



# SAR TEST REPORT

**Applicant: INGENICO** 

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FCC ID: XKB-L2500CLWI

**Product Name: Link/2500** 

Model Number: Link/2500 CL/WiFi

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

The above equipment has been tested and found compliant with the requirement of the relative standards by China Certification ICT Co., Ltd (Dongguan)

Report Number: CR230312549-20A

Date Of Issue: 2023-04-20

Reviewed By: Karl Gong

Title: SAR Engineer

**Test Laboratory:** China Certification ICT Co., Ltd (Dongguan)

No. 113, Pingkang Road, Dalang Town, Dongguan,

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## SAR TEST RESULTS SUMMARY

Operation Frequency Bands	Highest Reported 1g SAR (W/kg)  Body-Supported (Gap 0mm)	Limits (W/kg)
Wi-Fi 2.4G	0.26	
Wi-Fi 5.2G	0.87	
Wi-Fi 5.3G	0.92	1.6
Wi-Fi 5.6G	0.32	
Wi-Fi 5.8G	0.46	
	<b>Maximum Simultaneous Transmission SAR</b>	
Items	Body-Supported (Gap 0mm)	Limits
Sum SAR(W/kg)	N/A	1.6
SPLSR	N/A	0.04
EUT Received Date:	2023/03/26	
Test Date:	2023/03/29, 2023/04/06 ~ 2023/04/07	_
Test Result:	Pass	

#### **Test Facility**

The Test site used by China Certification ICT Co., Ltd (Dongguan) to collect test data is located on the No. 113, Pingkang Road, Dalang Town, Dongguan, Guangdong, China.

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The lab has been recognized as the FCC accredited lab under the KDB 974614 D01 and is listed in the FCC Public Access Link (PAL) database, FCC Registration No. : 442868, the FCC Designation No. : CN1314.

The lab has been recognized by Innovation, Science and Economic Development Canada to test to Canadian radio equipment requirements, the CAB identifier: CN0123.

#### **Declarations**

China Certification ICT Co., Ltd (Dongguan) is not responsible for the authenticity of any test data provided by the applicant. Data included from the applicant that may affect test results are marked with a triangle symbol "\(^{\text{a}}\)". Customer model name, addresses, names, trademarks etc. are not considered data.

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

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## **DOCUMENT REVISION HISTORY**

Revision Number	Report Number	Description of Revision	Date of Revision
1.0	CR230312549-20A	Original Report	2023-04-20

## 1. GENERAL INFORMATION

## 1.1 Product Description for Equipment under Test (EUT)

Device Type:	Portable		
<b>Exposure Category:</b>	Population / Uncontrolled		
Antenna Type(s):	Internal Antenna		
Body-Worn Accessories:	None		
Operation modes:	Wi-Fi 2.4G/5G and NFC		
Frequency Band:	Wi-Fi 2.4G: 2412-2462 MHz/2422-2452 MHz Wi-Fi 5.2G: 5180-5240 MHz/5190-5230 MHz Wi-Fi 5.3G: 5260-5320 MHz/5270-5310 MHz Wi-Fi 5.6G: 5500-5720 MHz/5510-5710 MHz Wi-Fi 5.8G: 5745-5825 MHz/5755-5795 MHz NFC: 13.56 MHz		
Wi-Fi 2.4G: 13.46 dBm; Wi-Fi 5.2G: 10.84 dBm; Wi-Fi 5.3G: 10.63 dBm;Wi-Fi 5.6G: 11.72 dBm; Wi-Fi 5.8G: 10.84 dBm			
Rated Input Voltage:	DC 3.7V from Rechargeable Battery		
Serial Number:	239O (SN: 230147303091192729149582)		
Normal Operation:	Body-Supported		

## 1.2 Test Specification, Methods and Procedures

The tests documented in this report were performed in accordance with FCC 47 CFR § 2.1093, IEEE 1528-2013, the following FCC Published RF exposure KDB procedures:

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KDB 447498 D01 General RF Exposure Guidance v06 KDB 865664 D01 SAR Measurement 100 MHz to 6 GHz v01r04 KDB 865664 D02 RF Exposure Reporting v01r02 KDB 248227 D01 802 11 Wi-Fi SAR v02r02

TCB Workshop April 2019: RF Exposure Procedures

## 1.3 SAR Limts

### **FCC Limit**

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	SAR (W/kg)			
EXPOSURE LIMITS	(General Population / Uncontrolled Exposure Environment)	(Occupational / Controlled Exposure Environment)		
Spatial Average (averaged over the whole body)	0.08	0.4		
Spatial Peak (averaged over any 1 g of tissue)	1.60	8.0		
Spatial Peak (hands/wrists/feet/ankles averaged over 10 g)	4.0	20.0		

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

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

General Population/Uncontrolled environments Spatial Peak limit 1.6W/kg for 1g Body SAR applied to the EUT.

## 2. SAR MEASUREMENT SYSTEM

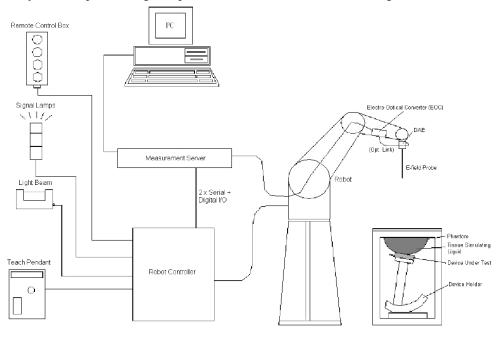
These measurements were performed with the automated near-field scanning system DASY5 from Schmid & Partner Engineering AG (SPEAG) which is the Fifth generation of the system shown in the figure hereinafter:

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## **DASY5 System Description**

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



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

#### **DASY5 Measurement Server**

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

The measurement server performs all real-time data evaluation of field measurements and surface detection, controls robot movements and handles safety operation. The PC operating system cannot interfere with these time critical



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processes. All connections are supervised by a watchdog, and disconnection of any of the cables to the measurement server will automatically disarm the robot and disable all program-controlled robot movements. Furthermore, the measurement server is equipped with an expansion port which is reserved for future applications. Please note that this expansion port does not have a standardized point out, and therefore only devices provided by SPEAG can be connected. Devices from any other supplier could seriously damage the measurement server.

#### **Data Acquisition Electronics**

The data acquisition electronics (DAE4) consist of a highly sensitive electrometer-grade preamplifier with auto-zeroing, a channel and gain-switching multiplexer, a fast 16 bit AD-converter and a command decoder with a control logic unit. Transmission to the measurement server is accomplished through an optical downlink for data and status information, as well as an optical uplink for commands and the clock.

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

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

## **EX3DV4 E-Field Probes**

Frequency	10 MHz to > 6 GHz Linearity: ± 0.2 dB (30 MHz to 6 GHz)
Directivity	$\pm$ 0.3 dB in TSL (rotation around probe axis) $\pm$ 0.5 dB in TSL (rotation normal to probe axis)
Dynamic Range	$10 \mu W/g$ to > 100 mW/g Linearity: ± 0.2 dB (noise: typically < 1 μW/g)
Dimensions	Overall length: 337 mm (Tip: 20 mm) Tip diameter: 2.5 mm (Body: 12 mm) Typical distance from probe tip to dipole centers: 1 mm
Application	High precision dosimetric measurements in any exposure scenario (e.g., very strong gradient fields); the only probe that enables compliance testing for frequencies up to 6 GHz with precision of better 30%.
Compatibility	DASY3, DASY4, DASY52 SAR and higher, EASY4/MRI

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## Calibration Frequency Points for EX3DV4 E-Field Probes SN: 7522 Calibrated: 2022/5/6

Calibration Frequency		uency e(MHz)	Co	onversion Fact	tor
Point(MHz)	From	To	X	Y	Z
750 Head	650	850	9.70	9.70	9.70
900 Head	850	1000	9.24	9.24	9.24
1750 Head	1650	1850	8.10	8.10	8.10
1900 Head	1850	2000	7.79	7.79	7.79
2300 Head	2200	2400	7.50	7.50	7.50
2450 Head	2400	2550	7.22	7.22	7.22
2600 Head	2550	2700	7.02	7.02	7.02

## Calibration Frequency Points for EX3DV4 E-Field Probes SN: 7329 Calibrated: 2023/1/3

Calibration Frequency	Frequency Range(MHz)		Conversion Factor		
Point(MHz)	From	To	X	Y	Z
750 Head	650	850	10.33	10.33	10.33
900 Head	850	1000	9.90	9.90	9.90
1450 Head	1350	1550	8.96	8.96	8.96
1750 Head	1650	1850	8.47	8.47	8.47
1900 Head	1850	2000	8.18	8.18	8.18
2100 Head	2000	2200	8.25	8.25	8.25
2300 Head	2200	2400	8.00	8.00	8.00
2450 Head	2400	2550	7.75	7.75	7.75
2600 Head	2550	2700	7.51	7.51	7.51
5200 Head	5090	5250	5.60	5.60	5.60
5300 Head	5250	5410	5.37	5.37	5.37
5600 Head	5490	5700	4.90	4.90	4.90
5800 Head	5700	5910	4.85	4.85	4.85

#### **SAM Twin Phantom**

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

- Left Head
- Right Head
- Flat phantom

The phantom table for the DASY systems based on the robots have the size of  $100 \times 50 \times 85 \text{ cm}$  (L x W x H). For easy dislocation these tables have fork lift cut outs at the bottom.

The bottom plate contains three pairs of bolts for locking the device holder. The device holder positions are adjusted to the

standard measurement positions in the three sections. Only one device holder is necessary if two phantoms are used (e.g., for different liquids)



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

#### **Robots**

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

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

The above mentioned robots are controlled by the Staubli CS8c robot controllers. All information regarding the use and maintenance of the robot arm and the robot controller is contained on the CDs delivered along with the robot. Paper manuals are available upon request direct from Staubli.

#### **SAR Scan Pricedures**

#### **Step 1: 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. The minimum distance of probe sensors to surface is 1.4 mm. This distance cannot be smaller than the distance of sensor calibration points to probe tip as defined in the probe properties.

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### **Step 2: 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.

Area Scan Parameters extracted from 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 mm ± 1 mm	$\frac{1}{2} \cdot \delta \cdot \ln(2) \text{ mm} \pm 0.5 \text{ mm}$
Maximum probe angle from probe axis to phantom surface normal at the measurement location	30° ± 1°	20° ± 1°
	≤ 2 GHz: ≤ 15 mm 2 – 3 GHz: ≤ 12 mm	3 – 4 GHz: ≤ 12 mm 4 – 6 GHz: ≤ 10 mm
Maximum area scan spatial resolution: $\Delta x_{Area}$ , $\Delta y_{Area}$	When the x or y dimension measurement plane orientat above, the measurement res corresponding x or y dimen at least one measurement po	ion, is smaller than the olution must be $\leq$ the sion of the test device with

#### **Step 3: Zoom Scan (Cube Scan Averaging)**

The averaging zoom scan volume utilized in the DASY5 software is in the shape of a cube and the side dimension of a 1 g or 10 g mass is dependent on the density of the liquid representing the simulated tissue. A density of 1000 kg/m³ 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.

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Zoom Scan Parameters extracted from KDB 865664 D01 SAR Measurement 100 MHz to 6 GHz

			≤3 GHz	> 3 GHz
Maximum zoom scan	spatial res	olution: Δx <sub>Zoom</sub> , Δy <sub>Zoom</sub>	≤ 2 GHz: ≤ 8 mm 2 – 3 GHz: ≤ 5 mm*	3 – 4 GHz: ≤ 5 mm* 4 – 6 GHz: ≤ 4 mm*
	uniform	grid: Δz <sub>Zoom</sub> (n)	≤ 5 mm	$3 - 4 \text{ GHz}$ : $\leq 4 \text{ mm}$ $4 - 5 \text{ GHz}$ : $\leq 3 \text{ mm}$ $5 - 6 \text{ GHz}$ : $\leq 2 \text{ mm}$
Maximum zoom scan spatial resolution, normal to phantom surface	graded	Δz <sub>Zoom</sub> (1): between 1 <sup>st</sup> two points closest to phantom surface	≤ 4 mm	$3 - 4 \text{ GHz} \le 3 \text{ mm}$ $4 - 5 \text{ GHz} \le 2.5 \text{ mm}$ $5 - 6 \text{ GHz} \le 2 \text{ mm}$
	grid	Δz <sub>Zoom</sub> (n>1): between subsequent points	$\leq 1.5 \cdot \Delta z_{Zo}$	om(n-1) mm
Minimum zoom scan volume	x, y, z		≥ 30 mm	3 – 4 GHz: ≥ 28 mm 4 – 5 GHz: ≥ 25 mm 5 – 6 GHz: ≥ 22 mm

Note:  $\delta$  is the penetration depth of a plane-wave at normal incidence to the tissue medium; see IEEE Std 1528-2013 for details.

#### **Step 4: Power Drift Measurement**

The Power Drift Measurement measures the field at the same location as the most recent power reference measurement within the same procedure, and with the same settings. The Power Drift Measurement gives the field difference in dB from the reading conducted within the last Power Reference Measurement. This allows a user to monitor the power drift of the device under test within a batch process. The measurement procedure is the same as Step 1.

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

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

<sup>\*</sup> When zoom scan is required and the <u>reported</u> SAR from the <u>area scan based 1-g SAR estimation</u> procedures of KDB Publication 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.

