TEST REPORT

Applicant:	INFINIX MOBILITY LIMITED
Address:	FLAT N 16/F BLOCK B UNIVERSAL INDUSTRIAL CENTRE 19-25 SHAN MEI STREET FOTAN NT, Hong Kong
Equipment Type:	XPAD 20
Model Name:	X1102
Brand Name:	Infinix
FCC ID:	2AIZN-X1102
Test Standard:	FCC 47 CFR Part 2.1093 (refer section 3.1)
Maximum SAR:	Body: 0.89 W/kg
Sample Arrival Date:	Mar. 12, 2025
Test Date:	May. 13, 2025 - May. 18, 2025
Date of Issue:	May. 22, 2025

ISSUED BY:

Shenzhen BALUN Technology Co., Ltd.

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

Revision History

Version	Issue Date	Revisions Content
Rev. 01	May. 22, 2025	Initial Issue

TABLE OF CONTENTS

1 GENERAL INFORMATION

1.1 Test Laboratory

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

1.2 Test Location

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

1.3 Test Environment Condition

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

2 PRODUCT INFORMATION

2.1 Applicant Information

Applicant	INFINIX MOBILITY LIMITED
Address	FLAT N 16/F BLOCK B UNIVERSAL INDUSTRIAL CENTRE 19-25 SHAN MEI STREET FOTAN NT, Hong Kong

2.2 Manufacturer Information

Manufacturer	INFINIX MOBILITY LIMITED
Address	FLAT N 16/F BLOCK B UNIVERSAL INDUSTRIAL CENTRE 19-25 SHAN MEI STREET FOTAN NT, Hong Kong

2.3 Factory Information

Factory	SHENZHEN TECNO TECHNOLOGY CO., LTD.
Address	101, Building 24, Waijing Industrial Park,Fumin Community, Fucheng Street, Longhua District, Shenzhen City, P.R. China

2.4 General Description for Equipment under Test (EUT)

EUT Name	XPAD 20
Model Name Under Test	X1102
Series Model Name	N/A
Description of Model Name Differentiation	N/A
Hardware Version	N/A
Software Version	N/A
Dimensions (Approx.)	169.02*257.5*8.25mm
Weight (Approx.)	N/A

2.5 Ancillary Equipment

Ancillary Equipment 1	Battery	
	Brand Name	N/A
	Model No.	BL-70AX
	Serial No.	N/A
	Capacitance	Rated Capacity: 7000mAh, 26.60Wh Typical Capacity: 7200mAh, 27.36Wh
	Rated Voltage	3.80 V
	Limited Voltage	4.35 V
	Manufacturer	Guangdong Fenghua New Energy Co., Ltd.
Ancillary Equipment 2	Headset	
	Length (Approx.)	N/A

2.6 Technical Information

Network and Wireless connectivity	2G Network GSM/GPRS/EDGE 850/1900 MHz 3G Network WCDMA/HSDPA/HSUPA Band 2/4/5 4G Network LTE FDD Band 2/4/5/7/12/13/17/25/26/66 LTE TDD Band 38/41 Bluetooth (BR+EDR+BLE) 2.4G WIFI 802.11b, 802.11g, 802.11n HT20, 5G WIFI 802.11a, 802.11n(HT20/40), 802.11ac(VHT20/40/80) ,5.8G SRD, GPS, GLONASS, BDS, Galileo,FM receiever

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

Operating Mode	GSM; WCDMA; LTE; NR; WLAN; Bluetooth		
Frequency Range	GSM 850	TX: 824 ~ 849 MHz	RX: 869 ~ 894 MHz
	GSM 1900	TX: 1850 ~ 1910 MHz	RX: 1930 ~ 1990 MHz
	WCDMA Band 2	TX: 1850 ~ 1910 MHz	RX: 1930 ~ 1990 MHz
	WCDMA Band 4	TX: 1710 ~ 1755 MHz	RX: 2110 ~ 2155 MHz
	WCDMA Band 5	TX: 824 ~ 849 MHz	RX: 869 ~ 894 MHz
	LTE Band 2	TX: 1850 ~ 1910 MHz	RX: 1930 ~ 1990 MHz
	LTE Band 4	TX: 1710 ~ 1755 MHz	RX: 2110 ~ 2155 MHz
	LTE Band 5	TX: 824 ~ 849 MHz	RX: 869 ~ 894 MHz
	LTE Band 7	TX: 2500 ~ 2570 MHz	RX: 2620 ~ 2690 MHz
	LTE Band 12	TX: 699 ~ 716 MHz	RX: 729 ~ 746 MHz
	LTE Band 13	TX: 777 ~ 787 MHz	RX: 746 ~ 756 MHz
	LTE Band 17	TX: 704 ~ 716 MHz	RX: 734 ~ 746 MHz
	LTE Band 25	TX: 1850 ~ 1915 MHz	RX: 1930 ~ 1995 MHz
	LTE Band 26	TX: 814 ~ 849 MHz	RX: 859 ~ 894 MHz
	LTE Band 66	TX: 1710 ~ 1780 MHz	RX: 2110 ~ 2180 MHz
	LTE Band 38	TX: 2570 ~ 2620 MHz	RX: 2570 ~ 2620 MHz
	LTE Band 41	TX: 2496 ~ 2690 MHz	RX: 2496 ~ 2690 MHz
	802.11b/g/n(HT20)	2412 ~ 2472 MHz	
	802.11a	5150 ~ 5350 MHz	
		5470 ~ 5725 MHz	
		5725 ~ 5850 MHz	
	802.11n(HT20/HT40)	5150 ~ 5350 MHz	
		5470 ~ 5725 MHz	
		5725 ~ 5850 MHz	
	802.11ac (VHT20/40/80)	5150 ~ 5350 MHz	
		5470 ~ 5725 MHz	
		5725 ~ 5850 MHz	
	Bluetooth	2402 ~ 2480 MHz	
Antenna Type	WWAN	PIFA	
	WLAN	PIFA	
	Bluetooth	PIFA	
Hotspot Function	Support		
Exposure Category	General Population/Uncontrolled exposure		
EUT Type	Portable Device		
Note: 1. The device utilizes independent power reduction mechanisms for SAR compliance for the 2/3/4/G transmitter for near to body exposure conditions. 2. The reduction power details please refer section 8.8.			

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/IEEE C95.1-1992	IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz
3	FCC KDB 447498 D04 v01	447498 D04 Interim General RF Exposure Guidance v01
4	KDB 941225 D01 vO3r01	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	FCC KDB 865664 D02 v01r02	RF Exposure Reporting
8	KDB 865664 D01 v01r04	SAR Measurement 100 MHz to 6 GHz
9	KDB 248227 D01 v02r02	SAR Guidance for IEEE 802.11 (Wi-Fi) Transmitters
10	KDB 616217 D04v01r02	SAR for laptop and tablets

3.2 Device Category and SAR Limit

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

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

Table of Exposure Limits:

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

NOTE:

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

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

3.3 Test Result Summary

3.3.1 Highest SAR

Equipment Class	Band	Maximum Scaled SAR (W/kg)	Maximum Report SAR (W/kg)
		Body-worn 0mm	Body-worn 0mm
		1g SAR	
PCE	GSM 850	0.31	0.89
	GSM 1900	**0.89**	
	WCDMA Band 2	0.65	
	WCDMA Band 4	0.65	
	WCDMA Band 5	0.82	
	LTE Band 7	0.85	
	LTE Band 12	0.67	
	LTE Band 13	0.37	
	LTE Band 25	0.82	
	LTE Band 26	0.27	
	LTE Band 66	0.85	
	LTE Band 41	0.61	
DTS	2.4G WIFI	0.68	
NII	5G WIFI	0.49	
DSS	Bluetooth	0.36	
Limit (W/kg)		1.6	1.6
Verdict		Pass	

Note: This device supports LTE B2/4/5/17/38 and LTE B25/66/26/12/41. Since the supported frequency span for LTE B2/4/5/17/38 falls completely within the supports freguency span for LTE B25/66/26/12/41, these LTE bands share the same transmission path, and LTE B2/4/5/17/38 have lower or the same target power as LTE B25/66/26/12/41; Therefore, SAR was only assessed for LTE B25/66/26/12/41.

3.3.2 Highest Simultaneous Transmission SAR Values

Note: The simultaneous transmission SAR detail please refer to section

Equipment Class	Maximum Scaled SAR (W/kg)
	Body 1g (0mm)
PCE	1.582
DTS	1.054
NII	1.582
DSS	1.582
Limit (W/Kg)	1.6
Verdict	Pass

3.4 Test Uncertainty

3.4.1 Measurement uncertainly evaluation for SAR test

The following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in EN 62209-1, and EN 62209-2. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

Measurement uncertainly evaluation for SAR test (300MHz to 3GHz)

DASY5 Uncertainty Budget (Frequency band: 300 MHz–3 GHz range)								
Uncertainty Component	Tol (+- %)	Prob. Dist.	Div.	Ci (1g)	Ci (10 g)	1g Ui (+-%)	10 g Ui (+-%)	Vi v_{eff}
Measurement System								
Probe calibration	6.1	N	1	1	1	6.10	6.10	∞
Axial Isotropy	4.7	R	$\sqrt{3}$	0.7	0.7	1.90	1.90	∞
Hemispherical Isotropy	9.6	R	$\sqrt{3}$	0.7	0.7	3.88	3.88	∞
Boundary effect	1.0	R	$\sqrt{3}$	1	1	0.58	0.58	∞
Linearity	4.7	R	$\sqrt{3}$	1	1	2.71	2.71	∞
System detection limits	1.0	R	$\sqrt{3}$	1	1	0.58	0.58	∞
Modulation response	2.4	R	$\sqrt{3}$	1	1	1.39	1.39	∞
Readout Electronics	0.3	N	1	1	1	0.30	0.30	∞
Response Time	0.8	R	$\sqrt{3}$	1	1	0.46	0.46	∞
Integration Time	2.6	R	$\sqrt{3}$	1	1	1.50	1.50	∞
RF ambient Conditions - Noise	3.0	R	$\sqrt{3}$	1	1	1.73	1.73	∞
RF ambient Conditions - Reflections	3.0	R	$\sqrt{3}$	1	1	1.73	1.73	∞
Probe positioner Mechanical Tolerance	0.4	R	$\sqrt{3}$	1	1	0.23	0.23	∞

Probe positioning with respect to Phantom Shell	2.9	R	$\sqrt{3}$	1	1	1.67	1.67	∞
Extrapolation, interpolation and integration Algoritms for Max. SAR Evaluation	2.0	R	$\sqrt{3}$	1	1	1.15	1.15	∞
Post-processing	4.0	R	$\sqrt{3}$	1	1	2.31	2.31	∞
Test sample Related								
Test sample positioning	2.9	N	1	1	1	2.90	2.90	N-1
Device Holder Uncertainty	3.6	N	1	1	1	3.60	3.60	N-1
Output power Variation - SAR drift measurement	5.0	R	$\sqrt{3}$	1	1	2.89	2.89	∞
SAR scaling	0.0	R	$\sqrt{3}$	1	1	0.00	0.00	∞
Phantom and Tissue Parameters								
Phantom Uncertainty (Shape and thickness tolerances)	6.1	R	$\sqrt{3}$	1	1	3.52	3.52	∞
Liquid conductivity (deviation from target values)	2.5	R	$\sqrt{3}$	0.78	0.71	1.13	1.03	∞
Liquid conductivity - measurement uncertainty	5.0	N	1	0.78	0.71	3.90	3.55	M
Liquid permittivity (deviation from target values)	2.5	R	$\sqrt{3}$	0.23	0.26	0.33	0.38	∞
Liquid permittivity - measurement uncertainty	5.0	N	1	0.23	0.26	1.15	1.30	M
Combined Standard Uncertainty	/	/	RSS			12.00	11.89	/
Expanded Uncertainty (95% Confidence interval)	/	k	2			23.99	23.77	/

Measurement uncertainly evaluation for SAR test (3GHz to 6GHz)

DASY5 Uncertainty Budget (Frequency band: 3 GHz–6 GHz range)								
Uncertainty Component	Tol (+- %)	Prob. Dist.	Div.	Ci (1g)	Ci (10 g)	1g Ui (+-%)	10 g Ui (+-%)	Vi v_{eff}
Measurement System								
Probe calibration	6.7	N	1	1	1	6.70	6.70	∞
Axial Isotropy	4.7	R	$\sqrt{3}$	0.7	0.7	1.90	1.90	∞
Hemispherical Isotropy	9.6	R	$\sqrt{3}$	0.7	0.7	3.88	3.88	∞
Boundary effect	2.0	R	$\sqrt{3}$	1	1	1.15	1.15	∞
Linearity	4.7	R	$\sqrt{3}$	1	1	2.71	2.71	∞
System detection limits	1.0	R	$\sqrt{3}$	1	1	0.58	0.58	∞
Modulation response	2.4	R	$\sqrt{3}$	1	1	1.39	1.39	∞
Readout Electronics	0.3	N	1	1	1	0.30	0.30	∞
Response Time	0.8	R	$\sqrt{3}$	1	1	0.46	0.46	∞
Integration Time	2.6	R	$\sqrt{3}$	1	1	1.50	1.50	∞
RF ambient Conditions - Noise	3.0	R	$\sqrt{3}$	1	1	1.73	1.73	∞
RF ambient Conditions - Reflections	3.0	R	$\sqrt{3}$	1	1	1.73	1.73	∞
Probe positioner Mechanical Tolerance	0.8	R	$\sqrt{3}$	1	1	0.46	0.46	∞

Probe positioning with respect to Phantom Shell	6.7	R	$\sqrt{3}$	1	1	3.87	3.87	∞
Extrapolation, interpolation and integration Algoritms for Max. SAR Evaluation	4.0	R	$\sqrt{3}$	1	1	2.31	2.31	∞
Post-processing	4.0	R	$\sqrt{3}$	1	1	2.31	2.31	∞
Test sample Related								
Test sample positioning	2.9	N	1	1	1	2.90	2.90	N-1
Device Holder Uncertainty	3.6	N	1	1	1	3.60	3.60	N-1
Output power Variation - SAR drift measurement	5.0	R	$\sqrt{3}$	1	1	2.89	2.89	∞
SAR scaling	0.0	R	$\sqrt{3}$	1	1	0.00	0.00	∞
Phantom and Tissue Parameters								
Phantom Uncertainty (Shape and thickness tolerances)	6.6	R	$\sqrt{3}$	1	1	3.81	3.81	∞
Liquid conductivity (deviation from target values)	2.5	R	$\sqrt{3}$	0.78	0.71	1.13	1.03	∞
Liquid conductivity - measurement uncertainty	5.0	N	1	0.78	0.71	3.90	3.55	M
Liquid permittivity (deviation from target values)	2.5	R	$\sqrt{3}$	0.23	0.26	0.33	0.38	∞
Liquid permittivity - measurement uncertainty	5.0	N	1	0.23	0.26	1.15	1.30	M
Combined Standard Uncertainty	/	/	RSS			13.08	12.98	/
Expanded Uncertainty (95% Confidence interval)	/	k	2			26.16	25.95	/

3.4.2 Measurement uncertainly evaluation for system check

This measurement uncertainty budget is suggested by EN 62209-1, and EN 62209-2. The breakdown of the individual uncertainties is as follows:

Uncertainty Component	Tol (+- %)	Prob. Dist.	Div.	Ci (1g)	Ci (10 g)	1g Ui (+-%)	10 g Ui (+-%)	Vi v_{eff}
Measurement System								
Probe calibration	6.7	N	1	1	1	6.70	6.70	∞
Axial Isotropy	4.7	R	$\sqrt{3}$	0.7	0.7	1.90	1.90	∞
Hemispherical Isotropy	9.6	R	$\sqrt{3}$	0.7	0.7	3.88	3.88	∞
Boundary effect	1.0	R	$\sqrt{3}$	1	1	0.58	0.58	∞
Linearity	4.7	R	$\sqrt{3}$	1	1	2.71	2.71	∞
System detection limits	1.0	R	$\sqrt{3}$	1	1	0.58	0.58	∞
Modulation response	0	R	$\sqrt{3}$	1	1	0.00	0.00	∞
Readout Electronics	0.3	N	1	1	1	0.30	0.30	∞
Response Time	0.0	R	$\sqrt{3}$	1	1	0.00	0.00	∞
Integration Time	0.0	R	$\sqrt{3}$	1	1	0.00	0.00	∞
RF ambient Conditions - Noise	1.0	R	$\sqrt{3}$	1	1	0.58	0.58	∞
RF ambient Conditions - Reflections	1.0	R	$\sqrt{3}$	1	1	0.58	0.58	∞
Probe positioner Mechanical Tolerance	0.8	R	$\sqrt{3}$	1	1	0.46	0.46	∞
Probe positioning with respect to Phantom Shell	6.7	R	$\sqrt{3}$	1	1	3.87	3.87	∞
Extrapolation, interpolation and integration Algoritms for Max. SAR Evaluation	2.0	R	$\sqrt{3}$	1	1	1.15	1.15	∞
Test sample Related								
Deviation of exp. dipole	5.5	R	$\sqrt{3}$	1	1	3.18	3.18	∞
Dipole Axis to Liquid Dist.	2.0	R	$\sqrt{3}$	1	1	1.15	1.15	∞
Input power & SAR drift	3.4	R	$\sqrt{3}$	1	1	1.96	1.96	∞
Phantom and Tissue Parameters								
Phantom Uncertainty (Shape and thickness tolerances)	4.0	R	$\sqrt{3}$	1	1	2.31	2.31	∞
Liquid conductivity (deviation from target values)	2.5	R	$\sqrt{3}$	0.78	0.71	1.13	1.03	∞
Liquid conductivity - measurement uncertainty	5.0	N	1	0.78	0.71	3.90	3.55	∞
Liquid permittivity (deviation from target values)	2.5	R	$\sqrt{3}$	0.23	0.26	0.33	0.38	∞
Liquid permittivity - measurement uncertainty	5.0	N	1	0.23	0.26	1.15	1.30	∞
Combined Standard Uncertainty	/	/	RSS			11.29	11.18	/
Expanded Uncertainty (95% Confidence interval)	/	k	2			22.57	22.36	/

4 MEASUREMENT SYSTEM

4.1 Specific Absorption Rate (SAR) Definition

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

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

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

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

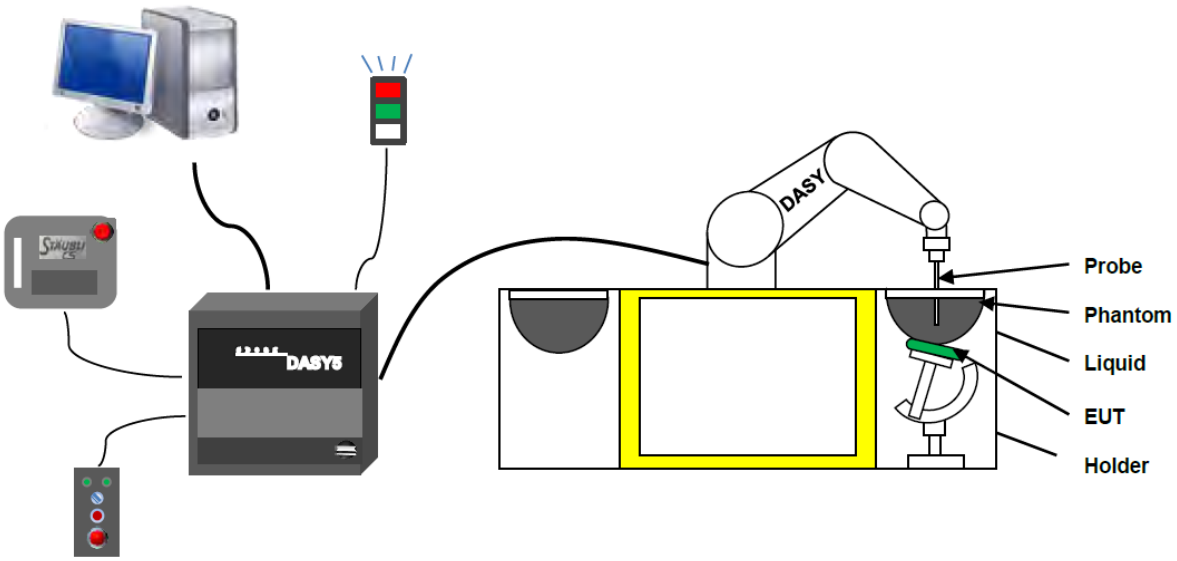
$$\mathbf{SAR} = \frac{\boldsymbol{\sigma}\mathbf{E}^{2}}{\boldsymbol{\rho}}$$

Where: σ is the conductivity of the tissue,

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

4.2 DASY SAR System

4.2.1 DASY SAR System Diagram



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

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

4.2.2 Robot

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

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

4.2.3 E-Field Probe

The probe is specially designed and calibrated for use in liquids with high permittivities for the measurements the Specific Dosimetric E-Field Probe EX3DV4-SN: 7510 with following specifications is used.

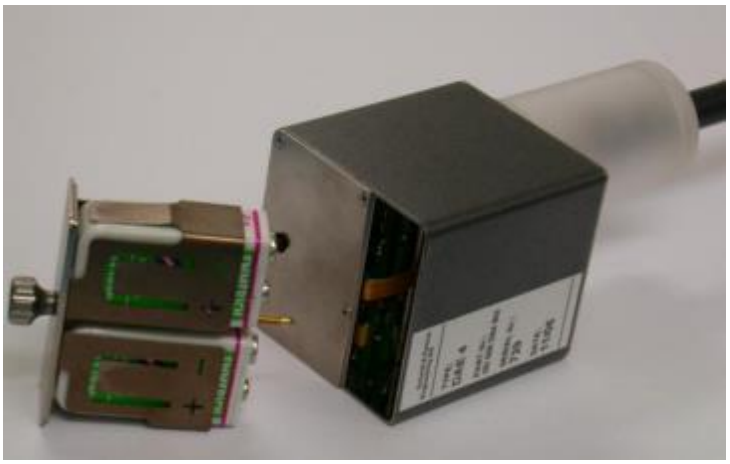
Construction	Symmetrical design with triangular core Built-in optical fiber for surface detection systemBuilt-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., glycolether)
Calibration	ISO/IEC 17025 calibration service available
Frequency	10 MHz to 6 GHz;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

E-Field Probe Calibration Process

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

4.2.4 Data Acquisition Electronics

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



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

4.2.5 Phantoms

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.

Photo of Phantom SN1086

Serial Number	Shell Thickness (mm)	Major ellipse axis (mm)	Minor axis（mm）
SN 1086 ELI4	2.0 ± 0.2	600	500

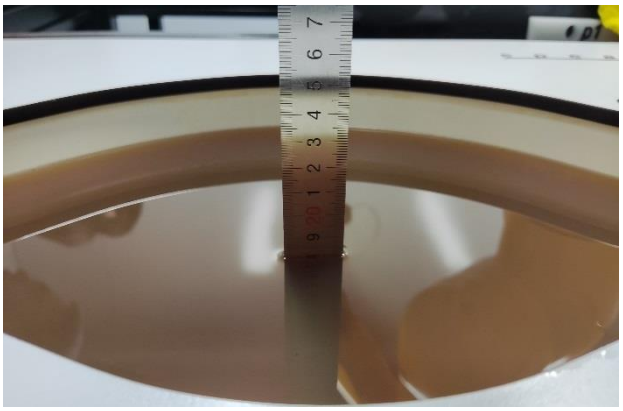
4.2.6 Device Holder

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

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

4.2.7 Simulating Liquid

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

Head Liquid Depth	Body Liquid Depth
	

The following table gives the recipes for tissue simulating liquid.

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

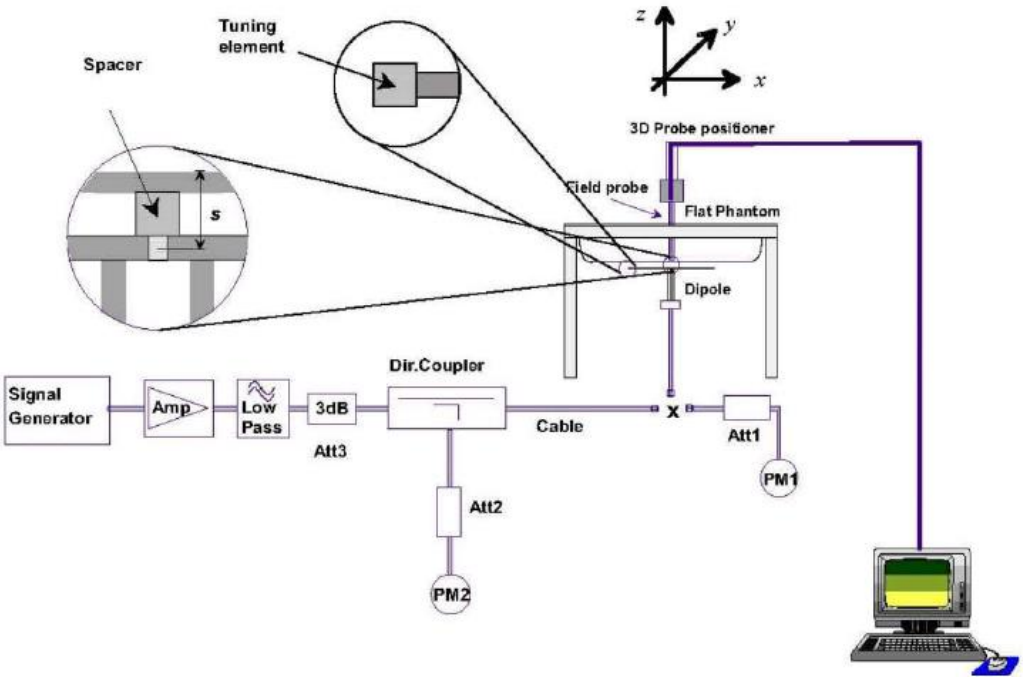
5 SYSTEM VERIFICATION

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

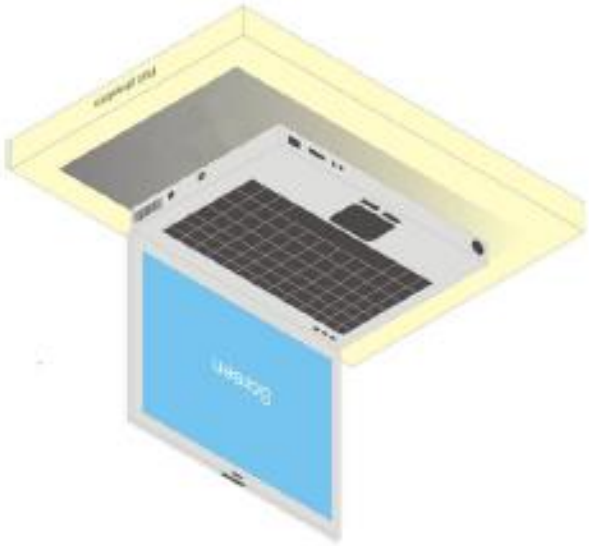
In the simplified setup for system evaluation, the EUT is replaced by a calibrated dipole and the power source is replaced by a continuous wave that comes from a signal generator. The calibrated dipole must be placed beneath the flat phantom section of the SAM twin phantom with the correct distance holder. 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

6.1 Laptop Exposure Condition

This DUT should consider one position which is bottom of laptop touching with phantom 0 mm air gap and the screen portion of the device shall be an open position at a 90° angle.



6.2 Tablet Exposure Condition

This DUT was tested in four different positions. They are back side, left edge, right edge and top edge in these positions, the surface of DUT is touching with phantom 0mm.

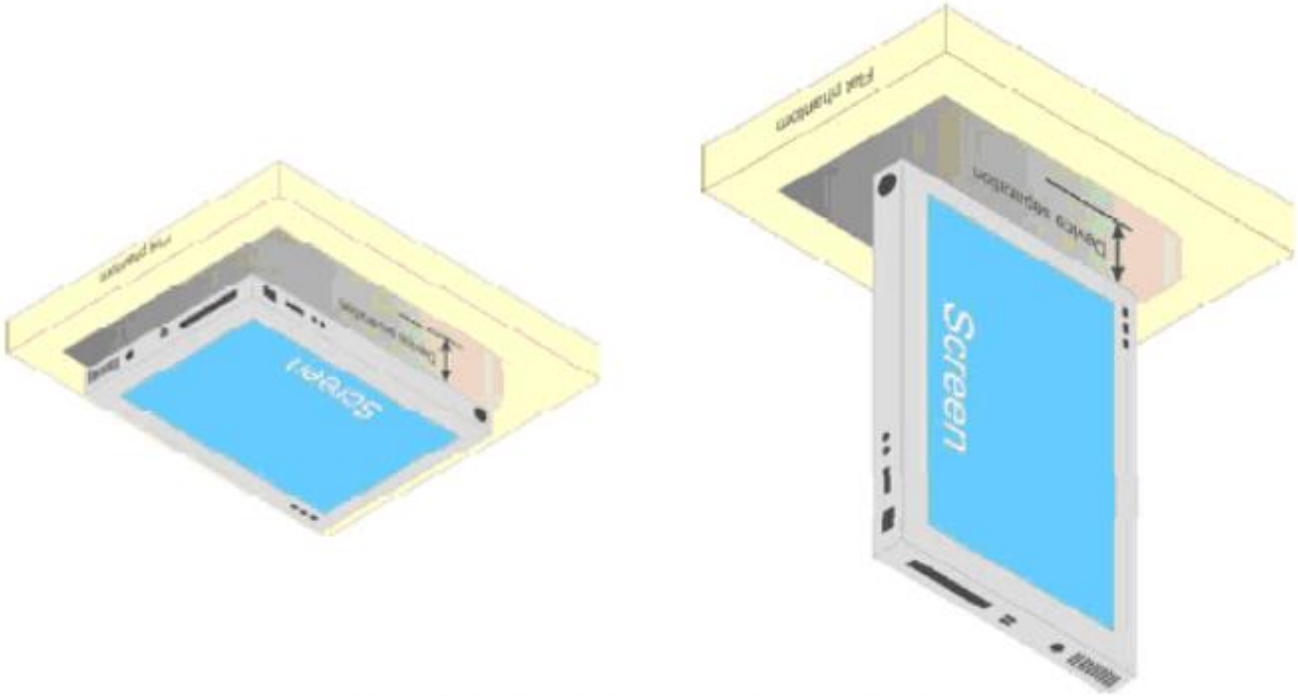
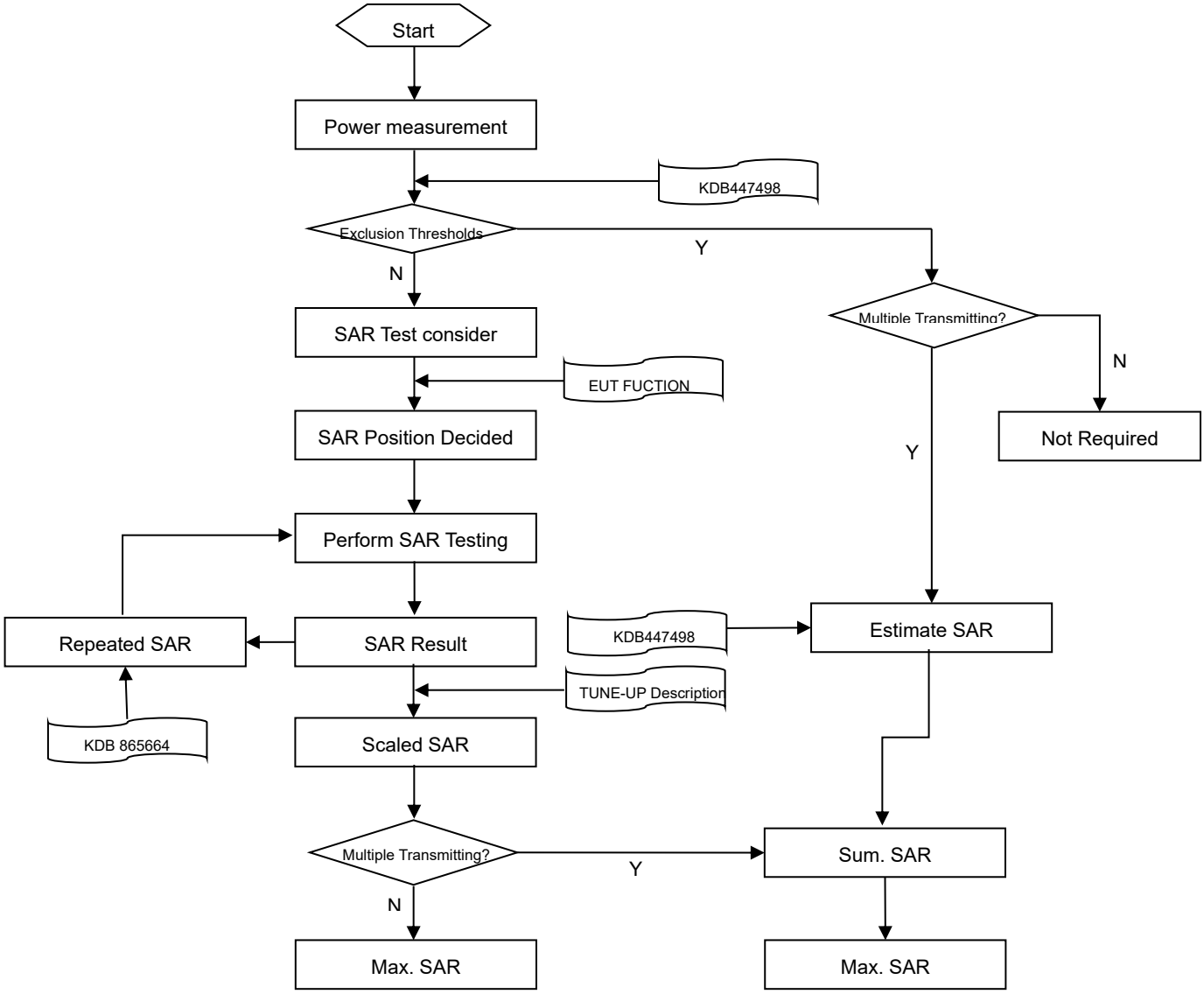


