

FCC

SAR EVALUATION REPORT

For

FCC ID : 2AP48CT130UC

Model : CT1300-TC

Report Type : Original Report

Product Name : SynCast Go

Report Number: RXZ250425121SA01

Report Date: 2025-12-03

Prepared By: Bay Area Compliance Laboratories Corp. (New Taipei Laboratory)

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Facilities: The test site used by Bay Area Compliance Laboratories Corp. (New Taipei Laboratory) to collect test data is located on

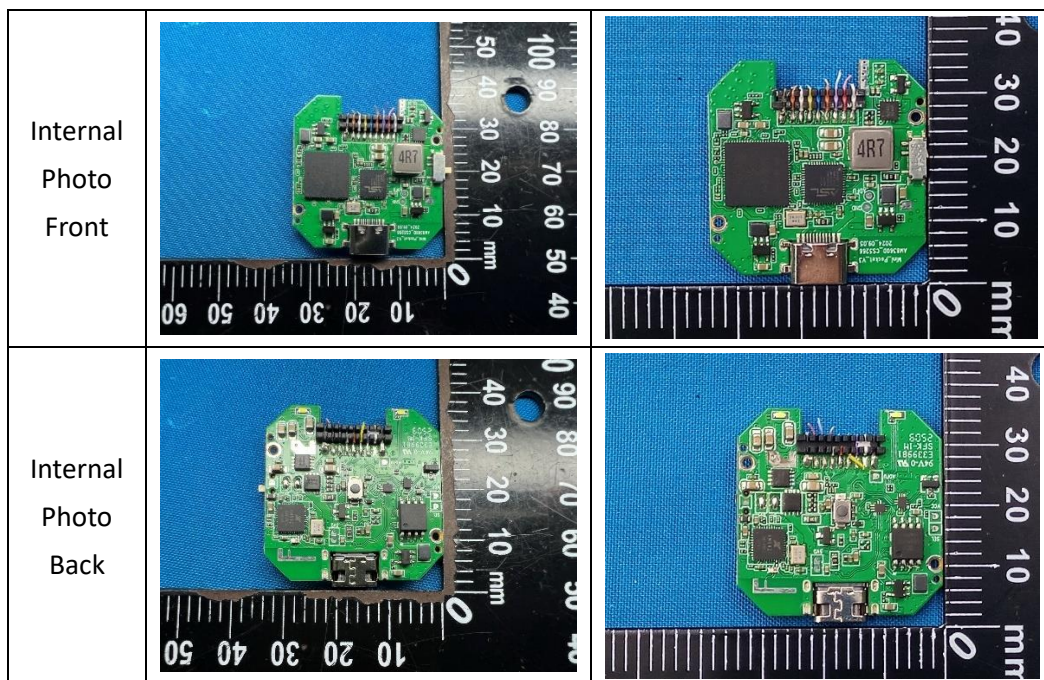
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Taiwan, R.O.C.**

Statement of Compliance

Applicant (Certification Holder)	Centron Design Co., Ltd.	
	2F.-3, No.15, Ln. 360, Sec. 1, Neihu Rd., Neihu Dist., Taipei City 114, Taiwan	
Brand (Trade) Name	Centron	
Product (Equipment) Name	SynCast Go	
Model Name	CT1300-TC	
Series Model Name	1. GO CT13XX (XX: 0~9; A~Z) 2. BXB OV-TX 3. KLIK GO KB3XX (XX: 0~9) 4. ShareGo HDXXX (XXX: 0~9; A~Z) 5. AeroShare HDXXX (XXX 0~9; A~Z) (Multiple Listing: The "X" in the Model Number could be defined as A-Z, 0-9, -, _, or blank for marketing differentiation.) 1. SynXion GO HDXXX (XXX: 0~9; A~Z) 2. DisplayPass HDXXX (XXX: 0~9; A~Z) (Multiple Listing: The "X" in the Model Number could be defined as A-Z, 0-9, -, _, or blank for marketing differentiation.)	
Model Discrepancy	Please refer to the difference declaration letter provided by the Applicant. 1. Market Segmentation 2. Feature Flagging  (Code 1 have Switch) 1. Market Segmentation 2. Feature Flagging 3. This version model and main model PCB is same except for the firmware and the top housing without the side switch, Detail photo release at RF report Internal photo  (Code 2 no Switch)	

The difference table between this two samples as :

	Code 1 sample	Code 2 sample
External photo		

**Measurement Procedures and Standards Used:**

- ☒ IEC/IEEE62209-1528:2020
- ☒ IEEE 1528-2013
- ☒ FCC 47 CFR part 2.1093
- ☒ KDB 447498 D04 Interim General RF Exposure Guidance v01
- ☒ KDB 447498 D02 SAR Procedures for Dongle Xmtr v02r01
- ☒ KDB 865664 D01 SAR Measurement 100 MHz to 6 GHz v01r04
- ☒ KDB 248227 D01 802.11 Wi-Fi SAR v02r02

The measurement results in this report were performed at Bay Area Compliance Laboratories Corp. (New Taipei Laboratory)

Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested.

The determination of the test results does not require consideration of the uncertainty of the measurement, unless the assessment is required by customer agreement, regulation or standard document specification.

Bay Area Compliance Laboratories Corp. (New Taipei Laboratory) is not responsible for the authenticity of the information provided by the applicant that affects the test results.

Report Issued Date : 2025-12-03

Reviewed By : Anson Lu



Revision History

Revision	No.	Report Number	Issue Date	Description	Author/ Revised by
0.0	RXZ250425121	RXZ250425121SA01	2025.12.03	Original Report	Anson Lu

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EUT RESULTS

Attestation of Test Results for Body SAR of Code 1 sample(sample number : RXZ250425121-10)			
Frequency Band	Maximum 1g SAR Level(s) Reported(W/kg)		Limit(W/kg)
	Position	Maximum 1g SAR(W/kg)	
WiFi 5GHz 802.11n HT20	Body SAR(1g)	0.136	1.6
Attestation of Test Results for Body SAR of Code 1 sample(sample number : RXZ250425121-10)			
Frequency Band	Maximum 1g SAR Level(s) Reported(W/kg)		Limit(W/kg)
	Position	Maximum 1g SAR(W/kg)	
WiFi 5GHz 802.11a	Body SAR(1g)	0.126	1.6
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 IEC/IEEE 62209-1528 and IEEE 1528-2013and RF exposure KDB procedures. The results and statements contained in this report pertain only to the device(s) evaluated.			

EUT DESCRIPTION

Technical Specification

Applicant	Centron Design Co., Ltd.
Exposure Category	Population / Uncontrolled
Modulation Type	IEEE 802.11a mode: OFDM IEEE 802.11n HT20 mode: OFDM
Frequency Band	IEEE 802.11a mode: 5180 ~ 5240 MHz IEEE 802.11n HT20 mode: 5180 ~ 5240 MHz
Conducted RF Power (Avg/Tune-Up)	IEEE 802.11a mode 5180~5240MHz : 13.0 dBm IEEE 802.11n HT20 mode 5180~5240MHz : 13.0 dBm
Antenna Information	Antenna Type: PCB antenna Antenna Gain_5GHz: 1.757 dBi
Power Source	DC 5V from USB
Normal Operation	Body
Received Date	2025/06/05

Note:

- 1) All measurement and test data in this report was gathered from production sample serial number :
RXZ250425121-10 and RXZ250425121-13 (Assigned by BACL, (New Taipei Laboratory)).
- 2) RXZ250425121-10 is code 1 sample, RXZ250425121-13 is code 2 sample.

