TEST REPORT

Applicant:	Airista Flow, Inc.
Address:	1966 Greenspring Drive, Suite 125 Timonium, Maryland 21093.
Equipment Type:	Personnel Display Tag
Model Name:	B6
Brand Name:	Airista
FCC ID:	TA7-B6
Test Standard:	47 CFR Part 2.1093 (refer section 3.1)
Maximum SAR:	Body (1 g): 1.09 W/kg Limb (10 g): 0.29 W/kg
Sample Arrival Date:	Feb. 28, 2025
Test Date：	Mar. 8, 2025 - Mar. 9, 2025
Date of Issue:	May. 19, 2025

ISSUED BY:

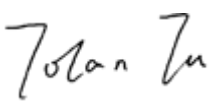
Shenzhen BALUN Technology Co., Ltd.

Tested by: Xiong Lining

Checked by: Xu Rui

Approved by: Tolan Tu

(Testing Director)



Revision History

Version	Issue Date	Revisions Content
Rev. 01	Apr. 17, 2025	Initial Issue
Rev. 02	Apr. 25, 2025	Updated the Page 6、7、9、24、ANNEX B、ANNEX C、ANNEX E
Rev. 03	May. 19, 2025	Updated the Page 1、6、7、34、35

TABLE OF CONTENTS

1 GENERAL INFORMATION 4

1.1 Test Laboratory 4

1.2 Test Location 4

1.3 Test Environment Condition 4

2 PRODUCT INFORMATION 5

2.1 Applicant Information 5

2.2 Manufacturer Information 5

2.3 General Description for Equipment under Test (EUT) 5

2.4 Ancillary Equipment 5

2.5 Technical Information 6

2.6 Antenna Location 6

3 SUMMARY OF TEST RESULT 7

3.1 Test Standards 7

3.2 Device Category and SAR Limit 8

3.3 Test Result Summary 9

3.4 Test Uncertainty 10

4 MEASUREMENT SYSTEM 13

4.1 Specific Absorption Rate (SAR) Definition 13

4.2 DASY SAR System 14

5 SYSTEM VERIFICATION 21

5.1 Purpose of System Check 21

5.2 System Check Setup 21

6 TEST POSITION CONFIGURATIONS 22

6.1 EUT Exposure Condition 22
7 MEASUREMENT PROCEDURE 23
7.1 Measurement Process Diagram 23
7.2 SAR Scan General Requirement 24
7.3 Measurement Procedure 25
7.4 Area & Zoom Scan Procedure 25
8 CONDUCTED RF OUPUT POWER 26
8.1 WIFI 26
8.2 Bluetooth 28
9 TEST RESULT 29
9.1 WIFI 2.4GHz 29
9.2 WIFI 5GHz 29
9.3 Bluetooth 31
10 SIMULTANEOUS TRANSMISSION 32
10.1 Simultaneous Transmission Mode Considerations 32
10.2 Sum SAR of Simultaneous Transmission 33
11 TEST EQUIPMENTS LIST 34
ANNEX A SIMULATING LIQUID VERIFICATION RESULT 35
ANNEX B SYSTEM CHECK RESULT 36
ANNEX C TEST DATA 41
ANNEX D EUT EXTERNAL PHOTOS 47
ANNEX E SAR TEST SETUP PHOTOS 47
ANNEX F CALIBRATION REPORT 47

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. The laboratory is a testing organization accredited by ISED as a accredited testing laboratory. The company number is 11524A and CAB identifier number is CN0030.

1.3 Test Environment Condition

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

2 PRODUCT INFORMATION

2.1 Applicant Information

Applicant	Airista Flow, Inc
Address	1966 Greenspring Drive, Suite 125 Timonium, Maryland 21093.

2.2 Manufacturer Information

Manufacturer	Airista Flow, Inc
Address	1966 Greenspring Drive, Suite 125 Timonium, Maryland 21093.

2.3 General Description for Equipment under Test (EUT)

EUT Name	Personnel Display Tag
Model Name Under Test	B6
Series Model Name	N/A
Description of Model Name Differentiation	N/A
Hardware Version	1.0.0
Software Version	1.0.0
Dimensions (Approx.)	60mmx90mmx8.5mm
Weight (Approx.)	46g

2.4 Ancillary Equipment

Ancillary Equipment 1	Battery	
	Brand Name	ALIUM
	Model No.	ABI-H303560HV
	Serial No.	N/A
	Capacitance	Rated Capacity: 620 mAh
	Rated Voltage	3.8 V
	Limited Voltage	4.4 V
	Manufacturer	Shenzhen Chengsipin Technology Co., Ltd
Ancillary Equipment 2	N/A	
	Length (Approx.)	N/A

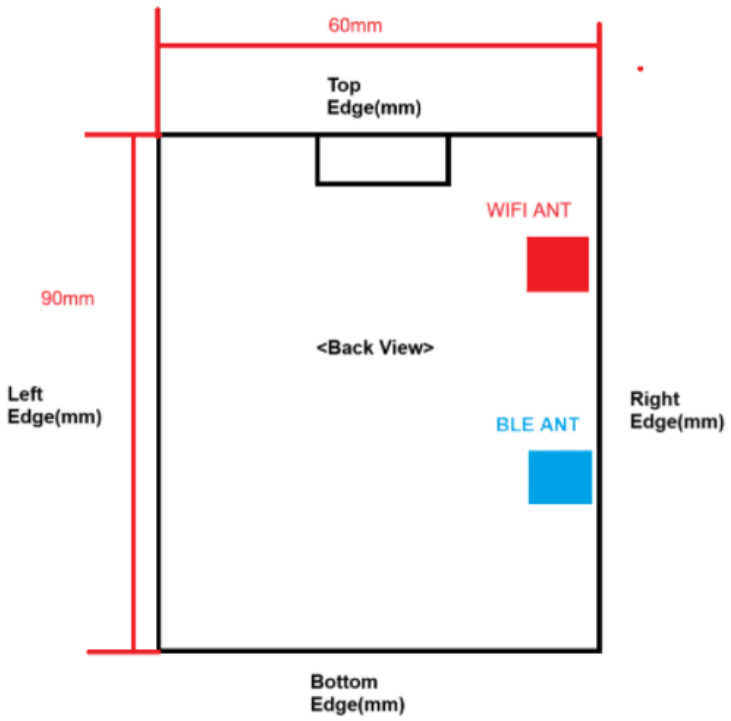
2.5 Technical Information

Network and Wireless connectivity	Bluetooth (BLE) 2.4G WIFI 802.11b, 802.11g, 802.11n（HT20）, 802.11n（HT40） 5G WIFI 802.11a, 802.11n（HT20）, 802.11n（HT40）

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

Operating Mode	2.4G WLAN, 5G WLAN, Bluetooth	
Frequency Range	802.11b/g/n(HT20/HT40)	2412 MHz ~ 2472 MHz
	802.11a/n(HT20/HT40)	5150 MHz ~ 5250 MHz
		5250 MHz ~ 5350 MHz
		5470 MHz ~ 5725 MHz
		5725 MHz ~ 5850 MHz
	Bluetooth	2402 ~ 2480MHz
Antenna Type	WLAN	PCB
	Bluetooth	Ceramic
Hotspot Function	N/A	
Exposure Category	General Population/Uncontrolled exposure	
EUT Type	☒ Production unit	☐ Identical prototype

2.6 Antenna Location



Antenna	Front Side(mm)	Back Side(mm)	Top Edge(mm)	Bottom Edge(mm)	left Edge(mm)	Right Edge(mm)
Ant WIFI	4.5	3	28	52	54	2
Ant BT	4	3.5	52	34	56	2

3 SUMMARY OF TEST RESULT

3.1 Test Standards

No.	Identity	Document Title
1	47 CFR Part 2.1093	Radiofrequency radiation exposure evaluation: portable devices
2	ANSI C95.1-1992	IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz
3	IEEE Std. 1528-2013	Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques
4	KDB 447498 D01 v06	447498 D01 General RF Exposure Guidance
5	KDB 248227 D01 v02r02	SAR Guidance for IEEE 802.11 (Wi-Fi) Transmitters
6	KDB 865664 D01 v01r04	SAR Measurement 100 MHz to 6 GHz
7	KDB 865664 D02 v01r02	RF Exposure Reporting

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

Band	Maximum Scaled 1g SAR (W/kg)	Maximum Scaled 10g SAR (W/kg)	Maximum Report 1g SAR (W/kg)	Maximum Scaled 10g SAR (W/kg)
	Body (0mm)	Limb (0mm)	Body (0mm)	Limb (0mm)
2.4G WLAN	0.25	0.11	**1.09**	**0.29**
5.2G WLAN	0.34	0.08		
5.3G WLAN	0.28	0.08		
5.6G WLAN	1.00	0.29		
5.8G WLAN	1.09	0.26		
Bluetooth	0.17	0.06		
Limit (W/kg)	1.6	4.0	1.6	4.0
Verdict	PASS			

3.3.2 Highest Simultaneous Transmission SAR Values

Equipment Class	Maximum Report SAR (W/kg)	Maximum Report SAR (W/kg)
	Body(0mm)	Limb(0mm)
	1g SAR	10g SAR
DTS	0.42	0.17
NII	1.26	0.36
Bluetooth	1.26	0.36
Limit (W/Kg)	1.6	4.0
Verdict	PASS	PASS

Note: The simultaneous transmission SAR detail please refer to section 10.

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 IEC/IEEE 62209-1528 This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

1) System Measurement Uncertainty (frequency range from 300 MHz to 3 GHz)

DASY5 Uncertainty Budget

(Frequency band: 300 MHz - 3 GHz range)

Symbol	Error Description	Uncert. value	Prob. Dist.	Div.	(c_i) 1g	(c_i) 10g	Std. Unc. (1g)	Std. Unc. (10g)
Measurement System Errors								
CF	Probe Calibration	±12.0%	N	2	1	1	±6.0%	±6.0%
CF_{drift}	Probe Calibration Drift	±1.0%	N	1	1	1	±1.0%	±1.0%
LIN	Probe Linearity	±4.7%	R	√3	1	1	±2.7%	±2.7%
BBS	Broadband Signal	±3.0%	N	2	1	1	±1.5%	±1.5%
ISO	Probe Isotropy	±7.6%	R	√3	1	1	±4.4%	±4.4%
DAE	Data Acquisition	±0.3%	N	1	1	1	±0.3%	±0.3%
AMB	RF Ambient	±1.8%	N	1	1	1	±1.8%	±1.8%
Δ_{sys}	Probe Positioning	±0.2%	N	1	0.14	0.14	±0%	±0%
DAT	Data Processing	±1.2%	N	1	1	1	±1.2%	±1.2%
Phantom and Device Errors								
LIQ(σ)	Conductivity (meas.)^{DAK}	±2.5%	N	1	0.78	0.71	±2.0%	±1.8%
LIQ(T_σ)	Conductivity (temp.)^{BB}	±3.3%	R	√3	0.78	0.71	±1.5%	±1.4%
EPS	Phantom Permittivity	±14.0%	R	√3	0	0	±0%	±0%
DAS	Distance DUT - TSL	±2.1%	N	1	2	2	±4.2%	±4.2%
H	Device Holder	±3.8%	N	1	1	1	±3.8%	±3.8%
MOD	DUT Modulation^{m}	±2.4%	R	√3	1	1	±1.4%	±1.4%
TAS	Time-average SAR	±2.6%	R	√3	1	1	±1.5%	±1.5%
RF_{drift}	DUT drift	±5.0%	R	√3	1	1	±2.9%	±2.9%
Correction to the SAR results								
C(ε, σ)	Deviation to Target	±1.9%	N	1	1	0.84	±1.9%	±1.6%
C(R)	SAR scaling^{p}	±0%	R	√3	1	1	±0%	±0%
u(ΔSAR)	Combined Uncertainty						±11.2%	±11.0%
U	**Expanded Uncertainty**						±22.3%	±22.2%

