

TEST REPORT

Applicant: Shanghai Tricheer Technology Co., Ltd.
Address: Rm 907, Building 1, Lane 399, Shengxia Road,
China (shanghai) Pilot Free Trade Zone, Shanghai,
China
Equipment Type: FS045W
Model Name: FS045W
Brand Name: +F
FCC ID: 2ANKMFS045W
Test Standard: FCC 47 CFR Part 2.1093
(refer section 3.1)
Maximum SAR: Hotspot (1 g@10mm): 0.49 W/kg
Specific (10 g@0mm): 0.58 W/kg
Sample Arrival Date: Jan. 10, 2025
Test Date: Feb. 05, 2025 - Feb. 07, 2025
Date of Issue: Mar. 07, 2025

ISSUED BY:

Shenzhen BALUN Technology Co., Ltd.

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(Testing Director)

Revision History

Version	Issue Date	Revisions Content
<u>Rev. 01</u>	<u>Mar. 07, 2025</u>	<u>Initial Issue</u>

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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°C to 25°C
Ambient Relative Humidity	30% to 70%

2 PRODUCT INFORMATION

2.1 Applicant Information

Applicant	Shanghai Tricheer Technology Co., Ltd.
Address	Rm 907, Building 1, Lane 399, Shengxia Road, China (shanghai) Pilot Free Trade Zone, Shanghai, China

2.2 Manufacturer Information

Manufacturer	Shanghai Tricheer Technology Co., Ltd.
Address	Rm 907, Building 1, Lane 399, Shengxia Road, China (shanghai) Pilot Free Trade Zone, Shanghai, China

2.3 General Description for Equipment under Test (EUT)

EUT Name	FS045W
Model Name Under Test	FS045W
Series Model Name	N/A
Description of Model name differentiation	N/A
Hardware Version	A9822M1A
Software Version	LWDJC15.1.0_2M1A
Dimensions (Approx.)	N/A
Weight (Approx.)	N/A

2.4 Ancillary Equipment

Ancillary Equipment 1	Battery	
	Brand Name	+F
	Model No.	BAT01FS045W
	Serial No.	N/A
	Capacity	3030 mAh
	Rated Voltage	3.85 V
	Limit Charge Voltage	4.4 V

2.5 Technical Information

Network and Wireless connectivity	3G Network WCDMA/HSDPA/HSUPA Band 2/4/5 4G Network LTE FDD Band 2/4/5/12/17/18/19/26 LTE TDD Band 41 WIFI 802.11a, 802.11b, 802.11g, 802.11n and 802.11ac U-NII-1/2C
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The requirement for the following technical information of the EUT was tested in this report:

Operating Mode	WCDMA, LTE, 2.4G WIFI, 5G WIFI		
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 17	TX: 704 ~ 716 MHz	RX: 734 ~ 746 MHz
	LTE Band 18	TX: 815 ~ 830 MHz	RX: 860 ~ 875 MHz
	LTE Band 19	TX: 830 ~ 845 MHz	RX: 875 ~ 890 MHz
	LTE Band 26	TX: 814 ~ 849 MHz	RX: 859 ~ 894 MHz
	LTE Band 41	TX: 2496 ~ 2690 MHz	RX: 2496 ~ 2690 MHz
	802.11b/g	2412 ~ 2462 MHz	
	802.11n(HT20/HT40)	5150 ~ 5250 MHz	
	802.11a	5470 ~ 5725 MHz	
		5150 ~ 5250 MHz	
	802.11n(HT20/HT40)	5470 ~ 5725 MHz	
		5150 ~ 5250 MHz	
	802.11ac(VHT20/VHT40/VHT80)	5470 ~ 5725 MHz	
		5150 ~ 5250 MHz	
Antenna Type	WWAN	Fixed Internal Antenna	
	WIFI	Fixed Internal Antenna	
DTM	N/A		
Hotspot Function	Support		
Power Reduction	N/A		
Exposure Category	General Population/Uncontrolled exposure		
Product Type	Portable Device		
EUT 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	KDB 447498 D04 v01	447498 D04 Interim General RF Exposure Guidance v01
4	KDB 941225 D01 v03r01	3G SAR MEAUREMENT PROCEDURES
5	KDB 941225 D05 v02r05	SAR Evaluation Considerations for LTE Devices
6	KDB 941225 D06 v02r01	SAR EVALUATION PROCEDURES FOR PORTABLE DEVICES WITH WIRELESS ROUTER CAPABILITIES
7	KDB 865664 D01 v01r04	SAR Measurement 100 MHz to 6 GHz
8	KDB 865664 D02 v01r02	RF Exposure Reporting
9	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/ Controlled Exposure
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 Values

Equipment Class	Band	Maximum Scaled SAR (W/kg)		Maximum Report SAR (W/kg)	
		Hotspot (10mm)	Specific (0mm)	Hotspot (10mm)	Specific (0mm)
		1g SAR	10g SAR	1g SAR	10g SAR
PCB	WCDMA Band 2	0.37	/	0.49	0.58
	WCDMA Band 4	0.33	/		
	WCDMA Band 5	0.21	/		
	LTE Band 2	0.49	/		
	LTE Band 4	0.42	/		
	LTE Band 5	0.27	/		
	LTE Band 12	0.31	/		
	LTE Band 17	0.34	/		
	LTE Band 18	0.36	/		
	LTE Band 19	0.35	/		
	LTE Band 26	0.26	/		
	LTE Band 41	0.42	/		
DTS	2.4G WIFI	0.10	/		
NII	5.2G WIFI	0.27	/		
	5.6G WIFI	/	0.58		
Limit (W/kg)		1.60	4.00	1.60	4.00
Verdict		Pass			

3.3.2 Highest Simultaneous Transmission SAR Values

Equipment Class	Maximum Scaled SAR (W/kg)
	Hotspot (10mm)
	1g SAR
PCB	0.625
DTS	0.539
NII	0.625
Limit (W/Kg)	1.60
Verdict	Pass
Note: The highest simultaneous SAR please refer section 10.2.	

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 0.49 W/kg, which is lower than 1.5 W/kg, so the extensive SAR measurement uncertainty analysis is not required in this report.

The maximum 10 g SAR for the EUT in this report is 0.58 W/kg, which is lower than 3.75 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:

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

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

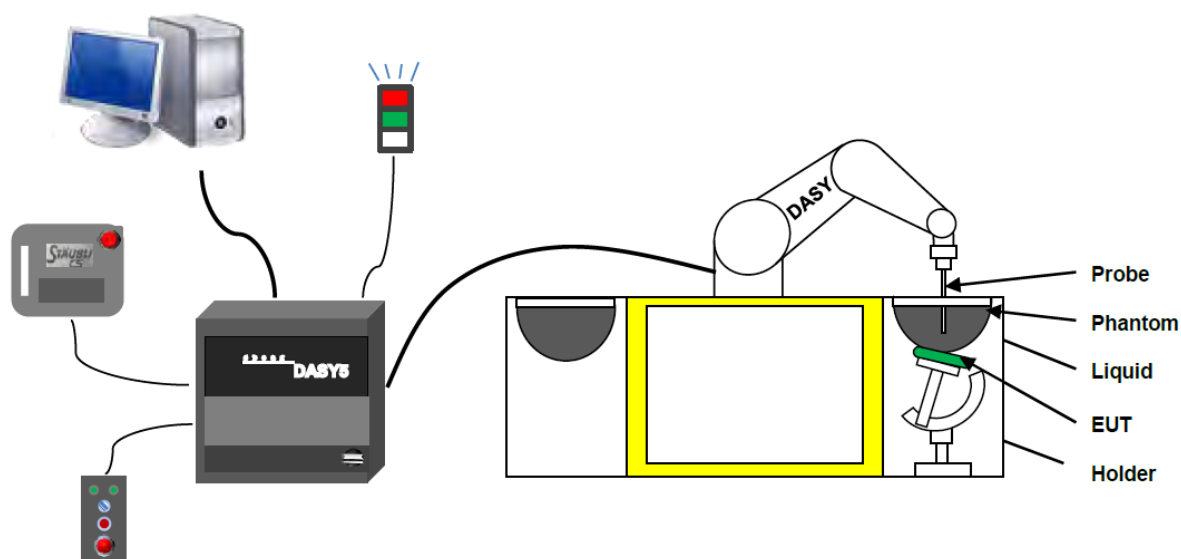
$$SAR = \frac{\sigma E^2}{\rho}$$

Where: σ is the conductivity of the tissue,

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

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: 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 μ W/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

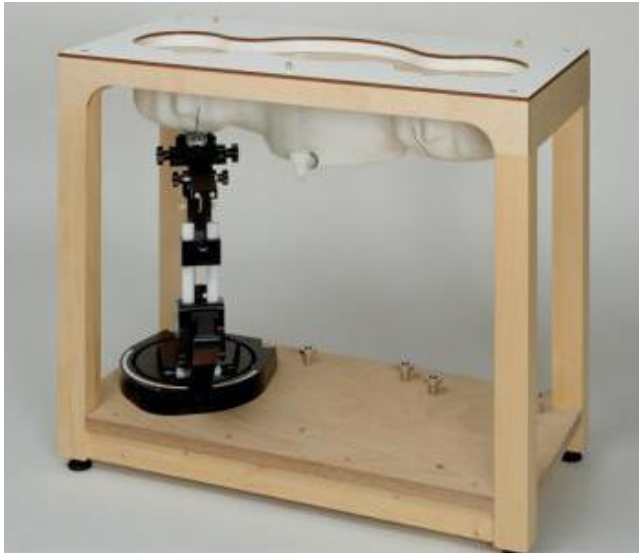
The data acquisition electronics (DAE) consist of a highly sensitive electrometer-grade preamplifier with auto-zeroing, a channel and gain-switching multiplexer, a fast 16 bit AD-converte and a command decoder with a control logic unit. Transmission to the measurement server is accomplished through an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



- Input Impedance: 200M Ω m
- 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 head
- Right head
- Flat phantom

Photo of Phantom SN 1576



Serial Number	Material	Length	Height
SN 1576 SAM	Vinylester, glass fiber reinforced	1000	500

4.2.6 Device Holder

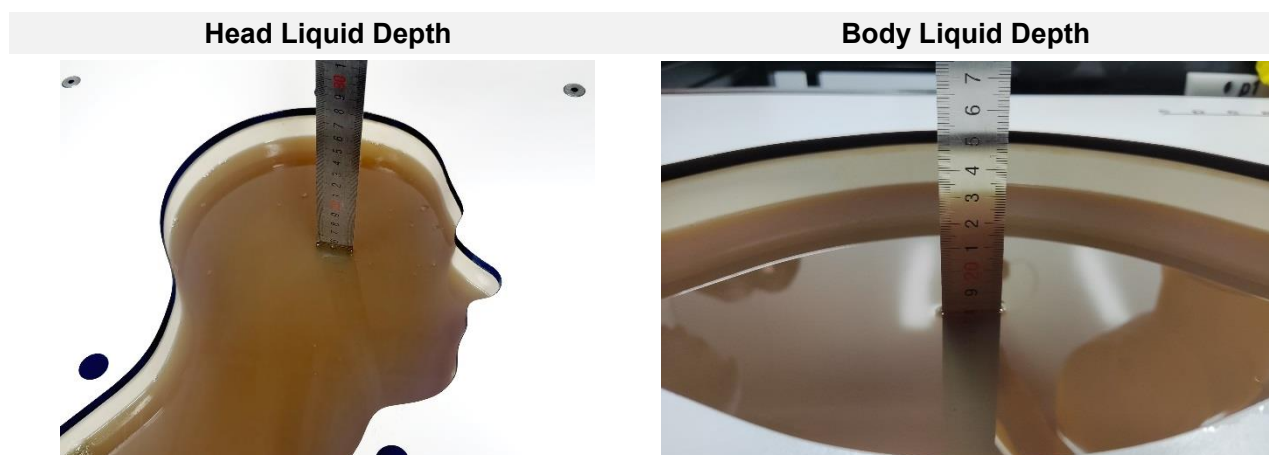
The DASY5 device holder has two scales for device rotation (with respect to the body axis) and the device inclination (with respect to the line between the ear openings). The plane between the ear openings and the mouth tip has a rotation angle of 65° . The bottom plate contains three pair of bolts for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



The following table gives the recipes for tissue simulating liquid.

TSL	Manufacturer / Model	Freq Range (MHz)	Main Ingredients
Head WideBand	SPEAG HBBL600-10000V6	600-10000	Ethanediol, Sodium petroleum sulfonate, Hexylene Glycol / 2-Methyl-pentane-2.4-diol, Alkoxylated alcohol

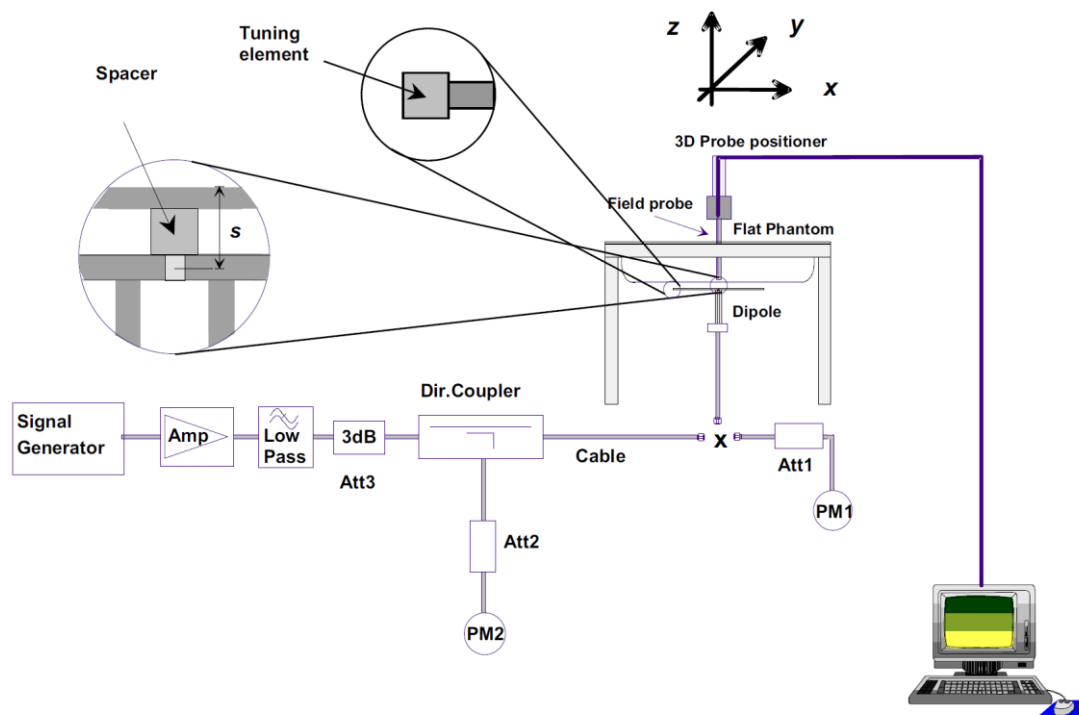
5 SYSTEM VERIFICATION

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:

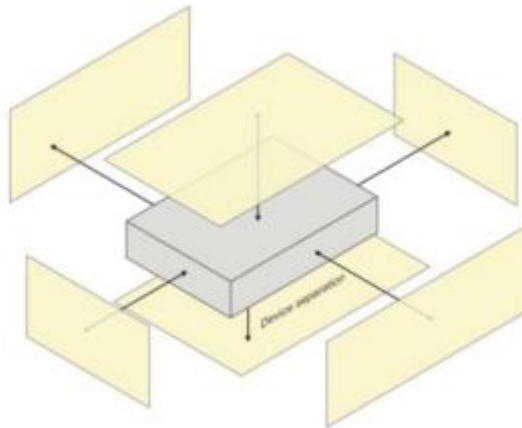


6 TEST POSITION CONFIGURATIONS

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 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).



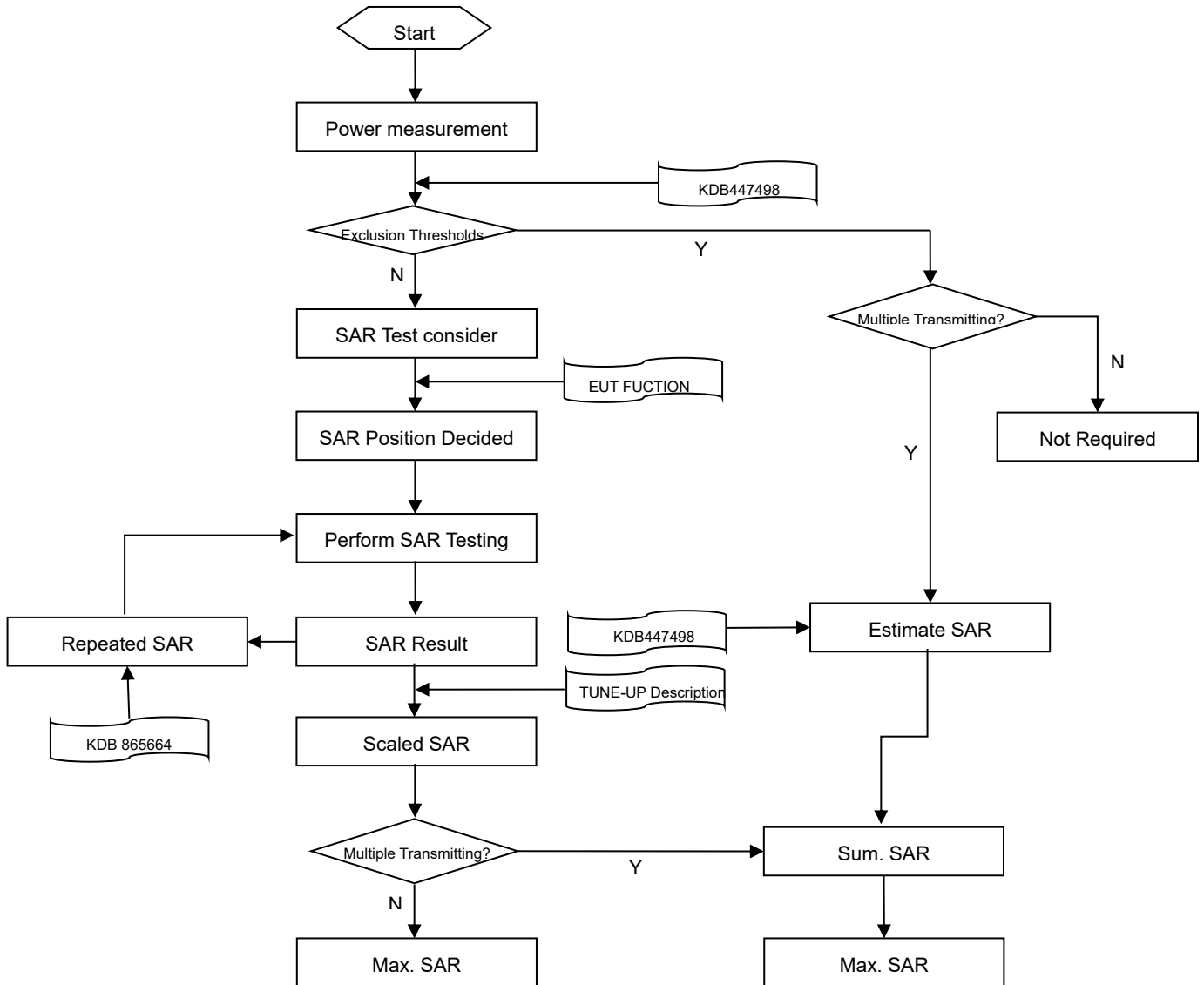
6.2 Product Specific 10g Exposure Consideration

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.

