



SAR TEST REPORT

Applicant : ACSL Ltd

Address : Hulic Kasai Rinkai Building 1F 3-6-4 Rinkaicho,
Edogawa-ku Tokyo 134-0086 Japan

Manufacturer : ACSL Ltd

Address : Hulic Kasai Rinkai Building 1F 3-6-4 Rinkaicho,
Edogawa-ku Tokyo 134-0086 Japan

Equipment : Smart Controller

Model No. : TAITEN (AC-SCRC7-01-A)

Trade Name : ACSL

IC : N/A

I HEREBY CERTIFY THAT:

The sample was received on Mar. 10, 2025 and the testing was completed on Apr. 15, 2025 at CerpPASS Technology Corp. The test result refers exclusively to the test presented test model / sample. Without written approval of CerpPASS Technology Corp., the test report shall not be reproduced except in full.

Approved by:

Vic Hsiao / Supervisor

Laboratory Accreditation:

CerpPASS Technology Corporation Test Laboratory



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History of this test report

Attachment No.	Issued Date	Description
25030043-TRDTest02	Apr.16, 2025	Original



1. Summary of Maximum SAR Value

Results for highest reported SAR values for each frequency band and mode are as below:

Equipment Class	Band	Maximum Scaled SAR (W/kg)	Maximum Report SAR (W/kg)
DTS	2.4G WLAN	0.28	0.54
U-NII-4	5G WLAN	0.54	
Limit (W/kg)		1.6	

Note :

1.Considering the results of the performed test according to FCC 47CFR Part 2.1093 and ISSED RSS 102, Issue 6 the item under test is IN COMPLIANCE with the requested specifications specified in Section1. Standards, reference documents and applicable test methods

2.The lab has reduced the uncertainty risk factor from test equipment, environment and staff technicians which according to the standard on contract. Therefore, the test result will only be determined by standard requirement.



2. Test Configuration of Equipment under Test

Equipment	Smart Controller
Model Name	TAITEN (AC-SCRC7-01-A)
Model Difference	N/A
Power supply	DC 8.4V
Operation frequency	2402MHz~2480MHz 5150MHz~5850MHz
Modulation type	BR/EDR: GFSK/ Pi/4 DQPSK / 8DPSK BLE: GFSK 1Mbps WIFI 2.4GHz: 802.11b: 1, 2, 5.5, 11Mbps 802.11g: 6, 9, 12, 18, 24, 36, 48, 54Mbps 802.11n: MCS0-MCS15, HT20 WIFI 5GHz: 802.11a: 6, 9, 12, 18, 24, 36, 48, 54Mbps 802.11n: MCS0-MCS15, HT20/40 802.11ac: MCS0-MCS9, VHT20/40/80 OFDM 2.4G: 2417MHz,2432MHz,2462MHz,2477MHz OFDM 5.8G: 5735MHz,5760MHz,5785MHz,5810MHz
Antenna(s) information	Antenna type: FPC antenna Antenna gain:2.5dBi (BT+WIFI); Antenna gain:5.02dBi (OFDM 2.4G); 5.06dBi (OFDM 5.8G)
Sample Number	25030043-002002

Note: For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.



3. General Information of Test

Test Site	CerpPASS Technology Corporation Test Laboratory Address: No.10, Ln. 2, Lianfu St., Luzhu Dist., Taoyuan City 33848, Taiwan (R.O.C.) Tel: +886-3-3226-888 Fax: +886-3-3226-881
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4. Basic restrictions and Standards

4.1 Test Standards

FCC FCC 47 CFR Part 2 (2.1093)

FCC IEEE C95.1

ISED RSS-102 Issue6

4.2 Reference Standards

IEEE 62209-1528

IEEE 1528 :2013

FCC KDB Publication 865664 D01 SAR Measurement 100 MHz to 6 GHz v01r04

FCC KDB Publication 447498 D01 General RF Exposure Guidance v06



4.3 Environment Condition

Item	Target
Ambient Temperature(°C)	18~25
Temperature of Simulant(°C)	20~22
Relative Humidity(%RH)	30~70

4.4 RF Exposure Limits

SAR assessments have been made in line with the requirements of FCC 47CFR Part 2.1093 and ISED RSS 102 issue 5 on the limitation of exposure of the general population / uncontrolled exposure for portable devices.