2) System Measurement Uncertainty (frequency range from 3 GHz to 6 GHz)

DASY5 Uncertainty Budget (Frequency band: 3 GHz - 6 GHz range)								
Symbol	Error Description	Uncert. value	Prob. Dist.	Div.	(c_i) 1g	(c_i) 10g	Std. Unc. (1g)	Std. Unc. (10g)
Measurement System Errors								
CF	Probe Calibration	±14.0%	N	2	1	1	±7.0%	±7.0%
CF_{drift}	Probe Calibration Drift	±1.0%	N	1	1	1	±1.0%	±1.0%
LIN	Probe Linearity	±4.7%	R	√3	1	1	±2.7%	±2.7%
BBS	Broadband Signal	±3.0%	N	2	1	1	±1.5%	±1.5%
ISO	Probe Isotropy	±7.6%	R	√3	1	1	±4.4%	±4.4%
DAE	Data Acquisition	±0.3%	N	1	1	1	±0.3%	±0.3%
AMB	RF Ambient	±1.8%	N	1	1	1	±1.8%	±1.8%
Δ_{sys}	Probe Positioning	±0.2%	N	1	0.33	0.33	±0.1%	±0.1%
DAT	Data Processing	±2.3%	N	1	1	1	±2.3%	±2.3%
Phantom and Device Errors								
LIQ(σ)	Conductivity (meas.)^{DAK}	±2.5%	N	1	0.78	0.71	±2.0%	±1.8%
LIQ(T_σ)	Conductivity (temp.)^{BB}	±3.4%	R	√3	0.78	0.71	±1.5%	±1.4%
EPS	Phantom Permittivity	±14.0%	R	√3	0.25	0.25	±2.0%	±2.0%
DAS	Distance DUT - TSL	±2.1%	N	1	2	2	±4.2%	±4.2%
H	Device Holder	±3.8%	N	1	1	1	±3.8%	±3.8%
MOD	DUT Modulation^{m}	±2.4%	R	√3	1	1	±1.4%	±1.4%
TAS	Time-average SAR	±2.6%	R	√3	1	1	±1.5%	±1.5%
RF_{drift}	DUT drift	±5.0%	R	√3	1	1	±2.9%	±2.9%
Correction to the SAR results								
C(ε, σ)	Deviation to Target	±1.9%	N	1	1	0.84	±1.9%	±1.6%
C(R)	SAR scaling^{p}	±0%	R	√3	1	1	±0%	±0%
u(ΔSAR)	Combined Uncertainty						±12.1%	±12.0%
U	**Expanded Uncertainty**						±24.2%	±24.0%

3.4.2 Measurement uncertainly evaluation for system check

This measurement uncertainty budget is suggested by IEC/IEEE 62209-1528. The break down of the individual uncertainties is as follows:

DASY5 Uncertainty Budget (Frequency band: 300 MHz - 6 GHz range)								
Symbol	Error Description	Uncert. value	Prob. Dist.	Div.	(c_i) 1g	(c_i) 10g	Std. Unc. (1g)	Std. Unc. (10g)
Measurement System Errors								
CF	Probe Calibration	±14.0%	N	2	1	1	±7.0%	±7.0%
CF_{drift}	Probe Calibration Drift	±1.0%	N	1	1	1	±1.0%	±1.0%
LIN	Probe Linearity	±4.7%	R	√3	1	1	±2.7%	±2.7%
BBS	Broadband Signal	±0.0%	N	2	1	1	±0.0%	±0.0%
ISO	Probe Isotropy	±7.6%	R	√3	1	1	±4.4%	±4.4%
DAE	Data Acquisition	±0.3%	N	1	1	1	±0.3%	±0.3%
AMB	RF Ambient	±1.8%	N	1	1	1	±1.8%	±1.8%
Δ_{sys}	Probe Positioning	±0.2%	N	1	0.33	0.33	±0%	±0%
Phantom and Device Errors								
LIQ(σ)	Conductivity (meas.)^{DAK}	±2.5%	N	1	0.78	0.71	±2.0%	±1.8%
LIQ(T_σ)	Conductivity (temp.)^{BB}	±3.4%	R	√3	0.78	0.71	±1.5%	±1.4%
EPS	Phantom Permittivity	±14.0%	R	√3	0.25	0.25	±2.0%	±2.0%
DAS	Distance DUT - TSL	±1.0%	N	1	2	2	±2.0%	±2.0%
VAL	Validation antenna	±0.0%	R	√3	1	1	±0.0%	±0.0%
P_{in}	Accepted power	±1.2%	N	1	1	1	±1.2%	±1.2%
RF_{drift}	DUT drift	±5.0%	R	√3	1	1	±2.9%	±2.9%
Correction to the SAR results								
C(ε, σ)	Deviation to Target	±1.9%	N	1	1	0.84	±1.9%	±1.6%
u(ΔSAR)	Combined Uncertainty						±10.4%	±10.3%
U	**Expanded Uncertainty**						±20.7%	±20.5%

4 MEASUREMENT SYSTEM

4.1 Specific Absorption Rate (SAR) Definition

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

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

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

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

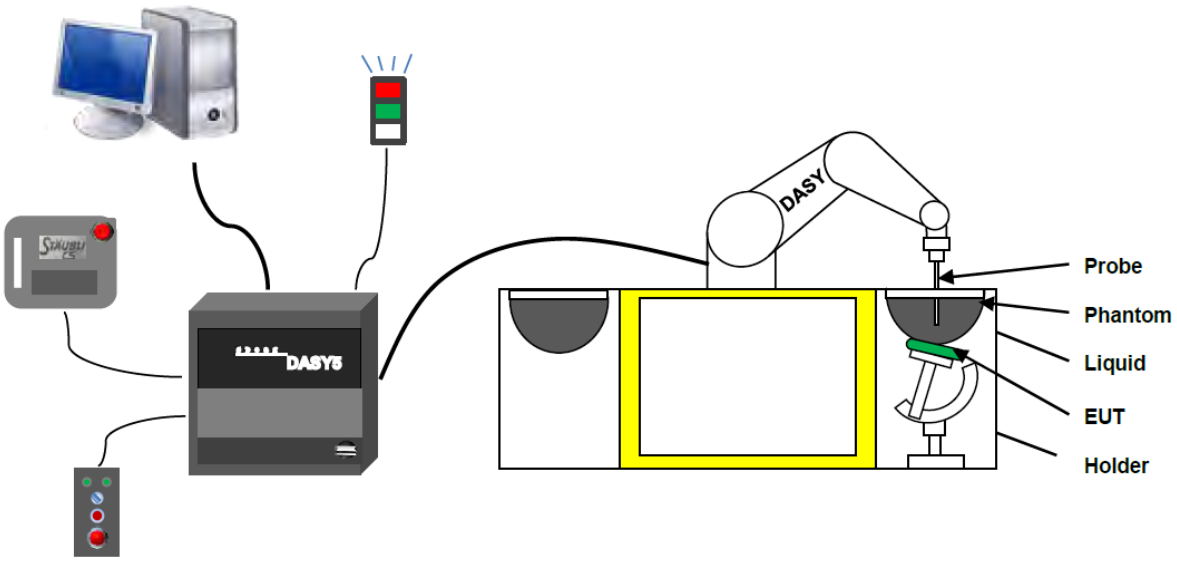
$$\mathbf{SAR} = \frac{\boldsymbol{\sigma}\mathbf{E}^{2}}{\boldsymbol{\rho}}$$

Where: σ is the conductivity of the tissue,

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

4.2 DASY SAR System

4.2.1 DASY SAR System Diagram



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

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

4.2.2 Robot

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

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

4.2.3 E-Field Probe

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

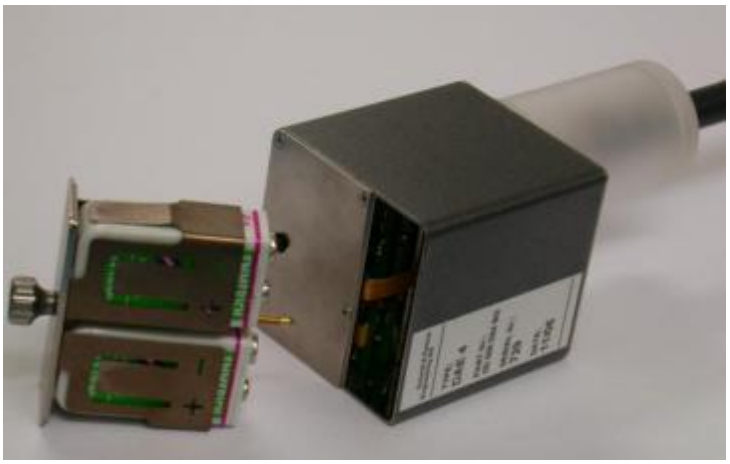
Construction	Symmetrical design with triangular core Built-in optical fiber for surface detection systemBuilt-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., glycolether)
Calibration	ISO/IEC 17025 calibration service available
Frequency	10 MHz to 6 GHz; 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 IEC/IEEE 62209-1528, with CALISAR, Antennessa proprietary calibration system. The calibration is performed with the IEC/IEEE 62209-1528 annexe technique using reference guide at the five frequencies.

4.2.4 Data Acquisition Electronics

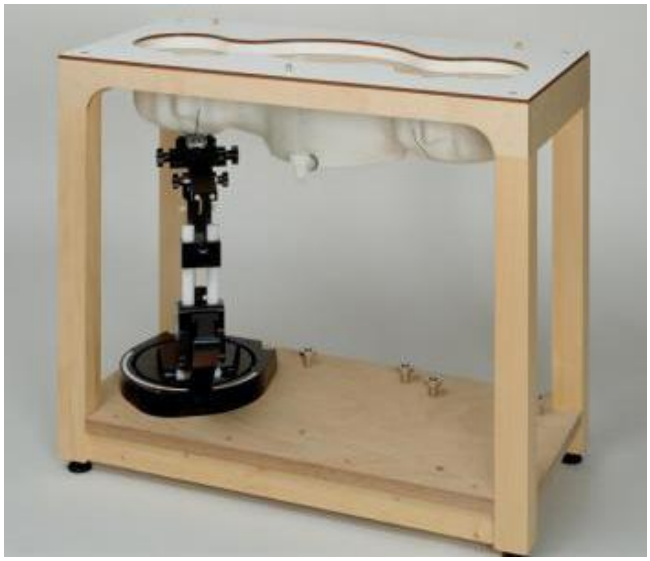
The data acquisition electronics (DAE) consist of a highly sensitive electrometer-grade preamplifier with auto-zeroing, a channel and gain-switching multiplexer, a fast 16 bit AD-converte and a command decoder with a control logic unit. Transmission to the measurement server is accomplished through an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



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

4.2.5 Phantoms

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



- Left hand
- Right hand
- Flat phantom

Photo of Phantom SN1857

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

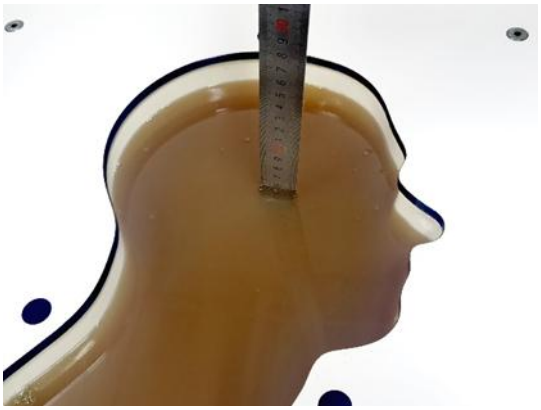
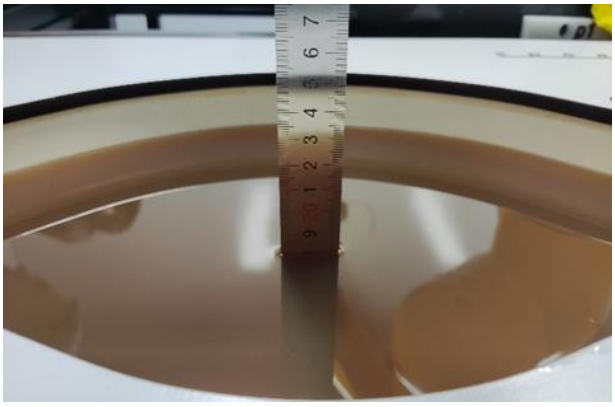
4.2.6 Device Holder

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

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

4.2.7 Simulating Liquid

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

Head Liquid Depth	Body Liquid Depth
	

The following table gives the recipes for tissue simulating liquid.

