FCC SAR TEST REPORT

Applicant: RATTA US INC

Address: Office NO.1414 601W 1st Ave Suite 1400 Spokane WASHINGTON United States

Product Name: Electronic-notebook

FCC ID: 2BE5Y-A6-X2-J

Standard(s): 47 CFR Part 2(2.1093)

Report Number: 2502U63436E-20A

Report Date: 2025/07/28

The above device has been tested and found compliant with the requirement of the relative standards by Bay Area Compliance Laboratories Corp. (Dongguan).

Mark Dong

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Brave Lu

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SAR TEST RESULTS SUMMARY

Body SAR:

Mode		Max. Reported SAR Level(s) (W/kg)	Limit (W/kg)
WLAN 2.4G	1g Body SAR	**1.27**	1.6
WLAN 5.2G	1g Body SAR	1.20	
WLAN 5.8G	1g Body SAR	1.14	
Bluetooth	1g Body SAR	0.48	

Applicable Standards	**FCC 47 CFR part 2.1093** Radiofrequency radiation exposure evaluation: portable devices
	IEEE 1528:2013 IEEE Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques
	KDB procedures KDB 447498 D01 General RF Exposure Guidance v06 KDB 865664 D01 SAR Measurement 100 MHz to 6 GHz v01r04 KDB 865664 D02 RF Exposure Reporting v01r02 KDB 248227 D01 802.11 Wi-Fi SAR v02r02

Note: This wireless device has been shown to be capable of compliance for localized specific absorption rate (SAR) for General Population/Uncontrolled Exposure limits specified in **FCC 47 CFR part 2.1093** and has been tested in accordance with the measurement procedures specified in IEEE 1528-2013 and RF exposure KDB procedures.

The results and statements contained in this report pertain only to the device(s) evaluated.

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DOCUMENT REVISION HISTORY

Revision Number	Report Number	Description of Revision	Date of Revision
1.0	2502U63436E-20A	Original Report	2025/07/28

1. GENERAL INFORMATION

1.1 Product Description for Equipment under Test (EUT)

EUT Name:	Electronic-notebook
EUT Model:	A6 X2-W-J
Multiple Model	A6 X2-C-J
Device Type:	Portable
Exposure Category:	Population / Uncontrolled
Antenna Type(s):	Internal Antenna
Body-Worn Accessories:	None
Proximity Sensor:	None
Carrier Aggregation:	None
Operation Modes:	WLAN, Bluetooth, BLE
Frequency Band:	Wi-Fi 2.4G: 2412-2462 MHz /2422-2452 MHz (TX/RX)
	Wi-Fi 5.2G: 5150-5250 MHz(TX/RX)
	Wi-Fi 5.8G: 5725-5850 MHz(TX/RX)
	Bluetooth: 2402-2480MHz(TX/RX)
	BLE 1M:2402-2480MHz(TX/RX)
	BLE 2M:2402-2480MHz(TX/RX)
Dimensions (L*W*H):	192mm (L) * 140mm (W) * 7mm (H) (The dimensions are the same for each model)
Rated Input Voltage:	DC 3.85V from Rechargeable Battery
Serial Number:	346Z-2
Normal Operation:	Body
EUT Received Date:	2025/06/10
Test Date:	2025/07/11
EUT Received Status:	Good

2. REFERENCE, STANDARDS, AND GUIDELINES

FCC:

The Report and Order requires routine SAR evaluation prior to equipment authorization of portable transmitter devices, including portable telephones. For consumer products, the applicable limit is 1.6 mW/g as recommended by the ANSI/IEEE standard C95.1-1992 [6] for an uncontrolled environment (Paragraph 65). According to the Supplement C of OET Bulletin 65 "Evaluating Compliance with FCC Guide-lines for Human Exposure to Radio frequency Electromagnetic Fields", released on Jun 29, 2001 by the FCC, the device should be evaluated at maximum output power (radiated from the antenna) under "worst-case" conditions for normal or intended use, incorporating normal antenna operating positions, device peak performance frequencies and positions for maximum RF energy coupling.

This report describes the methodology and results of experiments performed on wireless data terminal. The objective was to determine if there is RF radiation and if radiation is found, what is the extent of radiation with respect to safety limits. SAR (Specific Absorption Rate) is the measure of RF exposure determined by the amount of RF energy absorbed by human body (or its parts) – to determine how the RF energy couples to the body or head which is a primary health concern for body worn devices. The limit below which the exposure to RF is considered safe by regulatory bodies in North America is 1.6 mW/g average over 1 gram of tissue mass.

2.1 SAR Limits

FCC Limit

EXPOSURE LIMITS	**SAR (W/kg)**	
	(General Population / Uncontrolled Exposure Environment)	(Occupational / Controlled Exposure Environment)
Spatial Average (averaged over the whole body)	0.08	0.4
Spatial Peak (averaged over any 1 g of tissue)	**1.6**	8
Spatial Peak (hands/wrists/feet/ankles averaged over 10 g)	4	20

Population/Uncontrolled Environments are defined as locations where there is the exposure of individual who have no knowledge or control of their exposure.

Occupational/Controlled Environments are defined as locations where there is exposure that maybe incurred by people who are aware of the potential for exposure (i.e. as a result of employment or occupation).

General Population/Uncontrolled environments Spatial Peak limit 1.6 W/kg(FCC) for 1g Body SAR.

2.2 Test Facility

The Test site used by Bay Area Compliance Laboratories Corp. (Dongguan) to collect test data is located on the No.12, Pulong East 1st Road, Tangxia Town, Dongguan, Guangdong, China.

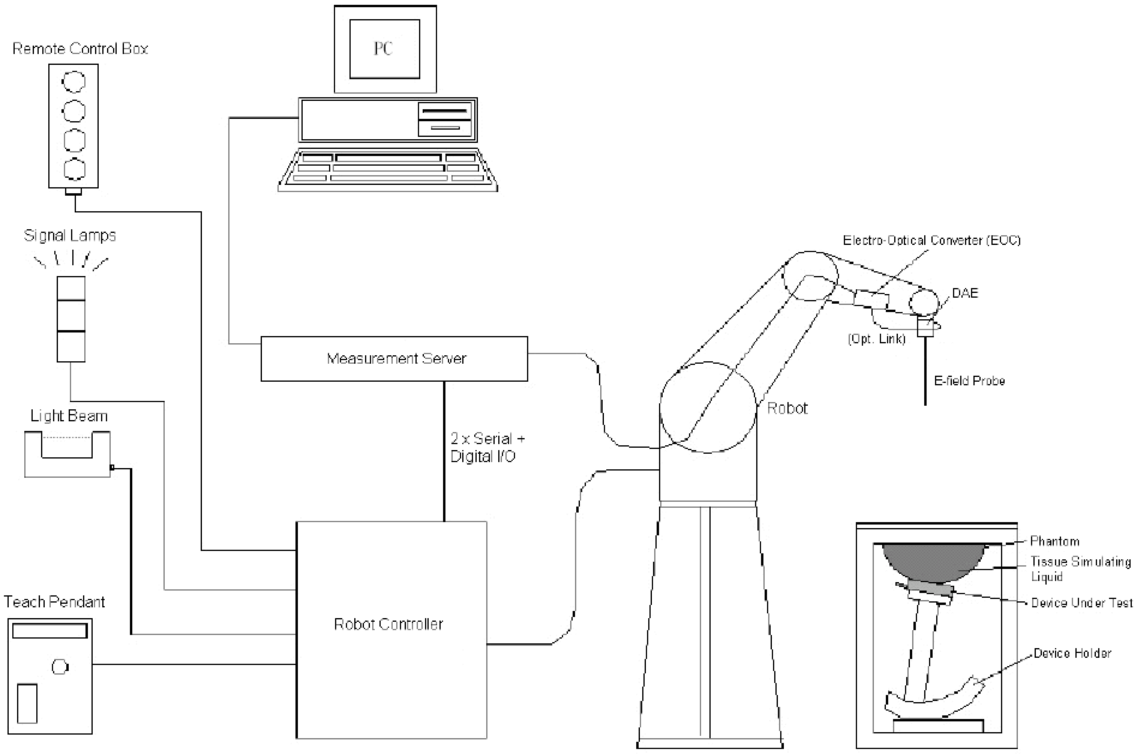
The lab has been recognized as the FCC accredited lab under the KDB 974614 D01 and is listed in the FCC Public Access Link (PAL) database, FCC Registration No. :829273, the FCC Designation No. : CN5044.

