NVLAP LAB CODE 600341-0

FCC SAR TEST REPORT

Applicant:	**RATTA US INC**
Address:	**Office NO.1414 601W 1st Ave Suite 1400 Spokane WASHINGTON United States**
Product Name:	**SUPERNOTE**
FCC ID:	**2BE5Y-A5X2**
Standard(s):	**47 CFR Part 2(2.1093)**
Report Number:	**2402V88141E-20A**
Report Date:	**2024/9/9**

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

Brave Lu

Reviewed By:	Mark Dong	**Approved By:**	Brave Lu
Title:	SAR Engineer	Title:	SAR Engineer

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SAR TEST RESULTS SUMMARY

<table>
<tr><th colspan="2">Mode</th><th>Max. Reported SAR Level(s) (W/kg)</th><th>Limit (W/kg)</th></tr>
<tr><td>Wi-Fi 2.4G</td><td>1g Body SAR</td><td>1.30</td><td rowspan="3">1.6</td></tr>
<tr><td>Wi-Fi 5.2G</td><td>1g Body SAR</td><td>1.36</td></tr>
<tr><td>Wi-Fi 5.8G</td><td>1g Body SAR</td><td>1.40</td></tr>
<tr><td rowspan="5">Applicable Standards</td><td colspan="3">FCC 47 CFR part 2.1093
Radiofrequency radiation exposure evaluation: portable devices</td></tr>
<tr><td colspan="3">IEEE1528:2013
IEEE Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques</td></tr>
<tr><td colspan="3">IEC 62209-2:2010
Human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices-Human models, instrumentation, and procedures-Part 2: Procedure to determine the specific absorption rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range of 30 MHz to 6 GHz)</td></tr>
<tr><td colspan="3">IEC 62209-2:2010/AMD1:2019 ED1
Amendment 1 - Human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices - Human models, instrumentation, and procedures - Part 2: Procedure to determine the specific absorption rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range of 30 MHz to 6 GHz)</td></tr>
<tr><td colspan="3">KDB procedures
KDB 447498 D01 General RF Exposure Guidance v06
KDB 648474 D04 Handset SAR v01r03
KDB 616217 D04 SAR for laptop and tablets v01r02
KDB 865664 D01 SAR Measurement 100 MHz to 6 GHz v01r04
KDB 865664 D02 RF Exposure Reporting v01r02
KDB 941225 D06 Hotspot Mode v02r01
KDB 248227 D01 802.11 Wi-Fi SAR v02r02</td></tr>
<tr><td colspan="4">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.</td></tr>
</table>

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DOCUMENT REVISION HISTORY

Revision Number	Report Number	Description of Revision	Date of Revision
1.0	2402V88141E-20A	Original Report	2024/9/9

1. GENERAL INFORMATION

1.1 Product Description for Equipment under Test (EUT)

EUT Name:	SUPERNOTE
EUT Model:	A5 X2
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
Operation Frequency:	WLAN 2.4G: 2412-2462 MHz/2422-2452 MHz(TX/RX) WLAN 5.2G: 5150 -5250 MHz(TX/RX) WLAN 5.8G: 5725-5850 MHz(TX/RX) Bluetooth: 2402-2480MHz(TX/RX)
Maximum Output Power (Conducted):	WLAN 2.4G: 15.98dBm; WLAN 5.2G: 13.71dBm;WLAN 5.8G: 8.65dBm Bluetooth(BDR/EDR): 7.02dBm BLE: 4.46dBm
Dimensions (L*W*H):	251mm (L) *182mm (W) *6mm (H)
Rated Input Voltage:	DC3.85V from Rechargeable Battery
Serial Number:	2P78-1
Normal Operation:	Body
EUT Received Date:	2024/08/02
Test Date:	2024/09/03
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)	**1.60**	8.0
Spatial Peak (hands/wrists/feet/ankles averaged over 10 g)	4.0	20.0

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 may be 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 1.6W/kg (FCC) applied to the EUT.

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.