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 [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.

ISED SAR limit is According RSS-102 issue 6 section 5.2.2 table 3. for an uncontrolled environment.

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.

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

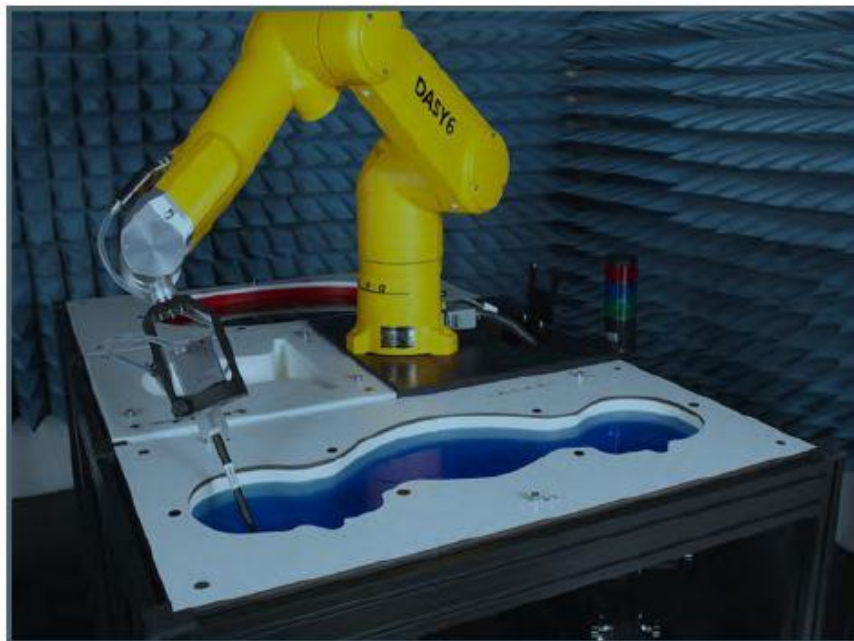
Population/Uncontrolled Environments are defined as locations where there is the exposure of individual who have no knowledge or control of their exposure.

Occupational/Controlled Environments are defined as locations where there is exposure that 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 1g 1.6W/kg (FCC) applied to the EUT.

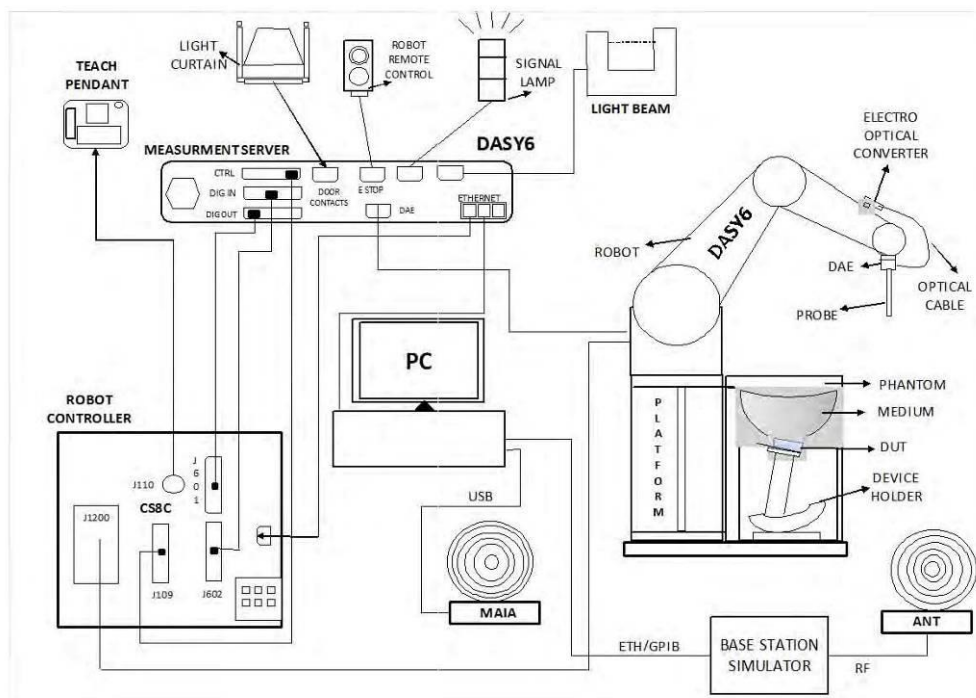
DESCRIPTION OF TEST SYSTEM

These measurements were performed with the automated near-field scanning system DASY6 from Schmid& Partner Engineering AG (SPEAG) which is the Fifth generation of the system shown in the figure hereinafter:



DASY6 System Description

The DASY6 system for performing compliance tests consists of the following items:



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- A standard high precision 6-axis robot (Staubli TX=RX family) 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.

DASY6 Measurement Server

The DASY6 measurement server is based on a PC/104 CPU board with a 400 MHz Intel ULV Celeron, 128 MB chip-disk and 128 MB 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 DASY6 I/O board, which is directly connected to the PC/104 bus of the CPU board.



The measurement server performs all real-time data evaluations of field measurements and surface detection, controls robot movements, and handles safety operations. 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 pinout, and therefore only devices provided by SPEAG can be connected. Connection of 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	10 MHz to > 6 GHz Linearity: ± 0.2 dB (30 MHz to 6 GHz)
Directivity	± 0.3 dB in TSL (rotation around probe axis) ± 0.5 dB in TSL (rotation normal to probe axis)
Dynamic Range	10 μ W/g to > 100 mW/g Linearity: ± 0.2 dB (noise: typically < 1 μ W/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 SAR and higher, EASY4/MRI

ELI Phantom

The ELI phantom is intended for compliance testing of handheld and body-mounted wireless devices in the frequency range of 30MHz to 6 GHz. ELI is fully compatible with the latest draft of the standard IEC/IEEE 62209-1528 and the use of all known tissue simulating liquids. ELI has been optimized for performance and can be integrated into a SPEAG standard phantom table. A cover is provided to prevent evaporation of water and changes in liquid parameters. Reference markings on the phantom allow installation of the complete setup, including all predefined phantom positions and measurement grids, by teaching three points.

The phantom shell is compatible with SPEAG's tissue simulating liquids (sugar and oil based). Use of other liquids may render the phantom warranty void (see note or consult SPEAG support).

Approximately 30 liters of liquid is required to fill the ELI phantom.



