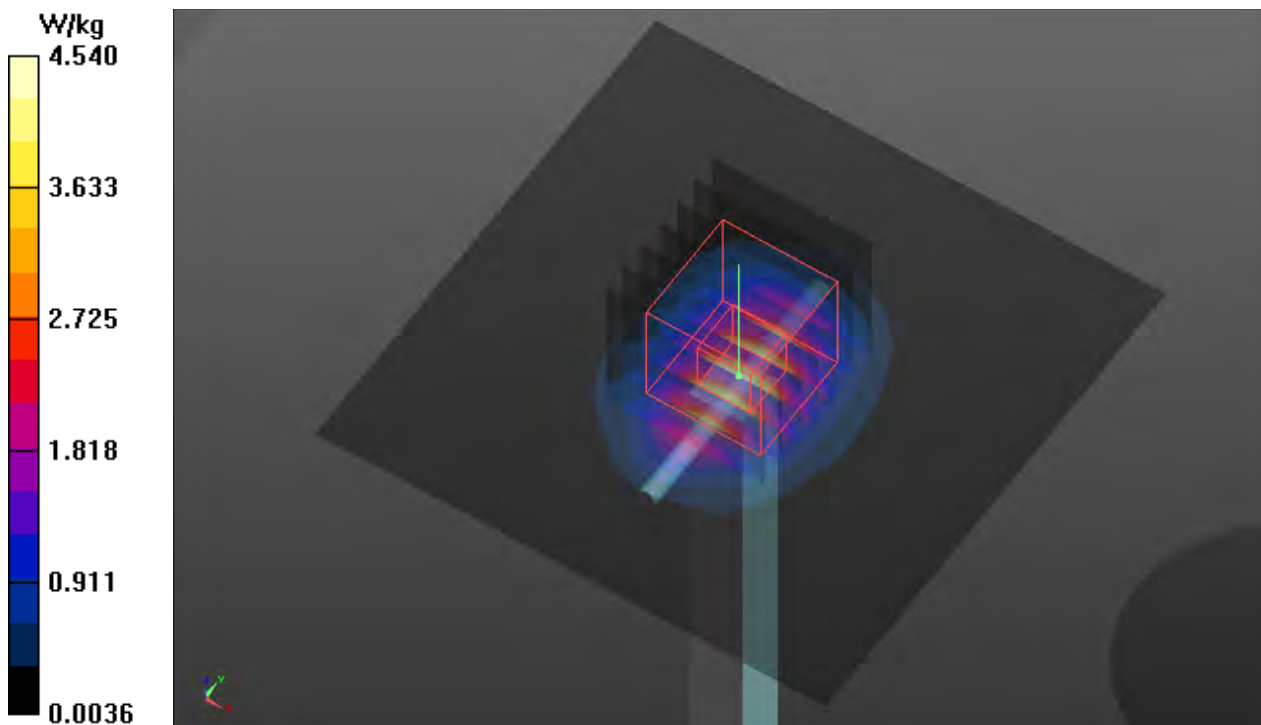
Ambient Temperature : 23.7 °C ; Liquid Temperature : 23.3 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3650; ConvF(7.56, 7.56, 7.56) @ 2600 MHz; Calibrated: 2020/03/25
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn861; Calibrated: 2020/05/27
- Phantom: SAM Phantom_1982; Type: QD 000 P41 Ax;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Pin=50mW/Area Scan (81x81x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 4.54 W/kg

Pin=50mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 48.07 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 5.56 W/kg
SAR(1 g) = 2.65 W/kg; SAR(10 g) = 1.23 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 4.51 W/kg



S25 System Check_H750_210309

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

Communication System: UID 0, CW; Frequency: 750 MHz; Duty Cycle: 1:1

Medium: H07T10N1_0309 Medium parameters used: $f = 750$ MHz; $\sigma = 0.889$ S/m; $\epsilon_r = 42.67$; $\rho = 1000$ kg/m³

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

DASY5 Configuration:

- Probe: EX3DV4 - SN3971; ConvF(10.45, 10.45, 10.45) @ 750 MHz; Calibrated: 2021/01/27
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1277; Calibrated: 2021/01/19
- Phantom: Twin SAM Phantom_1986; Type: QD 000 P40 CD
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Pin=50mW/Area Scan (61x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.579 W/kg

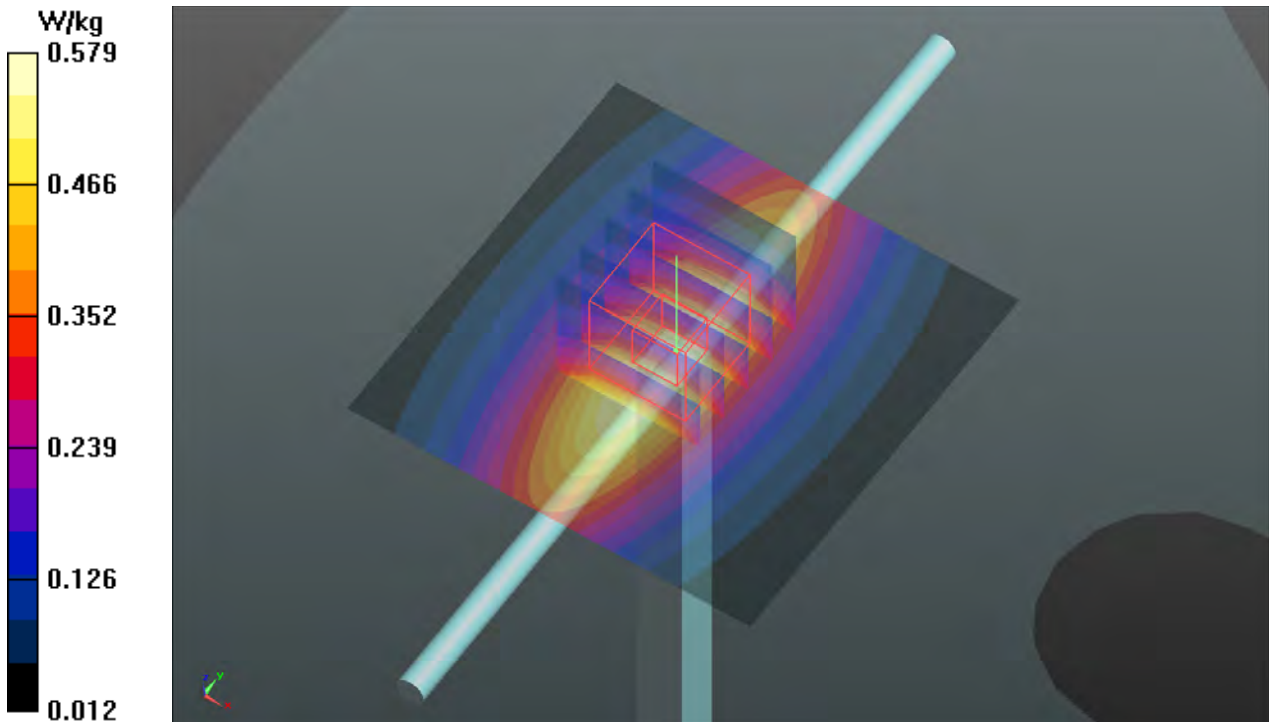
Pin=50mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 26.55 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 0.662 W/kg

SAR(1 g) = 0.434 W/kg; SAR(10 g) = 0.284 W/kg (SAR corrected for target medium)

Maximum value of SAR (measured) = 0.582 W/kg



S26 System Check_H750_210309

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

Communication System: UID 0, CW; Frequency: 750 MHz; Duty Cycle: 1:1

Medium: H07T10N1_0309 Medium parameters used: $f = 750$ MHz; $\sigma = 0.889$ S/m; $\epsilon_r = 42.67$; $\rho = 1000$ kg/m³

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

DASY5 Configuration:

- Probe: EX3DV4 - SN3971; ConvF(10.45, 10.45, 10.45) @ 750 MHz; Calibrated: 2021/01/27
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1277; Calibrated: 2021/01/19
- Phantom: Twin SAM Phantom_1986; Type: QD 000 P40 CD
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Pin=50mW/Area Scan (61x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.579 W/kg

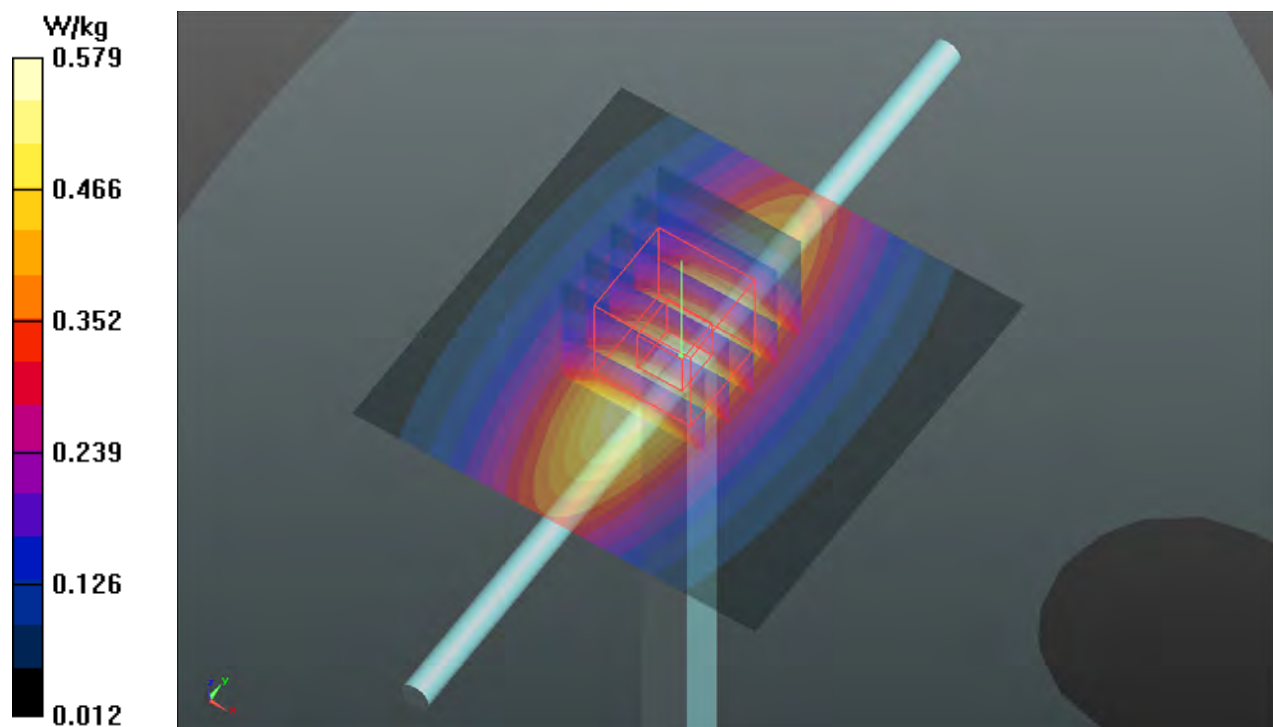
Pin=50mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 26.55 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 0.662 W/kg

SAR(1 g) = 0.434 W/kg; SAR(10 g) = 0.284 W/kg (SAR corrected for target medium)

Maximum value of SAR (measured) = 0.582 W/kg



S27 System Check_H750_210309

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

Communication System: UID 0, CW; Frequency: 750 MHz; Duty Cycle: 1:1

Medium: H07T10N1_0309 Medium parameters used: $f = 750$ MHz; $\sigma = 0.889$ S/m; $\epsilon_r = 42.67$; $\rho = 1000$ kg/m³

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

DASY5 Configuration:

- Probe: EX3DV4 - SN3887; ConvF(9.49, 9.49, 9.49) @ 750 MHz; Calibrated: 2020/10/22
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 2020/06/22
- Phantom: Twin SAM Phantom_1653; Type: QD000P40CD
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Pin=50mW/Area Scan (61x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.579 W/kg

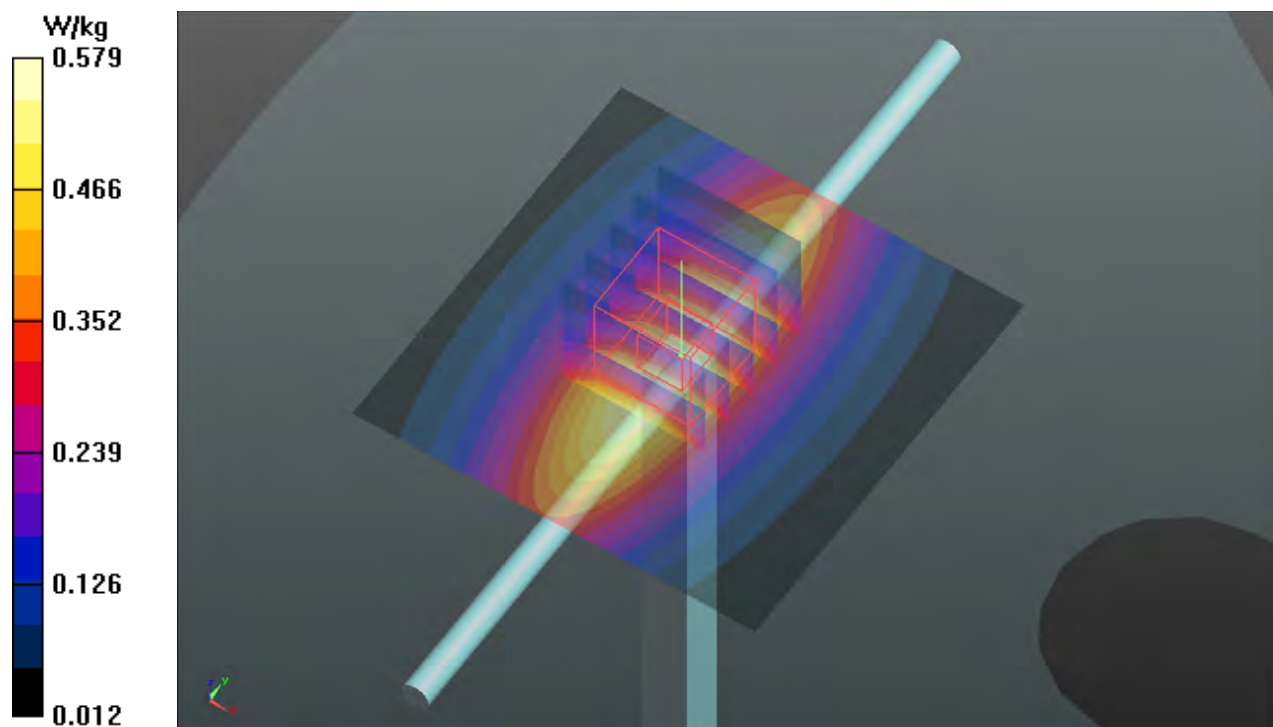
Pin=50mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 26.55 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 0.662 W/kg

SAR(1 g) = 0.434 W/kg; SAR(10 g) = 0.284 W/kg (SAR corrected for target medium)

Maximum value of SAR (measured) = 0.582 W/kg



S28 System Check_H1900_210309

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

Communication System: UID 0, CW; Frequency: 1900 MHz; Duty Cycle: 1:1

Medium: H16T20N1_0309 Medium parameters used: $f = 1900$ MHz; $\sigma = 1.459$ S/m; $\epsilon_r = 39.968$; $\rho = 1000$ kg/m³

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

DASY5 Configuration:

- Probe: EX3DV4 - SN3887; ConvF(7.98, 7.98, 7.98) @ 1900 MHz; Calibrated: 2020/10/22
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 2020/06/22
- Phantom: Twin SAM Phantom_1653; Type: QD000P40;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Pin=50mW/Area Scan (61x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 3.41 W/kg

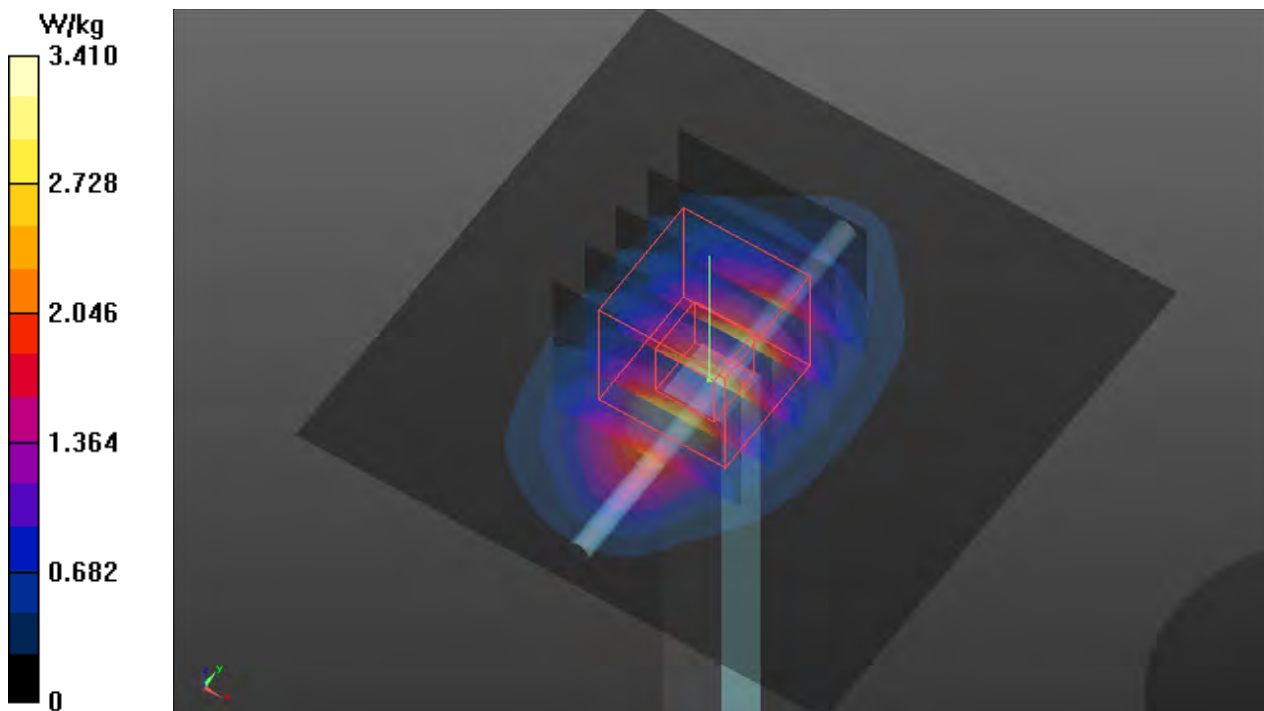
Pin=50mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 47.78 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 3.93 W/kg

SAR(1 g) = 2.09 W/kg; SAR(10 g) = 1.11 W/kg (SAR corrected for target medium)

Maximum value of SAR (measured) = 3.30 W/kg



S29 System Check_H2450_210312

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

Communication System: UID 0, CW; Frequency: 2450 MHz; Duty Cycle: 1:1

Medium: H19T27N1_0312 Medium parameters used (interpolated): $f = 2450$ MHz; $\sigma = 1.886$ S/m; $\epsilon_r = 38.313$; $\rho = 1000$ kg/m³

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

DASY5 Configuration:

- Probe: EX3DV4 - SN3971; ConvF(7.87, 7.87, 7.87) @ 2450 MHz; Calibrated: 2021/01/27
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1277; Calibrated: 2021/01/19
- Phantom: Twin SAM Phantom_1986; Type: QD 000 P40 CD;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Pin=50mW/Area Scan (81x81x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm

Maximum value of SAR (interpolated) = 4.00 W/kg

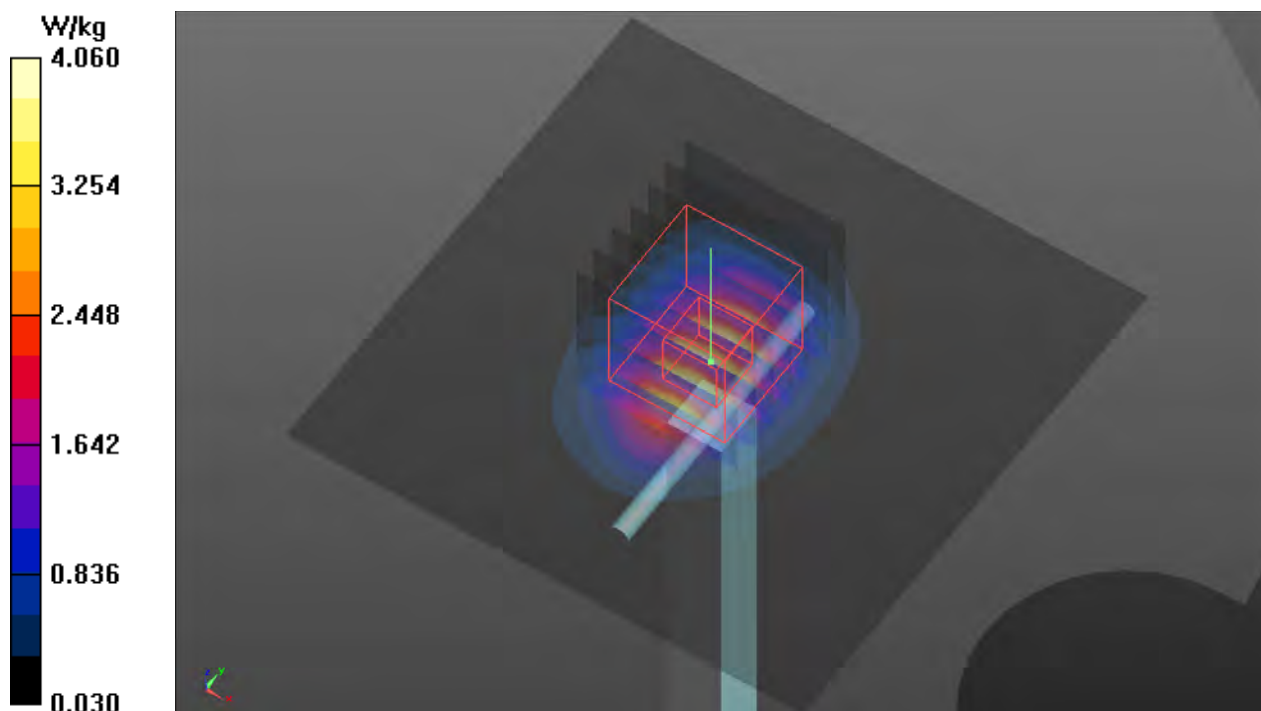
Pin=50mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 48.00 V/m; Power Drift = 0.12 dB

Peak SAR (extrapolated) = 4.96 W/kg

SAR(1 g) = 2.42 W/kg; SAR(10 g) = 1.17 W/kg (SAR corrected for target medium)

Maximum value of SAR (measured) = 4.06 W/kg



S30 System Check_H5250_210401

DUT: Dipole 5 GHz; Type: D5GHzV2; SN: 1145

Communication System: UID 0, CW; Frequency: 5250 MHz; Duty Cycle: 1:1

Medium: H34T60N1_0401 Medium parameters used: $f = 5250$ MHz; $\sigma = 4.767$ S/m; $\epsilon_r = 36.978$; $\rho = 1000$ kg/m³

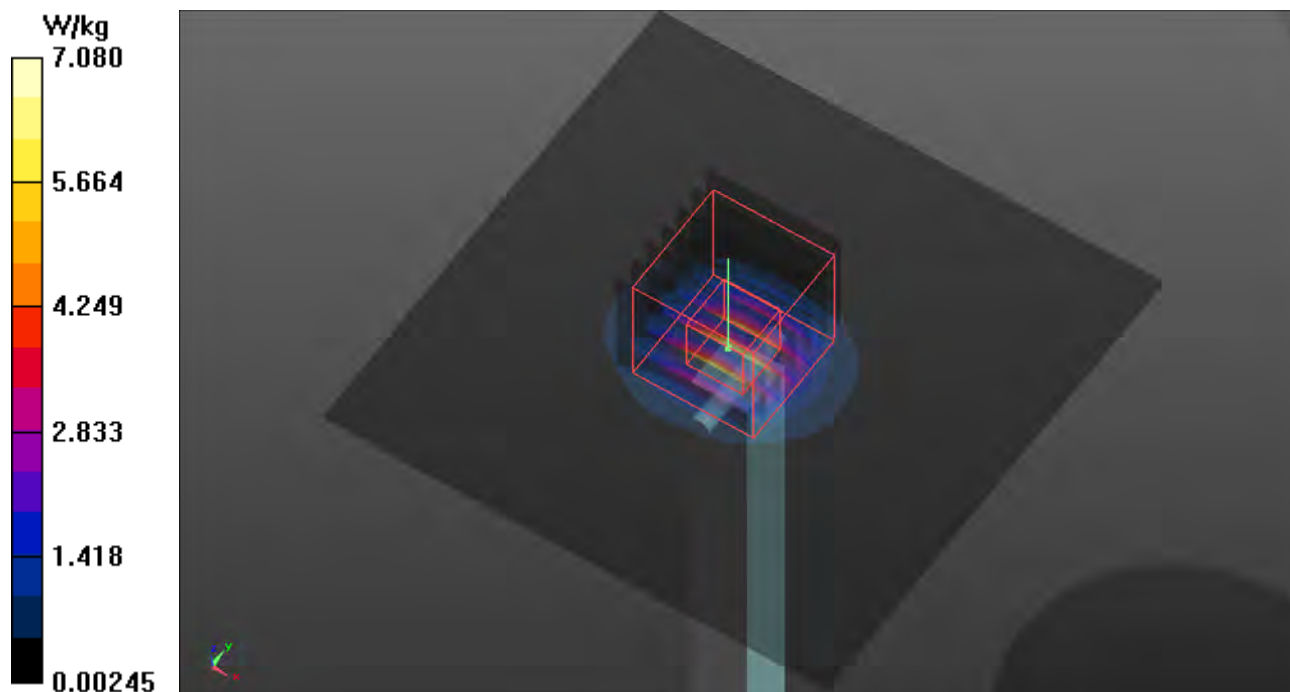
Ambient Temperature : 23.5 °C ; Liquid Temperature : 23.1 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN7554; ConvF(5.12, 5.12, 5.12) @ 5250 MHz; Calibrated: 2020/09/28
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1590; Calibrated: 2020/09/15
- Phantom: SAM Phantom_1985; Type: QD 000 P41 AA;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Pin=50mW/Area Scan (91x91x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 7.08 W/kg

Pin=50mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 43.61 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 11.5 W/kg
SAR(1 g) = 3.55 W/kg; SAR(10 g) = 1.29 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 7.53 W/kg



S31 System Check_H5600_210401

DUT: Dipole 5 GHz; Type: D5GHzV2; SN: 1145

Communication System: UID 0, CW; Frequency: 5600 MHz; Duty Cycle: 1:1

Medium: H34T60N1_0401 Medium parameters used: $f = 5600$ MHz; $\sigma = 5.211$ S/m; $\epsilon_r = 36.23$; $\rho = 1000$ kg/m³

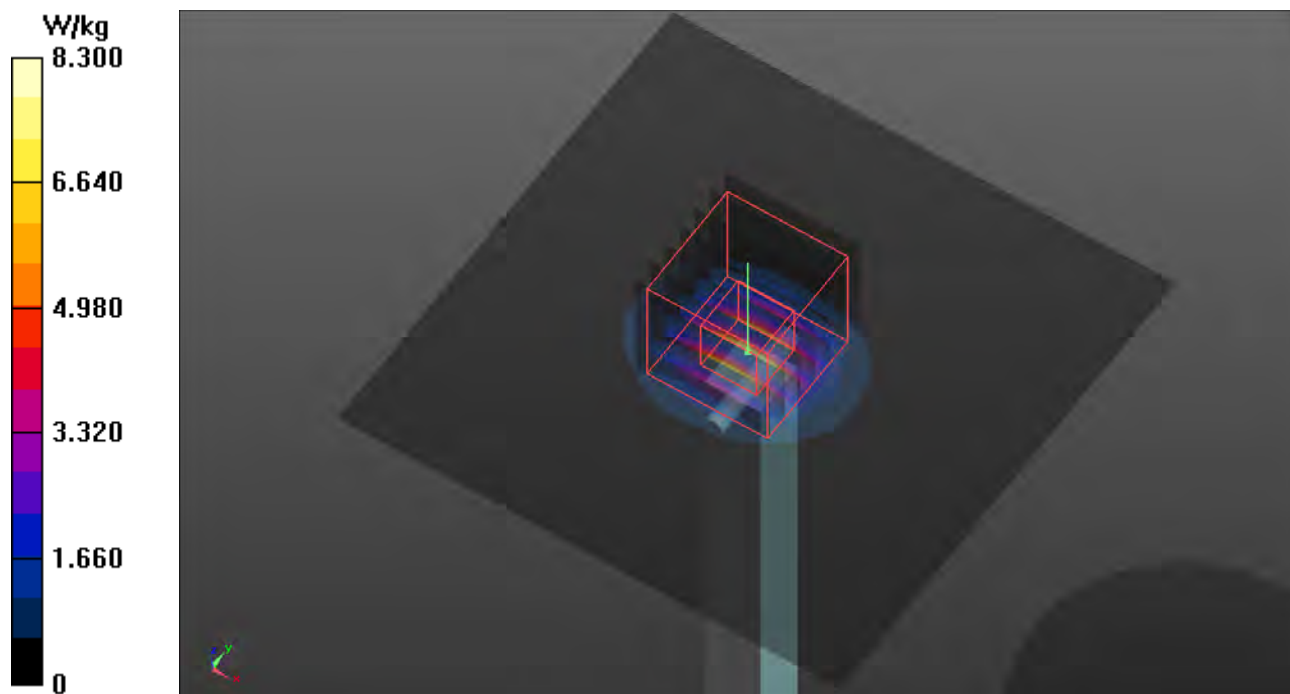
Ambient Temperature : 23.5 °C ; Liquid Temperature : 23.1 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN7554; ConvF(4.65, 4.65, 4.65) @ 5600 MHz; Calibrated: 2020/09/28
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1590; Calibrated: 2020/09/15
- Phantom: SAM Phantom_1985; Type: QD 000 P41 AA;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Pin=50mW/Area Scan (91x91x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 8.30 W/kg

Pin=50mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 44.52 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 14.4 W/kg
SAR(1 g) = 3.69 W/kg; SAR(10 g) = 1.21 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 8.90 W/kg



S32 System Check_H5750_210401

DUT: Dipole 5 GHz; Type: D5GHzV2; SN: 1145

Communication System: UID 0, CW; Frequency: 5750 MHz; Duty Cycle: 1:1

Medium: H34T60N1_0401 Medium parameters used: $f = 5750$ MHz; $\sigma = 5.384$ S/m; $\epsilon_r = 35.949$; $\rho = 1000$ kg/m³

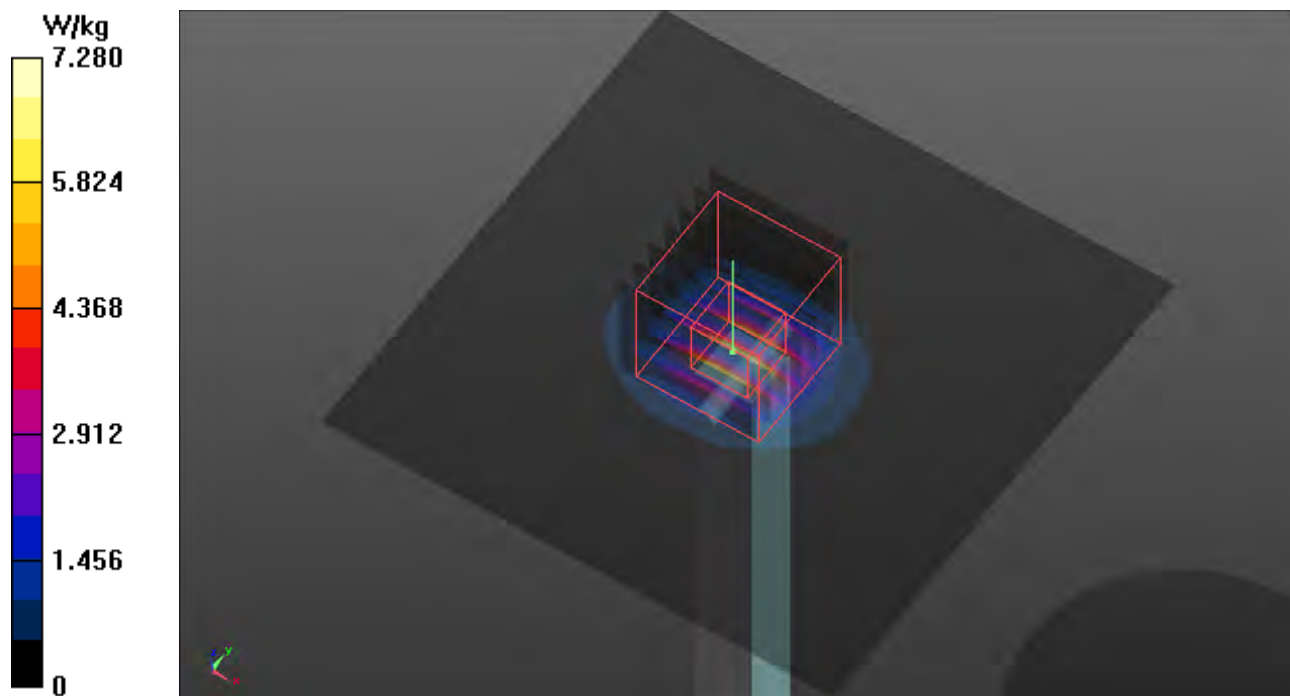
Ambient Temperature : 23.5 °C ; Liquid Temperature : 23.1 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN7554; ConvF(4.8, 4.8, 4.8) @ 5750 MHz; Calibrated: 2020/09/28
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1590; Calibrated: 2020/09/15
- Phantom: SAM Phantom_1985; Type: QD 000 P41 AA;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Pin=50mW/Area Scan (91x91x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 7.28 W/kg

Pin=50mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 41.86 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 12.9 W/kg
SAR(1 g) = 3.71 W/kg; SAR(10 g) = 1.38 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 7.82 W/kg



S33 System Check_H835_210310

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

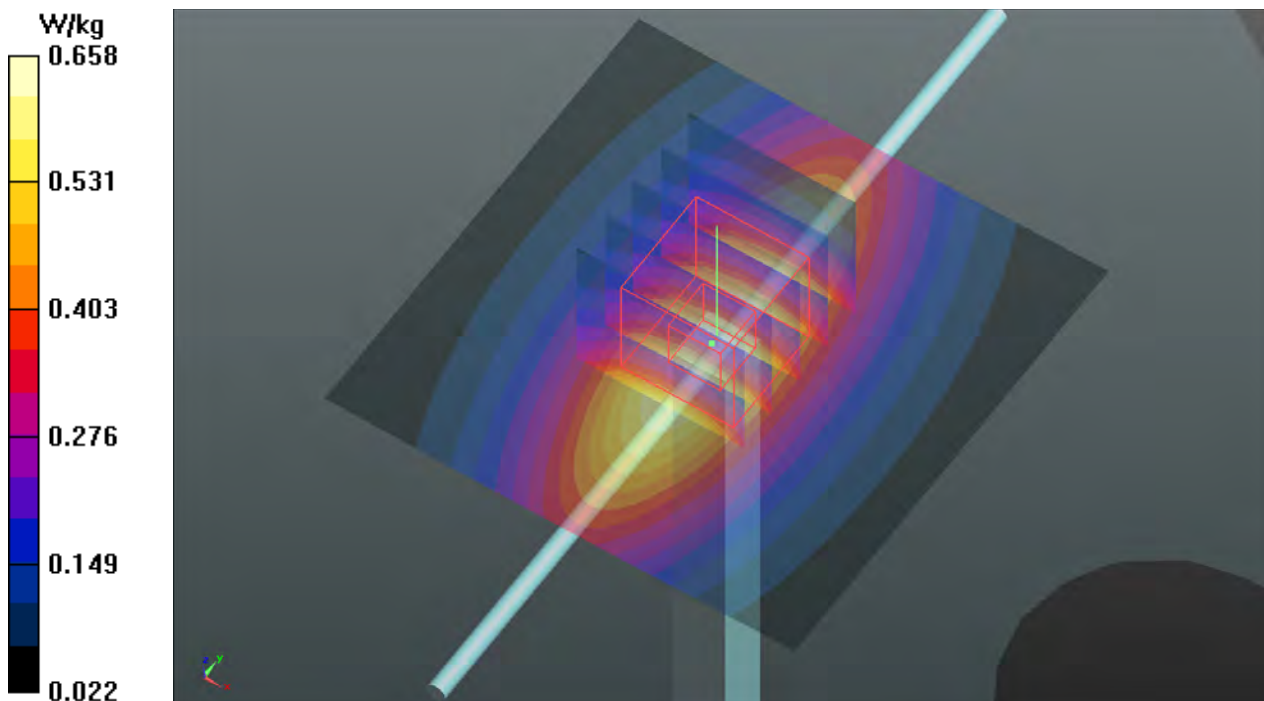
Communication System: UID 0, CW; Frequency: 835 MHz; Duty Cycle: 1:1
Medium: H07T10N1_0310 Medium parameters used: $f = 835$ MHz; $\sigma = 0.914$ S/m; $\epsilon_r = 42.593$; $\rho = 1000$ kg/m³
Ambient Temperature : 23.5 °C ; Liquid Temperature : 23.1 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3887; ConvF(9.2, 9.2, 9.2) @ 835 MHz; Calibrated: 2020/10/22
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 2020/06/22
- Phantom: Twin SAM Phantom_1653; Type: QD000P40CD;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Pin=50mW/Area Scan (61x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.658 W/kg

Pin=50mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 28.13 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 0.753 W/kg
SAR(1 g) = 0.492 W/kg; SAR(10 g) = 0.321 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 0.661 W/kg



S34 System Check_H1900_210308

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

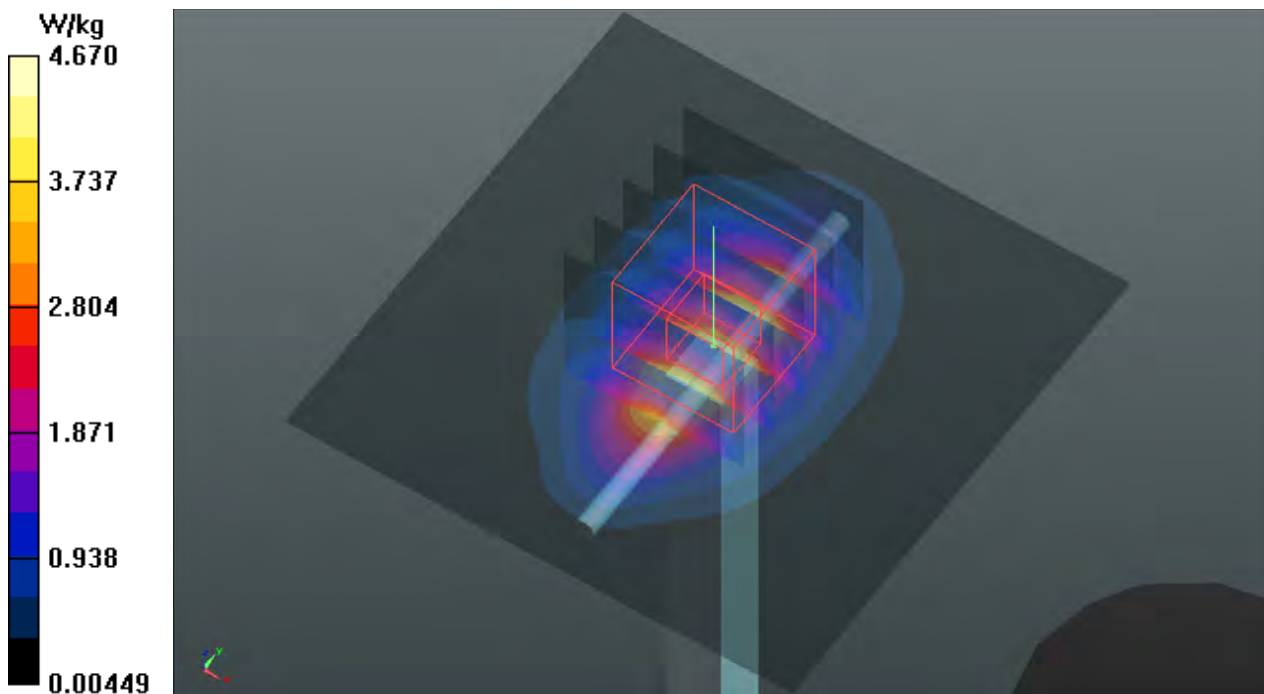
Communication System: UID 0, CW; Frequency: 1900 MHz; Duty Cycle: 1:1
Medium: H16T20N1_0308 Medium parameters used: $f = 1900$ MHz; $\sigma = 1.457$ S/m; $\epsilon_r = 39.83$; $\rho = 1000$ kg/m³
Ambient Temperature : 23.7 °C ; Liquid Temperature : 23.3 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3887; ConvF(7.98, 7.98, 7.98) @ 1900 MHz; Calibrated: 2020/10/22
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 2020/06/22
- Phantom: Twin SAM Phantom_1653; Type: QD000P40CD;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Pin=50mW/Area Scan (61x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 4.67 W/kg

Pin=50mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 58.49 V/m; Power Drift = -0.05 dB
Peak SAR (extrapolated) = 5.62 W/kg
SAR(1 g) = 1.85 W/kg; SAR(10 g) = 0.973 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 4.68 W/kg



S35 System Check_H1900_210310

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

Communication System: UID 0, CW; Frequency: 1900 MHz; Duty Cycle: 1:1

Medium: H16T20N1_0310 Medium parameters used: $f = 1900$ MHz; $\sigma = 1.46$ S/m; $\epsilon_r = 38.262$; $\rho = 1000$ kg/m³

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

DASY5 Configuration:

- Probe: EX3DV4 - SN3887; ConvF(7.98, 7.98, 7.98) @ 1900 MHz; Calibrated: 2020/10/22
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 2020/06/22
- Phantom: Twin SAM Phantom_1653; Type: QD000P40CD;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Pin=50mW/Area Scan (61x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 2.95 W/kg

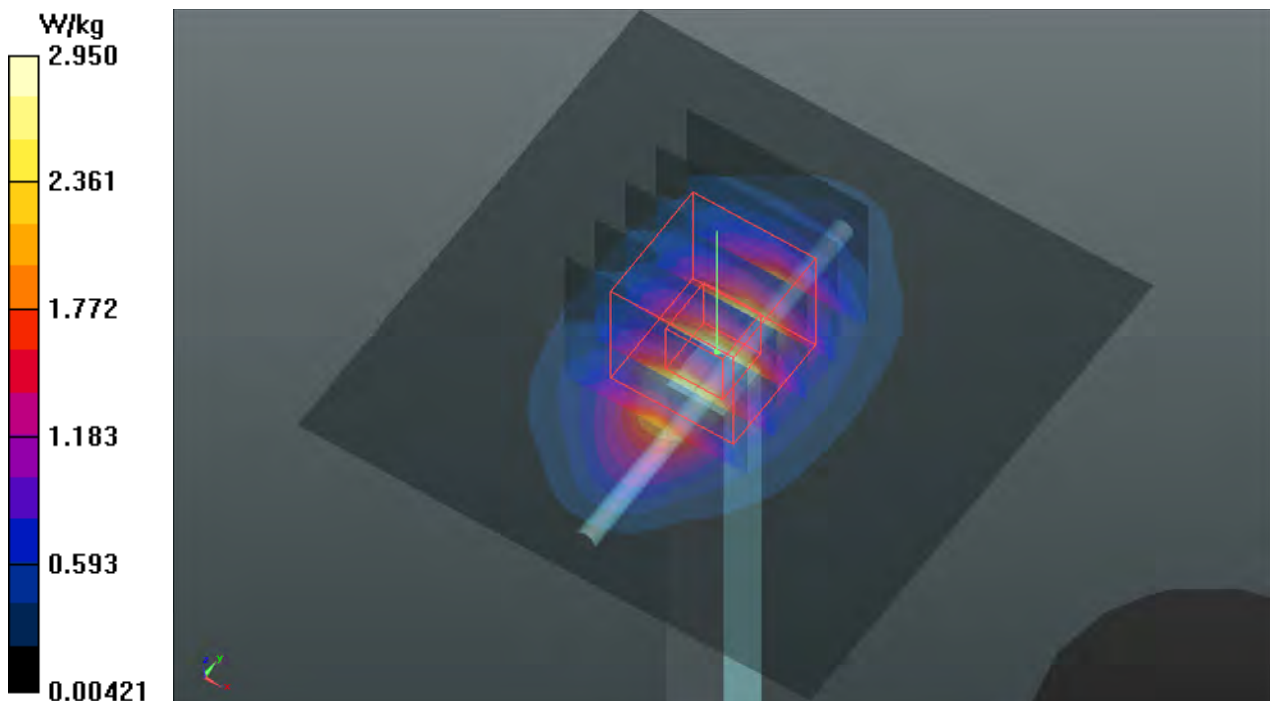
Pin=50mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 45.86 V/m; Power Drift = 0.07 dB

Peak SAR (extrapolated) = 3.69 W/kg

SAR(1 g) = 1.91 W/kg; SAR(10 g) = 0.997 W/kg (SAR corrected for target medium)

Maximum value of SAR (measured) = 3.10 W/kg



S36 System Check_H835_210310

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

Communication System: UID 0, CW; Frequency: 835 MHz; Duty Cycle: 1:1

Medium: H07T10N1_0310 Medium parameters used: $f = 835$ MHz; $\sigma = 0.914$ S/m; $\epsilon_r = 42.593$; $\rho = 1000$ kg/m³

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

DASY5 Configuration:

- Probe: EX3DV4 - SN3887; ConvF(9.2, 9.2, 9.2) @ 835 MHz; Calibrated: 2020/10/22
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 2020/06/22
- Phantom: Twin SAM Phantom_1653; Type: QD000P40CD;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

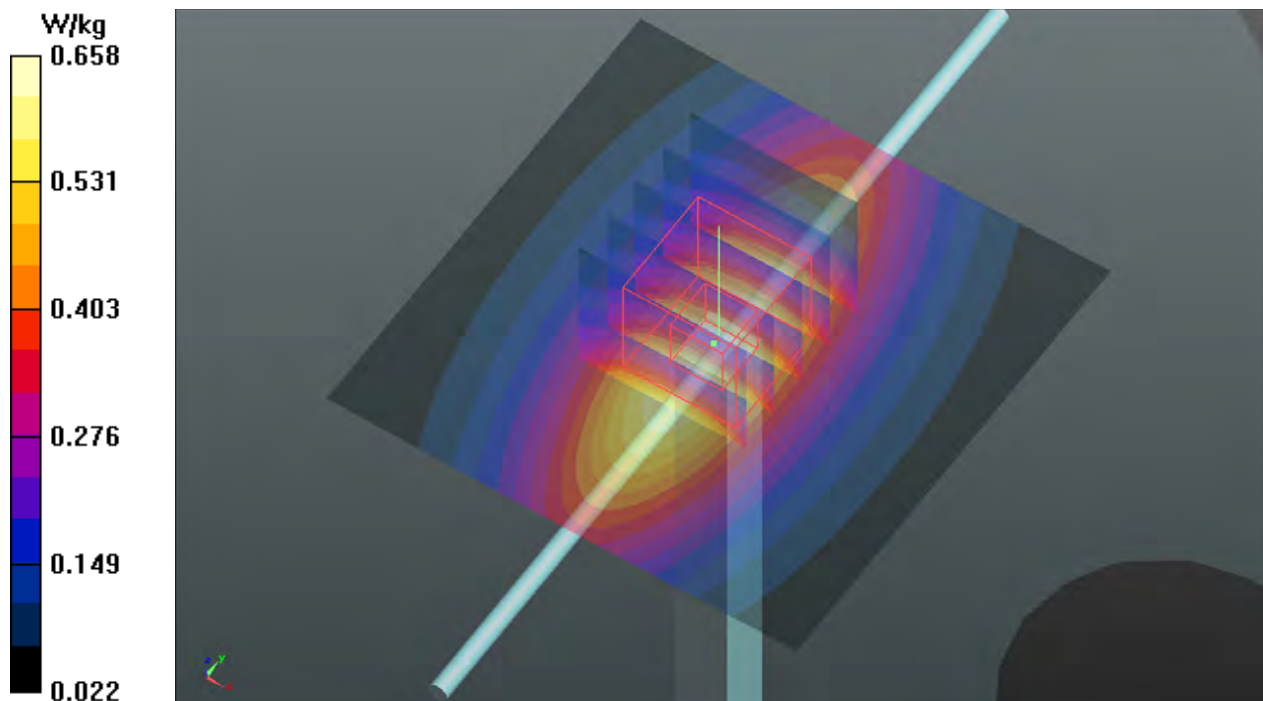
Pin=50mW/Area Scan (61x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
 Maximum value of SAR (interpolated) = 0.658 W/kg