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.

			≤3GHz	>3GHz
Maximum distance from closest measurement point (geometric center of probe sensors) to phantom surface			5±1 mm	$\frac{1}{2} \cdot \delta \cdot \ln(2) \pm 0.5$ mm
Maximum probe angle from probe axis to phantom surface normal at the measurement location			30°±1°	20°±1°
Maximum area scan spatial resolution: Δx Area , Δy Area			≤ 2 GHz: ≤ 15 mm 2 – 3 GHz: ≤ 12 mm	3–4 GHz: ≤ 12 mm 4 – 6 GHz: ≤ 10 mm
			When the x or y dimension of the test device, in the measurement plane orientation, is smaller than the above, the measurement resolution must be ≤ the corresponding x or y dimension of the test device with at least one measurement point on the test device.	
Maximum zoom scan spatial resolution: Δx Zoom , Δy Zoom			≤ 2 GHz: ≤ 8 mm 2 – 3 GHz: ≤ 5 mm*	3–4 GHz: ≤ 5 mm* 4 – 6 GHz: ≤ 4 mm*
Maximum zoom scan spatial resolution, normal to phantom surface	uniform grid: Δz Zoom (n)		≤ 5 mm	3–4 GHz: ≤ 4 mm
				4–5 GHz: ≤ 3 mm
				5–6 GHz: ≤ 2 mm
	graded grid	Δz Zoom (1): between 1st two points closest to phantom surface	≤ 4 mm	3–4 GHz: ≤ 3 mm
				4–5 GHz: ≤ 2.5 mm
		Δz Zoom (n>1): between subsequent points	≤ 1.5·Δz Zoom (n-1)	
Minimum zoom scan volume	x, y, z		≥30 mm	3–4 GHz: ≥ 28 mm
				4–5 GHz: ≥ 25 mm
				5–6 GHz: ≥ 22 mm

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.

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 to 16 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.

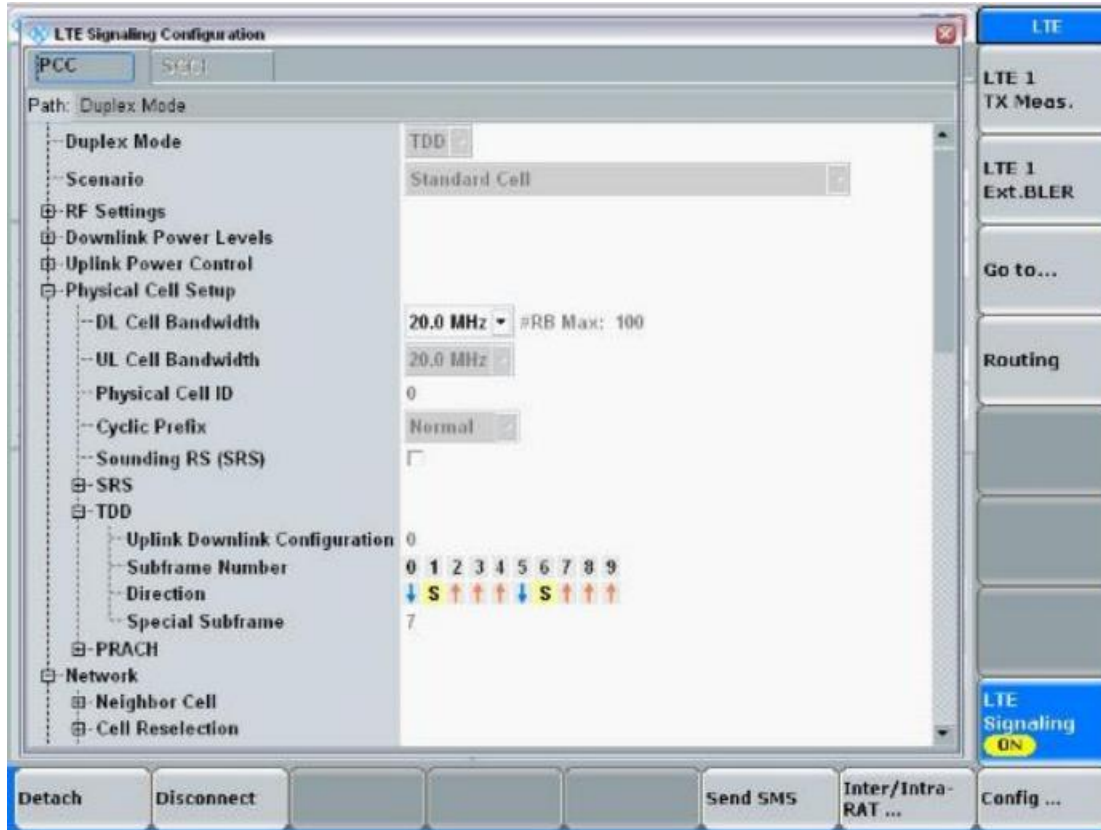
7.4 Area & Zoom Scan Procedure

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.

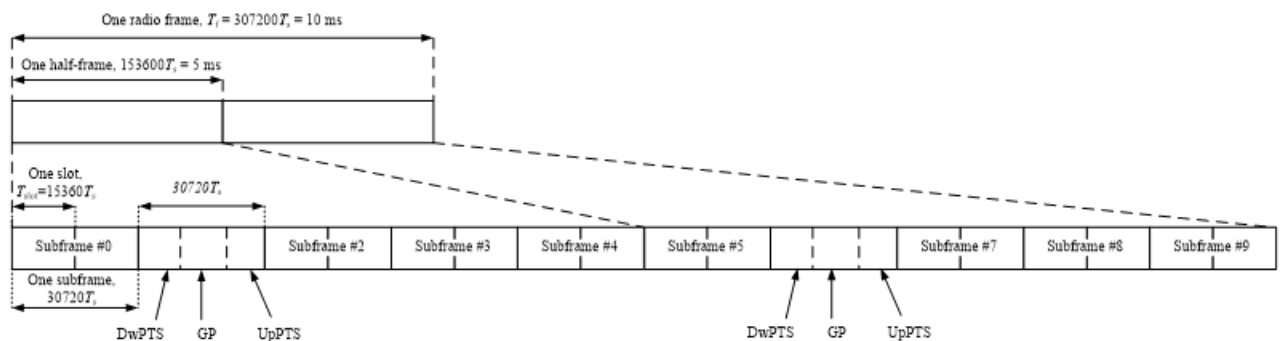
When the 1 g SAR of the highest peak is within 2 dB of the SAR limit, additional zoom scans are required for other peaks within 2 dB of the highest peak that have not been included in any zoom scan to ensure there is no increase in SAR.

7.5 Area & Zoom Scan Procedure

During TDD-LTE SAR testing, the EUT was commanded to transmit on maximum output power and maximum transmitting bandwidth. The uplink and downlink slot configuration as below in one radio frame.



According to 3GPP Per 3GPP TS 36.211. Each radio frame of length ($T_f = 307200 \cdot T_s = 10\text{ms}$) of two half-frames of length ($153600 \cdot T_s = 5\text{ms}$). Each half-frame consists of five sub-frames of length ($30720 \cdot T_s = 1\text{ms}$)



And the special sub-frame with the three fields DwPTS, GP and UpPTS.

The length of DwPTS and UpPTS is given by below table subject to the total length of DwPTS, GP and UpPTS being equal to $30720 \cdot T_s = 1\text{ms}$.

Configuration of special sub-frame (lengths of DwPTS/GP/UpPTS)

Special sub-frame configuration	Normal cyclic prefix in downlink			Extended cyclic prefix in downlink		
	DwPTS	UpPTS		DwPTS	UpPTS	
		Normal cyclic prefix in uplink	Extended cyclic prefix in uplink		Normal cyclic prefix in uplink	Extended cyclic prefix in uplink
0	$6592 \cdot T_s$	$2192 \cdot T_s$	$2560 \cdot T_s$	$7680 \cdot T_s$	$2192 \cdot T_s$	$2560 \cdot T_s$
1	$19760 \cdot T_s$			$20480 \cdot T_s$		
2	$21592 \cdot T_s$			$23040 \cdot T_s$		
3	$24144 \cdot T_s$			$25600 \cdot T_s$		
4	$26336 \cdot T_s$	$4384 \cdot T_s$	$5120 \cdot T_s$	$7680 \cdot T_s$	$2560 \cdot T_s$	$5120 \cdot T_s$
5	$6592 \cdot T_s$			$20480 \cdot T_s$		
6	$19760 \cdot T_s$			$23040 \cdot T_s$		
7	$21592 \cdot T_s$			$12800 \cdot T_s$	-	-
8	$24144 \cdot T_s$			-		
9	$13168 \cdot T_s$			-	-	-

For special sub-frame uplink time we used the largest cyclic prefix for duty cycle calculate;

Maximum uplink time of one special sub-frame=(largest cyclic prefix)/(one sub-frame of length)* time of one sub-frame= $5120 \cdot T_s / 30720 \cdot T_s \cdot 1\text{ms} = 0.167\text{ms}$

One radio frame with 6 uplink sub-frames and two special sub-frame,

there for the maximum Uplink time in one radio frame is: **$6 \cdot 1\text{ ms} + 2 \cdot 0.167\text{ ms} = 6.334\text{ms}$**

So, the duty cycle for TDD-LTE is: **$6.334\text{ms} / 10\text{ms} = 1: 1.58$**

8 CONDUCTED RF OUPUT POWER

8.1 WCDMA

Please refer the document “BL-SZ2510664-AP.pdf”.

8.2 LTE

Please refer the document “BL-SZ2510664-AP.pdf”.

8.3 WIFI

8.3.1 2.4G WIFI

Band (GHz)	Mode	Channel	Freq. (MHz)	Average Power (dBm)	Tune-up Limit (dBm)	SAR Test Require.
2.4	802.11b	1	2412	11.37	12.00	No
		6	2437	11.53	12.00	No
		11	2462	11.55	12.00	Yes
	802.11g	1	2412	9.74	10.00	No
		6	2437	9.89	10.00	No
		11	2462	9.82	10.00	No
	802.11n(HT20)	1	2412	9.41	10.00	No
		6	2437	9.70	10.00	No
		11	2462	9.66	10.00	No
	802.11n(HT40)	3	2422	9.73	10.00	No
		6	2437	9.75	10.00	No
		9	2452	9.80	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.
- 3) According KDB 247228, 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, OFDM SAR test is not required.

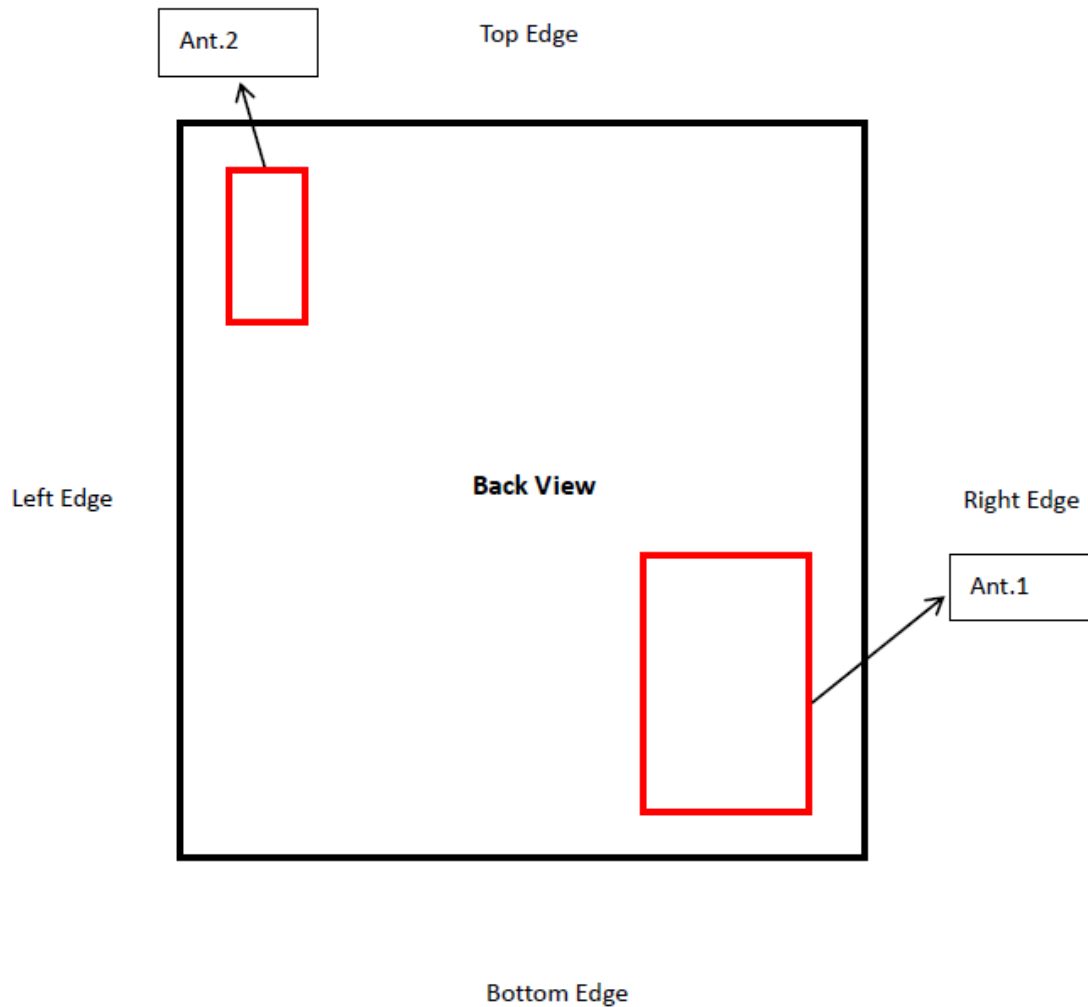
Adjusted SAR = $0.099 * (10.00\text{mW}/15.85\text{mW}) = 0.062$ W/Kg, so 2.4G OFDM SAR test is not required.

8.3.2 5G WIFI

Band (GHz)	Mode	Channel	Freq. (MHz)	Average Power (dBm)	Tune-up Limit (dBm)	SAR Test Require.
5.2	802.11a	36	5180	9.51	10.00	No
		40	5200	9.77	10.00	No
		48	5240	9.77	10.00	No
	802.11n(HT20)	36	5180	9.37	10.00	No
		44	5220	9.51	10.00	No
		48	5240	9.31	10.00	No
	802.11n(HT40)	38	5190	9.46	10.00	No
		46	5230	9.64	10.00	Yes
	802.11ac(VHT20)	36	5180	4.31	5.00	No
		40	5200	4.48	5.00	No
		48	5240	4.38	5.00	No
	802.11ac(VHT40)	38	5190	4.86	5.00	No
		46	5230	4.93	5.00	No
	802.11ac(VHT80)	42	5210	4.46	5.00	No
5.6	802.11a	100	5500	9.83	10.00	No
		116	5580	9.81	10.00	No
		140	5700	9.44	10.00	No
	802.11n(HT20)	100	5500	9.47	10.00	No
		116	5580	9.47	10.00	No
		140	5700	9.17	10.00	No
	802.11n(HT40)	102	5510	9.48	10.00	No
		118	5590	9.91	10.00	Yes
		134	5670	9.52	10.00	No
	802.11ac(VHT20)	100	5500	4.48	5.00	No
		116	5580	4.66	5.00	No
		140	5700	4.63	5.00	No
	802.11ac(VHT40)	102	5510	4.78	5.00	No
		110	5550	4.59	5.00	No
		134	5670	4.53	5.00	No
	802.11ac(VHT80)	106	5530	4.63	5.00	No
		122	5610	4.83	5.00	No

Note: When the same maximum output power is specified for both bands, begin SAR measurement in U-NII-2A band by applying the OFDM SAR requirements. If the highest reported SAR for a test configuration is ≤ 1.2 W/kg, SAR is not required for U-NII-1 band for that configuration (802.11 mode and exposure condition); otherwise, each band is tested independently for SAR.