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

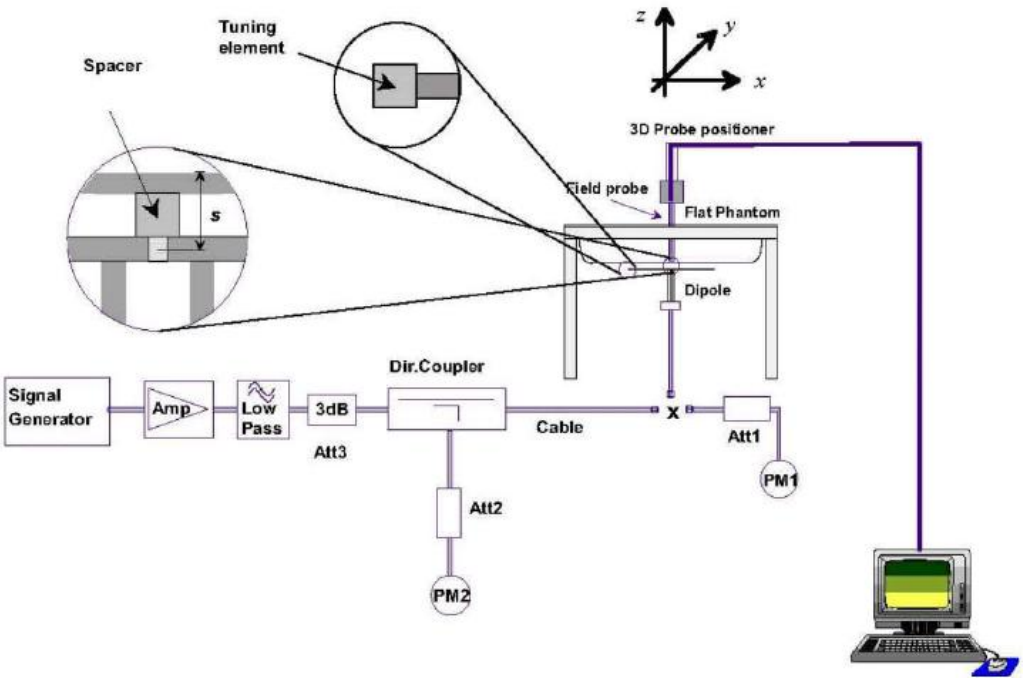
5 SYSTEM VERIFICATION

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

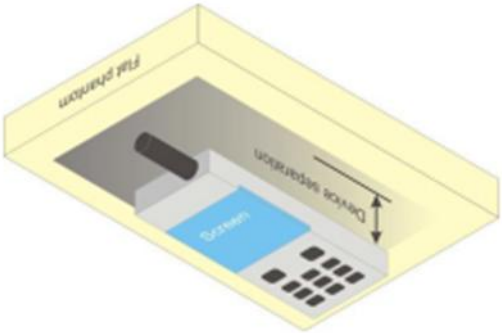
In the simplified setup for system evaluation, the EUT is replaced by a calibrated dipole and the power source is replaced by a continuous wave that comes from a signal generator. The calibrated dipole must be placed beneath the flat phantom section of the SAM twin phantom with the correct distance holder.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

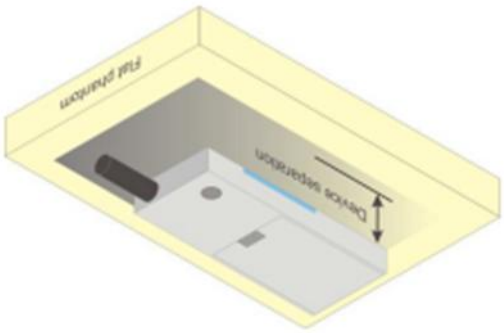


6 TEST POSITION CONFIGURATIONS

6.1 EUT Exposure Condition

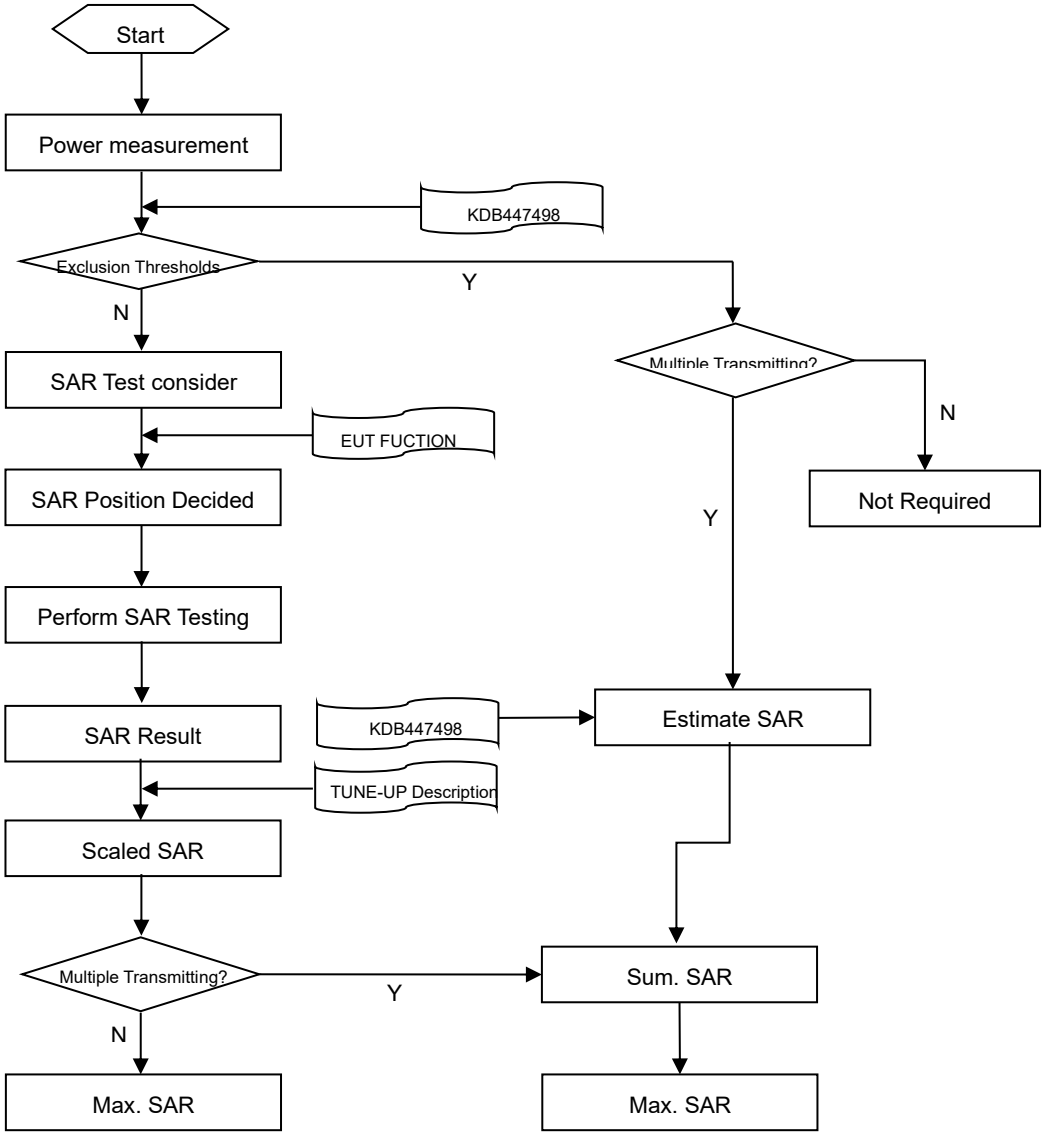
This EUT was tested in six different positions. They are front side ,back side, left side, right side, bottom side and top side in these positions, the surface of DUT is touching with phantom 0mm.





7 MEASUREMENT PROCEDURE

7.1 Measurement Process Diagram



7.2 SAR Scan General Requirement

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

<table>
<tr><th colspan="3"></th><th>≤3GHz</th><th>>3GHz</th></tr>
<tr><td colspan="3">Maximum distance from closest measurement point (geometric center of probe sensors) to phantom surface</td><td>5±1 mm</td><td>½·δ·ln(2)±0.5 mm</td></tr>
<tr><td colspan="3">Maximum probe angle from probe axis to phantom surface normal at the measurement location</td><td>30°±1°</td><td>20°±1°</td></tr>
<tr><td colspan="3" rowspan="2">Maximum area scan spatial resolution: Δx Area , Δy Area</td><td>≤ 2 GHz: ≤ 15 mm
2 – 3 GHz: ≤ 12 mm</td><td>3–4 GHz: ≤ 12 mm
4 – 6 GHz: ≤ 10 mm</td></tr>
<tr><td colspan="2">When the x or y dimension of the test device, in the measurement plane orientation, is smaller than the above, the measurement resolution must be ≤ the corresponding x or y dimension of the test device with at least one measurement point on the test device.</td></tr>
<tr><td colspan="3">Maximum zoom scan spatial resolution: Δx Zoom , Δy Zoom</td><td>≤ 2 GHz: ≤ 8 mm
2 –3 GHz: ≤ 5 mm*</td><td>3–4 GHz: ≤ 5 mm*
4 – 6 GHz: ≤ 4 mm*</td></tr>
<tr><td rowspan="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="2">Δz Zoom (1): between 1st two points closest to phantom surface</td><td rowspan="2">≤ 4 mm</td><td>3–4 GHz: ≤ 3 mm</td></tr>
<tr><td>4–5 GHz: ≤ 2.5 mm</td></tr>
<tr><td>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 1 g. Area scan and zoom scan resolution setting follows IEC/IEEE 62209-1528:2020 quoted below. When the 1 g SAR of the highest peak is within 2 dB of the SAR limit, additional zoom scans are required for other peaks within 2 dB of the highest peak that have not been included in any zoom scan to ensure there is no increase in SAR.

8 CONDUCTED RF OUPUT POWER

8.1 WIFI

8.1.1 2.4G WIFI

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	14.99	16.00	Yes
		6	2437	14.34	15.00	Yes
		11	2462	14.46	15.50	Yes
	802.11g	1	2412	14.15	15.00	No
		6	2437	14.01	15.00	No
		11	2462	14.06	15.00	No
	802.11n(HT20)	1	2412	13.01	14.00	No
		6	2437	13.29	14.00	No
		11	2462	12.52	13.50	No
	802.11n(HT40)	3	2422	12.47	13.50	No
		6	2437	12.19	13.00	No
		9	2452	11.91	13.00	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)) = 0.265 * (39.81 mw)/(31.62mw) =0.334W/kg, so the 2.4GHz OFDM SAR test is not required.