Pin=50mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
 Reference Value = 28.13 V/m; Power Drift = -0.03 dB

Peak SAR (extrapolated) = 0.753 W/kg

SAR(1 g) = 0.492 W/kg; SAR(10 g) = 0.321 W/kg (SAR corrected for target medium)

Maximum value of SAR (measured) = 0.661 W/kg



S37 System Check_H1900_210309

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

Communication System: UID 0, CW; Frequency: 1900 MHz; Duty Cycle: 1:1

Medium: H16T20N1_0309 Medium parameters used: $f = 1900$ MHz; $\sigma = 1.459$ S/m; $\epsilon_r = 39.968$; $\rho = 1000$ kg/m³

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

DASY5 Configuration:

- Probe: EX3DV4 - SN3887; ConvF(7.98, 7.98, 7.98) @ 1900 MHz; Calibrated: 2020/10/22
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 2020/06/22
- Phantom: Twin SAM Phantom_1653; Type: QD000P40;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Pin=50mW/Area Scan (61x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 3.41 W/kg

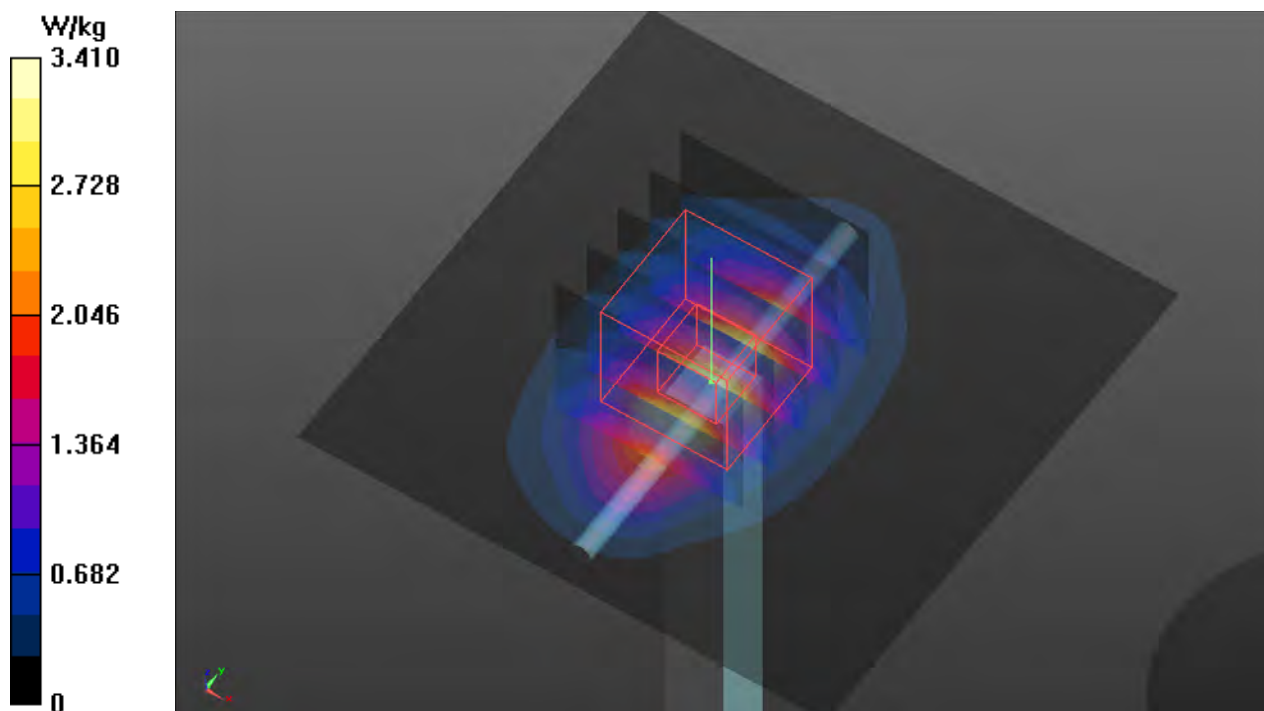
Pin=50mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 47.78 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 3.93 W/kg

SAR(1 g) = 2.09 W/kg; SAR(10 g) = 1.11 W/kg (SAR corrected for target medium)

Maximum value of SAR (measured) = 3.30 W/kg



S38 System Check_H1750_210308

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

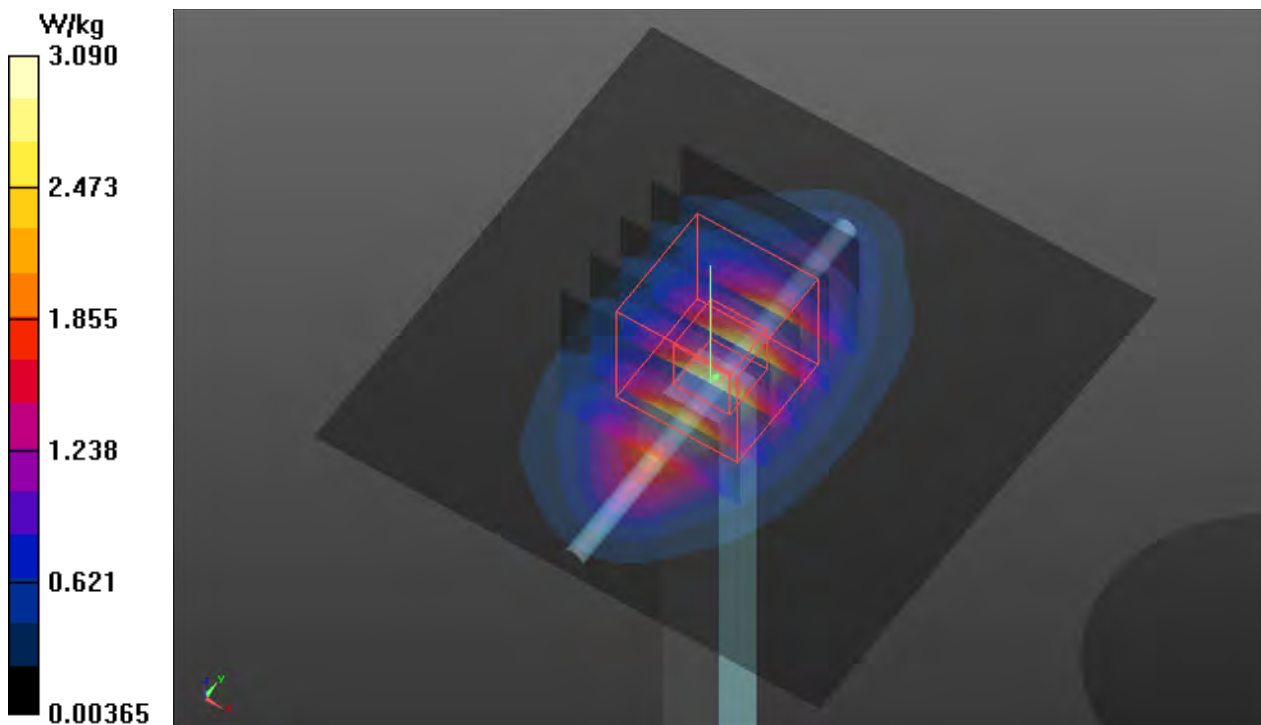
Communication System: UID 0, CW; Frequency: 1750 MHz; Duty Cycle: 1:1
Medium: H16T20N1_0308 Medium parameters used: $f = 1750$ MHz; $\sigma = 1.322$ S/m; $\epsilon_r = 40.39$; $\rho = 1000$ kg/m³
Ambient Temperature : 23.7 °C ; Liquid Temperature : 23.3 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3650; ConvF(8.54, 8.54, 8.54) @ 1750 MHz; Calibrated: 2020/03/25
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn861; Calibrated: 2020/05/27
- Phantom: SAM Phantom_1982; Type: QD 000 P41 Ax;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Pin=50mW/Area Scan (61x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 3.09 W/kg

Pin=50mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 49.40 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 3.69 W/kg
SAR(1 g) = 1.96 W/kg; SAR(10 g) = 1.09 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 3.08 W/kg



S39 System Check_H835_210308

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

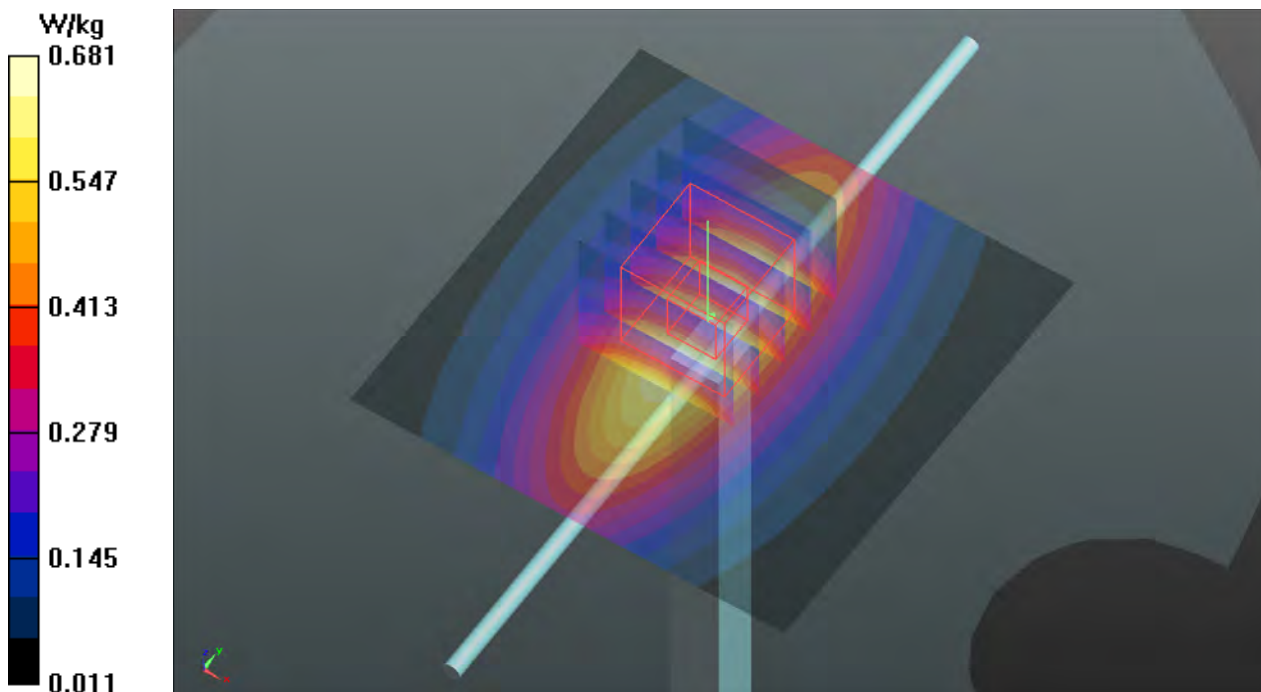
Communication System: UID 0, CW; Frequency: 835 MHz; Duty Cycle: 1:1
Medium: H07T10N1_0308 Medium parameters used: $f = 835$ MHz; $\sigma = 0.921$ S/m; $\epsilon_r = 42.338$; $\rho = 1000$ kg/m³
Ambient Temperature : 23.7 °C ; Liquid Temperature : 23.3 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3887; ConvF(9.2, 9.2, 9.2) @ 835 MHz; Calibrated: 2020/10/22
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 2020/06/22
- Phantom: Twin SAM Phantom_1653; Type: QD000P40CD;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Pin=50mW/Area Scan (61x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.681 W/kg

Pin=50mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 28.28 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 0.792 W/kg
SAR(1 g) = 0.507 W/kg; SAR(10 g) = 0.329 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 0.694 W/kg



S40 System Check_H2600_210308

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

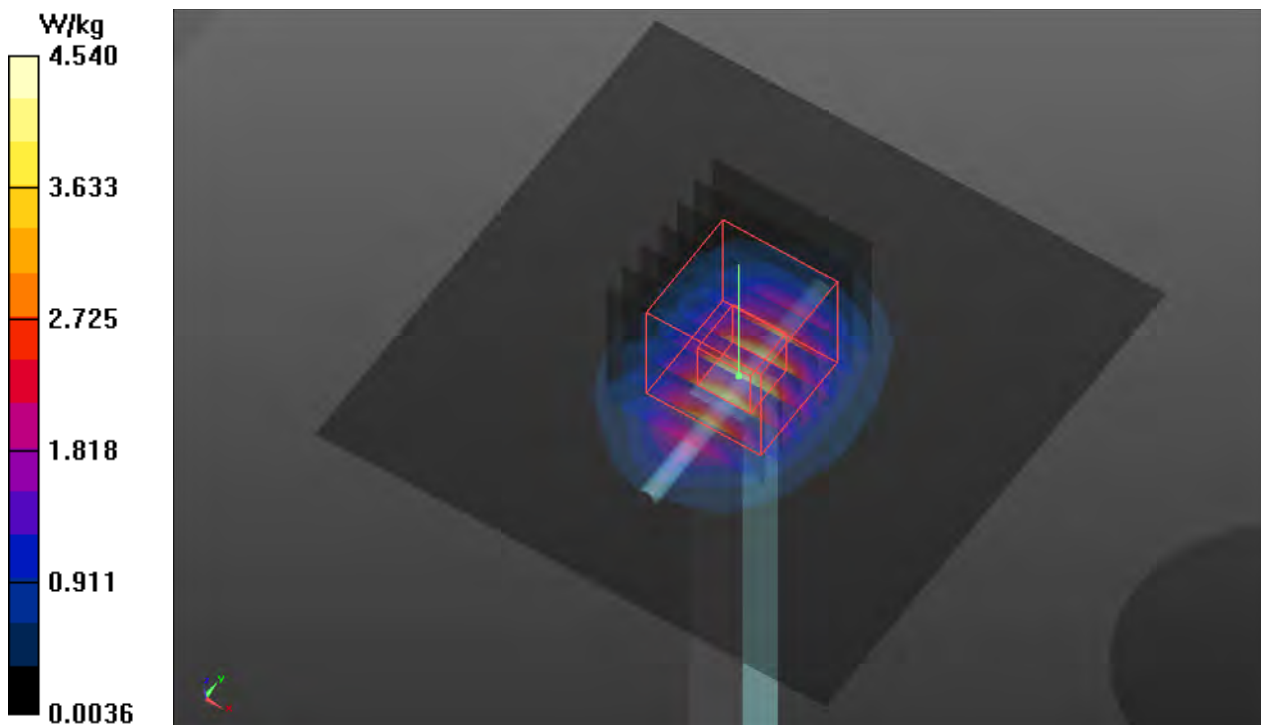
Communication System: UID 0, CW; Frequency: 2600 MHz; Duty Cycle: 1:1
Medium: H19T27N1_0308 Medium parameters used: $f = 2600$ MHz; $\sigma = 2.048$ S/m; $\epsilon_r = 38.471$; $\rho = 1000$ kg/m³
Ambient Temperature : 23.7 °C ; Liquid Temperature : 23.3 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3650; ConvF(7.56, 7.56, 7.56) @ 2600 MHz; Calibrated: 2020/03/25
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn861; Calibrated: 2020/05/27
- Phantom: SAM Phantom_1982; Type: QD 000 P41 Ax;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Pin=50mW/Area Scan (81x81x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 4.54 W/kg

Pin=50mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 48.07 V/m; Power Drift = -0.23 dB
Peak SAR (extrapolated) = 5.56 W/kg
SAR(1 g) = 2.65 W/kg; SAR(10 g) = 1.23 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 4.51 W/kg



S41 System Check_H750_210309

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

Communication System: UID 0, CW; Frequency: 750 MHz; Duty Cycle: 1:1

Medium: H07T10N1_0309 Medium parameters used: $f = 750$ MHz; $\sigma = 0.889$ S/m; $\epsilon_r = 42.67$; $\rho = 1000$ kg/m³

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

DASY5 Configuration:

- Probe: EX3DV4 - SN3971; ConvF(10.45, 10.45, 10.45) @ 750 MHz; Calibrated: 2021/01/27
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1277; Calibrated: 2021/01/19
- Phantom: Twin SAM Phantom_1986; Type: QD 000 P40 CD
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Pin=50mW/Area Scan (61x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.579 W/kg

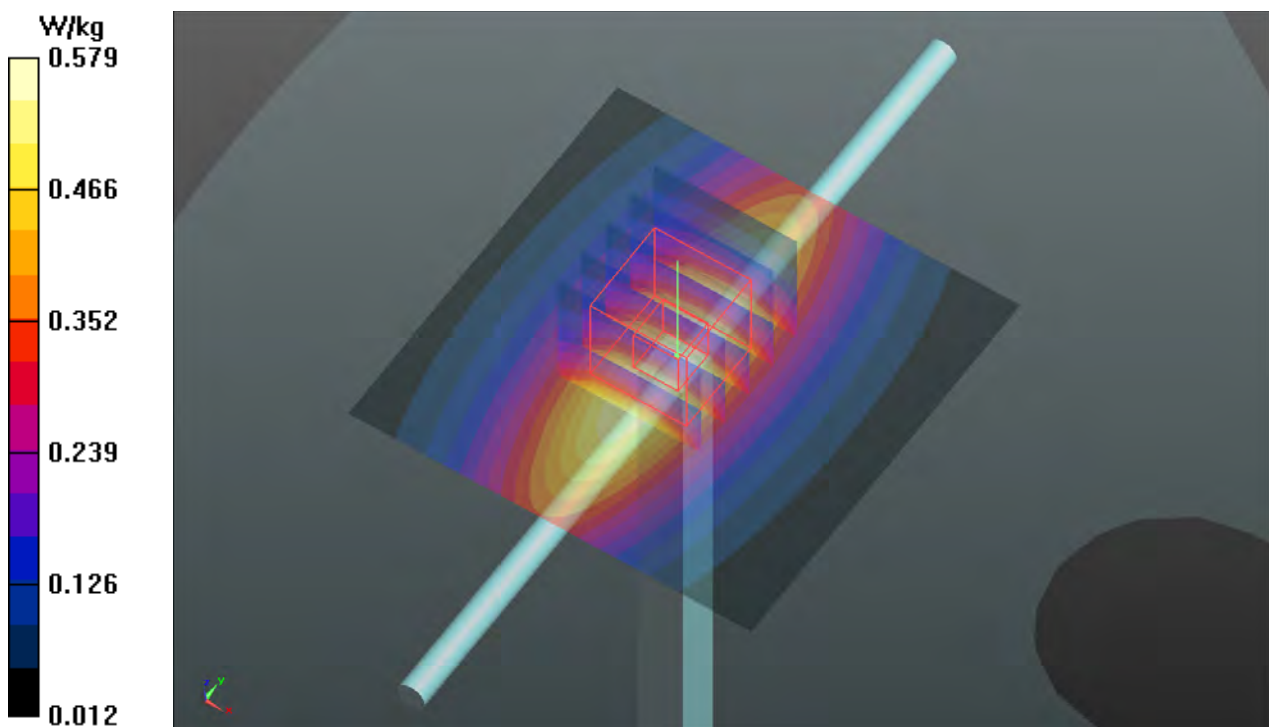
Pin=50mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 26.55 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 0.662 W/kg

SAR(1 g) = 0.434 W/kg; SAR(10 g) = 0.284 W/kg (SAR corrected for target medium)

Maximum value of SAR (measured) = 0.582 W/kg



S42 System Check_H750_210309

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

Communication System: UID 0, CW; Frequency: 750 MHz; Duty Cycle: 1:1

Medium: H07T10N1_0309 Medium parameters used: $f = 750$ MHz; $\sigma = 0.889$ S/m; $\epsilon_r = 42.67$; $\rho = 1000$ kg/m³

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

DASY5 Configuration:

- Probe: EX3DV4 - SN3971; ConvF(10.45, 10.45, 10.45) @ 750 MHz; Calibrated: 2021/01/27
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1277; Calibrated: 2021/01/19
- Phantom: Twin SAM Phantom_1986; Type: QD 000 P40 CD
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Pin=50mW/Area Scan (61x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.579 W/kg

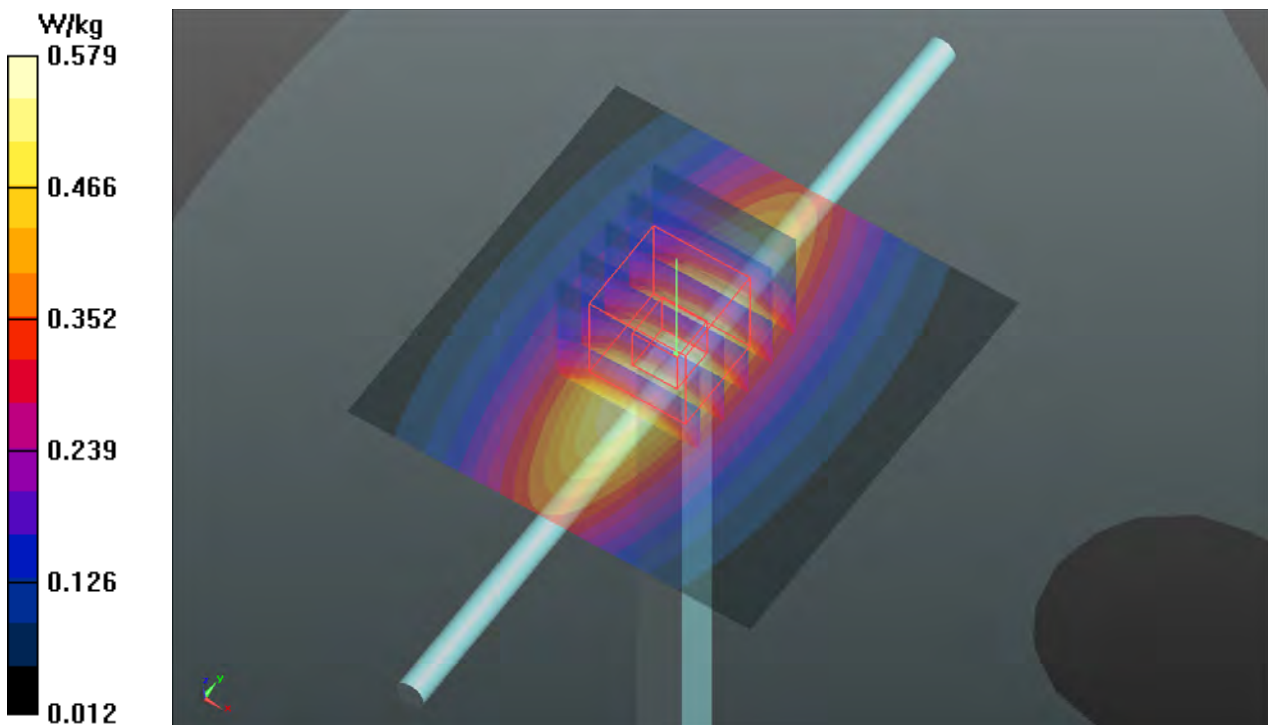
Pin=50mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 26.55 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 0.662 W/kg

SAR(1 g) = 0.434 W/kg; SAR(10 g) = 0.284 W/kg (SAR corrected for target medium)

Maximum value of SAR (measured) = 0.582 W/kg



S43 System Check_H750_210309

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

Communication System: UID 0, CW; Frequency: 750 MHz; Duty Cycle: 1:1

Medium: H07T10N1_0309 Medium parameters used: $f = 750$ MHz; $\sigma = 0.889$ S/m; $\epsilon_r = 42.67$; $\rho = 1000$ kg/m³

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

DASY5 Configuration:

- Probe: EX3DV4 - SN3887; ConvF(9.49, 9.49, 9.49) @ 750 MHz; Calibrated: 2020/10/22
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 2020/06/22
- Phantom: Twin SAM Phantom_1653; Type: QD000P40CD
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Pin=50mW/Area Scan (61x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.579 W/kg

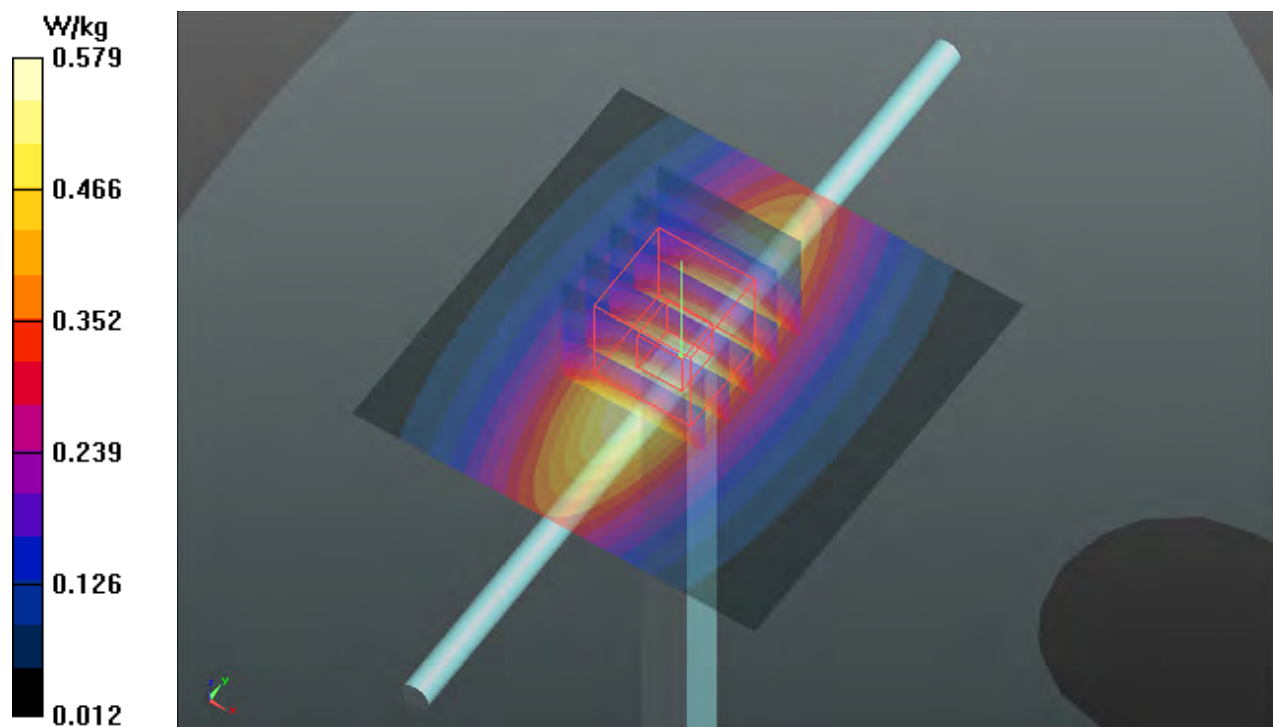
Pin=50mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 26.55 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 0.662 W/kg

SAR(1 g) = 0.434 W/kg; SAR(10 g) = 0.284 W/kg (SAR corrected for target medium)

Maximum value of SAR (measured) = 0.582 W/kg



S44 System Check_H1900_210309

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

Communication System: UID 0, CW; Frequency: 1900 MHz; Duty Cycle: 1:1

Medium: H16T20N1_0309 Medium parameters used: $f = 1900$ MHz; $\sigma = 1.459$ S/m; $\epsilon_r = 39.968$; $\rho = 1000$ kg/m³

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

DASY5 Configuration:

- Probe: EX3DV4 - SN3887; ConvF(7.98, 7.98, 7.98) @ 1900 MHz; Calibrated: 2020/10/22
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 2020/06/22
- Phantom: Twin SAM Phantom_1653; Type: QD000P40;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Pin=50mW/Area Scan (61x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 3.41 W/kg

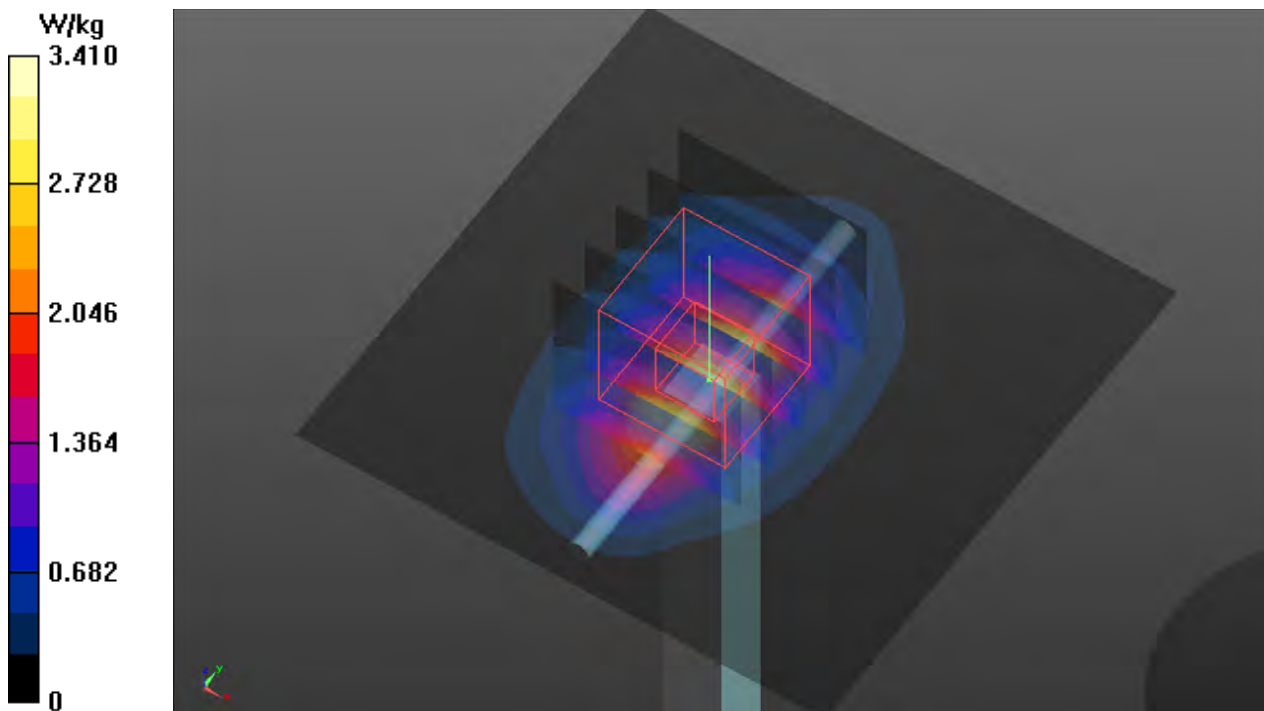
Pin=50mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 47.78 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 3.93 W/kg

SAR(1 g) = 2.09 W/kg; SAR(10 g) = 1.11 W/kg (SAR corrected for target medium)

Maximum value of SAR (measured) = 3.30 W/kg



S45 System Check_H2450_210312

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

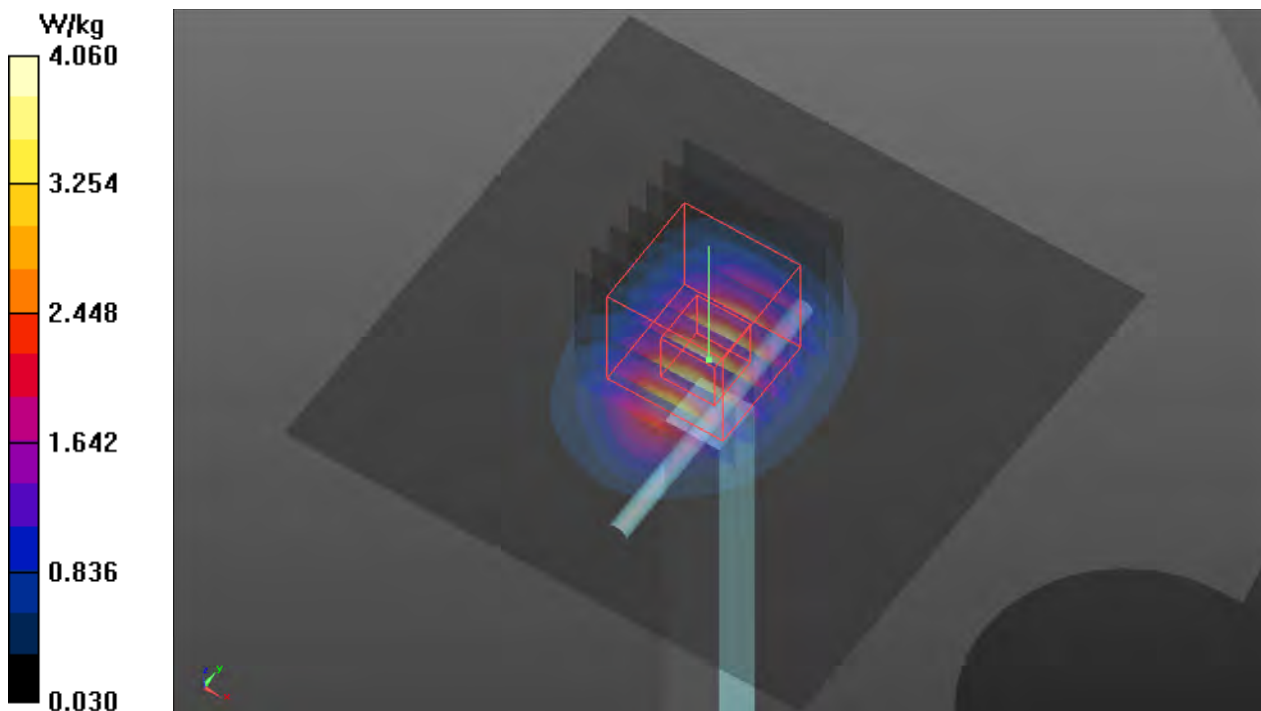
Communication System: UID 0, CW; Frequency: 2450 MHz; Duty Cycle: 1:1
Medium: H19T27N1_0312 Medium parameters used (interpolated): $f = 2450$ MHz; $\sigma = 1.886$ S/m;
 $\epsilon_r = 38.313$; $\rho = 1000$ kg/m³
Ambient Temperature : 23.6 °C ; Liquid Temperature : 23.3 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3971; ConvF(7.87, 7.87, 7.87) @ 2450 MHz; Calibrated: 2021/01/27
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1277; Calibrated: 2021/01/19
- Phantom: Twin SAM Phantom_1986; Type: QD 000 P40 CD;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Pin=50mW/Area Scan (81x81x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 4.00 W/kg

Pin=50mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 48.00 V/m; Power Drift = 0.12 dB
Peak SAR (extrapolated) = 4.96 W/kg
SAR(1 g) = 2.42 W/kg; SAR(10 g) = 1.17 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 4.06 W/kg



S46 System Check_H5250_210318

DUT: Dipole 5 GHz; Type: D5GHzV2; SN: 1145

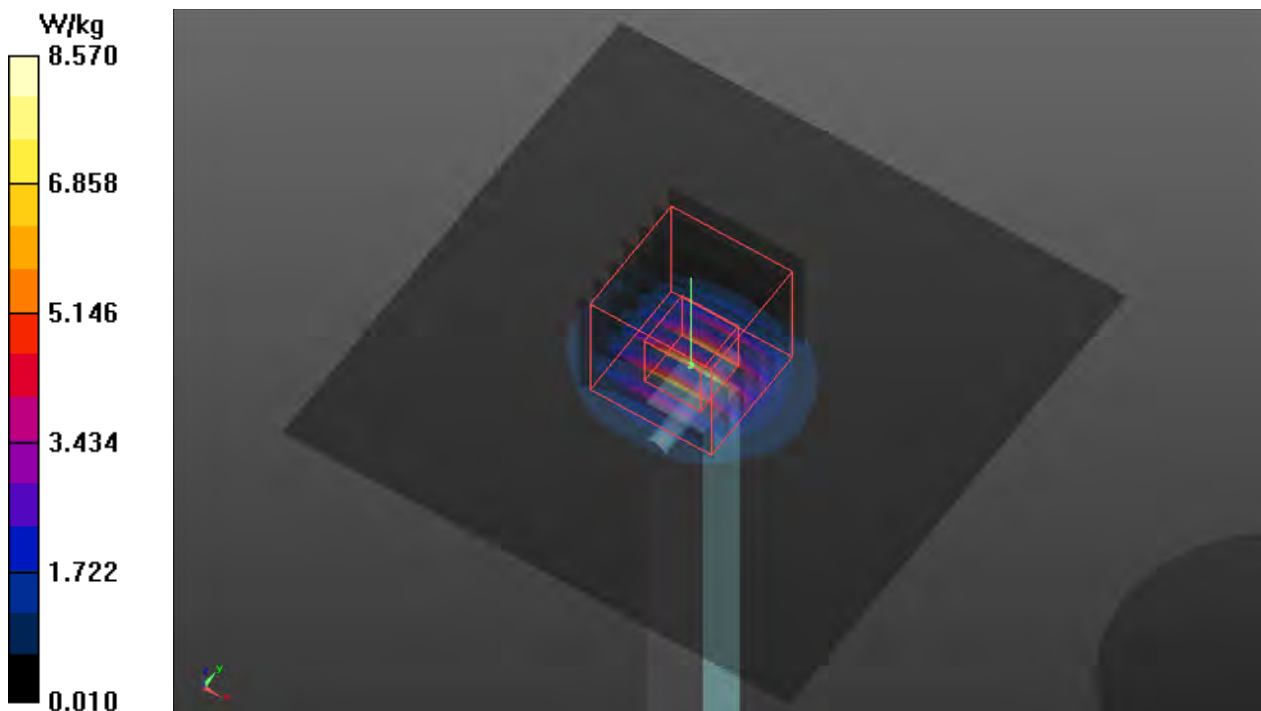
Communication System: UID 0, CW; Frequency: 5250 MHz; Duty Cycle: 1:1
Medium: H34T60N1_0318 Medium parameters used (interpolated): $f = 5250$ MHz; $\sigma = 4.564$ S/m;
 $\epsilon_r = 36.045$; $\rho = 1000$ kg/m³
Ambient Temperature : 23.6 °C ; Liquid Temperature : 23.4 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3971; ConvF(5.2, 5.2, 5.2) @ 5250 MHz; Calibrated: 2021/01/27
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1277; Calibrated: 2021/01/19
- Phantom: Twin SAM Phantom_1986; Type: QD 000 P40 CD;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Pin=50mW/Area Scan (91x91x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 8.57 W/kg

Pin=50mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 48.65 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 13.9 W/kg
SAR(1 g) = 3.74 W/kg; SAR(10 g) = 1.11 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 9.05 W/kg



S47 System Check_H5750_210318

DUT: Dipole 5 GHz; Type: D5GHzV2; SN: 1145

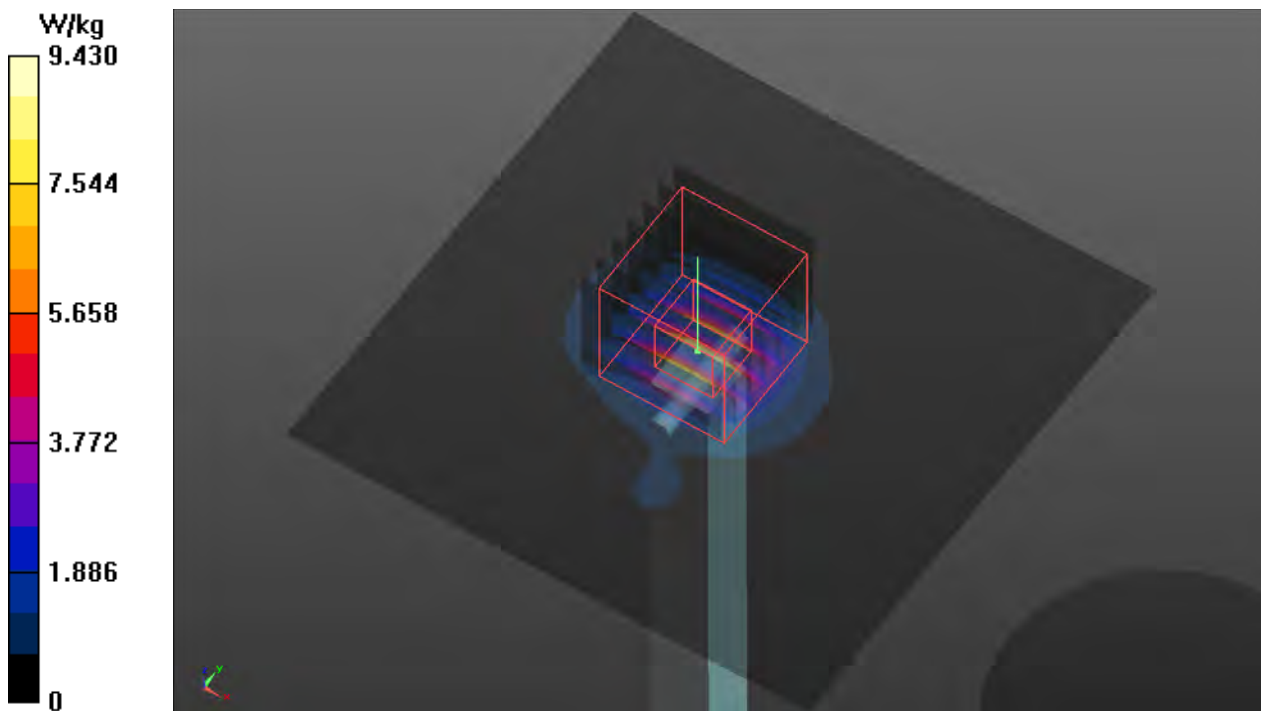
Communication System: UID 0, CW; Frequency: 5750 MHz; Duty Cycle: 1:1
Medium: H34T60N1_0318 Medium parameters used: $f = 5750$ MHz; $\sigma = 5.037$ S/m; $\epsilon_r = 35.37$; $\rho = 1000$ kg/m³
Ambient Temperature : 23.6 °C ; Liquid Temperature : 23.4 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3971; ConvF(4.95, 4.95, 4.95) @ 5750 MHz; Calibrated: 2021/01/27
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1277; Calibrated: 2021/01/19
- Phantom: Twin SAM Phantom_1986; Type: QD 000 P40 CD;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Pin=50mW/Area Scan (91x91x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 9.43 W/kg

Pin=50mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 45.52 V/m; Power Drift = 0.15 dB
Peak SAR (extrapolated) = 16.9 W/kg
SAR(1 g) = 3.99 W/kg; SAR(10 g) = 1.25 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 10.2 W/kg



S48 System Check_H5250_210318

DUT: Dipole 5 GHz; Type: D5GHzV2; SN: 1145

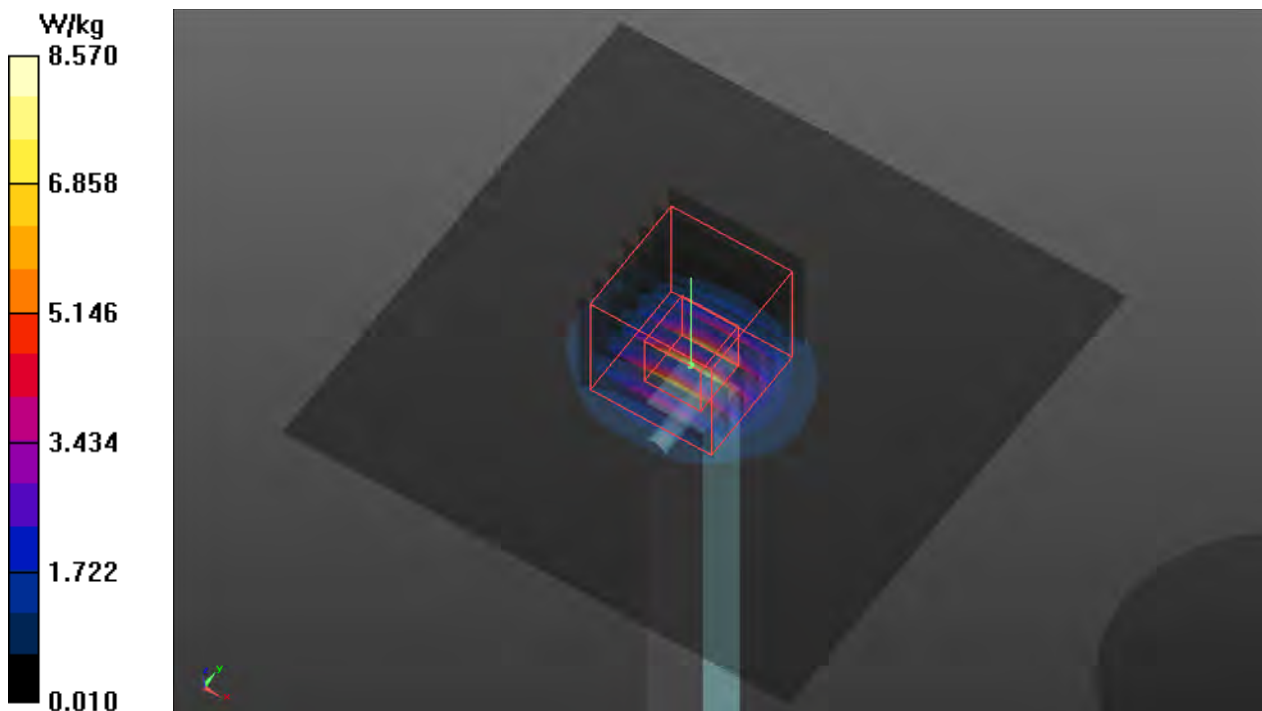
Communication System: UID 0, CW; Frequency: 5250 MHz; Duty Cycle: 1:1
Medium: H34T60N1_0318 Medium parameters used (interpolated): $f = 5250$ MHz; $\sigma = 4.564$ S/m;
 $\epsilon_r = 36.045$; $\rho = 1000$ kg/m³
Ambient Temperature : 23.6 °C ; Liquid Temperature : 23.4 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3971; ConvF(5.2, 5.2, 5.2) @ 5250 MHz; Calibrated: 2021/01/27
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1277; Calibrated: 2021/01/19
- Phantom: Twin SAM Phantom_1986; Type: QD 000 P40 CD;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Pin=50mW/Area Scan (91x91x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 8.57 W/kg

Pin=50mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 48.65 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 13.9 W/kg
SAR(1 g) = 3.74 W/kg; SAR(10 g) = 1.11 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 9.05 W/kg



