TEST REPORT

Applicant:	JACS SOLUTIONS INC
Address:	809 Pinnacle Drive, Suite R, Linthicum Heights, MD 21090
Equipment Type:	TD191 Adapter Box
Model Name:	TD191 Adapter Box (refer to section 2.3)
Brand Name:	JACS
FCC ID:	2AGCDJACSTD191
Test Standard:	FCC 47 CFR Part 2.1093 (refer to section 3.1)
Maximum SAR:	Body (1 g@0mm): 1.17 W/kg
Sample Arrival Date:	Feb. 10, 2023
Test Date:	Feb. 10, 2023 –Sep. 05, 2023
Date of Issue:	Sep. 22, 2023

ISSUED BY:

Shenzhen BALUN Technology Co., Ltd.

Tested by: Xiong Lining **Checked by:** Xu Rui **Approved by:** Tu Lang (Testing Director)

Revision History

Version	Issue Date	Revisions Content
Rev. 01	Sep. 22, 2023	Initial Issue

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1 GENERAL INFORMATION

1.1 Test Laboratory

Name	Shenzhen BALUN Technology Co., Ltd.
Address	Block B, 1/F, Baisha Science and Technology Park, Shahe Xi Road, Nanshan District, Shenzhen, Guangdong Province, P. R. China
Phone Number	+86 755 6685 0100

1.2 Test Location

Name	Shenzhen BALUN Technology Co., Ltd.
Location	☑ Block B, 1/F, Baisha Science and Technology Park, Shahe Xi Road, Nanshan District, Shenzhen, Guangdong Province, P. R. China
	☐ 1/F, Building B, Ganghongji High-tech Intelligent Industrial Park, No. 1008, Songbai Road, Yangguang Community, Xili Sub-district, Nanshan District, Shenzhen, Guangdong Province, P. R. China
Accreditation Certificate	The laboratory is a testing organization accredited by FCC as a accredited testing laboratory. The designation number is CN1196.

1.3 Test Environment Condition

Ambient Temperature	18℃ to 25℃
Ambient Relative Humidity	30% to 70%

2 PRODUCT INFORMATION

2.1 Applicant Information

Applicant	JACS SOLUTIONS INC
Address	809 Pinnacle Drive, Suite R, Linthicum Heights, MD 21090

2.2 Manufacturer Information

Manufacturer	JACS Solutions, Inc.
Address	809 Pinnacle Drive, Suite R, Linthicum Heights, MD 21090

2.3 General Description for Equipment under Test (EUT)

EUT Name	TD191 Adapter Box
Model Name Under Test	TD191 Adapter Box
Series Model Name	TD191-B Adapter Box
Description of Model name differentiation	All models are same with electrical parameters and internal circuit structure, but only differ in model name. (this information provided by the customer)
Hardware Version	MBV1.0
Software Version	TD191_JACS_V1.5.0
Dimensions (Approx.)	N/A
Weight (Approx.)	N/A

2.4 Ancillary Equipment

Note: Not application.

2.5 Technical Information

Network and Wireless connectivity	3G Network WCDMA/HSDPA/HSUPA Band 1/2/4/5/8; 4G Network FDD LTE Band 1/2/3/4/5/7/8/12/13/17/20/66/71

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

Operating Mode	WCDMA, LTE		
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 12	TX: 699 ~ 716 MHz	RX: 729 ~ 746 MHz
	LTE Band 13	TX: 777 ~ 787 MHz	RX: 746 ~ 756 MHz
	LTE Band 17	TX: 704 ~ 716 MHz	RX: 734 ~ 746 MHz
	LTE Band 66	TX: 1710 ~ 1780 MHz	RX: 2110 ~ 2200 MHz
	LTE Band 71	TX: 663 ~ 698 MHz	RX: 617 ~ 652 MHz
Antenna Type	WWAN: PIFA Antenna		
DTM	N/A		
Hotspot Function	Support		
Power Reduction	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	FCC KDB 447498 D04 v01	447498 D04 Interim General RF Exposure Guidance v01
4	KDB 447498 D02 v02r01	SAR MEASUREMENT PROCEDURES FOR USB DONGLE TRANSMITTERS
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 865664 D01 v01r04	SAR Measurement 100 MHz to 6 GHz
8	FCC KDB 865664 D02 v01r02	RF Exposure Reporting

Note: Compared with the EUT of test report BL-SZ2320348-701, the changes of the EUT of this report as below:

1. Add B13, B71 two bands;
2. Remove B14 band;
3. Add series model name TD191-B Adapter Box.

Therefore, only added the LTE B13 and LTE B71 test data in section 2.4 and ANNEX A. others test data originate from the report BL-SZ2320348-701, which was issued by Shenzhen BALUN Technology Co., Ltd. on Mar. 20, 2023.

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)

Equipment Class	Band	Maximum Scaled SAR (W/kg)	Maximum Report SAR (W/kg)
		Body-worn (0mm)	Body-worn (0mm)
		1g SAR	1g SAR
PCE	WCDMA Band 2	0.97	1.17
	WCDMA Band 4	1.08	
	WCDMA Band 5	1.10	
	LTE Band 2	**1.17**	
	LTE Band 4	1.08	
	LTE Band 5	1.11	
	LTE Band 12	1.13	
	LTE Band 13	1.04	
	LTE Band 17	0.98	
	LTE Band 66	1.15	
	LTE Band 71	0.81	
Limit (W/kg)		1.6	1.6
Verdict		PASS	

3.3.2 Highest Simultaneous SAR

Note: The product has only one antenna for WCDMA and LTE, so simultaneous transmission evaluation is not required in this report.

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 1.17 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

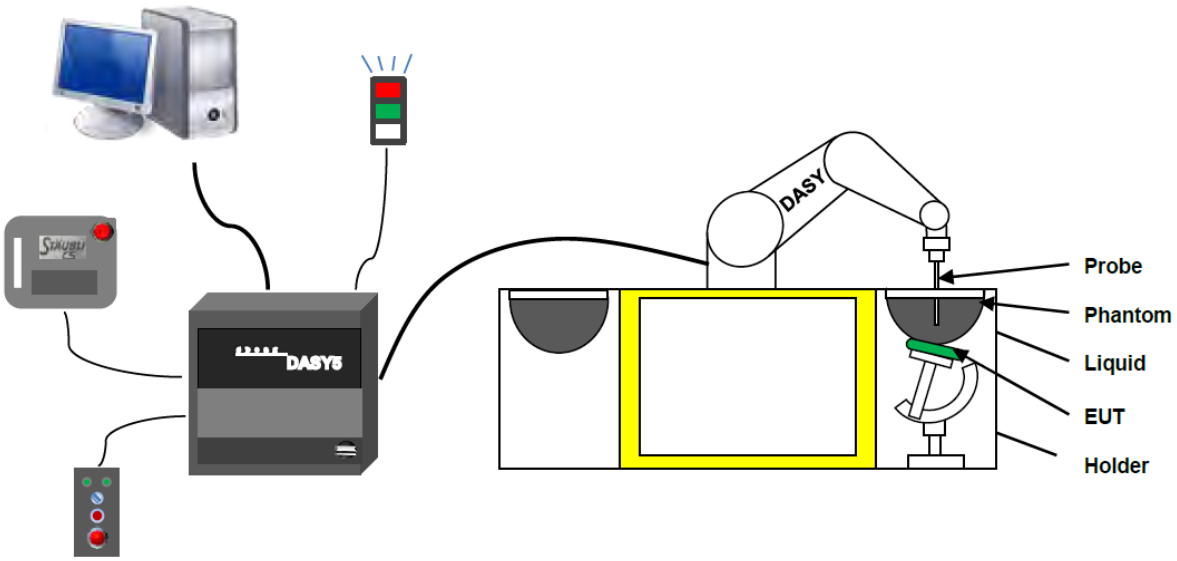
$$\mathbf{SAR} = \frac{\boldsymbol{\sigma}\mathbf{E}^2}{\boldsymbol{\rho}}$$

Where: σ is the conductivity of the tissue,

ρis 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: 7607&EX3DV4-SN: 7510 with following specifications is used.

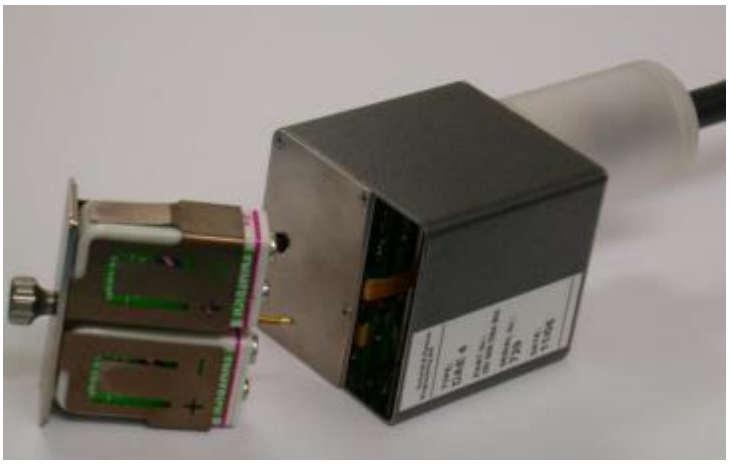
Construction	Symmetrical design with triangular core Built-in optical fiber for surface detection systemBuilt-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., glycolether)
Calibration	ISO/IEC 17025 calibration service available
Frequency	10 MHz to 6 GHz; 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

Phantom for compliance testing of handheld and body-mounted wireless devices in the frequency range of 30 MHz to 6 GHz. ELI4 is fully compatible with the latest draft of the standard IEC 62209 Part II and all known tissue simulating liquids. ELI4 has been optimized regarding its performance and can be integrated into our standard phantom tables. A cover prevents evaporation of the liquid. Reference markings on the phantom allow installation of the complete setup, including all predefined phantom positions and measurement grids, by teaching three points.

·Flat phantom

Photo of Phantom SN1012

Serial Number	Shell Thickness (mm)	Major ellipse axis (mm)	Minor axis (mm)
SN 1012 ELI4	2.0 ± 0.2	600	500

4.2.6 Device Holder

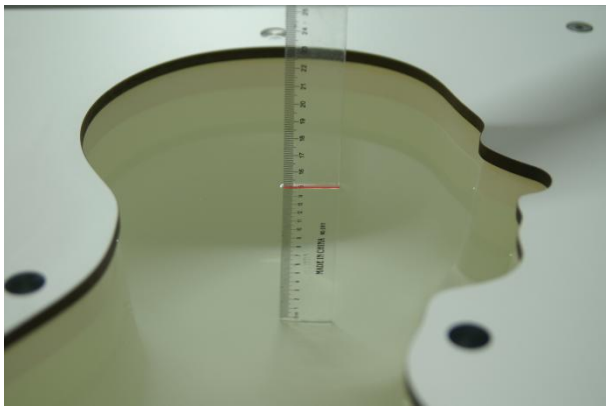
The DASY5 device holder has two scales for device rotation (with respect to the body axis) and the device inclination (with respect to the line between the ear openings). The plane between the ear openings and the mouth tip has a rotation angle of 65°. The bottom plate contains three pair of bolts for 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

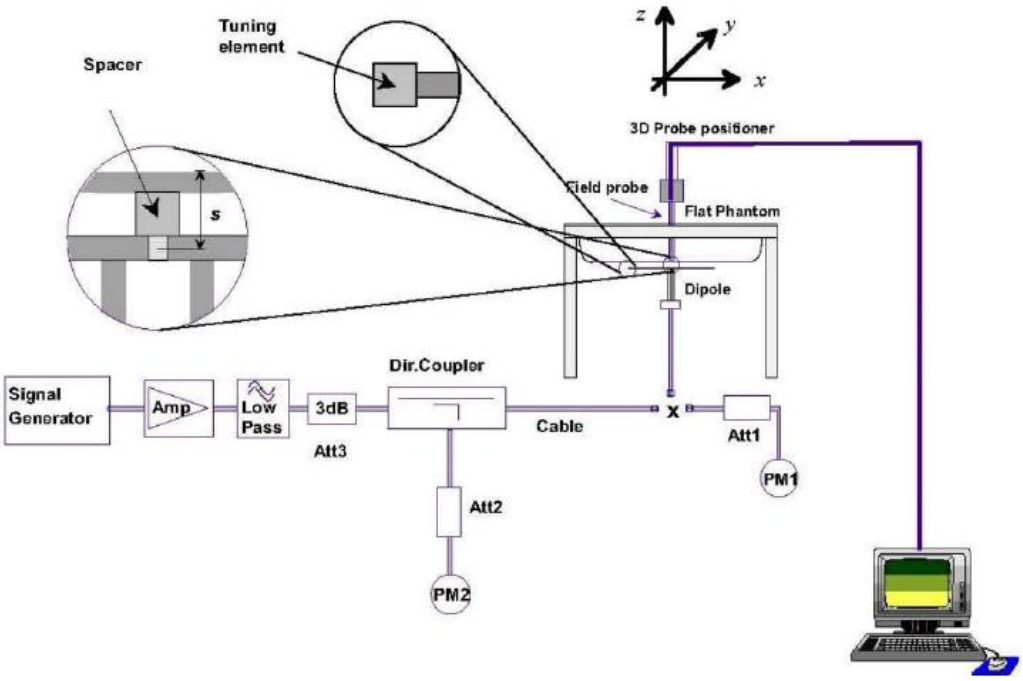
5 SYSTEM VERIFICATION

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:



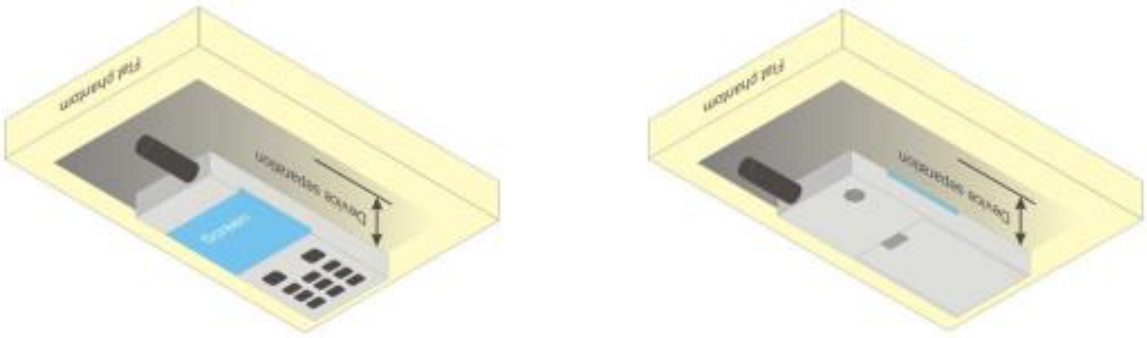
6 TEST POSITION CONFIGURATIONS

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.

