

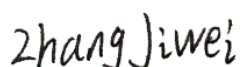
TEST REPORT

Applicant: Intel Corporation SAS
Address: 425 Rue de Goa – Le Cargo B6 – 06600 Antibes, FRANCE
Equipment Type: WLAN and BT, 2x2 PCIe M.2 1216 SD adapter card
Model Name: AX211D2W
Brand Name: N/A
FCC ID: PD9AX211D2
Test Standard: FCC 47 CFR Part 2.1093 (refer to section 3.1)
Maximum SAR: Body 2.4GHz(1 g): 1.07 W/kg
Body 5GHz(1 g): 1.12 W/kg
Body 6GHz(1 g): 0.72 W/kg
Sample Arrival Date: Jan. 18, 2024
Test Date: Jan. 21, 2024 - Jan. 25, 2024
Date of Issue: Feb. 06, 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
<u>Rev. 01</u>	<u>Feb. 04, 2024</u>	<u>Initial Issue</u>
<u>Rev. 02</u>	<u>Feb. 06, 2024</u>	<u>Updated the simultaneous transmission evaluation in section 12.1.1</u>

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1 GENERAL INFORMATION

1.1 Test Laboratory

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

1.2 Test Location

Name	Shenzhen BALUN Technology Co., Ltd.
Location	<input checked="" type="checkbox"/> Block B, 1/F, Baisha Science and Technology Park, Shahe Xi Road, Nanshan District, Shenzhen, Guangdong Province, P. R. China
	<input type="checkbox"/> 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°C to 25°C
Ambient Relative Humidity	30% to 70%

2 PRODUCT INFORMATION

2.1 Applicant Information

Applicant	Intel Corporation SAS
Address	425 Rue de Goa – Le Cargo B6 – 06600 Antibes, FRANCE

2.2 Manufacturer Information

Manufacturer	Intel Corporation SAS
Address	425 Rue de Goa – Le Cargo B6 – 06600 Antibes, FRANCE

2.3 General Description for Equipment under Test (EUT)

EUT Name	WLAN and BT, 2x2 PCIe M.2 1216 SD adapter card
Model Name Under Test	AX211D2W
Series Model Name	N/A
Description of Model Name Differentiation	N/A
Serial Number	1894929400004, 1894929600008
Hardware Version	N/A
Software Version	N/A
Dimensions (Approx.)	N/A
Weight (Approx.)	N/A

2.3.1 Host Information:

Product Name	Notebook Computer
Model Name	Yoga 9 2-in-1 14IMH9
Brand Name	Lenovo

2.3.2 Antenna Information:

Antenna Port	Model Name	Antenna Manufacturer	Antenna Type	Antenna Gain (dBi)								
				2.4 GHz	5.15 - 5.25 GHz	5.25 - 5.35 GHz	5.47 - 5.725 GHz	5.725 - 5.895 GHz	5.925 - 6.425 GHz	6.425 - 6.525 GHz	6.525 - 6.875 GHz	6.875 - 7.125 GHz
Main Antenna	DC330022Z00	LUXSHARE-	PIFA	1.39	1.82	2.51	2.78	2.32	2.69	1.84	3.56	3.48
Auxiliary Antenna	DC330022Z00	ICT	PIFA	1.63	1.36	2.04	2.18	2.14	3.40	3.35	2.22	2.01
Main Antenna	DC330022W00	Speed	PIFA	1.96	2.71	3.03	4.00	4.10	4.03	3.91	3.91	3.87
Auxiliary Antenna	DC330022W00		PIFA	1.33	2.50	2.42	3.59	2.47	3.41	3.41	3.74	4.08

2.4 Ancillary Equipment

Note: Not application.

2.5 Technical Information

Network and Wireless connectivity	Bluetooth (BR+EDR+BLE) 2.4G WIFI 802.11b, 802.11g, 802.11n(HT20/40), VHT20/40 and 802.11ax(HE20/40) 5G WIFI 802.11a, 802.11n(HT20/40), 802.11ac(VHT20/40/80/160) and 802.11ax(HE20/40/80/160), U-NII-1/2A/2C/3 6G WIFI 802.11ax(HE20/40/80/160), U-NII-5/6/7/8
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The requirement for the following technical information of the EUT was tested in this report:

Operating Mode	2.4G WLAN, 5G WLAN, 6G WLAN, Bluetooth	
Frequency Range	802.11b/g	2412 MHz ~ 2472 MHz
	802.11 n20/n40	2412 MHz ~ 2472 MHz
	802.11ax(HE20/HE40)	2412 MHz ~ 2472 MHz
	802.11a	5150 MHz ~ 5250 MHz
		5250 MHz ~ 5350 MHz
		5470 MHz ~ 5725 MHz
		5725 MHz ~ 5850 MHz
	802.11n(HT20/HT40)	5150 MHz ~ 5250 MHz
		5250 MHz ~ 5350 MHz
		5470 MHz ~ 5725 MHz
		5725 MHz ~ 5850 MHz
	802.11 ac(VHT20/VHT40/VHT80)	5150 MHz ~ 5250 MHz
		5250 MHz ~ 5350 MHz
		5470 MHz ~ 5725 MHz
		5725 MHz ~ 5850 MHz
	802.11ax(HE20/HE40/HE80)	5150 MHz ~ 5250 MHz
5250 MHz ~ 5350 MHz		
5470 MHz ~ 5725 MHz		
5725 MHz ~ 5850 MHz		
802.11 ac(VHT160)/ax(HE160)	5150 MHz ~ 5250 MHz	
	5470 MHz ~ 5725 MHz	
802.11 ax(HE20/HE40/HE80/HE160)	5925 MHz ~ 6425 MHz	
	6425 MHz ~ 6525 MHz	
	6525 MHz ~ 6875 MHz	
	6875 MHz ~ 7125 MHz	
Bluetooth	2402 MHz ~ 2480 MHz	
Antenna Type	WLAN: PIFA Antenna Bluetooth: PIFA Antenna	
Hotspot Function	N/A	
Exposure Category	General Population/Uncontrolled exposure	
Product Type	Portable Device	
EUT Type	<input checked="" type="checkbox"/> Production unit	<input type="checkbox"/> Identical prototype

3 SUMMARY OF TEST RESULT

3.1 Test Standards

No.	Identity	Document Title
1	47 CFR Part 2.1093	Radiofrequency radiation exposure evaluation: portable devices
2	ANSI/IEEE Std. 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	FCC KDB 865664 D01 v01r04	SAR Measurement 100 MHz to 6 GHz
5	FCC KDB 865664 D02 v01r02	RF Exposure Reporting
6	KDB 248227 D01 v02r02	SAR Guidance for IEEE 802.11 (Wi-Fi) Transmitters
7	KDB 616217 D04v01r02	SAR for laptop and tablets
8	IEC/IEEE 62209-1528:2020	Measurement procedure for the assessment of specific absorption rate of human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices – Part 1528: Human models, instrumentation, and procedures (Frequency range of 4 MHz to 10 GHz)

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 (1 g Value)

Equipment Class	Band	Antenna	Maximum Scaled SAR (W/kg)	Maximum Report SAR (W/kg)
			Body (0mm)	Body (0mm)
DTS	2.4G WLAN	SISO-Aux.	1.07	1.12
	2.4G WLAN	SISO-Main	0.96	
U-NII-2A	5.3G WLAN	SISO-Aux.	0.94	
	5.3G WLAN	SISO-Main	0.78	
U-NII-2C	5.6G WLAN	SISO-Aux.	1.12	
	5.6G WLAN	SISO-Main	0.95	
U-NII-3	5.8G WLAN	SISO-Aux.	0.91	
	5.8G WLAN	SISO-Main	0.86	
U-NII-5/6/7/8	6G WLAN	SISO-Aux.	0.72	
	6G WLAN	SISO-Main	0.67	
DSS	Bluetooth	Aux.	0.17	
Limit (W/kg)			1.60	
Verdict			Pass	

3.3.2 Highest Simultaneous Transmission SAR Values (1 g Value)

Equipment Class	Maximum Report SAR (W/kg)	SPLSR
	Body (0mm)	
DTS	2.02	0.04
NII	2.12	0.04
DSS	2.12	0.04
Limit (W/Kg)	1.60	0.04
Verdict	Pass	Pass

Note: The simultaneous transmission SAR detail please refer to section 12.

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

4 MEASUREMENT SYSTEM

4.1 Specific Absorption Rate (SAR) Definition

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

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

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

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

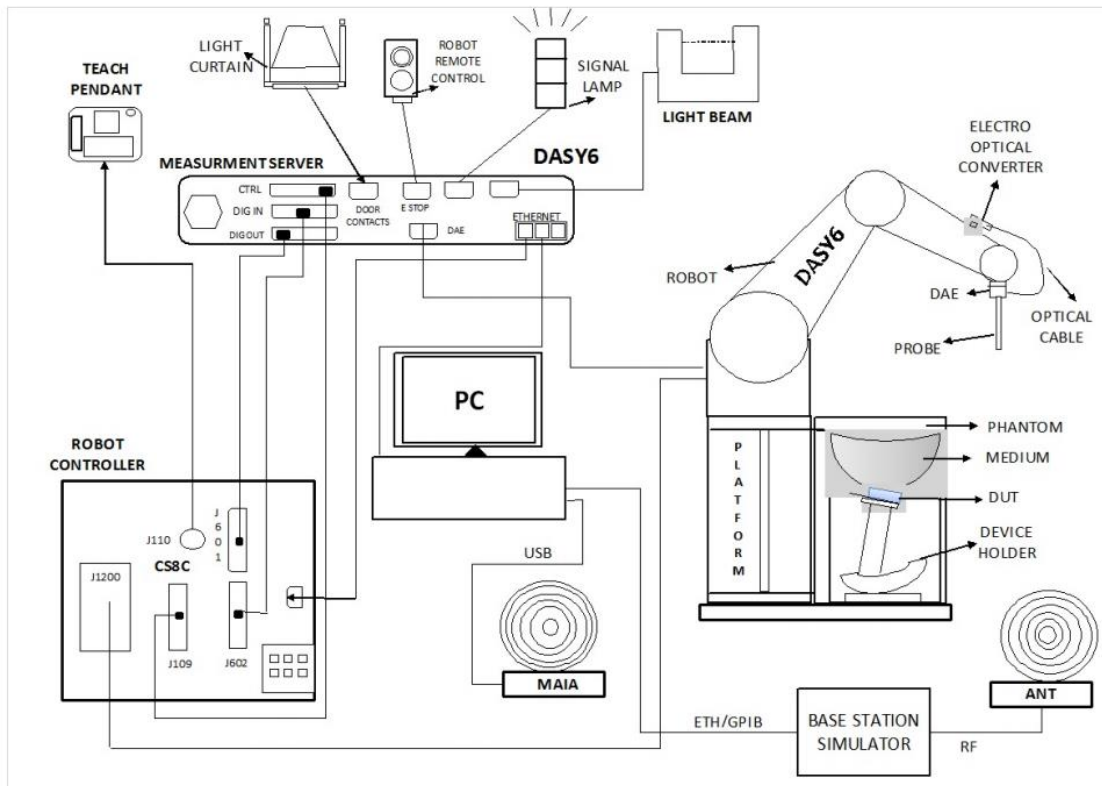
$$SAR = \frac{\sigma E^2}{\rho}$$

Where: σ is the conductivity of the tissue,

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

4.2 DASY SAR System

4.2.1 DASY SAR System Diagram

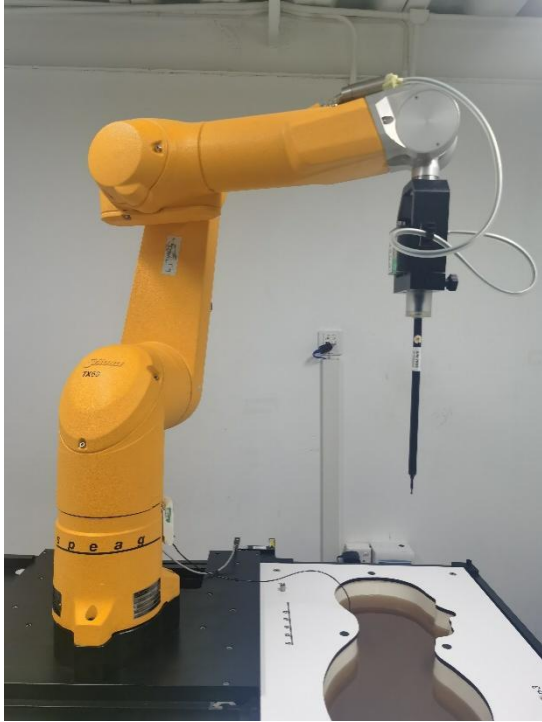


The DASY system for performing compliance tests consists of the following items:

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 DASY 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. DASY 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 fields shielded via the closed metallic construction shields)

4.2.3 E-Field Probe

The probe is specially designed and calibrated for use in liquids with high permittivities for the measurements the Specific Dosimetric E-Field Probe EX3DV4- SN: 7607 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., glycoether)
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 μ W/g to > 100 mW/g; Linearity: ± 0.2 dB
Dimensions	Overall length: 337 mm (Tip: 9 mm) Tip diameter: 2.5 mm (Body: 10 mm) Distance from probe tip to dipole centers: 1.0 mm
Application	General dosimetry up to 3 GHz Compliance tests of mobile phones Fast automatic scanning in arbitrary phantoms (EX3DV4)



E-Field Probe Calibration Process

Probe calibration is realized, in compliance with IEC/IEEE 62209-1528 and IEEE 1528 std, with CALISAR, Antennassa 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

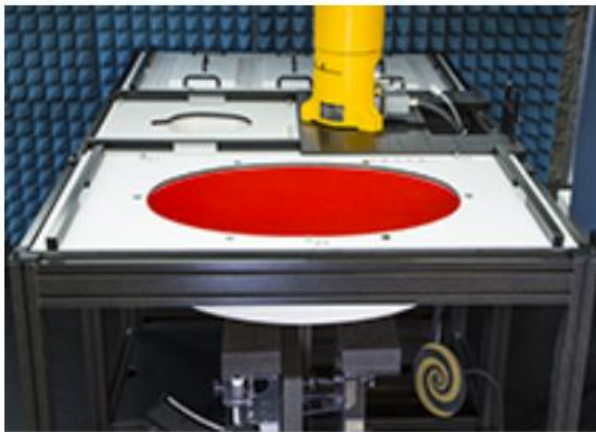
The data acquisition electronics (DAE) consist of a highly sensitive electrometer-grade preamplifier with auto-zeroing, a channel and gain-switching multiplexer, a fast 16 bit AD-converter and a command decoder with a control logic unit. Transmission to the measurement server is accomplished through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



- Input Impedance: 200M Ω m
- The Inputs: Symmetrical and Floating
- Common Mode Rejection: Above 80dB

4.2.5 Phantoms

Phantom for compliance testing of handheld and body-mounted wireless devices in the frequency range of below 10 GHz. ELI V8.0 is fully compatible with the latest draft of the standard IEC 62209 Part II and all known tissue simulating liquids. ELI V8.0 has been optimized regarding its performance and can be integrated into our standard phantom tables. A cover prevents evaporation of the liquid. Reference markings on the phantom allow installation of the complete setup, including all predefined phantom positions and measurement grids, by teaching three points.



· Flat phantom

Photo of Phantom SN2159



Serial Number	Shell Thickness (mm)	Major ellipse axis (mm)	Minor axis (mm)
SN 2159 ELI V8.0	2.0 ± 0.2	600	400

4.2.6 Device Holder

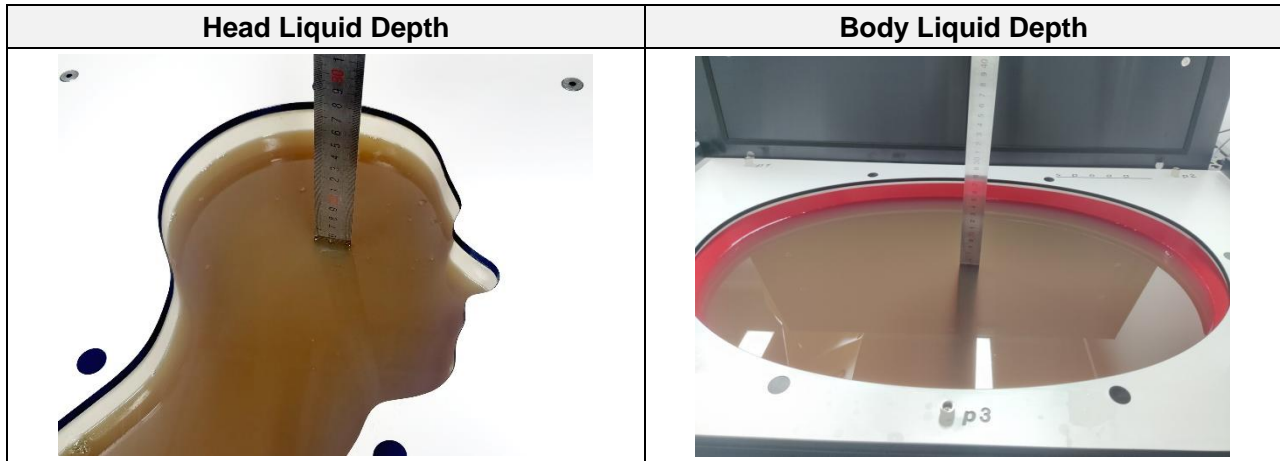
The DASY device holder has two scales for device rotation (with respect to the body axis) and the device inclination (with respect to the line between the ear openings). The plane between the ear openings and the mouth tip has a rotation angle of 65° . The bottom plate contains three pair of bolts for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



The following table gives the recipes for tissue simulating liquid and the theoretical Conductivity/Permittivity.

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, Alkoxyated alcohol

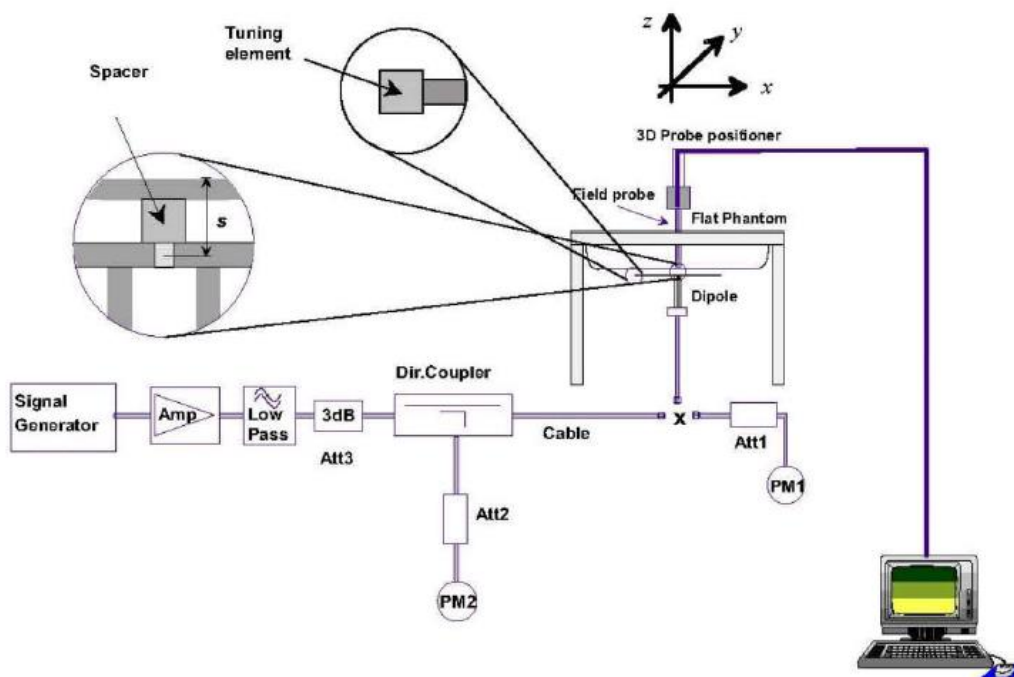
5 SYSTEM VERIFICATION

5.1 Purpose of System Check

The system performance check verifies that the system operates within its specifications. System and operator errors can be detected and corrected. It is recommended that the system performance check be performed prior to any usage of the system in order to guarantee reproducible results. The system performance check uses normal SAR measurements in a simplified setup with a well characterized source. This setup was selected to give a high sensitivity to all parameters that might fail or vary over time. The system check does not intend to replace the calibration of the components, but indicates situations where the system uncertainty is exceeded due to drift or failure.

5.2 System Check Setup

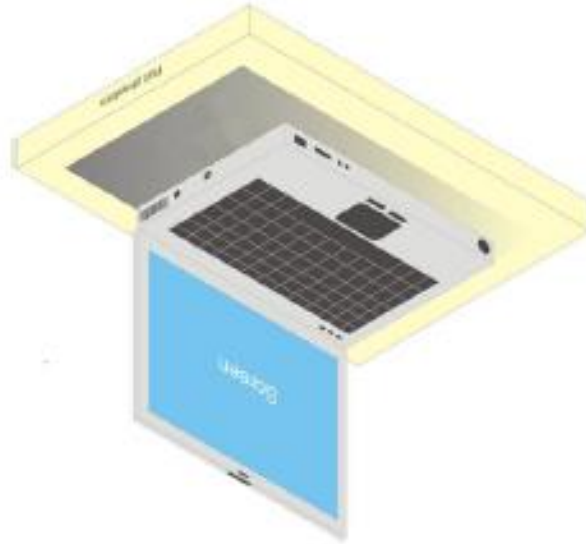
In the simplified setup for system evaluation, the EUT is replaced by a calibrated dipole and the power source is replaced by a continuous wave that comes from a signal generator. The calibrated dipole must be placed beneath the flat phantom section of the SAM twin phantom with the correct distance holder. The distance holder should touch the phantom surface with a light pressure at the reference marking and be oriented parallel to the long side of the phantom. The equipment setup is shown below:



6 TEST POSITION CONFIGURATIONS

6.1 Laptop Exposure Condition

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



6.2 Tablet Exposure Condition

This DUT was tested in two different positions. They are Bottom Side and Back Side in these positions, the surface of DUT is touching with phantom 0mm.