Robots

The DASY6 system uses the high-precision industrial robots TX60L, TX90XL, and RX160L from StaubliSA (France). The TX robot family - the successor of the well-known RX robot family - continues to offer the features important for DASY6 applications:

- 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 robots are controlled by the Staubli CS8c robot controllers. All information regarding the use and maintenance of the robot arm and the robot controller is provided

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 DASY6 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 $7\text{ x }7\text{ x }7$ (5mmx5mmx5mm) providing a volume of 30 mm in the X & Y & Z axis.

Recommended Tissue Dielectric Parameters for Head and Body

Tissue Dielectric Parameters for Head and Body Phantoms

The head tissue dielectric parameters recommended by the IEC/IEEE 62209-1528

Recommended Tissue Dielectric Parameters for the tissue-equivalent medium

Table 2 – Dielectric properties of the tissue-equivalent medium

Frequency(MHz)	permittivity,(ϵ'r)	Conductivity, σ(S/m)
4	55,0	0,75
13	55,0	0,75
30	55,0	0,75
150	52,3	0,76
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
1800	40,0	1,40
1900	40,0	1,40
1950	40,0	1,40
2000	40,0	1,40
2100	39,8	1,49
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
6500	34,5	6,07
7000	33,9	6,65

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<i>7500</i>	<i>33,3</i>	<i>7,24</i>
<i>8000</i>	<i>32,7</i>	<i>7,84</i>
<i>8500</i>	<i>32,1</i>	<i>8,46</i>
<i>9000</i>	<i>31,6</i>	<i>9,08</i>
<i>9500</i>	<i>31,0</i>	<i>9,71</i>
<i>10000</i>	<i>30,4</i>	<i>10,40</i>

NOTE For convenience, permittivity and conductivity values are linearly interpolated for frequencies that are not a part of the original data from Drossos et al. [2]. They are shown in italics in Table 2. The italicized values are linearly interpolated (below 5800 MHz) or extrapolated (above 5800 MHz) from the non-italicized values that are immediately above and below these values.

EQUIPMENT LIST AND CALIBRATION

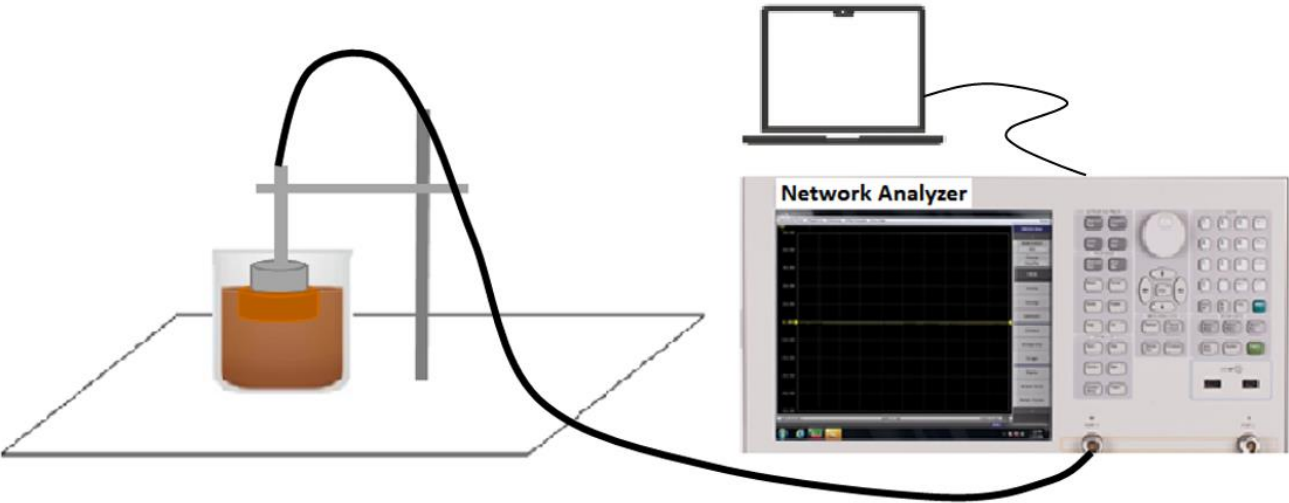
Equipment's List & Calibration Information

Equipment	Model	S/N	Calibration Date	Calibration Due Date
Robot	TX90	5N26A1	N.C.R	N.C.R
DASY5 Test Software	DASY5.2	N/A	N.C.R	N.C.R
DASY6 Measurement Server	DASY 6.0	1588	N/A	N/A
Data Acquisition Electronics	DAE	1561	2024/12/05	2025/12/04
E-Field Probe	EX3DV4	7520	2024/12/16	2025/12/15
Dipole, 5GHz	D5GHZV2	1336	2024/12/12	2027/12/11
Spectrum Analyzer	FSV40	101204	2025/06/04	2026/06/03
Twin ELI	Twin ELI V8.0	2088	N/A	N/A
Simulated Tissue 0.6G~6GHz Head	TS-6GHz-H	N/A	Each Time/	
Mounting Device	N/A	SD 000 H01 KA	N/A	N/A
Network Analyzer	E5063A	MY54402093	2024/12/27	2025/12/26
Dielectric probe kit	85070B	50207	N/A	N/A
MXG Signal Generator	N5183A	MY50140407	2024/12/25	2025/12/24
EPM Series Power Meter	E4419B	GB43312279	2025/01/03	2026/01/02
Avg Power Sensor	E9304A H18	MZ54110016	2025/01/03	2026/01/02
Power Amplifier	ZVE-8G+	365701647	2025/01/08	2026/01/07
Power Amplifier	ZHL-42W+	329401642	2025/01/08	2026/01/07
Temperature and Humidity Recoder	HTC-1	005	2025/10/15	2026/10/14
Directional Coupler	488Z	810	N.C.R	N.C.R
Attenuator	20dB, 100W	1453	N.C.R	N.C.R

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SAR MEASUREMENT SYSTEM VERIFICATION

Liquid Verification



Liquid Verification Setup Block Diagram

Liquid Verification Results

Liquid Temperature : 23.2°C

	Frequency (MHz)	Liquid Type	Liquid parameter		Target Value		Delta (%)		Tolerance (%)
			σ (S/m)	εr	σ (S/m)	εr	σ (S/m)	εr	
2025/11/24	5250	HSL	4.931	36.420	4.71	35.95	4.69	1.31	±10
	5180	HSL	4.826	36.568	4.64	36.020	4.01	1.52	±10
	5200	HSL	4.863	36.536	4.67	35.990	4.13	1.52	±10
	5240	HSL	4.915	36.427	4.70	35.960	4.57	1.30	±10