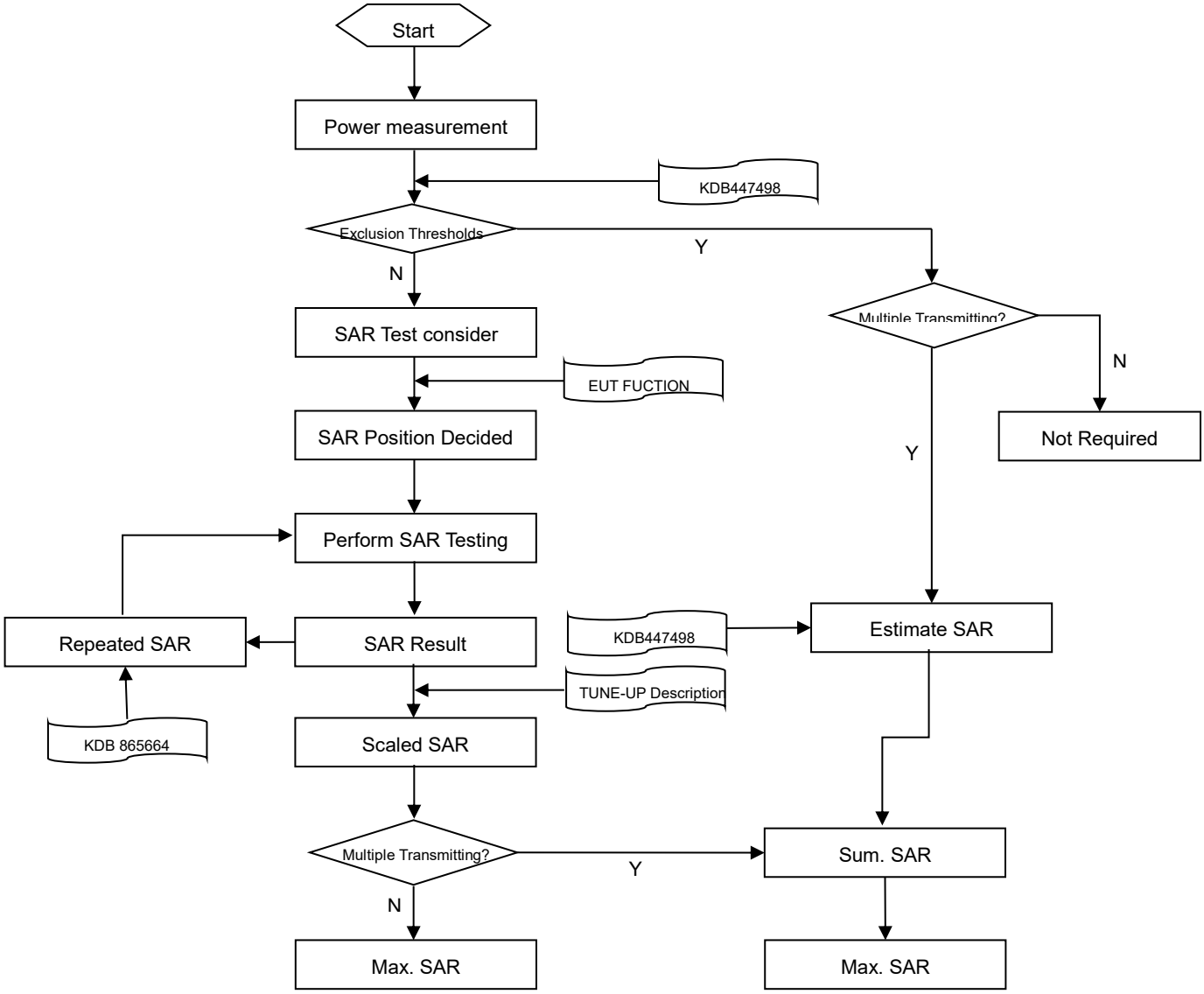
Body-worn accessories that do not contain metallic or conductive components may be tested according to worst-case exposure configurations, typically according to the smallest test separation distance required for the group of body-worn accessories with similar operating and exposure characteristics.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



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. Both the 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 colspan="2">5–6 GHz: ≤ 2 mm
≤ 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

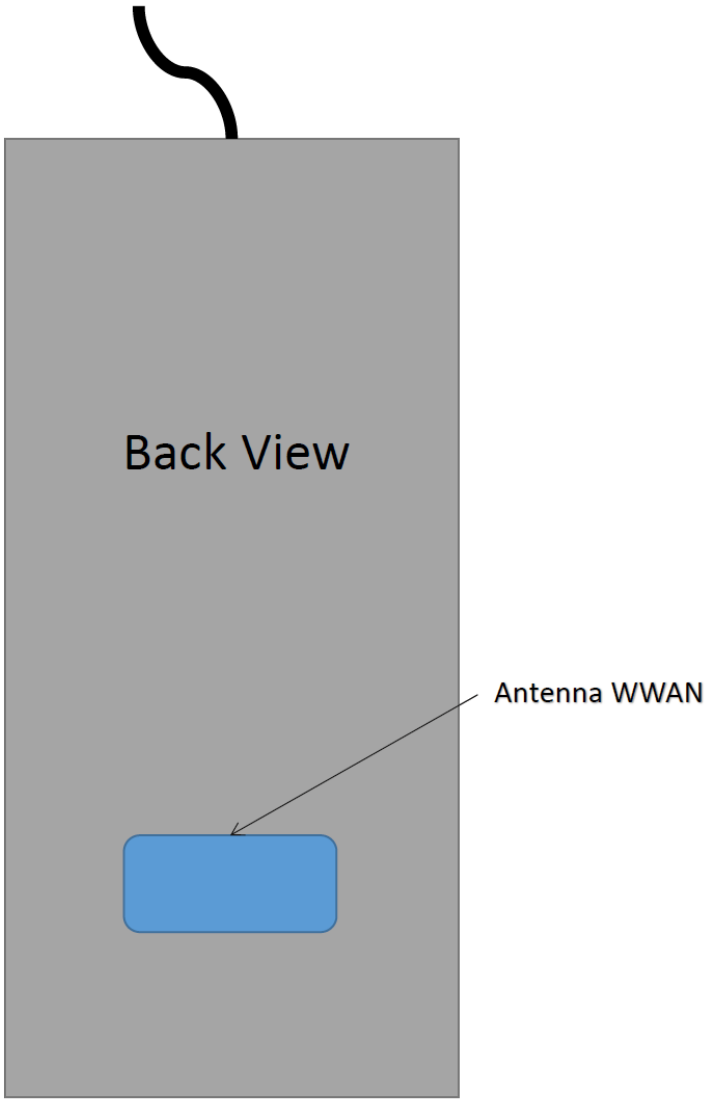
8.1 WCDMA

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

8.2 LTE

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

9 TEST EXCLUSION CONSIDERATION



9.1 SAR Test Consideration Table

According with FCC KDB 447498 D01, Appendix A, <SAR Test Exclusion Thresholds for 100 MHz – 6 GHz and ≤ 50 mm> Table, this Device SAR test configurations consider as following :

Band	Mode	Max. Peak Power		Test Position Configurations				
		dBm	mW	Front Side	Back Side	Left Side	Right Side	Top Side
WCDMA Band 2	Distance to User			10mm	10mm	15mm	15mm	35mm
	RMC	22.50	177.83	Yes	Yes	Yes	Yes	Yes
WCDMA Band 4	Distance to User			10mm	10mm	15mm	15mm	35mm
	RMC	22.50	177.83	Yes	Yes	Yes	Yes	Yes
WCDMA Band 5	Distance to User			10mm	10mm	15mm	15mm	35mm
	RMC	22.50	177.83	Yes	Yes	Yes	Yes	Yes
LTE Band 2	Distance to User			10mm	10mm	15mm	15mm	35mm
	QPSK	22.50	177.83	Yes	Yes	Yes	Yes	Yes
LTE Band 4	Distance to User			10mm	10mm	15mm	15mm	35mm
	QPSK	23.00	199.53	Yes	Yes	Yes	Yes	Yes
LTE Band 5	Distance to User			10mm	10mm	15mm	15mm	35mm
	QPSK	23.00	199.53	Yes	Yes	Yes	Yes	Yes
LTE Band 12	Distance to User			10mm	10mm	15mm	15mm	35mm
	QPSK	24.00	251.19	Yes	Yes	Yes	Yes	Yes
LTE Band 13	Distance to User			10mm	10mm	15mm	15mm	35mm
	QPSK	23.00	199.53	Yes	Yes	Yes	Yes	Yes
LTE Band 17	Distance to User			10mm	10mm	15mm	15mm	35mm
	QPSK	23.00	199.53	Yes	Yes	Yes	Yes	Yes
LTE Band 66	Distance to User			10mm	10mm	15mm	15mm	35mm
	QPSK	23.00	199.53	Yes	Yes	Yes	Yes	Yes
LTE Band 71	Distance to User			10mm	10mm	15mm	15mm	35mm
	QPSK	23.50	223.87	Yes	Yes	Yes	Yes	Yes

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 D01, 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 D01, 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 D01, the 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances ≤ 50 mm are determined by:
   [(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm)] ·[√f(GHz)] ≤ 3.0 for 1-g SAR and ≤ 7.5 for 10-g extremity SAR
   a. f(GHz) is the RF channel transmit frequency in GHz
   b. Power and distance are rounded to the nearest mW and mm before calculation

c. The result is rounded to one decimal place for comparison

d. For < 50 mm distance, we just calculate mW of the exclusion threshold value (3.0) to do compare.

This formula is [3.0] / [√f(GHz)] ·[(min. test separation distance, mm)] = exclusion threshold of mW.

5. Per KDB 447498 D01, at 100 MHz to 6 GHz and for test separation distances > 50 mm, the SAR test exclusion threshold is determined according to the following

a. [Threshold at 50 mm in step 1) + (test separation distance - 50 mm)·(f(MHz)/150)] mW, at 100 MHz to 1500 MHz

b. [Threshold at 50 mm in step 1) + (test separation distance - 50 mm)·10] mW at > 1500 MHz and ≤ 6 GHz

6. 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 adjustd SAR with RMC 12.2kbps setting is ≤1.2W/kg,HSDPA/HSUPA/DC-HSDPA SAR evaluation can be excluded.

10 TEST RESULT

10.1WCDMA Band 2

Mode	Position	Dist. (mm)	Ch.	Freq. (MHz)	Power Drift (%)	1 g Meas SAR (W/kg)	Meas. Power (dBm)	Max. tune-up power (dBm)	Scaling Factor	1g Scaled SAR (W/kg)	Meas. No.
Body											
RMC	Front Side	0	9400	1880.0	0.14	0.585	22.20	22.50	1.072	0.627	/
	Back Side	0	9400	1880.0	-0.11	0.772	22.20	22.50	1.072	0.828	/
	Left Side	0	9400	1880.0	0.10	0.132	22.20	22.50	1.072	0.142	/
	Right Side	0	9400	1880.0	0.11	0.314	22.20	22.50	1.072	0.337	/
	Top Side	0	9400	1880.0	-0.19	0.062	22.20	22.50	1.072	0.066	/
	Back Side	0	9262	1852.4	0.05	0.859	21.96	22.50	1.132	**0.972**	1#
		0	9538	1907.6	-0.05	0.762	21.91	22.50	1.146	0.873	/
Body-Repeat SAR											
RMC	Back Side	0	9262	1852.4	0.05	0.821	21.96	22.50	1.132	0.929	/
Note: Refer to ANNEX C for the detailed test data for each test configuration.											

10.2WCDMA Band 4

Mode	Position	Dist. (mm)	Ch.	Freq. (MHz)	Power Drift (%)	1 g Meas SAR (W/kg)	Meas. Power (dBm)	Max. tune-up power (dBm)	Scaling Factor	1g Scaled SAR (W/kg)	Meas. No.
Body											
RMC	Front Side	0	1513	1752.6	-0.18	0.258	21.73	22.50	1.194	0.308	/
	Back Side	0	1513	1752.6	0.02	0.903	21.73	22.50	1.194	**1.078**	2#
	Left Side	0	1513	1752.6	0.08	0.135	21.73	22.50	1.194	0.161	/
	Right Side	0	1513	1752.6	-0.12	0.152	21.73	22.50	1.194	0.181	/
	Top Side	0	1513	1752.6	-0.13	0.029	21.73	22.50	1.194	0.035	/
	Back Side	0	1312	1712.4	-0.19	0.773	21.44	22.50	1.276	0.986	/
		0	1412	1732.4	0.09	0.816	21.66	22.50	1.213	0.990	/
Body-Repeat SAR											
RMC	Back Side	0	1513	1752.6	0.13	0.887	21.73	22.50	1.194	1.059	/
Note: Refer to ANNEX C for the detailed test data for each test configuration.											

