TEST REPORT

Applicant:	MATTER INNOVATION PTE. LTD.
Address:	1 KIM SENG PROMENADE #17-04 GREAT WORLD CITY SINGAPORE (237994)
Equipment Type:	AI device
Model Name:	G001
Brand Name:	JARVIS
FCC ID:	2BGOW-G001
Test Standard:	FCC 47 CFR Part 2.1093 (refer to section 3.1)
Maximum SAR:	Body-worn (1 g@5mm): 1.17 W/kg Extremity (10 g@0mm): 1.45 W/kg
Sample Arrival Date:	Jun. 25, 2024
Test Date:	Jul. 01, 2024- Jul. 05, 2024
Date of Issue:	Oct. 09, 2024

ISSUED BY:

Shenzhen BALUN Technology Co., Ltd.

Tested by: Zhang Jiwei

Checked by: Xu Rui

Approved by: Tolan Tu (Testing Director)

Revision History

Version	Issue Date	Revisions Content
Rev. 01	Oct. 09, 2024	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	MATTER INNOVATION PTE. LTD.
Address	1 KIM SENG PROMENADE #17-04 GREAT WORLD CITY SINGAPORE (237994)

2.2 Manufacturer Information

Manufacturer	MATTER INNOVATION PTE. LTD.
Address	1 KIM SENG PROMENADE #17-04 GREAT WORLD CITY SINGAPORE (237994)

2.3 General Description for Equipment under Test (EUT)

EUT Name	AI device
Model Name Under Test	G001
Series Model Name	N/A
Description of Model name differentiation	N/A
Hardware Version	Cdk8A
Software Version	QL7282A_FAC_USERDEBUG_0615_01
Dimensions (Approx.)	98.43mm*65.41mm*4.93mm
Weight (Approx.)	N/A

2.4 Ancillary Equipment

Ancillary Equipment 1	Battery	
	Brand Name	N/A
	Model No.	AB255942-202401
	Serial No.	N/A
	Capacity	900mAh/3.52Wh
	Rated Voltage	3.91 V
	Limit Charge Voltage	4.5 V

2.5 Technical Information

Network and Wireless connectivity	Bluetooth-Qualcomm (BR+EDR+BLE) Bluetooth-Actions (BR+EDR+BLE) WIFI 802.11a, 802.11b, 802.11g, 802.11n and 802.11ac Galileo, GPS, SBAS, WPC

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

Operating Mode	2.4G WIFI, 5G WIFI, Bluetooth	
Frequency Range	802.11b/g/n(HT20/HT40)	2412 ~ 2472 MHz
	802.11a /n(HT20/HT40) /ac(VHT20/VHT40/VHT80)	5150 ~ 5250 MHz
		5250 ~ 5350 MHz
		5470 ~ 5725 MHz
		5725 ~ 5850 MHz
	Bluetooth-Qualcomm	2402 ~ 2480 MHz
	Bluetooth-Actions	2402 ~ 2480 MHz
Antenna Type	WIFI: IFA Antenna Bluetooth-Qualcomm: IFA Antenna Bluetooth-Actions: IFA Antenna	
DTM	N/A	
Hotspot Function	Support	
Power Reduction	Support	
Exposure Category	General Population/Uncontrolled exposure	
Product Type	Portable Device	
EUT Type	☒ Production unit	☐ Identical prototype
Note: The reduction power details please refer section 8.3.		

3 SUMMARY OF TEST RESULT

3.1 Test Standards

No.	Identity	Document Title
1	47 CFR Part 2.1093	Radiofrequency radiation exposure evaluation: portable devices
2	ANSI C95.1-1992	IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz
3	KDB 447498 D04 v01	447498 D04 Interim General RF Exposure Guidance v01
4	KDB 865664 D01 v01r04	SAR Measurement 100 MHz to 6 GHz
5	KDB 865664 D02 v01r02	RF Exposure Reporting
6	KDB 248227 D01 v02r02	SAR GUIDANCE FOR IEEE 802.11 (Wi-Fi) TRANSMITTERS

3.2 Device Category and SAR Limit

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

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

Table of Exposure Limits:

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

NOTE:

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

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

3.3 Test Result Summary

3.3.1 Highest SAR Values

Equipment Class	Band	Maximum Scaled SAR (W/kg)		Maximum Report SAR (W/kg)	
		Body (5mm)	Extremity (0mm)	Body (5mm)	Extremity (0mm)
		1g SAR	10g SAR	1g SAR	10g SAR
DTS	2.4G WLAN	1.01	**1.45**	**1.17**	**1.45**
U-NII-2A	5.3G WLAN	**1.17**	1.22		
U-NII-2C	5.6G WLAN	1.06	1.06		
U-NII-3	5.8G WLAN	0.86	1.04		
DSS	Bluetooth	0.24	0.41		
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 (5mm)	Extremity (0mm)
	1g SAR	10g SAR
DTS	1.02	**1.50**
NII	**1.18**	1.27
DSS	**1.18**	**1.50**
Limit (W/Kg)	1.6	4.0
Verdict	Pass	Pass
Note: The simultaneous transmission SAR detail please refer to section 13.		

3.4 Test Uncertainty

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

The maximum 1 g SAR for the EUT in this report is 1.17 W/kg, which is lower than 1.5 W/kg, so the extensive SAR measurement uncertainty analysis is not required in this report.
The maximum 10 g SAR for the EUT in this report is 1.45 W/kg, which is lower than 3.75 W/kg, so the extensive SAR measurement uncertainty analysis is not required in this report.

4 MEASUREMENT SYSTEM

4.1 Specific Absorption Rate (SAR) Definition

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

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

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

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

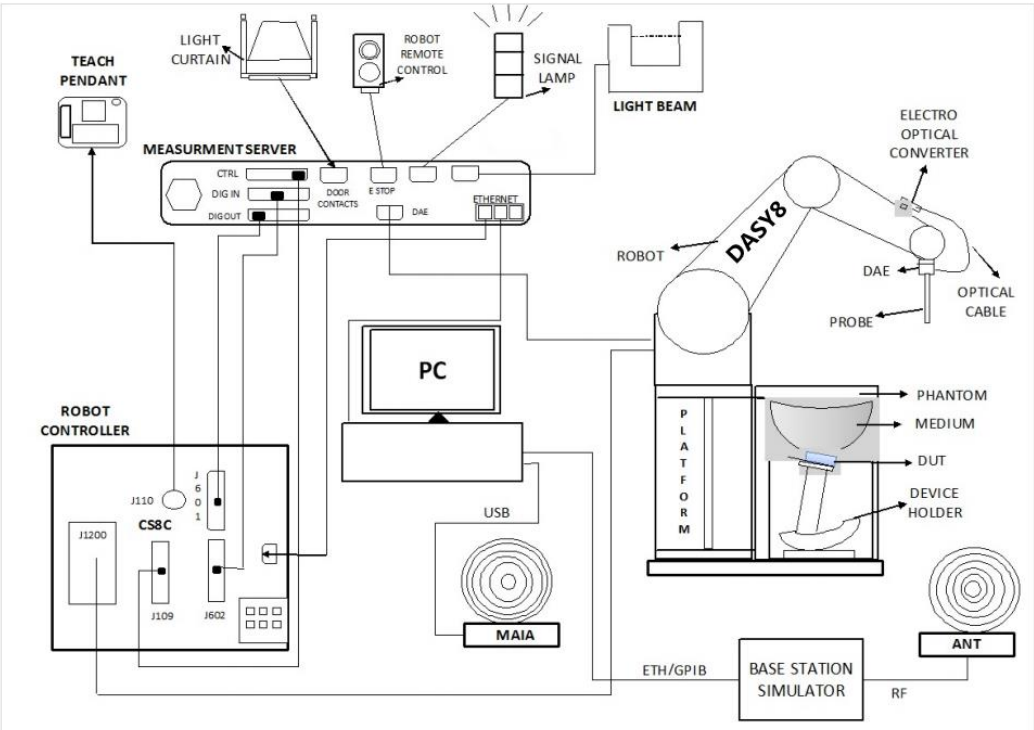
$$\mathbf{SAR} = \frac{\boldsymbol{\sigma}\mathbf{E}^{2}}{\boldsymbol{\rho}}$$

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

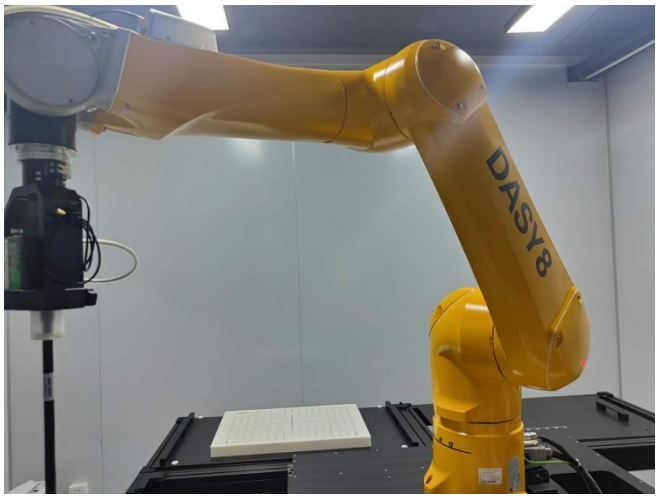


The DASY system for performing compliance tests consists of the following items:

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 DASY 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.

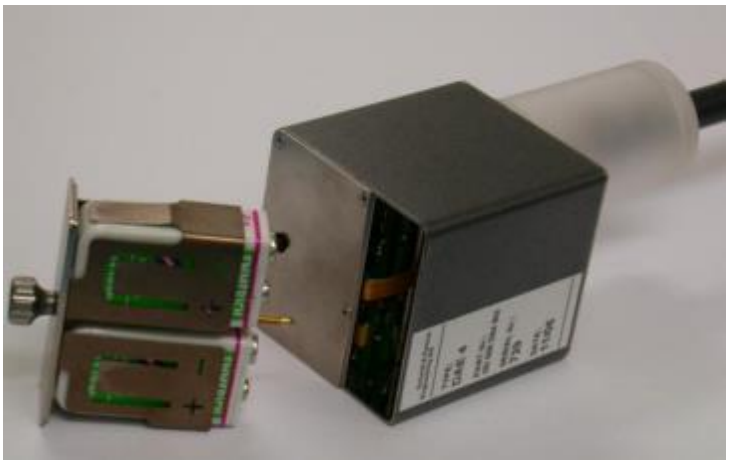
Construction	Symmetrical design with triangular core Built-in optical fiber for surface detection system Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., glycolether)
Calibration	ISO/IEC 17025 calibration service available
Frequency	4 MHz to 10 GHz; Linearity: ± 0.2 dB
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 and IEEE 1528 std, 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

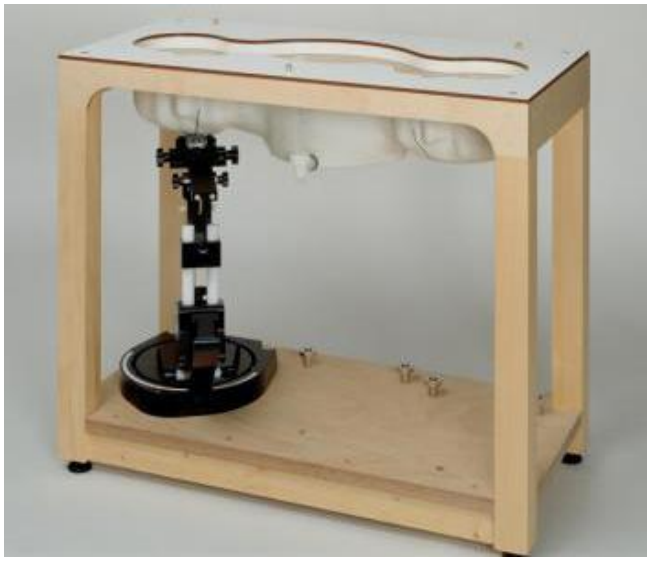
The data acquisition electronics (DAE) consist of a highly sensitive electrometer-grade preamplifier with auto-zeroing, a channel and gain-switching multiplexer, a fast 16 bit AD-converte and a command decoder with a control logic unit. Transmission to the measurement server is accomplished through an 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 head
- Right head
- Flat phantom

Photo of Phantom SN1859

Serial Number	Material	Length	Height
SN 1859 SAM	Vinylester, glass fiber reinforced	1000	500

4.2.6 Device Holder

The DASY 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.

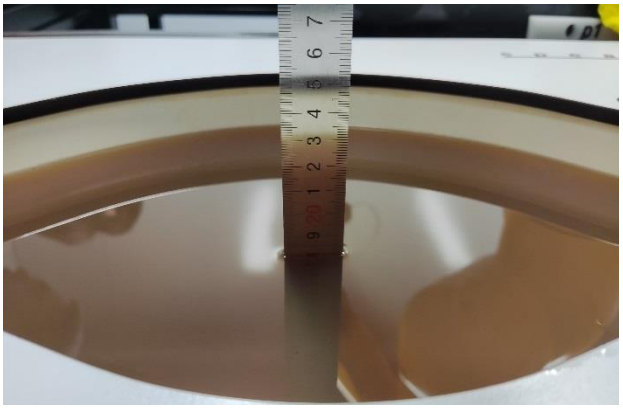
The positioning system allows obtaining cheek and tilting position with a very good accuracy. Incompliance with CENELEC, the tilt angle uncertainty is lower than 1°.

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

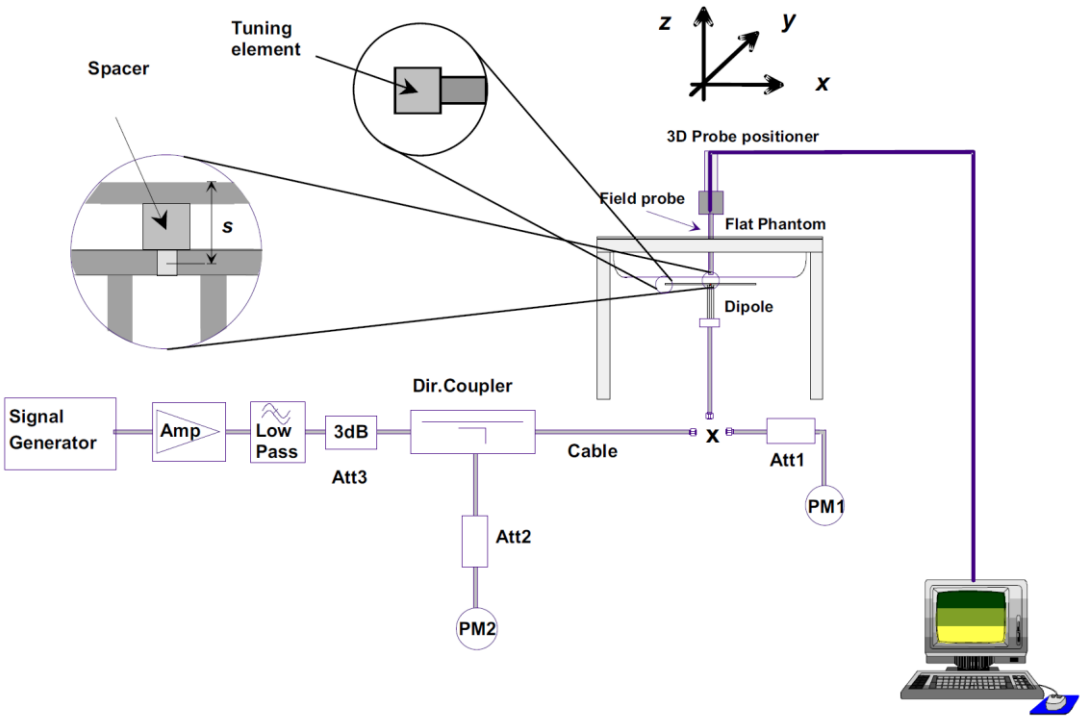
5 SYSTEM VERIFICATION

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

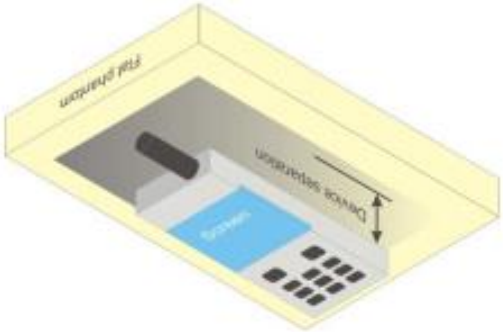
According to KDB 648474 D04 Handset, handsets are tested for SAR compliance in head, body-worn accessory and other use configurations described in the following subsections.