Exposure Type	General Population / Uncontrolled Environment
Peak spatial-average SAR (averaged over any 1 gram of tissue)	1.6 W/kg
Whole body average SAR	0.08 W/kg
Peak spatial-average SAR (extremities) (averaged over any 10 grams of tissue)	4.0 W/kg



5. Test & System Description

5.1 SAR Definition

Specific Absorption rate is defined as the time derivative of the incremental energy (dW) absorbed by (dissipated in) and incremental mass (dm) contained in a volume element (dV) of a given density (ρ).

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

SAR is expressed in units of watts per kilogram (W/kg). SAR can be related to the electric field at a point by

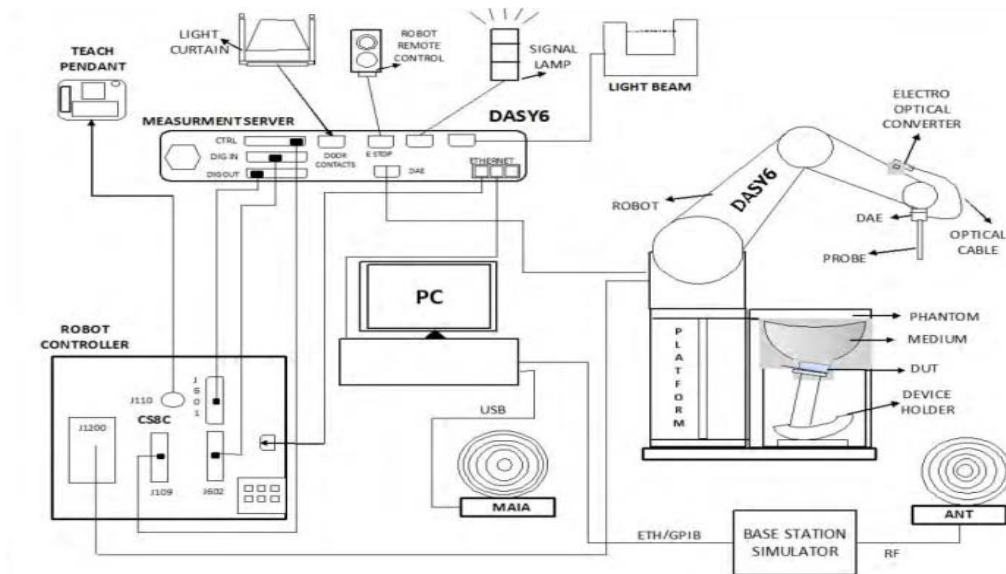
Where:

σ = Conductivity of the tissue (S/m)

ρ = Mass density of the tissue (kg/m³)

E = RMS electric field strength (V/m)

5.2 SAR Measurement System



- ✓ A standard high precision 6-axis robot (Stäubli TX/RX family) with controller, teach pendant and software. It includes an arm extension for accommodating the data acquisition electronics (DAE)
- ✓ An isotropic field probe optimized and calibrated for the targeted measurements.
- ✓ A data acquisition electronics (DAE) which performs the signal amplification, signal multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection, etc. The unit is battery powered with standard or rechargeable batteries. The signal is optically transmitted to the EOC.
- ✓ The Electro-optical Converter (EOC) performs the conversion from optical to electrical signals for the digital communication to the DAE. 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 movements interrupts.
- ✓ The Light Beam used is for probe alignment. This improves the (absolute) accuracy of the probe positioning.
- ✓ A computer running Win10 professional operating system and the cDASY6 and DASY5 V5.2 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.



5.3 Probes

The SAR measurement is conducted with the dosimetric probe manufactured by SPEAG. The probe is specially designed and calibrated for use in liquid with high permittivity. The dosimetric probe has special calibration in liquid at different frequency.

SPEAG conducts the probe calibration in compliance with international and national standards (e.g. IEEE 1528, EN 62209-1, IEC 62209, etc.) under ISO 17025. The calibration data are in Appendix A.