9 TEST EXCLUSION CONSIDERATION



Antenna	Support Bands
Ant.1	WCDMA B2/4/5; LTE B2/4/5/12/17/18/19/26/41
Ant.2	WIFI 2.4&5G

9.1 SAR Test Exclusion 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 Device SAR test configurations consider as following:

Band	Mode	Max. Peak Power		Test Position Configurations				
		dBm	mW	Front/ Back	Left Edge	Right Edge	Top Edge	Bottom Edge
WCDMA Band 2	Distance to User			<5mm	45mm	11mm	22mm	15mm
	RMC	22.50	177.83	Yes	Yes	Yes	Yes	Yes
WCDMA Band 4	Distance to User			<5mm	45mm	11mm	22mm	15mm
	RMC	22.50	177.83	Yes	Yes	Yes	Yes	Yes
WCDMA Band 5	Distance to User			<5mm	45mm	11mm	22mm	15mm
	RMC	23.00	199.53	Yes	Yes	Yes	Yes	Yes
LTE Band 2	Distance to User			<5mm	45mm	11mm	22mm	15mm
	QPSK	23.50	223.87	Yes	Yes	Yes	Yes	Yes
LTE Band 4	Distance to User			<5mm	45mm	11mm	22mm	15mm
	QPSK	23.50	223.87	Yes	Yes	Yes	Yes	Yes
LTE Band 5	Distance to User			<5mm	45mm	11mm	22mm	15mm
	QPSK	23.50	223.87	Yes	Yes	Yes	Yes	Yes
LTE Band 12	Distance to User			<5mm	45mm	11mm	22mm	15mm
	QPSK	23.50	223.87	Yes	Yes	Yes	Yes	Yes
LTE Band 17	Distance to User			<5mm	45mm	11mm	22mm	15mm
	QPSK	23.50	223.87	Yes	Yes	Yes	Yes	Yes
LTE Band 18	Distance to User			<5mm	45mm	11mm	22mm	15mm
	QPSK	22.50	177.83	Yes	Yes	Yes	Yes	Yes
LTE Band 19	Distance to User			<5mm	45mm	11mm	22mm	15mm
	QPSK	23.50	223.87	Yes	Yes	Yes	Yes	Yes
LTE Band 26	Distance to User			<5mm	45mm	11mm	22mm	15mm
	QPSK	23.50	223.87	Yes	Yes	Yes	Yes	Yes
LTE Band 41	Distance to User			<5mm	45mm	11mm	22mm	15mm
	QPSK	23.50	223.87	Yes	Yes	Yes	Yes	Yes
2.4 G WIFI	Distance to User			<5mm	10mm	54mm	15mm	37mm
	802.11b	12.00	15.85	Yes	Yes	Yes	Yes	Yes
	802.11g	10.00	10.00	No	No	No	No	No
	802.11n(HT20)	10.00	10.00	No	No	No	No	No
	802.11n(HT40)	10.00	10.00	No	No	No	No	No
5.2 G WIFI	Distance to User			<5mm	10mm	54mm	15mm	37mm
	802.11a	10.00	10.00	No	No	No	No	No
	802.11n(HT20)	10.00	10.00	No	No	No	No	No
	802.11n(HT40)	10.00	10.00	Yes	Yes	Yes	Yes	Yes
	802.11ac(VHT20)	5.00	3.16	No	No	No	No	No

	802.11ac(VHT20)	5.00	3.16	No	No	No	No	No
	802.11ac(VHT20)	5.00	3.16	No	No	No	No	No
5.6 G WIFI	Distance to User			<5mm	10mm	54mm	15mm	37mm
	802.11a	10.00	10.00	No	No	No	No	No
	802.11n(HT20)	10.00	10.00	No	No	No	No	No
	802.11n(HT40)	10.00	10.00	Yes	Yes	Yes	Yes	Yes
	802.11ac(VHT20)	5.00	3.16	No	No	No	No	No
	802.11ac(VHT20)	5.00	3.16	No	No	No	No	No
	802.11ac(VHT20)	5.00	3.16	No	No	No	No	No

Note:

- Maximum power is the source-based time-average power and represents the maximum RF output power including tune-up tolerance among production units
- 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.
- 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
- 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:

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

where

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

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

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

- 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 $\leq 1.2W/kg$, HSDPA/HSUPA/DC-HSDPA SAR evaluation can be excluded.
- 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
- Per KDB 248227 D01 SAR is not required for the following 2.4 GHz OFDM conditions.
 - When KDB Publication 447498 D04 SAR test exclusion applies to the OFDM configuration.
 - 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 $\leq 1.2 W/kg$.
- Per KDB 248227 D01 SAR is not required for the following U-NII-1 and U-NII-2A bands conditions.

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

10 TEST RESULT

10.1WCDMA Band 2

Antenna	Mode	Position	Dist. (mm)	Ch.	Freq. (MHz)	Power Drift (dB)	1g Meas SAR (W/kg)	Meas. Power (dBm)	Max. tune- power (dBm)	Scaling Factor	1g Scaled SAR (W/kg)	Meas. No.
Hotspot												
Ant.1	RMC	Front Side	10	9400	1880	-0.07	0.189	22.00	22.50	1.122	0.212	/
		Back Side	10	9400	1880	0.15	0.262	22.00	22.50	1.122	0.294	/
		Left Edge	10	9400	1880	-0.19	0.043	22.00	22.50	1.122	0.048	/
		Right Edge	10	9400	1880	0.02	0.325	22.00	22.50	1.122	0.365	1#
		Top Edge	10	9400	1880	0.07	0.216	22.00	22.50	1.122	0.242	/
		Bottom Edge	10	9400	1880	0.05	0.103	22.00	22.50	1.122	0.116	/
Note: Refer to ANNEX C for the detailed test data for each test configuration.												

10.2WCDMA Band 4

Antenna	Mode	Position	Dist. (mm)	Ch.	Freq. (MHz)	Power Drift (dB)	1g Meas SAR (W/kg)	Meas. Power (dBm)	Max. tune- power (dBm)	Scaling Factor	1g Scaled SAR (W/kg)	Meas. No.
Hotspot												
Ant.1	RMC	Front Side	10	1412	1732.4	0.01	0.299	22.38	22.50	1.028	0.307	/
		Back Side	10	1412	1732.4	-0.04	0.323	22.38	22.50	1.028	0.332	2#
		Left Edge	10	1412	1732.4	-0.09	0.052	22.38	22.50	1.028	0.053	/
		Right Edge	10	1412	1732.4	-0.15	0.270	22.38	22.50	1.028	0.278	/
		Top Edge	10	1412	1732.4	0.00	0.188	22.38	22.50	1.028	0.193	/
		Bottom Edge	10	1412	1732.4	-0.11	0.101	22.38	22.50	1.028	0.104	/
Note: Refer to ANNEX C for the detailed test data for each test configuration.												

10.3WCDMA Band 5

Antenna	Mode	Position	Dist. (mm)	Ch.	Freq. (MHz)	Power Drift (dB)	1g Meas SAR (W/kg)	Meas. Power (dBm)	Max. tune- power (dBm)	Scaling Factor	1g Scaled SAR (W/kg)	Meas. No.
Hotspot												
Ant.1	RMC	Front Side	10	4132	826.4	0.19	0.198	22.70	23.00	1.072	0.212	3#
		Back Side	10	4132	826.4	0.07	0.059	22.70	23.00	1.072	0.063	/
		Left Edge	10	4132	826.4	0.03	0.011	22.70	23.00	1.072	0.012	/
		Right Edge	10	4132	826.4	0.15	0.041	22.70	23.00	1.072	0.044	/
		Top Edge	10	4132	826.4	-0.05	0.006	22.70	23.00	1.072	0.006	/
		Bottom Edge	10	4132	826.4	0.14	0.035	22.70	23.00	1.072	0.038	/
Note: Refer to ANNEX C for the detailed test data for each test configuration.												

10.4LTE Band 2 (20MHz Bandwidth)

Antenn a	Mode	Position	Dist. (mm)	Ch.	Freq. (MHz)	RB Num.	RB Start	Power Drift (dB)	1g Meas SAR (W/kg)	Meas. Power (dBm)	Max. tune- power (dBm)	Scaling Factor	1g Scaled SAR (W/kg)	Meas. No.
Hotspot														
Ant.1	QPSK	Front Side	10	18900	1880	1	Mid	-0.06	0.285	23.08	23.50	1.102	0.314	/
		Back Side	10	18900	1880	1	Mid	0.01	0.299	23.08	23.50	1.102	0.329	/
		Left Edge	10	18900	1880	1	Mid	0.00	0.104	23.08	23.50	1.102	0.115	/
		Right Edge	10	18900	1880	1	Mid	-0.09	0.442	23.08	23.50	1.102	0.487	4#
		Top Edge	10	18900	1880	1	Mid	0.10	0.234	23.08	23.50	1.102	0.258	/
		Bottom Edge	10	18900	1880	1	Mid	-0.02	0.137	23.08	23.50	1.102	0.151	/
		Front Side	10	18900	1880	50	Mid	-0.12	0.218	21.71	22.50	1.199	0.261	/
		Back Side	10	18900	1880	50	Mid	0.02	0.226	21.71	22.50	1.199	0.271	/
		Left Edge	10	18900	1880	50	Mid	0.19	0.083	21.71	22.50	1.199	0.100	/
		Right Edge	10	18900	1880	50	Mid	0.04	0.362	21.71	22.50	1.199	0.434	/
		Top Edge	10	18900	1880	50	Mid	-0.19	0.187	21.71	22.50	1.199	0.224	/
		Bottom Edge	10	18900	1880	50	Mid	0.09	0.102	21.71	22.50	1.199	0.122	/
Note: Refer to ANNEX C for the detailed test data for each test configuration.														

10.5LTE Band 4 (20MHz Bandwidth)

Antenn a	Mode	Position	Dist. (mm)	Ch.	Freq. (MHz)	RB Num.	RB Start	Power Drift (dB)	1g Meas SAR (W/kg)	Meas. Power (dBm)	Max. tune- power (dBm)	Scaling Factor	1g Scaled SAR (W/kg)	Meas. No.
Hotspot														
Ant.1	QPSK	Front Side	10	20175	1732.5	1	Mid	0.02	0.332	22.71	23.50	1.199	0.398	/
		Back Side	10	20175	1732.5	1	Mid	-0.10	0.346	22.71	23.50	1.199	0.415	5#
		Left Edge	10	20175	1732.5	1	Mid	0.13	0.081	22.71	23.50	1.199	0.097	/
		Right Edge	10	20175	1732.5	1	Mid	-0.11	0.336	22.71	23.50	1.199	0.403	/
		Top Edge	10	20175	1732.5	1	Mid	0.19	0.230	22.71	23.50	1.199	0.276	/
		Bottom Edge	10	20175	1732.5	1	Mid	0.14	0.117	22.71	23.50	1.199	0.140	/
		Front Side	10	20175	1732.5	50	Low	0.19	0.260	21.68	22.50	1.208	0.314	/
		Back Side	10	20175	1732.5	50	Low	0.11	0.287	21.68	22.50	1.208	0.347	/
		Left Edge	10	20175	1732.5	50	Low	-0.17	0.054	21.68	22.50	1.208	0.065	/
		Right Edge	10	20175	1732.5	50	Low	0.18	0.255	21.68	22.50	1.208	0.308	/
		Top Edge	10	20175	1732.5	50	Low	-0.06	0.168	21.68	22.50	1.208	0.203	/
		Bottom Edge	10	20175	1732.5	50	Low	-0.07	0.086	21.68	22.50	1.208	0.104	/
Note: Refer to ANNEX C for the detailed test data for each test configuration.														

10.6LTE Band 5 (10MHz Bandwidth)

Antenn a	Mode	Position	Dist. (mm)	Ch.	Freq. (MHz)	RB Num.	RB Start	Power Drift (dB)	1g Meas SAR (W/kg)	Meas. Power (dBm)	Max. tune- power (dBm)	Scaling Factor	1g Scaled SAR (W/kg)	Meas. No.
Hotspot														
Ant.1	QPSK	Front Side	10	20450	829	1	Mid	-0.15	0.241	23.08	23.50	1.102	0.266	6#
		Back Side	10	20450	829	1	Mid	0.04	0.087	23.08	23.50	1.102	0.096	/
		Left Edge	10	20450	829	1	Mid	0.03	0.012	23.08	23.50	1.102	0.013	/
		Right Edge	10	20450	829	1	Mid	0.16	0.065	23.08	23.50	1.102	0.072	/
		Top Edge	10	20450	829	1	Mid	-0.16	0.003	23.08	23.50	1.102	0.003	/
		Bottom Edge	10	20450	829	1	Mid	-0.06	0.056	23.08	23.50	1.102	0.062	/
		Front Side	10	20600	844	25	Mid	-0.09	0.152	21.89	22.50	1.151	0.175	/
		Back Side	10	20600	844	25	Mid	-0.08	0.072	21.89	22.50	1.151	0.083	/
		Left Edge	10	20600	844	25	Mid	-0.16	0.011	21.89	22.50	1.151	0.013	/
		Right Edge	10	20600	844	25	Mid	0.13	0.051	21.89	22.50	1.151	0.059	/
		Top Edge	10	20600	844	25	Mid	-0.11	0.002	21.89	22.50	1.151	0.002	/
		Bottom Edge	10	20600	844	25	Mid	-0.01	0.046	21.89	22.50	1.151	0.053	/
Note: Refer to ANNEX C for the detailed test data for each test configuration.														

10.7LTE Band 12 (10MHz Bandwidth)

Antenn a	Mode	Position	Dist. (mm)	Ch.	Freq. (MHz)	RB Num.	RB Start	Power Drift (dB)	1g Meas SAR (W/kg)	Meas. Power (dBm)	Max. tune- power (dBm)	Scaling Factor	1g Scaled SAR (W/kg)	Meas. No.
Hotspot														
Ant.1	QPSK	Front Side	10	23130	711	1	Mid	-0.09	0.279	22.99	23.50	1.125	0.314	7#
		Back Side	10	23130	711	1	Mid	-0.03	0.195	22.99	23.50	1.125	0.219	/
		Left Edge	10	23130	711	1	Mid	0.08	0.021	22.99	23.50	1.125	0.024	/
		Right Edge	10	23130	711	1	Mid	0.18	0.171	22.99	23.50	1.125	0.192	/
		Top Edge	10	23130	711	1	Mid	0.11	0.049	22.99	23.50	1.125	0.055	/
		Bottom Edge	10	23130	711	1	Mid	-0.03	0.089	22.99	23.50	1.125	0.100	/
		Front Side	10	23130	711	25	Mid	-0.16	0.253	21.84	22.50	1.164	0.294	/
		Back Side	10	23130	711	25	Mid	0.13	0.151	21.84	22.50	1.164	0.176	/
		Left Edge	10	23130	711	25	Mid	0.00	0.017	21.84	22.50	1.164	0.020	/
		Right Edge	10	23130	711	25	Mid	-0.10	0.107	21.84	22.50	1.164	0.125	/
		Top Edge	10	23130	711	25	Mid	0.11	0.036	21.84	22.50	1.164	0.042	/
		Bottom Edge	10	23130	711	25	Mid	0.09	0.067	21.84	22.50	1.164	0.078	/
Note: Refer to ANNEX C for the detailed test data for each test configuration.														

10.8LTE Band 17 (10MHz Bandwidth)

Antenn a	Mode	Position	Dist. (mm)	Ch.	Freq. (MHz)	RB Num.	RB Start	Power Drift (dB)	1g Meas SAR (W/kg)	Meas. Power (dBm)	Max. tune- power (dBm)	Scaling Factor	1g Scaled SAR (W/kg)	Meas. No.
Hotspot														
Ant.1	QPSK	Front Side	10	23800	711	1	Mid	-0.07	0.307	23.12	23.50	1.091	0.335	8#
		Back Side	10	23800	711	1	Mid	-0.04	0.215	23.12	23.50	1.091	0.235	/
		Left Edge	10	23800	711	1	Mid	-0.10	0.021	23.12	23.50	1.091	0.023	/
		Right Edge	10	23800	711	1	Mid	0.15	0.169	23.12	23.50	1.091	0.184	/
		Top Edge	10	23800	711	1	Mid	-0.06	0.059	23.12	23.50	1.091	0.064	/
		Bottom Edge	10	23800	711	1	Mid	0.17	0.095	23.12	23.50	1.091	0.104	/
		Front Side	10	23780	709	25	Mid	-0.16	0.273	21.88	22.50	1.153	0.315	/
		Back Side	10	23780	709	25	Mid	0.08	0.162	21.88	22.50	1.153	0.187	/
		Left Edge	10	23780	709	25	Mid	-0.15	0.018	21.88	22.50	1.153	0.021	/
		Right Edge	10	23780	709	25	Mid	-0.17	0.103	21.88	22.50	1.153	0.119	/
		Top Edge	10	23780	709	25	Mid	-0.09	0.047	21.88	22.50	1.153	0.054	/
		Bottom Edge	10	23780	709	25	Mid	-0.19	0.073	21.88	22.50	1.153	0.084	/
Note: Refer to ANNEX C for the detailed test data for each test configuration.														

10.9LTE Band 18 (15MHz Bandwidth)

Antenn a	Mode	Position	Dist. (mm)	Ch.	Freq. (MHz)	RB Num.	RB Start	Power Drift (dB)	1g Meas SAR (W/kg)	Meas. Power (dBm)	Max. tune- power (dBm)	Scaling Factor	1g Scaled SAR (W/kg)	Meas. No.
Hotspot														
Ant.1	QPSK	Front Side	10	23925	822.5	1	High	-0.02	0.307	21.83	22.50	1.167	0.358	9#
		Back Side	10	23925	822.5	1	High	0.01	0.087	21.83	22.50	1.167	0.102	/
		Left Edge	10	23925	822.5	1	High	0.13	0.016	21.83	22.50	1.167	0.019	/
		Right Edge	10	23925	822.5	1	High	-0.05	0.052	21.83	22.50	1.167	0.061	/
		Top Edge	10	23925	822.5	1	High	-0.15	0.008	21.83	22.50	1.167	0.009	/
		Bottom Edge	10	23925	822.5	1	High	0.17	0.062	21.83	22.50	1.167	0.072	/
		Front Side	10	23925	822.5	36	Mid	0.11	0.256	20.97	21.50	1.130	0.289	/
		Back Side	10	23925	822.5	36	Mid	-0.12	0.086	20.97	21.50	1.130	0.097	/
		Left Edge	10	23925	822.5	36	Mid	-0.17	0.011	20.97	21.50	1.130	0.012	/
		Right Edge	10	23925	822.5	36	Mid	-0.13	0.053	20.97	21.50	1.130	0.060	/
		Top Edge	10	23925	822.5	36	Mid	0.05	0.006	20.97	21.50	1.130	0.007	/
		Bottom Edge	10	23925	822.5	36	Mid	-0.03	0.060	20.97	21.50	1.130	0.068	/
Note: Refer to ANNEX C for the detailed test data for each test configuration.														

10.10 LTE Band 19 (15MHz Bandwidth)

Antenn a	Mode	Position	Dist. (mm)	Ch.	Freq. (MHz)	RB Num.	RB Start	Power Drift (dB)	1g Meas SAR (W/kg)	Meas. Power (dBm)	Max. tune- power (dBm)	Scaling Factor	1g Scaled SAR (W/kg)	Meas. No.
Hotspot														
Ant.1	QPSK	Front Side	10	24075	837.5	1	Mid	0.03	0.309	22.96	23.50	1.132	0.350	10#
		Back Side	10	24075	837.5	1	Mid	-0.13	0.132	22.96	23.50	1.132	0.149	/
		Left Edge	10	24075	837.5	1	Mid	0.03	0.093	22.96	23.50	1.132	0.105	/
		Right Edge	10	24075	837.5	1	Mid	0.04	0.011	22.96	23.50	1.132	0.012	/
		Top Edge	10	24075	837.5	1	Mid	-0.07	0.006	22.96	23.50	1.132	0.007	/
		Bottom Edge	10	24075	837.5	1	Mid	-0.01	0.095	22.96	23.50	1.132	0.108	/
		Front Side	10	24075	837.5	36	Mid	-0.06	0.215	22.05	22.50	1.109	0.238	/
		Back Side	10	24075	837.5	36	Mid	-0.10	0.104	22.05	22.50	1.109	0.115	/
		Left Edge	10	24075	837.5	36	Mid	-0.17	0.010	22.05	22.50	1.109	0.011	/
		Right Edge	10	24075	837.5	36	Mid	-0.13	0.073	22.05	22.50	1.109	0.081	/
		Top Edge	10	24075	837.5	36	Mid	-0.18	0.005	22.05	22.50	1.109	0.006	/
		Bottom Edge	10	24075	837.5	36	Mid	0.17	0.063	22.05	22.50	1.109	0.070	/
Note: Refer to ANNEX C for the detailed test data for each test configuration.														