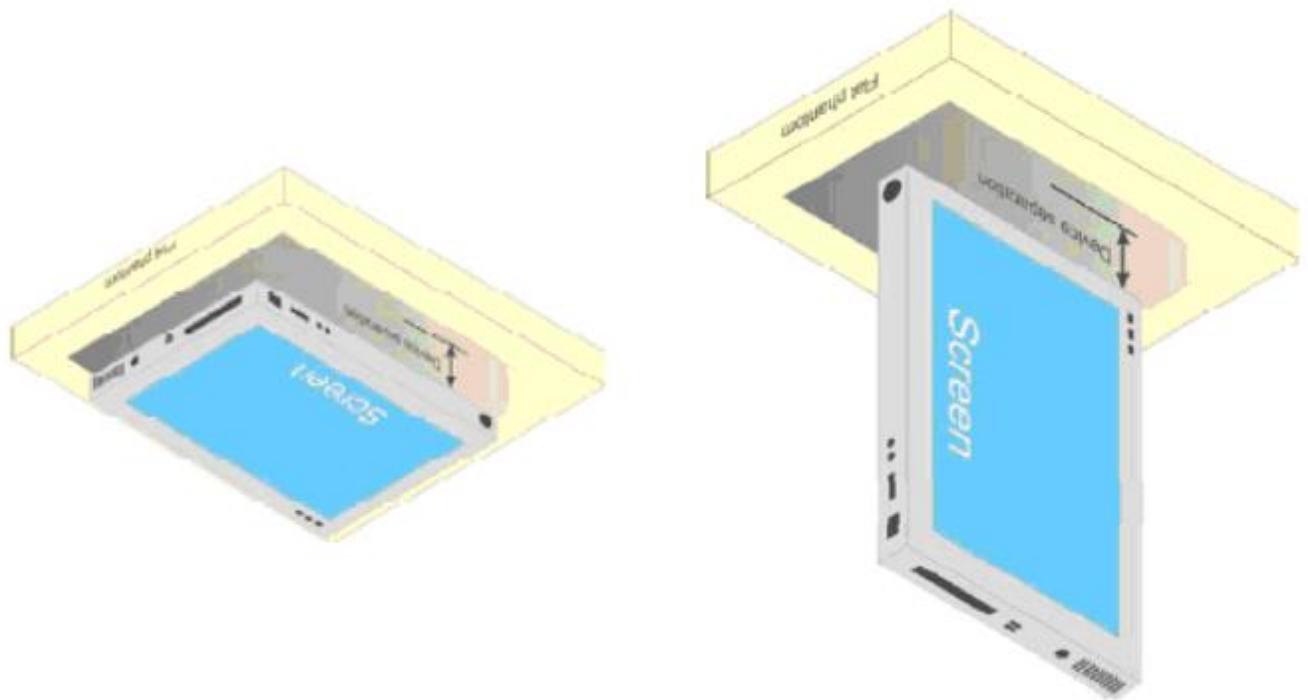
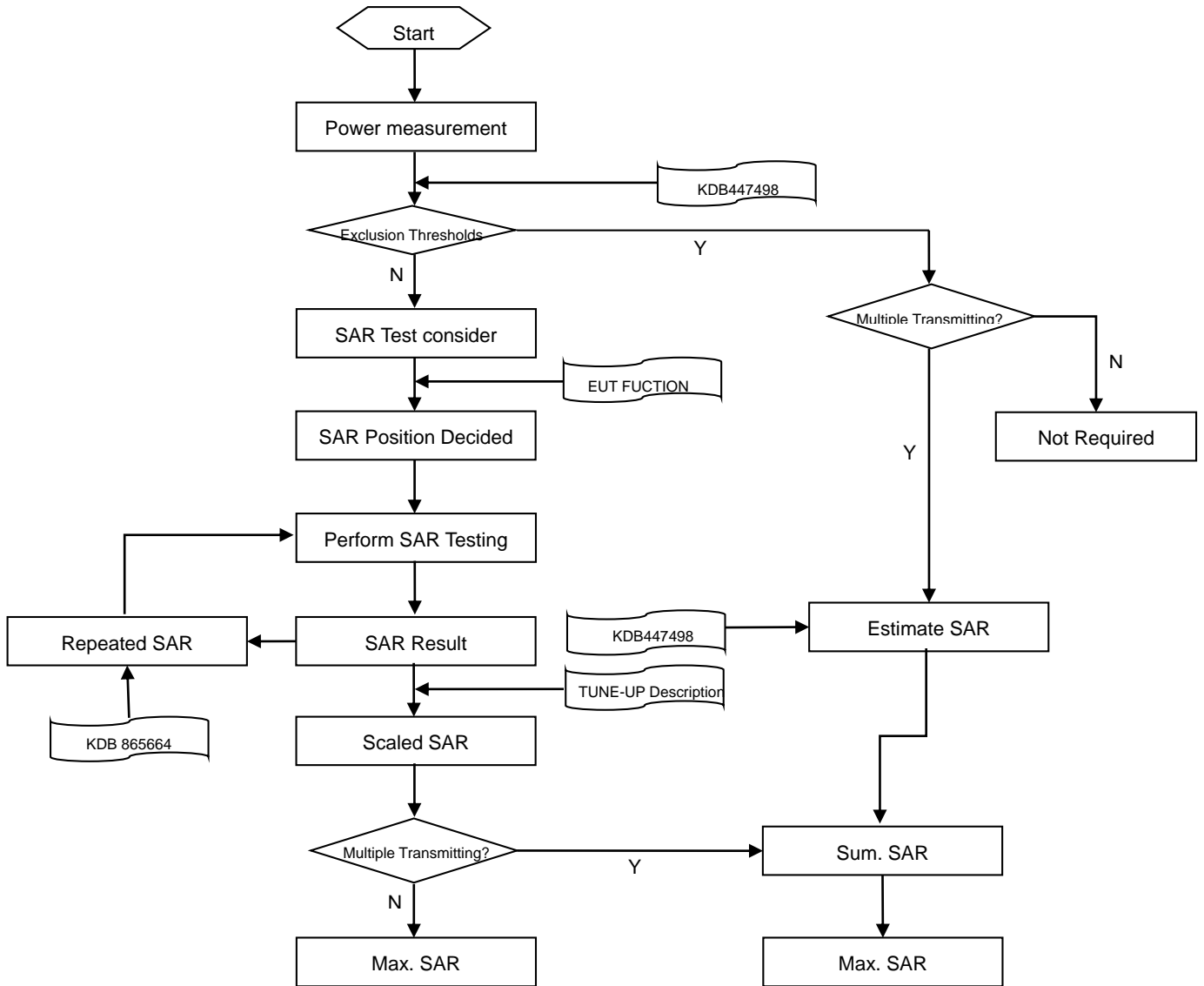


Fig Illustration for Lap-touching Position

7 MEASUREMENT PROCEDURE

7.1 Measurement Process Diagram



7.2 SAR Scan General Requirement

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

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

Note:

1. δ is the penetration depth of a plane-wave at normal incidence to the tissue medium; see draft standard IEEE P1528-2011 for details.
2. * When zoom scan is required and the reported SAR from the area scan based 1 g SAR estimation procedures of KDB 447498 is ≤ 1.4 W/kg, ≤ 8 mm, ≤ 7 mm and ≤ 5 mm zoom scan resolution may be applied, respectively, for 2 GHz to 3GHz, 3 GHz to 4 GHz and 4 GHz to 6 GHz.

7.3 Measurement Procedure

The following steps are used for each test position

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

7.4 Area & Zoom Scan Procedure

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

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

7.5 Interim Procedures for WLAN 6E

Interim procedures for FCC radio frequency (RF) exposure evaluations of U-NII 6-7 GHz band portable devices have been made available during the TCB workshop in April 2021. The procedure is summarized below:

- a. Evaluate SAR / APD with DASY6 Module SAR V16.0 or higher. The configurations to be tested are defined in the relevant Knowledge Database (KDB). The psSAR and absorbed psPD are reported.
- b. 2. For the configuration with the highest SAR, evaluate the incident power density with DASY6 Module mmWave V2.4.2 or higher. The incident psPD must be adjusted per amount that the measurement uncertainty exceeds 30% before it is included in the test report.

8 CONDUCTED RF OUTPUT POWER

8.1 WIFI

8.1.1 2.4G WIFI (SISO-Main Antenna) (Laptop High power mode)

Band (GHz)	Mode	Channel	Freq. (MHz)	Output Power (dBm)	Tune-up Limit (dBm)	SAR Test Require.
2.4 (2.4~2.4835)	802.11b	1	2412	15.70	16.00	Yes
		6	2437	15.54	16.00	Yes
		11	2462	15.51	16.00	Yes
	802.11g	1	2412	15.18	16.00	No
		6	2437	15.23	16.00	No
		11	2462	15.31	16.00	No
	802.11n(HT20)	1	2412	15.36	16.00	No
		6	2437	15.32	16.00	No
		11	2462	15.55	16.00	No
	802.11n(HT40)	3	2422	15.20	16.00	No
		6	2437	15.23	16.00	No
		9	2452	15.37	16.00	No
	802.11ax(HE20)	1	2412	15.24	16.00	No
		6	2437	15.35	16.00	No
		11	2462	15.55	16.00	No
	802.11ax(HE40)	3	2422	15.51	16.00	No
		6	2437	15.48	16.00	No
		9	2452	15.31	16.00	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)) = $0.950 * (39.81\text{mW}/39.81\text{mW}) = 0.950$ W/Kg, so the 2.4G OFDM SAR test is not required.

8.1.2 2.4G WIFI (SISO-Aux. Antenna) (Laptop High power mode)

Band (GHz)	Mode	Channel	Freq. (MHz)	Output Power (dBm)	Tune-up Limit (dBm)	SAR Test Require.
2.4 (2.4~2.4835)	802.11b	1	2412	15.34	16.00	Yes
		6	2437	15.41	16.00	Yes
		11	2462	15.47	16.00	Yes
	802.11g	1	2412	15.18	16.00	No
		6	2437	15.30	16.00	No
		11	2462	15.33	16.00	No
	802.11n(HT20)	1	2412	15.21	16.00	No
		6	2437	15.50	16.00	No
		11	2462	15.50	16.00	No
	802.11n(HT40)	3	2422	15.40	16.00	No
		6	2437	15.29	16.00	No
		9	2452	15.35	16.00	No
	802.11ax(HE20)	1	2412	15.33	16.00	No
		6	2437	15.18	16.00	No
		11	2462	15.43	16.00	No
	802.11ax(HE40)	3	2422	15.28	16.00	No
		6	2437	15.21	16.00	No
		9	2452	15.24	16.00	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)) = 1.069 * (39.81mW/39.81mW) = 1.069 W/Kg, so the 2.4G OFDM SAR test is not required.

8.1.3 2.4G WIFI (MIMO) (Laptop High power mode)

Band (GHz)	Mode	Channel	Freq. (MHz)	Output Power (dBm)	Tune-up Limit (dBm)	SAR Test Require.
2.4 (2.4~2.4835)	802.11b	1	2412	18.53	19.00	No
		6	2437	18.49	19.00	No
		11	2462	18.50	19.00	No
	802.11g	1	2412	18.19	19.00	No
		6	2437	18.28	19.00	No
		11	2462	18.33	19.00	No
	802.11n(HT20)	1	2412	18.30	19.00	No
		6	2437	18.42	19.00	No
		11	2462	18.54	19.00	No
	802.11n(HT40)	3	2422	18.31	19.00	No
		6	2437	18.27	19.00	No
		9	2452	18.37	19.00	No
	802.11ax(HE20)	1	2412	18.30	19.00	No
		6	2437	18.28	19.00	No
		11	2462	18.50	19.00	No
802.11ax(HE40)	3	2422	18.41	19.00	No	
	6	2437	18.36	19.00	No	
	9	2452	18.29	19.00	No	

Note: For WiFi SAR testing was performed on single antenna RF power in SISO mode that is larger to the single antenna RF power in MIMO mode, and for RF exposure assessment of MIMO mode simultaneous transmission used more conservative "Max. (main ant) + Max. (aux. ant) " method to determine SAR compliance. When the sum of 1-g SISO transmission SAR measurement is <1.6 W/kg, or the SPLSR value ≤ 0.04 the MIMO SAR test is not required.

8.1.4 5G WIFI (SISO-Main Antenna) (Laptop High power mode)

Band (GHz)	Mode	Channel	Freq. (MHz)	Output Power (dBm)	Tune-up Limit (dBm)	SAR Test Require.
5.2 (5.15~5.25)	802.11a	36	5180	12.93	13.50	No
		40	5200	12.75	13.50	No
		48	5240	12.83	13.50	No
	802.11n(HT20)	36	5180	12.71	13.50	No
		40	5200	12.70	13.50	No
		48	5240	13.00	13.50	No
	802.11n(HT40)	38	5190	12.84	13.50	No
		46	5230	13.02	13.50	No
	802.11ac(VHT20)	36	5180	12.95	13.50	No
		40	5200	13.05	13.50	No
		48	5240	12.74	13.50	No
	802.11ac(VHT40)	38	5190	12.94	13.50	No
		46	5230	12.73	13.50	No
	802.11ac(VHT80)	42	5210	13.42	13.50	No
	802.11ac(VHT160)	50	5250	13.47	13.50	No
	802.11ax(HE20)	36	5180	12.87	13.50	No
		40	5200	12.83	13.50	No
		48	5240	12.82	13.50	No
802.11ax(HE40)	38	5190	12.78	13.50	No	
	46	5230	12.89	13.50	No	
802.11ax(HE80)	42	5210	13.04	13.50	No	
802.11ax(HE160)	50	5250	12.94	13.50	No	
5.3 (5.25~5.35)	802.11a	52	5260	12.92	13.50	No
		60	5300	12.88	13.50	No
		64	5320	12.78	13.50	No
	802.11n(HT20)	52	5260	12.79	13.50	No
		60	5300	13.01	13.50	No
		64	5320	12.81	13.50	No
	802.11n(HT40)	54	5270	12.67	13.50	No
		62	5310	12.96	13.50	No
	802.11ac(VHT20)	52	5260	13.04	13.50	No
		60	5300	12.69	13.50	No
		64	5320	12.96	13.50	No
	802.11ac(VHT40)	54	5270	13.02	13.50	No
62		5310	12.88	13.50	No	

	802.11ac(VHT80)	58	5290	13.48	13.50	Yes	
	802.11ax(HE20)	52	5260	12.76	13.50	No	
		60	5300	12.69	13.50	No	
		64	5320	13.00	13.50	No	
	802.11ax(HE40)	54	5270	12.94	13.50	No	
		62	5310	13.00	13.50	No	
	802.11ax(HE80)	58	5290	12.80	13.50	No	
5.6 (5.47~5.725)	802.11a	100	5500	13.48	14.00	No	
		116	5580	13.22	14.00	No	
		140	5700	13.43	14.00	No	
		144	5720	13.46	14.00	No	
	802.11n(HT20)	100	5500	13.37	14.00	No	
		116	5580	13.39	14.00	No	
		140	5700	13.26	14.00	No	
		144	5720	13.30	14.00	No	
	802.11n(HT40)	102	5510	13.38	14.00	No	
		110	5550	13.44	14.00	No	
		134	5670	13.29	14.00	No	
		142	5710	13.44	14.00	No	
	802.11ac(VHT20)	100	5500	13.34	14.00	No	
		116	5580	13.24	14.00	No	
		140	5700	13.52	14.00	No	
		144	5720	13.38	14.00	No	
	802.11ac(VHT40)	102	5510	13.55	14.00	No	
		110	5550	13.30	14.00	No	
		134	5670	13.34	14.00	No	
		142	5710	13.47	14.00	No	
	802.11ac(VHT80)	106	5530	13.44	14.00	No	
		122	5610	13.36	14.00	No	
		138	5690	13.57	14.00	No	
		802.11ac(VHT160)	114	5570	13.72	14.00	Yes
	802.11ax(HE20)	100	5500	13.47	14.00	No	
		116	5580	13.26	14.00	No	
		140	5700	13.54	14.00	No	
		144	5720	13.49	14.00	No	
	802.11ax(HE40)	102	5510	13.55	14.00	No	
		110	5550	13.25	14.00	No	
		134	5670	13.44	14.00	No	
		142	5710	13.39	14.00	No	

	802.11ax(HE80)	106	5530	13.35	14.00	No
		122	5610	13.50	14.00	No
		138	5690	13.34	14.00	No
	802.11ax(HE160)	114	5570	13.28	14.00	No
5.8 (5.725~5.85)	802.11a	149	5745	13.17	14.00	No
		157	5785	13.46	14.00	No
		165	5825	13.36	14.00	No
	802.11n(HT20)	149	5745	13.34	14.00	No
		157	5785	13.24	14.00	No
		165	5825	13.54	14.00	No
	802.11n(HT40)	151	5755	13.19	14.00	No
		159	5795	13.44	14.00	No
	802.11ac(VHT20)	149	5745	13.41	14.00	No
		157	5785	13.34	14.00	No
		165	5825	13.20	14.00	No
	802.11ac(VHT40)	151	5755	13.23	14.00	No
		159	5795	13.46	14.00	No
	802.11ac(VHT80)	155	5775	13.71	14.00	Yes
	802.11ax(HE20)	149	5745	13.33	14.00	No
		157	5785	13.28	14.00	No
		165	5825	13.43	14.00	No
	802.11ax(HE40)	151	5755	13.23	14.00	No
		159	5795	13.29	14.00	No
	802.11ax(HE80)	155	5775	13.24	14.00	No
<p>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.</p>						

8.1.5 5G WIFI (SISO-Aux. Antenna) (Laptop High power mode)

Band (GHz)	Mode	Channel	Freq. (MHz)	Output Power (dBm)	Tune-up Limit (dBm)	SAR Test Require.
5.2 (5.15~5.25)	802.11a	36	5180	12.77	13.50	No
		40	5200	12.94	13.50	No
		48	5240	12.99	13.50	No
	802.11n(HT20)	36	5180	13.03	13.50	No
		40	5200	12.91	13.50	No
		48	5240	12.91	13.50	No
	802.11n(HT40)	38	5190	12.73	13.50	No
		46	5230	12.71	13.50	No
	802.11ac(VHT20)	36	5180	12.93	13.50	No
		40	5200	12.73	13.50	No
		48	5240	12.81	13.50	No
	802.11ac(VHT40)	38	5190	12.94	13.50	No
		46	5230	12.98	13.50	No
	802.11ac(VHT80)	42	5210	13.49	13.50	No
	802.11ac(VHT160)	50	5250	13.02	13.50	No
	802.11ax(HE20)	36	5180	13.05	13.50	No
		40	5200	12.86	13.50	No
		48	5240	12.66	13.50	No
802.11ax(HE40)	38	5190	13.04	13.50	No	
	46	5230	12.72	13.50	No	
802.11ax(HE80)	42	5210	12.99	13.50	No	
802.11ax(HE160)	50	5250	12.85	13.50	No	
5.3 (5.25~5.35)	802.11a	52	5260	12.96	13.50	No
		60	5300	12.81	13.50	No
		64	5320	12.97	13.50	No
	802.11n(HT20)	52	5260	12.97	13.50	No
		60	5300	12.77	13.50	No
		64	5320	12.98	13.50	No
	802.11n(HT40)	54	5270	12.82	13.50	No
		62	5310	12.88	13.50	No
	802.11ac(VHT20)	52	5260	12.80	13.50	No
		60	5300	12.75	13.50	No
		64	5320	12.73	13.50	No
	802.11ac(VHT40)	54	5270	12.94	13.50	No
62		5310	12.85	13.50	No	

	802.11ac(VHT80)	58	5290	13.44	13.50	Yes
	802.11ax(HE20)	52	5260	12.96	13.50	No
		60	5300	12.89	13.50	No
		64	5320	12.67	13.50	No
	802.11ax(HE40)	54	5270	12.69	13.50	No
		62	5310	12.98	13.50	No
	802.11ax(HE80)	58	5290	13.04	13.50	No
5.6 (5.47~5.725)	802.11a	100	5500	13.32	14.00	No
		116	5580	13.29	14.00	No
		140	5700	13.43	14.00	No
		144	5720	13.53	14.00	No
	802.11n(HT20)	100	5500	13.21	14.00	No
		116	5580	13.42	14.00	No
		140	5700	13.54	14.00	No
		144	5720	13.48	14.00	No
	802.11n(HT40)	102	5510	13.23	14.00	No
		110	5550	13.40	14.00	No
		134	5670	13.20	14.00	No
		142	5710	13.41	14.00	No
	802.11ac(VHT20)	100	5500	13.48	14.00	No
		116	5580	13.40	14.00	No
		140	5700	13.42	14.00	No
		144	5720	13.23	14.00	No
	802.11ac(VHT40)	102	5510	13.28	14.00	No
		110	5550	13.40	14.00	No
		134	5670	13.36	14.00	No
		142	5710	13.40	14.00	No
	802.11ac(VHT80)	106	5530	13.39	14.00	No
		122	5610	13.52	14.00	No
		138	5690	13.46	14.00	No
	802.11ac(VHT160)	114	5570	13.74	14.00	Yes
	802.11ax(HE20)	100	5500	13.48	14.00	No
		116	5580	13.40	14.00	No
		140	5700	13.41	14.00	No
		144	5720	13.48	14.00	No
	802.11ax(HE40)	102	5510	13.28	14.00	No
		110	5550	13.36	14.00	No
		134	5670	13.26	14.00	No
		142	5710	13.25	14.00	No

	802.11ax(HE80)	106	5530	13.34	14.00	No	
		122	5610	13.34	14.00	No	
		138	5690	13.22	14.00	No	
	802.11ax(HE160)	114	5570	13.27	14.00	No	
5.8 (5.725~5.85)	802.11a	149	5745	13.55	14.00	No	
		157	5785	13.38	14.00	No	
		165	5825	13.33	14.00	No	
	802.11n(HT20)	149	5745	13.26	14.00	No	
		157	5785	13.46	14.00	No	
		165	5825	13.24	14.00	No	
	802.11n(HT40)	151	5755	13.23	14.00	No	
		159	5795	13.39	14.00	No	
	802.11ac(VHT20)	149	5745	13.23	14.00	No	
		157	5785	13.37	14.00	No	
		165	5825	13.19	14.00	No	
	802.11ac(VHT40)	151	5755	13.36	14.00	No	
		159	5795	13.55	14.00	No	
	802.11ac(VHT80)	155	5775	13.65	14.00	Yes	
	802.11ax(HE20)	149	5745	13.30	14.00	No	
		157	5785	13.17	14.00	No	
		165	5825	13.50	14.00	No	
	802.11ax(HE40)	151	5755	13.22	14.00	No	
		159	5795	13.32	14.00	No	
	802.11ax(HE80)	155	5775	13.21	14.00	No	
	<p>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.</p>						

8.1.6 5G WIFI (MIMO) (Laptop High power mode)

Band (GHz)	Mode	Channel	Freq. (MHz)	Output Power (dBm)	Tune-up Limit (dBm)	SAR Test Require.
5.2 (5.15~5.25)	802.11a	36	5180	15.86	16.50	No
		40	5200	15.86	16.50	No
		48	5240	15.92	16.50	No
	802.11n(HT20)	36	5180	15.88	16.50	No
		40	5200	15.82	16.50	No
		48	5240	15.97	16.50	No
	802.11n(HT40)	38	5190	15.80	16.50	No
		46	5230	15.88	16.50	No
	802.11ac(VHT20)	36	5180	15.95	16.50	No
		40	5200	15.90	16.50	No
		48	5240	15.79	16.50	No
	802.11ac(VHT40)	38	5190	15.95	16.50	No
		46	5230	15.87	16.50	No
	802.11ac(VHT80)	42	5210	16.47	16.50	No
	802.11ac(VHT160)	50	5250	16.26	16.50	No
	802.11ax(HE20)	36	5180	15.97	16.50	No
		40	5200	15.86	16.50	No
		48	5240	15.75	16.50	No
802.11ax(HE40)	38	5190	15.92	16.50	No	
	46	5230	15.82	16.50	No	
802.11ax(HE80)	42	5210	16.03	16.50	No	
802.11ax(HE160)	50	5250	15.91	16.50	No	
5.3 (5.25~5.35)	802.11a	52	5260	15.95	16.50	No
		60	5300	15.86	16.50	No
		64	5320	15.89	16.50	No
	802.11n(HT20)	52	5260	15.89	16.50	No
		60	5300	15.90	16.50	No
		64	5320	15.91	16.50	No
	802.11n(HT40)	54	5270	15.76	16.50	No
		62	5310	15.93	16.50	No
	802.11ac(VHT20)	52	5260	15.93	16.50	No
		60	5300	15.73	16.50	No
		64	5320	15.86	16.50	No
	802.11ac(VHT40)	54	5270	15.99	16.50	No
62		5310	15.88	16.50	No	