Model	EX3DV4	
Construction	Symmetrical design with triangular core Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., DGBE)	
Frequency	4 MHz to 10 GHz Linearity: ± 0.2 dB (30 MHz to 10 GHz)	
Directivity	± 0.1 dB in TSL (rotation around probe axis) ± 0.3 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: 330 mm (Tip: 20 mm) Tip diameter: 2.5 mm (Body: 12 mm) Typical distance from probe tip to dipole centers: 1 mm	

5.4 Data Acquisition Electronics (DAE)

Model	DAE4	
Construction	Signal amplifier, multiplexer, A/D converter and control logic. Serial optical link for communication with DASY embedded system (fully remote controlled). Two step probe touch detector for mechanical surface detection and emergency robot stop.	
Measurement Range	-100 to +300 mV (16 bit resolution and two range settings: 4 mV, 400 mV)	
Input Offset Voltage	< 5 μV (with auto zero)	
Input Bias Current	Input Bias Current	
Dimensions	60 x 60 x 68 mm	



5.5 Robot

The DASY6 system uses the high precision robots TX60 L type out of the newer series from Stäubli SA (France). For the 6-axis controller DASY6 system, the CS8C robot controller version from Stäubli is used.

The XL robot series have many features that are important for our application:

- High precision (repeatability 0.02 mm)
- High reliability (industrial design)
- Jerk-free straight movements
- Low ELF interference (the closed metallic construction shields against motor control fields)
- 6-axis controller





5.6 SAM Phantom

The SAM twin phantom is a fiberglass shell phantom with 2mm shell thickness (except the ear region where shell thickness increases to 6mm). It has three measurement areas: ■ Left head ■ Right head ■ Flat phantom	 A photograph of the SAM twin phantom setup. It consists of a white fiberglass shell phantom mounted on a wooden frame. A black robotic arm is positioned above the phantom, and a black base is visible on the floor.
The ELI4 Phantom also is a fiberglass shell phantom with 2mm shell thickness. It has 30 liters filling volume, and with a dimension of 600mm for major ellipse axis, 400mm for minor axis. It is intended for compliance testing of handheld and body-mounted wireless devices in frequency range of 30 MHz to 6GHz. ELI4 is fully compatible with standard and all known tissue simulating liquids.	 A photograph of the ELI4 Phantom setup. It is a white fiberglass shell phantom with a large red circular opening on top, mounted on a wooden frame. A black robotic arm is positioned above the phantom, and a black base is visible on the floor.
The bottom plate contains three pair of bolts for locking the device holder. The device holder positions are adjusted to the standard measurement positions in the three sections. A white cover is provided to tap the phantom during off-periods to prevent water evaporation and changes in the liquid parameters. On the phantom top, three reference markers are provided to identify the phantom position with respect to the robot.	

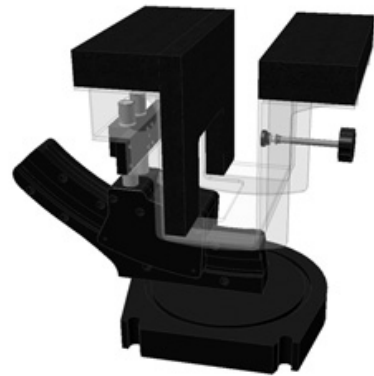


5.7 Device Holder

The DASY6 device holder is designed to cope with different positions given in the standard. It has two scales for the device rotation (with respect to the body axis) and the device inclination (with respect to the line between the ear reference points). The rotation center for both scales is the ear reference point (EPR). Thus the device needs no repositioning when changing the angles. The DASY5 device holder has been made out of low-loss POM material having the following dielectric parameters: relative permittivity $\epsilon_r = 3$ and loss tangent $\delta = 0.02$. The amount of dielectric material has been reduced in the closest vicinity of the device, since measurements have suggested that the influence of the clamp on the test results could thus be lowered.



The laptop extension is lightweight and made of POM, acrylic glass and foam. It fits easily on upper part of the mounting device in place of the phone positioned. The extension is fully compatible with the SAM Twin and ELI phantoms.





