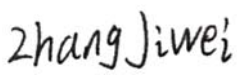
TEST REPORT

Applicant:	Connected Solutions Group, LLC.
Address:	8529 Meadowbridge Rd. #300, Mechanicsville, Va 23116
Equipment Type:	CSG m106 LTE Wireless Router
Model Name:	CSG-m106
Brand Name:	CSG
FCC ID:	2A5KA-M106
Test Standard:	FCC 47 CFR Part 2.1093 (refer section 3.1)
Maximum SAR:	Body (1 g): 1.01 W/kg Hotspot (1 g): 1.01 W/kg
Test Date:	Apr. 15, 2022 - May 13, 2022
Date of Issue:	May 25, 2022

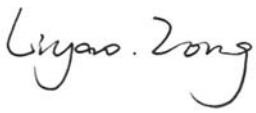
ISSUED BY:

Shenzhen BALUN Technology Co., Ltd.

Tested by: Zhang Jiwei



Checked by: Liyao Zong



Approved by: Wei Yanquan (Chief Engineer)

Revision History

Version	Issue Date	Revisions Content
Rev. 01	May 25, 2022	Initial Issue

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1 GENERAL INFORMATION

1.1 Identification of the Testing Laboratory

Company Name	Shenzhen BALUN Technology Co., Ltd.
Address	Block B, 1/F, Baisha Science and Technology Park, Shahe West Road, Nanshan District, ShenZhen, GuangDong Province, China
Phone Number	+86 755 6685 0100

1.2 Identification of the Responsible Testing Location

Test Location	Shenzhen BALUN Technology Co., Ltd.
Address	Block B, 1/F, Baisha Science and Technology Park, Shahe West Road, Nanshan District, ShenZhen, GuangDong Province, China
Accreditation Certificate	The laboratory is a testing organization accredited by FCC as a accredited testing laboratory. The designation number is CN1196.
Description	All measurement facilities used to collect the measurement data are located at Block B, 1/F, Baisha Science and Technology Park, Shahe West Road, Nanshan District, ShenZhen, GuangDong Province, China

2 PRODUCT INFORMATION

2.1 Applicant Information

Applicant	Connected Solutions Group, LLC.
Address	8529 Meadowbridge Rd. #300, Mechanicsville, Va 23116

2.2 Manufacturer Information

Manufacturer	Connected Solutions Group, LLC.
Address	8529 Meadowbridge Rd. #300, Mechanicsville, Va 23116

2.3 Factory Information

Factory	N/A
Address	N/A

2.4 General Description for Equipment under Test (EUT)

EUT Name	CSG m106 LTE Wireless Router
Model Name Under Test	CSG-m106
Series Model Name	N/A
Description of Model name differentiation	N/A
Hardware Version	V1.2
Software Version	VB_3.211
Dimensions (Approx.)	N/A
Weight (Approx.)	N/A

2.5 Ancillary Equipment

Ancillary Equipment 1	Battery	
	Brand Name	N/A
	Model No.	BL-PG042-02-1S1P124280P-5000
	Serial No.	N/A
	Capacity	5000 mAh
	Rated Voltage	3.7 V
	Limit Charge Voltage	4.2 V

2.6 Technical Information

Network and Wireless connectivity	3G Network WCDMA/HSDPA/HSUPA Band 2/4/5 4G Network FDD LTE Band 2/4/5/7/12/13/25/26/30/66 WIFI 802.11b, 802.11g, 802.11n

The requirement for the following technical information of the EUT was tested in this report:

Operating Mode	WCDMA, LTE, 2.4G WLAN		
Frequency Range	WCDMA Band 2	TX: 1850 ~ 1910 MHz	RX: 1930 ~ 1990 MHz
	WCDMA Band 4	TX: 1710 ~ 1755 MHz	RX: 2110 ~ 2155 MHz
	WCDMA Band 5	TX: 824 ~ 849 MHz	RX: 869 ~ 894 MHz
	LTE Band 2	TX: 1850 ~ 1910 MHz	RX: 1930 ~ 1990 MHz
	LTE Band 4	TX: 1710 ~ 1755 MHz	RX: 2110 ~ 2155 MHz
	LTE Band 5	TX: 824 ~ 849 MHz	RX: 869 ~ 894 MHz
	LTE Band 7	TX: 2500 ~ 2570 MHz	RX: 2620 ~ 2690 MHz
	LTE Band 12	TX: 699 ~ 716 MHz	RX: 729 ~ 746 MHz
	LTE Band 13	TX: 777 ~ 787 MHz	RX: 746 ~ 756 MHz
	LTE Band 25	TX: 1850 ~ 1915 MHz	RX: 1930 ~ 1995 MHz
	LTE Band 26	TX: 814 ~ 849 MHz	RX: 859 ~ 894 MHz
	LTE Band 30	TX: 2305 ~ 2315 MHz	RX: 2350 ~ 2360 MHz
	LTE Band 66	TX: 1710 ~ 1780 MHz	RX: 2110 ~ 2180MHz
	802.11b/g /n(HT20/HT40)	2412 ~ 2462 MHz	
Antenna Type	WWAN: External Antenna WLAN: PCB Antenna		
DTM	N/A		
Hotspot Function	Support		
Power Reduction	Not Support		
Exposure Category	General Population/Uncontrolled exposure		
EUT Stage	Portable Device		
Product	Type		
	☒ Production unit	☐ Identical prototype	

3 SUMMARY OF TEST RESULT

3.1 Test Standards

No.	Identity	Document Title
1	47 CFR Part 2.1093	Radiofrequency radiation exposure evaluation: portable devices
2	ANSI C95.1-1992	IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz
3	IEEE Std. 1528-2013	Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques
4	FCC KDB 447498 D04	RF Exposure Procedures and Equipment Authorization Policies for Mobile and Portable Devices
5	FCC KDB 941225 D01 v03r01	3G SAR MEAUREMENT PROCEDURES
6	FCC KDB 941225 D05 v02r05	SAR Evaluation Considerations for LTE Devices
7	FCC KDB 941225 D06 v02r01	SAR Evaluation Procedures for Portable Devices with Wireless Router Capabilities
8	FCC KDB 865664 D01 v01r04	SAR Measurement 100 MHz to 6 GHz
9	FCC KDB 865664 D02 v01r02	RF Exposure Reporting
10	FCC KDB 648474 D04 v01r03	SAR Evaluation Considerations for Wireless Handsets
11	KDB 248227 D01 v02r02	SAR Guidance for IEEE 802.11 (Wi-Fi) Transmitters

3.2 Device Category and SAR Limit

This device belongs to portable device category because its radiating structure is allowed to be used within 20 centimeters of the body of the user.

Limit for General Population/Uncontrolled exposure should be applied for this device, it is 1.6 W/kg as averaged over any 1 gram of tissue.

Table of Exposure Limits:

Body Position	SAR Value (W/Kg)	
	General Population/ Uncontrolled Exposure	Occupational/ ControlledExposure
Whole-Body SAR (averaged over the entire body)	0.08	0.4
Partial-Body SAR (averaged over any 1 gram of tissue)	1.60	8.0
SAR for hands, wrists, feet and ankles (averaged over any 10 grams of tissue)	4.0	20.0

NOTE:

General Population/Uncontrolled Exposure: Locations where there is the exposure of individuals who have no knowledge or control of their exposure. General population/uncontrolled exposure limits are applicable to situations in which the general public may be exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Members of the general public would come under this category when exposure is not employment-related; for example, in the case of a wireless transmitter that exposes persons in its vicinity.

Occupational/Controlled Exposure: Locations where there is exposure that may be incurred by persons who are aware of the potential for exposure, In general, occupational/controlled exposure limits are applicable to situations in which persons are exposed as a consequence of their employment, who have been made fully aware of the potential for exposure and can exercise control over their exposure. This exposure category is also applicable when the exposure is of a transient nature due to incidental passage through a location where the exposure levels may be higher than the general population/uncontrolled limits, but the exposed person is fully aware of the potential for exposure and can exercise control over his or her exposure by leaving the area or by some other appropriate means.

3.3 Test Result Summary

3.3.1 Highest SAR (1 g Value)

Band	Maximum Scaled SAR (W/kg)		Maximum Report SAR (W/kg)	
	Body-worn Accessory	Hotspot	Body-worn Accessory	Hotspot
WCDMA Band 2	0.66	0.66	**1.01**	**1.01**
WCDMA Band 4	0.87	0.87		
WCDMA Band 5	0.85	0.85		
LTE Band 2	0.59	0.59		
LTE Band 4	0.76	0.76		
LTE Band 5	0.91	0.91		
LTE Band 7	0.57	0.57		
LTE Band 12	0.85	0.85		
LTE Band 13	**1.01**	**1.01**		
LTE Band 25	0.65	0.65		
LTE Band 26	0.96	0.96		
LTE Band 30	0.80	0.80		
LTE Band 66	0.69	0.69		
2.4G WLAN	0.72	0.94		
Limit (W/kg)	1.6		1.6	
Verdict	PASS			

3.3.2 Highest Simultaneous SAR

Note: The highest simultaneous SAR please refer section 12.

3.4 Test Uncertainty

According to KDB 865664 D01, When the highest measured 1 g SAR within a frequency band is < 1.5 W/kg, the extensive SAR measurement uncertainty analysis is not required in SAR reports submitted for equipment approval.

The maximum 1 g SAR for the EUT in this report is 1.008 W/kg, which is lower than 1.5 W/kg, so the extensive SAR measurement uncertainty analysis is not required in this report.

4 MEASUREMENT SYSTEM

4.1 Specific Absorption Rate (SAR) Definition

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:

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

SAR is expressed in units of Watts per kilogram (W/kg) SAR measurement can be related to the electrical field in the tissue by

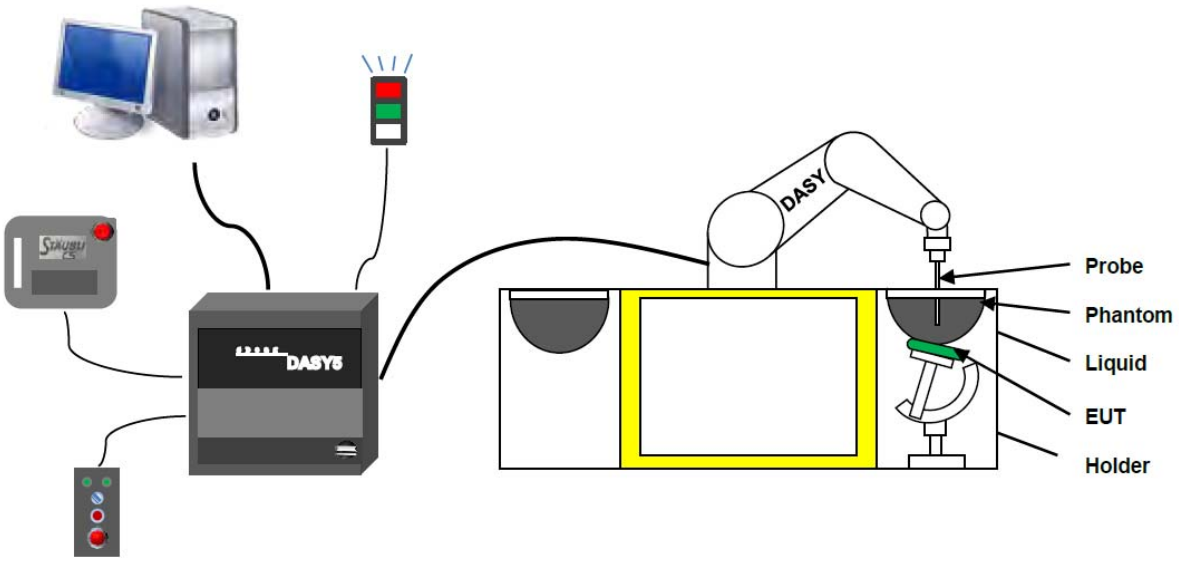
$$\mathbf{SAR} = \frac{\boldsymbol{\sigma}\mathbf{E}^{2}}{\boldsymbol{\rho}}$$

Where: σ is the conductivity of the tissue,

ρ is the mass density of the tissue and E is the RMS electrical field strength.

4.2 DASY SAR System

4.2.1 DASY SAR System Diagram



The DASY5 system for performing compliance tests consists of the following items:

1. A standard high precision 6-axis robot (Stäubli RX family) with controller and software. An arm extension for accommodating the data acquisition electronics (DAE).
2. A dosimetric probe, i.e. an isotropic E-field probe optimized and calibrated for usage in tissue simulating liquid. The probe is equipped with an optical surface detector system.
3. A data acquisition electronic (DAE) which performs the signal amplification, signal multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection, etc. The unit is battery powered with standard or rechargeable batteries. The signal is optically transmitted to the EOC.
4. A unit to operate the optical surface detector which is connected to the EOC.
5. The Electro-Optical Coupler (EOC) performs the conversion from the optical into a digital electric signal of the DAE. The EOC is connected to the DASY5 measurement server.
6. The DASY5 measurement server, which performs all real-time data evaluation for field measurements and surface detection, controls robot movements and handles safety operation.
7. DASY5 software and SEMCAD data evaluation software.
8. Remote control with teach panel and additional circuitry for robot safety such as warning lamps, etc.
9. The generic twin phantom enabling the testing of left-hand and right-hand usage.
10. The device holder for handheld mobile phones.
11. Tissue simulating liquid mixed according to the given recipes.
12. System validation dipoles allowing to validate the proper functioning of the system.

4.2.2 Robot

The Dasy SAR system uses the high precision robots. Symmetrical design with triangular core Built-in optical fiber for surface detection system For the 6-axis controller system, Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents). The robot series have many features that are important for our application:

- High precision
  (repeatability ±0.02 mm)
- High reliability
  (industrial design)
- Low maintenance costs
  (virtually maintenance free due to direct drive gears; no belt drives)
- Jerk-free straight movements
  (brush less synchron motors; no stepper motors)
- Low ELF interference
  (motor control _elds shielded via the closed metallic construction shields)

4.2.3 E-Field Probe

The probe is specially designed and calibrated for use in liquids with high permittivities for the measurements the Specific Dosimetric E-Field Probe EX3DV4-SN:7663 with following specifications is used.

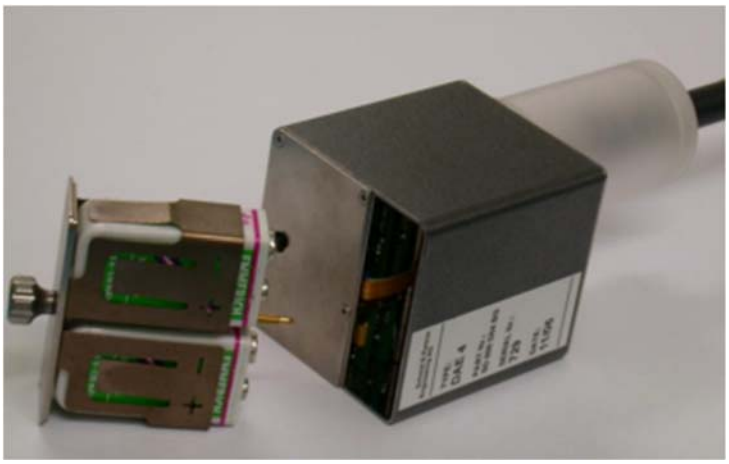
Construction	Symmetrical design with triangular core Built-in optical fiber for surface detection systemBuilt-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., glycolether)
Calibration	ISO/IEC 17025 calibration service available
Frequency	10 MHz to 6 GHz; Linearity: ± 0.2 dB (30 MHz to 6 GHz)
Directivity	± 0.2 dB in HSL (rotation around probe axis) ; ± 0.4 dB in HSL (rotation normal to probe axis)
Dynamic range	5 μW/g to > 100 mW/g; Linearity: ± 0.2 dB
Dimensions	Overall length: 337 mm (Tip: 9 mm) Tip diameter: 2.5 mm (Body: 10 mm) Distance from probe tip to dipole centers: 1.0 mm
Application	General dosimetry up to 3 GHz Compliance tests of mobile phones Fast automatic scanning in arbitrary phantoms (EX3DV4)

E-Field Probe Calibration Process

Probe calibration is realized, in compliance with CENELEC EN 62209-1/-2 and IEEE 1528 std, with CALISAR, Antennessa proprietary calibration system. The calibration is performed with the EN 62209-1/2 annexe technique using reference guide at the five frequencies.

4.2.4 Data Acquisition Electronics

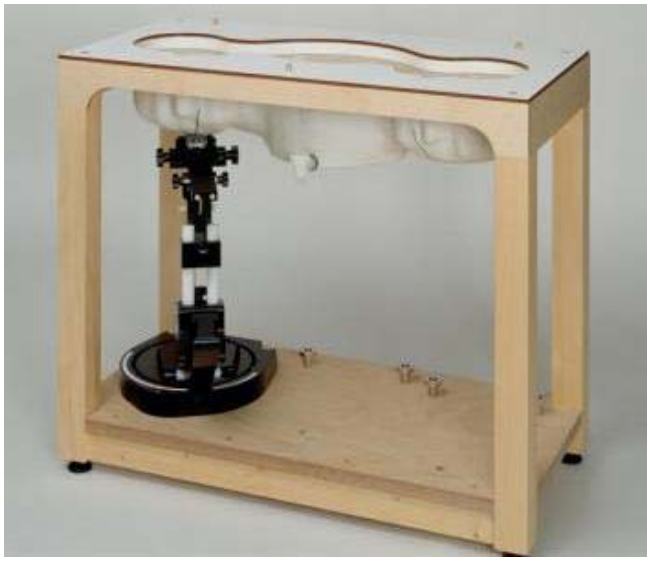
The data acquisition electronics (DAE) consist of a highly sensitive electrometer-grade preamplifier with auto-zeroing, a channel and gain-switching multiplexer, a fast 16 bit AD-converte and a command decoder with a control logic unit. Transmission to the measurement server is accomplished through an optical downlink for data and status information, as well as an optical uplink for commands and the clock.



- Input Impedance: 200MOhm
- The Inputs: Symmetrical and Floating
- Commom Mode Rejection: Above 80dB

4.2.5 Phantoms

For the measurements the Specific Anthropomorphic Mannequin (SAM) defined by the IEEE SCC-34/SC2 group is used. The phantom is a polyurethane shell integrated in a wooden table. The thickness of the phantom amounts to 2mm +/- 0.2mm. It enables the dosimetric evaluation of left and right phone usage and includes an additional flat phantom part for the simplified performance check. The phantom set-up includes a cover, which prevents the evaporation of the liquid.



- Left hand
- Right hand
- Flat phantom

Photo of Phantom SN1857

Serial Number	Material	Length	Height
SN 1857 SAM	Vinylester, glass fiber reinforced	1000	500

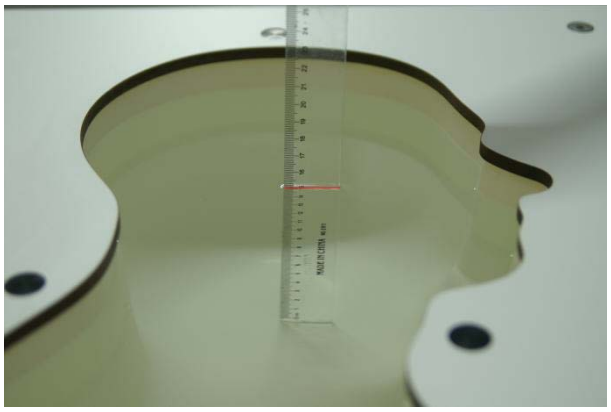
4.2.6 Device Holder

The DASY5 device holder has two scales for device rotation (with respect to the body axis) and the device inclination (with respect to the line between the ear openings). The plane between the ear openings and the mouth tip has a rotation angle of 65°. The bottom plate contains three pair of bolts for locking the device holder. The device holder positions are adjusted to the standard measurement positions in the three sections. This device holder is used for standard mobile phones or PDA‟s only. If necessary an additional support of polystyrene material is used. Larger DUT‟s (e.g. notebooks) cannot be tested using this device holder. Instead a support of bigger polystyrene cubes and thin polystyrene plates is used to position the DUT in all relevant positions to find and measure spots with maximum SAR values. Therefore those devices are normally only tested at the flat part of the SAM.

The positioning system allows obtaining cheek and tilting position with a very good accuracy. Incompliance with CENELEC, the tilt angle uncertainty is lower than 1°.

4.2.7 Simulating Liquid

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

Head Liquid Depth	Body Liquid Depth
	

The following table gives the recipes for tissue simulating liquid and the theoretical Conductivity/Permittivity.

