

FCC SAR EVALUATION REPORT

In accordance with the requirements of
FCC 47 CFR Part 2(2.1093) and
IEEE Std 1528-2013

Product Name: TCx M7 Handheld LTE

Model No.: 2007-100

Serial Model: N/A

Brand Name: **TOSHIBA**

Report No.: AiTSZ-251110043FW1

FCC ID: 2AW3T-2007100

Prepared for

Toshiba Global Commerce Solutions, Inc.

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TEST RESULT CERTIFICATION

Applicant's name: Toshiba Global Commerce Solutions, Inc.
Address: 3901 South Miami Blvd. Durham, NC 27703, USA
Manufacturer's Name: Toshiba Global Commerce Solutions, Inc.
Address: 3901 South Miami Blvd. Durham, NC 27703, USA
Product description
Product name: TCx M7 Handheld LTE
Trademark: **TOSHIBA**
Model and/or type reference ..: 2007-100
Serial Model.....: N/A

FCC 47 CFR Part 2(2.1093)

Standards: IEEE Std 1528-2013

Published RF exposure KDB procedures

This device described above has been tested by Guangdong Asia Hongke Test Technology Limited. In accordance with the measurement methods and procedures specified in IEEE Std 1528-2013 and KDB 865664 D01. Testing has shown that this device is capable of compliance with localized specific absorption rate (SAR) specified in FCC 47 CFR Part 2(2.1093). The test results in this report apply only to the tested sample of the stated device/equipment. Other similar device/equipment will not necessarily produce the same results due to production tolerance and measurement uncertainties.

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Date of Test

Date (s) of performance of tests: Nov. 12, 2025 ~ Nov. 21, 2025

Date of Issue: Nov. 24, 2025

Test Result: **Pass**

Reviewed by: Ken Zou
 Ken Zou

Approved by: Jack Li
 Jack Li



※ ※ Revision History ※ ※

REV.	DESCRIPTION	ISSUED DATE	REMARK
Rev.1.0	Initial Test Report Release	Nov. 24, 2025	Jack Li

TABLE OF CONTENTS

1. General Information	6
1.1. RF exposure limits	6
1.2. Statement of Compliance	7
1.3. EUT Description	8
1.4. Test specification(s)	10
1.5. Ambient Condition	10
1.6. Test Facility	10
2. SAR Measurement System	11
2.1. SATIMO SAR Measurement Set-up Diagram	11
2.2. Robot	12
2.3. Probe	13
2.3.1. E-Field Probe Calibration	13
2.4. Phantoms	14
2.5. Technical Data	15
2.6. Device Holder	16
2.7. Test Equipment List	17
3. SAR Measurement Procedures	20
3.1. Power Reference	20
3.2. Area scan & Zoom scan	20
3.3. Description of interpolation/extrapolation scheme	22
3.4. Volumetric Scan	22
3.5. Power Drift	22
4. System Verification Procedure	23
4.1. Tissue Verification	23
4.1.1. Tissue Dielectric Parameter Check Results	24
4.2. System Verification Procedure	28
4.2.1. System Verification Results	29
5. SAR measurement variability	30
6. SAR Measurement Uncertainty	31
7. RF Exposure Positions	32
7.1. Ear and handset reference point	32
7.2. Definition of the cheek position	32
7.3. Definition of the tilt position	34
7.4. Body Worn Accessory	34
7.5. Wireless Router Devices	35
8. RF Output Power	36
8.1. GSM Conducted Power	36
8.2. WCDMA Conducted Power	37
8.3. LTE Conducted Power	39

8.4. Wi-Fi & BT Output Power	58
8.5. NFC.....	60
9. Antenna Location	61
10. Stand-alone SAR test exclusion.....	62
11. SAR Measurement Results.....	63
12. Simultaneous Transmission Analysis	89
Appendix A. Photo documentation	90
Appendix B. System Check Plots	91
Appendix C. SAR Test Plots.....	112
Appendix D. Calibration Certificate	202
Appendix E. Justification of the extended calibration.....	271

1. General Information

1.1. RF exposure limits

(A).Limits for Occupational/Controlled Exposure (W/kg)

Whole-Body	Partial-Body	Hands, Wrists, Feet and Ankles
0.4	8.0	20.0

(B).Limits for General Population/Uncontrolled Exposure (W/kg)

Whole-Body	Partial-Body	Hands, Wrists, Feet and Ankles
0.08	1.6	4.0

NOTE: **Whole-Body SAR** is averaged over the entire body, **partial-body SAR** is averaged over any 1 gram of tissue defined as a tissue volume in the shape of a cube. **SAR for hands, wrists, feet and ankles** is averaged over any 10 grams of tissue defined as a tissue volume in the shape of a cube.

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:

Are defined as locations where there is the exposure of individuals who have no knowledge or control of their exposure.

NOTE
HEAD AND TRUNK LIMIT
1.6 W/kg
APPLIED TO THIS EUT

1.2. Statement of Compliance

The maximum results of Specific Absorption Rate (SAR) found during testing as follows.

Band	Max SAR Value Reported(W/kg)		
	1-g Head (Separation distance of 0mm)	1-g Body&Hotspot (Separation distance of 5mm)	Max SAR Summation
GSM850	0.192	0.200	Head: 1.297 Body: 0.932 Hotspot: 0.932
GSM1900	0.686	0.357	
WCDMA Band II	0.495	0.233	
WCDMA Band V	0.323	0.176	
LTE band 2	0.151	0.161	
LTE band 4	0.208	0.211	
LTE band 5	0.173	0.199	
LTE band 7	0.398	0.203	
LTE band 12	0.136	0.303	
LTE band 14	0.163	0.190	
LTE band 17	0.273	0.220	
LTE band 25	0.386	0.184	
LTE band 26A	0.165	0.174	
LTE band 26B	0.200	0.156	
LTE band 41	0.389	0.188	
LTE band 66	0.398	0.262	
2.4GHz WLAN	0.336	0.462	
5.2GHz WLAN	0.459	0.351	
5.3GHz WLAN	0.539	0.424	
5.6GHz WLAN	0.611	0.371	
5.8GHz WLAN	0.420	0.575	
Bluetooth	0.381	0.425	

NOTE: The Max SAR Summation is calculated based on the same configuration and test position.

This device is in compliance with Specific Absorption Rate (SAR) for general population/uncontrolled exposure limits (1.6 W/kg) specified in FCC 47 CFR Part 2(2.1093), and had been tested in accordance with the measurement methods and procedures specified in IEEE Std 1528-2013 & KDB 865664 D01.

1.3. EUT Description

Device Information			
Product Name	TCx M7 Handheld LTE		
Model Name	2007-100		
Family Model	N/A		
Model Difference	N/A		
Device Phase	Identical Prototype		
Exposure Category	General population / Uncontrolled environment		
Antenna Type	Internal Antenna		
Power rating:	DC 3.87V 5000mAh 19.35Wh Rechargeable Li-ion battery		
Hardware version	N/A		
Software version	N/A		
Device Operating Configurations			
Supporting Mode(s)	GSM850/1900,WCDMABand2/5,LTEBand2/4/5/7/12/14/17/25/26A/26B/41/66 , WLAN 2.4G/5G, Bluetooth, NFC		
Test Modulation	GSM(GMSK/8PSK), WCDMA(QPSK), LTE(QPSK/16QAM), WLAN(DSSS/OFDM), Bluetooth(GFSK, $\pi/4$ -DQPSK, 8DPSK), NFC(ASK)		
Device Class	B		
Operating Frequency Range(s)	Band	Tx (MHz)	Rx (MHz)
	GSM 850	824-849	869-894
	GSM 1900	1850-1910	1930-1990
	WCDMA Band 2	1850-1910	1930-1990
	WCDMA Band 5	824-849	869-894
	LTE Band 2	1850-1910	1930-1990
	LTE Band 4	1710-1755	2110-2155
	LTE Band 5	824-849	869-894
	LTE Band 7	2500-2570	2620-2690
	LTE Band 12	699-716	729-746
	LTE Band 14	788-798	758-768
	LTE Band 17	704-716	734-746
	LTE Band 25	1850-1915	1930-1995
	LTE Band 26A	814-824	859-869
	LTE Band 26B	824-849	869-894
	LTE Band 41	2555-2655	
	LTE Band 66	1710-1780	2110-2200
	WLAN 2.4G	2412-2462	
	WLAN 5.2G	5180-5240	
	WLAN 5.3G	5260-5320	

	WLAN 5.6G	5500-5700
	WLAN 5.8G	5745-5825
	NFC	13.56
	Bluetooth	2402-2480
GPRS Multislot Class(12)	Max Number of Timeslots in Uplink	4
	Max Number of Timeslots in Downlink	4
	Max Total Timeslot	5
EGPRS Multislot Class(12)	Max Number of Timeslots in Uplink	4
	Max Number of Timeslots in Downlink	4
	Max Total Timeslot	5
Power Class	4, tested with power level 5(GSM 850)	
	1, tested with power level 0(GSM 1900)	
	3, tested with power control "all 1"(WCDMA Band 2)	
	3, tested with power control "all 1"(WCDMA Band 5)	
	3, tested with power control all Max.(LTE Band 2)	
	3, tested with power control all Max.(LTE Band 4)	
	3, tested with power control all Max.(LTE Band 5)	
	3, tested with power control all Max.(LTE Band 7)	
	3, tested with power control all Max.(LTE Band 12)	
	3, tested with power control all Max.(LTE Band 14)	
	3, tested with power control all Max.(LTE Band 17)	
	3, tested with power control all Max.(LTE Band 25)	
	3, tested with power control all Max.(LTE Band 26A)	
	3, tested with power control all Max.(LTE Band 26B)	
	3, tested with power control all Max.(LTE Band 41)	
	3, tested with power control all Max.(LTE Band 66)	

1.4. Test specification(s)

FCC 47 CFR Part 2(2.1093)
IEEE Std 1528-2013
KDB 865664 D01 SAR measurement 100 MHz to 6 GHz v01r04
KDB 865664 D02 RF Exposure Reporting v01r02
KDB 447498 D01 General RF Exposure Guidance v06
KDB 248227 D01 802.11 Wi-Fi SAR v02r02
KDB 941225 D01 3G SAR Procedures v03r01
KDB 941225 D05 SAR for LTE Devices v02r05
KDB 941225 D06 Hotspot SAR v02r01
KDB 648474 D04 Handset SAR v01r03

1.5. Ambient Condition

Ambient temperature	20°C – 24°C
Relative Humidity	30% – 70%

1.6. Test Facility

Test Laboratory:

Guangdong Asia Hongke Test Technology Limited

B1/F, Building 11, Junfeng Industrial Park, Chongqing Road, Heping Community, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China

The test facility is recognized, certified or accredited by the following organizations:

FCC-Registration No.: 251906 Designation Number: CN1376

Guangdong Asia Hongke Test Technology Limited has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files.

IC —Registration No.: 31737 CAB identifier: CN0165

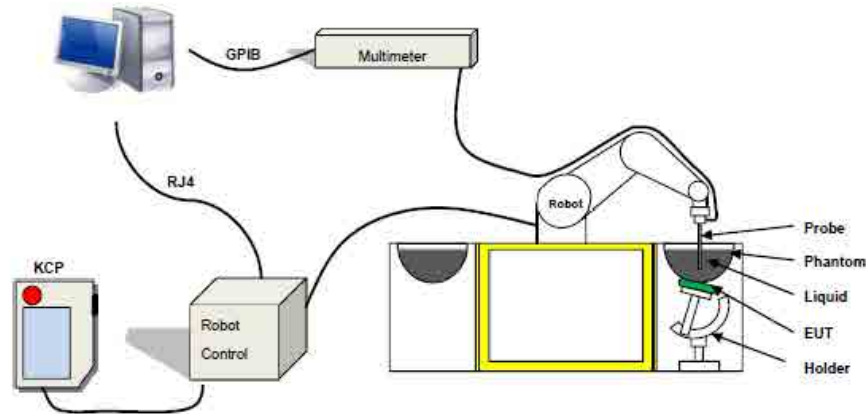
The 3m Semi-anechoic chamber of Guangdong Asia Hongke Test Technology Limited has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 31737

A2LA-Lab Cert. No.: 7133.01

Guangdong Asia Hongke Test Technology Limited has been accredited by A2LA for technical competence in the field of electrical testing, and proved to be in compliance with ISO/IEC 17025: 2017 General Requirements for the Competence of Testing and Calibration Laboratories and any additional program requirements in the identified field of testing.

2. SAR Measurement System

2.1. SATIMO SAR Measurement Set-up Diagram



These measurements were performed with the automated near-field scanning system OPENSAR from SATIMO. The system is based on a high precision robot (working range: 901 mm), which positions the probes with a positional repeatability of better than ± 0.03 mm. The SAR measurements were conducted with dosimetric probe (manufactured by SATIMO), designed in the classical triangular configuration and optimized for dosimetric evaluation.

The first step of the field measurement is the evaluation of the voltages induced on the probe by the device under test. Probe diode detectors are nonlinear. Below the diode compression point, the output voltage is proportional to the square of the applied E-field; above the diode compression point, it is linear to the applied E-field. The compression point depends on the diode, and a calibration procedure is necessary for each sensor of the probe.

The Keithley multimeter reads the voltage of each sensor and send these three values to the PC. The corresponding E field value is calculated using the probe calibration factors, which are stored in the working directory. This evaluation includes linearization of the diode characteristics. The field calculation is done separately for each sensor. Each component of the E field is displayed on the "Dipole Area Scan Interface" and the total E field is displayed on the "3D Interface"

2.2. Robot

The SATIMO SAR system uses the high precision robots from KUKA. For the 6-axis controller system, the robot controller version (KUKA) from KUKA is used. The KUKA robot series have many features that are important for our application:



- High precision (repeatability ± 0.03 mm)
- High reliability (industrial design)
- Jerk-free straight movements
- Low ELF interference (the closed metallic construction shields against motor control fields)

2.3. Probe

This E-field detection probe is composed of three orthogonal dipoles linked to special Schottky diodes with low detection thresholds. The probe allows the measurement of electric fields in liquids such as the one defined in the IEEE and CENELEC standards.

For the measurements the Specific Dosimetric E-Field Probe EPGO 0523-403 with following specifications is used.



- Probe Length: 330 mm
- Length of Individual Dipoles: 2 mm
- Maximum external diameter: 8 mm
- Probe Tip External Diameter: 2.5 mm
- Distance between dipole/probe extremity: 1 mm
- Dynamic range: 0.01-100 W/kg
- Probe linearity: 3%
- Axial Isotropy: < 0.10 dB
- Spherical Isotropy: < 0.10 dB
- Calibration range: 150 MHz to 6 GHz for head & body simulating liquid.
- Angle between probe axis (evaluation axis) and surface normal line: less than 30°

2.3.1. E-Field Probe Calibration

Each probe needs to be calibrated according to a dosimetric assessment procedure with accuracy better than $\pm 10\%$. The spherical isotropy shall be evaluated and within $\pm 0.25\text{dB}$. The sensitivity parameters (Norm X, Norm Y, and Norm Z), the diode compression parameter (DCP) and the conversion factor (Conv F) of the probe are tested. The calibration data can be referred to appendix D of this report.

2.4. Phantoms

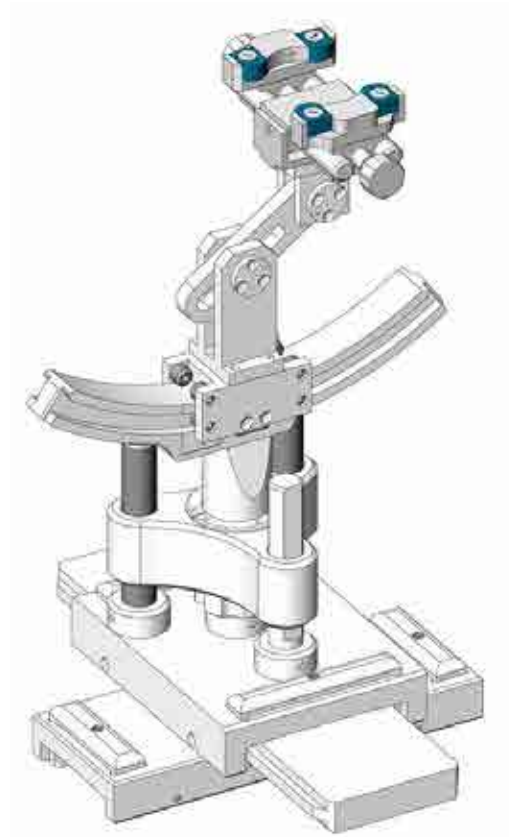
For the measurements the Specific Anthropomorphic Mannequin (SAM) defined by the IEEE SCC-34/SC2 group is used. The phantom is a polyurethane shell integrated in a wooden table. The thickness of the phantom amounts to 2mm +/- 0.2mm. It enables the dosimetric evaluation of left and right phone usage and includes an additional flat phantom part for the simplified performance check. The phantom set-up includes a cover, which prevents the evaporation of the liquid.



SAM

The test, based on ultrasonic system, allows measuring the thickness with an accuracy of 10 μm .

2.6. Device Holder



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

2.7. Test Equipment List

This table gives a complete overview of the SAR measurement equipment.

Devices used during the test described are marked ☒

	Manufacturer	Name of Equipment	Type/Model	Serial Number	Calibration	
					Last Cal.	Due Date
☒	MVG	E FIELD PROBE	SSE2	EPGO 0523-403	Sep. 09, 2025	Sep. 08, 2026
☒	MVG	750 MHz Dipole	SID750	SN 03/15 DIP 0G750-355	Feb. 21, 2024	Feb. 20, 2027
☒	MVG	835 MHz Dipole	SID835	SN 03/15 DIP 0G835-347	Feb. 21, 2024	Feb. 20, 2027
☐	MVG	900 MHz Dipole	SID900	SN 03/15 DI P 0G900-348	Feb. 21, 2024	Feb. 20, 2027
☒	MVG	1800 MHz Dipole	SID1800	SN 03/15 DIP 1G800-349	Feb. 21, 2024	Feb. 20, 2027
☒	MVG	1900 MHz Dipole	SID1900	SN 03/15 DIP 1G900-350	Feb. 21, 2024	Feb. 20, 2027
☐	MVG	2000 MHz Dipole	SID2000	SN 03/15 DIP 2G000-351	Feb. 21, 2024	Feb. 20, 2027
☐	MVG	2300 MHz Dipole	SID2300	SN 03/16 DIP 2G300-358	Feb. 21, 2024	Feb. 20, 2027
☒	MVG	2450 MHz Dipole	SID2450	SN 03/15 DIP 2G450-352	Feb. 21, 2024	Feb. 20, 2027
☒	MVG	2600 MHz Dipole	SID2600	SN 03/15 DIP 2G600-356	Feb. 21, 2024	Feb. 20, 2027
☒	MVG	5000 MHz Dipole	SWG5500	SN 13/14 WGA 33	Feb. 21, 2024	Feb. 20, 2027
☒	MVG	Liquid measurement Kit	SCLMP	SN 21/15 OCPG 72	Jul. 02, 2023	Jul. 01, 2024
					Jul. 01, 2024	Jun. 30, 2025
					Jun. 30, 2025	Jun. 29, 2026
☒	MVG	Power Amplifier	N.A	AMPLISAR_28/14_003	NCR	NCR
☒	KEITHLEY	Millivoltmeter	2000	4072790	Jul. 02, 2023	Jul. 01, 2024
					Jul. 01, 2024	Jun. 30, 2025
					Jun. 30, 2025	Jun. 29, 2026

☒	R&S	Wideband radio communication tester	CMW500	116581	Jul. 02, 2023	Jul. 01, 2024
					Jul. 01, 2024	Jun. 30, 2025
					Jun. 30, 2025	Jun. 29, 2026
☒	HP	Network Analyzer	8753D	3410J01136	Jul. 02, 2023	Jul. 01, 2024
					Jul. 01, 2024	Jun. 30, 2025
					Jun. 30, 2025	Jun. 29, 2026
☒	Agilent	PSG Analog Signal Generator	E8257D	MY51110112	Jul. 02, 2023	Jul. 01, 2024
					Jul. 01, 2024	Jun. 30, 2025
					Jun. 30, 2025	Jun. 29, 2026
☒	Agilent	Power meter	E4419B	MY45102538	Jul. 02, 2023	Jul. 01, 2024
					Jul. 01, 2024	Jun. 30, 2025
					Jun. 30, 2025	Jun. 29, 2026
☒	Agilent	Power meter	E4419B	MY45102140	Jul. 02, 2023	Jul. 01, 2024
					Jul. 01, 2024	Jun. 30, 2025
					Jun. 30, 2025	Jun. 29, 2026
☒	Agilent	Power meter	E4419B	MY45102215	Jul. 02, 2023	Jul. 01, 2024
					Jul. 01, 2024	Jun. 30, 2025
					Jun. 30, 2025	Jun. 29, 2026
☒	JFW	attenuator	50FPE-006	4360846-494-4	Jul. 02, 2023	Jul. 01, 2024
					Jul. 01, 2024	Jun. 30, 2025

					Jun. 30, 2025	Jun. 29, 2026
☒	JFW	attenuator	50FPE-006	4360846-492-1	Jul. 02, 2023	Jul. 01, 2024
					Jul. 01, 2024	Jun. 30, 2025
					Jun. 30, 2025	Jun. 29, 2026
☒	JFW	attenuator	50FPE-006	4360846-490-6	Jul. 02, 2023	Jul. 01, 2024
					Jul. 01, 2024	Jun. 30, 2025
					Jun. 30, 2025	Jun. 29, 2026
☒	Agilent	Power sensor	E9301A	MY41495644	Jul. 02, 2023	Jul. 01, 2024
					Jul. 01, 2024	Jun. 30, 2025
					Jun. 30, 2025	Jun. 29, 2026
☒	Agilent	Power sensor	E9301A	US39212148	Jul. 02, 2023	Jul. 01, 2024
					Jul. 01, 2024	Jun. 30, 2025
					Jun. 30, 2025	Jun. 29, 2026
☒	MCLI/USA	Directional Coupler	CB11-20	0D2L51502	Jul. 18, 2021	Jul. 17, 2024
					Jul. 17, 2024	Jul. 16, 2027
☒	N/A	Thermometer	N/A	LES-085	Sep. 23, 2024	Sep. 22, 2027
☒	Shenzhen Tianxu Communication Technology Co., Ltd.	Human Simulating Liquid	Head 2450	Head 2450	NCR	NCR
☒	MVG	SAR Phantom	SSM2	SN 24/11 SAM87	NCR	NCR
☒	MVG	Device Holder	SMPPD	SN 24/11 MSH73	NCR	NCR

3. SAR Measurement Procedures

The measurement procedures are as follows:

<Conducted power measurement>

- (a) For WWAN power measurement, use base station simulator to configure EUT WWAN transmission in conducted connection with RF cable, at maximum power in each supported wireless interface and frequency band.
- (b) Read the WWAN RF power level from the base station simulator.
- (c) For Wi-Fi/BT power measurement, use engineering software to configure EUT Wi-Fi/BT continuously transmission, at maximum RF power in each supported wireless interface and frequency band.
- (d) Connect EUT RF port through RF cable to the power meter, and measure Wi-Fi/BT output power.

<SAR measurement>

- (a) Use base station simulator to configure EUT WWAN transmission in radiated connection, and engineering software to configure EUT Wi-Fi/BT continuously transmission, at maximum RF power, in the highest power channel.
- (b) Place the EUT in the positions as Appendix A demonstrates.
- (c) Set scan area, grid size and other setting on the OPENSAR software.
- (d) Measure SAR results for the highest power channel on each testing position.
- (e) Find out the largest SAR result on these testing positions of each band.
- (f) Measure SAR results for other channels in worst SAR testing position if the reported SAR of highest power channel is larger than 0.8 W/kg.

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

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

3.1. Power Reference

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

3.2. Area scan & Zoom scan

The area scan is a 2D scan to find the hot spot location on the DUT. The zoom scan is a 3D scan

above the hot spot to calculate the 1g and 10g SAR value.

Measurement of the SAR distribution with a grid of 8 to 16 mm * 8 to 16 mm and a constant distance to the inner surface of the phantom. Since the sensors cannot directly measure at the inner phantom surface, the values between the sensors and the inner phantom surface are extrapolated. With these values the area of the maximum SAR is calculated by an interpolation scheme. Around this point, a cube of 30 * 30 * 30 mm or 32 * 32 * 32 mm is assessed by measuring 5 or 8 * 5 or 8 * 4 or 5 mm. With these data, the peak spatial-average SAR value can be calculated.

From the scanned SAR distribution, identify the position of the maximum SAR value, in addition identify the positions of any local maxima with SAR values within 2 dB of the maximum value that will not be within the zoom scan of other peaks; additional peaks shall be measured only when the primary peak is within 2 dB of the SAR compliance limit (e.g., 1 W/kg for 1,6 W/kg 1 g limit, or 1,26 W/kg for 2 W/kg, 10 g limit).

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

			≤ 3 GHz	> 3 GHz
Maximum distance from closest measurement point (geometric center of probe sensors) to phantom surface			5 ± 1 mm	$\frac{1}{2} \cdot \delta \cdot \ln(2) \pm 0.5 \text{ mm}$
Maximum probe angle from probe axis to phantom surface normal at the measurement location			30° ± 1°	20° ± 1°
Maximum area scan spatial resolution: Δx _{Area} , Δy _{Area}			≤ 2 GHz: ≤ 15 mm 2 – 3 GHz: ≤ 12 mm	3 – 4 GHz: ≤ 12 mm 4 – 6 GHz: ≤ 10 mm
			When the x or y dimension of the test device, in the measurement plane orientation, is smaller than the above, the measurement resolution must be ≤ the corresponding x or y dimension of the test device with at least one measurement point on the test device.	
Maximum zoom scan spatial resolution: Δx _{Zoom} , Δy _{Zoom}			≤ 2 GHz: ≤ 8 mm 2 – 3 GHz: ≤ 5 mm*	3 – 4 GHz: ≤ 5 mm* 4 – 6 GHz: ≤ 4 mm*
Maximum zoom scan spatial resolution, normal to phantom surface	uniform grid: Δz _{Zoom} (n)		≤ 5 mm	3 – 4 GHz: ≤ 4 mm 4 – 5 GHz: ≤ 3 mm 5 – 6 GHz: ≤ 2 mm
	graded grid	Δz _{Zoom} (1): between 1 st two points closest to phantom surface	≤ 4 mm	3 – 4 GHz: ≤ 3 mm 4 – 5 GHz: ≤ 2.5 mm 5 – 6 GHz: ≤ 2 mm
		Δz _{Zoom} (n>1): between subsequent points	≤ 1.5 · Δz _{Zoom} (n-1)	
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: δ is the penetration depth of a plane-wave at normal incidence to the tissue medium; see draft standard IEEE P1528-2011 for details.				
* When zoom scan is required and the <i>reported</i> SAR from the <i>area scan based 1-g SAR estimation</i> procedures of KDB 447498 is ≤ 1.4 W/kg, ≤ 8 mm, ≤ 7 mm and ≤ 5 mm zoom scan resolution may be applied, respectively, for 2 GHz to 3 GHz, 3 GHz to 4 GHz and 4 GHz to 6 GHz.				

3.3. Description of interpolation/extrapolation scheme

The local SAR inside the phantom is measured using small dipole sensing elements inside a probe body. The probe tip must not be in contact with the phantom surface in order to minimise measurements errors, but the highest local SAR will occur at the surface of the phantom.

An extrapolation is used to determine these highest local SAR values. The extrapolation is based on a fourth-order least-square polynomial fit of measured data. The local SAR value is then extrapolated from the liquid surface with a 1 mm step.

The measurements have to be performed over a limited time (due to the duration of the battery) so the step of measurement is high. It could vary between 5 and 8 mm. To obtain an accurate assessment of the maximum SAR averaged over 10 grams and 1 gram requires a very fine resolution in the three dimensional scanned data array.

3.4. Volumetric Scan

The volumetric scan consists of a full 3D scan over a specific area. This 3D scan is useful for multi Tx SAR measurement. Indeed, it is possible with OpenSAR to add, point by point, several volumetric scans to calculate the SAR value of the combined measurement as it is defined in the standard IEEE1528 and IEC62209.

3.5. Power Drift

All SAR testing is under the EUT with full charged battery and transmit maximum output power. In OpenSAR measurement software, the power reference measurement and power drift measurement procedures are used for monitoring the power drift of EUT during SAR test. Both these procedures measure the field at a specified reference position before and after the SAR testing. The software will calculate the field difference in V/m. If the power drifts more than $\pm 5\%$, the SAR will be retested.

4. System Verification Procedure

4.1. Tissue Verification

The following tissue formulations are provided for reference only as some of the parameters have not been thoroughly verified. The composition of ingredients may be modified accordingly to achieve the desired target tissue parameters required for routine SAR evaluation.

Ingredients (% of weight)	Head Tissue									
	750	835	900	1800	1900	2000	2450	2600	5200	5800
Frequency Band (MHz)	750	835	900	1800	1900	2000	2450	2600	5200	5800
Water	34.40	34.40	34.40	55.36	55.36	57.87	57.87	57.87	65.53	65.53
NaCl	0.79	0.79	0.79	0.35	0.35	0.16	0.16	0.16	0.00	0.00
1,2-Propanediol	64.81	64.81	64.81	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Triton X-100	0.00	0.00	0.00	30.45	30.45	19.97	19.97	19.97	24.24	24.24
DGBE	0.00	0.00	0.00	13.84	13.84	22.00	22.00	22.00	10.23	10.23

For SAR measurement of the field distribution inside the phantom, the phantom must be filled with homogeneous tissue simulating liquid to a depth of at least 15 cm. For head SAR testing, the liquid depth from the ear reference point (ERP) of the phantom to the liquid top surface is larger than 15 cm.



4.1.1. Tissue Dielectric Parameter Check Results

The simulating liquids should be checked at the beginning of a series of SAR measurements to determine of the dielectric parameter are within the tolerances of the specified target values. The measured conductivity and relative permittivity should be within $\pm 5\%$ of the target values.