3. DESCRIPTION OF TEST SYSTEM

These measurements were performed with the automated near-field scanning system DASY5 from Schmid & Partner Engineering AG (SPEAG) which is the Fifth generation of the system shown in the figure hereinafter:

DASY5 System Description

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



- A standard high precision 6-axis robot with controller, teach pendant and software. An arm extension for accommodating the data acquisition electronics (DAE).
- An isotropic field probe optimized and calibrated for the targeted measurement.
- A data acquisition electronics (DAE) which performs the signal application, 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.
- The Electro-optical converter (EOC) performs the conversion from optical to electrical signals for the digital communication to the DAE. To use optical surface detection, a special version of the EOC is required. The EOC signal is transmitted to the measurement server.
- The function of the measurement server is to perform the time critical tasks such as signal filtering, control of the robot operation and fast movement interrupts.
- The Light Beam used is for probe alignment. This improves the (absolute) accuracy of the probe positioning.
- A computer running Win7 professional operating system and the DASY52 software.
- Remote control and teach pendant as well as additional circuitry for robot safety such as warning lamps, etc.
- The phantom, the device holder and other accessories according to the targeted measurement.

DASY5 Measurement Server

The DASY5 measurement server is based on a PC/104 CPU board with a 400MHz Intel ULV Celeron, 128MB chip-disk and 128MB RAM. The necessary circuits for communication with the DAE4 (or DAE3) electronics box, as well as the 16 bit AD-converter system for optical detection and digital I/O interface are contained on the DASY5 I/O board, which is directly connected to the PC/104 bus of the CPU board.

The measurement server performs all real-time data evaluation of field measurements and surface detection, controls robot movements and handles safety operation. The PC operating system cannot interfere with these time critical processes. All connections are supervised by a watchdog, and disconnection of any of the cables to the measurement server will automatically disarm the robot and disable all program-controlled robot movements. Furthermore, the measurement server is equipped with an expansion port which is reserved for future applications. Please note that this expansion port does not have a standardized point out, and therefore only devices provided by SPEAG can be connected. Devices from any other supplier could seriously damage the measurement server.

Data Acquisition Electronics

The data acquisition electronics (DAE4) 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.

The mechanical probe mounting device includes two different sensor systems for frontal and sideways probe contacts. They are used for mechanical surface detection and probe collision detection.

The input impedance of both the DAE4 as well as of the DAE3 box is 200MOhm; the inputs are symmetrical and floating. Common mode rejection is above 80 dB.

EX3DV4 E-Field Probes

Frequency	4 MHz to -6 GHz Linearity: ± 0.2 dB (30 MHz to 6 GHz)
Directivity	± 0.1 dB in TSL (rotation around probe axis) ± 0.3 dB in TSL (rotation normal to probe axis)
Dynamic Range	10 µW/g to > 100 mW/g Linearity: ± 0.2 dB (noise: typically < 1 µW/g)
Dimensions	Overall length: 337 mm (Tip: 20 mm) Tip diameter: 2.5 mm (Body: 12 mm) Typical distance from probe tip to dipole centers: 1 mm
Application	High precision dosimetric measurements in any exposure scenario (e.g., very strong gradient fields); the only probe that enables compliance testing for frequencies up to 6 GHz with precision of better 30%.
Compatibility	DASY3, DASY4, DASY52, DASY6, DASY8, EASY6, EASY4/MRI

SAM Twin Phantom

The SAM twin phantom is a fiberglass shell phantom with 2mm shell thickness (except the ear region, where shell thickness
increases to 6 mm). The phantom has three measurement areas:
_ Left Head
_ Right Head
_ Flat phantom

The phantom table for the DASY systems based on the robots have the size of 100 x 50 x 85 cm (L x W x H).
For easy dislocation these tables have fork lift cut outs at the bottom.
The bottom plate contains three pairs of bolts for locking the device holder. The device holder positions are adjusted to the standard measurement positions in the three sections. Only one device holder is necessary if two phantoms are used (e.g., for different liquids)

A white cover is provided to cover the phantom during off-periods to prevent water evaporation and changes in the liquid parameters. Free space scans of devices on top of this phantom cover are possible.
Three reference marks are provided on the phantom counter. These reference marks are used to teach the absolute phantom position relative to the robot.

Robots

The DASY5 system uses the high precision industrial robot. The robot offers the same features important for our application:

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

The above mentioned robots are controlled by the Staubli CS7MB robot controllers. All information regarding the use and maintenance of the robot arm and the robot controller is contained on the CDs delivered along with the robot. Paper manuals are available upon request direct from Staubli.

Area Scans

Area scans are defined prior to the measurement process being executed with a user defined variable spacing between each measurement point (integral) allowing low uncertainty measurements to be conducted. Scans defined for FCC applications utilize a 15mm2 step integral, with 1.5mm interpolation used to locate the peak SAR area used for zoom scan assessments.

Where the system identifies multiple SAR peaks (which are within 25% of peak value) the system will provide the user with the option of assessing each peak location individually for zoom scan averaging.

Zoom Scan (Cube Scan Averaging)

The averaging zoom scan volume utilized in the DASY5 software is in the shape of a cube and the side dimension of a 1 g or 10 g mass is dependent on the density of the liquid representing the simulated tissue. A density of 1000 kg/m^3 is used to represent the head and body tissue density and not the phantomliquid density, in order to be consistent with the definition of the liquid dielectric properties, i.e. the side length of the 1g cube is 10mm,with the side length of the 10g cube is 21.5mm.

When the cube intersects with the surface of the phantom, it is oriented so that 3 vertices touch the surface of the shell or the center of a face is tangent to the surface. The face of the cube closest to the surface is modified in order to conform to the tangent surface.

The zoom scan integer steps can be user defined so as to reduce uncertainty, but normal practice for typical test applications (including FCC) utilize a physical step of 7 x7 x 7 (5mmx5mmx5mm) providing a volume of 30 mm in the X & Y & Z axis.

Tissue Dielectric Parameters for Head and Body Phantoms

The head tissue dielectric parameters recommended by the IEEE 1528:2013

Recommended Tissue Dielectric Parameters for Head liquid

Table 3—Target dielectric properties of head tissue-equivalent material in the 300 MHz to 6000 MHz frequency range

Frequency (MHz)	Relative permittivity (ε'_r)	Conductivity (σ) (S/m)
300	45.3	0.87
450	43.5	0.87
750	*41.9*	*0.89*
835	41.5	0.90
900	41.5	0.97
1450	40.5	1.20
1500	*40.4*	*1.23*
1640	*40.2*	*1.31*
1750	*40.1*	*1.37*
1800	40.0	1.40
1900	40.0	1.40
2000	40.0	1.40
2100	*39.8*	*1.49*
2300	*39.5*	*1.67*
2450	39.2	1.80
2600	*39.0*	*1.96*
3000	38.5	2.40
3500	*37.9*	*2.91*
4000	*37.4*	*3.43*
4500	*36.8*	*3.94*
5000	*36.2*	*4.45*
5200	*36.0*	*4.66*
5400	*35.8*	*4.86*
5600	*35.5*	*5.07*
5800	35.3	5.27
6000	*35.1*	*5.48*

NOTE—For convenience, permittivity and conductivity values at some frequencies that are not part of the original data from Drossos et al. [B60] or the extension to 5800 MHz are provided (i.e., the values shown in italics). These values were linearly interpolated between the values in this table that are immediately above and below these values, except the values at 6000 MHz that were linearly extrapolated from the values at 3000 MHz and 5800 MHz.