10.3WCDMA Band 5

Mode	Position	Dist. (mm)	Ch.	Freq. (MHz)	Power Drift (%)	1 g Meas SAR (W/kg)	Meas. Power (dBm)	Max. tune-up power (dBm)	Scaling Factor	1g Scaled SAR (W/kg)	Meas. No.
Body											
RMC	Front Side	0	4233	846.6	0.02	0.913	21.98	22.50	1.127	1.029	/
	Back Side	0	4233	846.6	0.06	0.943	21.98	22.50	1.127	1.063	/
	Left Side	0	4233	846.6	-0.03	0.565	21.98	22.50	1.127	0.637	/
	Right Side	0	4233	846.6	-0.04	0.628	21.98	22.50	1.127	0.708	/
	Top Side	0	4233	846.6	-0.18	0.056	21.98	22.50	1.127	0.063	/
	Front Side	0	4132	826.4	-0.17	0.901	21.81	22.50	1.172	1.056	/
		0	4182	836.4	-0.10	0.927	21.93	22.50	1.140	1.057	/
	Back Side	0	4132	826.4	-0.13	0.912	21.81	22.50	1.172	1.069	/
		0	4182	836.4	-0.01	0.963	21.93	22.50	1.140	**1.098**	3#
Body-Repeat SAR											
RMC	Front Side	0	4182	836.4	0.15	0.915	21.93	22.50	1.140	1.043	/
RMC	Back Side	0	4182	836.4	-0.05	0.947	21.93	22.50	1.140	1.080	/
Note: Refer to ANNEX C for the detailed test data for each test configuration.											

10.4LTE Band 2 (20MHz Bandwidth)

Mode	Position	Dist. (mm)	Ch.	Freq. (MHz)	RB Num.	RB Start	Power Drift (%)	1 g Meas SAR (W/kg)	Meas. Power (dBm)	Max. tune-up power (dBm)	Scaling Factor	1g Scaled SAR (W/kg)	Meas. No.
Body													
QPSK	Front Side	0	18900	1880	1	MID	0.04	0.392	22.34	22.50	1.038	0.407	/
		0	18700	1860	50	LOW	-0.17	0.262	20.97	21.50	1.130	0.296	/
	Back Side	0	18900	1880	1	MID	0.03	0.837	22.34	22.50	1.038	0.869	/
		0	18700	1860	50	LOW	0.17	0.687	20.97	21.50	1.130	0.776	/
	Left Side	0	18900	1880	1	MID	0.16	0.120	22.34	22.50	1.038	0.125	/
		0	18700	1860	50	LOW	0.12	0.081	20.97	21.50	1.130	0.092	/
	Right Side	0	18900	1880	1	MID	0.14	0.233	22.34	22.50	1.038	0.242	/
		0	18700	1860	50	LOW	0.13	0.164	20.97	21.50	1.130	0.185	/
	Top Side	0	18900	1880	1	MID	-0.17	0.039	22.34	22.50	1.038	0.040	/
		0	18700	1860	50	LOW	-0.01	0.026	20.97	21.50	1.130	0.029	/
	Back Side	0	18700	1860	1	MID	0.10	0.858	22.28	22.50	1.052	0.903	/
		0	19100	1900	1	MID	0.13	1.070	22.11	22.50	1.094	**1.171**	4#
		0	18900	1880	100	LOW	0.09	0.678	20.88	21.50	1.153	0.782	/
Body-Repeat SAR													
QPSK	Back Side	0	19100	1900	1	MID	0.03	1.010	22.11	22.50	1.094	1.105	/
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 (%)	1 g Meas SAR (W/kg)	Meas. Power (dBm)	Max. tune-up power (dBm)	Scaling Factor	1g Scaled SAR (W/kg)	Meas. No.
Body													
QPSK	Front Side	0	20050	1720	1	MID	0.18	0.342	22.67	23.00	1.079	0.369	/
		0	20050	1720	50	MID	-0.08	0.262	21.37	22.00	1.156	0.303	/
	Back Side	0	20050	1720	1	MID	-0.01	0.834	22.67	23.00	1.079	0.900	/
		0	20050	1720	50	MID	0.16	0.669	21.37	22.00	1.156	0.773	/
	Left Side	0	20050	1720	1	MID	0.07	0.196	22.67	23.00	1.079	0.211	/
		0	20050	1720	50	MID	0.13	0.156	21.37	22.00	1.156	0.180	/
	Right Side	0	20050	1720	1	MID	-0.13	0.188	22.67	23.00	1.079	0.203	/
		0	20050	1720	50	MID	-0.18	0.148	21.37	22.00	1.156	0.171	/
	Top Side	0	20050	1720	1	MID	-0.18	0.087	22.67	23.00	1.079	0.094	/
		0	20050	1720	50	MID	0.07	0.065	21.37	22.00	1.156	0.075	/
	Back Side	0	20175	1732.5	1	MID	-0.06	0.884	22.56	23.00	1.107	0.979	/
		0	20300	1745	1	MID	-0.15	0.967	22.54	23.00	1.112	**1.075**	5#
		0	20050	1720	100	LOW	-0.04	0.661	21.31	22.00	1.172	0.775	/
Body-Repeat SAR													
QPSK	Back Side	0	20300	1745	1	MID	-0.01	0.943	22.54	23.00	1.112	1.049	/
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 (%)	1 g Meas SAR (W/kg)	Meas. Power (dBm)	Max. tune-up power (dBm)	Scaling Factor	1g Scaled SAR (W/kg)	Meas. No.
Body													
QPSK	Front Side	0	20600	844	1	MID	0.07	0.825	22.71	23.00	1.069	0.882	/
		0	20600	844	25	MID	0.10	0.641	21.42	22.00	1.143	0.733	/
	Back Side	0	20600	844	1	MID	0.01	0.540	22.71	23.00	1.069	0.577	/
		0	20600	844	25	MID	0.01	0.435	21.42	22.00	1.143	0.497	/
	Left Side	0	20600	844	1	MID	-0.18	0.497	22.71	23.00	1.069	0.531	/
		0	20600	844	25	MID	-0.19	0.416	21.42	22.00	1.143	0.475	/
	Right Side	0	20600	844	1	MID	-0.04	0.714	22.71	23.00	1.069	0.763	/
		0	20600	844	25	MID	-0.16	0.562	21.42	22.00	1.143	0.642	/
	Top Side	0	20600	844	1	MID	0.16	0.059	22.71	23.00	1.069	0.063	/
		0	20600	844	25	MID	0.13	0.047	21.42	22.00	1.143	0.054	/
	Front Side	0	20450	829	1	MID	0.15	0.946	22.30	23.00	1.175	**1.112**	6#
		0	20525	836.5	1	MID	-0.19	0.850	22.41	23.00	1.146	0.974	/
		0	20600	844	50	LOW	-0.04	0.778	21.38	22.00	1.153	0.897	/
Body-Repeat SAR													
QPSK	Back Side	0	20450	829	1	MID	0.13	0.923	22.30	23.00	1.175	1.085	/
Note: Refer to ANNEX C for the detailed test data for each test configuration.													

10.7 LTE Band 12 (10MHz Bandwidth)

Mode	Position	Dist. (mm)	Ch.	Freq. (MHz)	RB Num.	RB Start	Power Drift (%)	1 g Meas SAR (W/kg)	Meas. Power (dBm)	Max. tune-up power (dBm)	Scaling Factor	1g Scaled SAR (W/kg)	Meas. No.
Body													
QPSK	Front Side	0	23095	707.5	1	MID	-0.15	0.978	23.55	24.00	1.109	1.085	/
		0	23060	704	25	LOW	-0.11	0.799	22.44	23.00	1.138	0.909	/
	Back Side	0	23095	707.5	1	MID	-0.14	0.906	23.55	24.00	1.109	1.005	/
		0	23060	704	25	LOW	0.03	0.752	22.44	23.00	1.138	0.856	/
	Left Side	0	23095	707.5	1	MID	0.03	0.536	23.55	24.00	1.109	0.594	/
		0	23060	704	25	LOW	0.14	0.427	22.44	23.00	1.138	0.486	/
	Right Side	0	23095	707.5	1	MID	0.09	0.564	23.55	24.00	1.109	0.625	/
		0	23060	704	25	LOW	0.07	0.579	22.44	23.00	1.138	0.659	/
	Top Side	0	23095	707.5	1	MID	-0.07	0.128	23.55	24.00	1.109	0.142	/
		0	23060	704	25	LOW	-0.12	0.100	22.44	23.00	1.138	0.114	/
	Front Side	0	23060	704	1	MID	-0.05	0.996	23.46	24.00	1.132	**1.127**	7#
		0	23130	711	1	MID	0.16	0.893	23.45	24.00	1.135	1.014	/
		0	23095	707.5	25	MID	0.12	0.812	22.34	23.00	1.164	0.945	/
		0	23130	711	25	LOW	-0.15	0.797	22.40	23.00	1.148	0.915	/
		0	23060	704	50	LOW	-0.05	0.821	22.37	23.00	1.156	0.949	/
	Back Side	0	23060	704	1	MID	0.03	0.887	23.46	24.00	1.132	1.004	/
		0	23130	711	1	MID	0.19	0.879	23.45	24.00	1.135	0.998	/
		0	23095	707.5	25	MID	0.05	0.768	22.34	23.00	1.164	0.894	/
		0	23130	711	25	LOW	0.05	0.779	22.40	23.00	1.148	0.894	/
		0	23060	704	50	LOW	-0.14	0.781	22.37	23.00	1.156	0.903	/
Body-Repeat SAR													
QPSK	Front Side	0	23060	704	1	MID	0.11	0.976	23.46	24.00	1.132	1.105	/
	Back Side	0	23095	707.5	1	MID	0.11	0.895	23.55	24.00	1.109	0.993	/
Note: Refer to ANNEX C for the detailed test data for each test configuration.													

10.8 LTE Band 17 (10MHz Bandwidth)

Mode	Position	Dist. (mm)	Ch.	Freq. (MHz)	RB Num.	RB Start	Power Drift (%)	1 g Meas SAR (W/kg)	Meas. Power (dBm)	Max. tune-up power (dBm)	Scaling Factor	1g Scaled SAR (W/kg)	Meas. No.
Body													
QPSK	Front Side	0	23800	711	1	MID	0.18	0.869	22.76	23.00	1.057	0.919	/
		0	23780	709	25	LOW	-0.18	0.741	21.73	22.00	1.064	0.788	/
	Back Side	0	23800	711	1	MID	-0.14	0.816	22.76	23.00	1.057	0.863	/
		0	23780	709	25	LOW	-0.07	0.725	21.73	22.00	1.064	0.771	/
	Left Side	0	23800	711	1	MID	0.15	0.529	22.76	23.00	1.057	0.559	/
		0	23780	709	25	LOW	-0.02	0.552	21.73	22.00	1.064	0.587	/
	Right Side	0	23800	711	1	MID	0.06	0.534	22.76	23.00	1.057	0.564	/
		0	23780	709	25	LOW	-0.01	0.440	21.73	22.00	1.064	0.468	/
	Top Side	0	23800	711	1	MID	0.16	0.123	22.76	23.00	1.057	0.130	/
		0	23780	709	25	LOW	-0.01	0.104	21.73	22.00	1.064	0.111	/
	Front Side	0	23780	709	1	MID	-0.11	0.811	22.56	23.00	1.107	0.898	/
		0	23790	710	1	MID	0.01	0.843	22.64	23.00	1.086	0.915	/
		0	23780	709	50	LOW	0.19	0.698	21.63	22.00	1.089	0.760	/
	Back Side	0	23780	709	1	MID	0.11	0.865	22.56	23.00	1.107	0.958	/
		0	23790	710	1	MID	-0.11	0.906	22.64	23.00	1.086	**0.984**	8#
		0	23780	709	50	LOW	0.12	0.741	21.63	22.00	1.089	0.807	/
Body-Repeat SAR													
QPSK	Front Side	0	23800	711	1	MID	0.12	0.858	22.76	23.00	1.057	0.907	/
QPSK	Back Side	0	23790	710	1	MID	0.01	0.901	22.64	23.00	1.086	0.978	/
Note: Refer to ANNEX C for the detailed test data for each test configuration.													

10.9 LTE Band 66 (20MHz Bandwidth)

Mode	Position	Dist. (mm)	Ch.	Freq. (MHz)	RB Num.	RB Start	Power Drift (%)	1 g Meas SAR (W/kg)	Meas. Power (dBm)	Max. tune-up power (dBm)	Scaling Factor	1g Scaled SAR (W/kg)	Meas. No.
Body													
QPSK	Front Side	0	132322	1745	1	MID	-0.08	0.302	22.74	23.00	1.062	0.321	/
		0	132072	1720	50	MID	0.15	0.185	21.57	22.00	1.104	0.204	/
	Back Side	0	132322	1745	1	MID	-0.08	1.080	22.74	23.00	1.062	**1.147**	9#
		0	132072	1720	50	MID	-0.18	0.820	21.57	22.00	1.104	0.905	/
	Left Side	0	132322	1745	1	MID	0.12	0.135	22.74	23.00	1.062	0.143	/
		0	132072	1720	50	MID	-0.02	0.106	21.57	22.00	1.104	0.117	/
	Right Side	0	132322	1745	1	MID	-0.18	0.162	22.74	23.00	1.062	0.172	/
		0	132072	1720	50	MID	-0.01	0.100	21.57	22.00	1.104	0.110	/
	Top Side	0	132322	1745	1	MID	0.12	0.034	22.74	23.00	1.062	0.036	/
		0	132072	1720	50	MID	-0.03	0.028	21.57	22.00	1.104	0.031	/
	Back Side	0	132072	1720	1	MID	-0.09	1.010	22.72	23.00	1.067	1.078	/
		0	132572	1770	1	HIGH	0.03	0.997	22.67	23.00	1.079	1.076	/
		0	132322	1745	50	LOW	0.12	0.815	21.44	22.00	1.138	0.927	/
		0	132572	1770	50	HIGH	-0.13	0.823	21.44	22.00	1.138	0.937	/
		0	132322	1745	100	LOW	-0.11	0.838	21.49	22.00	1.125	0.943	/
Body-Repeat SAR													
QPSK	Back Side	0	132322	1745	1	MID	0.10	0.999	22.74	23.00	1.062	1.061	/
Note: Refer to ANNEX C for the detailed test data for each test configuration.													