Tissue Type	Measured Frequency (MHz)	Target Tissue		Measured Tissue		Liquid Temp.	Test Date
		ϵ_r ($\pm 5\%$)	σ (S/m) ($\pm 5\%$)	ϵ_r	σ (S/m)		
Head 750	704	42.15 (40.04~44.25)	0.89 (0.84~0.93)	41.38	0.86	21.2 °C	Nov. 12, 2025
Head 750	707.5	42.13 (40.02~44.23)	0.89 (0.84~0.93)	42.14	0.92	21.2 °C	Nov. 12, 2025
Head 750	709	42.12 (40.01~44.22)	0.89 (0.84~0.93)	41.41	0.86	21.2 °C	Nov. 12, 2025
Head 750	710	42.11 (40.01~44.22)	0.89 (0.84~0.93)	42.12	0.92	21.2 °C	Nov. 12, 2025
Head 750	711	42.11 (40.00~44.21)	0.89 (0.84~0.93)	41.46	0.86	21.2 °C	Nov. 12, 2025
Head 750	750	41.96 (39.86~44.06)	0.89 (0.85~0.93)	41.90	0.89	21.2 °C	Nov. 12, 2025
Head 750	793	41.70 (39.61~43.78)	0.90 (0.85~0.94)	41.71	0.90	21.2 °C	Nov. 12, 2025
Head 850	819	41.58 (39.50~43.65)	0.90 (0.85~0.94)	41.54	0.89	21.5 °C	Nov. 13, 2025
Head 850	822.5	41.56 (39.48~43.64)	0.90 (0.85~0.94)	41.40	0.88	21.5 °C	Nov. 13, 2025
Head 850	824.2	41.55 (39.47~43.63)	0.90 (0.85~0.94)	41.16	0.87	21.5 °C	Nov. 13, 2025
Head 850	826.4	41.54 (39.46~43.62)	0.90 (0.85~0.94)	41.17	0.87	21.5 °C	Nov. 13, 2025
Head 850	829	41.53 (39.45~43.60)	0.90 (0.85~0.94)	41.09	0.88	21.5 °C	Nov. 13, 2025
Head 850	831.5	41.52 (39.44~43.59)	0.90 (0.85~0.94)	41.53	0.90	21.5 °C	Nov. 13, 2025
Head 850	835	41.50 (39.43~43.58)	0.90 (0.86~0.95)	40.94	0.90	21.5 °C	Nov. 13, 2025
Head 850	836.4	41.50 (39.43~43.58)	0.90 (0.85~0.94)	41.50	0.90	21.5 °C	Nov. 13, 2025
Head 850	836.5	41.50 (39.43~43.58)	0.90 (0.85~0.94)	41.50	0.90	21.5 °C	Nov. 13, 2025

Head 850	841.5	41.50 (39.43~43.58)	0.91 (0.86~0.95)	41.23	0.90	21.5 °C	Nov. 13, 2025
Head 850	844	41.50 (39.43~43.58)	0.91 (0.86~0.95)	40.87	0.90	21.5 °C	Nov. 13, 2025
Head 850	846.6	41.50 (39.43~43.58)	0.91 (0.86~0.95)	40.83	0.90	21.5 °C	Nov. 13, 2025
Head 850	848.8	41.50 (39.43~43.58)	0.91 (0.86~0.95)	40.80	0.90	21.5 °C	Nov. 13, 2025
Head 1800	1720	40.11 (38.11~42.12)	1.35 (1.29~1.42)	39.64	1.31	21.1 °C	Nov. 14, 2025
Head 1800	1732.5	40.10 (38.09~42.10)	1.36 (1.29~1.43)	40.12	1.36	21.1 °C	Nov. 14, 2025
Head 1800	1745	40.08 (38.07~42.08)	1.37 (1.30~1.44)	40.11	1.37	21.1 °C	Nov. 14, 2025
Head 1800	1770	40.04 (38.04~42.05)	1.38 (1.31~1.45)	39.51	1.38	21.1 °C	Nov. 14, 2025
Head 1800	1800	40.00 (38.00~42.00)	1.40 (1.33~1.47)	41.52	1.40	21.1 °C	Nov. 14, 2025
Head 1900	1850.2	40.00 (38.00~42.00)	1.40 (1.33~1.47)	39.00	1.41	21.0 °C	Nov. 15, 2025
Head 1900	1852.4	40.00 (38.00~42.00)	1.40 (1.33~1.47)	38.97	1.41	21.0 °C	Nov. 15, 2025
Head 1900	1860	40.00 (38.00~42.00)	1.40 (1.33~1.47)	38.94	1.41	21.0 °C	Nov. 15, 2025
Head 1900	1880	40.00 (38.00~42.00)	1.40 (1.33~1.47)	40.00	1.40	21.0 °C	Nov. 15, 2025
Head 1900	1882.5	40.00 (38.00~42.00)	1.40 (1.33~1.47)	40.00	1.40	21.0 °C	Nov. 15, 2025
Head 1900	1900	40.00 (38.00~42.00)	1.40 (1.33~1.47)	41.27	1.32	21.0 °C	Nov. 15, 2025
Head 1900	1905	40.00 (38.00~42.00)	1.40 (1.33~1.47)	39.50	1.38	21.0 °C	Nov. 15, 2025
Head 1900	1907.6	40.00 (38.00~42.00)	1.40 (1.33~1.47)	38.73	1.43	21.0 °C	Nov. 15, 2025
Head 1900	1909.8	40.00 (38.00~42.00)	1.40 (1.33~1.47)	38.72	1.44	21.0 °C	Nov. 15, 2025
Head 2450	2402	39.28 (37.32~41.25)	1.76 (1.67~1.85)	38.43	1.76	21.8 °C	Nov. 16, 2025
Head 2450	2412	39.27 (37.30~41.23)	1.77 (1.68~1.85)	39.23	1.77	21.8 °C	Nov. 16, 2025

Head 2450	2437	39.22 (37.26~41.18)	1.79 (1.70~1.88)	39.23	1.79	21.8 °C	Nov. 16, 2025
Head 2450	2441	39.22 (37.25~41.18)	1.79 (1.70~1.88)	37.60	1.74	21.8 °C	Nov. 16, 2025
Head 2450	2450	39.20 (37.24~41.16)	1.80 (1.71~1.89)	40.04	1.80	21.8 °C	Nov. 16, 2025
Head 2450	2462	39.18 (37.22~41.14)	1.81 (1.72~1.90)	39.21	1.81	21.8 °C	Nov. 16, 2025
Head 2450	2480	39.16 (37.20~41.12)	1.83 (1.74~1.92)	39.21	1.82	21.8 °C	Nov. 16, 2025
Head 2600	2506	39.13 (37.17~41.08)	1.86 (1.77~1.95)	39.15	1.85	21.6 °C	Nov. 17, 2025
Head 2600	2510	39.12 (37.16~41.08)	1.86 (1.77~1.95)	39.12	1.87	21.6 °C	Nov. 17, 2025
Head 2600	2535	39.09 (37.13~41.04)	1.89 (1.80~1.99)	39.10	1.89	21.6 °C	Nov. 17, 2025
Head 2600	2560	39.05 (37.10~41.01)	1.92 (1.82~2.01)	39.08	1.92	21.6 °C	Nov. 17, 2025
Head 2600	2593	39.01 (37.06~40.96)	1.95 (1.85~2.05)	39.02	1.95	21.6 °C	Nov. 17, 2025
Head 2600	2600	39.01 (37.06~40.96)	1.96 (1.86~2.06)	39.00	1.96	21.6 °C	Nov. 17, 2025
Head 2600	2680	38.90 (36.96~40.85)	2.05 (1.95~2.15)	38.95	1.97	21.6 °C	Nov. 17, 2025
Head 5200	5180	36.02 (34.22~37.82)	4.64 (4.41~4.87)	34.69	4.50	21.4 °C	Nov. 18, 2025
Head 5200	5200	36.00 (34.20~37.80)	4.66 (4.43~4.89)	36.00	4.66	21.4 °C	Nov. 18, 2025
Head 5200	5240	35.96 (34.16~37.76)	4.70 (4.47~4.94)	34.47	4.55	21.4 °C	Nov. 18, 2025
Head 5200	5260	35.94 (34.14~37.74)	4.72 (4.48~4.96)	35.92	4.72	21.4 °C	Nov. 18, 2025
Head 5200	5280	35.92 (34.12~37.72)	4.74 (4.50~5.02)	35.85	4.78	21.4 °C	Nov. 18, 2025
Head 5400	5320	35.88 (34.09~37.67)	4.78 (4.54~4.98)	35.87	4.80	21.6 °C	Nov. 19, 2025
Head 5400	5400	35.80 (34.01~37.59)	4.86 (4.62~5.10)	35.80	4.86	21.6 °C	Nov. 19, 2025
Head 5600	5500	35.65 (33.87~37.43)	4.97 (4.72~5.21)	35.70	4.96	21.9 °C	Nov. 20, 2025

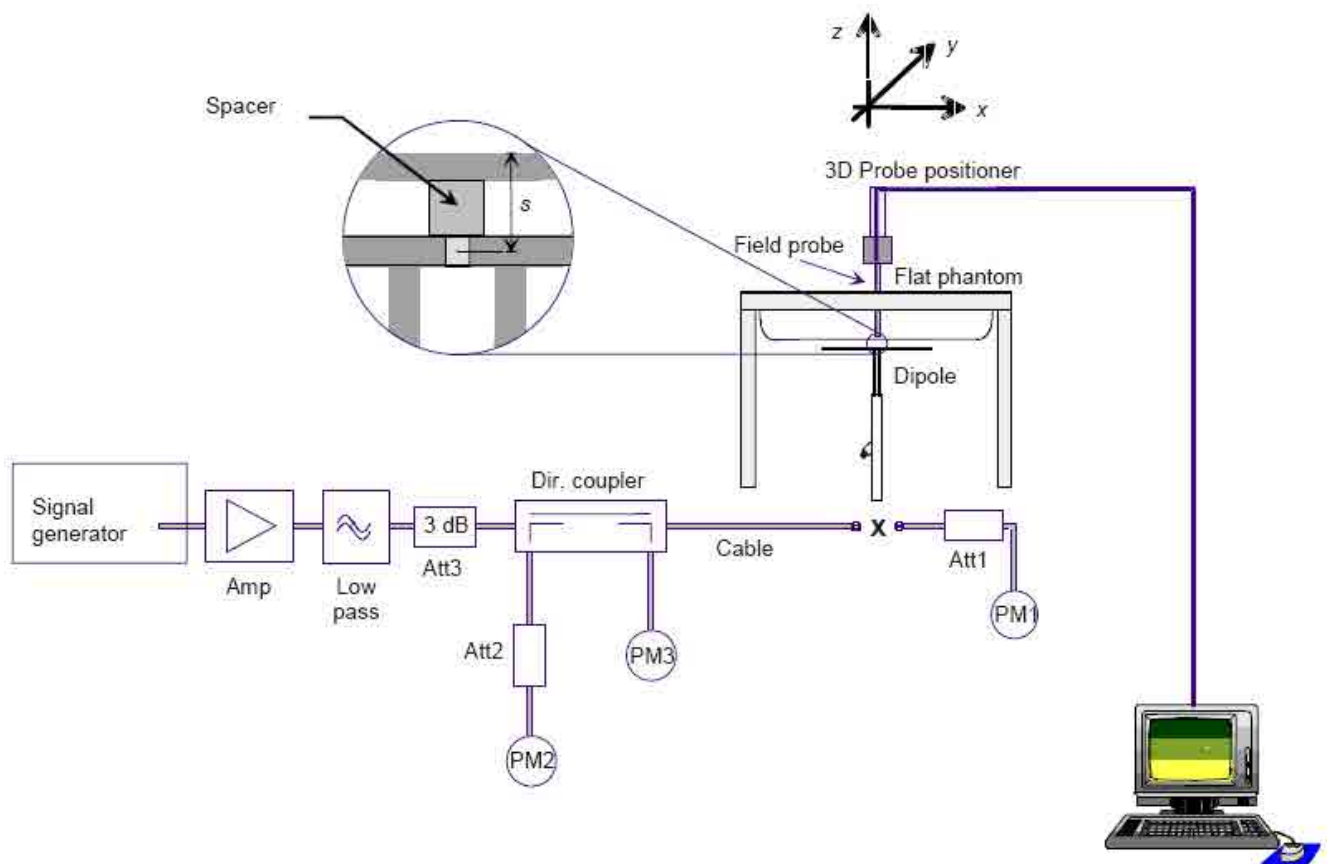
Head 5600	5600	35.50 (33.73~37.28)	5.07 (4.82~5.32)	35.50	5.07	21.9 °C	Nov. 20, 2025
Head 5600	5700	35.40 (33.63~37.17)	5.17 (4.91~5.43)	35.50	5.16	21.9 °C	Nov. 20, 2025
Head 5800	5745	35.36 (33.59~37.12)	5.22 (4.95~5.48)	35.31	5.22	21.5 °C	Nov. 21, 2025
Head 5800	5785	35.32 (33.55~37.08)	5.26 (4.99~5.52)	35.30	5.25	21.5 °C	Nov. 21, 2025
Head 5800	5800	35.30 (33.54~37.07)	5.27 (5.01~5.53)	35.30	5.27	21.5 °C	Nov. 21, 2025
Head 5800	5825	35.28 (33.51~37.04)	5.30 (5.03~5.56)	35.32	5.29	21.5 °C	Nov. 21, 2025

NOTE: The dielectric parameters of the tissue-equivalent liquid should be measured under similar ambient conditions and within 2 °C of the conditions expected during the SAR evaluation to satisfy protocol requirements.

4.2. System Verification Procedure

The system verification is performed for verifying the accuracy of the complete measurement system and performance of the software. The dipole is connected to the signal source consisting of signal generator and amplifier via a directional coupler, N-connector cable and adaption to SMA. It is fed with a power of 100mW (below 5GHz) or 25mW (above 5GHz). To adjust this power a power meter is used. The power sensor is connected to the cable before the system verification to measure the power at this point and do adjustments at the signal generator. At the outputs of the directional coupler both return loss as well as forward power are controlled during the system verification to make sure that emitted power at the dipole is kept constant. This can also be checked by the power drift measurement after the test (result on plot).

The system verification is shown as below picture:



4.2.1. System Verification Results

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

System Verification	Power fed to reference dipole (mW)	Measured SAR Value		Measured SAR (Normalized to 1W)		Target SAR Value (1W)		Deviation (%)		Test Date
		1-g (W/Kg)	10-g (W/Kg)	1-g (W/Kg)	10-g (W/Kg)	1-g (W/Kg)	10-g (W/Kg)	1-g (W/Kg)	10-g (W/Kg)	
750MHz	100	0.930	0.621	9.30	6.21	8.60	5.78	8.14%	7.44%	Nov. 12, 2025
835MHz	100	1.011	0.612	10.11	6.12	9.40	6.28	7.55%	-2.55%	Nov. 13, 2025
1800MHz	100	3.832	2.025	38.32	20.25	37.06	20.01	3.40%	1.20%	Nov. 14, 2025
1900MHz	100	4.154	2.153	41.54	21.53	39.69	20.92	4.66%	2.92%	Nov. 15, 2025
2450MHz	100	5.184	2.359	51.84	23.59	50.05	23.80	3.58%	-0.88%	Nov. 16, 2025
2600MHz	100	5.433	2.523	54.33	25.23	54.16	24.85	0.31%	1.53%	Nov. 17, 2025
5200MHz	25	3.678	1.303	147.12	52.12	162.59	56.21	-9.51%	-7.28%	Nov. 18, 2025
5400MHz	25	3.705	1.383	148.20	55.32	159.81	55.00	-7.26%	0.58%	Nov. 19, 2025
5600MHz	25	4.106	1.401	164.21	56.02	179.15	61.01	-8.34%	-8.18%	Nov. 20, 2025
5800MHz	25	4.106	1.406	164.21	56.23	182.2	61.32	-9.87%	-8.30%	Nov. 21, 2025

5. SAR measurement variability

Per KDB865664 D01 SAR measurement 100 MHz to 6 GHz, SAR measurement variability must be assessed for each frequency band, which is determined by the SAR probe calibration point and tissue-equivalent medium used for the device measurements. The additional measurements are repeated after the completion of all measurements requiring the same head or body tissue-equivalent medium in a frequency band. The test device should be returned to ambient conditions (normal room temperature) with the battery fully charged before it is re-mounted on the device holder for the repeated measurement(s) to minimize any unexpected variations in the repeated results.

1) Repeated measurement is not required when the original highest measured SAR is < 0.80 W/kg; steps 2) through 4) do not apply.

2) When the original highest measured SAR is ≥ 0.80 W/kg, repeat that measurement once.

3) Perform a second repeated measurement only if the ratio of largest to smallest SAR for the original and first repeated measurements is > 1.20 or when the original or repeated measurement is ≥ 1.45 W/kg (~ 10% from the 1-g SAR 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 .

6. SAR Measurement Uncertainty

Per KDB865664 D01 SAR Measurement 100 MHz to 6 GHz, when the highest measured 1-g SAR within a frequency band is < 1.5 W/kg, the extensive SAR measurement uncertainty analysis described in IEEE Std 1528-2013 is not required in SAR reports submitted for equipment approval. The equivalent ratio (1.5/1.6) is applied to extremity and occupational exposure conditions.

7. RF Exposure Positions

7.1. Ear and handset reference point

Figure 7.1.1 shows the front, back, and side views of the SAM phantom. The center-of-mouth reference point is labeled “M”, the left ear reference point (ERP) is marked “LE”, and the right ERP is marked “RE”.



Fig 7.1.1 Front, back, and side views of SAM phantom

7.2. Definition of the cheek position

1. Define two imaginary lines on the handset, the vertical centerline and the horizontal line. The vertical centerline passes through two points on the front side of the handset: the midpoint of the width w_t of the handset at the level of the acoustic output (point A in Figure 7.2.1 and Figure 7.2.2), and the midpoint of the width w_b of the bottom of the handset (point B). The horizontal line is perpendicular to the vertical centerline and passes through the center of the acoustic output (see Figure 7.2.1). The two lines intersect at point A. Note that for many handsets, point A coincides with the center of the acoustic output; however, the acoustic output may be located elsewhere on the horizontal line. Also note that the vertical centerline is not necessarily parallel to the front face of the handset (see Figure 7.2.2), especially for clamshell handsets, handsets with flip covers, and other irregularly-shaped handsets.
2. Position the handset close to the surface of the phantom such that point A is on the (virtual) extension of the line passing through points RE and LE on the phantom (see Figure 7.2.3), such that the plane defined by the vertical centerline and the horizontal line of the handset is approximately parallel to the sagittal plane of the phantom.
3. Translate the handset towards the phantom along the line passing through RE and LE until handset point A touches the pinna at the ERP
4. While maintaining the handset in this plane, rotate it around the LE-RE line until the vertical centerline is in the plane normal to the plane containing B-M and N-F lines, i.e., the Reference Plane.
5. Rotate the handset around the vertical centerline until the handset (horizontal line) is parallel to the N-F line.
6. While maintaining the vertical centerline in the Reference Plane, keeping point A on the line

passing through RE and LE, and maintaining the handset contact with the pinna, rotate the handset about the N-F line until any point on the handset is in contact with a phantom point below the pinna on the cheek. See Figure 7.2.3. The actual rotation angles should be documented in the test report.

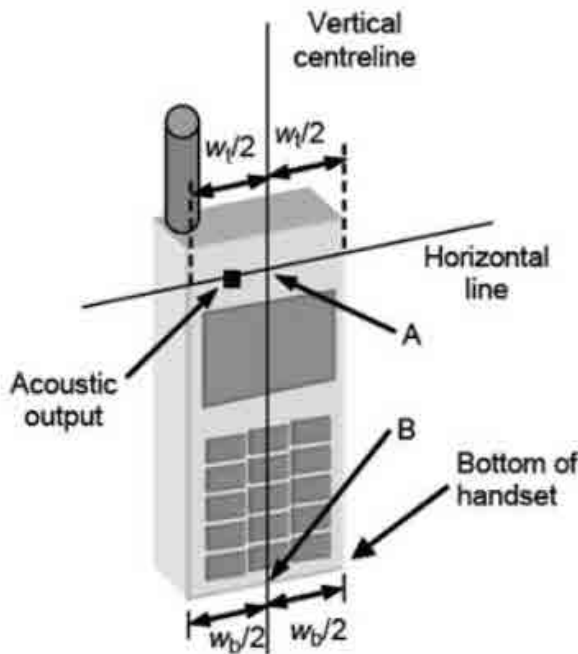


Fig 7.2.1 Handset vertical and horizontal reference lines—fixed case

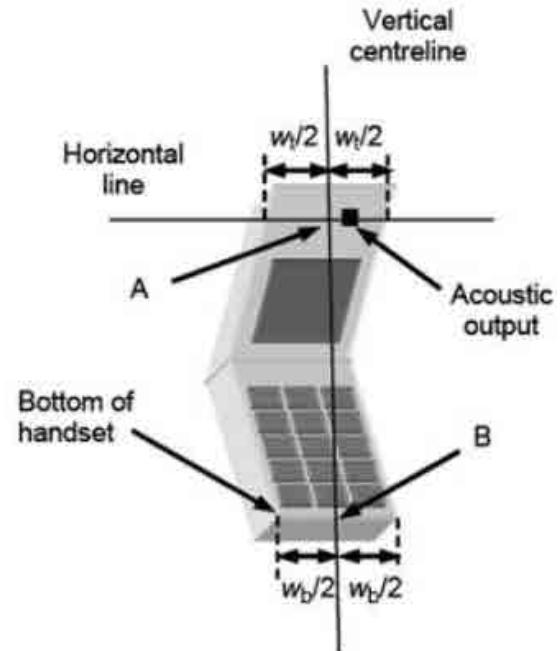


Fig 7.2.2 Handset vertical and horizontal reference lines—“clam-shell case”

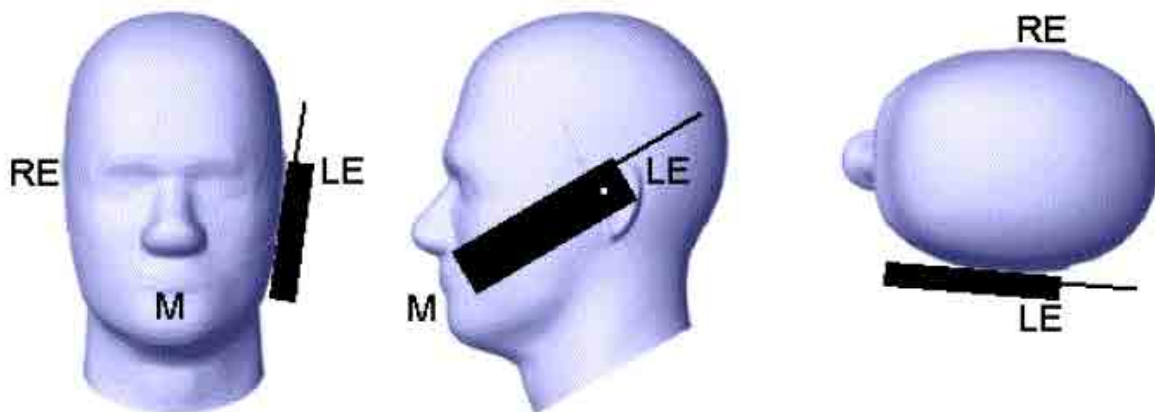


Fig 7.2.3 cheek or touch position. The reference points for the right ear (RE), left ear (LE), and mouth (M), which establish the Reference Plane for handset positioning, are indicated.

7.3. Definition of the tilt position

1. While maintaining the orientation of the handset, retract the handset parallel to the reference plane far enough away from the phantom to enable a rotation of the device by 15 degree.
2. Rotate the Handset around the horizontal line by 15 degree (see Figure 7.3.1).
3. While maintaining the orientation of the handset, move the handset towards the phantom on a line passing through RE and LE until any part of the handset touches the ear. The tilt position is obtained when the contact is on the pinna. If the contact is at any location other than the pinna, e.g., the antenna with the back of the phantom head, the angle of the handset shall be reduced. In this case, the tilt position is obtained if any part of the handset is in contact with the pinna as well as a second part of the handset is in contact with the phantom, e.g., the antenna with the back of the head.

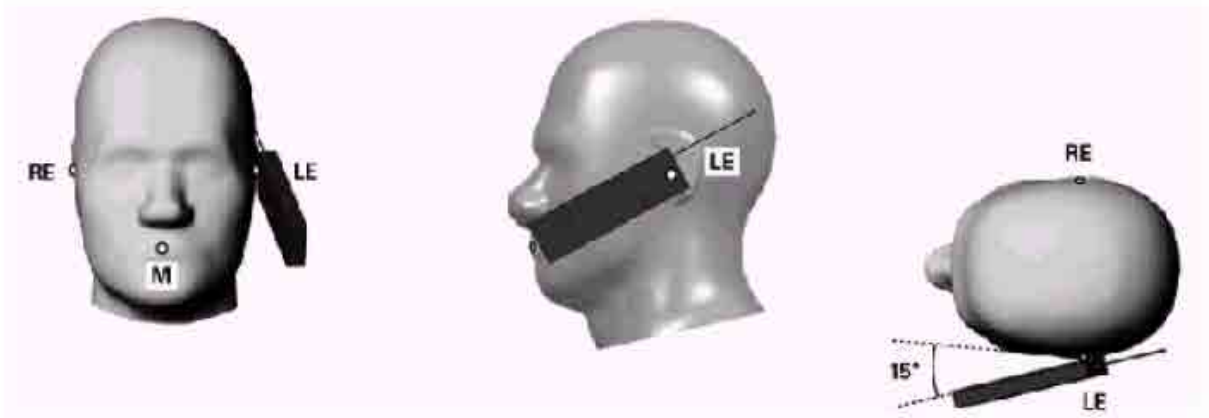


Figure 7.3.1 – Tilt position of the wireless device on the left side of SAM

7.4. Body Worn Accessory

1. Body-worn operating configurations are tested with the belt-clips and holsters attached to the device and positioned against a flat phantom in a normal use configuration (see Figure 7.4.1). Per KDB 648474 D04, body-worn accessory exposure is typically related to voice mode operations when handsets are carried in body-worn accessories. The body-worn accessory procedures in FCC KDB 447498 D01 should be used to test for body-worn accessory SAR compliance, without a headset connected to it. This enables the test results for such configuration to be compatible with that required for hotspot mode when the body-worn accessory test separation distance is greater than or equal to that required for hotspot mode, when applicable. When the reported SAR for body-worn accessory, measured without a headset connected to the handset is $< 1.2 \text{ W/kg}$, the highest reported SAR configuration for that wireless mode and frequency band should be repeated for that body-worn accessory with a headset attached to the handset.
2. Accessories for body-worn operation configurations are divided into two categories: those that do

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

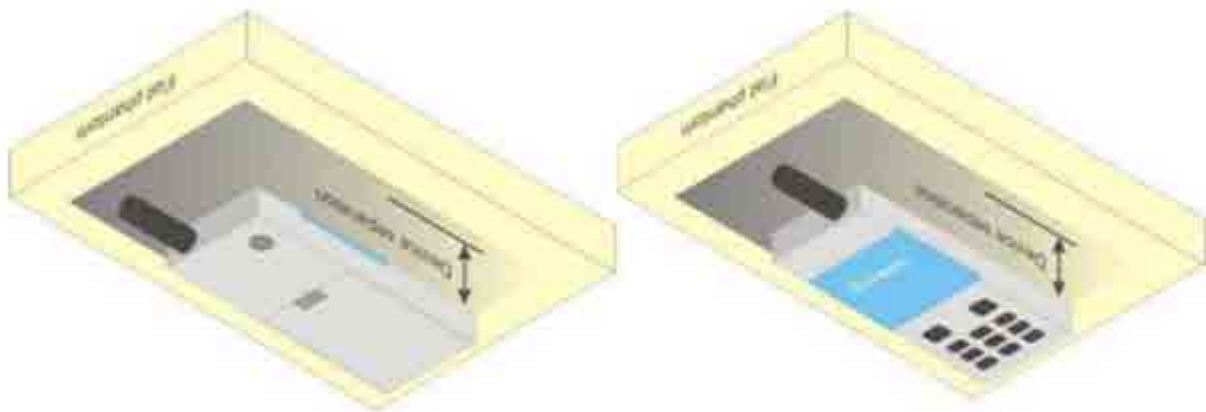


Figure 7.4.1 – Test positions for body-worn devices

7.5. Wireless Router Devices

Some battery-operated handsets have the capability to transmit and receive user through simultaneous transmission of WLAN simultaneously with a separate licensed transmitter. The FCC has provided guidance in FCC KDB Publication 941225 D06 where SAR test considerations for handsets ($L \times W \geq 9 \text{ cm} \times 5 \text{ cm}$) are based on a composite test separation distance of 10mm from the front, back and edges of the device containing transmitting antennas within 2.5cm of their edges, determined from general mixed use conditions for this type of devices. Since the hotspot SAR results may overlap with the body-worn accessory SAR requirements, the more conservative configurations can be considered, thus excluding some body-worn accessory SAR tests.

When the user enables the personal wireless router functions for the handset, actual operations include simultaneous transmission of both the WLAN transmitter and another licensed transmitter. Both transmitters often do not transmit at the same transmitting frequency and thus cannot be evaluated for SAR under actual use conditions due to the limitations of the SAR assessment probes. Therefore, SAR must be evaluated for each frequency transmission and mode separately and spatially summed with the WLAN transmitter according to FCC KDB Publication 447498 D01 publication procedures. The —Portable Hotspot|| feature on the handset was NOT activated during SAR assessments, to ensure the SAR measurements were evaluated for a single transmission frequency RF signal at a time.

8. RF Output Power

8.1. GSM Conducted Power

Band GSM850	Burst-Averaged output Power (dBm)				Factor	Frame-Averaged output Power (dBm)			
Tx Channel	Tune-up (dBm)	128	189	251		Tune-up	128	189	251
Frequency (MHz)		824.2	836.4	848.8			824.2	836.4	848.8
GSM (GMSK)	/	/	/	/	/	/	/	/	/
GPRS(GMSK,1 Tx slot)	32.50	32.01	31.99	32.01	-9.03	23.47	22.98	22.96	22.98
GPRS(GMSK,2 Tx slot)	30.50	29.99	30.02	29.98	-6.02	24.48	23.97	24.00	23.96
GPRS(GMSK,3 Tx slot)	30.50	29.99	30.01	29.98	-4.26	26.24	25.73	25.75	25.72
GPRS(GMSK,4 Tx slot)	30.50	30.03	29.97	30.00	-3.01	27.49	27.02	26.96	26.99
GPRS(EDGE,1 Tx slot)	30.50	30.00	30.02	29.99	-9.03	21.47	20.97	20.99	20.96
GPRS(EDGE,2 Tx slot)	30.50	29.98	29.98	30.01	-6.02	24.48	23.96	23.96	23.99
GPRS(EDGE,3 Tx slot)	30.50	30.01	30.00	29.98	-4.26	26.24	25.75	25.74	25.72
GPRS(EDGE,4 Tx slot)	30.00	29.98	29.98	30.00	-3.01	26.99	26.97	26.97	26.99

Band GSM1900	Burst-Averaged output Power (dBm)				Factor	Frame-Averaged output Power (dBm)			
Tx Channel	Tune-up (dBm)	512	661	810		Tune-up	512	661	810
Frequency (MHz)		1850.2	1880	1909.8			1850.2	1880	1909.8
GSM (GMSK)	/	/	/	/	/	/	/	/	/
GPRS(GMSK,1 Tx slot)	30.00	29.52	29.49	29.52	-9.03	20.97	20.49	20.46	20.49
GPRS(GMSK,2 Tx slot)	29.50	29.02	28.97	29.02	-6.02	23.48	23.00	22.95	23.00
GPRS(GMSK,3 Tx slot)	29.00	29.00	28.99	28.98	-4.26	24.74	24.74	24.73	24.72
GPRS(GMSK,4 Tx slot)	29.50	29.00	29.03	29.02	-3.01	26.49	25.99	26.02	26.01
GPRS(EDGE,1 Tx slot)	29.00	28.98	28.97	29.00	-9.03	19.97	19.95	19.94	19.97
GPRS(EDGE,2 Tx slot)	29.50	29.02	29.02	28.98	-6.02	23.48	23.00	23.00	22.96
GPRS(EDGE,3 Tx slot)	29.50	29.00	29.03	28.98	-4.26	25.24	24.74	24.77	24.72
GPRS(EDGE,4 Tx slot)	29.50	29.01	29.03	28.98	-3.01	26.49	26.00	26.02	25.97

Note:

Remark: GPRS, CS4 coding scheme. EGPRS, MCS5 coding scheme.