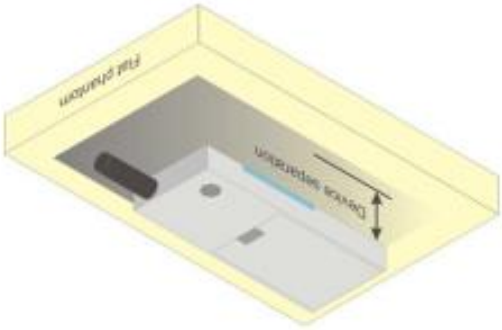
6.1 Body-worn Position Conditions

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

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

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



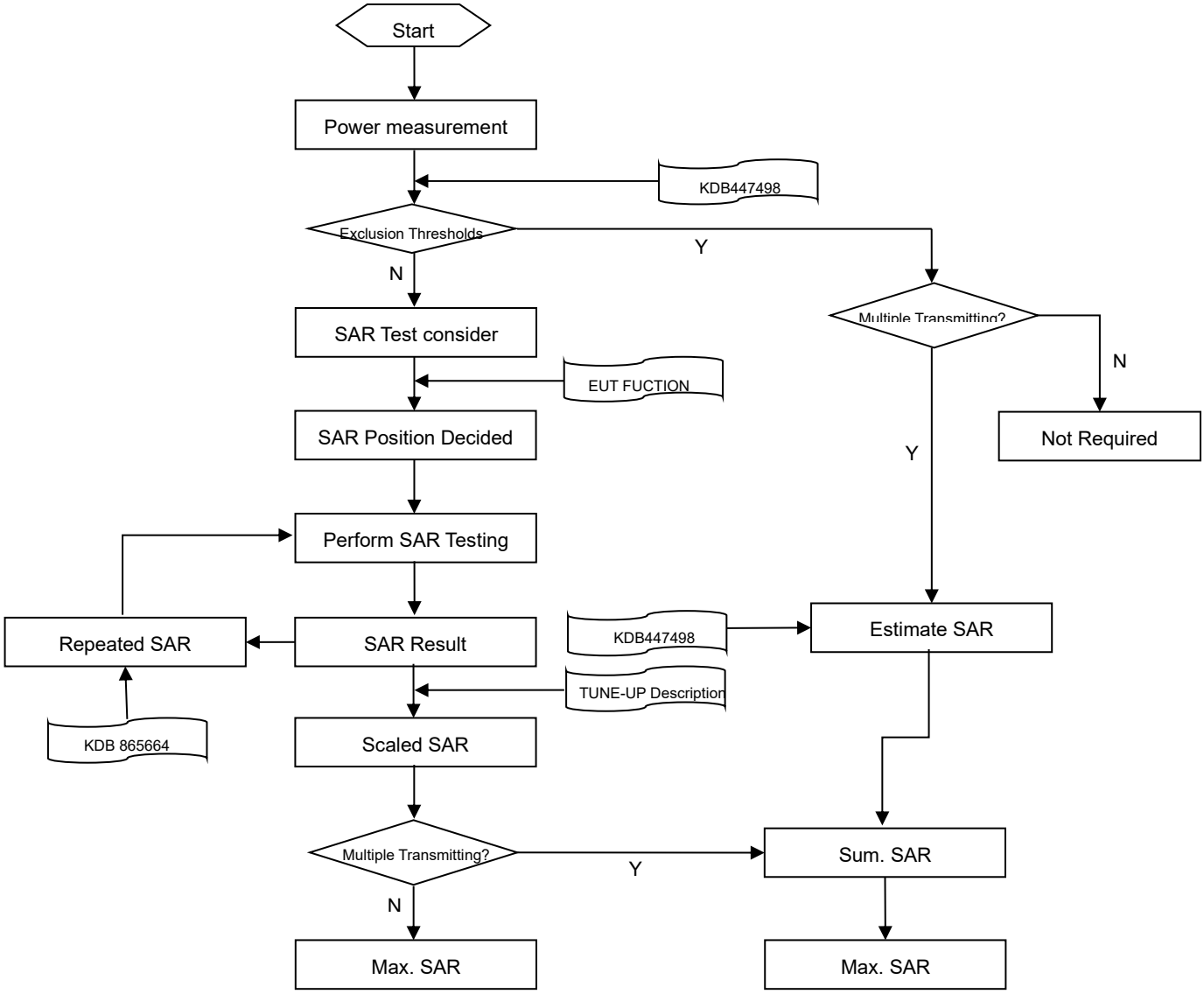


6.2 Extremity Exposure Conditions

Devices that are designed or intended for use on extremities (i.e., hands, wrists, feet and ankles), or mainly operated in extremity-only exposure conditions, may require extremity SAR evaluation. However, when the device also operates in close proximity to the user's body, SAR compliance for the body is also required.
When extremity SAR testing is required, a flat phantom is typically used.

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="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.

8 CONDUCTED RF OUPUT POWER

8.1 WIFI

8.1.1 2.4G WIFI-ANT1-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	**16.89**	18.00	Yes
		6	2437	16.39	18.00	No
		11	2462	16.65	18.00	No
		12	2467	16.61	18.00	No
		13	2472	14.06	15.00	No
	802.11g	1	2412	15.45	16.50	No
		6	2437	14.68	16.50	No
		11	2462	15.38	16.50	No
		12	2467	14.09	15.00	No
		13	2472	6.63	8.00	No
	802.11n(HT20)	1	2412	14.90	16.00	No
		6	2437	14.20	16.00	No
		11	2462	14.82	16.00	No
		12	2467	13.98	15.00	No
		13	2472	6.45	8.00	No
	802.11n(HT40)	3	2422	11.29	12.50	No
		6	2437	11.31	12.50	No
		9	2452	11.59	12.50	No
		10	2457	11.61	12.50	No
		11	2462	1.21	2.00	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)) = 0.609 * (44.67 mw)/(63.10 mw) = 0.431 W/kg, so the 2.4GHz OFDM SAR test is not required.

8.1.2 2.4G WIFI-ANT1-Sensor On

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	**16.15**	17.50	Yes
		6	2437	15.68	17.50	Yes
		11	2462	16.09	17.50	Yes
		12	2467	16.09	17.50	No
		13	2472	14.06	15.00	No
	802.11g	1	2412	15.45	16.50	No
		6	2437	14.68	16.50	No
		11	2462	15.38	16.50	No
		12	2467	14.09	15.00	No
		13	2472	6.63	8.00	No
	802.11n(HT20)	1	2412	14.90	16.00	No
		6	2437	14.20	16.00	No
		11	2462	14.82	16.00	No
		12	2467	13.98	15.00	No
		13	2472	6.45	8.00	No
	802.11n(HT40)	3	2422	11.29	12.50	No
		6	2437	11.31	12.50	No
		9	2452	11.59	12.50	No
		10	2457	11.61	12.50	No
		11	2462	1.21	2.00	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)) = 1.012 * (44.67 mw)/(56.23 mw) = 0.804 W/kg, so the 2.4GHz OFDM SAR test is not required.

8.1.3 5G WIFI-ANT1-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	15.30	17.00	No
		44	5220	15.35	17.00	No
		48	5240	15.41	17.00	No
	802.11n(HT20)	36	5180	15.62	17.00	No
		44	5220	15.54	17.00	No
		48	5240	15.38	17.00	No
	802.11n(HT40)	38	5190	12.44	14.00	No
		46	5230	12.55	14.00	No
	802.11ac(VHT20)	36	5180	15.61	17.00	No
		44	5220	15.47	17.00	No
		48	5240	15.60	17.00	No
	802.11ac(VHT40)	38	5190	12.38	14.00	No
		46	5230	12.54	14.00	No
	802.11ac(VHT80)	42	5210	12.40	14.00	No
5.3 (5.25~5.35)	802.11a	52	5260	15.51	17.00	Yes
		60	5300	15.58	17.00	Yes
		64	5320	**15.68**	17.00	Yes
	802.11n(HT20)	52	5260	15.60	17.00	No
		60	5300	15.38	17.00	No
		64	5320	15.63	17.00	No
	802.11n(HT40)	54	5270	14.42	16.00	No
		62	5310	14.65	16.00	No
	802.11ac(VHT20)	52	5260	15.63	17.00	No
		60	5300	15.38	17.00	No
		64	5320	15.45	17.00	No
	802.11ac(VHT40)	54	5270	14.40	16.00	No
		62	5310	14.48	16.00	No
	802.11ac(VHT80)	58	5290	13.71	15.00	No
5.6 (5.47~5.725)	802.11a	100	5500	15.65	17.00	Yes
		116	5580	**15.70**	17.00	Yes
		140	5700	15.29	17.00	Yes
	802.11n(HT20)	100	5500	15.52	17.00	No
		116	5580	15.54	17.00	No
		140	5700	15.50	17.00	No
	802.11n(HT40)	102	5510	14.61	16.00	No
		118	5590	14.45	16.00	No
		134	5670	14.48	16.00	No
	802.11ac(VHT20)	100	5500	15.57	17.00	No
		116	5580	15.52	17.00	No

		140	5700	15.41	17.00	No
	802.11ac(VHT40)	102	5510	14.56	16.00	No
		118	5590	14.48	16.00	No
		134	5670	14.59	16.00	No
	802.11ac(VHT80)	106	5530	13.44	15.00	No
		122	5610	13.56	15.00	No
5.8 (5.725~5.850)	802.11a	149	5745	15.51	17.00	Yes
		157	5785	**15.65**	17.00	Yes
		165	5825	15.55	17.00	Yes
	802.11n(HT20)	149	5745	15.43	17.00	No
		157	5785	15.45	17.00	No
		165	5825	15.35	17.00	No
	802.11n(HT40)	151	5755	14.57	16.00	No
		159	5795	14.45	16.00	No
	802.11ac(VHT20)	149	5745	15.44	17.00	No
		157	5785	15.54	17.00	No
		165	5825	15.46	17.00	No
	802.11ac(VHT40)	151	5755	14.51	16.00	No
		159	5795	14.57	16.00	No
	802.11ac(VHT80)	155	5775	13.55	15.00	No
Note: When the same maximum output power is specified for both bands, begin SAR measurement in U-NII-2A band by applying the OFDM SAR requirements. If the highest reported SAR for a test configuration is ≤ 1.2 W/kg, SAR is not required for U-NII-1 band for that configuration (802.11 mode and exposure condition); otherwise, each band is tested independently for SAR.						

8.1.4 5G WIFI-ANT1-Sensor On

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	13.45	15.00	No
		44	5220	13.47	15.00	No
		48	5240	13.48	15.00	No
	802.11n(HT20)	36	5180	13.32	15.00	No
		44	5220	13.29	15.00	No
		48	5240	13.30	15.00	No
	802.11n(HT40)	38	5190	12.44	14.00	No
		46	5230	12.55	14.00	No
	802.11ac(VHT20)	36	5180	13.28	15.00	No
		44	5220	13.35	15.00	No
		48	5240	13.30	15.00	No
	802.11ac(VHT40)	38	5190	12.38	14.00	No
		46	5230	12.54	14.00	No
	802.11ac(VHT80)	42	5210	12.40	14.00	No
5.3 (5.25~5.35)	802.11a	52	5260	13.52	15.00	No
		60	5300	13.69	15.00	No
		64	5320	13.79	15.00	No
	802.11n(HT20)	52	5260	13.33	15.00	No
		60	5300	13.52	15.00	No
		64	5320	13.60	15.00	No
	802.11n(HT40)	54	5270	13.75	15.00	No
		62	5310	13.64	15.00	No
	802.11ac(VHT20)	52	5260	13.30	15.00	No
		60	5300	13.50	15.00	No
		64	5320	13.59	15.00	No
	802.11ac(VHT40)	54	5270	13.75	15.00	No
		62	5310	13.73	15.00	No
	802.11ac(VHT80)	58	5290	**13.71**	15.00	Yes
5.6 (5.47~5.725)	802.11a	100	5500	11.76	13.00	No
		116	5580	12.01	13.00	No
		140	5700	11.30	13.00	No
	802.11n(HT20)	100	5500	11.58	13.00	No
		116	5580	11.82	13.00	No
		140	5700	11.13	13.00	No
	802.11n(HT40)	102	5510	12.09	13.00	No
		118	5590	12.03	13.00	No
		134	5670	11.78	13.00	No
	802.11ac(VHT20)	100	5500	11.57	13.00	No
		116	5580	11.84	13.00	No

		140	5700	11.13	13.00	No
	802.11ac(VHT40)	102	5510	12.09	13.00	No
		118	5590	12.02	13.00	No
		134	5670	11.76	13.00	No
	802.11ac(VHT80)	106	5530	**11.93**	13.00	Yes
		122	5610	11.85	13.00	Yes
5.8 (5.725~5.850)	802.11a	149	5745	11.52	13.00	No
		157	5785	11.75	13.00	No
		165	5825	11.80	13.00	No
	802.11n(HT20)	149	5745	11.34	13.00	No
		157	5785	11.55	13.00	No
		165	5825	11.64	13.00	No
	802.11n(HT40)	151	5755	11.83	13.00	No
		159	5795	11.76	13.00	No
	802.11ac(VHT20)	149	5745	11.34	13.00	No
		157	5785	11.56	13.00	No
		165	5825	11.63	13.00	No
	802.11ac(VHT40)	151	5755	11.85	13.00	No
		159	5795	11.73	13.00	No
	802.11ac(VHT80)	155	5775	**11.57**	13.00	Yes
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.						

