Test Report

Verified code: 771656

Report No.: E202501107526-9EN

Customer:	Huizhou Desay SV Automotive Co., Ltd.
Address:	No.103,Hechang 5th Road West, Zhongkai National Hi-tech Industrial Development Zone, Huizhou, Guangdong, P.R. China.
Sample Name:	Remote Controller
Sample Model:	CL595
Receive Sample Date:	Jan.23,2025
Test Date:	Feb.20,2025 ~ Feb.25,2025
Reference Document:	47 CFR FCC Part 2.1093
Test Result:	Pass

Prepared by: Huang Lifang — Huang Lifang

Reviewed by: Wu Haoting — Wu Haoting

Approved by: Xiao Liang — Xiao Liang

GRG METROLOGY & TEST GROUP CO.,LTD. GRGTEST APPROVED(07)

GRG METROLOGY & TEST GROUP CO., LTD.

Issued Date: 2025-03-11

GRG METROLOGY & TEST GROUP CO., LTD.
Address: No.8, Chuangyun Road, Panyu District, Guangzhou, Guangdong, China
Tel：（+86）400-602-0999 FAX：（+86）020-38698685 Web：http://www.grgtest.com

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REPORT ISSUED HISTORY

Report Version	Report No.	Description	Compile Date
1.0	E202501107526-9EN	Original Issue	2025-02-27

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1. GENERAL INFORMATION

Applicant	Huizhou Desay SV Automotive Co., Ltd.
Address	No.103,Hechang 5th Road West, Zhongkai National Hi-tech Industrial Development Zone, Huizhou, Guangdong, P.R. China.
Manufacturer	Huizhou Desay SV Automotive Co., Ltd.
Address	No.103,Hechang 5th Road West, Zhongkai National Hi-tech Industrial Development Zone, Huizhou, Guangdong, P.R. China.
Factory	Huizhou Desay SV Automotive Co., Ltd.
Address	No.103,Hechang 5th Road West, Zhongkai National Hi-tech Industrial Development Zone, Huizhou, Guangdong, P.R. China.
Standard(s)	**IEC/IEEE 62209-1528:2020** Measurement procedure for the assessment of specific absorption rate of human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices - Part 1528: Human models, instrumentation, and procedures (Frequency range of 4 MHz to 10 GHz) **47 CFR FCC Part 2.1093** Radio frequency radiation exposure evaluation: portable devices **ANSI Std C95.1:2019** Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz - 300 GHz. **KDB 447498 D01 v06** General RF Exposure Guidance **KDB 865664 D01 v01r04** SAR measurement 100 MHz to 6 GHz **KDB 865664 D02 v01r02** RF Exposure Reporting **KDB 616217 D04 v01r02** SAR for laptop and tablets **KDB 248227 D01 v02r02** 802 11 Wi-Fi SAR

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2. GENERAL INFORMATION OF EUT

2.1 STATEMENT OF COMPLIANCE

<table>
<tr><th rowspan="7">Body-worn
(Separation 0mm)</th><th>Frequency Band</th><th>Model</th><th>Test Position</th><th>Max SAR(W/kg)</th><th>SAR Test Limit (W/kg)</th></tr>
<tr><td>Bluetooth</td><td>GFSK</td><td>Left Side</td><td>0.020</td><td>1.6</td></tr>
<tr><td>Wi-Fi 2.4GHz</td><td>802.11b</td><td>Left Side</td><td>0.340</td><td>1.6</td></tr>
<tr><td>Wi-Fi 5GHz (U-NII-3)</td><td>802.11n</td><td>Back Side</td><td>0.272</td><td>1.6</td></tr>
<tr><td colspan="3">Highest Simultaneous Transmission</td><td>0.360</td><td>1.6</td></tr>
<tr><td colspan="2">Test Result</td><td colspan="3">PASS</td></tr>
</table>

Note：
This device is in compliance with Specific Absorption Rate (SAR) for general population/uncontrolled exposure limits (1.6 W/kg for localized Head, Neck and Trunk 1g SAR, 4.0 W/Kg for localized Limbs 10g SAR) specified in FCC 47 CFR part 2 (2.1093) and ANSI/IEEE C95.1:2019, and had been tested in accordance with the measurement methods and procedures specified in IEC/IEEE 62209-1528:2020.

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2.2 GENERAL DESCRIPTION

<table>
<tr><td>Equipment</td><td colspan="2">Remote Controller</td></tr>
<tr><td>Brand Name</td><td colspan="2">DESAY SV</td></tr>
<tr><td>Model Name</td><td colspan="2">CL595</td></tr>
<tr><td>Sample No.</td><td colspan="2">E202501107526-0002</td></tr>
<tr><td>FCC ID</td><td colspan="2">2AEQT-CL595</td></tr>
<tr><td>Device Type</td><td colspan="2">Portable device</td></tr>
<tr><td>HW Version</td><td colspan="2">HW003</td></tr>
<tr><td>SW Version</td><td colspan="2">i3E218</td></tr>
<tr><td rowspan="3">Operation Frequency</td><td>Wi-Fi 2.4GHz</td><td>2412-2462 MHz</td></tr>
<tr><td>Wi-Fi 5GHz (U-NII-3)</td><td>5745-5825 MHz</td></tr>
<tr><td>Bluetooth</td><td>2402-2480 MHz</td></tr>
<tr><td>Device class</td><td colspan="2">Class B</td></tr>
<tr><td rowspan="3">Type of Modulation:</td><td>Wi-Fi 2.4GHz</td><td>802.11b: DSSS(CCK, DQPSK, DBPSK)
802.11g/ n: OFDM(BPSK, QPSK, 16QAM, 64QAM)</td></tr>
<tr><td>Wi-Fi 5GHz</td><td>802.11a/ n: OFDM(BPSK, QPSK, 16QAM, 64QAM)</td></tr>
<tr><td>Bluetooth</td><td>BR/EDR:GFSK, π/4-DQPSK, 8DPSK</td></tr>
<tr><td>Antenna Specification:</td><td colspan="2">Metal antenna</td></tr>
<tr><td rowspan="3">Antenna Gain</td><td>Wi-Fi 2.4GHz</td><td>-4.4dBi gain (Max)</td></tr>
<tr><td>Wi-Fi 5GHz</td><td>-3.3dBi gain (Max)</td></tr>
<tr><td>Bluetooth</td><td>-4.4dBi gain (Max)</td></tr>
<tr><td>Test Channels (low-mid-high):</td><td colspan="2">1-6-11 (Wi-Fi 2.4GHz)
149-157-165 (U-NII-3)
0-39-78(Bluetooth)</td></tr>
<tr><td>Operating Mode:</td><td colspan="2">Maximum continuous output</td></tr>
<tr><td colspan="3">Other Information</td></tr>
<tr><td>Power Supply:</td><td colspan="2">DC 3.7V power supplied by Rechargeable Li-ion Battery; DC 5V power supplied by Charging base.</td></tr>
<tr><td>Battery Specification:</td><td colspan="2">Model: 544744
Voltage:3.7V
Capacity: 1630mAh,6.031Wh</td></tr>
<tr><td>Sample submitting way:</td><td colspan="2">■Provided by customer □Sampling</td></tr>
<tr><td>Note:</td><td colspan="2">/</td></tr>
</table>

2.3 LABORATORY ENVIRONMENT

Temperature	Min. = 18 ℃, Max. = 25 ℃
Relative humidity	Min. = 30%, Max. = 70%
Ground system resistance	< 0.5Ω
Ambient noise is checked and found very low and in compliance with requirement of standards. Reflection of surrounding objects is minimized and in compliance with requirement of standards.	

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3. LABORATORY AND ACCREDITATIONS

3.1 LABORATORY

The tests and measurements refer to this report were performed by Shenzhen EMC Laboratory of GRG METROLOGY & TEST GROUP CO., LTD.	
Add.:	No.1301 Guanguang Road Xinlan Community, Guanlan Street, Longhua District Shenzhen, 518110, People's Republic of China.
P.C.:	518110
Tel :	0755-61180008
Fax:	0755-61180008

3.2 MEASUREMENT UNCERTAINTY

Per KDB865664 D01 SAR Measurement 100 MHz to 6 GHz, when the highest measured 1-g SAR within a frequency band is < 1.5 W/kg, the extensive SAR measurement uncertainty analysis described in IEC/IEEE 62209-1528 is not required in SAR reports submitted for equipment approval. The equivalent ratio (1.5/1.6) is applied to extremity and occupational exposure conditions.