S49 System Check_H5600_210319

DUT: Dipole 5 GHz; Type: D5GHzV2; SN: 1145

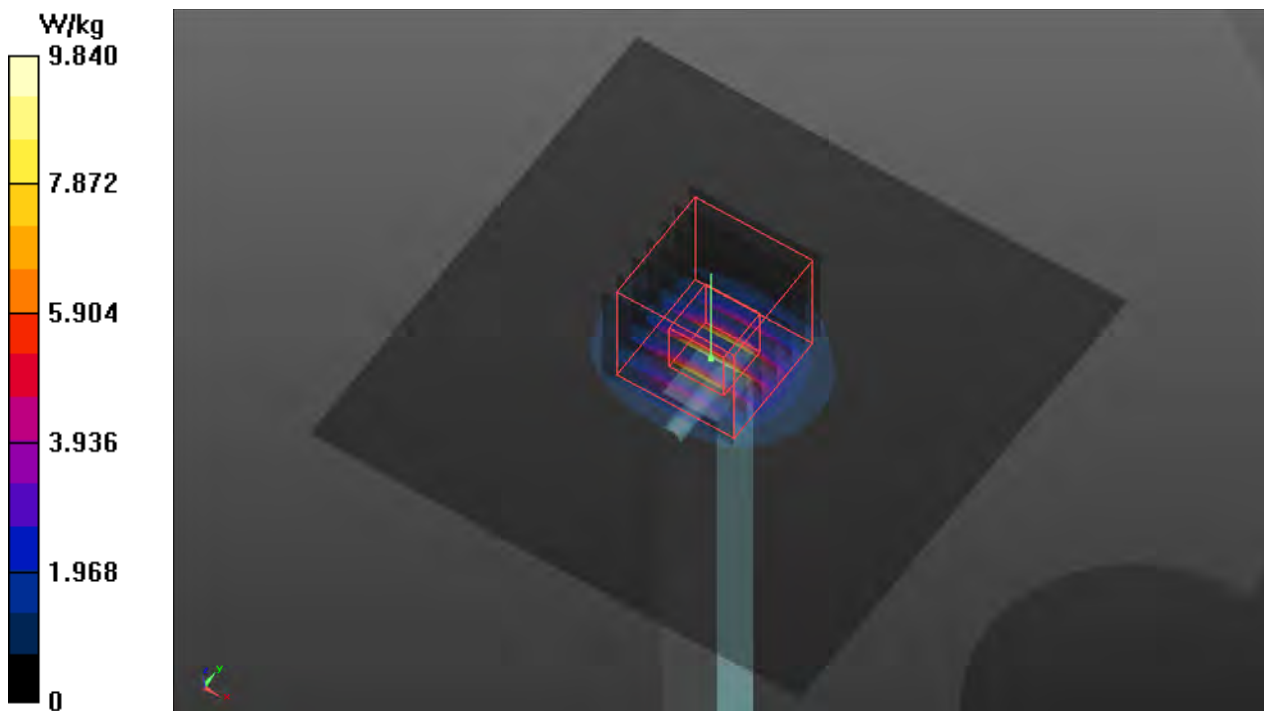
Communication System: UID 0, CW; Frequency: 5600 MHz; Duty Cycle: 1:1
Medium: H34T60N1_0319 Medium parameters used: $f = 5600$ MHz; $\sigma = 5.21$ S/m; $\epsilon_r = 36.221$; $\rho = 1000$ kg/m³
Ambient Temperature : 23.7 °C ; Liquid Temperature : 23.3 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3971; ConvF(4.9, 4.9, 4.9) @ 5600 MHz; Calibrated: 2021/01/27
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1277; Calibrated: 2021/01/19
- Phantom: Twin SAM Phantom_1986; Type: QD 000 P40 CD;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Pin=50mW/Area Scan (91x91x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 9.84 W/kg

Pin=50mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 47.84 V/m; Power Drift = 0.11 dB
Peak SAR (extrapolated) = 17.6 W/kg
SAR(1 g) = 4.04 W/kg; SAR(10 g) = 1.15 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 10.4 W/kg



S50 System Check_H2450_210401

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

Communication System: UID 0, CW; Frequency: 2450 MHz; Duty Cycle: 1:1

Medium: H19T27N1_0401 Medium parameters used (interpolated): $f = 2450$ MHz; $\sigma = 1.864$ S/m;

$\epsilon_r = 38.07$; $\rho = 1000$ kg/m³

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

DASY5 Configuration:

- Probe: EX3DV4 - SN7554; ConvF(7.41, 7.41, 7.41) @ 2450 MHz; Calibrated: 2020/09/28
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1590; Calibrated: 2020/09/15
- Phantom: SAM Phantom_1985; Type: QD 000 P41 AA;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Pin=50mW/Area Scan (81x81x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm

Maximum value of SAR (interpolated) = 2.15 W/kg

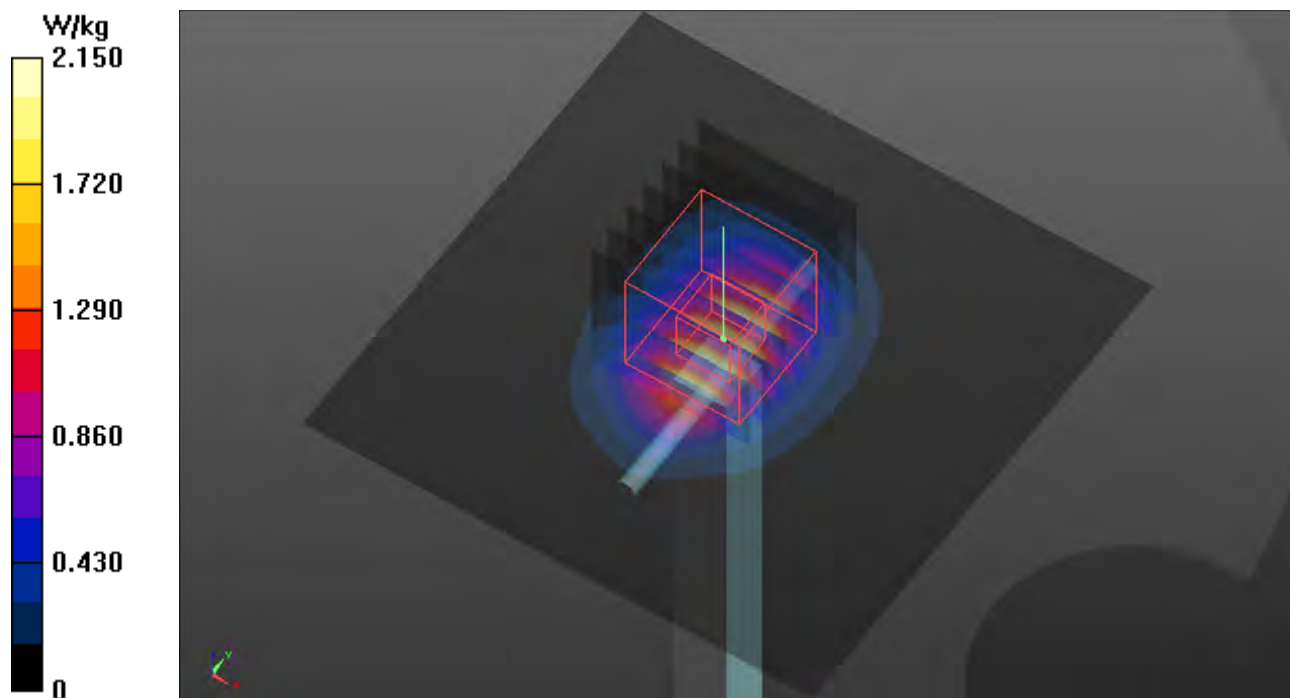
Pin=50mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 34.72 V/m; Power Drift = 0.10 dB

Peak SAR (extrapolated) = 2.65 W/kg

SAR(1 g) = 2.47 W/kg; SAR(10 g) = 1.16 W/kg (SAR corrected for target medium)

Maximum value of SAR (measured) = 2.15 W/kg



S51 System Check_H2450_210401

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

Communication System: UID 0, CW; Frequency: 2450 MHz; Duty Cycle: 1:1

Medium: H19T27N1_0401 Medium parameters used (interpolated): $f = 2450$ MHz; $\sigma = 1.864$ S/m;

$\epsilon_r = 38.07$; $\rho = 1000$ kg/m³

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

DASY5 Configuration:

- Probe: EX3DV4 - SN7554; ConvF(7.41, 7.41, 7.41) @ 2450 MHz; Calibrated: 2020/09/28
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1590; Calibrated: 2020/09/15
- Phantom: SAM Phantom_1985; Type: QD 000 P41 AA;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Pin=50mW/Area Scan (81x81x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm

Maximum value of SAR (interpolated) = 2.15 W/kg

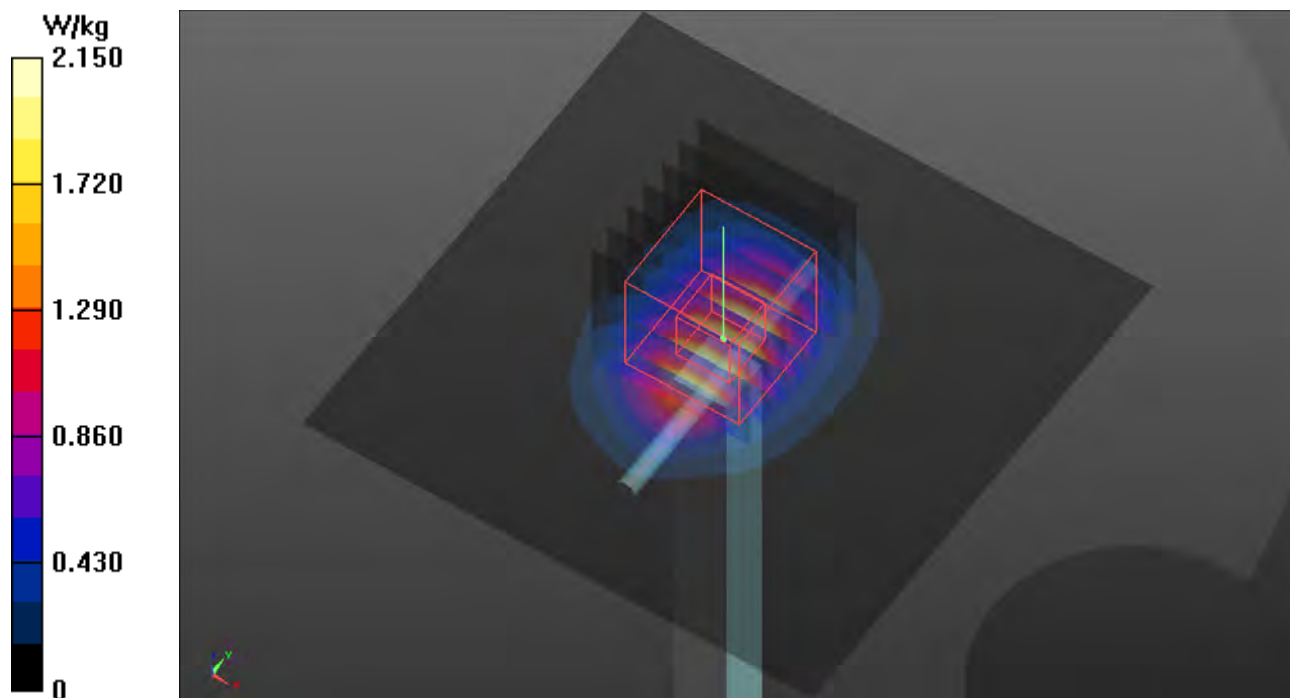
Pin=50mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 34.72 V/m; Power Drift = 0.10 dB

Peak SAR (extrapolated) = 2.65 W/kg

SAR(1 g) = 2.47 W/kg; SAR(10 g) = 1.16 W/kg (SAR corrected for target medium)

Maximum value of SAR (measured) = 2.15 W/kg



S52 System Check_H2450_210401

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

Communication System: UID 0, CW; Frequency: 2450 MHz; Duty Cycle: 1:1

Medium: H19T27N1_0401 Medium parameters used (interpolated): $f = 2450$ MHz; $\sigma = 1.864$ S/m;

$\epsilon_r = 38.07$; $\rho = 1000$ kg/m³

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

DASY5 Configuration:

- Probe: EX3DV4 - SN7554; ConvF(7.41, 7.41, 7.41) @ 2450 MHz; Calibrated: 2020/09/28
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1590; Calibrated: 2020/09/15
- Phantom: SAM Phantom_1985; Type: QD 000 P41 AA;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Pin=50mW/Area Scan (81x81x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm

Maximum value of SAR (interpolated) = 2.15 W/kg

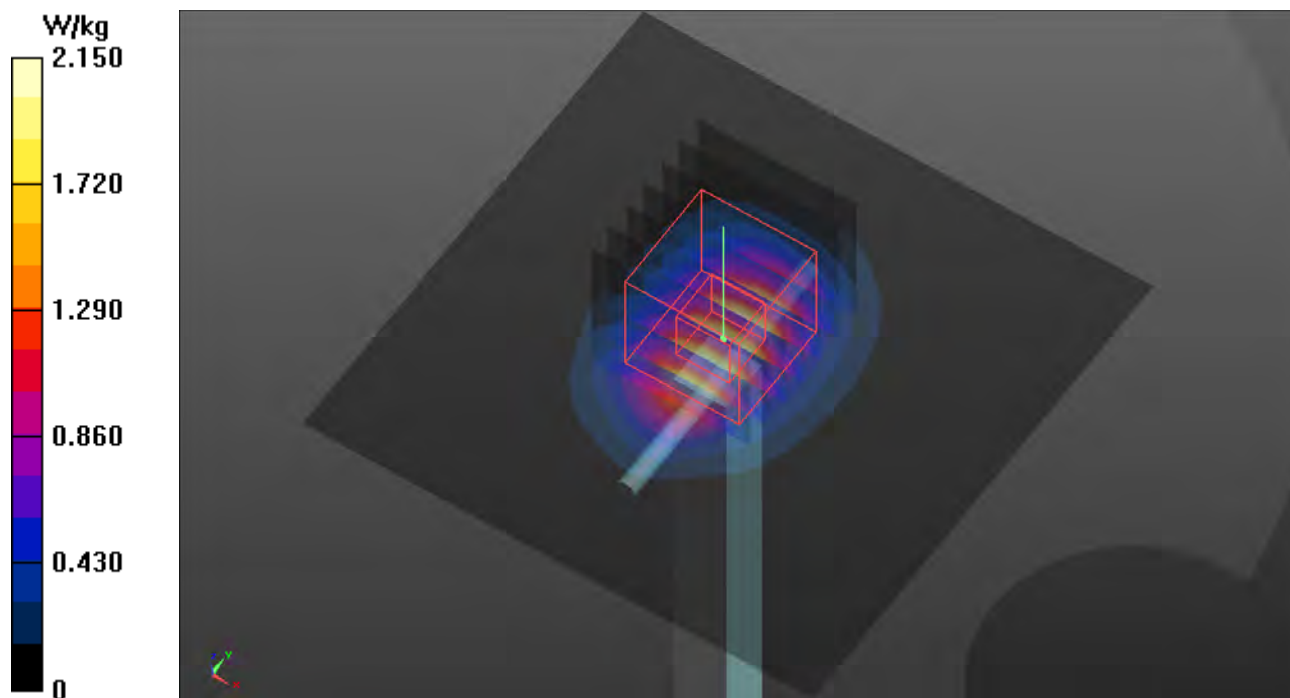
Pin=50mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 34.72 V/m; Power Drift = 0.10 dB

Peak SAR (extrapolated) = 2.65 W/kg

SAR(1 g) = 2.47 W/kg; SAR(10 g) = 1.16 W/kg (SAR corrected for target medium)

Maximum value of SAR (measured) = 2.15 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_Right Cheek_0mm_Ch189_Battery3

DUT: 210204C02

Communication System: UID 10028 - DAC, GPRS-FDD (TDMA, GMSK, TN 0-1-2-3); Frequency: 836.4 MHz; Duty Cycle: 1:2.27

Medium: H07T10N1_0318 Medium parameters used (interpolated): $f = 836.4$ MHz; $\sigma = 0.923$ S/m; $\epsilon_r = 41.381$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.6 °C ; Liquid Temperature : 23.4 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3971; ConvF(10.17, 10.17, 10.17) @ 836.4 MHz; Calibrated: 2021/01/27
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1277; Calibrated: 2021/01/19
- Phantom: Twin SAM Phantom_1986; Type: QD 000 P40 CD;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Area Scan (81x141x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.473 W/kg

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

Reference Value = 23.97 V/m; Power Drift = -0.06 dB

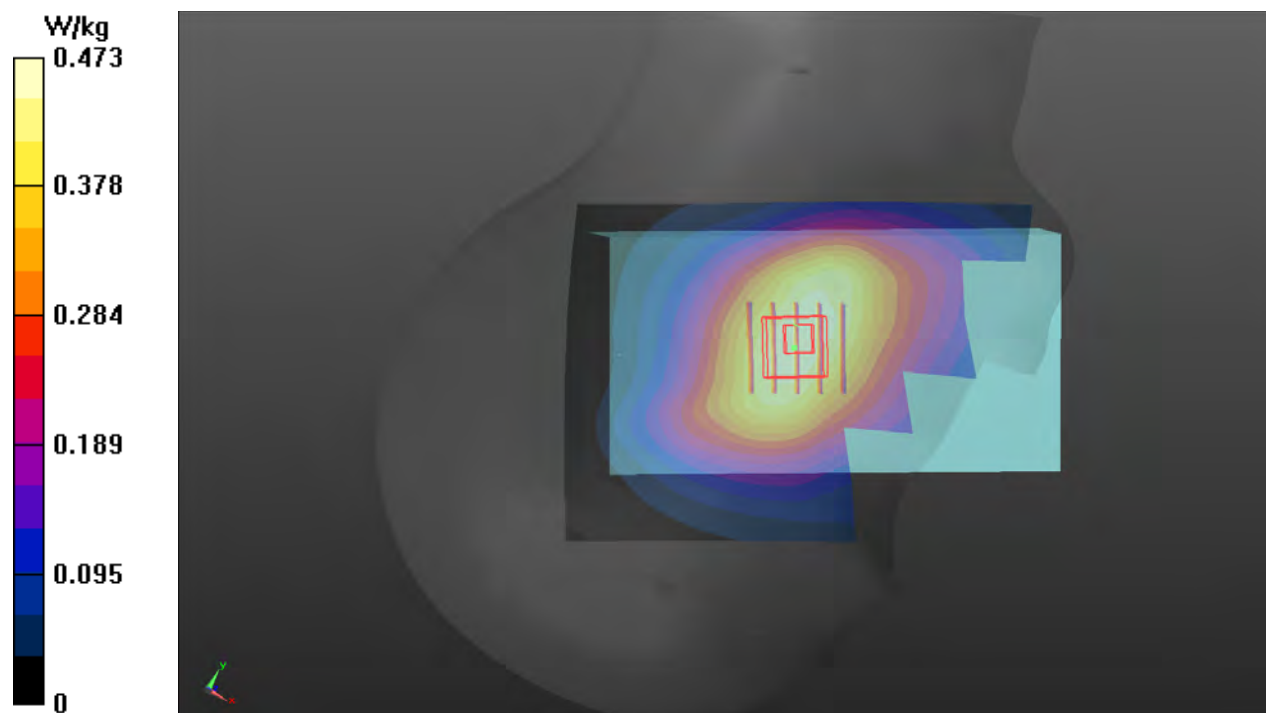
Peak SAR (extrapolated) = 0.519 W/kg

SAR(1 g) = 0.418 W/kg; SAR(10 g) = 0.341 W/kg (SAR corrected for target medium)

Smallest distance from peaks to all points 3 dB below: Larger than measurement grid

Ratio of SAR at M2 to SAR at M1 = 81.6%

Maximum value of SAR (measured) = 0.484 W/kg



P02 GSM1900_GPRS11_Right Cheek_0mm_Ch810_Battery3

DUT: 210204C02

Communication System: UID 10027 - DAC, GPRS-FDD (TDMA, GMSK, TN 0-1-2); Frequency: 1909.8 MHz; Duty Cycle: 1:3.02

Medium: H16T20N1_0318 Medium parameters used: $f = 1910$ MHz; $\sigma = 1.466$ S/m; $\epsilon_r = 38.501$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.6 °C ; Liquid Temperature : 23.4 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3971; ConvF(8.35, 8.35, 8.35) @ 1909.8 MHz; Calibrated: 2021/01/27
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1277; Calibrated: 2021/01/19
- Phantom: Twin SAM Phantom_1986; Type: QD 000 P40 CD;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Area Scan (81x141x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.920 W/kg

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

Reference Value = 23.94 V/m; Power Drift = -0.05 dB

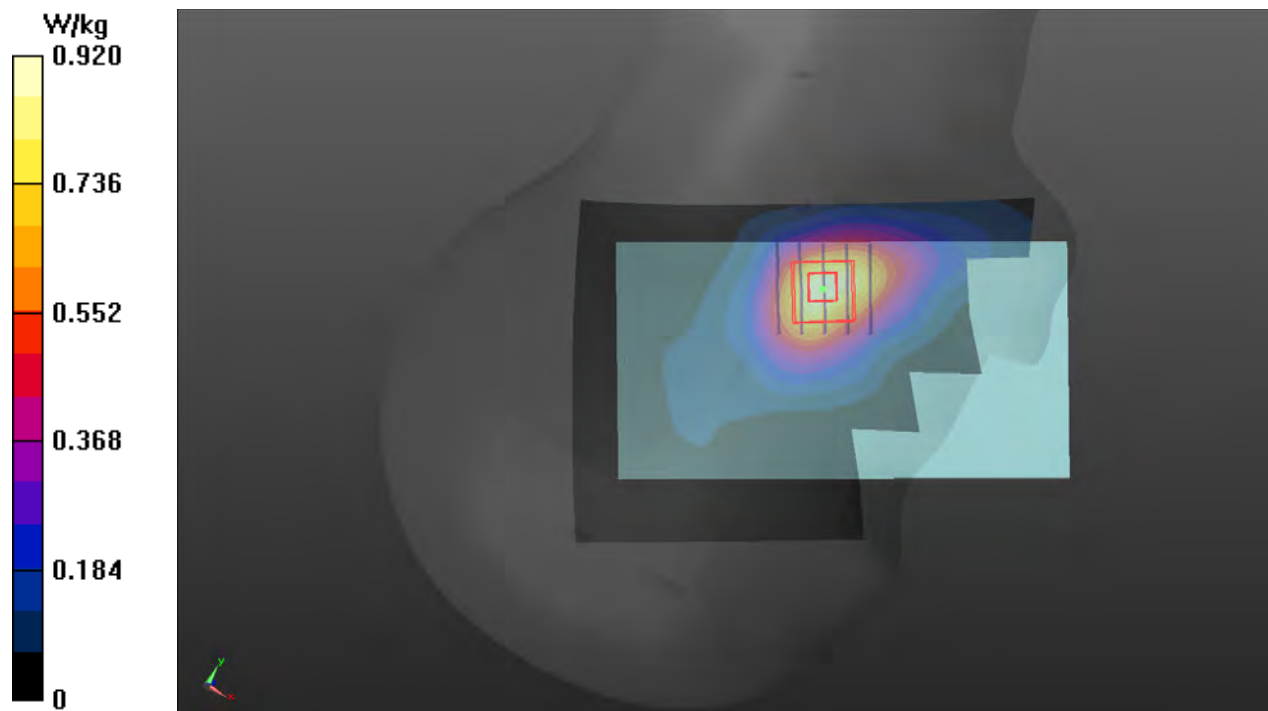
Peak SAR (extrapolated) = 1.02 W/kg

SAR(1 g) = 0.543 W/kg; SAR(10 g) = 0.320 W/kg (SAR corrected for target medium)

Smallest distance from peaks to all points 3 dB below = 11.7 mm

Ratio of SAR at M2 to SAR at M1 = 69.4%

Maximum value of SAR (measured) = 0.874 W/kg



P03 WCDMA II_RMC12.2K_Right Cheek_0mm_Ch9538_Battery3

DUT: 210204C02

Communication System: UID 10011 - CAB, UMTS-FDD (WCDMA); Frequency: 1907.6 MHz; Duty Cycle: 1:1.95

Medium: H16T20N1_0318 Medium parameters used: $f = 1908$ MHz; $\sigma = 1.465$ S/m; $\epsilon_r = 38.506$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.6 °C ; Liquid Temperature : 23.4 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3971; ConvF(8.35, 8.35, 8.35) @ 1907.6 MHz; Calibrated: 2021/01/27
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1277; Calibrated: 2021/01/19
- Phantom: Twin SAM Phantom_1986; Type: QD 000 P40 CD;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Area Scan (81x141x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

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

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

Reference Value = 23.19 V/m; Power Drift = -0.05 dB

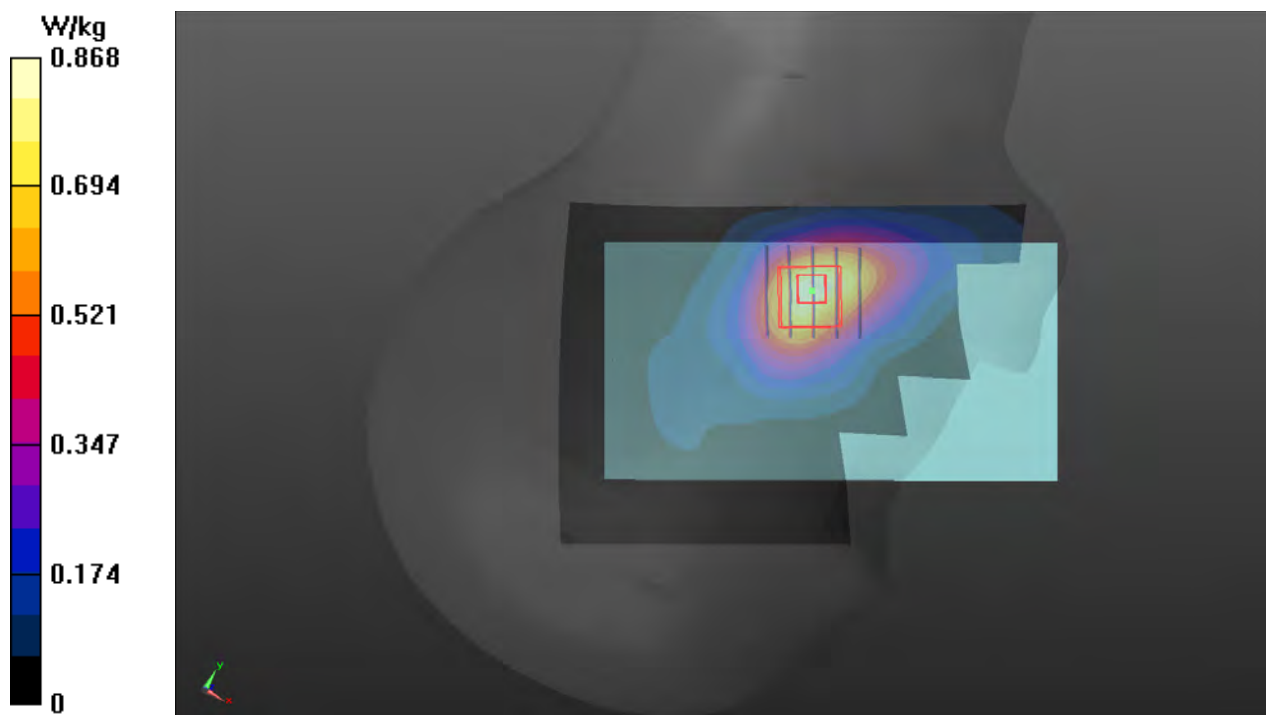
Peak SAR (extrapolated) = 0.947 W/kg

SAR(1 g) = 0.601 W/kg; SAR(10 g) = 0.396 W/kg (SAR corrected for target medium)

Smallest distance from peaks to all points 3 dB below = 11.7 mm

Ratio of SAR at M2 to SAR at M1 = 69.6%

Maximum value of SAR (measured) = 0.812 W/kg



P04 WCDMA V_RMC12.2K_Right Cheek_0mm_Ch4233_Battery3

DUT: 210204C02

Communication System: UID 10011 - CAB, UMTS-FDD (WCDMA); Frequency: 846.6 MHz; Duty Cycle: 1:1.95

Medium: H07T10N1_0318 Medium parameters used: $f = 847$ MHz; $\sigma = 0.933$ S/m; $\epsilon_r = 41.26$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.6 °C ; Liquid Temperature : 23.4 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3971; ConvF(10.17, 10.17, 10.17) @ 846.6 MHz; Calibrated: 2021/01/27
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1277; Calibrated: 2021/01/19
- Phantom: Twin SAM Phantom_1986; Type: QD 000 P40 CD;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Area Scan (81x141x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.343 W/kg

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

Reference Value = 20.41 V/m; Power Drift = -0.05 dB

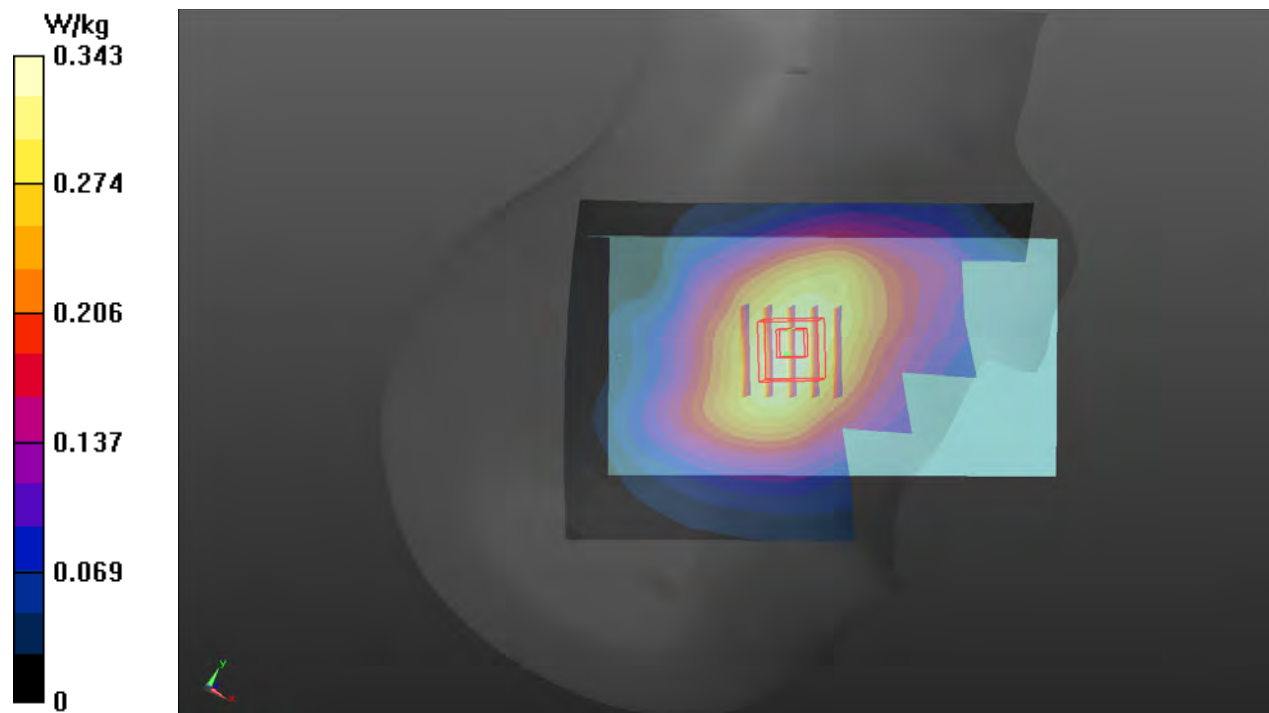
Peak SAR (extrapolated) = 0.376 W/kg

SAR(1 g) = 0.303 W/kg; SAR(10 g) = 0.247 W/kg (SAR corrected for target medium)

Smallest distance from peaks to all points 3 dB below: Larger than measurement grid

Ratio of SAR at M2 to SAR at M1 = 82.2%

Maximum value of SAR (measured) = 0.351 W/kg



P05 LTE 2_QPSK20M_Right Cheek_0mm_Ch19100_1RB_OS0_Battery3

DUT: 210204C02

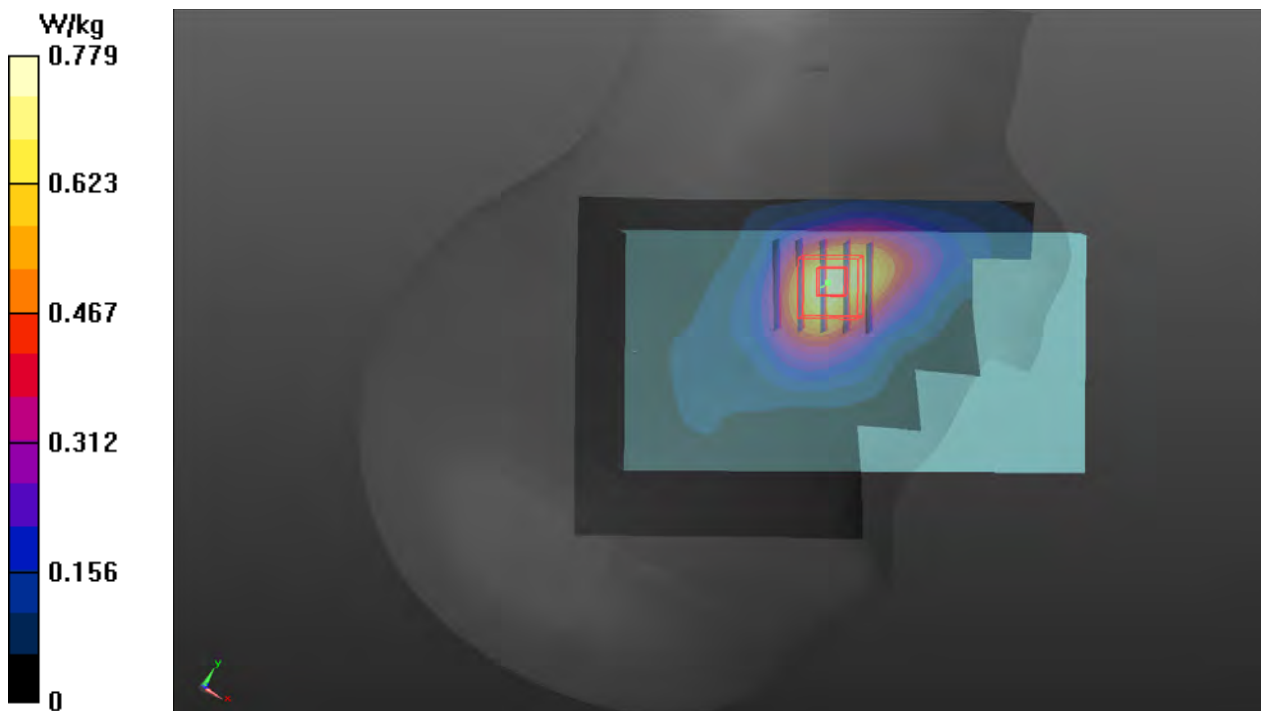
Communication System: UID 10169 - CAE, LTE-FDD (SC-FDMA, 1 RB, 20 MHz, QPSK);
Frequency: 1900 MHz; Duty Cycle: 1:3.74
Medium: H16T20N1_0318 Medium parameters used: $f = 1900$ MHz; $\sigma = 1.458$ S/m; $\epsilon_r = 38.53$; $\rho = 1000$ kg/m³
Ambient Temperature : 23.6 °C ; Liquid Temperature : 23.4 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3971; ConvF(8.35, 8.35, 8.35) @ 1900 MHz; Calibrated: 2021/01/27
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1277; Calibrated: 2021/01/19
- Phantom: Twin SAM Phantom_1986; Type: QD 000 P40 CD;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Area Scan (81x141x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.779 W/kg

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 21.91 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 0.848 W/kg
SAR(1 g) = 0.542 W/kg; SAR(10 g) = 0.357 W/kg (SAR corrected for target medium)
Smallest distance from peaks to all points 3 dB below = 12 mm
Ratio of SAR at M2 to SAR at M1 = 70.3%
Maximum value of SAR (measured) = 0.721 W/kg



P06 LTE 4_QPSK20M_Right Cheek_0mm_Ch20300_1RB_OS0_Battery3

DUT: 210204C02

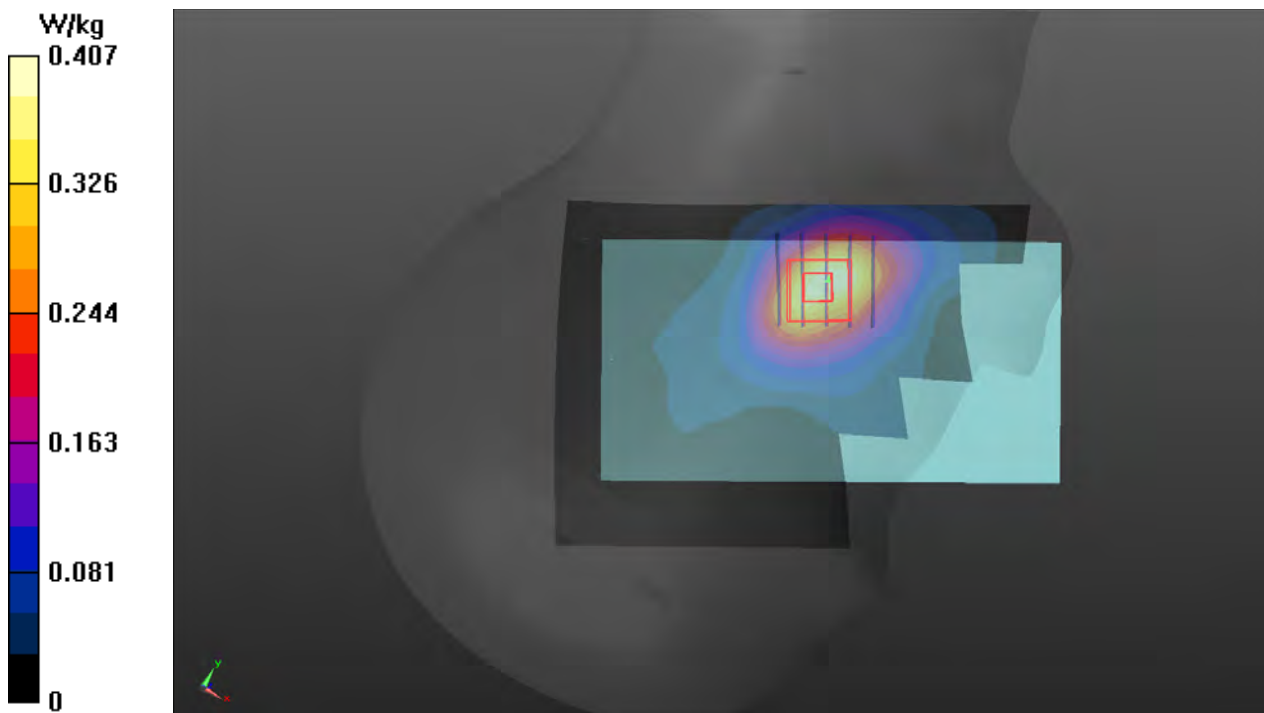
Communication System: UID 10169 - CAE, LTE-FDD (SC-FDMA, 1 RB, 20 MHz, QPSK);
Frequency: 1745 MHz; Duty Cycle: 1:3.74
Medium: H16T20N1_0318 Medium parameters used (interpolated): $f = 1745$ MHz; $\sigma = 1.325$ S/m;
 $\epsilon_r = 39.118$; $\rho = 1000$ kg/m³
Ambient Temperature : 23.6 °C ; Liquid Temperature : 23.4 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3971; ConvF(8.64, 8.64, 8.64) @ 1745 MHz; Calibrated: 2021/01/27
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1277; Calibrated: 2021/01/19
- Phantom: Twin SAM Phantom_1986; Type: QD 000 P40 CD;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Area Scan (81x141x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.407 W/kg

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 17.77 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 0.452 W/kg
SAR(1 g) = 0.309 W/kg; SAR(10 g) = 0.209 W/kg (SAR corrected for target medium)
Smallest distance from peaks to all points 3 dB below = 13.7 mm
Ratio of SAR at M2 to SAR at M1 = 70%
Maximum value of SAR (measured) = 0.403 W/kg



P07 LTE 5_QPSK10M_Right Cheek_0mm_Ch20600_1RB_OS0_Battery3

DUT: 210204C02

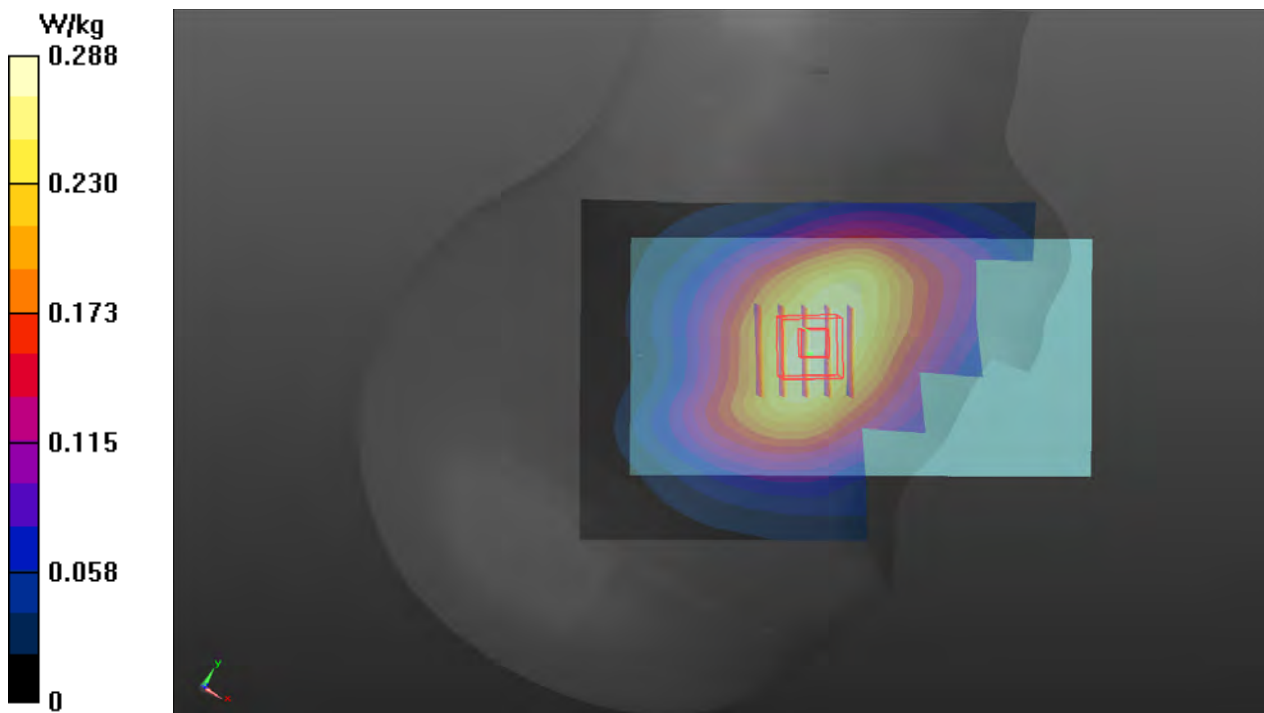
Communication System: UID 10175 - CAG, LTE-FDD (SC-FDMA, 1 RB, 10 MHz, QPSK);
Frequency: 844 MHz; Duty Cycle: 1:3.74
Medium: H07T10N1_0318 Medium parameters used: $f = 844$ MHz; $\sigma = 0.93$ S/m; $\epsilon_r = 41.294$; $\rho = 1000$ kg/m³
Ambient Temperature : 23.6 °C ; Liquid Temperature : 23.4 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3971; ConvF(10.17, 10.17, 10.17) @ 844 MHz; Calibrated: 2021/01/27
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1277; Calibrated: 2021/01/19
- Phantom: Twin SAM Phantom_1986; Type: QD 000 P40 CD;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Area Scan (81x141x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.288 W/kg

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 18.76 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 0.316 W/kg
SAR(1 g) = 0.255 W/kg; SAR(10 g) = 0.208 W/kg (SAR corrected for target medium)
Smallest distance from peaks to all points 3 dB below: Larger than measurement grid
Ratio of SAR at M2 to SAR at M1 = 82.1%
Maximum value of SAR (measured) = 0.295 W/kg



P08 LTE 7_QPSK20M_Right Cheek_0mm_Ch21350_1RB_OS0_Battery3

DUT: 210204C02

Communication System: UID 10169 - CAE, LTE-FDD (SC-FDMA, 1 RB, 20 MHz, QPSK);

Frequency: 2560 MHz; Duty Cycle: 1:3.74

Medium: H19T27N1_0318 Medium parameters used: $f = 2560$ MHz; $\sigma = 1.983$ S/m; $\epsilon_r = 38.624$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.6 °C ; Liquid Temperature : 23.4 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3971; ConvF(7.72, 7.72, 7.72) @ 2560 MHz; Calibrated: 2021/01/27

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

- Electronics: DAE4 Sn1277; Calibrated: 2021/01/19

- Phantom: Twin SAM Phantom_1986; Type: QD 000 P40 CD;

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

Area Scan (101x171x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm

Maximum value of SAR (interpolated) = 0.219 W/kg

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

Reference Value = 10.50 V/m; Power Drift = -0.07 dB

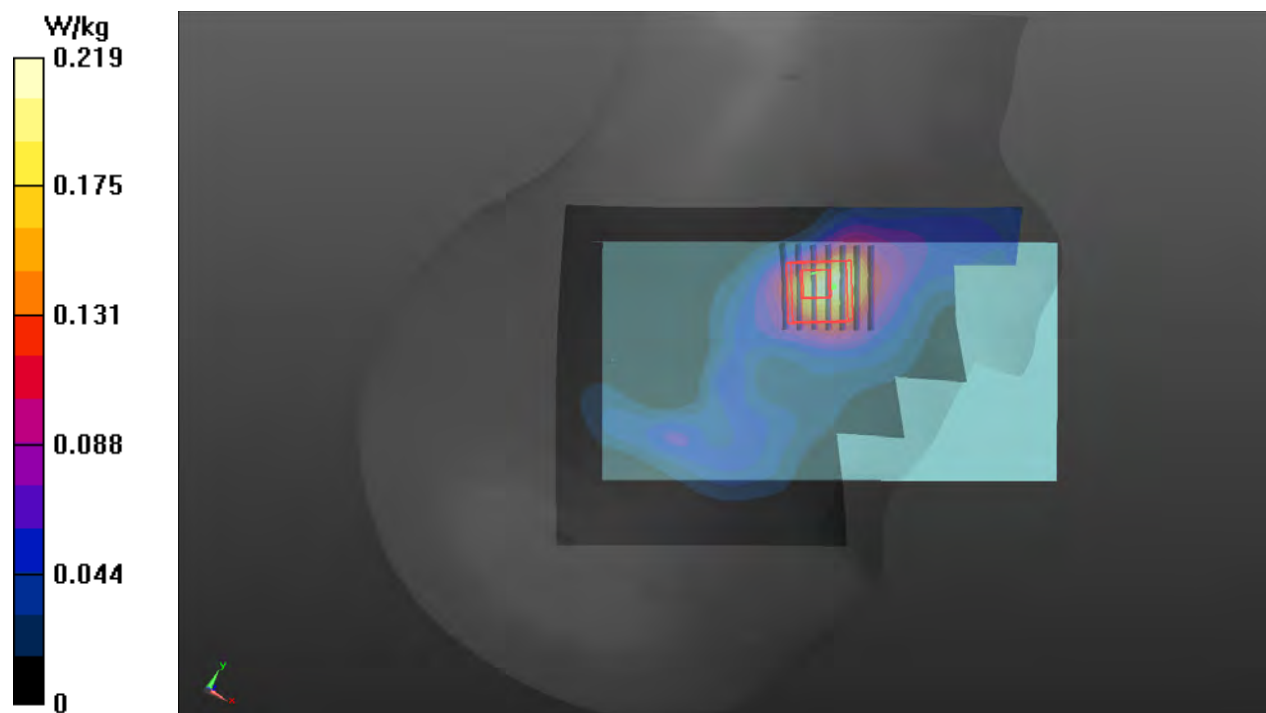
Peak SAR (extrapolated) = 0.274 W/kg

SAR(1 g) = 0.150 W/kg; SAR(10 g) = 0.084 W/kg (SAR corrected for target medium)