## Tissue Dielectric Parameters for Head and Body Phantoms

The head tissue dielectric parameters recommended by the IEC 62209-1:2016

### Recommended Tissue Dielectric Parameters for Head liquid

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

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Frequency	Relative permittivity	Conductivity (σ)	
MHz	$\varepsilon_{\mathrm{r}}$	S/m	
300	45,3 0,87		
450	43,5	0,87	
750	41,9	0,89	
835	41,5	0,90	
900	41,5	0,97	
1 450	40,5	1,20	
1 500	40,4	1,23	
1 640	40,2	1,31	
1 750	40,1	1,37	
1 800	40,0	1,40	
1 900	40,0	1,40	
2 000	40,0 1,		
2 100	39,8 1,4		
2 300	39,5	1,67	
2 450	39,2	1,80	
2 600	39,0	1,96	
3 000	38,5	2,40	
3 500	37,9	2,91	
4 000	37,4	3,43	
4 500	36,8	3,94	
5 000	36,2	4,45	
5 200	36,0 4,66		
5 400	35,8	4,86	
5 600	35,5	5,07	
5 800	35,3	5,27	
6 000	35,1 5,48		

NOTE For convenience, permittivity and conductivity values at those frequencies which are not part of the original data provided by Drossos et al. [33] or the extension to 5 800 MHz are provided (i.e. the values shown in italics). These values were linearly interpolated between the values in this table that are immediately above and below these values, except the values at 6 000 MHz that were linearly extrapolated from the values at 3 000 MHz and 5 800 MHz.

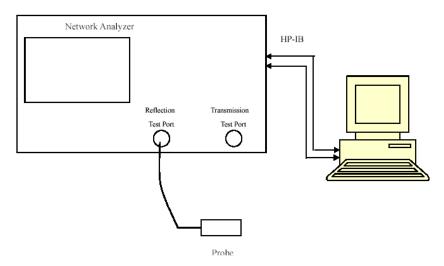
## 3. EQUIPMENT LIST AND CALIBRATION

3.1 Equipments List & Calibration Information

5.1 Equipments List & Cambration	Tillorination		T	T I
Equipment	Model	S/N	Calibration Date	Calibration Due Date
DASY5 Test Software	DASY52.10	N/A	NCR	NCR
DASY5 Measurement Server	DASY5 4.5.12	1567	NCR	NCR
Data Acquisition Electronics	DAE4	1354	2022/10/31	2023/10/30
E-Field Probe	EX3DV4	7522	2022/5/6	2023/5/5
E-Field Probe	EX3DV4	7329	2023/1/3	2024/1/2
Mounting Device	MD4HHTV5	BJPCTC0152	NCR	NCR
Twin SAM	Twin SAM V5.0	1412	NCR	NCR
Dipole, 2450 MHz	D2450V2	971	2021/6/28	2024/6/27
Dipole,5GHz	D5GHzV2	1246	2022/11/1	2025/10/31
Simulated Tissue Liquid Head(500-9500 MHz)	HBBL600-10000V6	220420-2	Each Time	/
Network Analyzer	8753B	2828A00170	2022/10/24	2023/10/23
Dielectric assessment kit	1253	SM DAK 040 CA	NCR	NCR
MXG Vector Signal Generator	N5182B	MY51350144	2022/7/15	2023/7/14
USB Wideband Power Sensor	U2021XA	MY54080015	2022/7/15	2023/7/14
Power Amplifier	ZVA-183-S+	5969001149	NCR	NCR
Directional Coupler	441493	520Z	NCR	NCR
Attenuator	20dB, 100W	LN749	NCR	NCR
Attenuator	6dB, 150W	2754	NCR	NCR

## 4. SAR MEASUREMENT SYSTEM VERIFICATION

## 4.1 Liquid Verification



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Liquid Verification Setup Block Diagram

## **Liquid Verification Results**

Frequency	Liquid Type	Liq Paran		Target	Value	_	Delta (%) Tole	
(MHz)	Liquid Type	ε <sub>r</sub>	O	ε <sub>r</sub>	Q	$\Delta \epsilon_{ m r}$	ΔO	(%)
			(S/m)	•	(S/m)	•	(S/m)	
2412	Simulated Tissue Liquid Head	39.886	1.738	39.28	1.77	1.54	-1.81	±5
2437	Simulated Tissue Liquid Head	39.548	1.806	39.23	1.79	0.81	0.89	±5
2450	Simulated Tissue Liquid Head	39.174	1.837	39.2	1.8	-0.07	2.06	±5
2462	Simulated Tissue Liquid Head	38.856	1.846	39.18	1.81	-0.83	1.99	±5

<sup>\*</sup>Liquid Verification above was performed on 2023/03/29.

Frequency	Liquid Tomo	Liq Paran		Target	Value Delta (%)		Tolerance	
(MHz)	Liquid Type	$\epsilon_{ m r}$	O' (S/m)	$\epsilon_{ m r}$	O' (S/m)	$\Delta \epsilon_{ m r}$	ΔΟ΄ (S/m)	(%)
5180	Simulated Tissue Liquid Head	36.489	4.528	36.02	4.64	1.3	-2.41	±5
5200	Simulated Tissue Liquid Head	36.081	4.607	36	4.66	0.23	-1.14	±5
5240	Simulated Tissue Liquid Head	35.772	4.768	35.96	4.7	-0.52	1.45	±5
5250	Simulated Tissue Liquid Head	35.589	4.847	35.95	4.71	-1	2.91	±5
5260	Simulated Tissue Liquid Head	35.543	4.878	35.94	4.72	-1.1	3.35	±5
5280	Simulated Tissue Liquid Head	35.423	4.921	35.92	4.74	-1.38	3.82	±5
5320	Simulated Tissue Liquid Head	35.325	4.984	35.88	4.78	-1.55	4.27	±5

<sup>\*</sup>Liquid Verification above was performed on 2023/04/06.

Frequency	Liquid Type	Liq Parar		Target	t Value	_	elta 6)	Tolerance
(MHz)	Liquid Type	$\epsilon_{ m r}$	O' (S/m)	$\epsilon_{ m r}$	O' (S/m)	$\Delta \epsilon_{ m r}$	ΔΟ΄ (S/m)	(%)
5500	Simulated Tissue Liquid Head	35.873	4.836	35.65	4.97	0.63	-2.7	±5
5580	Simulated Tissue Liquid Head	35.822	4.907	35.53	5.05	0.82	-2.83	±5
5600	Simulated Tissue Liquid Head	35.741	4.965	35.5	5.07	0.68	-2.07	±5
5700	Simulated Tissue Liquid Head	35.687	5.053	35.4	5.17	0.81	-2.26	±5
5720	Simulated Tissue Liquid Head	35.631	5.108	35.38	5.19	0.71	-1.58	±5
5745	Simulated Tissue Liquid Head	35.592	5.149	35.36	5.22	0.66	-1.36	±5
5785	Simulated Tissue Liquid Head	35.459	5.261	35.35	5.22	0.31	0.79	±5
5800	Simulated Tissue Liquid Head	35.208	5.328	35.32	5.26	-0.32	1.29	±5
5825	Simulated Tissue Liquid Head	35.085	5.436	35.28	5.3	-0.55	2.57	±5

<sup>\*</sup>Liquid Verification above was performed on 2023/04/07.

## 4.2 System Accuracy Verification

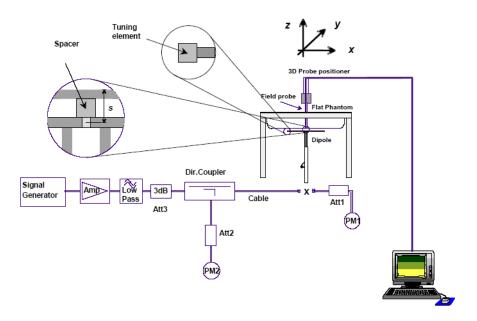
Prior to the assessment, the system validation kit was used to test whether the system was operating within its specifications of  $\pm 10\%$ . The validation results are tabulated below. And also the corresponding SAR plot is attached as well in the SAR plots files.

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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 MHz  $\leq f \leq 1$  000 MHz;
- b)  $s = 10 \text{ mm} \pm 0.2 \text{ mm}$  for 1 000 MHz  $< f \le 3$  000 MHz;
- c)  $s = 10 \text{ mm} \pm 0.2 \text{ mm}$  for  $3\,000 \text{ MHz} < f \le 6\,000 \text{ MHz}$ .

### **System Verification Setup Block Diagram**



### **System Accuracy Check Results**

Date	Frequency Band	Liquid Type	Input Power SAR (mW) (W/kg)		Normalized to 1W (W/kg)	Target Value (W/kg)	Delta (%)	Tolerance (%)	
2023/03/29	2450 MHz	Simulated Tissue Liquid Head	100	1g	5.46	54.6	53.5	2.06	±10
2023/04/06	5250 MHz	Simulated Tissue Liquid Head	100	1g	7.58	75.8	77.5	-2.19	±10
2023/04/07	5600 MHz	Simulated Tissue Liquid Head	100	1g	7.97	79.7	80.7	-1.24	±10
2023/04/07	5750 MHz	Simulated Tissue Liquid Head	100	1g	8.02	80.2	78.4	2.3	±10

<sup>\*</sup>The SAR values above are normalized to 1 Watt forward power.

#### 4.3 SAR SYSTEM VALIDATION DATA

#### **System Performance 2450MHz**

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

Communication System: CW; Frequency: 2450 MHz; Duty Cycle: 1:1

Medium parameters used: f = 2450 MHz;  $\sigma = 1.837 \text{ S/m}$ ;  $\varepsilon_r = 39.174$ ;  $\rho = 1000 \text{ kg/m}^3$ 

Phantom section: Flat Section

#### DASY5 Configuration:

Probe: EX3DV4 - SN7522; ConvF(7.22, 7.22, 7.22) @ 2450 MHz; Calibrated: 2022/5/6

Report No.: CR230312549-20A

• Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1354; Calibrated: 2022/10/31

• Phantom: Twin SAM; Type: Twin SAM V5.0; Serial: TP:1412

• Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

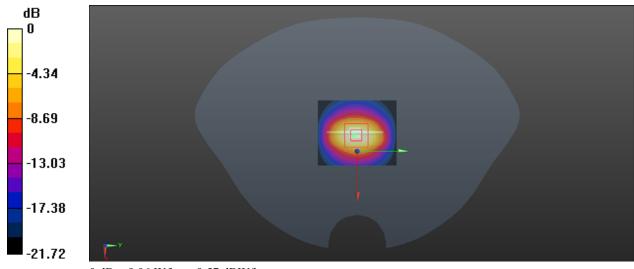
**Area Scan (5x6x1):** Measurement grid: dx=12mm, dy=12mm Maximum value of SAR (measured) = 10.2 W/kg

**Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 56.72 V/m; Power Drift = 0.11 dB

Peak SAR (extrapolated) = 11.7 W/kg

SAR(1 g) = 5.46 W/kg; SAR(10 g) = 2.51 W/kgMaximum value of SAR (measured) = 9.06 W/kg



0 dB = 9.06 W/kg = 9.57 dBW/kg

### **System Performance 5250 MHz**

#### DUT: Dipole D5GHzV2; Type: 5250 MHz; Serial: SN:1246

Communication System: CW; Frequency: 5250 MHz; Duty Cycle: 1:1

Medium parameters used: f = 5250 MHz;  $\sigma = 4.847 \text{ S/m}$ ;  $\varepsilon_r = 35.589$ ;  $\rho = 1000 \text{ kg/m}^3$ 

Phantom section: Flat Section

#### DASY5 Configuration:

• Probe: EX3DV4 - SN7329; ConvF(5.6, 5.6, 5.6) @ 5250 MHz; Calibrated: 2023/1/3

Report No.: CR230312549-20A

• Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1354; Calibrated: 2022/10/31

Phantom: Twin SAM; Type: Twin SAM V5.0; Serial: TP:1412

• Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

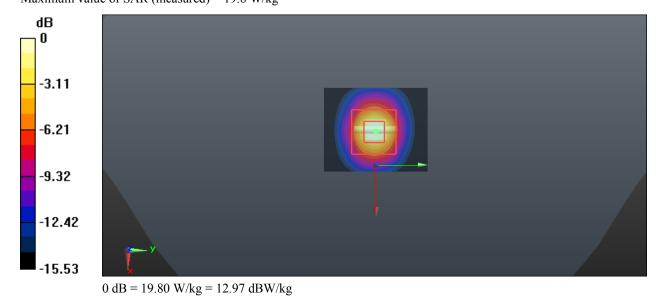
Area Scan (7x7x1): Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (interpolated) = 22.1 W/kg

Zoom Scan (9x9x6)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 42.86 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 33.7 W/kg

**SAR(1 g) = 7.58 W/kg; SAR(10 g) = 2.16 W/kg** Maximum value of SAR (measured) = 19.8 W/kg



### **System Performance 5600 MHz**

#### DUT: Dipole D5GHzV2; Type: 5600 MHz; Serial: SN:1246

Communication System: CW; Frequency: 5600 MHz; Duty Cycle: 1:1

Medium parameters used: f = 5600 MHz;  $\sigma = 4.965 \text{ S/m}$ ;  $\varepsilon_r = 35.741$ ;  $\rho = 1000 \text{ kg/m}^3$ 

Phantom section: Flat Section

#### DASY5 Configuration:

• Probe: EX3DV4 - SN7329; ConvF(4.9, 4.9, 4.9) @ 5600 MHz; Calibrated: 2023/1/3

Report No.: CR230312549-20A

• Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1354; Calibrated: 2022/10/31

Phantom: Twin SAM; Type: Twin SAM V5.0; Serial: TP:1412

• Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

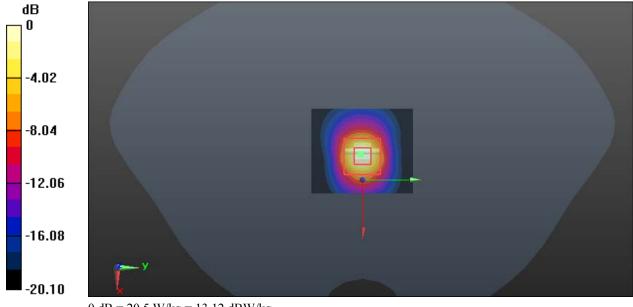
Area Scan (5x6x1): Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (measured) = 21.8 W/kg