4. EQUIPMENT LIST AND CALIBRATION

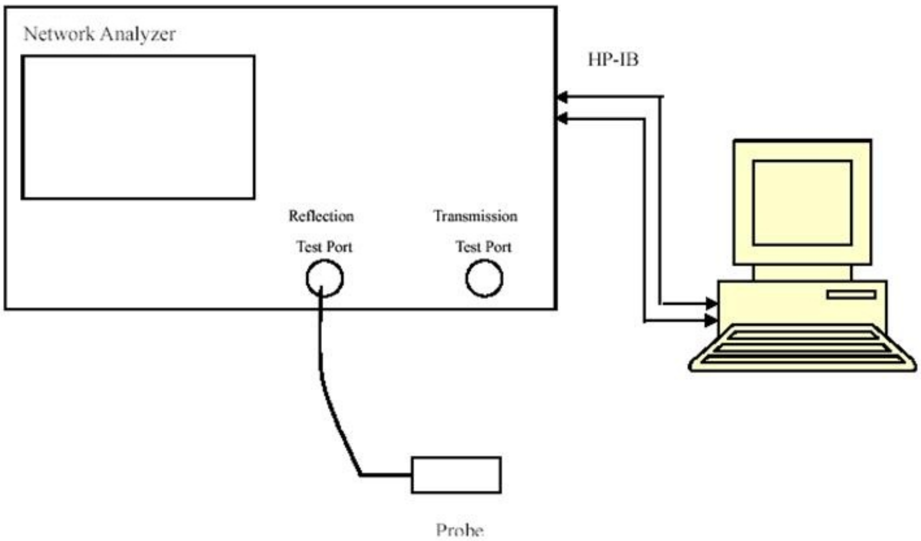
4.1 Equipments List & Calibration Information

Equipment	Model	S/N	Calibration Date	Calibration Due Date
DASY5 Test Software	DASY52.10	N/A	NCR	NCR
DASY5 Measurement Server	DASY5 4.5.12	1470	NCR	NCR
Data Acquisition Electronics	DAE4	772	2025/2/17	2026/2/16
E-Field Probe	EX3DV4	7329	2025/5/26	2026/5/25
Mounting Device	MD4HHTV5	SD 000 H01 KA	NCR	NCR
Twin SAM	Twin SAM V5.0	1874	NCR	NCR
Dipole, 2450 MHz	D2450V2	971	2024/6/15	2027/6/14
Dipole, 5 GHz	D5GHzV2	1246	2022/11/1	2025/10/31
Simulated Tissue Liquid Head	HBBL600-10000V6	SL AAH U126 CA (Batch:250429-1)	N/A	N/A
Network Analyzer	8753C +85047A	3029A01355 +3033A02857	2025/7/3	2026/7/2
Dielectric assessment kit	1253	SM DAK 040 CA	NCR	NCR
synthesized signal generator	8665B	3438a00584	2024/10/18	2025/10/17
EPM Series Power Meter	E4419B	MY45103907	2024/10/18	2025/10/17
Power Sensor	8482A	US37296108	2024/10/19	2025/10/18
Power Meter	EPM-441A	GB37481494	2024/10/19	2025/10/18
USB Wideband Power Sensor	U2022XA	MY54170006	2024/10/18	2025/10/17
Power Amplifier	ZVE-6W-83+	637202210	NCR	NCR
Directional Coupler	441493	520Z	NCR	NCR
Attenuator	20dB, 100W	LN749	NCR	NCR
Attenuator	6dB, 150W	2754	NCR	NCR
Thermometer	DTM3000	3635	2024/8/12	2025/8/11
Hygrothermograph	HTC-2	EM072	2024/11/4	2025/11/3
Wideband Radio Communication Tester	CMW500	147473	2024/9/5	2025/9/4
Spectrum Analyzer	FSV40	101461	2024/9/5	2025/9/4
Spectrum Analyzer	FSU 26	200445	2025/3/31	2026/3/30

* Statement of Traceability: Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

5. SAR MEASUREMENT SYSTEM VERIFICATION

5.1 Liquid Verification



5.2 Liquid Verification Results

Frequency (MHz)	Liquid Type	Liquid Parameter		Target Value		Delta (%)		Tolerance (%)
		ε_r	σ (S/m)	ε_r	σ (S/m)	$\Delta\varepsilon_r$	Δσ (S/m)	
2402	Simulated Tissue Liquid Head	40.952	1.785	39.3	1.76	4.2	1.42	±5
2412	Simulated Tissue Liquid Head	40.718	1.805	39.28	1.77	3.66	1.98	±5
2437	Simulated Tissue Liquid Head	40.666	1.833	39.23	1.79	3.66	2.4	±5
2441	Simulated Tissue Liquid Head	40.650	1.838	39.22	1.79	3.65	2.68	±5
2450	Simulated Tissue Liquid Head	40.631	1.851	39.2	1.8	3.65	2.83	±5
2462	Simulated Tissue Liquid Head	40.509	1.868	39.18	1.81	3.39	3.2	±5
2480	Simulated Tissue Liquid Head	40.453	1.893	39.16	1.83	3.3	3.44	±5

**Liquid Verification above was performed on 2025/07/11.*

Frequency (MHz)	Liquid Type	Liquid Parameter		Target Value		Delta (%)		Tolerance (%)
		ε_r	Ơ (S/m)	ε_r	Ơ (S/m)	$\Delta\varepsilon_r$	ΔƠ (S/m)	
5190	Simulated Tissue Liquid Head	35.740	4.557	36.01	4.65	-0.75	-2.00	±5
5210	Simulated Tissue Liquid Head	35.715	4.574	35.99	4.67	-0.76	-2.06	±5
5230	Simulated Tissue Liquid Head	35.668	4.604	35.97	4.69	-0.84	-1.83	±5
5250	Simulated Tissue Liquid Head	35.641	4.626	35.95	4.71	-0.86	-1.78	±5

**Liquid Verification above was performed on 2025/07/11.*

Frequency (MHz)	Liquid Type	Liquid Parameter		Target Value		Delta (%)		Tolerance (%)
		ε_r	Ơ (S/m)	ε_r	Ơ (S/m)	$\Delta\varepsilon_r$	ΔƠ (S/m)	
5755	Simulated Tissue Liquid Head	34.459	5.219	35.35	5.23	-2.52	-0.21	±5
5750	Simulated Tissue Liquid Head	34.472	5.216	35.35	5.22	-2.48	-0.08	±5
5795	Simulated Tissue Liquid Head	34.388	5.270	35.31	5.27	-2.61	0	±5

**Liquid Verification above was performed on 2025/07/11.*

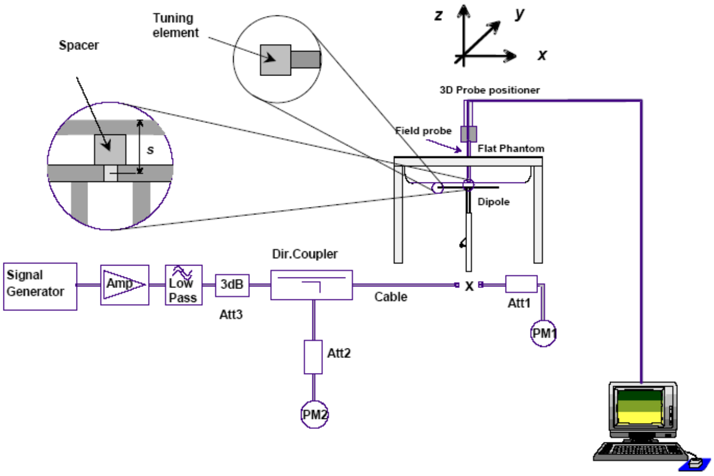
5.3 System Accuracy Verification

Prior to the assessment, the system validation kit was used to test whether the system was operating within its specifications of ±10%. The validation results are tabulated below. And also the corresponding SAR plot is attached as well in the SAR plots files.