Head (Reference IEEE1528)								
Frequency (MHz)	Water (%)	Sugar (%)	Cellulose (%)	Salt (%)	Preventol (%)	DGBE (%)	Conductivity σ (S/m)	Permittivity ε
750	41.1	57.0	0.2	1.4	0.2	0	0.89	41.9
835	40.3	57.9	0.2	1.4	0.2	0	0.90	41.5
900	40.3	57.9	0.2	1.4	0.2	0	0.97	41.5
1800, 1900, 2000	55.2	0	0	0.3	0	44.5	1.4	40.0
2450	55.0	0	0	0.1	0	44.9	1.80	39.2
2600	54.9	0	0	0.1	0	45.0	1.96	39.0
Frequency (MHz)	Water (%)	Hexyl Carbitol (%)			Triton X-100 (%)		Conductivity σ (S/m)	Permittivity ε
5200	62.52	17.24			17.24		4.66	36.0
5800	62.52	17.24			17.24		5.27	35.3
Body (From instrument manufacturer)								
Frequency (MHz)	Water (%)	Sugar (%)	Cellulose (%)	Salt (%)	Preventol (%)	DGBE (%)	Conductivity σ (S/m)	Permittivity ε
750	51.7	47.2	0	0.9	0.1	0	0.96	55.5
835	50.8	48.2	0	0.9	0.1	0	0.97	55.2
900	50.8	48.2	0	0.9	0.1	0	1.05	55.0
1800, 1900, 2000	70.2	0	0	0.4	0	29.4	1.52	53.3
2450	68.6	0	0	0.1	0	31.3	1.95	52.7
2600	68.2	0	0	0.1	0	31.7	2.16	52.5
Frequency(MHz)	Water	DGBE			Salt		Conductivity	Permittivity

		(%)	(%)	σ (S/m)	ε
5200	78.60	21.40	/	5.54	47.86
5800	78.50	21.40	0.1	6.0	48.20

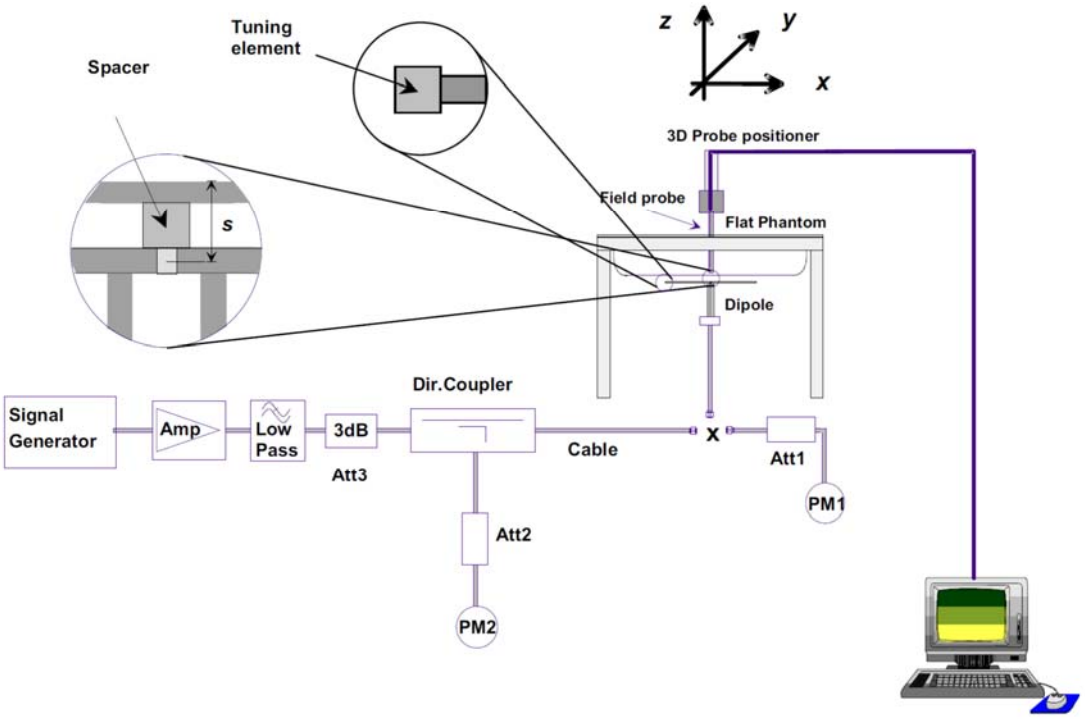
5 SYSTEM VERIFICATION

5.1 Purpose of System Check

The system performance check verifies that the system operates within its specifications. System and operator errors can be detected and corrected. It is recommended that the system performance check be performed prior to any usage of the system in order to guarantee reproducible results. The system performance check uses normal SAR measurements in a simplified setup with a well characterized source.This setup was selected to give a high sensitivity to all parameters that might fail or vary over time. The system check does not intend to replace the calibration of the components, but indicates situations where the system uncertainty is exceeded due to drift or failure.

5.2 System Check Setup

In the simplified setup for system evaluation, the EUT is replaced by a calibrated dipole and the power source is replaced by a continuous wave that comes from a signal generator. The calibrated dipole must be placed beneath the flat phantom section of the SAM twin phantom with the correct distance holder. The distance holder should touch the phantom surface with a light pressure at the reference marking and be oriented parallel to the long side of the phantom. The equipment setup is shown below:



6 TEST POSITION CONFIGURATIONS

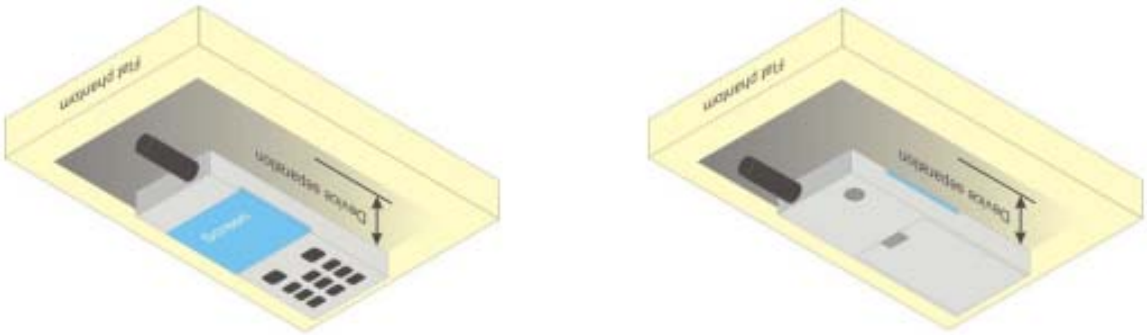
According to KDB 648474 D04 Handset, handsets are tested for SAR compliance in head, body-worn accessory and other use configurations described in the following subsections.

6.1 Body-worn Position Conditions

Body-worn accessory exposure is typically related to voice mode operations when handsets are carried in body-worn accessories. The body-worn accessory procedures in KDB 447498 are used to test for body-worn accessory SAR compliance, without a headset connected to it. This enables the test results for such configuration to be compatible with that required for hotspot mode when the body-worn accessory test separation distance is greater than or equal to that required for hotspot mode. When the reported SAR for a body-worn accessory.

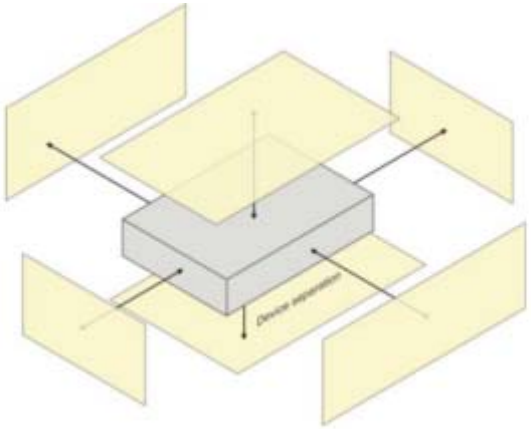
Body-worn accessories that do not contain metallic or conductive components may be tested according to worst-case exposure configurations, typically according to the smallest test separation distance required for the group of body-worn accessories with similar operating and exposure characteristics. All body-worn accessories containing metallic components are tested in conjunction with the host device.

Body-worn accessory SAR compliance is based on a single minimum test separation distance for all wireless and operating modes applicable to each body-worn accessory used by the host, and according to the relevant voice and/or data mode transmissions and operations. If a body-worn accessory supports voice only operations in its normal and expected use conditions, testing of data mode for body-worn compliance is not required. A conservative minimum test separation distance for supporting off-the-shelf body-worn accessories that may be acquired by users of consumer handsets is used to test for body-worn accessory SAR compliance. This distance is determined by the handset manufacturer, according to the requirements of Supplement C 01-01. Devices that are designed to operate on the body of users using lanyards and straps, or without requiring additional body-worn accessories, will be tested using a conservative minimum test separation distance <= 5 mm to support compliance.



6.2 Hotspot Mode Exposure Position Conditions

For handsets that support hotspot mode operations, with wireless router capabilities and various web browsing functions, the relevant hand and body exposure conditions are tested according to the hotspot SAR procedures in KDB 941225. A test separation distance of 10 mm is required between the phantom and all surfaces and edges with a transmitting antenna located within 25 mm from that surface or edge. When the form factor of a handset is smaller than 9 cm x 5 cm, a test separation distance of 5 mm (instead of 10 mm) is required for testing hotspot mode. When the separation distance required for body-worn accessory testing is larger than or equal to that tested for hotspot mode, in the same wireless mode and for the same surface of the phone, the hotspot mode SAR data may be used to support body-worn accessory SAR compliance for that particular configuration (surface).



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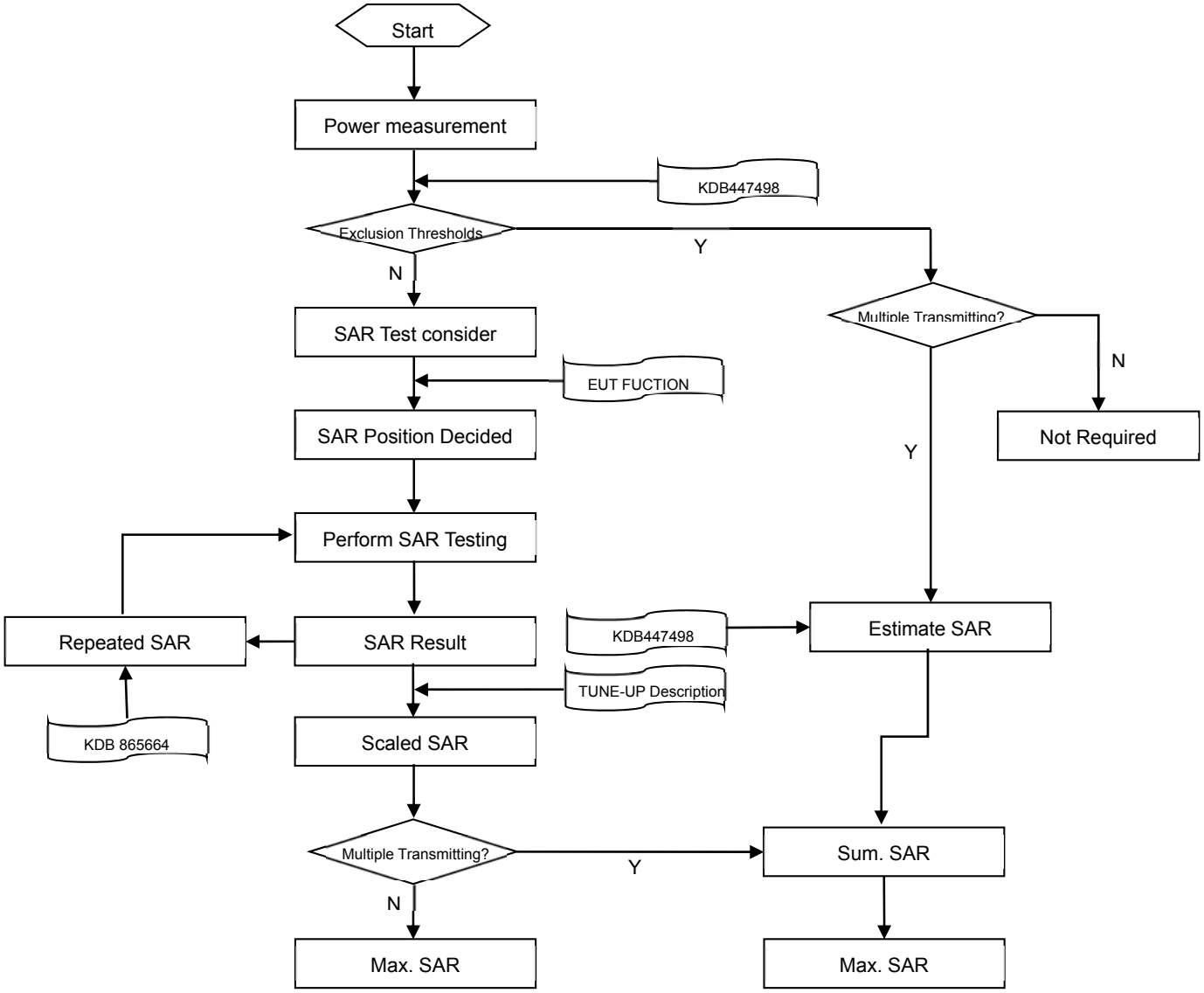
7 MEASUREMENT PROCEDURE

7.1 Measurement Process Diagram



7.2 SAR Scan General Requirement

Probe boundary effect error compensation is required for measurements with the probe tip closer than half a probe tip diameter to the phantom surface. Boththe probe tip diameter and sensor offset distance must satisfy measurement protocols; to ensure probe boundary effect errors are minimized and the higher fields closest to the phantom surface can be correctly measured and extrapolated to the phantom surface for computing 1 g SAR. Tolerances of the post-processing algorithms must be verified by the test laboratory for the scan resolutions used in the SAR measurements, according to the reference distribution functions specified in IEEE Std 1528-2013.

<table>
<tr><th colspan="3"></th><th>≤3GHz</th><th>>3GHz</th></tr>
<tr><td colspan="3">Maximum distance from closest measurement point (geometric center of probe sensors) to phantom surface</td><td>5±1 mm</td><td>½·δ·ln(2)±0.5 mm</td></tr>
<tr><td colspan="3">Maximum probe angle from probe axis to phantom surface normal at the measurement location</td><td>30°±1°</td><td>20°±1°</td></tr>
<tr><td colspan="3" rowspan="2">Maximum area scan spatial resolution: Δx Area , Δy Area</td><td>≤ 2 GHz: ≤ 15 mm
2 – 3 GHz: ≤ 12 mm</td><td>3–4 GHz: ≤ 12 mm
4 – 6 GHz: ≤ 10 mm</td></tr>
<tr><td colspan="2">When the x or y dimension of the test device, in the measurement plane orientation, is smaller than the above, the measurement resolution must be ≤ the corresponding x or y dimension of the test device with at least one measurement point on the test device.</td></tr>
<tr><td colspan="3">Maximum zoom scan spatial resolution: Δx Zoom , Δy Zoom</td><td>≤ 2 GHz: ≤ 8 mm
2 –3 GHz: ≤ 5 mm*</td><td>3–4 GHz: ≤ 5 mm*
4 – 6 GHz: ≤ 4 mm*</td></tr>
<tr><td rowspan="6">Maximum zoom scan spatial resolution, normal to phantom surface</td><td colspan="2" rowspan="3">uniform grid: Δz Zoom (n)</td><td rowspan="3">≤ 5 mm</td><td>3–4 GHz: ≤ 4 mm</td></tr>
<tr><td>4–5 GHz: ≤ 3 mm</td></tr>
<tr><td>5–6 GHz: ≤ 2 mm</td></tr>
<tr><td rowspan="3">graded grid</td><td rowspan="2">Δz Zoom (1): between 1st two points closest to phantom surface</td><td rowspan="2">≤ 4 mm</td><td>3–4 GHz: ≤ 3 mm</td></tr>
<tr><td>4–5 GHz: ≤ 2.5 mm</td></tr>
<tr><td>Δz Zoom (n>1): between subsequent points</td><td>5–6 GHz: ≤ 2 mm</td><td>≤ 1.5·Δz Zoom (n-1)</td></tr>
<tr><td rowspan="3">Minimum zoom scan volume</td><td colspan="2" rowspan="3">x, y, z</td><td rowspan="3">≥30 mm</td><td>3–4 GHz: ≥ 28 mm</td></tr>
<tr><td>4–5 GHz: ≥ 25 mm</td></tr>
<tr><td>5–6 GHz: ≥ 22 mm</td></tr>
<tr><td colspan="5">Note:
1. δ is the penetration depth of a plane-wave at normal incidence to the tissue medium; see draft standard IEEE P1528-2011 for details.
2. * When zoom scan is required and the reported SAR from the area scan based 1 g SAR estimation procedures of KDB 447498 is ≤ 1.4 W/kg, ≤ 8 mm, ≤ 7 mm and ≤ 5 mm zoom scan resolution may be applied, respectively, for 2 GHz to 3GHz, 3 GHz to 4 GHz and 4 GHz to 6 GHz.</td></tr>
</table>

7.3 Measurement Procedure

The following steps are used for each test position

a. Establish a call with the maximum output power with a base station simulator. The connection between the mobile and the base station simulator is established via air interface
b. Measurement of the local E-field value at a fixed location. This value serves as a reference value for calculating a possible power drift.
c. Measurement of the SAR distribution with a grid of 8 to 16mm * 8 to16 mm and a constant distance to the inner surface of the phantom. Since the sensors cannot directly measure at the inner phantom surface, the values between the sensors and the inner phantom surface are extrapolated. With these values the area of the maximum SAR is calculated by an interpolation scheme.
d. Around this point, a cube of 30 * 30 * 30 mm or 32 * 32 *32 mm is assessed by measuring 5 or 8 * 5 or 8*4 or 5 mm. With these data, the peak spatial-average SAR value can be calculated.

7.4 Area & Zoom Scan Procedure

First Area Scan is used to locate the approximate location(s) of the local peak SAR value(s). The measurement grid within an Area Scan is defined by the grid extent, grid step size and grid offset. Next, in order to determine the EM field distribution in a three-dimensional spatial extension, Zoom Scan is required. The Zoom Scan is performed around the highest E-field value to determine the averaged SAR-distribution over 10 g. Area scan and zoom scan resolution setting follows KDB 865664 D01v01r04 quoted below.
When the 1 g SAR of the highest peak is within 2 dB of the SAR limit, additional zoom scans are required for other peaks within 2 dB of the highest peak that have not been included in any zoom scan to ensure there is no increase in SAR.

8 CONDUCTED RF OUPUT POWER

8.1 WCDMA

Please refer the document “Conducted RF Output Power List.pdf”.

8.2 LTE

Please refer the document “Conducted RF Output Power List.pdf”.

8.3 WIFI

8.3.1 2.4G WIFI (Ant. SISO-1)

Band (GHz)	Mode	Channel	Freq. (MHz)	Conducted Power (dBm)	Tune-up Limit (dBm)	SAR Test Require.
2.4 (2.4~2.4835)	802.11b	1	2412	11.76	13.00	No
		2	2417	13.01	15.00	No
		6	2437	**13.01**	15.00	Yes
		10	2457	13.00	15.00	No
		11	2462	12.61	14.00	No
	802.11g	1	2412	12.01	14.00	No
		2	2417	17.23	18.00	No
		6	2437	17.74	18.00	No
		10	2457	17.15	18.00	No
		11	2462	14.12	16.00	No
	802.11n(HT20)	1	2412	11.32	13.00	No
		2	2417	17.38	18.00	No
		6	2437	17.63	18.00	No
		10	2457	17.29	18.00	No
		11	2462	12.72	14.00	No
	802.11n(HT40)	3	2422	9.14	11.00	No
		4	2427	17.27	18.00	Yes
		6	2437	**17.48**	18.00	Yes
		8	2447	17.13	18.00	Yes
		9	2452	8.47	10.00	No

Note: When multiple channel bandwidth configurations in a frequency band have the same maximum tune-up output power, the test configuration is determined by applying the following steps sequentially.

1) The largest channel bandwidth configuration is selected between the multiple configurations in a frequency band with the same maximum tune-up output power.

2) When multiple transmission modes (802.11b/g/n) have the same maximum tune-up output power, largest channel bandwidth, lowest order modulation and lowest data rate, the lowest order 802.11 mode is selected; i.e., 802.11b is chosen over 802.11g, and 802.11g chosen over 802.11n.

8.3.2 2.4G WIFI (Ant. SISO-2)

Band (GHz)	Mode	Channel	Freq. (MHz)	Conducted Power (dBm)	Tune-up Limit (dBm)	SAR Test Require.
2.4 (2.4~2.4835)	802.11b	1	2412	13.26	15.00	No
		2	2417	14.03	16.00	No
		6	2437	**14.08**	16.00	Yes
		10	2457	14.01	16.00	No
		11	2462	13.26	15.00	No
	802.11g	1	2412	13.27	15.00	No
		2	2417	17.52	18.00	No
		6	2437	17.64	18.00	No
		10	2457	17.04	18.00	No
		11	2462	14.31	16.00	No
	802.11n(HT20)	1	2412	12.48	14.00	No
		2	2417	17.26	18.00	No
		6	2437	17.69	18.00	No
		10	2457	17.53	18.00	No
		11	2462	13.05	15.00	No
	802.11n(HT40)	3	2422	10.70	12.00	No
		4	2427	17.54	18.00	Yes
		6	2437	**17.75**	18.00	Yes
		8	2447	17.39	18.00	Yes
		9	2452	9.10	11.00	No

Note: When multiple channel bandwidth configurations in a frequency band have the same maximum tune-up output power, the test configuration is determined by applying the following steps sequentially.