8.1.2 5G WIFI

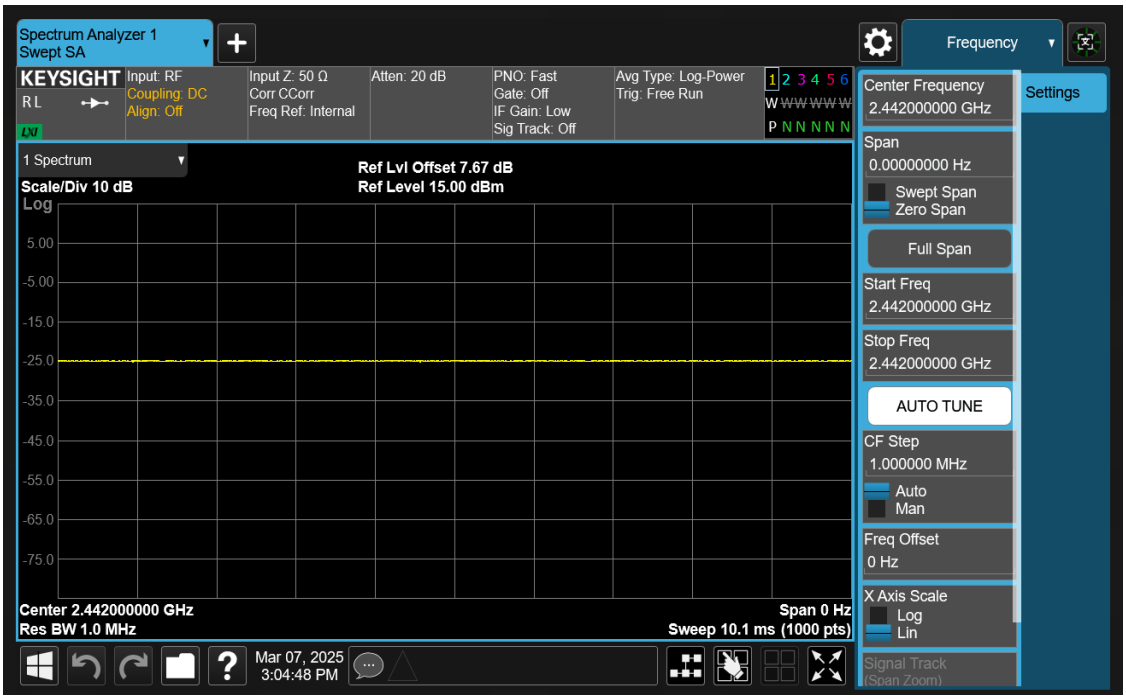
Band (GHz)	Mode	Channel	Freq. (MHz)	Conducted Power (dBm)	Tune-up Power Limit (dBm)	SAR Test Require.
5.2 (5.15~5.25)	802.11a	36	5180	12.74	14.00	Yes
		44	5220	12.59	13.50	Yes
		48	5240	12.97	14.00	Yes
	802.11n(HT20)	36	5180	11.57	12.50	No
		44	5220	11.82	13.50	No
		48	5240	11.72	13.50	No
	802.11n(HT40)	36	5180	10.71	11.50	No
		44	5220	10.78	11.50	No
5.3 (5.25~5.35)	802.11a	52	5260	15.21	16.00	Yes
		60	5300	15.50	15.50	Yes
		64	5320	16.01	17.00	Yes
	802.11n(HT20)	52	5260	14.17	15.00	No
		60	5300	15.38	16.00	No
		64	5320	15.80	17.00	No
	802.11n(HT40)	54	5270	11.82	13.00	No
		62	5310	11.98	13.00	No
5.6 (5.47~5.725)	802.11a	100	5500	12.51	13.50	Yes
		116	5580	10.03	11.00	Yes
		140	5700	10.88	12.00	Yes
	802.11n(HT20)	100	5500	12.39	13.00	No
		116	5580	10.45	11.00	No
		140	5700	10.95	12.00	No
	802.11n(HT40)	102	5510	11.67	12.50	No
		118	5590	9.59	10.50	No
		134	5670	10.36	11.00	No
5.8 (5.725~5.850)	802.11a	149	5745	13.06	12.00	Yes
		157	5785	14.20	15.00	Yes
		165	5825	14.42	15.00	Yes
	802.11n(HT20)	149	5745	13.13	14.00	No
		157	5785	13.60	12.50	No
		165	5825	14.19	13.00	No
	802.11n(HT40)	151	5755	12.56	13.50	No
		159	5795	12.82	14.00	No

8.2 Bluetooth

Mode	GFSK （BLE-1Mbps）			GFSK（BLE-2Mbps）		
Channel	0	19	39	1	19	38
Frequency (MHz)	2402	2440	2480	2404	2440	2478
Conducted Power (dBm)	3.819	3.936	3.767	3.822	3.949	3.776
Tune-Up Limit (dBm)	5	5	5	5	5	5
SAR Test Require	NO	NO	NO	YES	YES	YES

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 100 % as following figure, according to 2016 Oct. TCB workshop for Bluetooth SAR scaling need further consideration and the maximum duty cycle is 100%, therefore the actual duty cycle will be scaled up to 100% for Bluetooth reported SAR calculation.



9 TEST RESULT

9.1 WIFI 2.4GHz

Test Position	Dist.	Channel	Freq. (MHz)	Test Mode	Power Drift(dB)	Measured 1-g SAR (W/kg)	Measured 10-g SAR (W/kg)	Meas. Power (dBm)	Max. tune-up power(dBm)	Scaling Factor	Duty cycle (%)	Duty cycle Factor	1g Scaled SAR (W/kg)	10g Scaled SAR (W/kg)	Meas. no.
Body& Limb															
Front side	0mm	1	2412	802.11b 1Mbps	0.09	0.126	0.055	14.99	15.50	1.125	100.00	1.000	0.142	0.061	
Back side		1	2412		0.09	0.137	0.058	14.99	15.50	1.125	100.00	1.000	0.154	0.065	
Left side		1	2412		-0.07	0.023	0.006	14.99	15.50	1.125	100.00	1.000	0.026	0.007	
Right side		1	2412		0.15	0.138	0.060	14.99	15.50	1.125	100.00	1.000	0.155	0.068	
Top side		1	2412		0.06	0.035	0.010	14.99	15.50	1.125	100.00	1.000	0.040	0.011	
Bottom side		1	2412		0.16	0.081	0.036	14.99	15.50	1.125	100.00	1.000	0.091	0.041	
Right side		6	2437		0.05	0.213	0.095	14.34	15.00	1.164	100.00	1.000	0.248	0.111	
Right side		11	2462		0.17	0.220	0.098	14.46	15.00	1.132	100.00	1.000	0.249	0.111	1

9.2 WIFI 5GHz

WLAN 5.2GHz

Test Position	Dist.	Channel	Freq. (MHz)	Test Mode	Power Drift(dB)	Measured 1-g SAR (W/kg)	Measured 10-g SAR (W/kg)	Meas. Power (dBm)	Max. tune-up power(dBm)	Scaling Factor	Duty cycle (%)	Duty cycle Factor	1g Scaled SAR (W/kg)	10g Scaled SAR (W/kg)	Meas. no.
Body& Limb															
Front side	0mm	48	5240	802.11a 6Mbps	0.17	0.106	0.032	12.97	14.50	1.422	100.00	1.000	0.151	0.046	
Back side		48	5240		0.19	0.131	0.041	12.97	14.50	1.422	100.00	1.000	0.186	0.058	
Left side		48	5240		0.15	0.055	0.014	12.97	14.50	1.422	100.00	1.000	0.078	0.020	
Right side		48	5240		0.06	0.235	0.051	12.97	14.50	1.422	100.00	1.000	0.334	0.073	
Top side		48	5240		0.16	0.049	0.010	12.97	14.50	1.422	100.00	1.000	0.070	0.014	
Bottom side		48	5240		0.12	0.165	0.048	12.97	14.50	1.422	100.00	1.000	0.235	0.068	
Right side		44	5220		0.16	0.190	0.052	12.59	13.50	1.233	100.00	1.000	0.234	0.064	
Right side		36	5180		-0.1	0.252	0.057	12.74	14.00	1.337	100.00	1.000	0.337	0.076	2

WLAN 5.3GHz

Test Position	Dist.	Channel	Freq. (MHz)	Test Mode	Power Drift(dB)	Measured 1-g SAR (W/kg)	Measured 10-g SAR (W/kg)	Meas. Power (dBm)	Max. tune-up power(dBm)	Scaling Factor	Duty cycle (%)	Duty cycle Factor	1g Scaled SAR (W/kg)	10g Scaled SAR (W/kg)	Meas. no.
Body& Limb															
Front side	0mm	64	5320	802.11a 6Mbps	0.07	0.106	0.030	16.01	17.00	1.256	100.00	1.000	0.133	0.038	
Back side		64	5320		0.07	0.121	0.035	16.01	17.00	1.256	100.00	1.000	0.152	0.044	
Left side		64	5320		0.02	0.053	0.013	16.01	17.00	1.256	100.00	1.000	0.067	0.016	
Right side		64	5320		0.02	0.200	0.051	16.01	17.00	1.256	100.00	1.000	0.251	0.064	
Top side		64	5320		0.02	0.063	0.023	16.01	17.00	1.256	100.00	1.000	0.079	0.029	
Bottom side		64	5320		-0.04	0.133	0.053	16.01	17.00	1.256	100.00	1.000	0.167	0.067	
Right side		52	5260		-0.07	0.236	0.063	15.21	16.00	1.199	100.00	1.000	0.283	0.076	3
Right side		60	5300		-0.19	0.158	0.052	15.50	16.50	1.259	100.00	1.000	0.199	0.065	

WLAN 5.6GHz

Test Position	Dist.	Channel	Freq. (MHz)	Test Mode	Power Drift(dB)	Measured 1-g SAR (W/kg)	Measured 10-g SAR (W/kg)	Meas. Power (dBm)	Max. tune-up power(dBm)	Scaling Factor	Duty cycle (%)	Duty cycle Factor	1g Scaled SAR (W/kg)	10g Scaled SAR (W/kg)	Meas. no.
Body& Limb															
Front side	0mm	100	5500	802.11a 6Mbps	0.06	0.191	0.065	12.51	13.50	1.256	100.00	1.000	0.240	0.082	
Back side		100	5500		0.14	0.428	0.135	12.51	13.50	1.256	100.00	1.000	0.538	0.170	
Left side		100	5500		-0.04	0.066	0.017	12.51	13.50	1.256	100.00	1.000	0.083	0.021	
Right side		100	5500		0.19	0.583	0.167	12.51	13.50	1.256	100.00	1.000	0.732	0.210	
Top side		100	5500		0.06	0.056	0.013	12.51	13.50	1.256	100.00	1.000	0.070	0.016	
Bottom side		100	5500		-0.01	0.119	0.043	12.51	13.50	1.256	100.00	1.000	0.149	0.054	
Right side		116	5580		-0.19	0.432	0.111	10.03	11.00	1.250	100.00	1.000	0.540	0.139	
Right side		140	5700		-0.01	0.725	0.215	10.88	12.00	1.294	100.00	1.000	0.938	0.278	Repeat
Right side		140	5700		-0.06	0.769	0.227	10.88	12.00	1.294	100.00	1.000	0.995	**0.294**	4