Fig Illustration for Lap-touching Position

7 MEASUREMENT PROCEDURE

7.1 Measurement Process Diagram



7.2 SAR Scan General Requirement

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

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

7.3 Measurement Procedure

The following steps are used for each test position

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

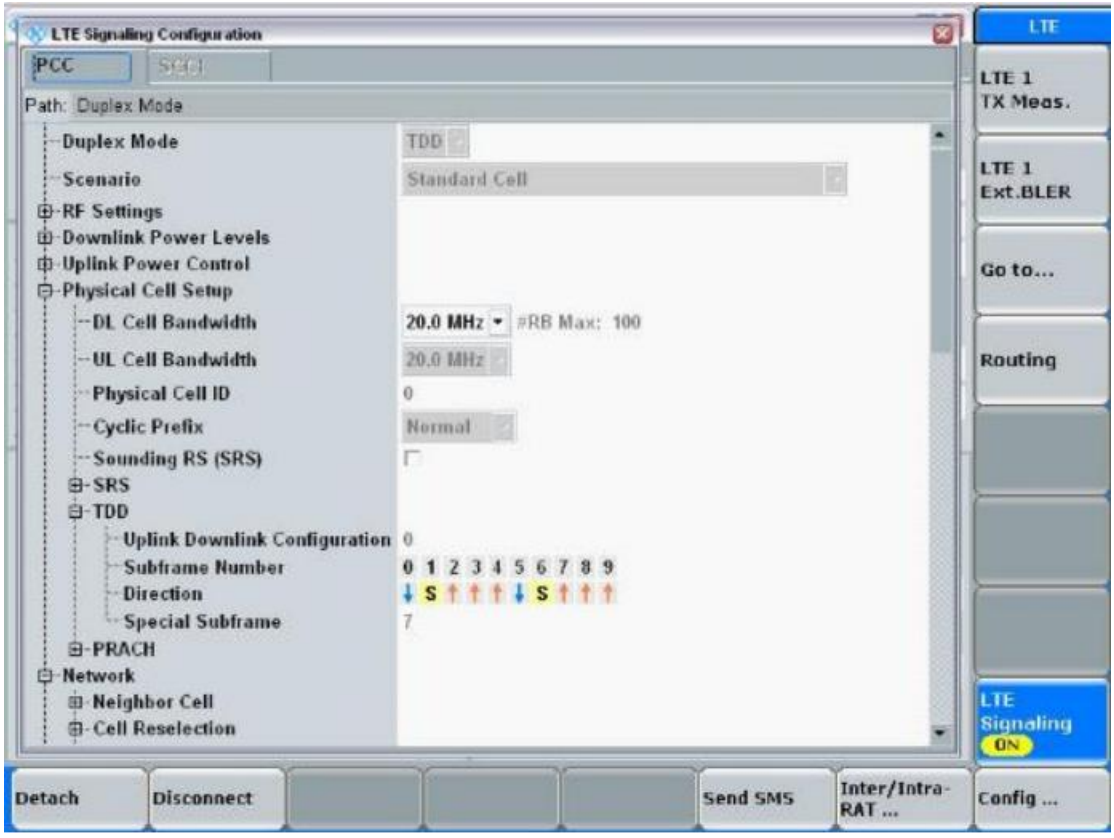
7.4 Area & Zoom Scan Procedure

First Area Scan is used to locate the approximate location(s) of the local peak SAR value(s). The measurement grid within an Area Scan is defined by the grid extent, grid step size and grid offset. Next, in order to determine the EM field distribution in a three-dimensional spatial extension, Zoom Scan is required. The Zoom Scan is performed around the highest E-field value to determine the averaged SAR-distribution over 10 g. Area scan and zoom scan resolution setting follows KDB 865664 D01v01r04 quoted below.

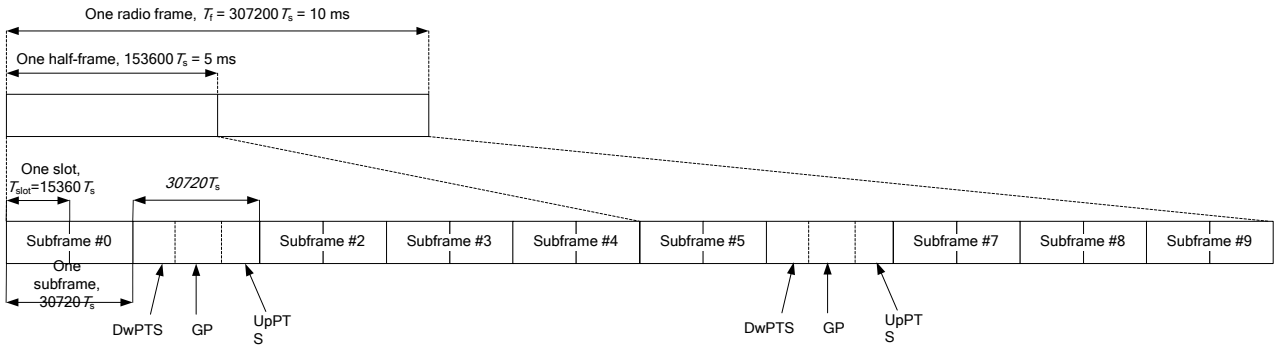
When the 1 g SAR of the highest peak is within 2 dB of the SAR limit, additional zoom scans are required for other peaks within 2 dB of the highest peak that have not been included in any zoom scan to ensure there is no increase in SAR.

7.5 LTE(TDD) Considerations

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 (Tf=307200*TS =10ms) of two half-frames of length (153600*TS =5ms). Each half-frame consists of five sub-frames of length (30720*TS =1ms)



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*T_S =1ms.

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·T_s	2192·T_s	2560·T_s	7680·T_s	2192·T_s	2560·T_s
1	19760·T_s			20480·T_s		
2	21592·T_s			23040·T_s		
3	24144·T_s			25600·T_s		
4	26336·T_s			7680·T_s	2560·T_s	5120·T_s
5	6592·T_s	4384·T_s	5120·T_s	20480·T_s		
6	19760·T_s			23040·T_s		
7	21592·T_s			12800·T_s		
8	24144·T_s			-	-	-
9	13168·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.Ts/30720.Ts*1ms=0.167ms

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*1 ms+2*0.167 ms=6.334ms**
So, the duty cycle for TDD-LTE is: **6.334ms/10ms =1: 1.58**

8 CONDUCTED RF OUTPUT POWER

8.1 GSM

Please refer the document “BL-SH2530222-AP.pdf”.

8.2 WCDMA

Please refer the document “BL-SH2530222-AP.pdf”.

8.3 LTE

Please refer the document “BL-SH2530222-AP.pdf”.

8.4 2.4G WIFI

8.4.1 2.4G WIFI-ANT 2 Full Power

Band (GHz)	Mode	Channel	Freq. (MHz)	Conducted Power (dBm)	Tune-up Power Limit (dBm)	SAR Test Require.
2.4 (2.4~2.4835)	802.11b	1	2412	18.10	19.00	No
		6	2437	**18.38**	19.50	Yes
		11	2462	18.39	19.50	No
	802.11g	1	2412	17.28	18.50	No
		6	2437	17.77	19.00	No
		11	2462	17.37	18.50	No
	802.11n(HT20)	1	2412	16.99	18.00	No
		6	2437	17.38	18.50	No
		11	2462	17.29	18.50	No
Note：According KDB 248227 D01 SAR is not required for the following 2.4 GHz OFDM conditions. 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.						

8.4.2 2.4G WIFI-ANT 2 Level1

Band (GHz)	Mode	Channel	Freq. (MHz)	Conducted Power (dBm)	Tune-up Power Limit (dBm)	SAR Test Require.
2.4 (2.4~2.4835)	802.11b	1	2412	11.03	12.00	No
		6	2437	**11.35**	12.50	Yes
		11	2462	11.41	12.50	No
	802.11g	1	2412	10.34	11.50	No
		6	2437	11.04	12.00	No
		11	2462	10.63	11.50	No
	802.11n(HT20)	1	2412	10.20	11.00	No
		6	2437	10.40	11.50	No
		11	2462	10.39	11.50	No
Note：According KDB 248227 D01 SAR is not required for the following 2.4 GHz OFDM conditions. 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. Adjusted SAR = Report SAR * (max power (OFDM)/ max power (DSSS)) = 0.173 * (17.78 mw)/(15.85 mw) =0.194 W/kg, so the 2.4GHz OFDM SAR test is not required.						

8.4.3 5G WIFI-ANT 3 Full Power

Band (GHz)	Mode	Channel	Freq. (MHz)	Conducted Power (dBm)	Tune-up Power Limit (dBm)	SAR Test Require.
5.2 (5.15~5.25)	802.11a	36	5180	16.47	17.50	No
		44	5220	16.64	17.50	Yes
		48	5240	16.50	17.50	No
	802.11n(HT20)	36	5180	16.50	17.50	No
		44	5220	16.44	17.50	No
		48	5240	16.38	17.00	No
	802.11n(HT40)	38	5190	16.60	17.50	No
		46	5230	16.53	17.00	No
	802.11ac(VHT20)	36	5180	15.45	16.50	No
		44	5220	15.38	16.00	No
		48	5240	15.35	16.00	No
	802.11ac(VHT40)	38	5190	15.46	16.00	No
		46	5230	15.47	16.00	No
	802.11ac(VHT80)	42	5210	15.94	16.00	No
5.3 (5.25~5.35)	802.11a	52	5260	16.50	17.50	No
		60	5300	16.55	17.50	Yes
		64	5320	16.31	17.00	No
	802.11n(HT20)	52	5260	16.49	17.50	No
		60	5300	16.49	17.50	No
		64	5320	16.33	17.00	No
	802.11n(HT40)	54	5270	16.35	17.00	No
		62	5310	16.30	17.00	No
	802.11ac(VHT20)	52	5260	15.37	16.00	No
		60	5300	15.20	16.00	No
		64	5320	15.23	16.00	No
	802.11ac(VHT40)	54	5270	15.34	16.00	No
		62	5310	15.29	16.00	No
	802.11ac(VHT80)	58	5290	15.84	16.00	No
5.6 (5.47~5.725)	802.11a	100	5500	16.20	17.00	No
		116	5580	16.34	17.00	Yes
		140	5700	15.65	16.50	No
	802.11n(HT20)	100	5500	16.08	17.00	No
		116	5580	16.13	17.00	No
		140	5700	15.55	16.50	No
	802.11n(HT40)	102	5510	16.10	17.00	No
		118	5590	16.08	17.00	No
		134	5670	15.56	16.50	No
	802.11ac(VHT20)	100	5500	15.06	16.00	No
		116	5580	15.07	16.00	No

		140	5700	14.51	15.50	No
	802.11ac(VHT40)	102	5510	15.03	15.50	No
		118	5590	15.03	15.50	No
		134	5670	14.66	15.50	No
	802.11ac(VHT80)	106	5530	15.62	15.50	No
		122	5610	15.56	15.50	No
5.8 (5.725~5.850)	802.11a	149	5745	15.17	16.00	No
		157	5785	15.55	16.50	Yes
		165	5825	15.38	16.00	No
	802.11n(HT20)	149	5745	15.04	16.00	No
		157	5785	15.27	16.00	No
		165	5825	15.36	16.00	No
	802.11n(HT40)	151	5755	14.97	15.50	No
		159	5795	15.17	16.00	No
	802.11ac(VHT20)	149	5745	14.02	15.00	No
		157	5785	14.21	15.00	No
		165	5825	14.32	15.00	No
	802.11ac(VHT40)	151	5755	14.05	15.00	No
		159	5795	14.26	15.00	No
	802.11ac(VHT80)	155	5775	14.54	14.50	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.

8.4.4 5G WIFI-ANT 3 Level1

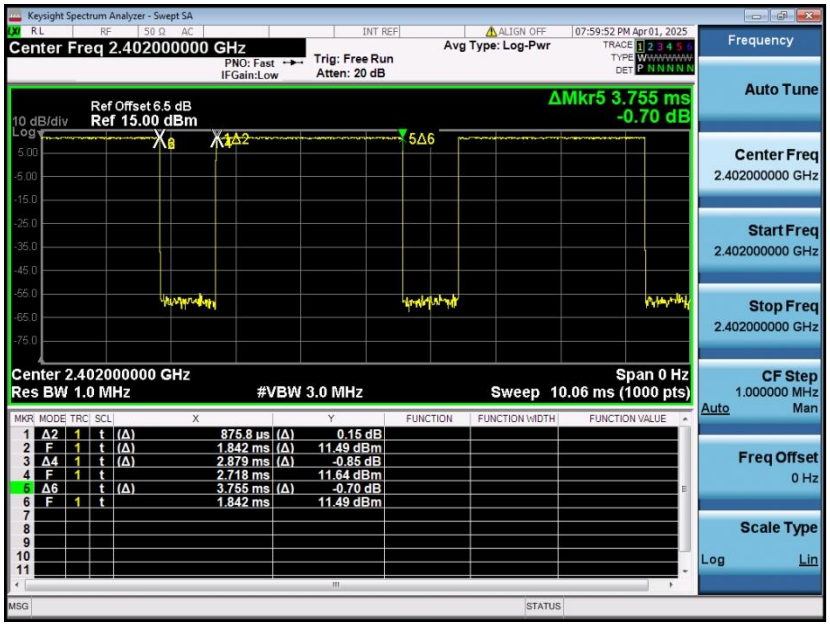
Band (GHz)	Mode	Channel	Freq. (MHz)	Conducted Power (dBm)	Tune-up Power Limit (dBm)	SAR Test Require.
5.2 (5.15~5.25)	802.11a	36	5180	10.61	11.50	No
		44	5220	**10.91**	12.00	Yes
		48	5240	10.47	11.50	No
	802.11n(HT20)	36	5180	10.51	11.50	No
		44	5220	10.51	11.50	No
		48	5240	10.36	11.50	No
	802.11n(HT40)	38	5190	10.59	11.50	No
		46	5230	10.51	11.50	No
	802.11ac(VHT20)	36	5180	9.44	10.50	No
		44	5220	10.37	11.50	No
		48	5240	9.34	10.50	No
	802.11ac(VHT40)	38	5190	9.44	10.50	No
		46	5230	9.51	10.50	No
	802.11ac(VHT80)	42	5210	9.94	11.00	No
5.3 (5.25~5.35)	802.11a	52	5260	10.50	11.50	No
		60	5300	**10.56**	11.50	Yes
		64	5320	10.36	11.50	No
	802.11n(HT20)	52	5260	10.50	11.50	No
		60	5300	10.55	11.50	No
		64	5320	10.33	11.50	No
	802.11n(HT40)	54	5270	10.33	11.50	No
		62	5310	10.35	11.50	No
	802.11ac(VHT20)	52	5260	9.37	10.50	No
		60	5300	9.24	10.00	No
		64	5320	9.28	10.50	No
	802.11ac(VHT40)	54	5270	9.39	10.50	No
		62	5310	9.40	10.50	No
	802.11ac(VHT80)	58	5290	9.88	11.00	No
5.6 (5.47~5.725)	802.11a	100	5500	10.29	11.50	No
		116	5580	**10.38**	11.50	Yes
		140	5700	9.62	10.50	No
	802.11n(HT20)	100	5500	10.18	11.00	No
		116	5580	10.18	11.00	No
		140	5700	9.55	10.50	No
	802.11n(HT40)	102	5510	10.15	11.00	No
		118	5590	10.12	11.00	No
		134	5670	9.65	10.50	No
	802.11ac(VHT20)	100	5500	9.06	10.00	No
		116	5580	9.11	10.00	No

		140	5700	8.49	9.50	No
	802.11ac(VHT40)	102	5510	9.00	10.00	No
		118	5590	8.97	10.00	No
		134	5670	8.74	9.50	No
	802.11ac(VHT80)	106	5530	9.66	10.50	No
		122	5610	9.66	10.50	No
5.8 (5.725~5.850)	802.11a	149	5745	9.17	10.00	No
		157	5785	**9.68**	10.50	Yes
		165	5825	9.60	10.50	No
	802.11n(HT20)	149	5745	9.06	10.00	No
		157	5785	9.31	10.50	No
		165	5825	9.39	10.50	No
	802.11n(HT40)	151	5755	9.00	10.00	No
		159	5795	9.20	10.00	No
	802.11ac(VHT20)	149	5745	8.12	9.00	No
		157	5785	8.22	9.00	No
		165	5825	8.31	9.50	No
	802.11ac(VHT40)	151	5755	8.09	9.00	No
		159	5795	8.34	9.50	No
	802.11ac(VHT80)	155	5775	8.53	9.50	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.						