10.10 LTE Band 13 (10MHz Bandwidth)

Mode	Position	Dist. (mm)	Ch.	Freq. (MHz)	RB Num.	RB Start	Power Drift (%)	1 g Meas SAR (W/kg)	Meas. Power (dBm)	Max. tune-up power (dBm)	Scaling Factor	1g Scaled SAR (W/kg)	Meas. No.
Body													
QPSK	Front Side	0	23230	782	1	MID	-0.09	0.966	22.68	23.00	1.076	**1.039**	10#
		0	23230	782	25	MID	0.02	0.750	21.67	22.00	1.079	0.809	/
		0	23230	782	50	LOW	0.05	0.741	21.57	22.00	1.104	0.818	/
	Back Side	0	23230	782	1	MID	-0.03	0.901	22.68	23.00	1.076	0.969	/
		0	23230	782	25	MID	0.11	0.680	21.67	22.00	1.079	0.734	/
		0	23230	782	50	LOW	0.08	0.702	21.57	22.00	1.104	0.775	/
	Left Side	0	23230	782	1	MID	-0.05	0.603	22.68	23.00	1.076	0.649	/
		0	23230	782	25	MID	-0.02	0.389	21.67	22.00	1.079	0.420	/
	Right Side	0	23230	782	1	MID	0.06	0.529	22.68	23.00	1.076	0.569	/
		0	23230	782	25	MID	0.09	0.340	21.67	22.00	1.079	0.367	/
	Top Side	0	23230	782	1	MID	-0.11	0.110	22.68	23.00	1.076	0.118	/
		0	23230	782	25	MID	-0.03	0.092	21.67	22.00	1.079	0.099	/
Body-Repeat SAR													
QPSK	Front Side	0	23230	782	1	MID	0.05	0.953	22.68	23.00	1.076	1.025	/
	Back Side	0	23230	782	1	MID	0.12	0.891	22.68	23.00	1.076	0.959	/
Note: Refer to ANNEX C for the detailed test data for each test configuration.													

10.11 LTE Band 71 (20MHz Bandwidth)

Mode	Position	Dist. (mm)	Ch.	Freq. (MHz)	RB Num.	RB Start	Power Drift (%)	1 g Meas SAR (W/kg)	Meas. Power (dBm)	Max. tune-up power (dBm)	Scaling Factor	1g Scaled SAR (W/kg)	Meas. No.
Body													
QPSK	Front Side	0	133222	673	1	MID	-0.04	0.761	23.23	23.50	1.064	**0.810**	11#
		0	133222	673	50	MID	0.03	0.686	22.02	22.50	1.117	0.766	/
	Back Side	0	133222	673	1	MID	0.07	0.743	23.23	23.50	1.064	0.791	/
		0	133222	673	50	MID	-0.05	0.639	22.02	22.50	1.117	0.714	/
	Left Side	0	133222	673	1	MID	-0.11	0.401	23.23	23.50	1.064	0.427	/
		0	133222	673	50	MID	0.15	0.328	22.02	22.50	1.117	0.366	/
	Right Side	0	133222	673	1	MID	0.09	0.317	23.23	23.50	1.064	0.337	/
		0	133222	673	50	MID	0.03	0.301	22.02	22.50	1.117	0.336	/
	Top Side	0	133222	673	1	MID	-0.02	0.093	23.23	23.50	1.064	0.099	/
		0	133222	673	50	MID	0.07	0.025	22.02	22.50	1.117	0.028	/
	Front Side	0	133322	683	1	MID	0.06	0.711	23.18	23.50	1.076	0.765	/
		0	133372	688	1	HIGH	0.09	0.692	22.83	23.50	1.167	0.808	/
		0	133372	688	100	LOW	-0.03	0.711	21.95	22.50	1.135	0.807	/
Body-Repeat SAR													
QPSK	Front Side	0	133222	673	1	MID	0.13	0.749	23.23	23.50	1.064	0.797	/
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)	Highest Measured SAR (W/kg)	Largest to Smallest SAR Radio
1852.4	WCDMA B2	Body	Back Side	0.972	Yes	0.929	1.05
1752.6	WCDMA B4	Body	Back Side	1.078	Yes	1.059	1.02
836.4	WCDMA B5	Body	Front Side	1.057	Yes	1.043	1.01
836.4	WCDMA B5	Body	Back Side	1.098	Yes	1.080	1.02
1900	LTE Band 2	Body	Back Side	1.171	Yes	1.105	1.06
1745	LTE Band 4	Body	Back Side	1.075	Yes	1.049	1.02
829	LTE Band 5	Body	Back Side	1.112	Yes	1.085	1.02
704	LTE Band 12	Body	Front Side	1.127	Yes	1.105	1.02
707.5	LTE Band 12	Body	Back Side	1.005	Yes	0.993	1.01
782	LTE Band 13	Body	Front Side	1.039	Yes	1.025	1.01
782	LTE Band 13	Body	Back Side	0.969	Yes	0.959	1.01
711	LTE Band 17	Body	Front Side	0.919	Yes	0.907	1.01
710	LTE Band 17	Body	Back Side	0.984	Yes	0.978	1.01

1745	LTE Band 66	Body	Back Side	1.147	Yes	1.061	1.08
673	LTE Band 71	Body	Front Side	0.810	Yes	0.797	1.02
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

Note: The product has only one antenna for WCDMA and LTE, so simultaneous transmission evaluation is not required in this report.

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
E-Field Probe	Speag	EX3DV4	SN: 7607	2022/07/04	2023/07/03
Data Acquisition Electronicsr	Speag	DAE4	SN: 878	2022/06/13	2023/06/12
750MHz Validation Dipole	Speag	D750V3	SN: 1201	2020/11/11	2023/11/10
E-Field Probe	Speag	EX3DV4	SN: 7510	2023/01/19	2024/01/18
Data Acquisition Electronicsr	Speag	DAE4	SN: 1454	2023/03/20	2024/03/19
Signal Generator	R&S	SMB100A	177746	2022/05/19	2023/05/18
Signal Generator	R&S	SMB100A	177746	2023/05/10	2024/05/09
Power Meter	R&S	NRVD-B2	835843/014	2022/09/06	2023/09/05
Power Sensor	R&S	NRV-Z4	100381	2022/09/06	2023/09/05
Power Sensor	R&S	NRV-Z2	100211	2022/09/06	2023/09/05
Power Meter	R&S	NRVD-B2	835843/014	2023/09/05	2024/09/04
Power Sensor	R&S	NRV-Z4	100381	2023/09/05	2024/09/04
Power Sensor	R&S	NRV-Z2	100211	2023/09/05	2024/09/04
Wireless Communication Test Set	Anritsu	MT8820C	6201502974	2022/12/28	2023/12/27
Network Analyzer	Agilent	E5071C	MY46103472	2022/12/06	2023/12/05
Thermometer	Elitech	RC-4HC	EF720B004811	2022/11/25	2023/11/24
Thermometer	Elitech	RC-4HC	EF720B004817	2022/11/18	2023/11/17
Power Amplifier	SATIMO	6552B	22374	N/A	N/A
Dielectric Probe Kit	Speag	DAK3.5	SN: 1312	N/A	N/A
Phantom	Speag	ELI4	SN: 1012	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 a DAK3.5 Dielectric Probe Kit.

Head Liquid

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 (%)
2023.02.10	Head	750	21.4	0.91	41.90	0.89	41.94	2.25	-0.10
2023.02.11	Head	835	21.3	0.90	41.67	0.90	41.50	0.00	0.41
2023.02.12	Head	1750	21.1	1.39	40.21	1.37	40.08	1.46	0.32
2023.02.13	Head	1900	21.7	1.40	39.74	1.40	40.00	0.00	-0.65
2023.09.05	Head	750	21.4	0.90	41.57	0.89	41.94	1.12	-0.88
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).

Head liquid 1g

Date	Liquid Type	Freq. (MHz)	Power (mW)	Measured SAR (W/kg)	Normalized SAR (W/kg)	Dipole SAR (W/kg)	Tolerance (%)
2023.02.10	Head	750	100	0.833	8.33	8.29	0.48
2023.02.11	Head	835	100	0.941	9.41	9.76	-3.59
2023.02.12	Head	1750	100	3.620	36.20	36.7	-1.36
2023.02.13	Head	1900	100	3.970	39.70	40.3	-1.49
2023.09.05	Head	750	100	0.865	8.65	8.29	4.34
Note: The tolerance limit of System validation ±10%.							

System Performance Check Data (750MHz)

Date: 2023.02.10

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

Medium parameters used: f = 750 MHz; σ = 0.905 S/m; εr = 41.898; ρ = 1000 kg/m3

Phantom section: Flat Section

Ambient Temperature:22.3℃ Liquid Temperature:21.4℃

DASY5 Configuration:

- Probe: EX3DV4 - SN7607; ConvF(10.96, 10.96, 10.96); Calibrated: 2022.07.04;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn878; Calibrated: 2022.06.13
- Phantom: ELI v4.0 (30deg probe tilt); Type: QDOVA001BB; Serial: TP:1012
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

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

Maximum value of SAR (interpolated) = 0.884 W/kg

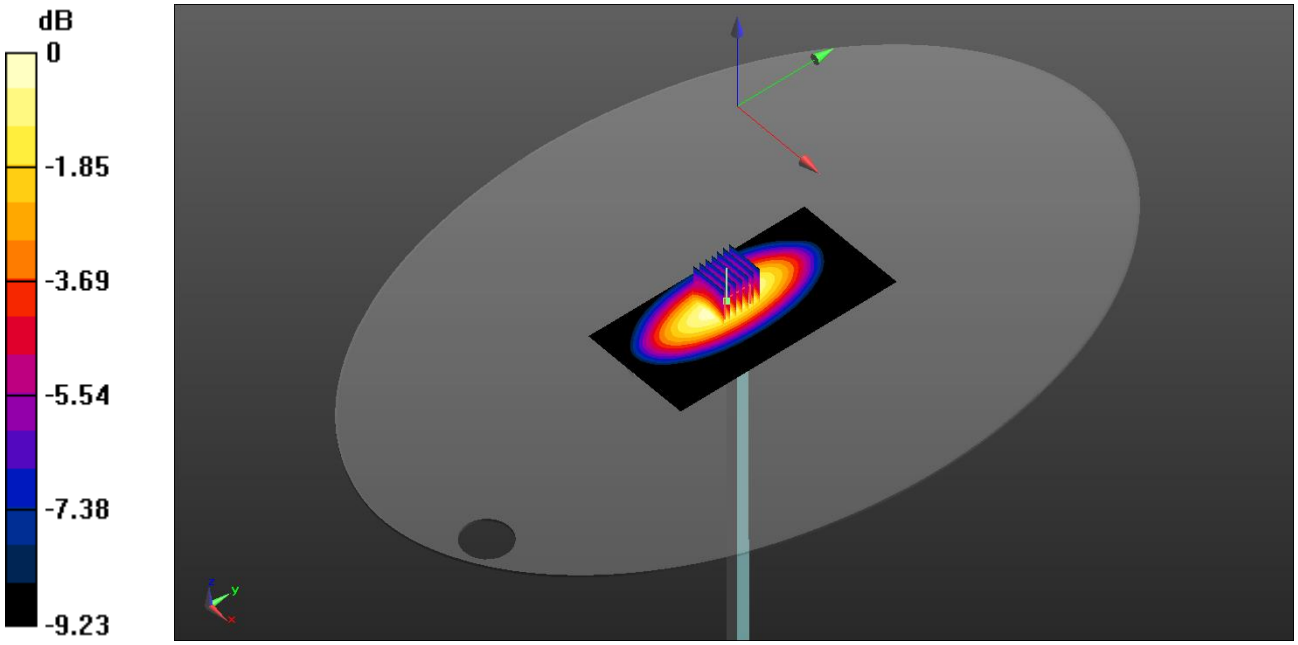
CW 750/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 30.08 V/m; Power Drift = 0.12 dB

Peak SAR (extrapolated) = 1.35 W/kg

SAR(1 g) = 0.833 W/kg; SAR(10 g) = 0.542 W/kg

Maximum value of SAR (measured) = 0.881 W/kg



0 dB = 0.881 W/kg

System Performance Check Data (835MHz)

Date: 2023.02.11

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

Medium parameters used: f = 835 MHz; σ = 0.902 S/m; εr = 41.666; ρ = 1000 kg/m3

Phantom section: Flat Section

Ambient Temperature:22.8℃ Liquid Temperature:21.3℃

DASY5 Configuration:

- Probe: EX3DV4 - SN7607; ConvF(10.44, 10.44, 10.44); Calibrated: 2022.07.04;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn878; Calibrated: 2022.06.13
- Phantom: ELI v4.0 (30deg probe tilt); Type: QDOVA001BB; Serial: TP:1012
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

CW 835/Area Scan (61x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.974 W/kg