8.2 Bluetooth

8.2.1 Bluetooth-ANT1-Full Power

Mode	GFSK			π/4-DQPSK		
Channel	0	39	78	0	39	78
Frequency (MHz)	2402	2441	2480	2402	2441	2480
Conducted Power (dBm)	**11.91**	11.27	11.81	9.35	8.18	9.37
Tune-Up Limit (dBm)	12.50	12.50	12.50	9.50	9.50	9.50
SAR Test Require	Yes	No	No	No	No	No
Mode	8-DPSK			/		
Channel	0	39	78	/	/	/
Frequency (MHz)	2402	2441	2480	/	/	/
Conducted Power (dBm)	9.35	8.08	9.28	/	/	/
Tune-Up Limit (dBm)	9.50	9.50	9.50	/	/	/
SAR Test Require	No	No	No	/	/	/
Mode	BLE-1Mbps			BLE-2Mbps		
Channel	0	19	39	1	19	38
Frequency (MHz)	2402	2440	2480	2404	2440	2478
Conducted Power (dBm)	6.53	6.52	7.98	7.05	6.74	8.13
Tune-Up Limit (dBm)	8.50	8.50	8.50	8.50	8.50	8.50
SAR Test Require	No	No	No	No	No	No
Note: 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.						

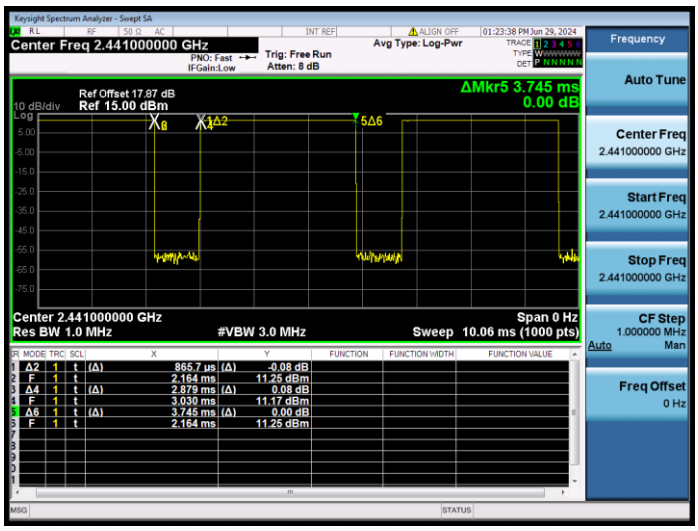
8.2.2 Bluetooth-ANT0-Full Power

Mode	GFSK			π/4-DQPSK		
Channel	0	39	78	0	39	78
Frequency (MHz)	2402	2441	2480	2402	2441	2480
Conducted Power (dBm)	8.85	**9.03**	8.42	6.35	7.08	6.11
Tune-Up Limit (dBm)	9.50	9.50	9.50	7.50	7.50	7.50
SAR Test Require	No	Yes	No	No	No	No
Mode	8-DPSK			/		
Channel	0	39	78	/	/	/
Frequency (MHz)	2402	2441	2480	/	/	/
Conducted Power (dBm)	6.26	7.13	6.01	/	/	/
Tune-Up Limit (dBm)	7.50	7.50	7.50	/	/	/
SAR Test Require	No	No	No	/	/	/
Mode	BLE-1Mbps			BLE-2Mbps		
Channel	0	19	39	1	19	38
Frequency (MHz)	2402	2440	2480	2404	2440	2478
Conducted Power (dBm)	8.74	8.96	8.35	8.68	8.89	8.62
Tune-Up Limit (dBm)	9.50	9.50	9.50	9.50	9.50	9.50
SAR Test Require	No	No	No	No	No	No
Note: 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.						

Note: The Bluetooth duty cycle is 76.88 % 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.

Duty Cycle

Bluetooth-GFSK



8.3 Power Reduction List

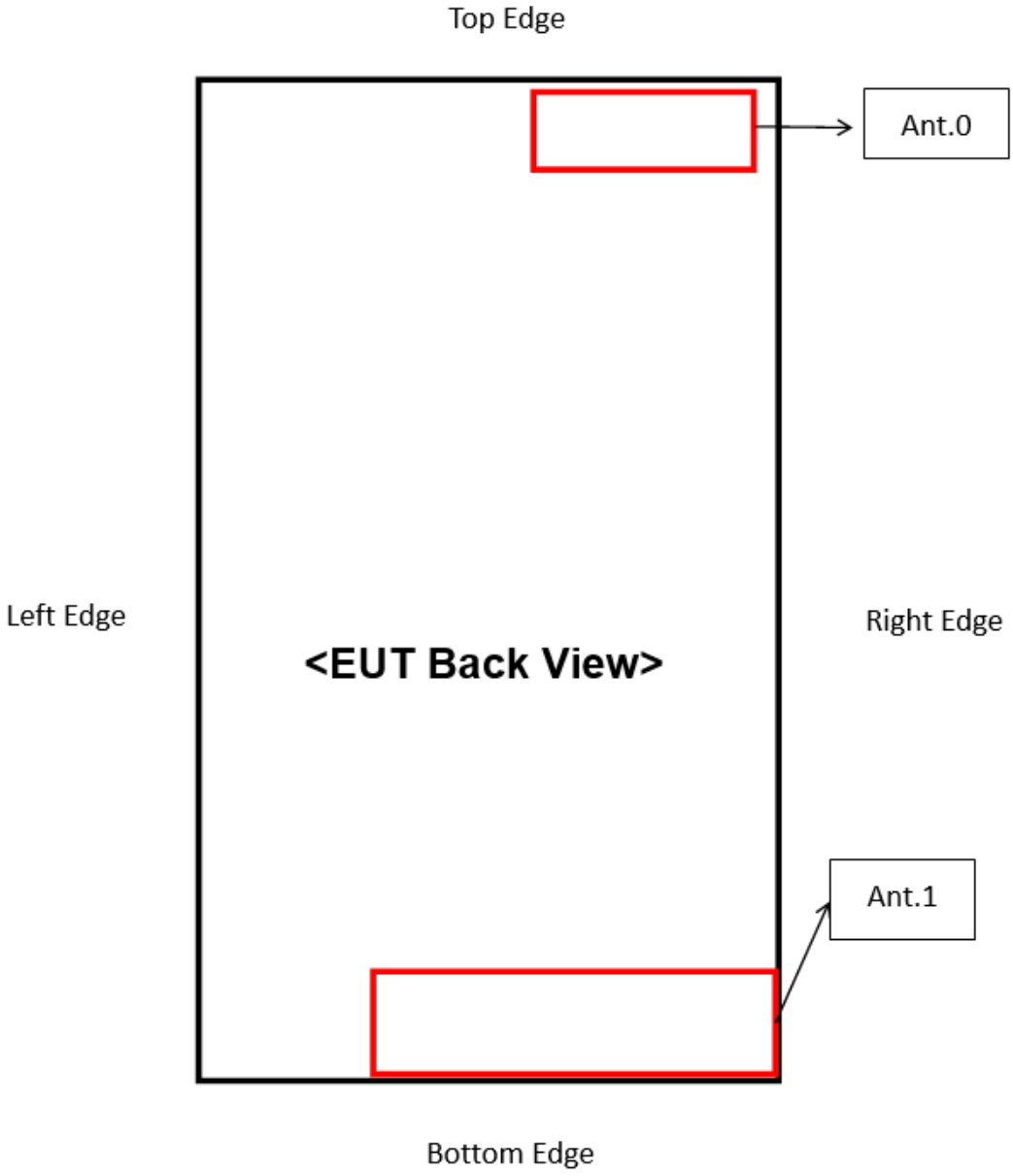
WLAN Reduced power level table			
Reduced Level	Transmitting conditions	Antenna	Position
Sensor On	WIFI2.4G/WIFI5G	Ant.1	Front Side; Back Side
Sensor Off	WIFI2.4G/WIFI5G	Ant.1	Front Side; Back Side; Left Edge; Right Edge; Top Edge; Bottom Edge

Mode	WIFI2.4G & WIFI5G				
	Full Power	Sensor on		Sensor off	
		Body&Extremity		Body&Extremity	
	Off	Standalone	Simultaneous transmission	Standalone	Simultaneous transmission
2.4G WLAN 802.11b	18.00	17.50	17.50	18.00	18.00
2.4G WLAN 802.11g	16.50	16.50	16.50	16.50	16.50
2.4G WLAN 802.11n20	16.00	16.00	16.00	16.00	16.00
2.4G WLAN 802.11n40	12.50	12.50	12.50	12.50	12.50
5.2G WLAN 802.11a	17.00	15.00	15.00	17.00	17.00
5.2G WLAN 802.11n20	17.00	15.00	15.00	17.00	17.00
5.2G WLAN 802.11n40	14.00	14.00	14.00	14.00	14.00
5.2G WLAN 802.11ac20	17.00	15.00	15.00	17.00	17.00
5.2G WLAN 802.11ac40	14.00	14.00	14.00	14.00	14.00
5.2G WLAN 802.11ac80	14.00	14.00	14.00	14.00	14.00
5.3G WLAN 802.11a	17.00	15.00	15.00	17.00	17.00
5.3G WLAN 802.11n20	17.00	15.00	15.00	17.00	17.00
5.3G WLAN 802.11n40	16.00	15.00	15.00	16.00	16.00
5.3G WLAN 802.11ac20	17.00	15.00	15.00	17.00	17.00
5.3G WLAN 802.11ac40	16.00	15.00	15.00	16.00	16.00
5.3G WLAN 802.11ac80	15.00	15.00	15.00	15.00	15.00
5.6G WLAN 802.11a	17.00	13.00	13.00	17.00	17.00
5.6G WLAN 802.11n20	17.00	13.00	13.00	17.00	17.00
5.6G WLAN 802.11n40	16.00	13.00	13.00	16.00	16.00
5.6G WLAN 802.11ac20	17.00	13.00	13.00	17.00	17.00
5.6G WLAN 802.11ac40	16.00	13.00	13.00	16.00	16.00
5.6G WLAN 802.11ac80	15.00	13.00	13.00	15.00	15.00
5.8G WLAN 802.11a	17.00	13.00	13.00	17.00	17.00
5.8G WLAN 802.11n20	17.00	13.00	13.00	17.00	17.00
5.8G WLAN 802.11n40	16.00	13.00	13.00	16.00	16.00
5.8G WLAN 802.11ac20	17.00	13.00	13.00	17.00	17.00
5.8G WLAN 802.11ac40	16.00	13.00	13.00	16.00	16.00
5.8G LAN 802.11ac80	15.00	13.00	13.00	15.00	15.00

Bluetooth Ant.1	12.50	12.50	12.50	12.50	12.50
Bluetooth Ant.0	9.50	9.50	9.50	9.50	9.50

9 TEST EXCLUSION CONSIDERATION

9.1 Antenna Location Sketch



Antenna	Description	Support Bands
Antenna 0	Bluetooth TX Antenna	Bluetooth-Actions
Antenna 1	WLAN 2.4G TX Antenna WLAN 5G TX Antenna Bluetooth TX Antenna	2.4G WLAN 5G WLAN Bluetooth-Qualcomm

Antenna	Front Side (mm)	Back Side (mm)	Left Edge (mm)	Right Edge (mm)	Top Edge (mm)	Bottom Edge (mm)
Ant.0	2	2	15	5	5	72
Ant.1	2	2	10	5	65	5

9.2 SAR Test Exclusion Consideration Table

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

This 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 SAR Test Consideration

This host is a AI device, under normal use the RF exposure scenarios are shown in the table below:

RF exposure Position	RF exposure scenarios
Front Side	Body&Extremity
Back Side	Body&Extremity
Left Edge	Body&Extremity
Right Edge	Body&Extremity
Top Edge	Body&Extremity
Bottom Edge	Body&Extremity

Body&Extremity RF exposure scenarios

Antenna 1						
Test Position Configurations	Mode	Bluetooth	WLAN 2.4GHz	U-NII-2A	U-NII-2C	U-NII-3
Calculated Frequency (MHz)		2480	2462	5320	5710	5825
Front Side	Distance to User (mm)	2.00				
	Max. Peak Power (dBm)	12.50	18.00	17.00	17.00	17.00
	Max. Peak Power (mW)	17.78	63.10	50.12	50.12	50.12
	Exclusion Threshold (mW)	0.47	0.48	0.22	0.21	0.20
	SAR Test Required	Yes	Yes	Yes	Yes	Yes
Back Side	Distance to User (mm)	2.00				
	Max. Peak Power (dBm)	12.50	18.00	17.00	17.00	17.00
	Max. Peak Power (mW)	17.78	63.10	50.12	50.12	50.12
	Exclusion Threshold (mW)	0.47	0.48	0.22	0.21	0.20
	SAR Test Required	Yes	Yes	Yes	Yes	Yes
Left Edge	Distance to User (mm)	10.00				
	Max. Peak Power (dBm)	12.50	18.00	17.00	17.00	17.00
	Max. Peak Power (mW)	17.78	63.10	50.12	50.12	50.12
	Exclusion Threshold (mW)	10.17	10.22	6.19	5.91	5.84
	SAR Test Required	Yes	Yes	Yes	Yes	Yes
Right Edge	Distance to User (mm)	5.00				
	Max. Peak Power (dBm)	12.50	18.00	17.00	17.00	17.00
	Max. Peak Power (mW)	17.78	63.10	50.12	50.12	50.12
	Exclusion Threshold (mW)	2.72	2.73	1.47	1.39	1.37
	SAR Test Required	Yes	Yes	Yes	Yes	Yes
Top Edge	Distance to User (mm)	65.00				
	Max. Peak Power (dBm)	12.50	18.00	17.00	17.00	17.00
	Max. Peak Power (mW)	17.78	63.10	50.12	50.12	50.12
	Exclusion Threshold (mW)	359.72	360.36	298.58	293.47	292.05
	SAR Test Required	No	No	No	No	No
Bottom Edge	Distance to User (mm)	5.00				
	Max. Peak Power (dBm)	12.50	18.00	17.00	17.00	17.00

	Max. Peak Power (mW)	17.78	63.10	50.12	50.12	50.12
	Exclusion Threshold (mW)	2.72	2.73	1.47	1.39	1.37
	SAR Test Required	Yes	Yes	Yes	Yes	Yes

Antenna 0		
Test Position Configurations	Mode	Bluetooth
Calculated Frequency (MHz)		2480
Front Side	Distance to User (mm)	2.00
	Max. Peak Power (dBm)	9.50
	Max. Peak Power (mW)	8.91
	Exclusion Threshold (mW)	0.47
	SAR Test Required	Yes
Back Side	Distance to User (mm)	2.00
	Max. Peak Power (dBm)	9.50
	Max. Peak Power (mW)	8.91
	Exclusion Threshold (mW)	0.47
	SAR Test Required	Yes
Left Edge	Distance to User (mm)	15.00
	Max. Peak Power (dBm)	9.50
	Max. Peak Power (mW)	8.91
	Exclusion Threshold (mW)	22.03
	SAR Test Required	No
Right Edge	Distance to User (mm)	5.00
	Max. Peak Power (dBm)	9.50
	Max. Peak Power (mW)	8.91
	Exclusion Threshold (mW)	2.72
	SAR Test Required	Yes
Top Edge	Distance to User (mm)	5.00
	Max. Peak Power (dBm)	9.50
	Max. Peak Power (mW)	8.91
	Exclusion Threshold (mW)	2.72
	SAR Test Required	Yes
Bottom Edge	Distance to User (mm)	72.00
	Max. Peak Power (dBm)	9.50
	Max. Peak Power (mW)	8.91
	Exclusion Threshold (mW)	437.09
	SAR Test Required	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.