10.11 LTE Band 26 (15MHz Bandwidth)

Antenn a	Mode	Position	Dist. (mm)	Ch.	Freq. (MHz)	RB Num.	RB Start	Power Drift (dB)	1g Meas SAR (W/kg)	Meas. Power (dBm)	Max. tune- power (dBm)	Scaling Factor	1g Scaled SAR (W/kg)	Meas. No.
Hotspot														
Ant.1	QPSK	Front Side	10	26965	841.5	1	Low	-0.04	0.212	22.64	23.50	1.219	0.258	11#
		Back Side	10	26965	841.5	1	Low	0.13	0.096	22.64	23.50	1.219	0.117	/
		Left Edge	10	26965	841.5	1	Low	-0.13	0.023	22.64	23.50	1.219	0.028	/
		Right Edge	10	26965	841.5	1	Low	0.19	0.066	22.64	23.50	1.219	0.080	/
		Top Edge	10	26965	841.5	1	Low	-0.13	0.015	22.64	23.50	1.219	0.018	/
		Bottom Edge	10	26965	841.5	1	Low	-0.09	0.062	22.64	23.50	1.219	0.076	/
		Front Side	10	26865	831.5	50	Low	-0.16	0.173	21.67	22.50	1.211	0.210	/
		Back Side	10	26865	831.5	50	Low	-0.06	0.080	21.67	22.50	1.211	0.097	/
		Left Edge	10	26865	831.5	50	Low	-0.05	0.018	21.67	22.50	1.211	0.022	/
		Right Edge	10	26865	831.5	50	Low	0.14	0.055	21.67	22.50	1.211	0.067	/
		Top Edge	10	26865	831.5	50	Low	-0.08	0.011	21.67	22.50	1.211	0.013	/
		Bottom Edge	10	26865	831.5	50	Low	0.05	0.054	21.67	22.50	1.211	0.065	/
Note: Refer to ANNEX C for the detailed test data for each test configuration.														

10.12 LTE Band 41 (20MHz Bandwidth)

Antenn a	Mode	Position	Dist. (mm)	Ch.	Freq. (MHz)	RB Num.	RB Start	Power Drift (dB)	1g Meas SAR (W/kg)	Meas. Power (dBm)	Max. tune- power (dBm)	Scaling Factor	1g Scaled SAR (W/kg)	Meas. No.
Hotspot														
Ant.1	QPSK	Front Side	10	40620	2593	1	Mid	0.00	0.073	23.01	23.50	1.119	0.082	/
		Back Side	10	40620	2593	1	Mid	0.19	0.198	23.01	23.50	1.119	0.222	/
		Left Edge	10	40620	2593	1	Mid	-0.03	0.026	23.01	23.50	1.119	0.029	/
		Right Edge	10	40620	2593	1	Mid	0.18	0.373	23.01	23.50	1.119	0.417	12#
		Top Edge	10	40620	2593	1	Mid	-0.03	0.006	23.01	23.50	1.119	0.007	/
		Bottom Edge	10	40620	2593	1	Mid	0.00	0.093	23.01	23.50	1.119	0.104	/
		Front Side	10	40620	2593	50	Mid	0.05	0.062	21.81	22.50	1.172	0.073	/
		Back Side	10	40620	2593	50	Mid	0.17	0.153	21.81	22.50	1.172	0.179	/
		Left Edge	10	40620	2593	50	Mid	-0.06	0.019	21.81	22.50	1.172	0.022	/
		Right Edge	10	40620	2593	50	Mid	-0.13	0.286	21.81	22.50	1.172	0.335	/
		Top Edge	10	40620	2593	50	Mid	-0.11	0.003	21.81	22.50	1.172	0.004	/
		Bottom Edge	10	40620	2593	50	Mid	-0.11	0.073	21.81	22.50	1.172	0.086	/
Note: Refer to ANNEX C for the detailed test data for each test configuration.														

10.13 WIFI 2.4GHZ

Antenn a	Mode	Position	Dist. (mm)	Ch.	Freq. (MHz)	Power Drift (dB)	1g Meas SAR (W/kg)	Meas. Power (dBm)	Max. tune-up power (dBm)	Scaling Factor	Duty cycle (%)	Duty cycle Factor	1g Report SAR (W/kg)	Meas. No.
Hotspot														
Ant.2	802.11 b	Front Side	10	11	2462	0.12	0.082	11.55	12.00	1.109	91.42	1.094	0.099	13#
		Back Side	10	11	2462	-0.17	0.012	11.55	12.00	1.109	91.42	1.094	0.015	/
		Left Edge	10	11	2462	-0.01	0.006	11.55	12.00	1.109	91.42	1.094	0.007	/
		Right Edge	10	11	2462	0.00	0.043	11.55	12.00	1.109	91.42	1.094	0.052	/
		Top Edge	10	11	2462	0.00	0.067	11.55	12.00	1.109	91.42	1.094	0.081	/
		Bottom Edge	10	11	2462	-0.04	0.013	11.55	12.00	1.109	91.42	1.094	0.016	/
Note: Refer to ANNEX C for the detailed test data for each test configuration.														

10.14 WIFI 5GHZ

Antenn a	Fre. Band	Mode	Position	Dist. (mm)	Ch.	Freq. (MHz)	Power Drift (dB)	1g Meas SAR (W/kg)	Meas. Power (dBm)	Max. tune-up power (dBm)	Scalin g Factor	Duty cycle (%)	Duty cycle Factor	1g Report SAR (W/kg)	Meas. No.
Hotspot															
Ant.2	5.2G	802.11 n40	Front Side	10	46	5230	0.11	0.174	9.64	10.00	1.086	83.17	1.202	0.227	/
			Back Side	10	46	5230	-0.12	0.048	9.64	10.00	1.086	83.17	1.202	0.063	/
			Left Edge	10	46	5230	0.05	0.083	9.64	10.00	1.086	83.17	1.202	0.108	/
			Right Edge	10	46	5230	0.17	0.053	9.64	10.00	1.086	83.17	1.202	0.069	/
			Top Edge	10	46	5230	0.18	0.210	9.64	10.00	1.086	83.17	1.202	0.274	14#
			Bottom Edge	10	46	5230	-0.13	0.021	9.64	10.00	1.086	83.17	1.202	0.027	/
Note: Refer to ANNEX C for the detailed test data for each test configuration.															

Antenn a	Fre. Band	Mode	Position	Dist. (mm)	Ch.	Freq. (MHz)	Power Drift (dB)	10g Meas SAR (W/kg)	Meas. Power (dBm)	Max. tune-up power (dBm)	Scalin g Factor	Duty cycle (%)	Duty cycle Factor	10g Report SAR (W/kg)	Meas. No.
Specific															
Ant.2	5.6G	802.11 n40	Front Side	0	118	5590	-0.12	0.400	9.91	10.00	1.021	83.17	1.202	0.491	/
			Back Side	0	118	5590	0.18	0.032	9.91	10.00	1.021	83.17	1.202	0.039	/
			Left Edge	0	118	5590	0.18	0.053	9.91	10.00	1.021	83.17	1.202	0.065	/
			Right Edge	0	118	5590	-0.05	0.023	9.91	10.00	1.021	83.17	1.202	0.028	/
			Top Edge	0	118	5590	0.17	0.473	9.91	10.00	1.021	83.17	1.202	0.580	15#
			Bottom Edge	0	118	5590	-0.10	0.046	9.91	10.00	1.021	83.17	1.202	0.056	/
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.

Note: For 1g SAR, the highest measured 1g SAR is $0.442 < 0.80$ W/kg, 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 Simultaneous Transmission Mode Consider

No.	Simultaneous Tx Combination	Hotspot
1	WWAN+WIFI2.4G	Yes
2	WWAN+WIFI5G	Yes
Note: 1. When stand-alone SAR is not required for a side of antenna, its SAR is considered zero in the SAR summing process to assess Multi-band transmission SAR compliance. 2. The maximum SAR summation is calculated based on the same configuration and test position.		

12.2 Sum SAR of Simultaneous Transmission

12.2.1 Hotspot Simultaneous Transmission SAR Evaluation for WWAN and WLAN

Band	Antenna	Position	Stand alone SAR			SUM SAR	SUM SAR
			1	2	3		
			WWAN	WLAN 2.4G	WLAN 5G	1+2	1+3
WCDMA B2	Ant.1	Front Side 10mm	0.212	0.099	0.227	0.311	0.439
		Back Side 10mm	0.294	0.015	0.063	0.309	0.357
		Left Edge 10mm	0.048	0.007	0.108	0.055	0.156
		Right Edge 10mm	0.365	0.052	0.069	0.417	0.434
		Top Edge 10mm	0.242	0.081	0.274	0.323	0.516
		Bottom Edge 10mm	0.116	0.016	0.027	0.132	0.143
WCDMA B4	Ant.1	Front Side 10mm	0.307	0.099	0.227	0.406	0.534
		Back Side 10mm	0.332	0.015	0.063	0.347	0.395
		Left Edge 10mm	0.053	0.007	0.108	0.060	0.161
		Right Edge 10mm	0.278	0.052	0.069	0.330	0.347
		Top Edge 10mm	0.193	0.081	0.274	0.274	0.467
		Bottom Edge 10mm	0.104	0.016	0.027	0.120	0.131
WCDMA B5	Ant.1	Front Side 10mm	0.212	0.099	0.227	0.311	0.439
		Back Side 10mm	0.063	0.015	0.063	0.078	0.126
		Left Edge 10mm	0.012	0.007	0.108	0.019	0.120
		Right Edge 10mm	0.044	0.052	0.069	0.096	0.113
		Top Edge 10mm	0.006	0.081	0.274	0.087	0.280
		Bottom Edge 10mm	0.038	0.016	0.027	0.054	0.065
LTE B2	Ant.1	Front Side 10mm	0.314	0.099	0.227	0.413	0.541
		Back Side 10mm	0.329	0.015	0.063	0.344	0.392
		Left Edge 10mm	0.115	0.007	0.108	0.122	0.223
		Right Edge 10mm	0.487	0.052	0.069	0.539	0.556
		Top Edge 10mm	0.258	0.081	0.274	0.339	0.532
		Bottom Edge 10mm	0.151	0.016	0.027	0.167	0.178
LTE B4	Ant.1	Front Side 10mm	0.398	0.099	0.227	0.497	0.625
		Back Side 10mm	0.415	0.015	0.063	0.430	0.478
		Left Edge 10mm	0.097	0.007	0.108	0.104	0.205
		Right Edge 10mm	0.403	0.052	0.069	0.455	0.472
		Top Edge 10mm	0.276	0.081	0.274	0.357	0.550
		Bottom Edge 10mm	0.140	0.016	0.027	0.156	0.167
LTE B5	Ant.1	Front Side 10mm	0.266	0.099	0.227	0.365	0.493
		Back Side 10mm	0.096	0.015	0.063	0.111	0.159
		Left Edge 10mm	0.013	0.007	0.108	0.020	0.121
		Right Edge 10mm	0.072	0.052	0.069	0.124	0.141
		Top Edge 10mm	0.003	0.081	0.274	0.084	0.277
		Bottom Edge 10mm	0.062	0.016	0.027	0.078	0.089
LTE B12	Ant.1	Front Side 10mm	0.314	0.099	0.227	0.413	0.541

		Back Side 10mm	0.219	0.015	0.063	0.234	0.282
		Left Edge 10mm	0.024	0.007	0.108	0.031	0.132
		Right Edge 10mm	0.192	0.052	0.069	0.244	0.261
		Top Edge 10mm	0.055	0.081	0.274	0.136	0.329
		Bottom Edge 10mm	0.100	0.016	0.027	0.116	0.127
LTE B17	Ant.1	Front Side 10mm	0.335	0.099	0.227	0.434	0.562
		Back Side 10mm	0.235	0.015	0.063	0.250	0.298
		Left Edge 10mm	0.023	0.007	0.108	0.030	0.131
		Right Edge 10mm	0.184	0.052	0.069	0.236	0.253
		Top Edge 10mm	0.064	0.081	0.274	0.145	0.338
		Bottom Edge 10mm	0.104	0.016	0.027	0.120	0.131
LTE B18	Ant.1	Front Side 10mm	0.358	0.099	0.227	0.457	0.585
		Back Side 10mm	0.102	0.015	0.063	0.117	0.165
		Left Edge 10mm	0.019	0.007	0.108	0.026	0.127
		Right Edge 10mm	0.061	0.052	0.069	0.113	0.130
		Top Edge 10mm	0.009	0.081	0.274	0.090	0.283
		Bottom Edge 10mm	0.072	0.016	0.027	0.088	0.099
LTE B19	Ant.1	Front Side 10mm	0.350	0.099	0.227	0.449	0.577
		Back Side 10mm	0.149	0.015	0.063	0.164	0.212
		Left Edge 10mm	0.105	0.007	0.108	0.112	0.213
		Right Edge 10mm	0.081	0.052	0.069	0.133	0.150
		Top Edge 10mm	0.007	0.081	0.274	0.088	0.281
		Bottom Edge 10mm	0.108	0.016	0.027	0.124	0.135
LTE B26	Ant.1	Front Side 10mm	0.258	0.099	0.227	0.357	0.485
		Back Side 10mm	0.117	0.015	0.063	0.132	0.180
		Left Edge 10mm	0.028	0.007	0.108	0.035	0.136
		Right Edge 10mm	0.080	0.052	0.069	0.132	0.149
		Top Edge 10mm	0.018	0.081	0.274	0.099	0.292
		Bottom Edge 10mm	0.076	0.016	0.027	0.092	0.103
LTE B41	Ant.1	Front Side 10mm	0.082	0.099	0.227	0.181	0.309
		Back Side 10mm	0.222	0.015	0.063	0.237	0.285
		Left Edge 10mm	0.029	0.007	0.108	0.036	0.137
		Right Edge 10mm	0.417	0.052	0.069	0.469	0.486
		Top Edge 10mm	0.007	0.081	0.274	0.088	0.281
		Bottom Edge 10mm	0.104	0.016	0.027	0.120	0.131

Note:

1: The highest Summed 1g SAR is 0.625 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: 1208	2024/08/19	2027/08/18
835MHz Validation Dipole	Speag	D835V2	SN: 4d187	2024/05/08	2027/05/07
1750MHz Validation Dipole	Speag	D1750V2	SN: 1130	2024/05/08	2027/05/07
1950MHz Validation Dipole	Speag	D1950V3	SN: 1240	2024/08/22	2027/08/21
2450MHz Validation Dipole	Speag	D2450V2	SN: 952	2024/05/07	2027/05/06
2600MHz Validation Dipole	Speag	D2600V2	SN: 1095	2024/05/08	2027/05/07
5GHz Validation Dipole	Speag	D5GHzV2	SN: 1200	2024/05/09	2027/05/08
Data Acquisition Electronics	Speag	DAE4	SN: 1711	2024/03/18	2025/03/17
E-Field Probe	Speag	EX3DV4	SN: 7510	2024/06/25	2025/06/24
Signal Generator	R&S	SMB100A	177746	2024/04/24	2025/04/23
Power Meter	R&S	NRVD-B2	835843/014	2024/08/08	2025/08/07
Power Sensor	R&S	NRV-Z4	100381	2024/08/08	2025/08/07
Power Sensor	R&S	NRV-Z2	100211	2024/08/08	2025/08/07
Wireless Communication Test Set	Anritsu	MT8820C	6201144551	2024/05/14	2025/05/13
Network Analyzer	Agilent	E5071C	MY46103472	2024/09/11	2025/09/10
Thermometer	Elitech	RC-4HC	EF7216002985	2024/10/31	2025/10/30
Thermometer	Elitech	RC-4HC	EF720B004811	2024/10/31	2025/10/30
Power Amplifier	Mini-Circuits	ZVA-183W-S+	932502132	N/A	N/A
Dielectric Probe Kit	Speag	DAK3.5	SN: 1312	N/A	N/A
Phantom	Speag	SAM	SN: 1576	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. (°C)	Meas. Conductivity (σ) (S/m)	Meas. Permittivity (ϵ)	Target Conductivity (σ) (S/m)	Target Permittivity (ϵ)	Conductivity Tolerance (%)	Permittivity Tolerance (%)
2025.02.06	Head	750	21.4	0.90	41.00	0.89	41.94	1.12	-2.24
2025.02.05	Head	835	21.1	0.90	40.66	0.90	41.50	0.00	-2.02
2025.02.06	Head	1750	21.4	1.34	39.88	1.37	40.08	-2.19	-0.50
2025.02.06	Head	1950	21.4	1.42	39.08	1.40	40.00	1.43	-2.30
2025.02.07	Head	2450	21.7	1.83	39.80	1.80	39.20	1.67	1.53
2025.02.07	Head	2600	21.7	1.97	38.42	1.96	39.01	0.51	-1.51
2025.02.07	Head	5250	21.7	4.61	35.96	4.71	35.93	-2.12	0.08
2025.02.07	Head	5600	21.7	5.05	35.31	5.07	35.53	-0.39	-0.62

Note: The tolerance limit of Conductivity and Permittivity is $\pm 5\%$.

ANNEX B SYSTEM CHECK RESULT

Comparing to the original SAR value provided by SPEAG, the validation data should be within its specification 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 (%)
2025.02.06	Head	750	100	0.837	8.37	8.46	-1.06
2025.02.05	Head	835	100	0.931	9.31	9.74	-4.41
2025.02.06	Head	1750	100	3.530	35.30	37.00	-4.59
2025.02.06	Head	1950	100	4.130	41.30	41.70	-0.96
2025.02.07	Head	2450	100	5.250	52.50	52.60	-0.19
2025.02.07	Head	2600	100	5.410	54.10	55.90	-3.22
2025.02.07	Head	5250	100	7.950	79.50	77.70	2.32
Note: The tolerance limit of System validation $\pm 10\%$.							

Head liquid 10g

Date	Liquid Type	Freq. (MHz)	Power (mW)	Measured SAR (W/kg)	Normalized SAR (W/kg)	Dipole SAR (W/kg)	Tolerance (%)
2025.02.07	Head	5600	100	2.240	22.40	23.10	-3.03
Note: The tolerance limit of System validation $\pm 10\%$.							