8.5 Bluetooth Antenna 2

Mode	GFSK			π/4-DQPSK		
Channel	0	39	78	0	39	78
Frequency (MHz)	2402	2441	2480	2402	2441	2480
Conducted Power (dBm)	11.83	12.35	11.20	11.79	12.41	11.09
Tune-Up Limit (dBm)	13.00	13.50	12.00	13.00	13.50	12.00
SAR Test Require	YES	YES	YES	NO	NO	NO
Mode	8-DPSK			/		
Channel	0	39	78	/	/	/
Frequency (MHz)	2402	2441	2480	/	/	/
Conducted Power (dBm)	11.70	12.32	11.03	/	/	/
Tune-Up Limit (dBm)	12.50	13.50	12.00	/		
SAR Test Require	NO	NO	NO	NO	NO	NO
Mode	BLE-1Mbps			BLE-2Mbps		
Channel	0	19	39	0	19	39
Frequency (MHz)	2402	2440	2480	2402	2440	2480
Conducted Power (dBm)	-2.70	-1.80	-2.84	-2.45	-1.68	-2.55
Tune-Up Limit (dBm)	-1.50	-1.00	-2.00	-1.45	-0.50	-1.50
SAR Test Require	NO	NO	NO	NO	NO	NO
Note 1: Since Bluetooth BR mode is the maximum output power mode，SAR measurements were performed with test software using DH5 modulation, and SAR measurement is not required for the EDR and LE. When the secondary mode is ≤ ¼ dB higher than the primary mode.						

The Bluetooth duty cycle is 76.67 % as following figure, according to 2016 Oct. TCB workshop for Bluetooth SAR scaling need further consideration and the maximum duty cycle is 76.67%, therefore the actual duty cycle will be scaled up to 76.67% for Bluetooth reported SAR calculation.



8.6 Power Reduction List

1. When there is a voice call (including VOIP), and the audio is actively routed through the headset or speaker, which indicating the body/Limbs exposure conditions will trigger the body/Limbs exposure reduced the power.
2. When this device used data mode only, and the receiver will not work too, the reduced the power are same as body exposure.

WWAN Reduced Power Level Table

Reduced level	Receiver state	Transmitting conditions	Antenna	Position
State 1	Off (body scenario)	WWAN Use Only & WWAN + WLAN	Ant.1	Front Side; Back Side；Left Edge; Right Edge; Top Edge; Bottom Edge

WWAN Antenna Power Table

Mode	Antenna	WWAN Antenna		
		Full Power	Body	
			Simultaneous transmission	
		Off	State 1	
GSM 850	Ant 1	34.50	26.50	
GPRS850 1 Tx Slot	Ant 1	34.50	26.50	
GPRS850 2 Tx Slot	Ant 1	33.50	23.50	
GPRS850 3 Tx Slot	Ant 1	31.50	21.50	
GPRS850 4 Tx Slot	Ant 1	30.50	20.50	
EGPRS850 1 Tx Slot	Ant 1	28.50	20.50	
EGPRS850 2 Tx Slot	Ant 1	27.50	17.50	
EGPRS850 3 Tx Slot	Ant 1	25.00	15.50	
EGPRS850 4 Tx Slot	Ant 1	24.00	14.00	
GSM 1900	Ant 1	31.00	23.00	
GPRS1900 1 Tx Slot	Ant 1	31.00	23.00	
GPRS1900 2 Tx Slots	Ant 1	30.00	20.50	
GPRS1900 3 Tx Slots	Ant 1	28.00	18.50	
GPRS1900 4 Tx Slots	Ant 1	27.00	17.00	
EGPRS1900 1 Tx Slot	Ant 1	26.50	19.00	
EGPRS1900 2 Tx Slots	Ant 1	25.50	15.50	
EGPRS1900 3 Tx Slots	Ant 1	23.00	13.50	
EGPRS1900 4 Tx Slots	Ant 1	22.00	11.50	
WCDMA Band2 RMC	Ant 1	24.00	11.50	
HSDPA Subtest-1	Ant 1	24.00	11.50	
HSDPA Subtest-2	Ant 1	24.00	11.50	
HSDPA Subtest-3	Ant 1	23.50	11.00	
HSDPA Subtest-4	Ant 1	23.50	11.00	
HSUPA Subtest-1	Ant 1	23.00	10.50	
HSUPA Subtest-2	Ant 1	21.00	8.50	
HSUPA Subtest-3	Ant 1	22.00	9.50	
HSUPA Subtest-4	Ant 1	21.00	8.50	
HSUPA Subtest-5	Ant 1	23.00	10.50	
WCDMA Band4 RMC	Ant 1	24.00	13.00	
HSDPA Subtest-1	Ant 1	24.00	13.00	
HSDPA Subtest-2	Ant 1	24.00	13.00	
HSDPA Subtest-3	Ant 1	23.50	12.50	
HSDPA Subtest-4	Ant 1	23.50	12.50	
HSUPA Subtest-1	Ant 1	23.00	12.00	
HSUPA Subtest-2	Ant 1	21.00	10.00	
HSUPA Subtest-3	Ant 1	22.00	11.00	
HSUPA Subtest-4	Ant 1	21.00	10.00	
HSUPA Subtest-5	Ant 1	23.00	12.00	

WCDMA Band5 RMC	Ant 1	24.00	20.50
HSDPA Subtest-1	Ant 1	24.00	20.50
HSDPA Subtest-2	Ant 1	24.00	20.50
HSDPA Subtest-3	Ant 1	23.50	20.00
HSDPA Subtest-4	Ant 1	23.50	20.00
HSUPA Subtest-1	Ant 1	23.00	19.50
HSUPA Subtest-2	Ant 1	21.00	17.50
HSUPA Subtest-3	Ant 1	22.00	18.50
HSUPA Subtest-4	Ant 1	21.00	17.50
HSUPA Subtest-5	Ant 1	23.00	19.50
LTE Band2	Ant 1	24.00	12.00
LTE Band4	Ant 1	24.50	14.00
LTE Band5	Ant 1	24.50	19.50
LTE Band7	Ant 1	24.50	10.00
LTE Band12	Ant 1	24.00	19.50
LTE Band13	Ant 1	24.50	20.00
LTE Band17	Ant 1	24.00	19.50
LTE Band25	Ant 1	24.00	12.00
LTE Band26	Ant 1	24.50	19.50
LTE Band66	Ant 1	24.50	14.00
LTE Band38	Ant 1	24.00	12.00
LTE Band41	Ant 1	24.00	12.00

WLAN Reduced Power Level Table

Reduced level	Receiver state	Transmitting conditions	Antenna	Position
Level 1	Off (Body scenario)	2.4G/5G WIFI & 2.4G/5G WIFI+WWAN	Ant.2/3	Front Side; Back Side；Left Edge; Right Edge; Top Edge; Bottom Edge

WLAN Reduced Power Table

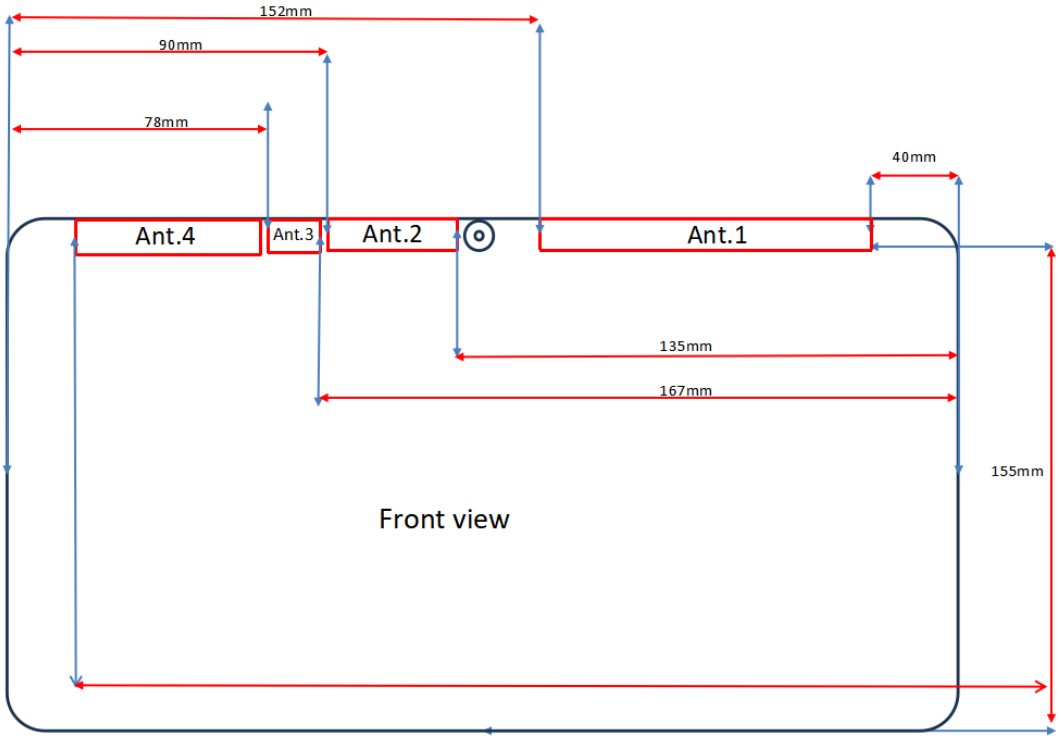
Mode	WIFI5G Ant.3	
	Full Power	Body
		Standalone
	Off	Level1
5.2G WLAN 802.11a	17.50	12.00
5.2G WLAN 802.11n20	17.50	11.50
5.2G WLAN 802.11n40	17.50	11.50
5.2G WLAN 802.11ac20	16.50	11.50
5.2G WLAN 802.11ac40	16.00	10.50
5.2G WLAN 802.11ac80	16.00	11.00
5.3G WLAN 802.11a	17.50	11.50
5.3G WLAN 802.11n20	17.50	11.50
5.3G WLAN 802.11n40	17.50	11.50
5.3G WLAN 802.11ac20	16.50	10.50
5.3G WLAN 802.11ac40	16.00	10.50
5.3G WLAN 802.11ac80	16.00	11.00
5.6G WLAN 802.11a	17.00	11.50
5.6G WLAN 802.11n20	17.00	11.00
5.6G WLAN 802.11n40	17.00	11.00
5.6G WLAN 802.11ac20	16.00	10.00
5.6G WLAN 802.11ac40	15.50	10.00
5.6G WLAN 802.11ac80	15.50	10.50
5.8G WLAN 802.11a	16.00	10.50
5.8G WLAN 802.11n20	16.00	10.50
5.8G WLAN 802.11n40	16.00	10.00
5.8G WLAN 802.11ac20	15.00	9.50
5.8G WLAN 802.11ac40	15.00	9.50
5.8G LAN 802.11ac80	14.50	9.50

Mode	WIFI2.4G Ant.2		
	Full Power	Receiver off	
		Body	
		Standalone	
	Off	Level1	
2.4G WLAN 802.11b	19.50	12.50	
2.4G WLAN 802.11g	19.00	12.00	
2.4G WLAN 802.11n20	18.50	11.50	
Bluetooth	13.50	13.50	

9 TEST EXCLUSION CONSIDERATION

9.1 Tablet Mode antenna location sketch

EUT Front View:



Antenna	Support Bands
ANT1	GSM 850/1900, WCDMA Band 2/4/5 LTE Band 1/3/28, n1/n3/n28
ANT2	Bluetooth/WLAN 2.4G
ANT3	WLAN 5G

Ant. 1

Position	Back Side	Left Edge	Right Edge	Top Edge	Bottom Edge
Distance(mm)	＜5mm	152mm	40mm	＜5mm	155mm

Ant. 2

Position	Back Side	Left Edge	Right Edge	Top Edge	Bottom Edge
Distance(mm)	＜5mm	90mm	135mm	＜5mm	155mm

Ant. 3

Position	Back Side	Left Edge	Right Edge	Top Edge	Bottom Edge
Distance(mm)	＜5mm	78mm	167mm	＜5mm	155mm

9.2 SAR Test Consideration Table

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

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

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

9.2.1 Tablet mode SAR Test Exclusion Consideration

WWAN Antenna Body RF exposure scenarios

WWAN Antenna						
Test Position Configurations	Mode	GSM 850	WCDMA B5	LTE B12	LTE B13	LTE B26
Calculated Frequency(MHz)		836.6	836.4	707.5	782	831.5
Back Side of Moniter	Distance to User (mm)	5				
	Max. Peak Power (dBm)	23.5	20.5	19.5	20	19.5
	Max. Peak Power (mW)	223.87	112.2	89.13	100	89.13
	Exclusion Threshold (mW)	9	9	9	9	9
	SAR Test Required	Yes	Yes	Yes	Yes	Yes
Left Edge	Distance to User (mm)	152				
	Max. Peak Power (dBm)	23.5	20.5	19.5	20	19.5
	Max. Peak Power (mW)	223.87	112.2	89.13	100	89.13
	Exclusion Threshold (mW)	240	240	240	240	240
	SAR Test Required	No	No	No	No	No
Right Edge	Distance to User (mm)	40				
	Max. Peak Power (dBm)	23.5	20.5	19.5	20	19.5
	Max. Peak Power (mW)	223.87	112.2	89.13	100	89.13
	Exclusion Threshold (mW)	175	175	175	175	175
	SAR Test Required	Yes	No	No	No	No
Top Edge	Distance to User (mm)	5				
	Max. Peak Power (dBm)	23.5	20.5	19.5	20	19.5
	Max. Peak Power (mW)	223.87	112.2	89.13	100	89.13
	Exclusion Threshold (mW)	9	9	9	9	9
	SAR Test Required	Yes	Yes	Yes	Yes	Yes
Bottom Edge	Distance to User (mm)	155				
	Max. Peak Power (dBm)	23.5	20.5	19.5	20	19.5
	Max. Peak Power (mW)	223.87	112.2	89.13	100	89.13
	Exclusion Threshold (mW)	240	240	240	240	240
	SAR Test Required	No	No	No	No	No