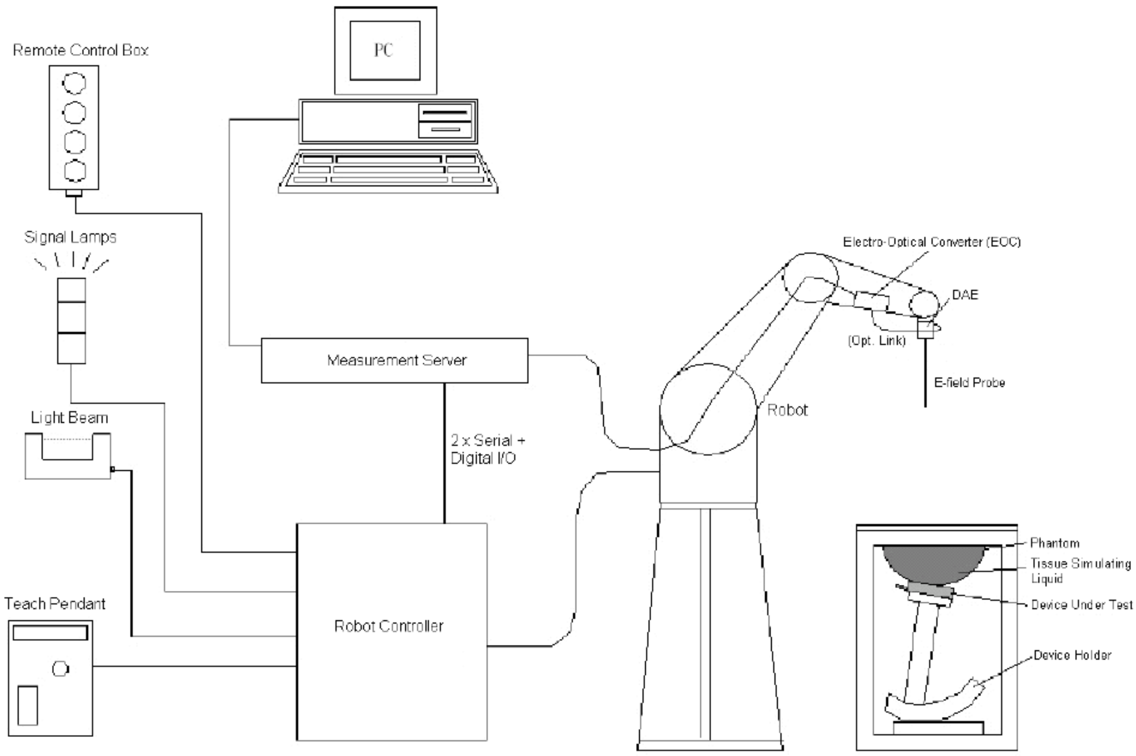
The lab has been recognized as the FCC accredited lab under the KDB 974614 D01 and is listed in the FCC Public Access Link (PAL) database, FCC Registration No. : 829273, the FCC Designation No. : CN5044.

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－10 GHz Linearity: ± 0.2 dB (30 MHz－10 GHz)
Directivity(typical)	± 0.1 dB in TSL (rotation around probe axis) ± 0.3 dB in TSL (rotation normal to probe axis)
Dynamic Range	10 μW/g － > 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
Applications	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 15mm 2 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 phantom liquid 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 IEC 62209-1:2016

Recommended Tissue Dielectric Parameters for Head liquid

Table A.3 – Dielectric properties of the head tissue-equivalent liquid

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
1 450	40,5	1,20
1 500	*40,4*	*1,23*
1 640	*40,2*	*1,31*
1 750	*40,1*	*1,37*
1 800	40,0	1,40
1 900	40,0	1,40
2 000	40,0	1,40
2 100	*39,8*	*1,49*
2 300	*39,5*	*1,67*
2 450	39,2	1,80
2 600	*39,0*	*1,96*
3 000	38,5	2,40
3 500	*37,9*	*2,91*
4 000	*37,4*	*3,43*
4 500	*36,8*	*3,94*
5 000	*36,2*	*4,45*
5 200	*36,0*	*4,66*
5 400	*35,8*	*4,86*
5 600	*35,5*	*5,07*
5 800	*35,3*	*5,27*
6 000	*35,1*	*5,48*

NOTE For convenience, permittivity and conductivity values at those frequencies which are not part of the original data provided by Drossos et al. [33] or the extension to 5 800 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 6 000 MHz that were linearly extrapolated from the values at 3 000 MHz and 5 800 MHz.

4. EQUIPMENT LIST AND CALIBRATION

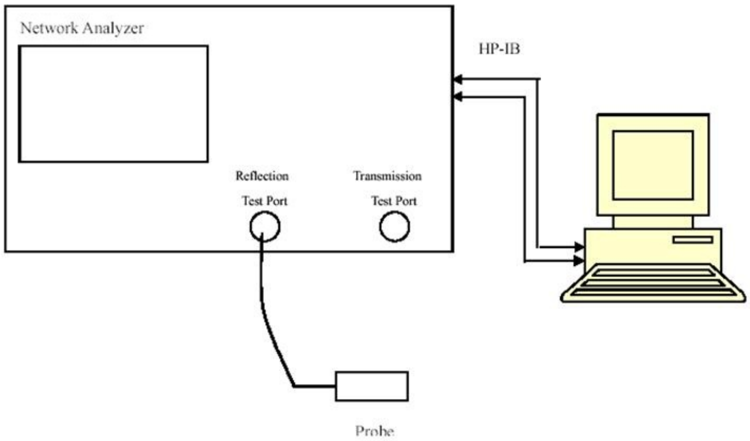
4.1 Equipments List & Calibration Information

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	2024/1/23	2025/1/22
E-Field Probe	EX3DV4	7839	2023/9/21	2024/9/20
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 U16 BC (Batch:220809-1)	Each Time	/
Network Analyzer	8753C	3033A02857	2023/11/18	2024/11/17
Dielectric assessment kit	1253	SM DAK 040 CA	NCR	NCR
synthesized signal generator	8665B	3438a00584	2023/10/18	2024/10/17
EPM Series Power Meter	E4419B	MY45103907	2023/10/18	2024/10/17
Power Amplifier	ZHL-5W-202-S+	416402204	NCR	NCR
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	2024/8/11	2025/8/10
Hygrothermograph	HTC-2	EM072	2023/11/6	2024/11/5