System Performance Check Data (750MHz)

Date: 2025.02.06

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

Medium parameters used: $f = 750$ MHz; $\sigma = 0.899$ S/m; $\epsilon_r = 41.002$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Ambient Temperature: 22.3°C Liquid Temperature: 21.4°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7510; ConvF(10.29, 10.29, 10.29); Calibrated: 2024.06.25;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1711; Calibrated: 2024.03.18
- Phantom: SAM1; Type: QD000P40CD; Serial: TP:1576
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

CW750/Area Scan (61x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.939 W/kg

CW750/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 34.69 V/m; Power Drift = -0.05 dB

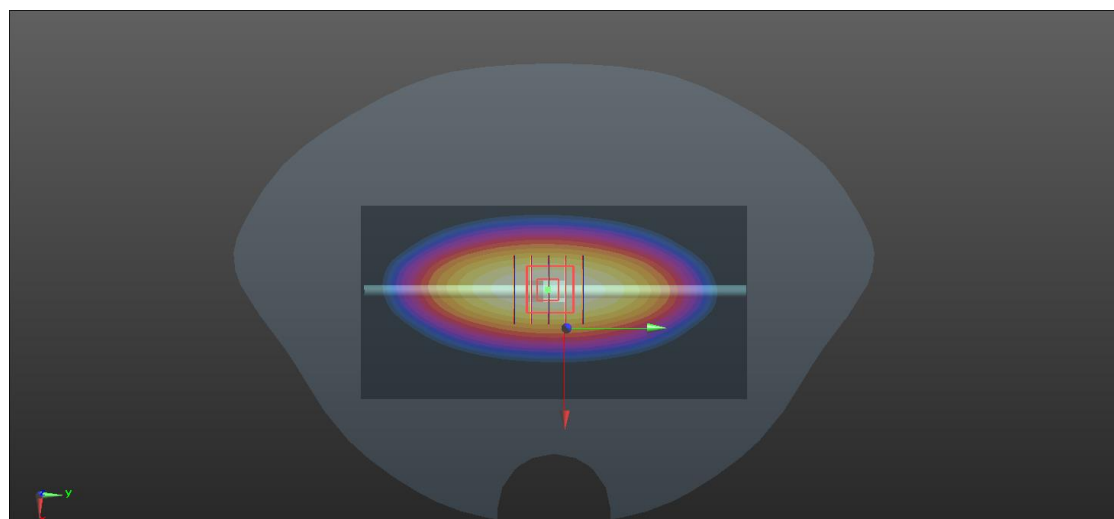
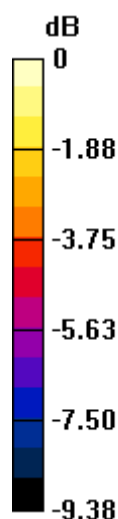
Peak SAR (extrapolated) = 1.21 W/kg

SAR(1 g) = 0.837 W/kg; SAR(10 g) = 0.565 W/kg

Smallest distance from peaks to all points 3 dB below = 19.2 mm

Ratio of SAR at M2 to SAR at M1 = 69.7%

Maximum value of SAR (measured) = 0.900 W/kg



0 dB = 0.900 W/kg

System Performance Check Data (835MHz)

Date: 2025.02.05

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

Medium parameters used (interpolated): $f = 835$ MHz; $\sigma = 0.899$ S/m; $\epsilon_r = 40.662$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Ambient Temperature: 22.2°C Liquid Temperature: 21.1°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7510; ConvF(9.99, 9.99, 9.99); Calibrated: 2024.06.25;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1711; Calibrated: 2024.03.18
- Phantom: SAM1; Type: QD000P40CD; Serial: TP:1576
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

CW835/Area Scan (61x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.989 W/kg

CW835/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 35.20 V/m; Power Drift = -0.06 dB

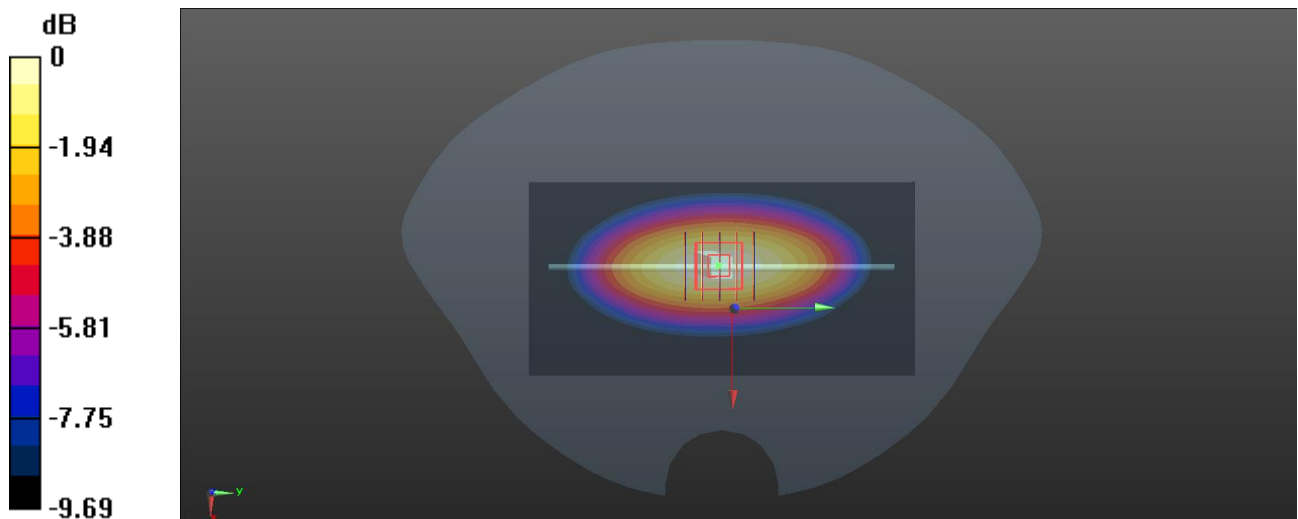
Peak SAR (extrapolated) = 1.35 W/kg

SAR(1 g) = 0.931 W/kg; SAR(10 g) = 0.624 W/kg

Smallest distance from peaks to all points 3 dB below = 20.5 mm

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

Maximum value of SAR (measured) = 1.00 W/kg



0 dB = 1.00 W/kg

System Performance Check Data (1750MHz)

Date: 2025.02.06

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

Medium parameters used: $f = 1750$ MHz; $\sigma = 1.344$ S/m; $\epsilon_r = 39.877$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Ambient Temperature: 22.3°C Liquid Temperature: 21.4°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7510; ConvF(8.67, 8.67, 8.67); Calibrated: 2024.06.25;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1711; Calibrated: 2024.03.18
- Phantom: SAM1; Type: QD000P40CD; Serial: TP:1576
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

CW1750/Area Scan (61x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 4.30 W/kg

CW1750/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 57.69 V/m; Power Drift = -0.15 dB

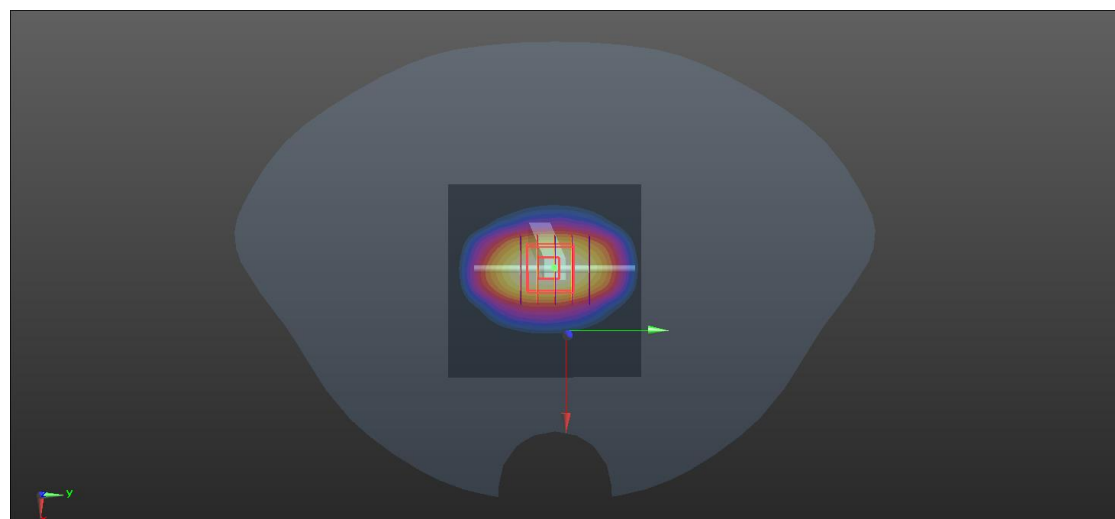
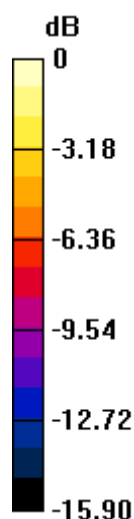
Peak SAR (extrapolated) = 6.15 W/kg

SAR(1 g) = 3.53 W/kg; SAR(10 g) = 1.92 W/kg

Smallest distance from peaks to all points 3 dB below = 11.2 mm

Ratio of SAR at M2 to SAR at M1 = 59.2%

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



0 dB = 3.92 W/kg

System Performance Check Data (1950MHz)

Date: 2025.02.06

Communication System Band: D1950 (1950.0 MHz); Frequency: 1950 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 1950$ MHz; $\sigma = 1.421$ S/m; $\epsilon_r = 39.078$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Ambient Temperature: 22.3°C Liquid Temperature: 21.4°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7510; ConvF(8.33, 8.33, 8.33); Calibrated: 2024.06.25;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1711; Calibrated: 2024.03.18
- Phantom: SAM1; Type: QD000P40CD; Serial: TP:1576
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

CW1950/Area Scan (61x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 4.96 W/kg

CW1950/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 58.69 V/m; Power Drift = -0.12 dB

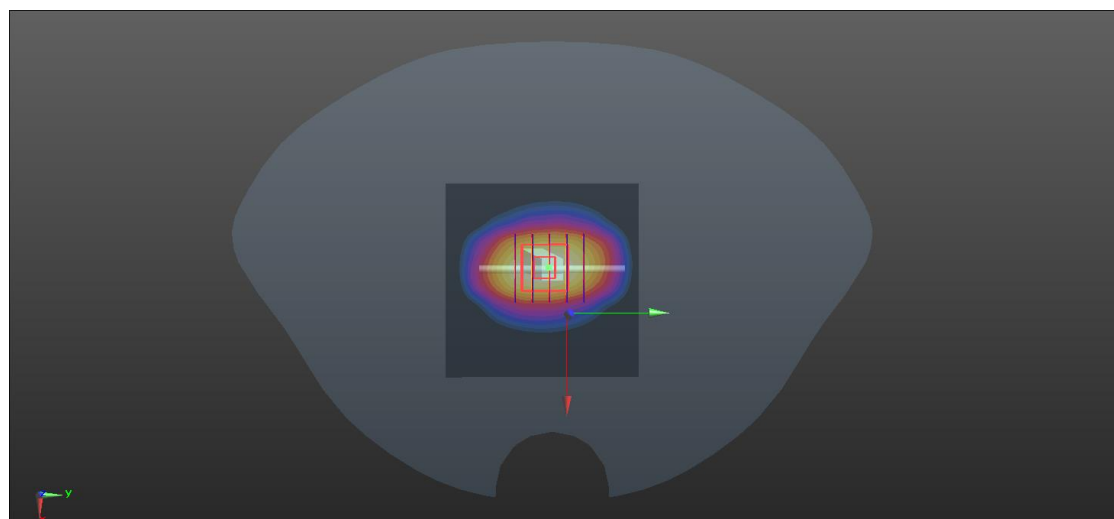
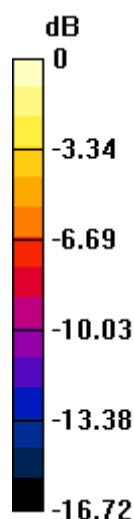
Peak SAR (extrapolated) = 7.38 W/kg

SAR(1 g) = 4.13 W/kg; SAR(10 g) = 2.18 W/kg

Smallest distance from peaks to all points 3 dB below = 11.2 mm

Ratio of SAR at M2 to SAR at M1 = 57.9%

Maximum value of SAR (measured) = 4.63 W/kg



0 dB = 4.63 W/kg

System Performance Check Data (2450MHz)

Date: 2025.02.07

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

Medium parameters used (interpolated): $f = 2450$ MHz; $\sigma = 1.825$ S/m; $\epsilon_r = 39.797$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Ambient Temperature: 22.5°C Liquid Temperature: 21.7°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7510; ConvF(7.75, 7.75, 7.75); Calibrated: 2024.06.25;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1711; Calibrated: 2024.03.18
- Phantom: SAM1; Type: QD000P40CD; Serial: TP:1576
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

CW2450/Area Scan (81x81x1): Interpolated grid: $dx=1.200$ mm, $dy=1.200$ mm

Maximum value of SAR (interpolated) = 6.10 W/kg

CW2450/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 57.12 V/m; Power Drift = 0.01 dB

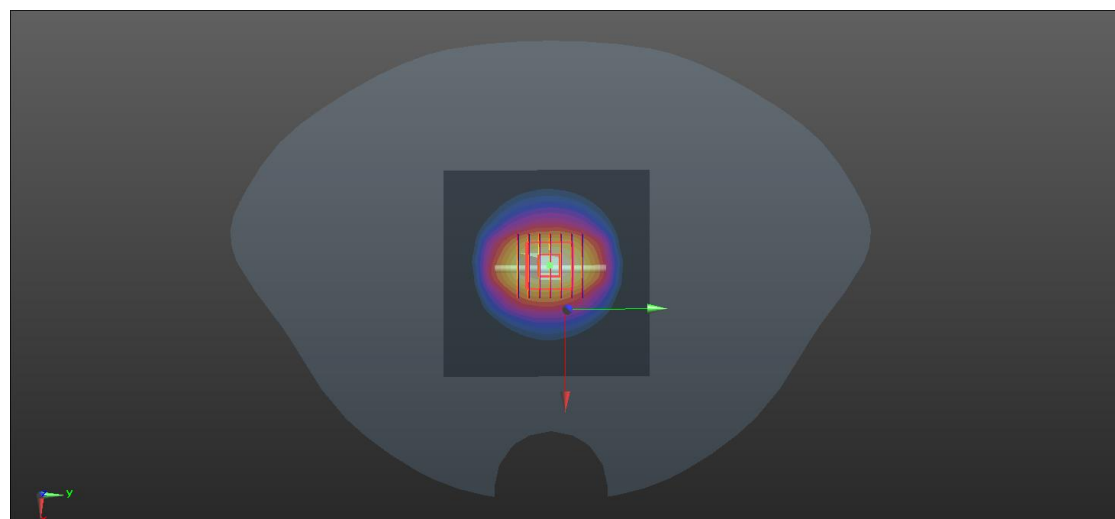
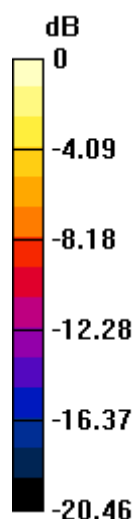
Peak SAR (extrapolated) = 10.5 W/kg

SAR(1 g) = 5.25 W/kg; SAR(10 g) = 2.51 W/kg

Smallest distance from peaks to all points 3 dB below = 9.5 mm

Ratio of SAR at M2 to SAR at M1 = 52.3%

Maximum value of SAR (measured) = 6.08 W/kg



0 dB = 6.08 W/kg

System Performance Check Data (2600MHz)

Date: 2025.02.07

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

Medium parameters used: $f = 2600$ MHz; $\sigma = 1.971$ S/m; $\epsilon_r = 38.422$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Ambient Temperature: 22.5°C Liquid Temperature: 21.7°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7510; ConvF(7.59, 7.59, 7.59); Calibrated: 2024.06.25;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1711; Calibrated: 2024.03.18
- Phantom: SAM1; Type: QD000P40CD; Serial: TP:1576
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

CW2600/Area Scan (81x81x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm

Maximum value of SAR (interpolated) = 6.55 W/kg

CW2600/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 57.82 V/m; Power Drift = -0.09 dB

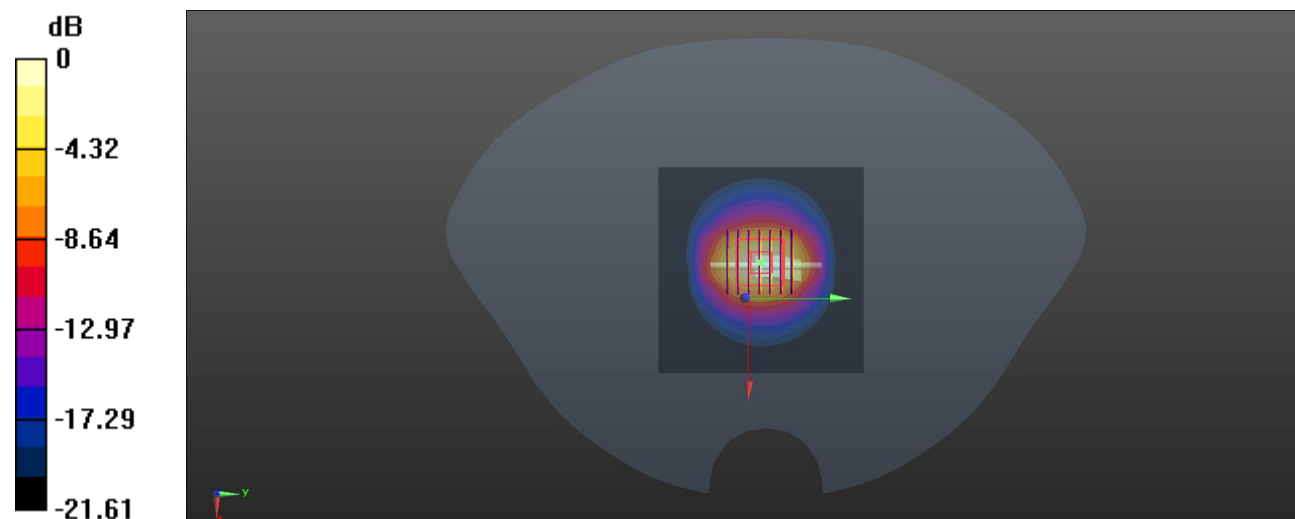
Peak SAR (extrapolated) = 11.1 W/kg

SAR(1 g) = 5.41 W/kg; SAR(10 g) = 2.46 W/kg

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

Ratio of SAR at M2 to SAR at M1 = 50.8%

Maximum value of SAR (measured) = 6.28 W/kg



0 dB = 6.28 W/kg

System Performance Check Data (5250MHz)

Date: 2025.02.07

Communication System Band: D5GHz (5000.0 - 6000.0 MHz); Frequency: 5250 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated): $f = 5250$ MHz; $\sigma = 4.613$ S/m; $\epsilon_r = 35.956$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Ambient Temperature: 22.5°C Liquid Temperature: 21.7°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7510; ConvF(5.74, 5.74, 5.74); Calibrated: 2024.06.25;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1711; Calibrated: 2024.03.18
- Phantom: SAM1; Type: QD000P40CD; Serial: TP:1576
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

CW5250/Area Scan (101x101x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 17.1 W/kg

CW5250/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 42.40 V/m; Power Drift = 0.01 dB