WWAN Antenna Body RF exposure scenarios

WWAN Antenna								
Test Position Configurations	Mode	GSM 1900	WCDMA B4	WCDMA B2	LTE B25	LTE B66	LTE B7	LTE B41
Calculated Frequency(MHz)		1909.8	1880	1880	1905	1770	1770	1770
Back Side of Moniter	Distance to User (mm)	5						
	Max. Peak Power (dBm)	20.5	13	11.5	12	14	10	12
	Max. Peak Power (mW)	112.2	19.95	14.13	15.85	25.12	10	15.85
	Exclusion Threshold (mW)	3	3	3	3	3	2	2
	SAR Test Required	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Left Edge	Distance to User (mm)	152						
	Max. Peak Power (dBm)	20.5	13	11.5	12	14	10	12
	Max. Peak Power (mW)	112.2	19.95	14.13	15.85	25.12	10	15.85
	Exclusion Threshold (mW)	236	236	236	236	236	195	195
	SAR Test Required	No	No	No	No	No	No	No
Right Edge	Distance to User (mm)	40						
	Max. Peak Power (dBm)	20.5	13	11.5	12	14	10	12
	Max. Peak Power (mW)	112.2	19.95	14.13	15.85	25.12	10	15.85
	Exclusion Threshold (mW)	157	157	157	157	157	125	125
	SAR Test Required	No	No	No	No	No	No	No
Top Edge	Distance to User (mm)	5						
	Max. Peak Power (dBm)	20.5	13	11.5	12	14	10	12
	Max. Peak Power (mW)	112.2	19.95	14.13	15.85	25.12	10	15.85
	Exclusion Threshold (mW)	3	3	3	3	3	2	2
	SAR Test Required	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Bottom Edge	Distance to User (mm)	155						
	Max. Peak Power (dBm)	20.5	13	11.5	12	14	10	12
	Max. Peak Power (mW)	112.2	19.95	14.13	15.85	25.12	10	15.85
	Exclusion Threshold (mW)	236	236	236	236	236	195	195
	SAR Test Required	No	No	No	No	No	No	No

WLAN 2.4g and BT Antenna Body RF exposure scenarios

WLAN Antenna			
Test Position Configurations	Mode	WLAN 2.4	BT
Calculated Frequency(MHz)		2437	2441
Back Side of Moniter	Distance to User (mm)	5	
	Max. Peak Power (dBm)	12.5	13
	Max. Peak Power (mW)	17.78	19.95
	Exclusion Threshold (mW)	3	3
	SAR Test Required	Yes	Yes
Left Edge	Distance to User (mm)	90	
	Max. Peak Power (dBm)	12.5	13
	Max. Peak Power (mW)	17.78	19.95
	Exclusion Threshold (mW)	219	219
	SAR Test Required	No	No
Right Edge	Distance to User (mm)	135	
	Max. Peak Power (dBm)	12.5	13
	Max. Peak Power (mW)	17.78	19.95
	Exclusion Threshold (mW)	219	219
	SAR Test Required	No	No
Top Edge	Distance to User (mm)	5	
	Max. Peak Power (dBm)	12.5	13
	Max. Peak Power (mW)	17.78	19.95
	Exclusion Threshold (mW)	3	3
	SAR Test Required	Yes	Yes
Bottom Edge	Distance to User (mm)	155	
	Max. Peak Power (dBm)	12.5	13
	Max. Peak Power (mW)	17.78	19.95
	Exclusion Threshold (mW)	219	219
	SAR Test Required	No	No

WLAN 5g Antenna Body RF exposure scenarios

WWAN Antenna					
Test Position Configurations	Mode	UNII-2A	UNII-2C	UNII-3	UNII-4
Calculated Frequency(MHz)		5220	5300	5580	5785
Back Side of Moniter	Distance to User (mm)	5			
	Max. Peak Power (dBm)	12	11.5	11.5	10.5
	Max. Peak Power (mW)	15.85	14.13	14.13	11.22
	Exclusion Threshold (mW)	1	1	1	1
	SAR Test Required	Yes	Yes	Yes	Yes
Left Edge	Distance to User (mm)	78			
	Max. Peak Power (dBm)	12	11.5	11.5	10.5
	Max. Peak Power (mW)	15.85	14.13	14.13	11.22
	Exclusion Threshold (mW)	169	169	169	169
	SAR Test Required	No	No	No	No
Right Edge	Distance to User (mm)	167			
	Max. Peak Power (dBm)	12	11.5	11.5	10.5
	Max. Peak Power (mW)	15.85	14.13	14.13	11.22
	Exclusion Threshold (mW)	169	169	169	169
	SAR Test Required	No	No	No	No
Top Edge	Distance to User (mm)	5			
	Max. Peak Power (dBm)	12	11.5	11.5	10.5
	Max. Peak Power (mW)	15.85	14.13	14.13	11.22
	Exclusion Threshold (mW)	1	1	1	1
	SAR Test Required	Yes	Yes	Yes	Yes
Bottom Edge	Distance to User (mm)	155			
	Max. Peak Power (dBm)	12	11.5	11.5	10.5
	Max. Peak Power (mW)	15.85	14.13	14.13	11.22
	Exclusion Threshold (mW)	169	169	169	169
	SAR Test Required	No	No	No	No

Note:

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

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

where

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

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

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

5. Per KDB 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
6. Per KDB 248227 D01 SAR is not required for the following 2.4 GHz OFDM conditions.
   a. When KDB Publication 447498 D04 SAR test exclusion applies to the OFDM configuration.
   b. When the highest reported SAR for DSSS is adjusted by the ratio of OFDM to DSSS specified maximum output power and the adjusted SAR is ≤ 1.2 W/kg.
7. 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.
8. For Limb SAR, SAR test exemption considered by applying a factor of 2.5 to the applicable power level thresholds.

10 TEST RESULT

10.1 GSM 850

Antenna	Test Position	Dist.	Test Mode	Channel	Freq.(MHz)	EUT State	Power Drift(dB)	Measured 1-g SAR (W/kg)	Meas. Power (dBm)	Max. tune-up power(dBm)	Scaling Factor	1g Scaled SAR (W/kg)	Meas. No.
Body													
Ant.1	Back side	0mm	GPRS 2TX	190	836.6	State 1	-0.12	0.232	22.46	23.50	1.271	0.295	
	Right side			190	836.6	State 1	-0.13	0.064	22.46	23.50	1.271	0.081	
	Top side			190	836.6	State 1	-0.08	0.242	22.46	23.50	1.271	0.307	1

10.2 GSM 1900

Antenna	Test Position	Dist.	Test Mode	Channel	Freq.(MHz)	EUT State	Power Drift(dB)	Measured 1-g SAR (W/kg)	Meas. Power (dBm)	Max. tune-up power(dBm)	Scaling Factor	1g Scaled SAR (W/kg)	Meas. No.
Body													
Ant.1	Back side	0mm	GPRS 2TX	661	1880	State 1	0.10	0.662	19.26	20.50	1.330	0.881	
	Top side			661	1880	State 1	0.09	0.663	19.26	20.50	1.330	0.882	
	Top side			512	1850.2	State 1	0.11	0.659	19.19	20.50	1.352	0.891	2
	Top side			810	1909.8	State 1	0.03	0.599	19.20	20.50	1.349	0.808	

10.3WCDMA Band 2 SAR

Antenna	Test Position	Dist.	Test Mode	Channel	Freq.(MHz)	EUT State	Power Drift(dB)	Measured 1-g SAR (W/kg)	Meas. Power (dBm)	Max. tune-up power(dBm)	Scaling Factor	1g Scaled SAR (W/kg)	Meas. No.
Body													
Ant.1	Back side	0mm	RMC	9400	1880	State 1	-0.01	0.521	10.56	11.50	1.242	0.647	
	Top side			9400	1880	State 1	0.02	0.527	10.56	11.50	1.242	0.654	3

10.4WCDMA Band 4 SAR

Antenna	Test Position	Dist.	Test Mode	Channel	Freq.(MHz)	EUT State	Power Drift(dB)	Measured 1-g SAR (W/kg)	Meas. Power (dBm)	Max. tune-up power(dBm)	Scaling Factor	1g Scaled SAR (W/kg)	Meas. No.
Body													
Ant.1	Back side	0mm	RMC	1412	1732.4	State 1	0.17	0.548	12.33	13.00	1.167	0.639	
	Top side			1412	1732.4	State 1	-0.03	0.559	12.33	13.00	1.167	0.652	4

10.5WCDMA Band 5 SAR

Antenna	Test Position	Dist.	Test Mode	Channel	Freq.(MHz)	EUT State	Power Drift(dB)	Measured 1-g SAR (W/kg)	Meas. Power (dBm)	Max. tune-up power(dBm)	Scaling Factor	1g Scaled SAR (W/kg)	Meas. No.
Body													
Ant.1	Back side	0mm	RMC	4182	836.4	State 1	0.09	0.715	19.89	20.50	1.151	0.823	5
	Top side			4182	836.4	State 1	0.11	0.561	19.89	20.50	1.151	0.646	
	Back side			4132	826.4	State 1	-0.15	0.670	19.96	20.50	1.132	0.759	
	Back side			4233	846.6	State 1	0.17	0.679	19.91	20.50	1.146	0.778	

10.6 LTE Band 7 (20MHz Bandwidth)

Antenna	Test Position	Dist.	Test Mode	Test Channel	Freq.(MHz)	RB num.	RB Start	EUT State	Power Drift(dB)	Measured 1-g SAR (W/kg)	Meas. Power (dBm)	Max. tune-up power(dBm)	Scaling Factor	1g Scaled SAR (W/kg)	Meas. No.
Body															
Ant.1	Back side	0mm	QPSK-20MHz	21100	2535	1	0	State 1	-0.16	0.658	9.04	10.00	1.247	0.821	
	Top side			21100	2535	1	0	State 1	0.05	0.661	9.04	10.00	1.247	0.825	
	Top side			20850	2510	1	0	State 1	0.03	0.666	8.99	10.00	1.262	0.840	
	Top side			21350	2560	1	0	State 1	0.18	0.667	8.95	10.00	1.274	0.849	6
	Back side			21100	2535	50	0	State 1	-0.11	0.657	8.91	10.00	1.285	0.844	
	Top side			21100	2535	50	0	State 1	-0.13	0.635	8.91	10.00	1.285	0.816	
	Top side			20850	2510	50	0	State 1	-0.04	0.638	8.83	10.00	1.309	0.835	
	Top side			21350	2560	50	0	State 1	-0.04	0.648	8.88	10.00	1.294	0.839	

10.7 LTE Band 12 (10MHz Bandwidth)

Antenna	Test Position	Dist.	Test Mode	Test Channel	Freq.(MHz)	RB num.	RB Start	EUT State	Power Drift(dB)	Measured 1-g SAR (W/kg)	Meas. Power (dBm)	Max. tune-up power(dBm)	Scaling Factor	1g Scaled SAR (W/kg)	Meas. No.
Body															
Ant.1	Back side	0mm	QPSK-10MHz	23095	707.5	1	0	State 1	0.17	0.302	18.75	19.50	1.189	0.359	
	Top side			23095	707.5	1	0	State 1	-0.06	0.544	18.75	19.50	1.189	0.647	7
	Back side			23095	707.5	25	0	State 1	-0.13	0.332	18.73	19.50	1.194	0.396	
	Top side			23095	707.5	25	0	State 1	0.09	0.463	18.73	19.50	1.194	0.553	

10.8 LTE Band 13 (10MHz Bandwidth)

Antenna	Test Position	Dist.	Test Mode	Test Channel	Freq.(MHz)	RB num.	RB Start	EUT State	Power Drift(dB)	Measured 1-g SAR (W/kg)	Meas. Power (dBm)	Max. tune-up power(dBm)	Scaling Factor	1g Scaled SAR (W/kg)	Meas. No.
Body															
Ant.1	Back side	0mm	QPSK-10MHz	23230	782	1	0	State 1	-0.10	0.275	18.88	20.00	1.294	0.356	
	Top side			23230	782	1	0	State 1	-0.08	0.285	18.88	20.00	1.294	0.369	8
	Back side			23230	782	25	0	State 1	-0.16	0.255	18.86	20.00	1.300	0.332	
	Top side			23230	782	25	0	State 1	0.10	0.269	18.86	20.00	1.300	0.350	

10.9 LTE Band 25 (20MHz Bandwidth)

Antenna	Test Position	Dist.	Test Mode	Test Channel	Freq.(MHz)	RB num.	RB Start	EUT State	Power Drift(dB)	Measured 1-g SAR (W/kg)	Meas. Power (dBm)	Max. tune-up power(dBm)	Scaling Factor	1g Scaled SAR (W/kg)	Meas. No.
Body															
Ant.1	Back side	0mm	QPSK-20MHz	26365	1882.5	1	0	State 1	0.19	0.705	11.33	12.00	1.167	0.823	9
	Top side			26365	1882.5	1	0	State 1	-0.04	0.690	11.33	12.00	1.167	0.805	
	Back side			26140	1860	1	0	State 1	0.04	0.687	11.30	12.00	1.175	0.807	
	Back side			26590	1905	1	0	State 1	0.09	0.677	11.25	12.00	1.189	0.805	
	Back side			26365	1882.5	50	0	State 1	-0.17	0.689	11.29	12.00	1.178	0.811	
	Top side			26365	1882.5	50	0	State 1	0.19	0.674	11.29	12.00	1.178	0.794	
	Back side			26140	1860	50	0	State 1	0.17	0.685	11.29	12.00	1.178	0.807	
	Back side			26590	1905	50	0	State 1	-0.13	0.646	11.24	12.00	1.191	0.770	

10.10 LTE Band 26 (15MHz Bandwidth)

Antenna	Test Position	Dist.	Test Mode	Test Channel	Freq.(MHz)	RB num.	RB Start	EUT State	Power Drift(dB)	Measured 1-g SAR (W/kg)	Meas. Power (dBm)	Max. tune-up power(dBm)	Scaling Factor	1g Scaled SAR (W/kg)	Meas. No.
Body															
Ant.1	Back side	0mm	QPSK-15MHz	26865	831.5	1	0	State 1	0.06	0.184	18.36	19.50	1.300	0.239	
	Top side			26865	831.5	1	0	State 1	-0.18	0.209	18.36	19.50	1.300	0.272	10
	Back side			26865	831.5	36	0	State 1	0.19	0.158	18.22	19.50	1.343	0.212	
	Top side			26865	831.5	36	0	State 1	0.07	0.187	18.22	19.50	1.343	0.251	

10.11 LTE Band 66 (20MHz Bandwidth)

Antenna	Test Position	Dist.	Test Mode	Test Channel	Freq.(MHz)	RB num.	RB Start	EUT State	Power Drift(dB)	Measured 1-g SAR (W/kg)	Meas. Power (dBm)	Max. tune-up power(dBm)	Scaling Factor	1g Scaled SAR (W/kg)	Meas. No.
Body															
Ant.1	Back side	0mm	QPSK-20MHz	132322	1745	1	0	State 1	-0.05	0.669	13.11	14.00	1.227	0.821	
	Top side			132322	1745	1	0	State 1	-0.09	0.684	13.11	14.00	1.227	0.840	
	Top side			132072	1720	1	0	State 1	0.15	0.620	13.06	14.00	1.242	0.770	
	Top side			132572	1770	1	0	State 1	0.14	0.690	13.09	14.00	1.233	0.851	11
	Back side			132322	1745	50	0	State 1	-0.08	0.657	12.95	14.00	1.274	0.837	
	Top side			132322	1745	50	0	State 1	0.05	0.665	12.95	14.00	1.274	0.847	
	Top side			132072	1720	50	0	State 1	-0.05	0.608	12.93	14.00	1.279	0.778	
	Top side			132572	1770	50	0	State 1	-0.12	0.647	12.88	14.00	1.294	0.837	