WLAN 5.8GHz

Test Position	Dist.	Channel	Freq. (MHz)	Test Mode	Power Drift(dB)	Measured 1-g SAR (W/kg)	Measured 10-g SAR (W/kg)	Meas. Power (dBm)	Max. tune-up power(dBm)	Scaling Factor	Duty cycle (%)	Duty cycle Factor	1g Scaled SAR (W/kg)	10g Scaled SAR (W/kg)	Meas. no.
Body& Limb															
Front side	0mm	165	5825	802.11a 6Mbps	-0.02	0.249	0.085	14.42	16.00	1.439	100.00	1.000	0.358	0.122	
Back side		165	5825		0.18	0.443	0.140	14.42	16.00	1.439	100.00	1.000	0.637	0.201	
Left side		165	5825		-0.03	0.059	0.016	14.42	16.00	1.439	100.00	1.000	0.085	0.023	
Right side		165	5825		-0.16	0.690	0.188	14.42	16.00	1.439	100.00	1.000	0.993	0.270	
Top side		165	5825		0.03	0.102	0.039	14.42	16.00	1.439	100.00	1.000	0.147	0.056	
Bottom side		165	5825		-0.03	0.219	0.068	14.42	16.00	1.439	100.00	1.000	0.315	0.098	
Right side		149	5745		-0.09	0.682	0.165	13.06	14.50	1.393	100.00	1.000	0.950	0.230	
Right side		157	5785		-0.06	0.806	0.193	14.20	15.50	1.349	100.00	1.000	1.087	0.260	5
Right side		157	5785		0.17	0.790	0.191	14.20	15.50	1.349	100.00	1.000	1.066	0.258	Repeat

9.3 Bluetooth

Test Position	Dist.	Channel	Freq. (MHz)	Test Mode	Power Drift(dB)	Measured 1-g SAR (W/kg)	Measured 10-g SAR (W/kg)	Meas. Power (dBm)	Max. tune-up power(dBm)	Scaling Factor	Duty cycle (%)	Duty cycle Factor	1g Scaled SAR (W/kg)	10g Scaled SAR (W/kg)	Meas. no.
Body& Limb															
Front side	0mm	19	2440	BLE-2Mbps	-0.06	0.071	0.032	3.95	5.00	1.274	100.00	1.000	0.090	0.041	
Back side		19	2440		-0.17	0.091	0.040	3.95	5.00	1.274	100.00	1.000	0.116	0.051	
Left side		19	2440		0.15	0.011	0.000	3.95	5.00	1.274	100.00	1.000	0.014	0.000	
Right side		19	2440		-0.18	0.135	0.045	3.95	5.00	1.274	100.00	1.000	0.172	0.057	6
Top side		19	2440		-0.11	0.009	0.000	3.95	5.00	1.274	100.00	1.000	0.011	0.000	
Bottom side		19	2440		-0.08	0.046	0.009	3.95	5.00	1.274	100.00	1.000	0.059	0.011	
Right side		1	2404		-0.02	0.114	0.048	3.82	5.00	1.312	100.00	1.000	0.150	0.063	
Right side		38	2478		0.02	0.106	0.044	3.78	5.00	1.326	100.00	1.000	0.141	0.058	

10 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 D01, 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.

10.1 Simultaneous Transmission Mode Considerations

No.	Simultaneous Tx Combination	Body	Limb
1	Wi-Fi 2.4G+BT	Yes	Yes
2	Wi-Fi 5G+BT	Yes	Yes

Note:
1. The maximum SAR summation is calculated based on the same configuration and test position.
2. 2.4G WLAN and 5G WLAN does not support Simultaneous Transmission.

10.2 Sum SAR of Simultaneous Transmission

10.2.1 Highest Bluetooth and WLAN Sum Body SAR of Simultaneous Transmission

Position	Body			SUM SAR	
	1	2	3		
	2.4GWIFI	5G WIFI MAX	Bluetooth	1+3	2+3
Front Side	0.142	0.358	0.090	0.23	0.45
Back Side	0.154	0.637	0.116	0.27	0.75
Left Side	0.026	0.085	0.014	0.04	0.10
Right Side	0.249	1.087	0.172	0.42	1.26
Top Side	0.040	0.147	0.011	0.05	0.16
Bottom Side	0.091	0.315	0.059	0.15	0.37
1: The simultaneous transmission combinations of the antennas, so only the worst simultaneous transmission combinations was shown in this table. 2: The highest Combined 1g SAR is **1.26W/Kg < 1.6 W/kg**, so Simultaneous Transmission SAR test is not required.					

10.2.2 Highest Bluetooth and WLAN Sum Limb SAR of Simultaneous Transmission

Position	Limb			SUM SAR	
	1	2	3		
	2.4GWIFI	5G WIFI MAX	Bluetooth	1+3	2+3
Front Side	0.061	0.122	0.041	0.10	0.16
Back Side	0.065	0.201	0.051	0.12	0.25
Left Side	0.007	0.023	0.000	0.01	0.02
Right Side	0.111	0.294	0.063	0.17	0.36
Top Side	0.011	0.056	0.000	0.01	0.06
Bottom Side	0.041	0.098	0.011	0.05	0.11
1: The simultaneous transmission combinations of the antennas, so only the worst simultaneous transmission combinations was shown in this table. 2: The highest Combined 10g SAR is **0.36W/Kg < 4.0 W/kg**, so Simultaneous Transmission SAR test is not required.					

11 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
2450MHz Validation Dipole	Speag	D2450V2	952	2024/05/07	2027/05/06
5GHz Validation Dipole	Speag	D5GHzV2	1200	2024/05/09	2027/05/08
Data Acquisition Electronics	Speag	DAE4	1710	2025/1/20	2026/1/19
E-Field Probe	Speag	EX3DV4	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	2024/05/29	2025/05/28
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	EF7239002655	2024/10/31	2025/10/30
Power Amplifier	SATIMO	6552B	22374	N/A	N/A
Dielectric Probe Kit	Speag	DAK3.5	1312	2024/7/28	2025/7/27
Phantom	Speag	SAM	1857	N/A	N/A
Attenuator	COM-MW	ZA-S1-31	1305003187	N/A	N/A
Directional coupler	AA-MCS	AAMCS-UDC	000272	N/A	N/A

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

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

ANNEX A SIMULATING LIQUID VERIFICATION RESULT

The dielectric parameters of the liquids were verified prior to the SAR evaluation using a DAK 3.5 Dielectric Probe Kit.

Date	Fre. (MHz)	Temp. (℃)	Meas. Conductivity (σ) (S/m)	Meas. Permittivity (ε)	Target Conductivity (σ) (S/m)	Target Permittivity (ε)	Conductivity Tolerance (%)	Permittivity Tolerance (%)
2025/3/8	2450	21.3	1.823	38.900	1.800	39.200	1.28%	-0.77%
2025/3/8	2412	21.3	1.803	39.088	1.756	39.289	2.65%	-0.51%
2025/3/8	2437	21.3	1.824	39.016	1.756	39.289	3.86%	-0.70%
2025/3/8	2462	21.2	1.838	38.930	1.909	39.073	-3.70%	-0.37%
2025/3/8	2404	21.2	1.794	39.102	1.756	39.289	2.15%	-0.48%
2025/3/8	2440	21.2	1.824	39.016	1.800	39.200	1.32%	-0.47%
2025/3/8	2478	21.2	1.856	38.891	1.800	39.200	3.12%	-0.79%
2025/3/8	5250	21.2	4.711	35.092	4.706	35.929	0.11%	-2.33%
2025/3/8	5180	21.2	4.679	35.143	4.604	36.043	1.62%	-2.50%
2025/3/8	5220	21.1	4.723	35.091	4.655	35.986	1.45%	-2.49%
2025/3/8	5240	21.1	4.763	35.110	4.706	35.929	1.20%	-2.28%
2025/3/8	5320	21.1	4.877	34.970	4.758	35.871	2.50%	-2.51%
2025/3/8	5260	21.1	4.758	35.109	4.706	35.929	1.11%	-2.28%
2025/3/8	5300	21.2	4.855	34.928	4.758	35.871	2.03%	-2.63%
2025/3/9	5600	21.7	5.143	34.309	5.065	35.529	1.54%	-3.43%
2025/3/9	5500	21.7	5.051	34.675	4.963	35.643	1.78%	-2.71%
2025/3/9	5580	21.7	5.059	34.528	5.065	35.529	-0.11%	-2.82%
2025/3/9	5750	21.5	5.331	34.462	5.331	35.357	2.15%	-2.53%
2025/3/9	5700	21.4	5.224	34.490	5.168	35.414	1.09%	-2.61%
2025/3/9	5745	21.4	5.270	34.620	5.219	35.357	0.97%	-2.08%
2025/3/9	5785	21.5	5.313	34.533	5.270	35.300	0.82%	-2.17%
2025/3/9	5825	21.4	5.412	34.161	5.321	35.243	1.71%	-3.07%
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 its specification of 10 %(for 1 g).

Date	Freq. (MHz)	Power (mW)	Measured SAR (W/kg)	Normalized SAR (W/kg)	Dipole SAR (W/kg)	Tolerance (%)
2025.03.08	2450	100	5.420	54.20	52.60	3.04
2025.03.08	5250	100	7.380	73.80	77.70	-5.02
2025.03.09	5600	100	8.120	81.20	81.30	-0.12
2025.03.09	5750	100	7.910	79.10	77.60	1.93
Note: The tolerance limit of System validation ±10%.						

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

Date	Freq. (MHz)	Power (mW)	Measured SAR (W/kg)	Normalized SAR (W/kg)	Dipole SAR (W/kg)	Tolerance (%)
2025.03.08	2450	100	2.490	24.90	24.70	0.81
2025.03.08	5250	100	2.090	20.90	22.00	-5.00
2025.03.09	5600	100	2.280	22.80	23.10	-1.30
2025.03.09	5750	100	2.220	22.20	21.90	1.37
Note: The tolerance limit of System validation ±10%.						