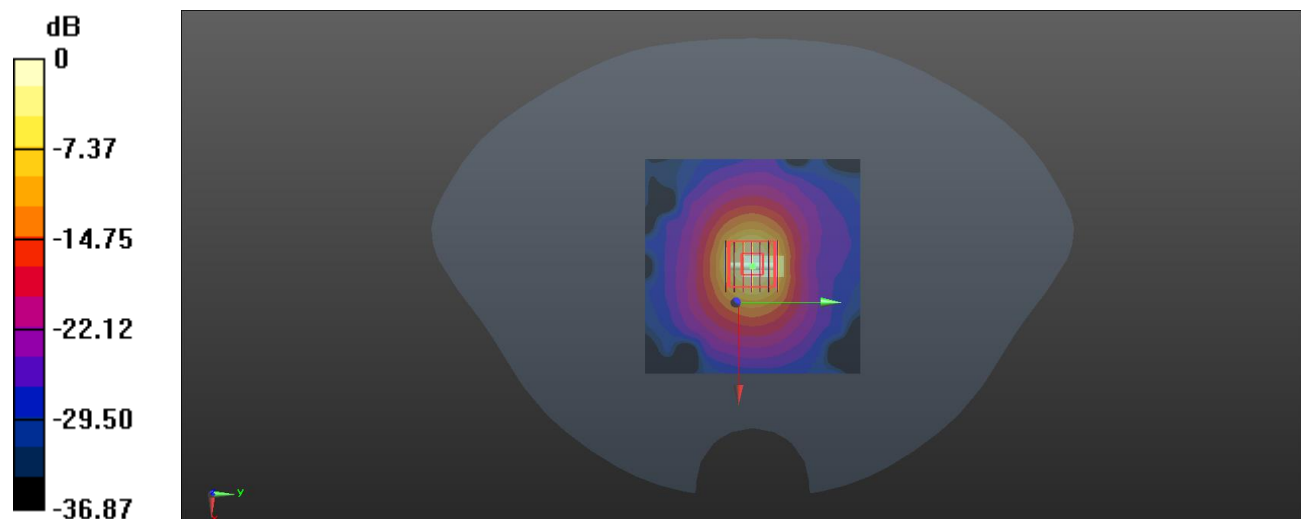
Peak SAR (extrapolated) = 33.1 W/kg

SAR(1 g) = 7.95 W/kg; SAR(10 g) = 2.28 W/kg

Smallest distance from peaks to all points 3 dB below = 7.5 mm

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

Maximum value of SAR (measured) = 16.5 W/kg



0 dB = 16.5 W/kg

System Performance Check Data (5600MHz)

Date: 2025.02.07

Communication System Band: D5GHz (5000.0 - 6000.0 MHz); Frequency: 5600 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 5600$ MHz; $\sigma = 5.054$ S/m; $\epsilon_r = 35.305$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Ambient Temperature: 22.5°C Liquid Temperature: 21.7°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7510; ConvF(5, 5, 5); Calibrated: 2024.06.25;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1711; Calibrated: 2024.03.18
- Phantom: SAM1; Type: QD000P40CD; Serial: TP:1576
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

CW5600/Area Scan (101x101x1): Interpolated grid: $dx=1.000$ mm, $dy=1.000$ mm

Maximum value of SAR (interpolated) = 17.5 W/kg

CW5600/Zoom Scan (7x7x12)/Cube 0: Measurement grid: $dx=4$ mm, $dy=4$ mm, $dz=2$ mm

Reference Value = 42.20 V/m; Power Drift = -0.11 dB

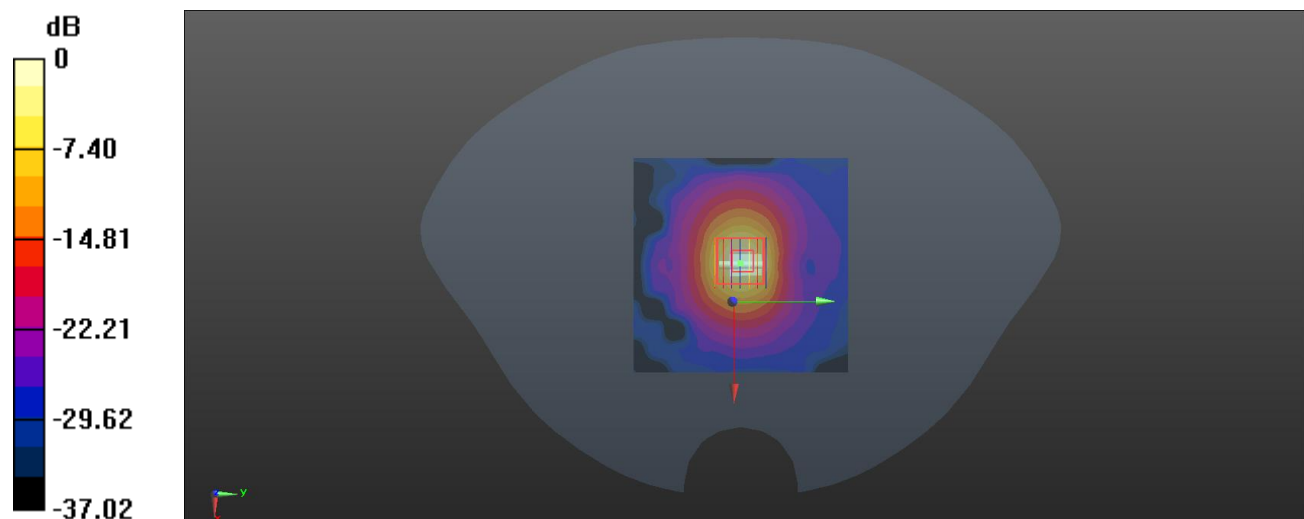
Peak SAR (extrapolated) = 35.6 W/kg

SAR(1 g) = 7.97 W/kg; SAR(10 g) = 2.24 W/kg

Smallest distance from peaks to all points 3 dB below = 7.4 mm

Ratio of SAR at M2 to SAR at M1 = 51%

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



0 dB = 16.8 W/kg

ANNEX C TEST DATA

Meas.1 Body Plane with Right Edge 10mm on Middle Channel in WCDMA Band2 mode with Antenna 1

Date: 2025.02.06

Communication System Band:Band2; Frequency: 1880 MHz;Duty Cycle: 1:1

Medium parameters used (interpolated): $f = 1880$ MHz; $\sigma = 1.388$ S/m; $\epsilon_r = 40.053$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Ambient Temperature:22.3°C Liquid Temperature:21.4°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7510; ConvF(8.33, 8.33, 8.33); Calibrated: 2024.06.25;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1711; Calibrated: 2024.03.18
- Phantom: SAM1; Type: QD000P40CD; Serial: TP:1576
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Ch9400/Area Scan (71x91x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.367 W/kg

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

Reference Value = 14.10 V/m; Power Drift = 0.02 dB

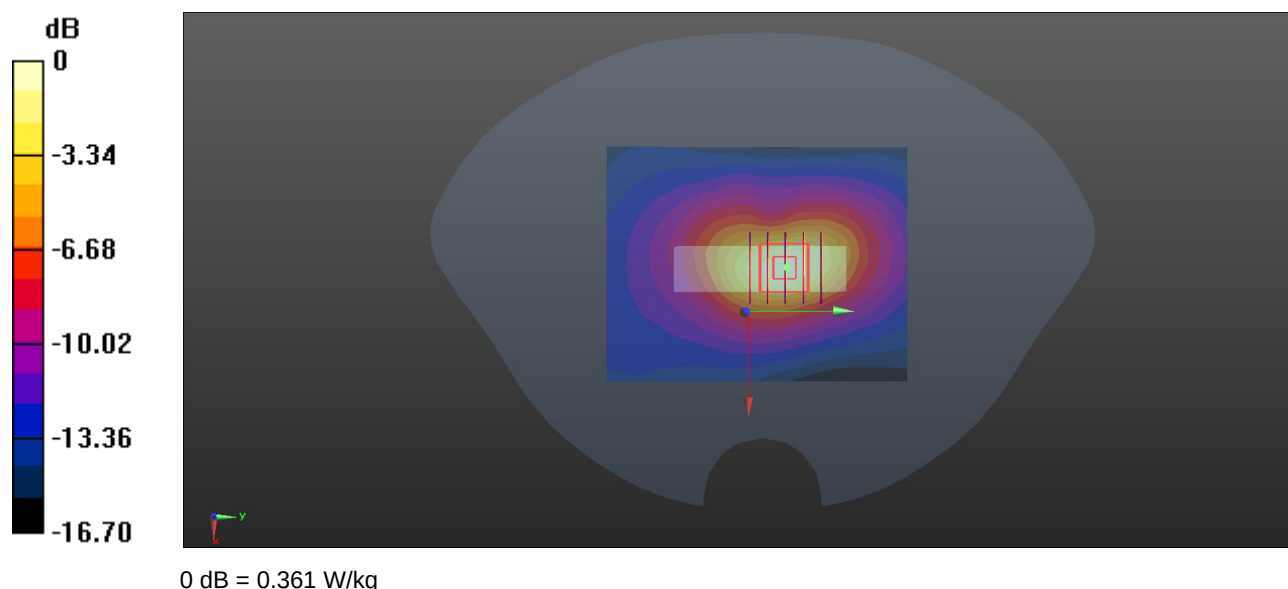
Peak SAR (extrapolated) = 0.522 W/kg

SAR(1 g) = 0.325 W/kg; SAR(10 g) = 0.178 W/kg

Smallest distance from peaks to all points 3 dB below = 11.2 mm

Ratio of SAR at M2 to SAR at M1 = 63.2%

Maximum value of SAR (measured) = 0.361 W/kg



Meas.2 Body Plane with Back Side 10mm on Middle Channel in WCDMA Band4 mode with Antenna 1

Date: 2025.02.06

Communication System Band: Band4; Frequency: 1732.4 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated): $f = 1732.4$ MHz; $\sigma = 1.32$ S/m; $\epsilon_r = 40.284$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Ambient Temperature: 22.3°C Liquid Temperature: 21.4°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7510; ConvF(8.67, 8.67, 8.67); Calibrated: 2024.06.25;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1711; Calibrated: 2024.03.18
- Phantom: SAM1; Type: QD000P40CD; Serial: TP:1576
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Ch1412/Area Scan (71x91x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.355 W/kg

Ch1412/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 16.50 V/m; Power Drift = -0.04 dB

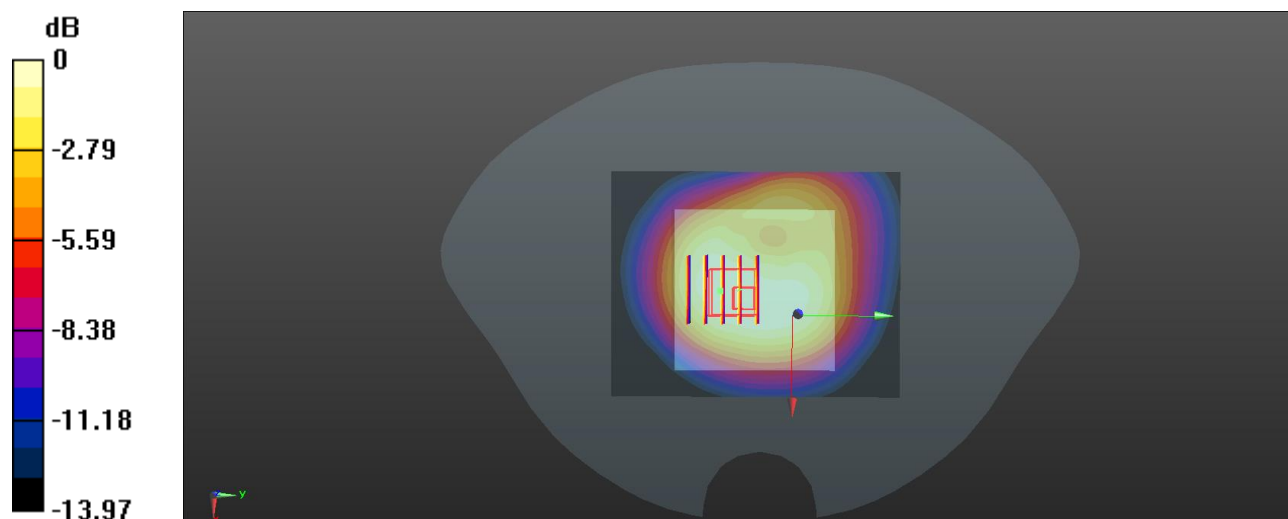
Peak SAR (extrapolated) = 0.450 W/kg

SAR(1 g) = 0.323 W/kg; SAR(10 g) = 0.220 W/kg

Smallest distance from peaks to all points 3 dB below = 26.5 mm

Ratio of SAR at M2 to SAR at M1 = 71.1%

Maximum value of SAR (measured) = 0.340 W/kg



Meas.3 Body Plane with Front Side 10mm on Low Channel in WCDMA Band5 mode with Antenna 1

Date: 2025.02.05

Communication System Band: 5; Frequency: 826.4 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated): $f = 826.4$ MHz; $\sigma = 0.889$ S/m; $\epsilon_r = 41.507$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Ambient Temperature: 22.2°C Liquid Temperature: 21.1°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7510; ConvF(9.99, 9.99, 9.99); Calibrated: 2024.06.25;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1711; Calibrated: 2024.03.18
- Phantom: SAM1; Type: QD000P40CD; Serial: TP:1576
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Ch4132/Area Scan (71x91x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.212 W/kg

Ch4132/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 12.39 V/m; Power Drift = 0.19 dB

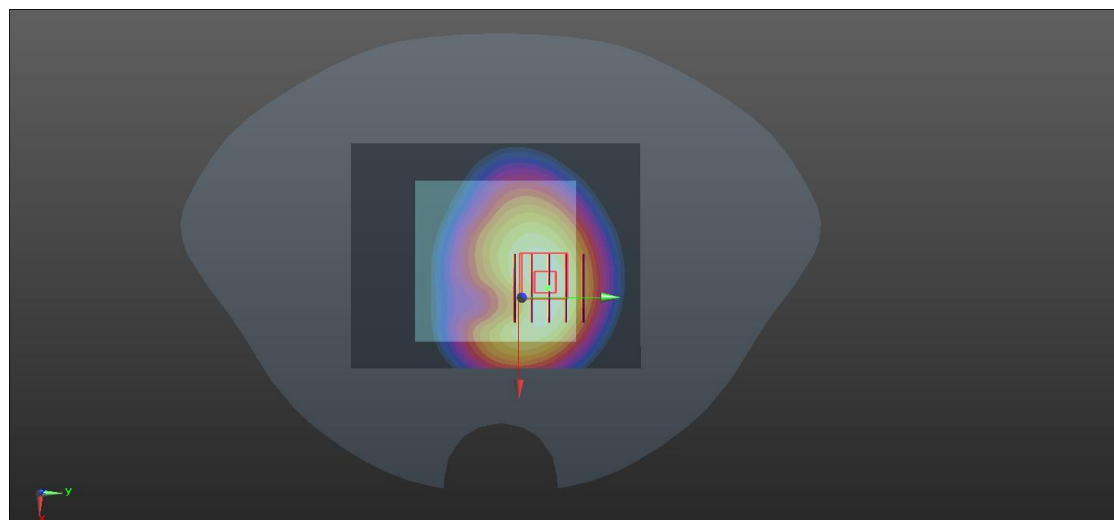
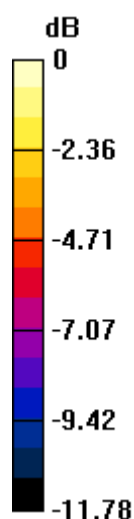
Peak SAR (extrapolated) = 0.298 W/kg

SAR(1 g) = 0.198 W/kg; SAR(10 g) = 0.129 W/kg

Smallest distance from peaks to all points 3 dB below = 17.2 mm

Ratio of SAR at M2 to SAR at M1 = 66.4%

Maximum value of SAR (measured) = 0.213 W/kg



0 dB = 0.213 W/kg

Meas.4 Body Plane with Right Edge 10mm on Middle Channel in LTE Band2 mode with Antenna 1

Date: 2025.02.06

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

Medium parameters used (interpolated): $f = 1880$ MHz; $\sigma = 1.388$ S/m; $\epsilon_r = 40.053$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Ambient Temperature: 22.3°C Liquid Temperature: 21.4°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7510; ConvF(8.33, 8.33, 8.33); Calibrated: 2024.06.25;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1711; Calibrated: 2024.03.18
- Phantom: SAM1; Type: QD000P40CD; Serial: TP:1576
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Ch18900/Area Scan (71x91x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.501 W/kg

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

Reference Value = 17.25 V/m; Power Drift = -0.09 dB

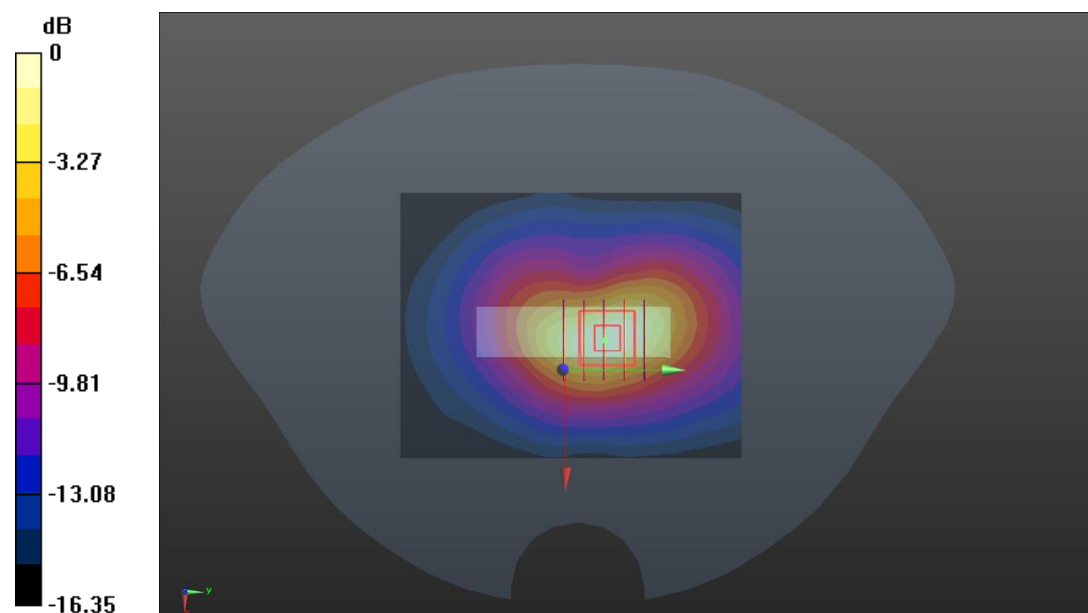
Peak SAR (extrapolated) = 0.705 W/kg

SAR(1 g) = 0.442 W/kg; SAR(10 g) = 0.251 W/kg

Smallest distance from peaks to all points 3 dB below = 11.2 mm

Ratio of SAR at M2 to SAR at M1 = 63.8%

Maximum value of SAR (measured) = 0.490 W/kg



0 dB = 0.490 W/kg

Meas.5 Body Plane with Back Side 10mm on Middle Channel in LTE Band4 mode with Antenna 1