5.8 Test Equipment and Ancillaries Used for Tests

Test Item	SAR				
Test Site	RFSAR01-NK				
Name of Equipment	Manufacturer	Type/Model	Serial No	Calibration Cycle(year)	Valid Date
Robot	Staubli	TX60L Lspeag	F13/5P6VA1/A/01	/	NA
DASY Test Software	Staubli	cDASY6 V16.0.2.136	/	/	NA
DASY Test Software	Staubli	DASY5.2	14.6.14.7483	/	NA
Signal Greenerator	KEYSIGHT	N5183A	MY50142931	1	2026/02/07
S-Parameter Network Analyzer	Agilent	E5071C	70045-459-220-350	1	2025/08/14
Dielectric parameter probes	SPEAG	DAKS-3.5	1121	1	NA
Power Meter	Anritsu	ML2495A	1224005	1	2026/02/11
Power Sensor	Anritsu	MA2411B	1207295	1	2026/02/11
Data Acquisition Electronics	SPEAG	DAE4	1379	1	2025/08/06
Dosimetric E-Field Probe	SPEAG	EX3DV4	3927	1	2025/07/30
2450MHz System Validation Dipole	SPEAG	D2450V2	914	3	2027/07/09
5GHz System Validation Dipole	SPEAG	D5GHzV2	1156	3	2027/07/11
Amplifier	Mini-Circuits	ZVE-8G+	70501814	/	NA
Amplifier	Mini-Circuits	ZVE-3W-183+	N636102230	/	NA
Thermometer	Hi Sun	TH05A	11442	1	2025/03/27

*Please Refer to the Appendix A. DASY Calibration Certificate.

Note:

1. Prior to system verification and validation, the path loss from the signal generator to the system check source and the power meter, which includes the amplifier, cable, attenuator and directional coupler, was measured by the network analyzer. The reading of the power meter was offset by the path loss difference between the path to the power meter and the path to the system check source to monitor the actual power level fed to the system check source.
2. Referring to KDB 865664 D01v01r04, the dipole calibration interval can be extended to 3 years with justification. The dipoles are also not physically damaged, or repaired during the interval.
3. The justification data of dipole can be found in Appendix B. The return loss is < -20dB, within 20% of prior calibration, the impedance is within 5 ohm of prior calibration