10.12 LTE Band 41 (20MHz Bandwidth)

Antenna	Test Position	Dist.	Test Mode	Channe	Freq.(MHz)	RB num.	RB Start	EUT State	Power Drift(dB)	Measured 1-g CSAR (W/kg)	Meas. Power (dBm)	Max. tune-up power(dBm)	Scaling Factor	1g Scaled SAR (W/kg)	Meas. No.
Body															
Ant.1	Back side	0mm	QPSK-20MHz	40620	2593	1	0	State 1	-0.10	0.463	10.83	12.00	1.309	0.606	12
	Top side			40620	2593	1	0	State 1	-0.10	0.447	10.83	12.00	1.309	0.585	
	Back side			39750	2506	1	0	State 1	0.13	0.412	10.79	12.00	1.321	0.544	
	Back side			41490	2680	1	0	State 1	-0.04	0.426	10.66	12.00	1.361	0.580	
	Back side			40620	2593	50	0	State 1	0.15	0.438	10.81	12.00	1.315	0.576	
	Top side			40620	2593	50	0	State 1	0.03	0.450	10.81	12.00	1.315	0.592	

10.13 Bluetooth

Antenna	Position	Dist.	Channel	Freq. (MHz)	Test Mode	EUT State	Power Drift(dB)	Measured 1-g SAR (W/kg)	Average Power (dBm)	Tune-up Limit(dBm)	Scaling Factor	Duty cycle (%)	Duty cycle Factor	1g Scaled SAR (W/kg)	Meas. no.
Body															
Ant.2	Back side	0mm	39	2441	BR/EDR 1Mbps	Level1	-0.13	0.209	11.83	13.00	1.309	76.67	1.304	0.357	13
	Top side		39	2441		Level1	-0.11	0.153	11.83	13.00	1.309	76.67	1.304	0.261	

10.14 WIFI 2.4GHz

Antenna	Test Position	Dist.	Test Mode	Test Channe	Freq.(MHz)	EUT State	Power Setting	Power Drift(dB)	Measured 1-g SAR (W/kg)	Meas. Power (dBm)	Max. tune-up power(dBm)	Scaling Factor	Duty cycle (%)	Duty cycle Factor	1g Scaled SAR (W/kg)	Meas. No.
Body																
Ant.2	Back side	0mm	802.11b 1Mbps	6	2437	Level1	8	-0.04	0.132	11.35	12.50	1.303	99.46	1.005	0.173	14
	Top side			6	2437	Level1	8	-0.13	0.075	11.35	12.50	1.303	99.46	1.005	0.098	/

10.15 WIFI 5GHz

WLAN 5.2G

Antenna	Test Position	Dist.	Test Mode	Test Channe	Freq.(MHz)	EUT State	Power Setting	Power Drift(dB)	Measured 1-g SAR (W/kg)	Meas. Power (dBm)	Max. tune-up power(dBm)	Scaling Factor	Duty cycle (%)	Duty cycle Factor	1g Scaled SAR (W/kg)	Meas. No.
Body																
Ant.3	Back side	0mm	802.11a 6Mbps	44	5220	Level1	11	0.02	0.239	10.91	12.00	1.285	96.38	1.038	0.319	15
	Top side			44	5220	Level1	11	-0.14	0.173	10.91	12.00	1.285	96.38	1.038	0.231	/

WLAN 5.3G

Antenna	Test Position	Dist.	Test Mode	Test Channe	Freq.(MHz)	EUT State	Power Setting	Power Drift(dB)	Measured 1-g SAR (W/kg)	Meas. Power (dBm)	Max. tune-up power(dBm)	Scaling Factor	Duty cycle (%)	Duty cycle Factor	1g Scaled SAR (W/kg)	Meas. No.
Body																
Ant.3	Back side	0mm	802.11a 6Mbps	60	5300	Level1	11	0.01	0.267	10.56	11.50	1.242	96.38	1.038	0.344	16
	Top side			60	5300	Level1	11	-0.02	0.189	10.56	11.50	1.242	96.38	1.038	0.243	/

WLAN 5.6G

Antenna	Test Position	Dist.	Test Mode	Test Channe	Freq.(MHz)	EUT State	Power Setting	Power Drift(dB)	Measured 1-g SAR (W/kg)	Meas. Power (dBm)	Max. tune-up power(dBm)	Scaling Factor	Duty cycle (%)	Duty cycle Factor	1g Scaled SAR (W/kg)	Meas. No.
Body																
Ant.3	Back side	0mm	802.11a 6Mbps	116	5580	Level1	11	0.02	0.227	10.38	11.50	1.294	96.38	1.038	0.305	/
	Top side			116	5580	Level1	11	0.14	0.264	10.38	11.50	1.294	96.38	1.038	0.355	17

WLAN 5.8G

Antenna	Test Position	Dist.	Test Mode	Test Channe	Freq.(MHz)	EUT State	Power Setting	Power Drift(dB)	Measured 1-g SAR (W/kg)	Meas. Power (dBm)	Max. tune-up power(dBm)	Scaling Factor	Duty cycle (%)	Duty cycle Factor	1g Scaled SAR (W/kg)	Meas. No.
Body																
Ant.3	Back side	0mm	802.11a 6Mbps	157	5785	Level1	11	0.02	0.243	9.68	10.50	1.208	96.38	1.038	0.305	/
	Top side			157	5785	Level1	11	-0.15	0.335	9.68	10.50	1.208	96.38	1.038	0.420	18

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.

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).

According KDB 447498 D04, simultaneous transmission:

a) SPLSR = (SAR1 + SAR2)^1.5 / R_i (min. separation distance, mm), and the peak separation distance is determined from the square root of [$(x1-x2)^2$ + $(y1-y2)^2$ + $(z1-z2)^2$], where (x1, y1, z1) and (x2, y2, z2) are the coordinates of the extrapolated peak SAR locations in the zoom scan.
SAR1 is the highest reported or estimated SAR for the first of a pair of simultaneous transmitting antennas, in a specific test operating mode and exposure condition.
SAR2 is the highest reported or estimated SAR for the second of a pair of simultaneous transmitting antennas, in a specific test operating mode and exposure condition as the first.

b) If SPLSR ≤ 0.04, simultaneously transmission SAR measurement is not necessary.

c) Simultaneously transmission SAR measurement, and the reported multi-band SAR < 1.6W/kg.

12.1 Simultaneous Transmission Mode Considerations

No.	Simultaneous Tx Combination	Body
1	WWAN+WIFI5G+BT	Yes
2	WWAN+WIFI2.4G	Yes

Note:
1. WWAN antennas can switch automatically, the standards supported by WWAN are(GSM Voice/GPRS/EDGE/WCDMA/LTE).
2. The maximum SAR summation is calculated based on the same configuration and test position.
3. WIFI2.4G/Bluetooth can't transmit simultaneously

12.2 Sum Body SAR of Simultaneous Transmission

Band	Antenna	Position	Stand alone SAR				SUM SAR	
			1	2	3	4		
			WWAN	2.4GWIFI	5G WIFI	Bluetooth	1+2	1+3+4
GSM 850	ANT1	Back Side	0.295	0.173	0.344	0.357	0.468	0.996
		Left Side	0.000	0.000	0.000	0.000	0.000	0.000
		Right Side	0.081	0.000	0.000	0.000	0.081	0.081
		Top Side	0.307	0.098	0.420	0.261	0.406	0.989
		Bottom Side	0.000	0.000	0.000	0.000	0.000	0.000
GSM 1900	ANT1	Back Side	0.881	0.173	0.344	0.357	1.054	**1.582**
		Left Side	0.000	0.000	0.000	0.000	0.000	0.000
		Right Side	0.000	0.000	0.000	0.000	0.000	0.000
		Top Side	0.891	0.098	0.420	0.261	0.989	1.572
		Bottom Side	0.000	0.000	0.000	0.000	0.000	0.000
WCDMA B2	ANT1	Back Side	0.647	0.173	0.344	0.357	0.820	1.348
		Left Side	0.000	0.000	0.000	0.000	0.000	0.000
		Right Side	0.000	0.000	0.000	0.000	0.000	0.000
		Top Side	0.654	0.098	0.420	0.261	0.753	1.335
		Bottom Side	0.000	0.000	0.000	0.000	0.000	0.000
WCDMA B4	ANT1	Back Side	0.639	0.173	0.344	0.357	0.812	1.340
		Left Side	0.000	0.000	0.000	0.000	0.000	0.000
		Right Side	0.000	0.000	0.000	0.000	0.000	0.000
		Top Side	0.652	0.098	0.420	0.261	0.751	1.333
		Bottom Side	0.000	0.000	0.000	0.000	0.000	0.000
WCDMA B5	ANT1	Back Side	0.823	0.173	0.344	0.357	0.996	1.524
		Left Side	0.000	0.000	0.000	0.000	0.000	0.000
		Right Side	0.000	0.000	0.000	0.000	0.000	0.000
		Top Side	0.646	0.098	0.420	0.261	0.744	1.327
		Bottom Side	0.000	0.000	0.000	0.000	0.000	0.000
LTE B7	ANT1	Back Side	0.844	0.173	0.344	0.357	1.017	1.545
		Left Side	0.000	0.000	0.000	0.000	0.000	0.000
		Right Side	0.000	0.000	0.000	0.000	0.000	0.000
		Top Side	0.849	0.098	0.420	0.261	0.948	1.530
		Bottom Side	0.000	0.000	0.000	0.000	0.000	0.000
LTE B12	ANT1	Back Side	0.396	0.173	0.344	0.357	0.569	1.097
		Left Side	0.000	0.000	0.000	0.000	0.000	0.000
		Right Side	0.000	0.000	0.000	0.000	0.000	0.000
		Top Side	0.647	0.098	0.420	0.261	0.745	1.328
		Bottom Side	0.000	0.000	0.000	0.000	0.000	0.000
LTE B13	ANT1	Back Side	0.356	0.173	0.344	0.357	0.529	1.057
		Left Side	0.000	0.000	0.000	0.000	0.000	0.000

		Right Side	0.000	0.000	0.000	0.000	0.000	0.000
		Top Side	0.369	0.098	0.420	0.261	0.467	1.050
		Bottom Side	0.000	0.000	0.000	0.000	0.000	0.000
LTE B25	ANT1	Back Side	0.823	0.173	0.344	0.357	0.996	1.523
		Left Side	0.000	0.000	0.000	0.000	0.000	0.000
		Right Side	0.000	0.000	0.000	0.000	0.000	0.000
		Top Side	0.805	0.098	0.420	0.261	0.903	1.486
		Bottom Side	0.000	0.000	0.000	0.000	0.000	0.000
LTE B26	ANT1	Back Side	0.239	0.173	0.344	0.357	0.412	0.940
		Left Side	0.000	0.000	0.000	0.000	0.000	0.000
		Right Side	0.000	0.000	0.000	0.000	0.000	0.000
		Top Side	0.272	0.098	0.420	0.261	0.370	0.953
		Bottom Side	0.000	0.000	0.000	0.000	0.000	0.000
LTE B66	ANT1	Back Side	0.837	0.173	0.344	0.357	1.010	1.538
		Left Side	0.000	0.000	0.000	0.000	0.000	0.000
		Right Side	0.000	0.000	0.000	0.000	0.000	0.000
		Top Side	0.851	0.098	0.420	0.261	0.949	1.532
		Bottom Side	0.000	0.000	0.000	0.000	0.000	0.000
LTE B41	ANT1	Back Side	0.606	0.173	0.344	0.357	0.779	1.307
		Left Side	0.000	0.000	0.000	0.000	0.000	0.000
		Right Side	0.000	0.000	0.000	0.000	0.000	0.000
		Top Side	0.592	0.098	0.420	0.261	0.690	1.273
		Bottom Side	0.000	0.000	0.000	0.000	0.000	0.000

Note:

1: The simultaneous transmission combinations of the antennas antennas contain combinations of two antennas, so only the worst simultaneous transmission combinations was shown in this table.

2: The highest Combined 10g SAR is 1.582 W/Kg < 1.6 W/kg, so Simultaneous Transmission SAR test is not required.

12.2.1 Highest Total Exposure Ratio of Simultaneous Transmission

NFC multi-transmit requires the use of the TER formula:

$$TER = \sum_{k=1}^{N_S}\left(\frac{SAR_k}{SAR_{\lim}}\right) + \sum_{k=1}^{N_f}\left(\frac{MPE_{field,\,k}}{MPE_{field,\,\lim}}\right)^2 + \sum_{k=1}^{N_{PD}}\left(\frac{MPE_{PD,\,k}}{MPE_{PD,\,\lim}}\right)$$ The

maximum SAR value for Simultaneous Transmission is 1.58 [W/kg]. Therefore, the worst TER =(1.58+0.001)/1.6 = 0.988＜1,the NFC SAR transmit simultaneously Pass.

13 TEST EQUIPMENTS LIST

Description	Manufacturer	Model	Serial No./Version	Cal. Date	Cal. Due
PC	Dell	N/A	N/A	N/A	N/A
Test Software	Speag	DASY5	52.8.8.1222	N/A	N/A
750MHz Validation Dipole	Speag	D750V3	SN: 1201	2024/09/03	2027/09/02
835MHz Validation Dipole	Speag	D835V2	SN: 4d277	2024/08/30	2027/08/29
1750MHz Validation Dipole	Speag	D1750V2	SN: 1183	2024/09/03	2027/09/02
1900MHz Validation Dipole	Speag	D1900V2	SN: 5d155	2024/09/02	2027/09/01
2450MHz Validation Dipole	Speag	D2450V2	SN: 1065	2024/09/05	2027/09/04
2600MHz Validation Dipole	Speag	D2600V2	SN: 1184	2024/08/30	2027/08/29
5GHz Validation Dipole	Speag	D5GHzV2	SN: 1333	2024/09/04	2027/09/03
Data Acquisition Electronicsr	Speag	DAE4	SN: 540	2025/4/21	2026/4/20
E-Field Probe	Speag	EX3DV4	SN: 3748	2025/4/24	2026/4/23
Signal Generator	R&S	N5173B	MY62150163	2024/8/12	2025/8/11
Power Meter	R&S	NRVD-B2	835843/014	2024/8/8	2025/8/7
Power Sensor	R&S	NRV-Z4	2174/10/30	2024/8/8	2025/8/7
Power Sensor	R&S	NRV-Z2	100211	2024/08/08	2025/08/07
Wireless Communication Test Set	Anritsu	MT8820C	6201502974	2024/08/01	2025/07/31
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: 1086	N/A	N/A
Attenuator	COM-MW	ZA-S1-31	1305003187	N/A	N/A
Directional coupler	AA-MCS	AAMCS-UDC	000272	N/A	N/A

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

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

ANNEX A SIMULATING LIQUID VERIFICATION RESULT

The dielectric parameters of the liquids were verified prior to the SAR evaluation using a DAK3.5 Dielectric Probe Kit.

Head Liquid

Date	Liquid Type	Fre. (MHz)	Temp. (℃)	Meas. Conductivity (σ) (S/m)	Meas. Permittivity (ε)	Target Conductivity(σ) (S/m)	Target Permittivity (ε)	Conductivity Tolerance (%)	Permittivity Tolerance (%)
2025.5.13	Head	750	21.2	0.87	42.87	0.89	41.94	-2.81	2.22
2025.5.14	Head	835	21.3	0.92	42.59	0.90	41.50	2.22	2.63
2025.5.13	Head	1750	21.4	1.40	39.48	1.37	40.08	2.19	-1.50
2025.5.15	Head	1900	21.5	1.46	39.19	1.40	40.00	4.29	-2.03
2025.5.16	Head	2450	21.6	1.83	38.66	1.80	39.20	1.67	-1.38
2025.5.16	Head	2600	21.7	1.98	38.33	1.96	39.01	1.02	-1.74
2025.5.17	Head	5200	21.8	4.68	35.52	4.66	35.99	0.43	-1.31
2025.5.17	Head	5600	21.5	4.99	34.90	5.07	35.53	-1.58	-1.77
2025.5.18	Head	5800	21.4	5.19	34.50	5.27	35.30	-1.52	-2.27
Note: The tolerance limit of Conductivity and Permittivity is± 5%.									

ANNEX B SYSTEM CHECK RESULT

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

Head liquid 1g

Date	Liquid Type	Freq. (MHz)	Power (mW)	Measured SAR (W/kg)	Normalized SAR (W/kg)	Dipole SAR (W/kg)	Tolerance (%)
2025.5.13	Head	750	100	0.843	8.43	8.46	-0.35
2025.5.14	Head	835	100	0.938	9.38	9.59	-2.19
2025.5.13	Head	1750	100	3.550	35.50	36.50	-2.74
2025.5.15	Head	1900	100	4.040	40.40	39.90	1.25
2025.5.16	Head	2450	100	5.020	50.20	52.60	-4.56
2025.5.16	Head	2600	100	5.510	55.10	55.30	-0.36
2025.5.17	Head	5200	100	8.230	82.30	77.80	5.78
2025.5.17	Head	5600	100	8.280	82.80	82.80	0.00
2025.5.18	Head	5800	100	8.370	83.70	78.50	6.62
Note: The tolerance limit of System validation ±10%.							