	802.11ac(VHT80)	58	5290	16.47	16.50	No
	802.11ax(HE20)	52	5260	15.87	16.50	No
		60	5300	15.80	16.50	No
		64	5320	15.85	16.50	No
	802.11ax(HE40)	54	5270	15.83	16.50	No
		62	5310	16.00	16.50	No
	802.11ax(HE80)	58	5290	15.93	16.50	No
5.6 (5.47~5.725)	802.11a	100	5500	16.41	17.00	No
		116	5580	16.27	17.00	No
		140	5700	16.44	17.00	No
		144	5720	16.51	17.00	No
	802.11n(HT20)	100	5500	16.30	17.00	No
		116	5580	16.42	17.00	No
		140	5700	16.41	17.00	No
		144	5720	16.40	17.00	No
	802.11n(HT40)	102	5510	16.32	17.00	No
		110	5550	16.43	17.00	No
		134	5670	16.26	17.00	No
		142	5710	16.44	17.00	No
	802.11ac(VHT20)	100	5500	16.42	17.00	No
		116	5580	16.33	17.00	No
		140	5700	16.48	17.00	No
		144	5720	16.32	17.00	No
	802.11ac(VHT40)	102	5510	16.43	17.00	No
		110	5550	16.36	17.00	No
		134	5670	16.36	17.00	No
		142	5710	16.45	17.00	No
	802.11ac(VHT80)	106	5530	16.43	17.00	No
		122	5610	16.45	17.00	No
		138	5690	16.53	17.00	No
	802.11ac(VHT160)	114	5570	16.59	17.00	No
	802.11ax(HE20)	100	5500	16.49	17.00	No
		116	5580	16.34	17.00	No
		140	5700	16.49	17.00	No
		144	5720	16.50	17.00	No
	802.11ax(HE40)	102	5510	16.43	17.00	No
		110	5550	16.32	17.00	No
		134	5670	16.36	17.00	No
		142	5710	16.33	17.00	No

	802.11ax(HE80)	106	5530	16.36	17.00	No
		122	5610	16.43	17.00	No
		138	5690	16.29	17.00	No
	802.11ax(HE160)	114	5570	16.29	17.00	No
5.8 (5.725~5.85)	802.11a	149	5745	16.37	17.00	No
		157	5785	16.43	17.00	No
		165	5825	16.36	17.00	No
	802.11n(HT20)	149	5745	16.31	17.00	No
		157	5785	16.36	17.00	No
		165	5825	16.40	17.00	No
	802.11n(HT40)	151	5755	16.22	17.00	No
		159	5795	16.43	17.00	No
	802.11ac(VHT20)	149	5745	16.33	17.00	No
		157	5785	16.37	17.00	No
		165	5825	16.21	17.00	No
	802.11ac(VHT40)	151	5755	16.31	17.00	No
		159	5795	16.52	17.00	No
	802.11ac(VHT80)	155	5775	16.69	17.00	No
	802.11ax(HE20)	149	5745	16.33	17.00	No
		157	5785	16.24	17.00	No
		165	5825	16.48	17.00	No
	802.11ax(HE40)	151	5755	16.24	17.00	No
		159	5795	16.32	17.00	No
	802.11ax(HE80)	155	5775	16.24	17.00	No

Note: For WiFi SAR testing was performed on single antenna RF power in SISO mode that is larger to the single antenna RF power in MIMO mode, and for RF exposure assessment of MIMO mode simultaneous transmission used more conservative "Max. (main ant) + Max. (aux. ant) " method to determine SAR compliance. When the sum of 1-g SISO transmission SAR measurement is <1.6 W/kg, or the SPLSR value ≤0.04 the MIMO SAR test is not required.

8.1.7 6G WIFI (SISO-Main Antenna) (Laptop High power mode)

Band (GHz)	Mode	Channel	Freq. (MHz)	Output Power (dBm)	Tune-up Limit (dBm)	SAR Test Require.
6 (5.925~7.125)	802.11ax(HE20)	1	5955	11.88	12.50	No
		49	6195	11.91	12.50	No
		93	6415	11.80	12.50	No
		97	6435	11.84	12.50	No
		105	6475	12.02	12.50	No
		113	6515	11.69	12.50	No
		117	6535	11.81	12.50	No
		149	6695	11.88	12.50	No
		181	6855	11.93	12.50	No
		185	6875	11.96	12.50	No
		189	6895	11.72	12.50	No
		209	6995	11.82	12.50	No
		229	7095	11.69	12.50	No
		233	7115	12.03	12.50	No
	802.11ax(HE40)	3	5965	12.00	12.50	No
		51	6205	11.93	12.50	No
		91	6405	11.72	12.50	No
		99	6445	11.87	12.50	No
		107	6485	11.83	12.50	No
		115	6525	11.85	12.50	No
		123	6565	12.02	12.50	No
		147	6685	12.04	12.50	No
		179	6845	12.02	12.50	No
		187	6885	11.71	12.50	No
		195	6925	11.71	12.50	No
		211	7005	11.90	12.50	No
	227	7085	12.00	12.50	No	
	802.11ax(HE80)	7	5985	11.72	12.50	No
		55	6225	12.04	12.50	No
		87	6385	11.98	12.50	No
		103	6465	11.74	12.50	No
		119	6545	11.80	12.50	No
		135	6625	11.83	12.50	No
		151	6705	11.90	12.50	No
		167	6785	11.71	12.50	No
	183	6865	11.78	12.50	No	

		199	6945	11.67	12.50	No
		215	7025	11.91	12.50	No
	802.11ax(HE160)	15	6025	12.42	12.50	Yes
		47	6185	12.46	12.50	Yes
		79	6345	12.41	12.50	Yes
		111	6505	12.44	12.50	Yes
		143	6665	12.31	12.50	Yes
		175	6825	12.45	12.50	Yes
		207	6985	12.32	12.50	Yes

Note: When multiple channel bandwidth configurations in a frequency band have the same maximum tune-up output power, the test configuration is determined by applying the following steps sequentially.

1) The largest channel bandwidth configuration is selected between the multiple configurations in a frequency band with the same maximum tune-up output power.

8.1.8 6G WIFI (SISO-Aux. Antenna) ((Laptop High power mode)

Band (GHz)	Mode	Channel	Freq. (MHz)	Output Power (dBm)	Tune-up Limit (dBm)	SAR Test Require.
6 (5.925~7.125)	802.11ax(HE20)	1	5955	12.39	13.00	No
		49	6195	12.44	13.00	No
		93	6415	12.42	13.00	No
		97	6435	12.48	13.00	No
		105	6475	12.29	13.00	No
		113	6515	12.37	13.00	No
		117	6535	12.18	13.00	No
		149	6695	12.23	13.00	No
		181	6855	12.31	13.00	No
		185	6875	12.34	13.00	No
		189	6895	12.53	13.00	No
		209	6995	12.34	13.00	No
		229	7095	12.43	13.00	No
		233	7115	12.32	13.00	No
	802.11ax(HE40)	3	5965	12.43	13.00	No
		51	6205	12.55	13.00	No
		91	6405	12.36	13.00	No
		99	6445	12.43	13.00	No
		107	6485	12.22	13.00	No
		115	6525	12.53	13.00	No
		123	6565	12.43	13.00	No
		147	6685	12.26	13.00	No
		179	6845	12.17	13.00	No
		187	6885	12.37	13.00	No
		195	6925	12.29	13.00	No
		211	7005	12.36	13.00	No
		227	7085	12.23	13.00	No
		802.11ax(HE80)	7	5985	12.55	13.00
	55		6225	12.52	13.00	No
	87		6385	12.19	13.00	No
	103		6465	12.39	13.00	No
	119		6545	12.18	13.00	No
	135		6625	12.49	13.00	No
	151		6705	12.28	13.00	No
	167		6785	12.31	13.00	No
	183	6865	12.32	13.00	No	

		199	6945	12.24	13.00	No
		215	7025	12.32	13.00	No
	802.11ax(HE160)	15	6025	12.49	13.00	Yes
		47	6185	12.23	13.00	Yes
		79	6345	12.38	13.00	Yes
		111	6505	12.35	13.00	Yes
		143	6665	12.11	13.00	Yes
		175	6825	12.41	13.00	Yes
		207	6985	12.42	13.00	Yes

Note: When multiple channel bandwidth configurations in a frequency band have the same maximum tune-up output power, the test configuration is determined by applying the following steps sequentially.

1) The largest channel bandwidth configuration is selected between the multiple configurations in a frequency band with the same maximum tune-up output power.

8.1.9 6G WIFI (MIMO) (Laptop High power mode)

Band (GHz)	Mode	Channel	Freq. (MHz)	Output Power (dBm)	Tune-up Limit (dBm)	SAR Test Require.
6 (5.925~7.125)	802.11ax(HE20)	1	5955	15.15	16.00	No
		49	6195	15.19	16.00	No
		93	6415	15.13	16.00	No
		97	6435	15.18	16.00	No
		105	6475	15.17	16.00	No
		113	6515	15.05	16.00	No
		117	6535	15.01	16.00	No
		149	6695	15.07	16.00	No
		181	6855	15.13	16.00	No
		185	6875	15.16	16.00	No
		189	6895	15.15	16.00	No
		209	6995	15.10	16.00	No
		229	7095	15.09	16.00	No
		233	7115	15.19	16.00	No
	802.11ax(HE40)	3	5965	15.23	16.00	No
		51	6205	15.26	16.00	No
		91	6405	15.06	16.00	No
		99	6445	15.17	16.00	No
		107	6485	15.04	16.00	No
		115	6525	15.21	16.00	No
		123	6565	15.24	16.00	No
		147	6685	15.16	16.00	No
		179	6845	15.11	16.00	No
		187	6885	15.06	16.00	No
		195	6925	15.02	16.00	No
		211	7005	15.15	16.00	No
	227	7085	15.13	16.00	No	
	802.11ax(HE80)	7	5985	15.17	16.00	No
		55	6225	15.30	16.00	No
		87	6385	15.10	16.00	No
		103	6465	15.09	16.00	No
		119	6545	15.00	16.00	No
		135	6625	15.18	16.00	No
151		6705	15.10	16.00	No	
167		6785	15.03	16.00	No	
183	6865	15.07	16.00	No		

		199	6945	14.97	16.00	No
		215	7025	15.13	16.00	No
	802.11ax(HE160)	15	6025	15.47	16.00	No
		47	6185	15.36	16.00	No
		79	6345	15.41	16.00	No
		111	6505	15.41	16.00	No
		143	6665	15.22	16.00	No
		175	6825	15.44	16.00	No
		207	6985	15.38	16.00	No

Note: For WiFi SAR testing was performed on single antenna RF power in SISO mode that is larger to the single antenna RF power in MIMO mode, and for RF exposure assessment of MIMO mode simultaneous transmission used more conservative "Max. (main ant) + Max. (aux. ant) " method to determine SAR compliance. When the sum of 1-g SISO transmission SAR measurement is <1.6 W/kg, or the SPLSR value ≤0.04 the MIMO SAR test is not required.

8.1.10 2.4G WIFI (SISO-Main Antenna) (Tablet Low power mode)

Band (GHz)	Mode	Channel	Freq. (MHz)	Output Power (dBm)	Tune-up Limit (dBm)	SAR Test Require.
2.4 (2.4~2.4835)	802.11b	1	2412	15.70	16.00	Yes
		6	2437	15.54	16.00	Yes
		11	2462	15.51	16.00	Yes
	802.11g	1	2412	15.18	16.00	No
		6	2437	15.23	16.00	No
		11	2462	15.31	16.00	No
	802.11n(HT20)	1	2412	15.36	16.00	No
		6	2437	15.32	16.00	No
		11	2462	15.55	16.00	No
	802.11n(HT40)	3	2422	15.20	16.00	No
		6	2437	15.23	16.00	No
		9	2452	15.37	16.00	No
	802.11ax(HE20)	1	2412	15.24	16.00	No
		6	2437	15.35	16.00	No
		11	2462	15.55	16.00	No
	802.11ax(HE40)	3	2422	15.51	16.00	No
		6	2437	15.48	16.00	No
		9	2452	15.31	16.00	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)) = $0.964 * (39.81\text{mW}/39.81\text{mW}) = 0.964$ W/Kg, so the 2.4G OFDM SAR test is not required.

8.1.11 2.4G WIFI (SISO-Aux. Antenna) (Tablet Low power mode)

Band (GHz)	Mode	Channel	Freq. (MHz)	Output Power (dBm)	Tune-up Limit (dBm)	SAR Test Require.
2.4 (2.4~2.4835)	802.11b	1	2412	15.34	16.00	Yes
		6	2437	15.41	16.00	Yes
		11	2462	15.47	16.00	Yes
	802.11g	1	2412	15.18	16.00	No
		6	2437	15.30	16.00	No
		11	2462	15.33	16.00	No
	802.11n(HT20)	1	2412	15.21	16.00	No
		6	2437	15.50	16.00	No
		11	2462	15.50	16.00	No
	802.11n(HT40)	3	2422	15.40	16.00	No
		6	2437	15.29	16.00	No
		9	2452	15.35	16.00	No
	802.11ax(HE20)	1	2412	15.33	16.00	No
		6	2437	15.18	16.00	No
		11	2462	15.43	16.00	No
	802.11ax(HE40)	3	2422	15.28	16.00	No
		6	2437	15.21	16.00	No
		9	2452	15.24	16.00	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)) = 0.939 * (39.81mW/39.81mW) = 0.939 W/Kg, so the 2.4G OFDM SAR test is not required.

8.1.12 2.4G WIFI (MIMO) (Tablet Low power mode)

Band (GHz)	Mode	Channel	Freq. (MHz)	Output Power (dBm)	Tune-up Limit (dBm)	SAR Test Require.
2.4 (2.4~2.4835)	802.11b	1	2412	18.53	19.00	No
		6	2437	18.49	19.00	No
		11	2462	18.50	19.00	No
	802.11g	1	2412	18.19	19.00	No
		6	2437	18.28	19.00	No
		11	2462	18.33	19.00	No
	802.11n(HT20)	1	2412	18.30	19.00	No
		6	2437	18.42	19.00	No
		11	2462	18.54	19.00	No
	802.11n(HT40)	3	2422	18.31	19.00	No
		6	2437	18.27	19.00	No
		9	2452	18.37	19.00	No
	802.11ax(HE20)	1	2412	18.30	19.00	No
		6	2437	18.28	19.00	No
		11	2462	18.50	19.00	No
802.11ax(HE40)	3	2422	18.41	19.00	No	
	6	2437	18.36	19.00	No	
	9	2452	18.29	19.00	No	

Note: For WiFi SAR testing was performed on single antenna RF power in SISO mode that is larger to the single antenna RF power in MIMO mode, and for RF exposure assessment of MIMO mode simultaneous transmission used more conservative "Max. (main ant) + Max. (aux. ant) " method to determine SAR compliance. When the sum of 1-g SISO transmission SAR measurement is <1.6 W/kg, or the SPLSR value ≤ 0.04 the MIMO SAR test is not required.

8.1.13 5G WIFI (SISO-Main Antenna) (Tablet Low power mode)

Band (GHz)	Mode	Channel	Freq. (MHz)	Output Power (dBm)	Tune-up Limit (dBm)	SAR Test Require.
5.2 (5.15~5.25)	802.11a	36	5180	10.96	11.50	No
		40	5200	10.91	11.50	No
		48	5240	10.98	11.50	No
	802.11n(HT20)	36	5180	10.68	11.50	No
		40	5200	10.81	11.50	No
		48	5240	10.95	11.50	No
	802.11n(HT40)	38	5190	11.04	11.50	No
		46	5230	10.95	11.50	No
	802.11ac(VHT20)	36	5180	11.01	11.50	No
		40	5200	10.96	11.50	No
		48	5240	10.97	11.50	No
	802.11ac(VHT40)	38	5190	10.99	11.50	No
		46	5230	11.00	11.50	No
	802.11ac(VHT80)	42	5210	11.07	11.50	No
	802.11ac(VHT160)	50	5250	11.15	11.50	No
	802.11ax(HE20)	36	5180	10.99	11.50	No
		40	5200	10.71	11.50	No
		48	5240	10.82	11.50	No
802.11ax(HE40)	38	5190	10.76	11.50	No	
	46	5230	10.88	11.50	No	
802.11ax(HE80)	42	5210	11.03	11.50	No	
802.11ax(HE160)	50	5250	11.00	11.50	No	
5.3 (5.25~5.35)	802.11a	52	5260	10.79	11.50	No
		60	5300	10.71	11.50	No
		64	5320	10.92	11.50	No
	802.11n(HT20)	52	5260	10.78	11.50	No
		60	5300	11.00	11.50	No
		64	5320	10.97	11.50	No
	802.11n(HT40)	54	5270	11.01	11.50	No
		62	5310	10.97	11.50	No
	802.11ac(VHT20)	52	5260	10.72	11.50	No
		60	5300	10.73	11.50	No
		64	5320	10.69	11.50	No
	802.11ac(VHT40)	54	5270	10.80	11.50	No
62		5310	10.83	11.50	No	

	802.11ac(VHT80)	58	5290	10.98	11.50	Yes
	802.11ax(HE20)	52	5260	10.93	11.50	No
		60	5300	10.90	11.50	No
		64	5320	10.77	11.50	No
	802.11ax(HE40)	54	5270	10.76	11.50	No
		62	5310	10.78	11.50	No
	802.11ax(HE80)	58	5290	11.04	11.50	No
5.6 (5.47~5.725)	802.11a	100	5500	10.78	11.50	No
		116	5580	10.66	11.50	No
		140	5700	10.99	11.50	No
		144	5720	10.77	11.50	No
	802.11n(HT20)	100	5500	10.70	11.50	No
		116	5580	10.93	11.50	No
		140	5700	10.96	11.50	No
		144	5720	10.84	11.50	No
	802.11n(HT40)	102	5510	10.78	11.50	No
		110	5550	11.00	11.50	No
		134	5670	10.96	11.50	No
		142	5710	10.90	11.50	No
	802.11ac(VHT20)	100	5500	10.66	11.50	No
		116	5580	10.72	11.50	No
		140	5700	10.71	11.50	No
		144	5720	10.97	11.50	No
	802.11ac(VHT40)	102	5510	10.93	11.50	No
		110	5550	10.93	11.50	No
		134	5670	10.73	11.50	No
		142	5710	10.80	11.50	No
	802.11ac(VHT80)	106	5530	10.83	11.50	No
		122	5610	10.84	11.50	No
		138	5690	10.94	11.50	No
	802.11ac(VHT160)	114	5570	10.99	11.50	Yes
	802.11ax(HE20)	100	5500	11.00	11.50	No
		116	5580	10.88	11.50	No
		140	5700	10.81	11.50	No
		144	5720	10.68	11.50	No
	802.11ax(HE40)	102	5510	10.95	11.50	No
		110	5550	10.67	11.50	No
		134	5670	10.74	11.50	No
		142	5710	10.69	11.50	No

	802.11ax(HE80)	106	5530	10.72	11.50	No
		122	5610	11.05	11.50	No
		138	5690	10.83	11.50	No
	802.11ax(HE160)	114	5570	10.84	11.50	No
5.8 (5.725~5.85)	802.11a	149	5745	10.77	11.50	No
		157	5785	10.81	11.50	No
		165	5825	10.87	11.50	No
	802.11n(HT20)	149	5745	10.87	11.50	No
		157	5785	10.93	11.50	No
		165	5825	10.85	11.50	No
	802.11n(HT40)	151	5755	11.04	11.50	No
		159	5795	10.76	11.50	No
	802.11ac(VHT20)	149	5745	11.00	11.50	No
		157	5785	11.00	11.50	No
		165	5825	10.96	11.50	No
	802.11ac(VHT40)	151	5755	10.99	11.50	No
		159	5795	10.67	11.50	No
	802.11ac(VHT80)	155	5775	11.01	11.50	Yes
	802.11ax(HE20)	149	5745	10.79	11.50	No
		157	5785	10.73	11.50	No
		165	5825	10.75	11.50	No
	802.11ax(HE40)	151	5755	10.78	11.50	No
		159	5795	11.03	11.50	No
	802.11ax(HE80)	155	5775	10.80	11.50	No
<p>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.</p>						

8.1.14 5G WIFI (SISO-Aux. Antenna) (Tablet Low power mode)

Band (GHz)	Mode	Channel	Freq. (MHz)	Output Power (dBm)	Tune-up Limit (dBm)	SAR Test Require.
5.2 (5.15~5.25)	802.11a	36	5180	11.78	12.50	No
		40	5200	11.75	12.50	No
		48	5240	11.80	12.50	No
	802.11n(HT20)	36	5180	11.96	12.50	No
		40	5200	11.66	12.50	No
		48	5240	11.98	12.50	No
	802.11n(HT40)	38	5190	11.94	12.50	No
		46	5230	11.94	12.50	No
	802.11ac(VHT20)	36	5180	11.68	12.50	No
		40	5200	11.83	12.50	No
		48	5240	12.04	12.50	No
	802.11ac(VHT40)	38	5190	11.68	12.50	No
		46	5230	11.69	12.50	No
	802.11ac(VHT80)	42	5210	12.01	12.50	No
	802.11ac(VHT160)	50	5250	12.23	12.50	No
	802.11ax(HE20)	36	5180	11.84	12.50	No
		40	5200	12.00	12.50	No
		48	5240	12.02	12.50	No
802.11ax(HE40)	38	5190	11.99	12.50	No	
	46	5230	11.69	12.50	No	
802.11ax(HE80)	42	5210	11.75	12.50	No	
802.11ax(HE160)	50	5250	11.68	12.50	No	
5.3 (5.25~5.35)	802.11a	52	5260	11.91	12.50	No
		60	5300	11.77	12.50	No
		64	5320	11.69	12.50	No
	802.11n(HT20)	52	5260	11.86	12.50	No
		60	5300	11.97	12.50	No
		64	5320	11.95	12.50	No
	802.11n(HT40)	54	5270	12.04	12.50	No
		62	5310	11.85	12.50	No
	802.11ac(VHT20)	52	5260	11.79	12.50	No
		60	5300	11.83	12.50	No
		64	5320	11.97	12.50	No
	802.11ac(VHT40)	54	5270	11.91	12.50	No
62		5310	11.83	12.50	No	