Multi-Slot Class 8, Support Max 4 downlink, 1 uplink, 5 working link

Multi-Slot Class 10, Support Max 4 downlink, 2 uplink, 5 working link

Multi-Slot Class 12, Support Max 4 downlink, 4 uplink, 5 working link

SAR testing was performed on the maximum frame-averaged power mode.

The frame-averaged power is linearly proportion to the slot number configured and it is linearly scaled the maximum

Burst-averaged power based on time slots. The calculated method is shown as below:

Frame-averaged power = Burst averaged power (1 TX Slot) – 9.03 dB

Frame-averaged power = Burst averaged power (2 TX Slots) – 6.02 dB

Frame-averaged power = Burst averaged power (3 TX Slots) - 4.26 dB

Frame-averaged power = Burst averaged power (4 TX Slots) – 3.01 dB

8.2. WCDMA Conducted Power

The following tests were conducted according to the test requirements outlines in 3GPP TS 34.121 specification. A summary of these settings are illustrated below:

1. Release99 Setup Configuration

Mode	Subtest	Rel99
WCDMA General Settings	Loopback Mode	Test Mode 1
	Rel99 RMC	12.2kbps RMC
	Power Control Algorithm	Algorithm1
	β_c/β_d	8/15

2. HSDPA Setup Configuration

	Mode	HSDPA	HSDPA	HSDPA	HSDPA
	Subtest	1	2	3	4
WCDMA General Settings	Loopback Mode	Test Mode 1			
	Rel99 RMC	12.2kbps RMC			
	HSDPA FRC	H-Set1			
	Power Control Algorithm	Algorithm 2			
	β_c	2/15	12/15	15/15	15/15
	β_d	15/15	15/15	8/15	4/15
	Bd (SF)	64			
	β_c/β_d	2/15	12/15	15/8	15/4
	β_{hs}	4/15	24/15	30/15	30/15
HSDPA Specific Settings	D_{ACK}	8			
	D_{NAK}	8			
	DCQI	8			
	Ack-Nack repetition factor	3			
	CQI Feedback (Table 5.2B.4)	4ms			
	CQI Repetition Factor (Table 5.2B.4)	2			
	$A_{hs} = \beta_{hs}/\beta_c$	30/15			

3. HSUPA Setup Configuration

	Mode	HSUPA	HSUPA	HSUPA	HSUPA	HSUPA
	Subtest	1	2	3	4	5
WCDMA General Settings	Loopback Mode	Test Mode 1				
	Rel99 RMC	12.2kbps RMC				
	HSDPA FRC	H-Set1				
	HSUPA Test	HSUPA Loopback				
	Power Control Algorithm	Algorithm1				
	β_c	11/15	6/15	15/15	2/15	15/15
	β_d	15/15	15/15	9/15	15/15	15/15
	β_{ec}	209/225	12/15	30/15	2/15	24/15
	β_c/β_d	11/15	6/15	15/9	2/15	15/15
	β_{hs}	22/15	12/15	30/15	4/15	30/15
	β_{ed}	1309/225	94/75	47/15 47/15	56/75	134/15
	CM (dB)	1.0	3.0	2.0	3.0	1.0
HSDPA Specific Settings	D_{ACK}	8				
	D_{NAK}	8				
	DCQI	8				
	Ack-Nack repetition factor	3				
	CQI Feedback (Table 5.2B.4)	4ms				

HSUPA Specific Settings	CQI Repetition Factor (Table 5.2B.4)	2				
	Ahs = β_{hs}/β_c	30/15				
	D E-DPCCH	6	8	8	5	7
	DHARQ	0	0	0	0	0
	AG Index	20	12	15	17	21
	ETFCI (from 34.121 Table C.11.1.3)	75	67	92	71	81
	Associated Max UL Data Rate kbps	242.1	174.9	482.8	205.8	308.9

4. WCDMA Conducted Power Results

Choose the highest output power mode RMC 12.2Kbps for Band VIII/I at middle channel to test SAR and determine the worst configuration for further high/low channel test.

WCDMA Band II	Burst-Averaged output Power (dBm)			
Tx Channel	Tune-up (dBm)	9262	9400	9538
Frequency (MHz)		1852.4	1880	1907.6
RMC12.2K	24.00	23.57	23.48	23.61
HSDPA Sub 1	24.00	23.49	23.54	23.52
HSDPA Sub 2	23.00	22.59	22.66	22.51
HSDPA Sub 3	23.00	22.62	22.54	22.59
HSDPA Sub 4	23.00	22.66	22.56	22.53
HSUPA Sub 1	23.00	22.51	22.56	22.51
HSUPA Sub 2	23.00	22.57	22.58	22.52
HSUPA Sub 3	23.00	22.56	22.67	22.56
HSUPA Sub 4	23.00	22.69	22.61	22.63
HSUPA Sub 5	23.00	22.55	22.60	22.54

WCDMA Band V	Burst-Averaged output Power (dBm)			
Tx Channel	Tune-up (dBm)	4132	4182	4233
Frequency (MHz)		826.4	836.4	846.6
RMC12.2K	24.00	23.51	23.46	23.58
HSDPA Sub 1	24.00	23.42	23.50	23.55
HSDPA Sub 2	23.00	22.64	22.58	22.58
HSDPA Sub 3	23.00	22.51	22.51	22.66
HSDPA Sub 4	23.00	22.52	22.62	22.63
HSUPA Sub 1	23.00	22.57	22.68	22.52
HSUPA Sub 2	23.00	22.59	22.67	22.58
HSUPA Sub 3	23.00	22.63	22.70	22.62
HSUPA Sub 4	23.00	22.50	22.51	22.69
HSUPA Sub 5	23.00	22.59	22.62	22.69

8.3. LTE Conducted Power

- The following tests were conducted according to the test requirements outlines in 3GPP TS 36.521-1 specification. A summary of these configurations are illustrated below:

Test Parameters for Channel Bandwidths				
	Downlink Configuration	Uplink Configuration		
Ch BW	N/A for Max UE output power testing	Mod'n	RB allocation	
			FDD	TDD
1.4MHz		QPSK	1	1
1.4MHz		QPSK	5	5
3MHz		QPSK	1	1
3MHz		QPSK	4	4
5MHz		QPSK	1	1
5MHz		QPSK	8	8
10MHz		QPSK	1	1
10MHz		QPSK	12	12
15MHz		QPSK	1	1
15MHz		QPSK	16	16
20MHz		QPSK	1	1
20MHz		QPSK	18	18
Note 1: Test Channel Bandwidths are checked separately for each E-UTRA band, the applicable channel bandwidths are specified in Table 5.4.2.1-1.				
Note 2: For E-UTRA bands not applied with Note 2 in Table 6.2.2.3-1:				
-	The 1 RB allocation shall be tested at RB#0 for low and mid range, RB #max for high range test frequency.			
-	The RBstart of non-1RB allocation shall be RB #0 for low and mid range, RB# (max +1 - RB allocation) for high range test frequency.			
Note 3: For E-UTRA bands applied with Note 2 in Table 6.2.2.3-1:				
-	If the test channel bandwidth is larger than 4MHz, then the 1 RB allocation shall be tested at both RB #0 and RB #max.			
-	If the test channel bandwidth is smaller or equal to 4MHz, then the 1 RB allocation shall be tested at RB #0.			
-	If the test channel bandwidth = (FUL_high - FUL_low) specified by the operating band, then only one frequency range shall be tested and the 1 RB allocation shall be tested at RB #0, RB # $\left\lceil N_{RB}^{UL} / 2 \right\rceil$ and RB #max.			
-	For non-1RB allocation, test frequency is middle range, and the RBstart shall be RB #0.			

2. LTE Conducted Power Results

LTE output list

Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		18607/1850.7	18900/1880	19193/1909.3
LTE Band 2	1.4MHz	QPSK	1	0	22.00	21.28	21.33	21.69
			1	2	22.00	21.29	21.29	21.77
			1	5	22.00	21.27	21.36	21.80
			3	0	22.00	21.34	21.43	21.89
			3	1	22.00	21.35	21.47	21.88
			3	2	22.00	21.41	21.47	21.84
		16QAM	6	0	21.00	20.44	20.48	20.92
			1	0	21.00	20.38	20.47	20.88
			1	2	21.00	20.42	20.48	20.96
			1	5	21.00	20.40	20.48	20.97
			3	0	21.00	20.28	20.39	20.74
			3	1	21.00	20.29	20.39	20.77
			3	2	21.00	20.26	20.35	20.76
			6	0	20.00	19.51	19.41	19.90
Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		18615/1851.5	18900/1880	19185/1908.5
LTE Band 2	3MHz	QPSK	1	0	22.00	21.14	21.32	21.55
			1	7	22.00	21.31	21.44	21.77
			1	14	22.00	21.22	21.33	21.80
			8	0	21.00	20.32	20.40	20.77
			8	4	21.00	20.38	20.40	20.81
			8	7	21.00	20.44	20.46	20.97
			15	0	21.00	20.38	20.47	20.89
		16QAM	1	0	21.00	20.17	20.09	20.28
			1	7	21.00	20.27	20.18	20.52
			1	14	21.00	20.22	20.14	20.55
			8	0	20.00	19.39	19.44	19.79
			8	4	20.00	19.43	19.49	19.76
			8	7	20.00	19.45	19.46	19.92
			15	0	20.00	19.48	19.47	19.79
Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		18625/1852.5	18900/1880	19175/1907.5
LTE Band 2	5MHz	QPSK	1	0	22.00	21.36	21.38	21.46
			1	12	22.00	21.47	21.61	21.83
			1	24	22.00	21.46	21.53	21.96
			12	0	21.00	20.30	20.35	20.60
			12	6	21.00	20.29	20.36	20.61
			12	11	21.00	20.39	20.40	20.89
			25	0	21.00	20.34	20.41	20.81
		16QAM	1	0	21.50	20.27	20.27	20.58
			1	12	21.50	20.34	20.52	20.91
			1	24	21.50	20.33	20.45	21.02
			12	0	20.00	19.30	19.38	19.60

			12	6	20.00	19.27	19.32	19.63
			12	11	20.00	19.39	19.45	19.96
			25	0	20.00	19.35	19.52	19.74
Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		18650/1855	18900/1880	19150/1905
LTE Band 2	10MHz	QPSK	1	0	22.50	21.41	21.44	21.67
			1	24	22.50	21.54	21.47	21.60
			1	49	22.50	21.60	21.68	22.02
			25	0	21.00	20.30	20.40	20.66
			25	12	21.00	20.29	20.38	20.62
			25	24	21.00	20.62	20.60	20.80
			50	0	21.00	20.49	20.54	20.78
		16QAM	1	0	21.00	20.37	20.44	20.46
			1	24	21.00	20.55	20.51	20.42
			1	49	21.00	20.60	20.74	20.88
			25	0	20.00	19.29	19.44	19.70
			25	12	20.00	19.34	19.47	19.67
			25	24	20.00	19.55	19.60	19.81
			50	0	20.00	19.50	19.60	19.73
Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		18675/1857.5	18900/1880	19125/1902.5
LTE Band 2	15MHz	QPSK	1	0	22.00	21.34	21.44	21.74
			1	37	22.00	21.63	21.48	21.54
			1	74	22.00	21.60	21.79	21.87
			36	0	21.00	20.39	20.44	20.84
			36	18	21.00	20.63	20.53	20.71
			36	37	21.00	20.56	20.78	21.00
			75	0	21.00	20.53	20.63	20.78
		16QAM	1	0	21.50	20.39	20.41	20.84
			1	37	21.50	20.62	20.58	20.70
			1	74	21.50	20.56	20.84	21.01
			36	0	21.00	20.37	20.42	20.83
			36	18	21.00	20.62	20.55	20.72
			36	37	21.00	20.53	20.84	21.00
			75	0	20.00	19.50	19.59	19.78
Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		18700/1860	18900/1880	19100/1900
LTE Band 2	20MHz	QPSK	1	0	22.00	20.43	21.45	21.87
			1	49	22.00	21.71	21.54	21.74
			1	99	22.00	21.58	21.90	21.85
			50	0	21.00	20.39	20.55	20.98
			50	24	21.00	20.35	20.51	21.00
			50	49	21.00	20.51	20.88	20.64
			100	0	21.00	20.44	20.71	20.82
		16QAM	1	0	21.50	20.20	20.50	20.75
			1	49	21.50	20.54	20.66	20.64
			1	99	21.50	20.42	21.02	20.78
			50	0	20.50	19.36	19.62	20.04

			50	24	20.50	19.34	19.57	20.00
			50	49	20.50	19.56	19.90	19.67
			100	0	20.00	19.44	19.69	19.84

Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		19957/1710.7	20175/1732.5	20393/1754.3
LTE Band 4	1.4MHz	QPSK	1	0	21.00	20.74	20.58	20.83
			1	2	21.00	20.74	20.54	20.81
			1	5	21.00	20.76	20.58	20.80
			3	0	21.00	20.83	20.60	20.90
			3	1	21.00	20.83	20.61	20.88
			3	2	21.00	20.79	20.61	20.88
			6	0	20.50	19.97	19.65	20.04
		16QAM	1	0	20.00	19.65	19.40	19.73
			1	2	20.00	19.70	19.40	19.76
			1	5	20.00	19.65	19.44	19.74
			3	0	20.00	19.64	19.49	19.71
			3	1	20.00	19.63	19.52	19.71
			3	2	20.00	19.61	19.43	19.73
			6	0	19.50	18.96	18.54	19.02
Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		19965/1711.5	20175/1732.5	20385/1753.5
LTE Band 4	3MHz	QPSK	1	0	21.00	20.67	20.41	20.67
			1	7	21.00	20.78	20.52	20.77
			1	14	21.00	20.72	20.51	20.78
			8	0	20.50	19.87	19.60	19.93
			8	4	20.50	19.86	19.61	19.94
			8	7	20.50	19.96	19.69	20.01
			15	0	20.00	19.91	19.66	19.96
		16QAM	1	0	20.00	19.86	19.59	19.89
			1	7	20.00	19.96	19.68	19.98
			1	14	20.00	19.86	19.68	19.88
			8	0	19.50	18.92	18.65	18.97
			8	4	19.50	18.93	18.62	19.01
			8	7	19.50	18.95	18.68	19.03
			15	0	19.00	18.91	18.63	18.93
Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		19975/1712.5	20175/1732.5	20375/1752.5
LTE Band 4	5MHz	QPSK	1	0	21.50	20.94	20.75	21.03
			1	12	21.50	21.08	20.87	21.17
			1	24	21.50	20.95	20.84	21.10
			12	0	20.50	19.88	19.71	19.98
			12	6	20.50	19.92	19.71	19.99
			12	11	20.50	20.07	19.79	20.04
			25	0	20.50	20.02	19.77	19.97
		16QAM	1	0	20.50	19.96	19.65	19.94
			1	12	20.50	20.14	19.80	20.07
			1	24	20.50	20.02	19.75	19.99

			12	0	19.50	18.87	18.71	18.88
			12	6	19.50	18.93	18.68	18.89
			12	11	19.50	19.06	18.75	18.97
			25	0	19.00	18.94	18.76	18.97
Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		20000/1715	20175/1732.5	20350/1750
LTE Band 4	10MHz	QPSK	1	0	21.50	21.02	20.74	20.99
			1	24	21.50	20.98	20.85	21.11
			1	49	21.50	20.86	20.96	21.14
			25	0	20.50	19.91	19.70	19.91
			25	12	20.50	19.92	19.73	19.89
			25	24	20.50	19.97	19.88	20.13
			50	0	20.50	19.95	19.82	20.05
		16QAM	1	0	20.50	20.02	19.66	19.95
			1	24	20.50	20.05	19.66	20.14
			1	49	20.50	19.95	19.79	20.13
			25	0	19.50	18.89	18.80	18.89
			25	12	19.50	18.91	18.78	18.92
			25	24	19.50	18.91	18.84	19.09
			50	0	19.00	18.94	18.83	18.99
Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		20025/1717.5	20175/1732.5	20325/1747.5
LTE Band 4	15MHz	QPSK	1	0	21.50	20.96	20.57	20.89
			1	37	21.50	20.99	20.75	21.14
			1	74	21.50	20.76	20.84	21.14
			36	0	20.50	19.97	19.75	19.86
			36	18	20.50	20.01	19.94	20.14
			36	37	20.50	19.84	19.99	20.15
			75	0	20.50	19.84	19.83	20.07
		16QAM	1	0	20.50	19.98	19.77	19.87
			1	37	20.50	20.01	19.95	20.14
			1	74	20.50	19.83	20.00	20.14
			36	0	20.50	19.96	19.80	19.87
			36	18	20.50	20.09	19.97	20.13
			36	37	20.50	19.82	19.98	20.15
			75	0	19.00	18.86	18.78	18.99
Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		20050/1720	20175/1732.5	20300/1745
LTE Band 4	20MHz	QPSK	1	0	21.50	20.92	20.64	20.77
			1	49	21.50	20.89	20.85	21.09
			1	99	21.50	20.71	20.88	21.08
			50	0	20.50	19.86	19.71	19.76
			50	24	20.50	19.87	19.72	19.74
			50	49	20.50	19.76	19.92	20.20
			100	0	20.00	19.75	19.85	19.98
		16QAM	1	0	20.50	19.97	19.79	19.67
			1	49	20.50	20.05	19.98	19.94
			1	99	20.50	19.88	20.04	19.94

			50	0	19.50	18.91	18.75	18.78
			50	24	19.50	18.85	18.75	18.73
			50	49	19.50	18.76	18.93	19.13
			100	0	19.00	18.79	18.84	18.92

Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		20407/824.7	20525/836.5	20643/848.3
LTE Band 5	1.4MHz	QPSK	1	0	22.00	21.99	21.76	21.66
			1	2	22.00	21.95	21.75	21.66
			1	5	22.00	21.89	21.80	21.61
			3	0	22.50	22.02	21.82	21.77
			3	1	22.50	22.03	21.79	21.70
			3	2	22.50	21.98	21.81	21.67
		16QAM	6	0	21.50	21.15	20.88	20.79
			1	0	21.00	20.89	20.58	20.55
			1	2	21.00	20.85	20.56	20.57
			1	5	21.00	20.82	20.56	20.50
			3	0	21.00	20.77	20.64	20.48
			3	1	21.00	20.80	20.60	20.51
			3	2	21.00	20.74	20.63	20.49
			6	0	20.50	20.08	19.76	19.77
Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		20415/825.5	20525/836.5	20635/847.5
LTE Band 5	3MHz	QPSK	1	0	22.00	21.85	21.62	21.55
			1	7	22.00	21.94	21.69	21.68
			1	14	22.00	21.85	21.63	21.57
			8	0	21.50	20.99	20.79	20.75
			8	4	21.50	20.98	20.78	20.71
			8	7	21.50	21.04	20.83	20.68
			15	0	21.50	21.02	20.79	20.73
		16QAM	1	0	21.00	20.81	20.54	20.48
			1	7	21.00	20.89	20.66	20.64
			1	14	21.00	20.77	20.62	20.53
			8	0	20.50	20.01	19.82	19.70
			8	4	20.50	20.05	19.76	19.74
			8	7	20.50	19.97	19.77	19.68
			15	0	20.00	20.00	19.79	19.69
Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		20425/826.5	20525/836.5	20625/846.5
LTE Band 5	5MHz	QPSK	1	0	22.50	22.11	21.97	21.89
			1	12	22.50	22.27	22.10	21.94
			1	24	22.50	22.08	21.96	21.87
			12	0	21.50	21.10	20.92	20.92
			12	6	21.50	21.10	20.87	20.93
			12	11	21.50	21.07	20.89	20.75
			25	0	21.50	21.07	20.90	20.81
		16QAM	1	0	21.50	21.15	20.81	20.84
			1	12	21.50	21.21	20.94	20.84
			1	24	21.50	21.06	20.90	20.74

			12	0	20.50	20.09	19.88	19.85
			12	6	20.50	20.11	19.84	19.88
			12	11	20.50	20.04	19.83	19.72
			25	0	20.50	20.08	19.88	19.82
Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		20450/829	20525/836.5	20600/844
LTE Band 5	10MHz	QPSK	1	0	22.50	22.23	21.96	22.04
			1	24	22.50	22.14	21.97	21.94
			1	49	22.50	21.94	22.10	21.89
			25	0	21.50	21.00	20.90	20.96
			25	12	21.50	21.03	20.89	20.98
			25	24	21.50	20.97	20.98	20.70
			50	0	21.00	21.00	20.99	20.90
		16QAM	1	0	21.50	21.06	20.91	21.06
			1	24	21.50	20.97	20.92	20.97
			1	49	21.50	20.84	21.12	20.88
			25	0	20.50	20.07	19.85	19.88
			25	12	20.50	20.05	19.88	19.92
			25	24	20.50	19.97	19.95	19.70
			50	0	20.50	20.06	19.97	19.85

Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		20775/2502.5	21100/2535	21425/2567.5
LTE Band 7	5MHz	QPSK	1	0	22.00	21.69	21.86	21.77
			1	12	22.00	21.72	21.97	21.87
			1	24	22.00	21.59	21.87	21.81
			12	0	21.00	20.66	20.89	20.84
			12	6	21.00	20.68	20.83	20.87
			12	11	21.00	20.61	20.81	20.71
			25	0	21.00	20.68	20.84	20.82
		16QAM	1	0	21.00	20.60	20.76	20.81
			1	12	21.00	20.67	20.87	20.90
			1	24	21.00	20.54	20.77	20.81
			12	0	20.00	19.58	19.83	19.89
			12	6	20.00	19.62	19.83	19.89
			12	11	20.00	19.55	19.75	19.77
			25	0	20.00	19.66	19.86	19.78
Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		20800/2505	21100/2535	21400/2565
LTE Band 7	10MHz	QPSK	1	0	22.00	21.70	21.94	21.81
			1	24	22.00	21.65	21.96	21.86
			1	49	22.00	21.66	21.96	21.86
			25	0	21.00	20.66	20.97	20.84
			25	12	21.00	20.65	20.96	20.84
			25	24	21.00	20.61	20.84	20.67
			50	0	21.00	20.71	20.94	20.84
		16QAM	1	0	21.00	20.74	20.74	20.49
			1	24	21.00	20.67	20.75	20.60
			1	49	21.00	20.65	20.76	20.61

			25	0	20.50	19.68	20.01	19.85
			25	12	20.50	19.59	19.96	19.88
			25	24	20.50	19.63	19.92	19.73
			50	0	20.00	19.67	19.97	19.74
Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		20825/2507.5	21100/2535	21375/2562.5
LTE Band 7	15MHz	QPSK	1	0	22.00	21.67	21.84	21.58
			1	37	22.00	21.73	21.94	21.78
			1	74	22.00	21.62	21.83	21.73
			36	0	21.00	20.59	20.82	20.68
			36	18	21.00	20.74	20.96	20.92
			36	37	21.00	20.62	20.77	20.90
			75	0	21.00	20.66	20.91	20.67
		16QAM	1	0	22.00	21.58	20.83	20.67
			1	37	22.00	21.78	20.92	20.91
			1	74	22.00	21.73	20.79	20.87
			36	0	21.00	20.68	20.83	20.70
			36	18	21.00	20.92	20.98	20.95
			36	37	21.00	20.90	20.80	20.87
			75	0	21.00	20.67	19.87	19.68
Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		20850/2510	21100/2535	21350/2560
LTE Band 7	20MHz	QPSK	1	0	22.50	20.72	21.83	21.63
			1	49	22.50	21.80	22.06	22.00
			1	99	22.50	21.80	21.80	21.95
			50	0	21.50	20.59	21.04	20.62
			50	24	21.50	20.64	21.12	20.65
			50	49	21.50	20.76	20.86	20.71
			100	0	21.00	20.69	20.95	20.66
		16QAM	1	0	21.50	20.52	20.91	20.49
			1	49	21.50	20.67	21.11	20.87
			1	99	21.50	20.67	20.90	20.76
			50	0	20.50	19.58	20.09	19.60
			50	24	20.50	19.60	20.05	19.55
			50	49	20.50	19.74	19.86	19.69
			100	0	20.00	19.66	19.96	19.65

Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		23017/699.7	23095/707.5	23173/715.3
LTE Band 12	1.4MHz	QPSK	1	0	23.00	22.92	22.89	22.92
			1	2	23.00	22.91	22.91	22.94
			1	5	23.00	22.92	22.92	22.91
			3	0	23.50	22.98	22.92	22.98
			3	1	23.50	23.01	22.89	22.97
			3	2	23.50	22.99	22.91	23.02
			6	0	22.50	22.05	22.03	22.15
		16QAM	1	0	22.50	22.05	21.73	22.08
			1	2	22.50	22.09	21.80	22.21
			1	5	22.50	22.11	21.75	22.20

			3	0	22.00	21.91	21.78	21.97
			3	1	22.00	21.85	21.77	21.96
			3	2	22.00	21.89	21.75	21.98
			6	0	21.50	21.10	21.04	21.04
Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		23025/700.5	23095/707.5	23165/714.5
LTE Band 12	3MHz	QPSK	1	0	23.50	22.94	22.96	22.77
			1	7	23.50	23.08	22.97	22.89
			1	14	23.50	22.98	22.92	22.83
			8	0	22.50	21.99	21.99	22.12
			8	4	22.50	22.01	22.02	22.07
			8	7	22.50	22.07	22.02	22.12
			15	0	22.50	22.08	22.07	22.11
		16QAM	1	0	22.50	21.79	21.66	22.01
			1	7	22.50	21.85	21.88	22.11
			1	14	22.50	21.72	21.77	22.06
			8	0	21.50	21.01	20.98	21.11
			8	4	21.50	21.00	21.01	21.10
			8	7	21.50	21.03	21.03	21.15
			15	0	21.50	20.97	21.00	21.11
Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		23035/701.5	23095/707.5	23155/713.5
LTE Band 12	5MHz	QPSK	1	0	23.50	22.01	23.10	23.18
			1	12	23.50	22.11	23.22	23.22
			1	24	23.50	22.06	23.19	23.21
			12	0	22.50	21.11	22.16	22.20
			12	6	22.50	21.10	22.18	22.22
			12	11	22.50	21.15	22.22	22.12
			25	0	22.50	21.11	22.18	22.26
		16QAM	1	0	22.50	22.10	22.17	22.04
			1	12	22.50	22.22	22.29	22.18
			1	24	22.50	22.11	22.21	22.19
			12	0	21.50	21.12	21.14	21.17
			12	6	21.50	21.14	21.16	21.21
			12	11	21.50	21.05	21.20	21.14
			25	0	21.50	21.14	21.16	21.25
Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		23060/704	23095/707.5	23130/711
LTE Band 12	10MHz	QPSK	1	0	23.50	23.21	23.25	23.21
			1	24	23.50	23.24	23.26	23.22
			1	49	23.50	23.26	23.31	23.31
			25	0	22.50	22.16	22.18	22.07
			25	12	22.50	22.12	22.15	22.07
			25	24	22.50	22.13	22.26	22.07
			50	0	22.50	22.16	22.21	22.12
		16QAM	1	0	23.00	22.13	22.09	22.32
			1	24	23.00	22.11	22.13	22.37
			1	49	23.00	22.11	22.15	22.54

			25	0	21.50	21.13	21.20	21.06
			25	12	21.50	21.11	21.20	21.06
			25	24	21.50	21.14	21.26	21.06
			50	0	21.50	21.15	21.23	21.10

Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		23305/790.5	23330/793	23355/795.5
LTE Band 14	5MHz	QPSK	1	0	24.00	23.84	23.67	23.67
			1	12	24.00	23.76	23.66	23.66
			1	24	24.00	23.64	23.52	23.52
			12	0	23.00	22.69	22.71	22.71
			12	6	23.00	22.76	22.63	22.63
			12	11	23.00	22.68	22.58	22.58
			25	0	23.00	22.73	22.65	22.65
		16QAM	1	0	23.00	22.74	22.75	22.48
			1	12	23.00	22.69	22.73	22.52
			1	24	23.00	22.62	22.63	22.39
			12	0	22.00	21.72	21.72	21.65
			12	6	22.00	21.78	21.76	21.53
			12	11	22.00	21.69	21.67	21.56
			25	0	22.00	21.78	21.70	21.65
Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		/	23330/793	/
LTE Band 14	10MHz	QPSK	1	0	24.00	/	23.85	/
			1	24	24.00	/	23.74	/
			1	49	24.00	/	23.58	/
			25	0	23.00	/	22.64	/
			25	12	23.00	/	22.64	/
			25	24	23.00	/	22.63	/
			50	0	23.00	/	22.63	/
		16QAM	1	0	23.00	/	22.70	/
			1	24	23.00	/	22.83	/
			1	49	23.00	/	22.45	/
			25	0	22.00	/	21.66	/
			25	12	22.00	/	21.74	/
			25	24	22.00	/	21.71	/
			50	0	22.00	/	21.69	/

Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		23755/706.5	23790/710	23825/713.5
LTE Band 17	5MHz	QPSK	1	0	21.50	20.91	21.16	21.21
			1	12	21.50	21.24	21.44	21.10
			1	24	21.50	21.18	21.11	20.89
			12	0	20.50	19.98	20.02	20.13
			12	6	20.50	19.98	20.09	20.19
			12	11	20.50	20.09	20.15	19.83
			25	0	20.50	19.99	20.19	19.95
		16QAM	1	0	20.50	19.84	20.02	20.21
			1	12	20.50	20.16	20.28	20.10

			1	24	20.50	20.09	20.02	19.93
			12	0	19.50	19.01	19.06	19.13
			12	6	19.50	18.99	19.05	19.16
			12	11	19.50	19.07	19.11	18.84
			25	0	19.50	19.09	19.16	19.01
Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		23780/709	23790/710	23800/711
LTE Band 17	10MHz	QPSK	1	0	21/24/24	20.21	23.17	23.23
			1	24	21/24/24	20.10	23.21	23.22
			1	49	21/24/24	19.93	23.20	23.29
			25	0	20/23/23	19.13	22.09	22.03
			25	12	20/23/23	19.16	22.07	22.06
			25	24	20/23/23	18.84	22.02	22.05
			50	0	20/23/23	19.01	22.07	22.09
		16QAM	1	0	22.50	22.01	22.35	22.08
			1	24	22.50	22.13	22.36	22.11
			1	49	22.50	22.06	22.40	22.21
			25	0	21.50	21.14	21.11	21.05
			25	12	21.50	21.14	21.12	21.05
			25	24	21.50	21.06	21.08	21.08
			50	0	21.50	21.09	21.10	21.04

Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		26047/1850.7	26365/1882.5	26683/1914.3
LTE Band 25	1.4MHz	QPSK	1	0	22.50	21.80	22.00	22.07
			1	2	22.50	21.80	21.93	22.09
			1	5	22.50	21.75	21.95	22.05
			3	0	22.50	21.91	22.03	22.19
			3	1	22.50	21.90	22.09	22.17
			3	2	22.50	21.91	22.05	22.16
			6	0	21.50	20.95	21.09	21.21
		16QAM	1	0	21.50	20.94	21.06	20.95
			1	2	21.50	20.98	21.12	20.97
			1	5	21.50	20.94	21.11	20.94
			3	0	21.00	20.85	20.97	20.99
			3	1	21.00	20.81	20.97	20.98
			3	2	21.00	20.82	20.96	20.99
			6	0	20.50	20.04	20.00	20.25
Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		26055/1851.5	26365/1882.5	26675/1913.5
LTE Band 25	3MHz	QPSK	1	0	22.00	21.73	21.71	21.79
			1	7	22.00	21.93	21.84	21.99
			1	14	22.00	21.81	21.85	21.88
			8	0	21.50	20.91	20.91	20.98
			8	4	21.50	20.94	20.90	20.97
			8	7	21.50	21.03	21.06	21.01
			15	0	21.50	21.02	20.93	21.03
		16QAM	1	0	21.00	20.71	20.68	20.70