Zoom Scan (9x9x6)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 42.15 V/m; Power Drift = -0.07 dB

Peak SAR (extrapolated) = 37.9 W/kg

SAR(1 g) = 7.97 W/kg; SAR(10 g) = 2.35 W/kgMaximum value of SAR (measured) = 20.5 W/kg



0 dB = 20.5 W/kg = 13.12 dBW/kg

#### System Performance 5750 MHz

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

Communication System: CW; Frequency: 5750 MHz; Duty Cycle: 1:1

Medium parameters used: f = 5750 MHz;  $\sigma = 5.261$  S/m;  $\varepsilon_r = 35.459$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

#### DASY5 Configuration:

• Probe: EX3DV4 - SN7329; ConvF(4.85, 4.85, 4.85) @ 5750 MHz; Calibrated: 2023/1/3

Report No.: CR230312549-20A

• Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1354; Calibrated: 2022/10/31

• Phantom: Twin SAM; Type: Twin SAM V5.0; Serial: TP:1412

Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

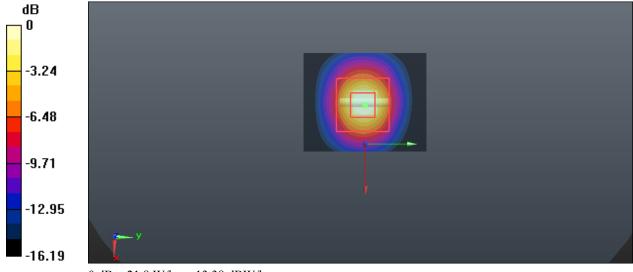
Area Scan (7x7x1): Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (interpolated) = 23.7 W/kg

Zoom Scan (9x9x6)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 42.98 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 38.4 W/kg

SAR(1 g) = 8.02 W/kg; SAR(10 g) = 2.29 W/kgMaximum value of SAR (measured) = 21.8 W/kg



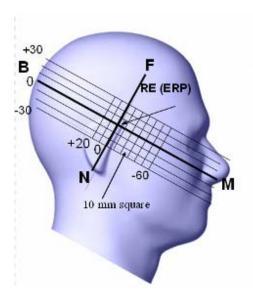
0 dB = 21.8 W/kg = 13.38 dBW/kg

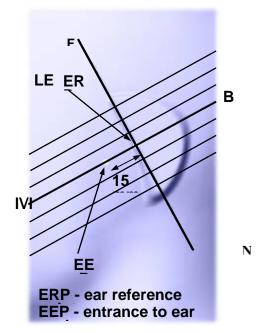
## 5. EUT TEST STRATEGY AND METHODOLOGY

### 5.1 Test Positions for Device Operating Next to a Person's Ear

This category includes most wireless handsets with fixed, retractable or internal antennas located toward the top half of the device, with or without a foldout, sliding or similar keypad cover. The handset should have its earpiece located within the upper ¼ of the device, either along the centerline or off-centered, as perceived by its users. This type of handset should be positioned in a normal operating position with the "test device reference point" located along the "vertical centerline" on the front of the device aligned to the "ear reference point". The "test device reference point" should be located at the same level as the center of the earpiece region. The "vertical centerline" should bisect the front surface of the handset at its top and bottom edges. A "ear reference point" is located on the outer surface of the head phantom on each ear spacer. It is located 1.5 cm above the center of the ear canal entrance in the "phantom reference plane" defined by the three lines joining the center of each "ear reference point" (left and right) and the tip of the mouth.

A handset should be initially positioned with the earpiece region pressed against the ear spacer of a head phantom. For the SCC-34/SC-2 head phantom, the device should be positioned parallel to the "N-F" line defined along the base of the ear spacer that contains the "ear reference point". For interim head phantoms, the device should be positioned parallel to the cheek for maximum RF energy coupling. The "test device reference point" is aligned to the "ear reference point" on the head phantom and the "vertical centerline" is aligned to the "phantom reference plane". This is called the "initial ear position". While maintaining these three alignments, the body of the handset is gradually adjusted to each of the following positions for evaluating SAR:





#### 5.2 Cheek/Touch Position

The device is brought toward the mouth of the head phantom by pivoting against the "ear reference point" or along the "N-F" line for the SCC-34/SC-2 head phantom.

This test position is established:

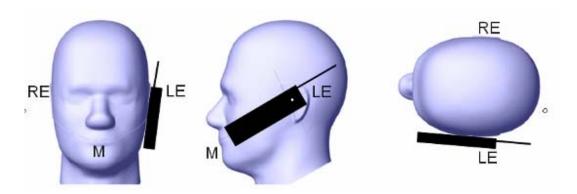
When any point on the display, keypad or mouthpiece portions of the handset is in contact with the phantom.

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(or) When any portion of a foldout, sliding or similar keypad cover opened to its intended self-adjusting normal use position is in contact with the cheek or mouth of the phantom.

For existing head phantoms – when the handset loses contact with the phantom at the pivoting point, rotation should continue until the device touches the cheek of the phantom or breaks its last contact from the ear spacer.

#### **Cheek / Touch Position**



### 5.3 Ear/Tilt Position

With the handset aligned in the "Cheek/Touch Position":

- 1) If the earpiece of the handset is not in full contact with the phantom's ear spacer (in the "Cheek/Touch position") and the peak SAR location for the "Cheek/Touch" position is located at the ear spacer region or corresponds to the earpiece region of the handset, the device should be returned to the "initial ear position" by rotating it away from the mouth until the earpiece is in full contact with the ear spacer.
- 2) (otherwise) The handset should be moved (translated) away from the cheek perpendicular to the line passes through both "ear reference points" (note: one of these ear reference points may not physically exist on a split head model) for approximate 2-3 cm. While it is in this position, the device handset is tilted away from the mouth with respect to the "test device reference point" until the inside angle between the vertical centerline on the front surface of the phone and the horizontal line passing through the ear reference point is by 15 80°. After the tilt, it is then moved (translated) back toward the head perpendicular to the line passes through both "ear reference points" until the device touches the phantom or the ear spacer. If the antenna touches the head first, the positioning process should be repeated with a tilt angle less than 15° so that the device and its antenna would touch the phantom simultaneously. This test position may require a device holder or positioner to achieve the translation and tilting with acceptable positioning repeatability.

If a device is also designed to transmit with its keypad cover closed for operating in the head position, such positions should also be considered in the SAR evaluation. The device should be tested on the left and

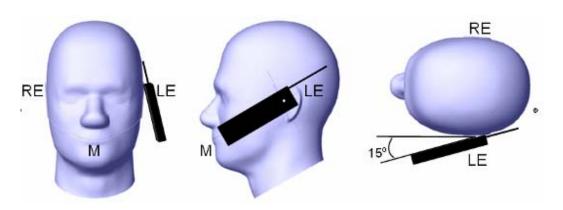
optional.

right side of the head phantom in the "Cheek/Touch" and "Ear/Tilt" positions. When applicable, each configuration should be tested with the antenna in its fully extended and fully retracted positions. These test configurations should be tested at the high, middle and low frequency channels of each operating mode; for example, AMPS, CDMA, and TDMA. If the SAR measured at the middle channel for each test configuration (left, right, Cheek/Touch, Tilt/Ear, extended and retracted) is at least 2.0 dB lower than the SAR limit, testing at the high and low channels is optional for such test configuration(s). If the

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#### Ear /Tilt 15° Position

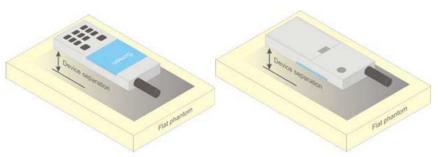
transmission band of the test device is less than 10 MHz, testing at the high and low frequency channels is



#### 5.4 Test positions for body-worn and other configurations

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

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



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Figure 5 - Test positions for body-worn devices

## **5.5 Test Distance for SAR Evaluation**

In this case the DUT(Device Under Test) is set 0mm away from the phantom, the test distance is 0mm

#### **5.6 SAR Evaluation Procedure**

The evaluation was performed with the following procedure:

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

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- Step 2: The SAR distribution at the exposed side of the head was measured at a distance of 4 mm from the inner surface of the shell. The area covered the entire dimension of the head or radiating structures of the EUT, the horizontal grid spacing was 15 mm x 15 mm, and the SAR distribution was determined by integrated grid of 1.5mm x 1.5mm. Based on these data, the area of the maximum absorption was determined by spline interpolation. The first Area Scan covers the entire dimension of the EUT to ensure that the hotspot was correctly identified.
- Step 3: Around this point, a volume of 30 mm x 30 mm x 30 mm was assessed by measuring 7x 7 x 7 points. On the basis of this data set, the spatial peak SAR value was evaluated under the following procedure:
  - 1) The data at the surface were extrapolated, since the center of the dipoles is 1.2 mm away from the tip of the probe and the distance between the surface and the lowest measuring point is 1.3 mm. The extrapolation was based on a least square algorithm. A polynomial of the fourth order was calculated through the points in z-axes. This polynomial was then used to evaluate the points between the surface and the probe tip.
  - 2) The maximum interpolated value was searched with a straightforward algorithm. Around this maximum the SAR values averaged over the spatial volumes (1 g or 10 g) were computed by the 3D-Spline interpolation algorithm. The 3D-Spline is composed of three one dimensional splines with the "Not a knot"-condition (in x, y and z-directions). The volume was integrated with the trapezoidal-algorithm. One thousand points  $(10 \times 10 \times 10)$  were interpolated to calculate the averages.

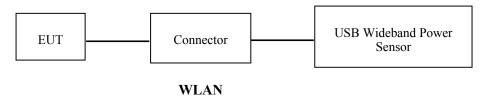
All neighboring volumes were evaluated until no neighboring volume with a higher average value was found.

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.

## 6. CONDUCTED OUTPUT POWER MEASUREMENT

### **6.1 Test Procedure**

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



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## **6.3 Maximum Target Output Power**

Max	Target Power(dBn	n)	
Mode/Dand		Channel	
Mode/Band	Low	Middle	High
WLAN 2.4G (802.11b)	13.6	13.6	13.6
WLAN 2.4G (802.11g)	12.6	12.6	12.6
WLAN 2.4G (802.11n HT20)	12.6	12.6	12.6
WLAN 2.4G (802.11n HT40)	10.8	10.8	10.8
WLAN 5.2G (802.11 a)	11	11	11
WLAN 5.2G (802.11 n20)	10.9	10.9	10.9
WLAN 5.2G (802.11 n40)	10.9	/	10.9
WLAN 5.3G (802.11 a)	10.7	10.7	10.7
WLAN 5.3G (802.11 n20)	10.5	10.5	10.5
WLAN 5.3G (802.11 n40)	10.5	/	10.5
WLAN 5.6G (802.11 a)	11.8	11.8	11.8
WLAN 5.6G (802.11 n20)	11.8	11.8	11.8
WLAN 5.6G (802.11 n40)	11.6	11.6	11.6
WLAN 5.8G (802.11 a)	11	11	11
WLAN 5.8G (802.11 n20)	10.7	10.7	10.7
WLAN 5.8G (802.11 n40)	10.9	/	10.9

## **6.4 Test Results:**

## Wi-Fi 2.4G:

Mode	Channel frequency (MHz)	Data Rate	Duty cycle (%)	RF Output Power(dBm)
	2412			13.46
802.11b	2437	1Mbps	100	13.26
	2462			13.31
	2412			12.52
802.11g	2437	6Mbps	98.12	12.31
	2462			12.23
002.11	2412			12.44
802.11n HT20	2437	MCS0	97.4	12.27
11120	2462			12.19
002.11	2422			10.72
802.11n HT40	2437	MCS0	95.07	10.37
11110	2452			10.58

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## Wi-Fi 5.2G:

Mode	Channel frequency (MHz)	Data Rate	Duty cycle (%)	Max Average Output Power(dBm)
	5180			10.66
802.11a	5200	6Mbps	100	10.84
	5240			10.76
	5180			10.67
802.11n20	5200	MCS0	100	10.83
	5240			10.67
802.11n40	5190	MCCO	100	10.82
802.11n40	5230	MCS0	100	10.76

## Wi-Fi 5.3G:

Mode	Channel frequency (MHz)	Data Rate	Duty cycle (%)	Max Average Output Power(dBm)
	5260			10.63
802.11a	5280	6Mbps	100	10.57
	5320			10.36
	5260			10.38
802.11n20	5280	MCS0	100 10.3	10.32
	5320			10.35
802.11n40	5270	MCS0	100	10.43
002.111140	5310	MCSU	100	10.15

## Wi-Fi 5.6G:

Mode	Channel frequency (MHz)	Data Rate	Duty cycle (%)	Max Average Output Power(dBm)
	5500			11.72
002.11	5580	6Mhma	100	11.37
802.11a	5700	6Mbps	100	10.64
	5720			10.46
	5500		100	11.69
802.11n20	5580	Maga		11.38
802.111120	5700	MCS0		10.49
	5720			10.34
	5510			11.52
002 11 40	5550	Maga	100	11.25
802.11n40	5670	MCS0	100	11.14
	5710			11.03

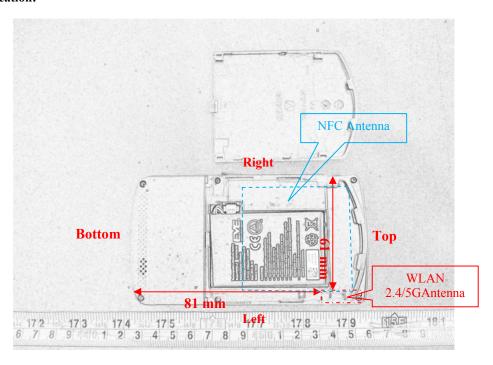
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## Wi-Fi 5.8G:

Mode	Channel frequency (MHz)	Data Rate	Duty cycle (%)	Max Average Output Power(dBm)
	5745			10.82
802.11a	5785	6Mbps	100	10.65
	5825			10.84
	5745			10.52
802.11n20	5785	MCS0	100	10.48
	5825			10.61
002.1140	5755	MCCO	100	10.77
802.11n40	5795	MCS0	100	10.79

## 7. Standalone SAR test exclusion considerations

#### **Antennas Location:**



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#### 7.1 Antenna Distance To Edge

Antenna Distance To Edge(mm)								
Antenna Back Front Left Right Top Bottom								
WLAN 2.4/5G	WLAN 2.4/5G < 5 < 5 < 61 < 5 81							

#### 7.2 Standalone SAR test exclusion considerations

Mode	Frequency (MHz)	Output Power (dBm)	Output Power (mW)	Distance (mm)	Calculated value	Threshold (1-g)	SAR Test Exclusion
Wi-Fi 2.4G	2462	13.6	22.91	0	7.2	3	NO
WLAN 5.2G	5240	11	12.59	0	5.8	3	NO
WLAN 5.3G	5320	10.7	11.75	0	5.4	3	NO
WLAN 5.6G	5720	11.8	15.14	0	7.2	3	NO
WLAN 5.8G	5825	11	12.59	0	6.1	3	NO

Note: The Wi-Fi based average power for calculation.