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4. SAR MEASUREMENTS SYSTEM

4.1 DEFINITION OF SPECIFIC ABSORPTION RATE (SAR)

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

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

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

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

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

Where: σ is the conductivity of the tissue;

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

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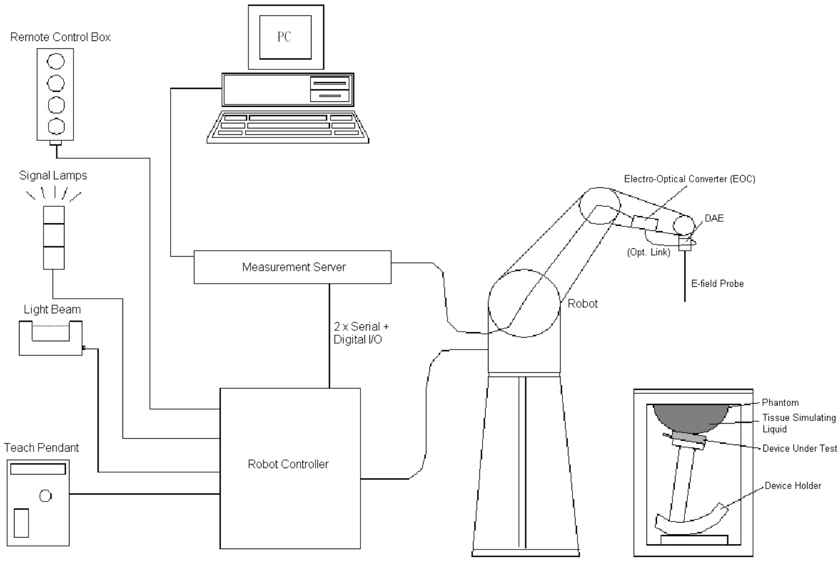
4.2 SAR SYSTEM



DASY System Configurations

The DASY system for performance compliance tests is illustrated above graphically. This system consists of the following items:

- A standard high precision 6-axis robot with controller, a teach pendant and software
- A data acquisition electronic (DAE) attached to the robot arm extension
- A dosimetric probe equipped with an optical surface detector system
- The electro-optical converter (EOC) performs the conversion between optical and electrical signals
- A measurement server performs the time critical tasks such as signal filtering, control of the robot operation and fast movement interrupts.
- A probe alignment unit which improves the accuracy of the probe positioning
- A computer operating Windows 10
- DASY software
- Remove control with teach pendant and additional circuitry for robot safety such as warming lamps, etc.
- The SAM twin phantom
- A device holder
- Tissue simulating liquid
- Dipole for evaluating the proper functioning of the system

Components are described in details in the following sub-sections.

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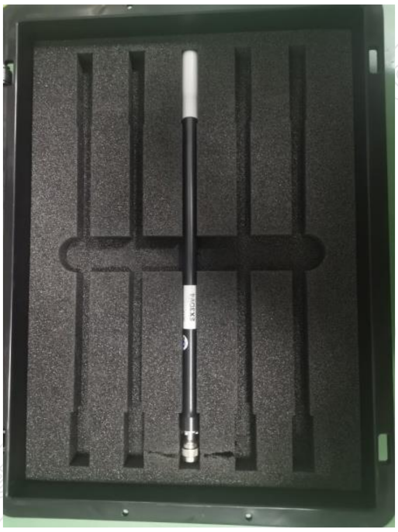
4.3 E-FIELD PROBE

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. This probe has a built in optical surface detection system to prevent from collision with phantom.

➢ **E-Field Probe Specification**
<EX3DV4 Probe>

<table>
<tr><td>Construction</td><td>Symmetric design with triangular core Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., DGBE)</td><td rowspan="6">
Photo of EX3DV4</td></tr>
<tr><td>Calibration</td><td>ISO/IEC 17025 calibration service available</td></tr>
<tr><td>Frequency</td><td>4 MHz - 10 GHz
Linearity: ±0.2 dB (30 MHz - 10 GHz)</td></tr>
<tr><td>Directivity</td><td>±0.1 dB in TSL (rotation around probe axis)
±0.3 dB in TSL (rotation normal to probe axis)</td></tr>
<tr><td>Dynamic Range</td><td>10 μW/g – >100 mW/g
Linearity: ±0.2 dB (noise: typically <1 μW/g)</td></tr>
<tr><td>Dimensions</td><td>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</td></tr>
</table>

➢ **E-Field Probe Calibration**

Each probe needs to be calibrated according to a dosimetric assessment procedure with accuracy better than ± 10%. The spherical isotropy shall be evaluated and within ± 0.25dB. The sensitivity parameters (NormX, NormY, and NormZ), the diode compression parameter (DCP) and the conversion factor (ConvF) of the probe are tested. The calibration data can be referred to appendix C of this report.

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4.4 DATA ACQUISITION ELECTRONICS (DAE)

The data acquisition electronics (DAE) consists 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 and 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 input impedance of the DAE is 200MOhm; the inputs are symmetrical and floating. Common mode rejection is above 80dB.

Photo of DAE

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4.5 ROBOT

The SPEAG DASY system uses the high precision robots (DASY8: TX2-90XL) type from Stäubli SA (France). For the 6-axis controller system, the robot controller version (DASY8: C2.038) from Stäubli is used. The Stäubli robot series have many features that are important for our application:

- High precision (repeatability ±0.04 mm)
- High reliability (industrial design)
- Jerk-free straight movements
- Low ELF interference (the closed metallic construction shields against motor control fields)

Photo of DASY8

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4.6 MEASUREMENT SERVER

The measurement server is based on a PC/104 CPU board with CPU (DASY8: 400 MHz, Intel Celeron), chip disk (DASY8: 128 MB), RAM (DASY8: 128 MB). The necessary circuits for communication with the DAE electronic box, as well as the 16 bit AD converter system for optical detection and digital I/O interface are contained on the DASY I/O board, which is directly connected to the PC/104 bus of the CPU board.

The measurement server performs all the real-time data evaluation for field measurements and surface detection, controls robot movements and handles safety operations.

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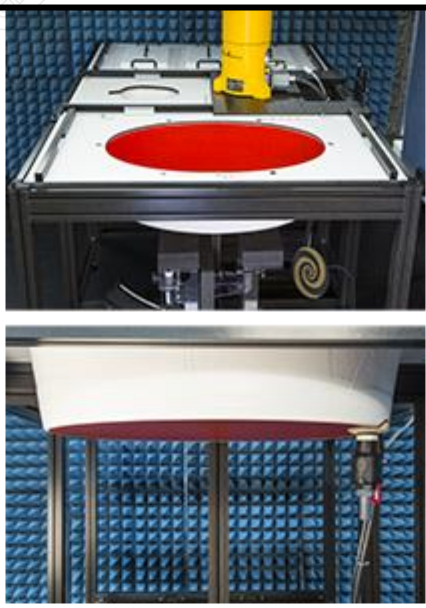
4.7 PHANTOM

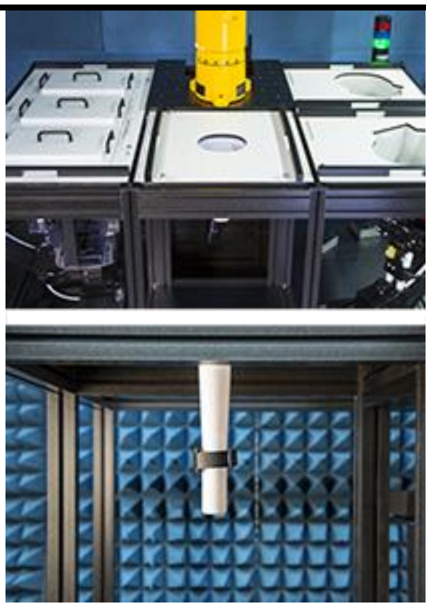
<SAM Twin Phantom>

<table>
<tr><td>Shell Thickness</td><td>2 ±0.2 mm;
Center ear point: 6 ±0.2 mm</td><td rowspan="4">
Photo of SAM Phantom</td></tr>
<tr><td>Filling Volume</td><td>Approx. 25 liters</td></tr>
<tr><td>Dimensions</td><td>Length: 1000 mm; Width: 500 mm;
Height: adjustable feet</td></tr>
<tr><td>Measurement Areas</td><td>Left Hand, Right Hand, Flat Phantom</td></tr>
</table>

ELI Phantom>

<table>
<tr><td>Shell Thickness</td><td>2 ±0.2 mm;</td><td rowspan="4">
Photo of ELI Phantom</td></tr>
<tr><td>Filling Volume</td><td>Approx. 30 liters</td></tr>
<tr><td>Dimensions</td><td>Major axis: 600 mm
Minor axis: 400 mm</td></tr>
<tr><td>Measurement Areas</td><td>body-worn</td></tr>
</table>

Wrist Phantom>

Shell Thickness	2 ±0.2 mm;	 **Photo of Wrist Phantom**
Filling Volume	Approx. 1 liters	
Dimensions	Length: 500 mm; Width: 500 mm; Height: adjustable feet	
Measurement Areas	wrist-worn	

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.

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4.8 DEVICE HOLDER

The SAR in the phantom is approximately inversely proportional to the square of the distance between the source and the liquid surface. For a source at 5 mm distance, a positioning uncertainty of ±0.5mm would produce a SAR uncertainty of ± 20%. Accurate device positioning is therefore crucial for accurate and repeatable measurements. The positions in which the devices must be measured are defined by the standards.

The DASY 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 (ERP).Thus the device needs no repositioning when changing the angles.

The DASY device holder is constructed of low-loss POM material having the following dielectric parameters: relative permittivity $\varepsilon = 3$ 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.

Device Holder

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4.9 DATA STORAGE AND EVALUATION

- **Data Storage**

The DASY software stores the assessed data from the data acquisition electronics as raw data (in microvolt readings from the probe sensors), together with all the necessary software parameters for the data evaluation (probe calibration data, liquid parameters and device frequency and modulation data) in measurement files. The post-processing software evaluates the desired unit and format for output each time the data is visualized or exported. This allows verification of the complete software setup even after the measurement and allows correction of erroneous parameter settings. For example, if a measurement has been performed with an incorrect crest factor parameter in the device setup, the parameter can be corrected afterwards and the data can be reevaluated.