			1	7	21.00	20.87	20.86	20.68
			1	14	21.00	20.84	20.80	20.66
			8	0	20.50	19.96	19.94	19.98
			8	4	20.50	19.96	19.95	19.96
			8	7	20.50	20.02	20.04	19.92
			15	0	20.50	20.05	19.96	19.96
Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		26065/1852.5	26365/1882.5	26665/1912.5
LTE Band 25	5MHz	QPSK	1	0	22.50	22.07	22.04	22.04
			1	12	22.50	22.31	22.21	22.19
			1	24	22.50	22.23	22.17	22.07
			12	0	21.50	21.05	20.95	21.01
			12	6	21.50	21.05	20.92	21.00
			12	11	21.50	21.17	21.12	20.99
			25	0	21.50	21.15	21.05	21.08
		16QAM	1	0	22.50	22.04	20.88	21.14
			1	12	22.50	22.19	21.06	21.20
			1	24	22.50	22.07	21.08	21.16
			12	0	21.50	21.01	19.89	19.99
			12	6	21.50	21.00	19.92	20.03
			12	11	21.50	20.99	20.04	20.05
			25	0	21.50	21.08	20.07	20.05
Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		26090/1855	26365/1882.5	26640/1910
LTE Band 25	10MHz	QPSK	1	0	22.50	22.09	22.01	22.21
			1	24	22.50	22.30	22.10	22.22
			1	49	22.50	22.31	22.26	22.18
			25	0	21.50	21.09	20.91	21.02
			25	12	21.50	21.10	20.91	21.02
			25	24	21.50	21.31	21.28	21.18
			50	0	21.50	21.23	21.13	21.11
		16QAM	1	0	21.50	21.14	21.01	21.07
			1	24	21.50	21.28	21.13	21.00
			1	49	21.50	21.29	21.31	20.99
			25	0	20.50	20.07	19.93	20.06
			25	12	20.50	20.06	19.94	20.01
			25	24	20.50	20.33	20.21	20.17
			50	0	20.50	20.24	20.13	20.10
Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		26115/1857.5	26365/1882.5	26615/1907.5
LTE Band 25	15MHz	QPSK	1	0	22.50	21.79	21.61	21.88
			1	37	22.50	22.10	21.86	21.84
			1	74	22.50	21.97	21.96	21.73
			36	0	21.50	20.80	20.61	21.03
			36	18	21.50	21.07	20.89	21.02
			36	37	21.50	20.88	21.06	20.89
			75	0	21.00	20.95	20.86	20.99
		16QAM	1	0	21.50	20.82	20.60	21.02

			1	37	21.50	21.03	20.89	21.03
			1	74	21.50	20.88	21.04	20.85
			36	0	21.50	20.77	20.57	20.97
			36	18	21.50	21.08	20.89	21.01
			36	37	21.50	20.92	21.06	20.85
			75	0	20.00	19.91	19.83	19.97
Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		26140/1860	26365/1882.5	26590/1905
LTE Band 25	20MHz	QPSK	1	0	22.50	21.76	21.54	22.03
			1	49	22.50	22.14	21.84	22.04
			1	99	22.50	21.87	21.99	21.82
			50	0	21.50	20.82	20.62	21.20
			50	24	21.50	20.87	20.65	21.20
			50	49	21.50	20.89	21.12	21.11
			100	0	21.50	20.90	20.93	21.15
		16QAM	1	0	21.00	20.62	20.32	20.87
			1	49	21.00	21.00	20.67	20.88
			1	99	21.00	20.65	20.82	20.66
			50	0	20.50	19.81	19.74	20.19
			50	24	20.50	19.80	19.70	20.23
			50	49	20.50	19.90	20.13	20.09
			100	0	20.50	19.90	19.90	20.12

Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		26697/814.7	26740/819	26783/823.3
LTE Band 26a	1.4MHz	QPSK	1	0	25.00	24.56	24.65	24.65
			1	2	25.00	24.55	24.62	24.61
			1	5	25.00	24.59	24.62	24.61
			3	0	25.00	24.60	24.70	24.67
			3	1	25.00	24.65	24.67	24.65
			3	2	25.00	24.62	24.67	24.67
			6	0	24.00	23.74	23.79	23.72
		16QAM	1	0	24.00	23.41	23.53	23.34
			1	2	24.00	23.49	23.54	23.35
			1	5	24.00	23.41	23.50	23.33
			3	0	24.00	23.43	23.49	23.41
			3	1	24.00	23.38	23.51	23.40
			3	2	24.00	23.40	23.47	23.36
			6	0	23.00	22.75	22.85	22.75
Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		26705/818.5	26740/819	26775/822.5
LTE Band 26a	3MHz	QPSK	1	0	25.00	24.52	24.59	24.52
			1	7	25.00	24.65	24.65	24.56
			1	14	25.00	24.58	24.56	24.45
			8	0	24.00	23.62	23.74	23.69
			8	4	24.00	23.63	23.74	23.64
			8	7	24.00	23.74	23.77	23.67
			15	0	24.00	23.66	23.73	23.67
		16QAM	1	0	24.00	23.35	23.31	23.45

			1	7	24.00	23.40	23.42	23.55
			1	14	24.00	23.38	23.34	23.47
			8	0	23.00	22.67	22.75	22.69
			8	4	23.00	22.68	22.76	22.73
			8	7	23.00	22.72	22.73	22.69
			15	0	23.00	22.60	22.66	22.71
Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		26715/816.5	26740/819	26765/821.5
LTE Band 26a	5MHz	QPSK	1	0	25.00	24.74	24.85	24.86
			1	12	25.00	24.89	24.98	24.95
			1	24	25.00	24.85	24.84	24.81
			12	0	24.00	23.73	23.74	23.73
			12	6	24.00	23.72	23.75	23.79
			12	11	24.00	23.82	23.84	23.78
		16QAM	25	0	24.00	23.79	23.79	23.76
			1	0	24.00	23.75	23.64	23.74
			1	12	24.00	23.92	23.87	23.84
			1	24	24.00	23.87	23.71	23.70
			12	0	23.00	22.75	22.74	22.76
			12	6	23.00	22.73	22.79	22.75
			12	11	23.00	22.87	22.82	22.78
			25	0	23.00	22.80	22.85	22.84
Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		/	26740/819	/
LTE Band 26a	10MHz	QPSK	1	0	25.00	/	24.82	/
			1	24	25.00	/	24.94	/
			1	49	25.00	/	24.88	/
			25	0	24.00	/	23.71	/
			25	12	24.00	/	23.73	/
			25	24	24.00	/	23.81	/
		16QAM	50	0	24.00	/	23.81	/
			1	0	24.00	/	23.65	/
			1	24	24.00	/	23.74	/
			1	49	24.00	/	23.72	/
			25	0	23.00	/	22.78	/
			25	12	23.00	/	22.78	/
			25	24	23.00	/	22.86	/
			50	0	23.00	/	22.85	/

Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		26797/824.7	26915/836.5	27033/848.3
LTE Band 26b	1.4MHz	QPSK	1	0	25.00	24.62	24.39	24.78
			1	2	25.00	24.59	24.39	24.77
			1	5	25.00	24.63	24.39	24.76
			3	0	25.00	24.65	24.45	24.82
			3	1	25.00	24.68	24.46	24.83
			3	2	25.00	24.67	24.46	24.85
			6	0	24.00	23.71	23.57	23.95
		16QAM	1	0	24.00	23.42	23.28	23.65

			1	2	24.00	23.44	23.29	23.71
			1	5	24.00	23.43	23.29	23.69
			3	0	24.00	23.44	23.24	23.61
			3	1	24.00	23.46	23.21	23.61
			3	2	24.00	23.46	23.22	23.65
			6	0	23.00	22.60	22.57	22.97
Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		26805/825.5	26915/836.5	27025/847.5
LTE Band 26b	3MHz	QPSK	1	0	25.00	24.50	24.41	24.63
			1	7	25.00	24.56	24.46	24.79
			1	14	25.00	24.50	24.44	24.75
			8	0	24.00	23.69	23.51	23.86
			8	4	24.00	23.67	23.47	23.83
			8	7	24.00	23.70	23.51	23.88
		16QAM	15	0	24.00	23.66	23.51	23.81
			1	0	24.00	23.43	23.20	23.52
			1	7	24.00	23.53	23.24	23.74
			1	14	24.00	23.46	23.20	23.73
			8	0	23.00	22.71	22.50	22.90
			8	4	23.00	22.69	22.54	22.90
			8	7	23.00	22.70	22.53	22.89
			15	0	23.00	22.70	22.44	22.91
Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		26815/826.5	26915/836.5	27015/846.5
LTE Band 26b	5MHz	QPSK	1	0	25.50	24.72	24.66	24.84
			1	12	25.50	24.85	24.73	25.03
			1	24	25.50	24.69	24.70	25.02
			12	0	24.00	23.69	23.62	23.93
			12	6	24.00	23.73	23.62	23.93
			12	11	24.00	23.73	23.59	23.89
			25	0	24.00	23.75	23.63	23.92
		16QAM	1	0	24.00	23.77	23.45	23.71
			1	12	24.00	23.82	23.60	23.89
			1	24	24.00	23.74	23.56	23.94
			12	0	23.00	22.76	22.63	22.89
			12	6	23.00	22.76	22.61	22.87
			12	11	23.00	22.77	22.59	22.89
			25	0	23.00	22.72	22.68	22.93
Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		26840/829	26915/836.5	26990/844
LTE Band 26b	10MHz	QPSK	1	0	25.50	24.76	24.60	24.65
			1	24	25.50	24.74	24.66	24.78
			1	49	25.50	24.67	24.70	25.02
			25	0	24.00	23.63	23.65	23.65
			25	12	24.00	23.64	23.64	23.68
			25	24	24.00	23.58	23.60	23.70
			50	0	24.00	23.62	23.61	23.70
		16QAM	1	0	24.50	23.77	23.73	23.80

			1	24	24.50	23.70	23.80	23.94
			1	49	24.50	23.61	23.86	24.19
			25	0	23.00	22.67	22.67	22.67
			25	12	23.00	22.66	22.69	22.67
			25	24	23.00	22.61	22.70	22.76
			50	0	23.00	22.66	22.68	22.72
Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		26865/831.5	26915/836.5	26965/841.5
LTE Band 26b	15MHz	QPSK	1	0	25.50	24.71	24.54	24.54
			1	37	25.50	24.67	24.63	24.80
			1	74	25.50	24.64	24.74	25.03
			36	0	24.50	23.72	23.67	23.47
			36	18	24.50	23.67	23.71	23.74
			36	37	24.50	23.63	23.85	24.04
			75	0	24.00	23.65	23.68	23.69
		16QAM	1	0	24.00	23.69	23.65	23.50
			1	37	24.00	23.68	23.75	23.78
			1	74	24.00	23.62	23.82	23.99
			36	0	24.00	23.69	23.64	23.54
			36	18	24.00	23.64	23.72	23.80
			36	37	24.00	23.61	23.82	24.00
			75	0	23.00	22.60	22.67	22.65

Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		40265/2557.5	40620/2593	41215/2652.5
LTE Band 41	5MHz	QPSK	1	0	20.50	20.16	20.28	20.26
			1	12	20.50	20.21	20.24	20.02
			1	24	20.50	20.13	20.15	20.02
			12	0	20.50	20.16	20.10	20.08
			12	6	20.50	20.31	19.99	20.16
			12	11	20.50	20.30	20.17	20.04
			25	0	20.50	20.24	20.20	19.98
		16QAM	1	0	21.00	20.14	20.36	20.09
			1	12	21.00	20.07	20.25	20.88
			1	24	21.00	20.22	20.18	20.89
			12	0	21.00	20.22	20.12	20.86
			12	6	21.00	20.24	20.11	20.16
			12	11	21.00	20.24	20.20	20.21
			25	0	20.50	20.30	20.15	20.13
Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		40290/2560	40620/2593	41190/2650
LTE Band 41	10MHz	QPSK	1	0	20.50	20.13	20.41	20.04
			1	24	20.50	20.17	20.11	20.02
			1	49	20.50	20.30	20.07	20.09
			25	0	20.50	20.30	20.30	20.08
			25	12	20.50	20.30	20.12	19.99
			25	24	20.50	20.33	20.15	19.93
			50	0	20.50	20.39	20.09	20.08
		16QAM	1	0	21.00	20.16	20.32	20.27

			1	24	21.00	20.11	20.23	20.94
			1	49	21.00	20.04	20.34	20.87
			25	0	21.00	20.16	20.16	20.78
			25	12	21.00	20.31	20.19	20.13
			25	24	21.00	20.43	20.21	20.17
			50	0	20.50	20.27	19.96	20.30
Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		40315/2562.5	40620/2593	41165/2647.5
LTE Band 41	15MHz	QPSK	1	0	20.50	20.39	20.36	20.10
			1	37	20.50	20.24	20.05	20.11
			1	74	20.50	20.32	20.15	20.16
			36	0	20.50	20.30	20.25	19.90
			36	18	20.50	20.42	19.97	20.14
			36	37	20.50	20.13	20.10	20.09
			75	0	20.50	20.32	20.19	20.03
		16QAM	1	0	21.00	20.15	20.39	20.15
			1	37	21.00	19.97	20.13	20.89
			1	74	21.00	20.09	20.28	20.85
			36	0	21.00	20.16	20.31	20.76
			36	18	21.00	20.22	20.08	20.39
			36	37	21.00	20.12	20.03	20.24
			75	0	20.50	20.24	20.11	20.32
Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		40340/2565	40620/2593	41140/2645
LTE Band 41	20MHz	QPSK	1	0	20.50	20.23	20.37	20.18
			1	49	20.50	20.36	20.19	20.25
			1	99	20.50	20.14	20.10	20.11
			50	0	20.50	20.36	20.25	20.04
			50	24	20.50	20.39	20.15	20.11
			50	49	20.50	20.23	20.25	20.05
			100	0	20.50	20.34	20.13	20.02
		16QAM	1	0	21.00	20.05	20.15	20.14
			1	49	21.00	20.02	20.27	20.94
			1	99	21.00	20.04	20.34	20.82
			50	0	21.00	20.20	20.27	20.84
			50	24	21.00	20.19	20.16	20.23
			50	49	21.00	20.31	20.13	20.36
			100	0	20.50	20.34	20.31	20.14

Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		131979/1710.7	132322/1745	132665/1779.3
LTE Band 66	1.4MHz	QPSK	1	0	22.50	22.09	21.72	21.65
			1	2	22.50	22.05	21.72	21.64
			1	5	22.50	22.09	21.72	21.68
			3	0	22.50	22.10	21.70	21.70
			3	1	22.50	22.09	21.74	21.68
			3	2	22.50	22.07	21.73	21.69
			6	0	21.50	21.27	20.94	20.85
		16QAM	1	0	21.00	20.93	20.52	20.51

			1	2	21.00	20.96	20.59	20.58
			1	5	21.00	20.90	20.55	20.54
			3	0	21.00	20.85	20.46	20.47
			3	1	21.00	20.84	20.47	20.46
			3	2	21.00	20.86	20.46	20.48
			6	0	20.50	20.26	19.85	19.81
Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		131987/1711.5	132322/1745	132657/1778.5
LTE Band 66	3MHz	QPSK	1	0	22.50	21.97	21.57	21.41
			1	7	22.50	22.12	21.73	21.59
			1	14	22.50	22.09	21.68	21.52
			8	0	21.50	21.13	20.73	20.60
			8	4	21.50	21.08	20.72	20.57
			8	7	21.50	21.17	20.76	20.68
			15	0	21.50	21.14	20.71	20.58
		16QAM	1	0	21.50	20.89	20.51	20.35
			1	7	21.50	21.07	20.65	20.51
			1	14	21.50	21.02	20.61	20.51
			8	0	20.50	20.10	19.69	19.58
			8	4	20.50	20.12	19.68	19.53
			8	7	20.50	20.18	19.75	19.63
			15	0	20.50	20.10	19.68	19.53
Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		131997/1712.5	132322/1745	132647/1777.5
LTE Band 66	5MHz	QPSK	1	0	22.50	22.11	21.65	21.46
			1	12	22.50	22.35	21.87	21.73
			1	24	22.50	22.22	21.83	21.79
			12	0	21.50	21.03	20.62	20.50
			12	6	21.50	21.04	20.61	20.51
			12	11	21.50	21.19	20.78	20.65
			25	0	21.50	21.08	20.72	20.58
		16QAM	1	0	21.50	21.03	20.56	20.41
			1	12	21.50	21.27	20.82	20.67
			1	24	21.50	21.18	20.79	20.74
			12	0	20.50	20.02	19.60	19.45
			12	6	20.50	20.03	19.58	19.44
			12	11	20.50	20.20	19.74	19.56
			25	0	20.50	20.12	19.74	19.56
Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		132022/1715	132322/1745	132622/1775
LTE Band 66	10MHz	QPSK	1	0	22.50	22.11	21.58	21.39
			1	24	22.50	22.28	21.84	21.51
			1	49	22.50	22.29	22.03	21.80
			25	0	21.50	21.04	20.54	20.43
			25	12	21.50	21.10	20.57	20.44
			25	24	21.50	21.23	20.90	20.59
			50	0	21.50	21.14	20.76	20.49
		16QAM	1	0	21.50	21.24	20.69	20.58

			1	24	21.50	21.39	20.93	20.66
			1	49	21.50	21.42	21.14	20.92
			25	0	20.50	20.05	19.52	19.39
			25	12	20.50	20.01	19.53	19.40
			25	24	20.50	20.21	19.88	19.53
			50	0	20.50	20.09	19.69	19.43
Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		132047/1717.5	132322/1745	132597/1772.5
LTE Band 66	15MHz	QPSK	1	0	22.50	22.20	21.55	21.50
			1	37	22.50	22.46	21.98	21.56
			1	74	22.50	22.12	22.12	21.80
			36	0	22.00	21.30	20.64	20.68
			36	18	22.00	21.56	21.06	20.74
			36	37	22.00	21.28	21.24	20.98
			75	0	21.50	21.24	20.91	20.57
		16QAM	1	0	22.00	21.31	20.65	20.67
			1	37	22.00	21.62	21.07	20.74
			1	74	22.00	21.25	21.27	20.96
			36	0	22.00	21.27	20.66	20.67
			36	18	22.00	21.58	21.05	20.70
			36	37	22.00	21.25	21.25	20.96
			75	0	20.50	20.22	19.87	19.53
Band	Band Width	Modulation	RB Configuration		Tune-up (dBm)	Channel/Frequency(MHz)		
			RB Size	RB Offset		132072/1720	132322/1745	132572/1770
LTE Band 66	20MHz	QPSK	1	0	22.50	22.15	21.54	21.72
			1	49	22.50	22.46	22.05	21.60
			1	99	22.50	21.82	22.20	21.84
			50	0	21.50	21.18	20.53	20.66
			50	24	21.50	21.21	20.52	20.65
			50	49	21.50	21.06	21.06	20.50
			100	0	21.50	21.11	20.86	20.54
		16QAM	1	0	21.50	21.00	20.37	20.56
			1	49	21.50	21.31	20.84	20.46
			1	99	21.50	20.72	20.98	20.68
			50	0	20.50	20.17	19.48	19.63
			50	24	20.50	20.22	19.46	19.65
			50	49	20.50	20.09	20.05	19.46
			100	0	20.50	20.15	19.81	19.52

8.4. Wi-Fi & BT Output Power

Mode	Channel	Frequency (MHz)	Tune-up (dBm)	Output Power (dBm)
802.11b	1	2412	14.50	12.55
	6	2437	14.50	13.83
	11	2462	14.50	14.09
802.11g	1	2412	15.00	14.32
	6	2437	17.00	16.58
	11	2462	17.00	16.23
802.11n HT20	1	2412	15.50	13.56
	6	2437	15.50	14.75
	11	2462	15.50	15.21
802.11n HT40	3	2422	13.50	12.36
	6	2437	13.50	12.45
	9	2452	13.50	13.42

Mode	Channel	Frequency (MHz)	Tune-up (dBm)	Output Power (dBm)
802.11a	36	5180	13.50	12.83
	40	5200	13.50	13.09
	48	5240	13.50	13.07
802.11n HT20	36	5180	11.00	10.64
	40	5200	13.00	13.00
	48	5240	13.50	13.08
802.11n HT40	38	5190	12.00	11.78
	46	5230	12.00	11.88
802.11ac VHT20	36	5180	13.50	12.74
	40	5200	13.50	13.04
	48	5240	13.50	12.97
802.11ac VHT40	38	5190	13.50	12.74
	46	5230	13.50	13.04
802.11ac VHT80	42	5210	12.00	11.84

Mode	Channel	Frequency (MHz)	Tune-up (dBm)	Output Power (dBm)
802.11a	52	5260	13.50	13.40
	56	5280	13.50	13.26
	64	5320	13.50	12.96
802.11n HT20	52	5260	13.00	12.89
	56	5280	13.00	12.43
	64	5320	13.00	12.30
802.11n HT40	54	5270	12.00	11.55

	62	5310	12.00	11.00
802.11ac VHT20	52	5260	13.00	12.91
	56	5280	13.00	12.36
	64	5320	13.00	12.33
802.11ac VHT40	54	5270	12.00	11.70
	62	5310	12.00	11.10
802.11ac VHT80	58	5290	11.50	11.38

Mode	Channel	Frequency (MHz)	Tune-up (dBm)	Output Power (dBm)
802.11a	100	5500	12.00	11.70
	120	5600	11.00	10.39
	140	5700	13.00	12.77
802.11n	100	5500	14.00	13.09
	120	5600	14.00	12.13
	140	5700	14.00	13.82
802.11n	102	5510	11.00	10.23
	118	5590	11.00	9.43
	134	5670	11.00	10.65
802.11ac (VHT20)	100	5500	12.50	11.31
	120	5600	12.50	10.76
	140	5700	12.50	12.14
802.11ac (VHT40)	102	5510	11.00	10.19
	118	5590	11.00	9.39
	134	5670	11.00	10.60
802.11ac (VHT80)	106	5530	10.50	10.06
	122	5610	10.50	9.75

Mode	Channel	Frequency (MHz)	Tune-up (dBm)	Output Power (dBm)
802.11a	149	5745	12.50	11.09
	157	5785	12.50	11.88
	165	5825	12.50	12.03
802.11n HT20	149	5745	14.00	12.69
	157	5785	14.00	13.54
	165	5825	14.00	13.55
802.11n HT40	151	5755	11.00	10.34
	159	5795	11.00	10.95
802.11ac VHT20	149	5745	12.50	11.23
	157	5785	12.50	12.31
	165	5825	12.50	12.37
802.11ac VHT40	151	5755	11.00	10.01

	159	5795	11.00	10.84
802.11ac VHT80	155	5775	10.50	10.34

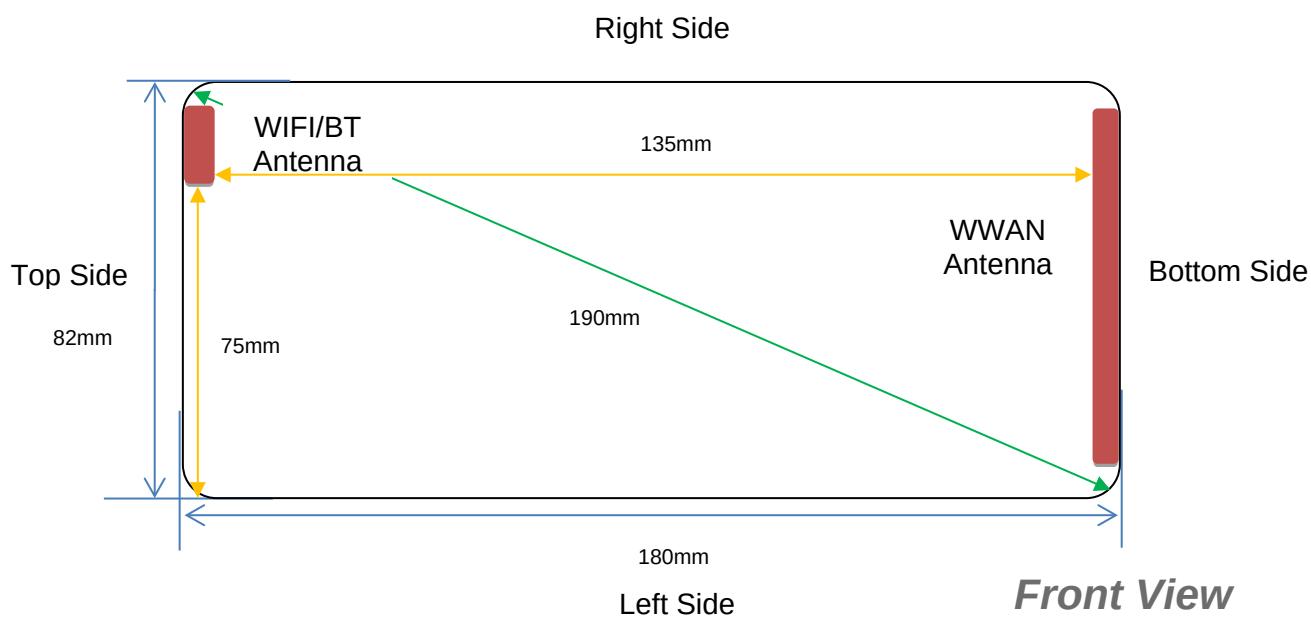
BR+EDR	Output Power (dBm)				
	Channel	Tune-up (dBm)	Data Rates		
			1M	2M	3M
	0CH	10.00	9.86	9.35	9.82
	39CH	10.00	9.97	9.58	9.63
	78CH	11.00	10.85	10.55	10.78

Mode	Channel	Tune-up (dBm)	Output Power (dBm)
BLE1M	CH00	-3.00	-3.58
	CH19	-2.00	-2.74
	CH39	-2.00	-2.63

8.5. NFC

Frequency (MHz)	EIRP(dBm)	tune-up(dBm)
13.56MHz	<0.00	0.00

9. Antenna Location



Antenna information:

Distance of The Antenna to the EUT surface and edge (mm)						
Antennas	Front Side	Back Side	Left Side	Right Side	Top Side	Bottom Side
BT/WLAN	≤25mm	≤25mm	>25mm	≤25mm	≤25mm	>25mm
WWAN	≤25mm	≤25mm	≤25mm	≤25mm	>25mm	≤25mm

Positions for SAR tests						
Antennas	Front Side	Back Side	Left Side	Right Side	Top Side	Bottom Side
BT/WLAN	Yes	Yes	NO	Yes	Yes	NO
WWAN	Yes	Yes	Yes	Yes	NO	Yes

10. Stand-alone SAR test exclusion

Refer to FCC KDB 447498D01, the 1-g SAR and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances ≤ 50 mm are determined by:

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

- $f(\text{GHz})$ is the RF channel transmit frequency in GHz
- Power and distance are rounded to the nearest mW and mm before calculation
- The result is rounded to one decimal place for comparison

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

Mode	Pmax (dBm)	Pmax (mW)	Distance (mm)	f (GHz)	Calculation Result	SAR Exclusion threshold	SAR test exclusion
Bluetooth	11.00	12.59	5	2.480	4.0	3	NO

NOTE: Standalone SAR test exclusion for Bluetooth.