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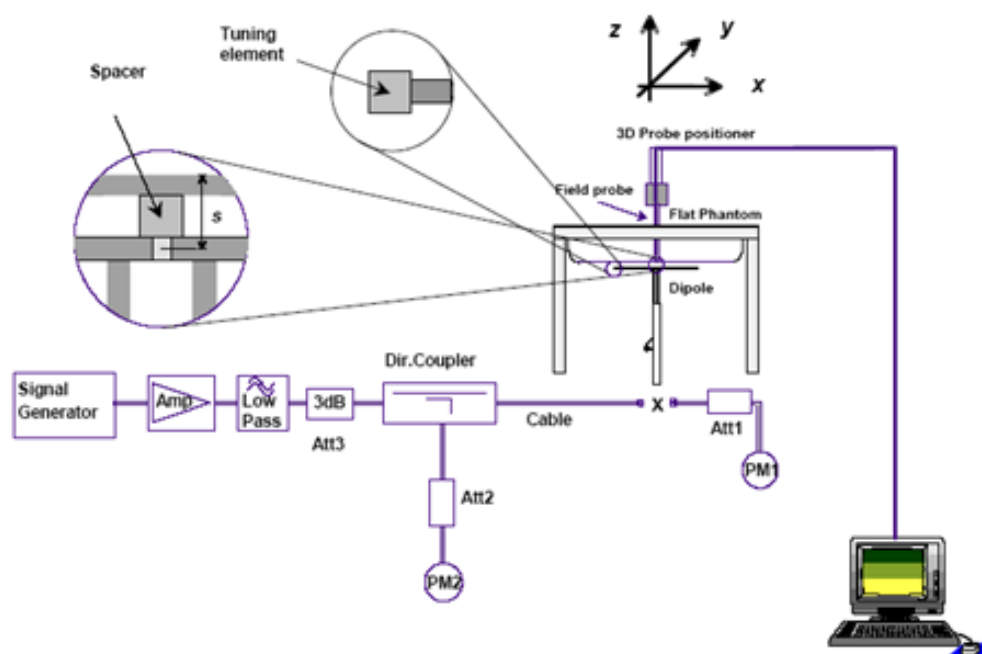
System Accuracy Verification

Prior to the assessment, the system validation kit was used to test whether the system was operating within its specifications of $\pm 10\%$. 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) $s = 15 \text{ mm} \pm 0,2 \text{ mm}$ for $300 \text{ MHz} \leq f \leq 1\,000 \text{ MHz}$;
- b) $s = 10 \text{ mm} \pm 0,2 \text{ mm}$ for $1\,000 \text{ MHz} < f \leq 3\,000 \text{ MHz}$;
- c) $s = 10 \text{ mm} \pm 0,2 \text{ mm}$ for $3\,000 \text{ MHz} < f \leq 6\,000 \text{ MHz}$.

System Verification Setup Block Diagram



System Accuracy Check Results

System Check for 1g SAR

Test Date	Frequency Band(MHz)	Liquid Type	Input Power (mW)	Measured SAR (W/kg)	Target Value (W/kg)	Normalized To 1W(W/kg)	Delta (%)	Tolerance (%)
2025/11/24	5250	HSL	100	8.07	80.3	80.7	0.50	±10

Note: The power inputted to dipole is 0.10Watt; the SAR values are normalized to 1.0 Watt forward power by multiplying 10 times.

SAR SYSTEM VALIDATION DATA

Test Laboratory: BACL SAR Testing Lab

Date: 11/24/2025

System Check_5250MHz_D5GHzV2

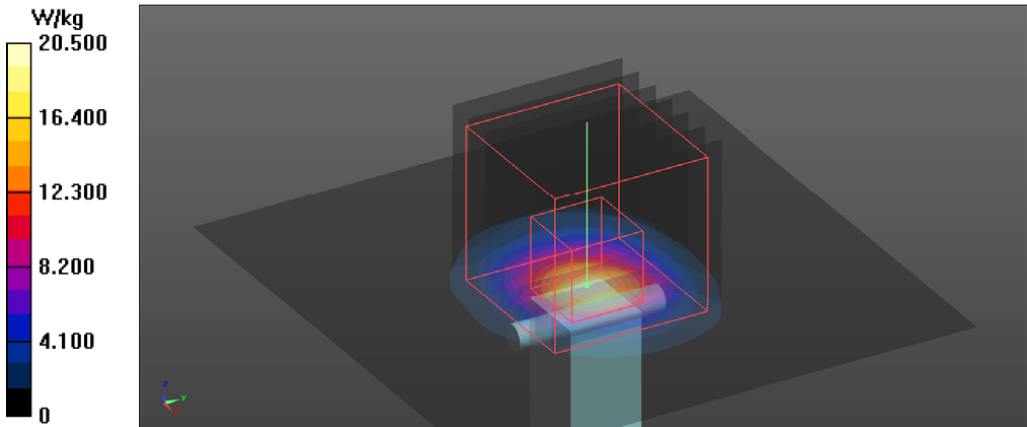
DUT: D5GHzV2 - SN1336

Communication System: UID 0, CW (0); Frequency: 5250 MHz; Duty Cycle: 1:1
Medium: HSL 5GHz Medium parameters used: $f = 5250\text{ MHz}$; $\sigma = 4.931\text{ S/m}$; $\epsilon_r = 36.42$; $\rho = 1000\text{ kg/m}^3$

- DASY5 Configuration:
- Probe: EX3DV4 - SN7520; ConvF(5.41, 5.15, 5.17) @ 5250 MHz; Calibrated: 12/16/2024
 - Sensor-Surface: 1.4mm (Mechanical Surface Detection)
 - Electronics: DAE4 Sn1561; Calibrated: 12/5/2024
 - Phantom: ELI-Righr-ELI V8.0 (20deg probe tilt); Type: QD OVA 004 Ax; Serial: 2088
 - Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Pin=100mW/Area Scan (71x71x1): Interpolated grid: $dx=1.000\text{ mm}$, $dy=1.000\text{ mm}$
Maximum value of SAR (interpolated) = 19.5 W/kg

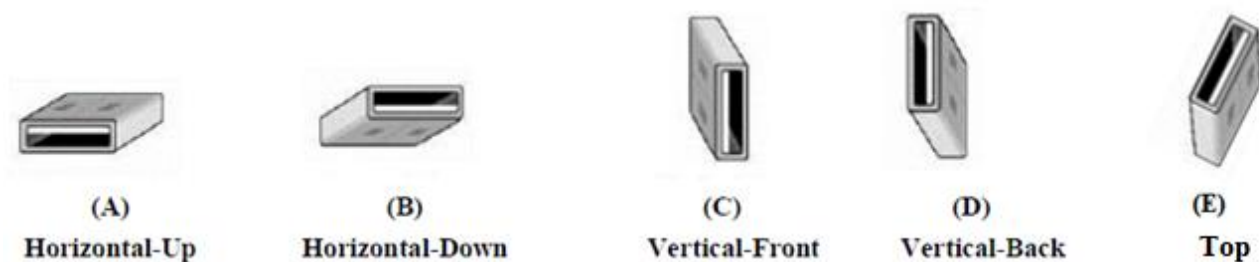
Pin=100mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=4\text{ mm}$, $dy=4\text{ mm}$, $dz=1.4\text{ mm}$
Reference Value = 65.26 V/m; Power Drift = -0.10 dB
Peak SAR (extrapolated) = 33.9 W/kg
SAR(1 g) = 8.07 W/kg; SAR(10 g) = 2.33 W/kg
Smallest distance from peaks to all points 3 dB below = 7.5 mm
Ratio of SAR at M2 to SAR at M1 = 63.8%
Maximum value of SAR (measured) = 20.5 W/kg



EUT TEST STRATEGY AND METHODOLOGY

Test positions for body configurations and separation distance

USB dongle SAR testing is according 447498 D02 SAR Procedures for Dongle Xmtr and add Top position.