6. . SAR Measurement Data

<SAR>

Plot.No	Band	Mode	Channel	Frequency (MHz)	Data Rate	Test Position	Gap (mm)	EIRP Power (dBm)	Tune-up (dBm)	Duty Cycle (%)	SAR 1g (W/Kg)	Reported SAR 1g (W/Kg)
1	WLAN2.4 GHz	802.11b	1	2412	1M	Front	0	18.00	18.5	99	0.009	0.01
	WLAN2.4 GHz	802.11b	1	2412	1M	Back	0	18.00	18.5	99	0.002	0.00
	WLAN2.4 GHz	802.11b	1	2412	1M	Edge 3	0	18.00	18.5	99	0.051	0.06
	WLAN2.4 GHz	802.11b	1	2412	1M	Edge 4	0	18.00	18.5	99	0.009	0.01
2	WLAN5 GHz	802.11a	80	5300	6M	Front	0	17.00	17.5	99	0.006	0.01
	WLAN5 GHz	802.11a	80	5300	6M	Back	0	17.00	17.5	99	0.003	0.00
	WLAN5 GHz	802.11a	80	5300	6M	Edge 3	0	17.00	17.5	99	0.005	0.01
	WLAN5 GHz	802.11a	80	5300	6M	Edge 4	0	17.00	17.5	99	0.004	0.01
	WLAN5 GHz	802.11a	140	5700	6M	Front	0	17.00	17.5	99	0.005	0.01
	WLAN5 GHz	802.11a	140	5700	6M	Back	0	17.00	17.5	99	0.001	0.00
	WLAN5 GHz	802.11a	140	5700	6M	Edge 3	0	17.00	17.5	99	0.007	0.01
	WLAN5 GHz	802.11a	140	5700	6M	Edge 4	0	17.00	17.5	99	0.001	0.00
	WLAN5 GHz	802.11a	165	5825	6M	Front	0	17.00	17.5	99	0.005	0.00
	WLAN5 GHz	802.11a	165	5825	6M	Back	0	17.00	17.5	99	0.002	0.00
	WLAN5 GHz	802.11a	165	5825	6M	Edge 3	0	17.00	17.5	99	0.011	0.01
	WLAN5 GHz	802.11a	165	5825	6M	Edge 4	0	17.00	17.5	99	0.001	0.00
3	2.4GHz	OFDM	3	2462	10M	Front	0	26	26.5	99	0.019	0.02
	2.4GHz	OFDM	3	2462	10M	Back	0	26	26.5	99	0.005	0.01
	2.4GHz	OFDM	3	2462	10M	Edge 1	0	26	26.5	99	0.25	0.28
	2.4GHz	OFDM	3	2462	10M	Edge 4	0	26	26.5	99	0.034	0.04
4	5GHz	OFDM	3	5785	10M	Front	0	23	23.5	99	0.06	0.07
	5GHz	OFDM	3	5785	10M	Back	0	23	23.5	99	0.071	0.08
	5GHz	OFDM	3	5785	10M	Edge 1	0	23	23.5	99	0.477	0.54
	5GHz	OFDM	3	5785	10M	Edge 4	0	23	23.5	99	0.012	0.01
5	BT-EDR	GFSK	39	2441	1M	Front	0	12.50	13	99	<0.001	<0.001
	BT-EDR	GFSK	39	2441	1M	Back	0	12.50	13	99	<0.001	<0.001
	BT-EDR	GFSK	39	2441	1M	Edge 3	0	12.50	13	99	<0.001	<0.001
	BT-EDR	GFSK	39	2441	1M	Edge 4	0	12.50	13	99	<0.001	<0.001



01 WLAN 2.4GHz_802.11b_Ch1_1M_Edge 3_0mm

Device under Test Properties

Model, Manufacturer

TAITEN (AC-SCRC7-01-A)

Exposure Conditions

Phantom	Position, Test	Band	Group,	Frequency [MHz],	Conversion	TSL Conductivity	TSL
Section, TSL	Distance [mm]		UID	Channel Number	Factor	[S/m]	Permittivity
Flat,	FRONT,	WLAN	WLAN,	2412.000,	7.41	1.80	38.4
HSL	0.00	2.4GHz	10415-AAA	1			

Hardware Setup

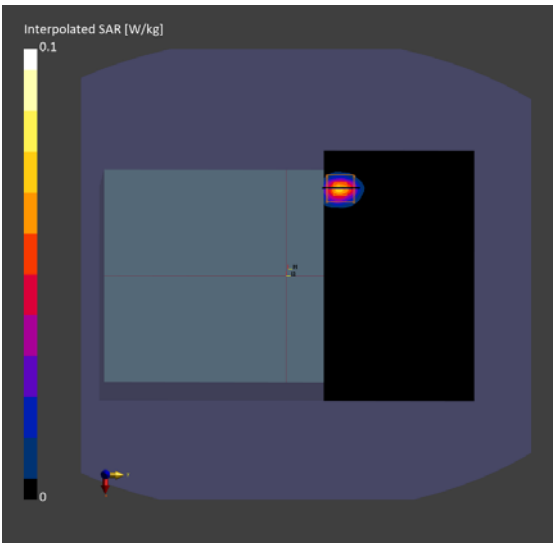
Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
ELI V5.0 (20deg probe tilt)-1211	HSL2450 Charge	EX3DV4 - SN3927, 2024-07-31	DAE4 Sn1379, 2024-08-07

Scan Setup

	Area Scan	Zoom Scan
Grid Extents [mm]	200.0 x 100.0	30.0 x 30.0 x 30.0
Grid Steps [mm]	10.0 x 10.0	5.0 x 5.0 x 1.5
Sensor Surface [mm]	3.0	1.4