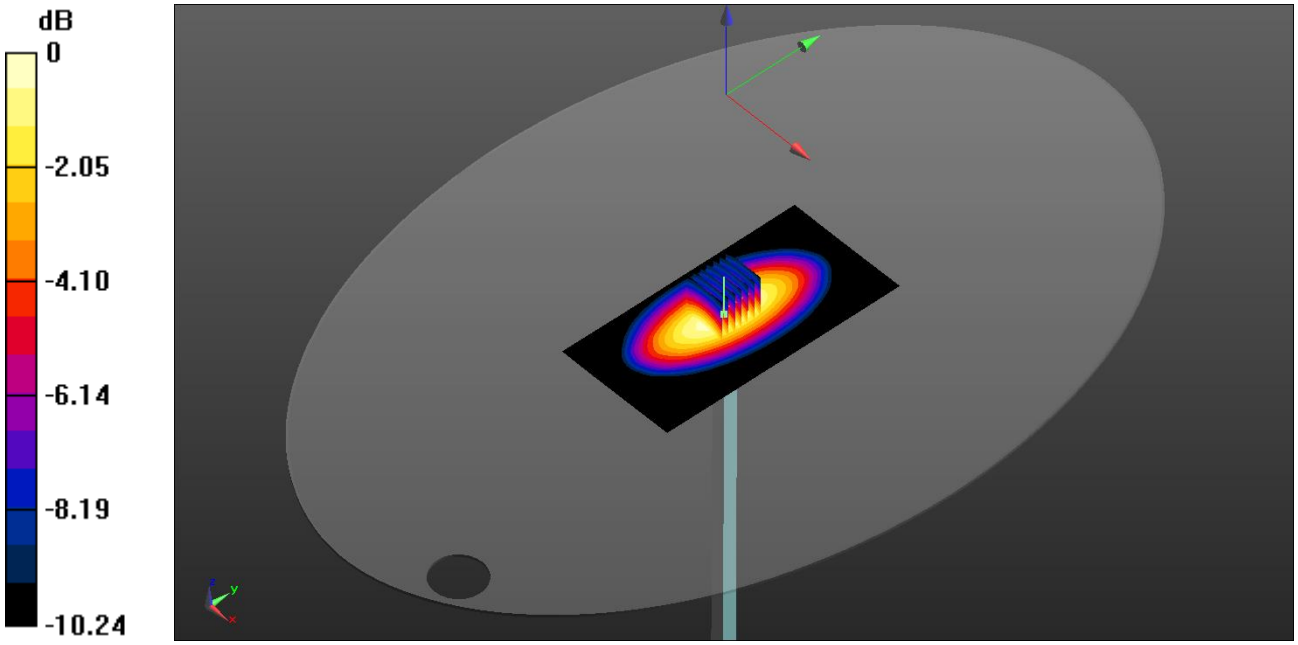
CW 835/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 32.55 V/m; Power Drift = -0.06 dB

Peak SAR (extrapolated) = 1.33 W/kg

SAR(1 g) = 0.941 W/kg; SAR(10 g) = 0.621 W/kg

Maximum value of SAR (measured) = 0.996 W/kg



0 dB = 0.996 W/kg

System Performance Check Data (1750MHz)

Date: 2023.02.12

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

Medium parameters used (interpolated): f = 1750 MHz; σ = 1.389 S/m; ε_r = 40.208; ρ = 1000 kg/m^3

Phantom section: Flat Section

Ambient Temperature:22.6℃ Liquid Temperature:21.1℃

DASY5 Configuration:

- Probe: EX3DV4 - SN7607; ConvF(8.69, 8.69, 8.69); Calibrated: 2022.07.04;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn878; Calibrated: 2022.06.13
- Phantom: ELI v4.0 (30deg probe tilt); Type: QDOVA001BB; Serial: TP:1012
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

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

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

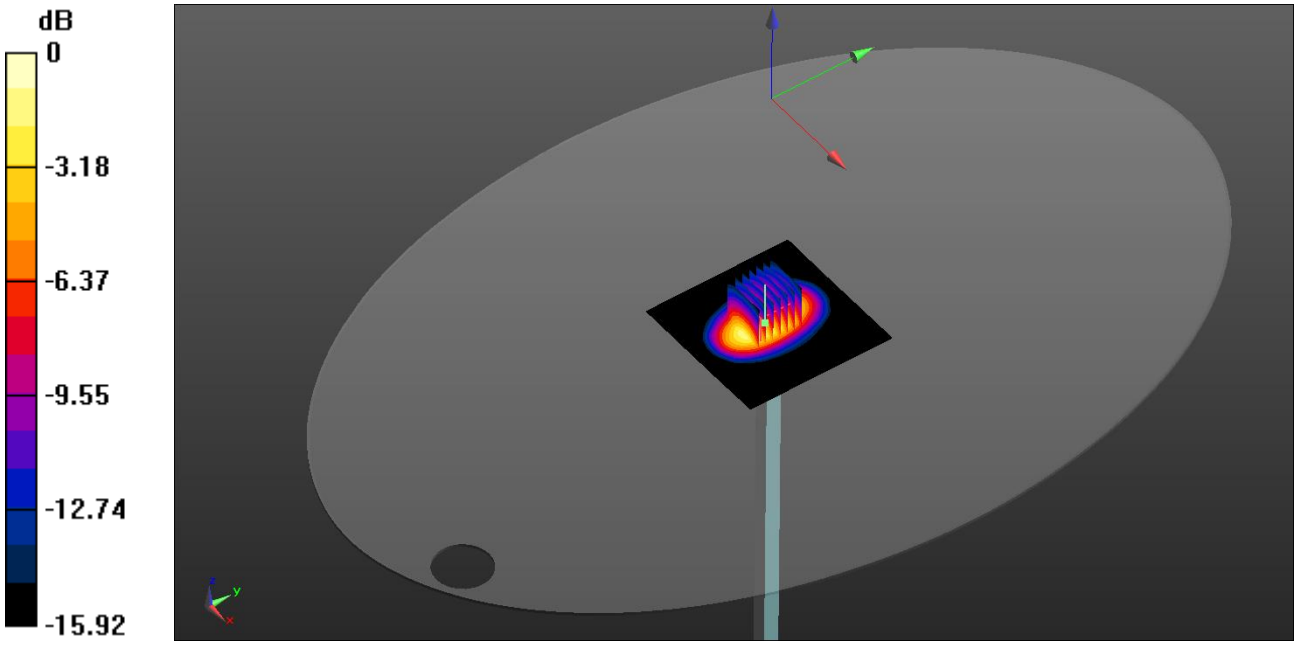
CW 1750/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 51.58 V/m; Power Drift = 0.17 dB

Peak SAR (extrapolated) = 6.35 W/kg

SAR(1 g) = 3.62 W/kg; SAR(10 g) = 1.92 W/kg

Maximum value of SAR (measured) = 4.05 W/kg



0 dB = 4.05 W/kg

System Performance Check Data (1900MHz)

Date: 2023.02.13

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

Medium parameters used: f = 1900 MHz; σ = 1.4 S/m; ε_r = 39.737; ρ = 1000 kg/m^3

Phantom section: Flat Section

Ambient Temperature:22.5℃ Liquid Temperature:21.7℃

DASY5 Configuration:

- Probe: EX3DV4 - SN7607; ConvF(8.4, 8.4, 8.4); Calibrated: 2022.07.04;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn878; Calibrated: 2022.06.13
- Phantom: ELI v4.0 (30deg probe tilt); Type: QDOVA001BB; Serial: TP:1012
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

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

Maximum value of SAR (interpolated) = 4.46 W/kg

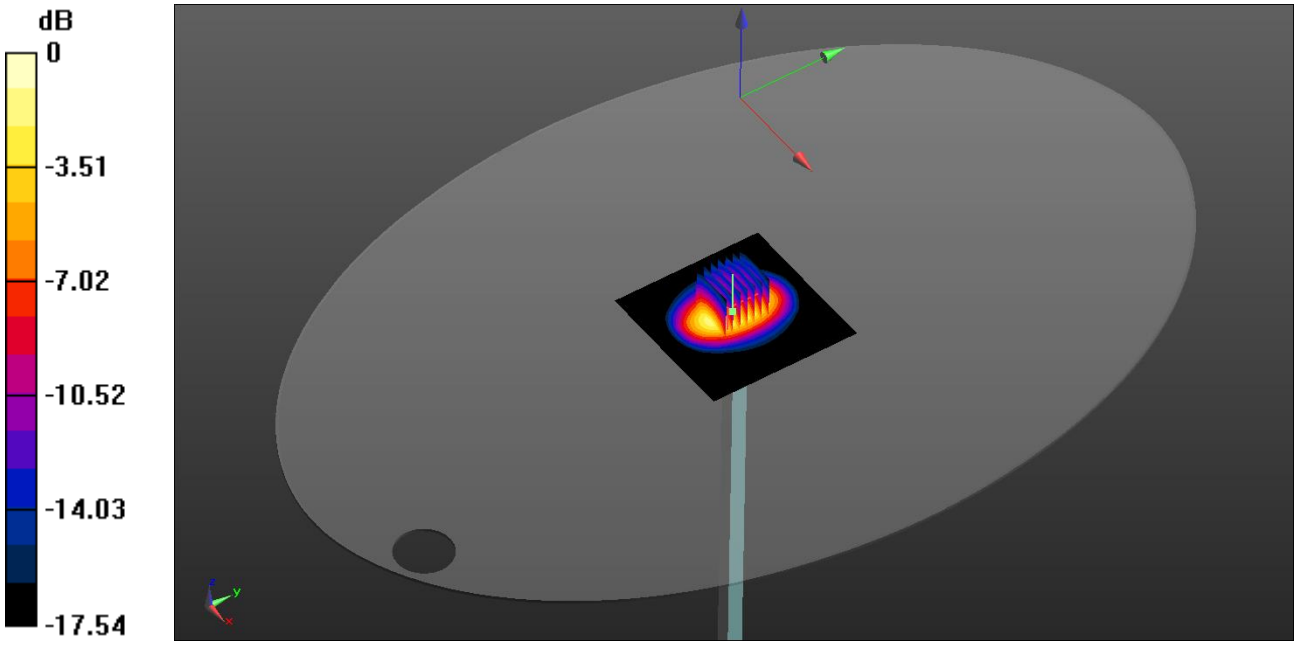
CW 1900/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 51.54 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 7.37 W/kg

SAR(1 g) = 3.97 W/kg; SAR(10 g) = 2.05 W/kg

Maximum value of SAR (measured) = 4.47 W/kg



0 dB = 4.47 W/kg

System Performance Check Data (750MHz)

Date: 2023.09.05

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

Medium parameters used: f = 750 MHz; σ = 0.901 S/m; ε_r = 41.572; ρ = 1000 kg/m^3

Phantom section: Flat Section

Ambient Temperature:22.6℃ Liquid Temperature:21.4℃

DASY5 Configuration:

- Probe: EX3DV4 - SN7510; ConvF(10.4, 10.4, 10.4); Calibrated: 2023.01.19;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1454; Calibrated: 2023.03.20
- Phantom: ELI v4.0 (30deg probe tilt); Type: QDOVA001BB; Serial: TP:1012
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

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

Maximum value of SAR (interpolated) = 0.803 W/kg

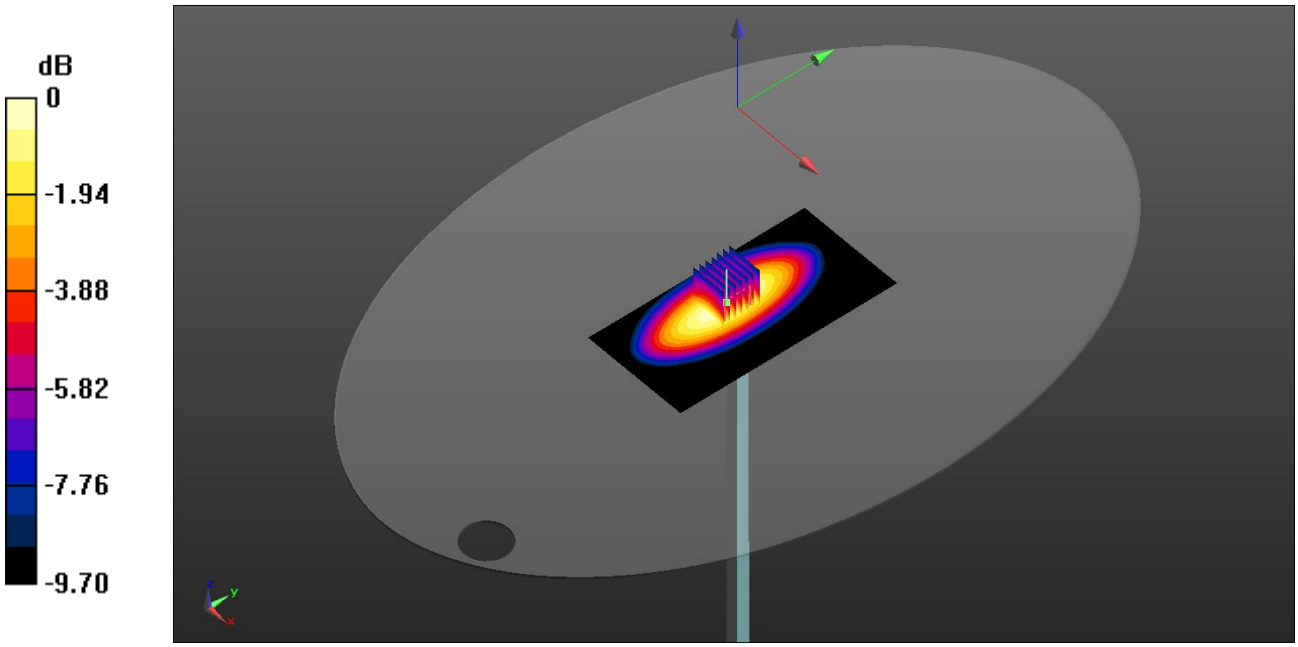
CW 750/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 28.05 V/m; Power Drift = 0.12 dB