Smallest distance from peaks to all points 3 dB below = 9.2 mm

Ratio of SAR at M2 to SAR at M1 = 54.6%

Maximum value of SAR (measured) = 0.222 W/kg



P09 LTE 12_QPSK10M_Right Cheek_0mm_Ch23130_1RB_OS0_Battery3

DUT: 210204C02

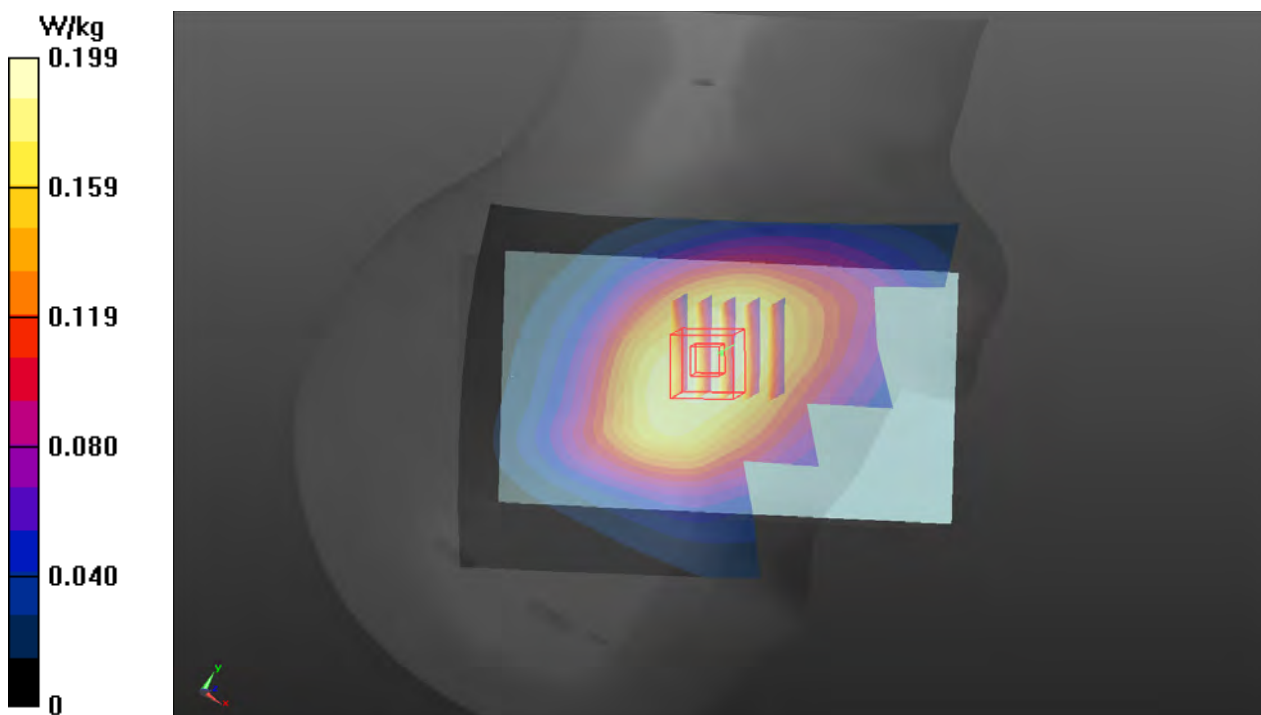
Communication System: UID 10175 - CAG, LTE-FDD (SC-FDMA, 1 RB, 10 MHz, QPSK);
Frequency: 711 MHz; Duty Cycle: 1:3.74
Medium: H06T09N1_0318 Medium parameters used: $f = 711$ MHz; $\sigma = 0.858$ S/m; $\epsilon_r = 43.936$; $\rho = 1000$ kg/m³
Ambient Temperature : 23.6 °C ; Liquid Temperature : 23.4 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3971; ConvF(10.45, 10.45, 10.45) @ 711 MHz; Calibrated: 2021/01/27
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1277; Calibrated: 2021/01/19
- Phantom: Twin SAM Phantom_1986; Type: QD 000 P40 CD;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Area Scan (81x141x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.199 W/kg

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 16.10 V/m; Power Drift = -0.06 dB
Peak SAR (extrapolated) = 0.216 W/kg
SAR(1 g) = 0.197 W/kg; SAR(10 g) = 0.164 W/kg (SAR corrected for target medium)
Smallest distance from peaks to all points 3 dB below: Larger than measurement grid
Ratio of SAR at M2 to SAR at M1 = 85.2%
Maximum value of SAR (measured) = 0.203 W/kg



P10 LTE 13_QPSK10M_Right Cheek_0mm_Ch23230_1RB_OS0_Battery3

DUT: 210204C02

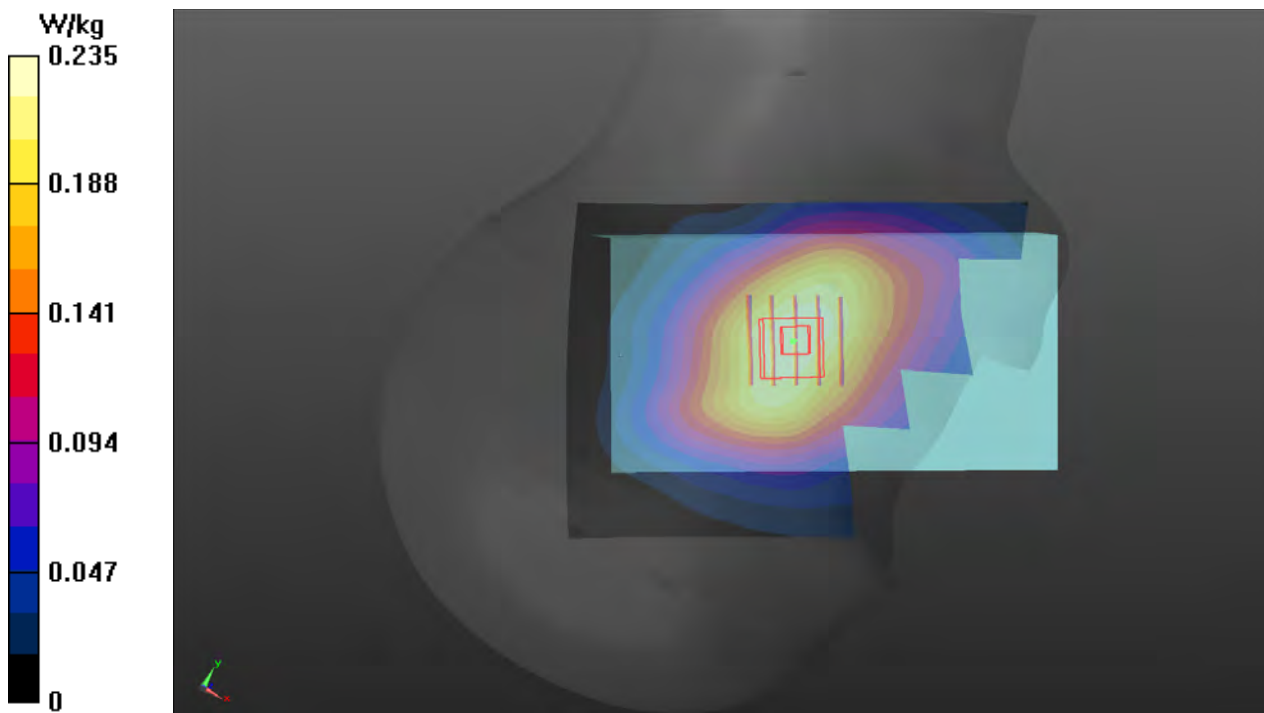
Communication System: UID 10175 - CAG, LTE-FDD (SC-FDMA, 1 RB, 10 MHz, QPSK);
Frequency: 782 MHz; Duty Cycle: 1:3.74
Medium: H06T09N1_0318 Medium parameters used: $f = 782$ MHz; $\sigma = 0.923$ S/m; $\epsilon_r = 43.039$; $\rho = 1000$ kg/m³
Ambient Temperature : 23.6 °C ; Liquid Temperature : 23.4 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3971; ConvF(10.45, 10.45, 10.45) @ 782 MHz; Calibrated: 2021/01/27
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1277; Calibrated: 2021/01/19
- Phantom: Twin SAM Phantom_1986; Type: QD 000 P40 CD;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Area Scan (81x141x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.235 W/kg

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 17.03 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 0.250 W/kg
SAR(1 g) = 0.206 W/kg; SAR(10 g) = 0.171 W/kg (SAR corrected for target medium)
Smallest distance from peaks to all points 3 dB below: Larger than measurement grid
Ratio of SAR at M2 to SAR at M1 = 85.2%
Maximum value of SAR (measured) = 0.238 W/kg



P11 LTE 17_QPSK10M_Right Cheek_0mm_Ch23780_1RB_OS0_Battery3

DUT: 210204C02

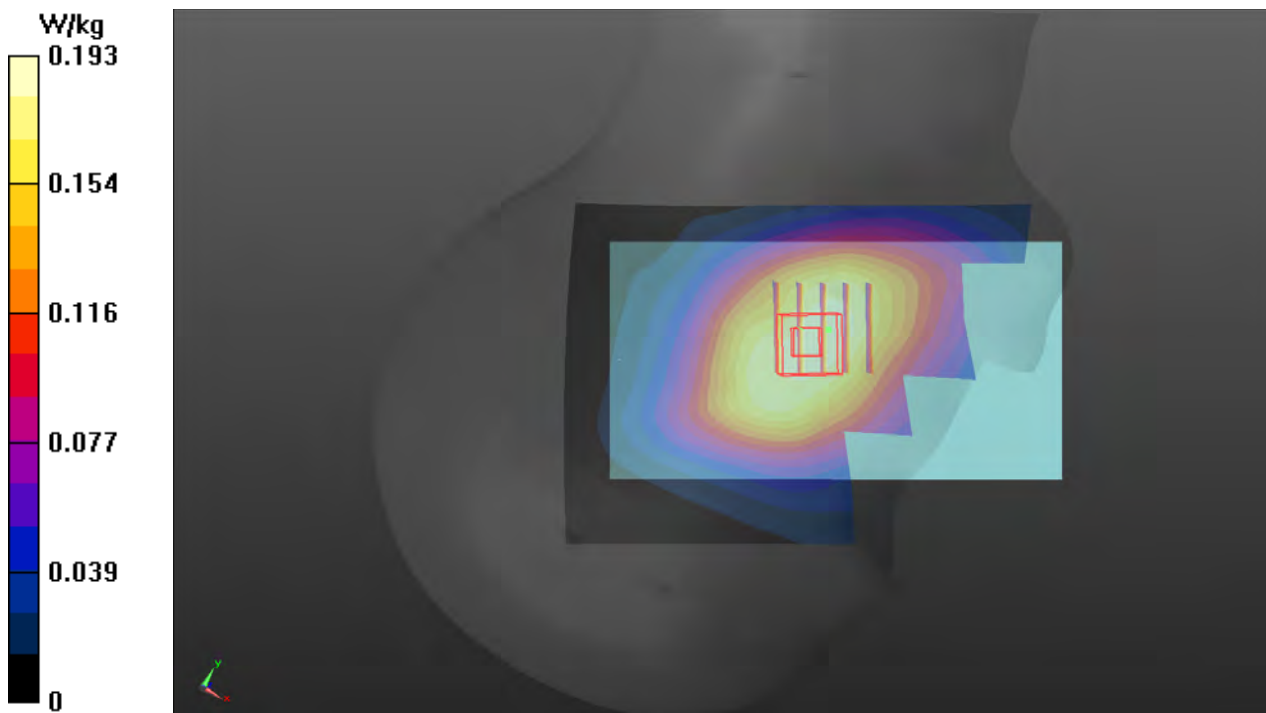
Communication System: UID 10175 - CAG, LTE-FDD (SC-FDMA, 1 RB, 10 MHz, QPSK);
Frequency: 709 MHz; Duty Cycle: 1:3.74
Medium: H06T09N1_0318 Medium parameters used: $f = 709$ MHz; $\sigma = 0.856$ S/m; $\epsilon_r = 43.959$; $\rho = 1000$ kg/m³
Ambient Temperature : 23.6 °C ; Liquid Temperature : 23.4 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3971; ConvF(10.45, 10.45, 10.45) @ 709 MHz; Calibrated: 2021/01/27
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1277; Calibrated: 2021/01/19
- Phantom: Twin SAM Phantom_1986; Type: QD 000 P40 CD;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Area Scan (81x141x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.193 W/kg

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 15.96 V/m; Power Drift = -0.06 dB
Peak SAR (extrapolated) = 0.211 W/kg
SAR(1 g) = 0.185 W/kg; SAR(10 g) = 0.153 W/kg (SAR corrected for target medium)
Smallest distance from peaks to all points 3 dB below: Larger than measurement grid
Ratio of SAR at M2 to SAR at M1 = 85.5%
Maximum value of SAR (measured) = 0.198 W/kg



P12 LTE 25_QPSK20M_Right Cheek_0mm_Ch26365_1RB_OS0_Battery3

DUT: 210204C02

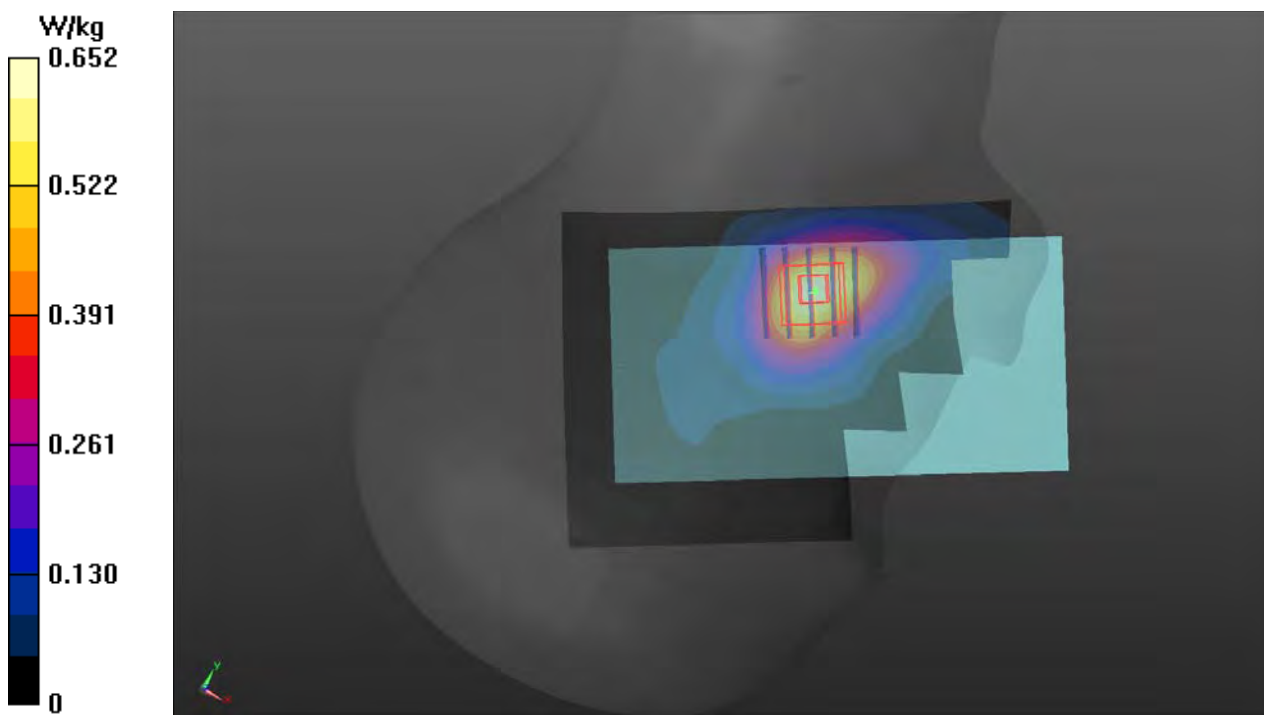
Communication System: UID 10169 - CAE, LTE-FDD (SC-FDMA, 1 RB, 20 MHz, QPSK);
Frequency: 1882.5 MHz; Duty Cycle: 1:3.74
Medium: H16T20N1_0318 Medium parameters used (interpolated): $f = 1882.5$ MHz; $\sigma = 1.444$ S/m; $\epsilon_r = 38.598$; $\rho = 1000$ kg/m³
Ambient Temperature : 23.6 °C ; Liquid Temperature : 23.4 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3971; ConvF(8.35, 8.35, 8.35) @ 1882.5 MHz; Calibrated: 2021/01/27
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1277; Calibrated: 2021/01/19
- Phantom: Twin SAM Phantom_1986; Type: QD 000 P40 CD;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Area Scan (81x141x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.652 W/kg

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 20.24 V/m; Power Drift = 0.09 dB
Peak SAR (extrapolated) = 0.872 W/kg
SAR(1 g) = 0.559 W/kg; SAR(10 g) = 0.368 W/kg (SAR corrected for target medium)
Smallest distance from peaks to all points 3 dB below = 11.9 mm
Ratio of SAR at M2 to SAR at M1 = 69.8%
Maximum value of SAR (measured) = 0.747 W/kg



P13 WLAN2.4G_802.11b_Right Cheek_Ch6_Ant0+1_Battery3

DUT: 210204C02

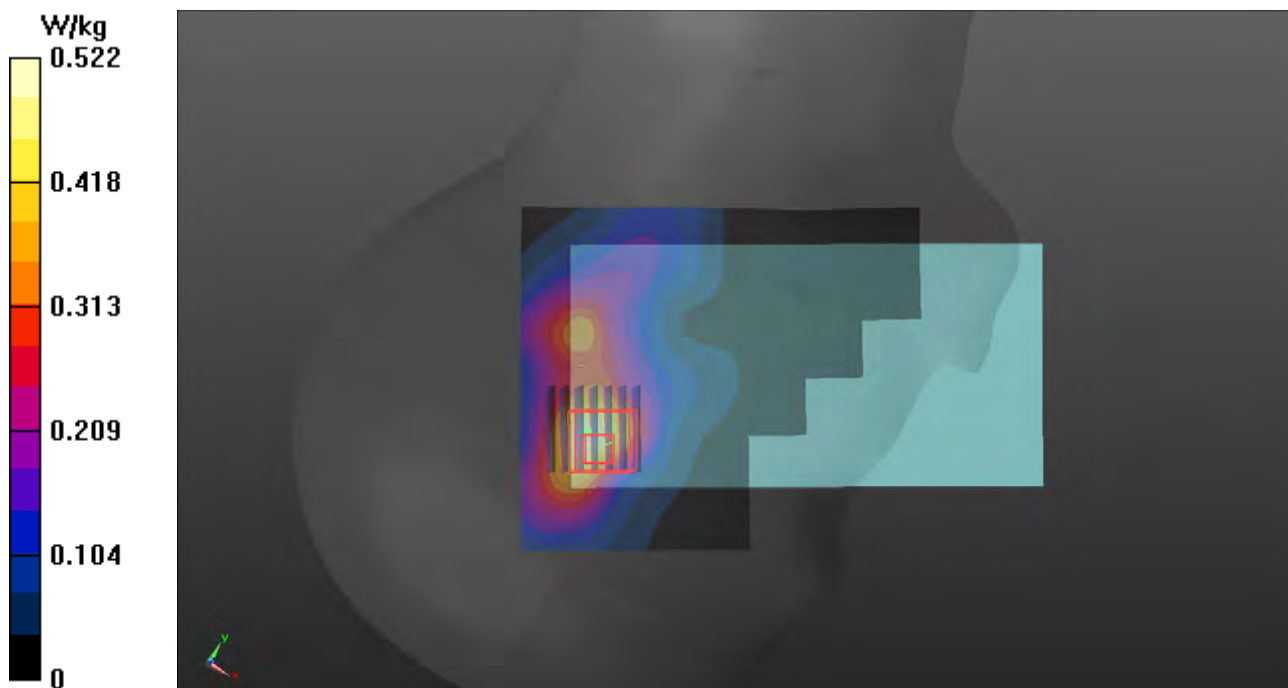
Communication System: UID 10012 - CAB, IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps);
Frequency: 2437 MHz; Duty Cycle: 1:1.01
Medium: H19T27N1_0401 Medium parameters used (interpolated): $f = 2437$ MHz; $\sigma = 1.852$ S/m;
 $\epsilon_r = 38.129$; $\rho = 1000$ kg/m³
Ambient Temperature : 23.5 °C ; Liquid Temperature : 23.1 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN7554; ConvF(7.41, 7.41, 7.41) @ 2437 MHz; Calibrated: 2020/09/28
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1590; Calibrated: 2020/09/15
- Phantom: SAM Phantom_1985; Type: QD 000 P41 AA;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Area Scan (101x171x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 0.522 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 17.55 V/m; Power Drift = -0.09 dB
Peak SAR (extrapolated) = 0.729 W/kg
SAR(1 g) = 0.334 W/kg; SAR(10 g) = 0.222 W/kg (SAR corrected for target medium)
Smallest distance from peaks to all points 3 dB below = 10 mm
Ratio of SAR at M2 to SAR at M1 = 59.5%
Maximum value of SAR (measured) = 0.614 W/kg



P14 WLAN5.2G_802.11n HT40_Left Cheek_Ch46_Ant1_Battery3

DUT: 210204C02

Communication System: UID 10599 - AAC, IEEE 802.11n (HT Mixed, 40MHz, MCS0);

Frequency: 5230 MHz; Duty Cycle: 1:1.1

Medium: H34T60N1_0318 Medium parameters used: $f = 5230$ MHz; $\sigma = 4.541$ S/m; $\epsilon_r = 36.089$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.6 °C ; Liquid Temperature : 23.4 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3971; ConvF(5.2, 5.2, 5.2) @ 5230 MHz; Calibrated: 2021/01/27
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1277; Calibrated: 2021/01/19
- Phantom: Twin SAM Phantom_1986; Type: QD 000 P40 CD;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Area Scan (121x201x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.760 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 13.08 V/m; Power Drift = 0.05 dB

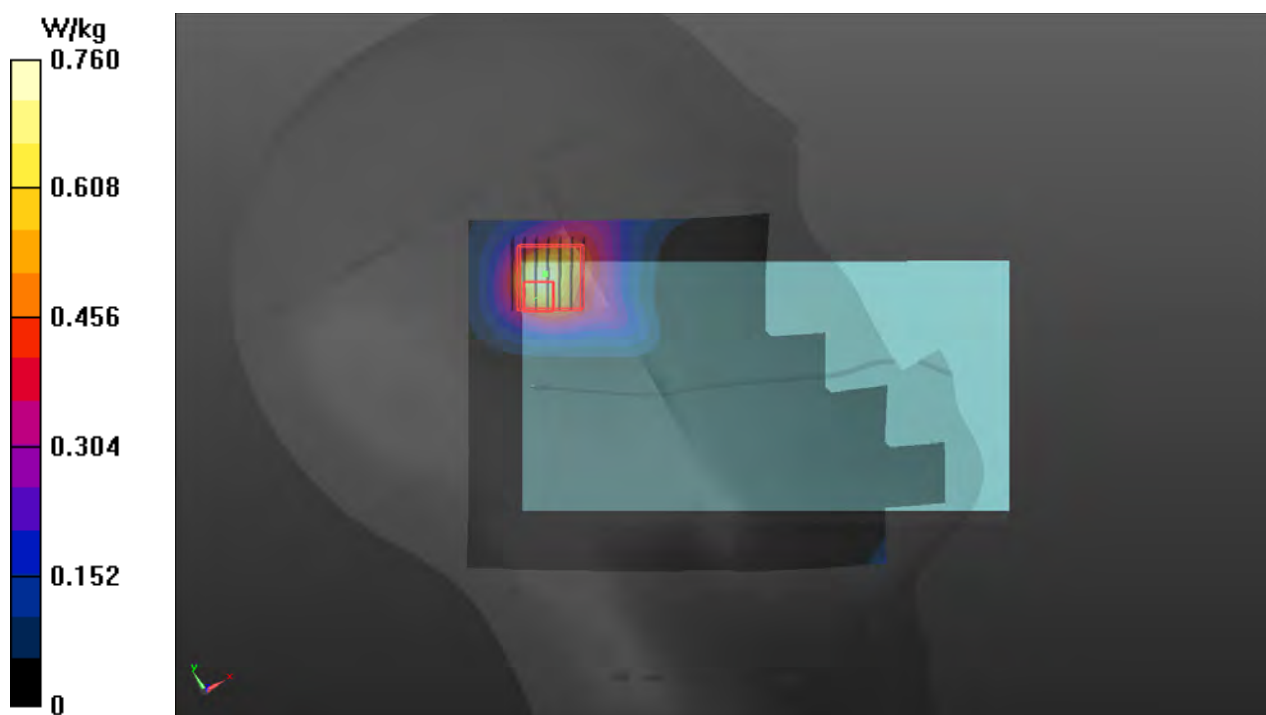
Peak SAR (extrapolated) = 1.85 W/kg

SAR(1 g) = 0.384 W/kg; SAR(10 g) = 0.147 W/kg (SAR corrected for target medium)

Smallest distance from peaks to all points 3 dB below = 6.8 mm

Ratio of SAR at M2 to SAR at M1 = 70.8%

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



P15 WLAN5.6G_802.11ac VHT80_Left Cheek_Ch138_Ant0_Battery3

DUT: 210204C02

Communication System: UID 10544 - AAC, IEEE 802.11ac WiFi (80MHz, MCS0); Frequency: 5690 MHz; Duty Cycle: 1:1.19

Medium: H34T60N1_0319 Medium parameters used: $f = 5690$ MHz; $\sigma = 5.309$ S/m; $\epsilon_r = 36.007$; $\rho = 1000$ kg/m³

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

DASY5 Configuration:

- Probe: EX3DV4 - SN3971; ConvF(4.95, 4.95, 4.95) @ 5690 MHz; Calibrated: 2021/01/27
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1277; Calibrated: 2021/01/19
- Phantom: Twin SAM Phantom_1986; Type: QD 000 P40 CD;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Area Scan (121x201x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.993 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 14.17 V/m; Power Drift = -0.02 dB

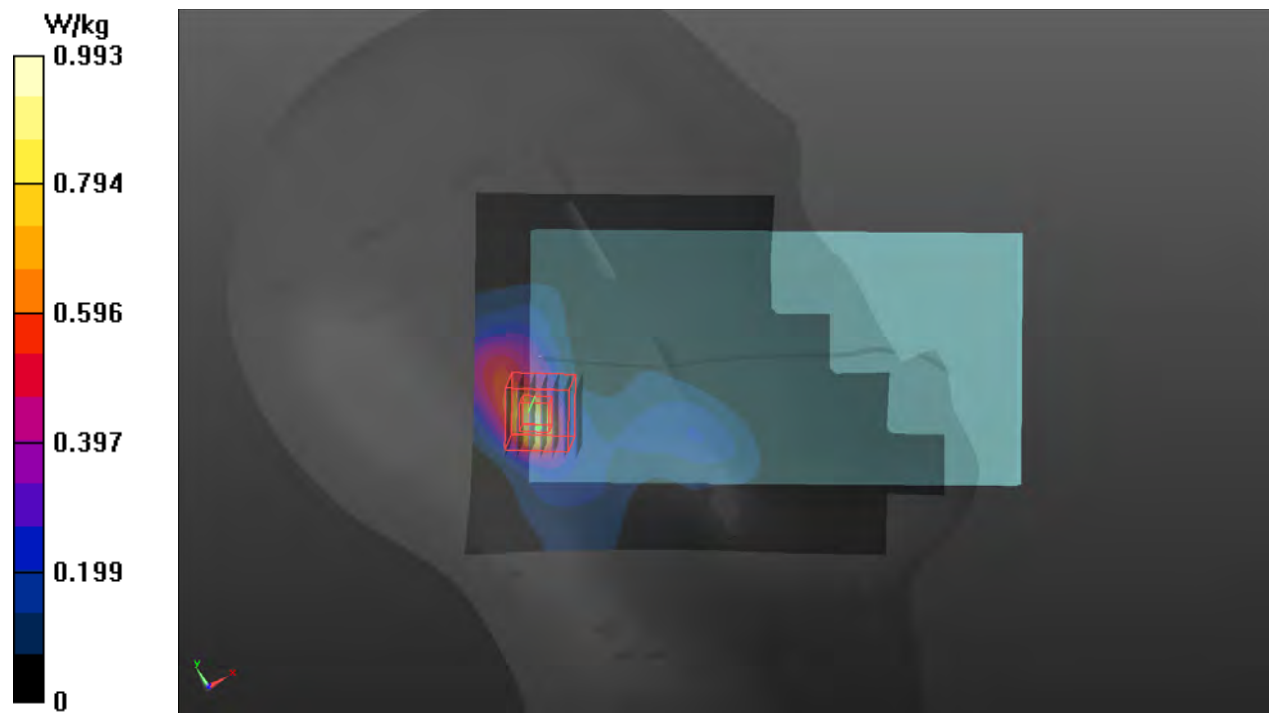
Peak SAR (extrapolated) = 1.43 W/kg

SAR(1 g) = 0.439 W/kg; SAR(10 g) = 0.153 W/kg (SAR corrected for target medium)

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

Ratio of SAR at M2 to SAR at M1 = 67.1%

Maximum value of SAR (measured) = 0.956 W/kg



P16 WLAN5.8G_802.11ac VHT80_Left Cheek_Ch155_Ant1_Battery3

DUT: 210204C02

Communication System: UID 10544 - AAC, IEEE 802.11ac WiFi (80MHz, MCS0); Frequency: 5775 MHz; Duty Cycle: 1:1.19

Medium: H34T60N1_0318 Medium parameters used: $f = 5775$ MHz; $\sigma = 5.06$ S/m; $\epsilon_r = 35.326$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.6 °C ; Liquid Temperature : 23.4 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3971; ConvF(4.95, 4.95, 4.95) @ 5775 MHz; Calibrated: 2021/01/27
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1277; Calibrated: 2021/01/19
- Phantom: Twin SAM Phantom_1986; Type: QD 000 P40 CD;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Area Scan (121x201x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.585 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 11.56 V/m; Power Drift = -0.05 dB

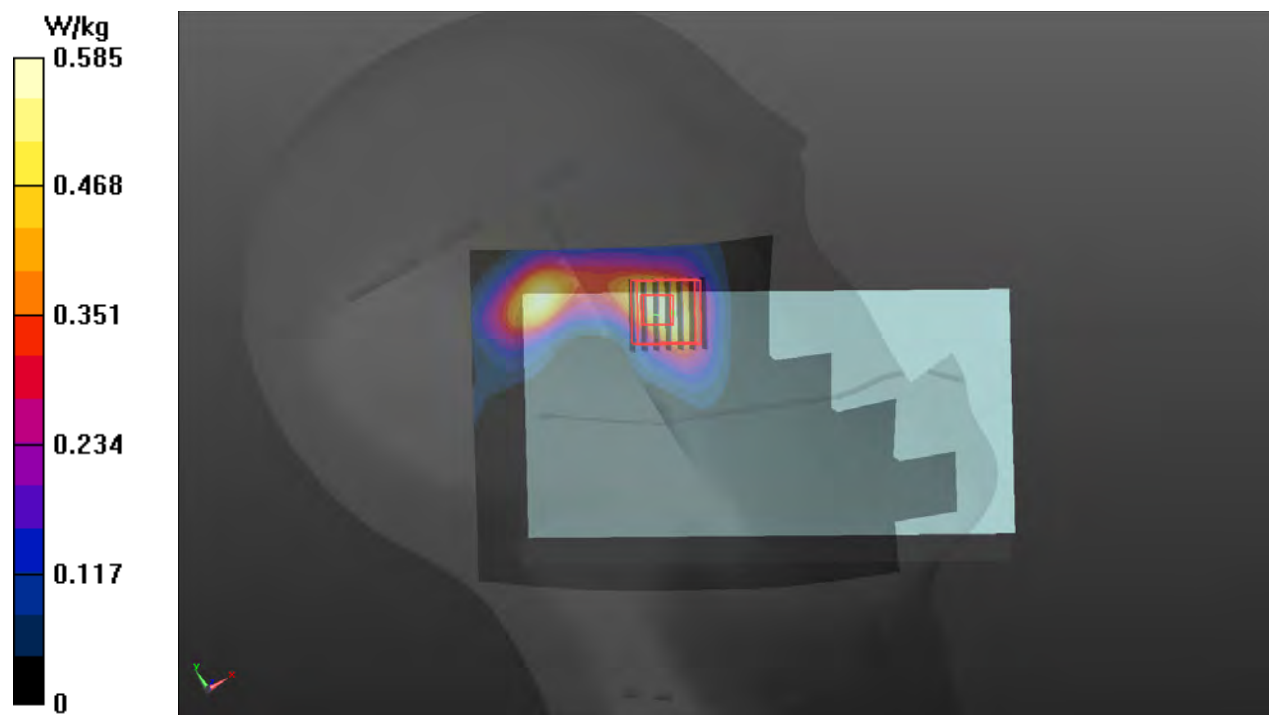
Peak SAR (extrapolated) = 0.896 W/kg

SAR(1 g) = 0.249 W/kg; SAR(10 g) = 0.085 W/kg (SAR corrected for target medium)

Smallest distance from peaks to all points 3 dB below = 8.8 mm

Ratio of SAR at M2 to SAR at M1 = 64.4%

Maximum value of SAR (measured) = 0.591 W/kg



P17 GSM 850_GPRS12_Front Face_10mm_Ch189_Ant0_Battery3

DUT: 210204C02

Communication System: UID 10028 - DAC, GPRS-FDD (TDMA, GMSK, TN 0-1-2-3); Frequency: 836.4 MHz; Duty Cycle: 1:2.27
 Medium: H07T10N1_0310 Medium parameters used (interpolated): $f = 836.4 \text{ MHz}$; $\sigma = 0.922 \text{ S/m}$; $\epsilon_r = 41.819$; $\rho = 1000 \text{ kg/m}^3$
 Ambient Temperature : $23.5 \text{ }^\circ\text{C}$; Liquid Temperature : $23.1 \text{ }^\circ\text{C}$

DASY5 Configuration:

- Probe: EX3DV4 - SN3887; ConvF(9.2, 9.2, 9.2) @ 836.4 MHz; Calibrated: 2020/10/22
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 2020/06/22
- Phantom: Twin SAM Phantom_1653; Type: QD000P40CD;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Area Scan (81x141x1): Interpolated grid: $dx=1.500 \text{ mm}$, $dy=1.500 \text{ mm}$
 Maximum value of SAR (interpolated) = 0.319 W/kg

Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$
 Reference Value = 19.28 V/m ; Power Drift = -0.05 dB

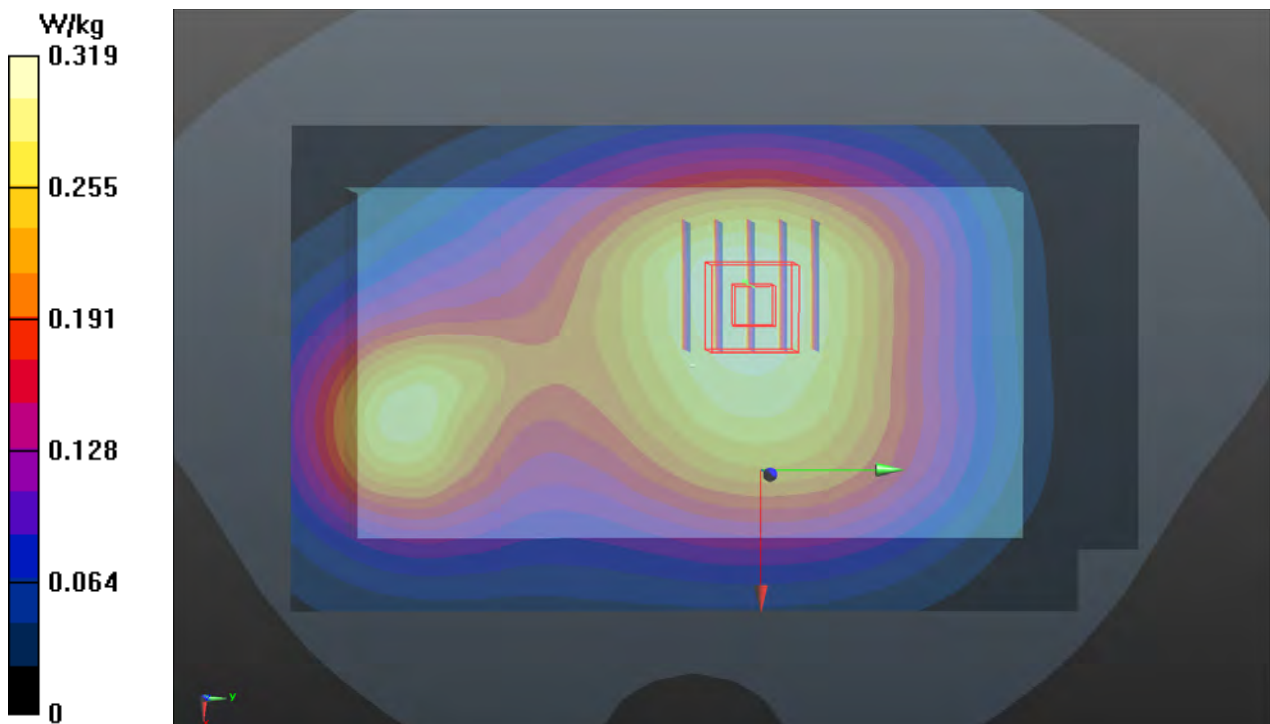
Peak SAR (extrapolated) = 0.353 W/kg

SAR(1 g) = 0.259 W/kg; SAR(10 g) = 0.196 W/kg (SAR corrected for target medium)

Smallest distance from peaks to all points 3 dB below: Larger than measurement grid

Ratio of SAR at M2 to SAR at M1 = 72.9%

Maximum value of SAR (measured) = 0.320 W/kg



P18 GSM1900_GPRS11_Rear Face_10mm_Ch810_Ant0_Battery3

DUT: 210204C02

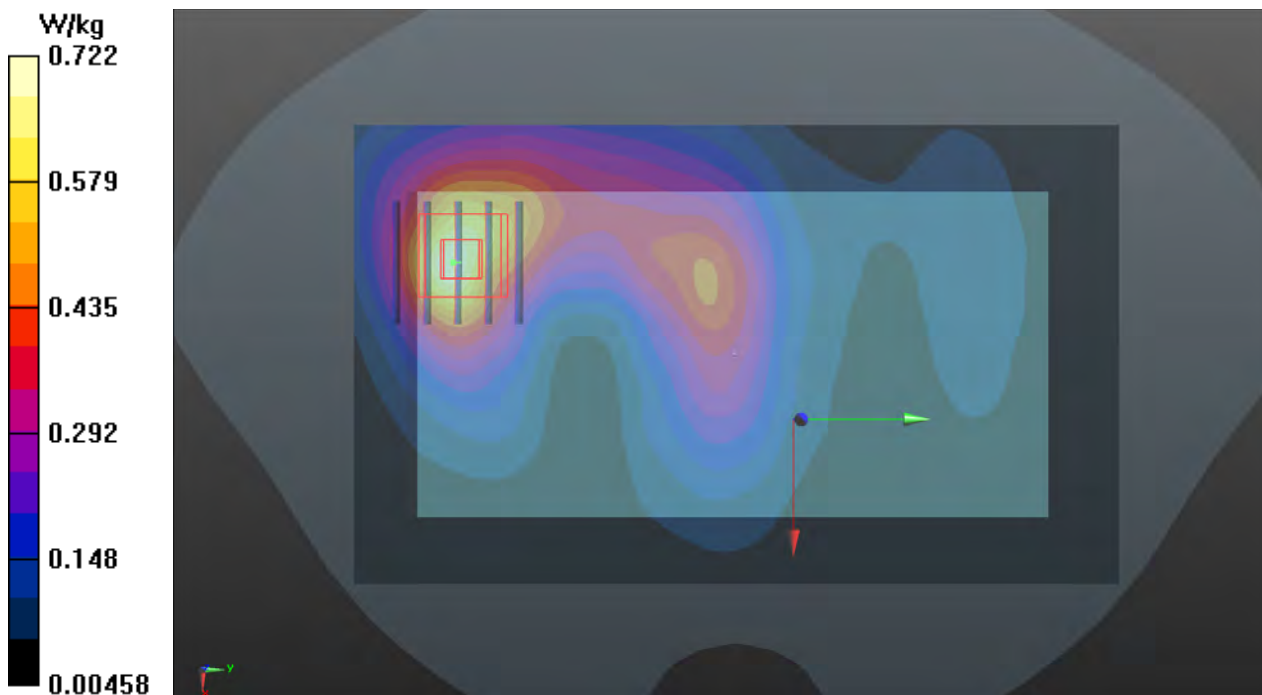
Communication System: UID 10027 - DAC, GPRS-FDD (TDMA, GMSK, TN 0-1-2); Frequency: 1909.8 MHz; Duty Cycle: 1:3.02
Medium: H16T20N1_0308 Medium parameters used: $f = 1910$ MHz; $\sigma = 1.468$ S/m; $\epsilon_r = 39.7$; $\rho = 1000$ kg/m³
Ambient Temperature : 23.7 °C ; Liquid Temperature : 23.3 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3887; ConvF(7.98, 7.98, 7.98) @ 1909.8 MHz; Calibrated: 2020/10/22
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 2020/06/22
- Phantom: Twin SAM Phantom_1653; Type: QD000P40CD;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Area Scan (81x141x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.722 W/kg

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 20.96 V/m; Power Drift = 0.10 dB
Peak SAR (extrapolated) = 0.953 W/kg
SAR(1 g) = 0.536 W/kg; SAR(10 g) = 0.306 W/kg (SAR corrected for target medium)
Smallest distance from peaks to all points 3 dB below = 13.2 mm
Ratio of SAR at M2 to SAR at M1 = 59%
Maximum value of SAR (measured) = 0.806 W/kg



P19 WCDMA II_RMC12.2K_Rear Face_10mm_Ch9538_Ant0_Battery3

DUT: 210204C02

Communication System: UID 10011 - CAB, UMTS-FDD (WCDMA); Frequency: 1907.6 MHz; Duty Cycle: 1:1.95

Medium: H16T20N1_0310 Medium parameters used: $f = 1908$ MHz; $\sigma = 1.464$ S/m; $\epsilon_r = 39.565$; $\rho = 1000$ kg/m³

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

DASY5 Configuration:

- Probe: EX3DV4 - SN3887; ConvF(7.98, 7.98, 7.98) @ 1907.6 MHz; Calibrated: 2020/10/22
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 2020/06/22
- Phantom: Twin SAM Phantom_1653; Type: QD000P40CD;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Area Scan (81x141x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.787 W/kg

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

Reference Value = 23.03 V/m; Power Drift = 0.02 dB

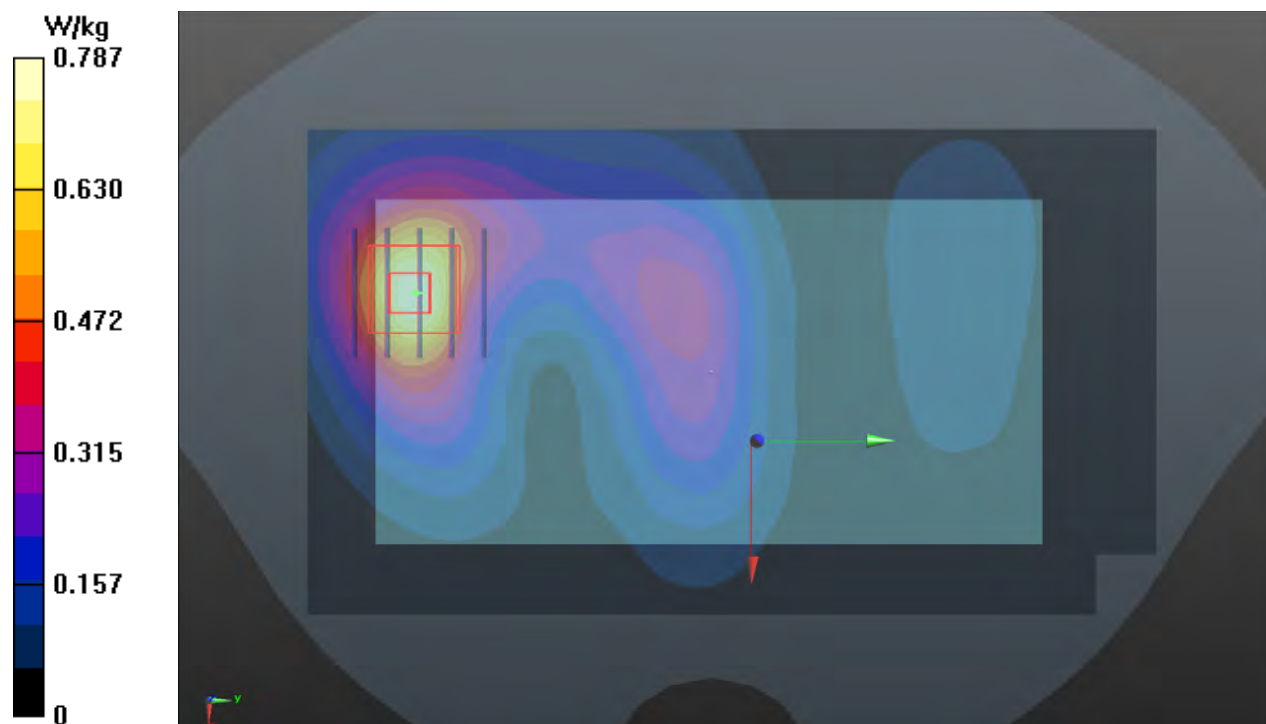
Peak SAR (extrapolated) = 0.961 W/kg

SAR(1 g) = 0.550 W/kg; SAR(10 g) = 0.316 W/kg (SAR corrected for target medium)

Smallest distance from peaks to all points 3 dB below = 14.3 mm

Ratio of SAR at M2 to SAR at M1 = 60.1%

Maximum value of SAR (measured) = 0.821 W/kg



P20 WCDMA V_RMC12.2K_Front Face_10mm_Ch4233_Ant0_Battery3

DUT: 210204C02

Communication System: UID 10011 - CAB, UMTS-FDD (WCDMA); Frequency: 846.6 MHz; Duty Cycle: 1:1.96

Medium: H07T10N1_0310 Medium parameters used: $f = 847$ MHz; $\sigma = 0.931$ S/m; $\epsilon_r = 41.689$; $\rho = 1000$ kg/m³

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

DASY5 Configuration:

- Probe: EX3DV4 - SN3887; ConvF(9.2, 9.2, 9.2) @ 846.6 MHz; Calibrated: 2020/10/22
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 2020/06/22
- Phantom: Twin SAM Phantom_1653; Type: QD000P40CD;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Area Scan (81x141x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.330 W/kg

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

Reference Value = 19.22 V/m; Power Drift = -0.04 dB

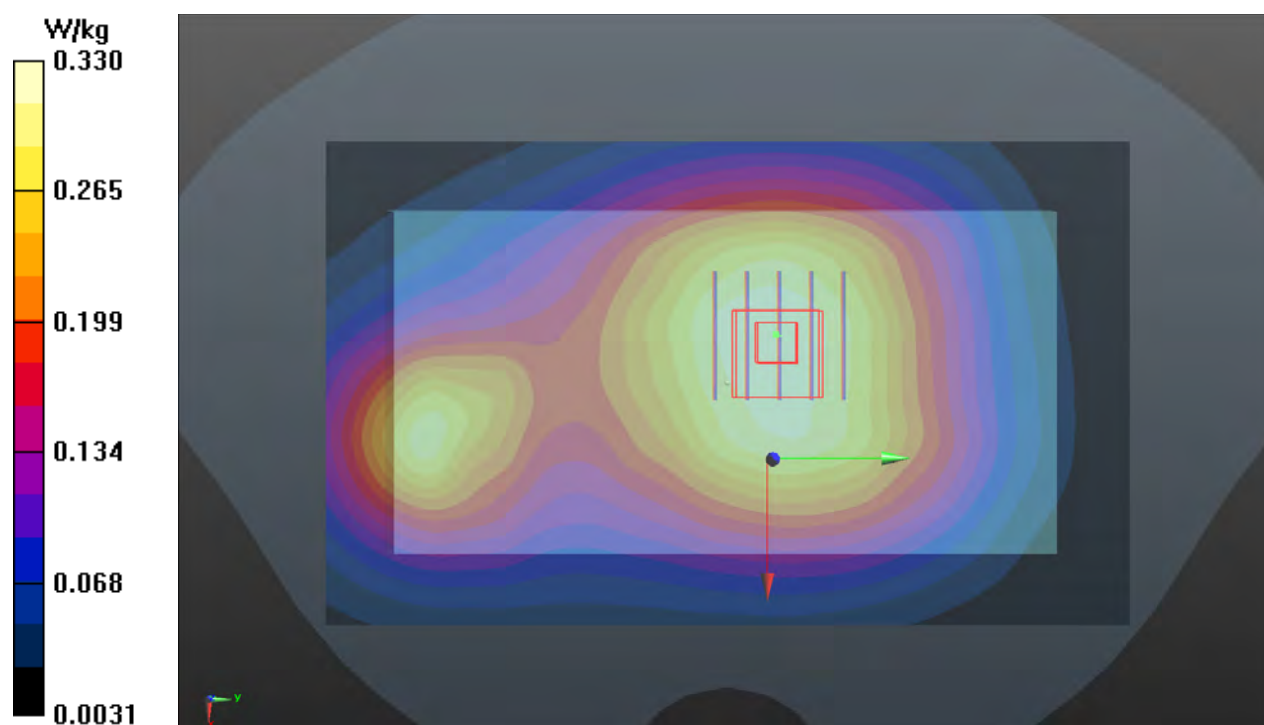
Peak SAR (extrapolated) = 0.357 W/kg

SAR(1 g) = 0.265 W/kg; SAR(10 g) = 0.202 W/kg (SAR corrected for target medium)