#### **NOTE:**

The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances  $\leq$  50 mm are determined by:

[( max. power of channel, including tune-up tolerance, mW )/( min. test separation distance, mm)]  $\sqrt{f(GHz)} \le 3.0$  for 1-g SAR and  $\le 7.5$  for 10-g extremity SAR, where

- 1. f(GHz) is the RF channel transmit frequency in GHz.
- 2. Power and distance are rounded to the nearest mW and mm before calculation.
- 3. The result is rounded to one decimal place for comparison.

4. When the minimum test separation distance is < 5 mm, a distance of 5 mm is applied to determine SAR test Exclusion.

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According to KDB 447498 D01 General RF Exposure Guidance v06, clause 4.3. General SAR test exclusion guidance:

- c) For frequencies below 100 MHz, the following may be considered for SAR test exclusion (also illustrated in Appendix C):
- 1) For test separation distances > 50 mm and < 200 mm, the power threshold at the corresponding test separation distance at 100 MHz in step b) is multiplied by  $[1 + \log(100/f(MHz))]$
- 2) For test separation distances  $\leq$  50 mm, the power threshold determined by the equation in c) 1) for 50 mm and 100 MHz is multiplied by  $\frac{1}{2}$
- 3) SAR measurement procedures are not established below 100 MHz.

#### **Measurement Result:**

For NFC, the power of EUT: E Field@3m is 70.58dBuV/m = -24.62 dBm(0.0035mW)Note: E[dB $\mu$ V/m] = EIRP[dBm] + 95.2 for d = 3 m.

SAR test exclusion threshold for NFC(13.56MHz) separation distance < 50mm

 $=[474*(1 + log(100/f_{(MHz)}))]/2$ 

= 443 mW

>0.0035mW

#### **Conclusion:**

The NFC SAR evaluation can be exempted.

#### SAR test exclusion for the EUT edge consideration

Antenna Distance To Edge								
Antenna	Back	Front	Left	Right	Тор	Bottom		
WLAN 2.4G	Required	Required	Required	No	Required	No		
WLAN 5.2G	Required	Required	Required	No	Required	No		
WLAN 5.3G	Required	Required	Required	No	Required	No		
WLAN 5.6G	Required	Required	Required	No	Required	No		
WLAN 5.8G	Required	Required	Required	No	Required	No		

#### Note:

**Required:** The distance to Edge is less than 5mm, testing is selected to be performed. **No:** The distance to Edge is large enough(larger than 50mm), testing is not needed.

## **8. SAR MEASUREMENT RESULTS**

This page summarizes the results of the performed dosimetric evaluation.

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## 8.1 SAR Test Data

### **Environmental Conditions**

Temperature:	22.9-23.7 ℃	22.4-23.1 ℃	22.2-23.1 ℃
Relative Humidity:	47 %	62 %	51 %
ATM Pressure:	101.6 kPa	100.4 kPa	101 kPa
Test Date:	2023/3/29	2023/4/6	2023/4/7

Testing was performed by Carl Chen, Weidong Lu, Way Li.

# Wi-Fi 2.4G:

EUT	Frequency	Test	Max. Meas.	Max. Rated	1	lg SAR (V	W/Kg)	
Position	(MHz)	Mode	Power (dBm)	Power (dBm)	Scaled Factor	Meas. SAR	Scaled SAR	Plot
	2412	802.11 b	13.46	13.6	1.033	0.224	0.23	1#
Body Back (0mm)	2437	802.11 b	13.26	13.6	1.081	0.238	0.26	2#
(******)	2462	802.11 b	13.31	13.6	1.069	0.2	0.21	3#
	2412	802.11 b	/	/	/	/	/	/
Body Front (0mm)	2437	802.11 b	13.26	13.6	1.081	0.118	0.13	4#
(0)	2462	802.11 b	/	/	/	/	/	/
	2412	802.11 b	/	/	/	/	/	/
Body Left (0mm)	2437	802.11 b	13.26	13.6	1.081	0.231	0.25	5#
(0)	2462	802.11 b	/	/	/	/	/	/
	2412	802.11 b	/	/	/	/	/	/
Body Top (0mm)	2437	802.11 b	13.26	13.6	1.081	0.052	0.06	6#
(0)	2462	802.11 b	/	/	/	/	/	/

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#### Note:

- 1. When the SAR value is less than half of the limit, testing for other channels are optional.
- 2. When SAR or MPE is not measured at the maximum power level allowed for production units, the results must be scaled to the maximum tune-up tolerance limit according to the power applied to the individual channels tested to determine compliance.
- 3. KDB 447498-The test separation distances required for a device to demonstrate SAR or MPE compliance must be sufficiently conservative to support the operational separation distances required by the device and its antennas and radiating structures. The test separation distance 0mm is considered sufficiently conservative.

# Wi-Fi 5.2G:

EUT	Engguener	Test	Max. Meas.	Max.		1g SAR (	W/Kg)	
Position	Frequency (MHz)	Mode	Power (dBm)	Rated Power (dBm)	Scaled Factor	Meas. SAR	Scaled SAR	Plot
	5180	802.11 a	/	/	/	/	/	/
Body Back (0mm)	5200	802.11 a	10.84	11	1.038	0.414	0.43	7#
(Onnin)	5240	802.11 a	/	/	/	/	/	/
	5180	802.11 a	/	/	/	/	/	/
Body Front (0mm)	5200	802.11 a	10.84	11	1.038	0.167	0.17	8#
(Onnin)	5240	802.11 a	/	/	/	/	/	/
	5180	802.11 a	10.66	11	1.081	0.675	0.73	9#
Body Left (0mm)	5200	802.11 a	10.84	11	1.038	0.839	0.87	10#
(OIIIII)	5240	802.11 a	10.76	11	1.057	0.811	0.86	11#
	5180	802.11 a	/	/	/	/	/	/
Body Top (0mm)	5200	802.11 a	10.84	11	1.038	0.022	0.02	12#
(0,1,1,1,1)	5240	802.11 a	/	/	/	/	/	/

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# Wi-Fi 5.3G:

EUT	Enggueney	Test	Max.	Max. Max. Meas. Rated		1g SAR (	W/Kg)	
Position	Frequency (MHz)	Mode	Power (dBm)	Power (dBm)	Scaled Factor	Meas. SAR	Scaled SAR	Plot
	5260	802.11 a	/	/	/	/	/	/
Body Back (0mm)	5280	802.11 a	10.57	10.7	1.03	0.441	0.45	13#
(011111)	5320	802.11 a	/	/	/	/	/	/
	5260	802.11 a	/	/	/	/	/	/
Body Front (0mm)	5280	802.11 a	10.57	10.7	1.03	0.082	0.08	14#
(011111)	5320	802.11 a	/	/	/	/	/	/
	5260	802.11 a	10.63	10.7	1.016	0.892	0.91	15#
Body Left (0mm)	5280	802.11 a	10.57	10.7	1.03	0.895	0.92	16#
(0)	5320	802.11 a	10.36	10.7	1.081	0.837	0.9	17#
	5260	802.11 a	/	/	/	/	/	/
Body Top (0mm)	5280	802.11 a	10.57	10.7	1.03	0.026	0.03	18#
(0.11111)	5320	802.11 a	/	/	/	/	/	/

# Wi-Fi 5.6G:

EUT	Evaguanay		Max. Meas.	Max. Rated		1g SAR (	W/Kg)	
Position	Frequency (MHz)	Test Mode	Power (dBm)	Power (dBm)	Scaled Factor	Meas. SAR	Scaled SAR	Plot
	5500	802.11 a	/	/	/	/	/	/
Body Back	5580	802.11 a	11.37	11.8	1.104	0.245	0.27	19#
(0mm)	5700	802.11 a	/	/	/	/	/	/
	5720	802.11 a	/	/	/	/	/	/
	5500	802.11 a	/	/	/	/	/	/
Body Front	5580	802.11 a	11.37	11.8	1.104	0.062	0.07	20#
(0mm)	5700	802.11 a	/	/	/	/	/	/
	5720	802.11 a	/	/	/	/	/	/
	5500	802.11 a	/	/	/	/	/	/
Body Left	5580	802.11 a	11.37	11.8	1.104	0.286	0.32	21#
(0mm)	5700	802.11 a	/	/	/	/	/	/
	5720	802.11 a	/	/	/	/	/	/
	5500	802.11 a	/	/	/	/	/	/
Body Top	5580	802.11 a	11.37	11.8	1.104	0.019	0.02	22#
(0mm)	5700	802.11 a	/	/	/	/	/	/
	5720	802.11 a	/	/	/	/	/	/

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# Wi-Fi 5.8G:

EUT	Fraguenes		Max. Meas.	Max. Rated		1g SAR (	W/Kg)	
Position	Frequency (MHz)	Test Mode	Power (dBm)	Power (dBm)	Scaled Factor	Meas. SAR	Scaled SAR	Plot
	5745	802.11 a	10.82	11	1.042	0.391	0.41	23#
Body Back (0mm)	5785	802.11 a	10.65	11	1.084	0.422	0.46	24#
(011111)	5825	802.11 a	10.84	11	1.038	0.268	0.28	25#
	5745	802.11 a	/	/	/	/	/	/
Body Front (0mm)	5785	802.11 a	10.65	11	1.084	0.134	0.15	26#
(011111)	5825	802.11 a	/	/	/	/	/	/
	5745	802.11 a	/	/	/	/	/	/
Body Left (0mm)	5785	802.11 a	10.65	11	1.084	0.418	0.45	27#
(011111)	5825	802.11 a	/	/	/	/	/	/
	5745	802.11 a	/	/	/	/	/	/
Body Top (0mm)	5785	802.11 a	10.65	11	1.084	0.031	0.03	28#
(Omm)	5825	802.11 a	/	/	/	/	/	/

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#### Note:

- 1. When the SAR value is less than half of the limit, testing for other channels are optional.
- 2. When SAR or MPE is not measured at the maximum power level allowed for production units, the results must be scaled to the maximum tune-up tolerance limit according to the power applied to the individual channels tested to determine compliance.
- 3. KDB 447498-The test separation distances required for a device to demonstrate SAR or MPE compliance must be sufficiently conservative to support the operational separation distances required by the device and its antennas and radiating structures. The test separation distance 0mm is considered sufficiently conservative.

# 9. SAR Measurement Variability

In accordance with published RF Exposure KDB procedure 865664 D01 SAR measurement 100 MHz to 6 GHz v01. These additional measurements are repeated after the completion of all measurements requiring the same head or body tissue-equivalent medium in a frequency band. The test device should be returned to ambient conditions (normal room temperature) with the battery fully charged before it is re-mounted on the device holder for the repeated measurement(s) to minimize any unexpected variations in the repeated results

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- 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  $\geq 0.80$  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  $\ge 1.45$  W/kg ( $\sim 10\%$  from the 1-g SAR limit).
- 4) Perform a third repeated measurement only if the original, first or second repeated measurement is ≥1.5 W/kg and the ratio of largest to smallest SAR for the original, first and second repeated measurements is > 1.20.

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

### The Highest Measured SAR Configuration in Each Frequency Band

# **Body SAR**

SAR probe Free	Frequency	Fra - (MII-)	EUT D:4:	Meas. SA	AR (W/kg)	Largest to
calibration point	Band	Freq.(MHz)	EUT Position	Original	Repeated	Smallest SAR Ratio
5200MHz (5090-5250MHz)	Wi-Fi 5.2G	5200	Body Left	0.839	0.827	1.01
5300MHz (5250-5410MHz)	Wi-Fi 5.3G	5280	Body Left	0.895	0.879	1.02

#### Note:

- 1. Second Repeated Measurement is not required since the ratio of the largest to smallest SAR for the original and first repeated measurement is not > 1.20.
- 2. The measured SAR results **do not** have to be scaled to the maximum tune-up tolerance to determine if repeated measurements are required.
- 3. SAR measurement variability must be assessed for each frequency band, which is determined by the **SAR probe calibration point and tissue-equivalent medium** used for the device measurements.

# 10. SAR SIMULTANEOUS TRANSMISSION DESCRIPTION

# **Simultaneous Transmission:**

Description of Simultaneous Transmit Capabilities					
Transmitter Combination	Simultaneous?	Hotspot?			
WLAN 2.4G/5G + NFC	V	×			

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# Note:

For the EIRP of NFC is 0.04mW, per KDB447498 D01 clause 4.3, the estimated SAR is so lower, so the NFC almost have no influence on the results of simultaneous transmission.