The spacing distances in the **System Verification Setup Block Diagram** is given by the following:

a) s = 15 mm ± 0,2 mm for 300 MHz ≤ f ≤ 1 000 MHz;
b) s = 10 mm ± 0,2 mm for 1 000 MHz < f ≤ 3 000 MHz;
c) s = 10 mm ± 0,2 mm for 3 000 MHz < f ≤ 6 000 MHz.

System Verification Setup Block Diagram



5.4 System Accuracy Check Results

Date	Frequency Band (MHz)	Liquid Type	Input Power (mW)	Measured SAR (W/kg)		Normalized to 1W (W/kg)	Target Value (W/Kg)	Delta (%)	Tolerance (%)
2025/07/11	2450	Simulated Tissue Liquid Head	100	1g	5.16	51.6	52.7	-2.09	±10
2025/07/11	5250	Simulated Tissue Liquid Head	100	1g	7.49	74.9	77.5	-3.35	±10
2025/07/11	5750	Simulated Tissue Liquid Head	100	1g	7.53	75.3	78.4	-3.95	±10

Note: All the SAR values are normalized to 1Watt forward power.

5.5 SAR SYSTEM VALIDATION DATA

System Performance 2450 MHz Head

DUT: D2450V2; Type: 2450 MHz; Serial: 971

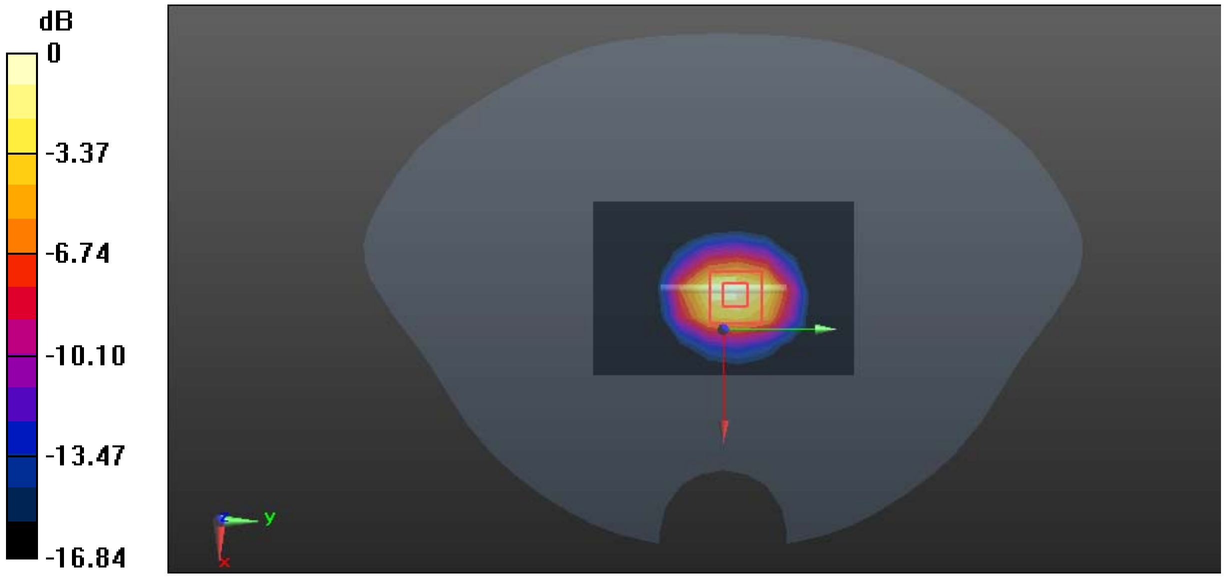
Communication System: CW (0); Frequency: 2450 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2450 MHz; σ = 1.851 S/m; ε_r =40.631; ρ = 1000 kg/m^3;
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7329; ConvF(7.68, 7.68, 7.68) @ 2450 MHz; Calibrated: 2025/5/26
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn772; Calibrated: 2025/2/17
- Phantom: SAM (30deg probe tilt) with CRP v5.0_20150321; Type: QD000P40CD; Serial: TP:1874
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.14 (7501)

Area Scan (7x11x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (measured) = 8.46 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 61.48 V/m; Power Drift = -0.08 dB
Peak SAR (extrapolated) = 11.7 W/kg
SAR(1 g) = 5.16 W/kg; SAR(10 g) = 2.42 W/kg
Smallest distance from peaks to all points 3 dB below = 9.3 mm
Ratio of SAR at M2 to SAR at M1 = 52.7%
Maximum value of SAR (measured) = 8.72 W/kg



0 dB = 8.72 W/kg = 9.41 dBW/kg

System Performance 5250 MHz Head

DUT: D5GHzV2; Type: 5250 MHz; Serial: 1246

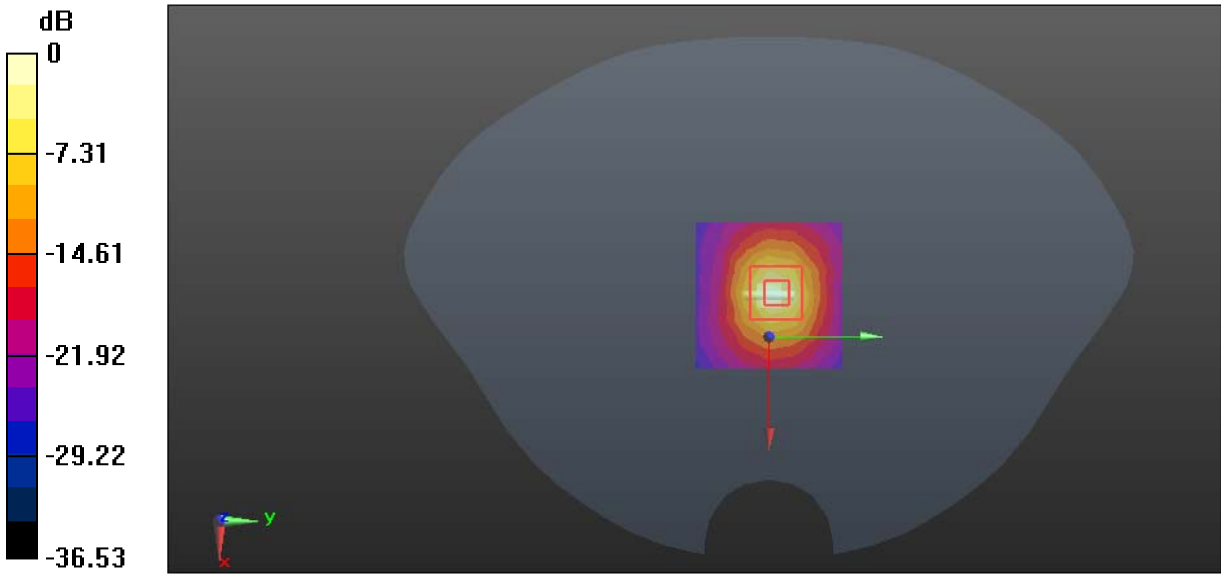
Communication System: CW (0); Frequency: 5250 MHz;Duty Cycle: 1:1
Medium parameters used: f = 5250 MHz; σ = 4.626 S/m; ε_r =35.641; ρ = 1000 kg/m^3;
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7329; ConvF(5.5, 5.5, 5.5) @ 5250 MHz; Calibrated: 2025/5/26
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn772; Calibrated: 2025/2/17
- Phantom: SAM (30deg probe tilt) with CRP v5.0_20150321; Type: QD000P40CD; Serial: TP:1874
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.14 (7501)