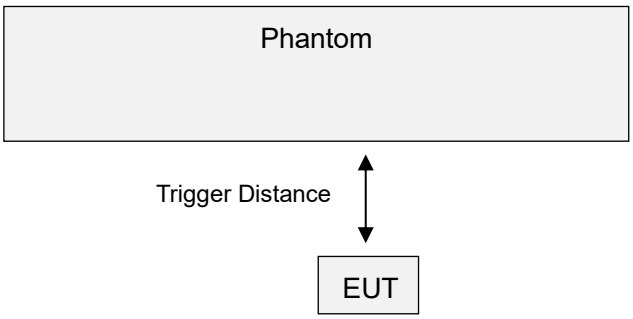
10 PROXIMITY SENSOR TRIGGERING TEST

10.1 Procedures for determining proximity sensor distance

The device uses one proximity sensors to reduce the maximum output power in selected wireless mode and operating configurations to ensure SAR compliance. The sensor implementation can identify and facilitate triggering different max power levels for different scenarios including the device held by hand(Extremity) and different exposure test positions test positions when the device is closed to a user's body.

Proximity sensor triggering distance testing was performed, EUT moving further away from the phantom and EUT moving toward the phantom were both assessed, and the shortest triggering distances were reported and used for SAR assessment. Note that while sensor is failed and it sets the output power to the lowest one in the sensor trigger state ,to make sure the SAR requirements can still be satisfied.

10.1.1 proximity sensor



EUT moving toward Phantom

Distance in mm	1~5	6	7	8	9	10	11	12	13	14	15~20
Front Side	On	On	Off	Off	Off	Off	Off	Off	Off	Off	Off
Back Side	On	On	On	On	On	On	On	Off	Off	Off	Off
Note: Power reduction is only applicable for ANT1.											

To ensure all production units are compliant, it is generally necessary to reduce the triggering distance determined from the triggering tests by 1 mm, or more if it is necessary, and use the smallest distance for EUT moving toward the phantom, minus 1 mm, as the sensor triggering distance for determining the SAR measurement distance.

ANT1 of proximity sensor

EUT Sides	Additional SAR test Distance in mm
Front Side	5
Back Side	10

11 TEST RESULT

11.1WIFI 2.4GHz

11.1.1 WIFI 2.4GHz Body SAR

Antenna	Power Reduction	Mode	Position	Dist. (mm)	Ch.	Freq. (MHz)	Power Drift (dB)	1g Meas SAR (W/kg)	Duty cycle (%)	Duty Factor	Meas. Power (dBm)	Max. tune-up power (dBm)	Scaling Factor	1g Scaled SAR (W/kg)	Meas. No.
Body															
Ant.1	On	802.11 b	Front Side	5	1	2412	-0.01	0.421	99.50	1.005	16.15	17.50	1.365	0.578	/
	On		Back Side	5	1	2412	-0.07	0.738	99.50	1.005	16.15	17.50	1.365	**1.012**	1#
	On		Back Side	5	6	2437	0.01	0.518	99.50	1.005	15.68	17.50	1.521	0.792	/
	On		Back Side	5	11	2462	0.03	0.657	99.50	1.005	16.09	17.50	1.384	0.914	/
	Off		Left Edge	5	1	2412	-0.07	0.002	99.50	1.005	16.15	17.50	1.365	0.003	/
	Off		Right Edge	5	1	2412	0.14	0.110	99.50	1.005	16.89	18.00	1.291	0.143	/
	Off		Bottom Edge	5	1	2412	-0.06	0.040	99.50	1.005	16.89	18.00	1.291	0.052	/
Body (Sensor-1)															
Ant.1	Off	802.11 b	Front Side	5	1	2412	-0.11	0.469	99.50	1.005	16.89	18.00	1.291	0.609	/
	Off		Back Side	10	1	2412	-0.01	0.263	99.50	1.005	16.89	18.00	1.291	0.341	/
Note: Refer to ANNEX C for the detailed test data for each test configuration.															

11.1.2 WIFI 2.4GHz Extremity SAR

Antenna	Power Reduction	Mode	Position	Dist. (mm)	Ch.	Freq. (MHz)	Power Drift (dB)	10g Meas SAR (W/kg)	Duty cycle (%)	Duty Factor	Meas. Power (dBm)	Max. tune-up power (dBm)	Scaling Factor	10g Scaled SAR (W/kg)	Meas. No.
Extremity															
Ant.1	On	802.11 b	Front Side	0	1	2412	0.11	0.470	99.50	1.005	16.15	17.50	1.365	0.645	/
	On		Back Side	0	1	2412	0.02	1.060	99.50	1.005	16.15	17.50	1.365	**1.454**	2#
	Off		Left Edge	0	1	2412	-0.15	0.066	99.50	1.005	16.89	18.00	1.291	0.086	/
	Off		Right Edge	0	1	2412	-0.14	0.154	99.50	1.005	16.89	18.00	1.291	0.200	/
	Off		Bottom Edge	0	1	2412	-0.03	0.053	99.50	1.005	16.89	18.00	1.291	0.069	/
Note: Refer to ANNEX C for the detailed test data for each test configuration.															

11.2WIFI 5GHz

11.2.1 WIFI 5GHz Body SAR

Antenna	Power Reduction	Fre. Band	Mode	Position	Dist. (mm)	Ch.	Freq. (MHz)	Power Drift (dB)	1g Meas SAR (W/kg)	Duty cycle (%)	Duty Factor	Meas. Power (dBm)	Max. tune-up power (dBm)	Scaling Factor	1g Scaled SAR (W/kg)	Meas. No.
Body																
Ant.1	On	5.3G	802.11ac (VHT80)	Front Side	5	58	5290	0.15	0.512	92.22	1.084	13.71	15.00	1.346	0.747	/
	On			Back Side	5	58	5290	-0.04	0.804	92.22	1.084	13.71	15.00	1.346	**1.173**	3#
	Off		802.11a	Left Edge	5	64	5320	0.11	0.041	97.65	1.024	15.68	17.00	1.355	0.057	/
	Off			Right Edge	5	64	5320	-0.07	0.303	97.65	1.024	15.68	17.00	1.355	0.420	/
	Off			Bottom Edge	5	64	5320	0.15	0.147	97.65	1.024	15.68	17.00	1.355	0.204	/
Ant.1	On	5.6G	802.11ac (VHT80)	Front Side	5	106	5530	-0.08	0.328	92.22	1.084	11.93	13.00	1.279	0.455	/
	On			Back Side	5	106	5530	0.02	0.699	92.22	1.084	11.93	13.00	1.279	0.969	/
	On			Back Side	5	122	5610	0.02	0.748	92.22	1.084	11.85	13.00	1.303	**1.057**	4#
	Off		802.11a	Left Edge	5	116	5580	0.00	0.059	97.65	1.024	15.70	17.00	1.349	0.082	/
	Off			Right Edge	5	116	5580	0.15	0.406	97.65	1.024	15.70	17.00	1.349	0.561	/
	Off			Bottom Edge	5	116	5580	-0.05	0.175	97.65	1.024	15.70	17.00	1.349	0.242	/
Ant.1	On	5.8G	802.11ac (VHT80)	Front Side	5	155	5775	-0.04	0.340	92.22	1.084	11.57	13.00	1.390	0.512	/
	On			Back Side	5	155	5775	0.07	0.571	92.22	1.084	11.57	13.00	1.390	**0.860**	5#
	Off		802.11a	Left Edge	5	157	5785	-0.09	0.043	97.65	1.024	15.65	17.00	1.365	0.060	/
	Off			Right Edge	5	157	5785	-0.07	0.304	97.65	1.024	15.65	17.00	1.365	0.425	/
	Off			Bottom Edge	5	157	5785	0.01	0.128	97.65	1.024	15.65	17.00	1.365	0.179	/
Body (Sensor-1)																
Ant.1	Off	5.3G	802.11a	Front Side	5	64	5320	0.12	0.860	97.65	1.024	15.68	17.00	1.355	1.193	/
	Off			Back Side	10	64	5320	0.03	0.459	97.65	1.024	15.68	17.00	1.355	0.637	/
	Off			Front Side	5	52	5260	-0.12	0.785	97.65	1.024	15.51	17.00	1.409	1.133	/
	Off			Front Side	5	60	5300	-0.06	0.810	97.65	1.024	15.58	17.00	1.387	1.150	/
Ant.1	Off	5.6G	802.11a	Front Side	5	116	5580	0.09	0.856	97.65	1.024	15.70	17.00	1.349	1.182	/
	Off			Front Side	5	100	5500	0.09	0.760	97.65	1.024	15.65	17.00	1.365	1.062	/
	Off			Front Side	5	140	5700	0.03	0.778	97.65	1.024	15.29	17.00	1.483	1.181	/
	Off			Back Side	10	116	5580	-0.12	0.796	97.65	1.024	15.70	17.00	1.349	1.100	/
	Off			Back Side	10	100	5500	-0.05	0.685	97.65	1.024	16.65	18.00	1.365	0.957	/
	Off			Back Side	10	140	5700	-0.06	0.741	97.65	1.024	16.29	18.00	1.483	1.125	/
Ant.1	Off	5.8G	802.11a	Front Side	5	157	5785	0.10	0.841	97.65	1.024	15.65	17.00	1.365	1.176	/
	Off			Front Side	5	149	5745	-0.15	0.821	97.65	1.024	15.51	17.00	1.409	1.185	/
	Off			Front Side	5	165	5825	-0.11	0.725	97.65	1.024	15.55	17.00	1.396	1.036	/
	Off			Back Side	10	157	5785	0.10	0.581	97.65	1.024	15.65	17.00	1.365	0.812	/
	Off			Back Side	10	149	5745	0.00	0.563	97.65	1.024	15.51	17.00	1.409	0.812	/
	Off			Back Side	10	165	5825	-0.14	0.429	97.65	1.024	15.55	17.00	1.396	0.613	/

Note: Refer to ANNEX C for the detailed test data for each test configuration.

11.2.2 WIFI 5GHz Extremity SAR

Antenna	Power Reduction	Fre. Band	Mode	Position	Dist. (mm)	Ch.	Freq. (MHz)	Power Drift (dB)	10g Meas SAR (W/kg)	Duty cycle (%)	Duty Factor	Meas. Power (dBm)	Max. tune-up power (dBm)	Scaling Factor	10g Scaled SAR (W/kg)	Meas. No.
Extremity																
Ant.1	On	5.3G	802.11ac (VHT80)	Front Side	0	58	5290	-0.04	0.480	92.22	1.084	13.71	15.00	1.346	0.700	/
	On			Back Side	0	58	5290	-0.07	0.839	92.22	1.084	13.71	15.00	1.346	**1.224**	6#
	Off		802.11a	Left Edge	0	64	5320	-0.01	0.025	97.65	1.024	15.68	17.00	1.355	0.035	/
	Off			Right Edge	0	64	5320	-0.07	0.339	97.65	1.024	15.68	17.00	1.355	0.470	/
	Off			Bottom Edge	0	64	5320	0.05	0.184	97.65	1.024	15.68	17.00	1.355	0.255	/
Ant.1	On	5.6G	802.11ac (VHT80)	Front Side	0	106	5530	0.06	0.467	92.22	1.084	11.93	13.00	1.279	0.647	/
	On			Back Side	0	106	5530	0.06	0.763	92.22	1.084	11.93	13.00	1.279	**1.058**	7#
	Off		802.11a	Left Edge	0	116	5580	0.11	0.037	97.65	1.024	15.70	17.00	1.349	0.051	/
	Off			Right Edge	0	116	5580	0.08	0.397	97.65	1.024	15.70	17.00	1.349	0.548	/
	Off			Bottom Edge	0	116	5580	0.08	0.209	97.65	1.024	15.70	17.00	1.349	0.289	/
Ant.1	On	5.8G	802.11ac (VHT80)	Front Side	0	155	5775	-0.04	0.435	92.22	1.084	11.57	13.00	1.390	0.655	/
	On			Back Side	0	155	5775	0.06	0.692	92.22	1.084	11.57	13.00	1.390	**1.043**	8#
	Off		802.11a	Left Edge	0	157	5785	0.00	0.023	97.65	1.024	15.65	17.00	1.365	0.032	/
	Off			Right Edge	0	157	5785	0.15	0.228	97.65	1.024	15.65	17.00	1.365	0.319	/
	Off			Bottom Edge	0	157	5785	-0.07	0.192	97.65	1.024	15.65	17.00	1.365	0.268	/

Note: Refer to ANNEX C for the detailed test data for each test configuration.

11.3 Bluetooth

11.3.1 Bluetooth Body SAR

Antenna	Mode	Position	Dist. (mm)	Ch.	Freq. (MHz)	Power Drift (dB)	1g Meas SAR (W/kg)	Duty cycle (%)	Duty Factor	Meas. Power (dBm)	Max. tune-up power (dBm)	Scaling Factor	1g Scaled SAR (W/kg)	Meas. No.
Body														
Ant.0	DH5	Front Side	5	39	2441	-0.04	0.031	76.50	1.307	9.03	9.50	1.114	0.045	/
		Back Side	5	39	2441	-0.01	0.006	76.50	1.307	9.03	9.50	1.114	0.009	/
		Right Edge	5	39	2441	-0.14	0.001	76.50	1.307	9.03	9.50	1.114	0.001	/
		Top Edge	5	39	2441	-0.03	0.003	76.50	1.307	9.03	9.50	1.114	0.004	/
Ant.1	DH5	Front Side	5	0	2402	0.10	0.149	76.88	1.301	11.91	12.50	1.146	0.222	/
		Back Side	5	0	2402	0.03	0.160	76.88	1.301	11.91	12.50	1.146	**0.239**	9#
		Left Edge	5	0	2402	0.03	0.008	76.88	1.301	11.91	12.50	1.146	0.012	/
		Right Edge	5	0	2402	-0.15	0.045	76.88	1.301	11.91	12.50	1.146	0.067	/
		Bottom Edge	5	0	2402	-0.11	0.011	76.88	1.301	11.91	12.50	1.146	0.016	/
Note: Refer to ANNEX C for the detailed test data for each test configuration.														