Smallest distance from peaks to all points 3 dB below: Larger than measurement grid

Ratio of SAR at M2 to SAR at M1 = 75%

Maximum value of SAR (measured) = 0.326 W/kg



P21 LTE 2_QPSK20M_Rear Face_10mm_Ch19100_1RB_OS0_Ant0_Battery3

DUT: 210204C02

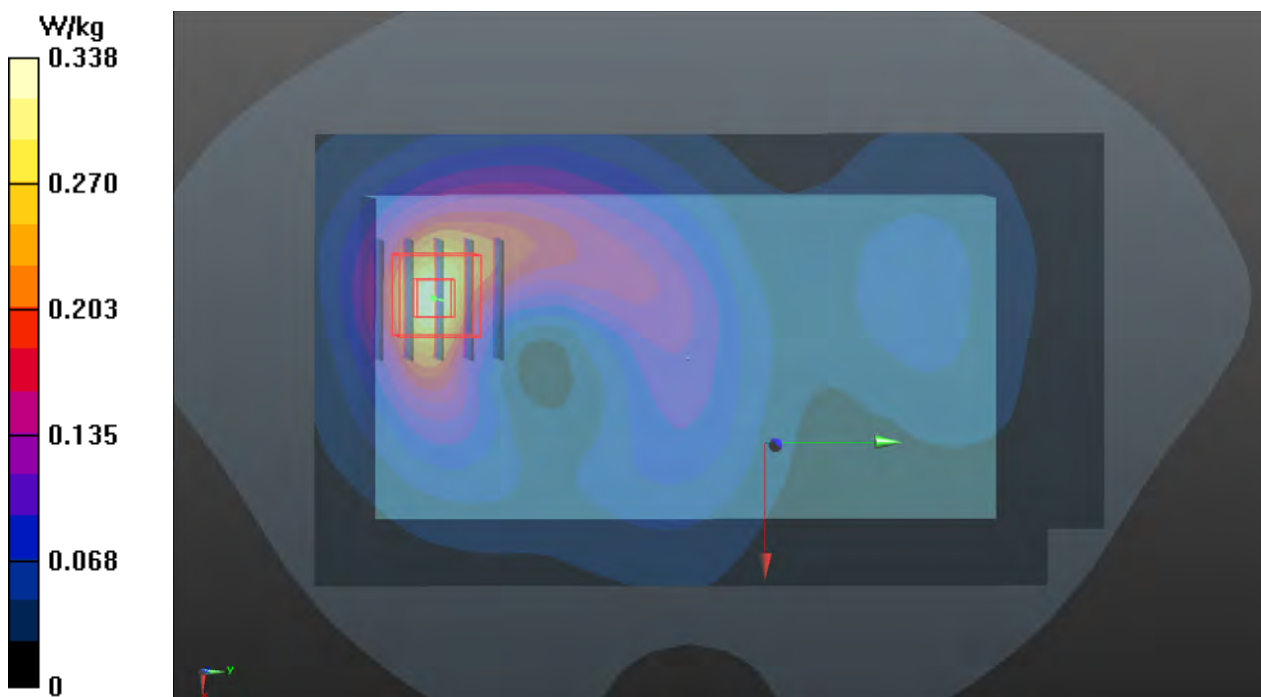
Communication System: UID 10169 - CAE, LTE-FDD (SC-FDMA, 1 RB, 20 MHz, QPSK);
Frequency: 1900 MHz; Duty Cycle: 1:3.74
Medium: H16T20N1_0308 Medium parameters used: $f = 1900$ MHz; $\sigma = 1.457$ S/m; $\epsilon_r = 39.83$; $\rho = 1000$ kg/m³
Ambient Temperature : 23.7 °C ; Liquid Temperature : 23.3 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3887; ConvF(7.98, 7.98, 7.98) @ 1900 MHz; Calibrated: 2020/10/22
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 2020/06/22
- Phantom: Twin SAM Phantom_1653; Type: QD000P40CD;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Area Scan (81x141x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.338 W/kg

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 15.55 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 0.394 W/kg
SAR(1 g) = 0.227 W/kg; SAR(10 g) = 0.130 W/kg (SAR corrected for target medium)
Smallest distance from peaks to all points 3 dB below = 12.9 mm
Ratio of SAR at M2 to SAR at M1 = 60.6%
Maximum value of SAR (measured) = 0.339 W/kg



P22 LTE 4_QPSK20M_Rear Face_10mm_Ch20175_1RB_OS0_Ant0_Battery3

DUT: 210204C02

Communication System: UID 10169 - CAE, LTE-FDD (SC-FDMA, 1 RB, 20 MHz, QPSK);

Frequency: 1732.5 MHz; Duty Cycle: 1:3.74

Medium: H16T20N1_0308 Medium parameters used: $f = 1733$ MHz; $\sigma = 1.306$ S/m; $\epsilon_r = 40.454$; $\rho = 1000$ kg/m³

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

DASY5 Configuration:

- Probe: EX3DV4 - SN3887; ConvF(8.24, 8.24, 8.24) @ 1732.5 MHz; Calibrated: 2020/10/22
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 2020/06/22
- Phantom: Twin SAM Phantom_1653; Type: QD000P40CD;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Area Scan (81x141x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.288 W/kg

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

Reference Value = 15.25 V/m; Power Drift = 0.10 dB

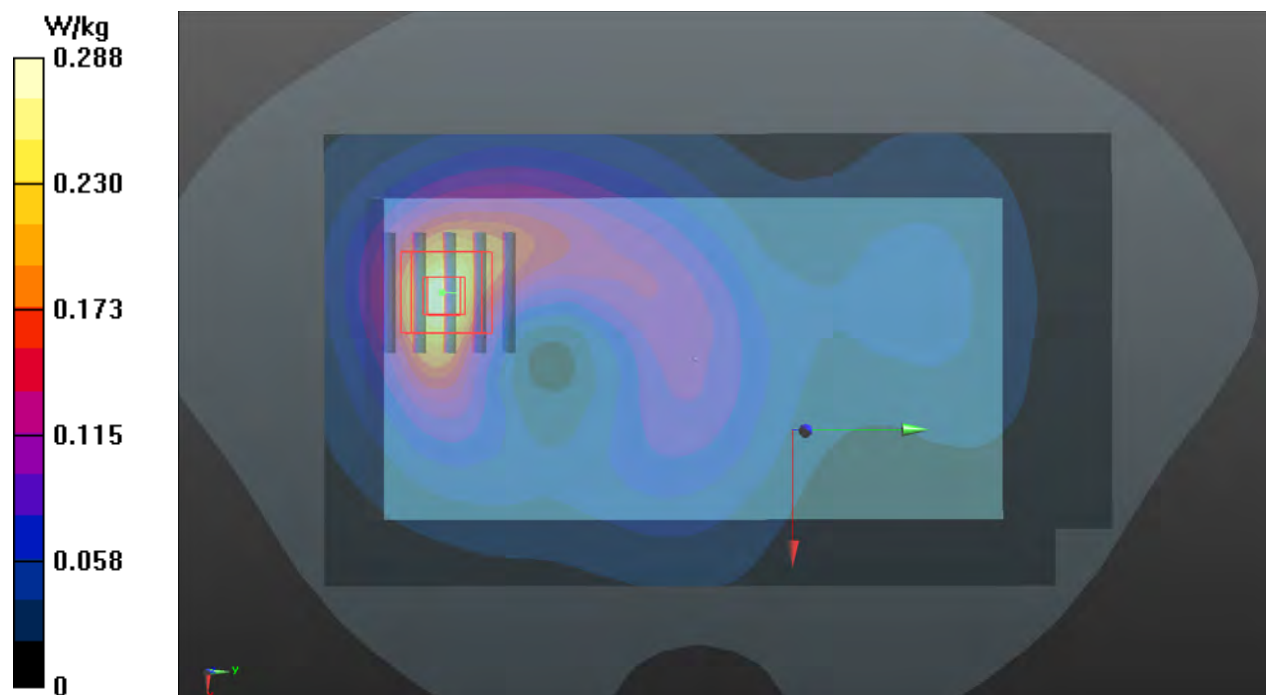
Peak SAR (extrapolated) = 0.332 W/kg

SAR(1 g) = 0.205 W/kg; SAR(10 g) = 0.116 W/kg (SAR corrected for target medium)

Smallest distance from peaks to all points 3 dB below = 13.7 mm

Ratio of SAR at M2 to SAR at M1 = 61.7%

Maximum value of SAR (measured) = 0.287 W/kg



P23 LTE 5_QPSK10M_Rear Face_10mm_Ch20600_1RB_OS0_Ant0_Battery3

DUT: 210204C02

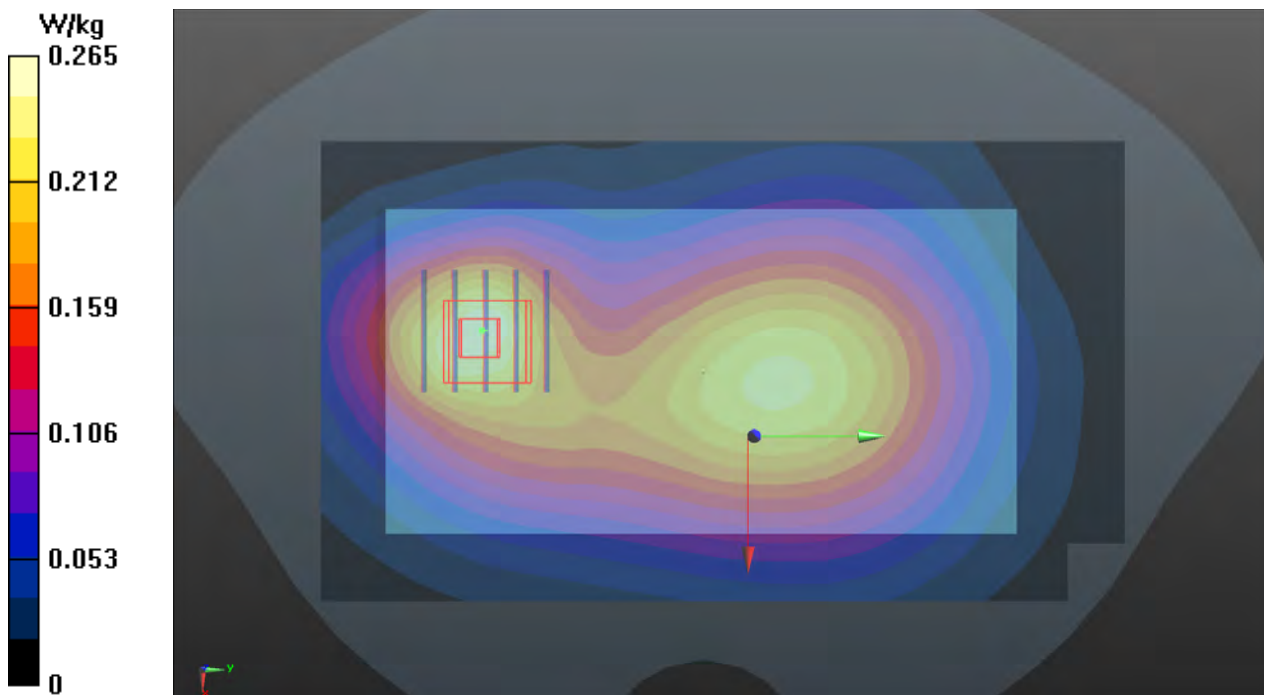
Communication System: UID 10175 - CAG, LTE-FDD (SC-FDMA, 1 RB, 10 MHz, QPSK);
Frequency: 844 MHz; Duty Cycle: 1:3.74
Medium: H07T10N1_0308 Medium parameters used: $f = 844$ MHz; $\sigma = 0.93$ S/m; $\epsilon_r = 42.22$; $\rho = 1000$ kg/m³
Ambient Temperature : 23.7 °C ; Liquid Temperature : 23.3 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3887; ConvF(9.2, 9.2, 9.2) @ 844 MHz; Calibrated: 2020/10/22
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 2020/06/22
- Phantom: Twin SAM Phantom_1653; Type: QD000P40CD;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Area Scan (81x141x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.265 W/kg

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 17.13 V/m; Power Drift = -0.14 dB
Peak SAR (extrapolated) = 0.303 W/kg
SAR(1 g) = 0.199 W/kg; SAR(10 g) = 0.131 W/kg (SAR corrected for target medium)
Smallest distance from peaks to all points 3 dB below = 22.7 mm
Ratio of SAR at M2 to SAR at M1 = 67%
Maximum value of SAR (measured) = 0.265 W/kg



P24 LTE 7_QPSK20M_Rear Face_10mm_Ch21350_1RB_OS0_Ant0_Battery3

DUT: 210204C02

Communication System: UID 10169 - CAE, LTE-FDD (SC-FDMA, 1 RB, 20 MHz, QPSK);

Frequency: 2560 MHz; Duty Cycle: 1:3.74

Medium: H19T27N1_0308 Medium parameters used: $f = 2560$ MHz; $\sigma = 1.992$ S/m; $\epsilon_r = 37.936$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.5 °C ; Liquid Temperature : 23.3 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3650; ConvF(7.56, 7.56, 7.56) @ 2560 MHz; Calibrated: 2020/03/25
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn861; Calibrated: 2020/05/27
- Phantom: SAM Phantom_1982; Type: QD 000 P41 Ax;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Area Scan (101x181x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm

Maximum value of SAR (interpolated) = 0.999 W/kg

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

Reference Value = 22.93 V/m; Power Drift = -0.05 dB

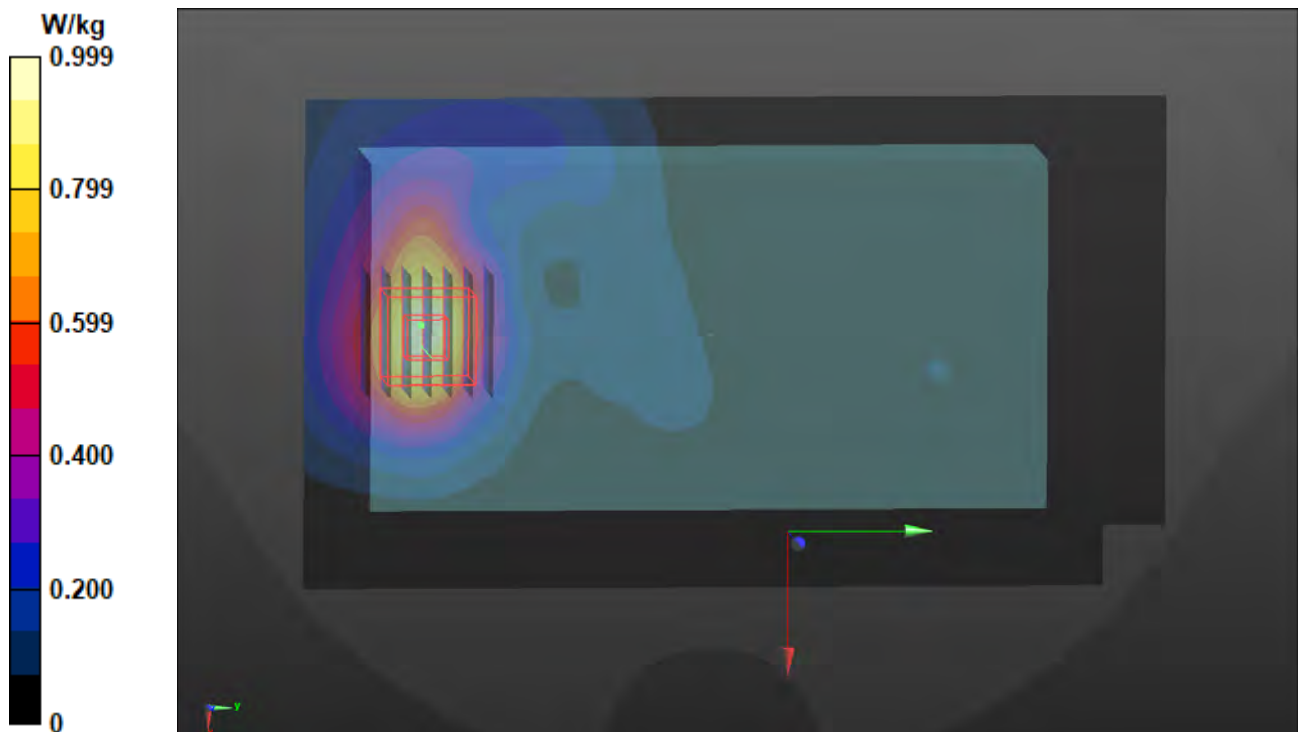
Peak SAR (extrapolated) = 1.15 W/kg

SAR(1 g) = 0.630 W/kg; SAR(10 g) = 0.354 W/kg (SAR corrected for target medium)

Smallest distance from peaks to all points 3 dB below = 14.6 mm

Ratio of SAR at M2 to SAR at M1 = 55.8%

Maximum value of SAR (measured) = 0.953 W/kg



P25 LTE 12_QPSK10M_Front Face_10mm_Ch23130_1RB_OS0_Ant0_Battery3

DUT: 210204C02

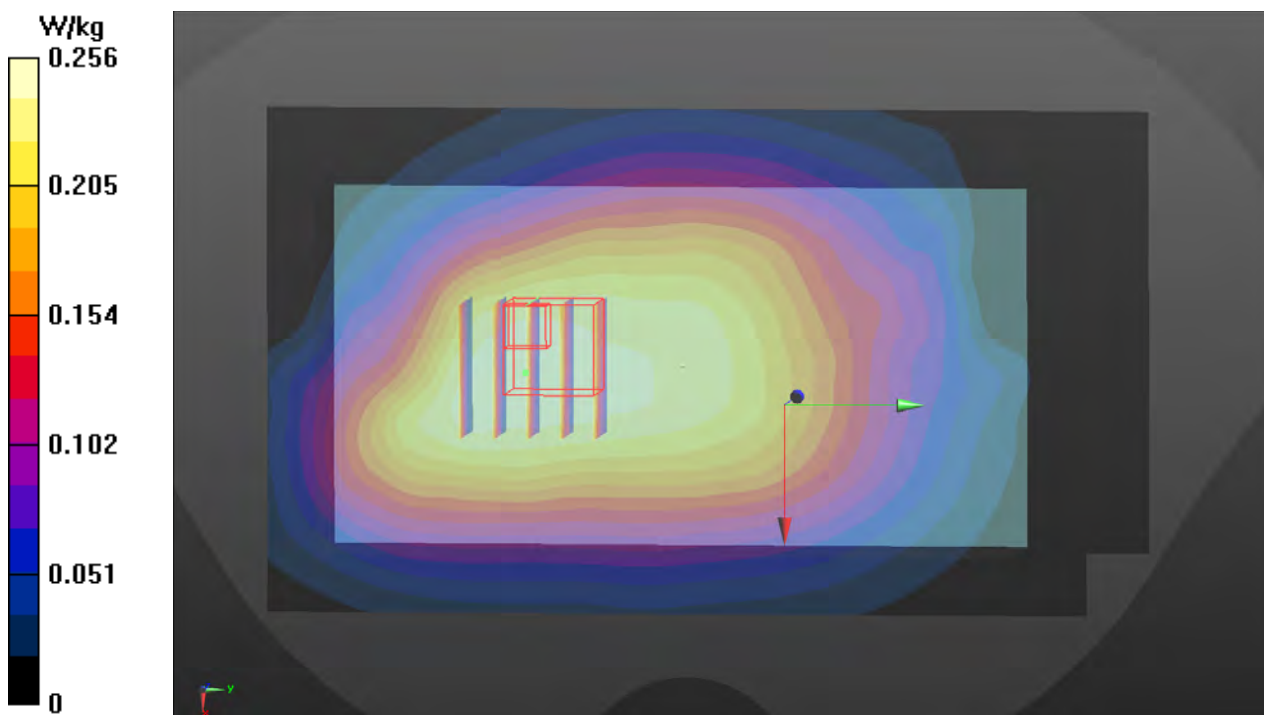
Communication System: UID 10175 - CAG, LTE-FDD (SC-FDMA, 1 RB, 10 MHz, QPSK);
Frequency: 711 MHz; Duty Cycle: 1:3.74
Medium: H07T10N1_0309 Medium parameters used: $f = 711 \text{ MHz}$; $\sigma = 0.854 \text{ S/m}$; $\epsilon_r = 43.158$; $\rho = 1000 \text{ kg/m}^3$
Ambient Temperature : $23.7 \text{ }^\circ\text{C}$; Liquid Temperature : $23.3 \text{ }^\circ\text{C}$

DASY5 Configuration:

- Probe: EX3DV4 - SN3971; ConvF(10.45, 10.45, 10.45) @ 711 MHz; Calibrated: 2021/01/27
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1277; Calibrated: 2021/01/19
- Phantom: Twin SAM Phantom_1986; Type: QD 000 P40 CD;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Area Scan (81x141x1): Interpolated grid: $dx=1.500 \text{ mm}$, $dy=1.500 \text{ mm}$
Maximum value of SAR (interpolated) = 0.256 W/kg

Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$
Reference Value = 17.72 V/m ; Power Drift = 0.09 dB
Peak SAR (extrapolated) = 0.298 W/kg
SAR(1 g) = 0.221 W/kg ; SAR(10 g) = 0.169 W/kg (SAR corrected for target medium)
Smallest distance from peaks to all points 3 dB below: Larger than measurement grid
Ratio of SAR at M2 to SAR at M1 = 78.1%
Maximum value of SAR (measured) = 0.279 W/kg



P26 LTE 13_QPSK10M_Front Face_10mm_Ch23230_1RB_OS0_Ant0_Battery3

DUT: 210204C02

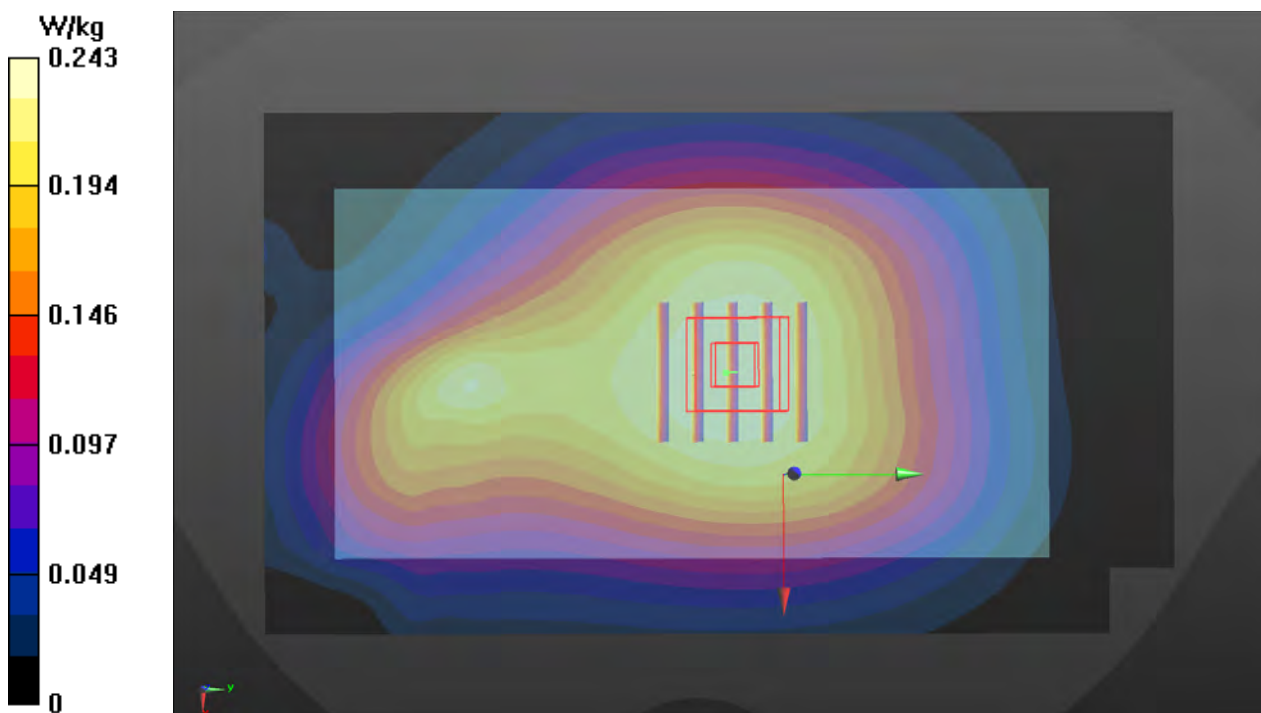
Communication System: UID 10175 - CAG, LTE-FDD (SC-FDMA, 1 RB, 10 MHz, QPSK);
Frequency: 782 MHz; Duty Cycle: 1:3.74
Medium: H07T10N1_0309 Medium parameters used: $f = 782 \text{ MHz}$; $\sigma = 0.917 \text{ S/m}$; $\epsilon_r = 42.232$; $\rho = 1000 \text{ kg/m}^3$
Ambient Temperature : $23.7 \text{ }^\circ\text{C}$; Liquid Temperature : $23.3 \text{ }^\circ\text{C}$

DASY5 Configuration:

- Probe: EX3DV4 - SN3971; ConvF(10.45, 10.45, 10.45) @ 782 MHz; Calibrated: 2021/01/27
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1277; Calibrated: 2021/01/19
- Phantom: Twin SAM Phantom_1986; Type: QD 000 P40 CD;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Area Scan (81x141x1): Interpolated grid: $dx=1.500 \text{ mm}$, $dy=1.500 \text{ mm}$
Maximum value of SAR (interpolated) = 0.243 W/kg

Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$
Reference Value = 17.01 V/m ; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 0.260 W/kg
SAR(1 g) = 0.204 W/kg ; SAR(10 g) = 0.162 W/kg (SAR corrected for target medium)
Smallest distance from peaks to all points 3 dB below: Larger than measurement grid
Ratio of SAR at M2 to SAR at M1 = 79.7%
Maximum value of SAR (measured) = 0.243 W/kg



P27 LTE 17_QPSK10M_Front Face_10mm_Ch23780_1RB_OS0_Ant0_Battery3

DUT: 210204C02

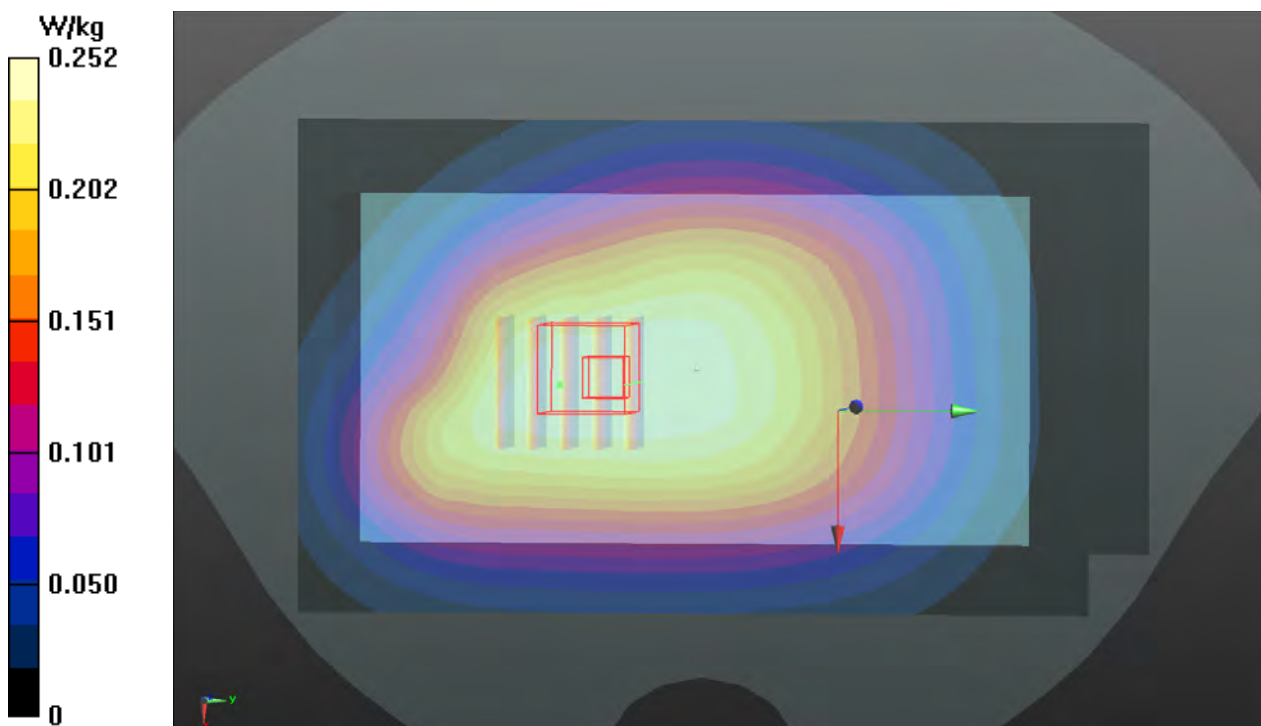
Communication System: UID 10175 - CAG, LTE-FDD (SC-FDMA, 1 RB, 10 MHz, QPSK);
Frequency: 709 MHz; Duty Cycle: 1:3.74
Medium: H07T10N1_0309 Medium parameters used: $f = 709$ MHz; $\sigma = 0.852$ S/m; $\epsilon_r = 43.181$; $\rho = 1000$ kg/m³
Ambient Temperature : 23.7 °C ; Liquid Temperature : 23.3 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3887; ConvF(9.49, 9.49, 9.49) @ 709 MHz; Calibrated: 2020/10/22
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 2020/06/22
- Phantom: Twin SAM Phantom_1653; Type: QD000P40CD;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Area Scan (81x141x1): Interpolated grid: $dx=1.500$ mm, $dy=1.500$ mm
Maximum value of SAR (interpolated) = 0.252 W/kg

Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8$ mm, $dy=8$ mm, $dz=5$ mm
Reference Value = 17.92 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 0.277 W/kg
SAR(1 g) = 0.216 W/kg; SAR(10 g) = 0.160 W/kg (SAR corrected for target medium)
Smallest distance from peaks to all points 3 dB below: Larger than measurement grid
Ratio of SAR at M2 to SAR at M1 = 75.8%
Maximum value of SAR (measured) = 0.254 W/kg



P28 LTE 25_QPSK20M_Rear Face_10mm_Ch26590_1RB_OS0_Ant0_Battery3

DUT: 210204C02

Communication System: UID 10169 - CAE, LTE-FDD (SC-FDMA, 1 RB, 20 MHz, QPSK);

Frequency: 1905 MHz; Duty Cycle: 1:3.74

Medium: H16T20N1_0309 Medium parameters used (interpolated): $f = 1905$ MHz; $\sigma = 1.464$ S/m;

$\epsilon_r = 39.944$; $\rho = 1000$ kg/m³

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

DASY5 Configuration:

- Probe: EX3DV4 - SN3887; ConvF(7.98, 7.98, 7.98) @ 1905 MHz; Calibrated: 2020/10/22

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

- Electronics: DAE4 Sn905; Calibrated: 2020/06/22

- Phantom: Twin SAM Phantom_1653; Type: QD000P40CD;

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

Area Scan (81x141x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.710 W/kg

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

Reference Value = 21.75 V/m; Power Drift = -0.17 dB

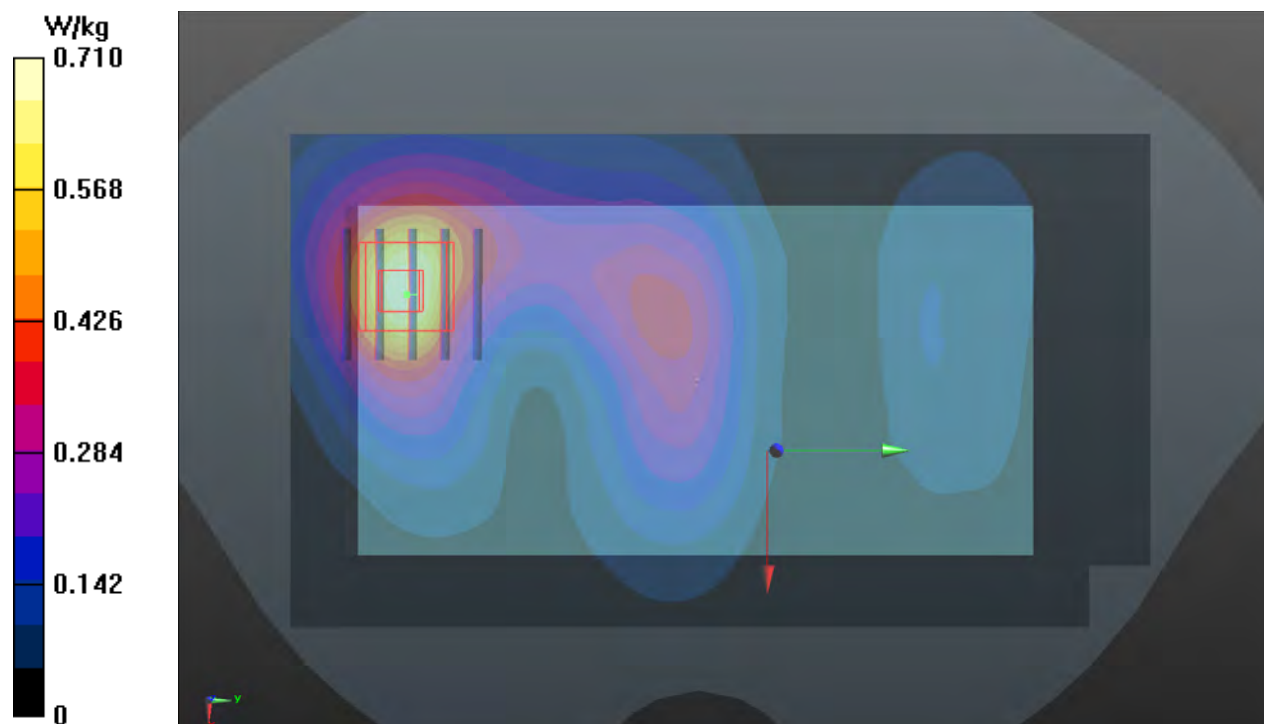
Peak SAR (extrapolated) = 0.871 W/kg

SAR(1 g) = 0.503 W/kg; SAR(10 g) = 0.289 W/kg (SAR corrected for target medium)

Smallest distance from peaks to all points 3 dB below = 14.4 mm

Ratio of SAR at M2 to SAR at M1 = 60.3%

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



P29 WLAN2.4G_802.11b_Rear Face_10mm_Ch6_Ant0+1_Battery3

DUT: 210204C02

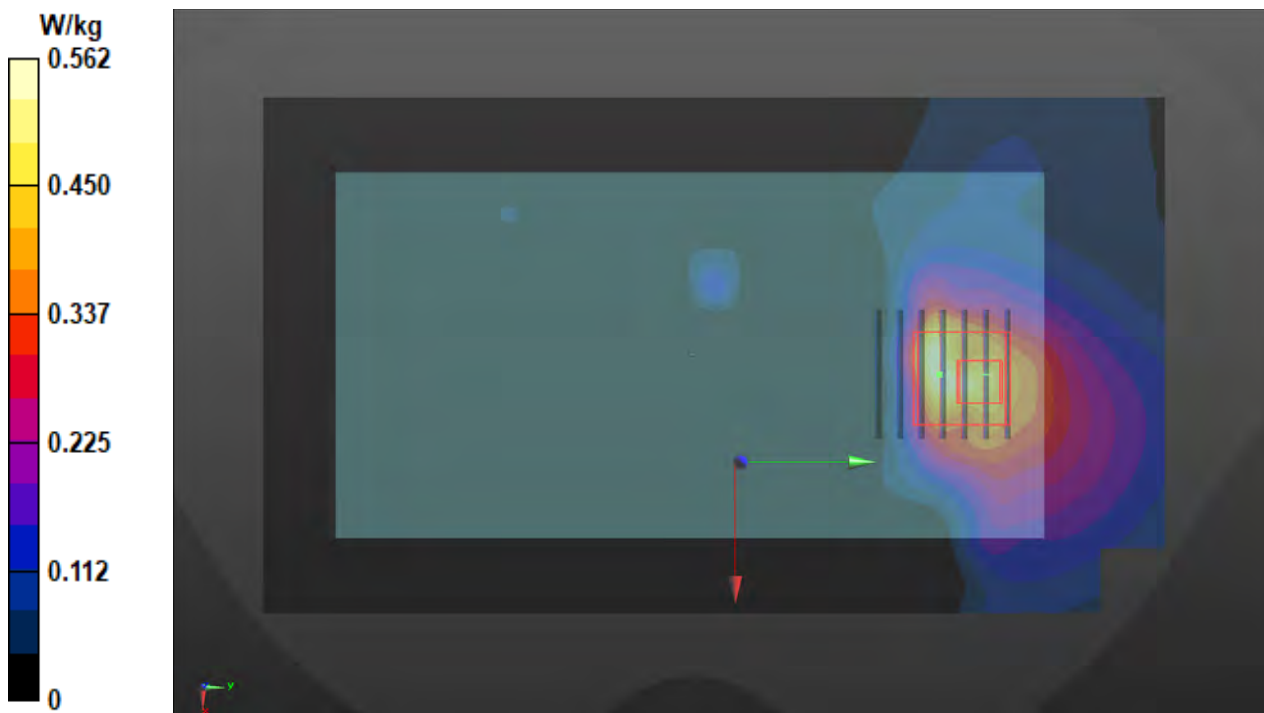
Communication System: UID 10012 - CAB, IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps);
Frequency: 2437 MHz; Duty Cycle: 1:1.01
Medium: H19T27N1_0312 Medium parameters used (interpolated): $f = 2437$ MHz; $\sigma = 1.873$ S/m;
 $\epsilon_r = 38.363$; $\rho = 1000$ kg/m³
Ambient Temperature : 23.6 °C ; Liquid Temperature : 23.3 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3971; ConvF(7.87, 7.87, 7.87) @ 2437 MHz; Calibrated: 2021/01/27
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1277; Calibrated: 2021/01/19
- Phantom: Twin SAM Phantom_1986; Type: QD 000 P40 CD;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Area Scan (101x181x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 0.562 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 12.10 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 0.516 W/kg
SAR(1 g) = 0.288 W/kg; SAR(10 g) = 0.163 W/kg (SAR corrected for target medium)
Smallest distance from peaks to all points 3 dB below = 17 mm
Ratio of SAR at M2 to SAR at M1 = 57.5%
Maximum value of SAR (measured) = 0.433 W/kg



P30 WLAN5.2G_802.11n HT40_Rear Face_10mm_Ch46_Ant1_Battery3

DUT: 210204C02

Communication System: UID 10599 - AAC, IEEE 802.11n (HT Mixed, 40MHz, MCS0);

Frequency: 5230 MHz; Duty Cycle: 1:1.1

Medium: H34T60N1_0401 Medium parameters used: $f = 5230$ MHz; $\sigma = 4.741$ S/m; $\epsilon_r = 37.033$; $\rho = 1000$ kg/m³

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

DASY5 Configuration:

- Probe: EX3DV4 - SN7554; ConvF(5.12, 5.12, 5.12) @ 5230 MHz; Calibrated: 2020/09/28
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1590; Calibrated: 2020/09/15
- Phantom: SAM Phantom_1985; Type: QD 000 P41 AA;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Area Scan (121x211x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.519 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 11.48 V/m; Power Drift = -0.07 dB

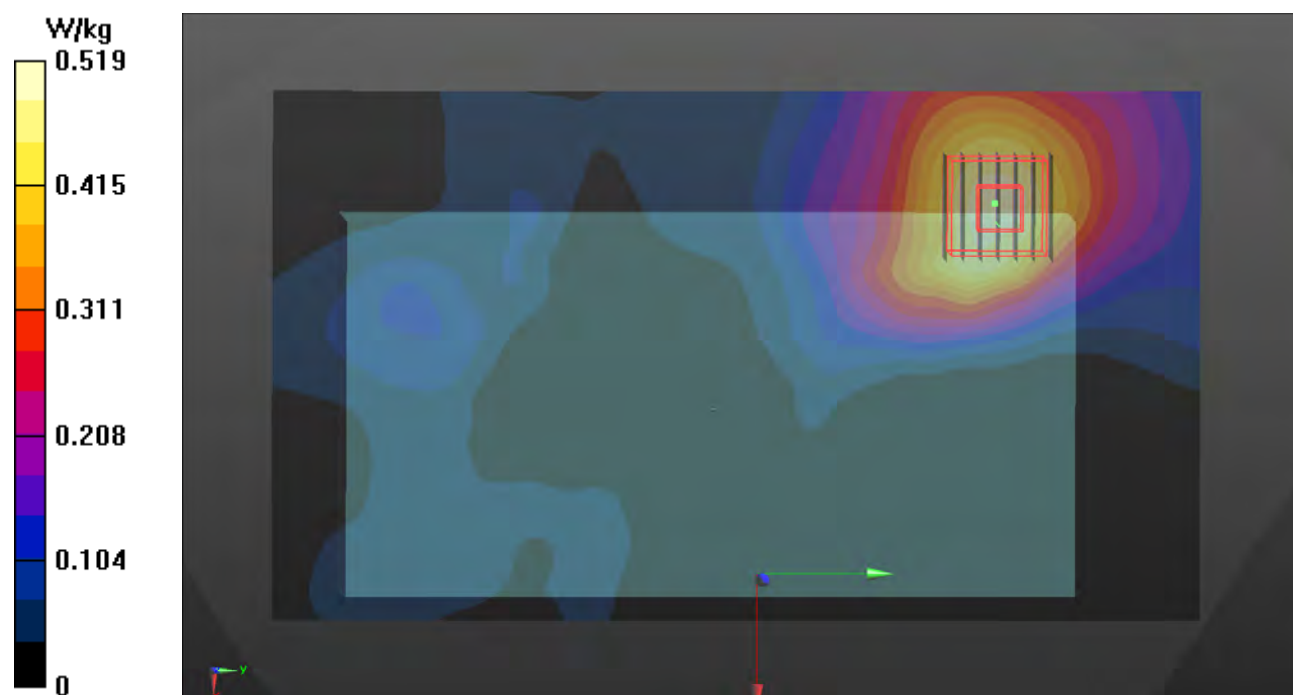
Peak SAR (extrapolated) = 0.761 W/kg

SAR(1 g) = 0.255 W/kg; SAR(10 g) = 0.117 W/kg (SAR corrected for target medium)

Smallest distance from peaks to all points 3 dB below: Larger than measurement grid

Ratio of SAR at M2 to SAR at M1 = 67.5%

Maximum value of SAR (measured) = 0.505 W/kg



P31 WLAN5.6G_802.11ac VHT80_Rear Face_10mm_Ch138_Ant0+1_Battery3

DUT: 210204C02

Communication System: UID 10544 - AAC, IEEE 802.11ac WiFi (80MHz, MCS0); Frequency: 5690 MHz; Duty Cycle: 1:1.19

Medium: H34T60N1_0401 Medium parameters used: $f = 5690$ MHz; $\sigma = 5.311$ S/m; $\epsilon_r = 36.015$; $\rho = 1000$ kg/m³

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

DASY5 Configuration:

- Probe: EX3DV4 - SN7554; ConvF(4.8, 4.8, 4.8) @ 5690 MHz; Calibrated: 2020/09/28
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1590; Calibrated: 2020/09/15
- Phantom: SAM Phantom_1985; Type: QD 000 P41 AA;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Area Scan (121x211x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

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

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 15.46 V/m; Power Drift = -0.11 dB

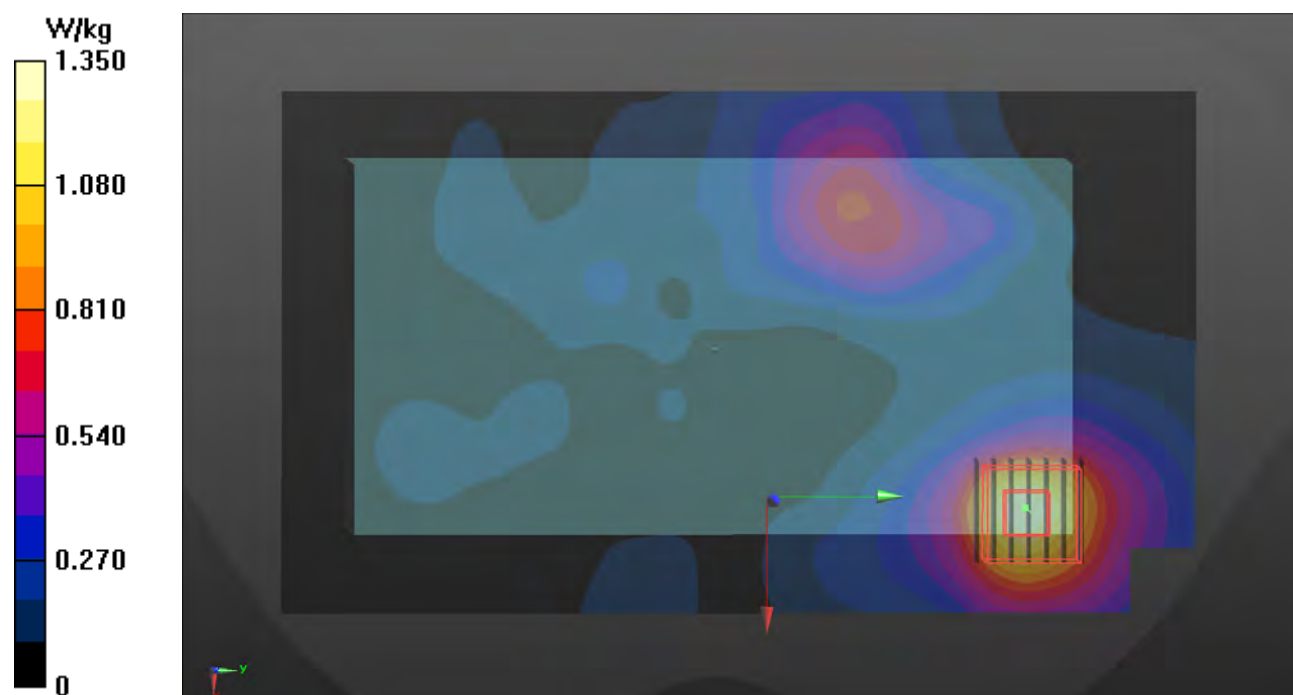
Peak SAR (extrapolated) = 1.87 W/kg

SAR(1 g) = 0.482 W/kg; SAR(10 g) = 0.240 W/kg (SAR corrected for target medium)

Smallest distance from peaks to all points 3 dB below = 16.5 mm

Ratio of SAR at M2 to SAR at M1 = 65.1%

Maximum value of SAR (measured) = 1.19 W/kg



P32 WLAN5.8G_802.11ac VHT80_Rear Face_10mm_Ch155_Ant1_Battery3

DUT: 210204C02

Communication System: UID 10544 - AAC, IEEE 802.11ac WiFi (80MHz, MCS0); Frequency: 5775 MHz; Duty Cycle: 1:1.19

Medium: H34T60N1_0401 Medium parameters used: $f = 5775$ MHz; $\sigma = 5.407$ S/m; $\epsilon_r = 35.879$; $\rho = 1000$ kg/m³

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

DASY5 Configuration:

- Probe: EX3DV4 - SN7554; ConvF(4.8, 4.8, 4.8) @ 5775 MHz; Calibrated: 2020/09/28
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1590; Calibrated: 2020/09/15
- Phantom: SAM Phantom_1985; Type: QD 000 P41 AA;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Area Scan (121x211x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.788 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 12.58 V/m; Power Drift = 0.10 dB