	802.11ac(VHT80)	58	5290	12.03	12.50	Yes
	802.11ax(HE20)	52	5260	11.71	12.50	No
		60	5300	11.72	12.50	No
		64	5320	11.78	12.50	No
	802.11ax(HE40)	54	5270	11.93	12.50	No
		62	5310	11.70	12.50	No
802.11ax(HE80)	58	5290	12.02	12.50	No	
5.6 (5.47~5.725)	802.11a	100	5500	11.87	12.50	No
		116	5580	11.80	12.50	No
		140	5700	11.77	12.50	No
		144	5720	12.03	12.50	No
	802.11n(HT20)	100	5500	11.75	12.50	No
		116	5580	11.94	12.50	No
		140	5700	11.75	12.50	No
		144	5720	11.83	12.50	No
	802.11n(HT40)	102	5510	11.73	12.50	No
		110	5550	11.78	12.50	No
		134	5670	11.87	12.50	No
		142	5710	12.04	12.50	No
	802.11ac(VHT20)	100	5500	12.01	12.50	No
		116	5580	11.88	12.50	No
		140	5700	11.98	12.50	No
		144	5720	11.89	12.50	No
	802.11ac(VHT40)	102	5510	12.04	12.50	No
		110	5550	11.74	12.50	No
		134	5670	11.93	12.50	No
		142	5710	12.01	12.50	No
	802.11ac(VHT80)	106	5530	11.95	12.50	No
		122	5610	12.14	12.50	No
		138	5690	12.02	12.50	No
	802.11ac(VHT160)	114	5570	12.26	12.50	Yes
	802.11ax(HE20)	100	5500	11.78	12.50	No
		116	5580	11.93	12.50	No
		140	5700	11.81	12.50	No
		144	5720	11.92	12.50	No
	802.11ax(HE40)	102	5510	11.74	12.50	No
		110	5550	11.73	12.50	No
		134	5670	11.85	12.50	No
		142	5710	11.99	12.50	No

	802.11ax(HE80)	106	5530	11.92	12.50	No
		122	5610	11.69	12.50	No
		138	5690	11.92	12.50	No
	802.11ax(HE160)	114	5570	11.93	12.50	No
5.8 (5.725~5.85)	802.11a	149	5745	10.89	11.50	No
		157	5785	10.69	11.50	No
		165	5825	10.69	11.50	No
	802.11n(HT20)	149	5745	10.78	11.50	No
		157	5785	10.87	11.50	No
		165	5825	11.02	11.50	No
	802.11n(HT40)	151	5755	10.78	11.50	No
		159	5795	10.80	11.50	No
	802.11ac(VHT20)	149	5745	10.94	11.50	No
		157	5785	10.87	11.50	No
		165	5825	11.03	11.50	No
	802.11ac(VHT40)	151	5755	10.71	11.50	No
		159	5795	10.96	11.50	No
	802.11ac(VHT80)	155	5775	11.10	11.50	Yes
	802.11ax(HE20)	149	5745	10.91	11.50	No
		157	5785	10.83	11.50	No
		165	5825	10.97	11.50	No
	802.11ax(HE40)	151	5755	10.93	11.50	No
		159	5795	11.00	11.50	No
	802.11ax(HE80)	155	5775	10.69	11.50	No
	<p>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.</p>					

8.1.15 5G WIFI (MIMO) (Tablet Low power mode)

Band (GHz)	Mode	Channel	Freq. (MHz)	Output Power (dBm)	Tune-up Limit (dBm)	SAR Test Require.
5.2 (5.15~5.25)	802.11a	36	5180	14.40	15.00	No
		40	5200	14.36	15.00	No
		48	5240	14.42	15.00	No
	802.11n(HT20)	36	5180	14.38	15.00	No
		40	5200	14.27	15.00	No
		48	5240	14.51	15.00	No
	802.11n(HT40)	38	5190	14.52	15.00	No
		46	5230	14.48	15.00	No
	802.11ac(VHT20)	36	5180	14.37	15.00	No
		40	5200	14.43	15.00	No
		48	5240	14.55	15.00	No
	802.11ac(VHT40)	38	5190	14.36	15.00	No
		46	5230	14.37	15.00	No
	802.11ac(VHT80)	42	5210	14.58	15.00	No
	802.11ac(VHT160)	50	5250	14.73	15.00	No
	802.11ax(HE20)	36	5180	14.45	15.00	No
		40	5200	14.41	15.00	No
		48	5240	14.47	15.00	No
802.11ax(HE40)	38	5190	14.43	15.00	No	
	46	5230	14.31	15.00	No	
802.11ax(HE80)	42	5210	14.42	15.00	No	
802.11ax(HE160)	50	5250	14.36	15.00	No	
5.3 (5.25~5.35)	802.11a	52	5260	14.40	15.00	No
		60	5300	14.28	15.00	No
		64	5320	14.33	15.00	No
	802.11n(HT20)	52	5260	14.36	15.00	No
		60	5300	14.52	15.00	No
		64	5320	14.50	15.00	No
	802.11n(HT40)	54	5270	14.57	15.00	No
		62	5310	14.44	15.00	No
	802.11ac(VHT20)	52	5260	14.30	15.00	No
		60	5300	14.33	15.00	No
		64	5320	14.39	15.00	No
	802.11ac(VHT40)	54	5270	14.40	15.00	No
62		5310	14.37	15.00	No	

	802.11ac(VHT80)	58	5290	14.55	15.00	No
	802.11ax(HE20)	52	5260	14.35	15.00	No
		60	5300	14.34	15.00	No
		64	5320	14.31	15.00	No
	802.11ax(HE40)	54	5270	14.39	15.00	No
		62	5310	14.27	15.00	No
	802.11ax(HE80)	58	5290	14.57	15.00	No
5.6 (5.47~5.725)	802.11a	100	5500	14.37	15.00	No
		116	5580	14.28	15.00	No
		140	5700	14.41	15.00	No
		144	5720	14.46	15.00	No
	802.11n(HT20)	100	5500	14.27	15.00	No
		116	5580	14.47	15.00	No
		140	5700	14.38	15.00	No
		144	5720	14.37	15.00	No
	802.11n(HT40)	102	5510	14.29	15.00	No
		110	5550	14.42	15.00	No
		134	5670	14.45	15.00	No
		142	5710	14.52	15.00	No
	802.11ac(VHT20)	100	5500	14.40	15.00	No
		116	5580	14.35	15.00	No
		140	5700	14.40	15.00	No
		144	5720	14.46	15.00	No
	802.11ac(VHT40)	102	5510	14.53	15.00	No
		110	5550	14.36	15.00	No
		134	5670	14.38	15.00	No
		142	5710	14.46	15.00	No
	802.11ac(VHT80)	106	5530	14.44	15.00	No
		122	5610	14.55	15.00	No
		138	5690	14.52	15.00	No
	802.11ac(VHT160)	114	5570	14.68	15.00	No
	802.11ax(HE20)	100	5500	14.42	15.00	No
		116	5580	14.45	15.00	No
		140	5700	14.35	15.00	No
		144	5720	14.35	15.00	No
	802.11ax(HE40)	102	5510	14.37	15.00	No
		110	5550	14.24	15.00	No
		134	5670	14.34	15.00	No
		142	5710	14.40	15.00	No

	802.11ax(HE80)	106	5530	14.37	15.00	No	
		122	5610	14.39	15.00	No	
		138	5690	14.42	15.00	No	
	802.11ax(HE160)	114	5570	14.43	15.00	No	
5.8 (5.725~5.85)	802.11a	149	5745	13.84	14.50	No	
		157	5785	13.76	14.50	No	
		165	5825	13.79	14.50	No	
	802.11n(HT20)	149	5745	13.84	14.50	No	
		157	5785	13.91	14.50	No	
		165	5825	13.95	14.50	No	
	802.11n(HT40)	151	5755	13.92	14.50	No	
		159	5795	13.79	14.50	No	
	802.11ac(VHT20)	149	5745	13.98	14.50	No	
		157	5785	13.95	14.50	No	
		165	5825	14.01	14.50	No	
	802.11ac(VHT40)	151	5755	13.86	14.50	No	
		159	5795	13.83	14.50	No	
	802.11ac(VHT80)	155	5775	14.07	14.50	No	
	802.11ax(HE20)	149	5745	13.86	14.50	No	
		157	5785	13.79	14.50	No	
		165	5825	13.87	14.50	No	
	802.11ax(HE40)	151	5755	13.87	14.50	No	
		159	5795	14.03	14.50	No	
	802.11ax(HE80)	155	5775	13.76	14.50	No	
	<p>Note: For WiFi SAR testing was performed on single antenna RF power in SISO mode that is larger to the single antenna RF power in MIMO mode, and for RF exposure assessment of MIMO mode simultaneous transmission used more conservative "Max. (main ant) + Max. (aux. ant) " method to determine SAR compliance. When the sum of 1-g SISO transmission SAR measurement is <1.6 W/kg, or the SPLSR value ≤ 0.04 the MIMO SAR test is not required.</p>						

8.1.16 6G WIFI (SISO-Main Antenna) (Tablet Low power mode)

Band (GHz)	Mode	Channel	Freq. (MHz)	Output Power (dBm)	Tune-up Limit (dBm)	SAR Test Require.
6 (5.925~7.125)	802.11ax(HE20)	1	5955	8.82	9.50	No
		49	6195	8.73	9.50	No
		93	6415	8.82	9.50	No
		97	6435	8.85	9.50	No
		105	6475	8.82	9.50	No
		113	6515	8.94	9.50	No
		117	6535	8.76	9.50	No
		149	6695	8.98	9.50	No
		181	6855	8.86	9.50	No
		185	6875	8.72	9.50	No
		189	6895	8.74	9.50	No
		209	6995	8.77	9.50	No
		229	7095	8.85	9.50	No
		233	7115	9.04	9.50	No
	802.11ax(HE40)	3	5965	8.68	9.50	No
		51	6205	8.75	9.50	No
		91	6405	8.70	9.50	No
		99	6445	8.83	9.50	No
		107	6485	8.89	9.50	No
		115	6525	8.99	9.50	No
		123	6565	8.74	9.50	No
		147	6685	9.05	9.50	No
		179	6845	8.87	9.50	No
		187	6885	8.86	9.50	No
		195	6925	8.80	9.50	No
		211	7005	8.84	9.50	No
		227	7085	8.66	9.50	No
	802.11ax(HE80)	7	5985	8.73	9.50	No
		55	6225	8.82	9.50	No
		87	6385	8.99	9.50	No
		103	6465	9.03	9.50	No
		119	6545	8.72	9.50	No
		135	6625	8.91	9.50	No
151		6705	9.01	9.50	No	
167		6785	8.99	9.50	No	
183	6865	8.93	9.50	No		

		199	6945	8.70	9.50	No
		215	7025	8.93	9.50	No
	802.11ax(HE160)	15	6025	9.02	9.50	Yes
		47	6185	9.03	9.50	Yes
		79	6345	8.91	9.50	Yes
		111	6505	8.99	9.50	Yes
		143	6665	9.02	9.50	Yes
		175	6825	9.11	9.50	Yes
		207	6985	9.12	9.50	Yes

Note: When multiple channel bandwidth configurations in a frequency band have the same maximum tune-up output power, the test configuration is determined by applying the following steps sequentially.

1) The largest channel bandwidth configuration is selected between the multiple configurations in a frequency band with the same maximum tune-up output power.

8.1.17 6G WIFI (SISO-Aux. Antenna) (Tablet Low power mode)

Band (GHz)	Mode	Channel	Freq. (MHz)	Output Power (dBm)	Tune-up Limit (dBm)	SAR Test Require.
6 (5.925~7.125)	802.11ax(HE20)	1	5955	10.02	10.50	No
		49	6195	9.75	10.50	No
		93	6415	9.85	10.50	No
		97	6435	9.91	10.50	No
		105	6475	9.96	10.50	No
		113	6515	9.80	10.50	No
		117	6535	9.87	10.50	No
		149	6695	9.97	10.50	No
		181	6855	9.73	10.50	No
		185	6875	9.71	10.50	No
		189	6895	9.78	10.50	No
		209	6995	9.93	10.50	No
		229	7095	9.97	10.50	No
		233	7115	9.96	10.50	No
	802.11ax(HE40)	3	5965	9.94	10.50	No
		51	6205	9.67	10.50	No
		91	6405	9.77	10.50	No
		99	6445	10.05	10.50	No
		107	6485	9.95	10.50	No
		115	6525	10.04	10.50	No
		123	6565	9.69	10.50	No
		147	6685	9.70	10.50	No
		179	6845	9.68	10.50	No
		187	6885	10.03	10.50	No
		195	6925	9.90	10.50	No
		211	7005	9.91	10.50	No
	227	7085	9.78	10.50	No	
	802.11ax(HE80)	7	5985	10.01	10.50	No
		55	6225	9.92	10.50	No
		87	6385	10.05	10.50	No
		103	6465	9.72	10.50	No
		119	6545	9.82	10.50	No
		135	6625	9.86	10.50	No
		151	6705	9.97	10.50	No
		167	6785	9.67	10.50	No
	183	6865	9.74	10.50	No	

		199	6945	9.80	10.50	No
		215	7025	9.82	10.50	No
	802.11ax(HE160)	15	6025	10.04	10.50	Yes
		47	6185	9.89	10.50	Yes
		79	6345	10.13	10.50	Yes
		111	6505	10.06	10.50	Yes
		143	6665	9.76	10.50	Yes
		175	6825	9.61	10.50	Yes
		207	6985	10.15	10.50	Yes

Note: When multiple channel bandwidth configurations in a frequency band have the same maximum tune-up output power, the test configuration is determined by applying the following steps sequentially.

1) The largest channel bandwidth configuration is selected between the multiple configurations in a frequency band with the same maximum tune-up output power.

8.1.18 6G WIFI (MIMO) (Tablet Low power mode)

Band (GHz)	Mode	Channel	Freq. (MHz)	Output Power (dBm)	Tune-up Limit (dBm)	SAR Test Require.
6 (5.925~7.125)	802.11ax(HE20)	1	5955	12.47	13.00	No
		49	6195	12.28	13.00	No
		93	6415	12.38	13.00	No
		97	6435	12.42	13.00	No
		105	6475	12.44	13.00	No
		113	6515	12.40	13.00	No
		117	6535	12.36	13.00	No
		149	6695	12.51	13.00	No
		181	6855	12.33	13.00	No
		185	6875	12.25	13.00	No
		189	6895	12.30	13.00	No
		209	6995	12.40	13.00	No
		229	7095	12.46	13.00	No
		233	7115	12.53	13.00	No
	802.11ax(HE40)	3	5965	12.37	13.00	No
		51	6205	12.24	13.00	No
		91	6405	12.28	13.00	No
		99	6445	12.49	13.00	No
		107	6485	12.46	13.00	No
		115	6525	12.56	13.00	No
		123	6565	12.25	13.00	No
		147	6685	12.40	13.00	No
		179	6845	12.30	13.00	No
		187	6885	12.49	13.00	No
		195	6925	12.40	13.00	No
		211	7005	12.42	13.00	No
	227	7085	12.27	13.00	No	
	802.11ax(HE80)	7	5985	12.43	13.00	No
		55	6225	12.42	13.00	No
		87	6385	12.56	13.00	No
		103	6465	12.40	13.00	No
		119	6545	12.32	13.00	No
		135	6625	12.42	13.00	No
151		6705	12.53	13.00	No	
167		6785	12.35	13.00	No	
183	6865	12.36	13.00	No		

		199	6945	12.30	13.00	No
		215	7025	12.41	13.00	No
	802.11ax(HE160)	15	6025	12.57	13.00	No
		47	6185	12.49	13.00	No
		79	6345	12.57	13.00	No
		111	6505	12.57	13.00	No
		143	6665	12.42	13.00	No
		175	6825	12.38	13.00	No
		207	6985	12.68	13.00	No

Note: For WiFi SAR testing was performed on single antenna RF power in SISO mode that is larger to the single antenna RF power in MIMO mode, and for RF exposure assessment of MIMO mode simultaneous transmission used more conservative "Max. (main ant) + Max. (aux. ant) " method to determine SAR compliance. When the sum of 1-g SISO transmission SAR measurement is <1.6 W/kg, or the SPLSR value ≤0.04 the MIMO SAR test is not required.

8.2 Bluetooth

8.2.1 Bluetooth (Aux. Antenna)

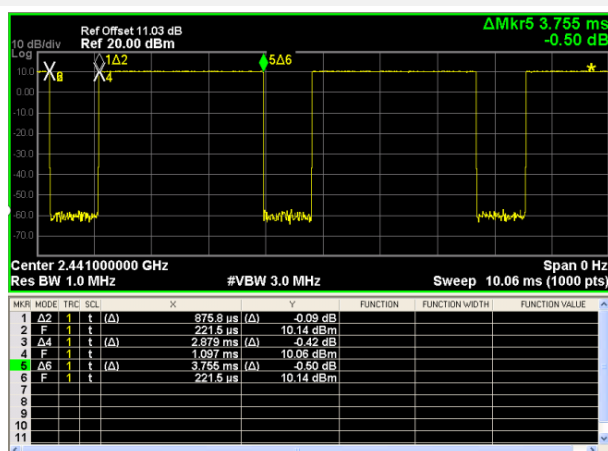
Mode	GFSK			π/4-DQPSK		
Channel	0	39	78	0	39	78
Frequency (MHz)	2402	2441	2480	2402	2441	2480
Average Power (dBm)	10.00	10.03	10.35	7.47	7.65	7.94
Tune-Up Limit (dBm)	10.50	10.50	10.50	8.50	8.50	8.50
SAR Test Require	Yes	Yes	Yes	No	No	No
Mode	8-DPSK			/		
Channel	0	39	78	/	/	/
Frequency (MHz)	2402	2441	2480	/	/	/
Average Power (dBm)	7.58	7.77	7.97	/	/	/
Tune-Up Limit (dBm)	8.50	8.50	8.50	/	/	/
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
Average Power (dBm)	8.65	8.78	8.96	8.63	8.72	8.80
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 $\leq \frac{1}{4}$ dB higher than the primary mode.

The Bluetooth duty cycle is 76.67 % as following figure, according to 2016 Oct. TCB workshop for Bluetooth SAR scaling need further consideration and the maximum duty cycle is 100%, therefore the actual duty cycle will be scaled up to 100% for Bluetooth reported SAR calculation.

Duty Cycle

Bluetooth-GFSK

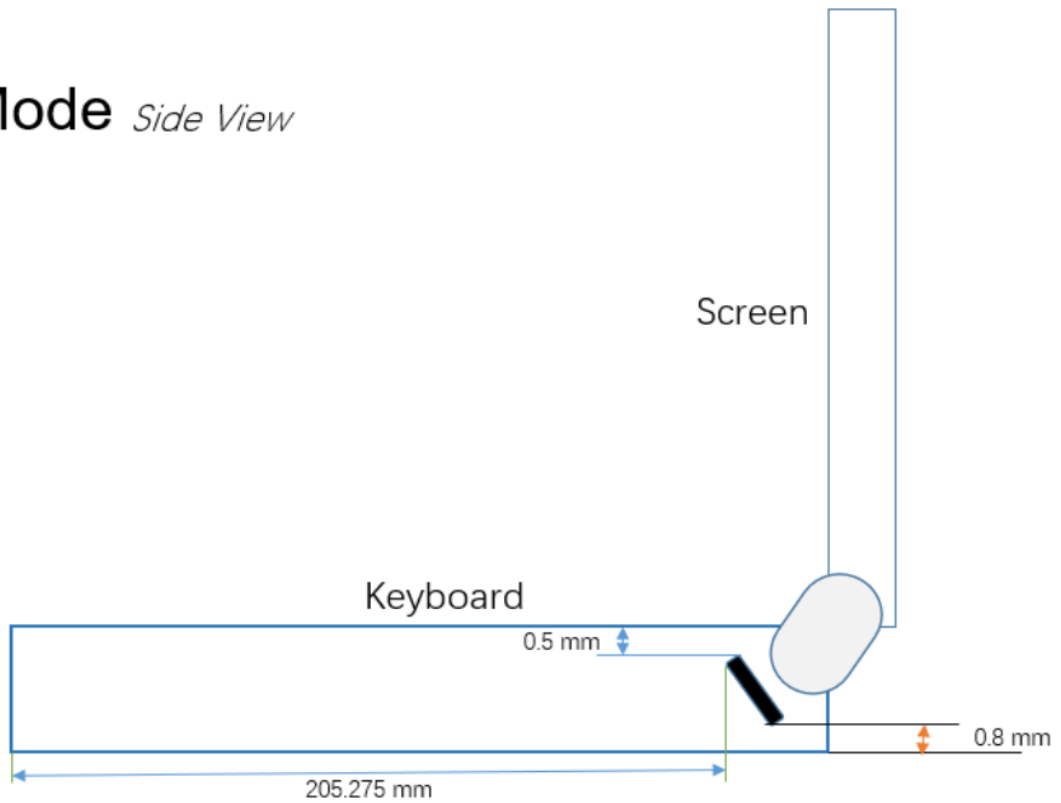


9 TEST EXCLUSION CONSIDERATION

9.1 EUT Antenna Location Sketch

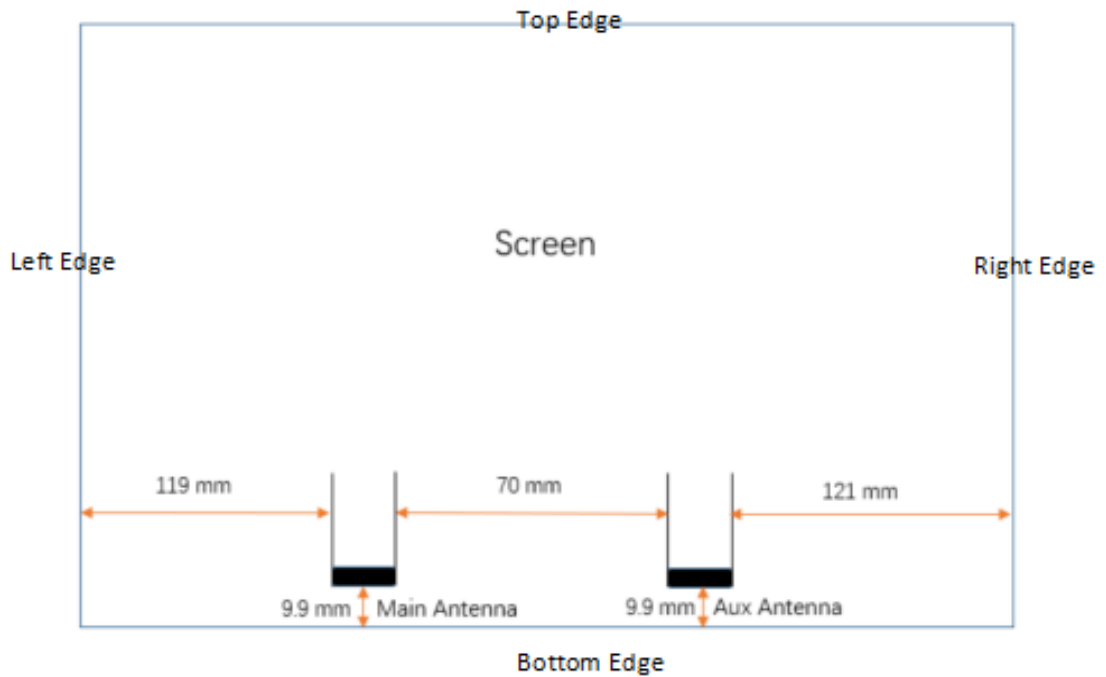
9.1.1 NB Mode SAR dimensioned photo:

NB Mode *Side View*

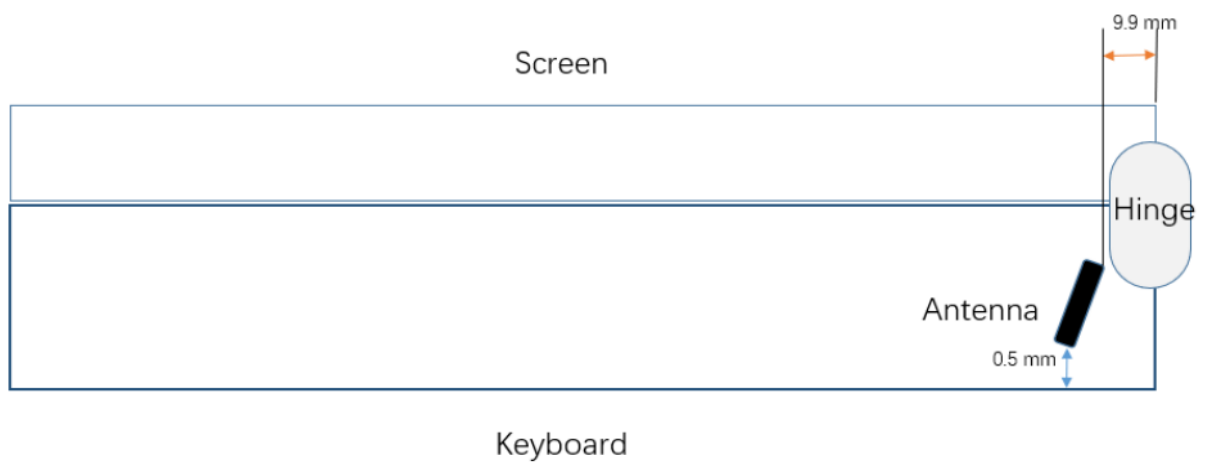


9.1.2 Tablet Mode SAR dimensioned photo:

Tablet Mode *Front View*



Tablet Mode *Side View*



Antenna	Support Bands
Antenna Aux.	BT; WLAN 2.4G/5G/6G
Antenna Main	WLAN 2.4G/5G/6G

9.2 SAR Test Consideration Table

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

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

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

9.2.1 SAR Test Consideration

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

RF exposure Position	DUT Mode	RF exposure scenarios
Bottom Side	Laptop	Body
Back Side(with keyboard)	Tablet	Body
Left Edge	Tablet	Body
Right Edge	Tablet	Body
Top Edge	Tablet	Body
Bottom Edge	Tablet	Body

SISO-Main Antenna Body RF exposure scenarios

Test Position Configurations	Mode	WLAN 2.4GHz	U-NII-2A	U-NII-2C	U-NII-3	U-NII-5/6/7/8
Calculated Frequency(MHz)		2462	5320	5710	5825	5925
Bottom Side	Distance to User (mm)	5.00				
	Max. Peak Power (dBm)	16.00	13.50	14.00	14.00	13.00
	Max. Peak Power (mW)	39.81	22.39	25.12	25.12	19.95
	Exclusion Threshold (mW)	2.73	1.47	1.39	1.37	1.35
	SAR Test Required	Yes	Yes	Yes	Yes	Yes
Back Side (with keyboard)	Distance to User (mm)	5.00				
	Max. Peak Power (dBm)	16.00	11.50	11.50	11.50	9.50
	Max. Peak Power (mW)	39.81	14.13	14.13	14.13	8.91
	Exclusion Threshold (mW)	2.73	1.47	1.39	1.37	1.35
	SAR Test Required	Yes	Yes	Yes	Yes	Yes
Left Edge	Distance to User (mm)	119.00				
	Max. Peak Power (dBm)	16.00	11.50	11.50	11.50	9.50
	Max. Peak Power (mW)	39.81	14.13	14.13	14.13	8.91
	Exclusion Threshold (mW)	1139.14	1044.37	1036.07	1033.74	1031.76
	SAR Test Required	No	No	No	No	No
Right Edge	Distance to User (mm)	191.00				
	Max. Peak Power (dBm)	16.00	11.50	11.50	11.50	9.50
	Max. Peak Power (mW)	39.81	14.13	14.13	14.13	8.91
	Exclusion Threshold (mW)	2803.26	2781.75	2779.78	2779.23	2778.75
	SAR Test Required	No	No	No	No	No
Top Edge	Distance to User (mm)	205.28				
	Max. Peak Power (dBm)	16.00	11.50	11.50	11.50	9.50
	Max. Peak Power (mW)	39.81	14.13	14.13	14.13	8.91
	Exclusion Threshold (mW)	3215.58	3229.63	3230.92	3231.29	3231.60
	SAR Test Required	Yes	Yes	Yes	Yes	Yes
Bottom Edge	Distance to User (mm)	7.00				
	Max. Peak Power (dBm)	16.00	11.50	11.50	11.50	9.50
	Max. Peak Power (mW)	39.81	14.13	14.13	14.13	8.91
	Exclusion Threshold (mW)	5.19	2.96	2.81	2.77	2.74
	SAR Test Required	No	No	No	No	No

SISO-Aux. Antenna Body RF exposure scenarios

Test Position Configurations	Mode	Bluetooth	WLAN 2.4GHz	U-NII-2A	U-NII-2C	U-NII-3	U-NII-5/6/7/8
Calculated Frequency(MHz)		2480	2462	5320	5710	5825	5925
Bottom Side	Distance to User (mm)	5.00					
	Max. Peak Power (dBm)	10.50	16.00	13.50	14.00	14.00	13.00
	Max. Peak Power (mW)	11.22	39.81	22.39	25.12	25.12	19.95
	Exclusion Threshold (mW)	2.72	2.73	1.47	1.39	1.37	1.35
	SAR Test Required	Yes	Yes	Yes	Yes	Yes	Yes
Back Side (with keyboard)	Distance to User (mm)	5.00					
	Max. Peak Power (dBm)	10.50	16.00	12.50	12.50	11.50	10.50
	Max. Peak Power (mW)	11.22	39.81	17.78	17.78	14.13	11.22
	Exclusion Threshold (mW)	2.72	2.73	1.47	1.39	1.37	1.35
	SAR Test Required	Yes	Yes	Yes	Yes	Yes	Yes
Left Edge	Distance to User (mm)	189.00					
	Max. Peak Power (dBm)	10.50	16.00	12.50	12.50	11.50	10.50
	Max. Peak Power (mW)	11.22	39.81	17.78	17.78	14.13	11.22
	Exclusion Threshold (mW)	2747.41	2747.66	2721.78	2719.41	2718.75	2718.18
	SAR Test Required	No	No	No	No	No	No
Right Edge	Distance to User (mm)	121.00					
	Max. Peak Power (dBm)	10.50	16.00	12.50	12.50	11.50	10.50
	Max. Peak Power (mW)	11.22	39.81	17.78	17.78	14.13	11.22
	Exclusion Threshold (mW)	1174.92	1175.86	1081.04	1072.72	1070.39	1068.40
	SAR Test Required	No	No	No	No	No	No
Top Edge	Distance to User (mm)	205.28					
	Max. Peak Power (dBm)	10.50	16.00	12.50	12.50	11.50	10.50
	Max. Peak Power (mW)	11.22	39.81	17.78	17.78	14.13	11.22
	Exclusion Threshold (mW)	3215.71	3215.58	3229.63	3230.92	3231.29	3231.60
	SAR Test Required	No	No	No	No	No	No
Bottom Edge	Distance to User (mm)	7.00					
	Max. Peak Power (dBm)	10.50	16.00	12.50	12.50	11.50	10.50
	Max. Peak Power (mW)	11.22	39.81	17.78	17.78	14.13	11.22
	Exclusion Threshold (mW)	5.16	5.19	2.96	2.81	2.77	2.74
	SAR Test Required	Yes	Yes	Yes	Yes	Yes	Yes

Note:

1. Maximum power is the source-based time-average power and represents the maximum RF output power including tune-up tolerance among production units
2. Per KDB 447498 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:

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

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:

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

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 TEST RESULT

1. The reported SAR is the measured SAR value adjusted for maximum tune-up tolerance.
 - a. Tune-up scaling Factor = tune-up limit power (mW) / EUT RF power (mW), where tune-up limit is the maximum rated power among all production units.
 - b. For SAR testing of WLAN signal with non-100% duty cycle, the measured SAR is scaled-up by the duty cycle scaling factor which is equal to "1/(duty cycle)".
 - c. For WLAN/Bluetooth: Reported SAR(W/kg)= Measured SAR(W/kg)* Duty Cycle scaling factor * Tune-up scaling factor
2. Absorbed power density (APD) using a 4cm² averaging area is reported based on SAR measurements.
3. Per KDB 447498 D04, for each exposure position, testing of other required channels within the operating mode of a frequency band is not required when the reported 1-g or 10-g SAR for the mid-band or highest output power channel is:
 - ≤ 0.8 W/kg or 2.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≤ 100 MHz
 - ≤ 0.6 W/kg or 1.5 W/kg, for 1-g or 10-g respectively, when the transmission band is between 100 MHz and 200 MHz
 - ≤ 0.4 W/kg or 1.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≥ 200 MHz
4. Per KDB 865664 D01v01r04, for each frequency band, repeated SAR measurement is required only when the measured SAR is ≥ 0.8 W/kg

10.1 Bluetooth (Aux. Antenna)

Mode	Antenna	Antenna Manufacturer	Test State	Position	Dist. (mm)	Ch.	Freq. (MHz)	Power Drift (dB)	1g Meas SAR (W/kg)	Meas. Power (dBm)	Tune-up power (dBm)	Scaling Factor	Duty cycle (%)	Duty cycle Factor	1g Scaled SAR (W/kg)	Meas. No.		
Body																		
DH5	Aux.	HCT-Luxhare	Laptop	Bottom Side	0	78	2480	-0.08	0.068	10.35	10.50	1.035	76.67	1.304	0.092	/		
			Tablet	Back Side	0	78	2480	-0.15	0.037	10.35	10.50	1.035	76.67	1.304	0.050	/		
				Bottom Edge	0	78	2480	0.05	0.004	10.35	10.50	1.035	76.67	1.304	0.005	/		
				Bottom Side	0	78	2480	-0.19	0.123	10.35	10.50	1.035	76.67	1.304	0.166	1#		
			SPEED	Laptop	Bottom Side	0	0	2401	-0.03	0.086	10.00	10.50	1.122	76.67	1.304	0.126	/	
					Bottom Side	0	39	2441	-0.14	0.082	10.03	10.50	1.114	76.67	1.304	0.119	/	
		Bottom Side			0	78	2480	-0.17	0.032	10.35	10.50	1.035	76.67	1.304	0.043	/		
		Tablet		Bottom Edge	0	78	2480	-0.10	0.010	10.35	10.50	1.035	76.67	1.304	0.013	/		
		Note: Refer to ANNEX C for the detailed test data for each test configuration.																

10.2WIFI 2.4GHZ

Mode	Antenna	Antenna Manufacturer	Test State	Position	Dist. (mm)	Ch.	Freq. (MHz)	Power Drift (dB)	1g Meas SAR (W/kg)	Meas. Power (dBm)	Tune-up power (dBm)	Scaling Factor	Duty cycle (%)	Duty cycle Factor	1g Scaled SAR (W/kg)	Meas. No.		
Body																		
802.11b	Aux.	HCT-Luxhare	Laptop	Bottom Side	0	11	2462	-0.05	0.529	15.47	16.00	1.130	96.74	1.034	0.618	/		
			Tablet	Back Side	0	11	2462	-0.01	0.562	15.47	16.00	1.130	96.74	1.034	0.657	/		
				Bottom Edge	0	11	2462	0.02	0.037	15.47	16.00	1.130	96.74	1.034	0.043	/		
				Back Side	0	1	2412	-0.04	0.476	15.34	16.00	1.164	96.74	1.034	0.573	/		
				Back Side	0	6	2437	-0.11	0.530	15.41	16.00	1.146	96.74	1.034	0.628	/		
		SPEED	Laptop	Bottom Side	0	11	2462	0.09	0.915	15.47	16.00	1.130	96.74	1.034	1.069	2#		
				Bottom Side	0	1	2412	-0.20	0.843	15.34	16.00	1.164	96.74	1.034	1.015	/		
				Bottom Side	0	6	2437	-0.16	0.800	15.41	16.00	1.146	96.74	1.034	0.948	/		
			Tablet	Back Side	0	11	2462	-0.04	0.804	15.47	16.00	1.130	96.74	1.034	0.939	/		
				Bottom Edge	0	11	2462	0.07	0.053	15.47	16.00	1.130	96.74	1.034	0.062	/		
				Back Side	0	1	2412	-0.12	0.715	15.34	16.00	1.164	96.74	1.034	0.861	/		
				Back Side	0	6	2437	-0.02	0.687	15.41	16.00	1.146	96.74	1.034	0.814	/		
	Main	HCT-Luxhare	Laptop	Bottom Side	0	1	2412	-0.12	0.681	15.70	16.00	1.072	96.74	1.034	0.755	/		
			Tablet	Back Side	0	1	2412	0.02	0.630	15.70	16.00	1.072	96.74	1.034	0.698	/		
				Bottom Edge	0	1	2412	0.03	0.035	15.70	16.00	1.072	96.74	1.034	0.039	/		
		SPEED	Laptop	Bottom Side	0	1	2412	0.00	0.857	15.70	16.00	1.072	96.74	1.034	0.950	/		
				Bottom Side	0	6	2437	-0.16	0.749	15.54	16.00	1.112	96.74	1.034	0.861	/		
				Bottom Side	0	11	2462	-0.12	0.755	15.51	16.00	1.119	96.74	1.034	0.874	/		
			Tablet	Back Side	0	1	2412	-0.15	0.798	15.70	16.00	1.072	96.74	1.034	0.885	/		
				Bottom Edge	0	1	2412	-0.18	0.058	15.70	16.00	1.072	96.74	1.034	0.064	/		
				Back Side	0	6	2437	-0.07	0.772	15.54	16.00	1.112	96.74	1.034	0.888	/		
				Back Side	0	11	2462	-0.07	0.833	15.51	16.00	1.119	96.74	1.034	0.964	3#		
		Note: Refer to ANNEX C for the detailed test data for each test configuration.																

10.3 WIFI 5GHZ

Fre. Band	Mode	Antenna	Antenna Manufacturer	Test State	Position	Dist. (mm)	Ch.	Freq. (MHz)	Power Drift (dB)	1g Meas. SAR (W/kg)	Meas. Power (dBm)	Tune-up power (dBm)	Scaling Factor	Duty cycle (%)	Duty cycle Factor	1g Scaled SAR (W/kg)	Meas. No.
Body																	
U-NII-2A	802.11ac 80	Aux.	HCT-Luxhare	Laptop	Bottom Side	0	58	5290	-0.04	0.631	13.44	13.50	1.014	97.25	1.028	0.658	/
				Tablet	Back Side	0	58	5290	-0.17	0.731	12.03	12.50	1.114	97.25	1.028	0.837	/
					Bottom Edge	0	58	5290	-0.04	0.158	12.03	12.50	1.114	97.25	1.028	0.181	/
			SPEED	Laptop	Bottom Side	0	58	5290	-0.01	0.847	13.44	13.50	1.014	97.25	1.028	0.883	/
				Tablet	Back Side	0	58	5290	-0.09	0.823	12.03	12.50	1.114	97.25	1.028	0.942	4#
					Bottom Edge	0	58	5290	-0.15	0.091	12.03	12.50	1.114	97.25	1.028	0.104	/
	Main	HCT-Luxhare	Laptop	Bottom Side	0	58	5290	-0.03	0.650	13.48	13.50	1.005	97.25	1.028	0.672	/	
			Tablet	Back Side	0	58	5290	-0.08	0.663	10.98	11.50	1.127	97.25	1.028	0.768	/	
				Bottom Edge	0	58	5290	0.03	0.098	10.98	11.50	1.127	97.25	1.028	0.114	/	
		SPEED	Laptop	Bottom Side	0	58	5290	0.09	0.756	13.48	13.50	1.005	97.25	1.028	0.781	5#	
			Tablet	Back Side	0	58	5290	-0.06	0.603	10.98	11.50	1.127	97.25	1.028	0.699	/	
				Bottom Edge	0	58	5290	-0.07	0.088	10.98	11.50	1.127	97.25	1.028	0.102	/	
U-NII-2C	802.11ac 160	Aux.	HCT-Luxhare	Laptop	Bottom Side	0	114	5570	0.05	0.800	13.74	14.00	1.062	94.30	1.060	0.901	/
				Tablet	Back Side	0	114	5570	-0.05	1.050	12.48	12.50	1.005	94.30	1.060	1.119	6#
					Bottom Edge	0	114	5570	0.00	0.182	12.48	12.50	1.005	94.30	1.060	0.194	/
			SPEED	Laptop	Bottom Side	0	114	5570	-0.04	0.772	13.74	14.00	1.062	94.30	1.060	0.869	/
				Tablet	Back Side	0	114	5570	-0.11	0.901	12.48	12.50	1.005	94.30	1.060	0.960	/
					Bottom Edge	0	114	5570	0.00	0.135	12.48	12.50	1.005	94.30	1.060	0.144	/
	Main	HCT-Luxhare	Laptop	Bottom Side	0	114	5570	-0.01	0.699	13.72	14.00	1.067	94.30	1.060	0.791	/	
			Tablet	Back Side	0	114	5570	-0.11	0.893	11.49	11.50	1.002	94.30	1.060	0.948	7#	
				Bottom Edge	0	114	5570	-0.01	0.161	11.49	11.50	1.002	94.30	1.060	0.171	/	
		SPEED	Laptop	Bottom Side	0	114	5570	0.08	0.655	13.72	14.00	1.067	94.30	1.060	0.741	/	
			Tablet	Back Side	0	114	5570	-0.14	0.830	11.49	11.50	1.002	94.30	1.060	0.882	/	
				Bottom Edge	0	114	5570	-0.01	0.149	11.49	11.50	1.002	94.30	1.060	0.158	/	
U-NII-3	802.11ac 80	Aux.	HCT-Luxhare	Laptop	Bottom Side	0	155	5775	-0.15	0.795	13.65	14.00	1.084	97.25	1.028	0.886	/
				Tablet	Back Side	0	155	5775	-0.14	0.804	11.10	11.50	1.096	97.25	1.028	0.906	8#
					Bottom Edge	0	155	5775	0.02	0.099	11.10	11.50	1.096	97.25	1.028	0.112	/
			SPEED	Laptop	Bottom Side	0	155	5775	0.10	0.699	13.65	14.00	1.084	97.25	1.028	0.779	/
				Tablet	Back Side	0	155	5775	-0.16	0.551	11.10	11.50	1.096	97.25	1.028	0.621	/
					Bottom Edge	0	155	5775	0.03	0.060	11.10	11.50	1.096	97.25	1.028	0.068	/
		Main	HCT-Luxhare	Laptop	Bottom Side	0	155	5775	-0.05	0.629	13.71	14.00	1.069	97.25	1.028	0.691	/
				Tablet	Back Side	0	155	5775	-0.03	0.746	11.01	11.50	1.119	97.25	1.028	0.858	9#
					Bottom Edge	0	155	5775	0.03	0.112	11.01	11.50	1.119	97.25	1.028	0.129	/

			SPEED	Laptop	Bottom Side	0	155	5775	-0.02	0.542	13.71	14.00	1.069	97.25	1.028	0.596	/	
				Tablet		Back Side	0	155	5775	0.08	0.708	11.01	11.50	1.119	97.25	1.028	0.814	/
						Bottom Edge	0	155	5775	0.02	0.104	11.01	11.50	1.119	97.25	1.028	0.120	/

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

10.4 WIFI 6GHZ

Mode	Antenna	Antenna Manufacturer	Test State	Position	Dist. (mm)	Ch.	Freq. (MHz)	Power Drift (dB)	1g Meas SAR (W/kg)	Meas. Power (dBm)	Tune-up power (dBm)	Scaling Factor	Duty cycle (%)	Duty cycle Factor	1g Scaled SAR (W/kg)	Measured APD W/m2	Scaled APD W/m2	Meas. No.
Body																		
802.11ax 160	Aux.	HCT-Luxhare	Laptop	Bottom Side	0	15	6025	-0.06	0.573	12.49	13.00	1.125	93.69	1.067	0.688	3.790	4.549	/
			Tablet	Back Side	0	207	6985	-0.07	0.590	10.15	10.50	1.084	93.69	1.067	0.682	3.410	3.944	/
		SPEED	Laptop	Bottom Edge	0	207	6985	0.08	0.026	10.15	10.50	1.084	93.69	1.067	0.030	0.164	0.190	/
				Bottom Side	0	15	6025	-0.01	0.602	12.49	13.00	1.125	93.69	1.067	0.723	3.820	4.585	10#
				Bottom Side	0	47	6185	-0.02	0.532	12.23	13.00	1.194	93.69	1.067	0.678	3.140	4.000	/
				Bottom Side	0	79	6345	0.00	0.539	12.38	13.00	1.153	93.69	1.067	0.663	3.090	3.801	/
				Bottom Side	0	111	6505	0.08	0.507	12.35	13.00	1.161	93.69	1.067	0.628	2.780	3.444	/
				Bottom Side	0	143	6665	0.16	0.523	12.11	13.00	1.227	93.69	1.067	0.685	2.750	3.600	/
				Bottom Side	0	175	6825	0.13	0.589	12.41	13.00	1.146	93.69	1.067	0.720	3.670	4.488	/
			Bottom Side	0	207	6985	0.04	0.571	12.42	13.00	1.143	93.69	1.067	0.696	3.550	4.330	/	
	Tablet	Back Side	0	207	6985	0.11	0.413	10.15	10.50	1.084	93.69	1.067	0.478	2.290	2.649	/		
	Bottom Edge	0	207	6985	0.01	0.020	10.15	10.50	1.084	93.69	1.067	0.023	0.064	0.074	/			
	Main	HCT-Luxhare	Laptop	Bottom Side	0	47	6185	0.09	0.496	12.46	12.50	1.009	93.69	1.067	0.534	2.940	3.165	/
			Tablet	Back Side	0	207	6985	-0.12	0.435	9.12	9.50	1.091	93.69	1.067	0.506	2.640	3.073	/
			Bottom Edge	0	207	6985	-0.05	0.063	9.12	9.50	1.091	93.69	1.067	0.073	0.449	0.523	/	
		SPEED	Laptop	Bottom Side	0	47	6185	-0.12	0.600	12.46	12.50	1.009	93.69	1.067	0.646	3.560	3.833	/
				Bottom Side	0	15	6025	-0.08	0.593	12.42	12.50	1.019	93.69	1.067	0.645	3.550	3.860	/
				Bottom Side	0	79	6345	-0.04	0.591	12.41	12.50	1.021	93.69	1.067	0.644	3.470	3.780	/
				Bottom Side	0	111	6505	-0.06	0.617	12.44	12.50	1.014	93.69	1.067	0.668	3.570	3.863	11#
				Bottom Side	0	143	6665	-0.06	0.594	12.31	12.50	1.045	93.69	1.067	0.662	3.460	3.858	/
Bottom Side				0	175	6825	-0.03	0.606	12.45	12.50	1.012	93.69	1.067	0.654	3.470	3.747	/	
Bottom Side				0	207	6985	-0.04	0.596	12.32	12.50	1.042	93.69	1.067	0.663	3.200	3.558	/	
Tablet	Back Side	0	207	6985	0.07	0.483	9.12	9.50	1.091	93.69	1.067	0.562	3.000	3.492	/			
Bottom Edge	0	207	6985	-0.14	0.052	9.12	9.50	1.091	93.69	1.067	0.061	0.384	0.447	/				
Note: Refer to ANNEX C for the detailed test data for each test configuration.																		