# 11. SAR Plots

# Plot 1#: 2.4G WIFI Low\_ Body Back

#### DUT: Link/2500; Type: Link/2500 CL/WiFi; Serial: 2390

Communication System: 802.11 b (0); Frequency: 2412 MHz; Duty Cycle: 1:1 Medium parameters used: f = 2412 MHz;  $\sigma$  = 1.738 S/m;  $\epsilon_r$  = 39.886;  $\rho$  = 1000 kg/m³

Phantom section: Flat Section

#### DASY5 Configuration:

Probe: EX3DV4 - SN7522; ConvF(7.22, 7.22, 7.22) @ 2412 MHz; Calibrated: 2022/5/6

Report No.: CR230312549-20A

• Sensor-Surface: 1.4mm (Mechanical Surface Detection)

• Electronics: DAE4 Sn1354; Calibrated: 2022/10/31

• Phantom: Twin SAM; Type: Twin SAM V5.0; Serial: TP:1412

• Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

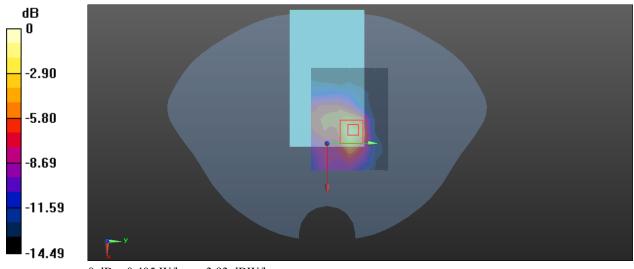
**Area Scan (9x7x1):** Measurement grid: dx=12mm, dy=12mm Maximum value of SAR (measured) = 0.330 W/kg

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 5.676 V/m; Power Drift = 0.14 dB

Peak SAR (extrapolated) = 0.536 W/kg

SAR(1 g) = 0.224 W/kg; SAR(10 g) = 0.103 W/kgMaximum value of SAR (measured) = 0.405 W/kg



0 dB = 0.405 W/kg = -3.93 dBW/kg

# Plot 2#: 2.4G WIFI Mid\_ Body Back

#### DUT: Link/2500; Type: Link/2500 CL/WiFi; Serial: 2390

Communication System: 802.11 b (0); Frequency: 2437 MHz; Duty Cycle: 1:1 Medium parameters used: f = 2437 MHz;  $\sigma$  = 1.806 S/m;  $\epsilon_r$  = 39.548;  $\rho$  = 1000 kg/m<sup>3</sup>

Phantom section: Flat Section

#### DASY5 Configuration:

Probe: EX3DV4 - SN7522; ConvF(7.22, 7.22, 7.22) @ 2437 MHz; Calibrated: 2022/5/6

Report No.: CR230312549-20A

• Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1354; Calibrated: 2022/10/31

• Phantom: Twin SAM; Type: Twin SAM V5.0; Serial: TP:1412

• Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

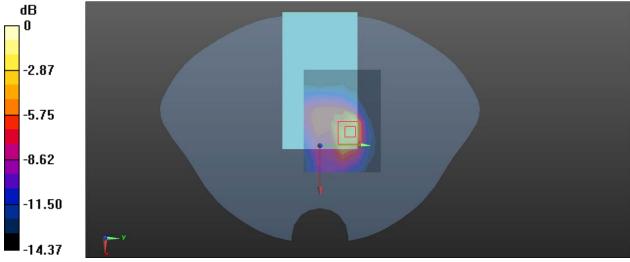
Area Scan (9x7x1): Measurement grid: dx=12mm, dy=12mm Maximum value of SAR (measured) = 0.302 W/kg

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 5.532 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 0.581 W/kg

SAR(1 g) = 0.238 W/kg; SAR(10 g) = 0.108 W/kg Maximum value of SAR (measured) = 0.430 W/kg



0 dB = 0.430 W/kg = -3.67 dBW/kg

# Plot 3#: 2.4G WIFI High\_ Body Back

#### DUT: Link/2500; Type: Link/2500 CL/WiFi; Serial: 2390

Communication System: 802.11 b (0); Frequency: 2462 MHz; Duty Cycle: 1:1 Medium parameters used: f=2462 MHz;  $\sigma=1.846$  S/m;  $\epsilon_r=38.856$ ;  $\rho=1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

#### DASY5 Configuration:

Probe: EX3DV4 - SN7522; ConvF(7.22, 7.22, 7.22) @ 2462 MHz; Calibrated: 2022/5/6

Report No.: CR230312549-20A

• Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1354; Calibrated: 2022/10/31

Phantom: Twin SAM; Type: Twin SAM V5.0; Serial: TP:1412

• Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

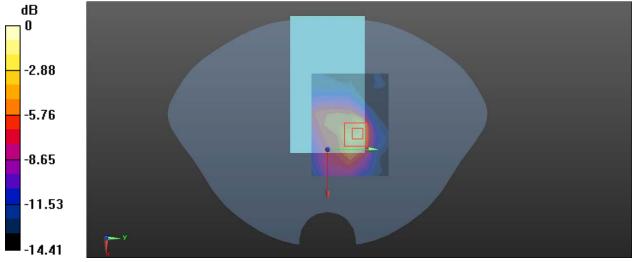
Area Scan (9x7x1): Measurement grid: dx=12mm, dy=12mm Maximum value of SAR (measured) = 0.252 W/kg

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 5.690 V/m; Power Drift = 0.07 dB

Peak SAR (extrapolated) = 0.490 W/kg

SAR(1 g) = 0.200 W/kg; SAR(10 g) = 0.093 W/kgMaximum value of SAR (measured) = 0.376 W/kg



0 dB = 0.376 W/kg = -4.25 dBW/kg

# Plot 4#: 2.4G WIFI Mid\_Body Front

#### DUT: Link/2500; Type: Link/2500 CL/WiFi; Serial: 2390

Communication System: 802.11 b (0); Frequency: 2437 MHz; Duty Cycle: 1:1 Medium parameters used: f = 2437 MHz;  $\sigma$  = 1.806 S/m;  $\epsilon_r$  = 39.548;  $\rho$  = 1000 kg/m<sup>3</sup>

Phantom section: Flat Section

#### DASY5 Configuration:

Probe: EX3DV4 - SN7522; ConvF(7.22, 7.22, 7.22) @ 2437 MHz; Calibrated: 2022/5/6

Report No.: CR230312549-20A

• Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1354; Calibrated: 2022/10/31

• Phantom: Twin SAM; Type: Twin SAM V5.0; Serial: TP:1412

Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

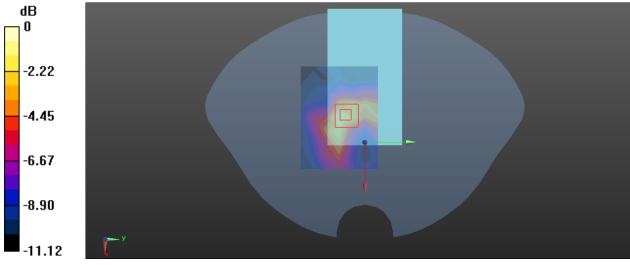
Area Scan (9x7x1): Measurement grid: dx=12mm, dy=12mm Maximum value of SAR (measured) = 0.172 W/kg

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 3.326 V/m; Power Drift = 0.13 dB

Peak SAR (extrapolated) = 0.250 W/kg

SAR(1 g) = 0.118 W/kg; SAR(10 g) = 0.060 W/kgMaximum value of SAR (measured) = 0.179 W/kg



0 dB = 0.179 W/kg = -7.47 dBW/kg

# Plot 5#: 2.4G WIFI Mid\_ Body Left

#### DUT: Link/2500; Type: Link/2500 CL/WiFi; Serial: 2390

Communication System: 802.11 b (0); Frequency: 2437 MHz; Duty Cycle: 1:1 Medium parameters used: f = 2437 MHz;  $\sigma = 1.806$  S/m;  $\varepsilon_r = 39.548$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

#### DASY5 Configuration:

Probe: EX3DV4 - SN7522; ConvF(7.22, 7.22, 7.22) @ 2437 MHz; Calibrated: 2022/5/6

Report No.: CR230312549-20A

• Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1354; Calibrated: 2022/10/31

Phantom: Twin SAM; Type: Twin SAM V5.0; Serial: TP:1412

Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

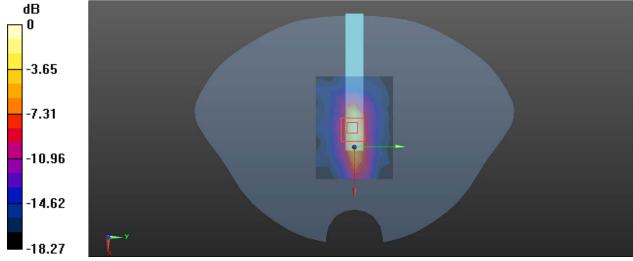
Area Scan (9x7x1): Measurement grid: dx=12mm, dy=12mm Maximum value of SAR (measured) = 0.524 W/kg

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 9.772 V/m; Power Drift = -0.03 dB

Peak SAR (extrapolated) = 0.669 W/kg

SAR(1 g) = 0.231 W/kg; SAR(10 g) = 0.087 W/kgMaximum value of SAR (measured) = 0.518 W/kg



0 dB = 0.518 W/kg = -2.86 dBW/kg

# Plot 6#: 2.4G WIFI Mid\_ Body Top

#### DUT: Link/2500; Type: Link/2500 CL/WiFi; Serial: 2390

Communication System: 802.11 b (0); Frequency: 2437 MHz; Duty Cycle: 1:1 Medium parameters used: f = 2437 MHz;  $\sigma = 1.806$  S/m;  $\epsilon_r = 39.548$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

#### DASY5 Configuration:

Probe: EX3DV4 - SN7522; ConvF(7.22, 7.22, 7.22) @ 2437 MHz; Calibrated: 2022/5/6

Report No.: CR230312549-20A

• Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1354; Calibrated: 2022/10/31

• Phantom: Twin SAM; Type: Twin SAM V5.0; Serial: TP:1412

• Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

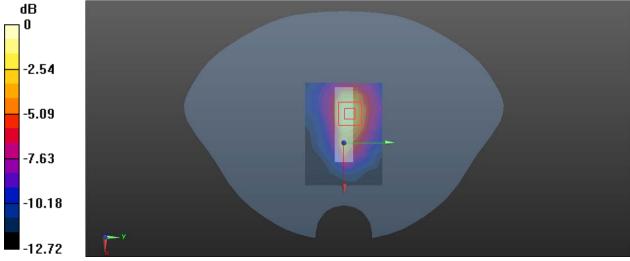
**Area Scan (9x7x1):** Measurement grid: dx=12mm, dy=12mm Maximum value of SAR (measured) = 0.0640 W/kg

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 4.063 V/m; Power Drift = 0.17 dB

Peak SAR (extrapolated) = 0.111 W/kg

SAR(1 g) = 0.052 W/kg; SAR(10 g) = 0.027 W/kgMaximum value of SAR (measured) = 0.0884 W/kg



0 dB = 0.0884 W/kg = -10.54 dBW/kg

# Plot 7#: 5.2G WIFI Mid\_ Body Back

#### DUT: Link/2500; Type: Link/2500 CL/WiFi; Serial: 2390

Communication System: 802.11 a (0); Frequency: 5200 MHz; Duty Cycle: 1:1 Medium parameters used: f = 5200 MHz;  $\sigma$  = 4.607 S/m;  $\epsilon_r$  = 36.081;  $\rho$  = 1000 kg/m<sup>3</sup>

Phantom section: Flat Section

#### DASY5 Configuration:

• Probe: EX3DV4 - SN7329; ConvF(5.6, 5.6, 5.6) @ 5200 MHz; Calibrated: 2023/1/3

Report No.: CR230312549-20A

• Sensor-Surface: 1.4mm (Mechanical Surface Detection)

• Electronics: DAE4 Sn1354; Calibrated: 2022/10/31

• Phantom: Twin SAM; Type: Twin SAM V5.0; Serial: TP:1412

• Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

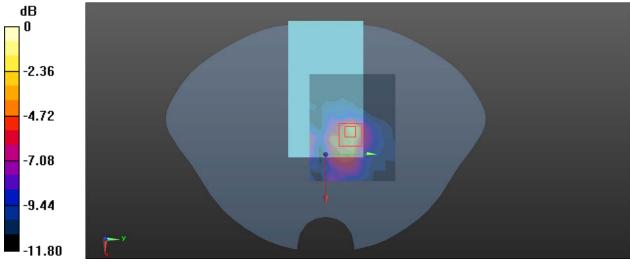
**Area Scan (11x9x1):** Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (measured) = 0.777 W/kg

Zoom Scan (9x9x6)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 4.865 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 1.61 W/kg

**SAR(1 g) = 0.414 W/kg; SAR(10 g) = 0.169 W/kg** Maximum value of SAR (measured) = 0.898 W/kg



0 dB = 0.898 W/kg = -0.47 dBW/kg

#### DUT: Link/2500; Type: Link/2500 CL/WiFi; Serial: 2390

Communication System: 802.11 a (0); Frequency: 5200 MHz; Duty Cycle: 1:1 Medium parameters used: f = 5200 MHz;  $\sigma = 4.607 \text{ S/m}$ ;  $\varepsilon_r = 36.081$ ;  $\rho = 1000 \text{ kg/m}^3$ 

Phantom section: Flat Section

#### DASY5 Configuration:

Probe: EX3DV4 - SN7329; ConvF(5.6, 5.6, 5.6) @ 5200 MHz; Calibrated: 2023/1/3

Report No.: CR230312549-20A

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1354; Calibrated: 2022/10/31

Phantom: Twin SAM; Type: Twin SAM V5.0; Serial: TP:1412

Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

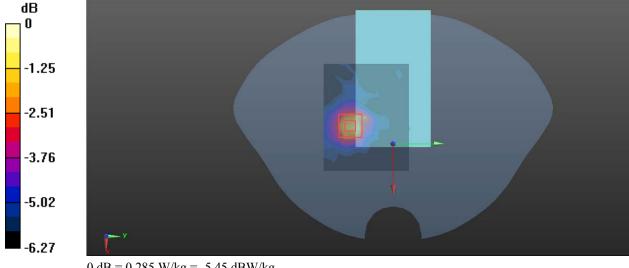
Area Scan (11x9x1): Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (measured) = 0.253 W/kg