System Performance Check Data (750MHz)

Date: 2025/5/13
Communication System Band: D750 (750.0 MHz); Frequency: 750 MHz;Duty Cycle: 1:1
Medium parameters used: f = 750 MHz; σ = 0.887 S/m; ε_r = 43.048; ρ = 1000 kg/m^3
Phantom section: Flat Section

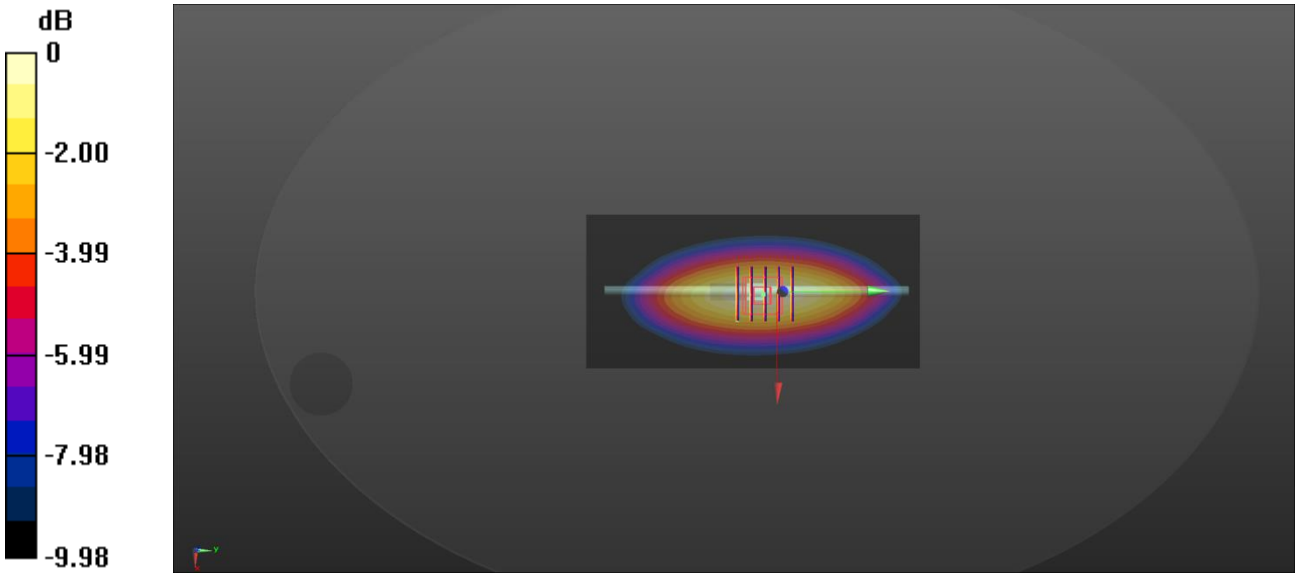
Ambient Temperature:22.3℃ Liquid Temperature:21.4℃

DASY5 Configuration:

- Probe: EX3DV4 - SN7510; ConvF(10.29, 10.29, 10.29); Calibrated: 2024/6/25
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1710; Calibrated: 2025/1/20
- Phantom: ELI V4.0 (20deg probe tilt); Type: QD OVA 001 Bx; Serial: TP:1086
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7501)

Ch750/Area Scan (61x131x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 1.11 W/kg

Ch750/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 32.02 V/m; Power Drift = -0.06 dB
Peak SAR (extrapolated) = 1.24 W/kg
SAR(1 g) = 0.843 W/kg; SAR(10 g) = 0.564 W/kg
Maximum value of SAR (measured) = 1.10 W/kg



0 dB = 1.10 W/kg

System Performance Check Data (835MHz)

Date: 2025/5/14
Communication System Band: D835 (835.0 MHz); Frequency: 835 MHz;Duty Cycle: 1:1
Medium parameters used: f = 835 MHz; σ = 0.917 S/m; ε_r = 42.587; ρ = 1000 kg/m^3
Phantom section: Flat Section

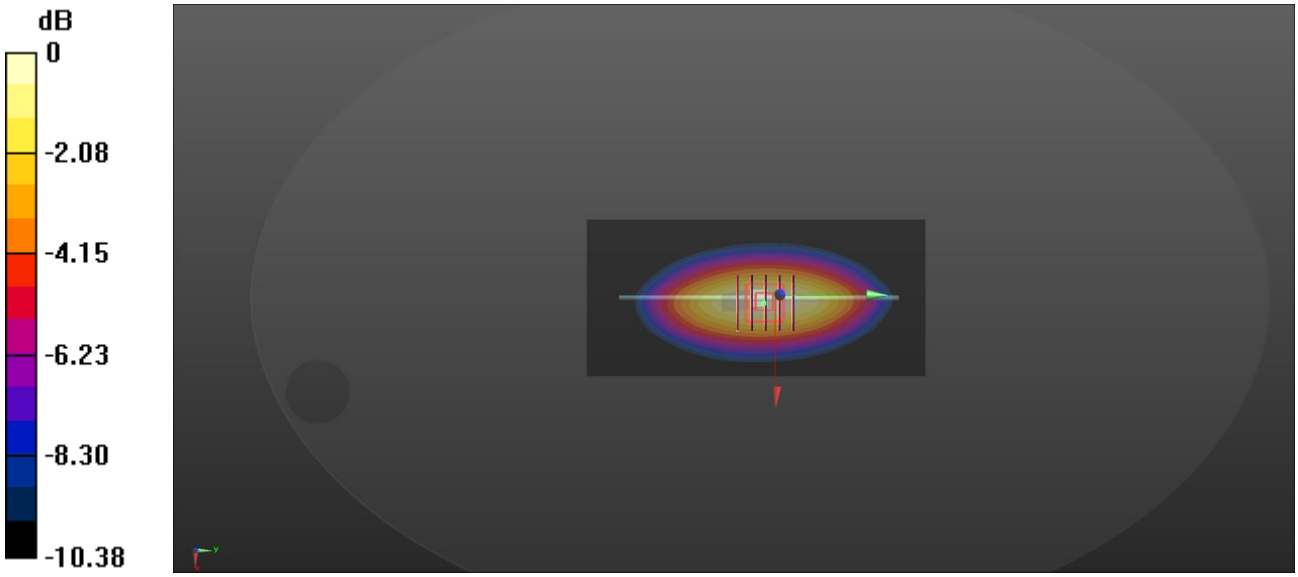
Ambient Temperature:22.4℃ Liquid Temperature:21.3℃

DASY5 Configuration:

- Probe: EX3DV4 - SN7510; ConvF(9.99, 9.99, 9.9); Calibrated: 2024/6/25
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1710; Calibrated: 2025/1/20
- Phantom: ELI V4.0 (20deg probe tilt); Type: QD OVA 001 Bx; Serial: TP:1086
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7501)

Ch835/Area Scan (61x131x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 1.23 W/kg

Ch835/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 32.98 V/m; Power Drift = 0.00 dB
Peak SAR (extrapolated) = 1.37 W/kg
SAR(1 g) = 0.938 W/kg; SAR(10 g) = 0.620 W/kg
Maximum value of SAR (measured) = 1.24 W/kg



0 dB = 1.24 W/kg

System Performance Check Data (1750MHz)

Date: 2025/5/13
Communication System Band: D1750 (1750.0 MHz); Frequency: 1750 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1750 MHz; σ = 1.395 S/m; ε_r = 39.475; ρ = 1000 kg/m^3
Phantom section: Flat Section

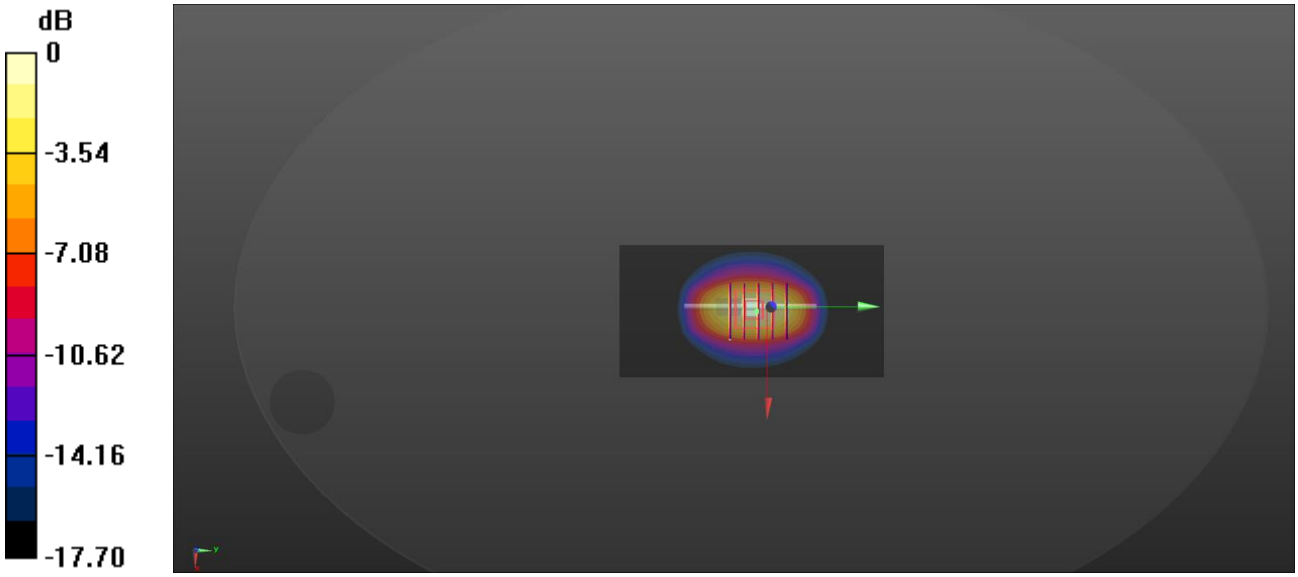
Ambient Temperature:22.5℃ Liquid Temperature:21.4℃

DASY5 Configuration:

- Probe: EX3DV4 - SN7510; ConvF(8.67, 8.67, 8.67); Calibrated: 2024/6/25
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1710; Calibrated: 2025/1/20
- Phantom: ELI V4.0 (20deg probe tilt); Type: QD OVA 001 Bx; Serial: TP:1086
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7501)

Ch1750/Area Scan (51x101x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 5.38 W/kg

Ch1750/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 52.88 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 6.48 W/kg
SAR(1 g) = 3.55 W/kg; SAR(10 g) = 1.88 W/kg
Maximum value of SAR (measured) = 5.46 W/kg



0 dB = 5.46 W/kg

System Performance Check Data (1900MHz)

Date: 2025/5/15
Communication System Band: D1900 (1900.0 MHz); Frequency: 1900 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1900 MHz; σ = 1.456 S/m; ε_r = 39.192; ρ = 1000 kg/m^3
Phantom section: Flat Section

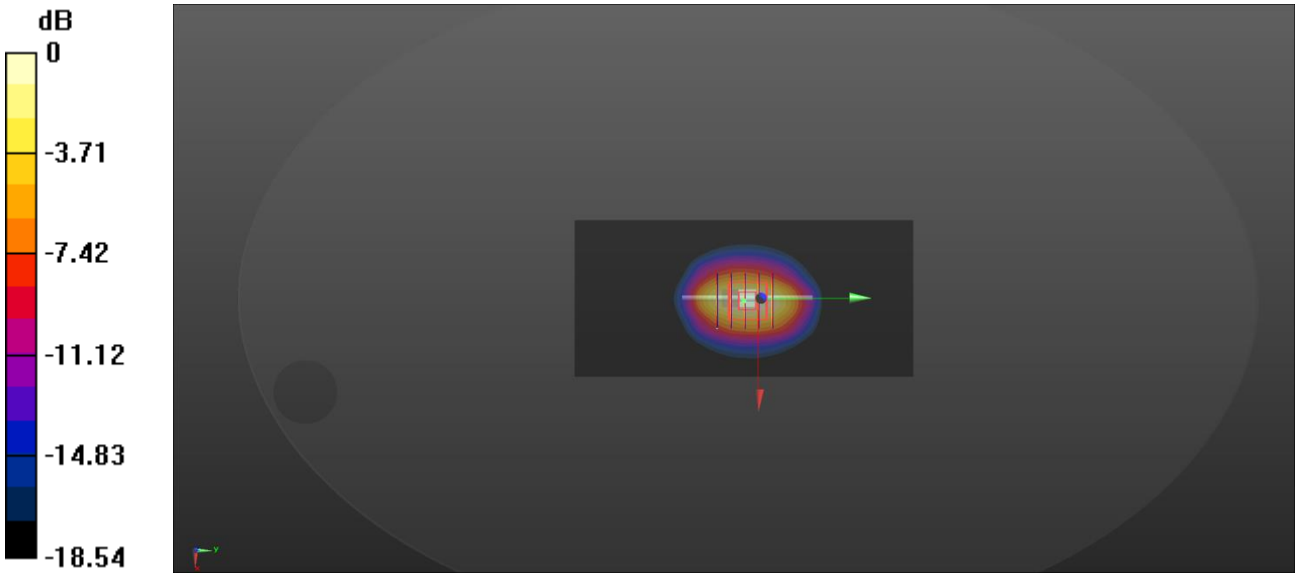
Ambient Temperature:22.6℃ Liquid Temperature:21.5℃

DASY5 Configuration:

- Probe: EX3DV4 - SN7510; ConvF(8.33, 8.33, 8.33); Calibrated: 2024/6/25
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1710; Calibrated: 2025/1/20
- Phantom: ELI V4.0 (20deg probe tilt); Type: QD OVA 001 Bx; Serial: TP:1086
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7501)

Ch1900/Area Scan (61x131x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 6.54 W/kg

Ch1900/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 55.56 V/m; Power Drift = -0.05 dB
Peak SAR (extrapolated) = 7.50 W/kg
SAR(1 g) = 4.04 W/kg; SAR(10 g) = 2.09 W/kg
Maximum value of SAR (measured) = 6.31 W/kg



0 dB = 6.31 W/kg

System Performance Check Data (2450MHz)

Date: 2025/5/16
Communication System Band: D2450 (2450.0 MHz); Frequency: 2450 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2450 MHz; σ = 1.834 S/m; ε_r = 38.659; ρ = 1000 kg/m^3
Phantom section: Flat Section

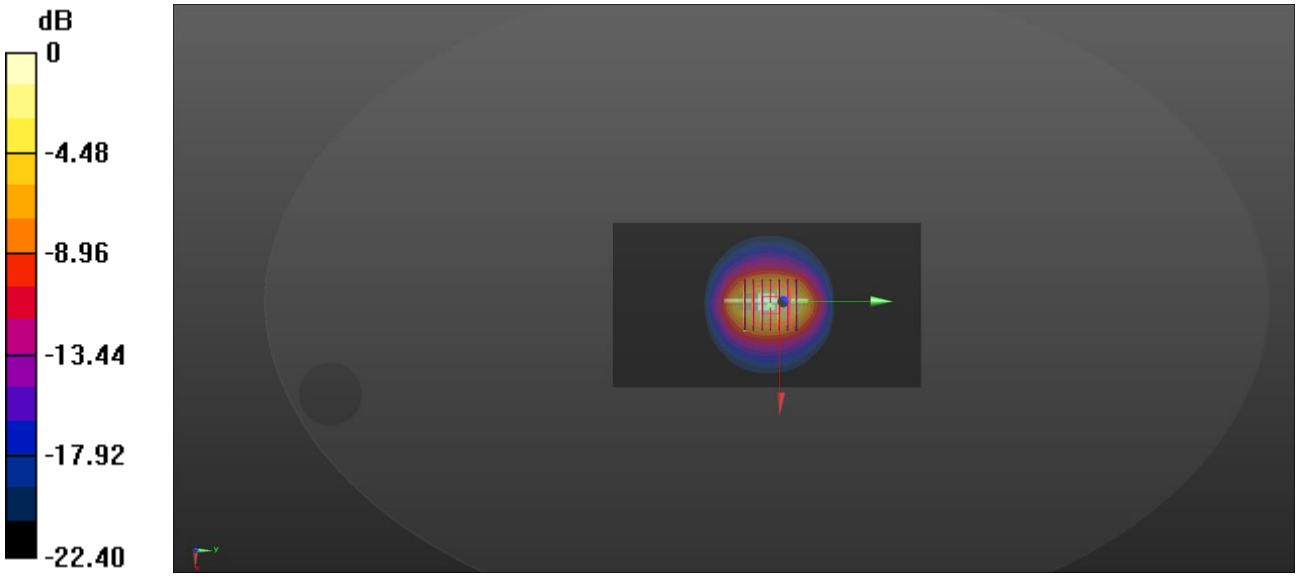
Ambient Temperature:22.7℃ Liquid Temperature:21.6℃