* 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	Ơ (S/m)	ε_r	Ơ (S/m)	$\Delta\varepsilon_r$	ΔƠ (S/m)	
2412	Simulated Tissue Liquid Head	39.608	1.753	39.28	1.77	0.84	-0.96	±5
2437	Simulated Tissue Liquid Head	39.303	1.773	39.23	1.79	0.19	-0.95	±5
2450	Simulated Tissue Liquid Head	38.793	1.802	39.2	1.8	-1.04	0.11	±5
2462	Simulated Tissue Liquid Head	38.247	1.837	39.18	1.81	-2.38	1.49	±5

**Liquid Verification above was performed on 2024/09/03.*

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)	
5180	Simulated Tissue Liquid Head	37.185	4.701	36.02	4.64	3.23	1.31	±5
5200	Simulated Tissue Liquid Head	36.894	4.741	36	4.66	2.48	1.74	±5
5240	Simulated Tissue Liquid Head	36.511	4.783	35.96	4.7	1.53	1.77	±5
5250	Simulated Tissue Liquid Head	36.015	4.854	35.95	4.71	0.18	3.06	±5

**Liquid Verification above was performed on 2024/09/03.*

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)	
5745	Simulated Tissue Liquid Head	36.312	5.214	35.36	5.22	2.69	-0.11	±5
5750	Simulated Tissue Liquid Head	36.116	5.358	35.35	5.22	2.17	2.64	±5
5785	Simulated Tissue Liquid Head	35.076	5.467	35.32	5.26	-0.69	3.94	±5
5825	Simulated Tissue Liquid Head	34.333	5.508	35.28	5.3	-2.68	3.92	±5

**Liquid Verification above was performed on 2024/09/03.*

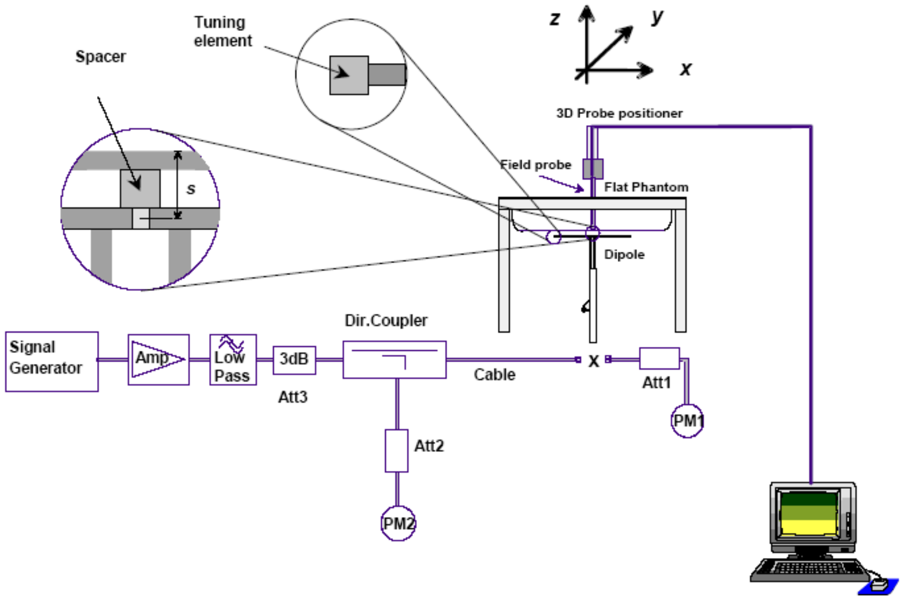
5.3 System Accuracy Verification

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	Liquid Type	Input Power (mW)	Measured SAR (W/kg)		Normalized to 1W (W/kg)	Target Value (W/kg)	Delta (%)	Tolerance (%)
2024/09/03	2450 MHz	Simulated Tissue Liquid Head	100	1g	4.87	48.7	52.7	-7.59	±10
2024/09/03	5250 MHz	Simulated Tissue Liquid Head	100	1g	7.33	73.3	77.5	-5.42	±10
2024/09/03	5750 MHz	Simulated Tissue Liquid Head	100	1g	7.6	76	78.4	-3.06	±10

*The SAR values above are normalized to 1 Watt forward power.