Peak SAR (extrapolated) = 1.11 W/kg

SAR(1 g) = 0.865 W/kg; SAR(10 g) = 0.553 W/kg

Maximum value of SAR (measured) = 0.832 W/kg



0 dB = 0.832 W/kg

ANNEX C TEST DATA

Meas.1 Body Plane with Back Side 0mm on Low Channel in WCDMA Band2 mode

Date: 2023.02.13

Communication System Band: Band 2; Frequency: 1852.4 MHz;Duty Cycle: 1:1

Medium parameters used (interpolated): f = 1852.4 MHz; σ = 1.375 S/m; ε_r = 40.37; ρ = 1000 kg/m^3

Phantom section: Flat Section

Ambient Temperature:22.5℃ Liquid Temperature:21.7℃

DASY5 Configuration:

- Probe: EX3DV4 - SN7607; ConvF(8.4, 8.4, 8.4); Calibrated: 2022.07.04;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn878; Calibrated: 2022.06.13
- Phantom: ELI v4.0 (30deg probe tilt); Type: QDOVA001BB; Serial: TP:1012
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Ch9262/Area Scan (61x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 1.02 W/kg

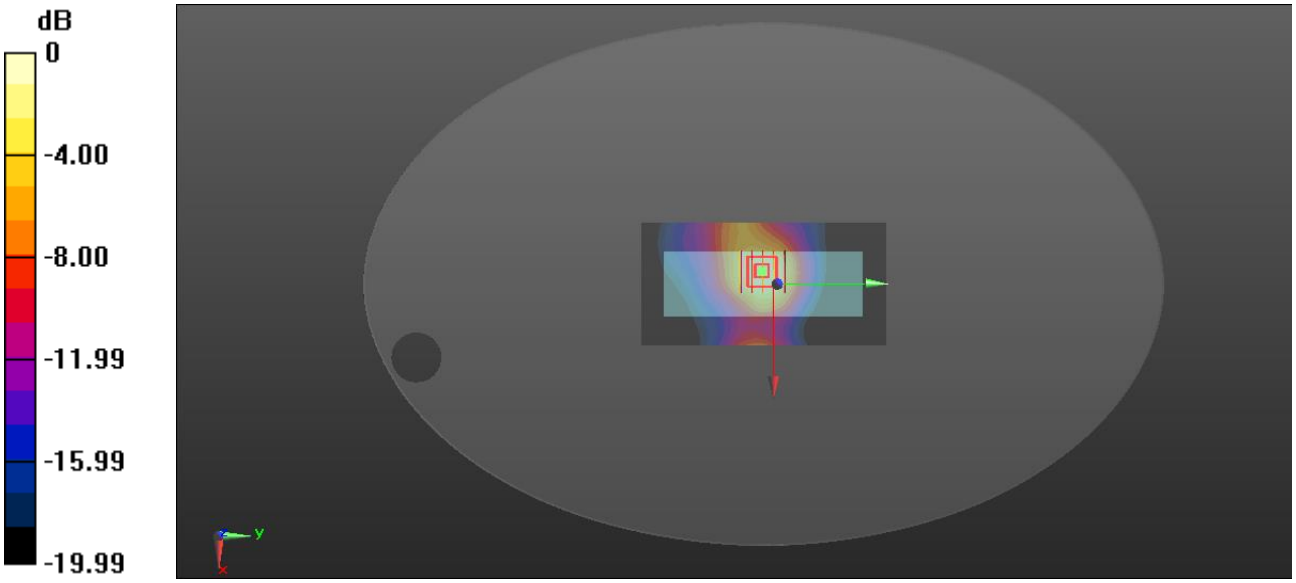
Ch9262/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 23.61 V/m; Power Drift = 0.05 dB

Peak SAR (extrapolated) = 1.38 W/kg

SAR(1 g) = 0.859 W/kg; SAR(10 g) = 0.490 W/kg

Maximum value of SAR (measured) = 0.943 W/kg



0 dB = 0.943 W/kg

Meas.2 Body Plane with Back Side 0mm on High Channel in WCDMA Band4 mode

Date: 2023.02.12

Communication System Band: Band 4; Frequency: 1752.6 MHz;Duty Cycle: 1:1

Medium parameters used (interpolated): f = 1752.6 MHz; σ = 1.392 S/m; ε_r = 40.167; ρ = 1000 kg/m^3

Phantom section: Flat Section

Ambient Temperature:22.6℃ Liquid Temperature:21.1℃

DASY5 Configuration:

- Probe: EX3DV4 - SN7607; ConvF(8.69, 8.69, 8.69); Calibrated: 2022.07.04;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn878; Calibrated: 2022.06.13
- Phantom: ELI v4.0 (30deg probe tilt); Type: QDOVA001BB; Serial: TP:1012
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Ch1513/Area Scan (61x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

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

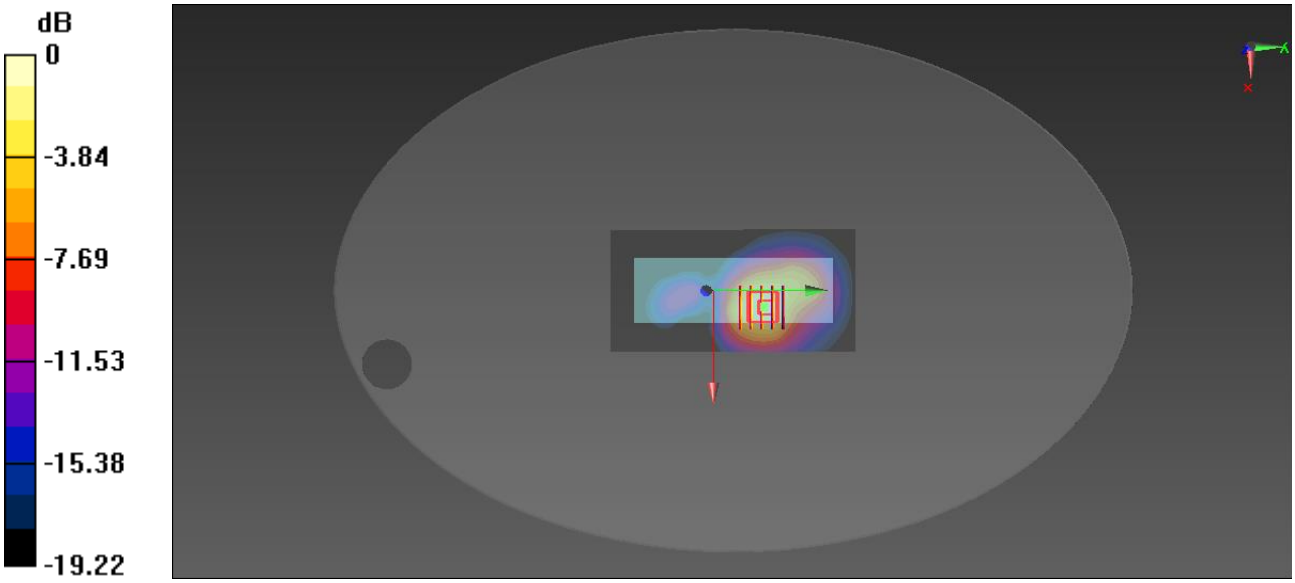
Ch1513/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 11.38 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 1.49 W/kg

SAR(1 g) = 0.903 W/kg; SAR(10 g) = 0.509 W/kg

Maximum value of SAR (measured) = 0.987 W/kg



0 dB = 0.987 W/kg

Meas.3 Body Plane with Back Side 0mm on Middle Channel in WCDMA Band5 mode

Date: 2023.02.11

Communication System Band: Band 5; Frequency: 836.4 MHz;Duty Cycle: 1:1

Medium parameters used (interpolated): f = 836.4 MHz; σ = 0.904 S/m; ε_r = 41.626; ρ = 1000 kg/m^3

Phantom section: Flat Section

Ambient Temperature:22.8℃ Liquid Temperature:21.3℃

DASY5 Configuration:

- Probe: EX3DV4 - SN7607; ConvF(10.44, 10.44, 10.44); Calibrated: 2022.07.04;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn878; Calibrated: 2022.06.13
- Phantom: ELI v4.0 (30deg probe tilt); Type: QDOVA001BB; Serial: TP:1012
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Ch4182/Area Scan (61x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.988 W/kg

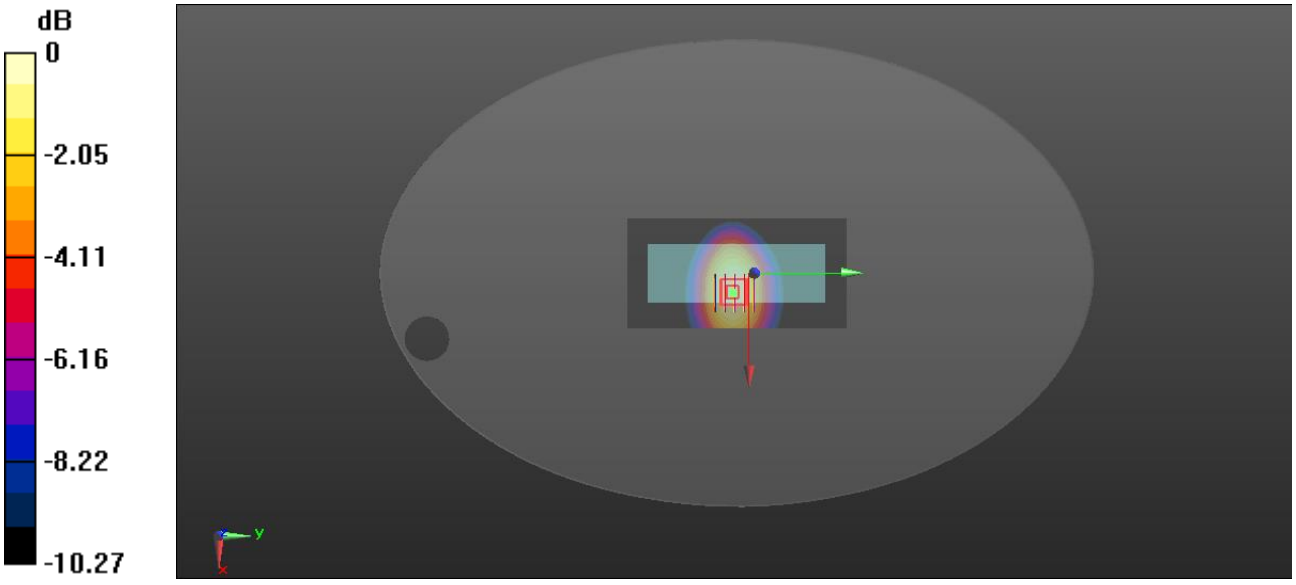
Ch4182/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 30.12 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 1.34 W/kg

SAR(1 g) = 0.963 W/kg; SAR(10 g) = 0.657 W/kg

Maximum value of SAR (measured) = 1.03 W/kg



0 dB = 1.03 W/kg

Meas.4 Body Plane with Back Side 0mm on High Channel in LTE Band2 mode

Date: 2023.02.13

Communication System Band: Band 2; Frequency: 1900 MHz;Duty Cycle: 1:1

Medium parameters used: f = 1900 MHz; σ = 1.4 S/m; ε_r = 39.737; ρ = 1000 kg/m^3

Phantom section: Flat Section

Ambient Temperature:22.5℃ Liquid Temperature:21.7℃

DASY5 Configuration:

- Probe: EX3DV4 - SN7607; ConvF(8.4, 8.4, 8.4); Calibrated: 2022.07.04;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn878; Calibrated: 2022.06.13
- Phantom: ELI v4.0 (30deg probe tilt); Type: QDOVA001BB; Serial: TP:1012
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Ch19100/Area Scan (61x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 1.18 W/kg

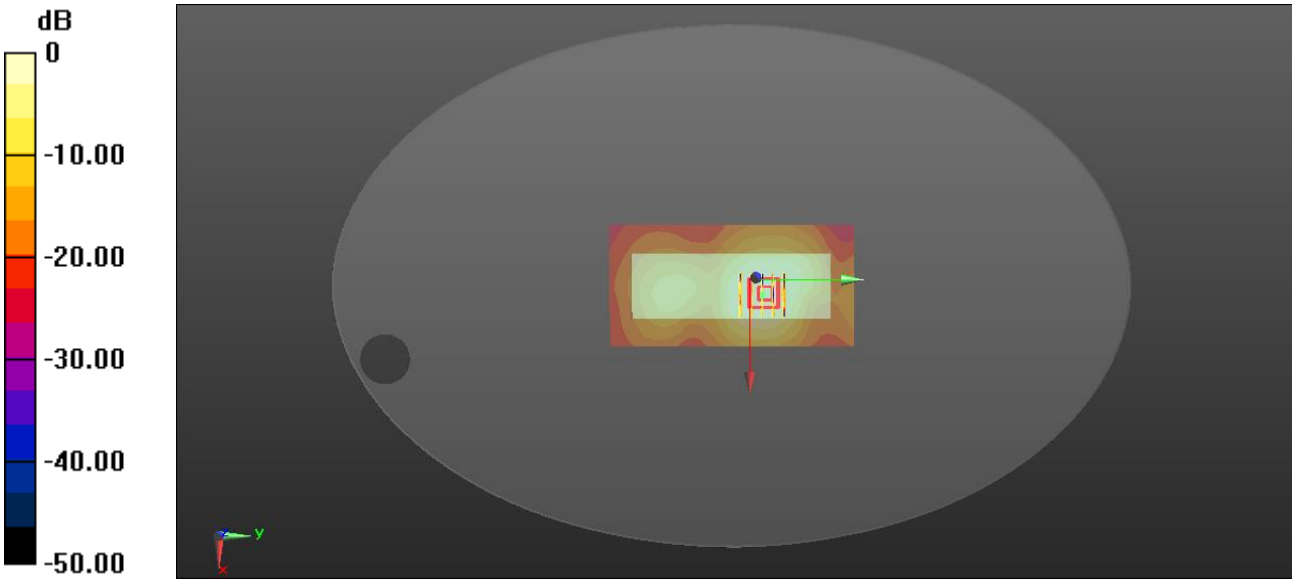
Ch19100/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 12.67 V/m; Power Drift = 0.13 dB