Measurement Results

	Area Scan	Zoom Scan
Date	2025-03-13	2025-03-13,
psSAR1g [W/kg]	0.052	0.051
psSAR10g [W/kg]	0.021	0.022
Power Drift [dB]	-0.05	-0.05
Power Scaling	Disabled	Disabled
TSL Correction	No correction	No correction
M2/M1 [%]		83.1
Dist 3dB Peak [mm]		8.0





02 WLAN 5GHz_802.11a_Ch165_6M_Edge 3_0mm

Device under Test Properties

Model, Manufacturer

TAITEN (AC-SCRC7-01-A)

Exposure Conditions

Phantom	Position, Test	Band	Group,	Frequency [MHz],	Conversion	TSL	TSL
Section, TSL	Distance [mm]		UID	Channel Number	Factor	Conductivity	Permittivity
						[S/m]	
Flat,	FRONT,	WLAN	WLAN,	5825.000,	5.33	5.34	36.1
HSL	0.00	5GHz	10417-AAD	165			

Hardware Setup

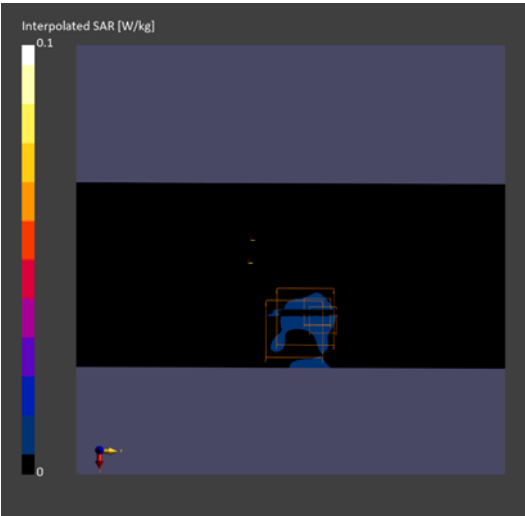
Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
ELI V5.0 (20deg probe tilt)-1211	HSL3-6GHz Charge	EX3DV4 - SN3927, 2024-07-31	DAE4 Sn1379, 2024-08-07

Scan Setup

	Area Scan	Zoom Scan
Grid Extents [mm]	60.0 x 200.0	24.0 x 22.0 x 22.0
Grid Steps [mm]	10.0 x 10.0	4.0 x 4.0 x 1.4
Sensor Surface [mm]	3.0	1.4

Measurement Results

	Area Scan	Zoom Scan
Date	2025-03-21,	2025-03-21
psSAR1g [W/kg]	0.010	0.011
psSAR10g [W/kg]	0.004	0.004
Power Drift [dB]	N/A	-1.89
Power Scaling	Disabled	Disabled
TSL Correction	No correction	No correction
M2/M1 [%]		69.3
Dist 3dB Peak [mm]		4.0





03 2.4GHz_OFDM_Ch3_10M_Edge 3_0mm

Device under Test Properties

Model, Manufacturer	Dimensions [mm]
Device,	290.0 x 172.0 x 64.0

Exposure Conditions

Phantom	Position, Test	Band	Group,	Frequency [MHz],	Conversion	TSL Conductivity	TSL
Section, TSL	Distance [mm]		UID	Channel Number	Factor	[S/m]	Permittivity
Flat,	EDGE LEFT,	WLAN	WLAN,	2462.000,	7.41	1.89	40.3
HSL	0.00	2.4GHz	10415-AAA	3			