The measured data can be visualized or exported in different units or formats, depending on the selected probe type (e.g., [V/m], [A/m], [mW/g]). Some of these units are not available in certain situations or give meaningless results, e.g., a SAR-output in a non-lose media, will always be zero. Raw data can also be exported to perform the evaluation with other software packages.

- **Data Evaluation**

The DASY post-processing software (SEMCAD) automatically executes the following procedures to calculate the field units from the microvolt readings at the probe connector. The parameters used in the evaluation are stored in the configuration modules of the software：

Probe parameters：	- Sensitivity	$Norm_i$, a_{i0}, a_{i1}, a_{i2}
	- Conversion factor	$ConvF_i$
	- Diode compression point	dcp_i
Device parameters：	- Frequency	f
	- Crest factor	cf
Media parameters：	- Conductivity	σ
	- Density	ρ

These parameters must be set correctly in the software. They can be found in the component documents or they can be imported into the software from the configuration files issued for the DASY components. In the direct measuring mode of the multi-meter option, the parameters of the actual system setup are used. In the scan visualization and export modes, the parameters stored in the corresponding document files are used.

The first step of the evaluation is a linearization of the filtered input signal to account for the compression characteristics of the detector diode. The compensation depends on the input signal, the diode type and the DC-transmission factor from the diode to the evaluation electronics. If the exciting field is pulsed, the crest factor of the signal must be known to correctly compensate for peak power.

The formula for each channel can be given as：

$$\mathbf{V_i = U_i + U_i^2 \cdot \frac{cf}{dcp_i}}$$

with V_i= compensated signal of channel i, (i = x, y, z)
U_i = input signal of channel i, (i = x, y, z)
cf = crest factor of exciting field (DASY parameter)
dcp_i = diode compression point (DASY parameter)

From the compensated input signals, the primary field data for each channel can be evaluated：

E-field Probes： $\mathbf{E_i = \sqrt{\frac{V_i}{Norm_i \cdot ConvF}}}$

H-field Probes： $\mathbf{H_i = \sqrt{V_i} \cdot \frac{a_{i0}+a_{i1}f+a_{i2}f^2}{f}}$

with V_i = compensated signal of channel i,(i = x, y, z)
$Norm_i$= sensor sensitivity of channel i, (i = x, y, z), μV/(V/m)^2 for E-field Probes

ConvF= sensitivity enhancement in solution
a_{ij}= sensor sensitivity factors for H-field probes
f = carrier frequency [GHz]
E_i= electric field strength of channel i in V/m
H_i= magnetic field strength of channel i in A/m

The RSS value of the field components gives the total field strength (Hermitian magnitude):

$$E_{tot} = \sqrt{E_x^2 + E_y^2 + E_z^2}$$

The primary field data are used to calculate the derived field units.

$$SAR = E_{tot}^2 \cdot \frac{\sigma}{\rho \cdot 1000}$$

with SAR = local specific absorption rate in mW/g
E_{tot}= total field strength in V/m
σ = conductivity in [mho/m] or [Siemens/m]
ρ = equivalent tissue density in g/cm^3
Note that the density is set to 1, to account for actual head tissue density rather than the density of the tissue simulating liquid.

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5. TEST EQUIPMENT LIST

Kind of Equipment	Manufacturer	Type No.	Serial No.	Last Calibration	Calibrated Until
System Validation Dipole	SPEAG	D2450V2	933	2024-03-14	2027-03-13
System Validation Dipole	SPEAG	D5GV2	1182	2024-03-19	2027-03-18
EX3DV4 SAR Probe	SPEAG	EX3DV4	7716	2024-05-13	2025-05-12
Data Acquisition Electronics	SPEAG	DAE4	1718	2024-05-11	2025-05-10
ENA Series Network Analyzer	Keysight	85032F	MY53202809	2024-07-03	2025-07-02
DAK	SPEAG	DAK-3.5	1056	N/A	N/A
SAM -Twin V8.0	SPEAG	QD000P41AA	2092	N/A	N/A
ELI V8.0	SPEAG	QDOVA004AA	2166	N/A	N/A
Wrist Phantom V10	SPEAG	QDARM011CC	1045	N/A	N/A
Power Meter	Anritsu	ML2495A	1204003	2024-12-08	2025-12-07
Power Sensor	Anritsu	MA2411B	1126150	2024-12-08	2025-12-07
Spectrum Analyzer	Keysight	N9010A	MY55370330	2024-08-24	2025-08-23
Signal generator	R&S	SMA100A	100434	2025-06-23	2025-06-22

Remark:

1. “N/A” denotes no model name, serial No. or calibration specified.
2. *Thesetestequipmentshavebeenrecalibratedbetweenthetestperiods.Allthesetestequipments were within the valid period when the tests were performed.
3. Per KDB865664 D01 requirements for dipole calibration, the test laboratory has adopted three-year extended calibration interval. Each measured dipole is expected to evaluate with the following criteria at least on annual interval in Appendix C.
   a) There is no physical damage on the dipole;
   b) System check with specific dipole is within 10% of calibrated value;
   c) The most recent return-loss result , measured at least annually, deviates by no more than 20% from the previous measurement;
   d) The most recent measurement of the real or imaginary parts of the impedance, measured at least annually is within 5Ω from the previous measurement.

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6. SYSTEM VERIFICATION PROCEDURE

6.1 TISSUE VERIFICATION

For the measurement of the field distribution inside the SAM phantom with DASY, the phantom must be filled with around 25 liters of homogeneous body tissue simulating liquid. For head SAR testing, the liquid height from the ear reference point (ERP) of the phantom to the liquid top surface is larger than 15 cm, which is shown in Fig. 6.1. For body SAR testing, the liquid height from the center of the flat phantom to the liquid top surface is larger than 15 cm, which is shown as followed:

Photo of Liquid Height

Frequency (MHz)	Water (%)	Sugar (%)	Cellulose (%)	Salt (%)	Preventol (%)	DGBE (%)	Conductivity (σ)	Permittivity (εr)
For Head								
2450	55.0	0	0	0	0	45.0	1.80	39.2

Frequency (MHz)	Water (%)	Triton X-100 (%)	Diethylenglycol monohexylether (%)	Preventol (%)	DGBE (%)	Conductivity (σ)	Permittivity (εr)
For Head							
5200	65.52	17.24	17.24	0	0	4.66	36.0
5600	65.52	17.24	17.24	0	0	5.07	35.5
5800	65.52	17.24	17.24	0	0	5.27	35.3

The following table shows the measuring results for simulating liquid.

Tissue Type	Target Value (±5%)		Measured Frequency(MHz)	Measured Value		Tissue temperature (℃)	Measured Date
	εr	σ(S/M)		εr	σ(S/M)		
2450 HSL	39.20 (37.24~41.16)	1.80 (1.71~1.89)	2450	38.40	1.80	21.5	2025-02-21
2450 HSL	39.20 (37.24~41.16)	1.80 (1.71~1.89)	2450	38.40	1.80	20.6	2025-02-25
5750HSL	35.40 (33.63~37.17)	5.22 (4.96~5.48)	5750	33.80	4.98	21.9	2025-02-20

Note:

1) The dielectric parameters of the tissue-equivalent liquid should be measured under similar ambient conditions and within 2 ℃ of the conditions expected during the SAR evaluation to satisfy protocol requirements.
2) KDB 865664 was ensured to be applied for probe calibration frequencies greater than or equal to 50MHz of the EUT frequencies.
3) The above measured tissue parameters were used in the DASY software to perform interpolation via the DASY software to determine actual dielectric parameters at the test frequencies. The SAR test plots may slightly differ from the table above since the DASY rounds to three significant digits.

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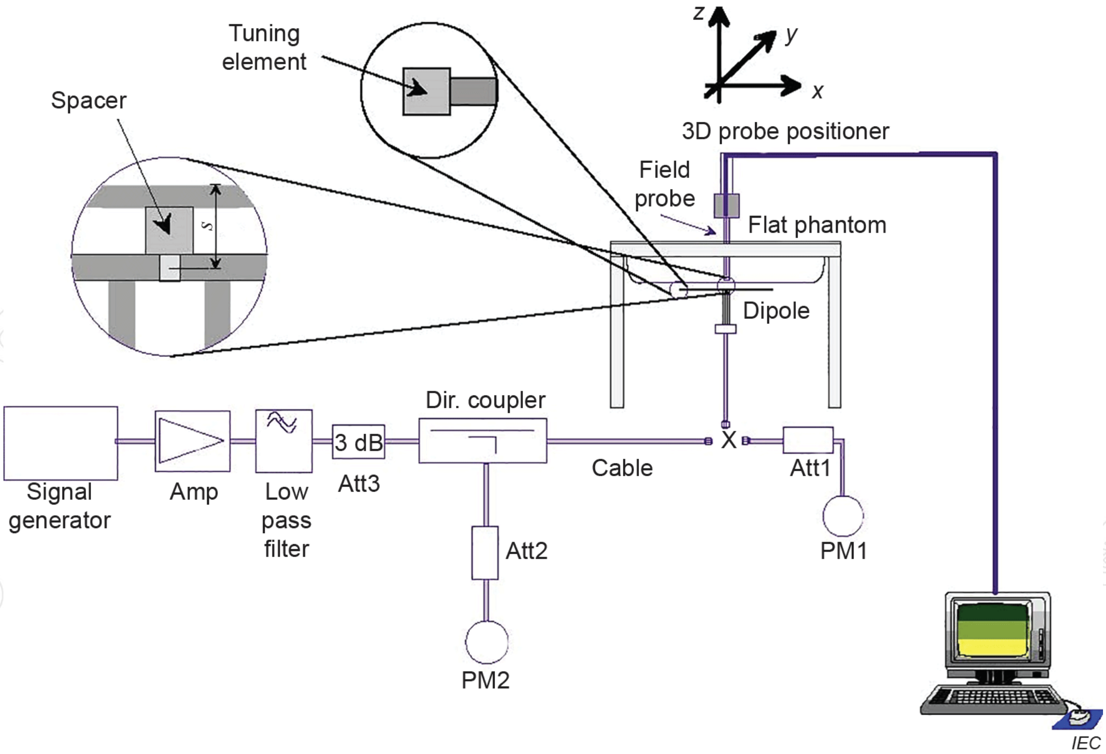
6.2 SYSTEM CHECK PROCEDURE

Each DASY system is equipped with one or more system validation kits. These units, together with the predefined measurement procedures within the DASY software, enable the user to conduct the system performance check and system validation. System validation kit includes a dipole, tripod holder to fix it underneath the flat phantom and a corresponding distance holder.