System Performance Check Data (2450MHz)

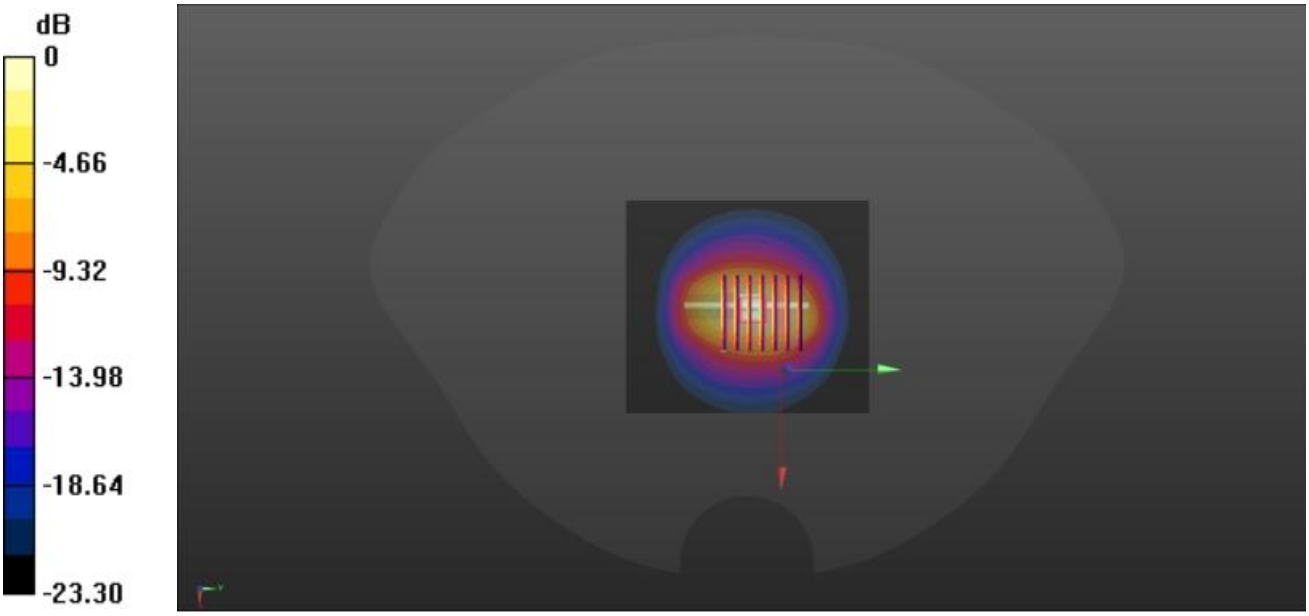
Date: 2025.03.08
Communication System Band: D2450 (2450.0 MHz); Frequency: 2450 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2450 MHz; σ = 1.823 S/m; ε_r = 38.90; ρ = 1000 kg/m^3
Phantom section: Flat Section

Ambient Temperature:22.7℃ Liquid Temperature:21.3℃

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: Twin-SAM Right V5.0 (20deg probe tilt); Type: QD 000 P40 CD; Serial: 1857
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7501)

2450/Area Scan (71x81x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 9.46 W/kg
2450/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 58.18 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 11.4 W/kg
SAR(1 g) = 5.42 W/kg; SAR(10 g) = 2.49 W/kg
Smallest distance from peaks to all points 3 dB below = 8.5 mm
Ratio of SAR at M2 to SAR at M1 = 47.7%
Maximum value of SAR (measured) = 9.10 W/kg



0 dB = 9.10 W/kg

System Performance Check Data (5250MHz)

Date: 2025.03.08

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

Medium parameters used: f = 5250 MHz; σ = 4.711 S/m; ε_r = 35.092; ρ = 1000 kg/m^3

Phantom section: Flat Section

Ambient Temperature:22.5℃ Liquid Temperature:21.2℃

DASY5 Configuration:

- Probe: EX3DV4 - SN7510; ConvF(5.50, 5.50, 5.50); Calibrated: 2024/6/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1710; Calibrated: 2025/1/20
- Phantom: Twin-SAM Right V5.0 (20deg probe tilt); Type: QD 000 P40 CD; Serial: 1857
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7501)

CW 5250/Area Scan (61x81x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 15.4 W/kg

CW 5250/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 39.30 V/m; Power Drift = -0.02 dB

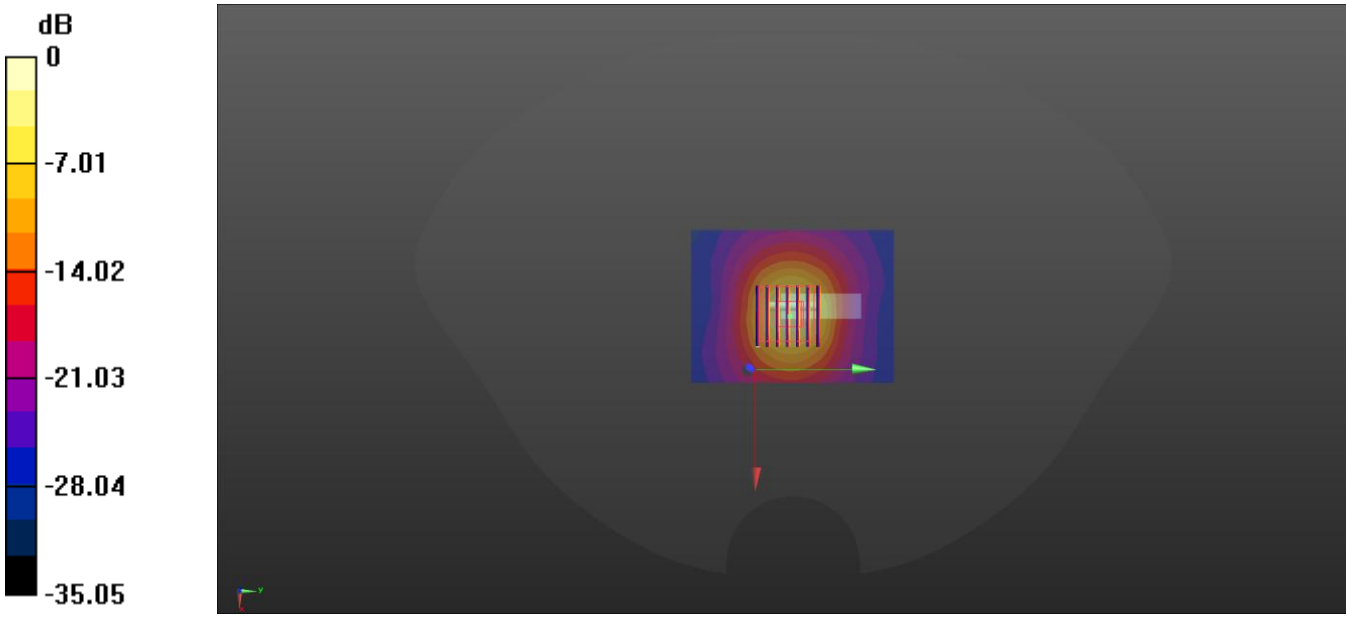
Peak SAR (extrapolated) = 31.3 W/kg

SAR(1 g) = 7.38 W/kg; SAR(10 g) = 2.09 W/kg

Smallest distance from peaks to all points 3 dB below = 7.2 mm

Ratio of SAR at M2 to SAR at M1 = 53.6%

Maximum value of SAR (measured) = 15.5 W/kg



0 dB = 15.5 W/kg

System Performance Check Data (5600MHz)

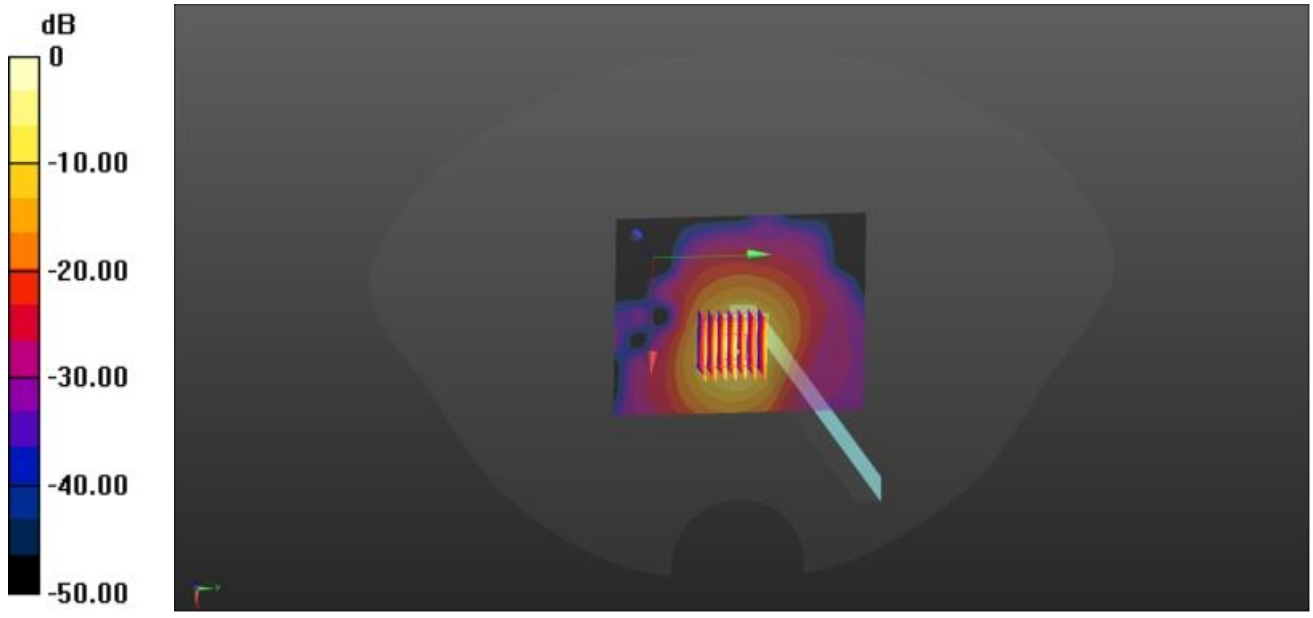
Date: 2025.03.09
Communication System Band: D5GHz (5000.0 - 6000.0 MHz); Frequency: 5600 MHz;Duty Cycle: 1:1
Medium parameters used: f = 5600 MHz; σ = 5.143S/m; ε_r = 34.309; ρ = 1000 kg/m^3
Phantom section: Flat Section

Ambient Temperature:22.8℃ Liquid Temperature:21.7℃

DASY5 Configuration:

- Probe: EX3DV4 - SN7510; ConvF(5.00, 5.00, 5.00); Calibrated: 2024/6/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1710; Calibrated: 2025/1/20
- Phantom: Twin-SAM Right V5.0 (20deg probe tilt); Type: QD 000 P40 CD; Serial: 1857
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7501)

CW 5600/Area Scan (81x101x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 17.2 W/kg
CW 5600/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 15.97 V/m; Power Drift = -0.19 dB
Peak SAR (extrapolated) = 37.7 W/kg
SAR(1 g) = 8.12 W/kg; SAR(10 g) = 2.28 W/kg
Smallest distance from peaks to all points 3 dB below = 7.2 mm
Ratio of SAR at M2 to SAR at M1 = 51%
Maximum value of SAR (measured) = 17.4 W/kg



0 dB = 17.4 W/kg

System Performance Check Data (5750MHz)

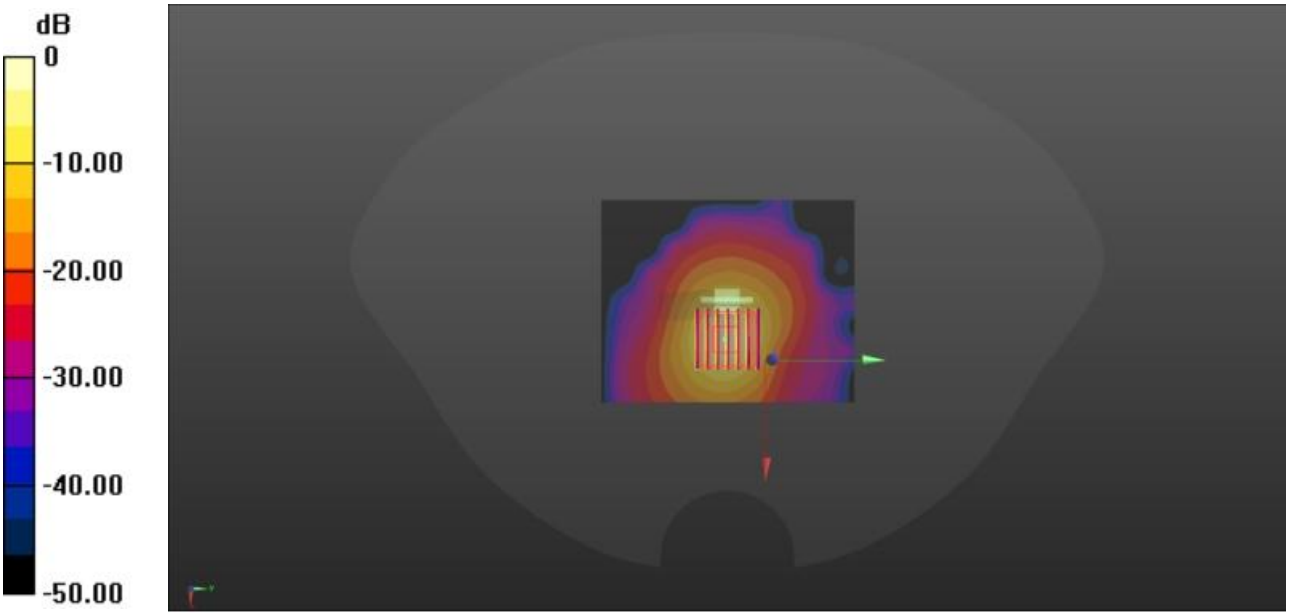
Date: 2025.03.09
Communication System Band: D5GHz (5000.0 - 6000.0 MHz); Frequency: 5750 MHz;Duty Cycle: 1:1
Medium parameters used: f = 5750 MHz; σ = 5.331S/m; ε_r = 34.462; ρ = 1000 kg/m^3
Phantom section: Flat Section