11. SAR Measurement Results

< GSM 850>

Test Position	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)	Date	Plot
			1g	10g						
Left Cheek	189/836.4	GPRS(GMSK 4TS)	0.170	0.099	2.98	29.97	30.50	0.192	2025/11/13	1#
Left Tilt 15 Degree	189/836.4	GPRS(GMSK 4TS)	0.091	0.052	-0.94	29.97	30.50	0.103	2025/11/13	
Right Cheek	189/836.4	GPRS(GMSK 4TS)	0.146	0.082	-1.00	29.97	30.50	0.165	2025/11/13	
Right Tilt 15 Degree	189/836.4	GPRS(GMSK 4TS)	0.079	0.045	-0.51	29.97	30.50	0.089	2025/11/13	

Test Position of Hotspot with 5mm	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)	Date	Plot
			1g	10g						
Front Side	189/836.4	GPRS(GMSK 4TS)	0.108	0.064	-0.92	29.97	30.50	0.122	2025/11/13	
Back Side	189/836.4	GPRS(GMSK 4TS)	0.177	0.110	4.96	29.97	30.50	0.200	2025/11/13	2#
Left Side	189/836.4	GPRS(GMSK 4TS)	0.063	0.038	-3.57	29.97	30.50	0.071	2025/11/13	
Right Side	189/836.4	GPRS(GMSK 4TS)	0.057	0.035	0.06	29.97	30.50	0.064	2025/11/13	
Bottom Side	189/836.4	GPRS(GMSK 4TS)	0.100	0.060	0.05	29.97	30.50	0.113	2025/11/13	

< GSM 1900>

Test Position	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)	Date	Plot
			1g	10g						

Left Cheek	661/1880	GPRS(GMSK 4TS)	0.616	0.340	-3.70	29.03	29.50	0.686	2025/11/15	3#
Left Tilt 15 Degree	661/1880	GPRS(GMSK 4TS)	0.332	0.183	3.77	29.03	29.50	0.370	2025/11/15	
Right Cheek	661/1880	GPRS(GMSK 4TS)	0.533	0.288	-3.15	29.03	29.50	0.594	2025/11/15	
Right Tilt 15 Degree	661/1880	GPRS(GMSK 4TS)	0.247	0.130	0.10	29.03	29.50	0.275	2025/11/15	

Test Position of Hotspot with 5mm	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)	Date	Plot
			1g	10g						
Front Side	661/1880	GPRS(GMSK 4TS)	0.192	0.115	0.23	29.03	29.50	0.214	2025/11/15	
Back Side	661/1880	GPRS(GMSK 4TS)	0.320	0.199	3.41	29.03	29.50	0.357	2025/11/15	4#
Left Side	661/1880	GPRS(GMSK 4TS)	0.099	0.059	3.52	29.03	29.50	0.110	2025/11/15	
Right Side	661/1880	GPRS(GMSK 4TS)	0.105	0.063	0.92	29.03	29.50	0.117	2025/11/15	
Bottom Side	661/1880	GPRS(GMSK 4TS)	0.175	0.104	3.05	29.03	29.50	0.195	2025/11/15	

< WCDMA Band 2 >

Test Position	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)	Date	Plot
			1g	10g						
Left Cheek	9400/1880	RMC12.2K	0.439	0.261	0.78	23.48	24.00	0.495	2025/11/15	5#
Left Tilt 15 Degree	9400/1880	RMC12.2K	0.234	0.134	3.06	23.48	24.00	0.264	2025/11/15	
Right Cheek	9400/1880	RMC12.2K	0.396	0.235	-0.26	23.48	24.00	0.446	2025/11/15	

Test Position of Hotspot with 5mm	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)	Date	Plot
			1g	10g						
Front Side	9400/1880	RMC12.2K	0.126	0.079	-2.28	23.48	24.00	0.142	2025/11/15	
Back Side	9400/1880	RMC12.2K	0.207	0.135	0.33	23.48	24.00	0.233	2025/11/15	6#
Left Side	9400/1880	RMC12.2K	0.063	0.040	3.92	23.48	24.00	0.071	2025/11/15	
Right Side	9400/1880	RMC12.2K	0.069	0.044	0.53	23.48	24.00	0.078	2025/11/15	
Bottom Side	9400/1880	RMC12.2K	0.120	0.075	-2.19	23.48	24.00	0.135	2025/11/15	

Test Position	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)	Date	Plot
			1g	10g						
Left Cheek	4182/836.4	RMC12.2K	0.285	0.179	0.24	23.46	24.00	0.323	2025/11/13	7#
Left Tilt 15 Degree	4182/836.4	RMC12.2K	0.152	0.095	0.03	23.46	24.00	0.172	2025/11/13	
Right Cheek	4182/836.4	RMC12.2K	0.250	0.157	-3.99	23.46	24.00	0.283	2025/11/13	
Right Tilt 15 Degree	4182/836.4	RMC12.2K	0.121	0.074	0.39	23.46	24.00	0.137	2025/11/13	

Test Position of	Test channel /Freq	Test Mode	SAR Value (W/kg)		Power Drift (+5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g	Date	Plot
			1g	10g						

Hotspot with 5mm								(W/Kg)		
Front Side	4182/836.4	RMC12.2K	0.108	0.070	-2.91	23.46	24.00	0.122	2025/11/13	
Back Side	4182/836.4	RMC12.2K	0.155	0.101	2.58	23.46	24.00	0.176	2025/11/13	8#
Left Side	4182/836.4	RMC12.2K	0.057	0.036	-2.13	23.46	24.00	0.065	2025/11/13	
Right Side	4182/836.4	RMC12.2K	0.054	0.034	1.94	23.46	24.00	0.061	2025/11/13	
Bottom Side	4182/836.4	RMC12.2K	0.095	0.062	3.53	23.46	24.00	0.108	2025/11/13	

< LTE Band 2>

Test Position	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)	Date	Plot
			1g	10g						
1RB										
Left Cheek	18900/1880	20M QPSK(1,99)	0.148	0.097	-1.66	21.90	22.00	0.151	2025/11/15	19#
Left Tilt 15 Degree	18900/1880	20M QPSK(1,99)	0.089	0.058	3.51	21.90	22.00	0.091	2025/11/15	
Right Cheek	18900/1880	20M QPSK(1,99)	0.133	0.085	1.21	21.90	22.00	0.136	2025/11/15	
Right Tilt 15 Degree	18900/1880	20M QPSK(1,99)	0.062	0.040	3.67	21.90	22.00	0.063	2025/11/15	
50%RB										
Left Cheek	18900/1880	20M QPSK(50,24)	0.075	0.054	1.35	20.51	21.00	0.084	2025/11/15	
Left Tilt 15 Degree	18900/1880	20M QPSK(50,24)	0.045	0.032	-2.56	20.51	21.00	0.050	2025/11/15	
Right Cheek	18900/1880	20M QPSK(50,24)	0.068	0.049	-0.47	20.51	21.00	0.076	2025/11/15	
Right Tilt 15	18900/1880	20M QPSK(50,24)	0.037	0.021	-4.06	20.51	21.00	0.041	2025/11/15	

Degree										
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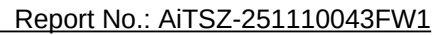
Test Position of Hotspot with 5mm	Test channel /Freq.	Test Mode	SAR Value		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)	Date	Plot
			(W/kg)							
			1g	10g						
1RB										
Front Side	18900/1880	20M QPSK(1,99)	0.108	0.061	-3.22	21.90	22.00	0.111	2025/11/15	
Back Side	18900/1880	20M QPSK(1,99)	0.157	0.092	-4.10	21.90	22.00	0.161	2025/11/15	20#
Left Side	18900/1880	20M QPSK(1,99)	0.048	0.027	1.97	21.90	22.00	0.049	2025/11/15	
Right Side	18900/1880	20M QPSK(1,99)	0.057	0.033	0.34	21.90	22.00	0.058	2025/11/15	
Bottom Side	18900/1880	20M QPSK(1,99)	0.095	0.054	-2.01	21.90	22.00	0.097	2025/11/15	
50%RB										
Front Side	18900/1880	20M QPSK(50,24)	0.061	0.032	-2.24	20.51	21.00	0.068	2025/11/15	
Back Side	18900/1880	20M QPSK(50,24)	0.094	0.047	-1.92	20.51	21.00	0.105	2025/11/15	
Left Side	18900/1880	20M QPSK(50,24)	0.028	0.016	-4.26	20.51	21.00	0.031	2025/11/15	
Right Side	18900/1880	20M QPSK(50,24)	0.031	0.018	-0.55	20.51	21.00	0.035	2025/11/15	
Bottom Side	18900/1880	20M QPSK(50,24)	0.055	0.029	-2.09	20.51	21.00	0.062	2025/11/15	

< LTE Band 4>

Test Position	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)	Date	Plot
			1g	10g						
1RB										
Left Cheek	20175/1732.5	20M QPSK(1,49)	0.179	0.119	1.81	20.85	21.50	0.208	2025/11/14	21#
Left Tilt	20175/1732.5	20M	0.093	0.059	2.58	20.85	21.50	0.108	2025/11/14	

15 Degree		QPSK(1,49)								
Right Cheek	20175/1732.5	20M QPSK(1,49)	0.160	0.105	2.58	20.85	21.50	0.186	2025/11/14	
Right Tilt 15 Degree	20175/1732.5	20M QPSK(1,49)	0.081	0.054	3.81	20.85	21.50	0.094	2025/11/14	
50%RB										
Left Cheek	20175/1732.5	20M QPSK(50,49)	0.098	0.068	2.42	19.92	20.50	0.112	2025/11/14	
Left Tilt 15 Degree	20175/1732.5	20M QPSK(50,49)	0.053	0.033	3.69	19.92	20.50	0.061	2025/11/14	
Right Cheek	20175/1732.5	20M QPSK(50,49)	0.087	0.062	2.99	19.92	20.50	0.099	2025/11/14	
Right Tilt 15 Degree	20175/1732.5	20M QPSK(50,49)	0.044	0.028	-4.66	19.92	20.50	0.050	2025/11/14	

Test Position of Hotspot with 5mm	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)	Date	Plot
			1g	10g						
1RB										
Front Side	20175/1732.5	20M QPSK(1,49)	0.126	0.071	0.93	20.85	21.50	0.146	2025/11/14	
Back Side	20175/1732.5	20M QPSK(1,49)	0.182	0.105	-0.40	20.85	21.50	0.211	2025/11/14	22#
Left Side	20175/1732.5	20M QPSK(1,49)	0.063	0.035	2.56	20.85	21.50	0.073	2025/11/14	
Right Side	20175/1732.5	20M QPSK(1,49)	0.066	0.036	3.94	20.85	21.50	0.077	2025/11/14	
Bottom Side	20175/1732.5	20M QPSK(1,49)	0.105	0.059	2.08	20.85	21.50	0.122	2025/11/14	
50%RB										
Front Side	20175/1732.5	20M QPSK(50,49)	0.074	0.039	-3.92	19.92	20.50	0.085	2025/11/14	
Back	20175/1732.5	20M	0.092	0.060	-1.18	19.92	20.50	0.105	2025/11/14	



Side		QPSK(50,49)								
Left Side	20175/1732.5	20M QPSK(50,49)	0.038	0.019	-2.62	19.92	20.50	0.043	2025/11/14	
Right Side	20175/1732.5	20M QPSK(50,49)	0.034	0.018	-2.39	19.92	20.50	0.039	2025/11/14	
Bottom Side	20175/1732.5	20M QPSK(50,49)	0.063	0.035	0.31	19.92	20.50	0.072	2025/11/14	

< LTE Band 5>

Test Position	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)	Date	Plot
			1g	10g						
1RB										
Left Cheek	20525/836.5	10M QPSK(1,0)	0.153	0.100	0.26	21.96	22.50	0.173	2025/11/13	23#
Left Tilt 15 Degree	20525/836.5	10M QPSK(1,0)	0.078	0.049	1.53	21.96	22.50	0.088	2025/11/13	
Right Cheek	20525/836.5	10M QPSK(1,0)	0.135	0.085	-1.25	21.96	22.50	0.153	2025/11/13	
Right Tilt 15 Degree	20525/836.5	10M QPSK(1,0)	0.065	0.042	-1.29	21.96	22.50	0.074	2025/11/13	
50%RB										
Left Cheek	20525/836.5	10M QPSK(25,12)	0.088	0.050	0.92	20.89	21.50	0.101	2025/11/13	
Left Tilt 15 Degree	20525/836.5	10M QPSK(25,12)	0.042	0.028	3.94	20.89	21.50	0.048	2025/11/13	
Right Cheek	20525/836.5	10M QPSK(25,12)	0.073	0.049	-1.92	20.89	21.50	0.084	2025/11/13	
Right Tilt 15 Degree	20525/836.5	10M QPSK(25,12)	0.034	0.024	-2.99	20.89	21.50	0.039	2025/11/13	

Test Position of Hotspot	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)	Date	Plot
			1g	10g						

with 5mm										
1RB										
Front Side	20525/836.5	10M QPSK(1,0)	0.108	0.058	-2.94	21.96	22.50	0.122	2025/11/13	
Back Side	20525/836.5	10M QPSK(1,0)	0.176	0.095	-0.34	21.96	22.50	0.199	2025/11/13	24#
Left Side	20525/836.5	10M QPSK(1,0)	0.055	0.031	-1.34	21.96	22.50	0.062	2025/11/13	
Right Side	20525/836.5	10M QPSK(1,0)	0.057	0.030	0.30	21.96	22.50	0.065	2025/11/13	
Bottom Side	20525/836.5	10M QPSK(1,0)	0.095	0.050	0.20	21.96	22.50	0.108	2025/11/13	
50%RB										
Front Side	20525/836.5	10M QPSK(25,12)	0.056	0.034	2.69	20.89	21.50	0.064	2025/11/13	
Back Side	20525/836.5	10M QPSK(25,12)	0.089	0.053	-1.07	20.89	21.50	0.102	2025/11/13	
Left Side	20525/836.5	10M QPSK(25,12)	0.030	0.016	-2.33	20.89	21.50	0.035	2025/11/13	
Right Side	20525/836.5	10M QPSK(25,12)	0.029	0.015	3.81	20.89	21.50	0.033	2025/11/13	
Bottom Side	20525/836.5	10M QPSK(25,12)	0.056	0.027	4.90	20.89	21.50	0.064	2025/11/13	

< LTE Band 7 >

Test Position	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)	Date	Plot
			1g	10g						
1RB										
Left Cheek	21100/2535	20M QPSK(1,49)	0.360	0.239	3.76	22.06	22.50	0.398	2025/11/17	25#
Left Tilt 15 Degree	21100/2535	20M QPSK(1,49)	0.200	0.126	2.71	22.06	22.50	0.221	2025/11/17	
Right Cheek	21100/2535	20M QPSK(1,49)	0.327	0.206	-1.98	22.06	22.50	0.362	2025/11/17	
Right Tilt 15	21100/2535	20M QPSK(1,49)	0.156	0.098	-3.57	22.06	22.50	0.173	2025/11/17	

Degree										
50%RB										
Left Cheek	21100/2535	20M QPSK(50,24)	0.206	0.132	-3.85	21.12	21.50	0.225	2025/11/17	
Left Tilt 15 Degree	21100/2535	20M QPSK(50,24)	0.117	0.065	0.56	21.12	21.50	0.128	2025/11/17	
Right Cheek	21100/2535	20M QPSK(50,24)	0.187	0.118	-1.33	21.12	21.50	0.204	2025/11/17	
Right Tilt 15 Degree	21100/2535	20M QPSK(50,24)	0.092	0.054	-2.16	21.12	21.50	0.100	2025/11/17	

Test Position of Hotspot with 5mm	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)	Date	Plot
			1g	10g						
1RB										
Front Side	21100/2535	20M QPSK(1,49)	0.120	0.079	-1.93	22.06	22.50	0.133	2025/11/17	
Back Side	21100/2535	20M QPSK(1,49)	0.183	0.124	-2.30	22.06	22.50	0.203	2025/11/17	26#
Left Side	21100/2535	20M QPSK(1,49)	0.060	0.039	2.58	22.06	22.50	0.066	2025/11/17	
Right Side	21100/2535	20M QPSK(1,49)	0.063	0.041	2.01	22.06	22.50	0.070	2025/11/17	
Bottom Side	21100/2535	20M QPSK(1,49)	0.105	0.068	-1.27	22.06	22.50	0.116	2025/11/17	
50%RB										
Front Side	21100/2535	20M QPSK(50,24)	0.072	0.044	4.01	21.12	21.50	0.079	2025/11/17	
Back Side	21100/2535	20M QPSK(50,24)	0.101	0.068	0.01	21.12	21.50	0.110	2025/11/17	
Left Side	21100/2535	20M QPSK(50,24)	0.036	0.020	-1.07	21.12	21.50	0.039	2025/11/17	
Right Side	21100/2535	20M QPSK(50,24)	0.034	0.023	-0.04	21.12	21.50	0.037	2025/11/17	
Bottom	21100/2535	20M	0.059	0.039	-3.59	21.12	21.50	0.064	2025/11/17	

Side		QPSK(50,24)								
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< LTE Band 12>

Test Position	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)	Date	Plot
			1g	10g						
1RB										
Left Cheek	23095/707.5	10M QPSK(1,49)	0.130	0.081	2.95	23.31	23.50	0.136	2025/11/12	27#
Left Tilt 15 Degree	23095/707.5	10M QPSK(1,49)	0.078	0.046	-0.27	23.31	23.50	0.081	2025/11/12	
Right Cheek	23095/707.5	10M QPSK(1,49)	0.113	0.068	0.71	23.31	23.50	0.118	2025/11/12	
Right Tilt 15 Degree	23095/707.5	10M QPSK(1,49)	0.054	0.034	-3.83	23.31	23.50	0.056	2025/11/12	
50%RB										
Left Cheek	23095/707.5	10M QPSK(25,24)	0.067	0.043	2.65	22.26	22.50	0.071	2025/11/12	
Left Tilt 15 Degree	23095/707.5	10M QPSK(25,24)	0.042	0.025	3.81	22.26	22.50	0.044	2025/11/12	
Right Cheek	23095/707.5	10M QPSK(25,24)	0.057	0.041	-1.40	22.26	22.50	0.060	2025/11/12	
Right Tilt 15 Degree	23095/707.5	10M QPSK(25,24)	0.030	0.020	0.29	22.26	22.50	0.032	2025/11/12	

Test Position of Hotspot with 5mm	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)	Date	Plot
			1g	10g						
1RB										
Front Side	23095/707.5	10M QPSK(1,49)	0.180	0.096	0.24	23.31	23.50	0.188	2025/11/12	
Back	23095/707.5	10M	0.290	0.157	0.44	23.31	23.50	0.303	2025/11/12	28#

Side		QPSK(1,49)								
Left Side	23095/707.5	10M QPSK(1,49)	0.102	0.053	-0.24	23.31	23.50	0.107	2025/11/12	
Right Side	23095/707.5	10M QPSK(1,49)	0.096	0.050	0.48	23.31	23.50	0.100	2025/11/12	
Bottom Side	23095/707.5	10M QPSK(1,49)	0.165	0.087	-1.14	23.31	23.50	0.172	2025/11/12	
50%RB										
Front Side	23095/707.5	10M QPSK(25,24)	0.093	0.054	-0.65	22.26	22.50	0.098	2025/11/12	
Back Side	23095/707.5	10M QPSK(25,24)	0.165	0.090	0.60	22.26	22.50	0.174	2025/11/12	
Left Side	23095/707.5	10M QPSK(25,24)	0.053	0.027	4.69	22.26	22.50	0.056	2025/11/12	
Right Side	23095/707.5	10M QPSK(25,24)	0.049	0.026	3.46	22.26	22.50	0.052	2025/11/12	
Bottom Side	23095/707.5	10M QPSK(25,24)	0.086	0.049	3.59	22.26	22.50	0.091	2025/11/12	

< LTE Band 14>

Test Position	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)	Date	Plot
			1g	10g						
1RB										
Left Cheek	23330/793	10M QPSK(1,0)	0.157	0.096	1.45	23.85	24.00	0.163	2025/11/12	29#
Left Tilt 15 Degree	23330/793	10M QPSK(1,0)	0.091	0.056	2.37	23.85	24.00	0.094	2025/11/12	
Right Cheek	23330/793	10M QPSK(1,0)	0.145	0.088	2.08	23.85	24.00	0.150	2025/11/12	
Right Tilt 15 Degree	23330/793	10M QPSK(1,0)	0.074	0.043	-1.73	23.85	24.00	0.077	2025/11/12	
50%RB										
Left Cheek	23330/793	10M QPSK(25,0)	0.087	0.056	-2.74	22.64	23.00	0.095	2025/11/12	
Left Tilt 15	23330/793	10M QPSK(25,0)	0.043	0.028	0.39	22.64	23.00	0.047	2025/11/12	

Degree										
Right Cheek	23330/793	10M QPSK(25,0)	0.077	0.046	-2.64	22.64	23.00	0.084	2025/11/12	
Right Tilt 15 Degree	23330/793	10M QPSK(25,0)	0.039	0.026	0.46	22.64	23.00	0.042	2025/11/12	

Test Position of Hotspot with 5mm	Test channel /Freq.	Test Mode	SAR Value		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)	Date	Plot
			(W/kg)							
			1g	10g						
1RB										
Front Side	23330/793	10M QPSK(1,0)	0.138	0.086	-2.34	23.85	24.00	0.143	2025/11/12	
Back Side	23330/793	10M QPSK(1,0)	0.184	0.120	0.52	23.85	24.00	0.190	2025/11/12	30#
Left Side	23330/793	10M QPSK(1,0)	0.057	0.035	-0.05	23.85	24.00	0.059	2025/11/12	
Right Side	23330/793	10M QPSK(1,0)	0.069	0.045	2.05	23.85	24.00	0.071	2025/11/12	
Bottom Side	23330/793	10M QPSK(1,0)	0.115	0.071	3.62	23.85	24.00	0.119	2025/11/12	
50%RB										
Front Side	23330/793	10M QPSK(25,0)	0.072	0.049	4.81	22.64	23.00	0.078	2025/11/12	
Back Side	23330/793	10M QPSK(25,0)	0.102	0.063	-1.12	22.64	23.00	0.111	2025/11/12	
Left Side	23330/793	10M QPSK(25,0)	0.030	0.020	-1.03	22.64	23.00	0.033	2025/11/12	
Right Side	23330/793	10M QPSK(25,0)	0.036	0.026	2.28	22.64	23.00	0.039	2025/11/12	
Bottom Side	23330/793	10M QPSK(25,0)	0.059	0.036	3.52	22.64	23.00	0.064	2025/11/12	

< LTE Band 17>

Test Position	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g	Date	Plot
			1g	10g						

								(W/Kg)		
1RB										
Left Cheek	23790/710	10M QPSK(1,49)	0.227	0.146	3.94	23.20	24.00	0.273	2025/11/12	31#
Left Tilt 15 Degree	23790/710	10M QPSK(1,49)	0.119	0.077	2.95	23.20	24.00	0.143	2025/11/12	
Right Cheek	23790/710	10M QPSK(1,49)	0.207	0.133	1.74	23.20	24.00	0.249	2025/11/12	
Right Tilt 15 Degree	23790/710	10M QPSK(1,49)	0.096	0.059	0.28	23.20	24.00	0.115	2025/11/12	
50%RB										
Left Cheek	23790/710	10M QPSK(25,0)	0.135	0.079	0.54	22.09	23.00	0.166	2025/11/12	
Left Tilt 15 Degree	23790/710	10M QPSK(25,0)	0.069	0.043	3.07	22.09	23.00	0.085	2025/11/12	
Right Cheek	23790/710	10M QPSK(25,0)	0.117	0.070	3.45	22.09	23.00	0.144	2025/11/12	
Right Tilt 15 Degree	23790/710	10M QPSK(25,0)	0.048	0.035	-4.31	22.09	23.00	0.059	2025/11/12	

Test Position of Hotspot with 5mm	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)	Date	Plot
			1g	10g						
1RB										
Front Side	23790/710	10M QPSK(1,49)	0.114	0.063	-0.87	23.20	24.00	0.137	2025/11/12	
Back Side	23790/710	10M QPSK(1,49)	0.183	0.104	2.73	23.20	24.00	0.220	2025/11/12	32#
Left Side	23790/710	10M QPSK(1,49)	0.057	0.031	-2.36	23.20	24.00	0.069	2025/11/12	
Right Side	23790/710	10M QPSK(1,49)	0.063	0.035	-1.99	23.20	24.00	0.076	2025/11/12	
Bottom	23790/710	10M	0.105	0.060	-3.41	23.20	24.00	0.126	2025/11/12	

Side		QPSK(1,49)								
50%RB										
Front Side	23790/710	10M QPSK(25,0)	0.058	0.035	2.64	22.09	23.00	0.072	2025/11/12	
Back Side	23790/710	10M QPSK(25,0)	0.092	0.052	-3.34	22.09	23.00	0.113	2025/11/12	
Left Side	23790/710	10M QPSK(25,0)	0.032	0.018	4.74	22.09	23.00	0.039	2025/11/12	
Right Side	23790/710	10M QPSK(25,0)	0.035	0.019	2.37	22.09	23.00	0.043	2025/11/12	
Bottom Side	23790/710	10M QPSK(25,0)	0.053	0.034	-1.66	22.09	23.00	0.065	2025/11/12	

< LTE Band 25>

Test Position	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)	Date	Plot
			1g	10g						
1RB										
Left Cheek	26365/1882.5	20M QPSK(1,49)	0.332	0.213	0.80	21.84	22.50	0.386	2025/11/15	33#
Left Tilt 15 Degree	26365/1882.5	20M QPSK(1,49)	0.181	0.110	1.73	21.84	22.50	0.211	2025/11/15	
Right Cheek	26365/1882.5	20M QPSK(1,49)	0.283	0.178	-3.09	21.84	22.50	0.329	2025/11/15	
Right Tilt 15 Degree	26365/1882.5	20M QPSK(1,49)	0.136	0.086	2.85	21.84	22.50	0.158	2025/11/15	
50%RB										
Left Cheek	26365/1882.5	20M QPSK(50,24)	0.173	0.115	-0.82	20.65	21.50	0.210	2025/11/15	
Left Tilt 15 Degree	26365/1882.5	20M QPSK(50,24)	0.105	0.064	-4.24	20.65	21.50	0.128	2025/11/15	
Right Cheek	26365/1882.5	20M QPSK(50,24)	0.150	0.101	-3.40	20.65	21.50	0.182	2025/11/15	
Right Tilt 15 Degree	26365/1882.5	20M QPSK(50,24)	0.076	0.048	-0.87	20.65	21.50	0.092	2025/11/15	

Test Position of Hotspot with 5mm	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)	Date	Plot
			1g	10g						
1RB										
Front Side	26365/1882.5	20M QPSK(1,49)	0.114	0.066	-1.51	21.84	22.50	0.133	2025/11/15	
Back Side	26365/1882.5	20M QPSK(1,49)	0.158	0.092	-3.80	21.84	22.50	0.184	2025/11/15	34#
Left Side	26365/1882.5	20M QPSK(1,49)	0.054	0.031	2.20	21.84	22.50	0.063	2025/11/15	
Right Side	26365/1882.5	20M QPSK(1,49)	0.051	0.029	0.17	21.84	22.50	0.059	2025/11/15	
Bottom Side	26365/1882.5	20M QPSK(1,49)	0.100	0.058	-2.35	21.84	22.50	0.116	2025/11/15	
50%RB										
Front Side	26365/1882.5	20M QPSK(50,24)	0.064	0.034	-2.80	20.65	21.50	0.078	2025/11/15	
Back Side	26365/1882.5	20M QPSK(50,24)	0.080	0.055	-2.95	20.65	21.50	0.097	2025/11/15	
Left Side	26365/1882.5	20M QPSK(50,24)	0.031	0.017	4.92	20.65	21.50	0.038	2025/11/15	
Right Side	26365/1882.5	20M QPSK(50,24)	0.031	0.015	-0.90	20.65	21.50	0.038	2025/11/15	
Bottom Side	26365/1882.5	20M QPSK(50,24)	0.059	0.034	-4.34	20.65	21.50	0.072	2025/11/15	

< LTE Band 26A >

Test Position	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)	Date	Plot
			1g	10g						
1RB										
Left Cheek	26740/819	10M QPSK(1,24)	0.163	0.111	0.25	24.94	25.00	0.165	2025/11/13	35#
Left Tilt 15	26740/819	10M QPSK(1,24)	0.085	0.056	1.14	24.94	25.00	0.086	2025/11/13	

Degree										
Right Cheek	26740/819	10M QPSK(1,24)	0.150	0.100	2.14	24.94	25.00	0.152	2025/11/13	
Right Tilt 15 Degree	26740/819	10M QPSK(1,24)	0.077	0.052	-3.44	24.94	25.00	0.078	2025/11/13	
50%RB										
Left Cheek	26740/819	10M QPSK(25,24)	0.092	0.066	-3.06	23.81	24.00	0.096	2025/11/13	
Left Tilt 15 Degree	26740/819	10M QPSK(25,24)	0.050	0.032	-4.41	23.81	24.00	0.052	2025/11/13	
Right Cheek	26740/819	10M QPSK(25,24)	0.083	0.059	-1.45	23.81	24.00	0.087	2025/11/13	
Right Tilt 15 Degree	26740/819	10M QPSK(25,24)	0.044	0.029	-4.60	23.81	24.00	0.046	2025/11/13	

Test Position of Hotspot with 5mm	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)	Date	Plot
			1g	10g						
1RB										
Front Side	26740/819	10M QPSK(1,24)	0.126	0.073	2.41	24.94	25.00	0.128	2025/11/13	
Back Side	26740/819	10M QPSK(1,24)	0.172	0.102	1.17	24.94	25.00	0.174	2025/11/13	37#
Left Side	26740/819	10M QPSK(1,24)	0.065	0.034	1.87	24.94	25.00	0.066	2025/11/13	
Right Side	26740/819	10M QPSK(1,24)	0.063	0.037	-1.42	24.94	25.00	0.064	2025/11/13	
Bottom Side	26740/819	10M QPSK(1,24)	0.105	0.061	-0.89	24.94	25.00	0.106	2025/11/13	
50%RB										
Front Side	26740/819	10M QPSK(25,24)	0.064	0.040	-2.96	23.81	24.00	0.067	2025/11/13	
Back Side	26740/819	10M QPSK(25,24)	0.102	0.057	-2.18	23.81	24.00	0.107	2025/11/13	

Left Side	26740/819	10M QPSK(25,24)	0.037	0.020	-2.81	23.81	24.00	0.039	2025/11/13	
Right Side	26740/819	10M QPSK(25,24)	0.035	0.019	-3.07	23.81	24.00	0.037	2025/11/13	
Bottom Side	26740/819	10M QPSK(25,24)	0.057	0.036	4.95	23.81	24.00	0.060	2025/11/13	

< LTE Band 26B>

Test Position	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)	Date	Plot
			1g	10g						
1RB										
Left Cheek	26865/831.5	15M QPSK(1,74)	0.168	0.102	-0.07	24.74	25.50	0.200	2025/11/13	36#
Left Tilt 15 Degree	26865/831.5	15M QPSK(1,74)	0.097	0.059	1.86	24.74	25.50	0.116	2025/11/13	
Right Cheek	26865/831.5	15M QPSK(1,74)	0.151	0.088	2.93	24.74	25.50	0.180	2025/11/13	
Right Tilt 15 Degree	26865/831.5	15M QPSK(1,74)	0.073	0.043	1.91	24.74	25.50	0.087	2025/11/13	
50%RB										
Left Cheek	26865/831.5	15M QPSK(36,37)	0.096	0.053	-0.82	23.85	24.50	0.111	2025/11/13	
Left Tilt 15 Degree	26865/831.5	15M QPSK(36,37)	0.054	0.034	-1.74	23.85	24.50	0.063	2025/11/13	
Right Cheek	26865/831.5	15M QPSK(36,37)	0.086	0.051	1.82	23.85	24.50	0.100	2025/11/13	
Right Tilt 15 Degree	26865/831.5	15M QPSK(36,37)	0.041	0.023	-4.82	23.85	24.50	0.048	2025/11/13	

[illegible]

5mm										
1RB										
Front Side	26865/831.5	15M QPSK(1,74)	0.096	0.052	1.64	24.74	25.50	0.114	2025/11/13	
Back Side	26865/831.5	15M QPSK(1,74)	0.131	0.071	1.54	24.74	25.50	0.156	2025/11/13	38#
Left Side	26865/831.5	15M QPSK(1,74)	0.054	0.029	3.77	24.74	25.50	0.064	2025/11/13	
Right Side	26865/831.5	15M QPSK(1,74)	0.051	0.027	-0.34	24.74	25.50	0.061	2025/11/13	
Bottom Side	26865/831.5	15M QPSK(1,74)	0.090	0.049	-0.71	24.74	25.50	0.107	2025/11/13	
50%RB										
Front Side	26865/831.5	15M QPSK(36,37)	0.053	0.027	-1.41	23.85	24.50	0.062	2025/11/13	
Back Side	26865/831.5	15M QPSK(36,37)	0.074	0.036	4.76	23.85	24.50	0.086	2025/11/13	
Left Side	26865/831.5	15M QPSK(36,37)	0.033	0.015	-1.47	23.85	24.50	0.038	2025/11/13	
Right Side	26865/831.5	15M QPSK(36,37)	0.031	0.014	-3.85	23.85	24.50	0.036	2025/11/13	
Bottom Side	26865/831.5	15M QPSK(36,37)	0.049	0.029	4.12	23.85	24.50	0.057	2025/11/13	

< LTE Band 41>

Test Position	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)	Date	Plot
			1g	10g						
1RB										
Left Cheek	40620/2593	20M QPSK(1,0)	0.378	0.266	0.30	20.37	20.50	0.389	2025/11/17	39#
Left Tilt 15 Degree	40620/2593	20M QPSK(1,0)	0.210	0.146	3.55	20.37	20.50	0.216	2025/11/17	
Right Cheek	40620/2593	20M QPSK(1,0)	0.339	0.229	-0.82	20.37	20.50	0.349	2025/11/17	
Right Tilt 15 Degree	40620/2593	20M QPSK(1,0)	0.162	0.109	-0.19	20.37	20.50	0.167	2025/11/17	

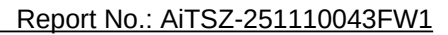
50%RB										
Left Cheek	40620/2593	20M QPSK(50,24)	0.192	0.156	-3.85	20.15	20.50	0.208	2025/11/17	
Left Tilt 15 Degree	40620/2593	20M QPSK(50,24)	0.109	0.079	2.62	20.15	20.50	0.118	2025/11/17	
Right Cheek	40620/2593	20M QPSK(50,24)	0.177	0.122	-4.30	20.15	20.50	0.192	2025/11/17	
Right Tilt 15 Degree	40620/2593	20M QPSK(50,24)	0.095	0.060	2.28	20.15	20.50	0.103	2025/11/17	