Zoom Scan (9x9x6)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 3.939 V/m; Power Drift = 0.20 dB

Peak SAR (extrapolated) = 0.509 W/kg

SAR(1 g) = 0.167 W/kg; SAR(10 g) = 0.110 W/kgMaximum value of SAR (measured) = 0.285 W/kg



0 dB = 0.285 W/kg = -5.45 dBW/kg

# Plot 9#: 5.2G WIFI Low\_ Body Left

#### DUT: Link/2500; Type: Link/2500 CL/WiFi; Serial: 2390

Communication System: 802.11 a (0); Frequency: 5180 MHz; Duty Cycle: 1:1 Medium parameters used: f = 5180 MHz;  $\sigma$  = 4.528 S/m;  $\epsilon_r$  = 36.489;  $\rho$  = 1000 kg/m<sup>3</sup>

Phantom section: Flat Section

#### DASY5 Configuration:

• Probe: EX3DV4 - SN7329; ConvF(5.6, 5.6, 5.6) @ 5180 MHz; Calibrated: 2023/1/3

• Sensor-Surface: 1.4mm (Mechanical Surface Detection)

• Electronics: DAE4 Sn1354; Calibrated: 2022/10/31

• Phantom: Twin SAM; Type: Twin SAM V5.0; Serial: TP:1412

Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

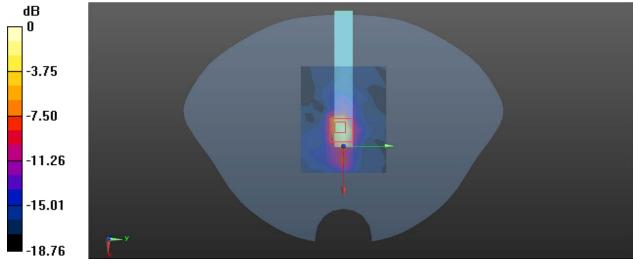
**Area Scan (11x9x1):** Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (measured) = 1.44 W/kg

Zoom Scan (9x9x6)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 6.395 V/m; Power Drift = 0.11 dB

Peak SAR (extrapolated) = 2.99 W/kg

SAR(1 g) = 0.675 W/kg; SAR(10 g) = 0.201 W/kgMaximum value of SAR (measured) = 1.56 W/kg



0 dB = 1.56 W/kg = 1.93 dBW/kg

# Plot 10#: 5.2G WIFI Mid\_ Body Left

#### DUT: Link/2500; Type: Link/2500 CL/WiFi; Serial: 2390

Communication System: 802.11 a (0); Frequency: 5200 MHz; Duty Cycle: 1:1 Medium parameters used: f = 5200 MHz;  $\sigma$  = 4.607 S/m;  $\epsilon_r$  = 36.081;  $\rho$  = 1000 kg/m<sup>3</sup>

Phantom section: Flat Section

#### DASY5 Configuration:

• Probe: EX3DV4 - SN7329; ConvF(5.6, 5.6, 5.6) @ 5200 MHz; Calibrated: 2023/1/3

Report No.: CR230312549-20A

• Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1354; Calibrated: 2022/10/31

Phantom: Twin SAM; Type: Twin SAM V5.0; Serial: TP:1412

• Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

**Area Scan (11x9x1):** Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (measured) = 1.74 W/kg

Zoom Scan (9x9x6)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 6.729 V/m; Power Drift = 0.16 dB

Peak SAR (extrapolated) = 3.96 W/kg

-18.71

SAR(1 g) = 0.839 W/kg; SAR(10 g) = 0.243 W/kgMaximum value of SAR (measured) = 2.05 W/kg

-3.74 -7.48 -11.23 -14.97

0 dB = 2.05 W/kg = 3.12 dBW/kg

# Plot 11#: 5.2G WIFI High\_ Body Left

#### DUT: Link/2500; Type: Link/2500 CL/WiFi; Serial: 2390

Communication System: 802.11 a (0); Frequency: 5240 MHz; Duty Cycle: 1:1 Medium parameters used: f = 5240 MHz;  $\sigma$  = 4.768 S/m;  $\epsilon_r$  = 35.772;  $\rho$  = 1000 kg/m<sup>3</sup>

Phantom section: Flat Section

#### DASY5 Configuration:

• Probe: EX3DV4 - SN7329; ConvF(5.6, 5.6, 5.6) @ 5240 MHz; Calibrated: 2023/1/3

Report No.: CR230312549-20A

• Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1354; Calibrated: 2022/10/31

Phantom: Twin SAM; Type: Twin SAM V5.0; Serial: TP:1412

Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

**Area Scan (11x9x1):** Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (measured) = 1.86 W/kg

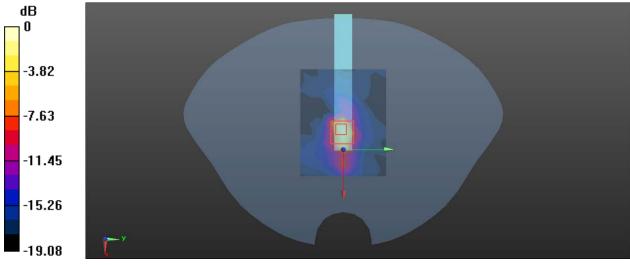
Zoom Scan (9x9x6)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 6.415 V/m; Power Drift = 0.15 dB

Peak SAR (extrapolated) = 3.73 W/kg

SAR(1 g) = 0.811 W/kg; SAR(10 g) = 0.241 W/kg

Maximum value of SAR (measured) = 1.93 W/kg



0 dB = 1.93 W/kg = 2.86 dBW/kg

# Plot 12#: 5.2G WIFI Mid\_Body Top

#### DUT: Link/2500; Type: Link/2500 CL/WiFi; Serial: 2390

Communication System: 802.11 a (0); Frequency: 5200 MHz; Duty Cycle: 1:1 Medium parameters used: f = 5200 MHz;  $\sigma$  = 4.607 S/m;  $\epsilon_r$  = 36.081;  $\rho$  = 1000 kg/m<sup>3</sup>

Phantom section: Flat Section

#### DASY5 Configuration:

• Probe: EX3DV4 - SN7329; ConvF(5.6, 5.6, 5.6) @ 5200 MHz; Calibrated: 2023/1/3

Report No.: CR230312549-20A

• Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1354; Calibrated: 2022/10/31

• Phantom: Twin SAM; Type: Twin SAM V5.0; Serial: TP:1412

• Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

**Area Scan (11x9x1):** Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (measured) = 0.0300 W/kg

Zoom Scan (9x9x6)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 1.422 V/m; Power Drift = 0.16 dB

Peak SAR (extrapolated) = 0.0630 W/kg

SAR(1 g) = 0.022 W/kg; SAR(10 g) = 0.016 W/kgMaximum value of SAR (measured) = 0.0357 W/kg

-0.91 -1.82 -2.72 -3.63

0 dB = 0.0357 W/kg = -14.47 dBW/kg

# Plot 13#: 5.3G WIFI Mid\_ Body Back

#### DUT: Link/2500; Type: Link/2500 CL/WiFi; Serial: 2390

Communication System: 802.11 a (0); Frequency: 5280 MHz; Duty Cycle: 1:1 Medium parameters used: f = 5280 MHz;  $\sigma$  = 4.921 S/m;  $\epsilon_r$  = 35.423;  $\rho$  = 1000 kg/m<sup>3</sup>

Phantom section: Flat Section

#### DASY5 Configuration:

• Probe: EX3DV4 - SN7329; ConvF(5.37, 5.37, 5.37) @ 5280 MHz; Calibrated: 2023/1/3

Report No.: CR230312549-20A

• Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1354; Calibrated: 2022/10/31

Phantom: Twin SAM; Type: Twin SAM V5.0; Serial: TP:1412

• Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

**Area Scan (11x9x1):** Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (measured) = 1.04 W/kg

Zoom Scan (9x9x6)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 3.863 V/m; Power Drift = 0.12 dB

Peak SAR (extrapolated) = 1.82 W/kg

-19.38

SAR(1 g) = 0.441 W/kg; SAR(10 g) = 0.146 W/kgMaximum value of SAR (measured) = 1.03 W/kg

-3.88 -7.75 -11.63 -15.50

0 dB = 1.03 W/kg = 0.13 dBW/kg

# Plot 14#: 5.3G WIFI Mid\_ Body Front

#### DUT: Link/2500; Type: Link/2500 CL/WiFi; Serial: 2390

Communication System: 802.11 a (0); Frequency: 5280 MHz; Duty Cycle: 1:1 Medium parameters used: f = 5280 MHz;  $\sigma$  = 4.921 S/m;  $\epsilon_r$  = 35.423;  $\rho$  = 1000 kg/m<sup>3</sup>

Phantom section: Flat Section

#### DASY5 Configuration:

• Probe: EX3DV4 - SN7329; ConvF(5.37, 5.37, 5.37) @ 5280 MHz; Calibrated: 2023/1/3

Report No.: CR230312549-20A

• Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1354; Calibrated: 2022/10/31

• Phantom: Twin SAM; Type: Twin SAM V5.0; Serial: TP:1412

• Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

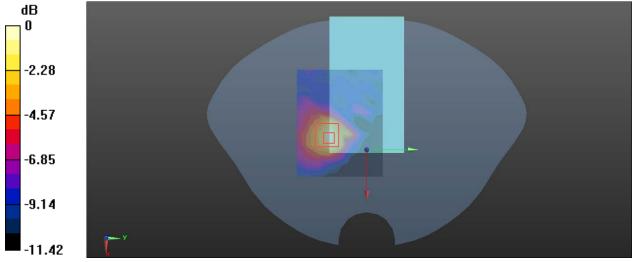
**Area Scan (11x9x1):** Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (measured) = 0.156 W/kg

Zoom Scan (9x9x6)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 1.288 V/m; Power Drift = 0.18 dB

Peak SAR (extrapolated) = 0.240 W/kg

SAR(1 g) = 0.082 W/kg; SAR(10 g) = 0.047 W/kgMaximum value of SAR (measured) = 0.158 W/kg



0 dB = 0.158 W/kg = -8.01 dBW/kg

#### Plot 15#: 5.3G WIFI Low\_ Body Left

#### DUT: Link/2500; Type: Link/2500 CL/WiFi; Serial: 2390

Communication System: 802.11 a (0); Frequency: 5260 MHz; Duty Cycle: 1:1 Medium parameters used: f = 5260 MHz;  $\sigma$  = 4.878 S/m;  $\epsilon_r$  = 35.543;  $\rho$  = 1000 kg/m<sup>3</sup>

Phantom section: Flat Section

#### DASY5 Configuration:

• Probe: EX3DV4 - SN7329; ConvF(5.37, 5.37, 5.37) @ 5260 MHz; Calibrated: 2023/1/3

Report No.: CR230312549-20A

• Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1354; Calibrated: 2022/10/31

Phantom: Twin SAM; Type: Twin SAM V5.0; Serial: TP:1412

• Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

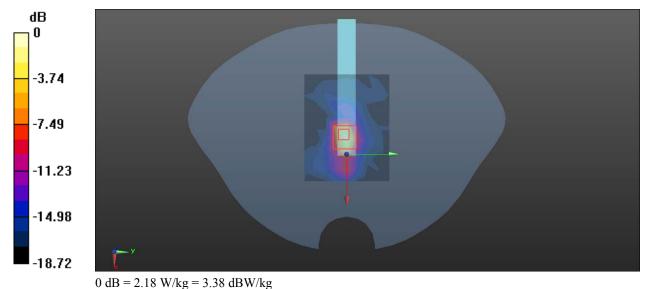
**Area Scan (11x9x1):** Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (measured) = 1.86 W/kg

Zoom Scan (9x9x6)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 6.826 V/m; Power Drift = 0.16 dB

Peak SAR (extrapolated) = 4.22 W/kg

SAR(1 g) = 0.892 W/kg; SAR(10 g) = 0.259 W/kgMaximum value of SAR (measured) = 2.18 W/kg



# Plot 16#: 5.3G WIFI Mid\_ Body Left

#### DUT: Link/2500; Type: Link/2500 CL/WiFi; Serial: 2390

Communication System: 802.11 a (0); Frequency: 5280 MHz; Duty Cycle: 1:1 Medium parameters used: f = 5280 MHz;  $\sigma$  = 4.921 S/m;  $\epsilon_r$  = 35.423;  $\rho$  = 1000 kg/m<sup>3</sup>

Phantom section: Flat Section

#### DASY5 Configuration:

Probe: EX3DV4 - SN7329; ConvF(5.37, 5.37, 5.37) @ 5280 MHz; Calibrated: 2023/1/3

Report No.: CR230312549-20A

• Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1354; Calibrated: 2022/10/31

Phantom: Twin SAM; Type: Twin SAM V5.0; Serial: TP:1412

• Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

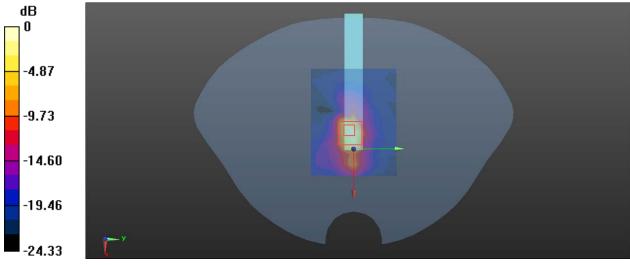
**Area Scan (11x9x1):** Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (measured) = 1.76 W/kg

Zoom Scan (9x9x6)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 7.066 V/m; Power Drift = 0.05 dB