Hardware Setup

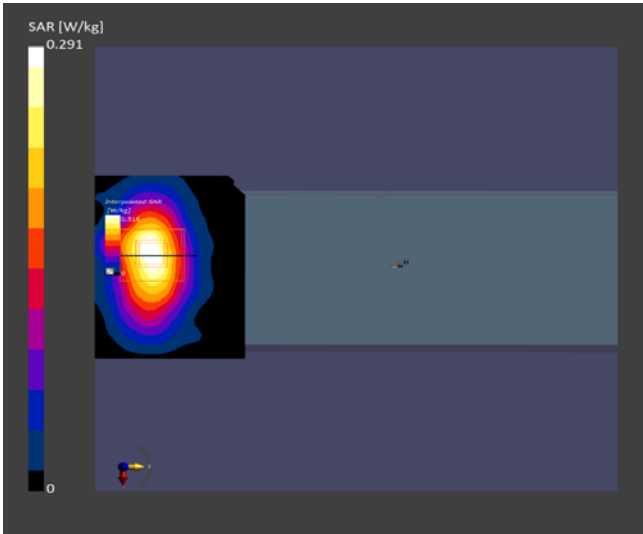
Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
ELI V5.0 (20deg probe tilt) -1211	HSL2450 Charge:	EX3DV4 - SN3927, 2024-07-31	DAE4 Sn1379, 2024-08-07

Scan Setup

	Area Scan	Zoom Scan
Grid Extents [mm]	100.0 x 320.0	30.0 x 30.0 x 30.0
Grid Steps [mm]	10.0 x 10.0	5.0 x 5.0 x 1.5
Sensor Surface [mm]	3.0	1.4

Measurement Results

	Area Scan	Zoom Scan
Date	2025-04-07	2025-04-07
psSAR1g [W/kg]	0.243	0.250
psSAR10g [W/kg]	0.120	0.116
Power Drift [dB]	-0.13	0.00
Power Scaling	Disabled	Disabled
TSL Correction	No correction	No correction
M2/M1 [%]		80.8
Dist 3dB Peak [mm]		9.0





04 5GHz_OFDM_Ch3_10M_Edge 3_0mm

Device under Test Properties

Model, Manufacturer	Dimensions [mm]
Device,	290.0 x 172.0 x 64.0

Exposure Conditions

Phantom	Position, Test	Band	Group,	Frequency [MHz],	Conversion	TSL Conductivity	TSL
Section, TSL	Distance [mm]		UID	Channel Number	Factor	[S/m]	Permittivity
Flat,	EDGE LEFT,	WLAN	WLAN,	5785.000,	5.33	5.34	36.1
HSL	0.00	5GHz	10417-AAD	4			

Hardware Setup

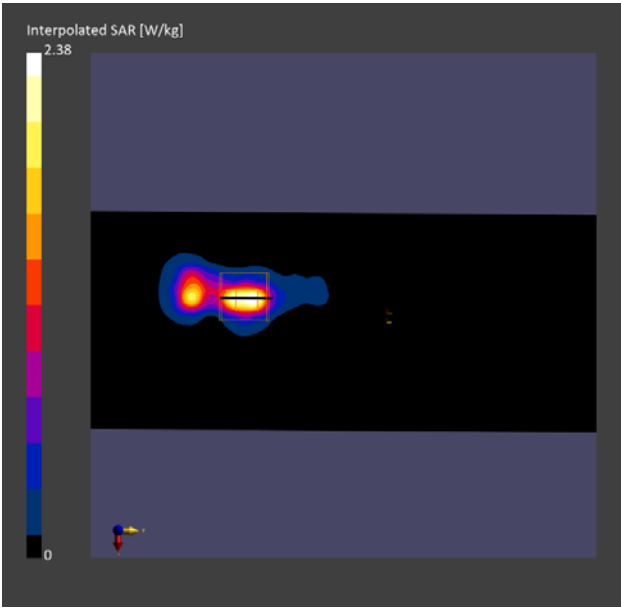
Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
ELI V5.0 (20deg probe tilt)-1211	HSL3-6GHz Charge	EX3DV4 - SN3927, 2024-07-31	DAE4 Sn1379, 2024-08-07

Scan Setup

	Area Scan	Zoom Scan
Grid Extents [mm]	100.0 x 320.0	24.0 x 22.0 x 22.0
Grid Steps [mm]	10.0 x 10.0	4.0 x 4.0 x 1.4
Sensor Surface [mm]	3.0	1.4