Area Scan(9x10x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 15.2 W/kg

Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value =55.67 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 36.2 W/kg
SAR(1 g) = 7.49 W/kg; SAR(10 g) = 2.26 W/kg
Smallest distance from peaks to all points 3 dB below = 15.3 mm
Ratio of SAR at M2 to SAR at M1 = 50.4%
Maximum value of SAR (measured) = 16.8 W/kg



0 dB = 16.8 W/kg = 12.25 dBW/kg

System Performance 5750 MHz Head

DUT: D5GHzV2; Type: 5750 MHz; Serial: 1246

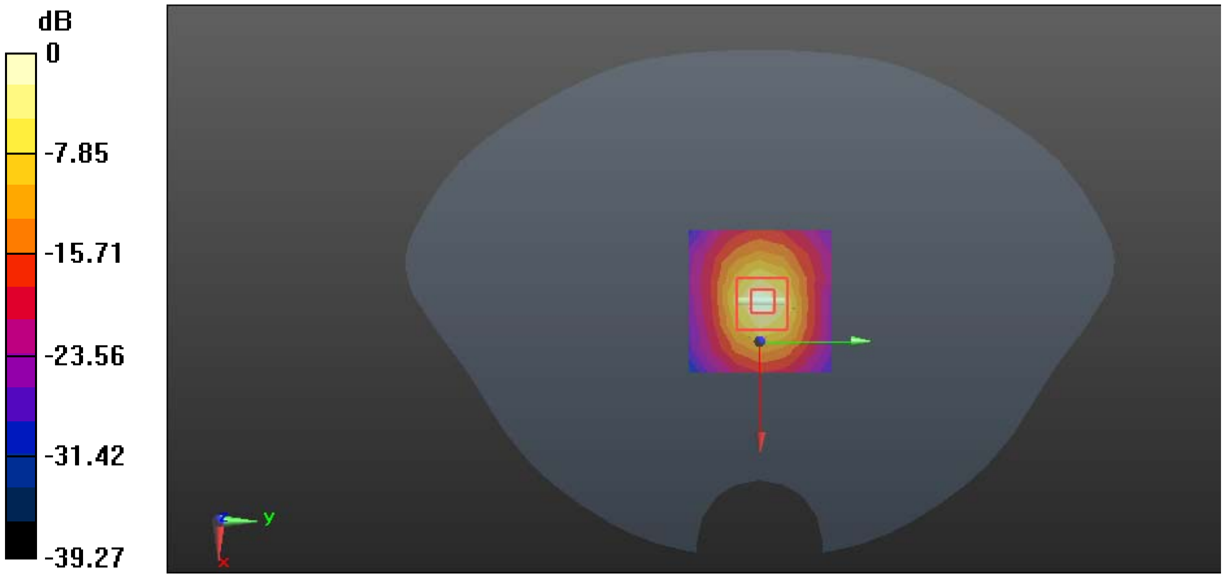
Communication System: CW (0); Frequency: 5750 MHz;Duty Cycle: 1:1
Medium parameters used: f = 5750 MHz; σ = 5.216 S/m; ε_r =34.472; ρ = 1000 kg/m^3;
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7329; ConvF(5.02, 5.02, 5.02) @ 5750 MHz; Calibrated: 2025/5/26
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn772; Calibrated: 2025/2/17
- Phantom: SAM (30deg probe tilt) with CRP v5.0_20150321; Type: QD000P40CD; Serial: TP:1874
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.14 (7501)

Area Scan(8x8x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 15.8 W/kg

Zoom Scan (8x8x15)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value =40.64 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 29.8 W/kg
SAR(1 g) = 7.53 W/kg; SAR(10 g) = 2.09 W/kg
Smallest distance from peaks to all points 3 dB below = 13.7 mm
Ratio of SAR at M2 to SAR at M1 = 52.4%
Maximum value of SAR (measured) = 17.3 W/kg



0 dB = 17.3 W/kg = 12.38 dBW/kg

6. EUT TEST STRATEGY AND METHODOLOGY

6.1Test positions for body-worn and other configurations

Body-worn operating configurations should be tested with the belt-clips and holsters attached to the device and positioned against a flat phantom in normal use configurations. Devices with a headset output should be tested with a headset connected to the device. When multiple accessories that do not contain metallic components are supplied with the device, the device may be tested with only the accessory that dictates the closest spacing to the body. When multiple accessories that contain metallic components are supplied with the device, the device must be tested with each accessory that contains a unique metallic component. If multiple accessories share an identical metallic component (e.g., the same metallic belt-clip used with different holsters with no other metallic components), only the accessory that dictates the closest spacing to the body must be tested.

Body-worn accessories may not always be supplied or available as options for some devices that are intended to be authorized for body-worn use. A separation distance of 1.5 cm between the back of the device and a flat phantom is recommended for testing body-worn SAR compliance under such circumstances. Other separation distances may be used, but they should not exceed 2.5 cm. In these cases, the device may use body-worn accessories that provide a separation distance greater than that tested for the device provided however that the accessory contains no metallic components.

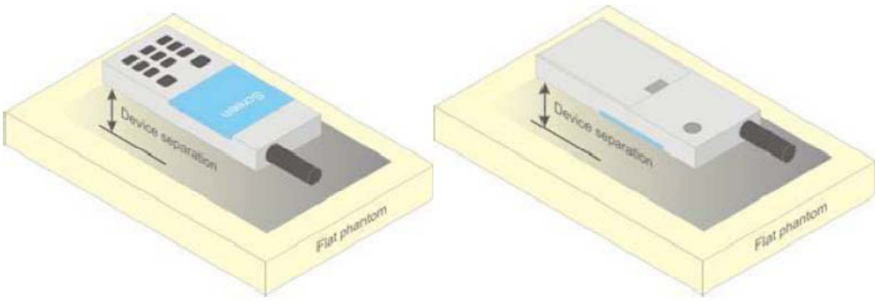


Figure 5 – Test positions for body-worn devices

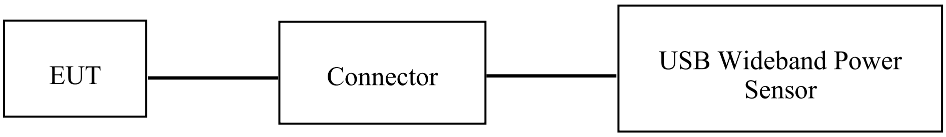
6.2Test Distance for SAR Evaluation

For Body mode(1g Body SAR) the EUT(Equipment Under Test) is set 0mm away from the phantom, the test distance is 0mm;

7. CONDUCTED OUTPUT POWER MEASUREMENT

7.1 Test Procedure

The RF output of the transmitter was connected to the input port of the USB Wideband Power Sensor through Connector.



WLAN/BT

7.2 Maximum Target Output Power

Max Target Power(dBm)			
Mode/Band	**Channel**		
	Low	**Middle**	**High**
WLAN 2.4G(802.11b)	12.2	12.2	12.2
WLAN 2.4G(802.11g)	12	12	12
WLAN 2.4G(802.11n ht20)	12	12	12
WLAN 2.4G(802.11n ht40)	12.2	12.2	12.2
WLAN 5.2G(802.11a)	5.5	5.5	5.5
WLAN 5.2G(802.11n20)	5.5	5.5	5.5
WLAN 5.2G(802.11n40)	9.2	/	9.2
WLAN 5.2G(802.11ac80)	/	9.1	/
WLAN 5.8G(802.11a)	8	8	8
WLAN 5.8G(802.11n20)	8	8	8
WLAN 5.8G(802.11n40)	10	/	10
WLAN 5.8G(802.11ac80)	/	6.5	/
BT BDR(GFSK)	7.5	9	9
BT EDR(π/4-DQPSK)	5	6.5	6.5
BT EDR(8DPSK)	5.5	6.5	7
BLE 1Mbps	5	6	6
BLE 2Mbps	5	6.5	6.5

7.3 Test Results:

WLAN: 2.4G

Mode	Channel frequency (MHz)	Data Rate	Duty cycle (%)	RF Output Power (dBm)
802.11b	2412	1Mbps	100	12.11
	2437			**12.18**
	2462			12.13
802.11g	2412	6Mbps	/	11.94
	2437			11.87
	2462			11.75
802.11n ht20	2412	MCS0	/	11.96
	2437			11.92
	2462			11.89
802.11n h40	2422	MCS0	/	12.05
	2437			11.98
	2452			11.97

Note:
1. The EUT was configured for testing in using cmd.exe, which was provided by the manufacturer. the parameters were consistent with the RF report.
2. The duty cycle plots, please refer to the radio report: 2502U63436E-RF-00B.