11.3.2 Bluetooth Extremity SAR

Antenna	Mode	Position	Dist. (mm)	Ch.	Freq. (MHz)	Power Drift (dB)	10g Meas SAR (W/kg)	Duty cycle (%)	Duty Factor	Meas. Power (dBm)	Max. tune-up power (dBm)	Scaling Factor	10g Scaled SAR (W/kg)	Meas. No.
Extremity														
Ant.0	DH5	Front Side	0	39	2441	0.00	0.037	76.50	1.307	9.03	9.50	1.114	0.054	/
		Back Side	0	39	2441	0.06	0.032	76.50	1.307	9.03	9.50	1.114	0.047	/
		Right Edge	0	39	2441	-0.03	0.001	76.50	1.307	9.03	9.50	1.114	0.001	/
		Top Edge	0	39	2441	-0.08	0.002	76.50	1.307	9.03	9.50	1.114	0.003	/
Ant.1	DH5	Front Side	0	0	2402	0.08	0.154	76.88	1.301	11.91	12.50	1.146	0.230	/
		Back Side	0	0	2402	0.02	0.274	76.88	1.301	11.91	12.50	1.146	**0.409**	10#
		Left Edge	0	0	2402	-0.10	0.005	76.88	1.301	11.91	12.50	1.146	0.007	/
		Right Edge	0	0	2402	-0.03	0.033	76.88	1.301	11.91	12.50	1.146	0.049	/
		Bottom Edge	0	0	2402	-0.02	0.007	76.88	1.301	11.91	12.50	1.146	0.010	/
Note: Refer to ANNEX C for the detailed test data for each test configuration.														

12 SAR Measurement Variability

According to KDB 865664 D01, SAR measurement variability was assessed for each frequency band, which is determined by the SAR probe calibration point and tissue-equivalent medium used for the device measurements. When both head and body tissue-equivalent media are required for SAR measurements in a frequency band, the variability measurement procedures should be applied to the tissue medium with the highest measured SAR, using the highest measured SAR configuration for that tissue-equivalent medium. Alternatively, if the highest measured SAR for both head and body tissue-equivalent media are ≤ 1.45 W/kg and the ratio of these highest SAR values, i.e., largest divided by smallest value, is ≤ 1.10, the highest SAR configuration for either head or body tissue-equivalent medium may be used to perform the repeated measurement. These additional measurements are repeated after the completion of all measurements requiring the same head or body tissue-equivalent medium in a frequency band. The test device should be returned to ambient conditions (normal room temperature) with the battery fully charged before it is re-mounted on the device holder for the repeated measurement(s) to minimize any unexpected variations in the repeated results.

SAR repeated measurement procedure:

1. When the highest measured SAR is < 0.80 W/kg, repeated measurement is not required.
2. When the highest measured SAR is >= 0.80 W/kg, repeat that measurement once.
3. If the ratio of largest to smallest SAR for the original and first repeated measurements is > 1.20, or when the original or repeated measurement is >= 1.45 W/kg, perform a second repeated measurement.
4. If the ratio of largest to smallest SAR for the original, first and second repeated measurements is > 1.20, and the original, first or second repeated measurement is >= 1.5 W/kg, perform a third repeated measurement.

Frequency Band (MHz)	Wireless Band	RF Exposure Conditions	Test Position	Highest Measured SAR (W/kg)	Repeated SAR (Yes/No)	Repeated^{1th} Measured SAR (W/kg)	Largest to Smallest SAR Radio
5290	5.3G WLAN	Body	Back Side	0.804	Yes	0.801	1.00
Note 1: The ratio of largest to smallest SAR for the original and first repeated measurements is < 1.20, the second repeated measurement. is not required. Note 2: For product specific 10g SAR, the highest measured 10g SAR is 1.06 < 2.0 W/kg, repeated measurement is not required.							

13 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).

13.1 Simultaneous Transmission Mode Consider

No.	Simultaneous Tx Combination	Body	Extremity
1	WLAN 5GHz(Ant.1) + BT(Ant.0)	Yes	Yes
2	WLAN 2.4GHz(Ant.1)+ BT(Ant.0)	Yes	Yes
3	BT(Ant.1) + BT(Ant.0)	Yes	Yes
Note: 1. The maximum SAR summation is calculated based on the same configuration and test position.			

13.2 Sum SAR of Simultaneous Transmission

13.2.1 Body Simultaneous Transmission SAR Evaluation for WLAN and BT

Position	Stand alone SAR				SUM SAR		
	1	2	3	4			
	2.4GWIFI	5GWIFI	Bluetooth	Bluetooth	1+4	2+4	3+4
	Ant.1	Ant.1	Ant.1	Ant.0			
Front Side 5mm	0.578	0.747	0.222	0.045	0.623	0.792	0.267
Back Side 5mm	1.012	1.173	0.239	0.009	1.021	**1.182**	0.248
Left Edge 5mm	0.003	0.082	0.012	0.000	0.003	0.082	0.012
Right Edge 5mm	0.143	0.561	0.067	0.001	0.144	0.562	0.068
Top Edge 5mm	0.000	0.000	0.000	0.004	0.004	0.004	0.004
Bottom Edge 5mm	0.052	0.242	0.016	0.000	0.052	0.242	0.016
Note: 1: The highest Summed 1g SAR is 1.182 W/Kg < 1.6 W/kg, so Simultaneous Transmission SAR test is not required.							

13.2.2 Extremity Simultaneous Transmission SAR Evaluation for WLAN and BT

Position	Stand alone SAR				SUM SAR		
	1	2	3	4			
	2.4GWIFI	5GWIFI	Bluetooth	Bluetooth	1+4	2+4	3+4
	Ant.1	Ant.1	Ant.1	Ant.0			
Front Side 0mm	0.645	0.700	0.230	0.054	0.699	0.754	0.284
Back Side 0mm	1.454	1.224	0.409	0.047	**1.501**	1.271	0.456
Left Edge 0mm	0.086	0.051	0.007	0.000	0.086	0.051	0.007
Right Edge 0mm	0.200	0.548	0.049	0.001	0.201	0.549	0.050
Top Edge 0mm	0.000	0.000	0.000	0.003	0.003	0.003	0.003
Bottom Edge 0mm	0.069	0.289	0.010	0.000	0.069	0.289	0.010
Note: 1: The highest Summed 1g SAR is 1.501 W/Kg < 4.0 W/kg, so Simultaneous Transmission SAR test is not required.							

14 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	DASY8	16.2.2.1588	N/A	N/A
2450MHz Validation Dipole	Speag	D2450V2	SN: 952	2024/05/07	2027/05/06
5GHz Validation Dipole	Speag	D5GHzV2	SN: 1333	2021/09/14	2024/09/14
Data Acquisition Electronicsr	Speag	DAE4	SN: 1711	2024/03/18	2025/03/17
E-Field Probe	Speag	EX3DV4	SN: 7510	2024/06/25	2025/06/24
Signal Generator	R&S	SMB100A	177746	2024/04/24	2025/04/23
Power Meter	R&S	NRVD-B2	835843/014	2023/09/05	2024/09/04
Power Sensor	R&S	NRV-Z4	100381	2023/09/05	2024/09/04
Power Sensor	R&S	NRV-Z2	100211	2023/09/05	2024/09/04
Network Analyzer	Agilent	E5071C	MY46103472	2023/11/14	2024/11/13
Thermometer	Elitech	RC-4	EF5238001628	2023/10/09	2024/10/08
Thermometer	Elitech	RC-4HC	EF7239002652	2023/11/17	2024/11/16
Power Amplifier	SATIMO	6552B	22374	N/A	N/A
Dielectric Probe Kit	Speag	DAK3.5	SN: 1312	N/A	N/A
Phantom	Speag	SAM	SN: 1859	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 (%)
2024.07.01	Head	2450	21.5	1.80	39.17	1.80	39.20	0.00	-0.08
2024.07.02	Head	2450	21.5	1.81	38.88	1.80	39.20	0.56	-0.82
2024.07.03	Head	5300	21.6	4.76	35.82	4.76	35.87	0.00	-0.14
2024.07.04	Head	5600	21.3	5.10	35.41	5.07	35.53	0.59	-0.34
2024.07.05	Head	5800	21.4	5.31	34.94	5.27	35.30	0.76	-1.02
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 (%)
2024.07.01	Head	2450	100	5.46	54.60	52.60	3.80
2024.07.02	Head	2450	100	5.48	54.80	52.60	4.18
2024.07.03	Head	5300	100	8.27	82.70	81.80	1.10
2024.07.04	Head	5600	100	8.29	82.90	83.60	-0.84
2024.07.05	Head	5800	100	8.22	82.20	82.30	-0.12
Note: The tolerance limit of System validation ±10%.							

Head liquid 10g

Date	Liquid Type	Freq. (MHz)	Power (mW)	Measured SAR (W/kg)	Normalized SAR (W/kg)	Dipole SAR (W/kg)	Tolerance (%)
2024.07.01	Head	2450	100	2.54	25.40	24.70	2.83
2024.07.02	Head	2450	100	2.55	25.50	24.70	3.24
2024.07.03	Head	5300	100	2.39	23.90	23.40	2.14
2024.07.04	Head	5600	100	2.36	23.60	23.80	-0.84
2024.07.05	Head	5800	100	2.29	22.90	23.10	-0.87
Note: The tolerance limit of System validation ±10%.							

System Performance Check Data (2450MHz)

Device under Test Properties

Model, Manufacturer	Dimensions [mm]	DUT Type
D2450V2, SPEAG	40.0 x 8.0 x 8.0	Dipole

Exposure Conditions

Phantom Section, TSL	Position, Test Distance [mm]	Band	Group, UID	Frequency [MHz], Channel Number	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity	Ambient Temperature [℃]	Liquid Temperature [℃]
Flat, HSL		D2450	CW, 0--	2450.0, 50	7.75	1.80	39.2	22.3	21.5

Hardware Setup

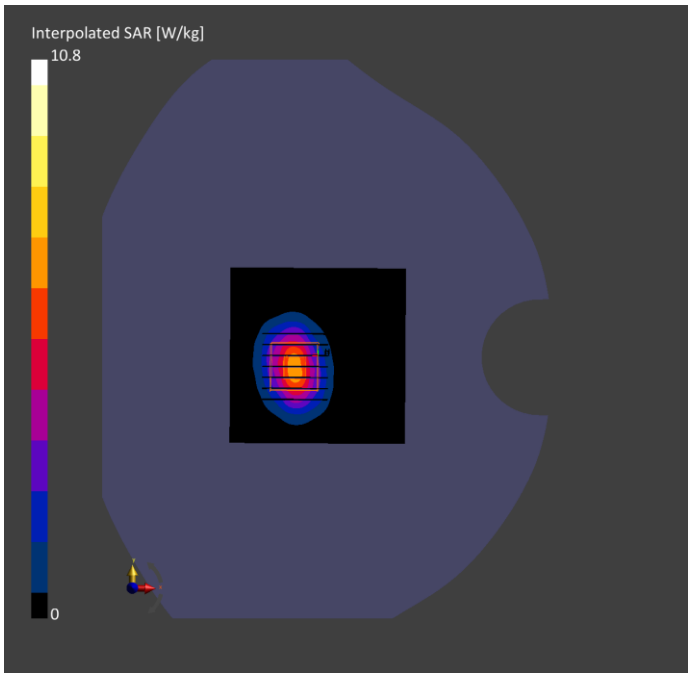
Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
Twin-SAM V5.0 (30deg probe tilt) - 1859	HBBL-600-10000 2024-07-01	EX3DV4 - SN7510, 2024-06-25	DAE4 Sn1711, 2024-03-18

Scan Setup

	Area Scan	Zoom Scan
Grid Extents [mm]	80.0 x 80.0	30.0 x 30.0 x 30.0
Grid Steps [mm]	10.0 x 10.0	5.0 x 5.0 x 1.5
Sensor Surface [mm]	3.0	1.4
Graded Grid	Yes	Yes
Grading Ratio	1.5	1.5
MAIA	N/A	N/A
Surface Detection	VMS + 6p	VMS + 6p
Scan Method	Measured	Measured

Measurement Results

	Area Scan	Zoom Scan
Date	2024-07-01	2024-07-01
psSAR1g [W/kg]	5.18	5.46
psSAR10g [W/kg]	2.26	2.54
Power Drift [dB]	-0.03	-0.06
Power Scaling	Disabled	Disabled
Scaling Factor [dB]		
TSL Correction	No correction	No correction
M2/M1 [%]		81.1
Dist 3dB Peak [mm]		9.2


Interpolated SAR [W/kg]
10.8
0

System Performance Check Data (2450MHz)

Device under Test Properties

Model, Manufacturer	Dimensions [mm]	DUT Type
D2450V2, SPEAG	40.0 x 8.0 x 8.0	Dipole

Exposure Conditions

Phantom Section, TSL	Position, Test Distance [mm]	Band	Group, UID	Frequency [MHz], Channel Number	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity	Ambient Temperature [℃]	Liquid Temperature [℃]
Flat, HSL		D2450	CW, 0--	2450.0, 2450	7.75	1.81	38.9	22.4	21.5

Hardware Setup

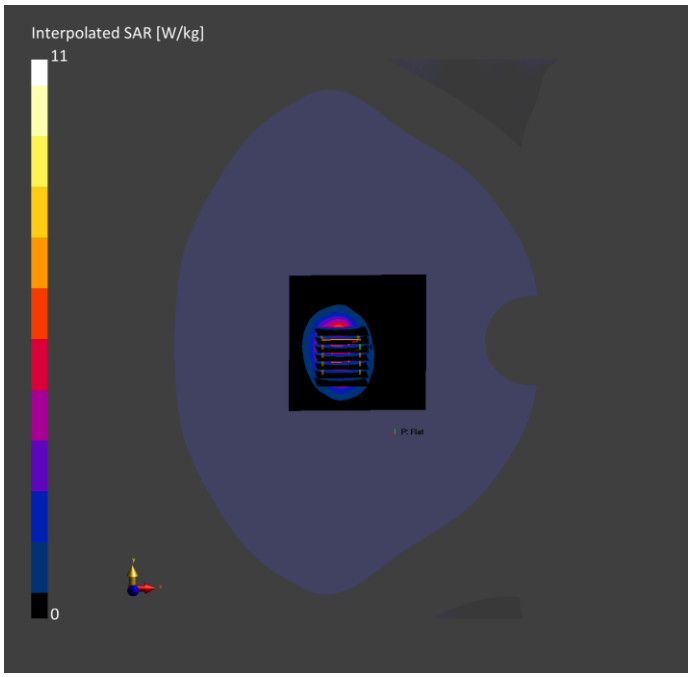
Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
Twin-SAM V5.0 (30deg probe tilt) - 1859	HBBL-600-10000 2024-07-02	EX3DV4 - SN7510, 2024-06-25	DAE4 Sn1711, 2024-03-18

Scan Setup

	Area Scan	Zoom Scan
Grid Extents [mm]	80.0 x 80.0	30.0 x 30.0 x 30.0
Grid Steps [mm]	10.0 x 10.0	5.0 x 5.0 x 1.5
Sensor Surface [mm]	3.0	1.4
Graded Grid	Yes	Yes
Grading Ratio	1.5	1.5
MAIA	N/A	N/A
Surface Detection	VMS + 6p	VMS + 6p
Scan Method	Measured	Measured