Date: 2025.02.06

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

Medium parameters used (interpolated): $f = 1732.5$ MHz; $\sigma = 1.322$ S/m; $\epsilon_r = 40.266$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Ambient Temperature: 22.3°C Liquid Temperature: 21.4°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7510; ConvF(8.67, 8.67, 8.67); Calibrated: 2024.06.25;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1711; Calibrated: 2024.03.18
- Phantom: SAM1; Type: QD000P40CD; Serial: TP:1576
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Ch20175/Area Scan (71x91x1): Interpolated grid: $dx=1.500$ mm, $dy=1.500$ mm

Maximum value of SAR (interpolated) = 0.389 W/kg

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

Reference Value = 16.18 V/m; Power Drift = -0.10 dB

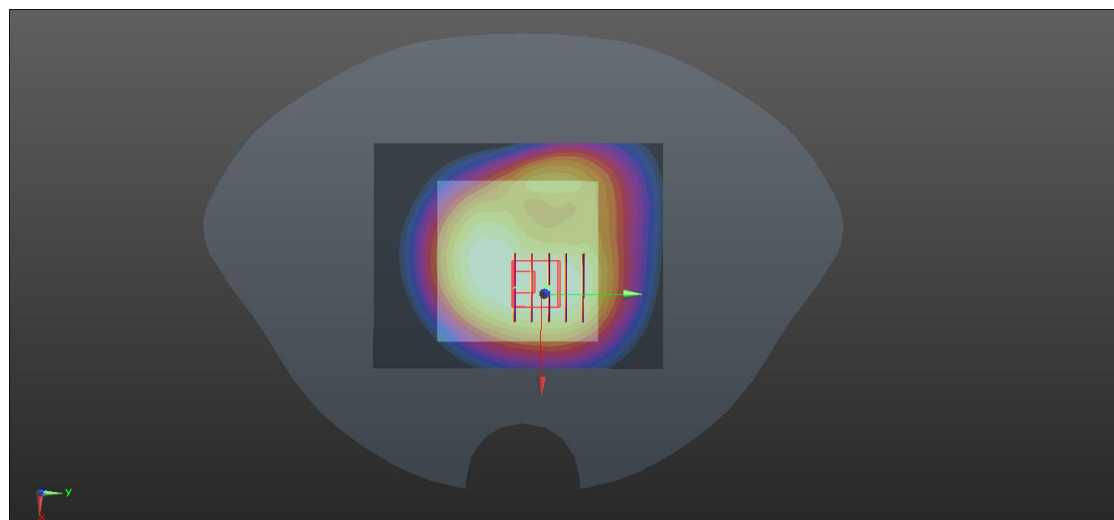
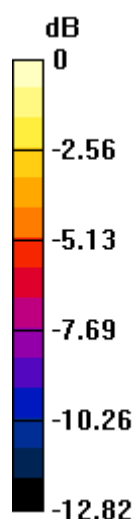
Peak SAR (extrapolated) = 0.483 W/kg

SAR(1 g) = 0.346 W/kg; SAR(10 g) = 0.238 W/kg

Smallest distance from peaks to all points 3 dB below = 11.8 mm

Ratio of SAR at M2 to SAR at M1 = 71.3%

Maximum value of SAR (measured) = 0.366 W/kg



0 dB = 0.366 W/kg

Meas.6 Body Plane with Front Side 10mm on Low Channel in LTE Band5 mode with Antenna 1

Date: 2025.02.05

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

Medium parameters used (interpolated): $f = 829 \text{ MHz}$; $\sigma = 0.895 \text{ S/m}$; $\epsilon_r = 41.504$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Ambient Temperature: 22.2°C Liquid Temperature: 21.1°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7510; ConvF(9.99, 9.99, 9.99); Calibrated: 2024.06.25;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1711; Calibrated: 2024.03.18
- Phantom: SAM1; Type: QD000P40CD; Serial: TP:1576
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Ch20450/Area Scan (71x91x1): Interpolated grid: $dx=1.500 \text{ mm}$, $dy=1.500 \text{ mm}$

Maximum value of SAR (interpolated) = 0.255 W/kg

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

Reference Value = 13.34 V/m; Power Drift = -0.15 dB

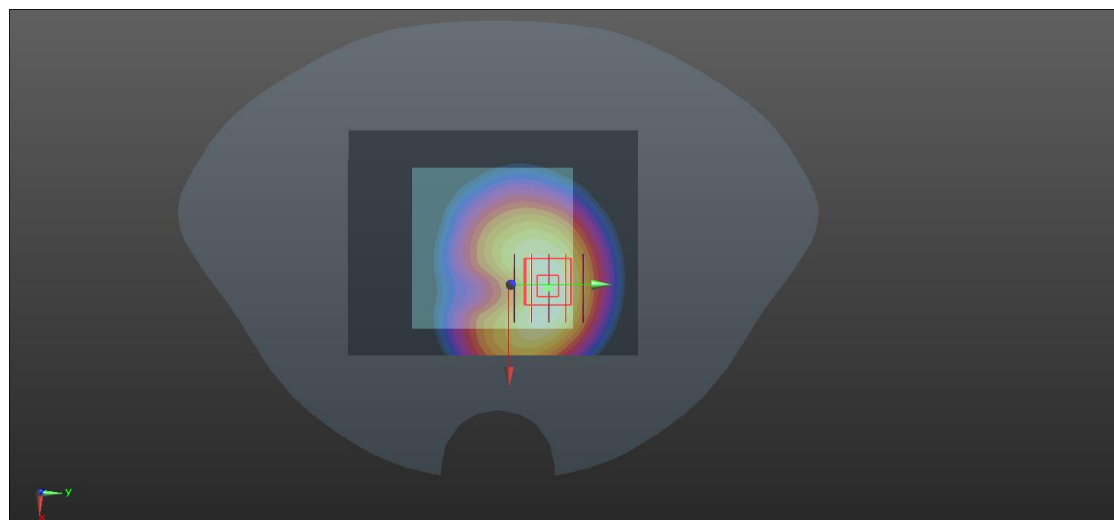
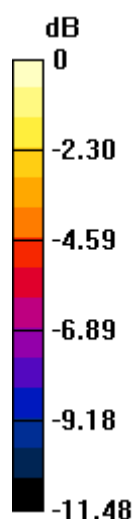
Peak SAR (extrapolated) = 0.366 W/kg

SAR(1 g) = 0.241 W/kg; SAR(10 g) = 0.155 W/kg

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

Ratio of SAR at M2 to SAR at M1 = 66.3%

Maximum value of SAR (measured) = 0.260 W/kg



0 dB = 0.260 W/kg

Meas.7 Body Plane with Front Side 10mm on High Channel in LTE Band12 mode with Antenna 1

Date: 2025.02.06

Communication System Band: Band 12; Frequency: 711 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated): $f = 711 \text{ MHz}$; $\sigma = 0.872 \text{ S/m}$; $\epsilon_r = 42.501$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Ambient Temperature: 22.3°C Liquid Temperature: 21.4°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7510; ConvF(10.29, 10.29, 10.29); Calibrated: 2024.06.25;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1711; Calibrated: 2024.03.18
- Phantom: SAM1; Type: QD000P40CD; Serial: TP:1576
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Ch23130/Area Scan (71x91x1): Interpolated grid: $dx=1.500 \text{ mm}$, $dy=1.500 \text{ mm}$

Maximum value of SAR (interpolated) = 0.292 W/kg

Ch23130/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 14.23 V/m; Power Drift = -0.09 dB

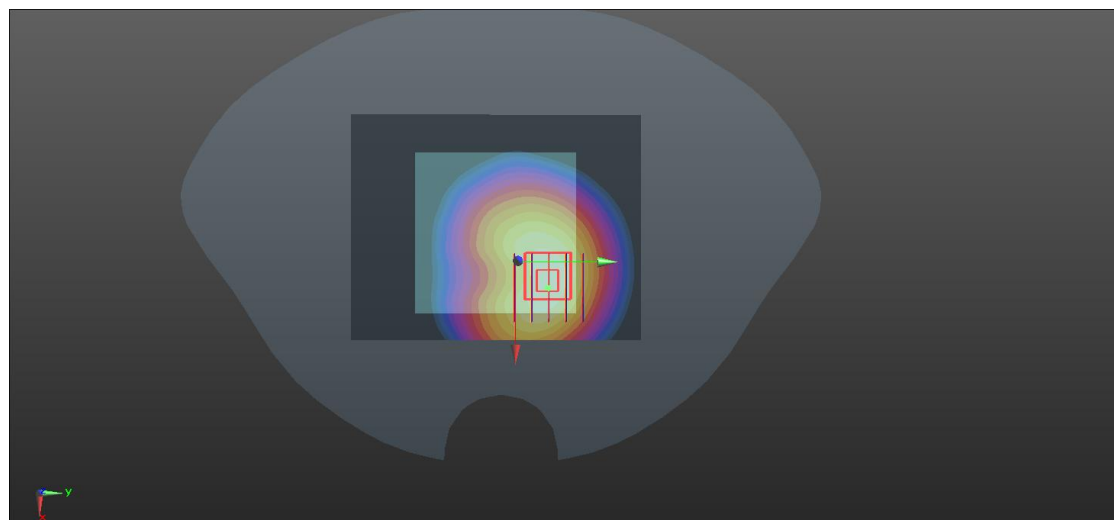
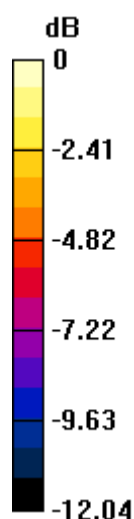
Peak SAR (extrapolated) = 0.428 W/kg

SAR(1 g) = 0.279 W/kg; SAR(10 g) = 0.179 W/kg

Smallest distance from peaks to all points 3 dB below = 18.7 mm

Ratio of SAR at M2 to SAR at M1 = 65.6%

Maximum value of SAR (measured) = 0.299 W/kg



0 dB = 0.299 W/kg

Meas.8 Body Plane with Front Side 10mm on High Channel in LTE Band17 mode with Antenna 1

Date: 2025.02.06

Communication System Band: Band 17; Frequency: 711 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated): $f = 711 \text{ MHz}$; $\sigma = 0.872 \text{ S/m}$; $\epsilon_r = 42.501$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Ambient Temperature: 22.3°C Liquid Temperature: 21.4°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7510; ConvF(10.29, 10.29, 10.29); Calibrated: 2024.06.25;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1711; Calibrated: 2024.03.18
- Phantom: SAM1; Type: QD000P40CD; Serial: TP:1576
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Ch23800/Area Scan (71x91x1): Interpolated grid: $dx=1.500 \text{ mm}$, $dy=1.500 \text{ mm}$

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

Ch23800/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 15.29 V/m; Power Drift = -0.07 dB

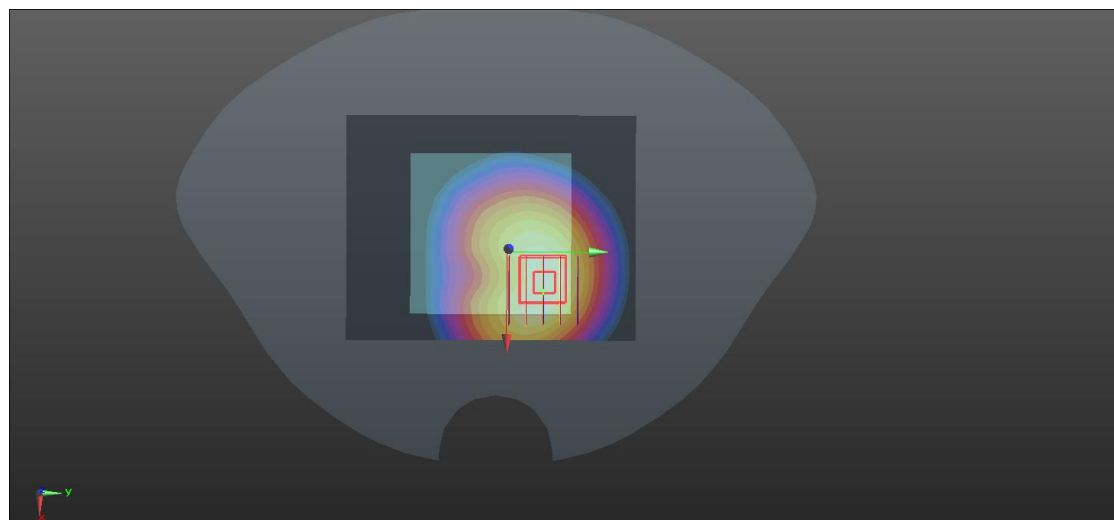
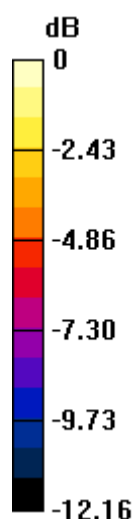
Peak SAR (extrapolated) = 0.479 W/kg

SAR(1 g) = 0.307 W/kg; SAR(10 g) = 0.197 W/kg

Smallest distance from peaks to all points 3 dB below = 17 mm

Ratio of SAR at M2 to SAR at M1 = 63.8%

Maximum value of SAR (measured) = 0.331 W/kg



0 dB = 0.331 W/kg

Meas.9 Body Plane with Front Side 10mm on Middle Channel in LTE Band18 mode with Antenna 1

Date: 2025.02.05

Communication System Band: Band 18; Frequency: 822.5 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated): $f = 822.5$ MHz; $\sigma = 0.884$ S/m; $\epsilon_r = 41.525$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Ambient Temperature: 22.2°C Liquid Temperature: 21.1°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7510; ConvF(9.99, 9.99, 9.99); Calibrated: 2024.06.25;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1711; Calibrated: 2024.03.18
- Phantom: SAM1; Type: QD000P40CD; Serial: TP:1576
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Ch23925/Area Scan (71x91x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

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

Ch23925/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 14.64 V/m; Power Drift = -0.02 dB

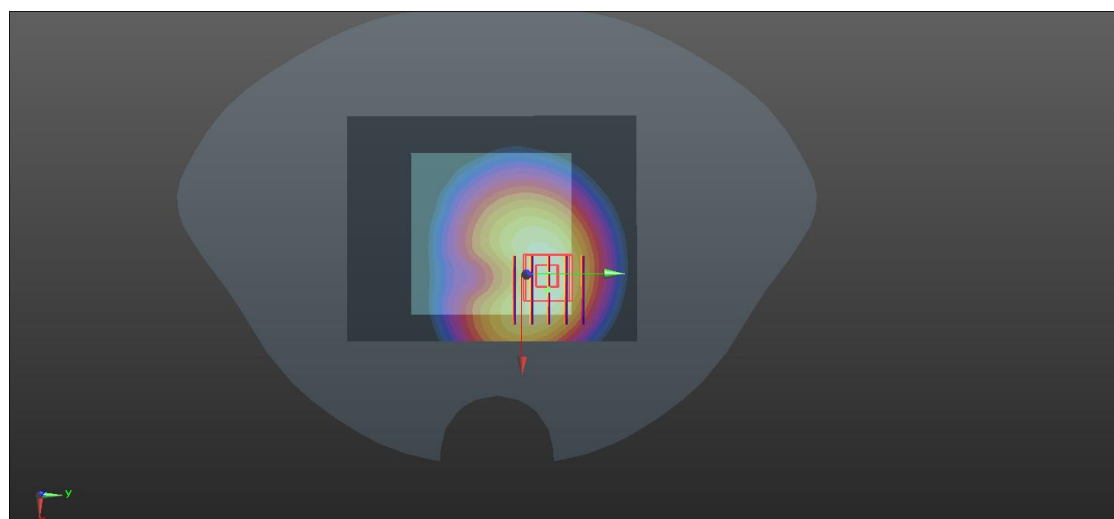
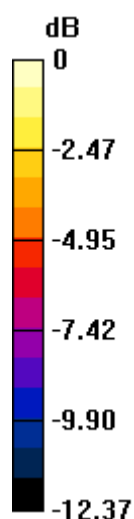
Peak SAR (extrapolated) = 0.468 W/kg

SAR(1 g) = 0.307 W/kg; SAR(10 g) = 0.196 W/kg

Smallest distance from peaks to all points 3 dB below = 16.1 mm

Ratio of SAR at M2 to SAR at M1 = 66.8%

Maximum value of SAR (measured) = 0.331 W/kg



0 dB = 0.331 W/kg

Meas.10 Body Plane with Front Side 10mm on Middle Channel in LTE Band19 mode with Antenna 1

Date: 2025.02.05

Communication System Band: Band 19; Frequency: 837.5 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated): $f = 837.5$ MHz; $\sigma = 0.903$ S/m; $\epsilon_r = 40.445$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Ambient Temperature: 22.2°C Liquid Temperature: 21.1°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7510; ConvF(9.99, 9.99, 9.99); Calibrated: 2024.06.25;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1711; Calibrated: 2024.03.18
- Phantom: SAM1; Type: QD000P40CD; Serial: TP:1576
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Ch24075/Area Scan (71x91x1): Interpolated grid: $dx=1.500$ mm, $dy=1.500$ mm

Maximum value of SAR (interpolated) = 0.331 W/kg

Ch24075/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8$ mm, $dy=8$ mm, $dz=5$ mm

Reference Value = 14.70 V/m; Power Drift = 0.03 dB

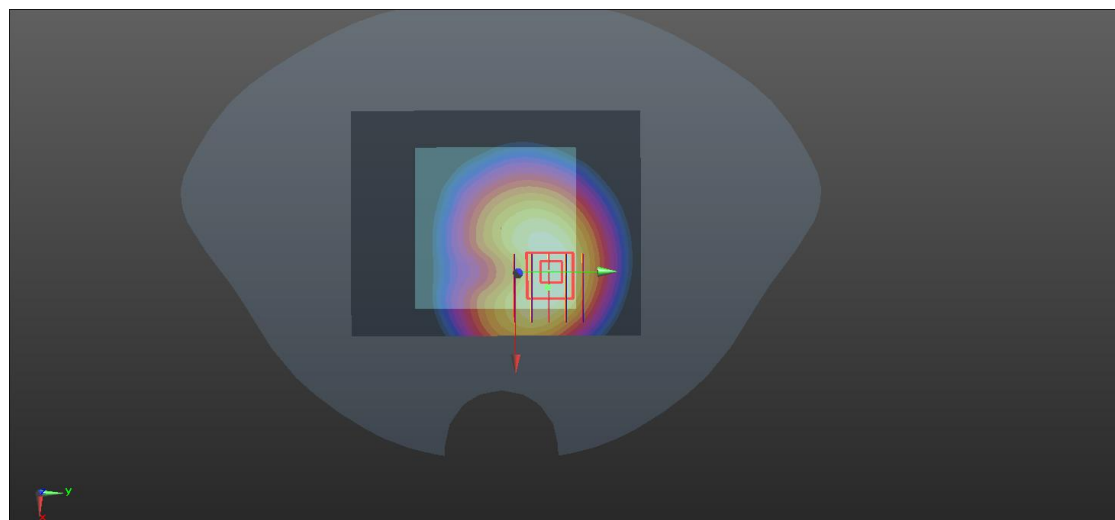
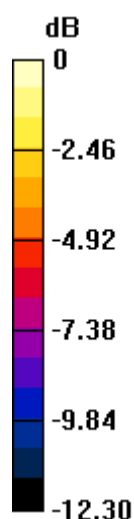
Peak SAR (extrapolated) = 0.475 W/kg