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

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



System Setup for System Evaluation

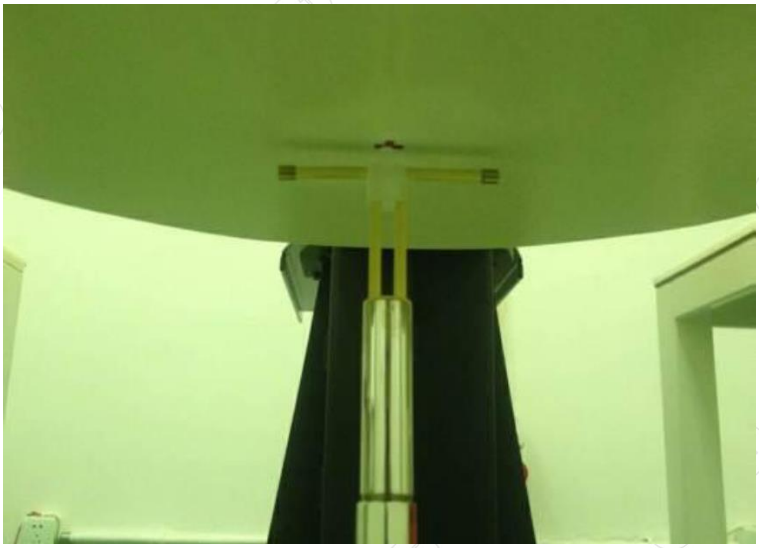


Photo of Dipole Setup

- **Validation Results**

  Comparing to the original SAR value provided by SPEAG, the verification data should be within its specification of 10%. The table below shows the target SAR and measured SAR after normalized to 1W input power. It indicates that the system performance check can meet the variation criterion and the plots can be referred to Appendix A of this report.

Dipole	Tissue Type	Target Value(W/kg) (±10%) (Normalized to 1W)		Measured Value (W/kg) (250mW)		Measured Value (W/kg)(1W)		Tissue temperature (℃)	Measured Date
		1g	1g	1g	10g	1g	10g		
D2450 V2	2450 HSL	52.80 (47.52~58.08)	24.50 (22.05~26.95)	12.70	5.94	50.80	23.76	21.5	2025-02-21
D2450 V2	2450 HSL	52.80 (47.52~58.08)	24.50 (22.05~26.95)	13.00	6.15	52.00	24.60	20.6	2025-02-25

Dipole	Tissue Type	Target Value(W/kg) (±10%) (Normalized to 1W)		Measured Value (W/kg) (100mW)		Measured Value (W/kg)(1W)		Tissue temperature (℃)	Measured Date
		1g	10g	1g	10g	1g	10g		
D5GHz V2	5750 HSL	77.30 (69.57~85.03)	21.50 (19.35~23.65)	7.72	2.24	77.20	22.40	21.9	2025-02-20

Target and Measurement SAR after Normalized

7. SAR MEASUREMENT VARIABILITY

7.1 SAR MEASUREMENT VARIABILITY

Per KDB865664 D01 SAR measurement 100 MHz to 6 GHz, 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. The 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 imit).
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.

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 detailed repeated measurement results are shown in Chapter 12.

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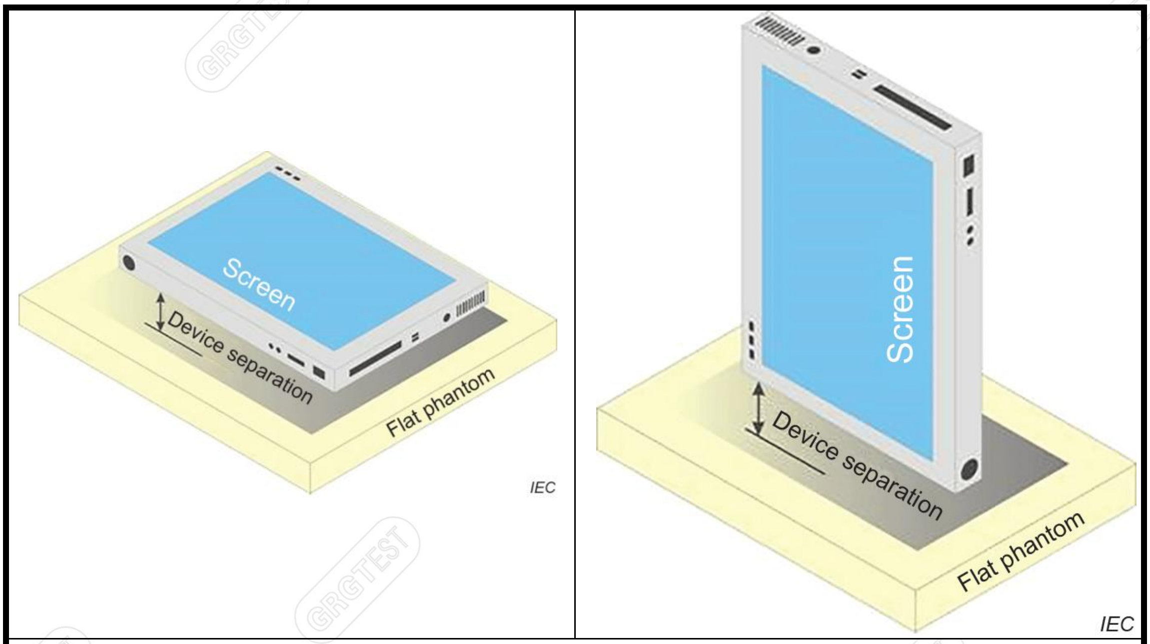
8. EUT TESTING POSITION

8.1 BODY WORN POSITION

A typical example of a device used next to the body is a wireless enabled laptop or a tablet device containing a peripheral plug-in radio transmitter that can be supported on the user's body. Other devices that fall into this category include tablets of equivalent sizes or larger than a netbook computer (> 20 cm diagonal display), credit card transaction authorization terminals, and point-of-sale and/or inventory terminals. The example shows a tablet form factor portable computer for which SAR should be separately assessed with each surface and edge containing an antenna positioned against the flat phantom. Some tablets might limit display orientations so that the edges with antennas are not used next to the user; therefore, such edges might not need testing.

Accessories for body-worn operation configurations are divided into two categories: those that do not contain metallic components and those that do contain metallic components and those that do contain metallic components. When multiple accessories that do not contain metallic components are supplied with the device, the device is tested with only the accessory that dictates the closest spacing to the body. Then multiple accessories that contain metallic components are test with the device with each accessory. If multiple accessories share an identical metallic component (i.e. the same metallic belt-chip used with different holsters with no other metallic components) only the accessory that dictates the closest spacing to the body is tested.



Body Worn Position

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9. MEASUREMENT PROCEDURES

The measurement procedures are as follows:

(a) Use base station simulator (if applicable) or engineering software to transmit RF power continuously (continuous Tx) in the middle channel.
(b) Keep EUT to radiate maximum output power or 100% duty factor (if applicable)
(c) Measure output power through RF cable and power meter.
(d) Place the EUT in the positions as setup photos demonstrates.
(e) Set scan area, grid size and other setting on the DASY software.
(f) Measure SAR transmitting at the middle channel for all applicable exposure positions.
(g) Identify the exposure position and device configuration resulting the highest SAR
(h) Measure SAR at the lowest and highest channels at the worst exposure position and device configuration if applicable.

According to the test standard, the recommended procedure for assessing the peak spatial-average SAR value consists of the following steps:

(a) Power reference measurement
(b) Area scan
(c) Zoom scan
(d) Power drift measurement

9.1 SPATIAL PEAK SAR EVALUATION

The procedure for spatial peak SAR evaluation has been implemented according to the test standard. It can be conducted for 1g and 10g, as well as for user-specific masses. The DASY software includes all numerical procedures necessary to evaluate the spatial peak SAR value.

The base for the evaluation is a "cube" measurement. The measured volume must include the 1g and 10g cubes with the highest averaged SAR values. For that purpose, the center of the measured volume is aligned to the interpolated peak SAR value of a previously performed area scan.