During SAR testing use a high quality 12 inches or less USB cable for testing these other orientations, and that the USB cable does not influence the radiating characteristics and output power of the transmitter.

USB dongle transmitters must show compliance at a test separation distance of 5 mm between the dongle surface and flat phantom. SAR setup photo please refer to the Attachment “APPENDIX B EUT TET POSITION PHOTOS”. SAR testing configurations as :

Test the intermediate channel in 802.11n HT20 and 802.11a modes.

When the SAR value equals the maximum SAR value or is greater than or equal to half the SAR limit, add SAR testing on other channels.

Confirm the position of the maximum SAR value, then add SAR testing on other channels.

During SAR testing, all modes are first tested using the code 1 sample.

The position with the maximum SAR value is then tested again using the code 2 sample.

The difference Table between Code-1 and Code-2 please refer to page2 to 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 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 1.4 mm from the inner surface of the shell. The area covered the entire dimension of the 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:

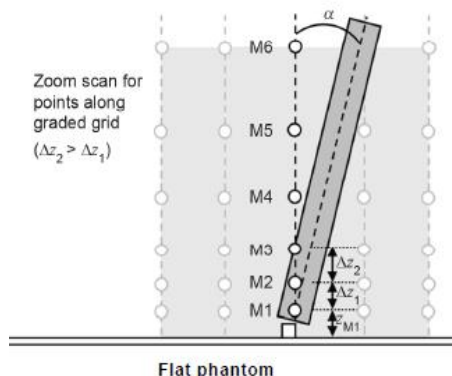
1) The data at the surface were extrapolated, since the center of the dipoles is 1.0 mm away from the tip of the probe and the distance between the surface and the lowest measuring point is 1.4 mm. The extrapolation was based on a least square algorithm. A polynomial of the fourth order was calculated 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.

During SAR testing, Area scan and Zoom scan test is according IEC/EEE 62209-1528 7.4.2 d) 2)



CONDUCTED OUTPUT POWER MEASUREMENT

Provision Applicable

The measured peak output power should be greater and within 5% than EMI measurement.

Test Procedure

The RF output power testing please refer to report no: RXZ250425121RF02.

Channel List**WiFi 5GHz :**

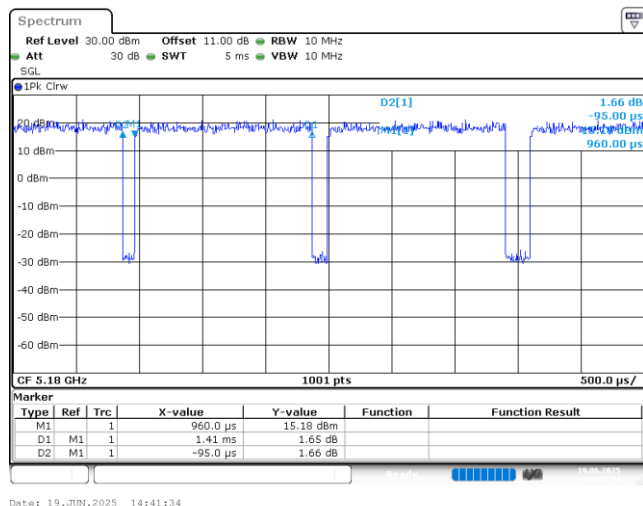
Band	Mode	Channel		Freq.(MHz)
UNII-1	802.11a	36	Low	5180
		40	Middle	5200
		48	High	5240
UNII-1	802.11n HT20	36	Low	5180
		40	Middle	5200
		48	High	5240

Duty Cycle:

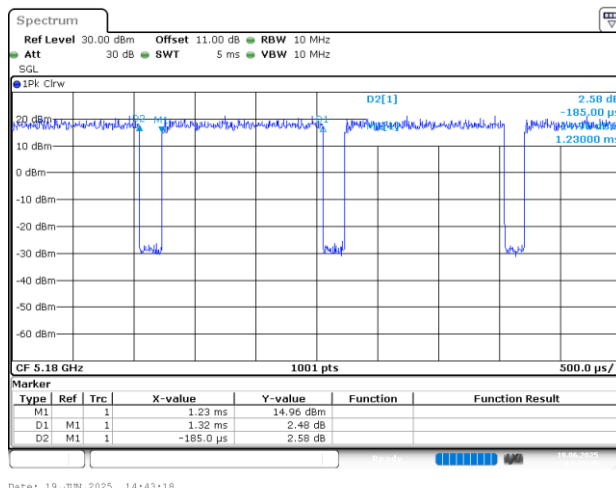
According EN IEC/IEEE 62209-1528 section 7.6.6 c) The radio communication test set shall be set to request maximum TX power and duty factor from the DUT according to wireless technology requirements.

WiFi 5GHz:

802.11a



802.11n HT20



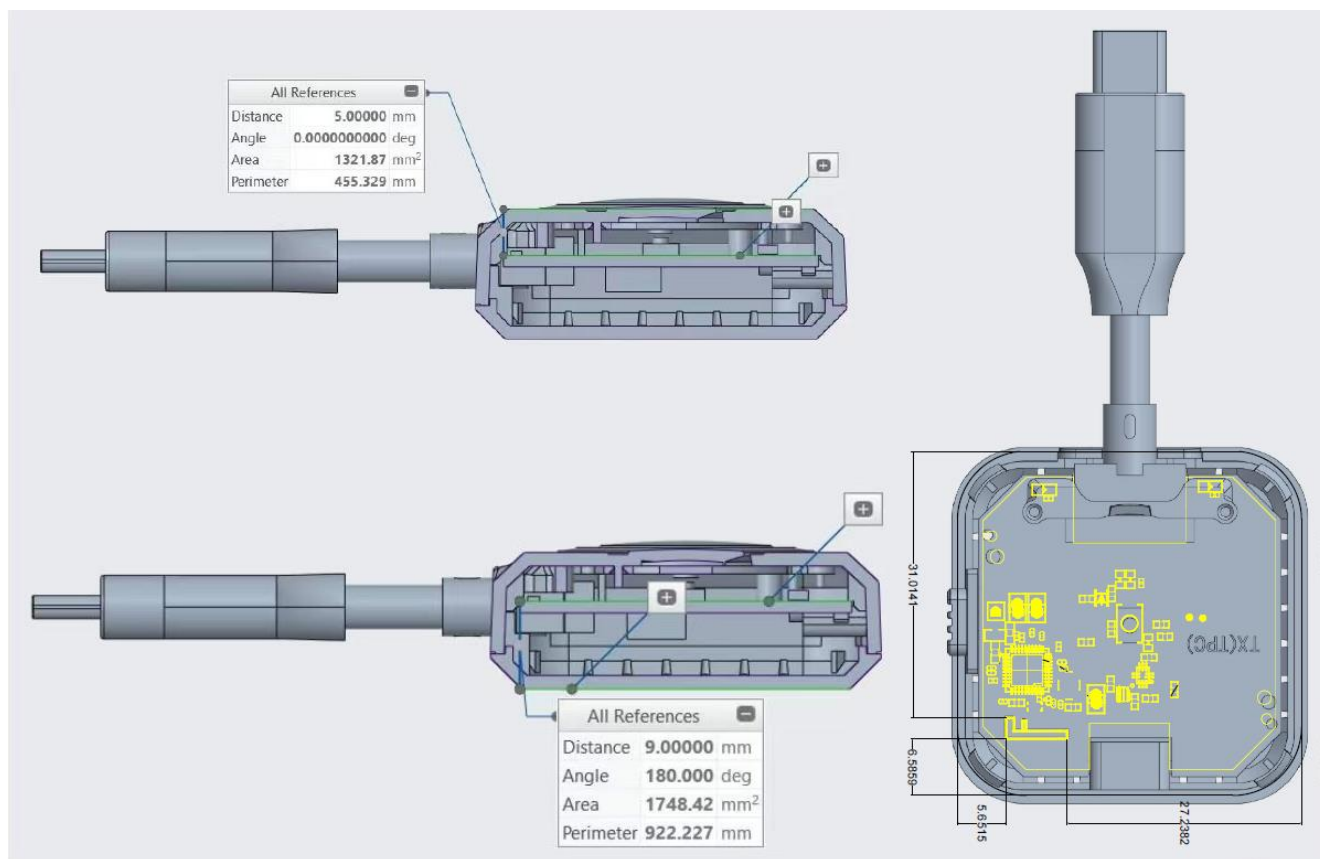
Test Modes	802.11a	802.11n HT20
Duty Cycle(%)	93.69%	87.71%
Duty Factor	0.283	0.570