Measurement Results

	Area Scan	Zoom Scan
Date	2024-07-02	2024-07-02
psSAR1g [W/kg]	5.34	5.48
psSAR10g [W/kg]	2.45	2.55
Power Drift [dB]	-0.02	0.12
Power Scaling Scaling Factor [dB]	Disabled	Disabled
TSL Correction	No correction	No correction
M2/M1 [%]		80.1
Dist 3dB Peak [mm]		8.5


Interpolated SAR [W/kg]
11
0

System Performance Check Data (5300MHz)

Device under Test Properties

Model, Manufacturer	Dimensions [mm]	DUT Type
D5GHZV2, SPEAG	10.0 x 10.0 x 3.0	Dipole

Exposure Conditions

Phantom Section, TSL	Position, Test Distance [mm]	Band	Group, UID	Frequency [MHz], Channel Number	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity	Ambient Temperature [℃]	Liquid Temperature [℃]
Flat, HSL		D5GHz	CW, 0--	5300.0, 30	5.50	4.76	35.8	22.5	21.6

Hardware Setup

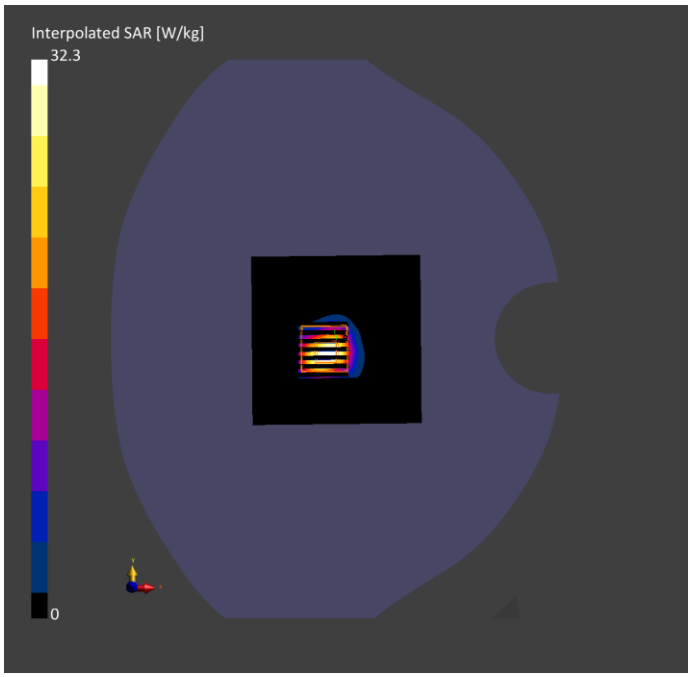
Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
Twin-SAM V5.0 (30deg probe tilt) - 1859	HBBL-600-10000 2024-07-03	EX3DV4 - SN7510, 2024-06-25	DAE4 Sn1711, 2024-03-18

Scan Setup

	Area Scan	Zoom Scan
Grid Extents [mm]	80.0 x 80.0	22.0 x 22.0 x 22.0
Grid Steps [mm]	10.0 x 10.0	4.0 x 4.0 x 1.4
Sensor Surface [mm]	3.0	1.4
Graded Grid	Yes	Yes
Grading Ratio	1.5	1.4
MAIA	N/A	N/A
Surface Detection	VMS + 6p	VMS + 6p
Scan Method	Measured	Measured

Measurement Results

	Area Scan	Zoom Scan
Date	2024-07-03	2024-07-03
psSAR1g [W/kg]	7.54	8.27
psSAR10g [W/kg]	2.06	2.39
Power Drift [dB]	-0.04	0.06
Power Scaling	Disabled	Disabled
Scaling Factor [dB]		
TSL Correction	No correction	No correction
M2/M1 [%]		64.3
Dist 3dB Peak [mm]		7.6


Interpolated SAR [W/kg]
32.3
0

System Performance Check Data (5600MHz)

Device under Test Properties

Model, Manufacturer	Dimensions [mm]	DUT Type
D5GHZV2, SPEAG	10.0 x 10.0 x 3.0	Dipole

Exposure Conditions

Phantom Section, TSL	Position, Test Distance [mm]	Band	Group, UID	Frequency [MHz], Channel Number	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity	Ambient Temperature [℃]	Liquid Temperature [℃]
Flat, HSL		D5GHz	CW, 0--	5600.0, 60	5.00	5.10	35.4	22.3	21.3

Hardware Setup

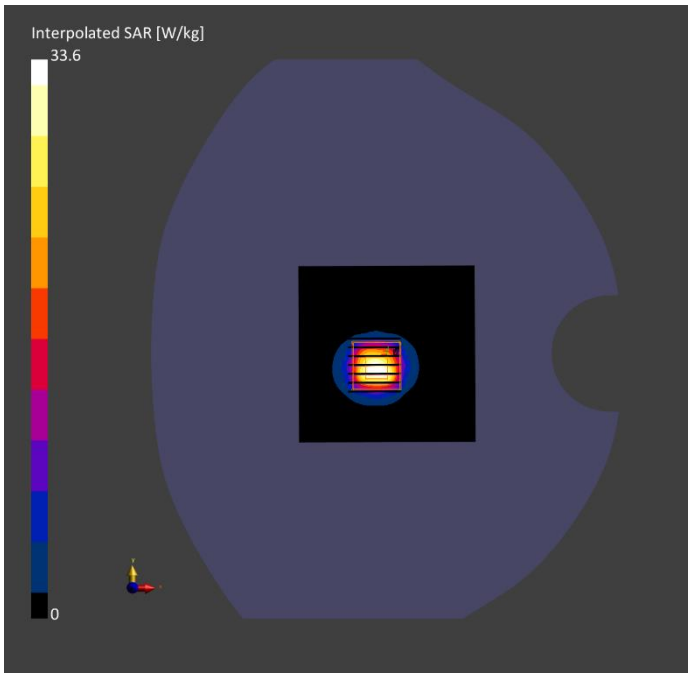
Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
Twin-SAM V5.0 (30deg probe tilt) - 1859	HBBL-600-10000 2024-07-04	EX3DV4 - SN7510, 2024-06-25	DAE4 Sn1711, 2024-03-18

Scan Setup

	Area Scan	Zoom Scan
Grid Extents [mm]	80.0 x 80.0	22.0 x 22.0 x 22.0
Grid Steps [mm]	10.0 x 10.0	4.0 x 4.0 x 1.4
Sensor Surface [mm]	3.0	1.4
Graded Grid	Yes	Yes
Grading Ratio	1.5	1.4
MAIA	N/A	N/A
Surface Detection	VMS + 6p	VMS + 6p
Scan Method	Measured	Measured

Measurement Results

	Area Scan	Zoom Scan
Date	2024-07-04	2024-07-04
psSAR1g [W/kg]	7.62	8.29
psSAR10g [W/kg]	2.25	2.36
Power Drift [dB]	0.01	0.06
Power Scaling	Disabled	Disabled
Scaling Factor [dB]		
TSL Correction	No correction	No correction
M2/M1 [%]		61.3
Dist 3dB Peak [mm]		7.5


Interpolated SAR [W/kg]
33.6
0

System Performance Check Data (5800MHz)

Device under Test Properties

Model, Manufacturer	Dimensions [mm]	DUT Type
D5GHZV2, SPEAG	10.0 x 10.0 x 3.0	Dipole

Exposure Conditions

Phantom Section, TSL	Position, Test Distance [mm]	Band	Group, UID	Frequency [MHz], Channel Number	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity	Ambient Temperature [℃]	Liquid Temperature [℃]
Flat, HSL		D5GHz	CW, 0--	5800.0, 80	5.04	5.31	34.9	22.5	21.4

Hardware Setup

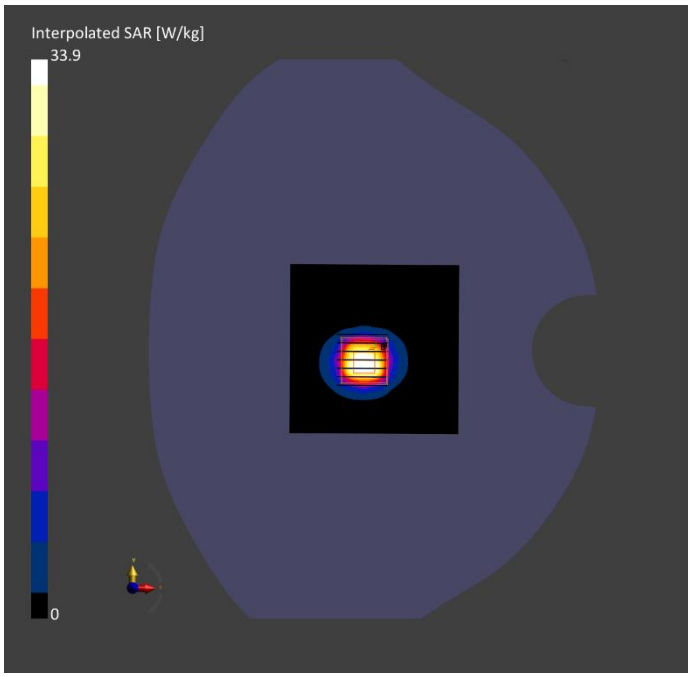
Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
Twin-SAM V5.0 (30deg probe tilt) - 1859	HBBL-600-10000 2024-07-05	EX3DV4 - SN7510, 2024-06-25	DAE4 Sn1711, 2024-03-18

Scan Setup

	Area Scan	Zoom Scan
Grid Extents [mm]	80.0 x 80.0	22.0 x 22.0 x 22.0
Grid Steps [mm]	10.0 x 10.0	4.0 x 4.0 x 1.4
Sensor Surface [mm]	3.0	1.4
Graded Grid	Yes	Yes
Grading Ratio	1.5	1.4
MAIA	N/A	N/A
Surface Detection	VMS + 6p	VMS + 6p
Scan Method	Measured	Measured

Measurement Results

	Area Scan	Zoom Scan
Date	2024-07-05	2024-07-05
psSAR1g [W/kg]	7.89	8.22
psSAR10g [W/kg]	2.15	2.29
Power Drift [dB]	-0.06	-0.02
Power Scaling Scaling Factor [dB]	Disabled	Disabled
TSL Correction	No correction	No correction
M2/M1 [%]		61.4
Dist 3dB Peak [mm]		7.9


Interpolated SAR [W/kg]
33.9
0

ANNEX C TEST DATA

Meas.1 Body Plane with Back Side 5mm on 1 Channel in IEEE802.11b mode with Antenna 1

Device under Test Properties

Model, Manufacturer	Dimensions [mm]	DUT Type
Device	100.0 x 65.0 x 5.0	AI assistant

Exposure Conditions

Phantom Section, TSL	Position, Test Distance [mm]	Band	Group, UID	Frequency [MHz], Channel Number	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity	Ambient Temperature [℃]	Liquid Temperature [℃]
Flat, HSL	BACK, 5.00	WLAN 2.4GHz	WLAN, 10315-AAB	2412.0, 1	7.75	1.74	39.6	22.3	21.5

Hardware Setup

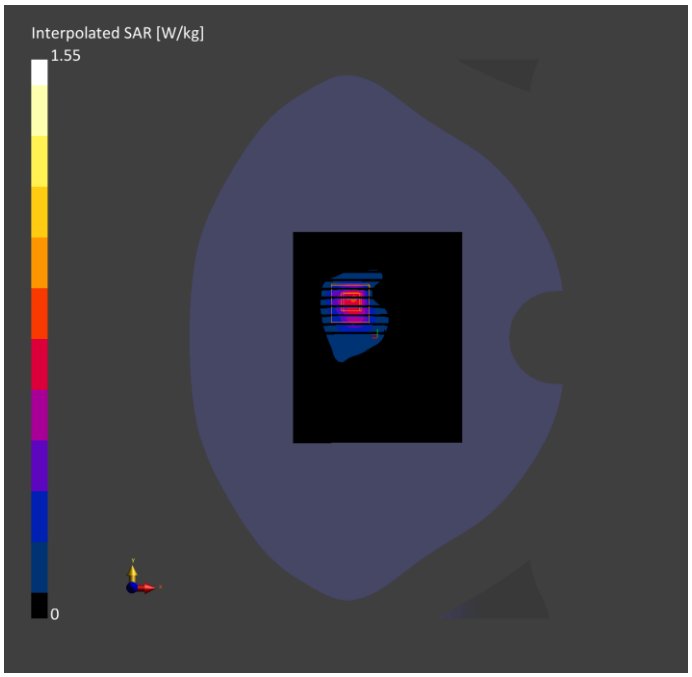
Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
Twin-SAM V5.0 (30deg probe tilt) - 1859	HBBL-600-10000 2024-07-01	EX3DV4 - SN7510, 2024-06-25	DAE4 Sn1711, 2024-03-18

Scan Setup

	Area Scan	Zoom Scan
Grid Extents [mm]	96.0 x 120.0	30.0 x 30.0 x 30.0
Grid Steps [mm]	12.0 x 12.0	5.0 x 5.0 x 5.0
Sensor Surface [mm]	3.0	1.4
Graded Grid	Yes	Yes
Grading Ratio	1.5	1.5
MAIA	N/A	N/A
Surface Detection	VMS + 6p	VMS + 6p
Scan Method	Measured	Measured

Measurement Results

	Area Scan	Zoom Scan
Date	2024-07-01	2024-07-01
psSAR1g [W/kg]	0.610	0.738
psSAR10g [W/kg]	0.277	0.298
Power Drift [dB]	-0.06	-0.07
Power Scaling Scaling Factor [dB]	Disabled	Disabled
TSL Correction	No correction	No correction
M2/M1 [%]		46.9
Dist 3dB Peak [mm]		6.4


Interpolated SAR [W/kg]
1.55
0

Meas.2 Body Plane with Back Side 0mm on 1 Channel in IEEE802.11b mode with Antenna 1

Device under Test Properties

Model, Manufacturer	Dimensions [mm]	DUT Type
Device	100.0 x 65.0 x 5.0	AI assistant

Exposure Conditions

Phantom Section, TSL	Position, Test Distance [mm]	Band	Group, UID	Frequency [MHz], Channel Number	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity	Ambient Temperature [℃]	Liquid Temperature [℃]
Flat, HSL	BACK, 0.00	WLAN 2.4GHz	WLAN, 10315-AAB	2412.0, 1	7.75	1.74	39.6	22.3	21.5