DASY5 Configuration:

- Probe: EX3DV4 - SN7510; ConvF(7.75, 7.75, 7.75); Calibrated: 2024/6/25
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1710; Calibrated: 2025/1/20
- Phantom: ELI V4.0 (20deg probe tilt); Type: QD OVA 001 Bx; Serial: TP:1086
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7501)

Ch2450/Area Scan (81x151x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 8.73 W/kg

Ch2450/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 55.71 V/m; Power Drift = -0.08 dB
Peak SAR (extrapolated) = 10.3 W/kg
SAR(1 g) = 5.02 W/kg; SAR(10 g) = 2.33 W/kg
Maximum value of SAR (measured) = 8.39 W/kg



0 dB = 8.39 W/kg

System Performance Check Data (2600MHz)

Date: 2025/5/16
Communication System Band: D2600 (2600.0 MHz); Frequency: 2600 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2600 MHz; σ = 1.975 S/m; ε_r = 38.332; ρ = 1000 kg/m^3
Phantom section: Flat Section

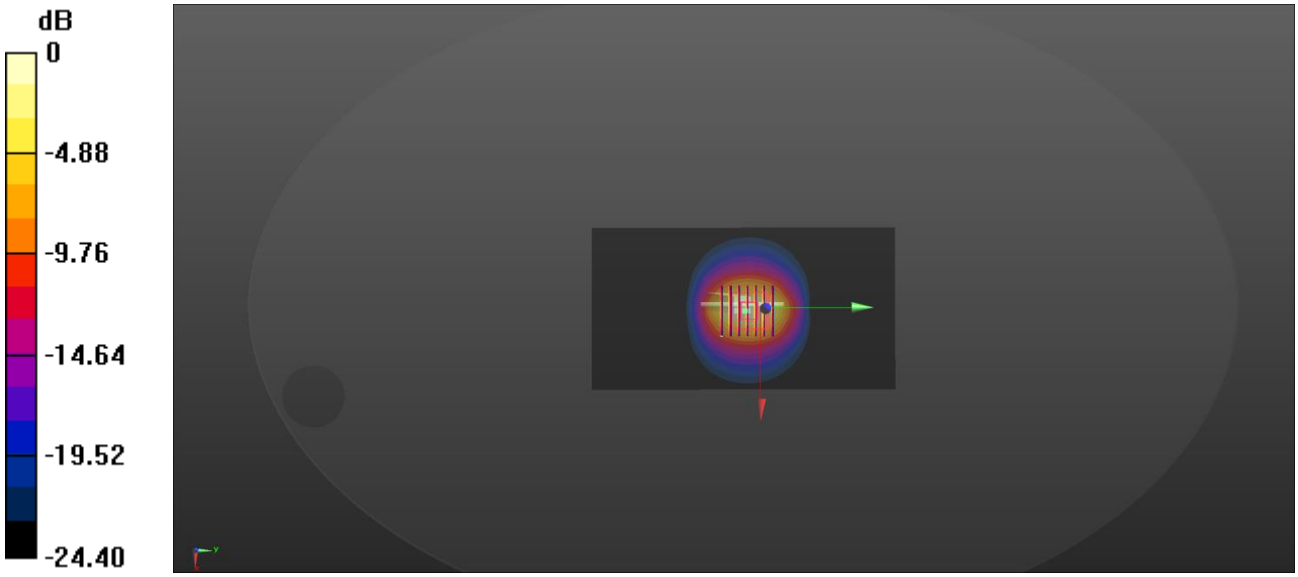
Ambient Temperature:22.3℃ Liquid Temperature:21.7℃

DASY5 Configuration:

- Probe: EX3DV4 - SN7510; ConvF(7.59, 7.59, 7.59); Calibrated: 2024/6/25
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1710; Calibrated: 2025/1/20
- Phantom: ELI V4.0 (20deg probe tilt); Type: QD OVA 001 Bx; Serial: TP:1086
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7501)

Ch2600/Area Scan (81x151x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 9.83 W/kg

Ch2600/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 54.51 V/m; Power Drift = -0.08 dB
Peak SAR (extrapolated) = 11.9 W/kg
SAR(1 g) = 5.51 W/kg; SAR(10 g) = 2.44 W/kg
Maximum value of SAR (measured) = 9.43 W/kg



0 dB = 9.43 W/kg

System Performance Check Data (5200MHz)

Date: 2025/5/17
Communication System Band: D5GHz (5000.0 - 6000.0 MHz); Frequency: 5200 MHz;Duty Cycle: 1:1
Medium parameters used: f = 5200 MHz; σ = 4.677 S/m; ε_r = 35.518; ρ = 1000 kg/m^3
Phantom section: Flat Section

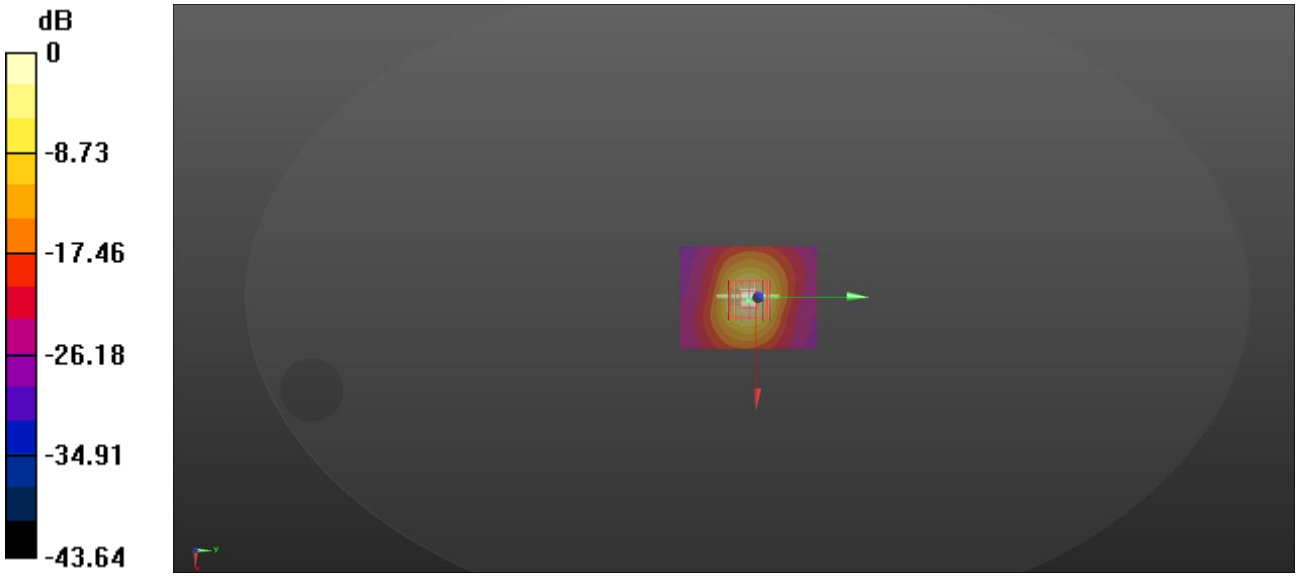
Ambient Temperature:22.2℃ Liquid Temperature:21.8℃

DASY5 Configuration:

- Probe: EX3DV4 - SN7510; ConvF(5.50, 5.50, 5.50); Calibrated: 2024/6/25
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1710; Calibrated: 2025/1/20
- Phantom: ELI V4.0 (20deg probe tilt); Type: QD OVA 001 Bx; Serial: TP:1086
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7501)

Ch5200/Area Scan (61x81x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 23.6 W/kg

Ch5200/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 43.99 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 35.9 W/kg
SAR(1 g) = 8.23 W/kg; SAR(10 g) = 2.36 W/kg
Maximum value of SAR (measured) = 21.0 W/kg



0 dB = 21.0 W/kg

System Performance Check Data (5600MHz)

Date: 2025/5/17
Communication System Band: D5GHz (5000.0 - 6000.0 MHz); Frequency: 5600 MHz;Duty Cycle: 1:1
Medium parameters used: f = 5600 MHz; σ = 4.989 S/m; ε_r = 34.9; ρ = 1000 kg/m^3
Phantom section: Flat Section

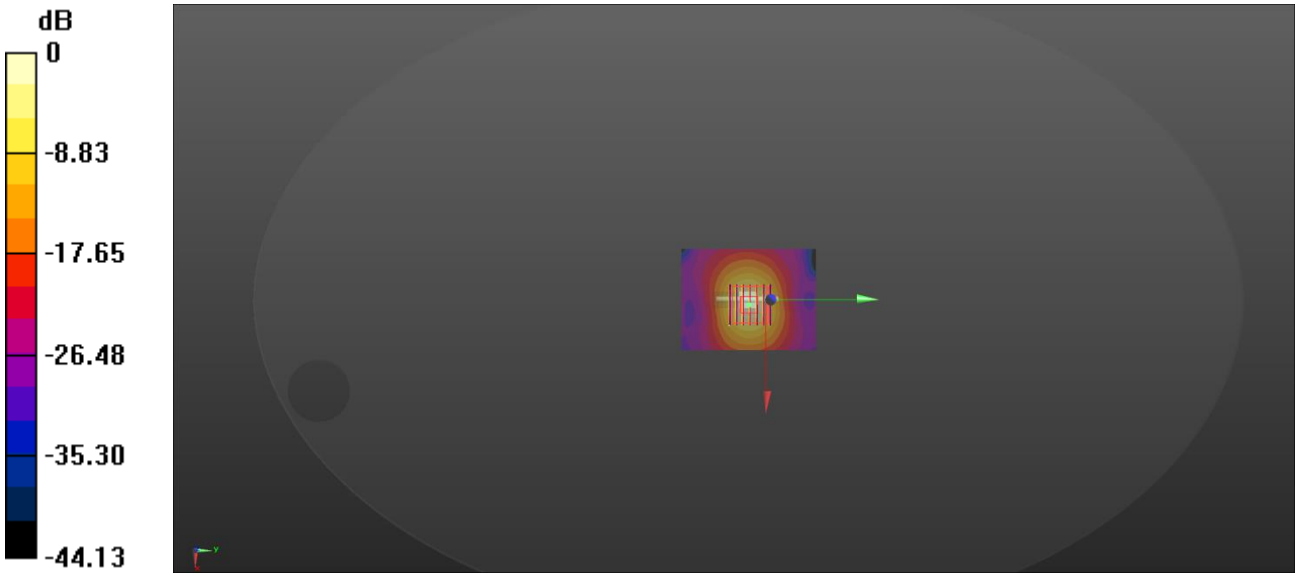
Ambient Temperature:22.1℃ Liquid Temperature:21.5℃

DASY5 Configuration:

- Probe: EX3DV4 - SN7510; ConvF(5.00, 5.00, 5.00); Calibrated: 2024/6/25
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1710; Calibrated: 2025/1/20
- Phantom: ELI V4.0 (20deg probe tilt); Type: QD OVA 001 Bx; Serial: TP:1086
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7501)

Ch5600/Area Scan (61x81x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 23.9 W/kg

Ch5600/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 44.24 V/m; Power Drift = -0.13 dB
Peak SAR (extrapolated) = 40.4 W/kg
SAR(1 g) = 9.11 W/kg; SAR(10 g) = 2.58 W/kg
Maximum value of SAR (measured) = 23.7 W/kg



0 dB = 23.7 W/kg

System Performance Check Data (5800MHz)

Date: 2025/5/18
Communication System Band: D5GHz (5000.0 - 6000.0 MHz); Frequency: 5800 MHz;Duty Cycle: 1:1
Medium parameters used: f = 5800 MHz; σ = 5.192 S/m; ε_r = 34.499; ρ = 1000 kg/m^3
Phantom section: Flat Section

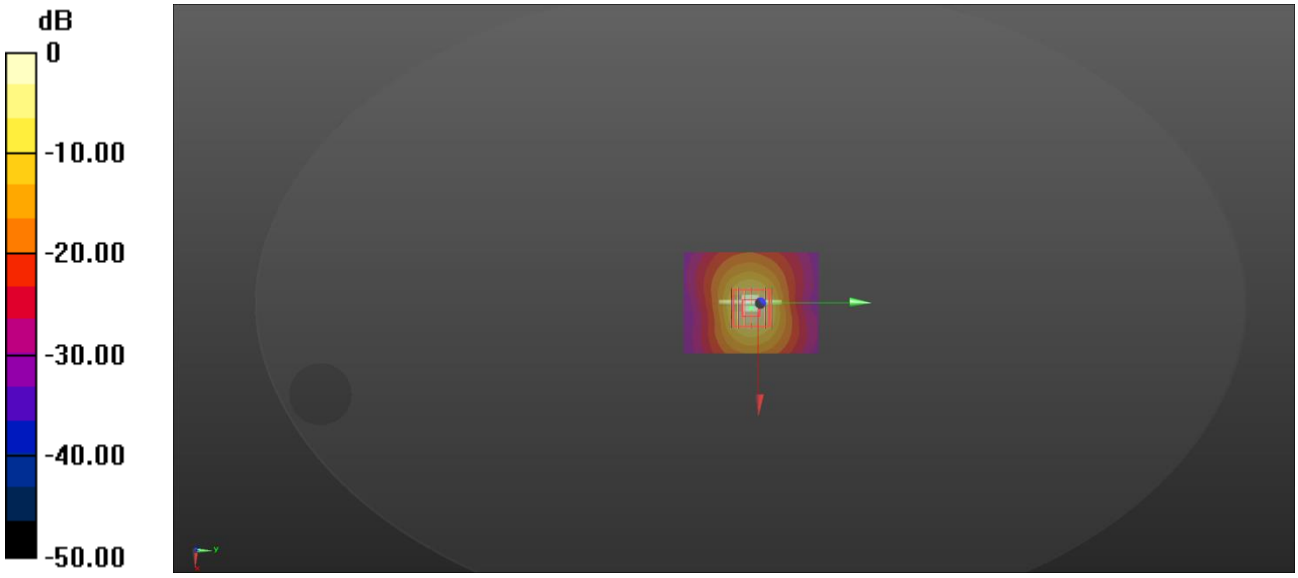
Ambient Temperature:22.0℃ Liquid Temperature:21.4℃

DASY5 Configuration:

- Probe: EX3DV4 - SN7510; ConvF(5.04, 5.04, 5.04); Calibrated: 2024/6/25
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1710; Calibrated: 2025/1/20
- Phantom: ELI V4.0 (20deg probe tilt); Type: QD OVA 001 Bx; Serial: TP:1086
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7501)

Ch5800/Area Scan (61x81x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 22.2 W/kg

Ch5800/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 40.44 V/m; Power Drift = -0.12 dB
Peak SAR (extrapolated) = 39.1 W/kg
SAR(1 g) = 8.37 W/kg; SAR(10 g) = 2.36 W/kg
Maximum value of SAR (measured) = 22.2 W/kg



0 dB = 22.2 W/kg

ANNEX C TEST DATA

Please refer the document “BL-SH2530222-AT.pdf”.

ANNEX D EUT EXTERNAL PHOTOS

Please refer the document “BL-SH2530222-AW.pdf”.

ANNEX E SAR TEST SETUP PHOTOS

Please refer the document “BL-SH2530222-AS.pdf”.

ANNEX C CALIBRATION REPORT

Please refer the document “BL-SH2530222-AC.pdf”.

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