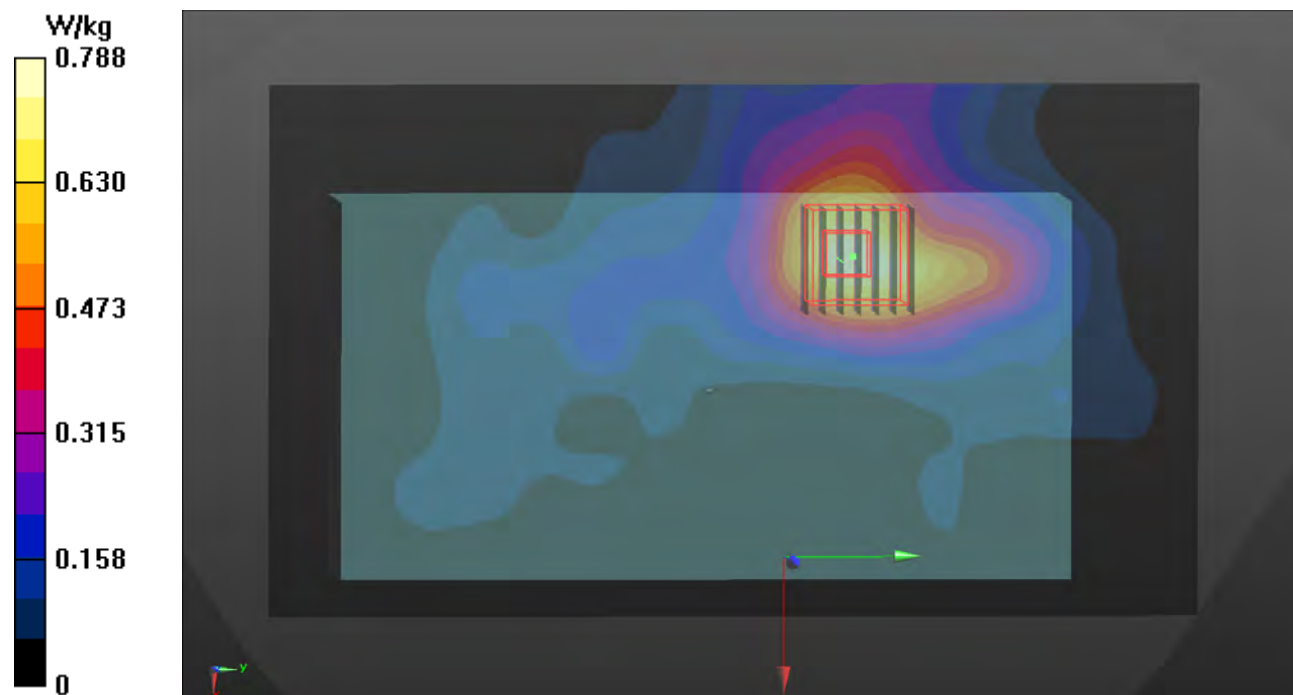
Peak SAR (extrapolated) = 1.35 W/kg

SAR(1 g) = 0.327 W/kg; SAR(10 g) = 0.155 W/kg (SAR corrected for target medium)

Smallest distance from peaks to all points 3 dB below = 15.5 mm

Ratio of SAR at M2 to SAR at M1 = 62.8%

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



P33 GSM 850_GPRS12_Front Face_10mm_Ch189_Ant0_Battery3

DUT: 210204C02

Communication System: UID 10028 - DAC, GPRS-FDD (TDMA, GMSK, TN 0-1-2-3); Frequency: 836.4 MHz; Duty Cycle: 1:2.27

Medium: H07T10N1_0310 Medium parameters used (interpolated): $f = 836.4$ MHz; $\sigma = 0.922$ S/m; $\epsilon_r = 41.819$; $\rho = 1000$ kg/m³

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

DASY5 Configuration:

- Probe: EX3DV4 - SN3887; ConvF(9.2, 9.2, 9.2) @ 836.4 MHz; Calibrated: 2020/10/22
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 2020/06/22
- Phantom: Twin SAM Phantom_1653; Type: QD000P40CD;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Area Scan (81x141x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.319 W/kg

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

Reference Value = 19.28 V/m; Power Drift = -0.05 dB

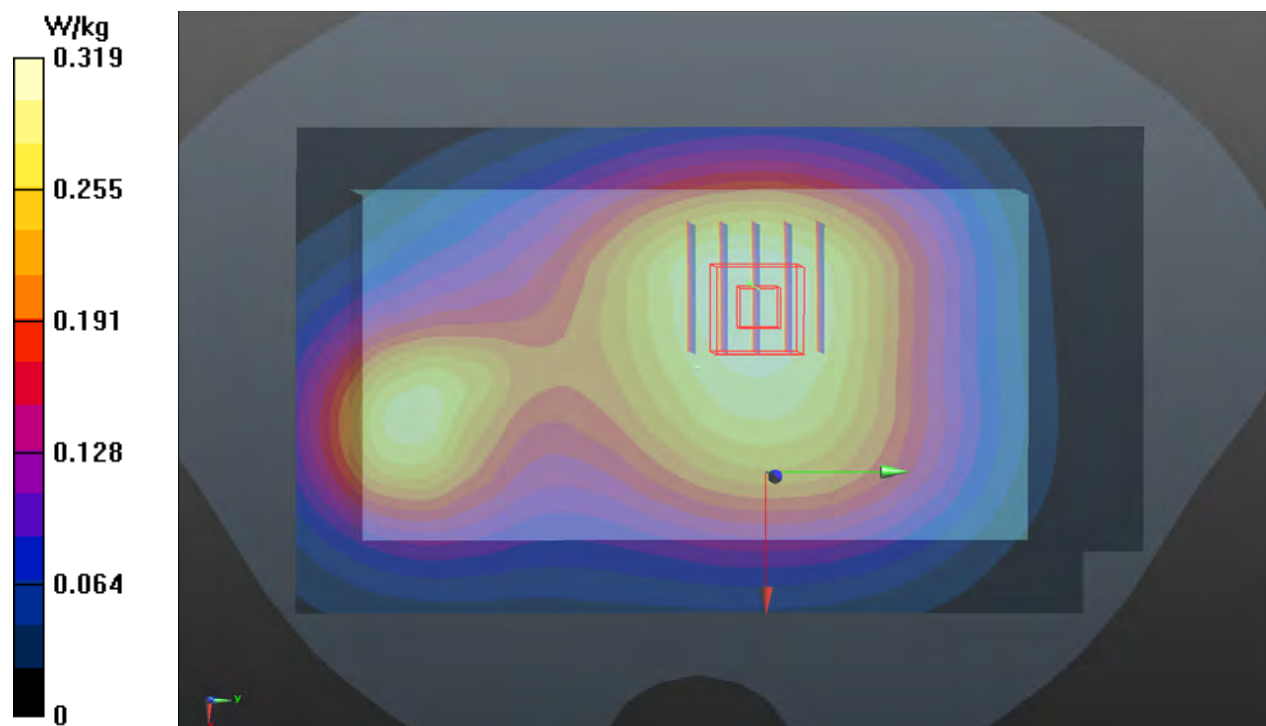
Peak SAR (extrapolated) = 0.353 W/kg

SAR(1 g) = 0.259 W/kg; SAR(10 g) = 0.196 W/kg (SAR corrected for target medium)

Smallest distance from peaks to all points 3 dB below: Larger than measurement grid

Ratio of SAR at M2 to SAR at M1 = 72.9%

Maximum value of SAR (measured) = 0.320 W/kg



P34 GSM1900_GPRS11_Bottom Side_10mm_Ch810_Ant0_Battery3

DUT: 210204C02

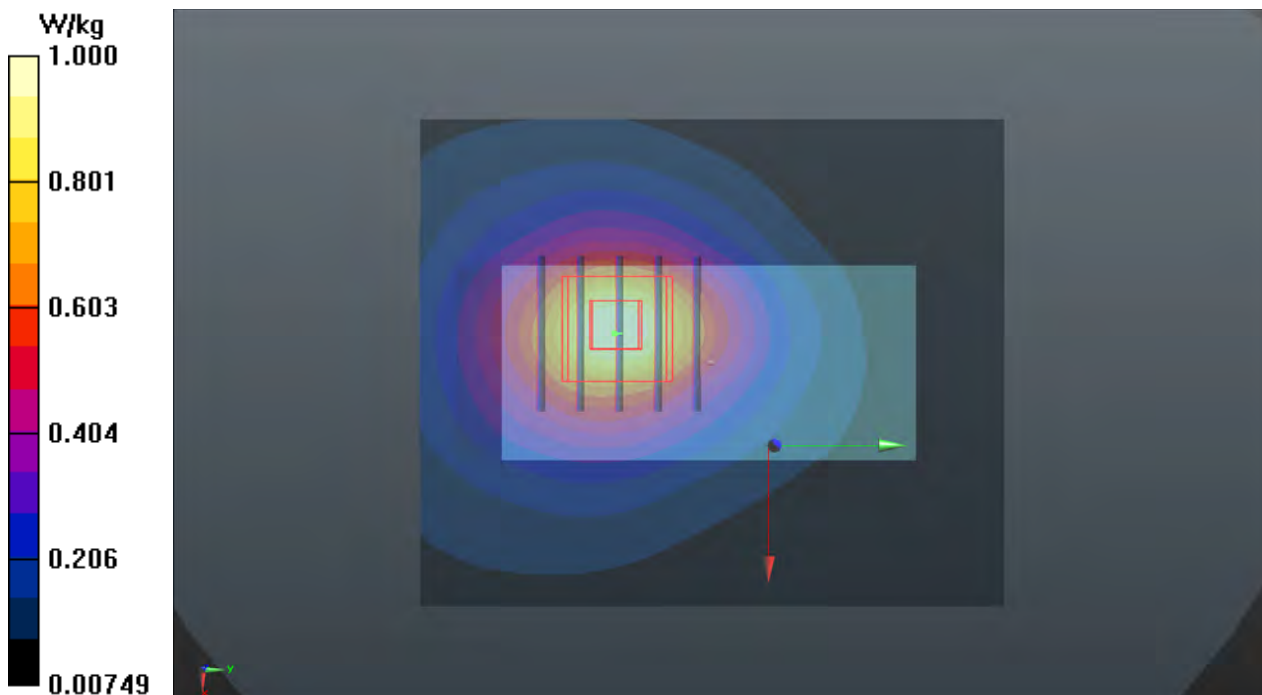
Communication System: UID 10027 - DAC, GPRS-FDD (TDMA, GMSK, TN 0-1-2); Frequency: 1909.8 MHz; Duty Cycle: 1:3.02
Medium: H16T20N1_0308 Medium parameters used: $f = 1910$ MHz; $\sigma = 1.468$ S/m; $\epsilon_r = 39.7$; $\rho = 1000$ kg/m³
Ambient Temperature : 23.7 °C ; Liquid Temperature : 23.3 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3887; ConvF(7.98, 7.98, 7.98) @ 1909.8 MHz; Calibrated: 2020/10/22
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 2020/06/22
- Phantom: Twin SAM Phantom_1653; Type: QD000P40CD;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Area Scan (71x81x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 1.00 W/kg

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 26.41 V/m; Power Drift = -0.16 dB
Peak SAR (extrapolated) = 1.15 W/kg
SAR(1 g) = 0.655 W/kg; SAR(10 g) = 0.385 W/kg (SAR corrected for target medium)
Smallest distance from peaks to all points 3 dB below = 17.3 mm
Ratio of SAR at M2 to SAR at M1 = 58.4%
Maximum value of SAR (measured) = 0.974 W/kg



P35 WCDMA II_RMC12.2K_Bottom Side_10mm_Ch9538_Ant0_Battery3

DUT: 210204C02

Communication System: UID 10011 - CAB, UMTS-FDD (WCDMA); Frequency: 1907.6 MHz; Duty Cycle: 1:1.95

Medium: H16T20N1_0310 Medium parameters used: $f = 1908$ MHz; $\sigma = 1.464$ S/m; $\epsilon_r = 39.565$; $\rho = 1000$ kg/m³

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

DASY5 Configuration:

- Probe: EX3DV4 - SN3887; ConvF(7.98, 7.98, 7.98) @ 1907.6 MHz; Calibrated: 2020/10/22
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 2020/06/22
- Phantom: Twin SAM Phantom_1653; Type: QD000P40CD;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Area Scan (51x81x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 1.06 W/kg

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

Reference Value = 27.61 V/m; Power Drift = -0.02 dB

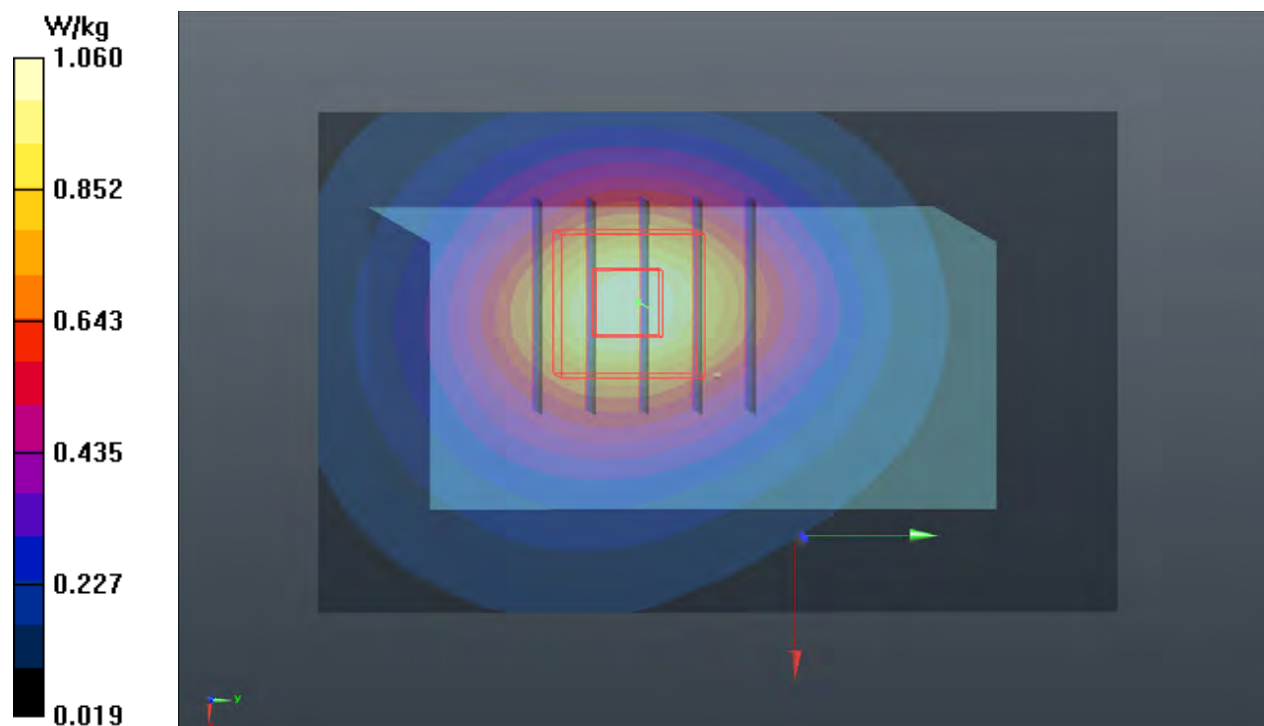
Peak SAR (extrapolated) = 1.24 W/kg

SAR(1 g) = 0.708 W/kg; SAR(10 g) = 0.418 W/kg (SAR corrected for target medium)

Smallest distance from peaks to all points 3 dB below = 16.3 mm

Ratio of SAR at M2 to SAR at M1 = 58.9%

Maximum value of SAR (measured) = 1.05 W/kg



P58 WCDMA V_RMC12.2K_Front Face_10mm_Ch4233_Ant0_Battery3

DUT: 210204C02

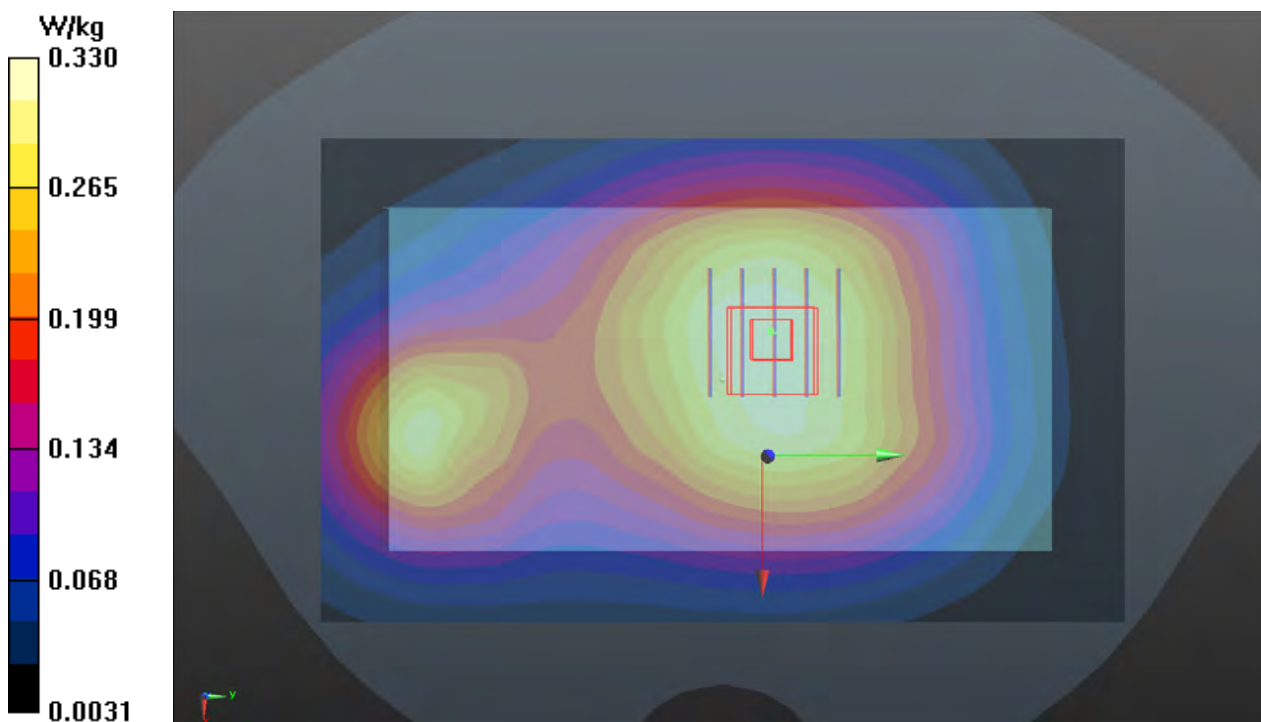
Communication System: UID 10011 - CAB, UMTS-FDD (WCDMA); Frequency: 846.6 MHz; Duty Cycle: 1:1.95
Medium: H07T10N1_0310 Medium parameters used: $f = 847$ MHz; $\sigma = 0.931$ S/m; $\epsilon_r = 41.689$; $\rho = 1000$ kg/m³
Ambient Temperature : 23.5 °C ; Liquid Temperature : 23.1 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3887; ConvF(9.2, 9.2, 9.2) @ 846.6 MHz; Calibrated: 2020/10/22
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 2020/06/22
- Phantom: Twin SAM Phantom_1653; Type: QD000P40CD;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Area Scan (81x141x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.330 W/kg

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 19.22 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 0.357 W/kg
SAR(1 g) = 0.265 W/kg; SAR(10 g) = 0.202 W/kg (SAR corrected for target medium)
Smallest distance from peaks to all points 3 dB below: Larger than measurement grid
Ratio of SAR at M2 to SAR at M1 = 75%
Maximum value of SAR (measured) = 0.326 W/kg



P37 LTE 2_QPSK20M_Bottom Side_10mm_Ch19100_1RB_OS0_Ant0_Battery3

DUT: 210204C02

Communication System: UID 10169 - CAE, LTE-FDD (SC-FDMA, 1 RB, 20 MHz, QPSK);

Frequency: 1900 MHz; Duty Cycle: 1:3.74

Medium: H16T20N1_0309 Medium parameters used: $f = 1900$ MHz; $\sigma = 1.459$ S/m; $\epsilon_r = 39.968$; $\rho = 1000$ kg/m³

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

DASY5 Configuration:

- Probe: EX3DV4 - SN3887; ConvF(7.98, 7.98, 7.98) @ 1900 MHz; Calibrated: 2020/10/22

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

- Electronics: DAE4 Sn905; Calibrated: 2020/06/22

- Phantom: Twin SAM Phantom_1653; Type: QD000P40CD;

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

Area Scan (51x81x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.807 W/kg

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

Reference Value = 23.26 V/m; Power Drift = -0.05 dB

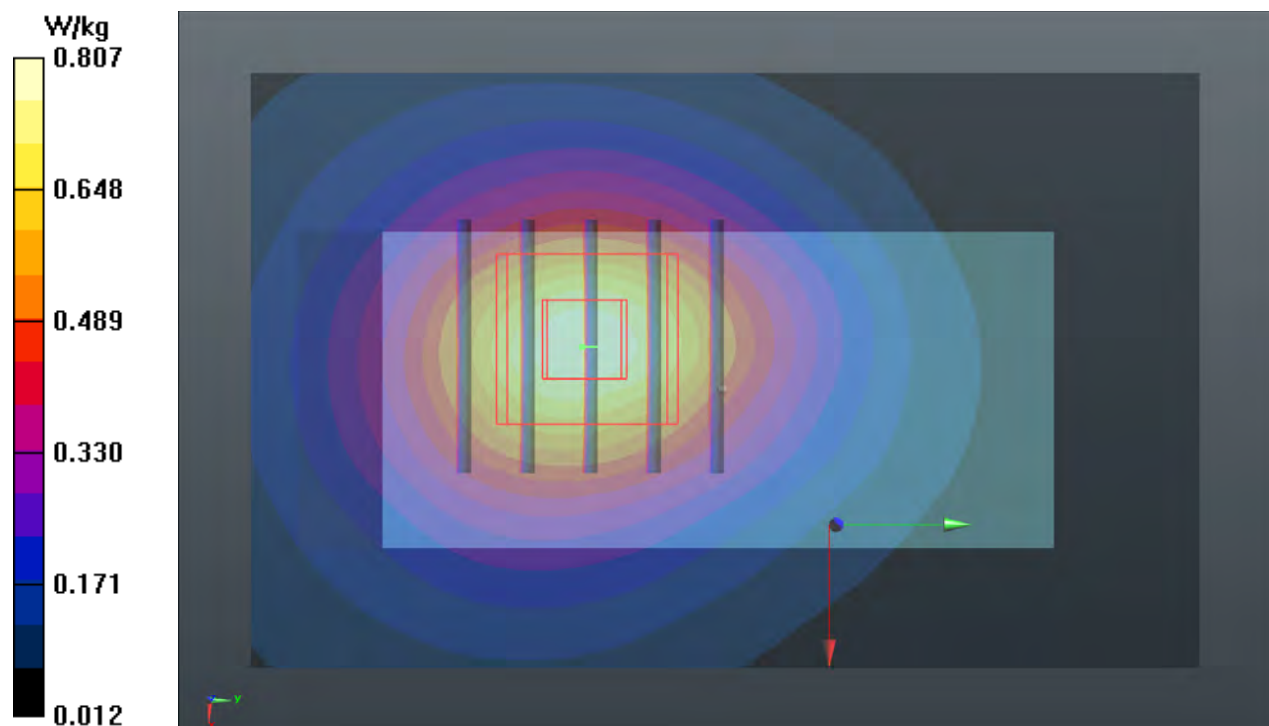
Peak SAR (extrapolated) = 0.918 W/kg

SAR(1 g) = 0.529 W/kg; SAR(10 g) = 0.315 W/kg (SAR corrected for target medium)

Smallest distance from peaks to all points 3 dB below = 18.7 mm

Ratio of SAR at M2 to SAR at M1 = 59%

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



P38 LTE 4_QPSK20M_Bottom Side_10mm_Ch20300_1RB_OS0_Ant0_Battery3

DUT: 210204C02

Communication System: UID 10169 - CAE, LTE-FDD (SC-FDMA, 1 RB, 20 MHz, QPSK);

Frequency: 1745 MHz; Duty Cycle: 1:3.74

Medium: H16T20N1_0308 Medium parameters used (interpolated): $f = 1745$ MHz; $\sigma = 1.318$ S/m; $\epsilon_r = 40.409$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.5 °C ; Liquid Temperature : 23.3 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3650; ConvF(8.54, 8.54, 8.54) @ 1745 MHz; Calibrated: 2020/03/25
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn861; Calibrated: 2020/05/27
- Phantom: SAM Phantom_1982; Type: QD 000 P41 Ax;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Area Scan (51x81x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.380 W/kg

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

Reference Value = 16.70 V/m; Power Drift = 0.02 dB

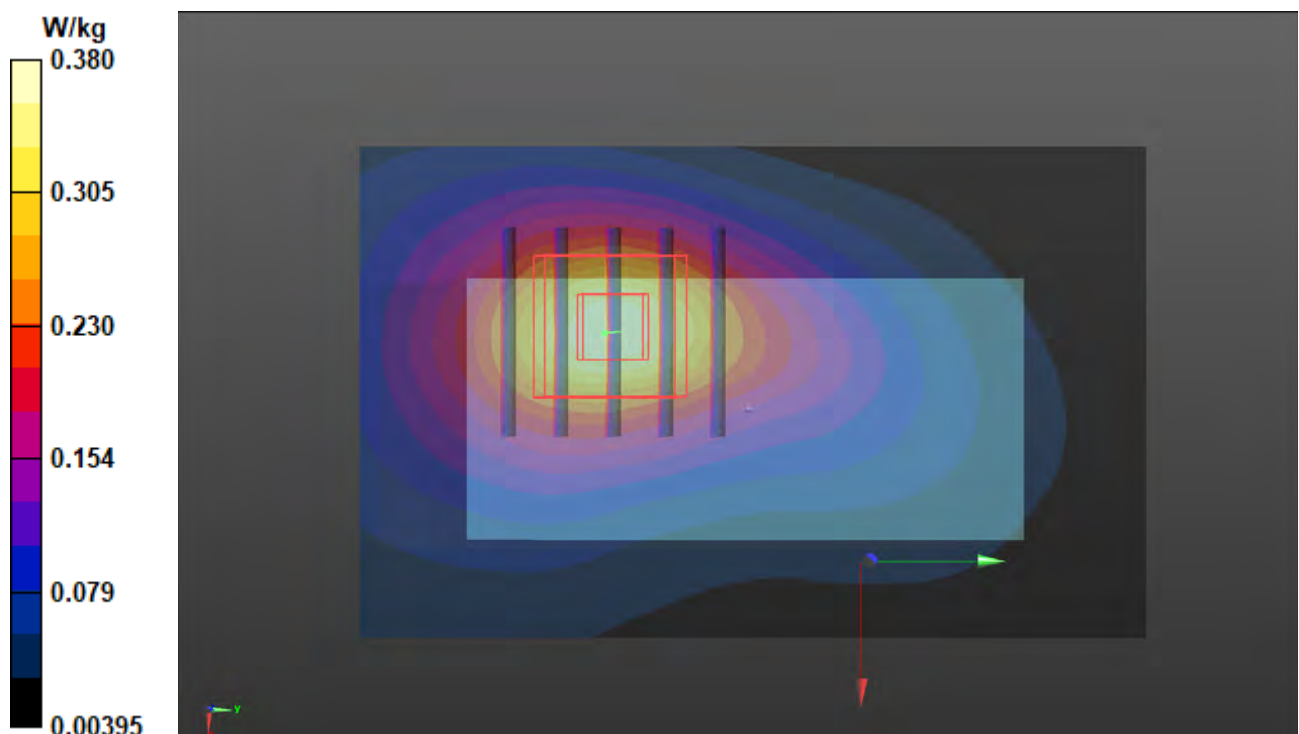
Peak SAR (extrapolated) = 0.445 W/kg

SAR(1 g) = 0.274 W/kg; SAR(10 g) = 0.162 W/kg (SAR corrected for target medium)

Smallest distance from peaks to all points 3 dB below = 15.8 mm

Ratio of SAR at M2 to SAR at M1 = 60.4%

Maximum value of SAR (measured) = 0.382 W/kg



P39 LTE 5_QPSK10M_Front Face_10mm_Ch20600_1RB_OS0_Ant0_Battery3

DUT: 210204C02

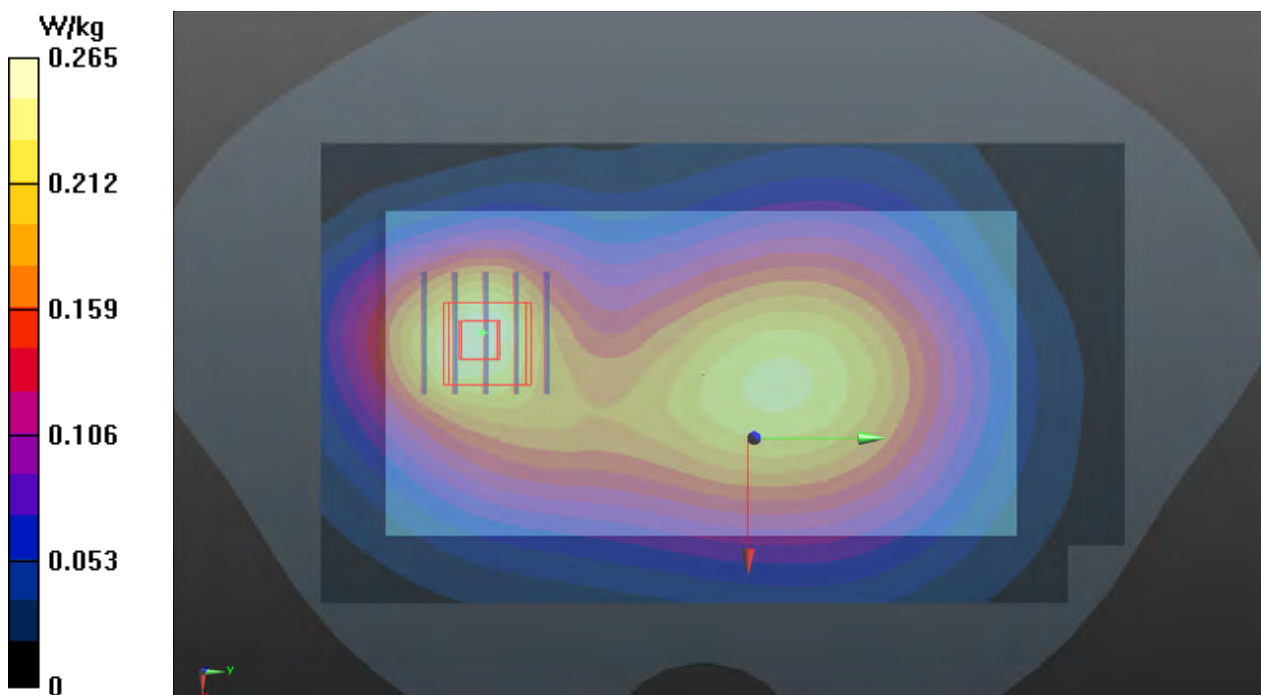
Communication System: UID 10175 - CAG, LTE-FDD (SC-FDMA, 1 RB, 10 MHz, QPSK);
Frequency: 844 MHz; Duty Cycle: 1:3.74
Medium: H07T10N1_0308 Medium parameters used: $f = 844 \text{ MHz}$; $\sigma = 0.93 \text{ S/m}$; $\epsilon_r = 42.22$; $\rho = 1000 \text{ kg/m}^3$
Ambient Temperature : $23.7 \text{ }^\circ\text{C}$; Liquid Temperature : $23.3 \text{ }^\circ\text{C}$

DASY5 Configuration:

- Probe: EX3DV4 - SN3887; ConvF(9.2, 9.2, 9.2) @ 844 MHz; Calibrated: 2020/10/22
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 2020/06/22
- Phantom: Twin SAM Phantom_1653; Type: QD000P40CD;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Area Scan (81x141x1): Interpolated grid: $dx=1.500 \text{ mm}$, $dy=1.500 \text{ mm}$
Maximum value of SAR (interpolated) = 0.265 W/kg

Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$
Reference Value = 17.13 V/m ; Power Drift = -0.14 dB
Peak SAR (extrapolated) = 0.303 W/kg
SAR(1 g) = 0.199 W/kg ; SAR(10 g) = 0.131 W/kg (SAR corrected for target medium)
Smallest distance from peaks to all points 3 dB below = 22.7 mm
Ratio of SAR at M2 to SAR at M1 = 67%
Maximum value of SAR (measured) = 0.265 W/kg



P40 LTE 7_QPSK20M_Bottom Side_10mm_Ch21350_1RB_OS0_Ant0_Battery3

DUT: 210204C02

Communication System: UID 10169 - CAE, LTE-FDD (SC-FDMA, 1 RB, 20 MHz, QPSK);

Frequency: 2560 MHz; Duty Cycle: 1:3.74

Medium: H19T27N1_0308 Medium parameters used: $f = 2560$ MHz; $\sigma = 1.992$ S/m; $\epsilon_r = 37.936$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.5 °C ; Liquid Temperature : 23.3 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3650; ConvF(7.56, 7.56, 7.56) @ 2560 MHz; Calibrated: 2020/03/25
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn861; Calibrated: 2020/05/27
- Phantom: SAM Phantom_1982; Type: QD 000 P41 Ax;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Area Scan (71x101x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm

Maximum value of SAR (interpolated) = 1.62 W/kg

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

Reference Value = 29.63 V/m; Power Drift = -0.09 dB

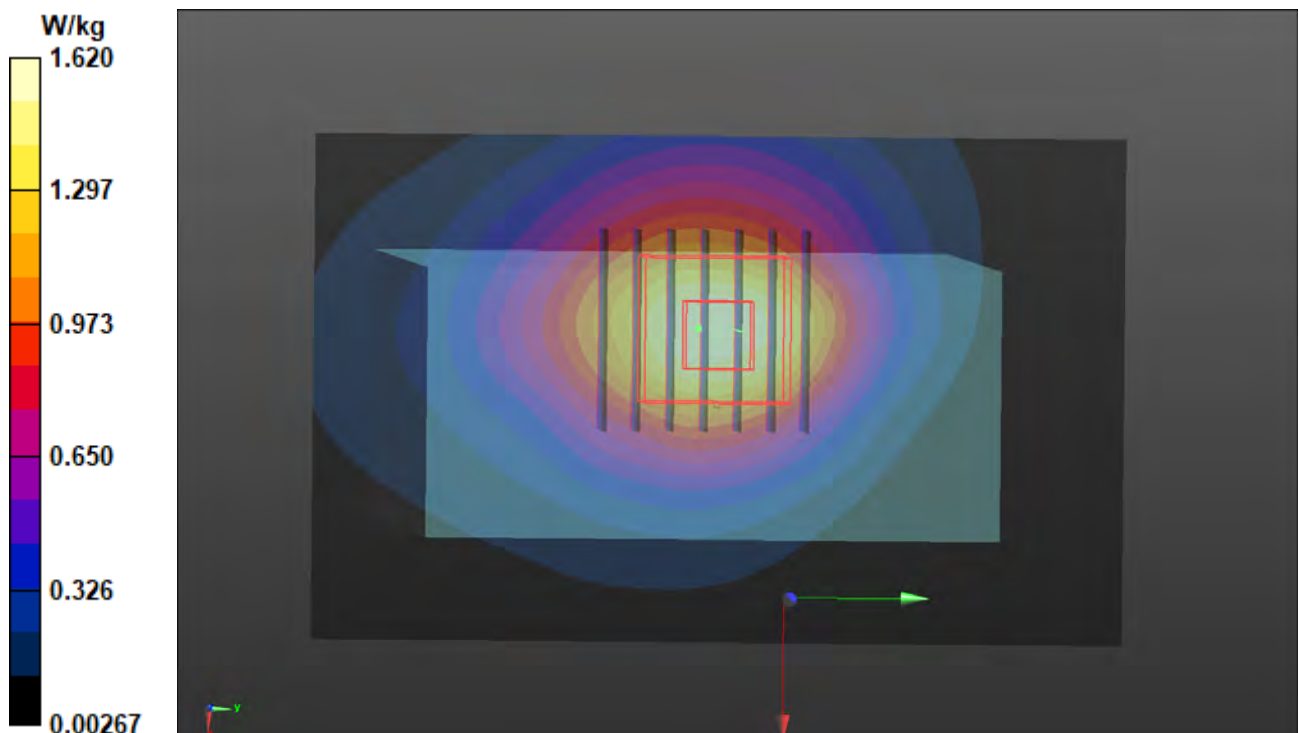
Peak SAR (extrapolated) = 1.89 W/kg

SAR(1 g) = 1.05 W/kg; SAR(10 g) = 0.599 W/kg (SAR corrected for target medium)

Smallest distance from peaks to all points 3 dB below = 15.7 mm

Ratio of SAR at M2 to SAR at M1 = 56.6%

Maximum value of SAR (measured) = 1.58 W/kg



P41 LTE 12_QPSK10M_Front Face_10mm_Ch23130_1RB_OS0_Ant0_Battery3

DUT: 210204C02

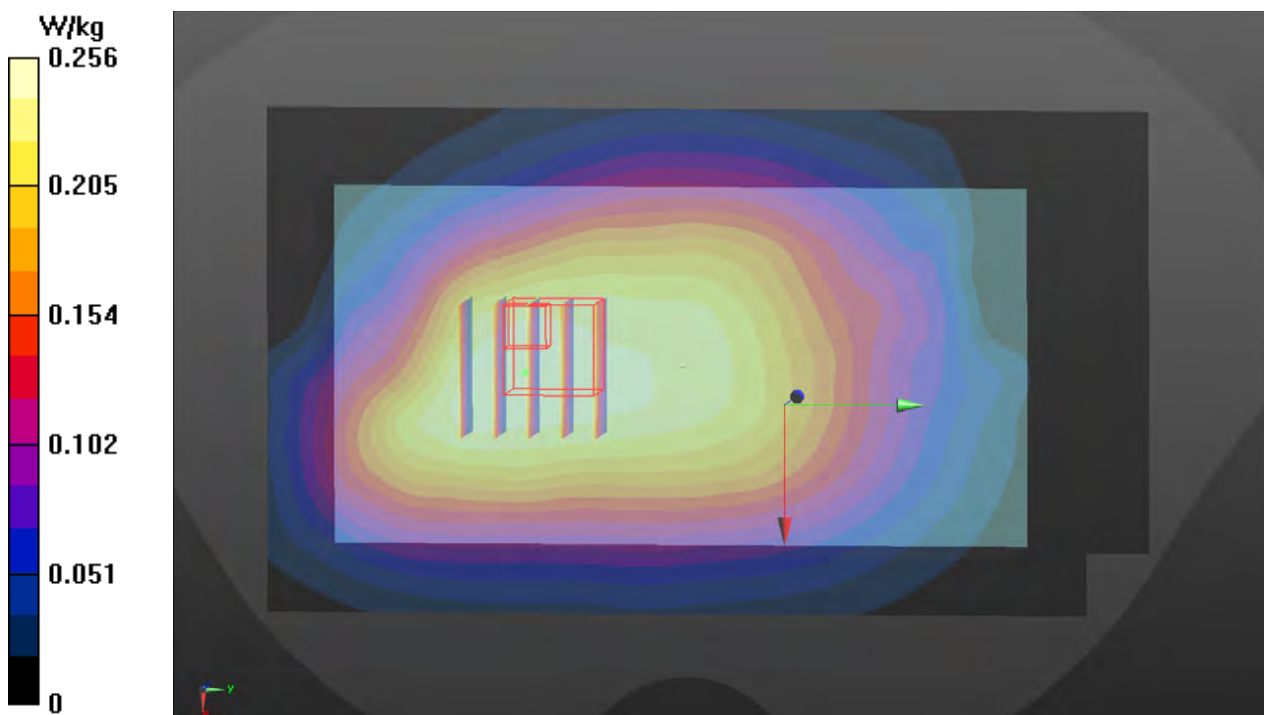
Communication System: UID 10175 - CAG, LTE-FDD (SC-FDMA, 1 RB, 10 MHz, QPSK);
Frequency: 711 MHz; Duty Cycle: 1:3.74
Medium: H07T10N1_0309 Medium parameters used: $f = 711$ MHz; $\sigma = 0.854$ S/m; $\epsilon_r = 43.158$; $\rho = 1000$ kg/m³
Ambient Temperature : 23.7 °C ; Liquid Temperature : 23.3 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3971; ConvF(10.45, 10.45, 10.45) @ 711 MHz; Calibrated: 2021/01/27
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1277; Calibrated: 2021/01/19
- Phantom: Twin SAM Phantom_1986; Type: QD 000 P40 CD;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Area Scan (81x141x1): Interpolated grid: $dx=1.500$ mm, $dy=1.500$ mm
Maximum value of SAR (interpolated) = 0.256 W/kg

Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8$ mm, $dy=8$ mm, $dz=5$ mm
Reference Value = 17.72 V/m; Power Drift = 0.09 dB
Peak SAR (extrapolated) = 0.298 W/kg
SAR(1 g) = 0.221 W/kg; SAR(10 g) = 0.169 W/kg (SAR corrected for target medium)
Smallest distance from peaks to all points 3 dB below: Larger than measurement grid
Ratio of SAR at M2 to SAR at M1 = 78.1%
Maximum value of SAR (measured) = 0.279 W/kg



P42 LTE 13_QPSK10M_Front Face_10mm_Ch23230_1RB_OS0_Ant0_Battery3

DUT: 210204C02

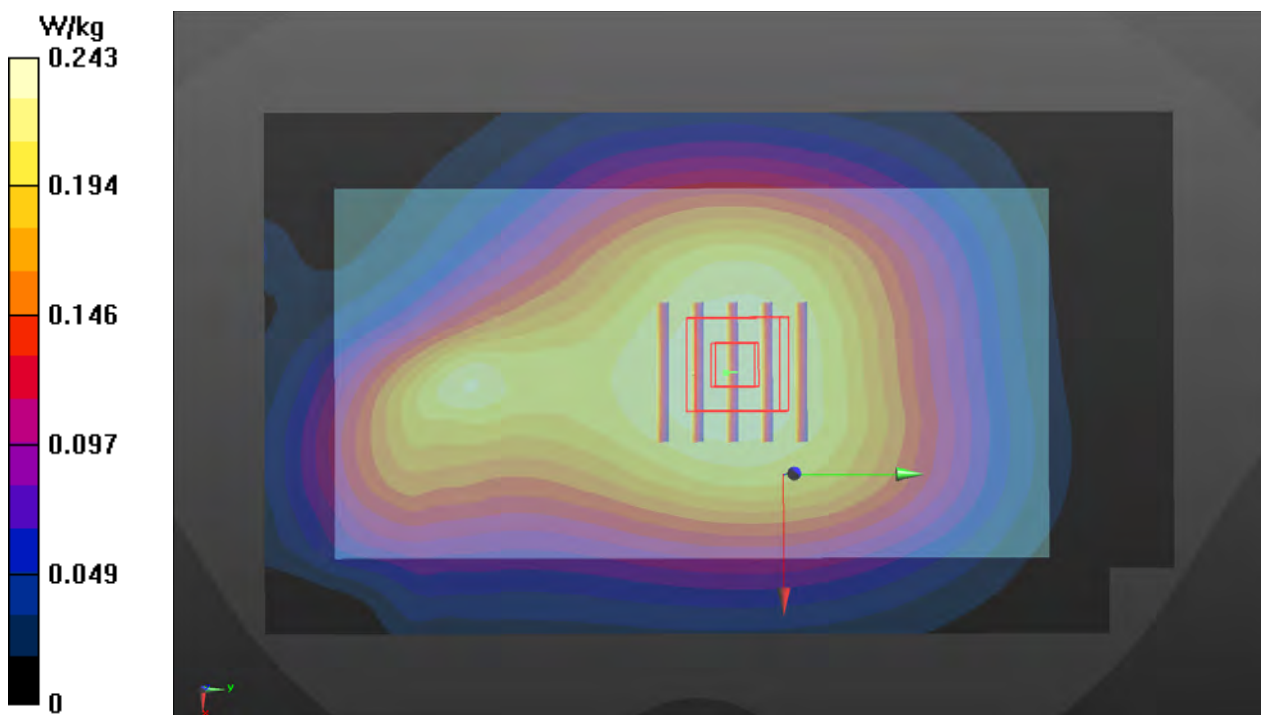
Communication System: UID 10175 - CAG, LTE-FDD (SC-FDMA, 1 RB, 10 MHz, QPSK);
Frequency: 782 MHz; Duty Cycle: 1:3.74
Medium: H07T10N1_0309 Medium parameters used: $f = 782 \text{ MHz}$; $\sigma = 0.917 \text{ S/m}$; $\epsilon_r = 42.232$; $\rho = 1000 \text{ kg/m}^3$
Ambient Temperature : $23.7 \text{ }^\circ\text{C}$; Liquid Temperature : $23.3 \text{ }^\circ\text{C}$

DASY5 Configuration:

- Probe: EX3DV4 - SN3971; ConvF(10.45, 10.45, 10.45) @ 782 MHz; Calibrated: 2021/01/27
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1277; Calibrated: 2021/01/19
- Phantom: Twin SAM Phantom_1986; Type: QD 000 P40 CD;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Area Scan (81x141x1): Interpolated grid: $dx=1.500 \text{ mm}$, $dy=1.500 \text{ mm}$
Maximum value of SAR (interpolated) = 0.243 W/kg

Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$
Reference Value = 17.01 V/m ; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 0.260 W/kg
SAR(1 g) = 0.204 W/kg ; SAR(10 g) = 0.162 W/kg (SAR corrected for target medium)
Smallest distance from peaks to all points 3 dB below: Larger than measurement grid
Ratio of SAR at M2 to SAR at M1 = 79.7%
Maximum value of SAR (measured) = 0.243 W/kg



P43 LTE 17_QPSK10M_Front Face_10mm_Ch23780_1RB_OS0_Ant0_Battery3

DUT: 210204C02

Communication System: UID 10175 - CAG, LTE-FDD (SC-FDMA, 1 RB, 10 MHz, QPSK);

Frequency: 709 MHz; Duty Cycle: 1:3.74

Medium: H07T10N1_0309 Medium parameters used: $f = 709$ MHz; $\sigma = 0.852$ S/m; $\epsilon_r = 43.181$; $\rho = 1000$ kg/m³

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

DASY5 Configuration:

- Probe: EX3DV4 - SN3887; ConvF(9.49, 9.49, 9.49) @ 709 MHz; Calibrated: 2020/10/22
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 2020/06/22
- Phantom: Twin SAM Phantom_1653; Type: QD000P40CD;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Area Scan (81x141x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.252 W/kg

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

Reference Value = 17.92 V/m; Power Drift = 0.02 dB

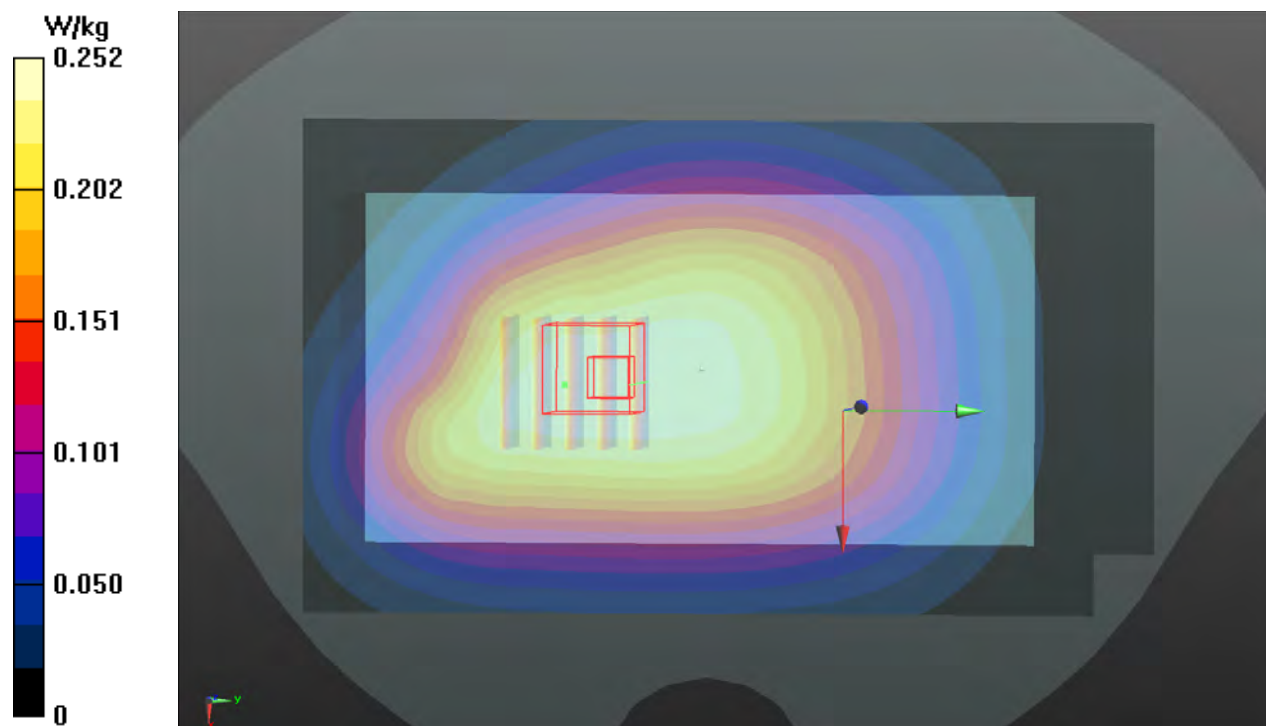
Peak SAR (extrapolated) = 0.277 W/kg

SAR(1 g) = 0.216 W/kg; SAR(10 g) = 0.160 W/kg (SAR corrected for target medium)