Peak SAR (extrapolated) = 2.05 W/kg

SAR(1 g) = 1.07 W/kg; SAR(10 g) = 0.565 W/kg

Maximum value of SAR (measured) = 1.17 W/kg



0 dB = 1.17 W/kg

Meas.5 Body Plane with Back Side 0mm on High Channel in LTE Band4 mode

Date: 2023.02.12

Communication System Band: Band 4; Frequency: 1745 MHz;Duty Cycle: 1:1

Medium parameters used (interpolated): f = 1745 MHz; σ = 1.382 S/m; ε_r = 40.302; ρ = 1000 kg/m^3

Phantom section: Flat Section

Ambient Temperature:22.6℃ Liquid Temperature:21.1℃

DASY5 Configuration:

- Probe: EX3DV4 - SN7607; ConvF(8.69, 8.69, 8.69); Calibrated: 2022.07.04;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn878; Calibrated: 2022.06.13
- Phantom: ELI v4.0 (30deg probe tilt); Type: QDOVA001BB; Serial: TP:1012
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Ch20300/Area Scan (61x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 1.03 W/kg

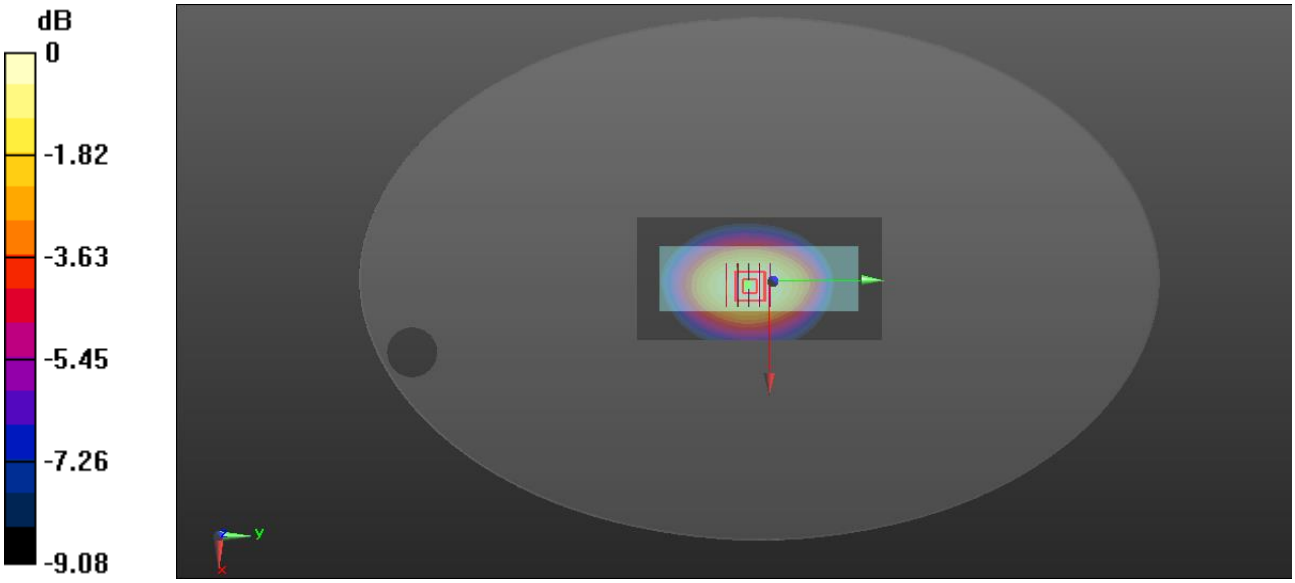
Ch20300/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 27.10 V/m; Power Drift = -0.15 dB

Peak SAR (extrapolated) = 1.31 W/kg

SAR(1 g) = 0.967 W/kg; SAR(10 g) = 0.689 W/kg

Maximum value of SAR (measured) = 1.03 W/kg



0 dB = 1.03 W/kg

Meas.6 Body Plane with Front Side 0mm on Low Channel in LTE Band5 mode

Date: 2023.02.11

Communication System Band: Band 5; Frequency: 829 MHz;Duty Cycle: 1:1

Medium parameters used (interpolated): f = 829 MHz; σ = 0.898 S/m; ε_r = 41.824; ρ = 1000 kg/m^3

Phantom section: Flat Section

Ambient Temperature:22.8℃ Liquid Temperature:21.3℃

DASY5 Configuration:

- Probe: EX3DV4 - SN7607; ConvF(10.44, 10.44, 10.44); Calibrated: 2022.07.04;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn878; Calibrated: 2022.06.13
- Phantom: ELI v4.0 (30deg probe tilt); Type: QDOVA001BB; Serial: TP:1012
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Ch20450/Area Scan (61x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 1.02 W/kg

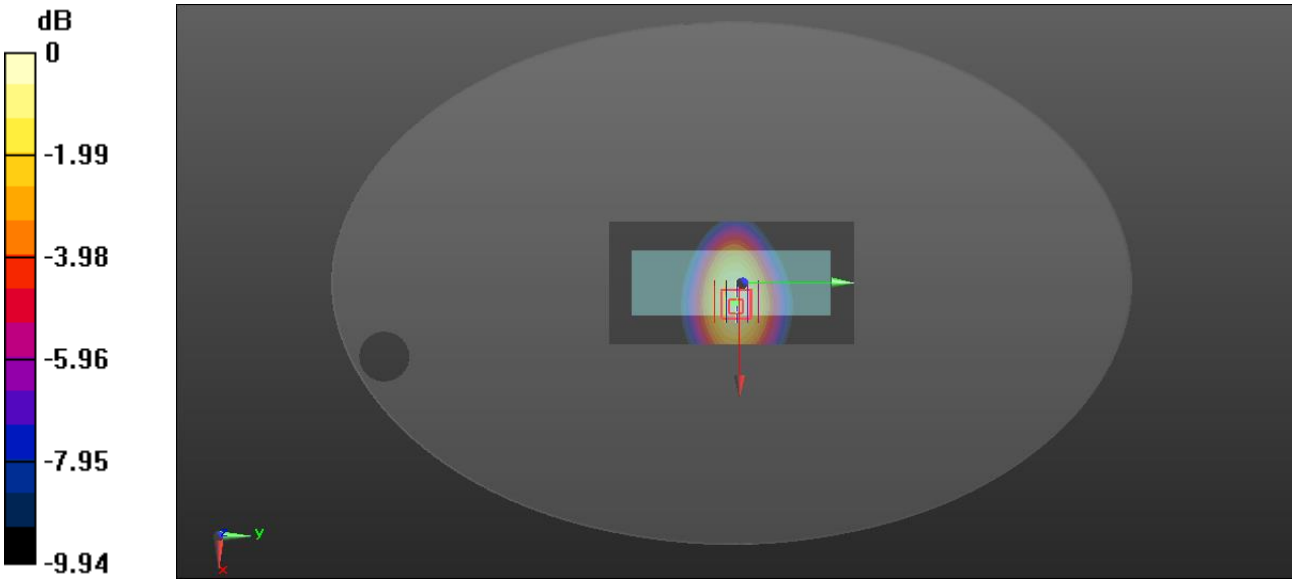
Ch20450/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 30.18 V/m; Power Drift = 0.15 dB

Peak SAR (extrapolated) = 1.31 W/kg

SAR(1 g) = 0.946 W/kg; SAR(10 g) = 0.655 W/kg

Maximum value of SAR (measured) = 1.01 W/kg



0 dB = 1.01 W/kg

Meas.7 Body Plane with Front Side 0mm on Low Channel in LTE Band12 mode

Date: 2023.02.10

Communication System Band: Band 12; Frequency: 704 MHz;Duty Cycle: 1:1

Medium parameters used (interpolated): f = 704 MHz; σ = 0.878 S/m; ε_r = 42.42; ρ = 1000 kg/m^3

Phantom section: Flat Section

Ambient Temperature:22.3℃ Liquid Temperature:21.4℃

DASY5 Configuration:

- Probe: EX3DV4 - SN7607; ConvF(10.96, 10.96, 10.96); Calibrated: 2022.07.04;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn878; Calibrated: 2022.06.13
- Phantom: ELI v4.0 (30deg probe tilt); Type: QDOVA001BB; Serial: TP:1012
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Ch23060/Area Scan (61x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 1.07 W/kg

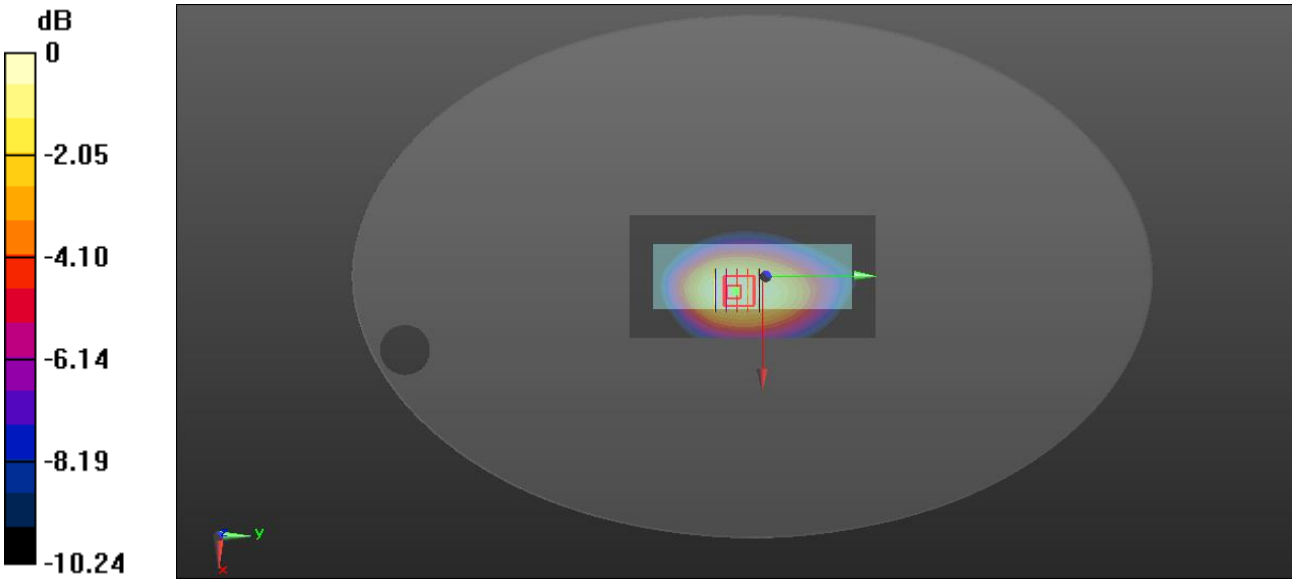
Ch23060/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

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

Peak SAR (extrapolated) = 1.39 W/kg

SAR(1 g) = 0.996 W/kg; SAR(10 g) = 0.691 W/kg

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



0 dB = 1.06 W/kg

Meas.8 Body Plane with Back Side 0mm on Middle Channel in LTE Band17 mode

Date: 2023.02.10

Communication System Band: Band 17; Frequency: 710 MHz;Duty Cycle: 1:1

Medium parameters used (interpolated): f = 710 MHz; σ = 0.896 S/m; ε_r = 42.156; ρ = 1000 kg/m^3

Phantom section: Flat Section

Ambient Temperature:22.3℃ Liquid Temperature:21.4℃

DASY5 Configuration:

- Probe: EX3DV4 - SN7607; ConvF(10.96, 10.96, 10.96); Calibrated: 2022.07.04;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn878; Calibrated: 2022.06.13
- Phantom: ELI v4.0 (30deg probe tilt); Type: QDOVA001BB; Serial: TP:1012
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Ch23790/Area Scan (61x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 1.02 W/kg