The entire evaluation of the spatial peak values is performed within the post-processing engine (SEMCAD). The system always gives the maximum values for the 1g and 10g cubes. The algorithm to find the cube with highest averaged SAR is divided into the following stages:

(a) Extraction of the measured data (grid and values) from the Zoom Scan
(b) Calculation of the SAR value at every measurement point based on all stored data (A/D values and measurement parameters)
(c) Generation of a high-resolution mesh within the measured volume
(d) Interpolation of all measured values form the measurement grid to the high-resolution grid
(e) Extrapolation of the entire 3-D field distribution to the phantom surface over the distance from sensor to surface
(f) Calculation of the averaged SAR within masses of 1g and 10g

9.2 POWER REFERENCE MEASUREMENT

The Power Reference Measurement and Power Drift Measurements are for monitoring the power drift of the device under test in the batch process. The minimum distance of probe sensors to surface determines the closest measurement point to phantom surface. This distance cannot be smaller than the distance of sensor calibration points to probe tip as defined in the probe properties.

9.3 AREA SCAN PROCEDURES

The area scan is used as a fast scan in two dimensions to find the area of high field values, before doing a fine measurement around the hot spot. The sophisticated interpolation routines implemented in DASY software can find the maximum found in the scanned area, within a range of the global maximum. The range (in dB0 is specified in the standards for compliance testing. For example, a 2 dB range is required in IEC/IEEE 62209-1528 standards, whereby 3 dB is a requirement when compliance is assessed in accordance with the ARIB standard (Japan), if only one zoom scan follows the area scan, then only the absolute maximum will be taken as reference. For cases where multiple maximums are detected, the number of zoom scans has to be increased accordingly.

Area scan parameters extracted from FCC KDB 865664 D01 SAR measurement 100 MHz to 6 GHz.

	≤ 3 GHz	> 3 GHz
Maximum distance from closest measurement point (geometric center of probe sensors) to phantom surface	5 ± 1 mm	½·δ·ln(2) ± 0.5 mm
Maximum probe angle from probe axis to phantom surface normal at the measurement location	30° ± 1°	20° ± 1°
Maximum area scan spatial resolution: Δx_{Area}, Δy_{Area}	≤ 2 GHz: ≤ 15 mm 2 – 3 GHz: ≤ 12 mm	3 – 4 GHz: ≤ 12 mm 4 – 6 GHz: ≤ 10 mm
	When the x or y dimension of the test device, in the measurement plane orientation, is smaller than the above, the measurement resolution must be ≤ the corresponding x or y dimension of the test device with at least one measurement point on the test device.	

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9.4 ZOOM SCAN PROCEDURES

Zoom scans are used assess the peak spatial SAR values within a cubic averaging volume containing 1 gram and 10gram of simulated tissue. The zoom scan measures points (refer to table below) within a cube shoes base faces are centered on the maxima found in a preceding area scan job within the same procedure. When the measurement is done, the zoom scan evaluates the averaged SAR for 1 gram and 10 gram and displays these values next to the job's label.

Zoom scan parameters extracted from FCC KDB 865664 D01 SAR measurement 100 MHz to 6 GHz.

<table>
<tr><th colspan="3"></th><th>≤ 3 GHz</th><th>$>$ 3 GHz</th></tr>
<tr><td colspan="3">Maximum zoom scan spatial resolution: Δx_{Zoom}, Δy_{Zoom}</td><td>≤ 2 GHz: ≤ 8 mm
2 – 3 GHz: ≤ 5 mm*</td><td>3 – 4 GHz: ≤ 5 mm*
4 – 6 GHz: ≤ 4 mm*</td></tr>
<tr><td rowspan="3">Maximum zoom scan spatial resolution, normal to phantom surface</td><td colspan="2">uniform grid: $\Delta z_{Zoom}(n)$</td><td>≤ 5 mm</td><td>3 – 4 GHz: ≤ 4 mm
4 – 5 GHz: ≤ 3 mm
5 – 6 GHz: ≤ 2 mm</td></tr>
<tr><td rowspan="2">graded grid</td><td>$\Delta z_{Zoom}(1)$: between 1st two points closest to phantom surface</td><td>≤ 4 mm</td><td>3 – 4 GHz: ≤ 3 mm
4 – 5 GHz: ≤ 2.5 mm
5 – 6 GHz: ≤ 2 mm</td></tr>
<tr><td>$\Delta z_{Zoom}(n>1)$: between subsequent points</td><td colspan="2">$\leq 1.5 \cdot \Delta z_{Zoom}(n-1)$</td></tr>
<tr><td>Minimum zoom scan volume</td><td colspan="2">x, y, z</td><td>≥ 30 mm</td><td>3 – 4 GHz: ≥ 28 mm
4 – 5 GHz: ≥ 25 mm
5 – 6 GHz: ≥ 22 mm</td></tr>
<tr><td colspan="5">Note: δ is the penetration depth of a plane-wave at normal incidence to the tissue medium; see draft standard IEEE P1528-2011 for details.
* When zoom scan is required and the <u>reported</u> SAR from the area scan based 1-g SAR estimation procedures of KDB 447498 is ≤ 1.4 W/kg, ≤ 8 mm, ≤ 7 mm and ≤ 5 mm zoom scan resolution may be applied, respectively, for 2 GHz to 3 GHz, 3 GHz to 4 GHz and 4 GHz to 6 GHz.</td></tr>
</table>

9.5 VOLUME SCAN PROCEDURES

The volume scan is used for assess overlapping SAR distributions for antennas transmitting in different frequency bands. It is equivalent to an oversized zoom scan used in standalone measurements. The measurement volume will be used to enclose all the simultaneous transmitting antennas. For antennas transmitting simultaneously in different frequency bands, the volume scan is measured separately in each frequency band. In order to sum correctly to compute the 1g aggregate SAR, the EUT remain in the same test position for all measurements and all volume scan use the same spatial resolution and grid spacing. When all volume scan were completed, the software, SEMCAD post-processor can combine and subsequently superpose these measurement data to calculating the multi-band SAR.

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9.6 POWER DRIFT MONITORING

All SAR testing is under the EUT install full charged battery and transmit maximum output power. In DASY measurement software, the power reference measurement and power drift measurement procedures are used for monitoring the power drift of EUT during SAR test. Both these procedures measure the field at a specified reference position before and after the SAR testing. The software will calculate the field difference in dB. If the power drift more than ±0.2dB, the SAR will be retested.

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10. CONDUCTED POWER

< 2.4GHz Wi-Fi Conducted Average Power >

	Mode	Channel	Frequency (MHz)	Conducted Average Power (dBm)	Tune-up Limit (dBm)
2.4GHz Wi-Fi	802.11b-1Mbps	CH 1	2412	15.52	17.00
		CH 6	2437	**16.94**	
		CH 11	2462	16.88	
	802.11g-6Mbps	CH 1	2412	13.24	15.00
		CH 6	2437	14.78	
		CH 11	2462	14.84	
	802.11n-HT20 MCS0	CH 1	2412	13.27	15.00
		CH 6	2437	14.77	
		CH 11	2462	14.81	
	802.11n-HT40 MCS0	CH 3	2422	13.49	14.50
		CH 6	2437	14.04	
		CH 9	2452	14.25	

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< 5GHz Wi-Fi (U-NII-3) Conducted Average Power >

	Mode	Channel	Frequency (MHz)	Conducted Average Power (dBm)	Tune-up Limit (dBm)
5GHz Wi-Fi (U-NII-3)	802.11a-6Mbps	CH 149	5745	9.19	9.50
		CH 157	5785	8.48	
		CH 165	5825	7.55	
	802.11n-HT20 MCS0	CH 149	5745	**9.28**	9.50
		CH 157	5785	8.48	
		CH 165	5825	7.57	
	802.11n-HT40 MCS0	CH 151	5755	9.03	9.50
		CH 159	5795	8.32	

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<Bluetooth Conducted Average Power>

Mode	Channel	Frequency (MHz)	Conducted Average Power (dBm)	Tune-up Limit (dBm)
GFSK	00	2402	2.41	4.00
	39	2441	**3.51**	
	78	2480	1.57	
π/4DQPSK	00	2402	0.18	1.50
	39	2441	1.29	
	78	2480	-0.54	
8DPSK	00	2402	0.20	1.50
	39	2441	1.29	
	78	2480	-0.63	

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Note:

1. Per KDB 447498 D01Chapter 4.3.1, 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
   f(GHz) is the RF channel transmit frequency in GHz
   Power and distance are rounded to the nearest mW and mm before calculation
   The result is rounded to one decimal place for comparison

Faction	Max Tune-up Limit (dBm)	Max Tune-up Limit (mW)	Separation Distance (mm)	Frequency (GHz)	Result	exclusion thresholds
2.4G Wi-Fi	17.00	50.12	0	2.462	15.73	3
5GHz Wi-Fi (U-NII-3)	9.50	8.91	0	5.825	4.30	3
Bluetooth	4.00	2.51	0	2.480	0.79	3

2. Per KDB 447498 D01Chapter 4.3.1, when the minimum test separation distance is < 5 mm, a distance of 5 mm is applied to determine SAR test exclusion. The test exclusion threshold which is> 3, so SAR test is required.
3. Per KDB 447498 D01Chapter 4.3.2b), When an antenna qualifies for the standalone SAR test exclusion of 4.3.1 and also transmits simultaneously with other antennas, the standalone SAR value must be estimated according to the following to determine the simultaneous transmission SAR test exclusion criteria:
   [(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 and x = 18.75 for 10-g SAR.
   0.4 W/kg for 1-g SAR and 1.0 W/kg for 10-g SAR, when the test separation distance is > 50 mm.