Peak SAR (extrapolated) = 3.96 W/kg

SAR(1 g) = 0.895 W/kg; SAR(10 g) = 0.259 W/kgMaximum value of SAR (measured) = 2.15 W/kg



0 dB = 2.15 W/kg = 3.32 dBW/kg

# Plot 17#: 5.3G WIFI High\_ Body Left

#### DUT: Link/2500; Type: Link/2500 CL/WiFi; Serial: 2390

Communication System: 802.11 a (0); Frequency: 5320 MHz; Duty Cycle: 1:1 Medium parameters used: f = 5320 MHz;  $\sigma$  = 4.984 S/m;  $\epsilon_r$  = 35.325;  $\rho$  = 1000 kg/m<sup>3</sup>

Phantom section: Flat Section

#### DASY5 Configuration:

• Probe: EX3DV4 - SN7329; ConvF(5.37, 5.37, 5.37) @ 5320 MHz; Calibrated: 2023/1/3

Report No.: CR230312549-20A

• Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1354; Calibrated: 2022/10/31

Phantom: Twin SAM; Type: Twin SAM V5.0; Serial: TP:1412

• Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

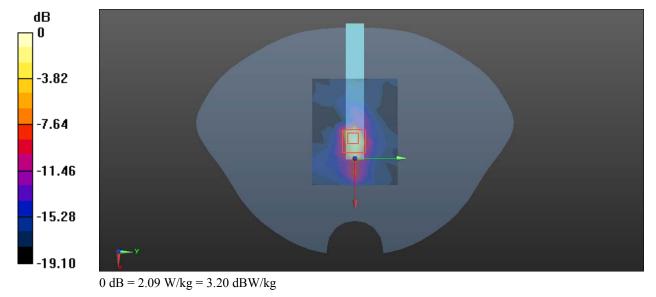
**Area Scan (11x9x1):** Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (measured) = 2.02 W/kg

Zoom Scan (9x9x6)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 6.530 V/m; Power Drift = 0.15 dB

Peak SAR (extrapolated) = 4.05 W/kg

SAR(1 g) = 0.837 W/kg; SAR(10 g) = 0.260 W/kgMaximum value of SAR (measured) = 2.09 W/kg



#### DUT: Link/2500; Type: Link/2500 CL/WiFi; Serial: 2390

Communication System: 802.11 a (0); Frequency: 5280 MHz; Duty Cycle: 1:1 Medium parameters used: f = 5280 MHz;  $\sigma$  = 4.921 S/m;  $\epsilon_r$  = 35.423;  $\rho$  = 1000 kg/m<sup>3</sup>

Phantom section: Flat Section

#### DASY5 Configuration:

Probe: EX3DV4 - SN7329; ConvF(5.37, 5.37, 5.37) @ 5280 MHz; Calibrated: 2023/1/3

Report No.: CR230312549-20A

• Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1354; Calibrated: 2022/10/31

• Phantom: Twin SAM; Type: Twin SAM V5.0; Serial: TP:1412

• Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

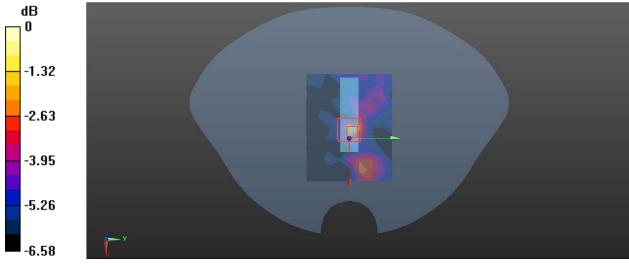
**Area Scan (11x9x1):** Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (measured) = 0.0399 W/kg

Zoom Scan (9x9x6)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 2.530 V/m; Power Drift = 0.13 dB

Peak SAR (extrapolated) = 0.102 W/kg

SAR(1 g) = 0.026 W/kg; SAR(10 g) = 0.014 W/kgMaximum value of SAR (measured) = 0.0538 W/kg



0 dB = 0.0538 W/kg = -12.69 dBW/kg

# Plot 19#: 5.6G WIFI Mid\_ Body Back

#### DUT: Link/2500; Type: Link/2500 CL/WiFi; Serial: 2390

Communication System: 802.11 a (0); Frequency: 5580 MHz; Duty Cycle: 1:1 Medium parameters used: f = 5580 MHz;  $\sigma$  = 4.907 S/m;  $\epsilon_r$  = 35.822;  $\rho$  = 1000 kg/m<sup>3</sup>

Phantom section: Flat Section

#### DASY5 Configuration:

• Probe: EX3DV4 - SN7329; ConvF(4.9, 4.9, 4.9) @ 5580 MHz; Calibrated: 2023/1/3

Report No.: CR230312549-20A

• Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1354; Calibrated: 2022/10/31

• Phantom: Twin SAM; Type: Twin SAM V5.0; Serial: TP:1412

• Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

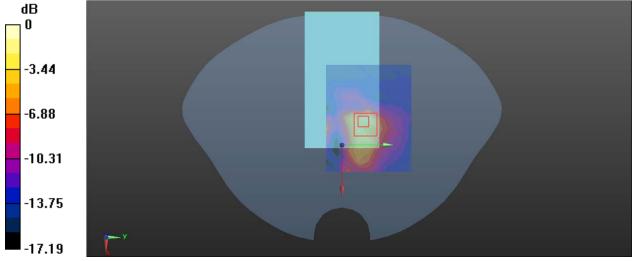
**Area Scan (11x9x1):** Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (measured) = 0.457 W/kg

Zoom Scan (9x9x6)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 2.553 V/m; Power Drift = 0.17 dB

Peak SAR (extrapolated) = 1.13 W/kg

SAR(1 g) = 0.245 W/kg; SAR(10 g) = 0.088 W/kgMaximum value of SAR (measured) = 0.576 W/kg



0 dB = 0.576 W/kg = -2.40 dBW/kg

# Plot 20#: 5.6G WIFI Mid\_ Body Front

#### DUT: Link/2500; Type: Link/2500 CL/WiFi; Serial: 2390

Communication System: 802.11 a (0); Frequency: 5580 MHz; Duty Cycle: 1:1 Medium parameters used: f = 5580 MHz;  $\sigma$  = 4.907 S/m;  $\epsilon_r$  = 35.822;  $\rho$  = 1000 kg/m<sup>3</sup>

Phantom section: Flat Section

#### DASY5 Configuration:

• Probe: EX3DV4 - SN7329; ConvF(4.9, 4.9, 4.9) @ 5580 MHz; Calibrated: 2023/1/3

Report No.: CR230312549-20A

• Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1354; Calibrated: 2022/10/31

• Phantom: Twin SAM; Type: Twin SAM V5.0; Serial: TP:1412

• Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

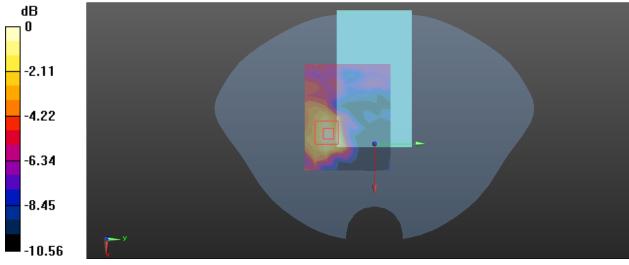
**Area Scan (11x9x1):** Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (measured) = 0.109 W/kg

Zoom Scan (9x9x6)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 1.700 V/m; Power Drift = 0.15 dB

Peak SAR (extrapolated) = 0.194 W/kg

SAR(1 g) = 0.062 W/kg; SAR(10 g) = 0.043 W/kgMaximum value of SAR (measured) = 0.120 W/kg



0 dB = 0.120 W/kg = -9.21 dBW/kg

# Plot 21#: 5.6G WIFI Mid\_ Body Left

#### DUT: Link/2500; Type: Link/2500 CL/WiFi; Serial: 2390

Communication System: 802.11 a (0); Frequency: 5580 MHz; Duty Cycle: 1:1 Medium parameters used: f = 5580 MHz;  $\sigma$  = 4.907 S/m;  $\epsilon_r$  = 35.822;  $\rho$  = 1000 kg/m<sup>3</sup>

Phantom section: Flat Section

#### DASY5 Configuration:

• Probe: EX3DV4 - SN7329; ConvF(4.9, 4.9, 4.9) @ 5580 MHz; Calibrated: 2023/1/3

Report No.: CR230312549-20A

• Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1354; Calibrated: 2022/10/31

• Phantom: Twin SAM; Type: Twin SAM V5.0; Serial: TP:1412

• Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

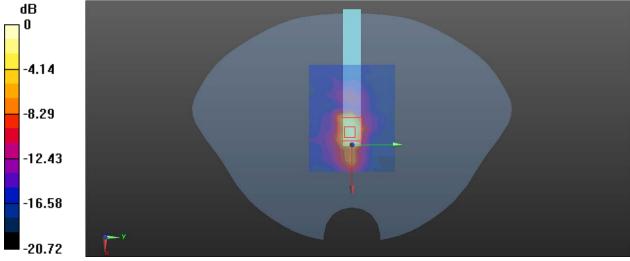
**Area Scan (11x9x1):** Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (measured) = 0.683 W/kg

Zoom Scan (9x9x6)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 4.713 V/m; Power Drift = 0.16 dB

Peak SAR (extrapolated) = 1.48 W/kg

SAR(1 g) = 0.286 W/kg; SAR(10 g) = 0.096 W/kgMaximum value of SAR (measured) = 0.743 W/kg



0 dB = 0.743 W/kg = -1.29 dBW/kg

# Plot 22#: 5.6G WIFI Mid\_ Body Top

#### DUT: Link/2500; Type: Link/2500 CL/WiFi; Serial: 2390

Communication System: 802.11 a (0); Frequency: 5580 MHz; Duty Cycle: 1:1 Medium parameters used: f = 5580 MHz;  $\sigma$  = 4.907 S/m;  $\epsilon_r$  = 35.822;  $\rho$  = 1000 kg/m<sup>3</sup>

Phantom section: Flat Section

#### DASY5 Configuration:

• Probe: EX3DV4 - SN7329; ConvF(4.9, 4.9, 4.9) @ 5580 MHz; Calibrated: 2023/1/3

Report No.: CR230312549-20A

• Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1354; Calibrated: 2022/10/31

Phantom: Twin SAM; Type: Twin SAM V5.0; Serial: TP:1412

• Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

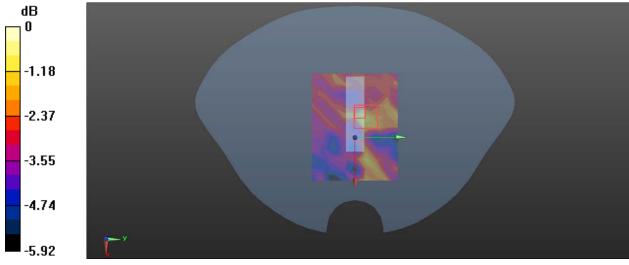
**Area Scan (11x9x1):** Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (measured) = 0.0249 W/kg

Zoom Scan (9x9x6)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 1.751 V/m; Power Drift = 0.18 dB

Peak SAR (extrapolated) = 0.0510 W/kg

SAR(1 g) = 0.019 W/kg; SAR(10 g) = 0.017 W/kgMaximum value of SAR (measured) = 0.0313 W/kg



0 dB = 0.0313 W/kg = -15.04 dBW/kg

# Plot 23#: 5.8G WIFI Low\_ Body Back

#### DUT: Link/2500; Type: Link/2500 CL/WiFi; Serial: 2390

Communication System: 802.11 a (0); Frequency: 5745 MHz; Duty Cycle: 1:1 Medium parameters used: f=5745 MHz;  $\sigma=5.149$  S/m;  $\epsilon_r=35.592$ ;  $\rho=1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

#### DASY5 Configuration:

Probe: EX3DV4 - SN7329; ConvF(4.85, 4.85, 4.85) @ 5745 MHz; Calibrated: 2023/1/3

Report No.: CR230312549-20A

• Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1354; Calibrated: 2022/10/31

Phantom: Twin SAM; Type: Twin SAM V5.0; Serial: TP:1412

• Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

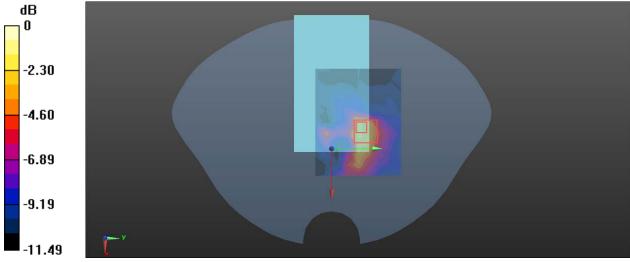
**Area Scan (11x9x1):** Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (measured) = 0.575 W/kg

Zoom Scan (9x9x6)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 4.145 V/m; Power Drift = -0.11 dB

Peak SAR (extrapolated) = 1.74 W/kg

SAR(1 g) = 0.391 W/kg; SAR(10 g) = 0.177 W/kgMaximum value of SAR (measured) = 0.899 W/kg



0 dB = 0.899 W/kg = -0.46 dBW/kg

# Plot 24#: 5.8G WIFI Mid\_ Body Back

#### DUT: Link/2500; Type: Link/2500 CL/WiFi; Serial: 2390

Communication System: 802.11 a (0); Frequency: 5785 MHz; Duty Cycle: 1:1 Medium parameters used: f = 5785 MHz;  $\sigma = 5.261$  S/m;  $\epsilon_r = 35.459$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

#### DASY5 Configuration:

Probe: EX3DV4 - SN7329; ConvF(4.85, 4.85, 4.85) @ 5785 MHz; Calibrated: 2023/1/3

Report No.: CR230312549-20A

• Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1354; Calibrated: 2022/10/31