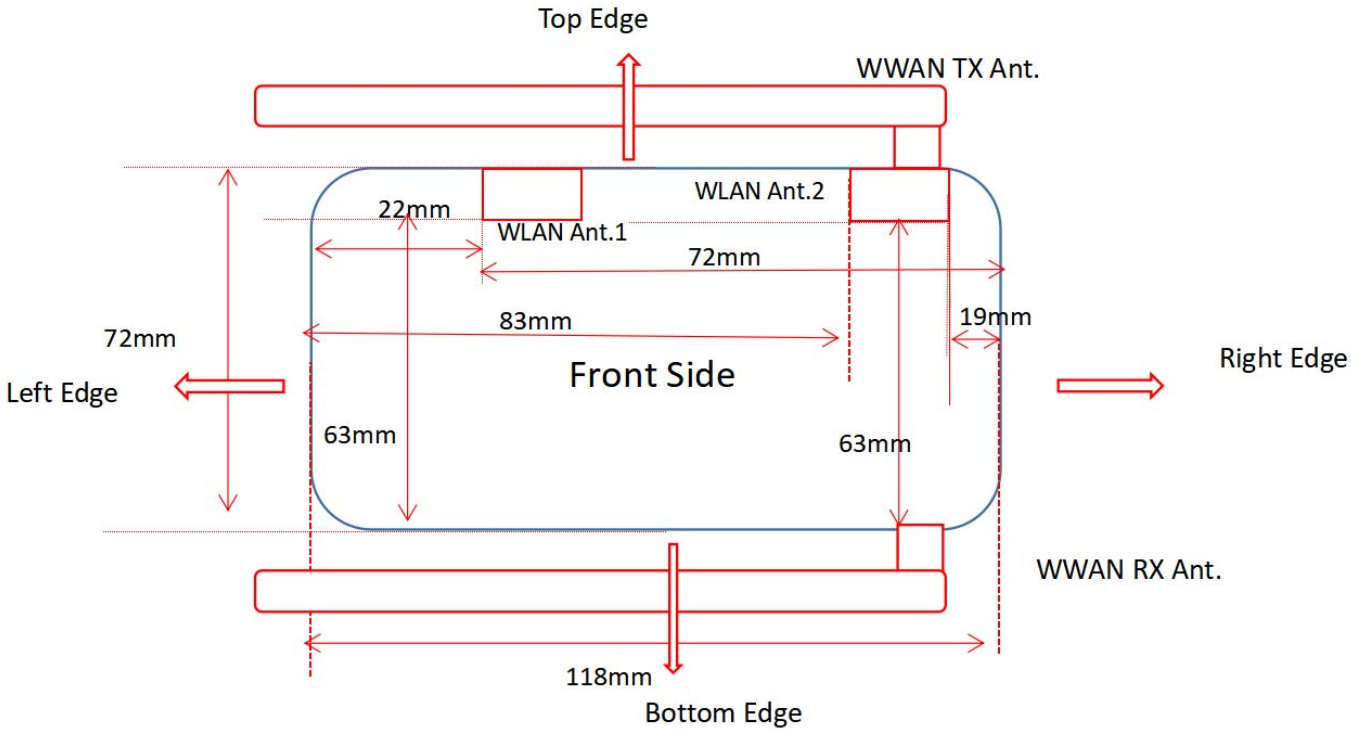
1) The largest channel bandwidth configuration is selected between the multiple configurations in a frequency band with the same maximum tune-up output power.

2) When multiple transmission modes (802.11b/g/n) have the same maximum tune-up output power, largest channel bandwidth, lowest order modulation and lowest data rate, the lowest order 802.11 mode is selected; i.e., 802.11b is chosen over 802.11g, and 802.11g chosen over 802.11n.

8.3.3 2.4G WIFI (MIMO)

Band (GHz)	Mode	Channel	Freq. (MHz)	Conducted Power (dBm)	Tune-up Limit (dBm)	SAR Test Require.
2.4 (2.4~2.4835)	802.11n(HT20)	1	2412	14.58	16.00	No
		2	2417	20.34	21.00	No
		6	2437	20.64	21.00	No
		10	2457	20.44	21.00	No
		11	2462	14.44	16.00	No
	802.11n(HT40)	3	2422	11.57	13.00	No
		4	2427	20.37	21.00	Yes
		6	2437	**20.65**	21.00	Yes
		8	2447	20.48	21.00	Yes
		9	2452	11.33	13.00	No

9 TEST EXCLUSION CONSIDERATION



Antenna	Support Bands
WWAN Ant.	WCDMA B2/4/5
	LTE B2/4/5/7/12/13/25/26/30/66
WLAN Ant.1	WIFI2.4G
WLAN Ant.2	WIFI2.4G

9.1 SAR Test Consideration Table

According with FCC KDB 447498 D04, Appendix B, The SAR-based exemption formula applies for single fixed, mobile, and portable RF sources with available maximum time-averaged power or effective radiated power (ERP), whichever is greater, of less than or equal to the threshold Pth (mW).

This method shall only be used at separation distances from 0.5 cm to 40 cm and at frequencies from 0.3 GHz to 6 GHz (inclusive). The following table shows the power threshold from 5mm to 50mm.

Power Thresholds (mW)					
Frequency (MHz)	At separation distance of ≤5 mm	At separation distance of 10 mm	At separation distance of 15 mm	At separation distance of 20 mm	At separation distance of 25 mm
300	39 mW	65 mW	88 mW	110 mW	129 mW
450	22 mW	44 mW	67 mW	89 mW	112 mW
835	9 mW	25 mW	44 mW	66 mW	90 mW
1900	3 mW	12 mW	26 mW	44 mW	66 mW
2450	3 mW	10 mW	22 mW	38 mW	59 mW
3600	2 mW	8 mW	18 mW	32 mW	49 mW
5800	1 mW	6 mW	14 mW	25 mW	40 mW
Frequency (MHz)	At separation distance of 30 mm	At separation distance of 35 mm	At separation distance of 40 mm	At separation distance of 45 mm	At separation distance of 50 mm
300	148 mW	166 mW	184 mW	201 mW	217 mW
450	135 mW	158 mW	180 mW	203 mW	226 mW
835	116 mW	145 mW	175 mW	207 mW	240 mW
1900	92 mW	122 mW	157 mW	195 mW	236 mW
2450	83 mW	111 mW	143 mW	179 mW	219 mW
3600	71 mW	96 mW	125 mW	158 mW	195 mW
5800	58 mW	80 mW	106 mW	136 mW	169 mW

9.1.1 Test Consideration

WLAN (Ant. SISO-1)

Test Position Configurations	Mode	Calculated Frequency (MHz)	Distance to User (mm)	Exclusion Threshold (mW)	Max. Peak Power (dBm)	Max. Peak Power (mW)	SAR Test Required
Front Side	WLAN 2.4GHz	2462	17	28.07	18.00	63.10	Yes
Back Side	WLAN 2.4GHz	2462	8	6.69	18.00	63.10	Yes
Left Edge	WLAN 2.4GHz	2462	22	45.84	18.00	63.10	Yes
Right Edge	WLAN 2.4GHz	2462	72	437.79	18.00	63.10	No
Top Edge	WLAN 2.4GHz	2462	5	2.73	18.00	63.10	Yes
Bottom Edge	WLAN 2.4GHz	2462	63	339.55	18.00	63.10	No

WLAN (Ant. SISO-2)

Test Position Configurations	Mode	Calculated Frequency (MHz)	Distance to User (mm)	Exclusion Threshold (mW)	Max. Peak Power (dBm)	Max. Peak Power (mW)	SAR Test Required
Front Side	WLAN 2.4GHz	2462	17	28.07	18.00	63.10	Yes
Back Side	WLAN 2.4GHz	2462	8	6.69	18.00	63.10	Yes
Left Edge	WLAN 2.4GHz	2462	83	573.83	18.00	63.10	No
Right Edge	WLAN 2.4GHz	2462	19	34.68	18.00	63.10	Yes
Top Edge	WLAN 2.4GHz	2462	5	2.73	18.00	63.10	Yes
Bottom Edge	WLAN 2.4GHz	2462	63	339.55	18.00	63.10	No

WLAN (MIMO)

Test Position Configurations	Mode	Calculated Frequency (MHz)	Distance to User (mm)	Exclusion Threshold (mW)	Max. Peak Power (dBm)	Max. Peak Power (mW)	SAR Test Required
Front Side	WLAN 2.4GHz	2462	17	28.07	21.00	125.89	Yes
Back Side	WLAN 2.4GHz	2462	8	6.69	21.00	125.89	Yes
Left Edge	WLAN 2.4GHz	2462	22	45.84	21.00	125.89	Yes
Right Edge	WLAN 2.4GHz	2462	19	34.68	21.00	125.89	Yes
Top Edge	WLAN 2.4GHz	2462	5	2.73	21.00	125.89	Yes
Bottom Edge	WLAN 2.4GHz	2462	63	339.55	21.00	125.89	No

WWAN Ant.

Test Position Configurations	Mode	Calculated Frequency (MHz)	Distance to User (mm)	Exclusion Threshold (mW)	Max. Peak Power (dBm)	Max. Peak Power (mW)	SAR Test Required
Front Side	WCDMA Band2	1910	0	0.00	24.00	251.19	Yes
	WCDMA Band4	1755	0	0.00	19.50	89.13	Yes
	WCDMA Band5	849	0	0.00	24.00	251.19	Yes
	LTE Band2	1910	0	0.00	24.00	251.19	Yes
	LTE Band4	1755	0	0.00	19.50	89.13	Yes
	LTE Band5	849	0	0.00	24.00	251.19	Yes
	LTE Band7	2570	0	0.00	21.50	141.25	Yes
	LTE Band12	716	0	0.00	24.00	251.19	Yes
	LTE Band13	787	0	0.00	24.00	251.19	Yes
	LTE Band25	1915	0	0.00	24.00	251.19	Yes
	LTE Band26	849	0	0.00	24.00	251.19	Yes
	LTE Band30	2315	0	0.00	21.50	141.25	Yes
	LTE Band66	1780	0	0.00	19.50	89.13	Yes
Back Side	WCDMA Band2	1910	0	0.00	24.00	251.19	Yes
	WCDMA Band4	1755	0	0.00	19.50	89.13	Yes
	WCDMA Band5	849	0	0.00	24.00	251.19	Yes
	LTE Band2	1910	0	0.00	24.00	251.19	Yes
	LTE Band4	1755	0	0.00	19.50	89.13	Yes
	LTE Band5	849	0	0.00	24.00	251.19	Yes
	LTE Band7	2570	0	0.00	21.50	141.25	Yes
	LTE Band12	716	0	0.00	24.00	251.19	Yes
	LTE Band13	787	0	0.00	24.00	251.19	Yes
	LTE Band25	1915	0	0.00	24.00	251.19	Yes
	LTE Band26	849	0	0.00	24.00	251.19	Yes
	LTE Band30	2315	0	0.00	21.50	141.25	Yes
	LTE Band66	1780	0	0.00	19.50	89.13	Yes
Left Edge	WCDMA Band2	1910	0	0.00	24.00	251.19	Yes
	WCDMA Band4	1755	0	0.00	19.50	89.13	Yes
	WCDMA Band5	849	0	0.00	24.00	251.19	Yes
	LTE Band2	1910	0	0.00	24.00	251.19	Yes
	LTE Band4	1755	0	0.00	19.50	89.13	Yes
	LTE Band5	849	0	0.00	24.00	251.19	Yes
	LTE Band7	2570	0	0.00	21.50	141.25	Yes
	LTE Band12	716	0	0.00	24.00	251.19	Yes
	LTE Band13	787	0	0.00	24.00	251.19	Yes
	LTE Band25	1915	0	0.00	24.00	251.19	Yes
	LTE Band26	849	0	0.00	24.00	251.19	Yes
	LTE Band30	2315	0	0.00	21.50	141.25	Yes

	LTE Band66	1780	0	0.00	19.50	89.13	Yes
Right Edge	WCDMA Band2	1910	0	0.00	24.00	251.19	Yes
	WCDMA Band4	1755	0	0.00	19.50	89.13	Yes
	WCDMA Band5	849	0	0.00	24.00	251.19	Yes
	LTE Band2	1910	0	0.00	24.00	251.19	Yes
	LTE Band4	1755	0	0.00	19.50	89.13	Yes
	LTE Band5	849	0	0.00	24.00	251.19	Yes
	LTE Band7	2570	0	0.00	21.50	141.25	Yes
	LTE Band12	716	0	0.00	24.00	251.19	Yes
	LTE Band13	787	0	0.00	24.00	251.19	Yes
	LTE Band25	1915	0	0.00	24.00	251.19	Yes
	LTE Band26	849	0	0.00	24.00	251.19	Yes
	LTE Band30	2315	0	0.00	21.50	141.25	Yes
	LTE Band66	1780	0	0.00	19.50	89.13	Yes
Top Edge	WCDMA Band2	1910	0	0.00	24.00	251.19	Yes
	WCDMA Band4	1755	0	0.00	19.50	89.13	Yes
	WCDMA Band5	849	0	0.00	24.00	251.19	Yes
	LTE Band2	1910	0	0.00	24.00	251.19	Yes
	LTE Band4	1755	0	0.00	19.50	89.13	Yes
	LTE Band5	849	0	0.00	24.00	251.19	Yes
	LTE Band7	2570	0	0.00	21.50	141.25	Yes
	LTE Band12	716	0	0.00	24.00	251.19	Yes
	LTE Band13	787	0	0.00	24.00	251.19	Yes
	LTE Band25	1915	0	0.00	24.00	251.19	Yes
	LTE Band26	849	0	0.00	24.00	251.19	Yes
	LTE Band30	2315	0	0.00	21.50	141.25	Yes
	LTE Band66	1780	0	0.00	19.50	89.13	Yes
Bottom Edge	WCDMA Band2	1910	72	463.16	24.00	251.19	No
	WCDMA Band4	1755	72	471.94	19.50	89.13	No
	WCDMA Band5	849	72	403.96	24.00	251.19	No
	LTE Band2	1910	72	463.16	24.00	251.19	No
	LTE Band4	1755	72	471.94	19.50	89.13	No
	LTE Band5	849	72	403.96	24.00	251.19	No
	LTE Band7	2570	72	433.64	21.50	141.25	No
	LTE Band12	716	72	381.59	24.00	251.19	No
	LTE Band13	787	72	393.84	24.00	251.19	No
	LTE Band25	1915	72	462.89	24.00	251.19	No
	LTE Band26	849	72	403.96	24.00	251.19	No
	LTE Band30	2315	72	443.81	21.50	141.25	No
	LTE Band66	1780	72	470.46	19.50	89.13	No

Note:

1. Maximum power is the source-based time-average power and represents the maximum RF output power including tune-up tolerance among production units
2. Per KDB 447498 D04, for larger devices, the test separation distance of adjacent edge configuration is determined by the closest separation between the antenna and the user.
3. Per KDB 447498 D04, standalone SAR test exclusion threshold is applied; If the distance of the antenna to the user is < 5mm, 5mm is used to determine SAR exclusion threshold.
4. Per KDB 447498 D04, for separation distances from 0.5 cm to 40 cm and at frequencies from 0.3 GHz to 6 GHz (inclusive), the threshold Pth (mW) is given by Following:

$$P_{th}(mW) = \begin{cases} ERP_{20cm}(d/20cm)^x & d \le 20cm \\ ERP_{20cm} & 20cm < d \le 40cm \end{cases}$$

where

$$x = -log_{10}\left(\frac{60}{ERP_{20cm}\sqrt{f}}\right)$$

   a. f(GHz) is the RF channel transmit frequency in GHz
   b. d is the separation distance (cm), The result is rounded to one decimal place for comparison
   c. $\boldsymbol{ERP_{20cm}}$ are determined by:

$$ERP_{20cm}(mW) = f(x) = \begin{cases} 2040f & 0.3GHz \le f < 1.5GHz \\ 3060 & 1.5GHz \le f \le 6GHz \end{cases}$$

5. Per KDB 941225 D01, RMC 12.2kbps setting is used to evaluate SAR. If HSDPA /HSUPA /DC-HSDPA output power is < 0.25dB higher than RMC12.2Kbps, or reported SAR with RMC 12.2kbps setting is ≤ 1.2W/kg, HSDPA/HSUPA/DC-HSDPA SAR evaluation can be excluded.
6. Per KDB 248227 D01, choose the highest output power channel to test SAR and determine further SAR exclusion.8. For each frequency band, testing at higher data rates and higher order modulations is not required when the maximum average output power for each of these configurations is less than 1/4dB higher than those measured at the lowest data rate
7. Per KDB 248227 D01 SAR is not required for the following 2.4 GHz OFDM conditions.
   a. When KDB Publication 447498 D01 SAR test exclusion applies to the OFDM configuration.
   b. When the highest reported SAR for DSSS is adjusted by the ratio of OFDM to DSSS specified maximum output power and the adjusted SAR is ≤ 1.2 W/kg.

9.2 10g Extremity Exposure Consideration

According with FCC KDB 648474 D04, for smart phones with a display diagonal dimension > 15.0 cm or an overall diagonal dimension > 16.0 cm that provide similar mobile web access and multimedia support found in mini-tablets or UMPC mini-tablets that support voice calls next to the ear, unless it is confirmed otherwise through KDB inquiries, the following phablet procedures should be applied to evaluate SAR compliance for each applicable wireless modes and frequency band. Devices marketed as phablets, regardless of form factors and operating characteristics must be tested as a phablet to determine SAR compliance;

The UMPC mini-tablet procedures must also be applied to test the SAR of all surfaces and edges with an antenna located at ≤ 25 mm from that surface or edge, in direct contact with a flat phantom, for 10-g extremity SAR according to the body-equivalent tissue dielectric parameters in KDB 865664 to address interactive hand use exposure conditions. The UMPC mini-tablet 1-g SAR at 5 mm is not required. When hotspot mode applies, 10-g extremity SAR is required only for the surfaces and edges with hotspot mode 1-g reported SAR > 1.2 W/kg.

Conclusion:
The EUT hotspot mode 1-g reported SAR is 1.008 W/kg, which is less than 1.2 W/kg, 10 g extremity SAR is not required.

10 TEST RESULT

10.1 WCDMA Band 2

Mode	Position	Dist. (mm)	Ch.	Freq. (MHz)	Power Drift (dB)	1 g Meas SAR (W/kg)	Meas. Power (dBm)	Max. tune-up power (dBm)	Scaling Factor	1g Scaled SAR (W/kg)	Meas. No.
Body-Worn&Hotspot											
RMC	Front Side	10	9262	1852.4	-0.18	0.521	23.31	24.00	1.172	0.611	/
RMC	Back Side	10	9262	1852.4	0.13	0.563	23.31	24.00	1.172	**0.660**	1#
RMC	Left Edge	10	9262	1852.4	-0.05	0.014	23.31	24.00	1.172	0.016	/
RMC	Right Edge	10	9262	1852.4	0.05	0.044	23.31	24.00	1.172	0.052	/
RMC	Top Edge	10	9262	1852.4	0.10	0.516	23.31	24.00	1.172	0.605	/
Note: Refer to ANNEX C for the detailed test data for each test configuration.											

10.2 WCDMA Band 4

Mode	Position	Dist. (mm)	Ch.	Freq. (MHz)	Power Drift (dB)	1 g Meas SAR (W/kg)	Meas. Power (dBm)	Max. tune-up power (dBm)	Scaling Factor	1g Scaled SAR (W/kg)	Meas. No.
Body-Worn&Hotspot											
RMC	Front Side	10	1513	1732.4	0.14	0.550	19.02	19.50	1.117	0.614	/
RMC	Back Side	10	1513	1732.4	0.05	0.779	19.02	19.50	1.117	**0.870**	2#
RMC	Left Edge	10	1513	1732.4	0.11	0.010	19.02	19.50	1.117	0.011	/
RMC	Right Edge	10	1513	1732.4	-0.17	0.022	19.02	19.50	1.117	0.025	/
RMC	Top Edge	10	1513	1732.4	0.13	0.401	19.02	19.50	1.117	0.448	/
RMC	Back Side	10	1312	1732.4	0.03	0.632	18.72	19.50	1.197	0.756	/
RMC	Back Side	10	1412	1732.4	0.02	0.677	18.70	19.50	1.202	0.814	/
Note: Refer to ANNEX C for the detailed test data for each test configuration.											

10.3 WCDMA Band 5

Mode	Position	Dist. (mm)	Ch.	Freq. (MHz)	Power Drift (dB)	1 g Meas SAR (W/kg)	Meas. Power (dBm)	Max. tune-up power (dBm)	Scaling Factor	1g Scaled SAR (W/kg)	Meas. No.
Body-Worn&Hotspot											
RMC	Front Side	10	4233	846.6	-0.08	0.689	23.32	24.00	1.169	0.806	/
RMC	Back Side	10	4233	846.6	0.01	0.630	23.32	24.00	1.169	0.737	/
RMC	Left Edge	10	4233	846.6	0.17	0.057	23.32	24.00	1.169	0.067	/
RMC	Right Edge	10	4233	846.6	-0.13	0.021	23.32	24.00	1.169	0.025	/
RMC	Top Edge	10	4182	836.4	0.08	0.333	23.32	24.00	1.169	0.389	/
RMC	Front Side	10	4132	826.4	0.14	0.672	23.25	24.00	1.189	0.799	/
RMC	Front Side	10	4182	836.4	0.11	0.709	23.19	24.00	1.205	**0.854**	3#
Note: Refer to ANNEX C for the detailed test data for each test configuration.											

10.4 LTE Band 2 (20MHz Bandwidth)

Mode	Position	Dist. (mm)	Ch.	Freq. (MHz)	RB Num.	RB Start	Power Drift (dB)	1 g Meas SAR (W/kg)	Meas. Power (dBm)	Max. tune-up power (dBm)	Scaling Factor	1g Scaled SAR (W/kg)	Meas. No.
Body-Worn&Hotspot													
QPSK	Front Side	10	18900	1880	1	Low	-0.04	0.429	23.78	24.00	1.052	0.451	/
QPSK	Front Side	10	18900	1880	50	Low	-0.05	0.354	22.19	23.00	1.205	0.427	/
QPSK	Back Side	10	18900	1880	1	Low	0.13	0.558	23.78	24.00	1.052	**0.587**	4#
QPSK	Back Side	10	18900	1880	50	Low	0.18	0.461	22.19	23.00	1.205	0.556	/
QPSK	Left Edge	10	18900	1880	1	Low	-0.08	0.012	23.78	24.00	1.052	0.013	/
QPSK	Left Edge	10	18900	1880	50	Low	-0.15	0.008	22.19	23.00	1.205	0.010	/
QPSK	Right Edge	10	18900	1880	1	Low	-0.16	0.032	23.78	24.00	1.052	0.033	/
QPSK	Right Edge	10	18900	1880	50	Low	0.08	0.021	22.19	23.00	1.205	0.025	/
QPSK	Top Edge	10	18900	1880	1	Low	-0.12	0.331	23.78	24.00	1.052	0.348	/
QPSK	Top Edge	10	18900	1880	50	Low	-0.10	0.320	22.19	23.00	1.205	0.386	/
Note: Refer to ANNEX C for the detailed test data for each test configuration.													