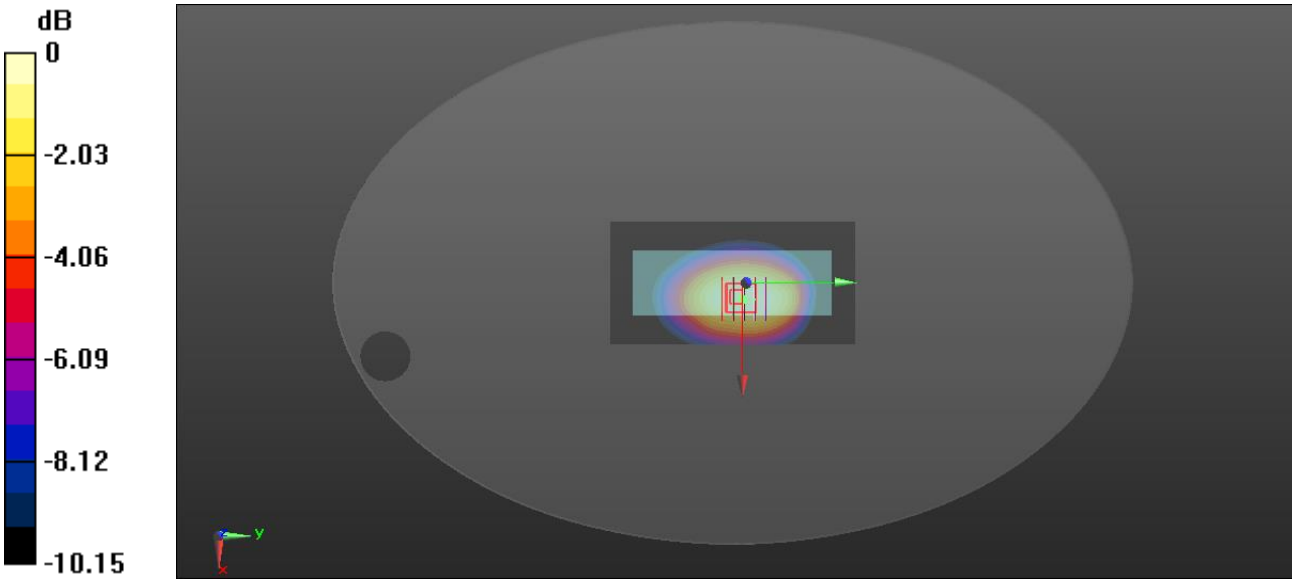
Ch23790/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 30.80 V/m; Power Drift = -0.11 dB

Peak SAR (extrapolated) = 1.25 W/kg

SAR(1 g) = 0.906 W/kg; SAR(10 g) = 0.640 W/kg

Maximum value of SAR (measured) = 0.960 W/kg



0 dB = 0.960 W/kg

Meas.9 Body Plane with Back Side 0mm on Middle Channel in LTE Band66 mode

Date: 2023.02.12

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

Medium parameters used (interpolated): f = 1745 MHz; σ = 1.382 S/m; ε_r = 40.302; ρ = 1000 kg/m^3

Phantom section: Flat Section

Ambient Temperature:22.6℃ Liquid Temperature:21.1℃

DASY5 Configuration:

- Probe: EX3DV4 - SN7607; ConvF(8.69, 8.69, 8.69); Calibrated: 2022.07.04;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn878; Calibrated: 2022.06.13
- Phantom: ELI v4.0 (30deg probe tilt); Type: QDOVA001BB; Serial: TP:1012
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Ch132322/Area Scan (61x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 1.21 W/kg

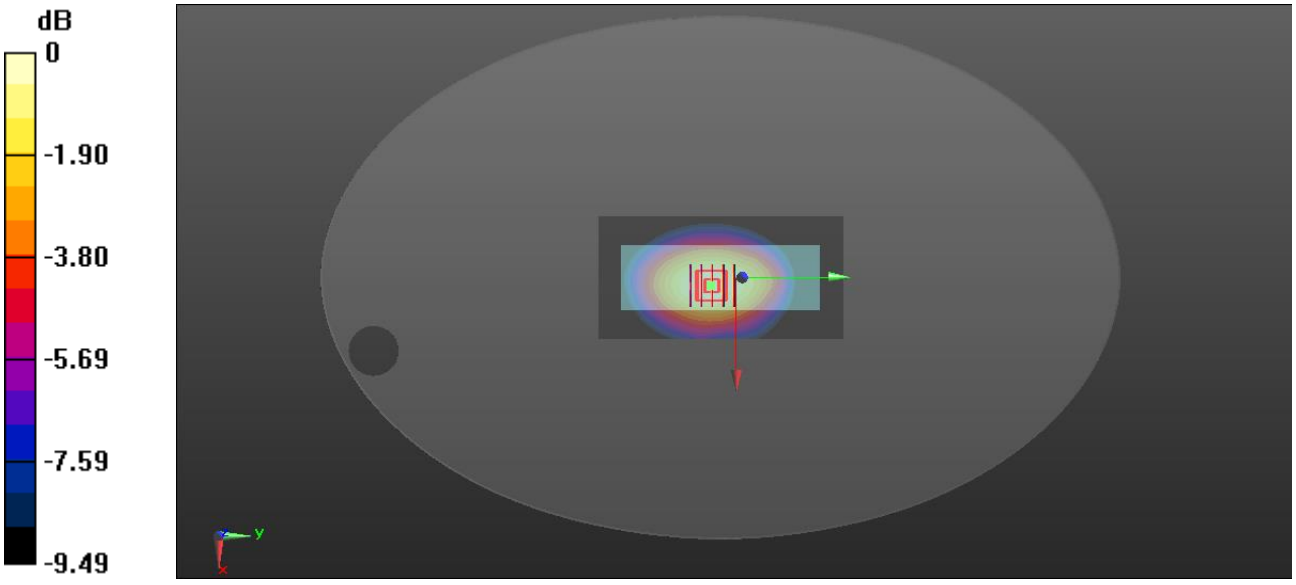
Ch132322/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 29.92 V/m; Power Drift = -0.08 dB

Peak SAR (extrapolated) = 1.56 W/kg

SAR(1 g) = 1.08 W/kg; SAR(10 g) = 0.807 W/kg

Maximum value of SAR (measured) = 1.18 W/kg



0 dB = 1.18 W/kg

Meas.10 Body Plane with Front Side 0mm on Midlle Channel in LTE Band13 mode

Date: 2023.09.05

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

Medium parameters used (interpolated): f = 782 MHz; σ = 0.911 S/m; ε_r = 42.323; ρ = 1000 kg/m^3

Phantom section: Flat Section

Ambient Temperature:22.6℃ Liquid Temperature:21.4℃

DASY5 Configuration:

- Probe: EX3DV4 - SN7510; ConvF(10.4, 10.4, 10.4); Calibrated: 2023.01.19;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1454; Calibrated: 2023.03.20
- Phantom: ELI v4.0 (30deg probe tilt); Type: QDOVA001BB; Serial: TP:1012
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Ch23230 /Area Scan (61x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 1.04 W/kg

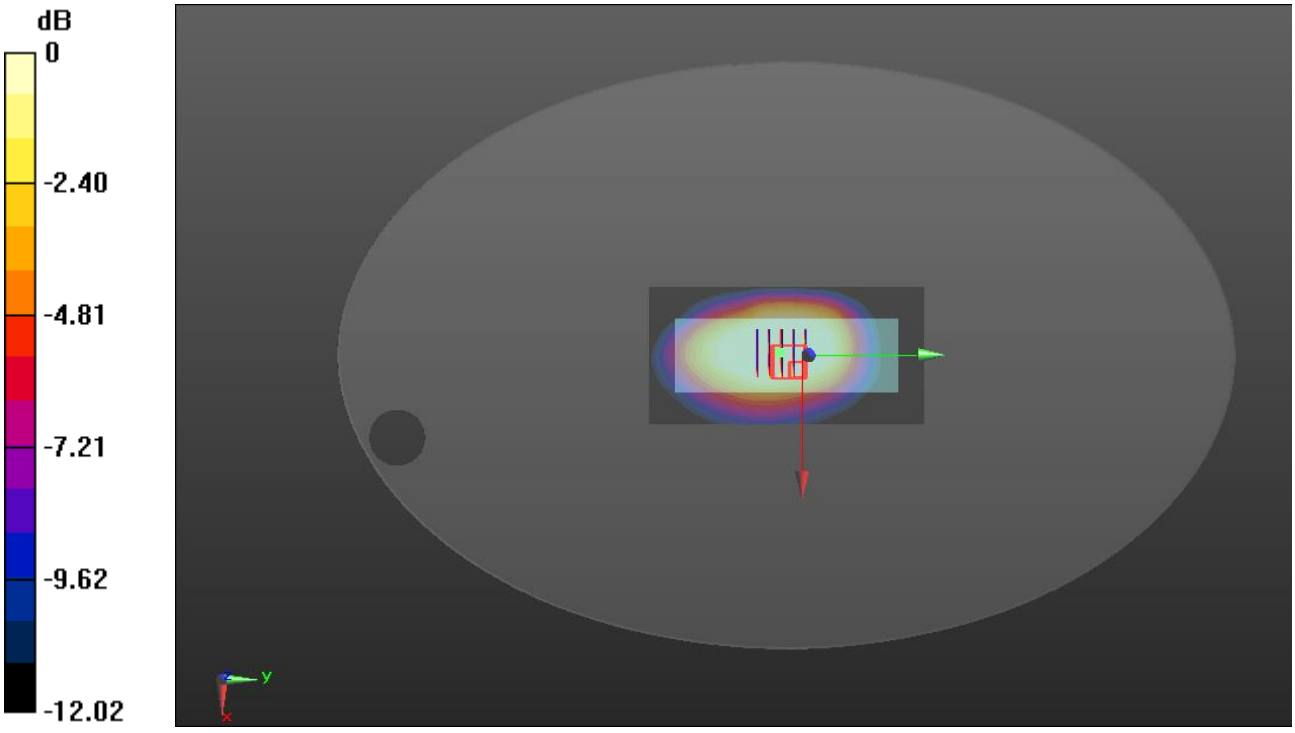
Ch23230 /Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 31.53 V/m; Power Drift = -0.09 dB

Peak SAR (extrapolated) = 0.820 W/kg

SAR(1 g) = 0.966 W/kg; SAR(10 g) = 0.648 W/kg

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



0 dB = 1.06 W/kg

Meas.11 Body Plane with Front Side 0mm on Low Channel in LTE Band71 mode

Date: 2023.09.05

Communication System Band: BAND 71; Frequency: 673 MHz;Duty Cycle: 1:1

Medium parameters used (interpolated): f = 673 MHz; σ = 0.882 S/m; ε_r = 42.196; ρ = 1000 kg/m^3

Phantom section: Flat Section

Ambient Temperature:22.6℃ Liquid Temperature:21.4℃

DASY5 Configuration:

- Probe: EX3DV4 - SN7510; ConvF(10.4, 10.4, 10.4); Calibrated: 2023.01.19;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1454; Calibrated: 2023.03.20
- Phantom: ELI v4.0 (30deg probe tilt); Type: QDOVA001BB; Serial: TP:1012
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Ch133222/Area Scan (61x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.810 W/kg

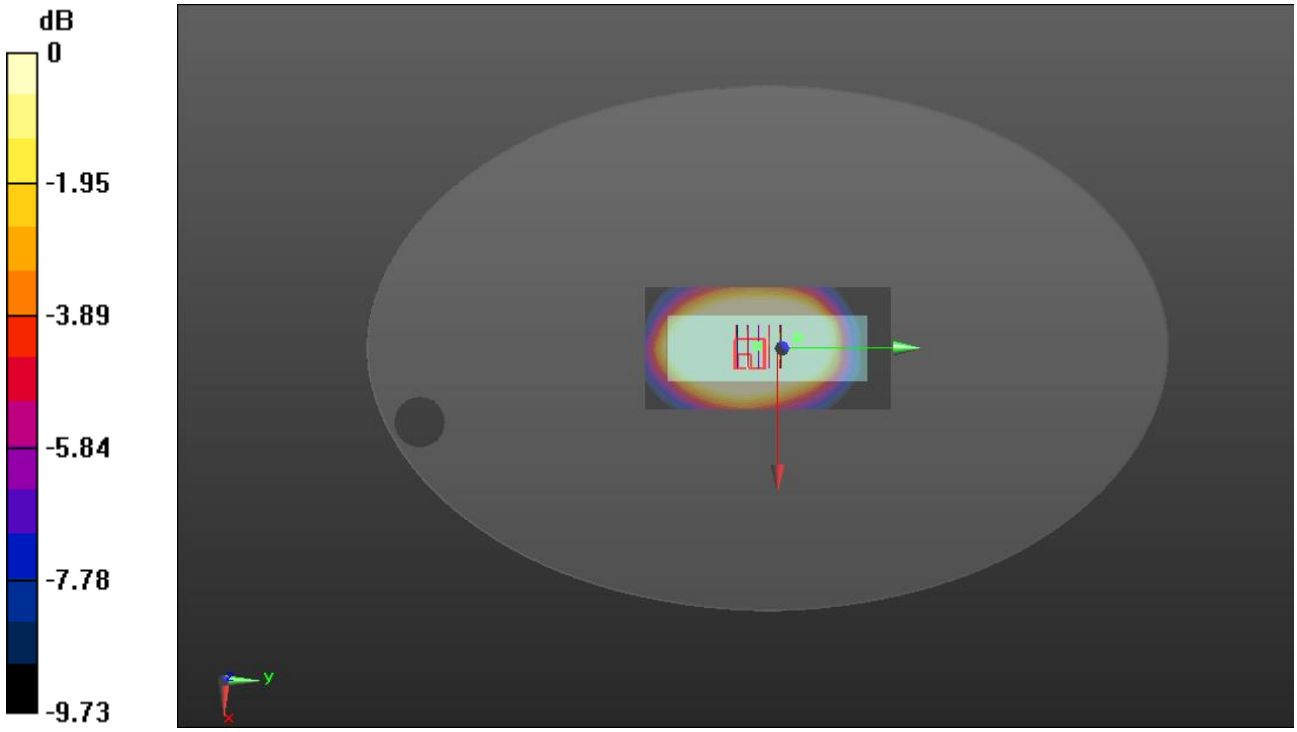
Ch133222/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 29.76 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 0.285 W/kg

SAR(1 g) = 0.761 W/kg; SAR(10 g) = 0.526 W/kg

Maximum value of SAR (measured) = 0.816 W/kg



0 dB = 0.816 W/kg

ANNEX D EUT EXTERNAL PHOTOS

Please refer the document “BL-SZ2380977-AW.pdf”.

ANNEX E SAR TEST SETUP PHOTOS

Please refer the document “BL-SZ2380977-AS.pdf”.

ANNEX F CALIBRATION REPORT

Please refer the document “BL-SZ2380977-AC.pdf”.

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