Measurement Results

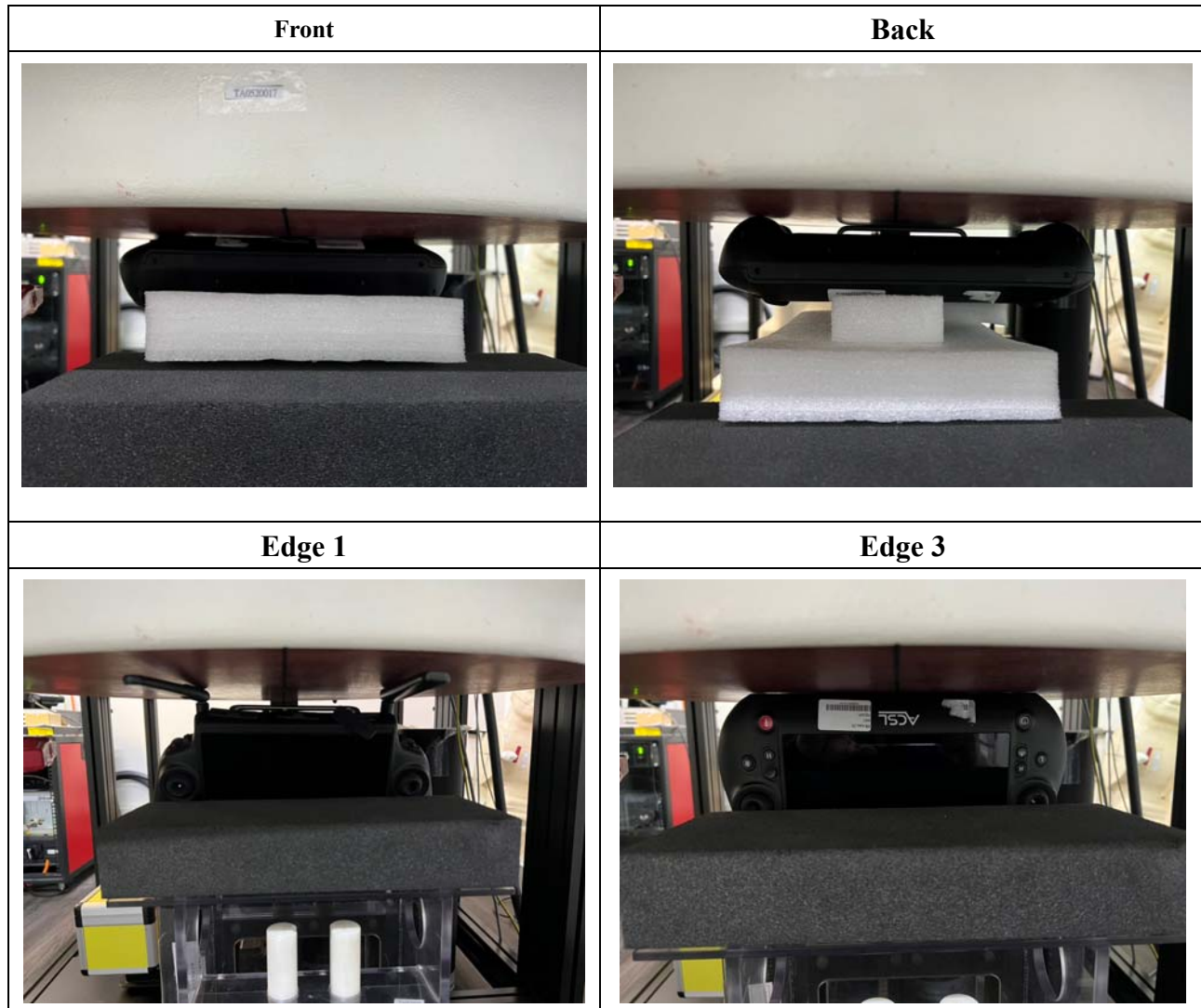
	Area Scan	Zoom Scan
Date	2025-04-09	2025-04-09
psSAR1g [W/kg]	0.450	0.477
psSAR10g [W/kg]	0.128	0.126
Power Drift [dB]	-0.42	0.01
Power Scaling	Disabled	Disabled
TSL Correction	No correction	No correction
M2/M1 [%]		57.3
Dist 3dB Peak [mm]		5.6





Photographs of EUT Set up

<0mm>





Edge 4	
	

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