WiFi 5G Conducted Avg Power Table :

Mode	Channel	Freq.(MHz)	Conducted Avg Power (dBm)	Tune-Up Power (dBm)
802.11a	36	5180	12.72	13.0
	40	5200	12.68	13.0
	48	5240	12.23	13.0
802.11n HT20	36	5180	12.89	13.0
	40	5200	12.97	13.0
	48	5240	12.25	13.0

STANDALONE SAR TEST EXCLUSION CONSIDERATIONS

Antennas Location for EUT:



Antenna to Edge(Surface) distance :

	Horizontal Up	Horizontal Down	Vertical Back	Vertical Front	Top
Code 1 sample	5	9	5.65	27.24	6.59
Code 2 sample	5	9	5.65	27.24	6.59

Unit : mm

SAR MEASUREMENT RESULTS

This page summarizes the results of the performed diametric evaluation.

For SAR testing of 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)”.

Scaling Factor = Tune-up limit power(mW) / EUT RF power(mW), where Tune-up limit is the maximum rated power among all production units.

For WiFi, Reported SAR(W/kg) = Measured SAR(W/kg) * Duty Cycle scaling factor * Scaling factor.

For WiFi 5GHz have 802.11a, 802.11n HT20 mode, according “KDB 248227 D01 802.11 Wi-Fi SAR v02r02” test 802.11n HT20 and 802.11a mode.

SAR Test Data

Environmental Conditions

Test Date	2025/11/24
Freq. Band(MHz)	5250MHz
Temperature	23.3°C
Relative Humidity	57%
Test Engineer	Sean Chen

WiFi 5.2GHz 80211n HT20 :

EUT Position	Test Mode	Freq. (MHz)	Maximum Meas. Power (dBm)	Maximum Rated Power (dBm)	Scaled Factor	1g SAR (W/Kg)					
						Duty Cycle(%)	Duty Factor	Meas. SAR	Scaled SAR	Limit	Plot
Horizontal Up	802.11n HT20	5200	12.97	13.00	1.007	87.71%	0.570	0.082	0.094	1.6	11
Horizontal Down	802.11n HT20	5200	12.97	13.00	1.007	87.71%	0.570	0.045	0.052	1.6	12
Vertical Back	802.11n HT20	5200	12.97	13.00	1.007	87.71%	0.570	0.072	0.083	1.6	13
Vertical Front	802.11n HT20	5200	12.97	13.00	1.007	87.71%	0.570	0.025	0.029	1.6	14
Top	802.11n HT20	5200	12.97	13.00	1.007	87.71%	0.570	0.118	0.135	1.6	15
Top	802.11n HT20	5180	12.89	13.00	1.026	87.71%	0.570	0.106	0.124	1.6	15-1
Top	802.11n HT20	5240	12.25	13.00	1.189	87.71%	0.570	0.098	0.133	1.6	15-2
Top	802.11n HT20	5200	12.97	13.00	1.007	87.71%	0.570	0.113	0.130	1.6	15-3

Note:

- 0) SAR testing date 2025/11/24 HSL 5GHz Medium.
- 1) Only SAR plot 15-3 was tested using code 2 samples.
- 2) Maximum meas. Power is using time based Avg power.
- 3) When the 1-g SAR is $\leq 0.8W/Kg$, testing for other channels are optional.
- 4) According KDB865664 D01 Repeated measurements are required only when the measured SAR is $\geq 0.80 W/kg$. If the measured SAR value of the initial repeated measurement is $< 1.45 W/kg$ with $\leq 20\%$ variation, only one repeated measurement is required to reaffirm that the results are not expected to have substantial variations. A second repeated measurement is required only if the measured result for the initial repeated measurement is within 10% of the SAR limit and vary by more than 20%.

WiFi 5.2GHz 802.11a :

EUT Position	Test Mode	Freq. (MHz)	Maximum Meas. Power (dBm)	Maximum Rated Power (dBm)	Scaled Factor	1g SAR (W/Kg)					
						Duty Cycle(%)	Duty Factor	Meas. SAR	Scaled SAR	Limit	Plot
Horizontal Up	802.11a	5200	12.68	13.00	1.076	93.69%	0.283	0.093	0.107	1.6	21
Horizontal Down	802.11a	5200	12.68	13.00	1.076	93.69%	0.283	0.064	0.074	1.6	22
Vertical Back	802.11a	5200	12.68	13.00	1.076	93.69%	0.283	0.073	0.084	1.6	23
Vertical Front	802.11a	5200	12.68	13.00	1.076	93.69%	0.283	0.026	0.030	1.6	24
Top	802.11a	5200	12.68	13.00	1.076	93.69%	0.283	0.104	0.119	1.6	25
Top	802.11a	5180	12.72	13.00	1.067	93.69%	0.283	0.110	0.125	1.6	25-1
Top	802.11a	5240	12.23	13.00	1.194	93.69%	0.283	0.086	0.110	1.6	25-2
Top	802.11a	5180	12.72	13.00	1.067	93.69%	0.283	0.110	0.125	1.6	25-3

Note:

- 0) SAR testing date 2025/11/24 HSL 5GHz Medium.
- 1) Only SAR plot 25-3 was tested using code 2 samples.
- 2) Maximum meas. Power is using time based Avg power.
- 3) When the 1-g SAR is $\leq 0.8W/Kg$, testing for other channels are optional.
- 4) According KDB865664 D01 Repeated measurements are required only when the measured SAR is $\geq 0.80 W/kg$. If the measured SAR value of the initial repeated measurement is $< 1.45 W/kg$ with $\leq 20\%$ variation, only one repeated measurement is required to reaffirm that the results are not expected to have substantial variations. A second repeated measurement is required only if the measured result for the initial repeated measurement is within 10% of the SAR limit and vary by more than 20%.