11 SAR Measurement Variability

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

SAR repeated measurement procedure:

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

Frequency Band (MHz)	Wireless Band	Antenna manufacturer	Test Mode	Antenna	RF Exposure Conditions	Test Position	Highest Measured SAR (W/kg)	Repeated SAR (Yes/No)	Repeated Measured SAR ¹ (W/kg)	Largest to Smallest SAR Radio
2462	802.11b	SPEED	Laptop	Aux.	Body	Bottom Side	0.915	Yes	0.895	1.02
2412	802.11b	SPEED	Laptop	Aux.	Body	Bottom Side	0.843	Yes	0.824	1.02
2437	802.11b	SPEED	Laptop	Aux.	Body	Bottom Side	0.800	Yes	0.773	1.03
2462	802.11b	SPEED	Tablet	Aux.	Body	Back Side	0.804	Yes	0.778	1.03
2412	802.11b	SPEED	Laptop	Main	Body	Bottom Side	0.857	Yes	0.837	1.02
2462	802.11b	SPEED	Tablet	Main	Body	Bottom Side	0.833	Yes	0.805	1.03
5290	802.11ac80	SPEED	Laptop	Aux.	Body	Bottom Side	0.847	Yes	0.821	1.03
5290	802.11ac80	SPEED	Tablet	Aux.	Body	Back Side	0.823	Yes	0.801	1.03
5570	802.11ac160	HCT-Luxhare	Laptop	Aux.	Body	Bottom Side	0.800	Yes	0.787	1.02
5570	802.11ac160	HCT-Luxhare	Tablet	Aux.	Body	Back Side	1.050	Yes	1.020	1.03
5570	802.11ac160	SPEED	Tablet	Aux.	Body	Back Side	0.901	Yes	0.884	1.02
5570	802.11ac160	HCT-Luxhare	Tablet	Main	Body	Back Side	0.893	Yes	0.868	1.03
5570	802.11ac160	SPEED	Tablet	Main	Body	Back Side	0.830	Yes	0.807	1.03
5775	802.11ac80	HCT-Luxhare	Tablet	Aux.	Body	Back Side	0.804	Yes	0.786	1.02

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.

12 SIMULTANEOUS TRANSMISSION

Simultaneous transmission SAR test exclusion is determined for each operating configuration and exposure condition according to the reported standalone SAR of each applicable simultaneous transmitting antenna. When the sum of SAR 1g of all simultaneously transmitting antennas in an operating mode and exposure condition combination is within the SAR limit (SAR 1g 1.6 W/kg), the simultaneous transmission SAR is not required. When the sum of SAR 1g is greater than the SAR limit (SAR 1g 1.6 W/kg), SAR test exclusion is determined by the SAR to Peak Location Ratio (SPLSR).

According KDB 447498 D04, simultaneous transmission:

- a) $SPLSR = (SAR1 + SAR2)^{1.5} / R_i$ (min. separation distance, mm), and the peak separation distance is determined from the square root of $[(x1-x2)^2 + (y1-y2)^2 + (z1-z2)^2]$, where (x1, y1, z1) and (x2, y2, z2) are the coordinates of the extrapolated peak SAR locations in the zoom scan.
SAR1 is the highest reported or estimated SAR for the first of a pair of simultaneous transmitting antennas, in a specific test operating mode and exposure condition.
SAR2 is the highest reported or estimated SAR for the second of a pair of simultaneous transmitting antennas, in a specific test operating mode and exposure condition as the first.
- b) If $SPLSR \leq 0.04$, simultaneously transmission SAR measurement is not necessary.
- c) Simultaneously transmission SAR measurement, and the reported multi-band SAR < 1.6W/kg.

12.1 Simultaneous Transmission Mode Considerations

No.	Simultaneous Tx Combination	Body
1	Bluetooth + WLAN 2.4GHz (Antenna Main)	Yes
2	WLAN 2.4GHz (Antenna Main) + WLAN 2.4GHz (Antenna Auxiliary)	Yes
3	Bluetooth + WLAN 5GHz (Antenna Auxiliary)	Yes
4	Bluetooth + WLAN 5GHz (Antenna Main)	Yes
5	WLAN 5GHz (Antenna Auxiliary) + WLAN 5GHz (Antenna Main)	Yes
6	Bluetooth + WLAN 5GHz (Antenna Auxiliary) + WLAN 5GHz (Antenna Main)	Yes
7	Bluetooth + WLAN 6GHz (Antenna Auxiliary)	Yes
8	Bluetooth + WLAN 6GHz (Antenna Main)	Yes
9	WLAN 6GHz (Antenna Auxiliary) + WLAN 6GHz (Antenna Main)	Yes
10	Bluetooth + WLAN 6GHz (Antenna Auxiliary) + WLAN 6GHz (Antenna Main)	Yes

Note:

- The EUT supports the Antenna Auxiliary with TX/RX diversity function for WLAN and Bluetooth, the Antenna Main with TX/RX diversity function for WLAN.
- WLAN 2.4GHz and Bluetooth will not be transmitting from the Antenna Auxiliary at same time.
- The worst case for simultaneous SAR to peak location separation ratio calculation was made considering the sum of 3 SAR results and the closest maxima distance between Main and Aux antenna (i.e. the closest distance between the peak location between Main WLAN to Aux WLAN and Main WLAN to Aux BT).

12.2 Sum SAR of Simultaneous Transmission

12.2.1 Body Simultaneous Transmission SAR Evaluation for WLAN Antenna with Bluetooth

State	Position		Stand alone SAR							SUM SAR				SPLSR	
			1	2	3	4	5	6	7	Sum SAR (1+3)	Sum SAR (2+3)	Sum SAR (1+4+5)	Sum SAR (1+6+7)	Sum SAR (2+3)	Sum SAR (1+4+5)
			Bluetooth	WLAN 2.4GHz (Antenna Auxiliary)	WLAN 2.4GHz (Antenna Main)	MAX. WLAN 5GHz (Antenna Auxiliary)	MAX. WLAN 5GHz (Antenna Main)	WLAN 6GHz (Antenna Auxiliary)	WLAN 6GHz (Antenna Main)						
Body	Laptop	Bottom Side	0.166	1.069	0.950	0.901	0.791	0.723	0.668	1.116	2.019	1.858	1.557	0.04 ^{1#}	0.04 ^{3#}
Body	Tablet	Back Side	0.050	0.939	0.964	1.119	0.948	0.682	0.562	1.014	1.903	2.117	1.294	0.04 ^{2#}	0.04^{4#}
Body	Tablet	Bottom Edge	0.013	0.062	0.064	0.209	0.192	0.030	0.073	0.077	0.126	0.414	0.116	/	/

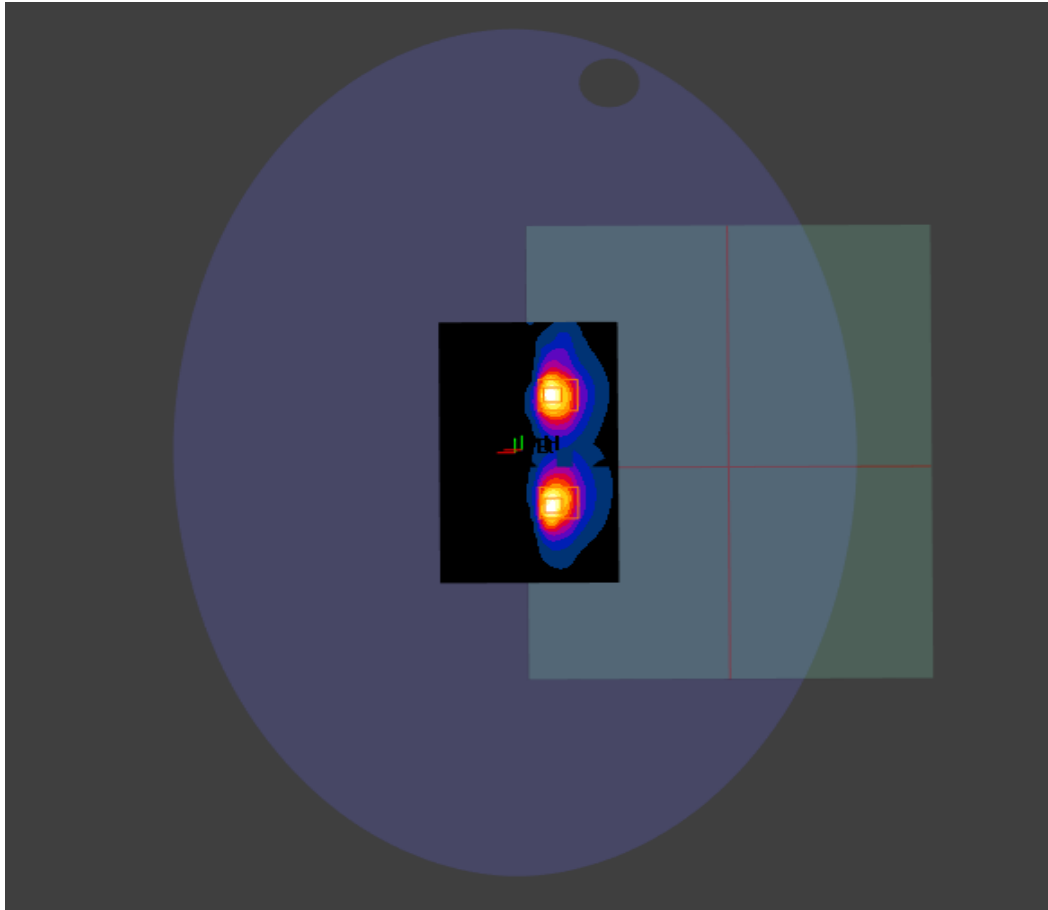
Note:

1: The highest Summed 1g SAR is 2.117 W/Kg > 1.6 W/kg, so Simultaneous Transmission SAR test exclusion is determined by the SAR to peak location separation ratio.

2: The SPLSR is 0.04, so Simultaneous Transmission SAR test is not required.

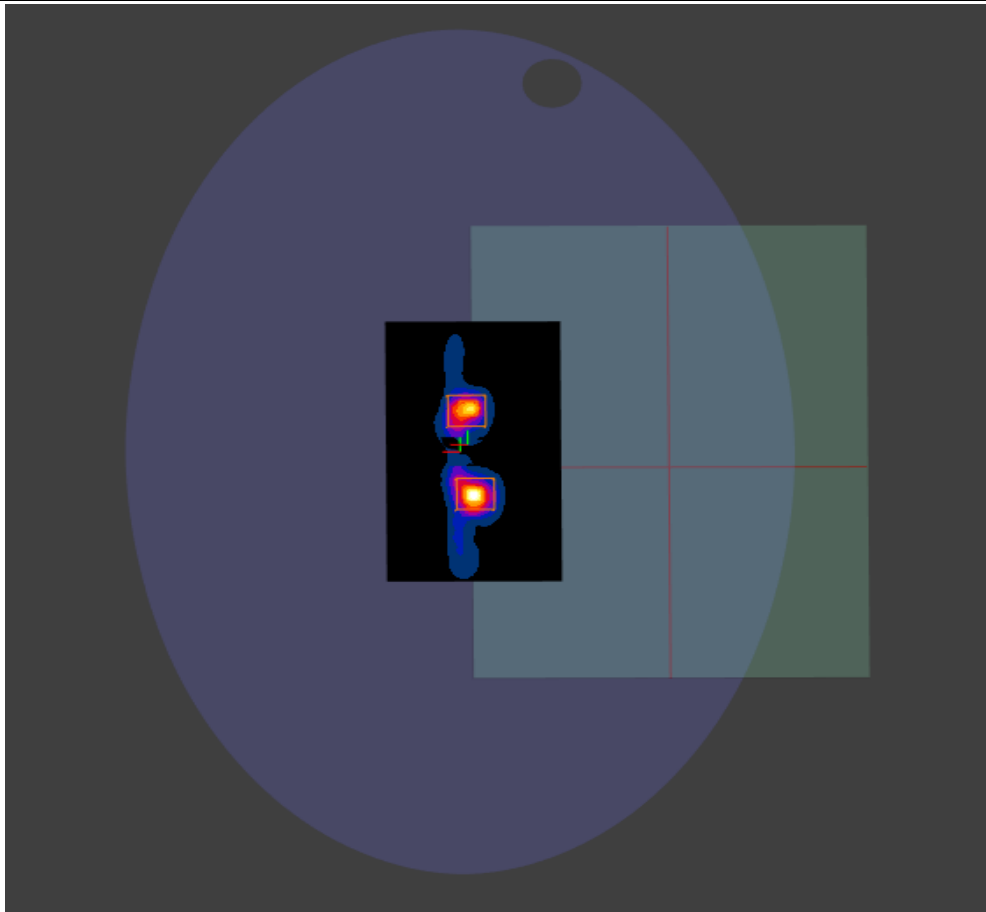
SPLSR Analysis 1#

Case 1	Band	Position	SAR (W/kg)	SAR peak location (m)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
				X	Y	Z				
1	WLAN2.4G Ant.Aux	Bottom Side	1.069	0.018497	-0.036494	-0.175574	79.0	2.02	0.04	Not required
2	WLAN2.4G Ant.Main		0.950	0.01849	0.042498	-0.175595				



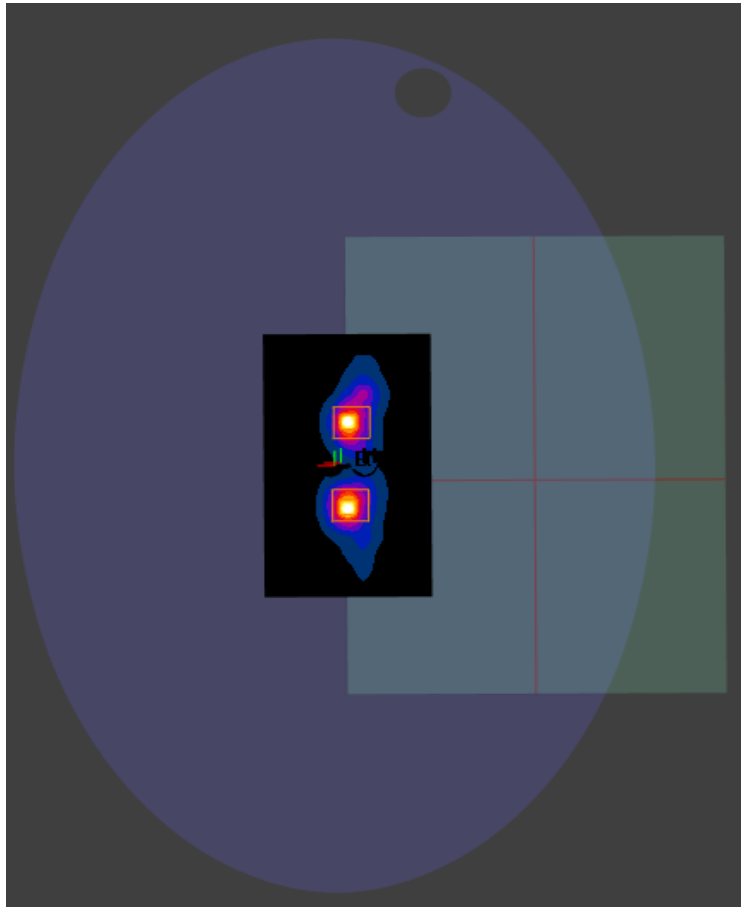
SPLSR Analysis 2#

Case 1	Band	Position	SAR (W/kg)	SAR peak location (m)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
				X	Y	Z				
1	WLAN2.4G Ant.Aux	Back Side	0.939	-0.003495	0.037	-0.175565	73.4	1.90	0.04	Not required
2	WLAN2.4G Ant.Main		0.964	0.007998	-0.035494	-0.175564				



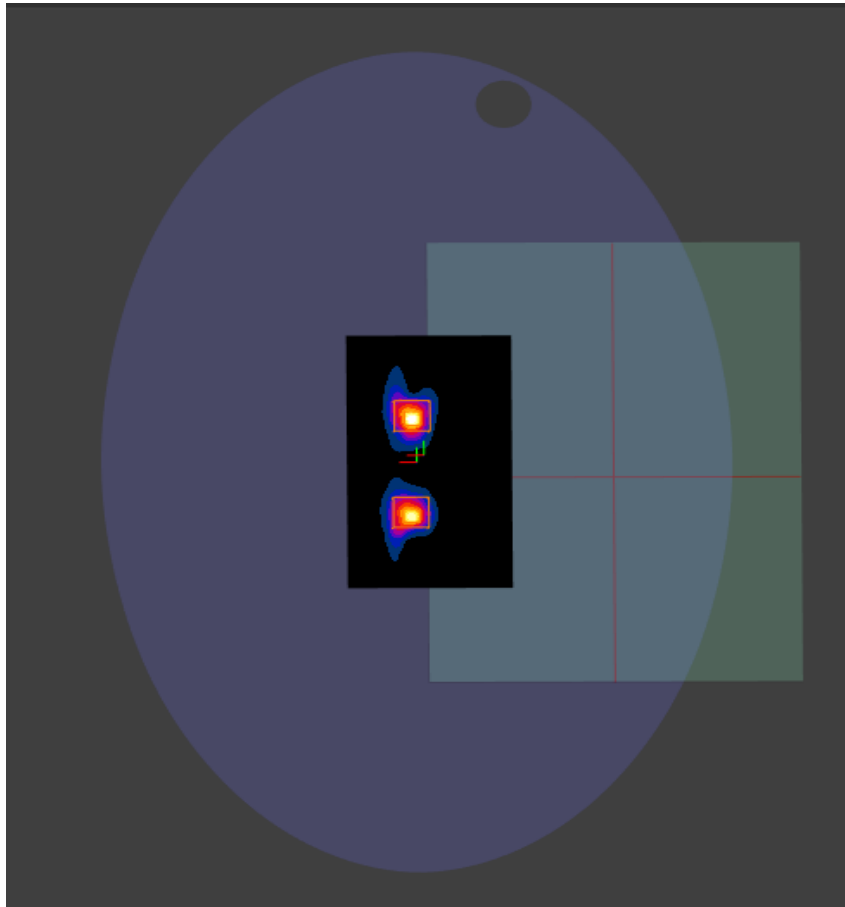
SPLSR Analysis 3#

Case 1	Band	Position	SAR (W/kg)	SAR peak location (m)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
				X	Y	Z				
1	Bluetooth+WLAN5G Ant.Aux	Bottom Side	1.067	0.0075	-0.03	-0.174033	60.0	1.86	0.04	Not required
2	WLAN5G Ant.Main		0.791	0.0075	0.03	-0.174039				



SPLSR Analysis 4#

Case 1	Band	Position	SAR (W/kg)	SAR peak location (m)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
				X	Y	Z				
1	Bluetooth+WLAN5G Ant.Aux	Back Side	1.169	-0.0025	0.03	-0.174032	70.0	2.12	0.04	Not required
2	WLAN5G Ant.Main		0.948	-0.0025	-0.04	-0.174028				



13 TEST EQUIPMENTS LIST

Description	Manufacturer	Model	Serial No./Version	Cal. Date	Cal. Due
PC	Dell	N/A	N/A	N/A	N/A
Test Software	Speag	DASY6	16.0.0.116	N/A	N/A
2450MHz Validation Dipole	Speag	D2450V2	SN: 952	2021/05/19	2024/05/19
5GHz Validation Dipole	Speag	D5GHzV2	SN: 1200	2021/05/18	2024/05/18
6.5GHz Validation Dipole	Speag	D6.5GHzV2	SN: 1037	2021/07/01	2024/07/01
E-Field Probe	Speag	EX3DV4	SN: 7607	2023/07/04	2024/07/04
Data Acquisition Electronicsr	Speag	DAE4	SN: 878	2023/03/23	2024/03/23
Signal Generator	R&S	SMB100A	177746	2023/05/10	2024/05/10
Power Meter	R&S	NRVD-B2	835843/014	2023/09/05	2024/09/05
Power Sensor	R&S	NRV-Z4	100381	2023/09/05	2024/09/05
Power Sensor	R&S	NRV-Z2	100211	2023/09/05	2024/09/05
Power Sensor	Agilent	E9300A	MY41499251	2023/04/18	2024/04/18
Network Analyzer	Agilent	E5071C	MY46103472	2023/11/14	2024/11/14
Thermometer	Elitech	RC-4	EF5238001628	2023/10/09	2024/10/09
Thermometer	Elitech	RC-4HC	EF7239002652	2023/11/17	2024/11/17
Dielectric Probe Kit	Speag	DAK3.5	SN: 1312	2023/7/22	2024/7/22
Power Amplifier	SATIMO	6552B	22374	N/A	N/A
Phantom	Speag	ELI V8.0	SN: 2159	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.

Date	Liquid Type	Fre. (MHz)	Temp. (°C)	Meas. Conductivity (σ) (S/m)	Meas. Permittivity (ϵ)	Target Conductivity (σ) (S/m)	Target Permittivity (ϵ)	Conductivity Tolerance (%)	Permittivity Tolerance (%)
2024.01.21	Head	2450	21.3	1.82	39.34	1.80	39.20	0.89	0.35
2024.01.22	Head	5250	21.4	4.83	35.90	4.71	35.93	2.44	-0.07
2024.01.23	Head	5600	21.4	5.06	35.08	5.07	35.53	-0.24	-1.28
2024.01.24	Head	5750	21.2	5.29	35.53	5.22	35.36	1.34	0.49
2024.01.25	Head	6500	21.2	6.11	33.93	6.07	34.46	0.68	-1.54

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

ANNEX B SYSTEM CHECK RESULT

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

Date	Liquid Type	Freq. (MHz)	Power (mW)	Measured SAR (W/kg)	Normalized SAR (W/kg)	Dipole SAR (W/kg)	Tolerance (%)
2024.01.21	Head	2450	100	5.41	54.10	53.00	2.08
2024.01.22	Head	5250	100	7.62	76.20	77.80	-2.06
2024.01.23	Head	5600	100	8.26	82.60	81.20	1.72
2024.01.24	Head	5750	100	7.79	77.90	77.20	0.91
2024.01.25	Head	6500	100	29.30	293.00	286.00	2.45

Note: The tolerance limit of System validation $\pm 10\%$.