WLAN: 5.2G

Mode	Channel frequency (MHz)	Data Rate	Duty cycle (%)	RF Output Power (dBm)
802.11a	5180	6Mbps	/	5.27
	5200			5.28
	5240			4.80
802.11n20	5180	MCS0	/	5.13
	5200			5.21
	5240			5.08
802.11n40	5190	MCS0	91.73	8.42
	5230			**8.89**
802.11ac80	5210	MCS0	/	8.88

WLAN: 5.8G

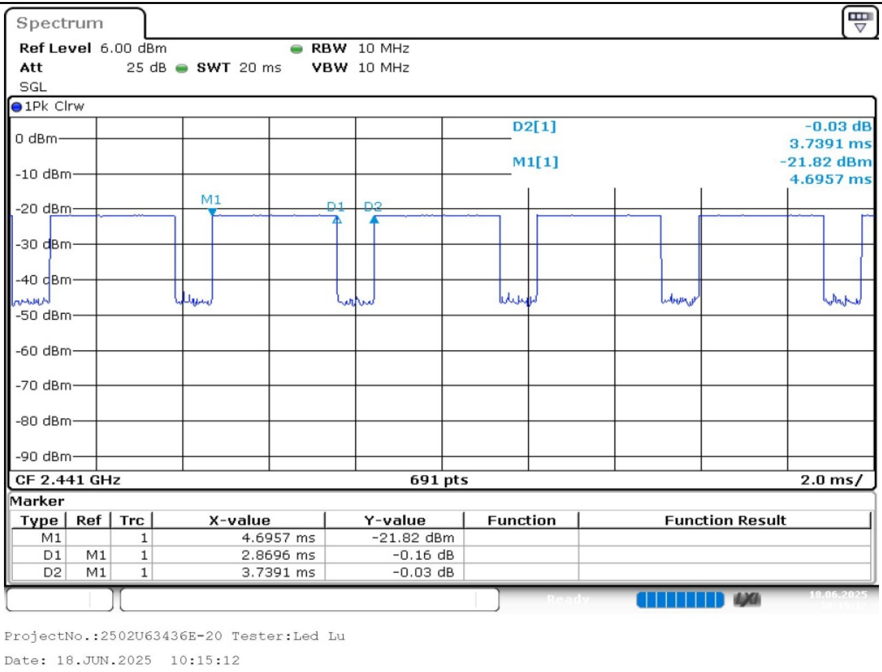
Mode	Channel frequency (MHz)	Data Rate	Duty cycle (%)	RF Output Power (dBm)
802.11a	5745	6Mbps	/	7.20
	5785			7.46
	5825			7.76
802.11n20	5745	MCS0	/	7.34
	5785			7.55
	5825			7.68
802.11n40	5755	MCS0	91.73	**9.59**
	5795			9.35
802.11ac80	5775	MCS0	/	6.40

Note:
1. The EUT was configured for testing in using cmd.exe, which was provided by the manufacturer. the parameters were consistent with the RF report.
2. The system supports 802.11a/n20/n40/ac20/ac40/ac80, the ac20/40 were reduced since the identical parameters with 802.11n20 and n40.
3. The duty cycle plots, please refer to the radio report: 2502U63436E-RF-00D.

Bluetooth:

Mode	Channel frequency (MHz)	RF Output Power (dBm)
BDR(GFSK)	2402	7.23
	2441	8.79
	2480	**8.91**
EDR(π/4-DQPSK)	2402	4.80
	2441	6.05
	2480	6.32
EDR(8DPSK)	2402	5.19
	2441	6.30
	2480	6.67
BLE 1Mbps	2402	4.50
	2440	5.95
	2480	5.98
BLE 2Mbps	2402	4.45
	2440	6.08
	2480	**6.12**

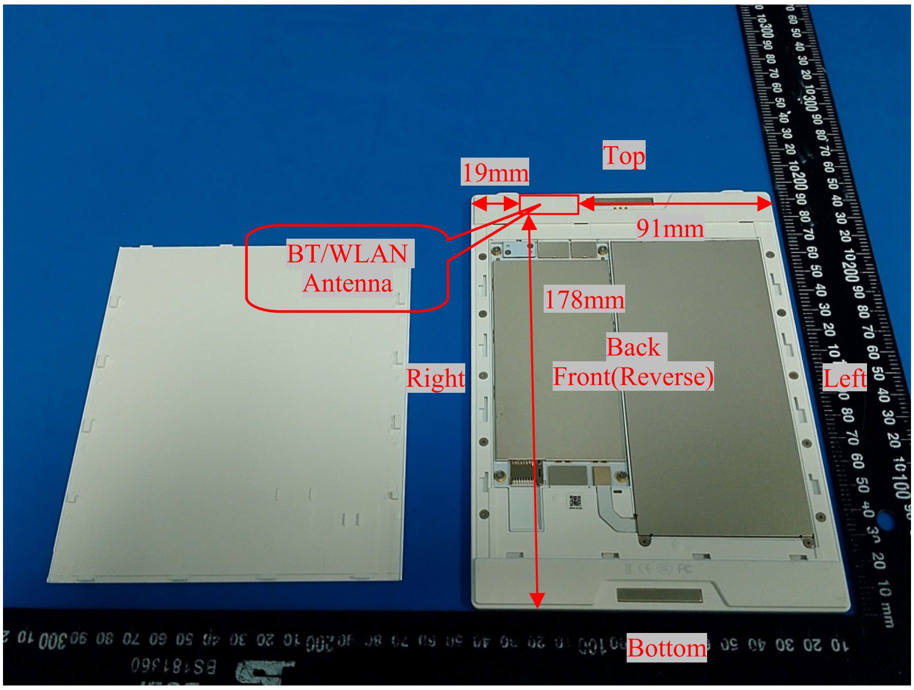
Test Modes	Ton (ms)	Ton+off (ms)	Duty cycle (%)	Scaled Factor (1/duty cycle)
BDR(GFSK)	2.870	3.739	76.76	1.30

Duty Cycle	
BDR(GFSK)	

Note: The duty cycle was measured under radiation method.

8. STANDALONE SAR TEST EXCLUSION CONSIDERATIONS

8.1 Antennas Location:



8.2 Antenna Distance To Edge

Antenna Distance To Edge(mm)						
Antenna	**Back**	**Front**	**Left**	**Right**	**Top**	**Bottom**
WLAN/BT Antenna	< 5	< 5	91	19	< 5	178

8.3 Standalone SAR test exclusion considerations

Body

Mode	Frequency (MHz)	Output Power (dBm)	Output Power (mW)	Distance (mm)	Calculated value	Threshold (1-g)	SAR Test Exclusion
WLAN 2.4G	2462	12.2	16.60	0	5.2	3.0	NO
WLAN 5.2G	5230	9.2	8.32	0	3.8	3.0	NO
WLAN 5.8G	5795	10	10	0	4.8	3.0	NO
Bluetooth	2480	9	7.94	0	2.5	3.0	YES

Note:
1.The WLAN based average power for calculation. and bluetooth based peak output power for calculation.
2. The Body SAR of Bluetooth was selected to test.