SAR correction for deviations of complex permittivity from targets

In this standard, dielectric parameters of the tissue-equivalent liquid used for SAR measurement are chosen so as to give an SAR value that is conservative with respect to the exposure in a person. Deviations of the dielectric parameters from the target values can lead to measurement uncertainty. One way to reduce measurement uncertainty is to keep the dielectric parameters of the tissue-equivalent liquids within a tight tolerance of the targets (e.g., within $\pm 5\%$). However, it can be difficult to find suitable and stable liquid recipes whose dielectric parameters are close to the targets, particularly at frequencies above 2 GHz. There are three solutions to this problem:

- change the target dielectric parameters to match those of available liquid recipes;
- widen the tolerance (without correcting the SAR for the deviation in dielectric parameters);
- allow a wider tolerance, and correct the SAR for the deviation of the measured dielectric parameters from the target values.

The third solution is the best because changing the targets may restrict the standard to particular liquid recipes, and simply widening the tolerance increases the measurement uncertainty.

The methodology used to determine the SAR correction is specified in 7.8.2. The methodology was conducted over a frequency range of 4 MHz to 10 GHz. The methodology was also studied for permittivity and conductivity ranges of $\pm 20\%$ from the target values in Table 2, but ranges of $\pm 10\%$ have been selected for this document, as specified below. Given that the change in dielectric properties influences the conversion factor of the probe, this influence will be small if a $\pm 10\%$ range is used.

$$\Delta SAR = c_\epsilon \Delta \epsilon_r + c_\sigma \Delta \sigma \quad (8)$$

where

$c_\epsilon = \partial(\Delta SAR)/\partial(\Delta \epsilon_r)$ is the coefficient representing the sensitivity of SAR to permittivity where SAR is normalized to output power;

$c_\sigma = \partial(\Delta SAR)/\partial(\Delta \sigma)$ is the coefficient representing the sensitivity of SAR to conductivity, where SAR is normalized to output power.

The values of c_ϵ and c_σ have a simple relationship with frequency that can be described using polynomial equations. For dipole antennas at frequencies from 4 MHz to 6 GHz, the 1 g averaged SAR c_ϵ and c_σ are given by

$$c_\epsilon = -7,854 \times 10^{-4} f^3 + 9,402 \times 10^{-3} f^2 - 2,742 \times 10^{-2} f - 0,2026 \quad (9)$$

$$c_\sigma = 9,804 \times 10^{-3} f^3 - 8,661 \times 10^{-2} f^2 + 2,981 \times 10^{-2} f + 0,7829 \quad (10)$$

where f is the frequency in GHz. Above 6 GHz, the sensitivity is non-varying with frequency due to the small penetration depth; the values of $c_\epsilon = -0,198$ and $c_\sigma = 0$ shall be used.

For frequencies from 4 MHz to 6 GHz, the 10 g averaged SAR c_ϵ and c_σ are given by:

$$c_\epsilon = 3,456 \times 10^{-3} f^3 - 3,531 \times 10^{-2} f^2 + 7,675 \times 10^{-2} f - 0,1860 \quad (11)$$

$$c_\sigma = 4,479 \times 10^{-3} f^3 - 1,586 \times 10^{-2} f^2 - 0,1972 f + 0,7717 \quad (12)$$

Plot	Freq. (MHz)	δ	ϵ_r	Target δ	Target ϵ_r	$\Delta\delta$ %	$\Delta\epsilon_r$ %	$C\epsilon$ 1g	$C\delta$ 1g	ΔSAR 1g	Scaling SAR 1g	Corr. SAR 1g
11	5200	4.863	36.536	4.67	35.990	4.13	1.52	-0.201	-0.026	-0.412	0.094	0.094
12	5200	4.863	36.536	4.67	35.990	4.13	1.52	-0.201	-0.026	-0.412	0.052	0.052
13	5200	4.863	36.536	4.67	35.990	4.13	1.52	-0.201	-0.026	-0.412	0.083	0.083
14	5200	4.863	36.536	4.67	35.990	4.13	1.52	-0.201	-0.026	-0.412	0.029	0.029
15	5200	4.863	36.536	4.67	35.990	4.13	1.52	-0.201	-0.026	-0.412	0.135	0.136
15-1	5180	4.826	36.568	4.64	36.02	4.01	1.52	-0.202	-0.024	-0.403	0.124	0.125
15-2	5240	4.915	36.427	4.70	35.96	4.57	1.30	-0.201	-0.028	-0.389	0.133	0.134
15-3	5200	4.863	36.536	4.67	35.990	4.13	1.52	-0.201	-0.026	-0.412	0.130	0.131
21	5200	4.863	36.536	4.67	35.990	4.13	1.52	-0.201	-0.026	-0.412	0.107	0.107
22	5200	4.863	36.536	4.67	35.990	4.13	1.52	-0.201	-0.026	-0.412	0.074	0.074
23	5200	4.863	36.536	4.67	35.990	4.13	1.52	-0.201	-0.026	-0.412	0.084	0.084
24	5200	4.863	36.536	4.67	35.990	4.13	1.52	-0.201	-0.026	-0.412	0.030	0.030
25	5200	4.863	36.536	4.67	35.990	4.13	1.52	-0.201	-0.026	-0.412	0.119	0.119
25-1	5180	4.826	36.568	4.64	36.02	4.01	1.52	-0.202	-0.024	-0.403	0.125	0.126
25-2	5240	4.915	36.427	4.70	35.96	4.57	1.30	-0.201	-0.028	-0.389	0.110	0.110
25-3	5180	4.826	36.568	4.64	36.02	4.01	1.52	-0.202	-0.024	-0.403	0.125	0.126

SAR SIMULTANEOUS TRANSMISSION DESCRIPTION

Simultaneous Transmission:

Description of Simultaneous Transmit Capabilities	
Transmitter Combination	Simultaneous?
WiFi 5GHz	X

Conclusion:

Since there was only a single WiFi 5GHz signal transmitter, there were no issues with simultaneous transmissions.