5.5 SAR SYSTEM VALIDATION DATA

System Performance 2450MHz Head

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

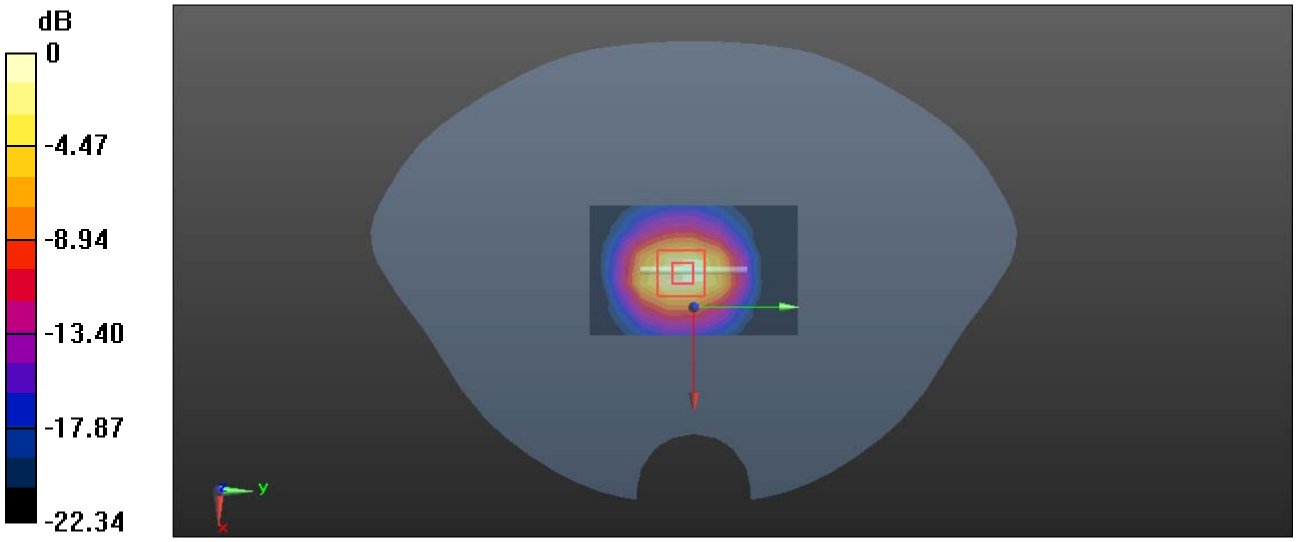
Communication System:CW; Frequency: 2450 MHz;Duty Cycle: 1:1
Medium parameters used : f = 2450 MHz; σ = 1.802 S/m; ε_r = 38.793; ρ = 1000 kg/m3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7839; ConvF(7.49, 6.81, 6.61) @ 2450 MHz; Calibrated: 2023/9/21
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn772; Calibrated: 2024/1/23
- 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 14.6.12 (7470)

Area Scan (6x9x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (measured) = 6.91 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 52.68 V/m; Power Drift = -0.12 dB
Peak SAR (extrapolated) = 10.3 W/kg
SAR(1 g) = 4.87 W/kg; SAR(10 g) = 2.36 W/kg
Maximum value of SAR (measured) = 7.79 W/kg



0 dB = 7.79 W/kg = 8.92 dBW/kg

System Performance 5250 MHz Head

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

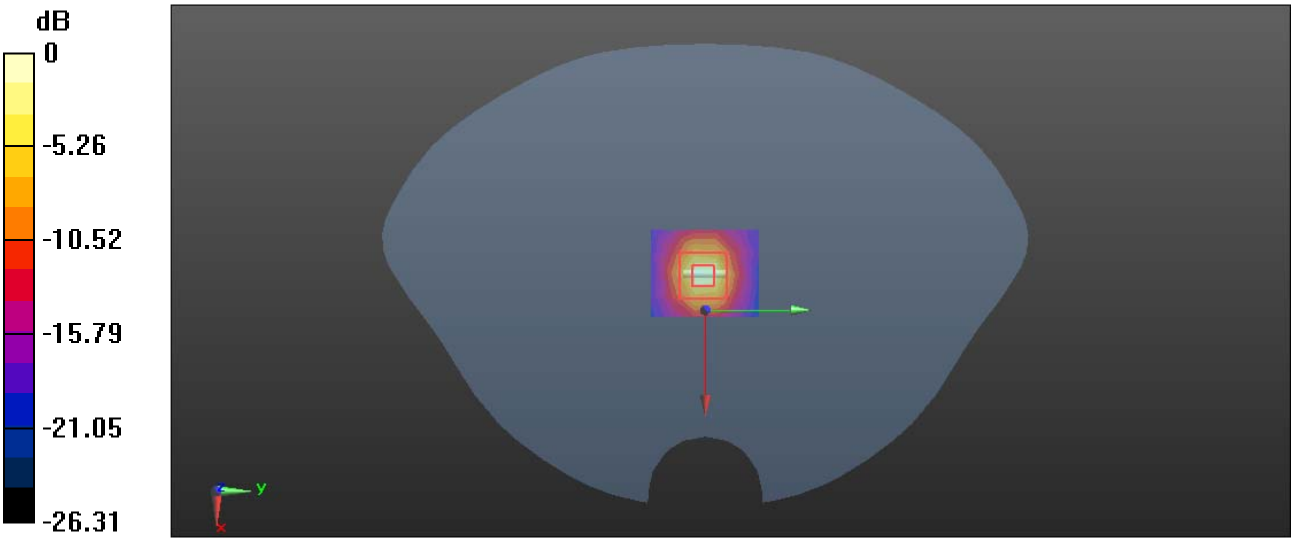
Communication System: CW; Frequency: 5250 MHz;Duty Cycle: 1:1
Medium parameters used: f = 5250 MHz; σ = 4.854 S/m; ε_r = 36.015; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7839; ConvF(5.62, 5.1, 4.97) @ 5250 MHz; Calibrated: 2023/9/21
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn772; Calibrated: 2024/1/23
- 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 14.6.12 (7470)