Test Position of Hotspot with 5mm	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)	Date	Plot
			1g	10g						
1RB										
Front Side	40620/2593	20M QPSK(1,0)	0.132	0.085	-0.33	20.37	20.50	0.136	2025/11/17	
Back Side	40620/2593	20M QPSK(1,0)	0.182	0.120	3.99	20.37	20.50	0.188	2025/11/17	40#
Left Side	40620/2593	20M QPSK(1,0)	0.069	0.044	3.34	20.37	20.50	0.071	2025/11/17	
Right Side	40620/2593	20M QPSK(1,0)	0.066	0.041	-2.64	20.37	20.50	0.068	2025/11/17	
Bottom Side	40620/2593	20M QPSK(1,0)	0.105	0.069	1.71	20.37	20.50	0.108	2025/11/17	
50%RB										
Front Side	40620/2593	20M QPSK(50,24)	0.068	0.047	-4.22	20.15	20.50	0.074	2025/11/17	
Back Side	40620/2593	20M QPSK(50,24)	0.104	0.070	4.98	20.15	20.50	0.113	2025/11/17	
Left Side	40620/2593	20M QPSK(50,24)	0.041	0.026	3.36	20.15	20.50	0.044	2025/11/17	
Right Side	40620/2593	20M QPSK(50,24)	0.036	0.024	-4.33	20.15	20.50	0.039	2025/11/17	
Bottom Side	40620/2593	20M QPSK(50,24)	0.061	0.037	0.24	20.15	20.50	0.066	2025/11/17	

< LTE Band 66>

Test Position	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)	Date	Plot
			1g	10g						
1RB										
Left Cheek	132322/1745	20M QPSK(1,49)	0.359	0.209	3.08	22.05	22.50	0.398	2025/11/14	41#
Left Tilt 15 Degree	132322/1745	20M QPSK(1,49)	0.209	0.120	-3.36	22.05	22.50	0.232	2025/11/14	
Right Cheek	132322/1745	20M QPSK(1,49)	0.328	0.183	-3.83	22.05	22.50	0.364	2025/11/14	
Right Tilt 15 Degree	132322/1745	20M QPSK(1,49)	0.154	0.088	-0.64	22.05	22.50	0.171	2025/11/14	
50%RB										
Left Cheek	132322/1745	20M QPSK(50,24)	0.202	0.121	1.03	20.52	21.50	0.253	2025/11/14	
Left Tilt 15 Degree	132322/1745	20M QPSK(50,24)	0.106	0.069	0.31	20.52	21.50	0.133	2025/11/14	
Right Cheek	132322/1745	20M QPSK(50,24)	0.179	0.106	-3.46	20.52	21.50	0.224	2025/11/14	
Right Tilt 15 Degree	132322/1745	20M QPSK(50,24)	0.077	0.046	-0.92	20.52	21.50	0.096	2025/11/14	

Test Position of Hotspot with 5mm	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)	Date	Plot
			1g	10g						
1RB										
Front Side	132322/1745	20M QPSK(1,49)	0.156	0.091	2.76	22.05	22.50	0.173	2025/11/14	
Back Side	132322/1745	20M QPSK(1,49)	0.236	0.143	-0.36	22.05	22.50	0.262	2025/11/14	42#
Left	132322/1745	20M	0.084	0.048	2.20	22.05	22.50	0.093	2025/11/14	



< WiFi 2.4G>

Test Position of Hotspot with	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)	Date	Plot
			1g	10g						

5mm										
Front Side	11/2462	802.11b	0.270	0.153	-0.73	14.09	14.50	0.297	2025/11/16	
Back Side	11/2462	802.11b	0.420	0.246	-4.75	14.09	14.50	0.462	2025/11/16	18#
Back Side	6/2437	802.11g	0.412	0.238	2.54	16.58	17.00	0.454	2025/11/16	
Right Side	11/2462	802.11b	0.141	0.083	3.76	14.09	14.50	0.155	2025/11/16	
Top Side	11/2462	802.11b	0.135	0.075	-3.59	14.09	14.50	0.148	2025/11/16	

< WiFi 5.2G>

Test Position	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)	Date	Plot
			1g	10g						
Left Cheek	40/5200	802.11a	0.418	0.212	-1.81	13.09	13.50	0.459	2025/11/18	9#
Left Tilt 15 Degree	40/5200	802.11a	0.234	0.113	3.09	13.09	13.50	0.257	2025/11/18	
Right Cheek	40/5200	802.11a	0.384	0.191	-0.03	13.09	13.50	0.422	2025/11/18	
Right Tilt 15 Degree	40/5200	802.11a	0.187	0.093	-3.32	13.09	13.50	0.206	2025/11/18	

Test Position of Hotspot with 5mm	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)	Date	Plot
			1g	10g						
Front Side	40/5200	802.11a	0.192	0.097	2.38	13.09	13.50	0.211	2025/11/18	
Back Side	40/5200	802.11a	0.319	0.168	3.74	13.09	13.50	0.351	2025/11/18	10#
Right Side	40/5200	802.11a	0.099	0.051	3.48	13.09	13.50	0.109	2025/11/18	

Top Side	40/5200	802.11a	0.105	0.054	2.88	13.09	13.50	0.115	2025/11/18	
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< WiFi 5.3G>

Test Position	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)	Date	Plot
			1g	10g						
Left Cheek	52/5260	802.11a	0.527	0.216	-0.78	13.40	13.50	0.539	2025/11/19	11#
Left Tilt 15 Degree	52/5260	802.11a	0.301	0.122	-3.86	13.40	13.50	0.308	2025/11/19	
Right Cheek	52/5260	802.11a	0.477	0.188	-3.65	13.40	13.50	0.488	2025/11/19	
Right Tilt 15 Degree	52/5260	802.11a	0.259	0.106	0.11	13.40	13.50	0.265	2025/11/19	

Test Position of Hotspot with 5mm	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)	Date	Plot
			1g	10g						
Front Side	52/5260	802.11a	0.258	0.137	-3.84	13.40	13.50	0.264	2025/11/19	
Back Side	52/5260	802.11a	0.414	0.224	0.68	13.40	13.50	0.424	2025/11/19	12#
Right Side	52/5260	802.11a	0.126	0.065	-0.33	13.40	13.50	0.129	2025/11/19	
Top Side	52/5260	802.11a	0.138	0.073	2.70	13.40	13.50	0.141	2025/11/19	

< WiFi 5.6G>

Test Position	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)	Date	Plot
			1g	10g						
Left	140/5700	802.11n	0.586	0.219	-1.62	13.82	14.00	0.611	2025/11/20	13#

Cheek		HT20								
Left Tilt 15 Degree	140/5700	802.11n HT20	0.321	0.116	-1.49	13.82	14.00	0.335	2025/11/20	
Right Cheek	140/5700	802.11n HT20	0.514	0.182	3.83	13.82	14.00	0.536	2025/11/20	
Right Tilt 15 Degree	140/5700	802.11n HT20	0.271	0.101	0.02	13.82	14.00	0.282	2025/11/20	

Test Position of Hotspot with 5mm	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)	Date	Plot
			1g	10g						
Front Side	140/5700	802.11n HT20	0.216	0.113	3.74	13.82	14.00	0.225	2025/11/20	
Back Side	140/5700	802.11n HT20	0.356	0.186	4.08	13.82	14.00	0.371	2025/11/20	14#
Right Side	140/5700	802.11n HT20	0.108	0.055	2.99	13.82	14.00	0.113	2025/11/20	
Top Side	140/5700	802.11n HT20	0.112	0.056	-1.07	13.82	14.00	0.117	2025/11/20	

< WiFi 5.8G >

Test Position	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)	Date	Plot
			1g	10g						
Left Cheek	165/5825	802.11n HT20	0.379	0.240	1.95	13.55	14.00	0.420	2025/11/21	15#
Left Tilt 15 Degree	165/5825	802.11n HT20	0.195	0.119	-1.69	13.55	14.00	0.216	2025/11/21	
Right Cheek	165/5825	802.11n HT20	0.326	0.206	3.44	13.55	14.00	0.362	2025/11/21	
Right Tilt 15 Degree	165/5825	802.11n HT20	0.177	0.110	3.45	13.55	14.00	0.196	2025/11/21	

Test Position of Hotspot with 5mm	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)	Date	Plot
			1g	10g						
Front Side	165/5825	802.11n HT20	0.324	0.154	0.60	13.55	14.00	0.359	2025/11/21	
Back Side	165/5825	802.11n HT20	0.518	0.254	-1.26	13.55	14.00	0.575	2025/11/21	16#
Right Side	165/5825	802.11n HT20	0.165	0.080	2.28	13.55	14.00	0.183	2025/11/21	
Top Side	165/5825	802.11n HT20	0.159	0.078	3.82	13.55	14.00	0.176	2025/11/21	

< Bluetooth>

Test Position	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)	Date	Plot
			1g	10g						
Left Cheek	78/2480	1DH5	0.368	0.256	1.02	10.85	11.00	0.381	2025/11/16	43#
Left Cheek	78/2480	1DH5	0.193	0.129	-1.74	10.85	11.00	0.200	2025/11/16	
Left Tilt 15 Degree	78/2480	1DH5	0.327	0.218	3.88	10.85	11.00	0.338	2025/11/16	
Right Cheek	78/2480	1DH5	0.157	0.104	2.45	10.85	11.00	0.163	2025/11/16	

Test Position of Hotspot with 5mm	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)	Date	Plot
			1g	10g						
Front Side	78/2480	1DH5	0.258	0.136	-0.52	10.85	11.00	0.267	2025/11/16	
Back	78/2480	1DH5	0.411	0.223	2.15	10.85	11.00	0.425	2025/11/16	44#



Side										
Right Side	78/2480	1DH5	0.138	0.073	-1.81	10.85	11.00	0.143	2025/11/16	
Top Side	78/2480	1DH5	0.135	0.073	-3.94	10.85	11.00	0.140	2025/11/16	

12. Simultaneous Transmission Analysis

Per KDB 447498 D01, simultaneous transmission SAR is compliant if,

1) Scalar SAR summation $< 1.6\text{W/kg}$.

2) $\text{SPLSR} = \frac{(\text{SAR}_1 + \text{SAR}_2)^{1.5}}{(\text{min. separation distance, mm})}$, and the peak separation distance is

determined from the square root of $[(x_1 - x_2)^2 + (y_1 - y_2)^2 + (z_1 - z_2)^2]$, where

(x_1, y_1, z_1) and (x_2, y_2, z_2) are the coordinates of the extrapolated peak SAR locations in the zoom scan.

If $\text{SPLSR} \leq 0.04$, simultaneously transmission SAR measurement is not necessary.

No.	Simultaneous Tx	Head	Body-worn	Hotspot
1	WWAN+WLAN	Yes	Yes	Yes
2	WWAN+Bluetooth	Yes	Yes	Yes

Note : WiFi and Bluetooth use the same antenna and cannot be transmitted at the same time.

Exposure Position		WWAN Band	NII/DTS/DSS	Simultaneous Tx SAR(W/Kg)
		SAR(W/Kg)	SAR(W/Kg)	
Head	Left Cheek	0.686	0.611	1.297
	Left Tilt 15 Degree	0.370	0.335	0.705
	Right Cheek	0.594	0.536	1.130
	Right Tilt 15 Degree	0.275	0.282	0.557
Body&Hotspot	Front Side	0.214	0.359	0.573
	Back Side	0.357	0.575	0.932
	Left Side	0.110	/	0.110
	Right Side	0.117	0.183	0.300
	Top Side	/	0.176	0.176
	Bottom Side	0.195	/	0.195

Note : The Simultaneous Tx is calculated based on the same configuration and test position.

Appendix A. Photo documentation

Refer to appendix Test Setup photo---SAR

Appendix B. System Check Plots

Table of contents
#1 System Performance Check - 750MHz
#2 System Performance Check - 850MHz
#3 System Performance Check - 1800MHz
#4 System Performance Check - 1900MHz
#5 System Performance Check - 2450MHz
#6 System Performance Check - 2600MHz
#7 System Performance Check - 5200MHz
#8 System Performance Check - 5400MHz
#9 System Performance Check - 5600MHz
#10 System Performance Check - 5800MHz

#1

Date of measurement: 12/11/2025

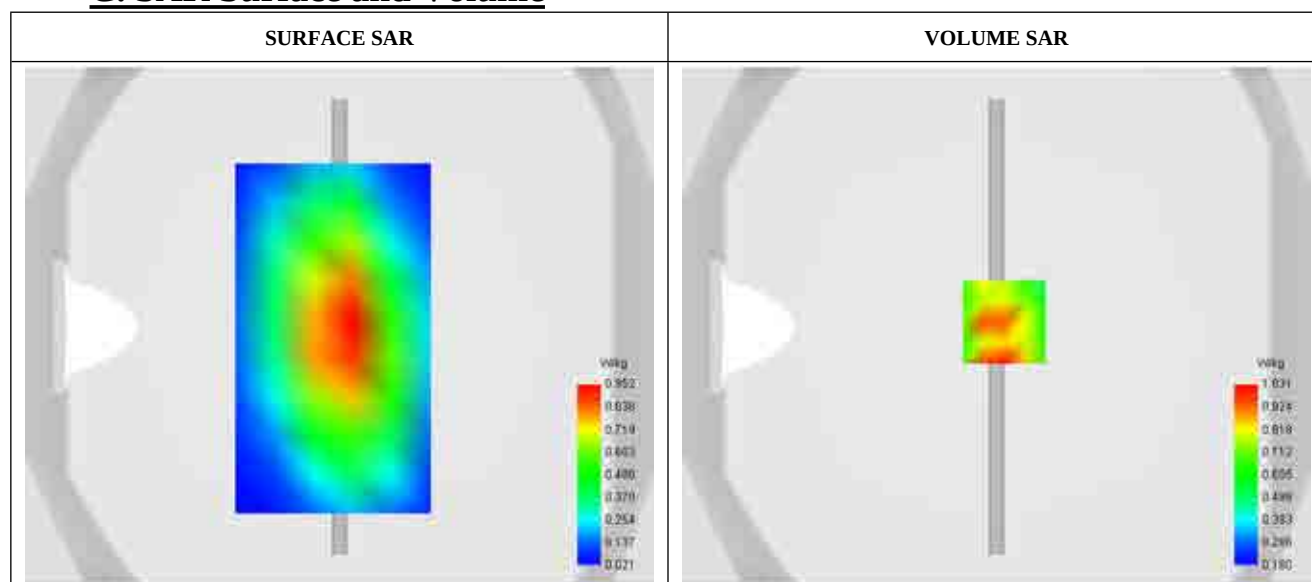
A. Experimental conditions.

Probe	0523-EPGO-403
ConvF	1.65
Area Scan	dx=15mm dy=15mm, Complete
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5.0mm,Complete
Phantom	Validation plane
Device Position	Dipole
Band	CW750
Channels/Frequency	Middle

B. Permittivity

Middle TX Frequency (MHz)	750.000
Relative permittivity (real part)	41.900
Relative permittivity (imaginary part)	21.360
Conductivity (S/m)	0.890

C. SAR Surface and Volume



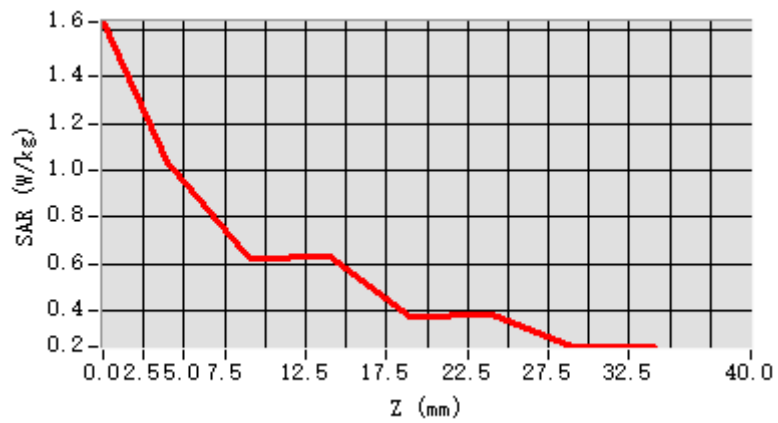
Maximum location: X=3.00, Y=2.00 ; SAR Peak: 1.54 W/kg

D. SAR 1g & 10g

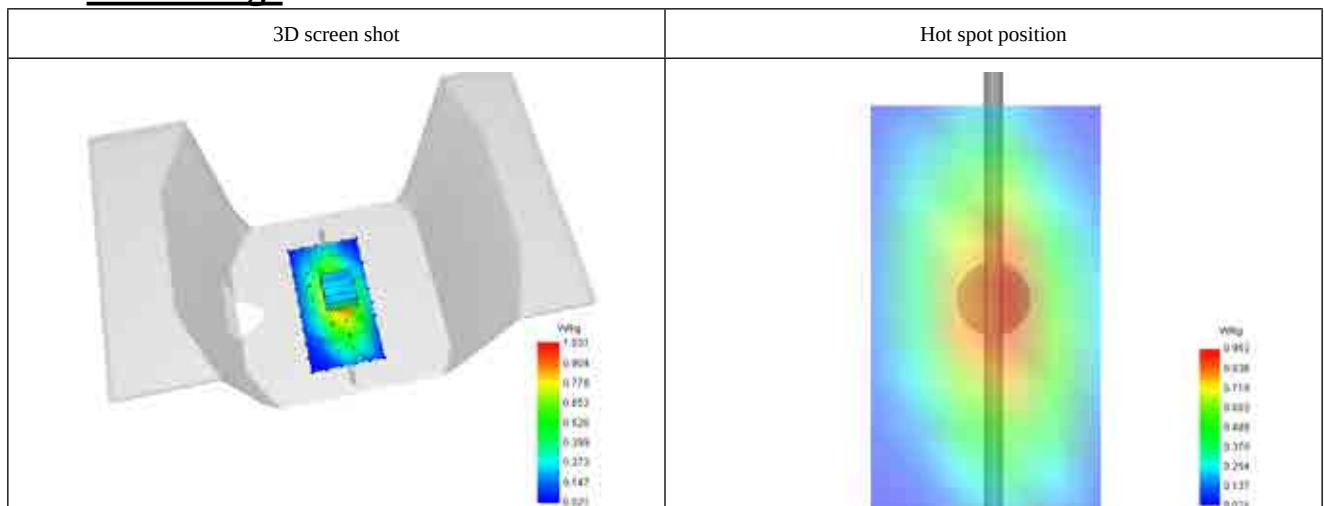
SAR 10g (W/Kg)	0.621
SAR 1g (W/Kg)	0.930
Variation (%)	0.380
Horizontal validation criteria: minimum distance (mm)	35.777088
Vertical validation criteria: SAR ratio M2/M1 (%)	60.135790

E. Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	1.636	1.031	0.620	0.629	0.375	0.386	0.245



F. 3D Image



#2

Date of measurement: 13/11/2025

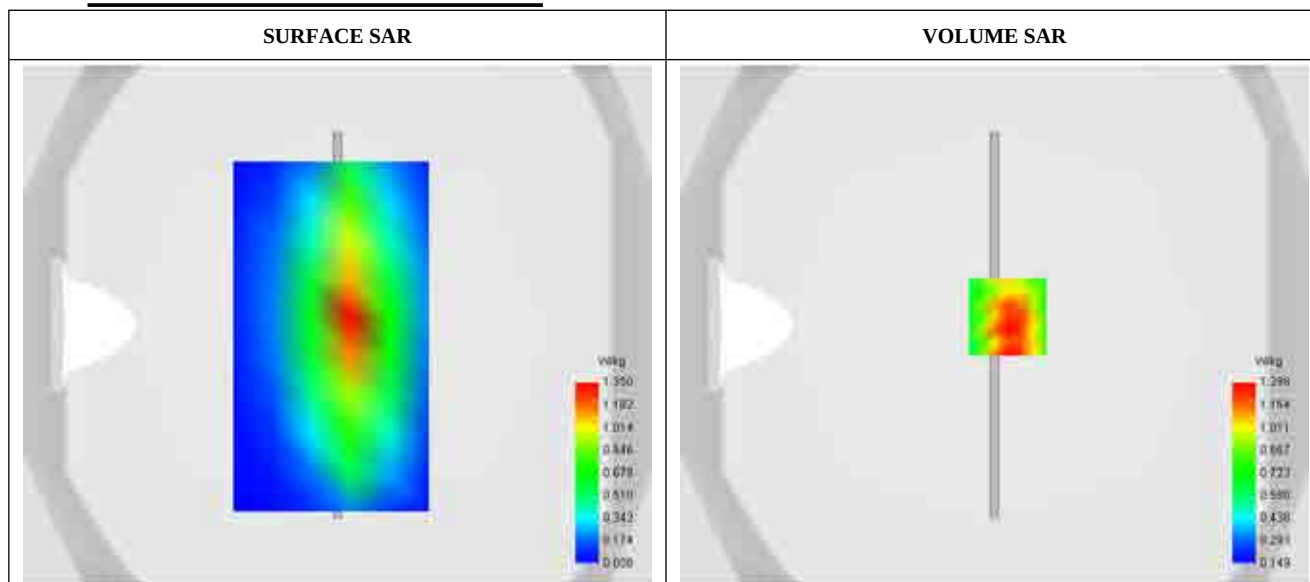
A. Experimental conditions.

Probe	0523-EPGO-403
ConvF	1.66
Area Scan	dx=15mm dy=15mm, Complete
Zoom Scan	7x7x7,dx=5mm dy=5mm dz=5.0mm,Complete
Phantom	Validation plane
Device Position	Dipole
Band	CW835
Channels/Frequency	Middle

B. Permittivity

Middle TX Frequency (MHz)	835.000
Relative permittivity (real part)	40.940
Relative permittivity (imaginary part)	19.300
Conductivity (S/m)	0.895

C. SAR Surface and Volume



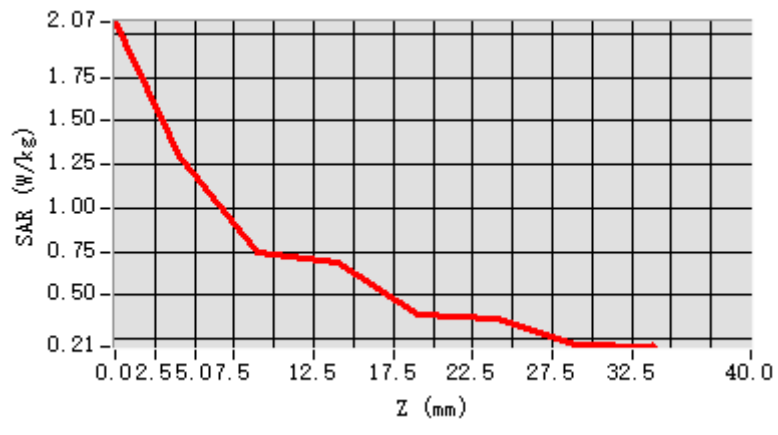
Maximum location: X=5.00, Y=3.00 ; SAR Peak: 1.90 W/kg

D. SAR 1g & 10g

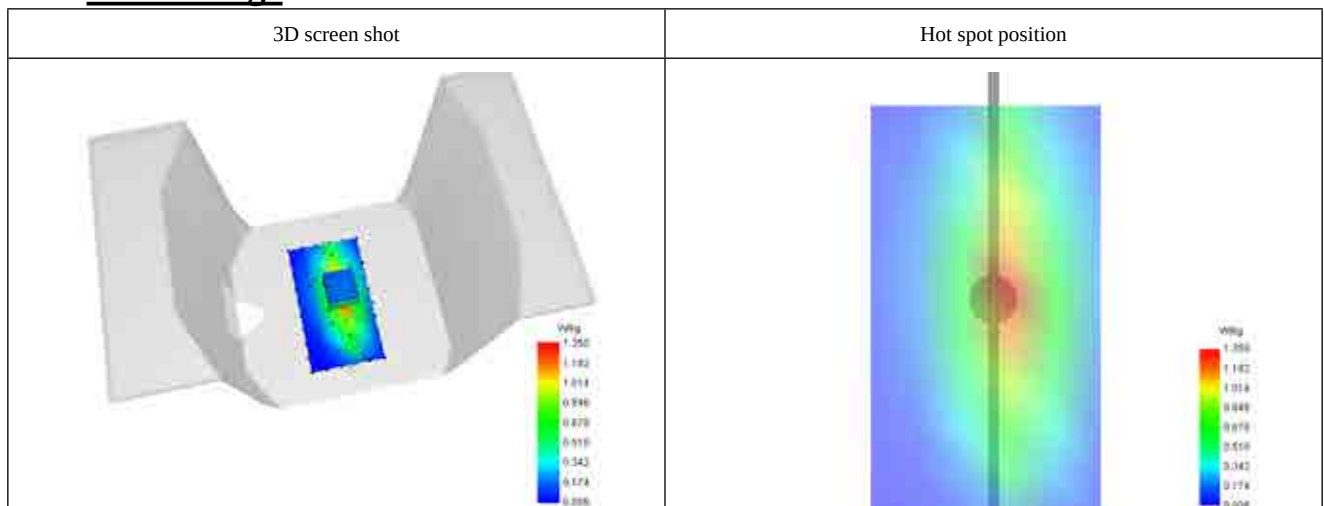
SAR 10g (W/Kg)	0.612
SAR 1g (W/Kg)	1.011
Variation (%)	2.200
Horizontal validation criteria: minimum distance (mm)	15.000000
Vertical validation criteria: SAR ratio M2/M1 (%)	57.716049

E. Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	2.064	1.296	0.748	0.687	0.392	0.367	0.223



F. 3D Image



#3

Date of measurement: 14/11/2025

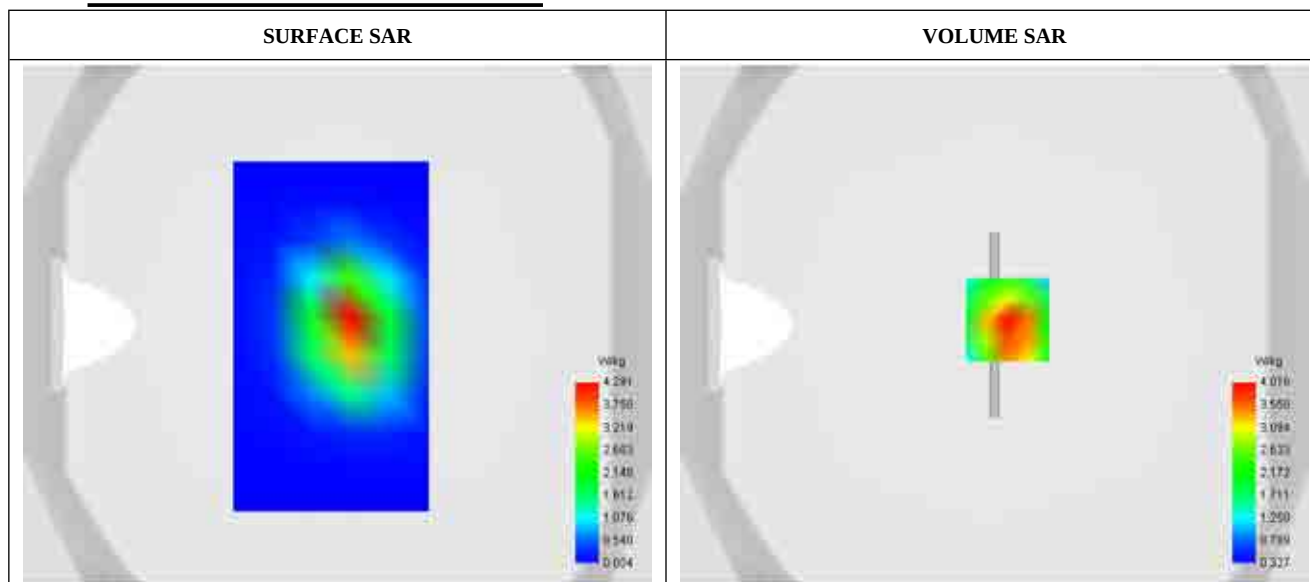
A. Experimental conditions.

Probe	0523-EPGO-403
ConvF	2.05
Area Scan	dx=15mm dy=15mm, Complete
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5.0mm,Complete
Phantom	Validation plane
Device Position	Dipole
Band	CW1800
Channels/Frequency	Middle

B. Permittivity

Middle TX Frequency (MHz)	1800.000
Relative permittivity (real part)	41.520
Relative permittivity (imaginary part)	14.000
Conductivity (S/m)	1.400

C. SAR Surface and Volume



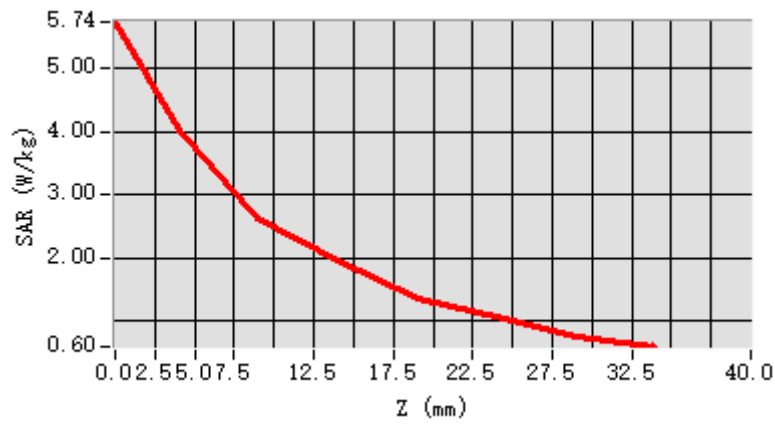
Maximum location: X=5.00, Y=2.00 ; SAR Peak: 5.78 W/kg

D. SAR 1g & 10g

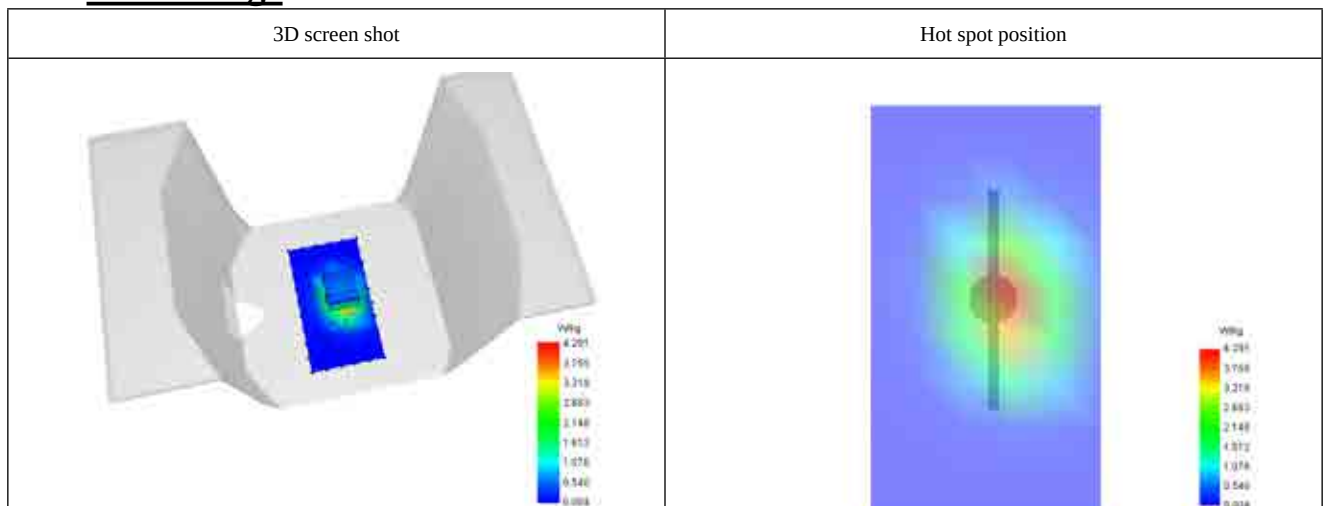
SAR 10g (W/Kg)	2.025
SAR 1g (W/Kg)	3.832
Variation (%)	0.180
Horizontal validation criteria: minimum distance (mm)	16.000000
Vertical validation criteria: SAR ratio M2/M1 (%)	65.811753

E. Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	5.739	4.016	2.643	1.958	1.374	1.074	0.775



F. 3D Image



#4

Date of measurement: 15/11/2025

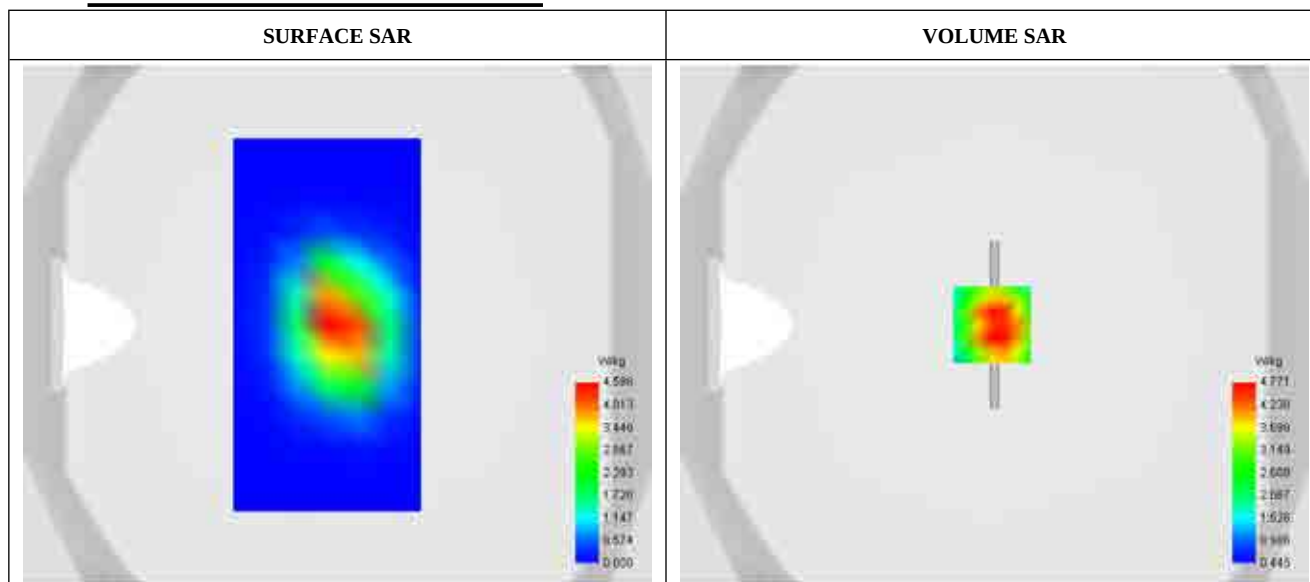
A. Experimental conditions.