10.5 LTE Band 4 (20MHz Bandwidth)

Mode	Position	Dist. (mm)	Ch.	Freq. (MHz)	RB Num.	RB Start	Power Drift (dB)	1 g Meas SAR (W/kg)	Meas. Power (dBm)	Max. tune-up power (dBm)	Scaling Factor	1g Scaled SAR (W/kg)	Meas. No.
Body-Worn&Hotspot													
QPSK	Front Side	10	20175	1732.5	1	Low	-0.19	0.476	18.40	19.50	1.288	0.613	/
QPSK	Front Side	10	20175	1732.5	50	Low	-0.17	0.506	18.56	19.50	1.242	0.628	/
QPSK	Back Side	10	20175	1732.5	1	Low	-0.04	0.586	18.40	19.50	1.288	**0.755**	5#
QPSK	Back Side	10	20175	1732.5	50	Low	-0.16	0.580	18.56	19.50	1.242	0.720	/
QPSK	Left Edge	10	20175	1732.5	1	Low	-0.17	0.007	18.40	19.50	1.288	0.009	/
QPSK	Left Edge	10	20175	1732.5	50	Low	-0.03	0.008	18.56	19.50	1.242	0.010	/
QPSK	Right Edge	10	20175	1732.5	1	Low	-0.18	0.013	18.40	19.50	1.288	0.017	/
QPSK	Right Edge	10	20175	1732.5	50	Low	-0.10	0.015	18.56	19.50	1.242	0.019	/
QPSK	Top Edge	10	20175	1732.5	1	Low	0.13	0.378	18.40	19.50	1.288	0.487	/
QPSK	Top Edge	10	20175	1732.5	50	Low	-0.15	0.397	18.56	19.50	1.242	0.493	/
Note: Refer to ANNEX C for the detailed test data for each test configuration.													

10.6 LTE Band 5 (10MHz Bandwidth)

Mode	Position	Dist. (mm)	Ch.	Freq. (MHz)	RB Num.	RB Start	Power Drift (dB)	1 g Meas SAR (W/kg)	Meas. Power (dBm)	Max. tune-up power (dBm)	Scaling Factor	1g Scaled SAR (W/kg)	Meas. No.
Body-Worn&Hotspot													
QPSK	Front Side	10	20525	836.5	1	Mid	-0.13	0.645	22.52	24.00	1.406	**0.907**	6#
QPSK	Front Side	10	20525	836.5	25	Mid	-0.17	0.547	21.74	23.00	1.337	0.731	/
QPSK	Back Side	10	20525	836.5	1	Mid	0.19	0.571	22.52	24.00	1.406	0.803	/
QPSK	Back Side	10	20525	836.5	25	Mid	0.12	0.472	21.74	23.00	1.337	0.631	/
QPSK	Left Edge	10	20525	836.5	1	Mid	0.13	0.018	22.52	24.00	1.406	0.025	/
QPSK	Left Edge	10	20525	836.5	25	Mid	-0.10	0.015	21.74	23.00	1.337	0.020	/
QPSK	Right Edge	10	20525	836.5	1	Mid	0.12	0.062	22.52	24.00	1.406	0.087	/
QPSK	Right Edge	10	20525	836.5	25	Mid	0.16	0.053	21.74	23.00	1.337	0.071	/
QPSK	Top Edge	10	20525	836.5	1	Mid	-0.16	0.322	22.52	24.00	1.406	0.453	/
QPSK	Top Edge	10	20525	836.5	25	Mid	-0.06	0.280	21.74	23.00	1.337	0.374	/
QPSK	Front Side	10	20450	829	1	Mid	-0.17	0.625	22.40	24.00	1.445	0.903	/
QPSK	Front Side	10	20600	844	1	Mid	0.18	0.612	22.48	24.00	1.419	0.868	/
QPSK	Front Side	10	20600	844	50	Low	0.09	0.532	21.66	23.00	1.361	0.724	/
QPSK	Back Side	10	20450	829	1	Mid	0.10	0.550	22.40	24.00	1.445	0.795	/
QPSK	Back Side	10	20600	844	1	Mid	0.13	0.541	22.48	24.00	1.419	0.768	/
QPSK	Back Side	10	20600	844	50	Low	-0.13	0.460	21.66	23.00	1.361	0.626	/
Note: Refer to ANNEX C for the detailed test data for each test configuration.													

10.7 LTE Band 7 (20MHz Bandwidth)

Mode	Position	Dist. (mm)	Ch.	Freq. (MHz)	RB Num.	RB Start	Power Drift (dB)	1 g Meas SAR (W/kg)	Meas. Power (dBm)	Max. tune-up power (dBm)	Scaling Factor	1g Scaled SAR (W/kg)	Meas. No.
Body-Worn&Hotspot													
QPSK	Front Side	10	21100	2535	1	High	-0.04	0.359	19.93	21.50	1.435	0.515	/
QPSK	Front Side	10	20850	2510	50	Mid	0.07	0.362	20.03	21.50	1.403	0.508	/
QPSK	Back Side	10	21100	2535	1	High	-0.10	0.397	19.93	21.50	1.435	**0.570**	7#
QPSK	Back Side	10	20850	2510	50	Mid	0.02	0.403	20.03	21.50	1.403	0.565	/
QPSK	Left Edge	10	21100	2535	1	High	-0.06	0.009	19.93	21.50	1.435	0.013	/
QPSK	Left Edge	10	20850	2510	50	Mid	0.07	0.010	20.03	21.50	1.403	0.014	/
QPSK	Right Edge	10	21100	2535	1	High	-0.18	0.043	19.93	21.50	1.435	0.062	/
QPSK	Right Edge	10	20850	2510	50	Mid	-0.13	0.045	20.03	21.50	1.403	0.063	/
QPSK	Top Edge	10	21100	2535	1	High	-0.10	0.228	19.93	21.50	1.435	0.327	/
QPSK	Top Edge	10	20850	2510	50	Mid	0.10	0.232	20.03	21.50	1.403	0.325	/
Note: Refer to ANNEX C for the detailed test data for each test configuration.													

10.8 LTE Band 12 (10MHz Bandwidth)

Mode	Position	Dist. (mm)	Ch.	Freq. (MHz)	RB Num.	RB Start	Power Drift (dB)	1 g Meas SAR (W/kg)	Meas. Power (dBm)	Max. tune-up power (dBm)	Scaling Factor	1g Scaled SAR (W/kg)	Meas. No.
Body-Worn&Hotspot													
QPSK	Front Side	10	23130	711	1	Mid	-0.07	0.586	22.55	24.00	1.396	0.818	/
QPSK	Front Side	10	23130	711	25	Mid	0.17	0.492	21.65	23.00	1.365	0.671	/
QPSK	Back Side	10	23130	711	1	Mid	-0.05	0.439	22.55	24.00	1.396	0.613	/
QPSK	Back Side	10	23130	711	25	Mid	0.10	0.368	21.65	23.00	1.365	0.502	/
QPSK	Left Edge	10	23130	711	1	Mid	-0.05	0.007	22.55	24.00	1.396	0.010	/
QPSK	Left Edge	10	23130	711	25	Mid	0.15	0.007	21.65	23.00	1.365	0.010	/
QPSK	Right Edge	10	23130	711	1	Mid	-0.01	0.041	22.55	24.00	1.396	0.057	/
QPSK	Right Edge	10	23130	711	25	Mid	0.13	0.039	21.65	23.00	1.365	0.053	/
QPSK	Top Edge	10	23130	711	1	Mid	-0.19	0.458	22.55	24.00	1.396	0.640	/
QPSK	Top Edge	10	23095	707.5	25	Mid	0.19	0.409	21.65	23.00	1.365	0.558	/
QPSK	Front Side	10	23060	704	1	High	0.19	0.572	22.39	24.00	1.449	0.829	/
QPSK	Front Side	10	23095	707.5	1	Mid	-0.07	0.595	22.46	24.00	1.426	**0.848**	8#
QPSK	Front Side	10	23130	711	50	Low	-0.05	0.480	21.62	23.00	1.374	0.660	/
Note: Refer to ANNEX C for the detailed test data for each test configuration.													

10.9 LTE Band 13 (10MHz Bandwidth)

Mode	Position	Dist. (mm)	Ch.	Freq. (MHz)	RB Num.	RB Start	Power Drift (dB)	1 g Meas SAR (W/kg)	Meas. Power (dBm)	Max. tune-up power (dBm)	Scaling Factor	1g Scaled SAR (W/kg)	Meas. No.
Body-Worn&Hotspot													
QPSK	Front Side	10	23230	782	1	Low	-0.09	0.710	22.48	24.00	1.419	**1.008**	9#
QPSK	Front Side	10	23230	782	25	Low	0.14	0.640	21.57	23.00	1.390	0.890	/
QPSK	Back Side	10	23230	782	1	Low	-0.09	0.585	22.48	24.00	1.419	0.830	/
QPSK	Back Side	10	23230	782	25	Low	0.02	0.494	21.57	23.00	1.390	0.687	/
QPSK	Left Edge	10	23230	782	1	Low	-0.07	0.013	22.48	24.00	1.419	0.019	/
QPSK	Left Edge	10	23230	782	25	Low	0.08	0.010	21.57	23.00	1.390	0.014	/
QPSK	Right Edge	10	23230	782	1	Low	0.19	0.068	22.48	24.00	1.419	0.096	/
QPSK	Right Edge	10	23230	782	25	Low	-0.11	0.059	21.57	23.00	1.390	0.082	/
QPSK	Top Edge	10	23230	782	1	Low	0.04	0.454	22.48	24.00	1.419	0.644	/
QPSK	Top Edge	10	23230	782	25	Low	-0.08	0.398	21.57	23.00	1.390	0.553	/
QPSK	Front Side	10	23230	782	50	Low	-0.04	0.415	21.65	23.00	1.365	0.566	/
Note: Refer to ANNEX C for the detailed test data for each test configuration.													

10.10 LTE Band 25 (20MHz Bandwidth)

Mode	Position	Dist. (mm)	Ch.	Freq. (MHz)	RB Num.	RB Start	Power Drift (dB)	1 g Meas SAR (W/kg)	Meas. Power (dBm)	Max. tune-up power (dBm)	Scaling Factor	1g Scaled SAR (W/kg)	Meas. No.
Body-Worn&Hotspot													
QPSK	Front Side	10	26365	1882.5	1	Low	-0.08	0.444	23.30	24.00	1.175	0.522	/
QPSK	Front Side	10	26140	1860	50	Low	-0.07	0.341	22.00	23.00	1.259	0.429	/
QPSK	Back Side	10	26365	1882.5	1	Low	0.16	0.557	23.30	24.00	1.175	**0.654**	10#
QPSK	Back Side	10	26140	1860	50	Low	-0.07	0.442	22.00	23.00	1.259	0.556	/
QPSK	Left Edge	10	26365	1882.5	1	Low	0.12	0.009	23.30	24.00	1.175	0.011	/
QPSK	Left Edge	10	26140	1860	50	Low	-0.08	0.008	22.00	23.00	1.259	0.010	/
QPSK	Right Edge	10	26365	1882.5	1	Low	0.06	0.023	23.30	24.00	1.175	0.027	/
QPSK	Right Edge	10	26140	1860	50	Low	-0.02	0.020	22.00	23.00	1.259	0.025	/
QPSK	Top Edge	10	26365	1882.5	1	Low	-0.13	0.311	23.30	24.00	1.175	0.365	/
QPSK	Top Edge	10	26140	1860	50	Low	0.01	0.258	22.00	23.00	1.259	0.325	/
Note: Refer to ANNEX C for the detailed test data for each test configuration.													

10.11 LTE Band 26 (15MHz Bandwidth)

Mode	Position	Dist. (mm)	Ch.	Freq. (MHz)	RB Num.	RB Start	Power Drift (dB)	1 g Meas SAR (W/kg)	Meas. Power (dBm)	Max. tune-up power (dBm)	Scaling Factor	1g Scaled SAR (W/kg)	Meas. No.
Body-Worn&Hotspot													
QPSK	Front Side	10	26765	821.5	1	Low	-0.09	0.645	22.62	24.00	1.374	0.886	/
QPSK	Front Side	10	26865	831.5	36	High	0.15	0.470	22.46	23.00	1.132	0.532	/
QPSK	Back Side	10	26765	821.5	1	Low	0.09	0.542	22.14	24.00	1.535	0.832	/
QPSK	Back Side	10	26865	831.5	36	High	-0.16	0.401	21.41	23.00	1.442	0.578	/
QPSK	Left Edge	10	26765	821.5	1	Low	0.11	0.015	22.14	24.00	1.535	0.023	/
QPSK	Left Edge	10	26865	831.5	36	High	0.04	0.013	21.41	23.00	1.442	0.019	/
QPSK	Right Edge	10	26765	821.5	1	Low	0.18	0.056	22.14	24.00	1.535	0.086	/
QPSK	Right Edge	10	26865	831.5	36	High	0.17	0.048	21.41	23.00	1.442	0.069	/
QPSK	Top Edge	10	26765	821.5	1	Low	-0.13	0.319	22.14	24.00	1.535	0.490	/
QPSK	Top Edge	10	26865	831.5	36	High	-0.01	0.248	21.41	23.00	1.442	0.358	/
QPSK	Front Side	10	26865	831.5	1	Mid	-0.11	0.627	22.14	24.00	1.535	**0.962**	11#
QPSK	Front Side	10	26965	841.5	1	Mid	-0.17	0.610	22.34	24.00	1.466	0.894	/
QPSK	Front Side	10	26965	841.5	75	Low	-0.17	0.430	21.55	23.00	1.396	0.600	/
Note: Refer to ANNEX C for the detailed test data for each test configuration.													

10.12 LTE Band 30 (10MHz Bandwidth)

Mode	Position	Dist. (mm)	Ch.	Freq. (MHz)	RB Num.	RB Start	Power Drift (dB)	1 g Meas SAR (W/kg)	Meas. Power (dBm)	Max. tune-up power (dBm)	Scaling Factor	1g Scaled SAR (W/kg)	Meas. No.
Body-Worn&Hotspot													
QPSK	Front Side	10	27710	2310	1	Low	-0.04	0.526	20.06	21.50	1.393	0.733	/
QPSK	Front Side	10	27710	2310	25	Mid	0.12	0.533	20.03	21.50	1.403	0.748	/
QPSK	Back Side	10	27710	2310	1	Low	-0.06	0.577	20.06	21.50	1.393	**0.804**	12#
QPSK	Back Side	10	27710	2310	25	Mid	0.05	0.568	20.03	21.50	1.403	0.797	/
QPSK	Left Edge	10	27710	2310	1	Low	0.01	0.010	20.06	21.50	1.393	0.013	/
QPSK	Left Edge	10	27710	2310	25	Mid	-0.03	0.009	20.03	21.50	1.403	0.013	/
QPSK	Right Edge	10	27710	2310	1	Low	0.15	0.033	20.06	21.50	1.393	0.046	/
QPSK	Right Edge	10	27710	2310	25	Mid	0.09	0.027	20.03	21.50	1.403	0.038	/
QPSK	Top Edge	10	27710	2310	1	Low	-0.13	0.301	20.06	21.50	1.393	0.419	/
QPSK	Top Edge	10	27710	2310	25	Mid	0.13	0.297	20.03	21.50	1.403	0.417	/
QPSK	Back Side	10	27710	2310	50	Low	0.04	0.536	19.84	21.50	1.466	0.786	/
Note: Refer to ANNEX C for the detailed test data for each test configuration.													

10.13 LTE Band 66 (20MHz Bandwidth)

Mode	Position	Dist. (mm)	Ch.	Freq. (MHz)	RB Num.	RB Start	Power Drift (dB)	1 g Meas SAR (W/kg)	Meas. Power (dBm)	Max. tune-up power (dBm)	Scaling Factor	1g Scaled SAR (W/kg)	Meas. No.
Body-Worn&Hotspot													
QPSK	Front Side	10	132322	1745	1	High	-0.13	0.422	18.20	19.50	1.349	0.570	/
QPSK	Front Side	10	132322	1745	50	Low	0.19	0.425	18.33	19.50	1.309	0.556	/
QPSK	Back Side	10	132322	1745	1	High	0.15	0.510	18.20	19.50	1.349	**0.688**	13#
QPSK	Back Side	10	132322	1745	50	Low	0.03	0.495	18.33	19.50	1.309	0.648	/
QPSK	Left Edge	10	132322	1745	1	High	0.01	0.010	18.20	19.50	1.349	0.013	/
QPSK	Left Edge	10	132322	1745	50	Low	0.14	0.010	18.33	19.50	1.309	0.013	/
QPSK	Right Edge	10	132322	1745	1	High	0.03	0.026	18.20	19.50	1.349	0.035	/
QPSK	Right Edge	10	132322	1745	50	Low	0.10	0.028	18.33	19.50	1.309	0.037	/
QPSK	Top Edge	10	132322	1745	1	High	0.01	0.301	18.20	19.50	1.349	0.406	/
QPSK	Top Edge	10	132322	1745	50	Low	0.06	0.318	18.33	19.50	1.309	0.416	/
Note: Refer to ANNEX C for the detailed test data for each test configuration.													

10.14 WIFI 2.4GHz

Antenna	Mode	Position	Dist. (mm)	Ch.	Freq. (MHz)	Power Drift (dB)	1 g Meas SAR (W/kg)	Duty cycle (%)	Duty cycle Factor	Meas. Power (dBm)	Max. tune-up power (dBm)	Scaling Factor	1g Scaled SAR (W/kg)	Meas. No.
Body-Worn&Hotspot														
Ant.1	802.11 b	Front Side	10	6	2437	-0.04	0.044	99.42	1.006	13.01	15.00	1.581	0.071	/
		Back Side	10	6	2437	0.02	0.189	99.42	1.006	13.01	15.00	1.581	0.301	/
		Left Edge	10	6	2437	-0.14	0.040	99.42	1.006	13.01	15.00	1.581	0.064	/
		Top Edge	10	6	2437	0.03	0.227	99.42	1.006	13.01	15.00	1.581	0.361	/
Ant.1	802.11 n40	Front Side	10	6	2437	-0.14	0.128	95.98	1.042	17.48	18.00	1.127	0.150	/
		Back Side	10	6	2437	0.09	0.542	95.98	1.042	17.48	18.00	1.127	0.637	/
		Left Edge	10	6	2437	0.05	0.114	95.98	1.042	17.48	18.00	1.127	0.134	/
		Top Edge	10	6	2437	0.14	0.691	95.98	1.042	17.48	18.00	1.127	**0.812**	14#
		Top Edge	10	4	2427	-0.07	0.612	95.98	1.042	17.27	18.00	1.183	0.754	/
		Top Edge	10	8	2447	-0.04	0.630	95.98	1.042	17.13	18.00	1.222	0.802	/
Ant.2	802.11 b	Front Side	10	6	2437	0.00	0.021	99.42	1.006	14.08	16.00	1.556	0.032	/
		Back Side	10	6	2437	0.00	0.076	99.42	1.006	14.08	16.00	1.556	0.120	/
		Right Edge	10	6	2437	-0.01	0.024	99.42	1.006	14.08	16.00	1.556	0.037	/
		Top Edge	10	6	2437	0.18	0.091	99.42	1.006	14.08	16.00	1.556	0.143	/
Ant.2	802.11 n40	Front Side	10	6	2437	0.01	0.069	95.98	1.042	17.75	18.00	1.059	0.076	/
		Back Side	10	6	2437	0.07	0.251	95.98	1.042	17.75	18.00	1.059	0.277	/
		Right Edge	10	6	2437	-0.18	0.081	95.98	1.042	17.75	18.00	1.059	0.089	/
		Top Edge	10	6	2437	0.11	0.283	95.98	1.042	17.75	18.00	1.059	**0.312**	15#
MIMO	802.11 n40	Front Side	10	6	2437	-0.15	0.143	95.98	1.042	20.65	21.00	1.084	0.161	/
	802.11 n40	Back Side	10	6	2437	-0.08	0.636	95.98	1.042	20.65	21.00	1.084	0.718	/
	802.11 n40	Left Edge	10	6	2437	0.00	0.158	95.98	1.042	20.65	21.00	1.084	0.178	/
	802.11 n40	Right Edge	10	6	2437	-0.04	0.097	95.98	1.042	20.65	21.00	1.084	0.109	/
	802.11 n40	Top Edge	10	6	2437	0.04	0.828	95.98	1.042	20.65	21.00	1.084	**0.935**	16#
	802.11 n40	Top Edge	10	4	2427	-0.04	0.765	95.98	1.042	20.37	21.00	1.156	0.921	/
	802.11 n40	Top Edge	10	8	2447	-0.06	0.792	95.98	1.042	20.48	21.00	1.127	0.930	/
Note: Refer to ANNEX C for the detailed test data for each test configuration.														

11 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 may be used to perform the repeated measurement. These additional measurements are repeated after the completion of all measurements requiring the same head or body tissue-equivalent medium in a frequency band. The test device should be returned to ambient conditions (normal room temperature) with the battery fully charged before it is re-mounted on the device holder for the repeated measurement(s) to minimize any unexpected variations in the repeated results.

SAR repeated measurement procedure:

1. When the highest measured SAR is < 0.80 W/kg, repeated measurement is not required.
2. When the highest measured SAR is >= 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.

Frequency Band (MHz)	Wireless Band	RF Exposure Conditions	Test Position	Highest Measured SAR (W/kg)	Repeated SAR (Yes/No)	Repeated^{1th} Measured SAR (W/kg)	Largest to Smallest SAR Radio
2437	WIFI 2.4G	Body-Worn&Hotspot	Top Edge	0.828	Yes	0.816	1.01
Note: The ratio of largest to smallest SAR for the original and first repeated measurements is < 1.20, the second repeated measurement. is not required.							