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 [°C]	Liquid Temperature [°C]
Flat, HSL		Validation band	CW, 0--	2450.0, 2450	7.47	1.82	39.3	22.2	21.3

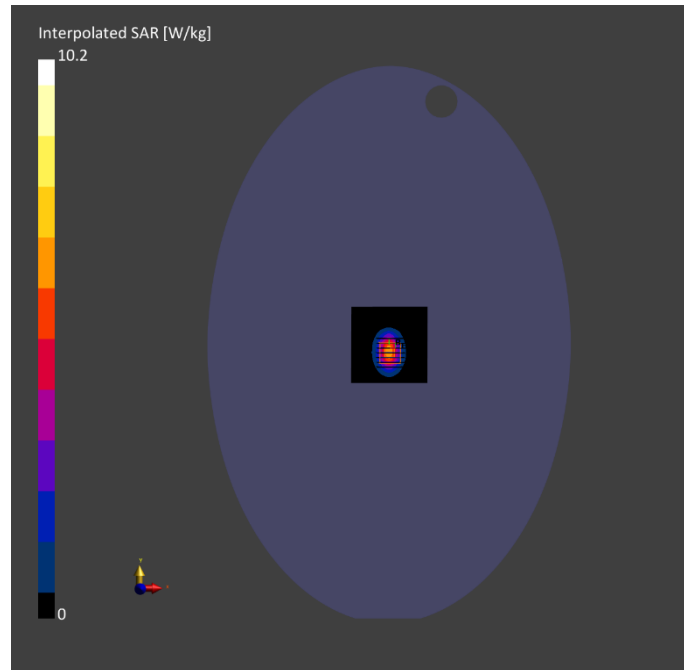
Hardware Setup

Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
ELI V8.0 (20deg probe tilt) - 2159	HBBL-600-10000 2024-01-21	EX3DV4 - SN7607, 2023-07-04	DAE4 Sn878, 2023-03-23

Scan Setup

Measurement Results

	Area Scan	Zoom Scan	Area Scan	Zoom Scan
Grid Extents [mm]	80.0 x 80.0	30.0 x 30.0 x 30.0	Date	2024-01-21 2024-01-21
Grid Steps [mm]	8.0 x 10.0	5.0 x 5.0 x 1.5	psSAR1g [W/kg]	5.42 5.38
Sensor Surface [mm]	3.0	1.4	psSAR10g [W/kg]	2.42 2.48
Graded Grid	Yes	Yes	Power Drift [dB]	0.05 -0.08
Grading Ratio	1.5	1.5	Power Scaling	Disabled Disabled
MAIA	N/A	N/A	Scaling Factor [dB]	
Surface Detection	All points	All points	TSL Correction	No correction No correction
Scan Method	Measured	Measured	M2/M1 [%]	79.6
			Dist 3dB Peak [mm]	8.4



System Performance Check Data (5250MHz)

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 [°C]	Liquid Temperature [°C]
Flat, HSL		D5GH	CW, z	5250.0, 25	5.41	4.83	35.9	22.4	21.4

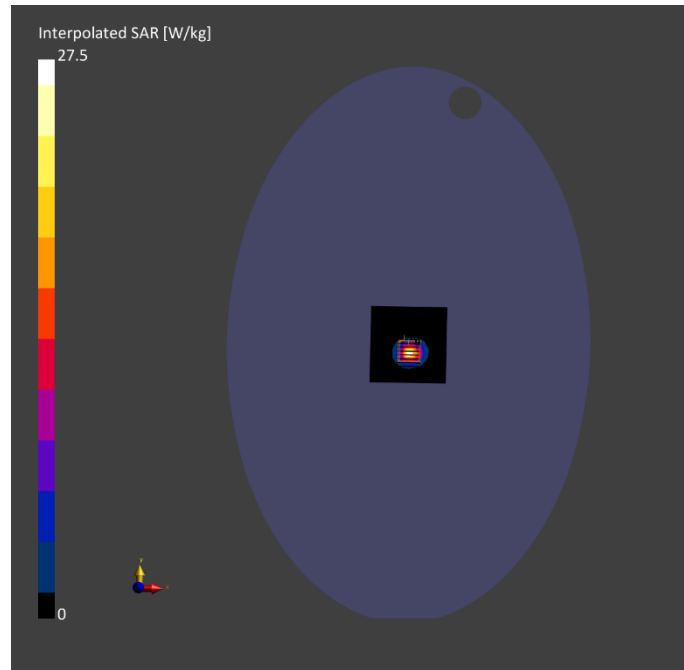
Hardware Setup

Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
ELI V8.0 (20deg probe tilt) - 2159	HBBL-600-10000 2024-01-22	EX3DV4 - SN7607, 2023-07-04	DAE4 Sn878, 2023-03-23

Scan Setup

Measurement Results

	Area Scan	Zoom Scan		Area Scan	Zoom Scan
Grid Extents [mm]	80.0 x 80.0	22.0 x 22.0 x 22.0	Date	2024-01-22	2024-01-22
Grid Steps [mm]	10.0 x 10.0	4.0 x 4.0 x 1.4	psSAR1g [W/kg]	6.99	7.62
Sensor Surface [mm]	3.0	1.4	psSAR10g [W/kg]	2.14	2.23
Graded Grid	Yes	Yes	Power Drift [dB]	0.01	0.04
Grading Ratio	1.5	1.4	Power Scaling	Disabled	Disabled
MAIA Surface	N/A	N/A	Scaling Factor [dB]		
Detection	All points	All points	TSL Correction	No correction	No correction
Scan Method	Measured	Measured	M2/M1 [%]		64.3
			Dist 3dB Peak [mm]		7.1



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 [°C]	Liquid Temperature [°C]
Flat, HSL		Validated on band	CW, 0--	5600.0, 5600	4.58	5.06	35.1	22.4	21.4

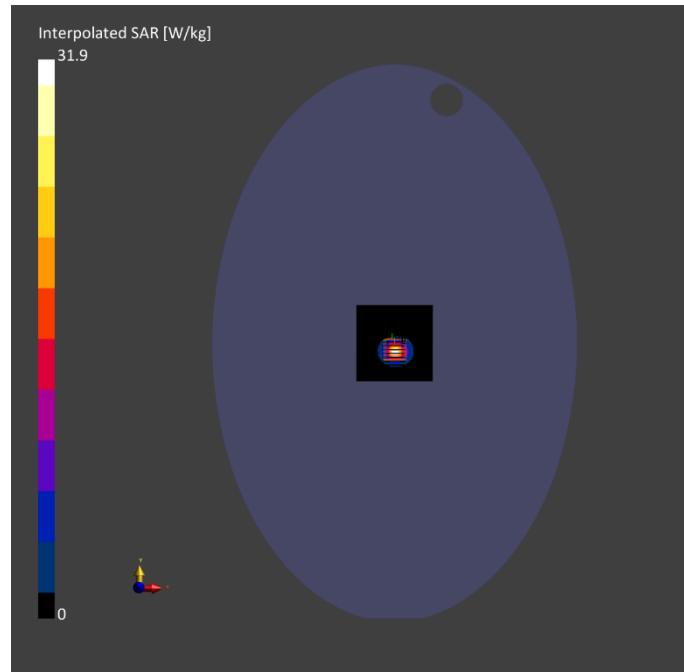
Hardware Setup

Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
ELI V8.0 (20deg probe tilt) - 2159	HBBL-600-10000 2024-01-23	EX3DV4 - SN7607, 2023-07-04	DAE4 Sn878, 2023-03-23

Scan Setup

Measurement Results

	Area Scan	Zoom Scan		Area Scan	Zoom Scan
Grid Extents [mm]	80.0 x 80.0	22.0 x 22.0 x 22.0	Date	2024-01-23	2024-01-23
Grid Steps [mm]	10.0 x 10.0	4.0 x 4.0 x 1.4	psSAR1g [W/kg]	8.07	8.19
Sensor Surface [mm]	3.0	1.4	psSAR10g [W/kg]	2.18	2.34
Graded Grid	Yes	Yes	Power Drift [dB]	0.04	0.02
Grading Ratio	1.5	1.4	Power Scaling	Disabled	Disabled
MAIA	N/A	N/A	Scaling Factor [dB]		
Surface Detection	All points	All points	TSL Correction	No correction	No correction
Scan Method	Measured	Measured	M2/M1 [%]		62.8
			Dist 3dB Peak [mm]		7.7



System Performance Check Data (5750MHz)

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 [°C]	Liquid Temperature [°C]
Flat, HSL		Validated on band	CW, 0--	5750.0, 5750	4.78	5.29	35.5	22.5	21.2

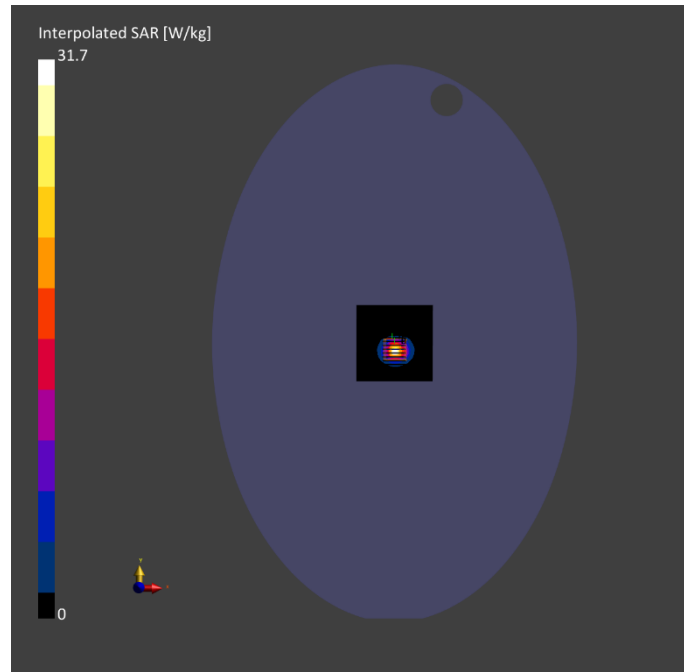
Hardware Setup

Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
ELI V8.0 (20deg probe tilt) - 2159	HBBL-600-10000 2024-01-24	EX3DV4 - SN7607, 2023-07-04	DAE4 Sn878, 2023-03-23

Scan Setup

Measurement Results

	Area Scan	Zoom Scan		Area Scan	Zoom Scan
Grid Extents [mm]	80.0 x 80.0	22.0 x 22.0 x 22.0	Date	2024-01-24	2024-01-24
Grid Steps [mm]	10.0 x 10.0	4.0 x 4.0 x 1.4	psSAR1g [W/kg]	7.73	7.89
Sensor Surface [mm]	3.0	1.4	psSAR10g [W/kg]	2.01	2.21
Graded Grid	Yes	Yes	Power Drift [dB]	-0.04	0.01
Grading Ratio	1.5	1.4	Power Scaling	Disabled	Disabled
MAIA	N/A	N/A	Scaling Factor [dB]		
Surface Detection	All points	All points	TSL Correction	No correction	No correction
Scan Method	Measured	Measured	M2/M1 [%]		62.8
			Dist 3dB Peak [mm]		8.4



System Performance Check Data (6500MHz)

Device under Test Properties

Model, Manufacturer	Dimensions [mm]	DUT Type
D6.5GHzV2, 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 [°C]	Liquid Temperature [°C]
Flat, HSL		Validated on band	CW, 0--	6500.0, 6500	5.38	6.11	33.9	22.5	21.2

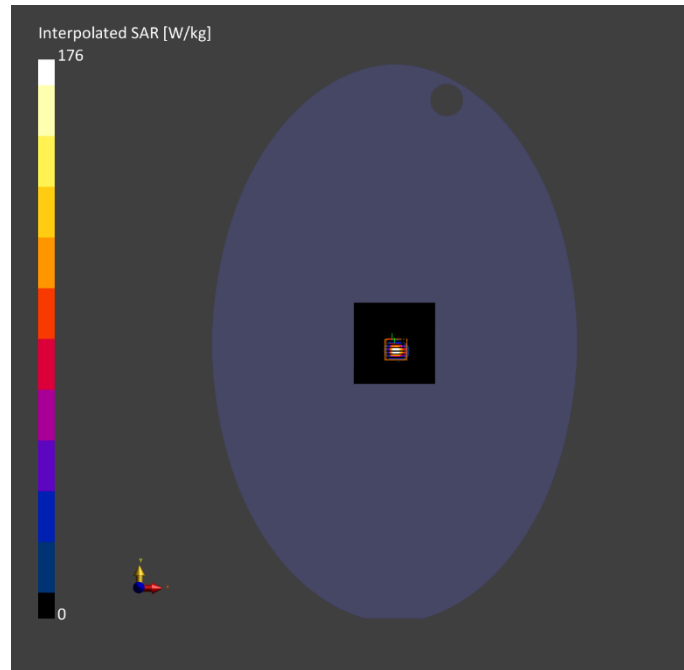
Hardware Setup

Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
ELI V8.0 (20deg probe tilt) - 2159	HBBL-600-10000 2024-01-25	EX3DV4 - SN7607, 2023-07-04	DAE4 Sn878, 2023-03-23

Scan Setup

Measurement Results

	Area Scan	Zoom Scan		Area Scan	Zoom Scan
Grid Extents [mm]	85.0 x 85.0	22.0 x 22.0 x 22.0	Date	2024-01-25	2024-01-25
Grid Steps [mm]	8.5 x 8.5	3.4 x 3.4 x 1.4	psSAR1g [W/kg]	29.2	29.2
Sensor Surface [mm]	3.0	1.4	psSAR10g [W/kg]	5.27	5.31
Graded Grid	Yes	Yes	APD 4cm ² [W/m ²]		123
Grading Ratio	1.5	1.4	Power Drift [dB]	-0.03	0.01
MAIA Surface	N/A	N/A	Power Scaling	Disabled	Disabled
Detection	All points	All points	Scaling Factor [dB]		
Scan Method	Measured	Measured	TSL Correction	No correction	No correction
			M2/M1 [%]		52.5
			Dist 3dB Peak [mm]		4.1



ANNEX C TEST DATA

Meas.1 Body Plane with Bottom Side 0mm on 78 Channel in Bluetooth Mode with Antenna Auxiliary

Device under Test Properties

Model, Manufacturer	Dimensions [mm]	DUT Type
Device,	313.0 x 226.0 x 12.0	Laptop

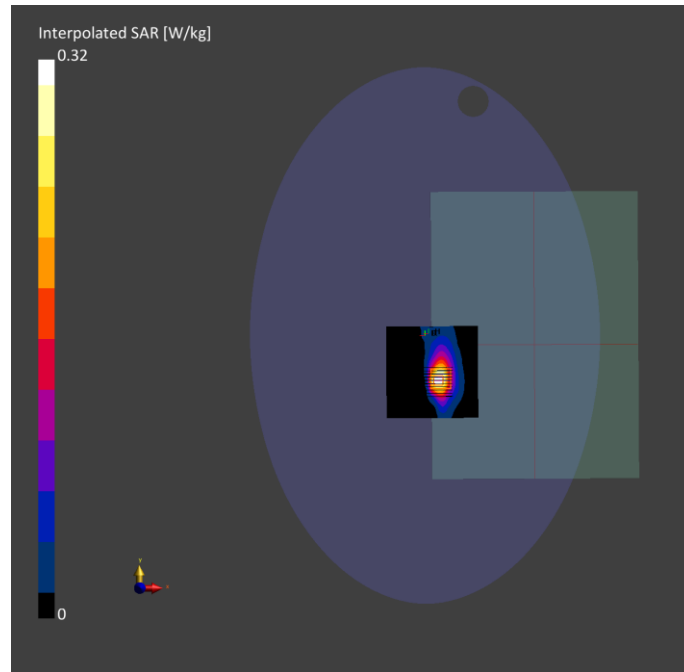
Exposure Conditions

Phantom	Position, Test Section, TSL	Band	Group, UID	Frequency [MHz], Channel Number	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity	Ambient Temperature [°C]	Liquid Temperature [°C]
Flat, HSL	BACK, 0.00	ISM, 2.4	Bluetooth, 10032-Band	2480.0, 78	7.47	1.86	38.1	22.2	21.3

Hardware Setup

Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
ELI V8.0 (20deg probe tilt) - 2159	HBBL-600-10000 2024-01-21	EX3DV4 - SN7607, 2023-07-04	DAE4 Sn878, 2023-03-23

Scan Setup	Measurement Results				
	Area Scan	Zoom Scan	Area Scan	Zoom Scan	
Grid Extents [mm]	100.0 x 100.0	30.0 x 30.0 x 30.0	Date	2024-01-21	2024-01-21
Grid Steps [mm]	10.0 x 10.0	3.5 x 3.5 x 1.4	psSAR1g [W/kg]	0.119	0.123
Sensor Surface [mm]	3.0	1.4	psSAR10g [W/kg]	0.058	0.057
Graded Grid	Yes	Yes	Power Drift [dB]	0.07	-0.19
Grading Ratio	1.5	1.4	Power Scaling	Disabled	Disabled
MAIA Surface	Y	Y	Scaling Factor [dB]		
Detection	VMS + 6p	VMS + 6p	TSL Correction	No correction	No correction
Scan Method	Measured	Measured	M2/M1 [%]		73.5
			Dist 3dB Peak [mm]		5.6



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

Device under Test Properties

Model, Manufacturer	Dimensions [mm]	DUT Type
Device,	313.0 x 226.0 x 12.0	Tablet

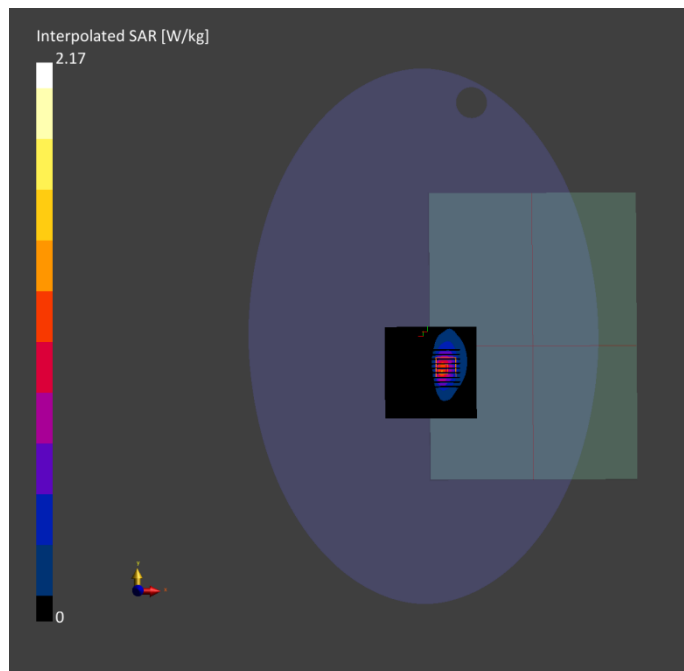
Exposure Conditions

Phantom	Position, Test Section, Distance [mm]	Band	Group, UID	Frequency [MHz], Channel Number	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity	Ambient Temperature [°C]	Liquid Temperature [°C]
Flat, HSL	BACK, 0.00	WLAN 2.4GHz	WLAN, 10315-AAB	2462.0, 11	7.47	1.83	39.0	22.2	21.3

Hardware Setup

Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
ELI V8.0 (20deg probe tilt) - 2159	HBBL-600-10000 2024-01-21	EX3DV4 - SN7607, 2023-07-04	DAE4 Sn878, 2023-03-23

Scan Setup	Measurement Results				
	Area Scan	Zoom Scan		Area Scan	Zoom Scan
Grid Extents [mm]	100.0 x 100.0	30.0 x 30.0 x 30.0	Date	2024-01-21	2024-01-21
Grid Steps [mm]	10.0 x 10.0	5.0 x 5.0 x 1.5	psSAR1g [W/kg]	0.963	0.915
Sensor Surface [mm]	3.0	1.4	psSAR10g [W/kg]	0.450	0.426
Graded Grid	Yes	Yes	Power Drift [dB]	0.07	0.09
Grading Ratio	1.5	1.5	Power Scaling	Disabled	Disabled
MAIA	N/A	N/A	Scaling Factor [dB]		
Surface	VMS + 6p	VMS + 6p	TSL Correction	No correction	No correction
Detection			M2/M1 [%]		74.5
Scan Method	Measured	Measured	Dist 3dB Peak [mm]		7.0



Meas.3 Body Plane with Back Side 0mm on 11 Channel in IEEE802.11b Mode with Antenna Main

Device under Test Properties

Model, Manufacturer	Dimensions [mm]	DUT Type
Device,	313.0 x 226.0 x 12.0	Tablet

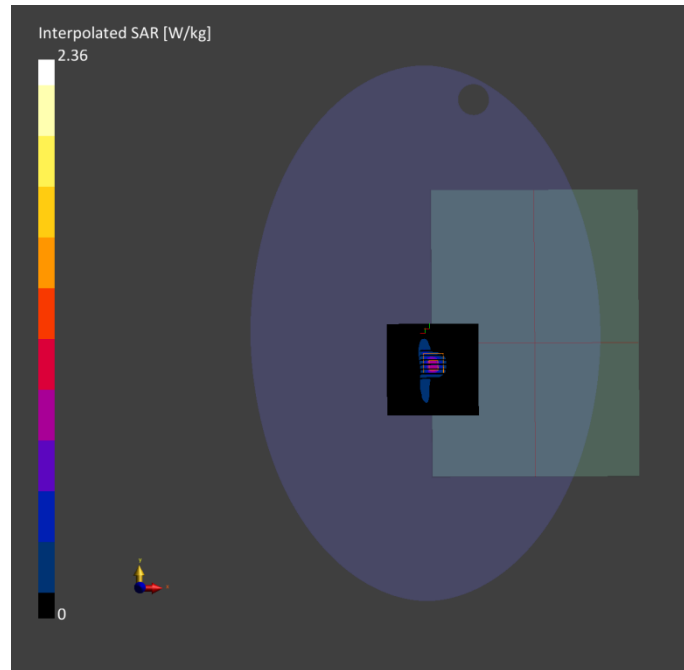
Exposure Conditions

Phantom	Position, Test Section, Distance [mm]	Band	Group, UID	Frequency [MHz], Channel Number	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity	Ambient Temperature [°C]	Liquid Temperature [°C]
Flat, HSL	BACK, 0.00	WLAN, 2.4GHz	WLAN, 10315-AAB	2462.0, 11	7.47	1.83	39.0	22.2	21.3

Hardware Setup

Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
ELI V8.0 (20deg probe tilt) - 2159	HBBL-600-10000 2024-01-21	EX3DV4 - SN7607, 2023-07-04	DAE4 Sn878, 2023-03-23

Scan Setup	Measurement Results				
	Area Scan	Zoom Scan		Area Scan	Zoom Scan
Grid Extents [mm]	100.0 x 100.0	30.0 x 30.0 x 30.0	Date	2024-01-21	2024-01-21
Grid Steps [mm]	10.0 x 10.0	5.0 x 5.0 x 1.5	psSAR1g [W/kg]	0.751	0.833
Sensor Surface [mm]	3.0	1.4	psSAR10g [W/kg]	0.311	0.306
Graded Grid	Yes	Yes	Power Drift [dB]	-0.10	-0.07
Grading Ratio	1.5	1.5	Power Scaling	Disabled	Disabled
MAIA	N/A	N/A	Scaling Factor		
Surface	VMS + 6p	VMS + 6p	[dB]		
Detection			TSL Correction	No correction	No correction
Scan Method	Measured	Measured	M2/M1 [%]		73.3
			Dist 3dB Peak [mm]		6.0



Meas.4 Body Plane with Back Side 0mm on 58 Channel in IEEE802.11ac80 Mode with Antenna Auxiliary

Device under Test Properties

Model, Manufacturer	Dimensions [mm]	DUT Type
Device,	313.0 x 226.0 x 12.0	Tablet

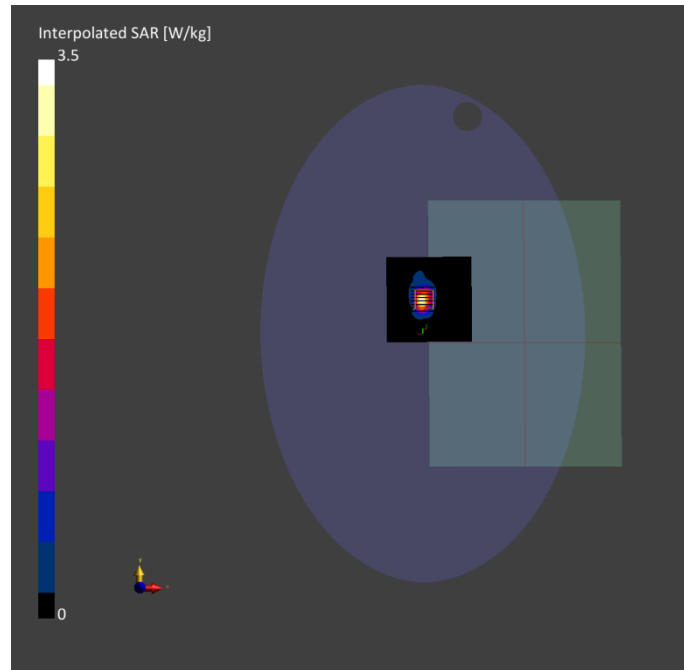
Exposure Conditions

Phantom Section, TSL Flat, HSL	Position, Test Distance [mm]	Band	Group, UID	Frequency [MHz], Channel Number	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity	Ambient Temperature [°C]	Liquid Temperature [°C]
	BACK, 0.00	WLAN, 5GHz	WLAN, 10544-AAC	5290.0, 58	5.41	4.88	34.8	22.4	21.4