Probe	0523-EPGO-403
ConvF	2.05
Area Scan	dx=12mm dy=12mm, Complete
Zoom Scan	7x7x7,dx=5mm dy=5mm dz=5.0mm,Complete
Phantom	Validation plane
Device Position	Dipole
Band	CW1900
Channels/Frequency	Middle

B. Permittivity

Middle TX Frequency (MHz)	1900.000
Relative permittivity (real part)	41.270
Relative permittivity (imaginary part)	12.500
Conductivity (S/m)	1.319

C. SAR Surface and Volume



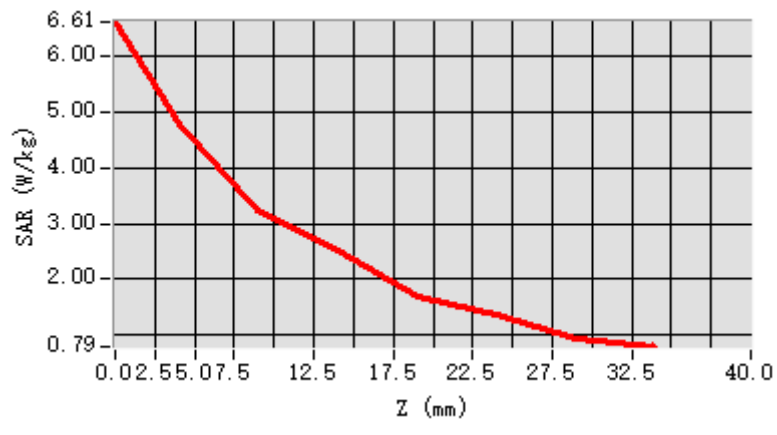
Maximum location: X=-1.00, Y=0.00 ; SAR Peak: 6.50 W/kg

D. SAR 1g & 10g

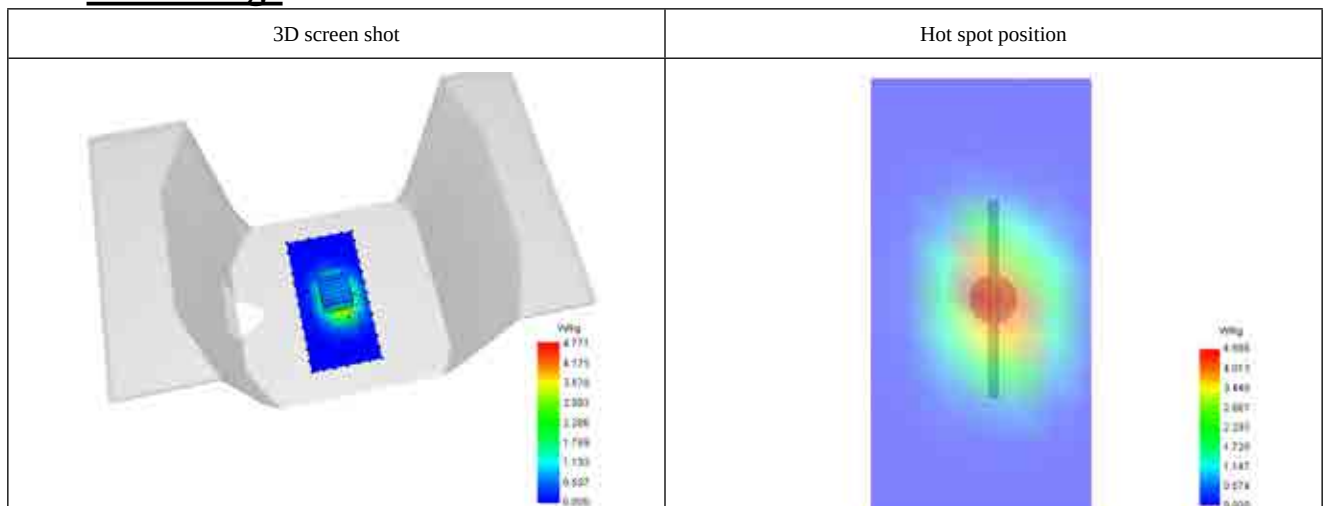
SAR 10g (W/Kg)	2.153
SAR 1g (W/Kg)	4.154
Variation (%)	1.300
Horizontal validation criteria: minimum distance (mm)	14.141203
Vertical validation criteria: SAR ratio M2/M1 (%)	67.966457

E. Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	6.612	4.770	3.242	2.521	1.694	1.380	0.943



F. 3D Image



#5

Date of measurement: 16/11/2025

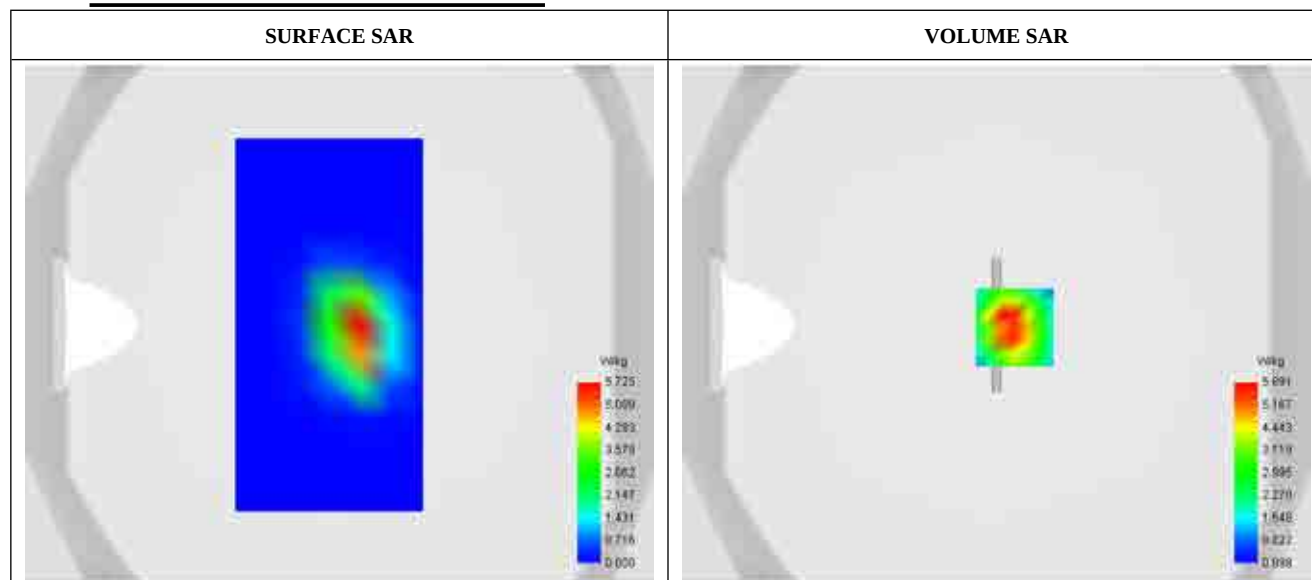
A. Experimental conditions.

Probe	0523-EPGO-403
ConvF	2.38
Area Scan	dx=12mm dy=12mm, Complete
Zoom Scan	7x7x7,dx=5mm dy=5mm dz=5.0mm,Complete
Phantom	Validation plane
Device Position	Dipole
Band	CW2450
Channels/Frequency	Middle

B. Permittivity

Middle TX Frequency (MHz)	2450.000
Relative permittivity (real part)	41.040
Relative permittivity (imaginary part)	13.220
Conductivity (S/m)	1.799

C. SAR Surface and Volume



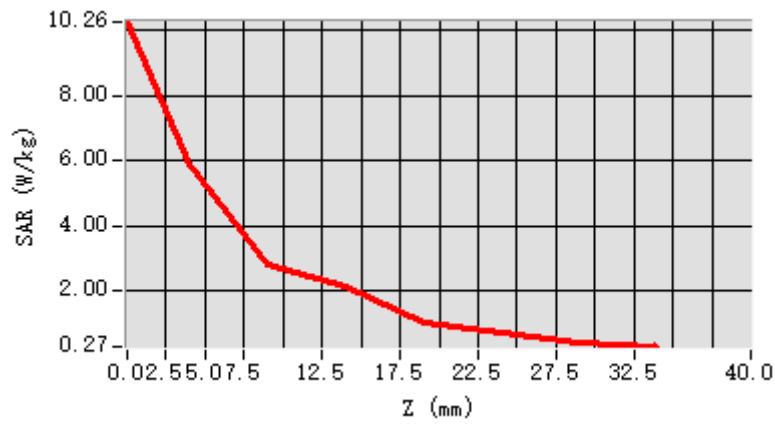
Maximum location: X=7.00, Y=-1.00 ; SAR Peak: 8.99 W/kg

D. SAR 1g & 10g

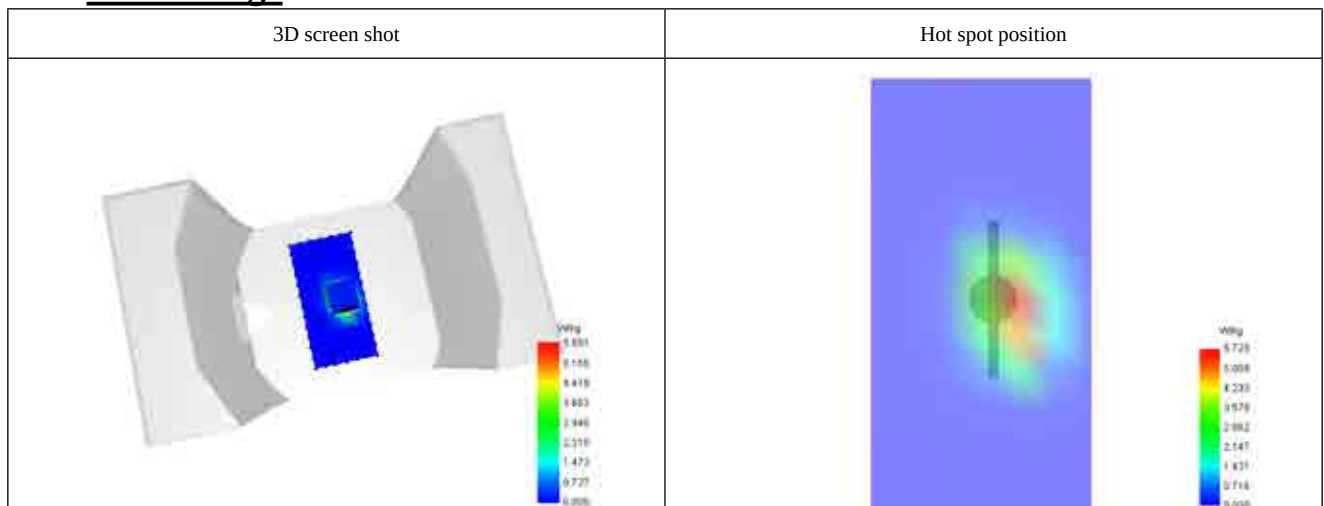
SAR 10g (W/Kg)	2.359
SAR 1g (W/Kg)	5.184
Variation (%)	-3.040
Horizontal validation criteria: minimum distance (mm)	10.000000
Vertical validation criteria: SAR ratio M2/M1 (%)	47.564081

E. Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	10.263	5.891	2.802	2.126	1.045	0.723	0.415



F. 3D Image



#6

Date of measurement: 17/11/2025

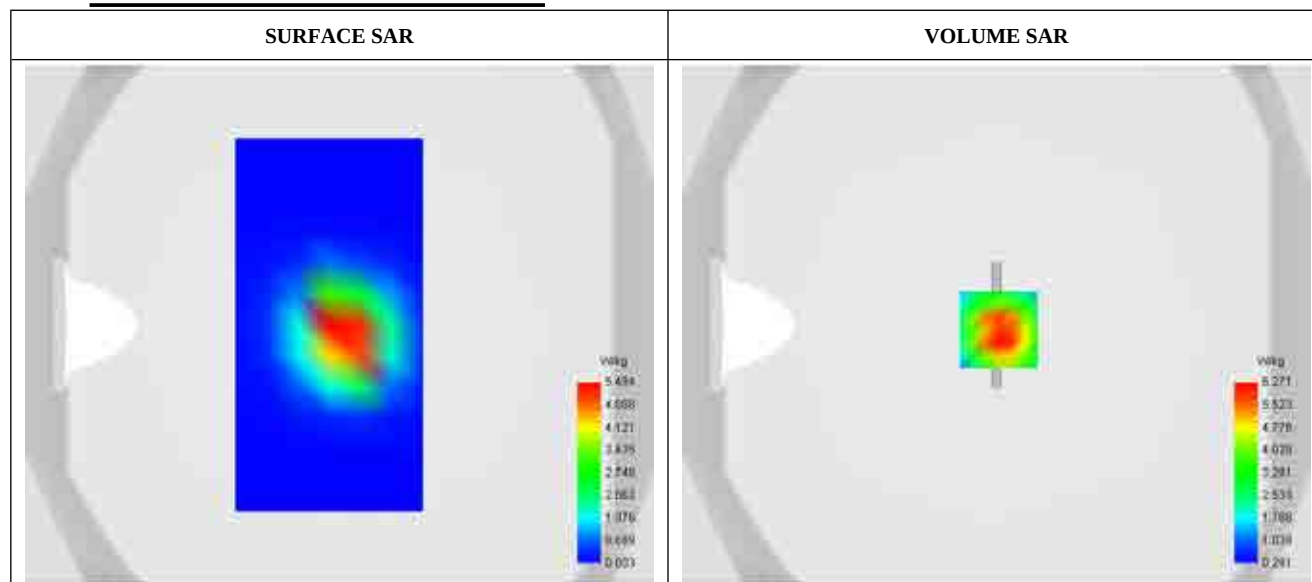
A. Experimental conditions.

Probe	0523-EPGO-403
ConvF	2.35
Area Scan	dx=12mm dy=12mm, Complete
Zoom Scan	7x7x7,dx=5mm dy=5mm dz=5.0mm,Complete
Phantom	Validation plane
Device Position	Dipole
Band	CW2600
Channels/Frequency	Middle

B. Permittivity

Middle TX Frequency (MHz)	2600.000
Relative permittivity (real part)	39.000
Relative permittivity (imaginary part)	13.570
Conductivity (S/m)	1.960

C. SAR Surface and Volume



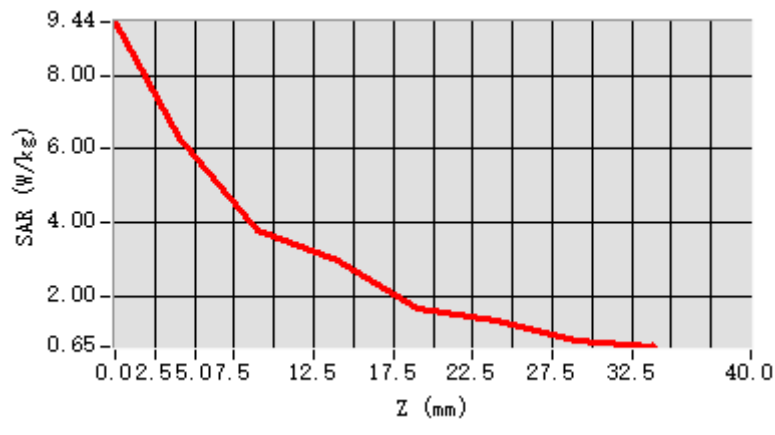
Maximum location: X=1.00, Y=-2.00 ; SAR Peak: 8.65 W/kg

D. SAR 1g & 10g

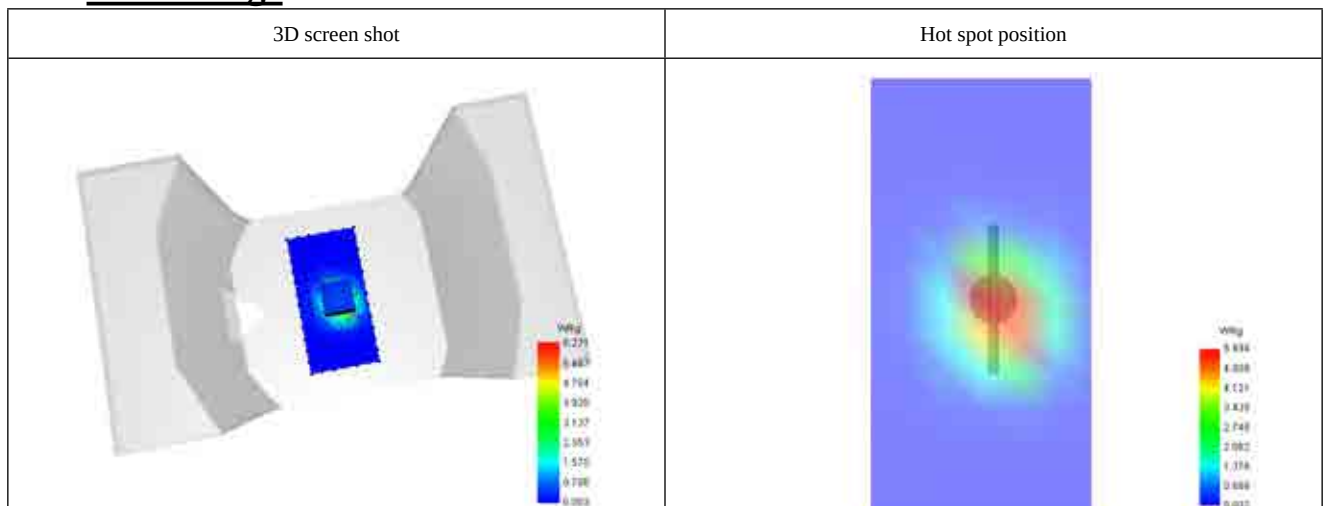
SAR 10g (W/Kg)	2.523
SAR 1g (W/Kg)	5.433
Variation (%)	-0.710
Horizontal validation criteria: minimum distance (mm)	11.180340
Vertical validation criteria: SAR ratio M2/M1 (%)	60.197736

E. Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	9.444	6.271	3.775	2.988	1.706	1.361	0.819



F. 3D Image



#7

Date of measurement: 18/11/2025

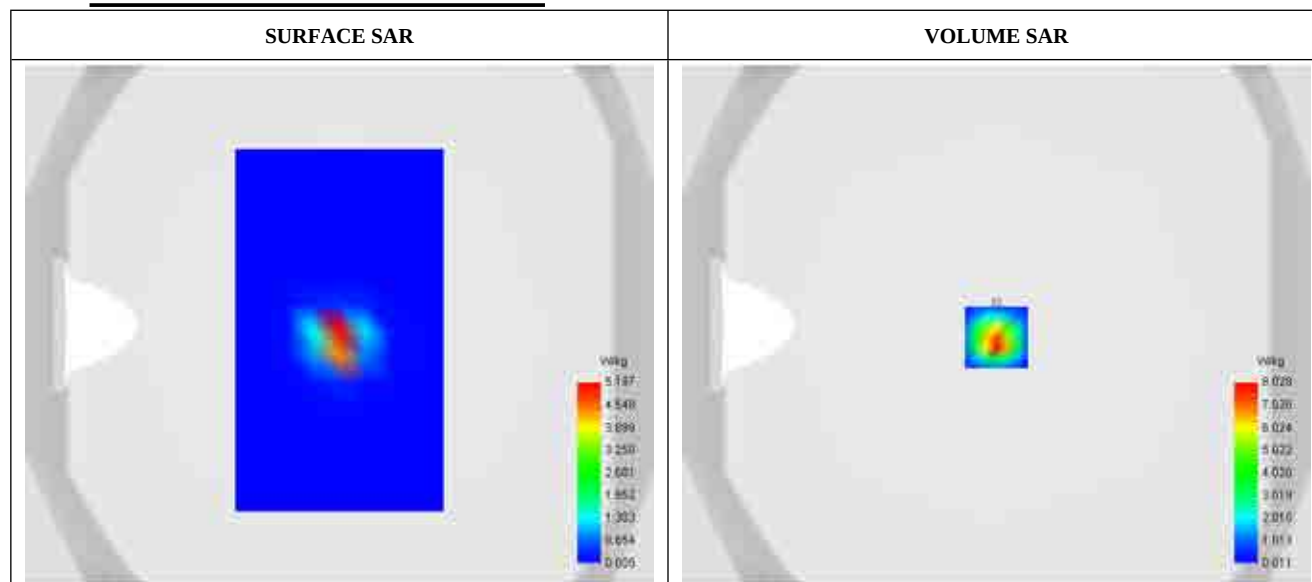
A. Experimental conditions.

Probe	0523-EPGO-403
ConvF	2.30
Area Scan	dx=10mm dy=10mm, Complete
Zoom Scan	7x7x12,dx=4mm dy=4mm dz=2.0mm,Complete
Phantom	Validation plane
Device Position	Body
Band	CW5200
Channels/Frequency	Middle

B. Permittivity

Middle TX Frequency (MHz)	5200.000
Relative permittivity (real part)	36.000
Relative permittivity (imaginary part)	16.130
Conductivity (S/m)	4.660

C. SAR Surface and Volume



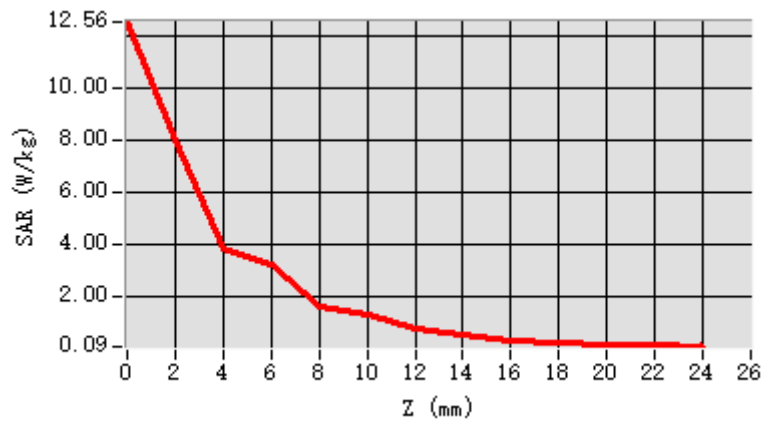
Maximum location: X=0.00, Y=-5.00 ; SAR Peak: 13.42 W/kg

D. SAR 1g & 10g

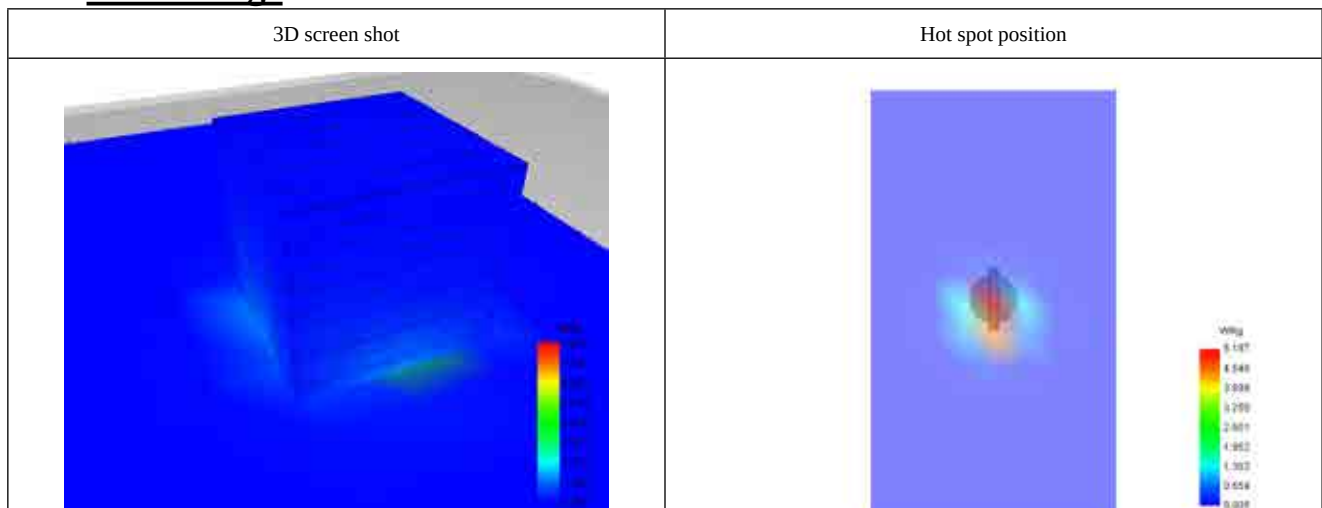
SAR 10g (W/Kg)	1.303
SAR 1g (W/Kg)	3.678
Variation (%)	4.620
Horizontal validation criteria: minimum distance (mm)	4.000000
Vertical validation criteria: SAR ratio M2/M1 (%)	48.169909

E. Z Axis Scan

Z (mm)	0.00	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00
SAR (W/Kg)	12.564	8.028	3.867	3.214	1.625	1.324	0.785	0.581	0.314	0.263	0.145	0.126



F. 3D Image



#8

Date of measurement: 19/11/2025

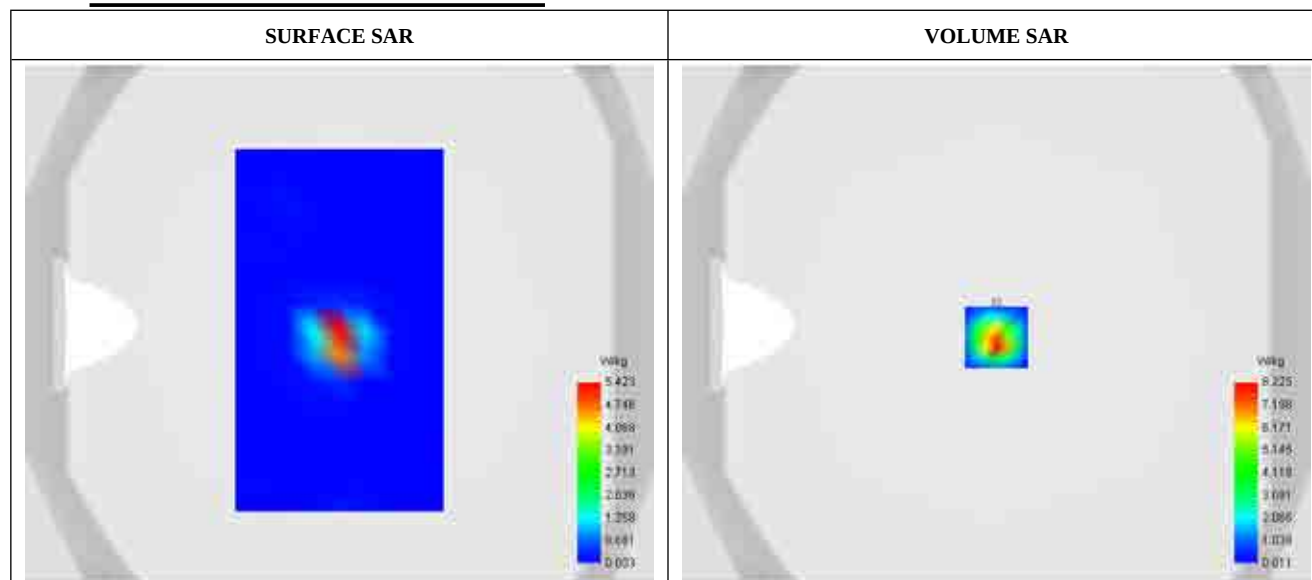
A. Experimental conditions.