Smallest distance from peaks to all points 3 dB below: Larger than measurement grid

Ratio of SAR at M2 to SAR at M1 = 75.8%

Maximum value of SAR (measured) = 0.254 W/kg



P44 LTE 25_QPSK20M_Bottom Side_10mm_Ch26140_1RB_OS0_Ant0_Battery3

DUT: 210204C02

Communication System: UID 10169 - CAE, LTE-FDD (SC-FDMA, 1 RB, 20 MHz, QPSK);

Frequency: 1860 MHz; Duty Cycle: 1:3.74

Medium: H16T20N1_0309 Medium parameters used: $f = 1860$ MHz; $\sigma = 1.42$ S/m; $\epsilon_r = 40.084$; $\rho = 1000$ kg/m³

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

DASY5 Configuration:

- Probe: EX3DV4 - SN3887; ConvF(7.98, 7.98, 7.98) @ 1860 MHz; Calibrated: 2020/10/22
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 2020/06/22
- Phantom: Twin SAM Phantom_1653; Type: QD000P40CD;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Area Scan (51x81x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.591 W/kg

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

Reference Value = 19.58 V/m; Power Drift = -0.16 dB

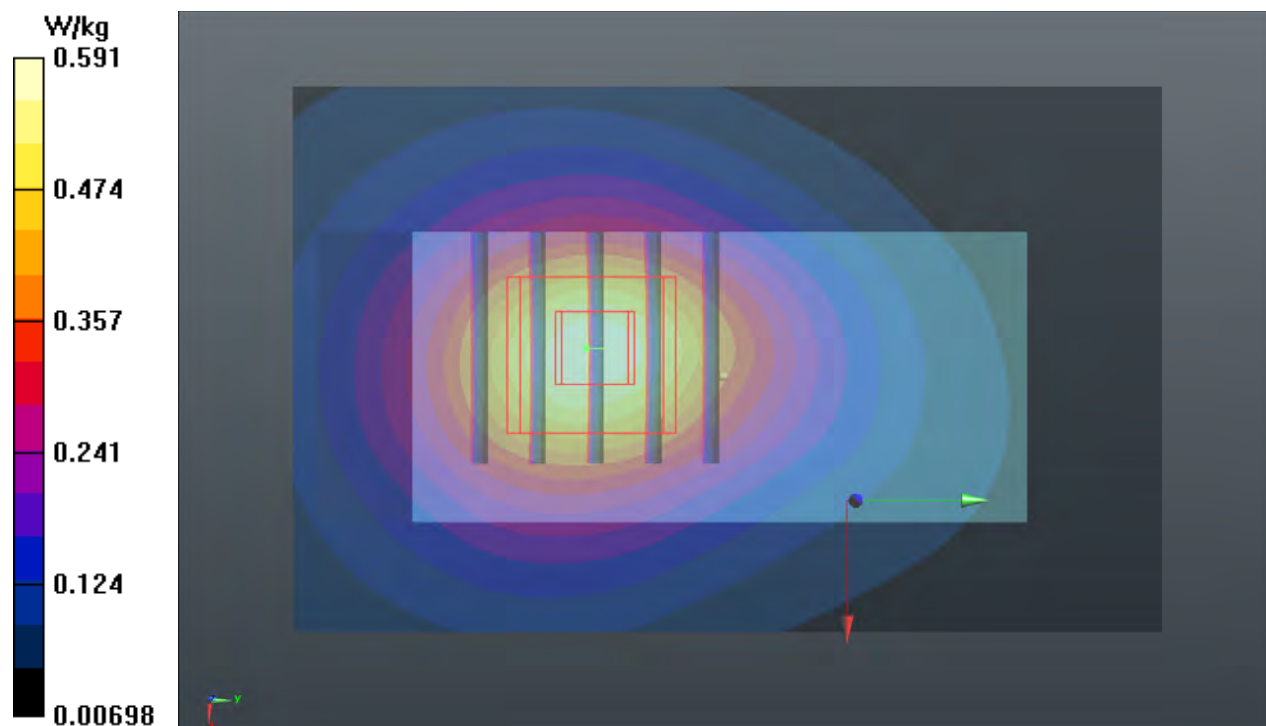
Peak SAR (extrapolated) = 0.681 W/kg

SAR(1 g) = 0.401 W/kg; SAR(10 g) = 0.238 W/kg (SAR corrected for target medium)

Smallest distance from peaks to all points 3 dB below = 17.9 mm

Ratio of SAR at M2 to SAR at M1 = 59.1%

Maximum value of SAR (measured) = 0.579 W/kg



P45 WLAN2.4G_802.11b_Right Side_10mm_Ch6_Ant1_Battery3

DUT: 210204C02

Communication System: UID 10012 - CAB, IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps);

Frequency: 2437 MHz; Duty Cycle: 1:1.01

Medium: H19T27N1_0312 Medium parameters used (interpolated): $f = 2437$ MHz; $\sigma = 1.873$ S/m; ϵ_r

$= 38.363$; $\rho = 1000$ kg/m³

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

DASY5 Configuration:

- Probe: EX3DV4 - SN3971; ConvF(7.87, 7.87, 7.87) @ 2437 MHz; Calibrated: 2021/01/27

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

- Electronics: DAE4 Sn1277; Calibrated: 2021/01/19

- Phantom: Twin SAM Phantom_1986; Type: QD 000 P40 CD;

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

Area Scan (71x171x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm

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

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

Reference Value = 20.87 V/m; Power Drift = -0.09 dB

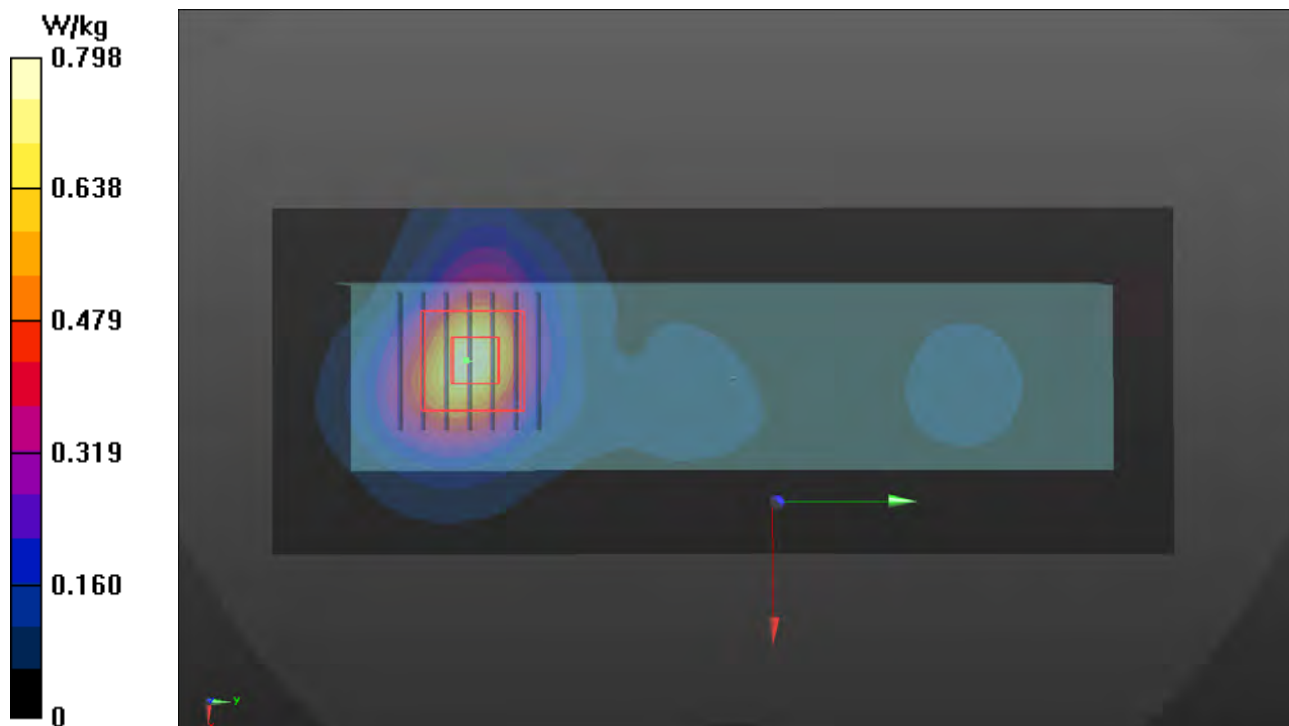
Peak SAR (extrapolated) = 0.939 W/kg

SAR(1 g) = 0.487 W/kg; SAR(10 g) = 0.252 W/kg (SAR corrected for target medium)

Smallest distance from peaks to all points 3 dB below = 11.7 mm

Ratio of SAR at M2 to SAR at M1 = 54.4%

Maximum value of SAR (measured) = 0.769 W/kg



P46 WLAN5.2G_802.11n HT40_Right Side_10mm_Ch46_Ant 0+1_Battery3

DUT: 210204C02

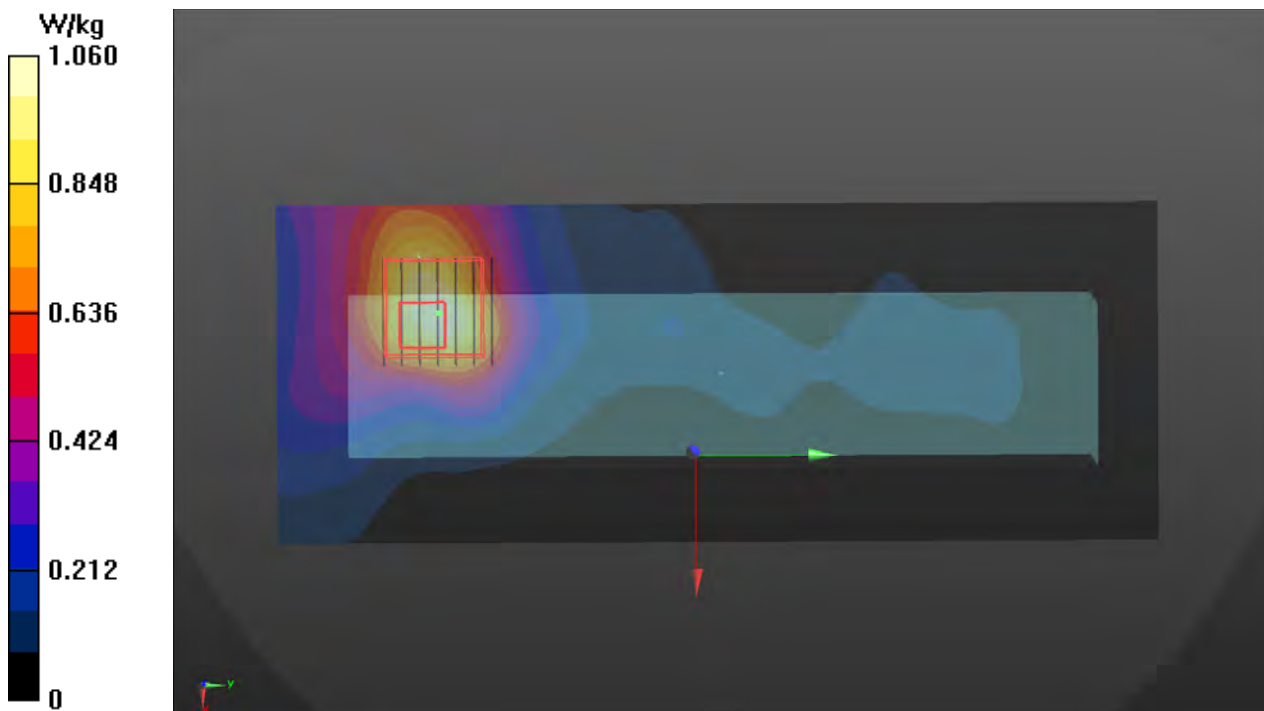
Communication System: UID 10599 - AAB, IEEE 802.11n (HT Mixed, 40MHz, MCS0);
Frequency: 5230 MHz; Duty Cycle: 1:1.1
Medium: H34T60N1_0318 Medium parameters used: $f = 5230 \text{ MHz}$; $\sigma = 4.541 \text{ S/m}$; $\epsilon_r = 36.089$; $\rho = 1000 \text{ kg/m}^3$
Ambient Temperature : $23.6 \text{ }^\circ\text{C}$; Liquid Temperature : $23.4 \text{ }^\circ\text{C}$

DASY5 Configuration:

- Probe: EX3DV4 - SN3971; ConvF(5.2, 5.2, 5.2) @ 5230 MHz; Calibrated: 2021/01/27
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1277; Calibrated: 2021/01/19
- Phantom: Twin SAM Phantom_1986; Type: QD 000 P40 CD;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Area Scan (81x201x1): Interpolated grid: $dx=1.000 \text{ mm}$, $dy=1.000 \text{ mm}$
Maximum value of SAR (interpolated) = 1.06 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=4\text{mm}$, $dy=4\text{mm}$, $dz=1.4\text{mm}$
Reference Value = 15.70 V/m ; Power Drift = -0.06 dB
Peak SAR (extrapolated) = 3.05 W/kg
SAR(1 g) = 0.385 W/kg; SAR(10 g) = 0.146 W/kg (SAR corrected for target medium)
Smallest distance from peaks to all points 3 dB below = 14.3 mm
Ratio of SAR at M2 to SAR at M1 = 56.6%
Maximum value of SAR (measured) = 1.05 W/kg



P47 WLAN5.8G_802.11ac VHT80_Left Side_10mm_Ch155_Ant 0_Battery3

DUT: 210204C02

Communication System: UID 10544 - AAC, IEEE 802.11ac WiFi (80MHz, MCS0); Frequency: 5775 MHz; Duty Cycle: 1:1.19

Medium: H34T60N1_0318 Medium parameters used: $f = 5775$ MHz; $\sigma = 5.06$ S/m; $\epsilon_r = 35.326$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.6 °C ; Liquid Temperature : 23.4 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3971; ConvF(4.95, 4.95, 4.95) @ 5775 MHz; Calibrated: 2021/01/27
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1277; Calibrated: 2021/01/19
- Phantom: Twin SAM Phantom_1986; Type: QD 000 P40 CD;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Area Scan (81x201x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 1.42 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 18.20 V/m; Power Drift = 0.03 dB

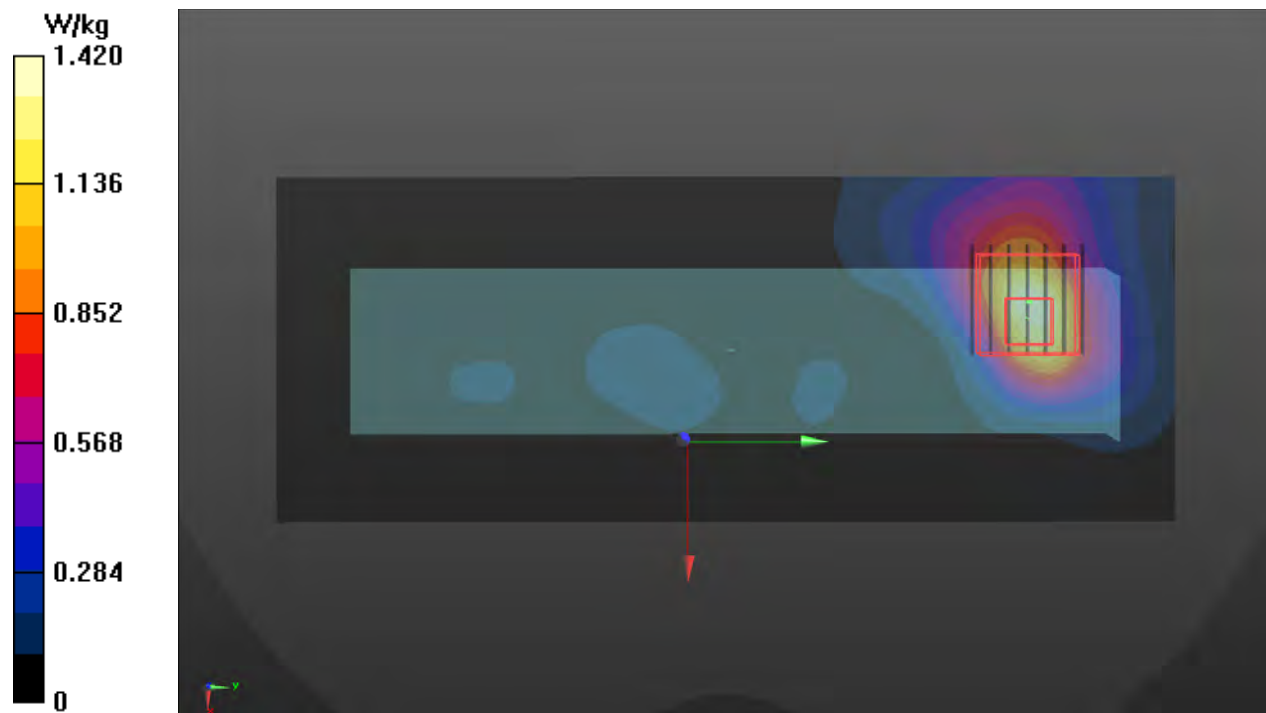
Peak SAR (extrapolated) = 2.32 W/kg

SAR(1 g) = 0.622 W/kg; SAR(10 g) = 0.241 W/kg (SAR corrected for target medium)

Smallest distance from peaks to all points 3 dB below = 10.4 mm

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

Maximum value of SAR (measured) = 1.41 W/kg



P48 WLAN5.3G_802.11n HT40_Right Side_0mm_Ch54_Ant 0+1_Battery3

DUT: 210204C02

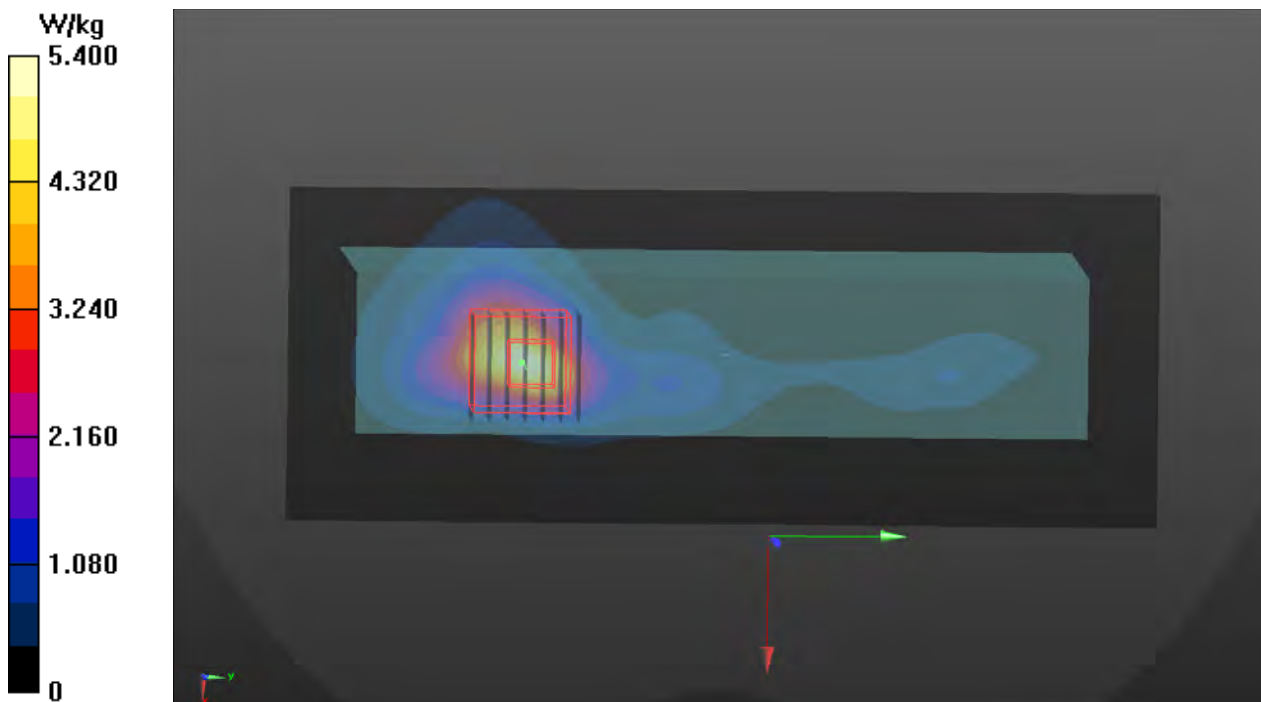
Communication System: UID 10599 - AAB, IEEE 802.11n (HT Mixed, 40MHz, MCS0);
Frequency: 5270 MHz; Duty Cycle: 1:1.1
Medium: H34T60N1_0318 Medium parameters used: $f = 5270$ MHz; $\sigma = 4.587$ S/m; $\epsilon_r = 36.037$; $\rho = 1000$ kg/m³
Ambient Temperature : 23.4 °C ; Liquid Temperature : 23.3 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3971; ConvF(5.2, 5.2, 5.2) @ 5270 MHz; Calibrated: 2021/01/27
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1277; Calibrated: 2021/01/19
- Phantom: Twin SAM Phantom_1986; Type: QD 000 P40 CD;
- Measurement SW: DASY52, Version 52.10 (3); SEMCAD X Version 14.6.14 (7483)

Area Scan (81x201x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 5.40 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 31.48 V/m; Power Drift = 0.05 dB
Peak SAR (extrapolated) = 10.7 W/kg
SAR(1 g) = 2.85 W/kg; SAR(10 g) = 1.02 W/kg (SAR corrected for target medium)
Smallest distance from peaks to all points 3 dB below = 7.2 mm
Ratio of SAR at M2 to SAR at M1 = 66%
Maximum value of SAR (measured) = 6.75 W/kg



P49 WLAN5.6G_802.11ac VHT80_Left Side_0mm_Ch138_Ant 0_Battery3

DUT: 210204C02

Communication System: UID 10544 - AAC, IEEE 802.11ac WiFi (80MHz, MCS0); Frequency: 5690 MHz; Duty Cycle: 1:1.19

Medium: H34T60N1_0319 Medium parameters used: $f = 5690$ MHz; $\sigma = 5.309$ S/m; $\epsilon_r = 36.007$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.4 °C ; Liquid Temperature : 23.3 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3971; ConvF(4.95, 4.95, 4.95) @ 5690 MHz; Calibrated: 2021/01/27
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1277; Calibrated: 2021/01/19
- Phantom: Twin SAM Phantom_1986; Type: QD 000 P40 CD;
- Measurement SW: DASY52, Version 52.10 (3); SEMCAD X Version 14.6.14 (7483)

Area Scan (81x201x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 16.5 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 60.09 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 28.1 W/kg

SAR(1 g) = 6.19 W/kg; SAR(10 g) = 1.75 W/kg (SAR corrected for target medium)

Smallest distance from peaks to all points 3 dB below = 6.1 mm

Ratio of SAR at M2 to SAR at M1 = 64.4%

Maximum value of SAR (measured) = 17.3 W/kg



Appendix C. Calibration Certificate for Probe and Dipole

The SPEAG calibration certificates are shown as follows.



Accreditation No.: **SCS 0108**

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

Client **B.V. ADT (Auden)**

Certificate No: **D750V3-1013_Aug20**

CALIBRATION CERTIFICATE

Object **D750V3 - SN:1013**

Calibration procedure(s) **QA CAL-05.v11
Calibration Procedure for SAR Validation Sources between 0.7-3 GHz**

Calibration date: **August 13, 2020**

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).
The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter NRP	SN: 104778	01-Apr-20 (No. 217-03100/03101)	Apr-21
Power sensor NRP-Z91	SN: 103244	01-Apr-20 (No. 217-03100)	Apr-21
Power sensor NRP-Z91	SN: 103245	01-Apr-20 (No. 217-03101)	Apr-21
Reference 20 dB Attenuator	SN: BH9394 (20k)	31-Mar-20 (No. 217-03106)	Apr-21
Type-N mismatch combination	SN: 310982 / 06327	31-Mar-20 (No. 217-03104)	Apr-21
Reference Probe EX3DV4	SN: 7349	29-Jun-20 (No. EX3-7349_Jun20)	Jun-21
DAE4	SN: 601	27-Dec-19 (No. DAE4-601_Dec19)	Dec-20

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power meter E4419B	SN: GB39512475	30-Oct-14 (in house check Feb-19)	In house check: Oct-20
Power sensor HP 8481A	SN: US37292783	07-Oct-15 (in house check Oct-18)	In house check: Oct-20
Power sensor HP 8481A	SN: MY41092317	07-Oct-15 (in house check Oct-18)	In house check: Oct-20
RF generator R&S SMT-06	SN: 100972	15-Jun-15 (in house check Oct-18)	In house check: Oct-20
Network Analyzer Agilent E8358A	SN: US41080477	31-Mar-14 (in house check Oct-19)	In house check: Oct-20

	Name	Function	Signature
Calibrated by:	Jeffrey Katzman	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: August 14, 2020

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



Accredited by the Swiss Accreditation Service (SAS)

The Swiss Accreditation Service is one of the signatories to the EA Multilateral Agreement for the recognition of calibration certificates

Glossary:

TSL	tissue simulating liquid
ConvF	sensitivity in TSL / NORM x,y,z
N/A	not applicable or not measured

Calibration is Performed According to the Following Standards:

- a) IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013
- b) IEC 62209-1, "Measurement procedure for the assessment of Specific Absorption Rate (SAR) from hand-held and body-mounted devices used next to the ear (frequency range of 300 MHz to 6 GHz)", July 2016
- c) IEC 62209-2, "Procedure to determine the Specific Absorption Rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range of 30 MHz to 6 GHz)", March 2010
- d) KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

Additional Documentation:

- e) DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

- *Measurement Conditions:* Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- *Antenna Parameters with TSL:* The dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- *Feed Point Impedance and Return Loss:* These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- *Electrical Delay:* One-way delay between the SMA connector and the antenna feed point. No uncertainty required.
- *SAR measured:* SAR measured at the stated antenna input power.
- *SAR normalized:* SAR as measured, normalized to an input power of 1 W at the antenna connector.
- *SAR for nominal TSL parameters:* The measured TSL parameters are used to calculate the nominal SAR result.

The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor $k=2$, which for a normal distribution corresponds to a coverage probability of approximately 95%.

Measurement Conditions

DASY system configuration, as far as not given on page 1.

DASY Version	DASY5	V52.10.4
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	15 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	750 MHz \pm 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	41.9	0.89 mho/m
Measured Head TSL parameters	(22.0 \pm 0.2) °C	42.4 \pm 6 %	0.91 mho/m \pm 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm³ (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	2.15 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	8.48 W/kg \pm 17.0 % (k=2)

SAR averaged over 10 cm³ (10 g) of Head TSL	condition	
SAR measured	250 mW input power	1.40 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	5.53 W/kg \pm 16.5 % (k=2)

Appendix (Additional assessments outside the scope of SCS 0108)

Antenna Parameters with Head TSL

Impedance, transformed to feed point	53.0 Ω - 0.8 j Ω
Return Loss	- 30.5 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.036 ns
----------------------------------	----------

After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.

No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

Additional EUT Data

Manufactured by	SPEAG
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DASY5 Validation Report for Head TSL

Date: 13.08.2020

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 750 MHz; Type: D750V3; Serial: D750V3 - SN:1013

Communication System: UID 0 - CW; Frequency: 750 MHz

Medium parameters used: $f = 750$ MHz; $\sigma = 0.91$ S/m; $\epsilon_r = 42.4$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 - SN7349; ConvF(9.97, 9.97, 9.97) @ 750 MHz; Calibrated: 29.06.2020
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 27.12.2019
- Phantom: Flat Phantom 4.9 (front); Type: QD 00L P49 AA; Serial: 1001
- DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

Dipole Calibration for Head Tissue/Pin=250 mW, d=15mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 59.14 V/m; Power Drift = -0.06 dB

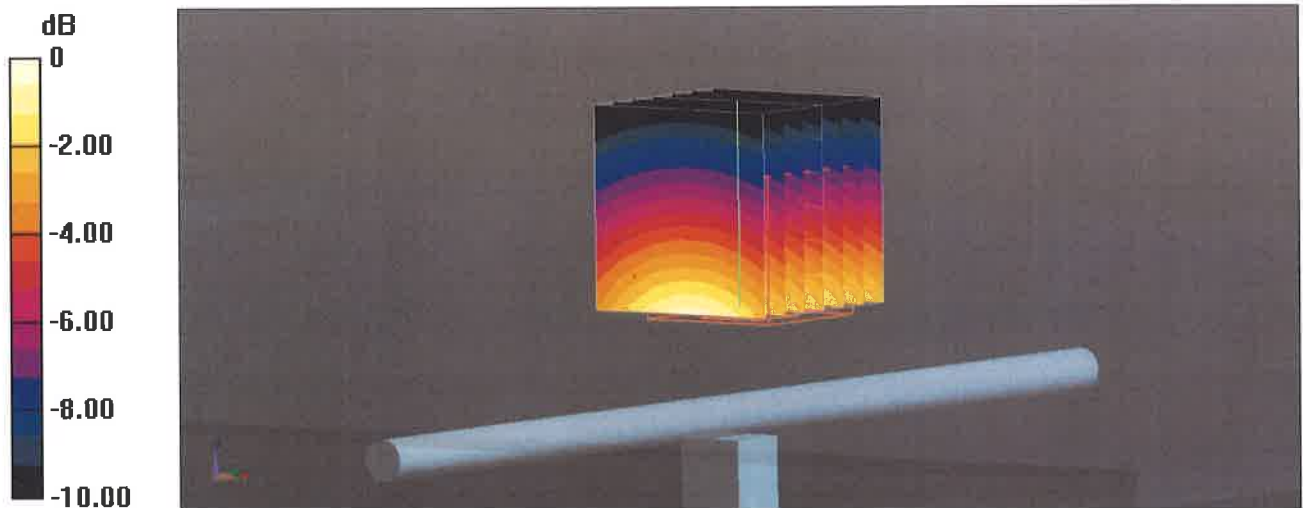
Peak SAR (extrapolated) = 3.22 W/kg

SAR(1 g) = 2.15 W/kg; SAR(10 g) = 1.4 W/kg

Smallest distance from peaks to all points 3 dB below = 17 mm

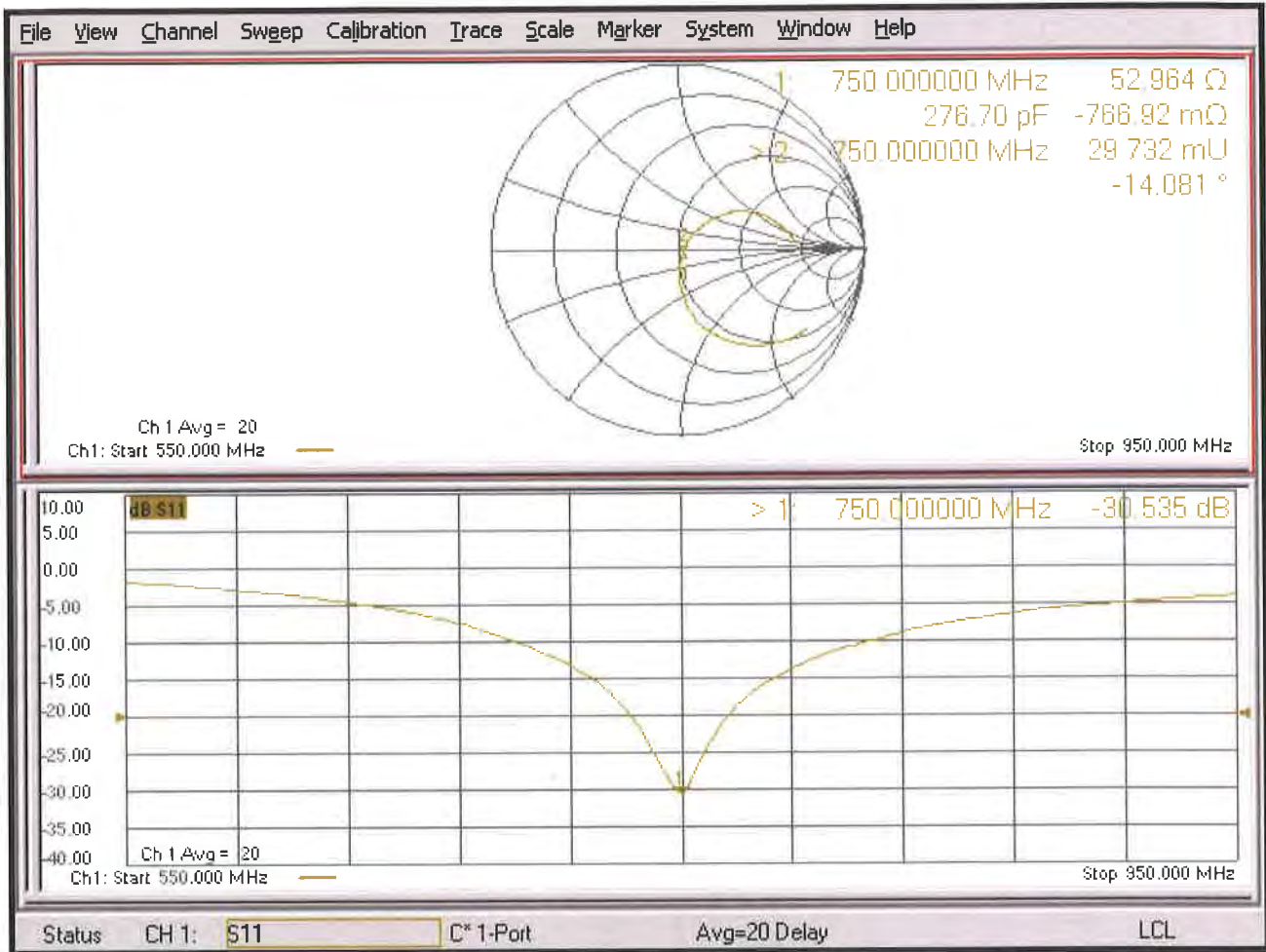
Ratio of SAR at M2 to SAR at M1 = 66.8%

Maximum value of SAR (measured) = 2.83 W/kg



0 dB = 2.83 W/kg = 4.52 dBW/kg

Impedance Measurement Plot for Head TSL





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Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 0108**

Client **B.V. ADT (Auden)**

Certificate No: **D835V2-4d121_Aug20**

CALIBRATION CERTIFICATE

Object **D835V2 - SN:4d121**

Calibration procedure(s) **QA CAL-05.v11
Calibration Procedure for SAR Validation Sources between 0.7-3 GHz**

Calibration date: **August 13, 2020**

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).
The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter NRP	SN: 104778	01-Apr-20 (No. 217-03100/03101)	Apr-21
Power sensor NRP-Z91	SN: 103244	01-Apr-20 (No. 217-03100)	Apr-21
Power sensor NRP-Z91	SN: 103245	01-Apr-20 (No. 217-03101)	Apr-21
Reference 20 dB Attenuator	SN: BH9394 (20k)	31-Mar-20 (No. 217-03106)	Apr-21
Type-N mismatch combination	SN: 310982 / 06327	31-Mar-20 (No. 217-03104)	Apr-21
Reference Probe EX3DV4	SN: 7349	29-Jun-20 (No. EX3-7349_Jun20)	Jun-21
DAE4	SN: 601	27-Dec-19 (No. DAE4-601_Dec19)	Dec-20

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power meter E4419B	SN: GB39512475	30-Oct-14 (in house check Feb-19)	In house check: Oct-20
Power sensor HP 8481A	SN: US37292783	07-Oct-15 (in house check Oct-18)	In house check: Oct-20
Power sensor HP 8481A	SN: MY41092317	07-Oct-15 (in house check Oct-18)	In house check: Oct-20
RF generator R&S SMT-06	SN: 100972	15-Jun-15 (in house check Oct-18)	In house check: Oct-20
Network Analyzer Agilent E8358A	SN: US41080477	31-Mar-14 (in house check Oct-19)	In house check: Oct-20

Calibrated by: **Jeffrey Katzman** **Jeffrey Katzman** **Laboratory Technician**

Approved by: **Katja Pokovic** **Katja Pokovic** **Technical Manager**

Signature
J. Katzman
K. Pokovic

Issued: August 14, 2020

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



Accredited by the Swiss Accreditation Service (SAS)

The Swiss Accreditation Service is one of the signatories to the EA
Multilateral Agreement for the recognition of calibration certificates

Glossary:

TSL	tissue simulating liquid
ConvF	sensitivity in TSL / NORM x,y,z
N/A	not applicable or not measured

Calibration is Performed According to the Following Standards:

- IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013
- IEC 62209-1, "Measurement procedure for the assessment of Specific Absorption Rate (SAR) from hand-held and body-mounted devices used next to the ear (frequency range of 300 MHz to 6 GHz)", July 2016
- IEC 62209-2, "Procedure to determine the Specific Absorption Rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range of 30 MHz to 6 GHz)", March 2010
- KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

Additional Documentation:

- DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

- Measurement Conditions:* Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- Antenna Parameters with TSL:* The dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- Feed Point Impedance and Return Loss:* These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- Electrical Delay:* One-way delay between the SMA connector and the antenna feed point. No uncertainty required.
- SAR measured:* SAR measured at the stated antenna input power.
- SAR normalized:* SAR as measured, normalized to an input power of 1 W at the antenna connector.
- SAR for nominal TSL parameters:* The measured TSL parameters are used to calculate the nominal SAR result.

The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor $k=2$, which for a normal distribution corresponds to a coverage probability of approximately 95%.

Measurement Conditions

DASY system configuration, as far as not given on page 1.

DASY Version	DASY5	V52.10.4
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	15 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	835 MHz \pm 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	41.5	0.90 mho/m
Measured Head TSL parameters	(22.0 \pm 0.2) °C	42.2 \pm 6 %	0.93 mho/m \pm 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm³ (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	2.43 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	9.52 W/kg \pm 17.0 % (k=2)

SAR averaged over 10 cm³ (10 g) of Head TSL	condition	
SAR measured	250 mW input power	1.58 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	6.21 W/kg \pm 16.5 % (k=2)

Appendix (Additional assessments outside the scope of SCS 0108)

Antenna Parameters with Head TSL

Impedance, transformed to feed point	49.8 Ω - 3.4 j Ω
Return Loss	- 29.4 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.394 ns
----------------------------------	----------

After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.

No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

Additional EUT Data

Manufactured by	SPEAG
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DASY5 Validation Report for Head TSL

Date: 13.08.2020

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN:4d121

Communication System: UID 0 - CW; Frequency: 835 MHz

Medium parameters used: $f = 835$ MHz; $\sigma = 0.93$ S/m; $\epsilon_r = 42.2$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 - SN7349; ConvF(9.69, 9.69, 9.69) @ 835 MHz; Calibrated: 29.06.2020
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 27.12.2019
- Phantom: Flat Phantom 4.9 (front); Type: QD 00L P49 AA; Serial: 1001
- DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

Dipole Calibration for Head Tissue/Pin=250 mW, d=15mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 62.61 V/m; Power Drift = -0.05 dB

Peak SAR (extrapolated) = 3.60 W/kg

SAR(1 g) = 2.43 W/kg; SAR(10 g) = 1.58 W/kg

Smallest distance from peaks to all points 3 dB below = 17 mm

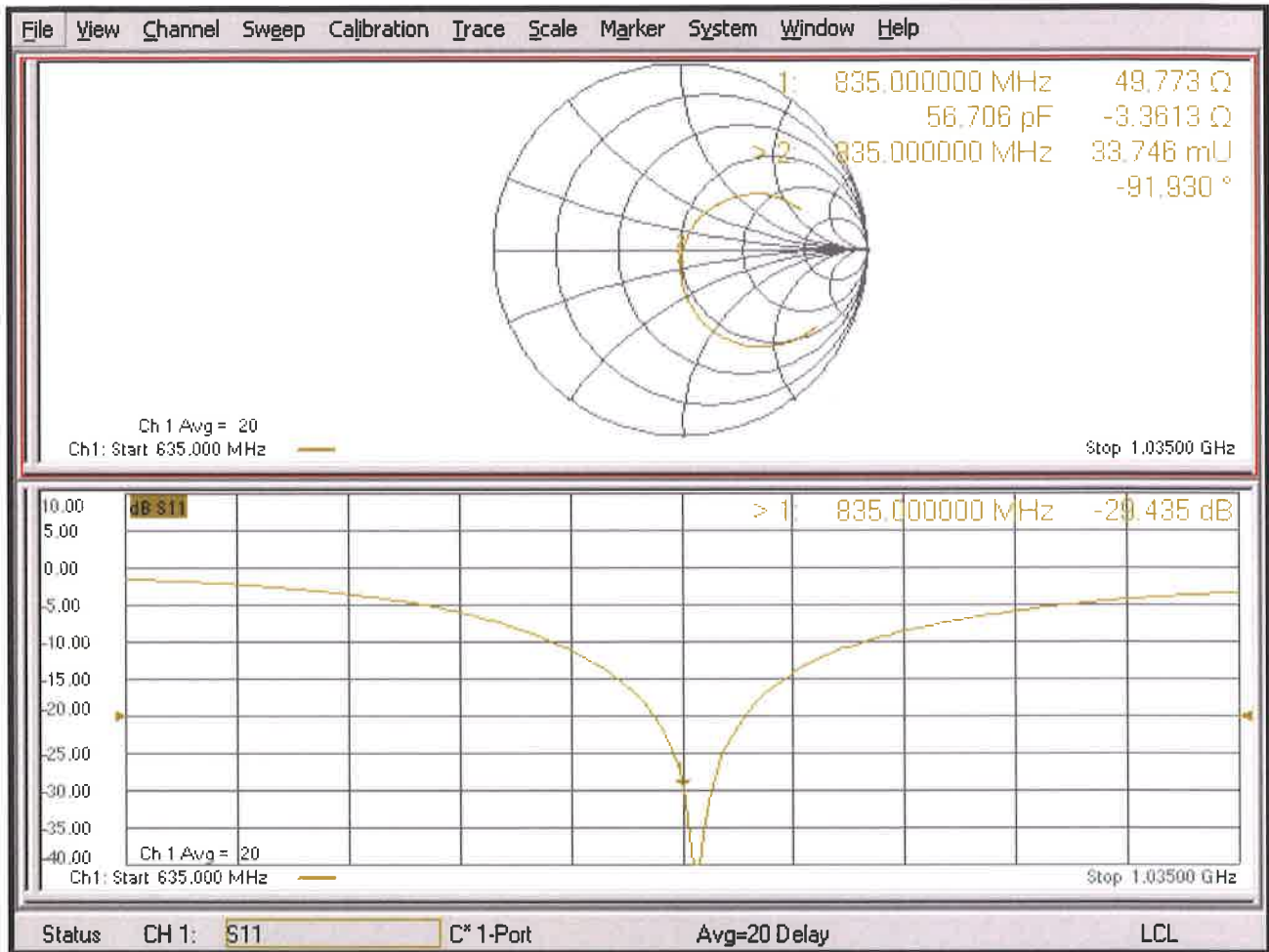
Ratio of SAR at M2 to SAR at M1 = 67.5%

Maximum value of SAR (measured) = 3.21 W/kg



0 dB = 3.21 W/kg = 5.07 dBW/kg

Impedance Measurement Plot for Head TSL





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

Accreditation No.: **SCS 0108**

Client **B.V. ADT (Auden)**

Certificate No: **D1750V2-1055_Aug20**

CALIBRATION CERTIFICATE

Object **D1750V2 - SN:1055**

Calibration procedure(s) **QA CAL-05.v11
Calibration Procedure for SAR Validation Sources between 0.7-3 GHz**

Calibration date: **August 14, 2020**

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).
The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter NRP	SN: 104778	01-Apr-20 (No. 217-03100/03101)	Apr-21
Power sensor NRP-Z91	SN: 103244	01-Apr-20 (No. 217-03100)	Apr-21
Power sensor NRP-Z91	SN: 103245	01-Apr-20 (No. 217-03101)	Apr-21
Reference 20 dB Attenuator	SN: BH9394 (20k)	31-Mar-20 (No. 217-03106)	Apr-21
Type-N mismatch combination	SN: 310982 / 06327	31-Mar-20 (No. 217-03104)	Apr-21
Reference Probe EX3DV4	SN: 7349	29-Jun-20 (No. EX3-7349_Jun20)	Jun-21
DAE4	SN: 601	27-Dec-19 (No. DAE4-601_Dec19)	Dec-20

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power meter E4419B	SN: GB39512475	30-Oct-14 (in house check Feb-19)	In house check: Oct-20
Power sensor HP 8481A	SN: US37292783	07-Oct-15 (in house check Oct-18)	In house check: Oct-20
Power sensor HP 8481A	SN: MY41092317	07-Oct-15 (in house check Oct-18)	In house check: Oct-20
RF generator R&S SMT-06	SN: 100972	15-Jun-15 (in house check Oct-18)	In house check: Oct-20
Network Analyzer Agilent E8358A	SN: US41080477	31-Mar-14 (in house check Oct-19)	In house check: Oct-20

Calibrated by: **Claudio Leubler** **Laboratory Technician**

Signature

Approved by: **Katja Pokovic** **Technical Manager**

Issued: August 14, 2020

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Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 0108**

Glossary:

TSL	tissue simulating liquid
ConvF	sensitivity in TSL / NORM x,y,z
N/A	not applicable or not measured

Calibration is Performed According to the Following Standards:

- IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013
- IEC 62209-1, "Measurement procedure for the assessment of Specific Absorption Rate (SAR) from hand-held and body-mounted devices used next to the ear (frequency range of 300 MHz to 6 GHz)", July 2016
- IEC 62209-2, "Procedure to determine the Specific Absorption Rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range of 30 MHz to 6 GHz)", March 2010
- KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

Additional Documentation:

- DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

- Measurement Conditions:** Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- Antenna Parameters with TSL:** The dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- Feed Point Impedance and Return Loss:** These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- Electrical Delay:** One-way delay between the SMA connector and the antenna feed point. No uncertainty required.
- SAR measured:** SAR measured at the stated antenna input power.
- SAR normalized:** SAR as measured, normalized to an input power of 1 W at the antenna connector.
- SAR for nominal TSL parameters:** The measured TSL parameters are used to calculate the nominal SAR result.

The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor $k=2$, which for a normal distribution corresponds to a coverage probability of approximately 95%.

Measurement Conditions

DASY system configuration, as far as not given on page 1.

DASY Version	DASY5	V52.10.4
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	1750 MHz \pm 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	40.1	1.37 mho/m
Measured Head TSL parameters	(22.0 \pm 0.2) °C	40.4 \pm 6 %	1.35 mho/m \pm 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm³ (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	8.89 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	36.0 W/kg \pm 17.0 % (k=2)

SAR averaged over 10 cm³ (10 g) of Head TSL	condition	
SAR measured	250 mW input power	4.69 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	18.9 W/kg \pm 16.5 % (k=2)

Appendix (Additional assessments outside the scope of SCS 0108)

Antenna Parameters with Head TSL

Impedance, transformed to feed point	50.3 Ω + 0.8 j Ω
Return Loss	- 41.5 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.223 ns
----------------------------------	----------

After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.