APPENDIX A MEASUREMENT UNCERTAINTY

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

SAR Uncertainty Budget
According to IEC/IEEE 62209-1528
(Frequency band: 300MHz - 3GHz range)

Symbol	Input quantity X_i (source of uncertainty)	Unc. Value	Prob. Dist.	Div.	ci (1g)	ci (10g)	Std.Unc. (1g) (±%)	Std.Unc. (10g) (±%)	Ref.
Measurement system errors									
CF	Probe calibration(±%)	12.0	N	2	1	1	6.0	6.0	8.4.1.1
CF_{drift}	Probe calibration drift(±%)	1.7	R	$\sqrt{3}$	1	1	1.0	1.0	8.4.1.2
LIN	Probe linearity and detection limit(±%)	4.7	R	$\sqrt{3}$	1	1	2.7	2.7	8.4.1.3
BBS	Broadband signal(±%)	2.8	R	$\sqrt{3}$	1	1	1.6	1.6	8.4.1.4
ISO	Probe isotropy(±%)	7.6	R	$\sqrt{3}$	1	1	4.4	4.4	8.4.1.5
DAE	Other probe and data acquisition errors(±%)	0.3	N	1	1	1	0.3	0.3	8.4.1.6
AMB	RF ambient and noise(±%)	1.8	N	1	1	1	1.8	1.8	8.4.1.7
Δ_{pos}	Probe positioning errors(±mm)	0.006	N	1	0.14	0.14	0.08	0.08	8.4.1.8
DAI	Data processing errors(±%)	1.2	N	1	1	1	1.2	1.2	8.4.1.9
Phantom and device (DUT or validation antenna) errors									
$LIQ(\sigma)$	Conductivity (meas.)(±%)	2.5	N	1	0.78	0.71	2.0	1.8	8.4.2.1
$LIQ(T_a)$	Conductivity (temp.)(±%)	3.2	R	$\sqrt{3}$	0.78	0.71	1.4	1.3	8.4.2.2
EPS	Phantom Permittivity(±%)	14	R	$\sqrt{3}$	0	0	0.0	0.0	8.4.2.3
DIS	Distance DUT - TSL(±%)	2	N	1	2	2	4.0	4.0	8.4.2.4
D_{pos}	Device Positioning(±%)	0.3	N	1	1	1	0.3	0.3	8.4.2.5
H	Device Holder(±%)	1.9	N	1	1	1	1.9	1.9	8.4.2.6
MOD	DUT Modulationm(±%)	2.4	R	$\sqrt{3}$	1	1	1.4	1.4	8.4.2.7
TAS	Time-average SAR(±%)	1.7	R	$\sqrt{3}$	1	1	1.0	1.0	8.4.2.8
RF_{drift}	DUT drift(±%)	5	N	1	1	1	5.0	5.0	8.4.2.9
VAL	Val Antenna Unc.(±%)	0	N	1	1	1	0.0	0.0	8.4.2.10
P_{in}	Unc. Input Power(±%)	0	N	1	1	1	0.0	0.0	8.4.2.11
Corrections to the SAR result									
$C(\epsilon', \sigma)$	Deviation to Target(±%)	1.9	N	1	1	0.84	1.9	1.6	8.4.3.1
$C(R)$	SAR scaling(±%)	0	R	$\sqrt{3}$	1	1	0.0	0.0	8.4.3.2
$u(\Delta SAR)$	Combined uncertainty						11.3	11.2	
U	Expanded uncertainty					$U =$	22.6	22.4	
a Other probability distributions and divisors may be used if they better represent available knowledge of the quantities concerned.									

Note: It may not be duplicated or used in part without prior written consent from Bay Area Compliance Laboratories Corp. (New Taipei Laboratory)

SAR Uncertainty Budget
According to IEC/IEEE 62209-1528
(Frequency band: 3GHz - 6GHz range)

Symbol	Input quantity $\bar{X}_i$ (source of uncertainty)	Unc. Value	Prob. Dist.	Div.	ci (1g)	ci (10g)	Std.Unc. (1g) (±%)	Std.Unc. (10g) (±%)	Ref.
Measurement system errors									
CF	Probe calibration(±%)	13.1	N	2	1	1	6.6	6.6	8.4.1.1
CF_{drift}	Probe calibration drift(±%)	1.7	R	$\sqrt{3}$	1	1	1.0	1.0	8.4.1.2
LIN	Probe linearity and detection limit(±%)	4.7	R	$\sqrt{3}$	1	1	2.7	2.7	8.4.1.3
BBS	Broadband signal(±%)	2.6	R	$\sqrt{3}$	1	1	1.5	1.5	8.4.1.4
ISO	Probe isotropy(±%)	7.6	R	$\sqrt{3}$	1	1	4.4	4.4	8.4.1.5
DAE	Other probe and data acquisition errors(±%)	0.3	N	1	1	1	0.3	0.3	8.4.1.6
AMB	RF ambient and noise(±%)	1.8	N	1	1	1	1.8	1.8	8.4.1.7
Δ_{pos}	Probe positioning errors(±mm)	0.005	N	1	0.29	0.29	0.15	0.15	8.4.1.8
DAT	Data processing errors(±%)	2.3	N	1	1	1	2.3	2.3	8.4.1.9
Phantom and device (DUT or validation antenna) errors									
$LIQ(\sigma)$	Conductivity (meas.)(±%)	2.5	N	1	0.78	0.71	2.0	1.8	8.4.2.1
$LIQ(T_0)$	Conductivity (temp.)(±%)	2.5	R	$\sqrt{3}$	0.78	0.71	1.1	1.0	8.4.2.2
EPS	Phantom Permittivity(±%)	14	R	$\sqrt{3}$	0.25	0.25	2.0	2.0	8.4.2.3
DIS	Distance DUT - TSL(±%)	2	N	1	2	2	4.0	4.0	8.4.2.4
D_{pos}	Device Positioning(±%)	0.6	N	1	1	1	0.6	0.6	8.4.2.5
H	Device Holder(±%)	1.6	N	1	1	1	1.6	1.6	8.4.2.6
MOD	DUT Modulationm(±%)	2.4	R	$\sqrt{3}$	1	1	1.4	1.4	8.4.2.7
TAS	Time-average SAR(±%)	1.7	R	$\sqrt{3}$	1	1	1.0	1.0	8.4.2.8
RF_{drift}	DUT drift(±%)	5	N	1	1	1	5.0	5.0	8.4.2.9
VAL	Val Antenna Unc.(±%)	0	N	1	1	1	0.0	0.0	8.4.2.10
P_{in}	Unc. Input Power(±%)	0	N	1	1	1	0.0	0.0	8.4.2.11
Corrections to the SAR result									
$C(\epsilon', \sigma)$	Deviation to Target(±%)	1.9	N	1	1	0.84	1.9	1.6	8.4.3.1
$C(R)$	SAR scaling(±%)	0	R	$\sqrt{3}$	1	1	0.0	0.0	8.4.3.2
$u(\Delta SAR)$	Combined uncertainty						11.9	11.8	
U	Expanded uncertainty					$U =$	23.7	23.6	
a Other probability distributions and divisors may be used if they better represent available knowledge of the quantities concerned.									

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APPENDIX B EUT TEST POSITION PHOTOS

Please Refer to the Attachment APPENDIX B EUT TEST POSITION PHOTOS

APPENDIX C SAR PLOTS OF SAR MEASUREMENT

Please Refer to the Attachment APPENDIX C SAR PLOTS OF SAR MEASUREMENT_0119

APPENDIX D PROBE & DAE CALIBRATION CERTIFICATES

Please refer to the file document APPENDIX D PROBE & DAE CALIBRATION CERTIFICATES

APPENDIX E DIPOLE CALIBRATION CERTIFICATES

Please refer to the file document APPENDIX E DIPOLE CALIBRATION CERTIFICATES

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