Area Scan (5x6x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 15.0 W/kg

Zoom Scan (8x8x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 41.65 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 32.5 W/kg
SAR(1 g) = 7.33 W/kg; SAR(10 g) = 2.08 W/kg
Maximum value of SAR (measured) = 19.3 W/kg



0 dB = 19.3 W/kg = 12.86 dBW/kg

System Performance 5750 MHz Head

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

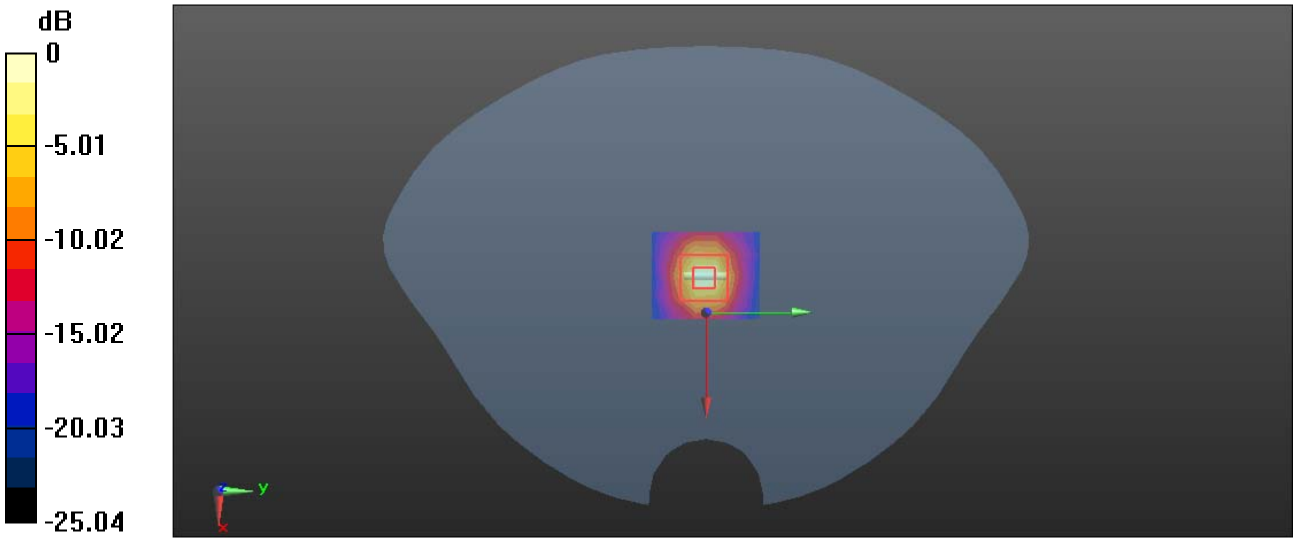
Communication System: CW; Frequency: 5750 MHz;Duty Cycle: 1:1
Medium parameters used: f = 5750 MHz; σ = 5.358 S/m; ε_r = 36.116; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7839; ConvF(5.04, 4.65, 4.62) @ 5750 MHz; Calibrated: 2023/9/21
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn772; Calibrated: 2024/1/23
- 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 14.6.12 (7470)

Area Scan (5x6x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 16.4 W/kg

Zoom Scan (8x8x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 38.81 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 36.0 W/kg
SAR(1 g) = 7.6 W/kg; SAR(10 g) = 2.14 W/kg
Maximum value of SAR (measured) = 20.1 W/kg



0 dB = 20.1 W/kg = 13.03 dBW/kg

6. EUT TEST STRATEGY AND METHODOLOGY

6.1 Test 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.

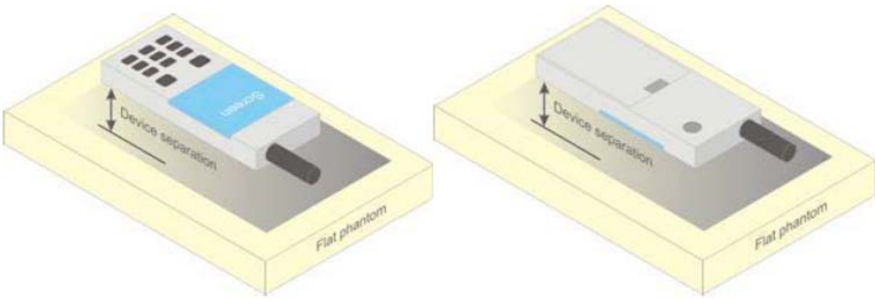


Figure 5 – Test positions for body-worn devices

6.2 Test Distance for SAR Evaluation

In this case the EUT(Equipment Under Test) is set 0mm away from the phantom, the test distance is 0mm.

6.3 SAR Evaluation Procedure

The evaluation was performed with the following procedure:

Step 1: Measurement of the SAR value at a fixed location above the ear point or central position was used as a reference value for assessing the power drop. The SAR at this point is measured at the start of the test and then again at the end of the testing.