Ambient Temperature:22.9℃ Liquid Temperature:21.5℃

DASY5 Configuration:

- Probe: EX3DV4 - SN7510; ConvF(5.04, 5.04, 5.04); Calibrated: 2024/6/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1710; Calibrated: 2025/1/20
- Phantom: Twin-SAM Right V5.0 (20deg probe tilt); Type: QD 000 P40 CD; Serial: 1857
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7501)

CW 5800/Area Scan (81x101x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 16.8 W/kg
CW 5800/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 15.70 V/m; Power Drift = -0.18 dB
Peak SAR (extrapolated) = 38.2 W/kg
SAR(1 g) = 7.91 W/kg; SAR(10 g) = 2.22 W/kg
Smallest distance from peaks to all points 3 dB below = 7.4 mm
Ratio of SAR at M2 to SAR at M1 = 49.1%
Maximum value of SAR (measured) = 17.1 W/kg



0 dB = 17.1 W/kg

ANNEX C TEST DATA

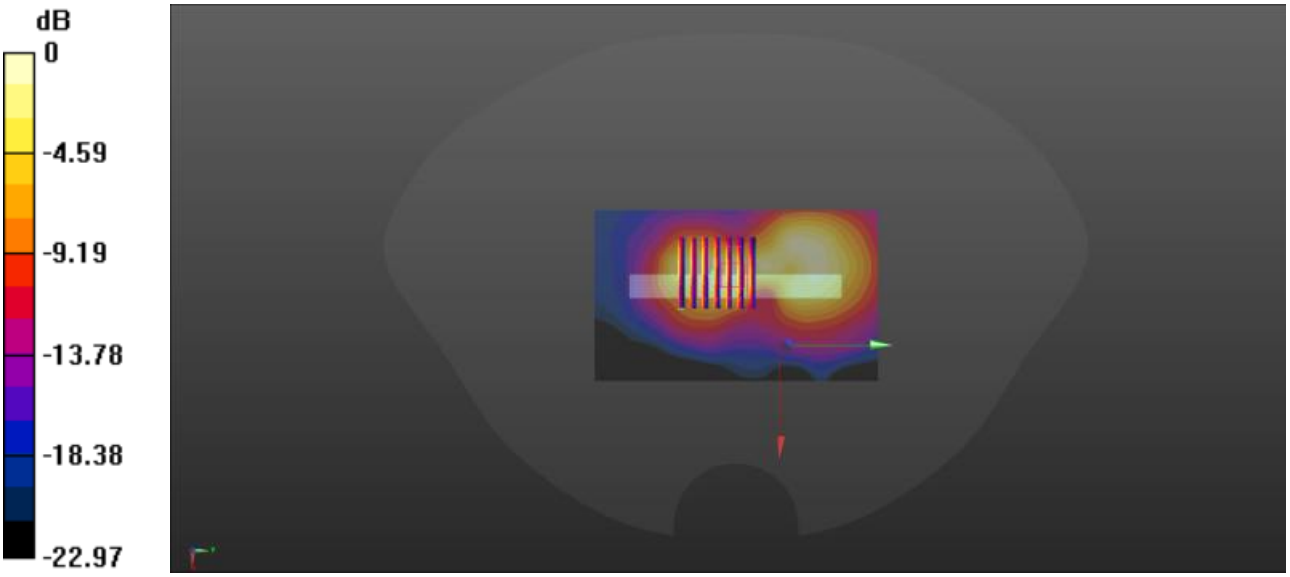
MEAS.1 Body Right Side 0mm WLAN2.4G Ch11
Date: 2025.03.08
Communication System Band: WLAN(b); Frequency: 2462 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2462 MHz; σ = 1.838 S/m; ε_r = 38.93; ρ = 1000 kg/m^3
Phantom section: Flat Section

Ambient Temperature:22.6℃ Liquid Temperature:21.2℃

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: Twin-SAM Right V5.0 (20deg probe tilt); Type: QD 000 P40 CD; Serial: 1857
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7501)

Ch11/Area Scan (61x101x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 0.433 W/kg
Ch11/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 10.45 V/m; Power Drift = 0.17 dB
Peak SAR (extrapolated) = 0.559 W/kg
SAR(1 g) = 0.220 W/kg; SAR(10 g) = 0.098 W/kg
Smallest distance from peaks to all points 3 dB below = 6 mm
Ratio of SAR at M2 to SAR at M1 = 40.7%
Maximum value of SAR (measured) = 0.419 W/kg



0 dB = 0.419 W/kg

MEAS.2 Body Right Side 0mm WLAN5.2G Ch36

Date: 2025.03.08

Communication System Band: WLAN(a); Frequency: 5180 MHz;Duty Cycle: 1:1

Medium parameters used: f = 5180 MHz; σ = 4.679 S/m; ε_r = 35.143; ρ = 1000 kg/m^3

Phantom section: Flat Section

Ambient Temperature:22.5℃ Liquid Temperature:21.2℃

DASY5 Configuration:

- Probe: EX3DV4 - SN7510; ConvF(5.74, 5.74, 5.74); Calibrated: 2024/6/25
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1710; Calibrated: 2025/1/20
- Phantom: Twin-SAM Right V5.0 (20deg probe tilt); Type: QD 000 P40 CD; Serial: 1857
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7501)

Ch36/Area Scan (81x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

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

Ch36/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 7.139 V/m; Power Drift = -0.10 dB

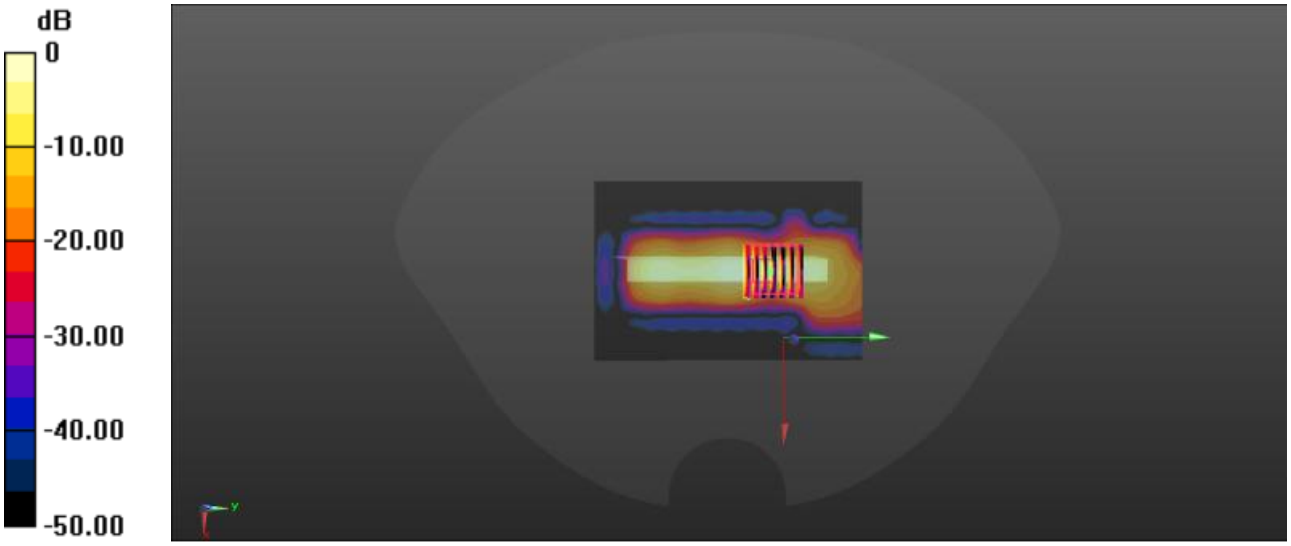
Peak SAR (extrapolated) = 1.62 W/kg

SAR(1 g) = 0.252 W/kg; SAR(10 g) = 0.057 W/kg

Smallest distance from peaks to all points 3 dB below = 3.6 mm

Ratio of SAR at M2 to SAR at M1 = 45.3%

Maximum value of SAR (measured) = 0.859 W/kg



0 dB = 0.859 W/kg

MEAS.3 Body Right Side 0mm WLAN5.3G Ch52
Date: 2025.03.08
Communication System Band: WLAN(a); Frequency: 5260 MHz;Duty Cycle: 1:1
Medium parameters used: f = 5260 MHz; σ = 4.758 S/m; ε_r = 35.109; ρ = 1000 kg/m^3
Phantom section: Flat Section

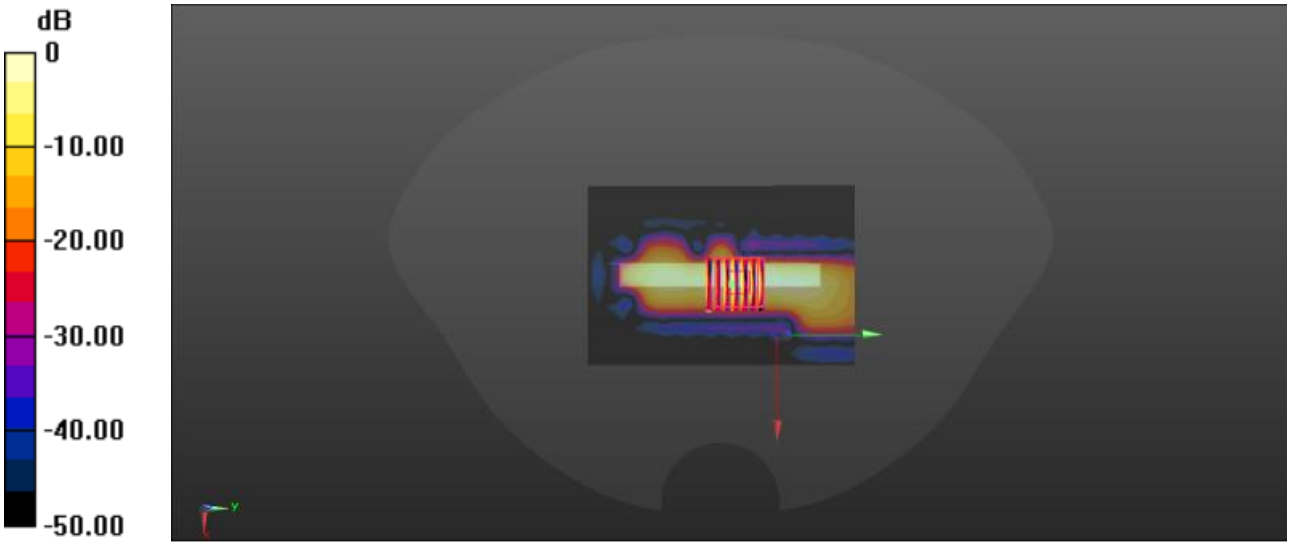
Ambient Temperature:22.3℃ Liquid Temperature:21.1℃