NOTE:
The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances ≤ 50 mm are determined by:
[(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm)] · [√f(GHz)] ≤ 3.0 for 1-g SAR and ≤7.5 for 10-g extremity SAR, where
1. f(GHz) is the RF channel transmit frequency in GHz.
2. Power and distance are rounded to the nearest mW and mm before calculation.
3. The result is rounded to one decimal place for comparison.
4. When the minimum test separation distance is < 5 mm, a distance of 5 mm is applied to determine SAR test Exclusion.

8.4 SAR test exclusion for the EUT edge considerations Result

Mode	Frequency (MHz)	Output Power (dBm)	Output Power (mW)	Test Exclusion Distance (mm)
WLAN 2.4G	2462	12.2	16.60	8.6
WLAN 5.2G	5230	9.2	8.32	6.3
WLAN 5.8G	5795	10	10	8.0
Bluetooth	2480	9	7.94	4.1

Mode	Back	Front	Left	Right	Top	Bottom
WLAN/BT	**Required**	**Required**	Exclusion	Exclusion	**Required**	Exclusion

Note:

Required: The distance is less than **Test Exclusion Distance**, the SAR test is required.
Exclusion: The distance is large than **Test Exclusion Distance**, SAR test is not required.

SAR test exclusion for the EUT edge considerations detail:

Distance< 50mm(To Edges)
The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances ≤ 50 mm are determined by:
[(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm)] · [√f(GHz)] ≤ 3.0 for 1-g SAR and ≤7.5 for 10-g extremity SAR, where
1. f(GHz) is the RF channel transmit frequency in GHz.
2. Power and distance are rounded to the nearest mW and mm before calculation.
3. The result is rounded to one decimal place for comparison.
4. When the minimum test separation distance is < 5 mm, a distance of 5 mm is applied to determine SAR test Exclusion.
5. The Time based average Power is used for calculation

Distance> 50mm(To Edges)
At 100 MHz to 6 GHz and for *test separation distances* > 50 mm, the SAR test exclusion threshold is determined according to the following:
a) [Power allowed at numeric threshold for 50 mm in step 1) + (test separation distance - 50 mm)·(f(MHz)/150)] mW, at 100 MHz to 1500 MHz
b) [Power allowed at numeric threshold for 50 mm in step 1) + (test separation distance - 50 mm)·10] mW at > 1500 MHz and ≤ 6 GHz.

9. SAR MEASUREMENT RESULTS

This page summarizes the results of the performed dosimetric evaluation.

9.1 SAR Test Data

Environmental Conditions

Environmental Temperature:	20.2-20.9 ℃
Relative Humidity:	36%
ATM Pressure:	100.1 kPa
Test Date:	2025/07/11

Testing was performed by Lily Yang, Musk Huang, Led Lu.

WLAN 2.4G:

Body Mode:

EUT Position	Frequency (MHz)	Test Mode	Max. Meas. Power (dBm)	Max. Rated Power (dBm)	1g SAR (W/kg)				
					Scaled Factor	Duty cycle Factor	Meas. SAR	Scaled SAR	Plot
Body Front (0mm)	2412	802.11b	12.11	12.2	1.021	1	1.08	1.10	/
	2437	802.11b	12.18	12.2	1.005	1	1.2	1.21	/
	2462	802.11b	12.13	12.2	1.016	1	1.14	1.16	/
Body Back (0mm)	2412	802.11b	12.11	12.2	1.021	1	1	1.02	/
	2437	802.11b	12.18	12.2	1.005	1	1.26	**1.27**	**1#**
	2462	802.11b	12.13	12.2	1.016	1	1.06	1.08	/
Body Top (0mm)	2412	802.11b	/	/	/	/	/	/	/
	2437	802.11b	12.18	12.2	1.005	1	0.778	0.78	/
	2462	802.11b	/	/	/	/	/	/	/

Note:
1. When the SAR value is less than half of the limit, testing for other channels are optional.
2.When SAR or MPE is not measured at the maximum power level allowed for production units, the results must be scaled to the maximum tune-up tolerance limit according to the power applied to the individual channels tested to determine compliance.
3.KDB 248227 D01-SAR measurement is not required for 2.4 GHz OFDM(802.11g/n)when the highest reported SAR for DSSS(802.11b) is ≤ 1.2 W/kg, and the output power for DSSS is not less than that for OFDM.
4. According to KDB 248227 D01, for SAR testing of WLAN with non-100% duty cycle, the measured SAR is scaled-up by the duty cycle scaling factor which is equal to “1/(duty cycle)”.

WLAN 5.2G:

Body Mode:

EUT Position	Frequency (MHz)	Test Mode	Max. Meas. Power (dBm)	Max. Rated Power (dBm)	1g SAR (W/kg)				
					Scaled Factor	Duty cycle Factor	Meas. SAR	Scaled SAR	Plot
Body Front (0mm)	5190	802.11n40	8.42	9.2	1.197	1.09	0.922	**1.20**	**2#**
	5230	802.11n40	8.89	9.2	1.074	1.09	0.892	1.04	/
Body Back (0mm)	5190	802.11n40	8.42	9.2	1.197	1.09	0.824	1.08	/
	5230	802.11n40	8.89	9.2	1.074	1.09	0.736	0.86	/
Body Top (0mm)	5190	802.11n40	8.42	9.2	1.197	1.09	0.798	1.04	/
	5230	802.11n40	8.89	9.2	1.074	1.09	0.774	0.91	/

Note:
1.When the SAR value is less than half of the limit, testing for other channels are optional.
2.When SAR or MPE is not measured at the maximum power level allowed for production units, the results must be scaled to the maximum tune-up tolerance limit according to the power applied to the individual channels tested to determine compliance.
3.For 802.11 n40 mode power is the largest among 802.11a/n/ac, 802.11 n40 mode as initial test configuration is selected to test.
4. According to KDB 248227 D01, for SAR testing of WLAN with non-100% duty cycle, the measured SAR is scaled-up by the duty cycle scaling factor which is equal to "1/(duty cycle)".

WLAN 5.8G:

Body Mode:

EUT Position	Frequency (MHz)	Test Mode	Max. Meas. Power (dBm)	Max. Rated Power (dBm)	1g SAR (W/kg)				
					Scaled Factor	Duty cycle Factor	Meas. SAR	Scaled SAR	Plot
Body Front (0mm)	5755	802.11n40	9.59	10	1.099	1.09	0.933	1.12	/
	5795	802.11n40	9.35	10	1.161	1.09	0.772	0.98	/
Body Back (0mm)	5755	802.11n40	9.59	10	1.099	1.09	0.701	0.84	/
	5795	802.11n40	9.35	10	1.161	1.09	0.689	0.87	/
Body Top (0mm)	5755	802.11n40	9.59	10	1.099	1.09	0.951	**1.14**	**3#**
	5795	802.11n40	9.35	10	1.161	1.09	0.827	1.05	/

Note:
1.When the SAR value is less than half of the limit, testing for other channels are optional.
2.When SAR or MPE is not measured at the maximum power level allowed for production units, the results must be scaled to the maximum tune-up tolerance limit according to the power applied to the individual channels tested to determine compliance.
3.For 802.11n40 mode power is the largest among 802.11a/n/ac, 802.11n40 mode as initial test configuration is selected to test.
4. According to KDB 248227 D01, for SAR testing of WLAN with non-100% duty cycle, the measured SAR is scaled-up by the duty cycle scaling factor which is equal to “1/(duty cycle)”.