Step 2: The SAR distribution at the exposed side of the head was measured at a distance of 4 mm from the inner surface of the shell. The area covered the entire dimension of the head or radiating structures of the EUT, the horizontal grid spacing was 15 mm x 15 mm, and the SAR distribution was determined by integrated grid of 1.5mm x 1.5mm. Based on these data, the area of the maximum absorption was determined by spline interpolation. The first Area Scan covers the entire dimension of the EUT to ensure that the hotspot was correctly identified.

Step 3: Around this point, a volume of 30 mm x 30 mm x 30 mm was assessed by measuring 7x 7 x 7 points. On the basis of this data set, the spatial peak SAR value was evaluated under the following procedure:

1) The data at the surface were extrapolated, since the center of the dipoles is 1.2 mm away from the tip of the probe and the distance between the surface and the lowest measuring point is 1.3 mm. The extrapolation was based on a least square algorithm. A polynomial of the fourth order was calculated through the points in z-axes. This polynomial was then used to evaluate the points between the surface and the probe tip.

2) The maximum interpolated value was searched with a straightforward algorithm. Around this maximum the SAR values averaged over the spatial volumes (1 g or 10 g) were computed by the 3D-Spline interpolation algorithm. The 3D-Spline is composed of three one dimensional splines with the “Not a knot"-condition (in x, y and z-directions). The volume was integrated with the trapezoidal-algorithm. One thousand points (10 x 10 x 10) were interpolated to calculate the averages.

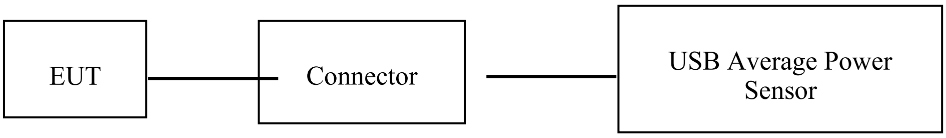
All neighboring volumes were evaluated until no neighboring volume with a higher average value was found.

Step 4: Re-measurement of the SAR value at the same location as in Step 1. If the value changed by more than 5%, the evaluation was repeated.

7. CONDUCTED OUTPUT POWER MEASUREMENT

7.1 Test Procedure

The RF output of the transmitter was connected to the input port of the USB Average 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)	16.1	16.1	16.1
WLAN 2.4G(802.11g)	14.7	14.7	14.7
WLAN 2.4G(802.11n ht20)	12.8	12.8	12.8
WLAN 2.4G(802.11n ht40)	13.6	13.6	13.6
WLAN 5.2G(802.11a)	13.7	13.7	13.7
WLAN 5.2G(802.11n20)	13.8	13.8	13.8
WLAN 5.2G(802.11n40)	12.7	/	12.7
WLAN 5.2G(802.11ac80)	/	13	/
WLAN 5.8G(802.11a)	8.8	8.8	8.8
WLAN 5.8G(802.11n20)	8.6	8.6	8.6
WLAN 5.8G(802.11n40)	8.7	/	8.7
WLAN 5.8G(802.11ac80)	/	8.5	/
Bluetooth BDR	4.5	7.0	7.0
Bluetooth EDR	6.0	7.5	7.5
Bluetooth LE 1M	4.5	4.5	4.5
Bluetooth LE 2M	4.5	4.5	4.5

7.3 Test Results:

WLAN 2.4G:

Mode	Channel frequency (MHz)	Data Rate	Duty Cycle (%)	Conducted Average Output Power(dBm)
802.11b	2412	1Mbps	98.80	15.79
	2437			15.92
	2462			**15.98**
802.11g	2412	6Mbps	93.00	14.35
	2437			14.37
	2462			14.63
802.11n ht20	2412	MCS0	92.63	12.54
	2437			12.57
	2462			12.72
802.11n ht40	2422	MCS0	86.58	13.25
	2437			13.47
	2452			13.52

Note: 1. WLAN 2.4G Duty Cycle please refer to RF Report Number: 2402V88141E-RF-00C

WLAN 5.2G:

Mode	Channel frequency (MHz)	Data Rate	Duty Cycle (%)	Conducted Average Output Power(dBm)
802.11a	5180	6Mbps	97.01	12.45
	5200			12.63
	5240			13.67
802.11n20	5180	MCS0	96.81	13.71
	5200			13.64
	5240			13.51
802.11n40	5190	MCS0	93.46	12.56
	5230			12.38
802.11ac80	5210	MCS0	88.22	12.85

WLAN 5.8G:

Mode	Channel frequency (MHz)	Data Rate	Duty Cycle (%)	Conducted Average Output Power(dBm)
802.11a	5745	6Mbps	97.01	8.64
	5785			8.59
	5825			8.65
802.11n20	5745	MCS0	96.81	8.37
	5785			8.47
	5825			8.36
802.11n40	5755	MCS0	93.46	8.48
	5795			8.57
802.11ac80	5775	MCS0	88.22	8.42