SAR(1 g) = 0.309 W/kg; SAR(10 g) = 0.196 W/kg

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

Ratio of SAR at M2 to SAR at M1 = 64.7%

Maximum value of SAR (measured) = 0.334 W/kg



0 dB = 0.334 W/kg

Meas.11 Body Plane with Front Side 10mm on High Channel in LTE Band26 mode with Antenna 1

Date: 2025.02.05

Communication System Band: Band26; Frequency: 841.5 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated): $f = 841.5$ MHz; $\sigma = 0.908$ S/m; $\epsilon_r = 40.444$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Ambient Temperature: 22.2°C Liquid Temperature: 21.1°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7510; ConvF(9.99, 9.99, 9.99); Calibrated: 2024.06.25;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1711; Calibrated: 2024.03.18
- Phantom: SAM1; Type: QD000P40CD; Serial: TP:1576
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Ch26965/Area Scan (71x91x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.242 W/kg

Ch26965/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 13.20 V/m; Power Drift = -0.04 dB

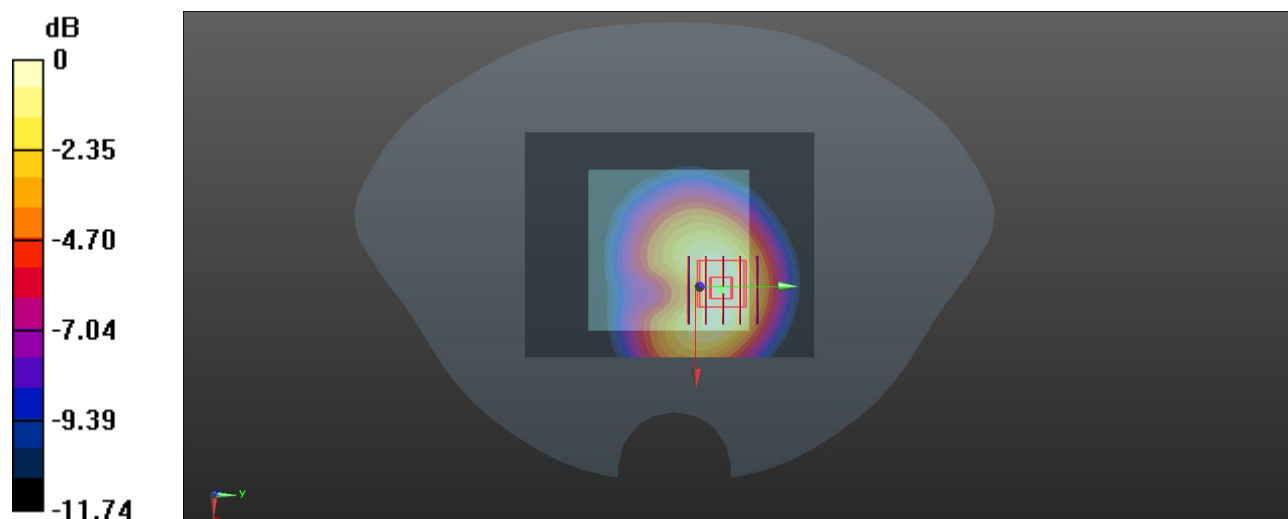
Peak SAR (extrapolated) = 0.327 W/kg

SAR(1 g) = 0.212 W/kg; SAR(10 g) = 0.135 W/kg

Smallest distance from peaks to all points 3 dB below = 16.1 mm

Ratio of SAR at M2 to SAR at M1 = 65.2%

Maximum value of SAR (measured) = 0.229 W/kg



0 dB = 0.229 W/kg

Meas.12 Body Plane with Right Edge 10mm on Middle Channel in LTE Band41 mode with Antenna 1

Date: 2025.02.07

Communication System Band: Band 41; Frequency: 2593 MHz; Duty Cycle: 1:1.58

Medium parameters used (interpolated): $f = 2593$ MHz; $\sigma = 1.964$ S/m; $\epsilon_r = 38.485$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Ambient Temperature: 22.5°C Liquid Temperature: 21.7°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7510; ConvF(7.59, 7.59, 7.59); Calibrated: 2024.06.25;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1711; Calibrated: 2024.03.18
- Phantom: SAM1; Type: QD000P40CD; Serial: TP:1576
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Ch40620/Area Scan (81x111x1): Interpolated grid: $dx=1.200$ mm, $dy=1.200$ mm

Maximum value of SAR (interpolated) = 0.458 W/kg

Ch40620/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 13.34 V/m; Power Drift = 0.18 dB

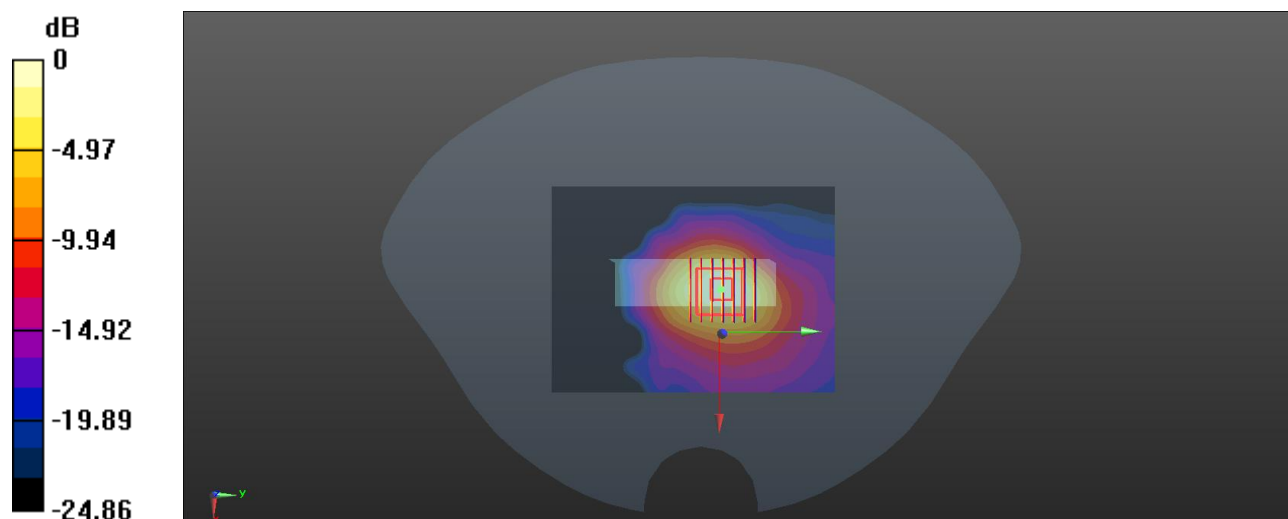
Peak SAR (extrapolated) = 0.709 W/kg

SAR(1 g) = 0.373 W/kg; SAR(10 g) = 0.180 W/kg

Smallest distance from peaks to all points 3 dB below = 10.8 mm

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

Maximum value of SAR (measured) = 0.421 W/kg



0 dB = 0.421 W/kg

Meas.13 Body Plane with Front Side 10mm on 11 Channel in IEEE802.11b mode with Antenna 2

Date: 2025.02.07

Communication System Band: WLAN(b); Frequency: 2462 MHz; Duty Cycle: 1:1.094

Medium parameters used (interpolated): $f = 2462$ MHz; $\sigma = 1.842$ S/m; $\epsilon_r = 39.326$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Ambient Temperature: 22.5°C Liquid Temperature: 21.7°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7510; ConvF(7.75, 7.75, 7.75); Calibrated: 2024.06.25;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1711; Calibrated: 2024.03.18
- Phantom: SAM1; Type: QD000P40CD; Serial: TP:1576
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Ch11/Area Scan (91x111x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm

Maximum value of SAR (interpolated) = 0.0989 W/kg

Ch11/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 3.361 V/m; Power Drift = 0.12 dB

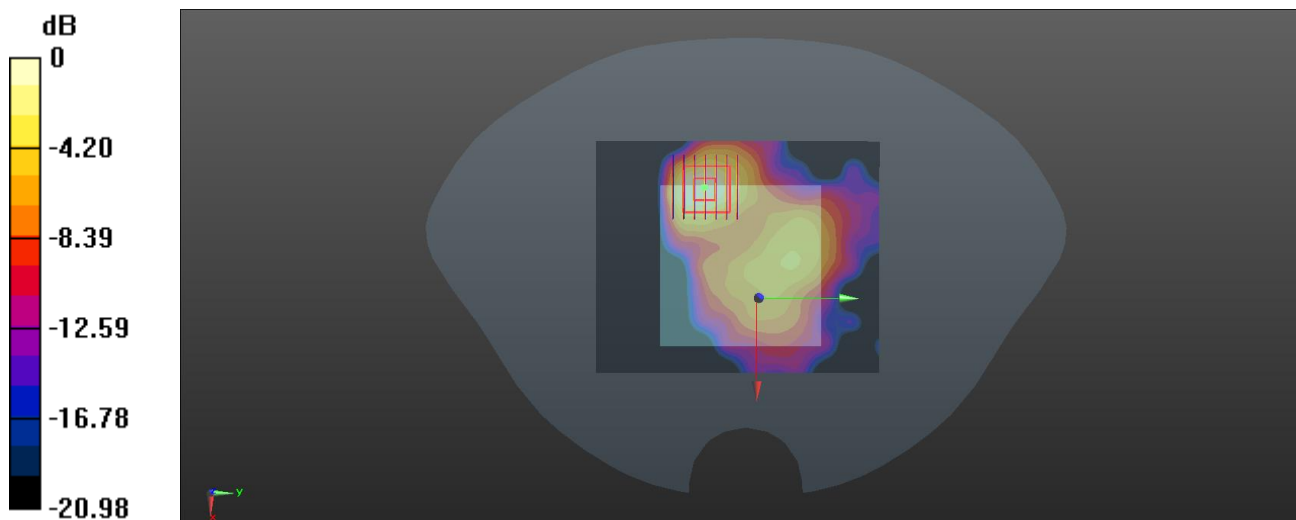
Peak SAR (extrapolated) = 0.169 W/kg

SAR(1 g) = 0.082 W/kg; SAR(10 g) = 0.038 W/kg

Smallest distance from peaks to all points 3 dB below = 9.3 mm

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

Maximum value of SAR (measured) = 0.0927 W/kg



0 dB = 0.0927 W/kg

Meas.14 Body Plane with Top Edge 10mm on 46 Channel in IEEE802.11n40 mode with Antenna 2

Date: 2025.02.07

Communication System Band: WLAN(n40); Frequency: 5230 MHz; Duty Cycle: 1:1.202

Medium parameters used (interpolated): $f = 5230$ MHz; $\sigma = 4.6$ S/m; $\epsilon_r = 36.329$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Ambient Temperature: 22.5°C Liquid Temperature: 21.7°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7510; ConvF(5.74, 5.74, 5.74); Calibrated: 2024.06.25;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1711; Calibrated: 2024.03.18
- Phantom: SAM1; Type: QD000P40CD; Serial: TP:1576
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Ch46/Area Scan (91x101x1): Interpolated grid: $dx=1.000$ mm, $dy=1.000$ mm

Maximum value of SAR (interpolated) = 0.507 W/kg

Ch46/Zoom Scan (7x7x12)/Cube 0: Measurement grid: $dx=4$ mm, $dy=4$ mm, $dz=2$ mm

Reference Value = 2.948 V/m; Power Drift = 0.18 dB

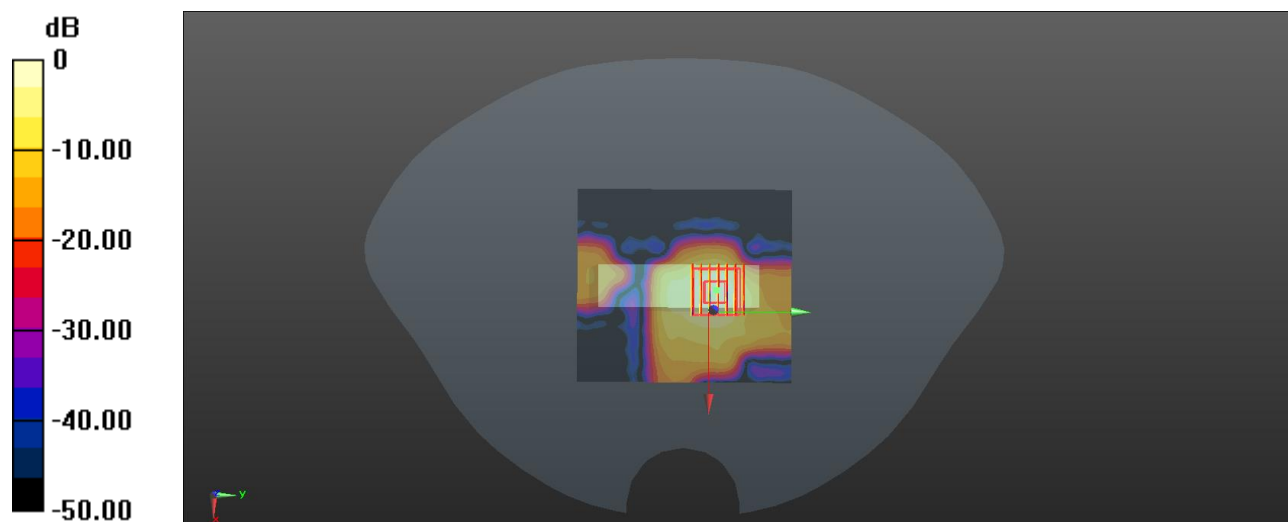
Peak SAR (extrapolated) = 0.892 W/kg

SAR(1 g) = 0.210 W/kg; SAR(10 g) = 0.063 W/kg

Smallest distance from peaks to all points 3 dB below = 7.9 mm

Ratio of SAR at M2 to SAR at M1 = 52.5%

Maximum value of SAR (measured) = 0.422 W/kg



0 dB = 0.422 W/kg

Meas.15 Limb Plane with Top Edge 0mm on 118 Channel in IEEE802.11n40 mode with Antenna 2

Date: 2025.01.04

Communication System Band: WLAN(n40); Frequency: 5590 MHz; Duty Cycle: 1:1.202

Medium parameters used (interpolated): $f = 5590$ MHz; $\sigma = 5.022$ S/m; $\epsilon_r = 35.531$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Ambient Temperature: 22.5°C Liquid Temperature: 21.7°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7510; ConvF(5, 5, 5); Calibrated: 2024.06.25;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1711; Calibrated: 2024.03.18
- Phantom: SAM1; Type: QD000P40CD; Serial: TP:1576
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Ch118/Area Scan (91x101x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

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

Ch118/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 0.7580 V/m; Power Drift = 0.17 dB

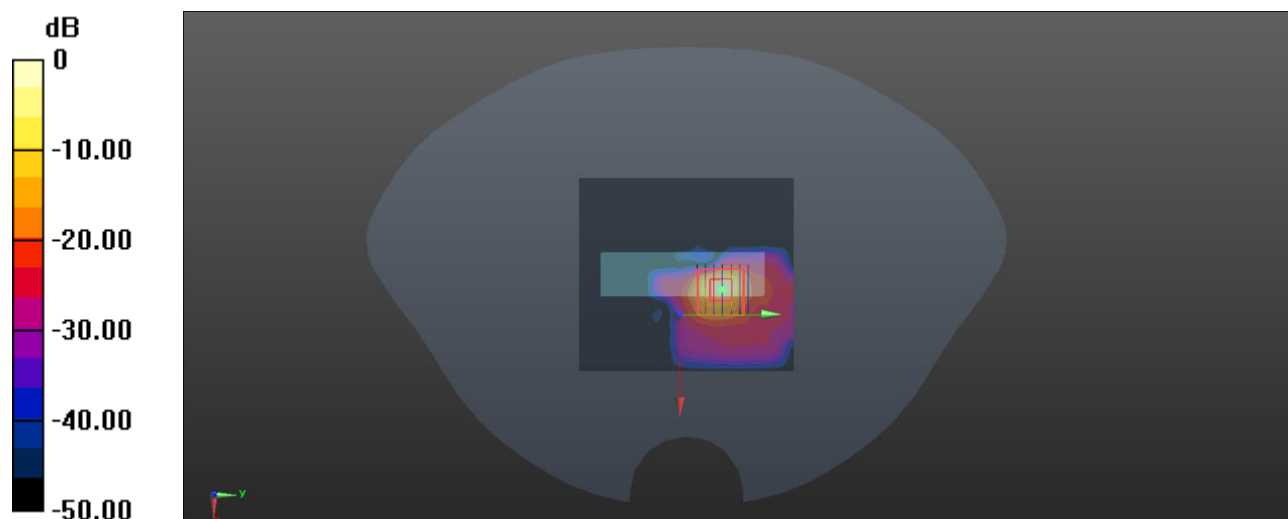
Peak SAR (extrapolated) = 29.3 W/kg

SAR(1 g) = 3.31 W/kg; SAR(10 g) = 0.473 W/kg

Smallest distance from peaks to all points 3 dB below = 4.6 mm

Ratio of SAR at M2 to SAR at M1 = 47.3%

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



ANNEX D EUT EXTERNAL PHOTOS

Please refer the document “BL-SZ2510664-AW.pdf”.

ANNEX E SAR TEST SETUP PHOTOS

Please refer the document “BL-SZ2510664-AS.pdf”.

ANNEX F CALIBRATION REPORT

Please refer the document “BL-SZ2510664-AC.pdf”.

ANNEX G TUNE-UP PROCEDURE

Please refer the document “BL-SZ2510664-AT.pdf”.

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3. For the report with CNAS mark or A2LA mark, the items marked with "☆" are not within the accredited scope.
4. This report is invalid if it is altered, without the signature of the testing and approval personnel, or without the "inspection and testing dedicated stamp" or test report stamp.
5. The test data and results are only valid for the tested samples provided by the customer.
6. This report shall not be partially reproduced without the written permission of the laboratory.
7. Any objection shall be raised to the laboratory within 30 days after receiving the report.

--END OF REPORT--