• Phantom: Twin SAM; Type: Twin SAM V5.0; Serial: TP:1412

• Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

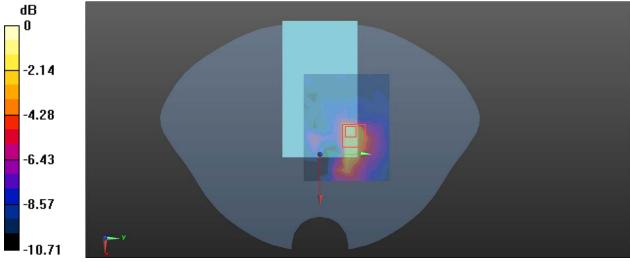
**Area Scan (11x9x1):** Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (measured) = 0.470 W/kg

Zoom Scan (9x9x6)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 3.530 V/m; Power Drift = 0.13 dB

Peak SAR (extrapolated) = 1.39 W/kg

SAR(1 g) = 0.422 W/kg; SAR(10 g) = 0.186 W/kgMaximum value of SAR (measured) = 0.685 W/kg



0 dB = 0.685 W/kg = -1.64 dBW/kg

# Plot 25#: 5.8G WIFI High\_ Body Back

#### DUT: Link/2500; Type: Link/2500 CL/WiFi; Serial: 2390

Communication System: 802.11 a (0); Frequency: 5825 MHz; Duty Cycle: 1:1 Medium parameters used: f = 5825 MHz;  $\sigma = 5.436$  S/m;  $\varepsilon_r = 35.085$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

#### DASY5 Configuration:

Probe: EX3DV4 - SN7329; ConvF(4.85, 4.85, 4.85) @ 5825 MHz; Calibrated: 2023/1/3

Report No.: CR230312549-20A

• Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1354; Calibrated: 2022/10/31

• Phantom: Twin SAM; Type: Twin SAM V5.0; Serial: TP:1412

• Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

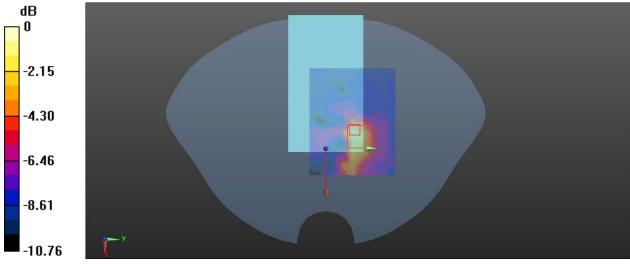
**Area Scan (11x9x1):** Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (measured) = 0.506 W/kg

Zoom Scan (9x9x6)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 4.061 V/m; Power Drift = 0.07 dB

Peak SAR (extrapolated) = 1.33 W/kg

SAR(1 g) = 0.268 W/kg; SAR(10 g) = 0.138 W/kgMaximum value of SAR (measured) = 0.576 W/kg



0 dB = 0.576 W/kg = -2.40 dBW/kg

# Plot 26#: 5.8G WIFI Mid\_ Body Front

#### DUT: Link/2500; Type: Link/2500 CL/WiFi; Serial: 2390

Communication System: 802.11 a (0); Frequency: 5785 MHz; Duty Cycle: 1:1 Medium parameters used: f=5785 MHz;  $\sigma=5.261$  S/m;  $\epsilon_r=35.459$ ;  $\rho=1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

#### DASY5 Configuration:

• Probe: EX3DV4 - SN7329; ConvF(4.85, 4.85, 4.85) @ 5785 MHz; Calibrated: 2023/1/3

Report No.: CR230312549-20A

• Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1354; Calibrated: 2022/10/31

• Phantom: Twin SAM; Type: Twin SAM V5.0; Serial: TP:1412

Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

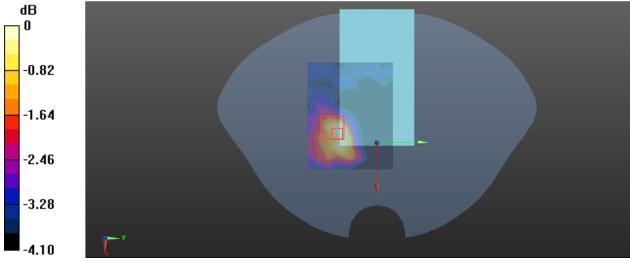
**Area Scan (11x9x1):** Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (measured) = 0.193 W/kg

Zoom Scan (9x9x6)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 3.439 V/m; Power Drift = 0.16 dB

Peak SAR (extrapolated) = 0.390 W/kg

SAR(1 g) = 0.134 W/kg; SAR(10 g) = 0.111 W/kgMaximum value of SAR (measured) = 0.192 W/kg



0 dB = 0.192 W/kg = -7.17 dBW/kg

# Plot 27#: 5.8G WIFI Mid\_ Body Left

#### DUT: Link/2500; Type: Link/2500 CL/WiFi; Serial: 2390

Communication System: 802.11 a (0); Frequency: 5785 MHz; Duty Cycle: 1:1 Medium parameters used: f = 5785 MHz;  $\sigma$  = 5.261 S/m;  $\epsilon_r$  = 35.459;  $\rho$  = 1000 kg/m<sup>3</sup>

Phantom section: Flat Section

#### DASY5 Configuration:

Probe: EX3DV4 - SN7329; ConvF(4.85, 4.85, 4.85) @ 5785 MHz; Calibrated: 2023/1/3

Report No.: CR230312549-20A

• Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1354; Calibrated: 2022/10/31

Phantom: Twin SAM; Type: Twin SAM V5.0; Serial: TP:1412

Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

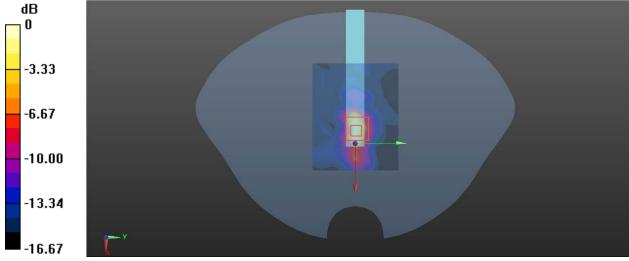
**Area Scan (11x9x1):** Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (measured) = 1.10 W/kg

Zoom Scan (9x9x6)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 6.072 V/m; Power Drift = 0.19 dB

Peak SAR (extrapolated) = 2.72 W/kg

SAR(1 g) = 0.418 W/kg; SAR(10 g) = 0.161 W/kgMaximum value of SAR (measured) = 1.26 W/kg



0 dB = 1.26 W/kg = 1.00 dBW/kg

# Plot 28#: 5.8G WIFI Mid\_ Body Top

#### DUT: Link/2500; Type: Link/2500 CL/WiFi; Serial: 2390

Communication System: 802.11 a (0); Frequency: 5785 MHz; Duty Cycle: 1:1 Medium parameters used: f = 5785 MHz;  $\sigma = 5.261$  S/m;  $\varepsilon_r = 35.459$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

#### DASY5 Configuration:

Probe: EX3DV4 - SN7329; ConvF(4.85, 4.85, 4.85) @ 5785 MHz; Calibrated: 2023/1/3

Report No.: CR230312549-20A

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1354; Calibrated: 2022/10/31

Phantom: Twin SAM; Type: Twin SAM V5.0; Serial: TP:1412

Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7470)

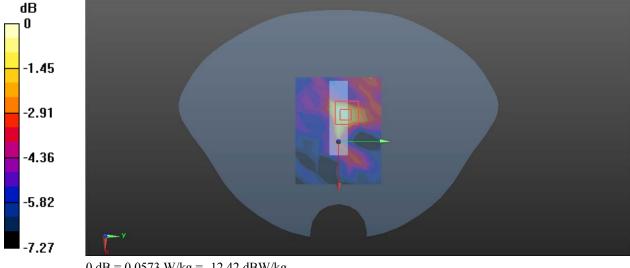
Area Scan (11x9x1): Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (measured) = 0.0549 W/kg

Zoom Scan (9x9x6)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 1.679 V/m; Power Drift = 0.18 dB

Peak SAR (extrapolated) = 0.0860 W/kg

SAR(1 g) = 0.031 W/kg; SAR(10 g) = 0.023 W/kgMaximum value of SAR (measured) = 0.0573 W/kg



0 dB = 0.0573 W/kg = -12.42 dBW/kg

# APPENDIX A MEASUREMENT UNCERTAINTY

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

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# Measurement uncertainty evaluation for IEEE1528-2013 SAR test

Source of uncertainty	Tolerance/ uncertainty ± %	Probability distribution	Divisor	ci (1 g)	ci (10 g)	Standard uncertainty ± %, (1 g)	Standard uncertainty ± %, (10 g)
		Measuremer	nt system	•			
Probe calibration	6.55	N	1	1	1	6.3	6.3
Axial Isotropy	4.7	R	√3	1	1	2.7	2.7
Hemispherical Isotropy	9.6	R	√3	0	0	0.0	0.0
Boundary effect	1.0	R	√3	1	1	0.6	0.6
Linearity	4.7	R	√3	1	1	2.7	2.7
Detection limits	1.0	R	√3	1	1	0.6	0.6
Readout electronics	0.3	N	1	1	1	0.3	0.3
Response time	0.0	R	√3	1	1	0.0	0.0
Integration time	0.0	R	√3	1	1	0.0	0.0
RF ambient conditions – noise	1.0	R	√3	1	1	0.6	0.6
RF ambient conditions– reflections	1.0	R	√3	1	1	0.6	0.6
Probe positioner mech. Restrictions	0.8	R	√3	1	1	0.5	0.5
Probe positioning with respect to phantom shell	6.7	R	√3	1	1	3.9	3.9
Post-processing	2.0	R	√3	1	1	1.2	1.2
		Test sample	e related				
Test sample positioning	2.8	N	1	1	1	2.8	2.8
Device holder uncertainty	6.3	N	1	1	1	6.3	6.3
Drift of output power	5.0	R	√3	1	1	2.9	2.9
		Phantom ar	nd set-up				
Phantom uncertainty (shape and thickness tolerances)	4.0	R	√3	1	1	2.3	2.3
Liquid conductivity target)	5.0	R	√3	0.64	0.43	1.8	1.2
Liquid conductivity meas.)	2.5	N	1	0.64	0.43	1.6	1.1
Liquid permittivity target)	5.0	R	√3	0.6	0.49	1.7	1.4
Liquid permittivity meas.)	2.5	N	1	0.6	0.49	1.5	1.2
Combined standard uncertainty		RSS				12.2	12.0
Expanded uncertainty 95 % confidence interval)						24.1	23.7

# Measurement uncertainty evaluation for IEC62209-1 SAR test

Report No.: CR230312549-20A

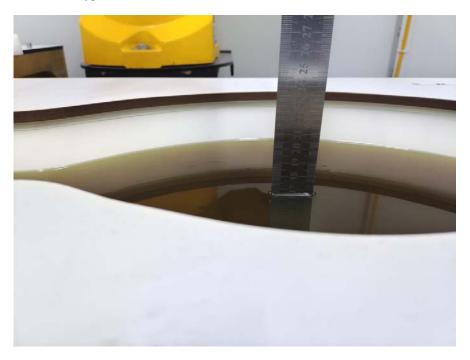
Source of uncertainty	Tolerance/ uncertainty ± %	Probability distribution	Divisor	ci (1 g)	ci (10 g)	Standard uncertainty ± %, (1 g)	Standard uncertainty ± %, (10 g)
		Measureme	nt system		ı		
Probe calibration	6.55	N	1	1	1	6.3	6.3
Axial Isotropy	4.7	R	√3	1	1	2.7	2.7
Hemispherical Isotropy	9.6	R	√3	0	0	0.0	0.0
Boundary effect	1.0	R	√3	1	1	0.6	0.6
Linearity	4.7	R	√3	1	1	2.7	2.7
Detection limits	1.0	R	√3	1	1	0.6	0.6
Readout electronics	0.3	N	1	1	1	0.3	0.3
Response time	0.0	R	√3	1	1	0.0	0.0
Integration time	0.0	R	√3	1	1	0.0	0.0
RF ambient conditions – noise	1.0	R	√3	1	1	0.6	0.6
Probe positioning with respect to phantom shell	6.7	R	√3	1	1	3.9	3.9
Probe positioner mech. Restrictions	0.8	R	√3	1	1	0.5	0.5
RF ambient conditions– reflections	1.0	R	√3	1	1	0.6	0.6
Post-processing	2.0	R	√3	1	1	1.2	1.2
		Test sampl	le related				
Test sample positioning	2.8	N	1	1	1	2.8	2.8
Device holder uncertainty	6.3	N	1	1	1	6.3	6.3
Drift of output power	5.0	R	√3	1	1	2.9	2.9
		Phantom a	nd set-up	<b>.</b>	•	•	•
Phantom uncertainty (shape and thickness tolerances)	4.0	R	√3	1	1	2.3	2.3
Liquid conductivity target)	5.0	R	√3	0.64	0.43	1.8	1.2
Liquid conductivity meas.)	2.5	N	1	0.64	0.43	1.6	1.1
Liquid permittivity target)	5.0	R	√3	0.6	0.49	1.7	1.4
Liquid permittivity meas.)	2.5	N	1	0.6	0.49	1.5	1.2
Combined standard uncertainty		RSS				12.2	12.0
Expanded uncertainty 95 % confidence interval)						24.0	23.6

# APPENDIX B EUT TEST POSITION PHOTOS

# Liquid depth ≥ 15cm

Report No.: CR230312549-20A

Phantom Type: Twin SAM; Type: Twin SAM V5.0; Serial: TP:1412



# **Body Back Setup Photo(0mm)**

Report No.: CR230312549-20A



**Body Front Setup Photo(0mm)** 



Report No.: CR230312549-20A



Body Top Setup Photo(0mm)



China Certification ICT Co., Ltd (Dongguan)	Report No.: CR230312549-20A				
APPENDIX C CALIBRATION CERTIFICATES					
Please Refer to the Attachment.					
**** END OF REPO	)RT ****				