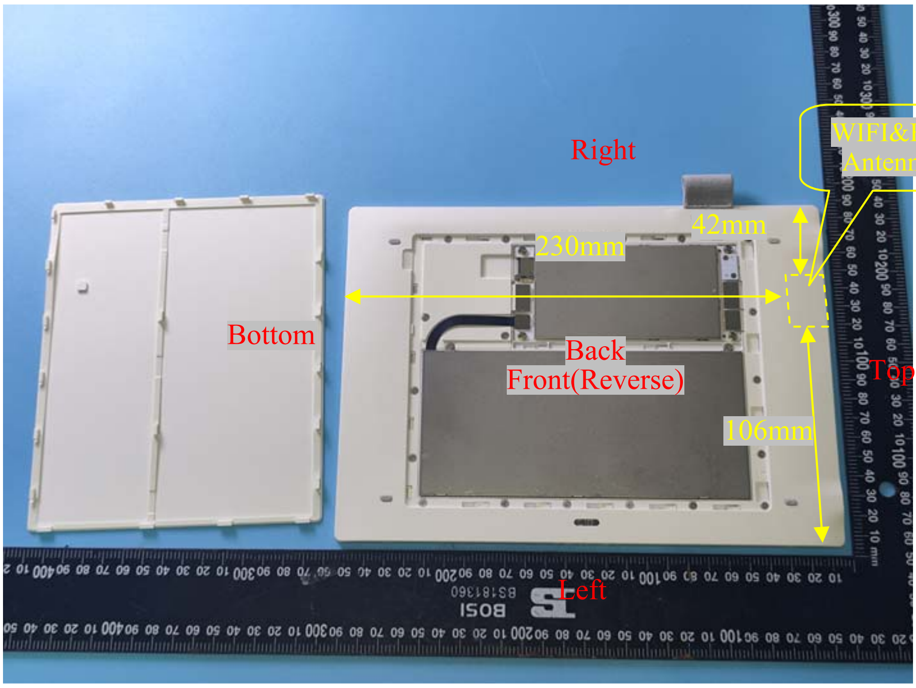
Note:
1.The system support 802.11a/n ht20/n ht40/ac vht20/vht40/vht80, the vht20/vht40 were reduced since the identical parameters with 802.11n ht20 and ht40.
2. WLAN 5G Duty Cycle please refer to RF Report Number: 2402V88141E-RF-00D

Bluetooth:

Mode	Channel frequency (MHz)	RF Output Power (dBm)
BDR(GFSK)	2402	3.96
	2441	6.54
	2480	6.32
EDR(π/4-DQPSK)	2402	5.84
	2441	6.69
	2480	6.94
EDR(8DPSK)	2402	5.87
	2441	6.67
	2480	**7.02**
Bluetooth LE 1M	2402	4.14
	2440	4.43
	2480	4.08
Bluetooth LE 2M	2402	4.17
	2440	**4.46**
	2480	4.08

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	106	42	< 5	230

8.3 Standalone SAR test exclusion considerations

Mode	Frequency (MHz)	Output Power (dBm)	Output Power (mW)	Distance (mm)	Calculated value	Threshold (1-g)	SAR Test Exclusion
WLAN 2.4G	2462	16.1	40.74	0	12.8	3	NO
WLAN 5.2G	5240	13.8	23.99	0	11.0	3	NO
WLAN 5.8G	5825	8.7	7.41	0	3.6	3	NO
Bluetooth	2480	7.5	5.62	0	1.8	3	YES

Note: *The WLAN based average power for calculation. and bluetooth based peak output power for calculation.*

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 Standalone SAR estimation:

Mode	Frequency (MHz)	Output Power (dBm)	Output Power (mW)	Distance (mm)	Estimated 1-g (W/kg)
BT Body	2480	7.5	5.62	0	0.24

Note: *The WLAN based average power for calculation. and bluetooth based peak output power for calculation.*

When standalone SAR test exclusion applies to an antenna that transmits simultaneously with other antennas, the standalone SAR must be estimated according to following to determine simultaneous transmission SAR test exclusion:
[(max. power of channel, including tune-up tolerance , mW)/(min. test separation distance,mm)] · [√f(GHz)/x]
W/kg for test separation distances ≤50 mm;
where x = 7.5 for 1-g SAR.
When the minimum test separation distance is < 5 mm, a distance of 5 mm is applied to determine SAR test Exclusion

8.5 Standalone SAR test exclusion considerations:

Mode	Frequency (MHz)	Pavg (dBm)	Pavg (mW)	Test exclusion Threshold (mm)
WLAN 2.4G	2462	16.1	40.74	21.4
WLAN 5.2G	5240	13.8	23.99	18.4
WLAN 5.8G	5825	8.7	7.41	6.1

Note: *The WLAN based average power for calculation.*

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.

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.

8.6 SAR test exclusion for the EUT edge considerations Result

According to KDB 616217 Section 4.3, SAR evaluation for the front surface of tablet display screens are generally not necessary.

Mode	Back Edge	Left Edge	Right Edge	Top Edge	Bottom Edge
WLAN 2.4G	**Required**	Exclusion	Exclusion	**Required**	Exclusion
WLAN 5.2G	**Required**	Exclusion	Exclusion	**Required**	Exclusion
WLAN 5.8G	**Required**	Exclusion	Exclusion	**Required**	Exclusion
Bluetooth	Exclusion*	Exclusion*	Exclusion*	Exclusion*	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.
Exclusion*：SAR test exclusion evaluation has been done above.

9. SAR MEASUREMENT RESULTS

This page summarizes the results of the performed dosimetric evaluation.