Hardware Setup

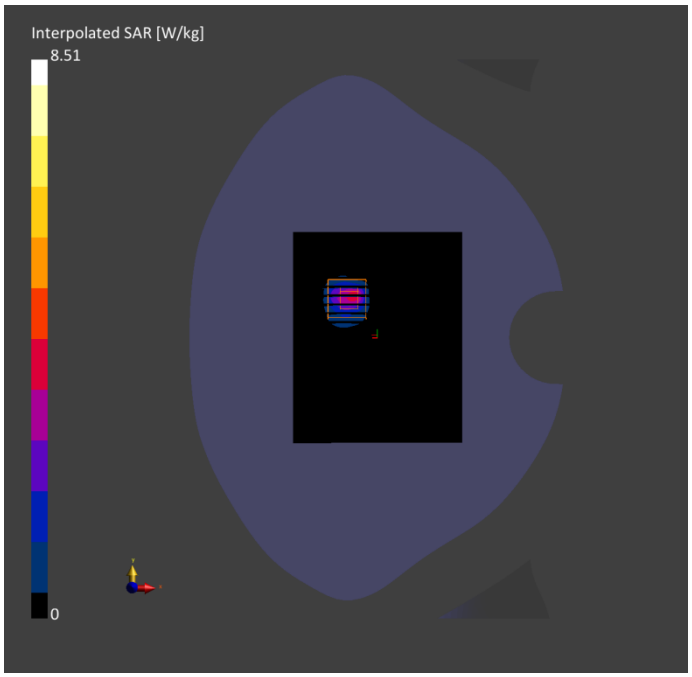
Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
Twin-SAM V5.0 (30deg probe tilt) - 1859	HBBL-600-10000 2024-07-01	EX3DV4 - SN7510, 2024-06-25	DAE4 Sn1711, 2024-03-18

Scan Setup

	Area Scan	Zoom Scan
Grid Extents [mm]	96.0 x 120.0	30.0 x 30.0 x 30.0
Grid Steps [mm]	12.0 x 12.0	5.0 x 5.0 x 5.0
Sensor Surface [mm]	3.0	1.4
Graded Grid	Yes	Yes
Grading Ratio	1.5	1.5
MAIA	N/A	N/A
Surface Detection	VMS + 6p	VMS + 6p
Scan Method	Measured	Measured

Measurement Results

	Area Scan	Zoom Scan
Date	2024-07-01	2024-07-01
psSAR1g [W/kg]	2.82	3.04
psSAR10g [W/kg]	1.11	1.06
Power Drift [dB]	0.04	0.02
Power Scaling Scaling Factor [dB]	Disabled	Disabled
TSL Correction	No correction	No correction
M2/M1 [%]		30.4
Dist 3dB Peak [mm]		5.0


Interpolated SAR [W/kg]
8.51
0

Meas.3 Body Plane with Back Side 5mm on 58 Channel in IEEE802.11ac80 mode with Antenna 1

Device under Test Properties

Model, Manufacturer	Dimensions [mm]	DUT Type
Device	100.0 x 65.0 x 5.0	Phone

Exposure Conditions

Phantom Section, TSL	Position, Test Distance [mm]	Band	Group, UID	Frequency [MHz], Channel Number	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity	Ambient Temperature [℃]	Liquid Temperature [℃]
Flat, HSL	BACK, 5.00	WLAN 5GHz	WLAN, 10402-AAE	5290.0, 58	5.50	4.73	35.9	22.5	21.6

Hardware Setup

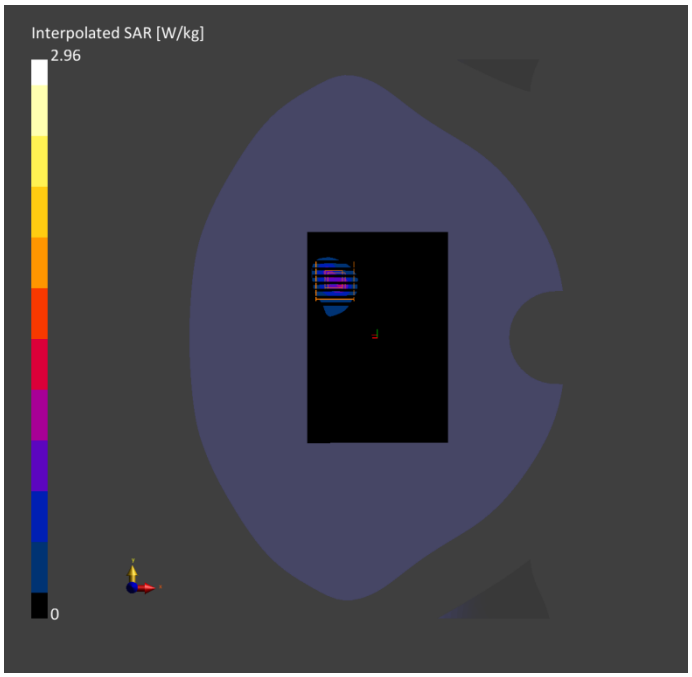
Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
Twin-SAM V5.0 (30deg probe tilt) - 1859	HBBL-600-10000 2024-07-03	EX3DV4 - SN7510, 2024-06-25	DAE4 Sn1711, 2024-03-18

Scan Setup

	Area Scan	Zoom Scan
Grid Extents [mm]	80.0 x 120.0	24.0 x 24.0 x 22.0
Grid Steps [mm]	10.0 x 10.0	4.0 x 4.0 x 2.0
Sensor Surface [mm]	3.0	1.4
Graded Grid	Yes	Yes
Grading Ratio	1.5	1.4
MAIA	Y	N/A
Surface Detection	VMS + 6p	VMS + 6p
Scan Method	Measured	Measured

Measurement Results

	Area Scan	Zoom Scan
Date	2024-07-03	2024-07-03
psSAR1g [W/kg]	0.681	0.804
psSAR10g [W/kg]	0.224	0.230
Power Drift [dB]	0.01	-0.04
Power Scaling Scaling Factor [dB]	Disabled	Disabled
TSL Correction	No correction	No correction
M2/M1 [%]		57.4
Dist 3dB Peak [mm]		5.7


Interpolated SAR [W/kg]
2.96
0

Meas.4 Body Plane with Back Side 5mm on 122 Channel in IEEE802.11ac80 mode with Antenna 1

Device under Test Properties

Model, Manufacturer	Dimensions [mm]	DUT Type
Device	100.0 x 65.0 x 5.0	Phone

Exposure Conditions

Phantom Section, TSL	Position, Test Distance [mm]	Band	Group, UID	Frequency [MHz], Channel Number	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity	Ambient Temperature [℃]	Liquid Temperature [℃]
Flat, HSL	BACK, 5.00	WLAN 5GHz	WLAN, 10402-AAE	5610.0, 122	5.00	5.13	35.1	22.3	21.3

Hardware Setup

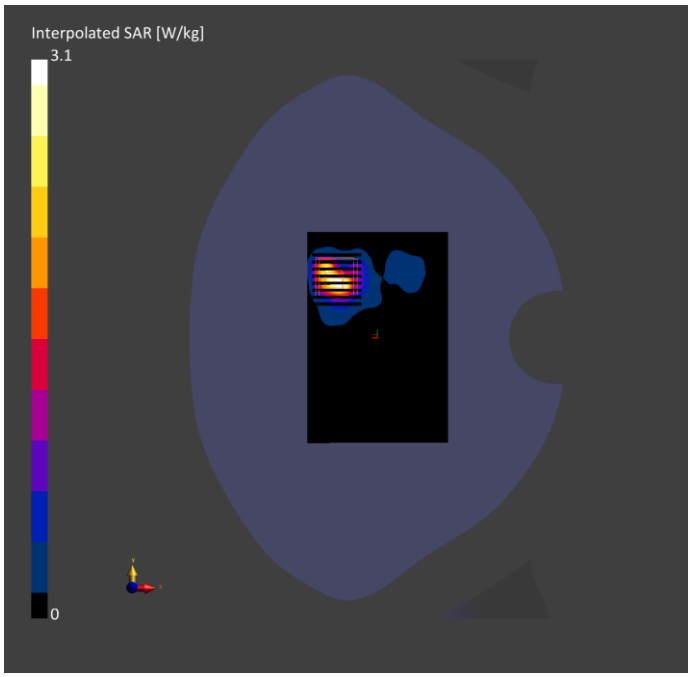
Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
Twin-SAM V5.0 (30deg probe tilt) - 1859	HBBL-600-10000 2024-07-04	EX3DV4 - SN7510, 2024-06-25	DAE4 Sn1711, 2024-03-18

Scan Setup

	Area Scan	Zoom Scan
Grid Extents [mm]	80.0 x 120.0	24.0 x 24.0 x 22.0
Grid Steps [mm]	10.0 x 10.0	4.0 x 4.0 x 2.0
Sensor Surface [mm]	3.0	1.4
Graded Grid	Yes	Yes
Grading Ratio	1.5	1.4
MAIA	Y	N/A
Surface Detection	VMS + 6p	VMS + 6p
Scan Method	Measured	Measured

Measurement Results

	Area Scan	Zoom Scan
Date	2024-07-04	2024-07-04
psSAR1g [W/kg]	0.615	0.748
psSAR10g [W/kg]	0.202	0.211
Power Drift [dB]	0.05	0.02
Power Scaling Scaling Factor [dB]	Disabled	Disabled
TSL Correction	No correction	No correction
M2/M1 [%]		53.3
Dist 3dB Peak [mm]		5.1


Interpolated SAR [W/kg]
3.1
0

Meas.5 Body Plane with Back Side 5mm on 155 Channel in IEEE802.11ac80 mode with Antenna 1

Device under Test Properties

Model, Manufacturer	Dimensions [mm]	DUT Type
Device	100.0 x 65.0 x 5.0	Phone

Exposure Conditions

Phantom Section, TSL	Position, Test Distance [mm]	Band	Group, UID	Frequency [MHz], Channel Number	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity	Ambient Temperature [℃]	Liquid Temperature [℃]
Flat, HSL	BACK, 5.00	WLAN 5GHz	WLAN, 10544-AAC	5775.0, 155	5.04	5.24	35.6	22.5	21.4

Hardware Setup

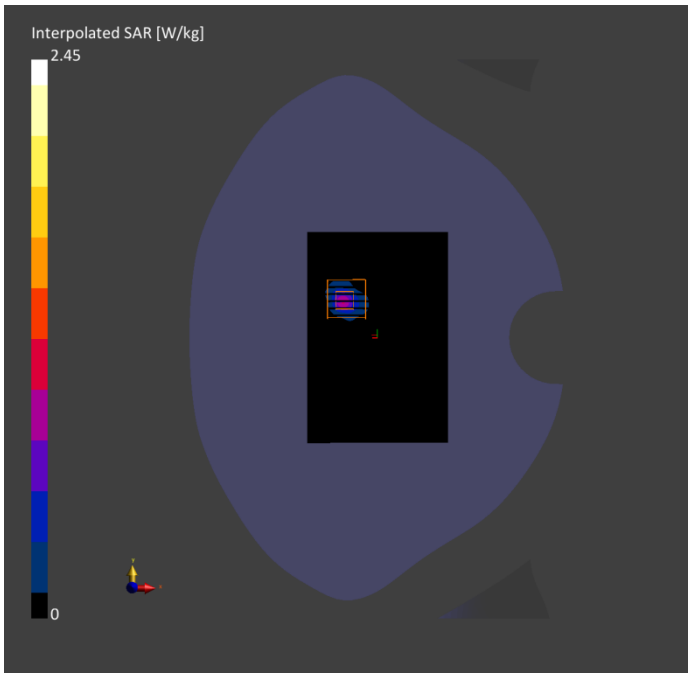
Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
Twin-SAM V5.0 (30deg probe tilt) - 1859	HBBL-600-10000 2024-07-05	EX3DV4 - SN7510, 2024-06-25	DAE4 Sn1711, 2024-03-18

Scan Setup

	Area Scan	Zoom Scan
Grid Extents [mm]	80.0 x 120.0	24.0 x 24.0 x 22.0
Grid Steps [mm]	10.0 x 10.0	4.0 x 4.0 x 2.0
Sensor Surface [mm]	3.0	1.4
Graded Grid	Yes	Yes
Grading Ratio	1.5	1.4
MAIA	Y	N/A
Surface Detection	VMS + 6p	VMS + 6p
Scan Method	Measured	Measured

Measurement Results

	Area Scan	Zoom Scan
Date	2024-07-05	2024-07-05
psSAR1g [W/kg]	0.601	0.571
psSAR10g [W/kg]	0.154	0.145
Power Drift [dB]	0.03	0.07
Power Scaling	Disabled	Disabled
Scaling Factor [dB]		
TSL Correction	No correction	No correction
M2/M1 [%]		51.7
Dist 3dB Peak [mm]		5.1


Interpolated SAR [W/kg]
2.45
0

Meas.6 Body Plane with Back Side 0mm on 58 Channel in IEEE802.11ac80 mode with Antenna 1

Device under Test Properties

Model, Manufacturer	Dimensions [mm]	DUT Type
Device	100.0 x 65.0 x 5.0	Phone

Exposure Conditions

Phantom Section, TSL	Position, Test Distance [mm]	Band	Group, UID	Frequency [MHz], Channel Number	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity	Ambient Temperature [℃]	Liquid Temperature [℃]
Flat, HSL	BACK, 0.00	WLAN 5GHz	WLAN, 10544-AAC	5290.0, 58	5.50	4.73	35.9	22.5	21.6

Hardware Setup

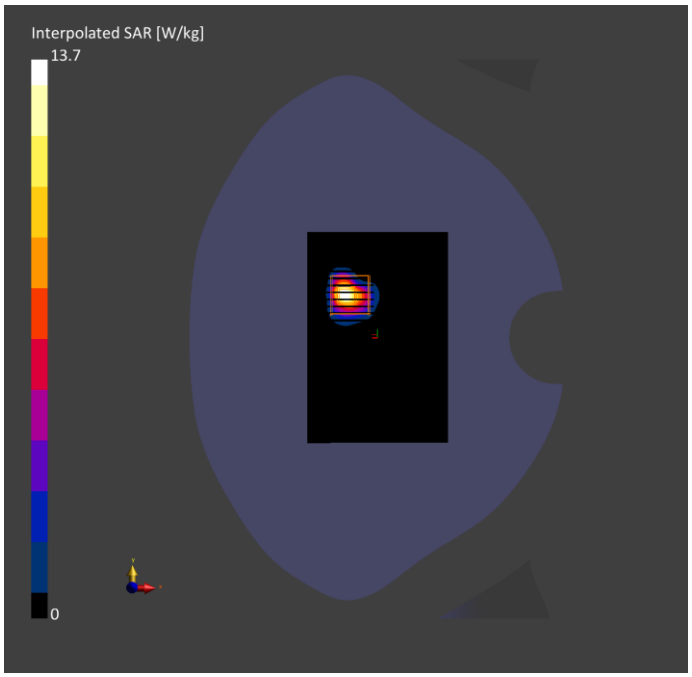
Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
Twin-SAM V5.0 (30deg probe tilt) - 1859	HBBL-600-10000 2024-07-03	EX3DV4 - SN7510, 2024-06-25	DAE4 Sn1711, 2024-03-18

Scan Setup

	Area Scan	Zoom Scan
Grid Extents [mm]	80.0 x 120.0	24.0 x 24.0 x 22.0
Grid Steps [mm]	10.0 x 10.0	4.0 x 4.0 x 2.0
Sensor Surface [mm]	3.0	1.4
Graded Grid	Yes	Yes
Grading Ratio	1.5	1.4
MAIA	N/A	N/A
Surface Detection	VMS + 6p	VMS + 6p
Scan Method	Measured	Measured