12 SIMULTANEOUS TRANSMISSION

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

12.1.1 Simultaneous Transmission Mode Consider

No.	Simultaneous Tx Combination	Body-Worn	Hotspot
1	WCDMA + WIFI 2.4G Ant.1	Yes	Yes
2	LTE + WIFI 2.4G Ant.1	Yes	Yes
3	WCDMA + WIFI 2.4G Ant.2	Yes	Yes
4	LTE + WIFI 2.4G Ant.2	Yes	Yes
5	WCDMA + WIFI 2.4G MIMO	Yes	Yes
6	LTE + WIFI 2.4G MIMO	Yes	Yes

Note:
1. 3G&4G share the same antenna and can't transmit simultaneously.
2. The maximum SAR summation is calculated based on the same configuration and test position.
3. This device 2.4GHz WLAN support hotspot operation.

12.2 Sum SAR of Simultaneous Transmission

12.2.1 Body Worn&Hotspot Simultaneous Transmission SAR Evaluation for WWAN and 2.4G WLAN

Band	Position	Stand alone SAR				SUM SAR		
		1	2	3	4			
		WWAN	2.4GWIFI Ant.1	2.4GWIFI Ant.2	2.4GWIFI Ant.MIMO	WWAN+WIFI2.4G Ant.1(1+2)	WWAN+WIFI2.4G Ant.2(1+3)	WWAN+WIFI2.4G Ant.MIMO(1+4)
WCDMA B2	Front Side 10mm	0.611	0.150	0.076	0.161	0.761	0.687	0.772
	Back Side 10mm	0.660	0.637	0.277	0.718	1.297	0.937	1.378
	Left Edge 10mm	0.016	0.134	0.036	0.178	0.150	0.052	0.194
	Right Edge 10mm	0.052	0.083	0.089	0.109	0.135	0.141	0.161
	Top Edge 10mm	0.605	0.812	0.312	0.935	1.417	0.917	1.540
WCDMA B4	Front Side 10mm	0.614	0.150	0.076	0.161	0.764	0.690	0.775
	Back Side 10mm	0.870	0.637	0.277	0.718	1.507	1.147	**1.588**
	Left Edge 10mm	0.011	0.134	0.036	0.178	0.145	0.047	0.189
	Right Edge 10mm	0.025	0.083	0.089	0.109	0.108	0.114	0.134
	Top Edge 10mm	0.448	0.812	0.312	0.935	1.260	0.760	1.383
WCDMA B5	Front Side 10mm	0.854	0.150	0.076	0.161	1.004	0.930	1.015
	Back Side 10mm	0.737	0.637	0.277	0.718	1.374	1.014	1.455
	Left Edge 10mm	0.067	0.134	0.036	0.178	0.201	0.103	0.245
	Right Edge 10mm	0.025	0.083	0.089	0.109	0.108	0.114	0.134
	Top Edge 10mm	0.389	0.812	0.312	0.935	1.201	0.701	1.324
LTE B2	Front Side 10mm	0.451	0.150	0.076	0.161	0.601	0.527	0.612
	Back Side 10mm	0.587	0.637	0.277	0.718	1.224	0.864	1.305
	Left Edge 10mm	0.013	0.134	0.036	0.178	0.147	0.049	0.191
	Right Edge 10mm	0.033	0.083	0.089	0.109	0.116	0.122	0.142
	Top Edge 10mm	0.386	0.812	0.312	0.935	1.198	0.698	1.321
LTE B4	Front Side 10mm	0.628	0.150	0.076	0.161	0.778	0.704	0.789
	Back Side 10mm	0.755	0.637	0.277	0.718	1.392	1.032	1.473
	Left Edge 10mm	0.010	0.134	0.036	0.178	0.144	0.046	0.188
	Right Edge 10mm	0.019	0.083	0.089	0.109	0.102	0.108	0.128
	Top Edge 10mm	0.493	0.812	0.312	0.935	1.305	0.805	1.428
LTE B5	Front Side 10mm	0.907	0.150	0.076	0.161	1.057	0.983	1.068
	Back Side 10mm	0.803	0.637	0.277	0.718	1.440	1.080	1.521
	Left Edge 10mm	0.025	0.134	0.036	0.178	0.159	0.061	0.203
	Right Edge 10mm	0.087	0.083	0.089	0.109	0.170	0.176	0.196
	Top Edge 10mm	0.453	0.812	0.312	0.935	1.265	0.765	1.388
LTE B7	Front Side 10mm	0.515	0.150	0.076	0.161	0.665	0.591	0.676
	Back Side 10mm	0.570	0.637	0.277	0.718	1.207	0.847	1.288
	Left Edge 10mm	0.014	0.134	0.036	0.178	0.148	0.050	0.192
	Right Edge 10mm	0.063	0.083	0.089	0.109	0.146	0.152	0.172
	Top Edge 10mm	0.327	0.812	0.312	0.935	1.139	0.639	1.262

LTE B12	Front Side 10mm	0.848	0.150	0.076	0.161	0.998	0.924	1.009
	Back Side 10mm	0.613	0.637	0.277	0.718	1.250	0.890	1.331
	Left Edge 10mm	0.010	0.134	0.036	0.178	0.144	0.046	0.188
	Right Edge 10mm	0.057	0.083	0.089	0.109	0.140	0.146	0.166
	Top Edge 10mm	0.640	0.812	0.312	0.935	1.452	0.952	1.575
LTE B13	Front Side 10mm	1.008	0.150	0.076	0.161	1.158	1.084	1.169
	Back Side 10mm	0.830	0.637	0.277	0.718	1.467	1.107	1.548
	Left Edge 10mm	0.019	0.134	0.036	0.178	0.153	0.055	0.197
	Right Edge 10mm	0.096	0.083	0.089	0.109	0.179	0.185	0.205
	Top Edge 10mm	0.644	0.812	0.312	0.935	1.456	0.956	1.579
LTE B25	Front Side 10mm	0.522	0.150	0.076	0.161	0.672	0.598	0.683
	Back Side 10mm	0.654	0.637	0.277	0.718	1.291	0.931	1.372
	Left Edge 10mm	0.011	0.134	0.036	0.178	0.145	0.047	0.189
	Right Edge 10mm	0.027	0.083	0.089	0.109	0.110	0.116	0.136
	Top Edge 10mm	0.365	0.812	0.312	0.935	1.177	0.677	1.300
LTE B26	Front Side 10mm	0.962	0.150	0.076	0.161	1.112	1.038	1.123
	Back Side 10mm	0.832	0.637	0.277	0.718	1.469	1.109	1.550
	Left Edge 10mm	0.023	0.134	0.036	0.178	0.157	0.059	0.201
	Right Edge 10mm	0.086	0.083	0.089	0.109	0.169	0.175	0.195
	Top Edge 10mm	0.490	0.812	0.312	0.935	1.302	0.802	1.425
LTE B30	Front Side 10mm	0.733	0.150	0.076	0.161	0.883	0.809	0.894
	Back Side 10mm	0.804	0.637	0.277	0.718	1.441	1.081	1.522
	Left Edge 10mm	0.013	0.134	0.036	0.178	0.147	0.049	0.191
	Right Edge 10mm	0.046	0.083	0.089	0.109	0.129	0.135	0.155
	Top Edge 10mm	0.419	0.812	0.312	0.935	1.231	0.731	1.354
LTE B66	Front Side 10mm	0.570	0.150	0.076	0.161	0.720	0.646	0.731
	Back Side 10mm	0.688	0.637	0.277	0.718	1.325	0.965	1.406
	Left Edge 10mm	0.013	0.134	0.036	0.178	0.147	0.049	0.191
	Right Edge 10mm	0.037	0.083	0.089	0.109	0.120	0.126	0.146
	Top Edge 10mm	0.416	0.812	0.312	0.935	1.228	0.728	1.351

Note:

1: The highest Summed 1g SAR is 1.588 W/Kg < 1.6 W/kg, so Simultaneous Transmission SAR test is not required.

13 TEST EQUIPMENTS LIST

Description	Manufacturer	Model	Serial No./Version	Cal. Date	Cal. Due
PC	Dell	N/A	N/A	N/A	N/A
Test Software	Speag	DASY5	52.8.8.1222	N/A	N/A
750MHz Validation Dipole	Speag	D750V3	SN: 1201	2020/11/11	2023/11/10
835MHz Validation Dipole	Speag	D835V2	SN: 4d187	2021/05/17	2024/05/16
1750MHz Validation Dipole	Speag	D1750V2	SN: 1130	2021/05/17	2024/05/16
1900MHz Validation Dipole	Speag	D1900V2	SN: 5d193	2021/05/20	2024/05/19
2450MHz Validation Dipole	Speag	D2450V2	SN: 952	2021/05/19	2024/05/18
2600MHz Validation Dipole	Speag	D2600V2	SN: 1095	2021/05/19	2024/05/18
E-Field Probe	Speag	EX3DV4	SN: 7663	2021/07/23	2022/07/22
Data Acquisition Electronics	Speag	DAE4	SN: 878	2021/07/15	2022/07/14
Signal Generator	R&S	SMB100A	177746	2021/08/24	2022/08/23
Power Meter	R&S	NRVD-B2	7250BJ-0112/2011	2021/09/08	2022/09/07
Power Sensor	R&S	NRV-Z4	100381	2021/09/08	2022/09/07
Power Sensor	R&S	NRV-Z2	100211	2021/09/08	2022/09/07
Wireless Communication Test Set	Anritsu	MT8820C	6201502974	2021/01/04	2023/01/03
Wireless Communication Test Set	Anritsu	MT8820C	6201502991	2021/01/04	2023/01/03
Network Analyzer	Agilent	E5071C	MY46103472	2021/12/29	2022/12/28
Thermometer	Elitech	RC-4HC	EF720B004820	2021/12/01	2022/11/30
Power Amplifier	SATIMO	6552B	22374	N/A	N/A
Dielectric Probe Kit	SATIMO	SCLMP	SN 25/13 OCPG56	N/A	N/A
Phantom1	Speag	SAM	SN: 1859	N/A	N/A
Phantom2	Speag	SAM	SN: 1857	N/A	N/A
Attenuator	COM-MW	ZA-S1-31	1305003187	N/A	N/A
Directional coupler	AA-MCS	AAMCS-UDC	000272	N/A	N/A

Note: For dipole antennas, BALUN has adopted 3 years as calibration intervals, and on annual basis, every measurement dipole has been evaluated and is in compliance with the following criteria:

1. There is no physical damage on the dipole;
2. System validation with specific dipole is within 10% of calibrated value;
3. Return-loss in within 20% of calibrated measurement.
4. Impedance (real or imaginary parts) in within 5 Ohms of calibrated measurement.

ANNEX A SIMULATING LIQUID VERIFICATION RESULT

The dielectric parameters of the liquids were verified prior to the SAR evaluation using an SCLMP Dielectric Probe Kit.

Date	Liquid Type	Fre. (MHz)	Temp. (℃)	Meas. Conductivity (σ) (S/m)	Meas. Permittivity (ε)	Target Conductivity (σ) (S/m)	Target Permittivity (ε)	Conductivity Tolerance (%)	Permittivity Tolerance (%)
2022.04.15	Head	750	21.7	0.88	42.46	0.89	41.94	-1.12	1.24
2022.04.16	Head	835	21.3	0.88	41.56	0.90	41.50	-2.22	0.14
2022.05.13	Head	1750	21.6	1.38	39.78	1.37	40.08	0.73	-0.75
2022.04.18	Head	1900	21.4	1.44	39.67	1.40	40.00	2.86	-0.82
2022.05.05	Head	2450	21.6	1.78	39.05	1.80	39.20	-1.11	-0.38
2022.05.06	Head	2600	21.3	1.96	38.43	1.96	39.01	0.00	-1.49
Note: The tolerance limit of Conductivity and Permittivity is± 5%.									

ANNEX B SYSTEM CHECK RESULT

Comparing to the original SAR value provided by SPEAG, the validation data should be within itsspecification of 10 %(for 1 g).

Date	Liquid Type	Freq. (MHz)	Power (mW)	Measured SAR (W/kg)	Normalized SAR (W/kg)	Dipole SAR (W/kg)	Tolerance (%)
2022.04.15	Head	750	100	0.857	8.57	8.29	3.38
2022.04.16	Head	835	100	0.947	9.47	9.76	-2.97
2022.05.13	Head	1450	100	3.560	35.60	36.70	-3.00
2022.04.18	Head	1900	100	4.020	40.20	40.30	-0.25
2022.05.05	Head	2450	100	5.390	53.90	53.00	1.70
2022.05.06	Head	2600	100	5.620	56.20	56.80	-1.06
Note: The tolerance limit of System validation ±10%.							

System Performance Check Data (750MHz)

Date: 2022.04.15

Communication System Band: D750 (750.0 MHz); Frequency: 750 MHz;Duty Cycle: 1:1

Medium parameters used (extrapolated): f = 750 MHz; σ = 0.867 S/m; ε_r = 42.464; ρ = 1000 kg/m^3

Phantom section: Flat Section

Ambient Temperature:22.5 Liquid Temperature:21.7

DASY5 Configuration:

- Probe: EX3DV4 - SN7663; ConvF(10.41, 10.41, 10.41); Calibrated: 2021.07.23;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn878; Calibrated: 2021.07.15
- Phantom: SAM (20deg probe tilt) with CRP v5.0 Right 1857; Type: QD000P40CC; Serial: TP:1857
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

CW 750 100mW/Area Scan (61x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

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

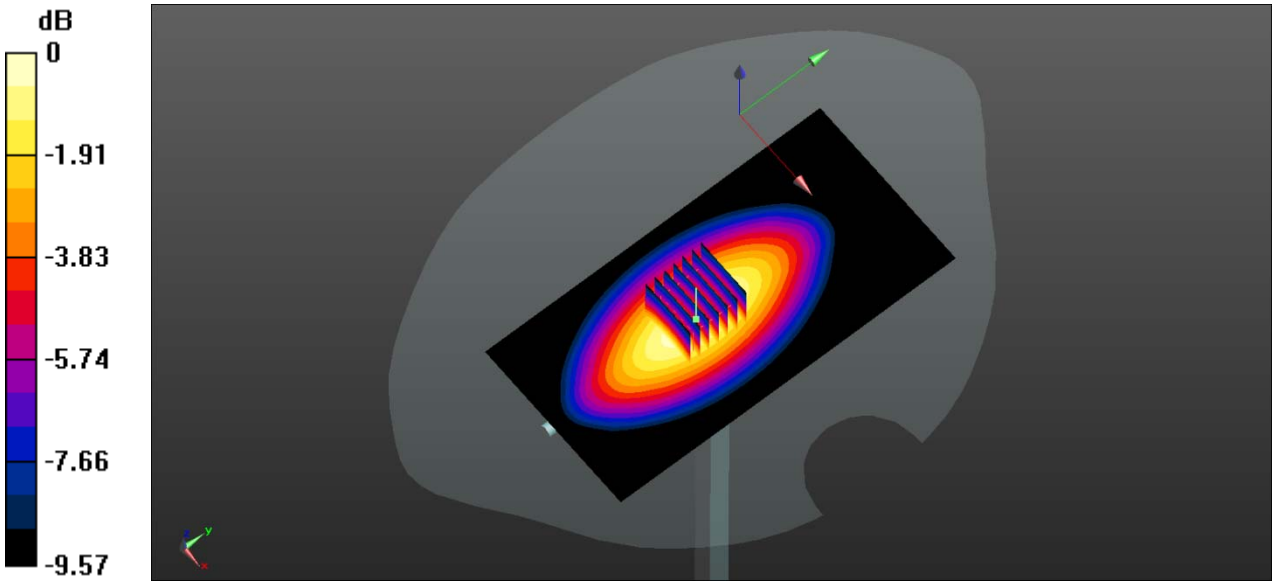
CW 750 100mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 30.62 V/m; Power Drift = 0.17 dB

Peak SAR (extrapolated) = 1.12 W/kg

SAR(1 g) = 0.857 W/kg; SAR(10 g) = 0.530 W/kg

Maximum value of SAR (measured) = 0.933 W/kg



0 dB = 0.933 W/kg

System Performance Check Data (835MHz)

Date: 2022.04.16

Communication System Band: D835 (835.0 MHz); Frequency: 835 MHz;Duty Cycle: 1:1

Medium parameters used: f = 835 MHz; σ = 0.882 S/m; ε_r = 41.563; ρ = 1000 kg/m^3

Phantom section: Flat Section

Ambient Temperature:22.4 Liquid Temperature:21.3

DASY5 Configuration:

- Probe: EX3DV4 - SN7663; ConvF(10.1, 10.1, 10.1); Calibrated: 2021.07.23;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn878; Calibrated: 2021.07.15
- Phantom: SAM (20deg probe tilt) with CRP v5.0 Right 1857; Type: QD000P40CC; Serial: TP:1857
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

CW 835 100mW HEAD/Area Scan (61x81x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 1.09 W/kg

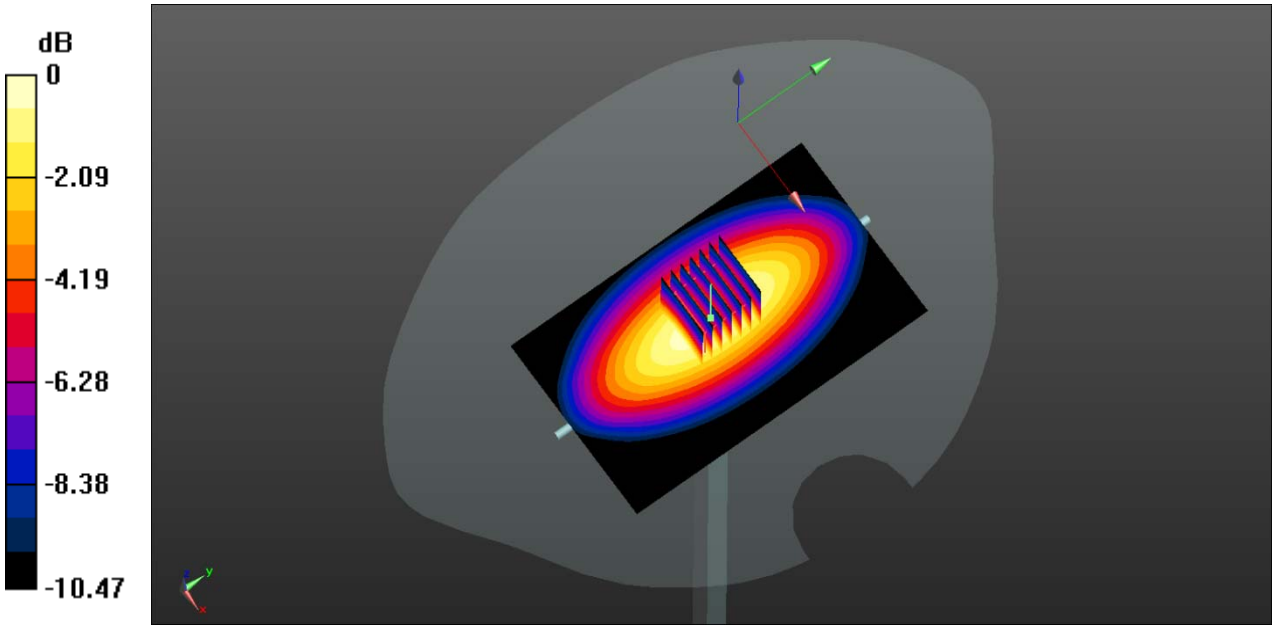
CW 835 100mW HEAD/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 35.08 V/m; Power Drift = 0.09 dB

Peak SAR (extrapolated) = 1.47 W/kg

SAR(1 g) = 0.947 W/kg; SAR(10 g) = 0.615 W/kg

Maximum value of SAR (measured) = 1.13 W/kg



0 dB = 1.13 W/kg

System Performance Check Data (1750MHz)

Date: 2022.05.13

Communication System Band: D1750 (1750.0 MHz); Frequency: 1750 MHz;Duty Cycle: 1:1

Medium parameters used: f = 1750 MHz; σ = 1.382 S/m; ε_r = 39.776; ρ = 1000 kg/m^3

Phantom section: Flat Section

Ambient Temperature:22.6 Liquid Temperature:21.6

DASY5 Configuration:

- Probe: EX3DV4 - SN7663; ConvF(8.71, 8.71, 8.71); Calibrated: 2021.07.23;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn878; Calibrated: 2021.07.15
- Phantom: SAM (20deg probe tilt) with CRP v5.0 Right 1857; Type: QD000P40CC; Serial: TP:1857
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

CW 1750 100mw/Area Scan (101x101x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 3.98 W/kg

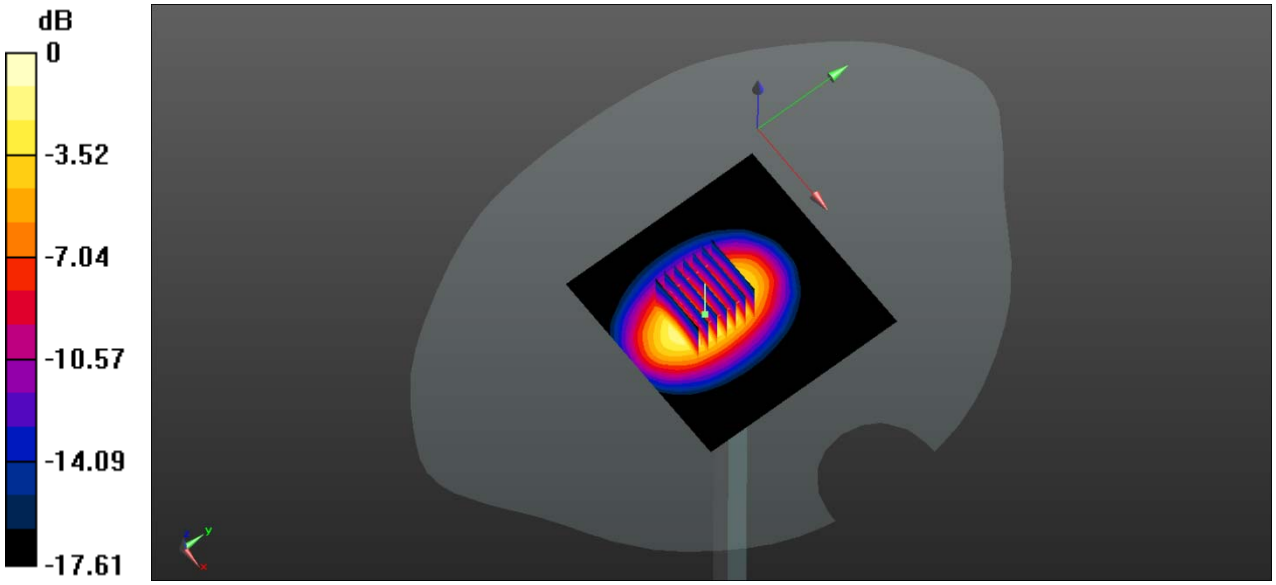
CW 1750 100mw/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 45.81 V/m; Power Drift = -0.08 dB