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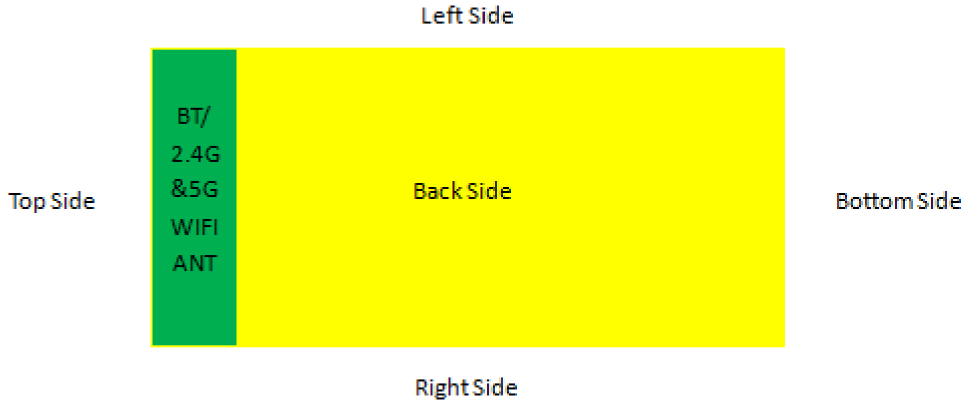
11. EUT ANTENNA LOCATION



EUT Antenna Distance:

Antenna Location	Front Side(mm)	Back Side(mm)	Top Side(mm)	Bottom Side(mm)	Left Side(mm)	Right Side(mm)
2.4G Wi-Fi	0	0	0	130	0	0
5G Wi-Fi	0	0	0	130	0	0
Bluetooth	0	0	0	130	0	0

Test Required :

Antenna Location	Front Side(mm)	Back Side(mm)	Top Side(mm)	Bottom Side(mm)	Left Side(mm)	Right Side(mm)
2.4G Wi-Fi	Yes	Yes	Yes	No	Yes	Yes
5G Wi-Fi	Yes	Yes	Yes	No	Yes	Yes
Bluetooth	Yes	Yes	Yes	No	Yes	Yes

Note:

1. That surface or edge with a transmitting antenna located and phantom > 25mm, SAR measurements at the side are not required.
2.

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12. SAR TEST RESULTS SUMMARY

General Note:

1. Per KDB 447498 D01v06, the reported SAR is the measured SAR value adjusted for maximum tune-up tolerance.
   Scaling Factor = tune-up limit power (mW) / EUT RF power (mW), where tune-up limit is the maximum rated power among all production units.
   Reported SAR(W/kg)= Measured SAR(W/kg) Scaling Factor*
2. Per KDB 447498 D01v06, for each exposure position, if the highest output channel reported SAR≤0.8W/kg, other channels SAR testing are not necessary
3. Per KDB865664 D01, for each frequency band, repeated SAR measurement is required only when the measured SAR is ≥0.8W/kg; if the deviation among the repeated measurement is ≤20%,and the measured SAR <1.45W/kg, only one repeated measurement is required.

Bluetooth

Mode	Test Position	Gap (mm)	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Scaling Factor	Power Drift (dB)	Measured SAR_{1g} (W/kg)	Reported SAR_{1g} (W/kg)	Plot No.
GFSK	Front Side	0	2441	3.51	4.00	1.119	0.12	0.013	0.015	-
	Rear Side	0	2441	3.51	4.00	1.119	0.13	0.014	0.016	-
	Top Side	0	2441	3.51	4.00	1.119	0.12	0.004	0.004	-
	Left Side	0	2441	3.51	4.00	1.119	0.15	0.018	**0.020**	1#
	Right Side	0	2441	3.51	4.00	1.119	0.18	0.001	0.001	-

2.4G Wi-Fi

Mode	Test Position	Gap (mm)	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Scaling Factor	Power Drift (dB)	Measured SAR_{1g} (W/kg)	Reported SAR_{1g} (W/kg)	Plot No.
802.11b	Front Side	0	2437	16.94	17	1.014	0.15	0.274	0.278	-
	Rear Side	0	2437	16.94	17	1.014	0.16	0.257	0.261	-
	Top Side	0	2437	16.94	17	1.014	-0.12	0.096	0.097	-
	Left Side	0	2437	16.94	17	1.014	-0.06	0.335	**0.340**	2#
	Right Side	0	2437	16.94	17	1.014	-0.19	0.003	0.003	-

5GHz Wi-Fi (U-NII-3)

Mode	Test Position	Gap (mm)	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Scaling Factor	Power Drift (dB)	Measured SAR_{1g} (W/kg)	Reported SAR_{1g} (W/kg)	Plot No.
802.11n	Front Side	0	5745	9.28	9.50	1.052	-0.08	0.093	0.098	-
	Rear Side	0	5745	9.28	9.50	1.052	0.10	0.259	**0.272**	3#
	Top Side	0	5745	9.28	9.50	1.052	-0.15	0.015	0.016	-
	Left Side	0	5745	9.28	9.50	1.052	0.16	0.012	0.013	-
	Right Side	0	5745	9.28	9.50	1.052	0.11	0.109	0.115	-

13. SIMULTANEOUS TRANSMISSION ANALYSIS

KDB447498 D01 SAR test exclusion is determined by the SAR to Peak Location Separation Ratio (**SPLSR**). Between pairs of simultaneously transmitting antennas:

$$\mathbf{SPLSP = (SAR_1 + SAR_2)^{1.5}/Ri}$$

SPLSP $\leq$ 0.04 for all antenna pairs in the configuration to qualify for 1-g SAR test exclusion. When 10-g SAR applies, **SPLSP** $\leq$ 0.10, rounded to two decimal digits.

SAR_1 and **SAR_2** are the highest reported or estimated SAR values for each antenna in the pair
Ri is the separation distance in mm between the peak SAR locations for the antenna pair, When standalone SAR is measured for both antennas in the pair, the peak location separation distance is computed by the square root of $[(x_1-x_2)^2 + (y_1-y_2)^2 + (z_1-z_2)^2]$, where (x_1, y_1, z_1) and (x_2, y_2, z_2) are the coordinates in the area scans or extrapolated peak SAR locations in the zoom scans, as appropriate

KDB865664 D01 For devices where the peak SAR locations of the simultaneously transmitting antennas are spatially separated and not overlapping, The normally required zoom scan measurement procedure is applied to the peak SAR locations identified in each of these area scans. For each nonnal zoom scan required by the peaks determined in the area scan, the same zoom scan is also performed at the same identical location in the other frequency bands that would have required the enlarged zoom scan. The simultaneous transmission 1-g SAR is determined by the highest SAR computed by the volume scan post-processing procedures among the peak SAR locations identified by the area scans.

No.	Simultaneous Transmission Consideration	Required
1	2.4GHz Wi-Fi + Bluetooth	Yes
2	5GHz Wi-Fi + Bluetooth	Yes

According to KDB 248227 D01 determine the simultaneous transmission SAR test exclusion for Wi-Fi MIMO, SAR plots shown that not overlap and that the antennas were at least 118 mm apart, so using section 6.1, there is no evaluation of MIMO.

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Sum of the SAR for 2.4GHz Wi-Fi & Bluetooth

Position	Standalone SAR(W/kg)		Summed(1+2) SAR(W/kg)
	1	2	
	2.4GHz Wi-Fi	Bluetooth	
Front Side	0.278	0.015	0.293
Rear Side	0.261	0.016	0.277
Top Side	0.097	0.004	0.101
Left Side	0.340	0.020	0.360
Right Side	0.003	0.001	0.004

Sum of the SAR for 5GHz Wi-Fi & Bluetooth

Position	Standalone SAR(W/kg)		Summed(1+2) SAR(W/kg)
	1	2	
	5GHz Wi-Fi	Bluetooth	
Front Side	0.098	0.015	0.113
Rear Side	0.272	0.016	0.288
Top Side	0.016	0.004	0.020
Left Side	0.013	0.020	0.033
Right Side	0.115	0.001	0.116

Note:

1. Per KDB 447498D01v06, Simultaneous Transmission SAR Evaluation procedures is as followed:
   Step 1: If sum of 1 g SAR < 1.6 W/kg, Simultaneous SAR measurement is not required.
   Step 2: If sum of 1 g SAR > 1.6 W/kg, ratio of SAR to peak separation distance for pair of transmitters calculated.
   Step 3: If the ratio of SAR to peak separation distance is ≤ 0.04, Simultaneous SAR measurement is not required.
2. 2.4GHz Wi-Fi & Bluetooth cannot simultaneous transmission.
3. 2.4GHz Wi-Fi & 5GHz Wi-Fi cannot simultaneous transmission.