Measurement Results

	Area Scan	Zoom Scan
Date	2024-07-03	2024-07-03
psSAR1g [W/kg]	3.01	3.25
psSAR10g [W/kg]	0.842	0.839
Power Drift [dB]	0.05	-0.07
Power Scaling Scaling Factor [dB]	Disabled	Disabled
TSL Correction	No correction	No correction
M2/M1 [%]		50.9
Dist 3dB Peak [mm]		4.1


Interpolated SAR [W/kg]
13.7
0

Meas.7 Body Plane with Back Side 0mm on 122 Channel in IEEE802.11ac80 mode with Antenna 1

Device under Test Properties

Model, Manufacturer	Dimensions [mm]	DUT Type
Device	100.0 x 65.0 x 5.0	Phone

Exposure Conditions

Phantom Section, TSL	Position, Test Distance [mm]	Band	Group, UID	Frequency [MHz], Channel Number	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity	Ambient Temperature [℃]	Liquid Temperature [℃]
Flat, HSL	BACK, 0.00	WLAN 5GHz	WLAN, 10544-AAC	5610.0, 122	5.00	5.13	35.1	22.3	21.3

Hardware Setup

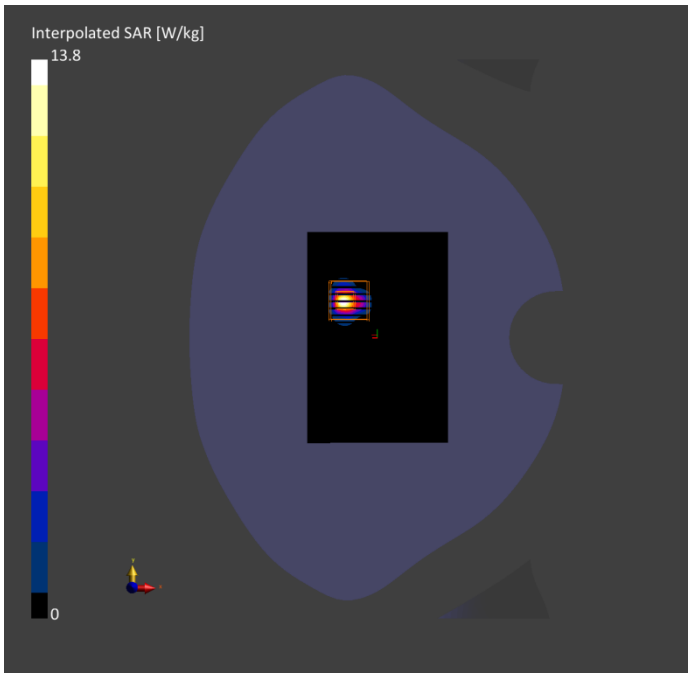
Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
Twin-SAM V5.0 (30deg probe tilt) - 1859	HBBL-600-10000 2024-07-04	EX3DV4 - SN7510, 2024-06-25	DAE4 Sn1711, 2024-03-18

Scan Setup

	Area Scan	Zoom Scan
Grid Extents [mm]	80.0 x 120.0	24.0 x 24.0 x 22.0
Grid Steps [mm]	10.0 x 10.0	4.0 x 4.0 x 2.0
Sensor Surface [mm]	3.0	1.4
Graded Grid	Yes	Yes
Grading Ratio	1.5	1.4
MAIA	N/A	N/A
Surface Detection	VMS + 6p	VMS + 6p
Scan Method	Measured	Measured

Measurement Results

	Area Scan	Zoom Scan
Date	2024-07-04	2024-07-04
psSAR1g [W/kg]	3.73	3.20
psSAR10g [W/kg]	0.851	0.763
Power Drift [dB]	0.00	0.06
Power Scaling Scaling Factor [dB]	Disabled	Disabled
TSL Correction	No correction	No correction
M2/M1 [%]		57.4
Dist 3dB Peak [mm]		4.0


Interpolated SAR [W/kg]
13.8
0

Meas.8 Body Plane with Back Side 0mm on 155 Channel in IEEE802.11ac80 mode with Antenna 1

Device under Test Properties

Model, Manufacturer	Dimensions [mm]	DUT Type
Device	100.0 x 65.0 x 5.0	Phone

Exposure Conditions

Phantom Section, TSL	Position, Test Distance [mm]	Band	Group, UID	Frequency [MHz], Channel Number	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity	Ambient Temperature [℃]	Liquid Temperature [℃]
Flat, HSL	BACK, 0.00	WLAN 5GHz	WLAN, 10544-AAC	5775.0, 155	5.04	5.24	35.6	22.5	21.4

Hardware Setup

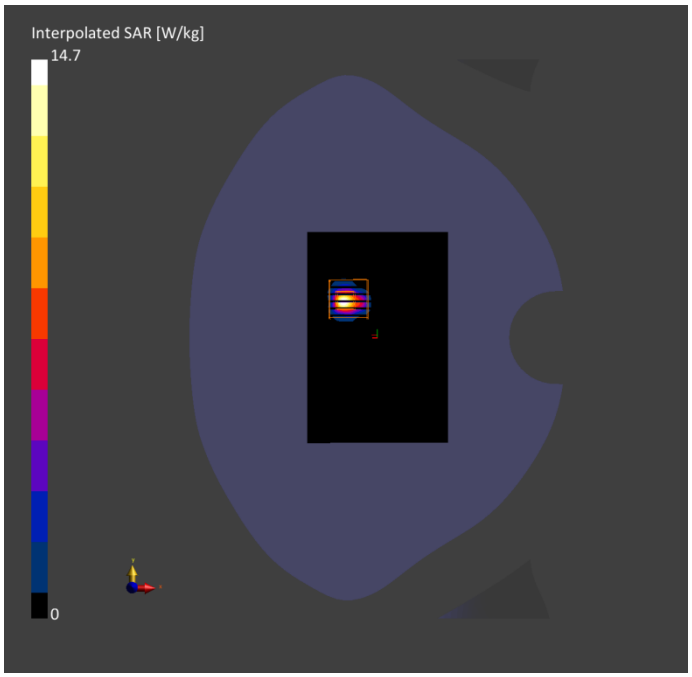
Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
Twin-SAM V5.0 (30deg probe tilt) - 1859	HBBL-600-10000 2024-07-05	EX3DV4 - SN7510, 2024-06-25	DAE4 Sn1711, 2024-03-18

Scan Setup

	Area Scan	Zoom Scan
Grid Extents [mm]	80.0 x 120.0	24.0 x 24.0 x 22.0
Grid Steps [mm]	10.0 x 10.0	4.0 x 4.0 x 2.0
Sensor Surface [mm]	3.0	1.4
Graded Grid	Yes	Yes
Grading Ratio	1.5	1.4
MAIA	N/A	N/A
Surface Detection	VMS + 6p	VMS + 6p
Scan Method	Measured	Measured

Measurement Results

	Area Scan	Zoom Scan
Date	2024-07-05	2024-07-05
psSAR1g [W/kg]	3.30	3.02
psSAR10g [W/kg]	0.748	0.692
Power Drift [dB]	0.03	0.06
Power Scaling Scaling Factor [dB]	Disabled	Disabled
TSL Correction	No correction	No correction
M2/M1 [%]		46.6
Dist 3dB Peak [mm]		3.2


Interpolated SAR [W/kg]
14.7
0

Meas.9 Body Plane with Back Side 5mm on 0 Channel in Bluetooth mode with Antenna 1

Device under Test Properties

Model, Manufacturer	Dimensions [mm]	DUT Type
Device	100.0 x 65.0 x 5.0	Phone

Exposure Conditions

Phantom Section, TSL	Position, Test Distance [mm]	Band	Group, UID	Frequency [MHz], Channel Number	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity	Ambient Temperature [℃]	Liquid Temperature [℃]
Flat, HSL	BACK, 5.00	ISM 2.4 GHz Band	Bluetooth, 10032-CAA	2402.0, 0	7.75	1.75	39.7	22.4	21.5

Hardware Setup

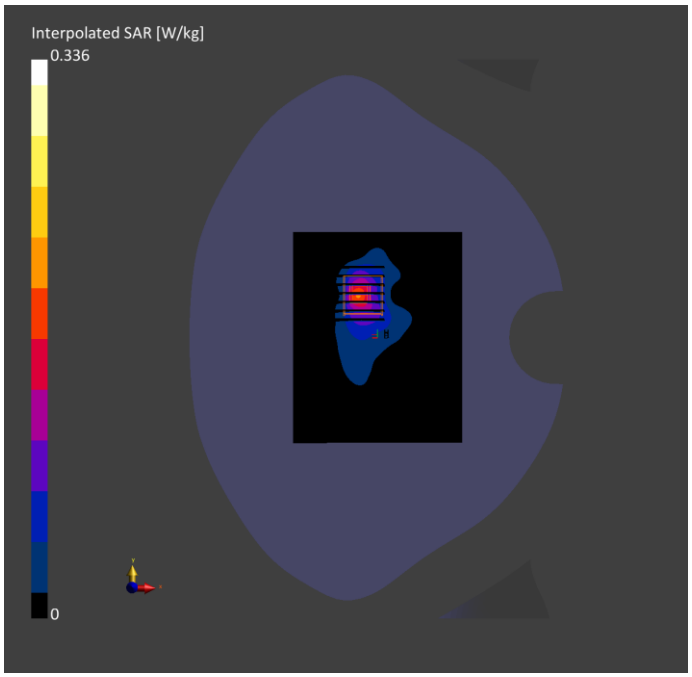
Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
Twin-SAM V5.0 (30deg probe tilt) - 1859	HBBL-600-10000 2024-07-02	EX3DV4 - SN7510, 2024-06-25	DAE4 Sn1711, 2024-03-18

Scan Setup

	Area Scan	Zoom Scan
Grid Extents [mm]	96.0 x 120.0	30.0 x 30.0 x 30.0
Grid Steps [mm]	12.0 x 12.0	5.0 x 5.0 x 5.0
Sensor Surface [mm]	3.0	1.4
Graded Grid	Yes	Yes
Grading Ratio	1.5	1.5
MAIA	Y	N/A
Surface Detection	VMS + 6p	VMS + 6p
Scan Method	Measured	Measured

Measurement Results

	Area Scan	Zoom Scan
Date	2024-07-02	2024-07-02
psSAR1g [W/kg]	0.139	0.160
psSAR10g [W/kg]	0.060	0.067
Power Drift [dB]	-0.02	0.03
Power Scaling Scaling Factor [dB]	Disabled	Disabled
TSL Correction	No correction	No correction
M2/M1 [%]		45.9
Dist 3dB Peak [mm]		6.3


Interpolated SAR [W/kg]
0.336
0

Meas.10 Body Plane with Back Side 0mm on 0 Channel in Bluetooth mode with Antenna 1

Device under Test Properties

Model, Manufacturer	Dimensions [mm]	DUT Type
Device	100.0 x 65.0 x 5.0	Phone

Exposure Conditions

Phantom Section, TSL	Position, Test Distance [mm]	Band	Group, UID	Frequency [MHz], Channel Number	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity	Ambient Temperature [℃]	Liquid Temperature [℃]
Flat, HSL	BACK, 0.00	ISM 2.4 GHz Band	Bluetooth, 10032-CAA	2402.0, 0	7.75	1.75	39.7	22.4	21.5

Hardware Setup

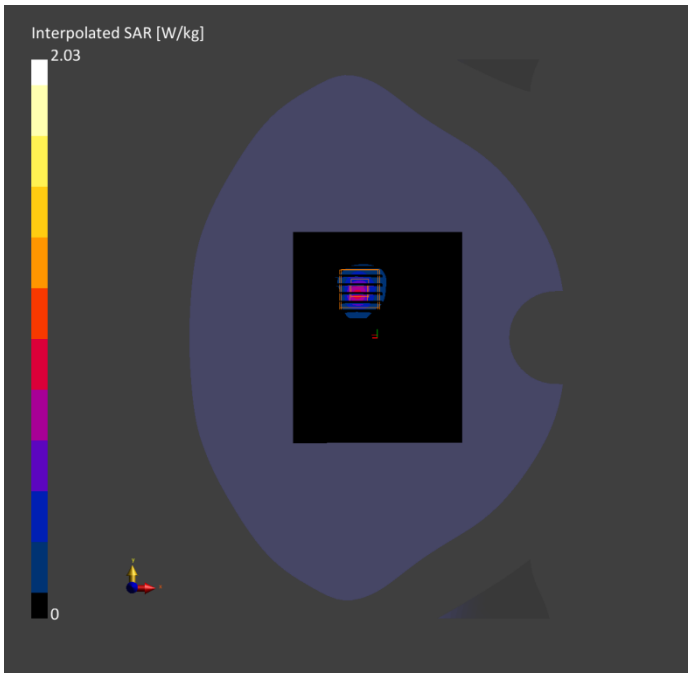
Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
Twin-SAM V5.0 (30deg probe tilt) - 1859	HBBL-600-10000 2024-07-02	EX3DV4 - SN7510, 2024-06-25	DAE4 Sn1711, 2024-03-18

Scan Setup

	Area Scan	Zoom Scan
Grid Extents [mm]	96.0 x 120.0	30.0 x 30.0 x 30.0
Grid Steps [mm]	12.0 x 12.0	5.0 x 5.0 x 5.0
Sensor Surface [mm]	3.0	1.4
Graded Grid	Yes	Yes
Grading Ratio	1.5	1.5
MAIA	N/A	N/A
Surface Detection	VMS + 6p	VMS + 6p
Scan Method	Measured	Measured

Measurement Results

	Area Scan	Zoom Scan
Date	2024-07-02	2024-07-02
psSAR1g [W/kg]	0.617	0.787
psSAR10g [W/kg]	0.237	0.274
Power Drift [dB]	0.00	0.02
Power Scaling Scaling Factor [dB]	Disabled	Disabled
TSL Correction	No correction	No correction
M2/M1 [%]		33.4
Dist 3dB Peak [mm]		5.4


Interpolated SAR [W/kg]
2.03
0

ANNEX D EUT EXTERNAL PHOTOS

Please refer the document “BL-SZ2460995-AW.pdf”.

ANNEX E SAR TEST SETUP PHOTOS

Please refer the document “BL-SZ2460995-AS-1.pdf”.

ANNEX F CALIBRATION REPORT

Please refer the document “BL-SZ2460995-AC.pdf”.

ANNEX G TUNE-UP PROCEDURE

Please refer the document “BL-SZ2460995-AT.pdf”.

Statement

1. The laboratory guarantees the scientificity, accuracy and impartiality of the test, and is responsible for all the information in the report, except the information provided by the customer. The customer is responsible for the impact of the information provided on the validity of the results.
2. The report without China inspection body and laboratory Mandatory Approval (CMA) mark has no effect of proving to the society.
3. For the report with CNAS mark or A2LA mark, the items marked with "☆" are not within the accredited scope.
4. This report is invalid if it is altered, without the signature of the testing and approval personnel, or without the “inspection and testing dedicated stamp” or test report stamp.
5. The test data and results are only valid for the tested samples provided by the customer.
6. This report shall not be partially reproduced without the written permission of the laboratory.
7. Any objection shall be raised to the laboratory within 30 days after receiving the report.

--END OF REPORT--