Bluetooth:

Body Mode:

EUT Position	Frequency (MHz)	Test Mode	Max. Meas. Power (dBm)	Max. Rated Power (dBm)	1g SAR (W/kg)				
					Scaled Factor	Duty cycle Factor	Meas. SAR	Scaled SAR	Plot
Body Front (0mm)	2402	GFSK	7.23	7.5	1.064	1.30	0.165	0.23	/
	2441	GFSK	8.79	9	1.05	1.30	0.348	**0.48**	**4#**
	2480	GFSK	8.91	9	1.021	1.30	0.219	0.29	/
Body Back (0mm)	2402	GFSK	/	/	/	/	/	/	/
	2441	GFSK	8.79	9	1.05	1.30	0.299	0.41	/
	2480	GFSK	/	/	/	/	/	/	/
Body Top (0mm)	2402	GFSK	/	/	/	/	/	/	/
	2441	GFSK	8.79	9	1.05	1.30	0.286	0.39	/
	2480	GFSK	/	/	/	/	/	/	/

Note:
1. When the SAR value is less than half of the limit, testing for other channels are optional.
2.When SAR or MPE is not measured at the maximum power level allowed for production units, the results must be scaled to the maximum tune-up tolerance limit according to the power applied to the individual channels tested to determine compliance.
3. For GFSK mode power is the largest among GFSK, π/4-DQPSK, 8DPSK and BLE, GFSK mode as initial test configuration is selected to test.
4. According TCB Workshop October 2016, for SAR testing of BT with non-100% duty cycle, the measured SAR is scaled-up by the duty cycle scaling factor which is equal to "1/(duty cycle)".

10. SAR SIMULTANEOUS TRANSMISSION DESCRIPTION

10.1 Simultaneous Transmission:

Note: There is no multiple transmitters for the product, so simultaneous transmission need not to evaluate.

11. MEASUREMENT VARIABILITY

In accordance with published RF Exposure KDB procedure 865664 D01 SAR measurement 100 MHz to 6 GHz v01. 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

1) Repeated measurement is not required when the original highest measured SAR is < 0.80 W/kg; steps 2) through 4) do not apply.
2) When the original highest measured SAR is ≥ 0.80 W/kg, repeat that measurement once.
3) Perform a second repeated measurement only 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 (~ 10% from the 1-g SAR limit).
4) Perform a third repeated measurement only if the original, first or second repeated measurement is ≥1.5 W/kg and the ratio of largest to smallest SAR for the original, first and second repeated measurements is > 1.20.

Note: The same procedures should be adapted for measurements according to extremity and occupational exposure limits by applying a factor of 2.5 for extremity exposure and a factor of 5 for occupational exposure to the corresponding SAR thresholds.

The Highest Measured SAR Configuration in Each Frequency Band

Body

SAR probe calibration point	Frequency Band	Freq.(MHz)	EUT Position	Meas. SAR (W/kg)		Largest to Smallest SAR Ratio
				Original	Repeated	
2450MHz	WLAN 2.4G	2437	Body Back	1.26	1.09	1.16
5250MHz	WLAN 5.2G	5190	Body Front	0.922	0.951	1.03
5750MHz	WLAN 5.8G	5755	Body Top	0.951	0.863	1.10

Note:

1. The measured SAR results **do not** have to be scaled to the maximum tune-up tolerance to determine if repeated measurements are required.
2. SAR measurement variability must be assessed for each frequency band, which is determined by the **SAR probe calibration point and tissue-equivalent medium** used for the device measurements.

12. DUT HOLDER PERTURBATIONS

In accordance with TCB workshop October 2016:

1) SAR perturbation due to test device holders, depending on antenna locations, buttons locations on phones or device, form factor (e.g. dongles etc.), the measured SAR could be influenced by the relative positions of the test device and its holder
2) SAR measurement standards have included protocols to evaluate this with a flat phantom, with and without the device holder
3) When the highest reported SAR of an antenna is > 1.2 W/kg, holder perturbation verification is required for each antenna, using the highest SAR configuration among all applicable frequency bands in the same exact device and holder positions used for head and body SAR measurements; i.e. same device/button locations in the holder

Per IEEE 1528: 2013/Annex E/E.4.1.1: Device holder perturbation tolerance for a specific test device: Type B

When it is unknown if a device holder perturbs the fields of a test device, the SAR uncertainty shall be assessed with a flat phantom (see Clause 5) by comparing the SAR with and without the device holder according to the following tests:

The SAR tolerance for device holder disturbance is computed using Equation (E.21) and entered in the corresponding row of the appropriate uncertainty table with an assumed rectangular probability distribution and *vi* = ∞ degrees of freedom:

$$SAR_{\text{tolerance}}[\%] = 100 \times \left(\frac{SAR_{\text{w/ holder}} - SAR_{\text{w/o holder}}}{SAR_{\text{w/o holder}}} \right) \qquad \text{(E.21)}$$

The Highest Measured SAR Configuration among all applicable Frequency Band

Frequency Band	Freq.(MHz)	EUT Position	Meas. SAR (W/kg)		The Device holder perturbation uncertainty
			With holder	Without holder	
WLAN 2.4G	2437	Body Back	1.26	1.19	5.9%

APPENDIX A - MEASUREMENT UNCERTAINTY

The uncertainty budget has been determined for the measurement system and is given in the following Table.

Measurement uncertainty evaluation for IEEE1528-2013 SAR test

Uncertainty component	Tolerance/ uncertainty ± %	Probability distribution	Divisor	ci (1 g)	ci (10 g)	Standard uncertainty ± %, (1 g)	Standard uncertainty ± %, (10 g)
Measurement system							
Probe calibration(k=1)	6.55	N	1	1	1	6.6	6.6
Axial isotropy	4.7	R	√3	√0.5	√0.5	1.9	1.9
Hemispherical isotropy	9.6	R	√3	√0.5	√0.5	3.9	3.9
Boundary effect	1.0	R	√3	1	1	0.6	0.6
Linearity	4.7	R	√3	1	1	2.7	2.7
System detection limits	1.0	R	√3	1	1	0.6	0.6
Modulation response	0.0	R	√3	1	1	0.0	0.0
Readout electronics	0.3	N	1	1	1	0.3	0.3
Response time	0.0	R	√3	1	1	0.0	0.0
Integration time	0.0	R	√3	1	1	0.0	0.0
RF ambient conditions-noise	1.0	R	√3	1	1	0.6	0.6
RF ambient conditions-reflections	1.0	R	√3	1	1	0.6	0.6
Probe positioner mech. tolerance	0.8	R	√3	1	1	0.5	0.5
Probe positioning with respect to phantom shell	6.7	R	√3	1	1	3.9	3.9
Extrapolation, interpolation, and integrations algorithms for max. SAR evaluation	2.0	R	√3	1	1	1.2	1.2
Test sample related							
Test sample positioning	3.3	N	1	1	1	3.3	3.3
Device holder uncertainty	5.9	N	1	1	1	5.9	5.9
Output power variation –SAR draft measurement	5.0	R	√3	1	1	2.9	2.9
SAR scaling	2.8	R	√3	1	1	1.6	1.6
Phantom and tissue parameters							
Phantom shell uncertainty– shape, thickness and permittivity	4.0	R	√3	1	1	2.3	2.3
Uncertainty in SAR correction for deviations in permittivity and conductivity	1.9	N	1	1	0.84	1.9	1.6
Liquid conductivity meas.	2.5	N	1	0.78	0.71	2.0	1.8
Liquid permittivity meas.	2.5	N	1	0.23	0.26	0.6	0.7
Liquid conductivity – temperature uncertainty	1.7	R	√3	0.78	0.71	0.8	0.7
Liquid permittivity – temperature uncertainty	0.3	R	√3	0.23	0.26	0.0	0.0
Combined standard uncertainty		RSS				12.1	12.0
Expanded uncertainty (95 % confidence interval)		k=2				27.3	27.1

APPENDIX B - SAR PLOTS

Please refer to the attachment.

APPENDIX C - EUT TEST POSITION PHOTOS

Please refer to the attachment.

APPENDIX D - PROBE CALIBRATION CERTIFICATES

Please refer to the attachment.

APPENDIX E - DIPOLE CALIBRATION CERTIFICATES

Please refer to the attachment.

APPENDIX F - RETURN LOSS AND IMPEDANCE MEASUREMENT

Please refer to the attachment.

*******END OF REPORT*******