Hardware Setup

Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
ELI V8.0 (20deg probe tilt) - 2159	HBBL-600-10000 2024-01-22	EX3DV4 - SN7607, 2023-07-04	DAE4 Sn878, 2023-03-23

Scan Setup	Measurement Results		
	Area Scan	Zoom Scan	
Grid Extents [mm]	100.0 x 100.0	22.0 x 22.0 x 22.0	Date 2024-01-22
Grid Steps [mm]	10.0 x 10.0	4.0 x 4.0 x 1.4	psSAR1g 0.796
Sensor Surface [mm]	3.0	1.4	[W/kg] 0.254
Graded Grid	Yes	Yes	psSAR10g 0.254
Grading Ratio	1.5	1.4	[W/kg] -0.03
MAIA	N/A	N/A	Power Drift [dB] -0.03
Surface	VMS + 6p	VMS + 6p	Power Scaling Disabled
Detection			Scaling Factor Disabled
Scan Method	Measured	Measured	TSL Correction No correction
			No correction
			M2/M1 [%] 61.2
			Dist 3dB Peak [mm] 6.4



Meas.5 Body Plane with Bottom Side 0mm on 58 Channel in IEEE802.11ac80 Mode with Antenna Main

Device under Test Properties

Model, Manufacturer	Dimensions [mm]	DUT Type
Device,	313.0 x 226.0 x 12.0	Laptop

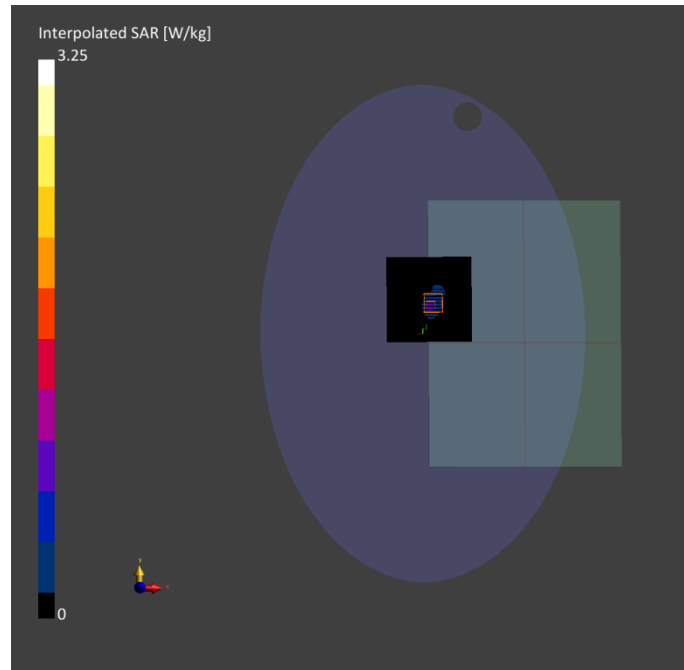
Exposure Conditions

Phantom	Position, Test Section, Distance [mm]	Band	Group, UID	Frequency [MHz], Channel Number	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity	Ambient Temperature [°C]	Liquid Temperature [°C]
Flat, HSL	BACK, 0.00	WLAN, 5GHz	WLAN, 10544-AAC	5290.0, 58	5.41	4.88	34.8	22.4	21.4

Hardware Setup

Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
ELI V8.0 (20deg probe tilt) - 2159	HBBL-600-10000 2024-01-22	EX3DV4 - SN7607, 2023-07-04	DAE4 Sn878, 2023-03-23

Scan Setup	Area Scan		Zoom Scan		Measurement Results		
	Area Scan	Zoom Scan	Area Scan	Zoom Scan	Area Scan	Zoom Scan	Zoom Scan
Grid Extents [mm]	100.0 x 100.0	24.0 x 24.0 x 22.0	Date	2024-01-22	2024-01-22	2024-01-22	2024-01-22
Grid Steps [mm]	10.0 x 10.0	4.0 x 4.0 x 1.4	psSAR1g [W/kg]	0.699	0.756	0.756	0.756
Sensor Surface [mm]	3.0	1.4	psSAR10g [W/kg]	0.224	0.222	0.222	0.222
Graded Grid	Yes	Yes	Power Drift [dB]	-0.04	0.09	0.09	0.09
Grading Ratio	1.5	1.4	Power Scaling	Disabled	Disabled	Disabled	Disabled
MAIA	Y	N/A	Scaling Factor				
Surface	VMS + 6p	VMS + 6p	[dB]				
Detection			TSL Correction	No correction	No correction	No correction	No correction
Scan Method	Measured	Measured	M2/M1 [%]				63.1
			Dist 3dB Peak [mm]				5.4



Meas.6 Body Plane with Back Side 0mm on 114 Channel in IEEE802.11ac160 Mode with Antenna Auxiliary

Device under Test Properties

Model, Manufacturer	Dimensions [mm]	DUT Type
Device,	313.0 x 226.0 x 12.0	Tablet

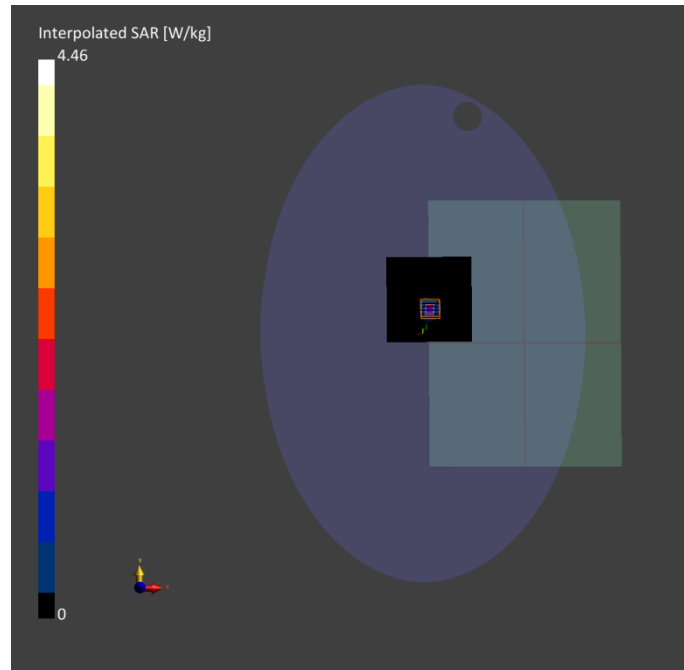
Exposure Conditions

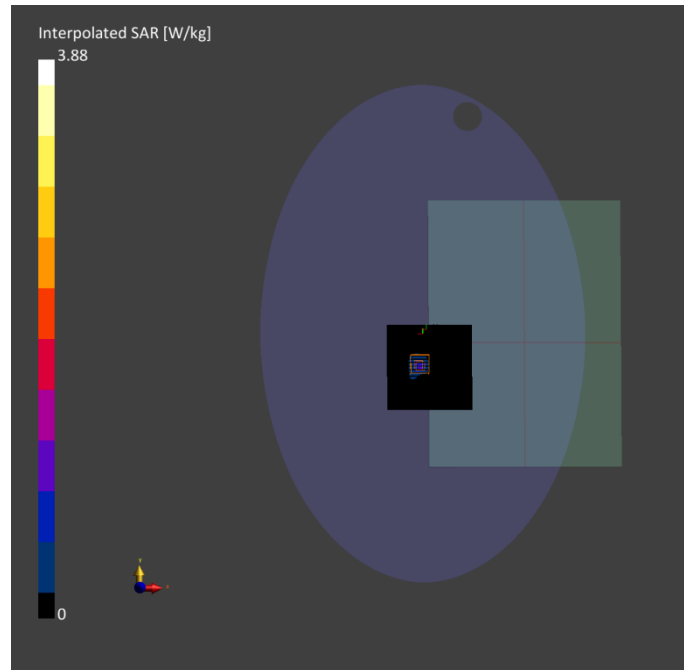
Phantom Section, TSL Flat, HSL	Position, Test Distance [mm]	Band	Group, UID	Frequency [MHz], Channel Number	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity	Ambient Temperature [°C]	Liquid Temperature [°C]
	BACK, 0.00	WLAN, 5GHz	WLAN, 10456-AAC	5570.0, 114	4.58	5.01	36.4	22.4	21.4

Hardware Setup

Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
ELI V8.0 (20deg probe tilt) - 2159	HBBL-600-10000 2024-01-23	EX3DV4 - SN7607, 2023-07-04	DAE4 Sn878, 2023-03-23

Scan Setup	Measurement Results				
	Area Scan	Zoom Scan		Area Scan	Zoom Scan
Grid Extents [mm]	100.0 x 100.0	22.0 x 22.0 x 22.0	Date	2024-01-23	2024-01-23
Grid Steps [mm]	10.0 x 10.0	4.0 x 4.0 x 1.4	psSAR1g [W/kg]	0.983	1.05
Sensor Surface [mm]	3.0	1.4	psSAR10g [W/kg]	0.305	0.297
Graded Grid	Yes	Yes	Power Drift [dB]	0.01	-0.05
Grading Ratio	1.5	1.4	Power Scaling	Disabled	Disabled
MAIA	N/A	N/A	Scaling Factor		
Surface	VMS + 6p	VMS + 6p	[dB]		
Detection			TSL Correction	No correction	No correction
Scan Method	Measured	Measured	M2/M1 [%]		64.7
			Dist 3dB Peak [mm]		6.4





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

Device under Test Properties

Model, Manufacturer	Dimensions [mm]	DUT Type
Device,	313.0 x 226.0 x 12.0	Tablet

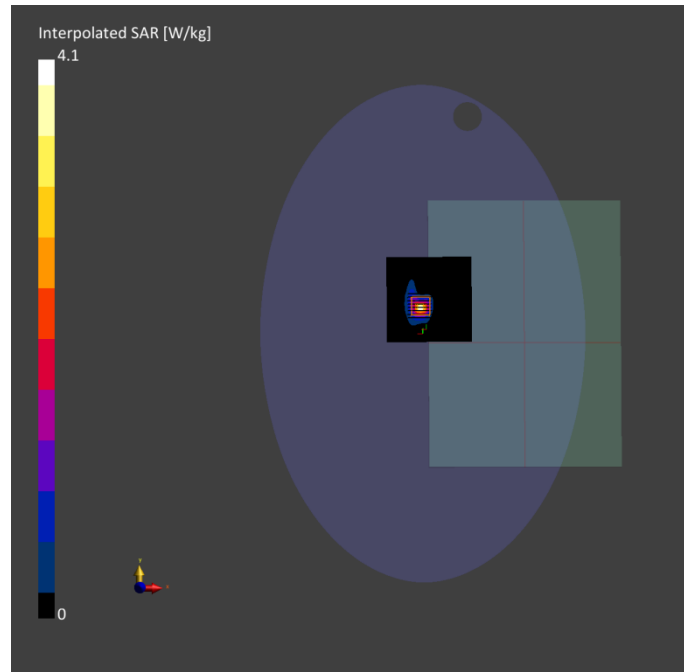
Exposure Conditions

Phantom	Position, Test Section, Distance [mm]	Band	Group, UID	Frequency [MHz], Channel Number	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity	Ambient Temperature [°C]	Liquid Temperature [°C]
Flat, HSL	BACK, 0.00	WLAN, 5GHz	WLAN, 10402-AAE	5775.0, 155	4.78	5.40	34.7	22.5	21.2

Hardware Setup

Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
ELI V8.0 (20deg probe tilt) - 2159	HBBL-600-10000 2024-01-24	EX3DV4 - SN7607, 2023-07-04	DAE4 Sn878, 2023-03-23

Scan Setup	Measurement Results				
	Area Scan	Zoom Scan		Area Scan	Zoom Scan
Grid Extents [mm]	100.0 x 100.0	24.0 x 24.0 x 22.0	Date	2024-01-24	2024-01-24
Grid Steps [mm]	10.0 x 10.0	4.0 x 4.0 x 1.4	psSAR1g [W/kg]	0.729	0.804
Sensor Surface [mm]	3.0	1.4	psSAR10g [W/kg]	0.211	0.216
Graded Grid	Yes	Yes	Power Drift [dB]	0.07	-0.14
Grading Ratio	1.5	1.4	Power Scaling	Disabled	Disabled
MAIA	Y	N/A	Scaling Factor		
Surface	VMS + 6p	VMS + 6p	[dB]		
Detection			TSL Correction	No correction	No correction
Scan Method	Measured	Measured	M2/M1 [%]		52.4
			Dist 3dB Peak [mm]		5.4



Meas.9 Body Plane with Back Side 0mm on 155 Channel in IEEE802.11ac80 Mode with Antenna Main

Device under Test Properties

Model, Manufacturer	Dimensions [mm]	DUT Type
Device,	313.0 x 226.0 x 12.0	Tablet

Exposure Conditions

Phantom Section, TSL Flat, HSL	Position, Test Distance [mm]	Band	Group, UID	Frequency [MHz], Channel Number	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity	Ambient Temperature [°C]	Liquid Temperature [°C]
	BACK, 0.00	WLAN, 5GHz	WLAN, 10402-AAE	5775.0, 155	4.78	5.40	34.7	22.5	21.2

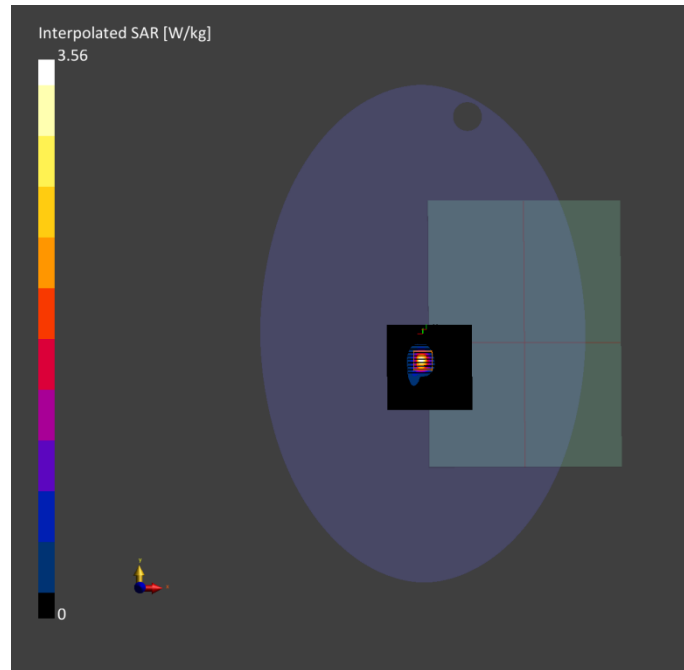
Hardware Setup

Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
ELI V8.0 (20deg probe tilt) - 2159	HBBL-600-10000 2024-01-24	EX3DV4 - SN7607, 2023-07-04	DAE4 Sn878, 2023-03-23

Scan Setup

Measurement Results

	Area Scan	Zoom Scan		Area Scan	Zoom Scan
Grid Extents [mm]	100.0 x 100.0	24.0 x 24.0 x 22.0	Date	2024-01-24	2024-01-24
Grid Steps [mm]	10.0 x 10.0	4.0 x 4.0 x 1.4	psSAR1g [W/kg]	0.745	0.746
Sensor Surface [mm]	3.0	1.4	psSAR10g [W/kg]	0.220	0.211
Graded Grid	Yes	Yes	Power Drift [dB]	-0.02	-0.03
Grading Ratio	1.5	1.4	Power Scaling	Disabled	Disabled
MAIA	Y	N/A	Scaling Factor		
Surface	VMS + 6p	VMS + 6p	[dB]		
Detection			TSL Correction	No correction	No correction
Scan Method	Measured	Measured	M2/M1 [%]		56.6
			Dist 3dB Peak [mm]		5.6



Meas.10 Body Plane with Bottom Side 0mm on 15 Channel in IEEE802.11ax160 Mode with Antenna Auxiliary

Device under Test Properties

Model, Manufacturer	Dimensions [mm]	DUT Type
Device,	313.0 x 226.0 x 12.0	Laptop

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 [°C]	Liquid Temperature [°C]
Flat, HSL	BACK, 0.00	U- NII-5	WLAN, 10755- AAC	6025.0, 15	5.38	5.35	35.0	22.5	21.2

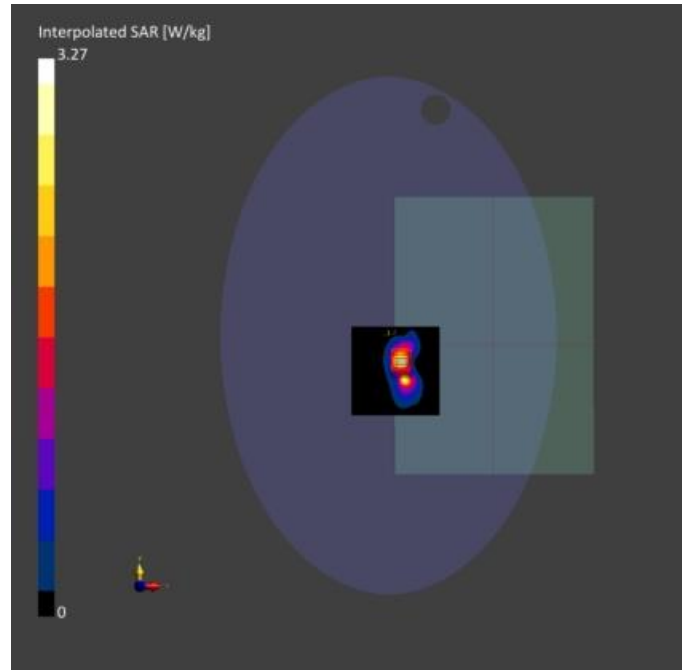
Hardware Setup

Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
ELI V8.0 (20deg probe tilt) - 2159	HBBL-600-10000 2024-01-25	EX3DV4 - SN7607, 2023-07-04	DAE4 Sn878, 2023-03-23

Scan Setup

Measurement Results

		Area Scan	Zoom Scan			Area Scan	Zoom Scan
Grid Extents [mm]		100.0 x 100.0	22.0 x 22.0 x 22.0	Date		2024-01-25	2024-01-25
Grid Steps [mm]		10.0 x 10.0	2.2 x 2.2 x 1.2	psSAR1g [W/kg]		0.425	0.602
Sensor Surface [mm]		3.0	1.4	psSAR10g [W/kg]		0.143	0.164
Graded Grid		Yes	Yes	Power Drift [dB]		-0.07	-0.01
Grading Ratio		1.5	1.2	Power Scaling		Disabled	Disabled
MAIA Surface		Y	N/A	Scaling Factor [dB]			
Detection		VMS + 6p	VMS + 6p	TSL Correction		No correction	No correction
Scan Method		Measured	Measured	M2/M1 [%]			56.3
				Dist 3dB Peak [mm]			4.0



Meas.11 Body Plane with Bottom Side 0mm on 111 Channel in IEEE802.11ax160 Mode with Antenna Main

Device under Test Properties

Model, Manufacturer	Dimensions [mm]	DUT Type
Device,	313.0 x 226.0 x 12.0	Laptop

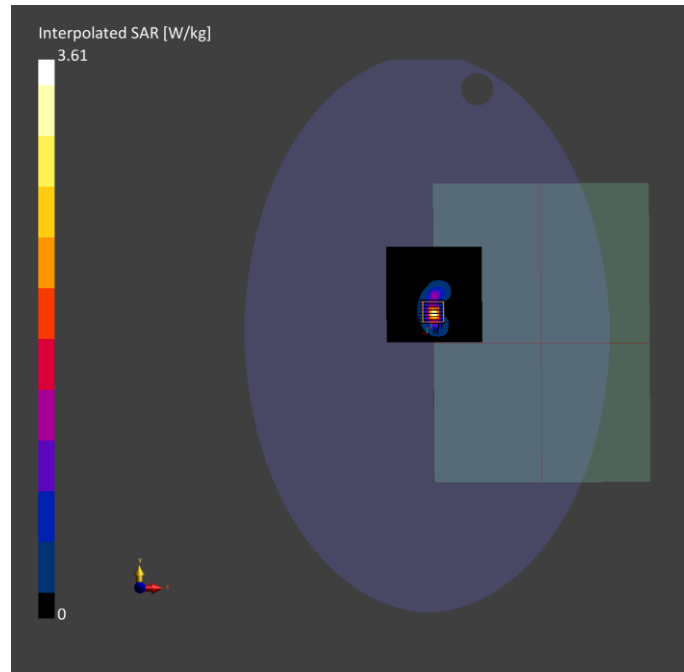
Exposure Conditions

Phantom	Position, Test Section, TSL	Band	Group, UID	Frequency [MHz], Channel Number	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity	Ambient Temperature [°C]	Liquid Temperature [°C]
Flat, HSL	BACK, 0.00	U-NII-6	WLAN, 10743-AAC	6505.0, 111	5.38	6.17	33.9	22.5	21.2

Hardware Setup

Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
ELI V8.0 (20deg probe tilt) - 2159	HBBL-600-10000 2024-01-25	EX3DV4 - SN7607, 2023-07-04	DAE4 Sn878, 2023-03-23

Scan Setup	Measurement Results				
	Area Scan	Zoom Scan		Area Scan	Zoom Scan
Grid Extents [mm]	100.0 x 100.0	22.0 x 22.0 x 22.0	Date	2024-01-25	2024-01-25
Grid Steps [mm]	10.0 x 10.0	3.4 x 3.4 x 1.4	psSAR1g [W/kg]	0.592	0.617
Sensor Surface [mm]	3.0	1.4	psSAR10g [W/kg]	0.153	0.152
Graded Grid	Yes	Yes	Power Drift [dB]	0.07	-0.06
Grading Ratio	1.5	1.4	Power Scaling	Disabled	Disabled
MAIA	Y	N/A	Scaling Factor		
Surface	VMS + 6p	VMS + 6p	[dB]		
Detection			TSL Correction	No correction	No correction
Scan Method	Measured	Measured	M2/M1 [%]		52.6
			Dist 3dB Peak [mm]		4.3



ANNEX D EUT EXTERNAL PHOTOS

Please refer the document “BL-SZ2410982-AW.pdf”.

ANNEX E SAR TEST SETUP PHOTOS

Please refer the document “BL-SZ2410982-AS-1.pdf”.

ANNEX F CALIBRATION REPORT

Please refer the document “BL-SZ2410982-AC-1.pdf”.

ANNEX G TUNE-UP PROCEDURE

Please refer the document “BL-SZ2410982-AT-1.pdf”.

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