Peak SAR (extrapolated) = 6.62 W/kg

SAR(1 g) = 3.56 W/kg; SAR(10 g) = 1.9 W/kg

Maximum value of SAR (measured) = 4.17 W/kg



0 dB = 4.17 W/kg

System Performance Check Data (1900MHz)

Date: 2022.04.18

Communication System Band: D1900 (1900.0 MHz); Frequency: 1900 MHz;Duty Cycle: 1:1

Medium parameters used: f = 1900 MHz; σ = 1.436 S/m; ε_r = 39.673; ρ = 1000 kg/m^3

Phantom section: Flat Section

Ambient Temperature:22.5 Liquid Temperature:21.4

DASY5 Configuration:

- Probe: EX3DV4 - SN7663; ConvF(8.57, 8.57, 8.57); Calibrated: 2021.07.23;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn878; Calibrated: 2021.07.15
- Phantom: SAM (20deg probe tilt) with CRP v5.0 Right 1857; Type: QD000P40CC; Serial: TP:1857
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

CW 1900 100mW/Area Scan (101x101x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 4.71 W/kg

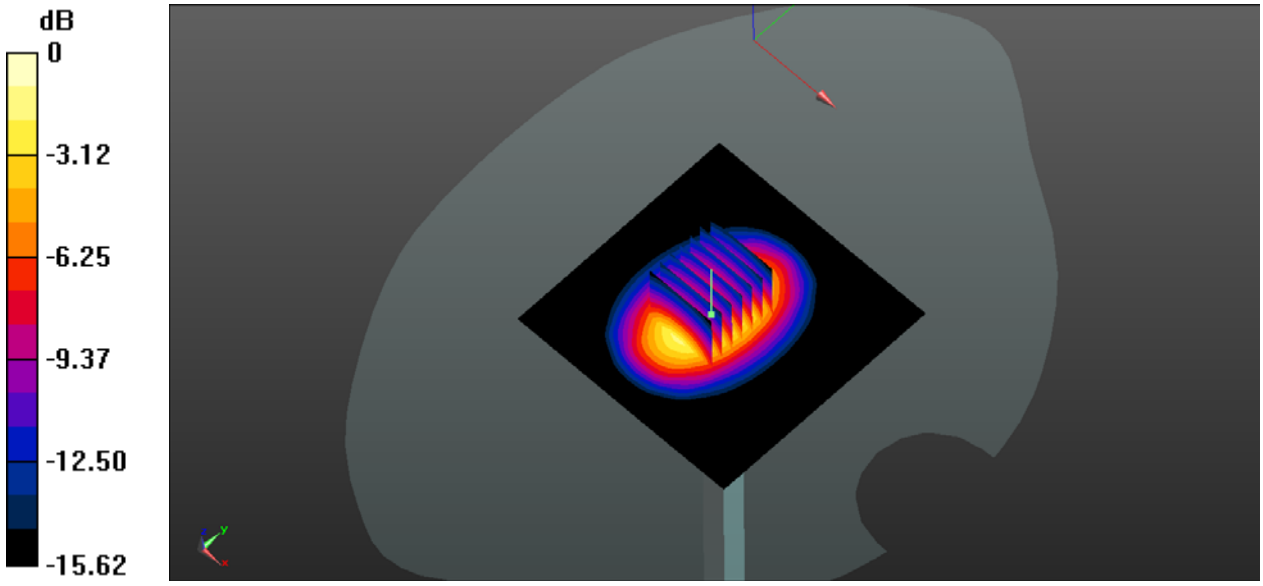
CW 1900 100mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 58.22 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 7.54 W/kg

SAR(1 g) = 4.02 W/kg; SAR(10 g) = 2.05 W/kg

Maximum value of SAR (measured) = 4.25 W/kg



0 dB = 4.25 W/kg

System Performance Check Data (2450MHz)

Date: 2022.05.05

Communication System Band: D2450 (2450.0 MHz); Frequency: 2450 MHz;Duty Cycle: 1:1

Medium parameters used: f = 2450 MHz; σ = 1.782 S/m; ε_r = 39.05; ρ = 1000 kg/m^3

Phantom section: Flat Section

Ambient Temperature:22.2 Liquid Temperature:21.6

DASY5 Configuration:

- Probe: EX3DV4 - SN7663; ConvF(8.19, 8.19, 8.19); Calibrated: 2021.07.23;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn878; Calibrated: 2021.07.15
- Phantom: SAM (20deg probe tilt) with CRP v5.0 Right 1857; Type: QD000P40CC; Serial: TP:1857
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

CW 2450 100mW/Area Scan (101x101x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 6.26 W/kg

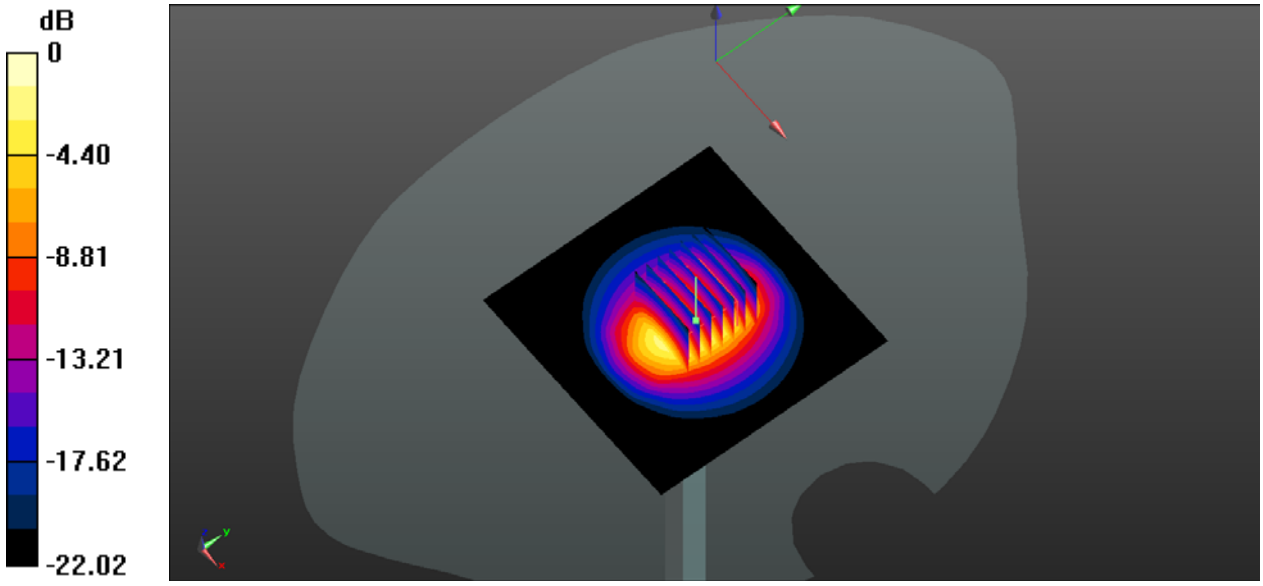
CW 2450 100mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 57.31 V/m; Power Drift = 0.07 dB

Peak SAR (extrapolated) = 11.9 W/kg

SAR(1 g) = 5.39 W/kg; SAR(10 g) = 2.34 W/kg

Maximum value of SAR (measured) = 5.83 W/kg



0 dB = 5.83 W/kg

System Performance Check Data (2600MHz)

Date: 2022.05.06

Communication System Band: D2600 (2600.0 MHz); Frequency: 2600 MHz;Duty Cycle: 1:1

Medium parameters used (extrapolated): f = 2600 MHz; σ = 1.963 S/m; ε_r = 38.427; ρ = 1000 kg/m^3

Phantom section: Flat Section

Ambient Temperature:22.2 Liquid Temperature:21.3

DASY5 Configuration:

- Probe: EX3DV4 - SN7663; ConvF(7.94, 7.94, 7.94); Calibrated: 2021.07.23;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn878; Calibrated: 2021.07.15
- Phantom: SAM (20deg probe tilt) with CRP v5.0 Right 1857; Type: QD000P40CC; Serial: TP:1857
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

CW 2600 100mW/Area Scan (101x101x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 6.57 W/kg

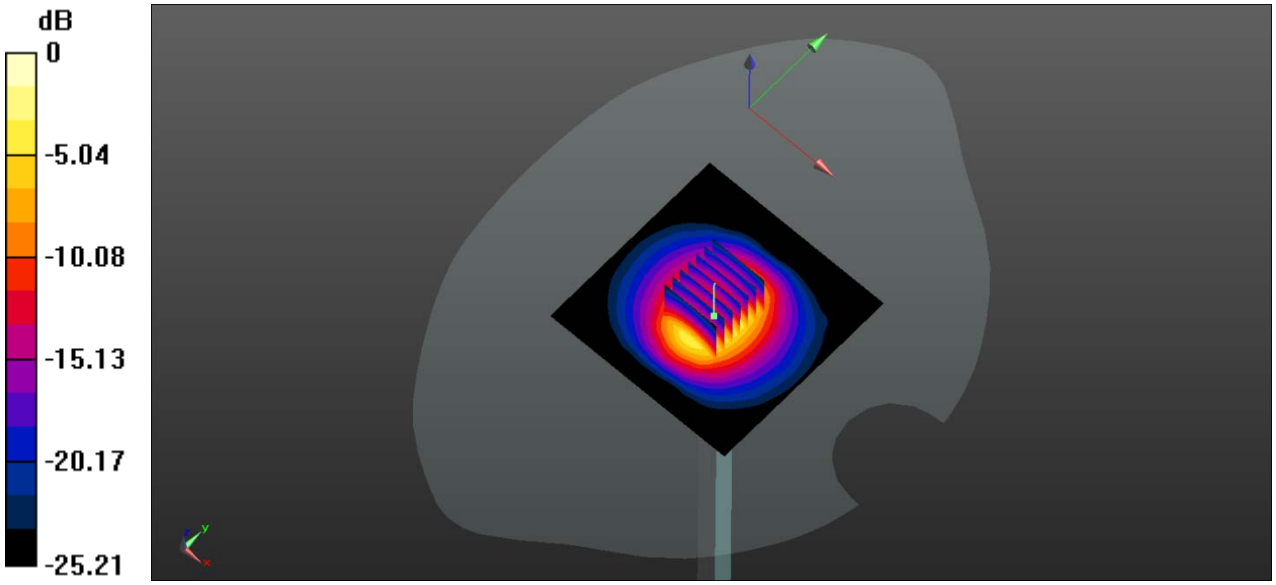
CW 2600 100mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 58.49 V/m; Power Drift = 0.15 dB

Peak SAR (extrapolated) = 13.4 W/kg

SAR(1 g) = 5.62 W/kg; SAR(10 g) = 2.54 W/kg

Maximum value of SAR (measured) = 6.22 W/kg



0 dB = 6.22 W/kg

ANNEX C TEST DATA

Meas.1 Body Plane with Back Side 10mm on Middle Channel in WCDMA Band2 mode

Date: 2022.04.18

Communication System Band: II; Frequency: 1880 MHz;Duty Cycle: 1:1

Medium parameters used (interpolated): f = 1880 MHz; σ = 1.431 S/m; ε_r = 40.073; ρ = 1000 kg/m^3

Phantom section: Flat Section

Ambient Temperature:22.5 Liquid Temperature:21.4

DASY5 Configuration:

- Probe: EX3DV4 - SN7663; ConvF(8.57, 8.57, 8.57); Calibrated: 2021.07.23;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn878; Calibrated: 2021.07.15
- Phantom: SAM (20deg probe tilt) with CRP v5.0 Right 1857; Type: QD000P40CC; Serial: TP:1857
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Ch9400/Area Scan (51x131x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.616 W/kg

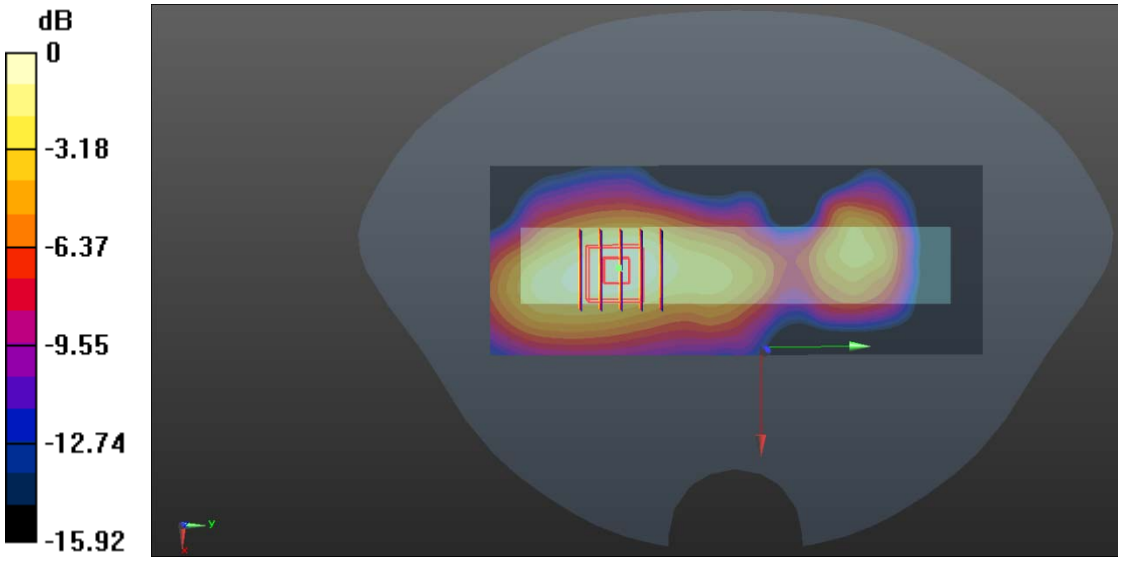
Ch9400/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 15.38 V/m; Power Drift = 0.13 dB

Peak SAR (extrapolated) = 0.909 W/kg

SAR(1 g) = 0.563 W/kg; SAR(10 g) = 0.335 W/kg

Maximum value of SAR (measured) = 0.610 W/kg



0 dB = 0.610 W/kg

Meas.2 Body Plane with Back Side 10mm on High Channel in WCDMA Band4 mode

Date: 2022.05.13

Communication System Band: IV; Frequency: 1752.6 MHz;Duty Cycle: 1:1

Medium parameters used (interpolated): f = 1752.6 MHz; σ = 1.386 S/m; ε_r = 39.657; ρ = 1000 kg/m^3

Phantom section: Flat Section

Ambient Temperature:22.6 Liquid Temperature:21.6

DASY5 Configuration:

- Probe: EX3DV4 - SN7663; ConvF(8.71, 8.71, 8.71); Calibrated: 2021.07.23;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn878; Calibrated: 2021.07.15
- Phantom: SAM (20deg probe tilt) with CRP v5.0 Right 1857; Type: QD000P40CC; Serial: TP:1857
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Ch1513/Area Scan (51x131x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.880 W/kg

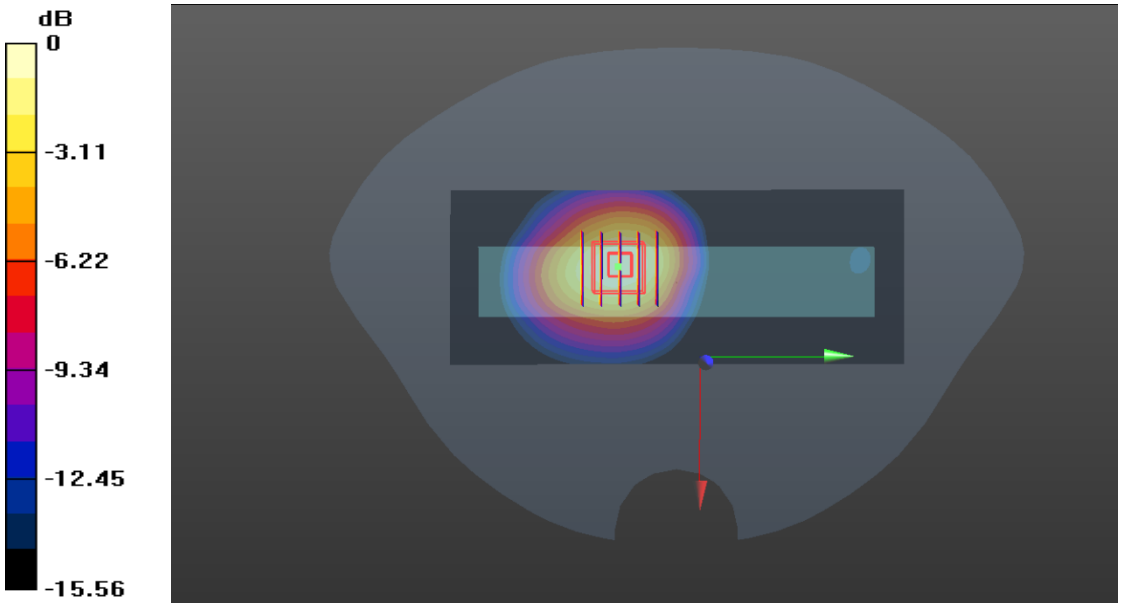
Ch1513/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 9.975 V/m; Power Drift = 0.05 dB

Peak SAR (extrapolated) = 1.26 W/kg

SAR(1 g) = 0.779 W/kg; SAR(10 g) = 0.455 W/kg

Maximum value of SAR (measured) = 0.852 W/kg



0 dB = 0.852 W/kg

Meas.3 Body Plane with Front Side 10mm on Middle Channel in WCDMA Band5 mode

Date: 2022.04.16

Communication System Band: V; Frequency: 836.4 MHz;Duty Cycle: 1:1

Medium parameters used (interpolated): f = 836.4 MHz; σ = 0.885 S/m; ε_r = 41.397; ρ = 1000 kg/m^3

Phantom section: Flat Section

Ambient Temperature:22.4 Liquid Temperature:21.3

DASY5 Configuration:

- Probe: EX3DV4 - SN7663; ConvF(10.1, 10.1, 10.1); Calibrated: 2021.07.23;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn878; Calibrated: 2021.07.15
- Phantom: SAM (20deg probe tilt) with CRP v5.0 Right 1857; Type: QD000P40CC; Serial: TP:1857
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Ch4182/Area Scan (51x131x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.766 W/kg

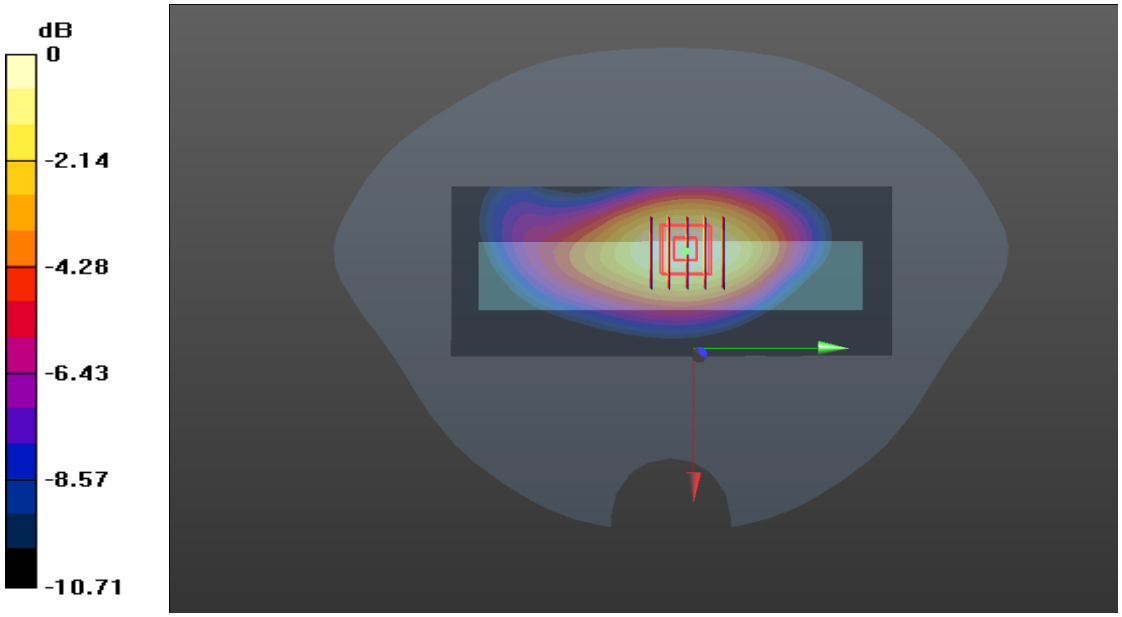
Ch4182/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 22.14 V/m; Power Drift = 0.11 dB

Peak SAR (extrapolated) = 1.03 W/kg

SAR(1 g) = 0.709 W/kg; SAR(10 g) = 0.471 W/kg

Maximum value of SAR (measured) = 0.764 W/kg



0 dB = 0.764 W/kg

Meas.4 Body Plane with Back Side 10mm on Middle Channel in LTE Band2 mode

Date: 2022.04.18

Communication System Band: Band 2; Frequency: 1880 MHz;Duty Cycle: 1:1

Medium parameters used (interpolated): f = 1880 MHz; σ = 1.431 S/m; ε_r = 40.073; ρ = 1000 kg/m^3