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: Twin-SAM Right V5.0 (20deg probe tilt); Type: QD 000 P40 CD; Serial: 1857
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7501)

Ch52/Area Scan (81x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.892 W/kg

Ch52/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 6.107 V/m; Power Drift = -0.07 dB
Peak SAR (extrapolated) = 1.66 W/kg
SAR(1 g) = 0.236 W/kg; SAR(10 g) = 0.063 W/kg
Smallest distance from peaks to all points 3 dB below = 4 mm
Ratio of SAR at M2 to SAR at M1 = 45%
Maximum value of SAR (measured) = 0.754 W/kg



0 dB = 0.754 W/kg

MEAS.4 Body Right Side 0mm WLAN5.6G Ch140

Date: 2025.03.09

Communication System Band: WLAN(a); Frequency: 5700 MHz;Duty Cycle: 1:1

Medium parameters used: f = 5700 MHz; σ = 5.224 S/m; ε_r = 34.49; ρ = 1000 kg/m^3

Phantom section: Flat Section

Ambient Temperature:22.6℃ Liquid Temperature:21.4℃

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: Twin-SAM Right V5.0 (20deg probe tilt); Type: QD 000 P40 CD; Serial: 1857
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7501)

Ch140/Area Scan (81x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 1.86 W/kg

Ch140/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 11.09 V/m; Power Drift = -0.06 dB

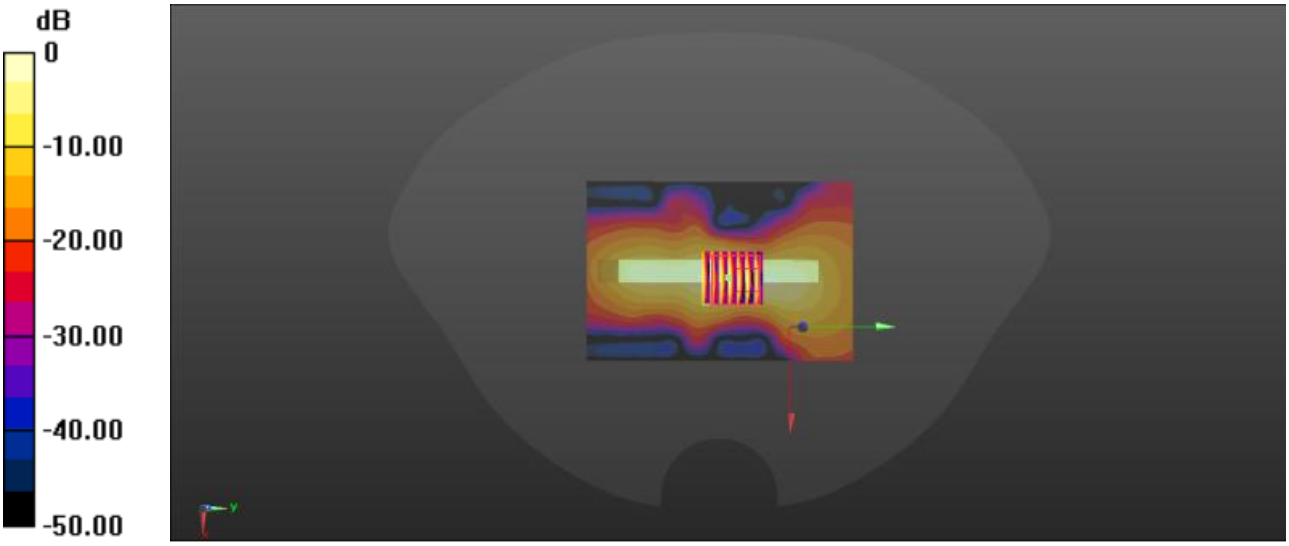
Peak SAR (extrapolated) = 4.78 W/kg

SAR(1 g) = 0.769 W/kg; SAR(10 g) = 0.227 W/kg

Smallest distance from peaks to all points 3 dB below = 4 mm

Ratio of SAR at M2 to SAR at M1 = 45.3%

Maximum value of SAR (measured) = 2.41 W/kg



0 dB = 2.41 W/kg

MEAS.5 Body Right Side 0mm WLAN5.8G Ch157

Date: 2025.03.09

Communication System Band: WLAN(a); Frequency: 5785 MHz;Duty Cycle: 1:1

Medium parameters used: f = 5785 MHz; σ = 5.313 S/m; ε_r = 34.533; ρ = 1000 kg/m^3

Phantom section: Flat Section

Ambient Temperature:22.8℃ Liquid Temperature:21.5℃

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: Twin-SAM Right V5.0 (20deg probe tilt); Type: QD 000 P40 CD; Serial: 1857
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7501)

Ch157/Area Scan (81x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

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

Ch157/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 10.93 V/m; Power Drift = -0.06 dB

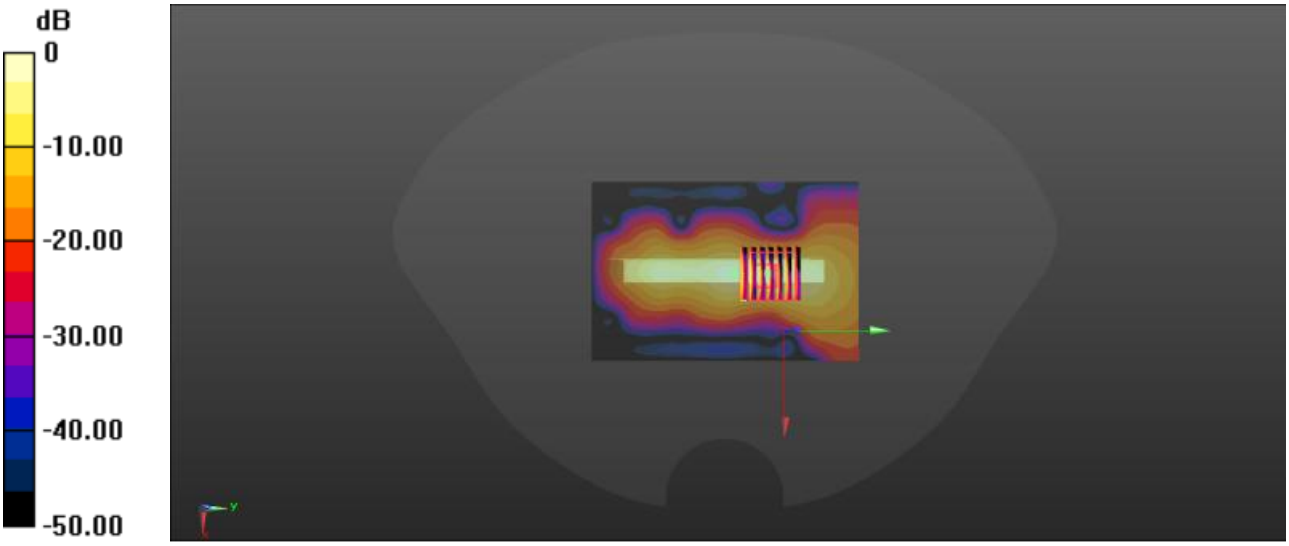
Peak SAR (extrapolated) = 5.65 W/kg

SAR(1 g) = 0.806 W/kg; SAR(10 g) = 0.193 W/kg

Smallest distance from peaks to all points 3 dB below = 3.6 mm

Ratio of SAR at M2 to SAR at M1 = 44%

Maximum value of SAR (measured) = 2.53 W/kg



0 dB = 2.53 W/kg

MEAS.6 Body Right Side 0mm BT Ch19

Date: 2025.03.08

Communication System Band: BLE; Frequency: 2440 MHz;Duty Cycle: 1:1

Medium parameters used: f = 2440 MHz; σ = 1.824 S/m; ε_r = 39.016; ρ = 1000 kg/m^3

Phantom section: Flat Section

Ambient Temperature:22.6℃ Liquid Temperature:21.2℃

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: Twin-SAM Right V5.0 (20deg probe tilt); Type: QD 000 P40 CD; Serial: 1857
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7501)

Ch19/Area Scan (61x101x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm

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

Ch19/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 8.739 V/m; Power Drift = -0.18 dB

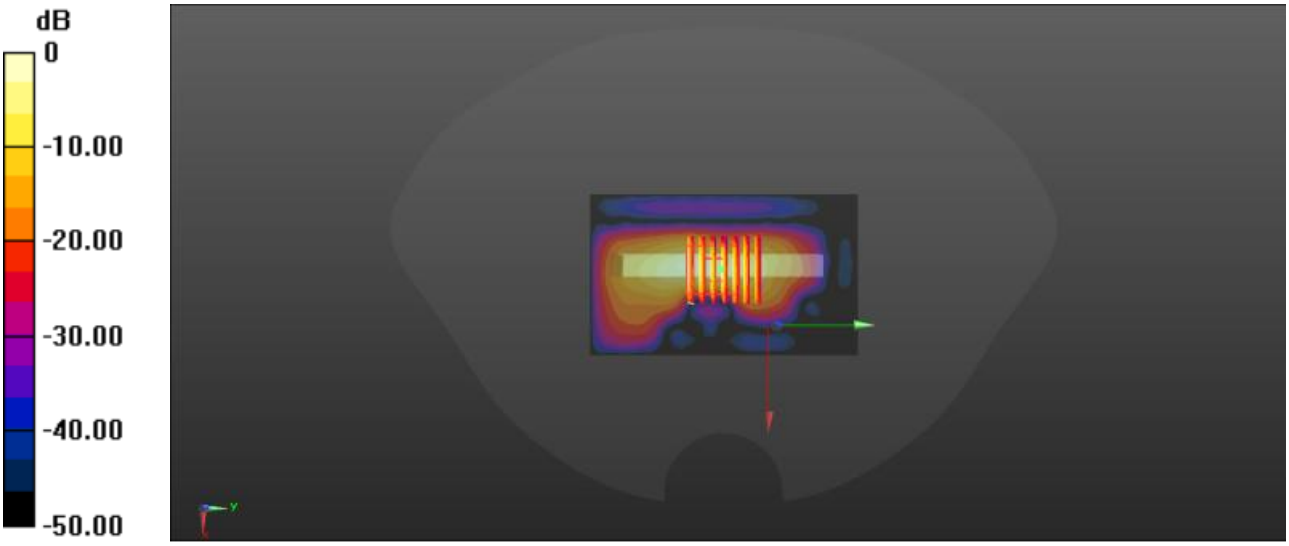
Peak SAR (extrapolated) = 0.424 W/kg

SAR(1 g) = 0.135 W/kg; SAR(10 g) = 0.045 W/kg

Smallest distance from peaks to all points 3 dB below = 5 mm

Ratio of SAR at M2 to SAR at M1 = 33.7%

Maximum value of SAR (measured) = 0.314 W/kg



0 dB = 0.314 W/kg

ANNEX D EUT EXTERNAL PHOTOS

Please refer the document “BL-SZ2520895-AW EUT EXTERNAL PHOTOS.pdf”.

ANNEX E SAR TEST SETUP PHOTOS

Please refer the document “BL-SZ2520895-AS.pdf”.

ANNEX F CALIBRATION REPORT

Please refer the document “BL-SH2520895-AC.pdf”.

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--END OF REPORT--