No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

Additional EUT Data

Manufactured by	SPEAG
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DASY5 Validation Report for Head TSL

Date: 14.08.2020

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 1750 MHz; Type: D1750V2; Serial: D1750V2 - SN:1055

Communication System: UID 0 - CW; Frequency: 1750 MHz

Medium parameters used: $f = 1750$ MHz; $\sigma = 1.35$ S/m; $\epsilon_r = 40.4$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 - SN7349; ConvF(8.58, 8.58, 8.58) @ 1750 MHz; Calibrated: 29.06.2020
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 27.12.2019
- Phantom: Flat Phantom 5.0 (front); Type: QD 000 P50 AA; Serial: 1001
- DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

Dipole Calibration for Head Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 105.6 V/m; Power Drift = -0.03 dB

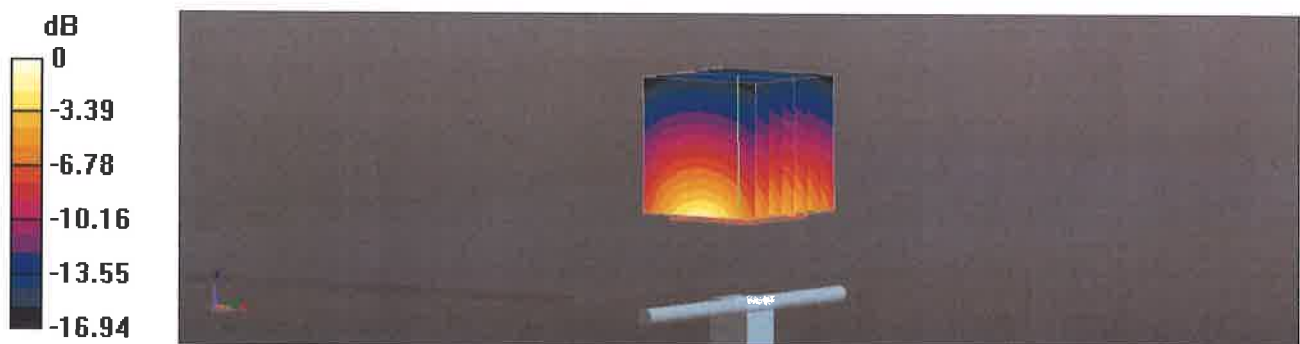
Peak SAR (extrapolated) = 16.6 W/kg

SAR(1 g) = 8.89 W/kg; SAR(10 g) = 4.69 W/kg

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

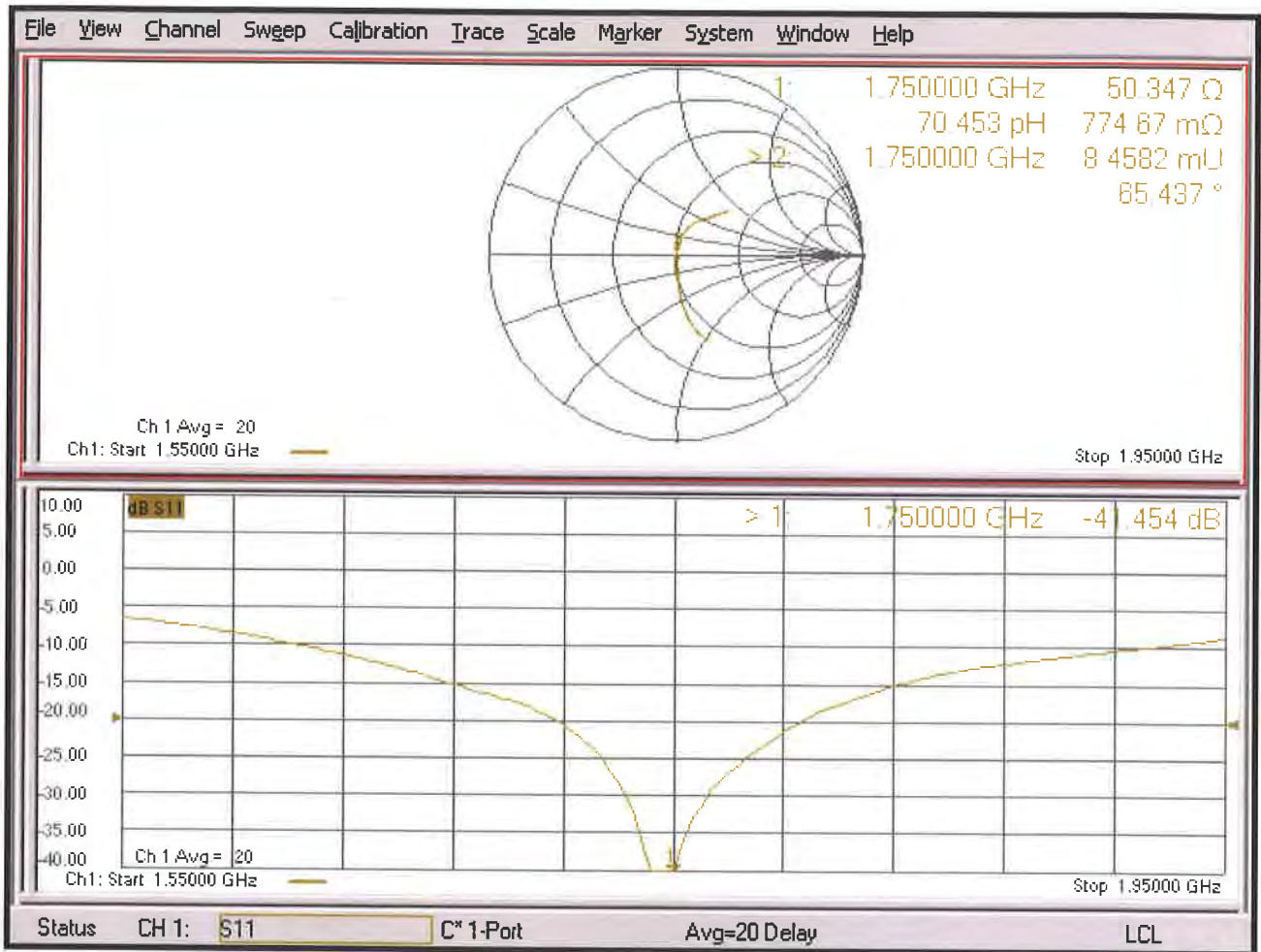
Ratio of SAR at M2 to SAR at M1 = 54%

Maximum value of SAR (measured) = 13.9 W/kg



0 dB = 13.9 W/kg = 11.43 dBW/kg

Impedance Measurement Plot for Head TSL





Accreditation No.: **SCS 0108**

Accredited by the Swiss Accreditation Service (SAS)
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Multilateral Agreement for the recognition of calibration certificates

Client **B.V. ADT (Auden)**

Certificate No: **D1900V2-5d036_Jan21**

CALIBRATION CERTIFICATE

Object **D1900V2 - SN:5d036**

Calibration procedure(s) **QA CAL-05.v11
Calibration Procedure for SAR Validation Sources between 0.7-3 GHz**

Calibration date: **January 22, 2021**

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).
The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter NRP	SN: 104778	01-Apr-20 (No. 217-03100/03101)	Apr-21
Power sensor NRP-Z91	SN: 103244	01-Apr-20 (No. 217-03100)	Apr-21
Power sensor NRP-Z91	SN: 103245	01-Apr-20 (No. 217-03101)	Apr-21
Reference 20 dB Attenuator	SN: BH9394 (20k)	31-Mar-20 (No. 217-03106)	Apr-21
Type-N mismatch combination	SN: 310982 / 06327	31-Mar-20 (No. 217-03104)	Apr-21
Reference Probe EX3DV4	SN: 7349	28-Dec-20 (No. EX3-7349_Dec20)	Dec-21
DAE4	SN: 601	02-Nov-20 (No. DAE4-601_Nov20)	Nov-21
Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power meter E4419B	SN: GB39512475	30-Oct-14 (in house check Oct-20)	In house check: Oct-22
Power sensor HP 8481A	SN: US37292783	07-Oct-15 (in house check Oct-20)	In house check: Oct-22
Power sensor HP 8481A	SN: MY41092317	07-Oct-15 (in house check Oct-20)	In house check: Oct-22
RF generator R&S SMT-06	SN: 100972	15-Jun-15 (in house check Oct-20)	In house check: Oct-22
Network Analyzer Agilent E8358A	SN: US41080477	31-Mar-14 (in house check Oct-20)	In house check: Oct-21

Calibrated by: **Jeffrey Katzman** **Jeffrey Katzman** **Laboratory Technician**

Approved by: **Katja Pokovic** **Katja Pokovic** **Technical Manager**

Issued: January 25, 2021

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Accredited by the Swiss Accreditation Service (SAS)

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Multilateral Agreement for the recognition of calibration certificates

Glossary:

TSL	tissue simulating liquid
ConvF	sensitivity in TSL / NORM x,y,z
N/A	not applicable or not measured

Calibration is Performed According to the Following Standards:

- IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013
- IEC 62209-1, "Measurement procedure for the assessment of Specific Absorption Rate (SAR) from hand-held and body-mounted devices used next to the ear (frequency range of 300 MHz to 6 GHz)", July 2016
- IEC 62209-2, "Procedure to determine the Specific Absorption Rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range of 30 MHz to 6 GHz)", March 2010
- KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

Additional Documentation:

- DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

- Measurement Conditions:** Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- Antenna Parameters with TSL:** The dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- Feed Point Impedance and Return Loss:** These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- Electrical Delay:** One-way delay between the SMA connector and the antenna feed point. No uncertainty required.
- SAR measured:** SAR measured at the stated antenna input power.
- SAR normalized:** SAR as measured, normalized to an input power of 1 W at the antenna connector.
- SAR for nominal TSL parameters:** The measured TSL parameters are used to calculate the nominal SAR result.

The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor $k=2$, which for a normal distribution corresponds to a coverage probability of approximately 95%.

Measurement Conditions

DASY system configuration, as far as not given on page 1.

DASY Version	DASY5	V52.10.4
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	1900 MHz \pm 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	40.0	1.40 mho/m
Measured Head TSL parameters	(22.0 \pm 0.2) °C	41.2 \pm 6 %	1.39 mho/m \pm 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm³ (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	10.0 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	40.4 W/kg \pm 17.0 % (k=2)

SAR averaged over 10 cm³ (10 g) of Head TSL	condition	
SAR measured	250 mW input power	5.23 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	21.1 W/kg \pm 16.5 % (k=2)

Appendix (Additional assessments outside the scope of SCS 0108)

Antenna Parameters with Head TSL

Impedance, transformed to feed point	50.4 Ω + 5.3 j Ω
Return Loss	- 25.5 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.195 ns
----------------------------------	----------

After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.

No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

Additional EUT Data

Manufactured by	SPEAG
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DASY5 Validation Report for Head TSL

Date: 22.01.2021

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN:5d036

Communication System: UID 0 - CW; Frequency: 1900 MHz

Medium parameters used: $f = 1900$ MHz; $\sigma = 1.39$ S/m; $\epsilon_r = 41.2$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 - SN7349; ConvF(8.43, 8.43, 8.43) @ 1900 MHz; Calibrated: 28.12.2020
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 02.11.2020
- Phantom: Flat Phantom 5.0 (front); Type: QD 000 P50 AA; Serial: 1001
- DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

Dipole Calibration for Head Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 109.8 V/m; Power Drift = 0.03 dB

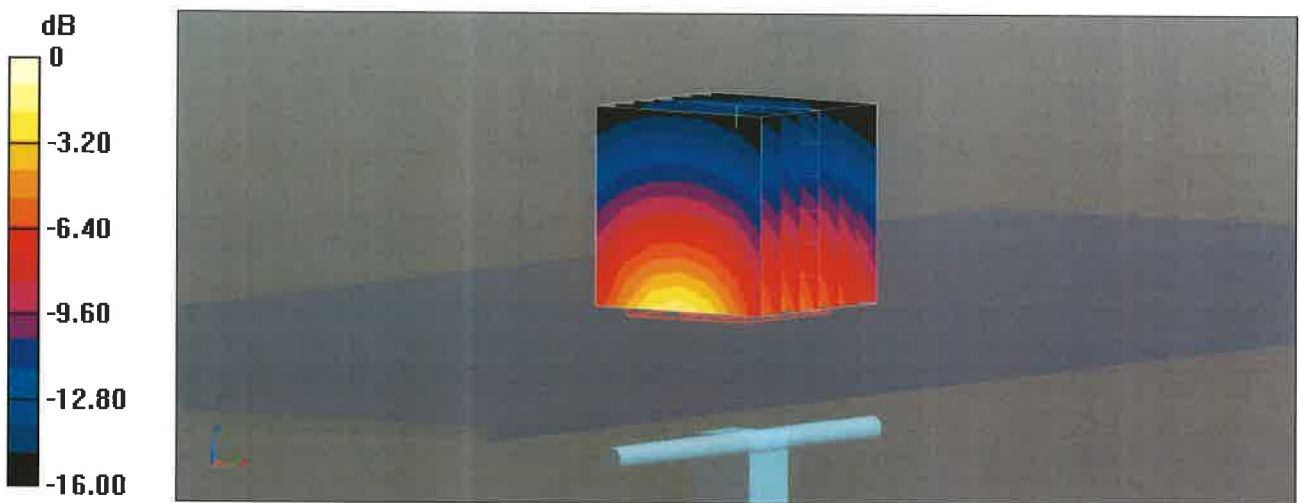
Peak SAR (extrapolated) = 18.4 W/kg

SAR(1 g) = 10.0 W/kg; SAR(10 g) = 5.23 W/kg

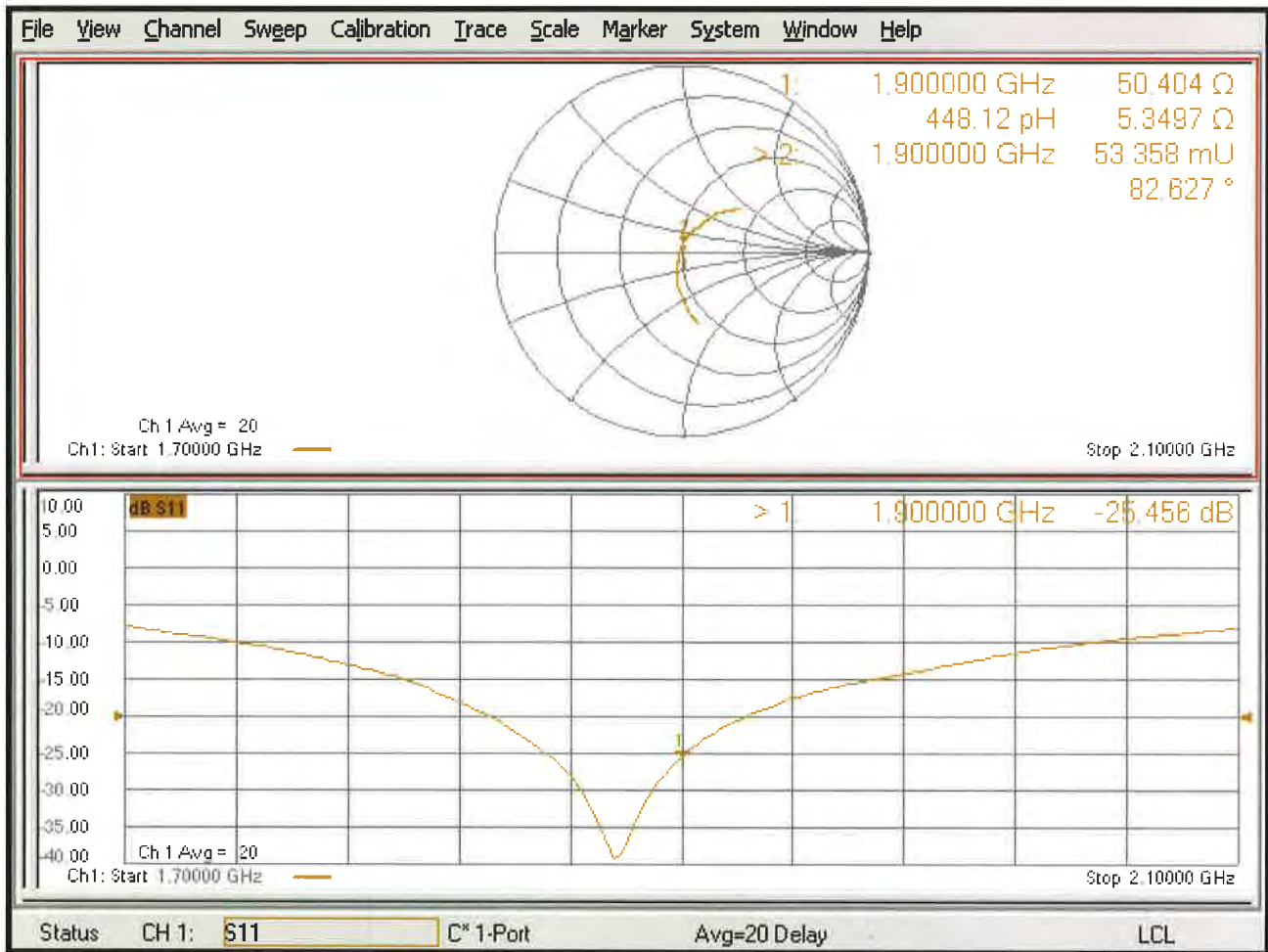
Smallest distance from peaks to all points 3 dB below = 9.8 mm

Ratio of SAR at M2 to SAR at M1 = 55.3%

Maximum value of SAR (measured) = 15.3 W/kg



Impedance Measurement Plot for Head TSL





Accreditation No.: **SCS 0108**

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Client **B.V. ADT (Auden)**

Certificate No: **D2450V2-737_Aug20**

CALIBRATION CERTIFICATE

Object **D2450V2 - SN:737**

Calibration procedure(s) **QA CAL-05.v11
Calibration Procedure for SAR Validation Sources between 0.7-3 GHz**

Calibration date: **August 13, 2020**

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).
The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter NRP	SN: 104778	01-Apr-20 (No. 217-03100/03101)	Apr-21
Power sensor NRP-Z91	SN: 103244	01-Apr-20 (No. 217-03100)	Apr-21
Power sensor NRP-Z91	SN: 103245	01-Apr-20 (No. 217-03101)	Apr-21
Reference 20 dB Attenuator	SN: BH9394 (20k)	31-Mar-20 (No. 217-03106)	Apr-21
Type-N mismatch combination	SN: 310982 / 06327	31-Mar-20 (No. 217-03104)	Apr-21
Reference Probe EX3DV4	SN: 7349	29-Jun-20 (No. EX3-7349_Jun20)	Jun-21
DAE4	SN: 601	27-Dec-19 (No. DAE4-601_Dec19)	Dec-20

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power meter E4419B	SN: GB39512475	30-Oct-14 (in house check Feb-19)	In house check: Oct-20
Power sensor HP 8481A	SN: US37292783	07-Oct-15 (in house check Oct-18)	In house check: Oct-20
Power sensor HP 8481A	SN: MY41092317	07-Oct-15 (in house check Oct-18)	In house check: Oct-20
RF generator R&S SMT-06	SN: 100972	15-Jun-15 (in house check Oct-18)	In house check: Oct-20
Network Analyzer Agilent E8358A	SN: US41080477	31-Mar-14 (in house check Oct-19)	In house check: Oct-20

Calibrated by: **Jeffrey Katzman** **Jeffrey Katzman** **Laboratory Technician** *J. Katzman*

Approved by: **Katja Pokovic** **Katja Pokovic** **Technical Manager** *K. Pokovic*

Issued: August 14, 2020

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Accreditation No.: **SCS 0108**

Glossary:

TSL	tissue simulating liquid
ConvF	sensitivity in TSL / NORM x,y,z
N/A	not applicable or not measured

Calibration is Performed According to the Following Standards:

- IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013
- IEC 62209-1, "Measurement procedure for the assessment of Specific Absorption Rate (SAR) from hand-held and body-mounted devices used next to the ear (frequency range of 300 MHz to 6 GHz)", July 2016
- IEC 62209-2, "Procedure to determine the Specific Absorption Rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range of 30 MHz to 6 GHz)", March 2010
- KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

Additional Documentation:

- DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

- Measurement Conditions:** Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- Antenna Parameters with TSL:** The dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- Feed Point Impedance and Return Loss:** These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- Electrical Delay:** One-way delay between the SMA connector and the antenna feed point. No uncertainty required.
- SAR measured:** SAR measured at the stated antenna input power.
- SAR normalized:** SAR as measured, normalized to an input power of 1 W at the antenna connector.
- SAR for nominal TSL parameters:** The measured TSL parameters are used to calculate the nominal SAR result.

The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor $k=2$, which for a normal distribution corresponds to a coverage probability of approximately 95%.

Measurement Conditions

DASY system configuration, as far as not given on page 1.

DASY Version	DASY5	V52.10.4
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	2450 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	39.2	1.80 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	38.9 ± 6 %	1.84 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	---	---

SAR result with Head TSL

SAR averaged over 1 cm³ (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	13.1 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	51.6 W/kg ± 17.0 % (k=2)

SAR averaged over 10 cm³ (10 g) of Head TSL	condition	
SAR measured	250 mW input power	6.12 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	24.3 W/kg ± 16.5 % (k=2)

Appendix (Additional assessments outside the scope of SCS 0108)

Antenna Parameters with Head TSL

Impedance, transformed to feed point	54.8 Ω + 4.7 j Ω
Return Loss	- 23.9 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.162 ns
----------------------------------	----------

After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.

No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

Additional EUT Data

Manufactured by	SPEAG
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DASY5 Validation Report for Head TSL

Date: 13.08.2020

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN:737

Communication System: UID 0 - CW; Frequency: 2450 MHz

Medium parameters used: $f = 2450$ MHz; $\sigma = 1.84$ S/m; $\epsilon_r = 38.9$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 - SN7349; ConvF(7.74, 7.74, 7.74) @ 2450 MHz; Calibrated: 29.06.2020
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 27.12.2019
- Phantom: Flat Phantom 5.0 (front); Type: QD 000 P50 AA; Serial: 1001
- DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

Dipole Calibration for Head Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 114.4 V/m; Power Drift = -0.09 dB

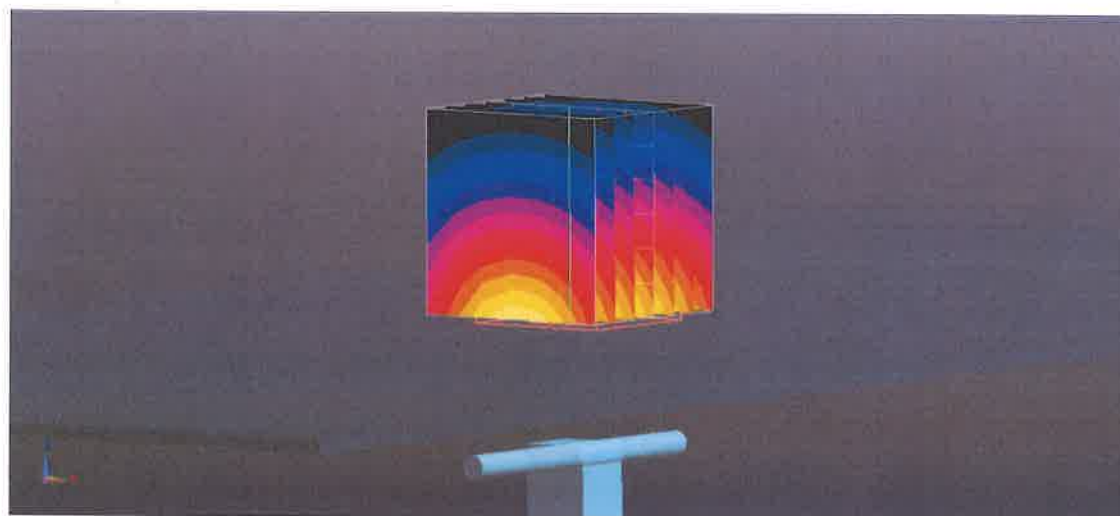
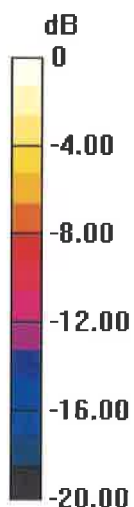
Peak SAR (extrapolated) = 25.6 W/kg

SAR(1 g) = 13.1 W/kg; SAR(10 g) = 6.12 W/kg

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

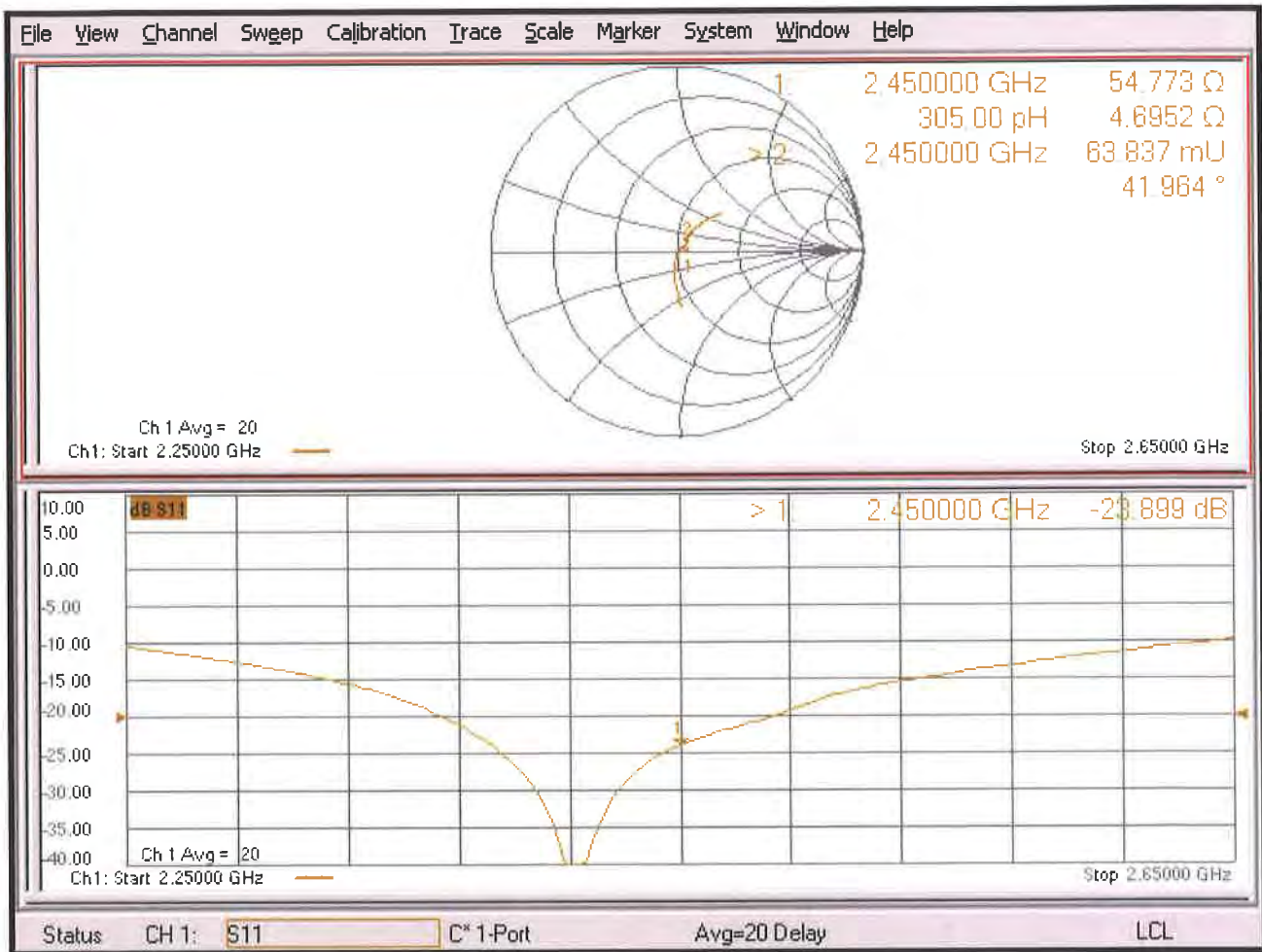
Ratio of SAR at M2 to SAR at M1 = 51.2%

Maximum value of SAR (measured) = 21.2 W/kg



0 dB = 21.2 W/kg = 13.27 dBW/kg

Impedance Measurement Plot for Head TSL





Accreditation No.: **SCS 0108**

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Client **B.V. ADT (Auden)**

Certificate No: **D2600V2-1020_Aug20**

CALIBRATION CERTIFICATE

Object **D2600V2 - SN:1020**

Calibration procedure(s) **QA CAL-05.v11
Calibration Procedure for SAR Validation Sources between 0.7-3 GHz**

Calibration date: **August 13, 2020**

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).
The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter NRP	SN: 104778	01-Apr-20 (No. 217-03100/03101)	Apr-21
Power sensor NRP-Z91	SN: 103244	01-Apr-20 (No. 217-03100)	Apr-21
Power sensor NRP-Z91	SN: 103245	01-Apr-20 (No. 217-03101)	Apr-21
Reference 20 dB Attenuator	SN: BH9394 (20k)	31-Mar-20 (No. 217-03106)	Apr-21
Type-N mismatch combination	SN: 310982 / 06327	31-Mar-20 (No. 217-03104)	Apr-21
Reference Probe EX3DV4	SN: 7349	29-Jun-20 (No. EX3-7349_Jun20)	Jun-21
DAE4	SN: 601	27-Dec-19 (No. DAE4-601_Dec19)	Dec-20

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power meter E4419B	SN: GB39512475	30-Oct-14 (in house check Feb-19)	In house check: Oct-20
Power sensor HP 8481A	SN: US37292783	07-Oct-15 (in house check Oct-18)	In house check: Oct-20
Power sensor HP 8481A	SN: MY41092317	07-Oct-15 (in house check Oct-18)	In house check: Oct-20
RF generator R&S SMT-06	SN: 100972	15-Jun-15 (in house check Oct-18)	In house check: Oct-20
Network Analyzer Agilent E8358A	SN: US41080477	31-Mar-14 (in house check Oct-19)	In house check: Oct-20

	Name	Function	Signature
Calibrated by:	Jeffrey Katzman	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: August 14, 2020

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Accredited by the Swiss Accreditation Service (SAS)

The Swiss Accreditation Service is one of the signatories to the EA Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 0108**

Glossary:

TSL	tissue simulating liquid
ConvF	sensitivity in TSL / NORM x,y,z
N/A	not applicable or not measured

Calibration is Performed According to the Following Standards:

- IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013
- IEC 62209-1, "Measurement procedure for the assessment of Specific Absorption Rate (SAR) from hand-held and body-mounted devices used next to the ear (frequency range of 300 MHz to 6 GHz)", July 2016
- IEC 62209-2, "Procedure to determine the Specific Absorption Rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range of 30 MHz to 6 GHz)", March 2010
- KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

Additional Documentation:

- DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

- Measurement Conditions:** Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- Antenna Parameters with TSL:** The dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- Feed Point Impedance and Return Loss:** These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- Electrical Delay:** One-way delay between the SMA connector and the antenna feed point. No uncertainty required.
- SAR measured:** SAR measured at the stated antenna input power.
- SAR normalized:** SAR as measured, normalized to an input power of 1 W at the antenna connector.
- SAR for nominal TSL parameters:** The measured TSL parameters are used to calculate the nominal SAR result.

The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor $k=2$, which for a normal distribution corresponds to a coverage probability of approximately 95%.

Measurement Conditions

DASY system configuration, as far as not given on page 1.

DASY Version	DASY5	V52.10.4
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	2600 MHz \pm 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	39.0	1.96 mho/m
Measured Head TSL parameters	(22.0 \pm 0.2) °C	38.3 \pm 6 %	2.01 mho/m \pm 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm³ (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	14.1 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	55.5 W/kg \pm 17.0 % (k=2)

SAR averaged over 10 cm³ (10 g) of Head TSL	condition	
SAR measured	250 mW input power	6.30 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	25.0 W/kg \pm 16.5 % (k=2)

Appendix (Additional assessments outside the scope of SCS 0108)

Antenna Parameters with Head TSL

Impedance, transformed to feed point	48.1 Ω - 5.4 $j\Omega$
Return Loss	- 24.7 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.154 ns
----------------------------------	----------

After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.

No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

Additional EUT Data

Manufactured by	SPEAG
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DASY5 Validation Report for Head TSL

Date: 13.08.2020

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 2600 MHz; Type: D2600V2; Serial: D2600V2 - SN:1020

Communication System: UID 0 - CW; Frequency: 2600 MHz

Medium parameters used: $f = 2600$ MHz; $\sigma = 2.01$ S/m; $\epsilon_r = 38.3$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 - SN7349; ConvF(7.54, 7.54, 7.54) @ 2600 MHz; Calibrated: 29.06.2020
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 27.12.2019
- Phantom: Flat Phantom 5.0 (front); Type: QD 000 P50 AA; Serial: 1001
- DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

Dipole Calibration for Head Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 117.5 V/m; Power Drift = -0.07 dB

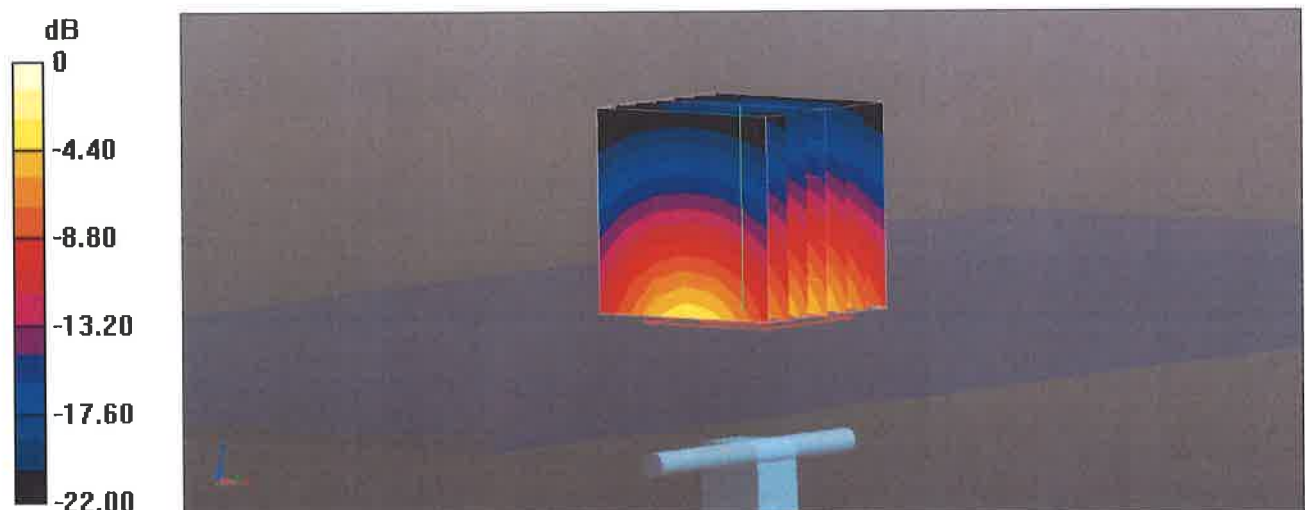
Peak SAR (extrapolated) = 28.1 W/kg

SAR(1 g) = 14.1 W/kg; SAR(10 g) = 6.30 W/kg

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

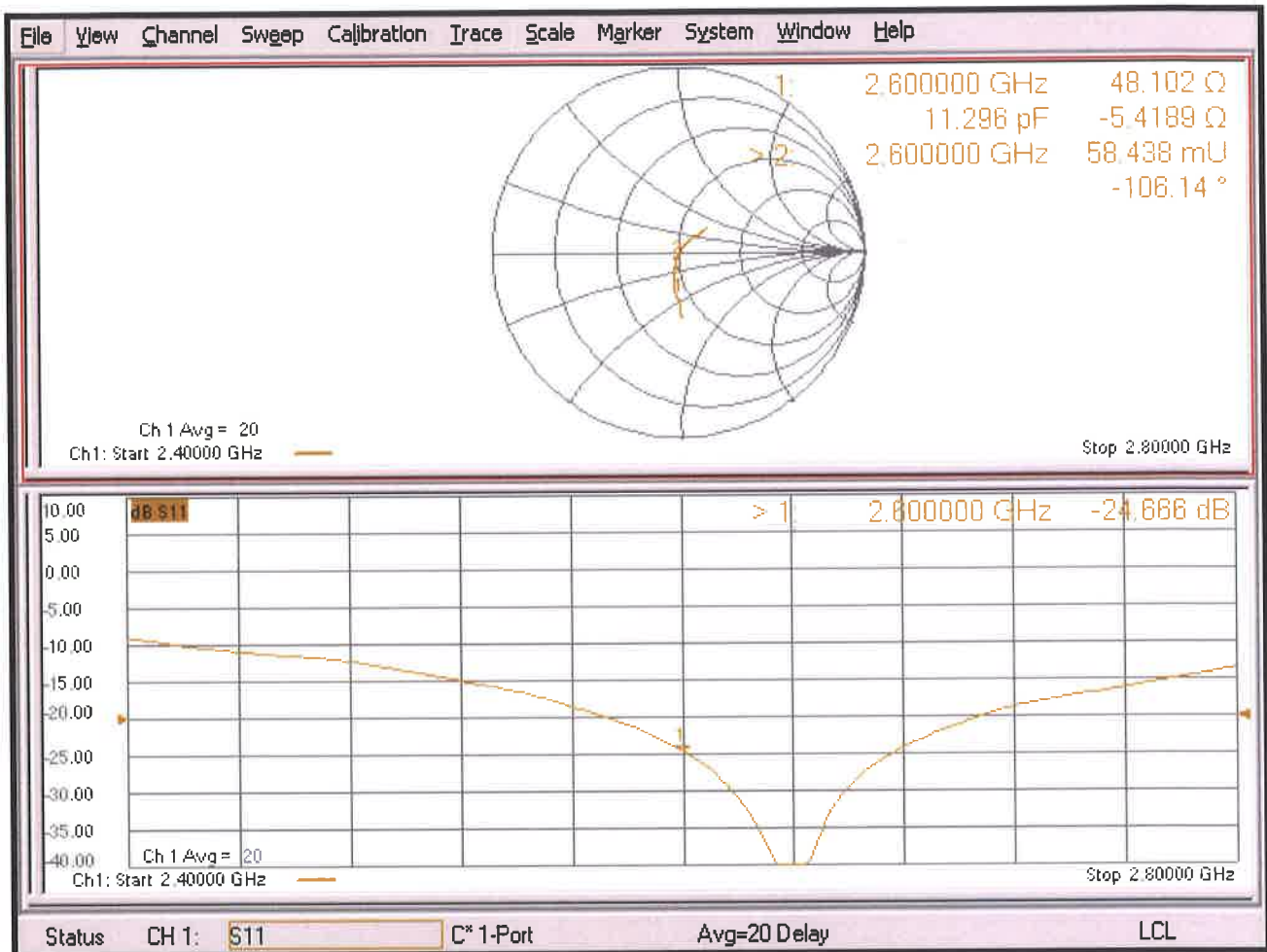
Ratio of SAR at M2 to SAR at M1 = 50.2%

Maximum value of SAR (measured) = 23.2 W/kg



0 dB = 23.2 W/kg = 13.65 dBW/kg

Impedance Measurement Plot for Head TSL





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 CNAS L0570

Client **AUDEN**

Certificate No: **Z20-60430**

CALIBRATION CERTIFICATE

Object **D5GHzV2 - SN: 1145**

Calibration Procedure(s) **FF-Z11-003-01**
Calibration Procedures for dipole validation kits

Calibration date: **November 9, 2020**

This calibration Certificate documents the traceability to national standards, which realize the physical units of measurements(SI). The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature(22±3)°C and humidity<70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date(Calibrated by, Certificate No.)	Scheduled Calibration
Power Meter NRP2	106276	12-May-20 (CTTL, No.J20X02965)	May-21
Power sensor NRP6A	101369	12-May-20 (CTTL, No.J20X02965)	May-21
ReferenceProbe EX3DV4	SN 3617	30-Jan-20(SPEAG, No.EX3-3617_Jan20)	Jan-21
DAE4	SN 771	10-Feb-20(CTTL-SPEAG, No.Z20-60017)	Feb-21
Secondary Standards	ID #	Cal Date(Calibrated by, Certificate No.)	Scheduled Calibration
Signal Generator E4438C	MY49071430	25-Feb-20 (CTTL, No.J20X00516)	Feb-21
NetworkAnalyzerE5071C	MY46110673	10-Feb-20 (CTTL, No.J20X00515)	Feb-21

	Name	Function	Signature
Calibrated by:	Zhao Jing	SAR Test Engineer	
Reviewed by:	Lin Hao	SAR Test Engineer	
Approved by:	Qi Dianyuan	SAR Project Leader	

Issued: November 19, 2020

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Glossary:

TSL	tissue simulating liquid
ConvF	sensitivity in TSL / NORM _{x,y,z}
N/A	not applicable or not measured

Calibration is Performed According to the Following Standards:

- IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013
- IEC 62209-1, "Measurement procedure for assessment of specific absorption rate of human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices- Part 1: Device used next to the ear (Frequency range of 300MHz to 6GHz)", July 2016
- IEC 62209-2, "Procedure to measure the Specific Absorption Rate (SAR) For wireless communication devices used in close proximity to the human body (frequency range of 30MHz to 6GHz)", March 2010
- KDB865664, SAR Measurement Requirements for 100 MHz to 6 GHz

Additional Documentation:

- DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

- Measurement Conditions:* Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- Antenna Parameters with TSL:* The dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- Feed Point Impedance and Return Loss:* These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- Electrical Delay:* One-way delay between the SMA connector and the antenna feed point. No uncertainty required.
- SAR measured:* SAR measured at the stated antenna input power.
- SAR normalized:* SAR as measured, normalized to an input power of 1 W at the antenna connector.
- SAR for nominal TSL parameters:* The measured TSL parameters are used to calculate the nominal SAR result.

The reported uncertainty of measurement is stated as the standard uncertainty of Measurement multiplied by the coverage factor $k=2$, which for a normal distribution Corresponds to a coverage probability of approximately 95%.



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Measurement Conditions

DASY system configuration, as far as not given on page 1.

DASY Version	DASY52	V52.10.4
Extrapolation	Advanced Extrapolation	
Phantom	Triple Flat Phantom 5.1C	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy = 4 mm, dz = 1.4 mm	Graded Ratio = 1.4 (Z direction)
Frequency	5250 MHz ± 1 MHz 5600 MHz ± 1 MHz 5750 MHz ± 1 MHz	

Head TSL parameters at 5250 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	35.9	4.71 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	35.1 ± 6 %	4.76 mho/m ± 6 %
Head TSL temperature change during test	<1.0 °C	---	---

SAR result with Head TSL at 5250 MHz

SAR averaged over 1 cm³ (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	7.78 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	77.5 W/kg ± 24.4 % (k=2)
SAR averaged over 10 cm³ (10 g) of Head TSL	Condition	
SAR measured	100 mW input power	2.22 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	22.1 W/kg ± 24.2 % (k=2)



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Head TSL parameters at 5600 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	35.5	5.07 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	34.5 ± 6 %	5.14 mho/m ± 6 %
Head TSL temperature change during test	<1.0 °C	----	----

SAR result with Head TSL at 5600 MHz

SAR averaged over 1 cm ³ (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	8.07 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	80.3 W/kg ± 24.4 % (k=2)
SAR averaged over 10 cm ³ (10 g) of Head TSL	Condition	
SAR measured	100 mW input power	2.30 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	22.9 W/kg ± 24.2 % (k=2)

Head TSL parameters at 5750 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	35.4	5.22 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	34.4 ± 6 %	5.31 mho/m ± 6 %
Head TSL temperature change during test	<1.0 °C	----	----

SAR result with Head TSL at 5750 MHz

SAR averaged over 1 cm ³ (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	7.79 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	77.5 W/kg ± 24.4 % (k=2)
SAR averaged over 10 cm ³ (10 g) of Head TSL	Condition	
SAR measured	100 mW input power	2.22 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	22.1 W/kg ± 24.2 % (k=2)



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Appendix (Additional assessments outside the scope of CNAS L0570)

Antenna Parameters with Head TSL at 5250 MHz

Impedance, transformed to feed point	53.1 Ω - 9.17j Ω
Return Loss	- 20.6dB

Antenna Parameters with Head TSL at 5600 MHz

Impedance, transformed to feed point	58.7 Ω - 0.77j Ω
Return Loss	- 21.9dB

Antenna Parameters with Head TSL at 5750 MHz

Impedance, transformed to feed point	56.5 Ω - 2.83j Ω
Return Loss	- 23.5dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.067 ns
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After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.

No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

Additional EUT Data

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DASY5 Validation Report for Head TSL

Date: 11.09.2020

Test Laboratory: CTTL, Beijing, China

DUT: Dipole 5GHz; Type: D5GHzV2; Serial: D5GHzV2 - SN: 1145

Communication System: CW; Frequency: 5250 MHz, Frequency: 5600 MHz,
Frequency: 5750 MHz,

Medium parameters used: $f = 5250$ MHz; $\sigma = 4.756$ S/m; $\epsilon_r = 35.12$; $\rho = 1000$ kg/m³,
Medium parameters used: $f = 5600$ MHz; $\sigma = 5.14$ S/m; $\epsilon_r = 34.53$; $\rho = 1000$ kg/m³,
Medium parameters used: $f = 5750$ MHz; $\sigma = 5.306$ S/m; $\epsilon_r = 34.41$; $\rho = 1000$ kg/m³,

Phantom section: Center Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3617; ConvF(5.39, 5.39, 5.39) @ 5250 MHz; ConvF(4.99, 4.99, 4.99) @ 5600 MHz; ConvF(5.1, 5.1, 5.1) @ 5750 MHz; Calibrated: 2020-01-30
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn771; Calibrated: 2020-02-10
- Phantom: MFP_V5.1C (20deg probe tilt); Type: QD 000 P51 Cx; Serial: 1062
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Dipole Calibration /Pin=100mW, d=10mm, f=5250 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 71.55 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 31.1 W/kg
SAR(1 g) = 7.78 W/kg; SAR(10 g) = 2.22 W/kg
Smallest distance from peaks to all points 3 dB below = 7.2 mm
Ratio of SAR at M2 to SAR at M1 = 65.5%
Maximum value of SAR (measured) = 17.9 W/kg

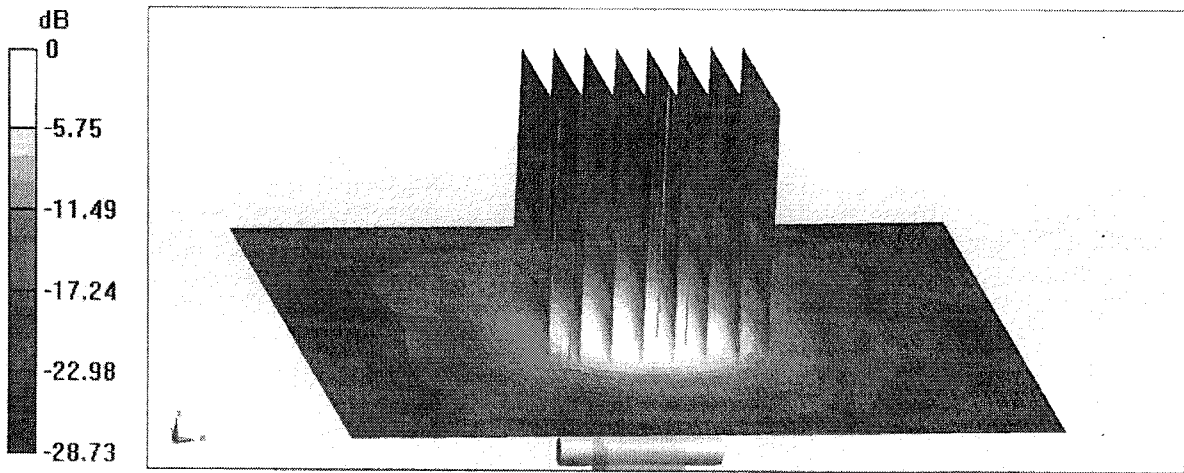
Dipole Calibration /Pin=100mW, d=10mm, f=5600 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 70.50 V/m; Power Drift = -0.08 dB
Peak SAR (extrapolated) = 35.7 W/kg
SAR(1 g) = 8.07 W/kg; SAR(10 g) = 2.3 W/kg
Smallest distance from peaks to all points 3 dB below = 7.2 mm
Ratio of SAR at M2 to SAR at M1 = 62%
Maximum value of SAR (measured) = 19.6 W/kg



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Dipole Calibration /Pin=100mW, d=10mm, f=5750 MHz/Zoom Scan,
dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 68.32 V/m; Power Drift = 0.00 dB
Peak SAR (extrapolated) = 34.7 W/kg
SAR(1 g) = 7.79 W/kg; SAR(10 g) = 2.22 W/kg
Smallest distance from peaks to all points 3 dB below = 7.4 mm
Ratio of SAR at M2 to SAR at M1 = 61.8%
Maximum value of SAR (measured) = 19.0 W/kg



0 dB = 19.0 W/kg = 12.79 dBW/kg



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Impedance Measurement Plot for Head TSL