9.1 SAR Test Data

Environmental Conditions

Temperature:	21.4-22.5 ℃
Relative Humidity:	52 %
ATM Pressure:	100.1 kPa
Test Date:	2023/09/03

Testing was performed by Mark Dong.

WLAN 2.4G:

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 Back (0mm)	2412	802.11b	15.89	16.1	1.05	1.012	1.21	1.29	1#
	2437	802.11b	15.92	16.1	1.042	1.012	1.23	**1.30**	2#
	2462	802.11b	15.98	16.1	1.028	1.012	1.15	1.20	3#
Body Top (0mm)	2412	802.11b	/	/	/	/	/	/	/
	2437	802.11b	15.92	16.1	1.042	1.012	0.445	0.47	4#
	2462	802.11b	/	/	/	/	/	/	/

Note:

1. When the 1-g SAR is≤ 0.8W/kg, 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. According KDB 248227 D01, for SAR testing of 2.4 WIFI 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)”.

WLAN 5.2G:

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 Back (0mm)	5180	802.11n20	13.71	13.8	1.021	1.033	1.28	1.35	5#
	5200	802.11n20	13.64	13.8	1.038	1.033	1.27	1.36	6#
	5240	802.11n20	13.51	13.8	1.069	1.033	1.19	1.31	7#
Body Top (0mm)	5180	802.11n20	13.71	13.8	1.021	1.033	0.829	0.87	8#
	5200	802.11n20	13.64	13.8	1.038	1.033	0.843	0.90	9#
	5240	802.11n20	13.51	13.8	1.069	1.033	0.842	0.93	10#

Note:

1. When the 1-g SAR is≤ 0.8W/kg, 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 802.11n20 mode power is the largest among 802.11a/n/ac, 802.11 n20 mode as initial test configuration is selected to test.
4. According KDB 248227 D01, for SAR testing of 5G WIFI 802.11n20 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)”.

WLAN 5.8G:

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 Back (0mm)	5745	802.11a	8.64	8.8	1.038	1.031	1.31	1.40	11#
	5785	802.11a	8.59	8.8	1.05	1.031	1.29	1.40	12#
	5825	802.11a	8.65	8.8	1.035	1.031	1.25	1.33	13#
Body Top (0mm)	5745	802.11a	8.64	8.8	1.038	1.031	0.943	1.01	14#
	5785	802.11a	8.59	8.8	1.05	1.031	0.951	1.03	15#
	5825	802.11a	8.65	8.8	1.035	1.031	0.906	0.97	16#

Note:

1. When the 1-g SAR is≤ 0.8W/kg, 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 802.11a mode power is the largest among 802.11a/n/ac, 802.11 a mode as initial test configuration is selected to test.
4. According KDB 248227 D01, for SAR testing of 5G WIFI 802.11a 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)”.

10. 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 (2399~2500MHz	WLAN 2.4G	2437	Body Back	1.23	1.18	1.04
5250MHz (5140~5360MHz	WLAN 5.2G	5180	Body Back	1.28	1.24	1.03
5750MHz (5675~5860MHz	WLAN 5.8G	5745	Body Back	1.31	1.28	1.02

Note:

1. Second Repeated Measurement is not required since the ratio of the largest to smallest SAR for the original and first repeated measurement is not > 1.20.
2. The measured SAR results **do not** have to be scaled to the maximum tune-up tolerance to determine if repeated measurements are required.
3. 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.

11. 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:

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

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 5.8G	5745	Body Back	5.15	5.06	1.78%

12. SAR SIMULTANEOUS TRANSMISSION DESCRIPTION

12.1 Simultaneous Transmission:

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

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	4.7	N	1	1	1	4.7	4.7
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				24.2	24.0

Measurement uncertainty evaluation for IEC62209-2 SAR test

Source of uncertainty	Tolerance/ Uncertainty value ± %	Probability Distribution	Divisor	ci (1 g)	ci (10 g)	Standard uncertainty ± %, (1 g)	Standard uncertainty ± %, (10 g)
Measurement system							
Probe calibration	6.55	N	1	1	1	6.6	6.6
Isotropy	4.7	R	√3	1	1	2.7	2.7
Linearity	4.7	R	√3	1	1	2.7	2.7
Probe modulation response	0.0	R	√3	1	1	0.0	0.0
Detection limits	1.0	R	√3	1	1	0.6	0.6
Boundary effect	1.0	R	√3	1	1	0.6	0.6
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. restrictions	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
Post-processing	2.0	R	√3	1	1	1.2	1.2
Test sample related							
Device holder uncertainty	4.7	N	1	1	1	4.7	4.7
Test sample positioning	3.3	N	1	1	1	3.3	3.3
Power scaling	4.5	R	√3	1	1	2.6	2.6
Drift of output power (measured SAR drift)	5.0	R	√3	1	1	2.9	2.9
Phantom and set-up							
Phantom uncertainty (shape and thickness tolerances)	4.0	R	√3	1	1	2.3	2.3
Algorithm for correcting SAR 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				11.8	11.7
Expanded uncertainty (95 % confidence interval)						23.6	23.4

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.

===== END OF REPORT ====