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APPENDIX A. SYSTEM CHECKING SCANS

2450MHz System Check

Measurement Report for Device, , , UID 0 -, Channel 0 (2450.0MHz)

Device under Test Properties

Model, Manufacturer	Dimensions [mm]	IMEI	DUT Type
Device,	50.0 x 10.0 x 8.0		Dipole

Exposure Conditions

Phantom Section, TSL	Position, Test Distance [mm]	Band	Group, UID	Frequency [MHz], Channel Number	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity
Flat, HSL	,		, 0--	2450.0, 0	7.98	1.80	38.4

Hardware Setup

Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
Twin-SAM V8.0 (30deg probe tilt) - 2092	HSL600-10000 Charge: 0530, 2025-Feb-25	EX3DV4 - SN7716, 2024-05-13	DAE4 Sn1718, 2024-05-11

Scan Setup

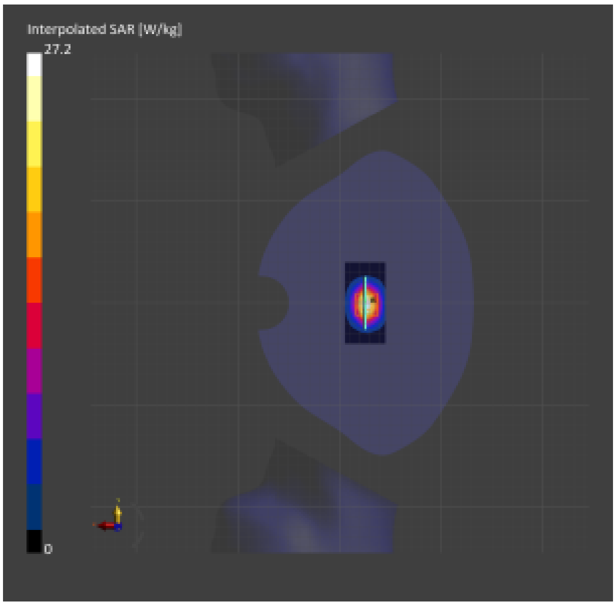
	Area Scan	Zoom Scan
Grid Extents [mm]	40.0 x 80.0	30.0 x 30.0 x 30.0
Grid Steps [mm]	10.0 x 10.0	5.0 x 5.0 x 1.5
Sensor Surface [mm]	3.0	1.4
Graded Grid	Yes	Yes
Grading Ratio	1.5	1.5
MAIA	N/A	N/A
Surface Detection	VMS + 6p	VMS + 6p
Scan Method	Measured	Measured

Measurement Results

	Area Scan	Zoom Scan
Date	2025-02-25, 8:48	2025-02-25, 8:55
psSAR1g [W/kg]	13.1	13.0
psSAR10g [W/kg]	6.21	6.15
Power Drift [dB]	-0.01	-0.05
Power Scaling	Disabled	Disabled
Scaling Factor [dB]		
TSL Correction	No correction	No correction
M2/M1 [%]		79.3
Dist 3dB Peak [mm]		9.0

Warning(s) / Error(s)

Details	Area Scan	Zoom Scan
Warning(s)		
Error(s)		



2450MHz System Check

Measurement Report for Device, , , UID 0 -, Channel 0 (2450.0MHz)

Device under Test Properties

Model, Manufacturer	Dimensions [mm]	IMEI	DUT Type
Device,	50.0 x 10.0 x 8.0		Dipole

Exposure Conditions

Phantom Section, TSL	Position, Test Distance [mm]	Band	Group, UID	Frequency [MHz], Channel Number	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity
Flat, HSL	,		, 0--	2450.0, 0	7.98	1.80	38.4

Hardware Setup

Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
Twin-SAM V8.0 (30deg probe tilt) - 2092	HSL600-10000 Charge: 0530, 2025-Feb-21	EX3DV4 - SN7716, 2024-05-13	DAE4 Sn1718, 2024-05-11

Scan Setup

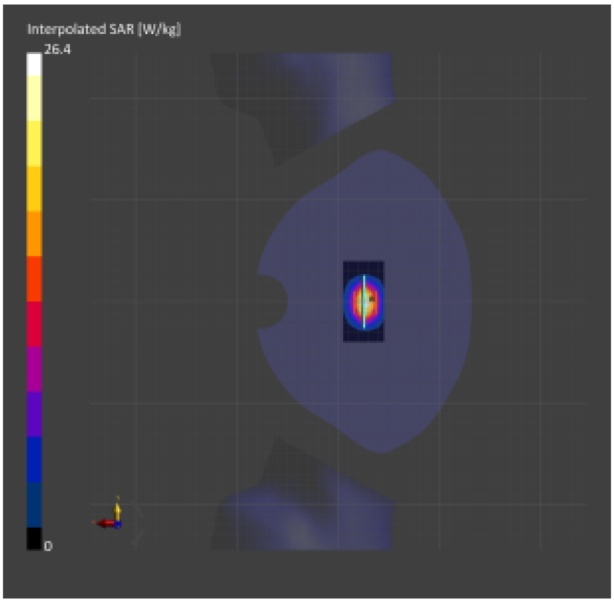
	Area Scan	Zoom Scan
Grid Extents [mm]	40.0 x 80.0	30.0 x 30.0 x 30.0
Grid Steps [mm]	10.0 x 10.0	5.0 x 5.0 x 1.5
Sensor Surface [mm]	3.0	1.4
Graded Grid	Yes	Yes
Grading Ratio	1.5	1.5
MAIA	N/A	N/A
Surface Detection	VMS + 6p	VMS + 6p
Scan Method	Measured	Measured

Measurement Results

	Area Scan	Zoom Scan
Date	2025-02-21, 9:22	2025-02-21, 9:28
psSAR1g [W/kg]	12.8	12.7
psSAR10g [W/kg]	6.02	5.94
Power Drift [dB]	-0.00	-0.02
Power Scaling	Disabled	Disabled
Scaling Factor [dB]		
TSL Correction	No correction	No correction
M2/M1 [%]		79.5
Dist 3dB Peak [mm]		9.0

Warning(s) / Error(s)

Details	Area Scan	Zoom Scan
Warning(s)		
Error(s)		



5750MHz System Check

Measurement Report for Device, , , UID 0 -, Channel 0 (5750.0MHz)

Device under Test Properties

Model, Manufacturer	Dimensions [mm]	IMEI	DUT Type
Device,	50.0 x 10.0 x 8.0		Dipole

Exposure Conditions

Phantom Section, TSL	Position, Test Distance [mm]	Band	Group, UID	Frequency [MHz], Channel Number	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity
Flat, HSL	,		, 0--	5750.0, 0	5.15	4.98	33.8

Hardware Setup

Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
Twin-SAM V8.0 (30deg probe tilt) - 2092	HSL600-10000 Charge: 0530, 2025-Feb-20	EX3DV4 - SN7716, 2024-05-13	DAE4 Sn1718, 2024-05-11

Scan Setup

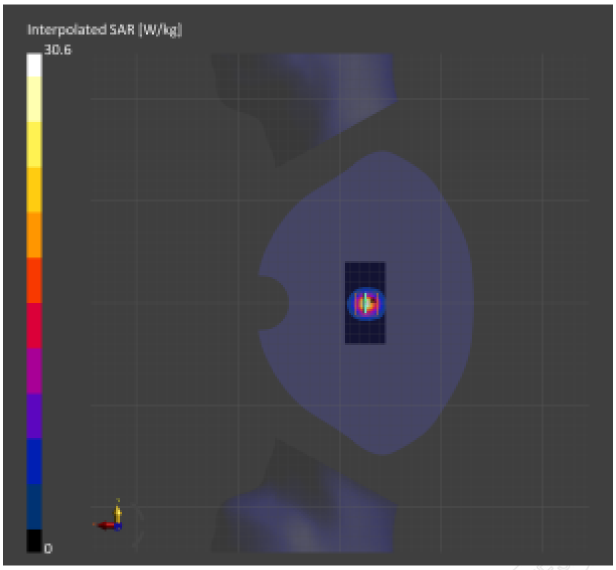
	Area Scan	Zoom Scan
Grid Extents [mm]	40.0x 80.0	22.0 x 22.0 x 22.0
Grid Steps [mm]	10.0x 10.0	4.0 x 4.0 x 1.4
Sensor Surface [mm]	3.0	1.4
Graded Grid	Yes	Yes
Grading Ratio	1.5	1.4
MAIA	N/A	N/A
Surface Detection	VMS + 6p	VMS + 6p
Scan Method	Measured	Measured

Measurement Results

	Area Scan	Zoom Scan
Date	2025-02-20, 10:41	2025-02-20, 10:49
psSAR1g [W/kg]	7.17	7.72
psSAR10g [W/kg]	2.10	2.24
Power Drift [dB]	0.03	0.06
Power Scaling	Disabled	Disabled
Scaling Factor [dB]		
TSL Correction	No correction	No correction
M2/M1 [%]		63.4
Dist 3dB Peak [mm]		7.5

Warning(s) / Error(s)

Details	Area Scan	Zoom Scan
Warning(s)		
Error(s)		



APPENDIX B. MEASUREMENT SCANS

. Plot No.1#

Measurement Report for Device, EDGE LEFT, ISM 2.4 GHz Band, UID 10032 CAA, Channel 39 (2441.0MHz)

Device under Test Properties

Model, Manufacturer	Dimensions [mm]	IMEI	DUT Type
Device,	140.0 x 61.0x 12.0		Phone

Exposure Conditions

Phantom Section, TSL	Position, Test Distance [mm]	Band	Group, UID	Frequency [MHz], Channel Number	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity
Flat, HSL	EDGE LEFT, 0.00	ISM 2.4 GHz Band	Bluetooth, 10032-CAA	2441.0, 39	7.98	1.79	38.5