Phantom section: Flat Section

Ambient Temperature:22.5 Liquid Temperature:21.4

DASY5 Configuration:

- Probe: EX3DV4 - SN7663; ConvF(8.57, 8.57, 8.57); Calibrated: 2021.07.23;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn878; Calibrated: 2021.07.15
- Phantom: SAM (20deg probe tilt) with CRP v5.0 Right 1857; Type: QD000P40CC; Serial: TP:1857
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Ch18900/Area Scan (51x131x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.616 W/kg

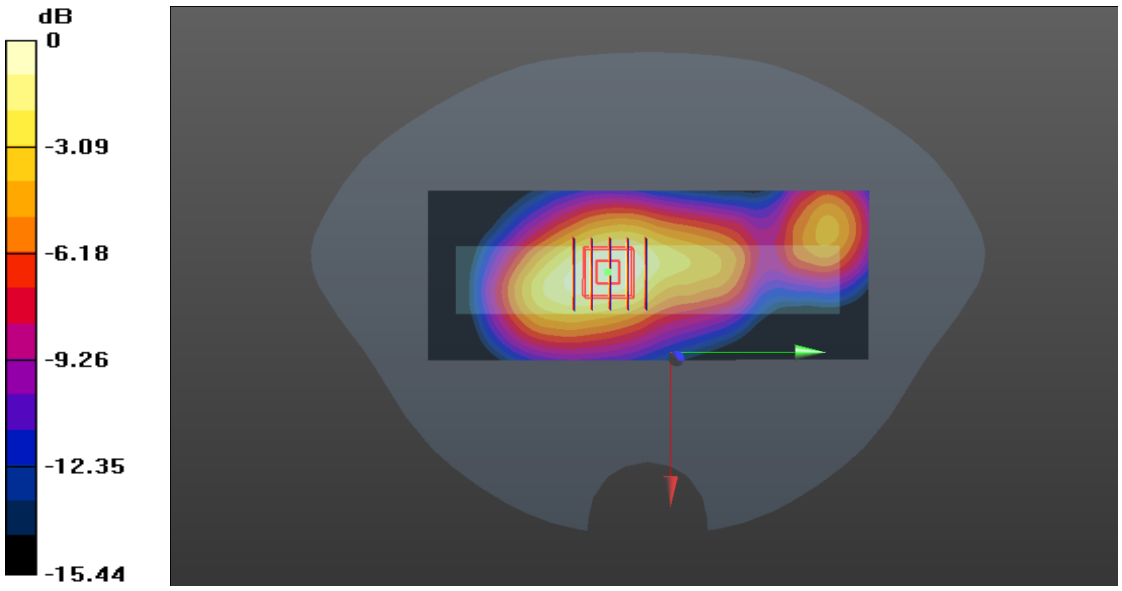
Ch18900/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 14.74 V/m; Power Drift = 0.13 dB

Peak SAR (extrapolated) = 0.905 W/kg

SAR(1 g) = 0.558 W/kg; SAR(10 g) = 0.334 W/kg

Maximum value of SAR (measured) = 0.606 W/kg



0 dB = 0.606 W/kg

Meas.5 Body Plane with Back Side 10mm on Middle Channel in LTE Band4 mode

Date: 2022.05.13

Communication System Band: Band 4; Frequency: 1732.5 MHz;Duty Cycle: 1:1

Medium parameters used (interpolated): f = 1732.5 MHz; σ = 1.369 S/m; ε_r = 40.096; ρ = 1000 kg/m^3

Phantom section: Flat Section

Ambient Temperature:22.6 Liquid Temperature:21.6

DASY5 Configuration:

- Probe: EX3DV4 - SN7663; ConvF(8.71, 8.71, 8.71); Calibrated: 2021.07.23;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn878; Calibrated: 2021.07.15
- Phantom: SAM (20deg probe tilt) with CRP v5.0 Right 1857; Type: QD000P40CC; Serial: TP:1857
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Ch20175/Area Scan (51x131x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.692 W/kg

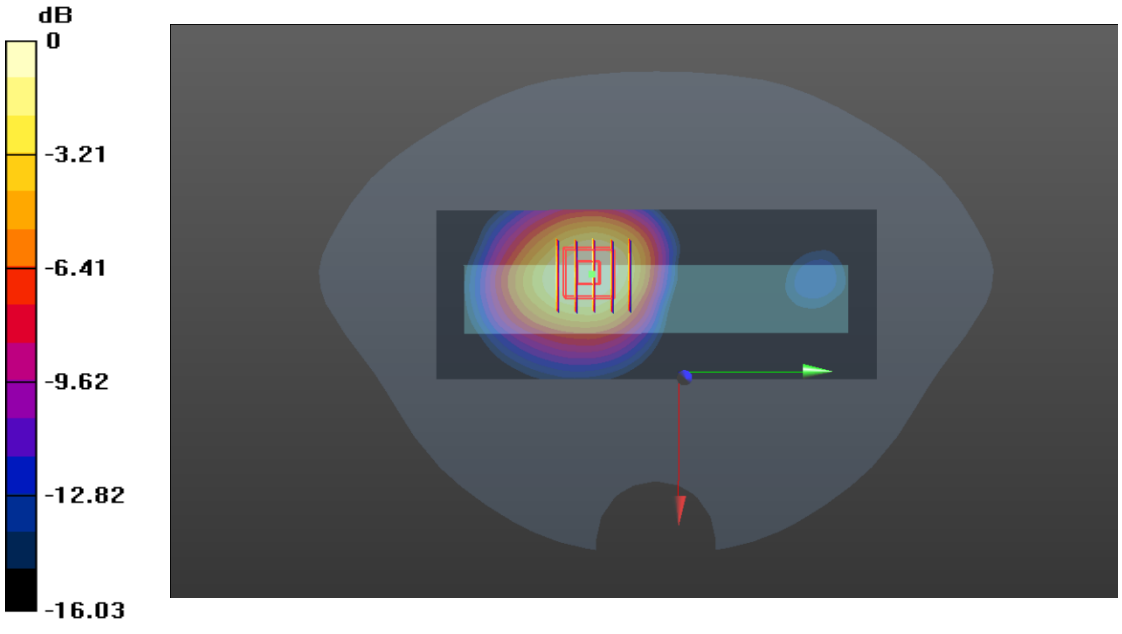
Ch20175/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 6.029 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 0.945 W/kg

SAR(1 g) = 0.586 W/kg; SAR(10 g) = 0.346 W/kg

Maximum value of SAR (measured) = 0.637 W/kg



0 dB = 0.637 W/kg

Meas.6 Body Plane with Front Side 10mm on Middle Channel in LTE Band5 mode

Date: 2022.04.16

Communication System Band: Band 5; Frequency: 836.5 MHz;Duty Cycle: 1:1

Medium parameters used (interpolated): f = 836.5 MHz; σ = 0.887 S/m; ε_r = 41.149; ρ = 1000 kg/m^3

Phantom section: Flat Section

Ambient Temperature:22.4 Liquid Temperature:21.3

DASY5 Configuration:

- Probe: EX3DV4 - SN7663; ConvF(10.1, 10.1, 10.1); Calibrated: 2021.07.23;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn878; Calibrated: 2021.07.15
- Phantom: SAM (20deg probe tilt) with CRP v5.0 Right 1857; Type: QD000P40CC; Serial: TP:1857
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Ch20525/Area Scan (51x131x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.715 W/kg

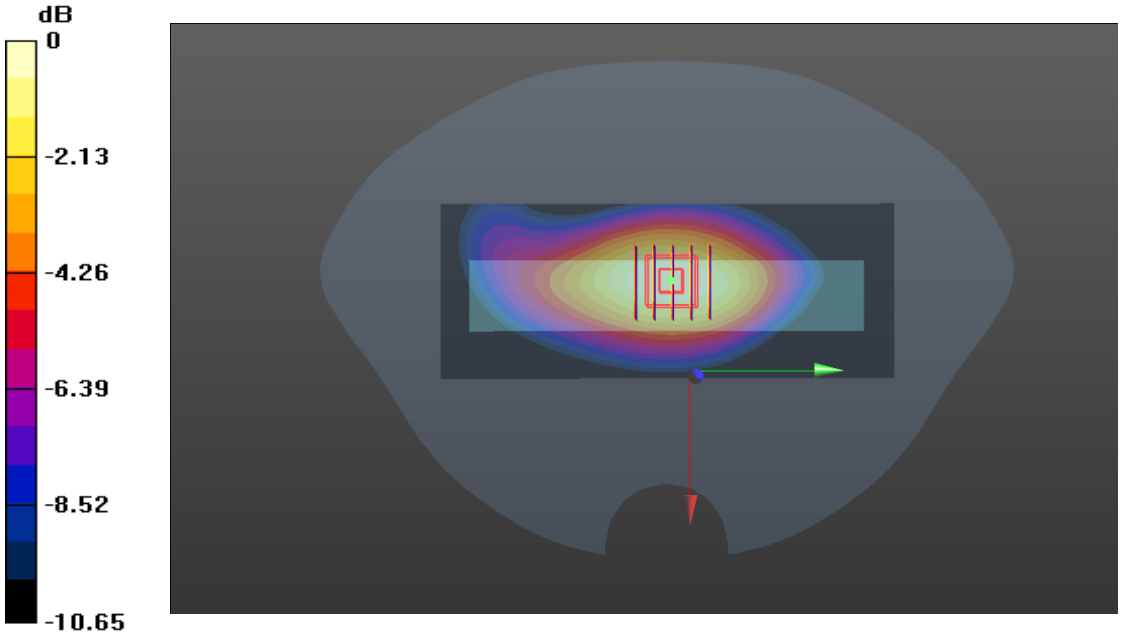
Ch20525/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 24.47 V/m; Power Drift = -0.13 dB

Peak SAR (extrapolated) = 0.932 W/kg

SAR(1 g) = 0.645 W/kg; SAR(10 g) = 0.429 W/kg

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



0 dB = 0.694 W/kg

Meas.7 Body Plane with Back Side 10mm on Middle Channel in LTE Band7 mode

Date: 2022.05.06

Communication System Band: Band 7; Frequency: 2535 MHz;Duty Cycle: 1:1

Medium parameters used (interpolated): f = 2535 MHz; σ = 1.884 S/m; ε_r = 38.775; ρ = 1000 kg/m^3

Phantom section: Flat Section

Ambient Temperature:22.2 Liquid Temperature:21.3

DASY5 Configuration:

- Probe: EX3DV4 - SN7663; ConvF(8.19, 8.19, 8.19); Calibrated: 2021.07.23;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn878; Calibrated: 2021.07.15
- Phantom: SAM (20deg probe tilt) with CRP v5.0 Right 1857; Type: QD000P40CC; Serial: TP:1857
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Ch21100/Area Scan (61x161x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm

Maximum value of SAR (interpolated) = 0.439 W/kg

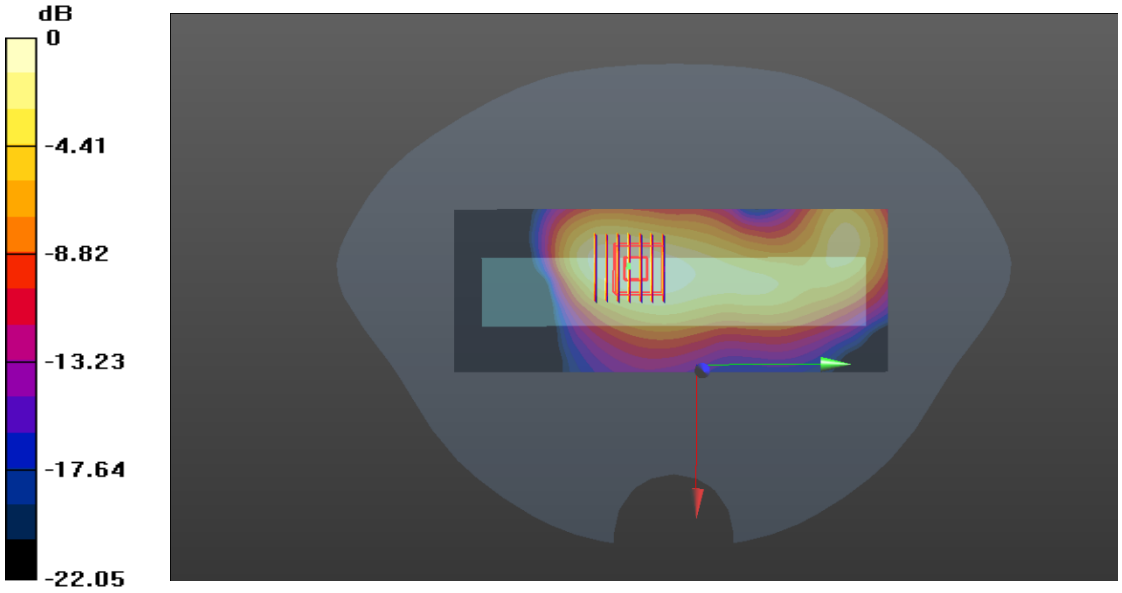
Ch21100/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 10.91 V/m; Power Drift = -0.10 dB

Peak SAR (extrapolated) = 0.739 W/kg

SAR(1 g) = 0.397 W/kg; SAR(10 g) = 0.215 W/kg

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



0 dB = 0.433 W/kg

Meas.8 Body Plane with Front Side 10mm on Middle Channel in LTE Band12 mode

Date: 2022.04.15

Communication System Band: Band 12; Frequency: 707.5 MHz;Duty Cycle: 1:1

Medium parameters used (interpolated): f = 707.5 MHz; σ = 0.859 S/m; ε_r = 42.891; ρ = 1000 kg/m^3

Phantom section: Flat Section

Ambient Temperature:22.5 Liquid Temperature:21.7

DASY5 Configuration:

- Probe: EX3DV4 - SN7663; ConvF(10.41, 10.41, 10.41); Calibrated: 2021.07.23;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn878; Calibrated: 2021.07.15
- Phantom: SAM (20deg probe tilt) with CRP v5.0 Right 1857; Type: QD000P40CC; Serial: TP:1857
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Ch23095/Area Scan (51x131x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.642 W/kg

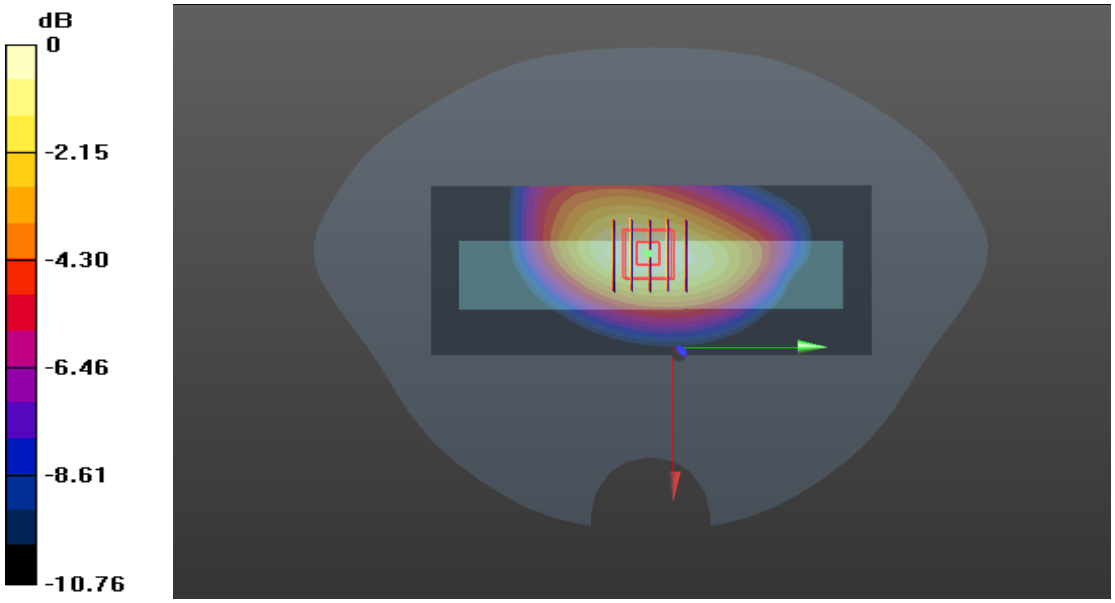
Ch23095/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 21.84 V/m; Power Drift = -0.07 dB

Peak SAR (extrapolated) = 0.885 W/kg

SAR(1 g) = 0.595 W/kg; SAR(10 g) = 0.393 W/kg

Maximum value of SAR (measured) = 0.641 W/kg



0 dB = 0.641 W/kg

Meas.9 Body Plane with Front Side 10mm on Middle Channel in LTE Band13 mode

Date: 2022.04.15

Communication System Band: Band 13; Frequency: 782 MHz;Duty Cycle: 1:1

Medium parameters used (interpolated): f = 782 MHz; σ = 0.87 S/m; ε_r = 42.294; ρ = 1000 kg/m^3

Phantom section: Flat Section

Ambient Temperature:22.5 Liquid Temperature:21.7

DASY5 Configuration:

- Probe: EX3DV4 - SN7663; ConvF(10.41, 10.41, 10.41); Calibrated: 2021.07.23;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn878; Calibrated: 2021.07.15
- Phantom: SAM (20deg probe tilt) with CRP v5.0 Right 1857; Type: QD000P40CC; Serial: TP:1857
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Ch23230/Area Scan (51x131x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.754 W/kg

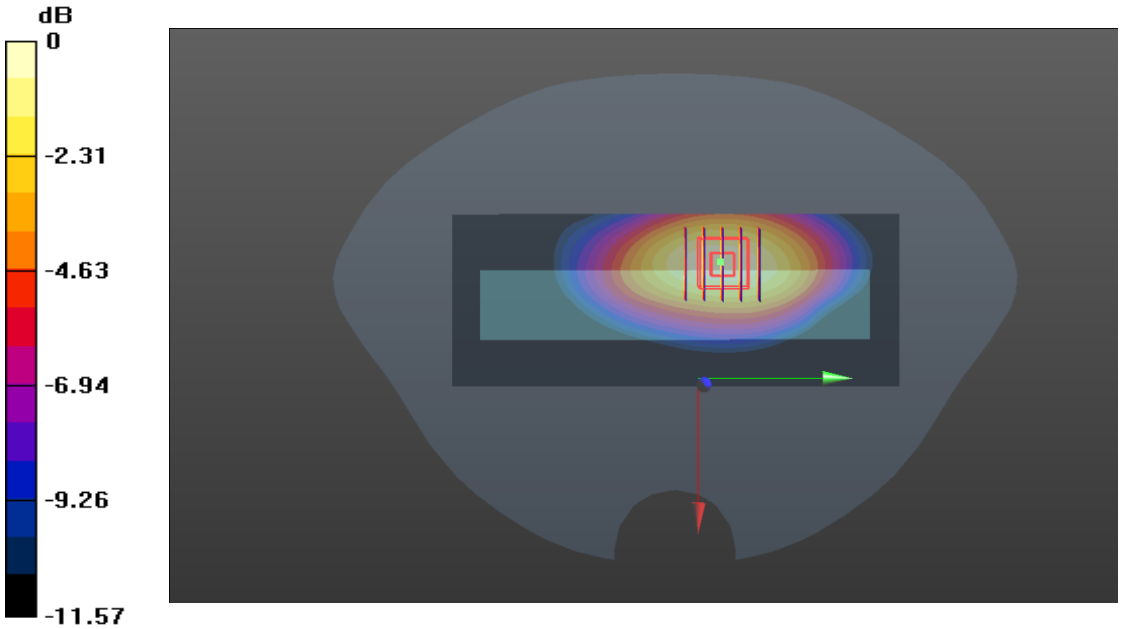
Ch23230/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 14.83 V/m; Power Drift = -0.09 dB

Peak SAR (extrapolated) = 1.10 W/kg

SAR(1 g) = 0.710 W/kg; SAR(10 g) = 0.450 W/kg

Maximum value of SAR (measured) = 0.769 W/kg



0 dB = 0.769 W/kg

Meas.10 Body Plane with Back Side 10mm on Middle Channel in LTE Band25 mode

Date: 2022.04.18

Communication System Band: Band 25; Frequency: 1882.5 MHz;Duty Cycle: 1:1

Medium parameters used (interpolated): f = 1882.5 MHz; σ = 1.435 S/m; ε_r = 39.753; ρ = 1000 kg/m^3

Phantom section: Flat Section

Ambient Temperature:22.5 Liquid Temperature:21.4

DASY5 Configuration:

- Probe: EX3DV4 - SN7663; ConvF(8.57, 8.57, 8.57); Calibrated: 2021.07.23;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn878; Calibrated: 2021.07.15
- Phantom: SAM (20deg probe tilt) with CRP v5.0 Right 1857; Type: QD000P40CC; Serial: TP:1857
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Ch26365/Area Scan (51x131x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.612 W/kg

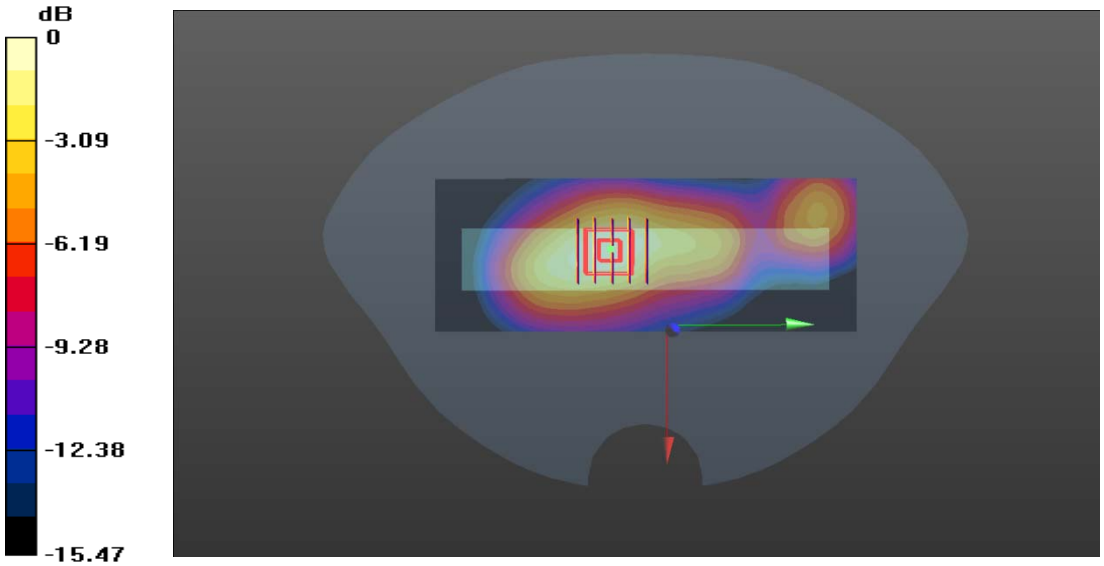
Ch26365/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 14.60 V/m; Power Drift = 0.16 dB

Peak SAR (extrapolated) = 0.906 W/kg

SAR(1 g) = 0.557 W/kg; SAR(10 g) = 0.334 W/kg

Maximum value of SAR (measured) = 0.604 W/kg



0 dB = 0.604 W/kg

Meas.11 Body Plane with Front Side 10mm on Middle Channel in LTE Band26 mode

Date: 2022.04.16

Communication System Band: Band 26; Frequency: 831.5 MHz;Duty Cycle: 1:1

Medium parameters used (interpolated): f = 831.5 MHz; σ = 0.881 S/m; ε_r = 41.646; ρ = 1000 kg/m^3

Phantom section: Flat Section

Ambient Temperature:22.4 Liquid Temperature:21.3

DASY5 Configuration:

- Probe: EX3DV4 - SN7663; ConvF(10.1, 10.1, 10.1); Calibrated: 2021.07.23;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn878; Calibrated: 2021.07.15
- Phantom: SAM (20deg probe tilt) with CRP v5.0 Right 1857; Type: QD000P40CC; Serial: TP:1857
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Ch26865/Area Scan (51x131x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.676 W/kg

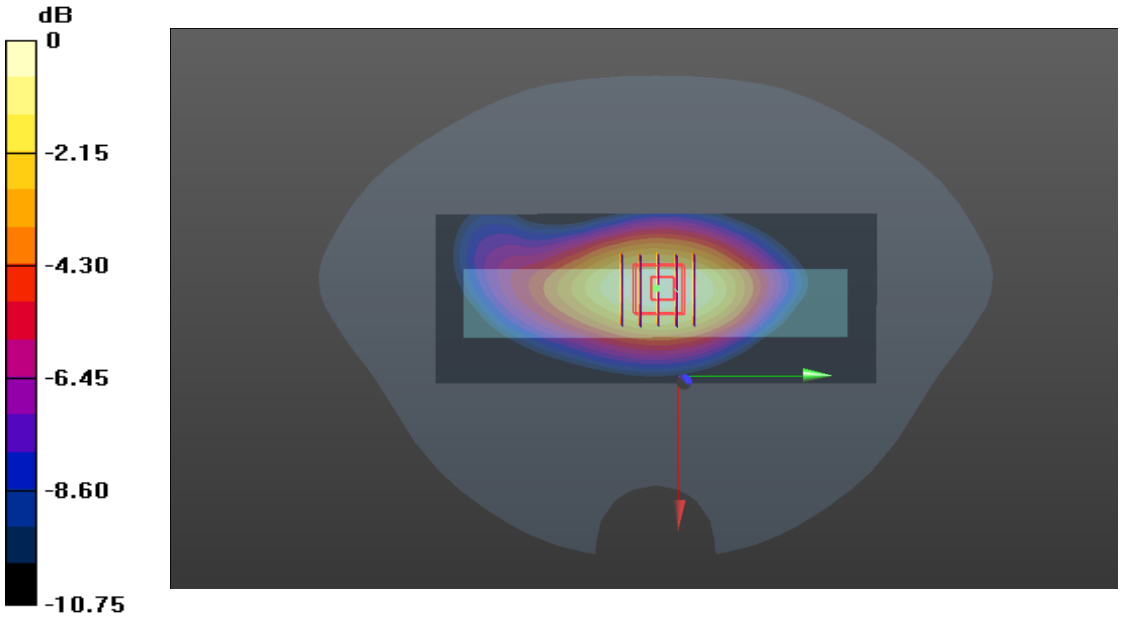
Ch26865/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 23.44 V/m; Power Drift = -0.11 dB

Peak SAR (extrapolated) = 0.917 W/kg

SAR(1 g) = 0.627 W/kg; SAR(10 g) = 0.416 W/kg

Maximum value of SAR (measured) = 0.668 W/kg



0 dB = 0.668 W/kg

Meas.12 Body Plane with Back Side 10mm on Middle Channel in LTE Band30 mode

Date: 2022.05.05

Communication System Band: Band 30; Frequency: 2310 MHz;Duty Cycle: 1:1

Medium parameters used (interpolated): f = 2310 MHz; σ = 1.649 S/m; ε_r = 39.925; ρ = 1000 kg/m^3

Phantom section: Flat Section

Ambient Temperature:22.2 Liquid Temperature:21.6

DASY5 Configuration:

- Probe: EX3DV4 - SN7663; ConvF(8.28, 8.28, 8.28); Calibrated: 2021.07.23;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn878; Calibrated: 2021.07.15
- Phantom: SAM (20deg probe tilt) with CRP v5.0 Right 1857; Type: QD000P40CC; Serial: TP:1857
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Ch27710/Area Scan (61x161x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm

Maximum value of SAR (interpolated) = 0.637 W/kg

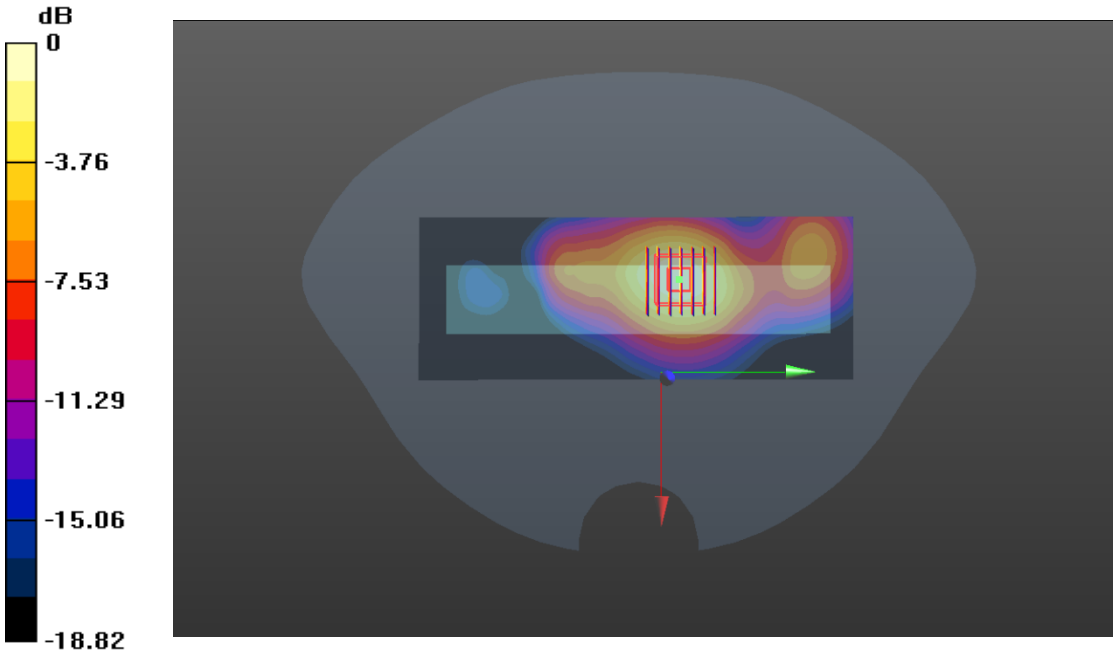
Ch27710/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 10.07 V/m; Power Drift = -0.06 dB

Peak SAR (extrapolated) = 1.02 W/kg

SAR(1 g) = 0.577 W/kg; SAR(10 g) = 0.314 W/kg

Maximum value of SAR (measured) = 0.639 W/kg



0 dB = 0.639 W/kg

Meas.13 Body Plane with Back Side 10mm on Middle Channel in LTE Band66 mode

Date: 2022.05.13

Communication System Band: Band 66; Frequency: 1745 MHz;Duty Cycle: 1:1

Medium parameters used (interpolated): f = 1745 MHz; σ = 1.377 S/m; ε_r = 39.976; ρ = 1000 kg/m^3

Phantom section: Flat Section

Ambient Temperature:22.6 Liquid Temperature:21.6

DASY5 Configuration:

- Probe: EX3DV4 - SN7663; ConvF(8.71, 8.71, 8.71); Calibrated: 2021.07.23;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn878; Calibrated: 2021.07.15
- Phantom: SAM (20deg probe tilt) with CRP v5.0 Right 1857; Type: QD000P40CC; Serial: TP:1857
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Ch132322/Area Scan (51x131x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

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

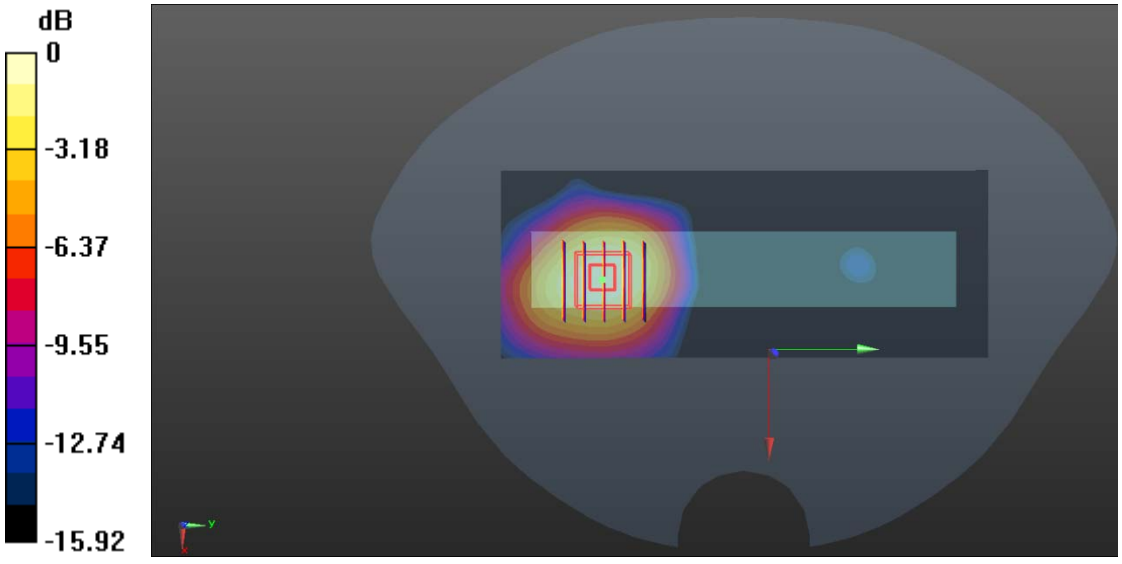
Ch132322/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 0 V/m; Power Drift = 0.15 dB

Peak SAR (extrapolated) = 0.817 W/kg

SAR(1 g) = 0.510 W/kg; SAR(10 g) = 0.298 W/kg

Maximum value of SAR (measured) = 0.562 W/kg



0 dB = 0.562 W/kg

Meas.14 Body Plane with Top Edge 10mm on 6 Channel in IEEE802.11n40 mode with Antenna 1

Date: 2022.05.05

Communication System Band: WLAN(n) 40MHz; Frequency: 2437 MHz;Duty Cycle: 1:1.042

Medium parameters used (interpolated): f = 2437 MHz; σ = 1.769 S/m; ε_r = 39.128; ρ = 1000 kg/m^3

Phantom section: Flat Section

Ambient Temperature:22.2 Liquid Temperature:21.6

DASY5 Configuration:

- Probe: EX3DV4 - SN7663; ConvF(8.19, 8.19, 8.19); Calibrated: 2021.07.23;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn878; Calibrated: 2021.07.15
- Phantom: SAM (20deg probe tilt) with CRP v5.0 Right 1857; Type: QD000P40CC; Serial: TP:1857
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Ch6/Area Scan (71x121x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm

Maximum value of SAR (interpolated) = 0.735 W/kg

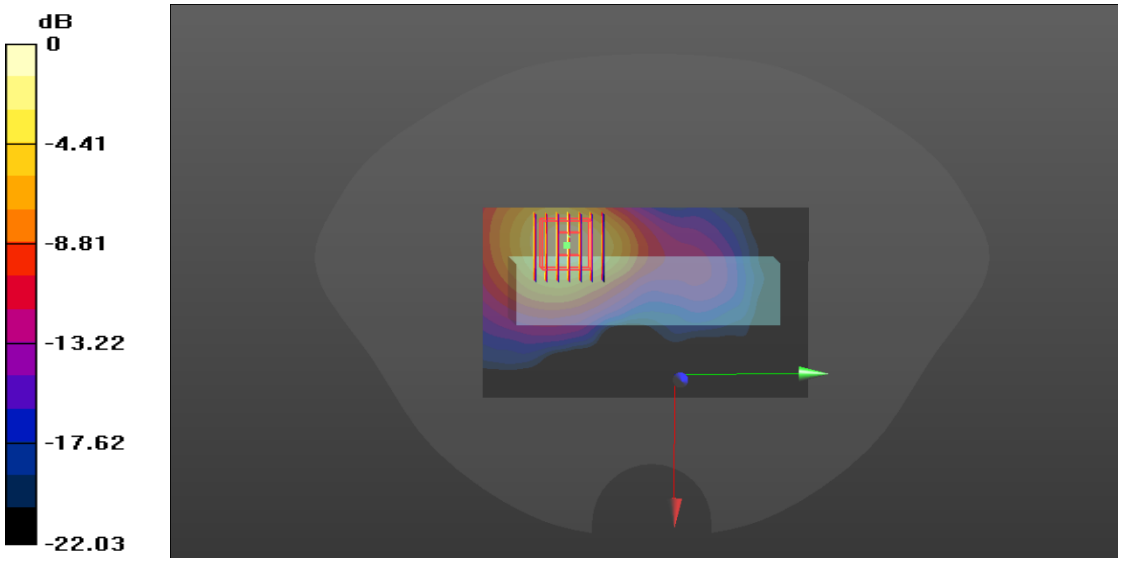
Ch6/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 2.853 V/m; Power Drift = 0.14 dB

Peak SAR (extrapolated) = 1.30 W/kg

SAR(1 g) = 0.691 W/kg; SAR(10 g) = 0.354 W/kg

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



0 dB = 0.755 W/kg

Meas.15 Body Plane with Top Edge 10mm on 6 Channel in IEEE802.11n40 mode with Antenna2

Date: 2022.05.05

Communication System Band:WLAN(n) 40MHz; Frequency: 2437 MHz;Duty Cycle: 1:1.042

Medium parameters used (interpolated): f = 2437 MHz; σ = 1.769 S/m; ε_r = 39.128; ρ = 1000 kg/m^3

Phantom section: Flat Section

Ambient Temperature:22.2 Liquid Temperature:21.6

DASY5 Configuration:

- Probe: EX3DV4 - SN7663; ConvF(8.19, 8.19, 8.19); Calibrated: 2021.07.23;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn878; Calibrated: 2021.07.15
- Phantom: SAM (20deg probe tilt) with CRP v5.0 Right 1857; Type: QD000P40CC; Serial: TP:1857
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Ch6/Area Scan (71x121x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm

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

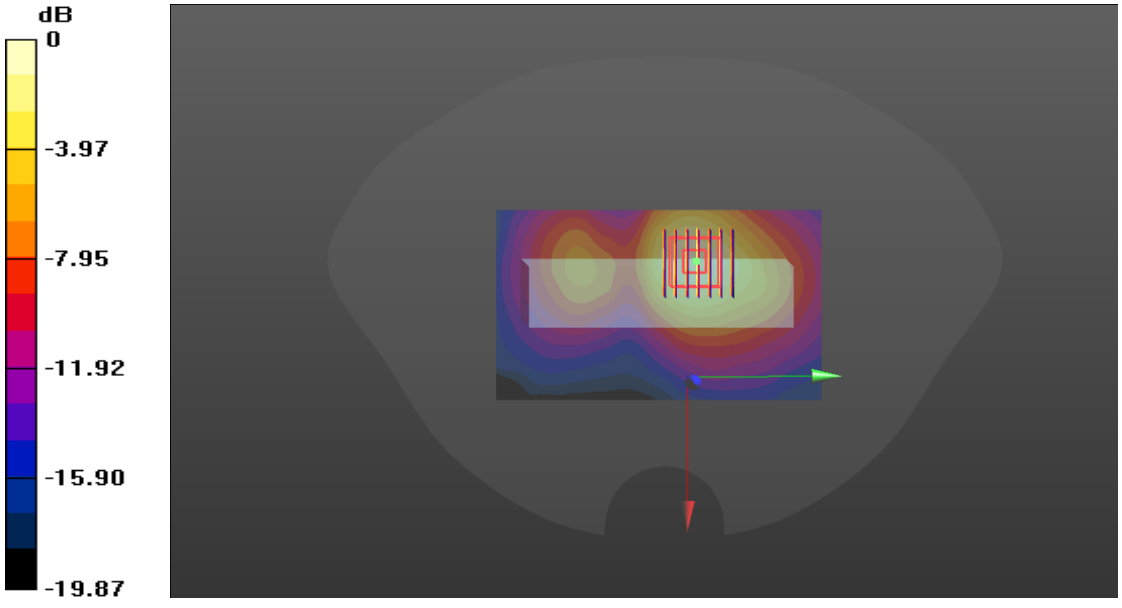
Ch6/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 7.810 V/m; Power Drift = 0.11 dB

Peak SAR (extrapolated) = 0.519 W/kg

SAR(1 g) = 0.283 W/kg; SAR(10 g) = 0.152 W/kg

Maximum value of SAR (measured) = 0.312 W/kg



0 dB = 0.312 W/kg

Meas.16 Body Plane with Top Edge 10mm on 6 Channel in IEEE802.11n40 mode with Antenna MIMO

Date: 2022.05.05

Communication System Band: WLAN(n) 40MHz; Frequency: 2437 MHz;Duty Cycle: 1:1.042

Medium parameters used (interpolated): f = 2437 MHz; σ = 1.769 S/m; ε_r = 39.128; ρ = 1000 kg/m^3

Phantom section: Flat Section

Ambient Temperature:22.2 Liquid Temperature:21.6

DASY5 Configuration:

- Probe: EX3DV4 - SN7663; ConvF(8.19, 8.19, 8.19); Calibrated: 2021.07.23;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn878; Calibrated: 2021.07.15
- Phantom: SAM (20deg probe tilt) with CRP v5.0 Right 1857; Type: QD000P40CC; Serial: TP:1857
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Ch6/Area Scan (71x121x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm

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

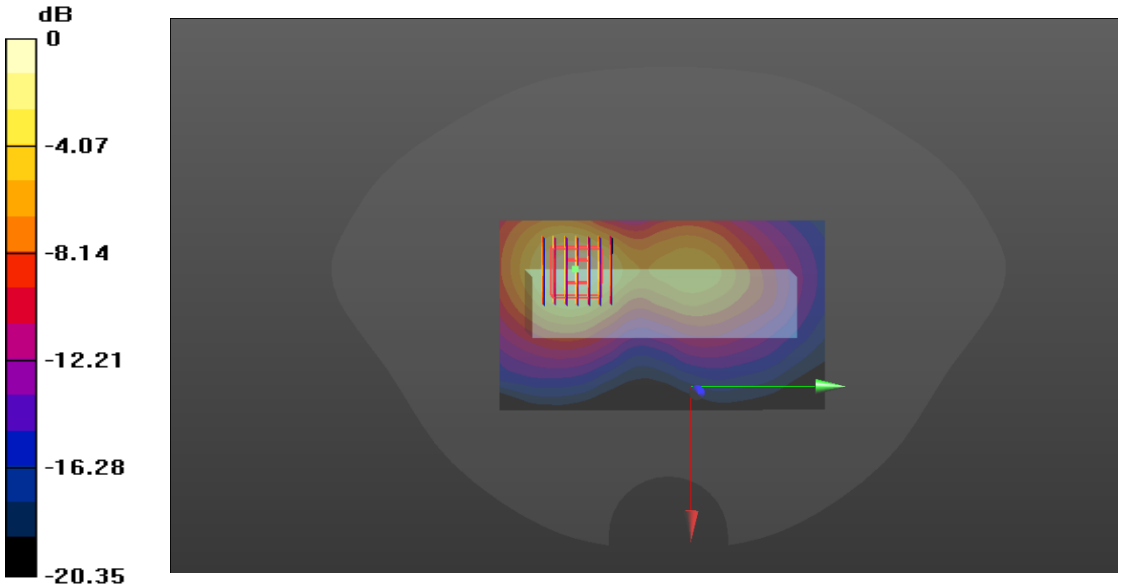
Ch6/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 9.116 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 1.53 W/kg

SAR(1 g) = 0.828 W/kg; SAR(10 g) = 0.429 W/kg

Maximum value of SAR (measured) = 0.925 W/kg



0 dB = 0.925 W/kg

ANNEX D EUT EXTERNAL PHOTOS

Please refer the document “BL-SZ2230807-AW.pdf”.

ANNEX E SAR TEST SETUP PHOTOS

Please refer the document “BL-SZ2230807-AS.pdf”.

ANNEX F CALIBRATION REPORT

Please refer the document “CALIBRATION REPORT.pdf”.

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--END OF REPORT--