Hardware Setup

Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
Twin-SAM V8.0 (30deg probe tilt) - 2092	HSL600-10000 Charge: 0530, 2025-Feb-25	EX3DV4 - SN7716, 2024-05-13	DAE4 Sn1718, 2024-05-11

Scan Setup

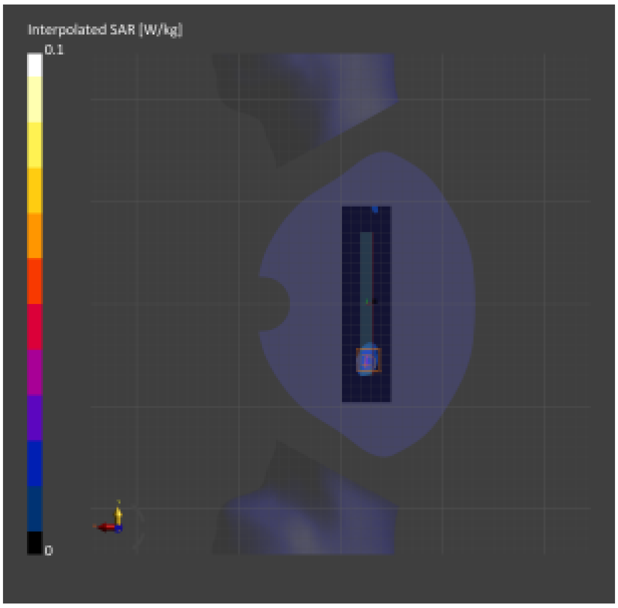
	Area Scan	Zoom Scan
Grid Extents [mm]	48.0x 192.0	30.0x 30.0 x 30.0
Grid Steps [mm]	12.0x 12.0	5.0x 5.0 x 5.0
Sensor Surface [mm]	3.0	1.4
Graded Grid	Yes	Yes
Grading Ratio	1.5	1.5
MAIA	Y	Y
Surface Detection	VMS + 6p	VMS + 6p
Scan Method	Measured	Measured

Measurement Results

	Area Scan	Zoom Scan
Date	2025-02-25, 10:50	2025-02-25, 10:56
psSAR1g [W/kg]	0.020	0.018
psSAR10g [W/kg]	0.008	0.006
Power Drift [dB]	0.18	0.15
Power Scaling	Disabled	Disabled
Scaling Factor [dB]		
TSL Correction	No correction	No correction
M2/M1 [%]		34.4
Dist 3dB Peak [mm]		> 15.0

Warning(s) / Error(s)

Details	Area Scan	Zoom Scan
Warning(s)		
Error(s)		



. **Plot No.2#**

Measurement Report for Device, EDGE LEFT, WLAN 2.4GHz, UID 10415 AAA, Channel 6 (2437.0MHz)

Device under Test Properties

Model, Manufacturer	Dimensions [mm]	IMEI	DUT Type
Device,	140.0 x 61.0x 12.0		Phone

Exposure Conditions

Phantom Section, TSL	Position, Test Distance [mm]	Band	Group, UID	Frequency [MHz], Channel Number	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity
Flat, HSL	EDGE LEFT, 0.00	WLAN 2.4GHz	WLAN, 10415-AAA	2437.0, 6	7.98	1.79	38.5

Hardware Setup

Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
Twin-SAM V8.0 (30deg probe tilt) - 2092	HSL600-10000 Charge: 0530, 2025-Feb-21	EX3DV4 - SN7716, 2024-05-13	DAE4 Sn1718, 2024-05-11

Scan Setup

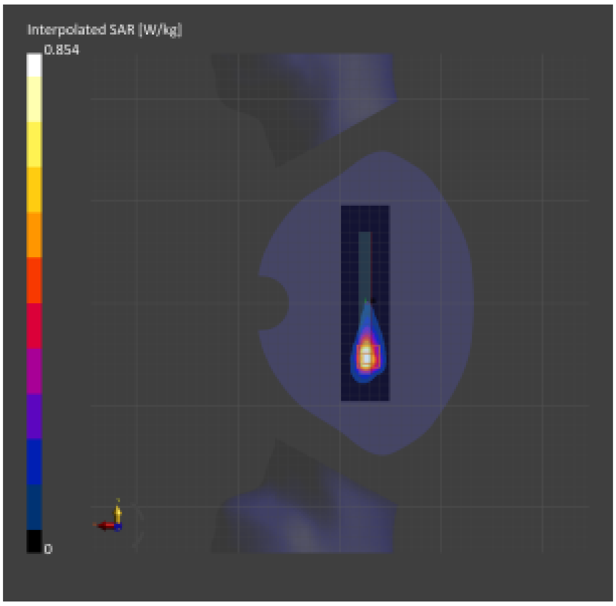
	Area Scan	Zoom Scan
Grid Extents [mm]	48.0x 192.0	30.0x 30.0 x 30.0
Grid Steps [mm]	12.0x 12.0	5.0x 5.0 x 5.0
Sensor Surface [mm]	3.0	1.4
Graded Grid	Yes	Yes
Grading Ratio	1.5	1.5
MAIA	N/A	N/A
Surface Detection	VMS + 6p	VMS + 6p
Scan Method	Measured	Measured

Measurement Results

	Area Scan	Zoom Scan
Date	2025-02-21, 15:35	2025-02-21, 15:41
psSAR1g [W/kg]	0.306	0.335
psSAR10g [W/kg]	0.134	0.129
Power Drift [dB]	-0.07	-0.06
Power Scaling	Disabled	Disabled
Scaling Factor [dB]		
TSL Correction	No correction	No correction
M2/M1 [%]		35.1
Dist 3dB Peak [mm]		6.0

Warning(s) / Error(s)

Details	Area Scan	Zoom Scan
Warning(s)		
Error(s)		



Plot No.3#

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Measurement Report for Device, BACK, WLAN 5GHz, UID 10417 AAC, Channel 149 (5745.0MHz)

Device under Test Properties

Model, Manufacturer	Dimensions [mm]	IMEI	DUT Type
Device,	140.0 x 61.0 x 12.0		Phone

Exposure Conditions

Phantom Section, TSL	Position, Test Distance [mm]	Band	Group, UID	Frequency [MHz], Channel Number	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity
Flat, HSL	BACK, 0.00	WLAN 5GHz	WLAN, 10417-AAC	5745.0, 149	5.15	4.98	33.8

Hardware Setup

Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
Twin-SAM V8.0 (30deg probe tilt) - 2092	HSL600-10000 Charge: 0530, 2025-Feb-20	EX3DV4 - SN7716, 2024-05-13	DAE4 Sn1718, 2024-05-11

Scan Setup

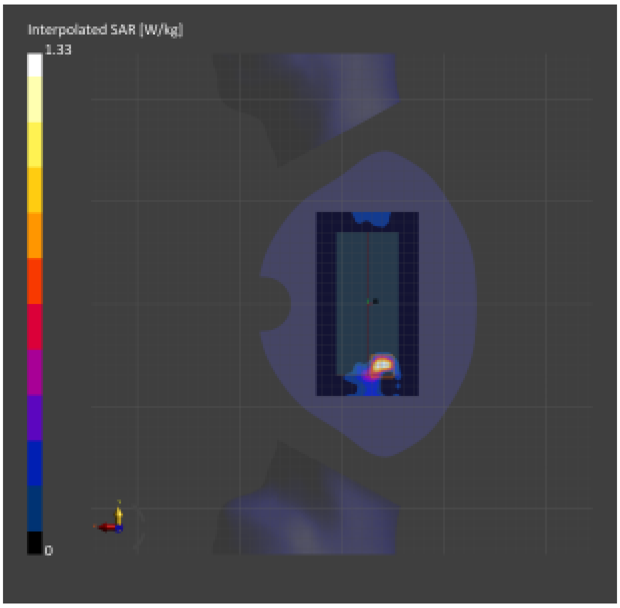
	Area Scan	Zoom Scan
Grid Extents [mm]	100.0 x 180.0	24.0 x 24.0 x 22.0
Grid Steps [mm]	10.0 x 10.0	4.0 x 4.0 x 2.0
Sensor Surface [mm]	3.0	1.4
Graded Grid	Yes	Yes
Grading Ratio	1.5	1.4
MAIA	Y	Y
Surface Detection	VMS + 6p	VMS + 6p
Scan Method	Measured	Measured

Measurement Results

	Area Scan	Zoom Scan
Date	2025-02-20, 15:07	2025-02-20, 15:16
psSAR1g [W/kg]	0.260	0.259
psSAR10g [W/kg]	0.070	0.063
Power Drift [dB]	0.13	0.10
Power Scaling	Disabled	Disabled
Scaling Factor [dB]		
TSL Correction	No correction	No correction
M2/M1 [%]		48.5
Dist 3dB Peak [mm]		5.6

Warning(s) / Error(s)

Details	Area Scan	Zoom Scan
Warning(s)		
Error(s)		



APPENDIX C. RELEVANT PAGES FROM PROBE CALIBRATION REPORT(S)

Please refer to the attached document E202501107526 Calibration reports.

APPENDIX D: PHOTOGRAPH OF SET UP

Please refer to the attached document E202501107526 Test photo.

——End of Report——