Probe	0523-EPGO-403
ConvF	2.30
Area Scan	dx=10mm dy=10mm, Complete
Zoom Scan	7x7x12,dx=4mm dy=4mm dz=2.0mm,Complete
Phantom	Validation plane
Device Position	Body
Band	CW5400
Channels/Frequency	Middle

B. Permittivity

Middle TX Frequency (MHz)	5400.000
Relative permittivity (real part)	35.800
Relative permittivity (imaginary part)	16.200
Conductivity (S/m)	4.860

C. SAR Surface and Volume



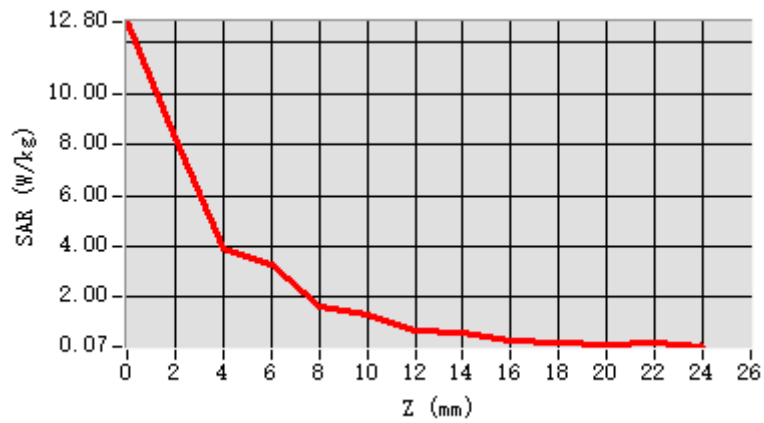
Maximum location: X=0.00, Y=-5.00 ; SAR Peak: 13.65 W/kg

D. SAR 1g & 10g

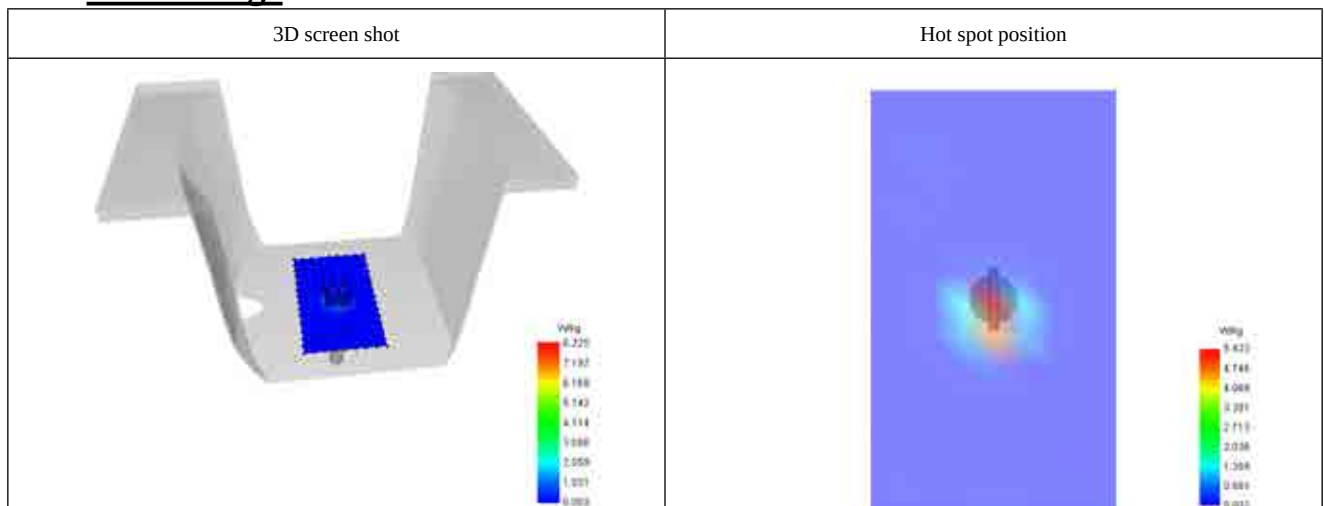
SAR 10g (W/Kg)	1.383
SAR 1g (W/Kg)	3.705
Variation (%)	2.400
Horizontal validation criteria: minimum distance (mm)	4.000000
Vertical validation criteria: SAR ratio M2/M1 (%)	47.562310

E. Z Axis Scan

Z (mm)	0.00	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00
SAR (W/Kg)	12.799	8.225	3.912	3.312	1.619	1.364	0.720	0.584	0.300	0.253	0.139	0.225



F. 3D Image



#9

Date of measurement: 20/11/2025

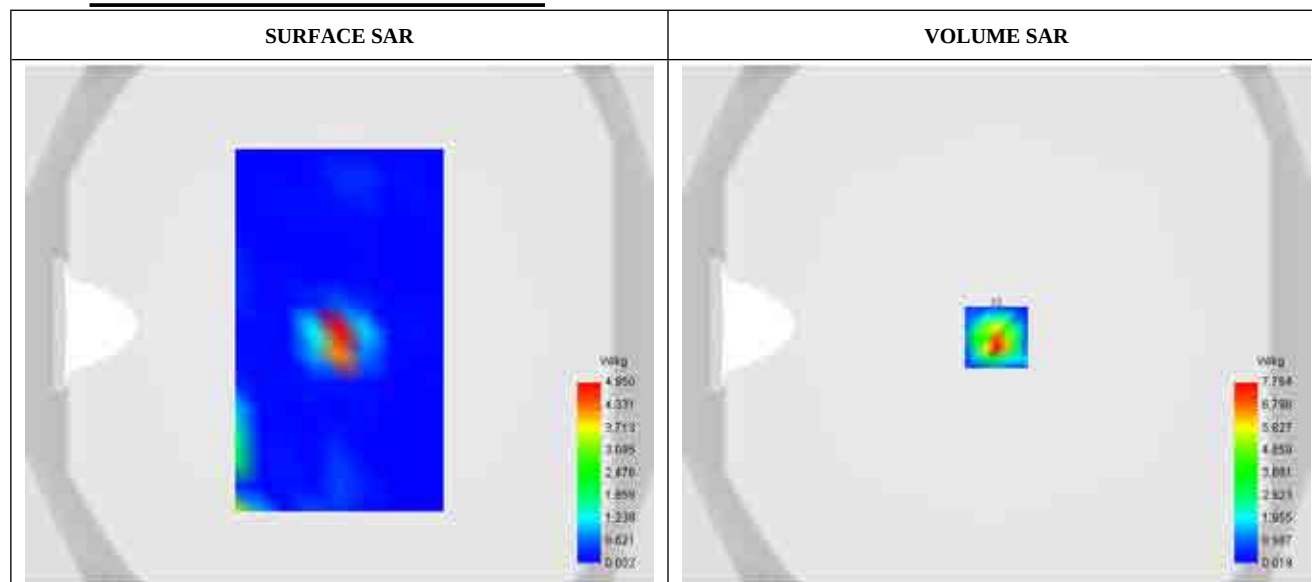
A. Experimental conditions.

Probe	0523-EPGO-403
ConvF	2.29
Area Scan	dx=10mm dy=10mm, Complete
Zoom Scan	7x7x12,dx=4mm dy=4mm dz=2.0mm,Complete
Phantom	Validation plane
Device Position	Body
Band	CW5600
Channels/Frequency	Middle

B. Permittivity

Middle TX Frequency (MHz)	5600.000
Relative permittivity (real part)	35.500
Relative permittivity (imaginary part)	16.300
Conductivity (S/m)	5.071

C. SAR Surface and Volume



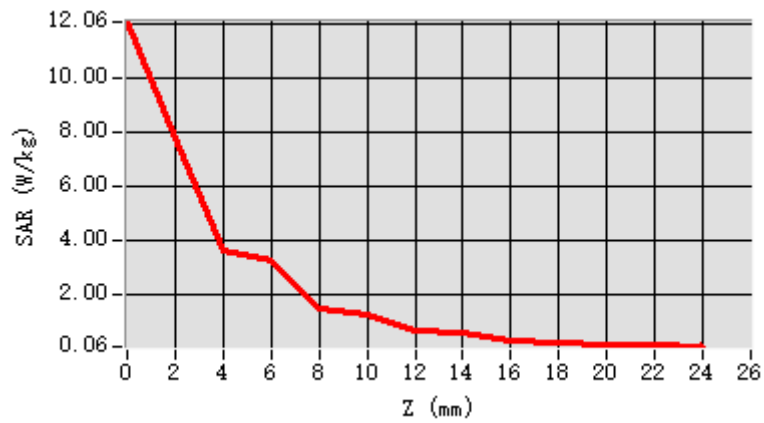
Maximum location: X=0.00, Y=-5.00 ; SAR Peak: 13.29 W/kg

D. SAR 1g & 10g

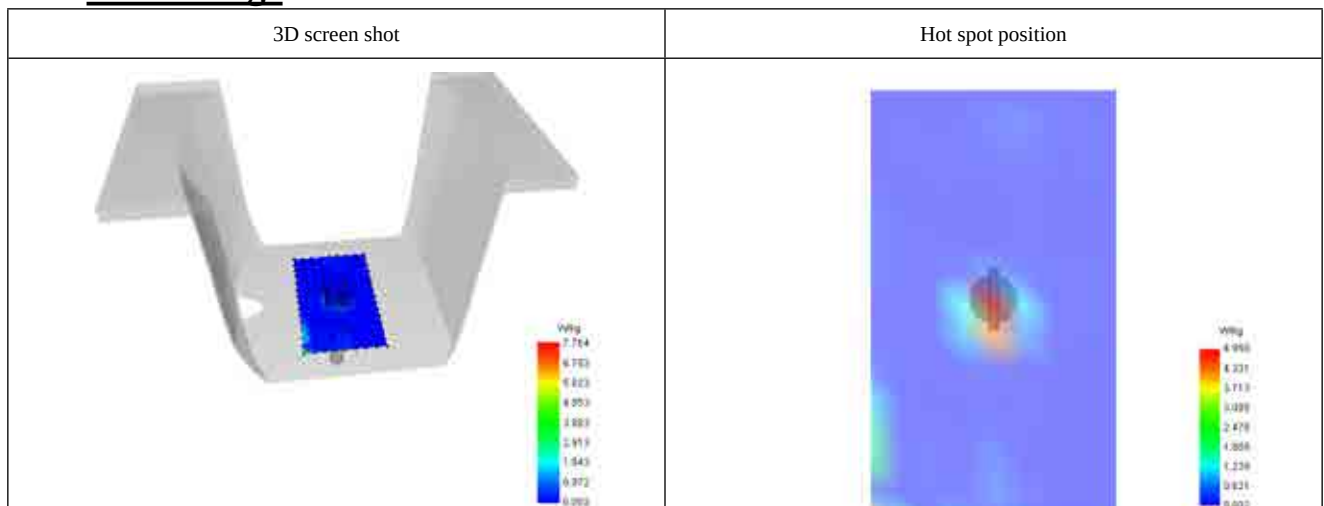
SAR 10g (W/Kg)	1.401
SAR 1g (W/Kg)	4.106
Variation (%)	2.170
Horizontal validation criteria: minimum distance (mm)	4.000000
Vertical validation criteria: SAR ratio M2/M1 (%)	46.535291

E. Z Axis Scan

Z (mm)	0.00	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00
SAR (W/Kg)	12.064	7.764	3.613	3.268	1.499	1.252	0.632	0.611	0.273	0.227	0.123	0.104



F. 3D Image



#10

Date of measurement: 21/11/2025

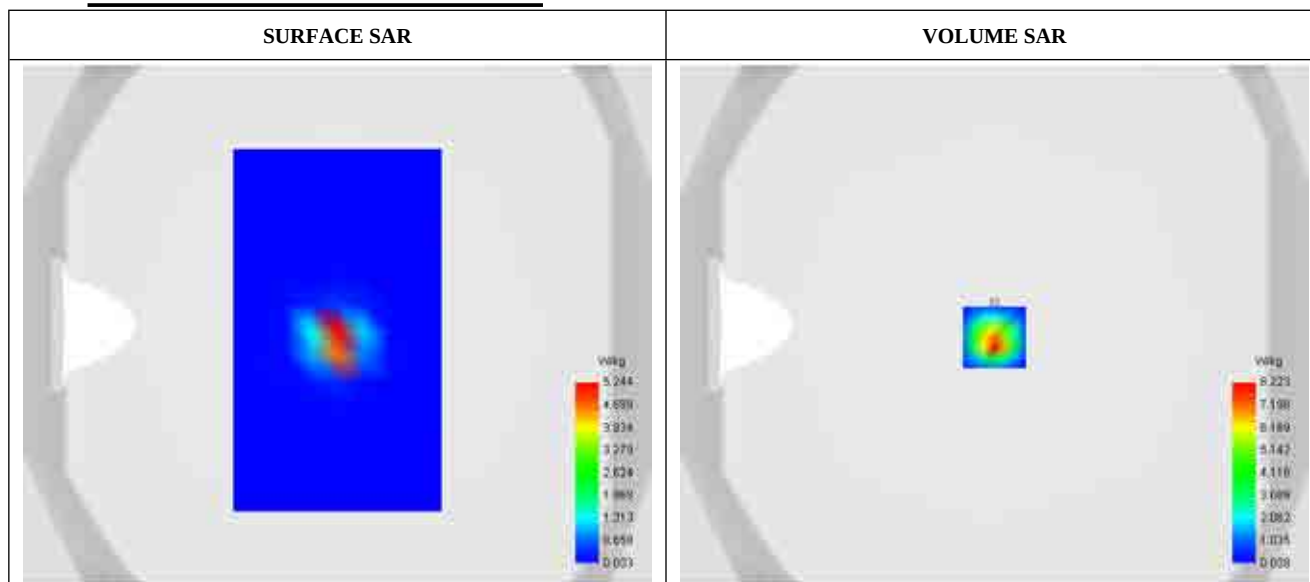
A. Experimental conditions.

Probe	0523-EPGO-403
ConvF	2.27
Area Scan	dx=10mm dy=10mm, Complete
Zoom Scan	7x7x12,dx=4mm dy=4mm dz=2.0mm,Complete
Phantom	Validation plane
Device Position	Body
Band	CW5800
Channels/Frequency	Middle

B. Permittivity

Middle TX Frequency (MHz)	5800.000
Relative permittivity (real part)	35.300
Relative permittivity (imaginary part)	16.360
Conductivity (S/m)	5.272

C. SAR Surface and Volume



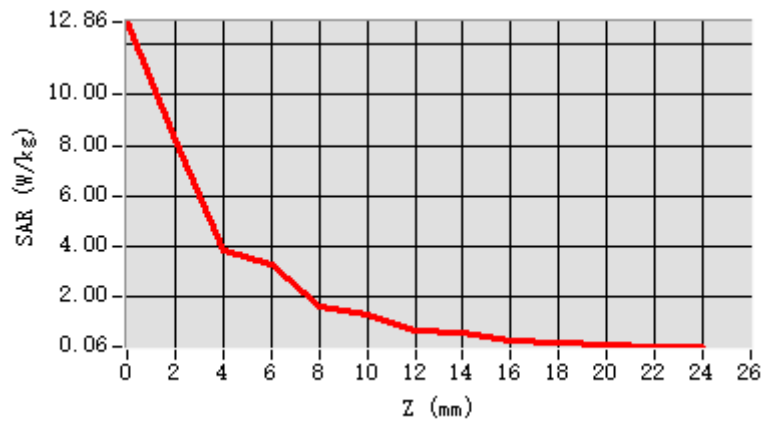
Maximum location: X=0.00, Y=-5.00 ; SAR Peak: 13.82 W/kg

D. SAR 1g & 10g

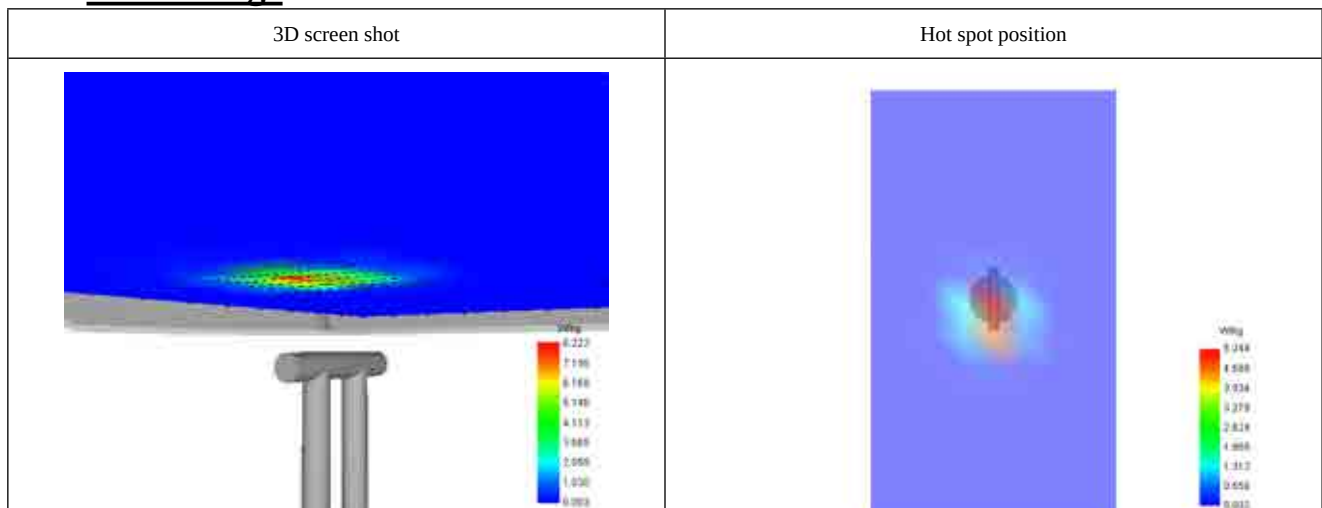
SAR 10g (W/Kg)	1.406
SAR 1g (W/Kg)	4.106
Variation (%)	1.050
Horizontal validation criteria: minimum distance (mm)	4.000000
Vertical validation criteria: SAR ratio M2/M1 (%)	47.257692

E. Z Axis Scan

Z (mm)	0.00	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00
SAR (W/Kg)	12.863	8.223	3.886	3.302	1.611	1.337	0.671	0.582	0.287	0.232	0.129	0.083



F. 3D Image



Appendix C. SAR Test Plots

Table of contents
#1 GSM 850 Head
#2 GSM 850 Body
#3 GSM 1900 Head
#4 GSM 1900 Body
#5 WCDMA Band 2 Head
#6 WCDMA Band 2 Body
#7 WCDMA Band 5 Head
#8 WCDMA Band 5 Body
#9 WALN 5.2G Head
#10 WALN 5.2G Body
#11 WALN 5.3G Head
#12 WALN 5.3G Body
#13 WALN 5.6G Head
#14 WALN 5.6G Body
#15 WALN 5.8G Head
#16 WALN 5.8G Body
#17 WALN 2.4G Head
#18 WALN 2.4G Body
#19 LTE Band 2 Head
#20 LTE Band 2 Body
#21 LTE Band 4 Head
#22 LTE Band 4 Body
#23 LTE Band 5 Head
#24 LTE Band 5 Body
#25 LTE Band 7 Head
#26 LTE Band 7 Body
#27 LTE Band 12 Head
#28 LTE Band 12 Body
#29 LTE Band 14 Head
#30 LTE Band 14 Body
#31 LTE Band 17 Head
#32 LTE Band 17 Body
#33 LTE Band 25 Head
#34 LTE Band 25 Body
#35 LTE Band 26A Head
#36 LTE Band 26B Head
#37 LTE Band 26A Body

#38 LTE Band 26B Body
#39 LTE Band 41 Head
#40 LTE Band 41 Body
#41 LTE Band 66 Head
#42 LTE Band 66 Body
#43 Bluetooth Head
#44 Bluetooth Body

#1

Date of measurement: 13/11/2025

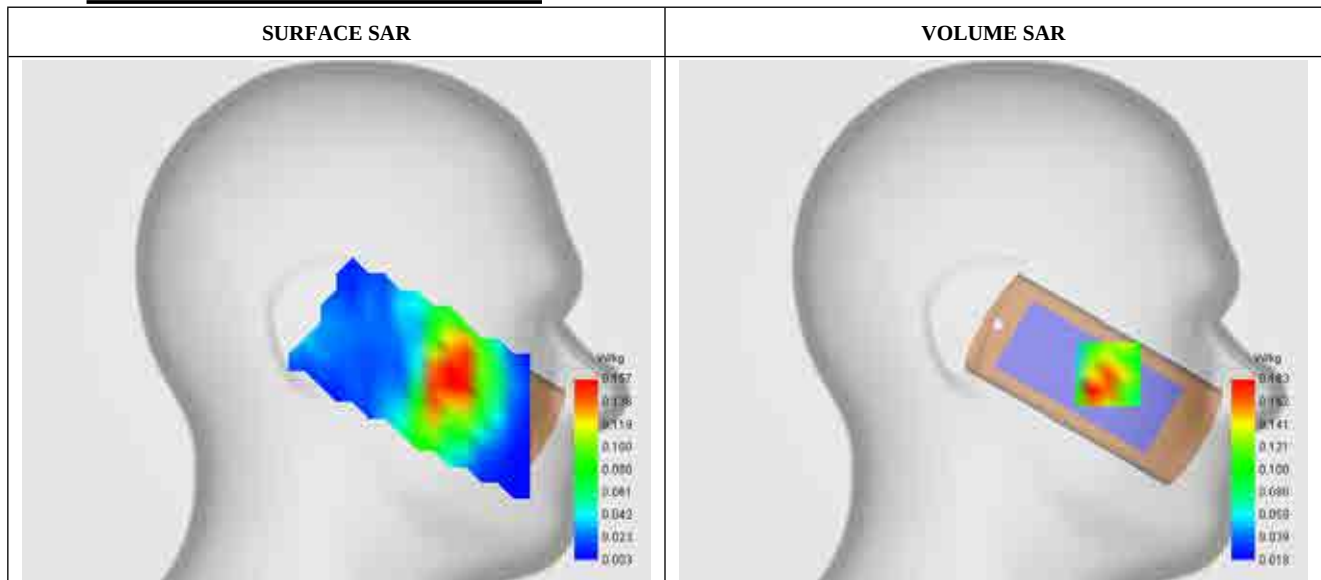
A. Experimental conditions.

Probe	0523-EPGO-403
ConvF	1.66
Area Scan	dx=8mm dy=8mm, Complete
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5.0mm,Complete
Phantom	Left head
Device Position	Cheek
Band	GSM850
Channels/Frequency	Middle (189)/ frequency 836.400 Mhz

B. Permittivity

Middle TX Frequency (MHz)	836.400
Relative permittivity (real part)	41.500
Relative permittivity (imaginary part)	19.400
Conductivity (S/m)	0.901

C. SAR Surface and Volume



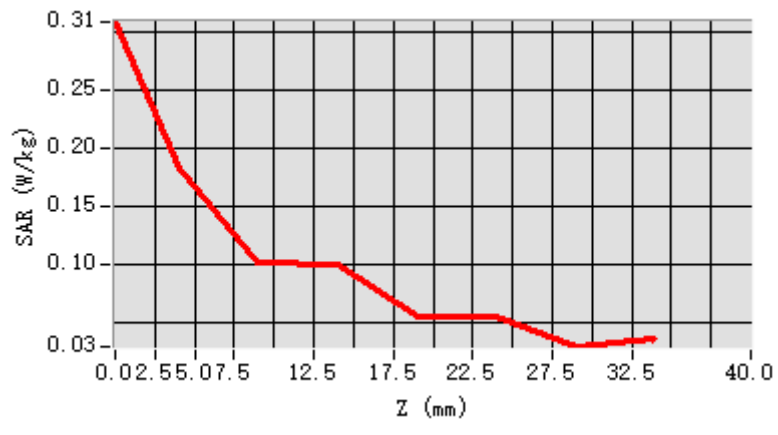
Maximum location: X=-57.00, Y=-26.00 ; SAR Peak: 0.26 W/kg

D. SAR 1g & 10g

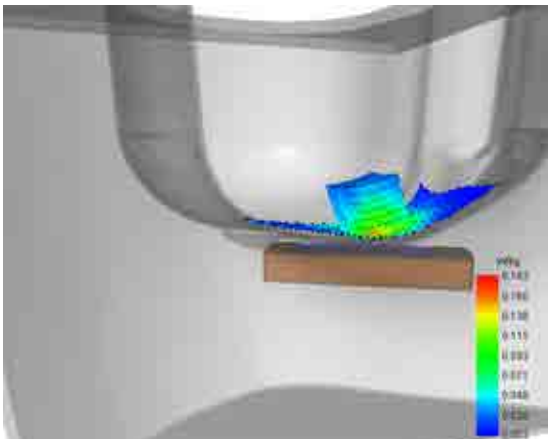
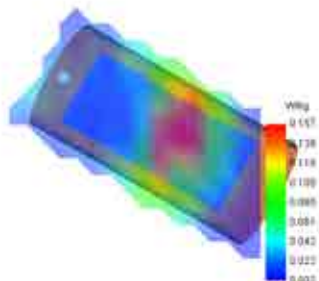
SAR 10g (W/Kg)	0.099
SAR 1g (W/Kg)	0.170
Variation (%)	2.980
Horizontal validation criteria: minimum distance (mm)	11.313708
Vertical validation criteria: SAR ratio M2/M1 (%)	55.191257

E. Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.308	0.183	0.101	0.100	0.055	0.055	0.029



F. 3D Image

3D screen shot	Hot spot position
	

#2

Date of measurement: 13/11/2025

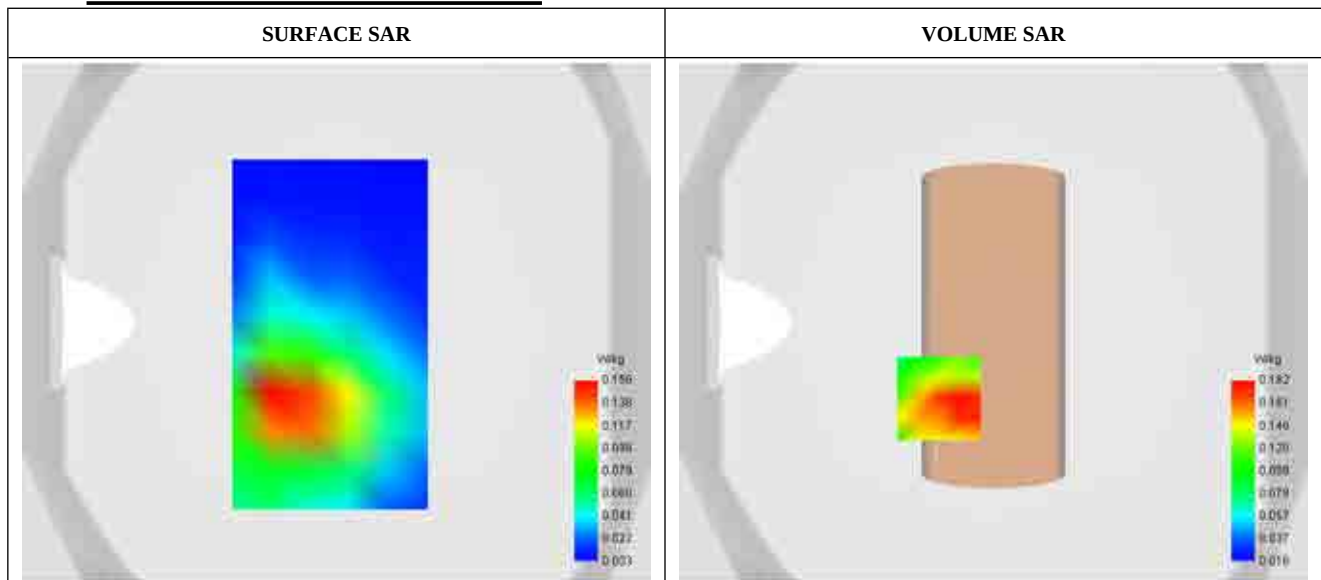
A. Experimental conditions.

Probe	0523-EPGO-403
ConvF	1.66
Area Scan	dx=15mm dy=15mm, User defined
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5.0mm,Complete
Phantom	Validation plane
Device Position	Body
Band	GSM850
Channels/Frequency	Middle (189)/ frequency 836.400 Mhz

B. Permittivity

Middle TX Frequency (MHz)	836.400
Relative permittivity (real part)	41.500
Relative permittivity (imaginary part)	19.400
Conductivity (S/m)	0.901

C. SAR Surface and Volume



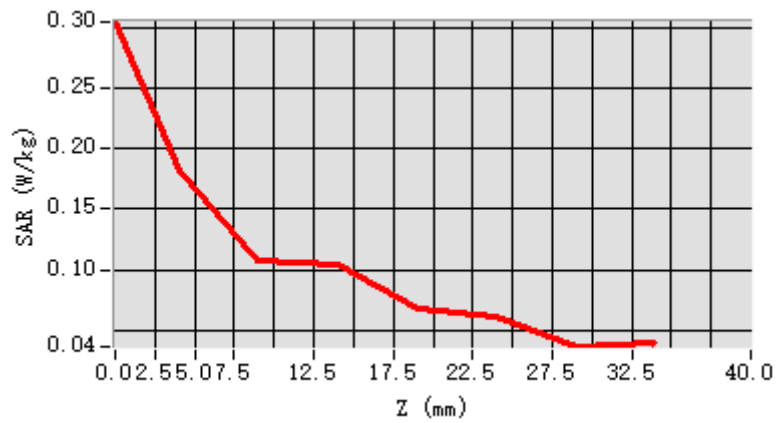
Maximum location: X=-21.00, Y=-29.00 ; SAR Peak: 0.26 W/kg

D. SAR 1g & 10g

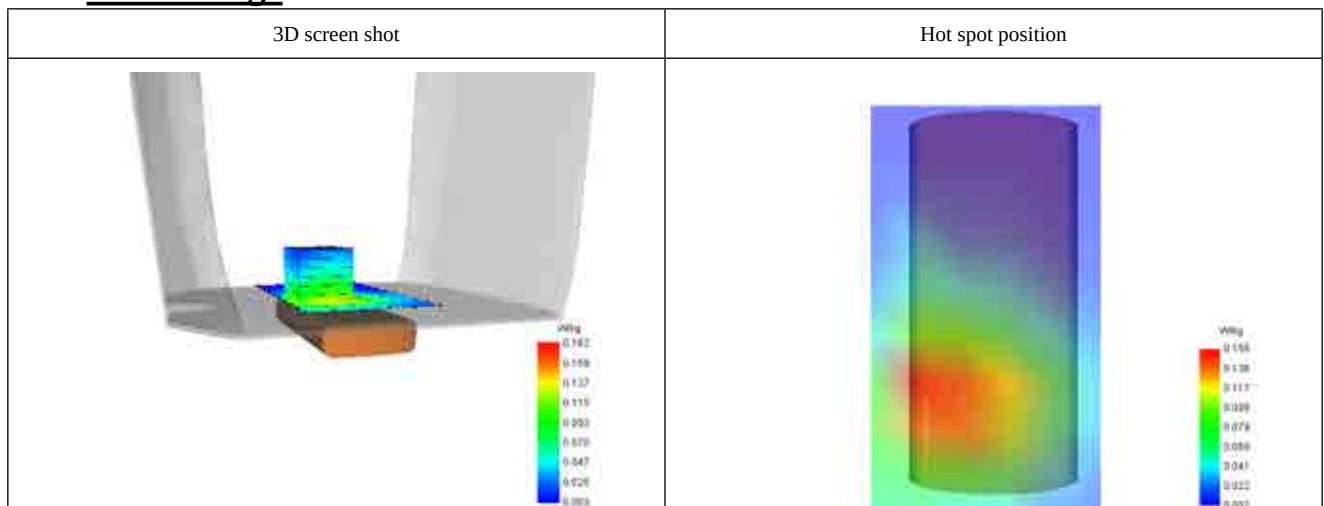
SAR 10g (W/Kg)	0.110
SAR 1g (W/Kg)	0.177
Variation (%)	4.960
Horizontal validation criteria: minimum distance (mm)	28.844410
Vertical validation criteria: SAR ratio M2/M1 (%)	58.791207

E. Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.304	0.182	0.107	0.104	0.068	0.061	0.037



F. 3D Image



#3

Date of measurement: 15/11/2025

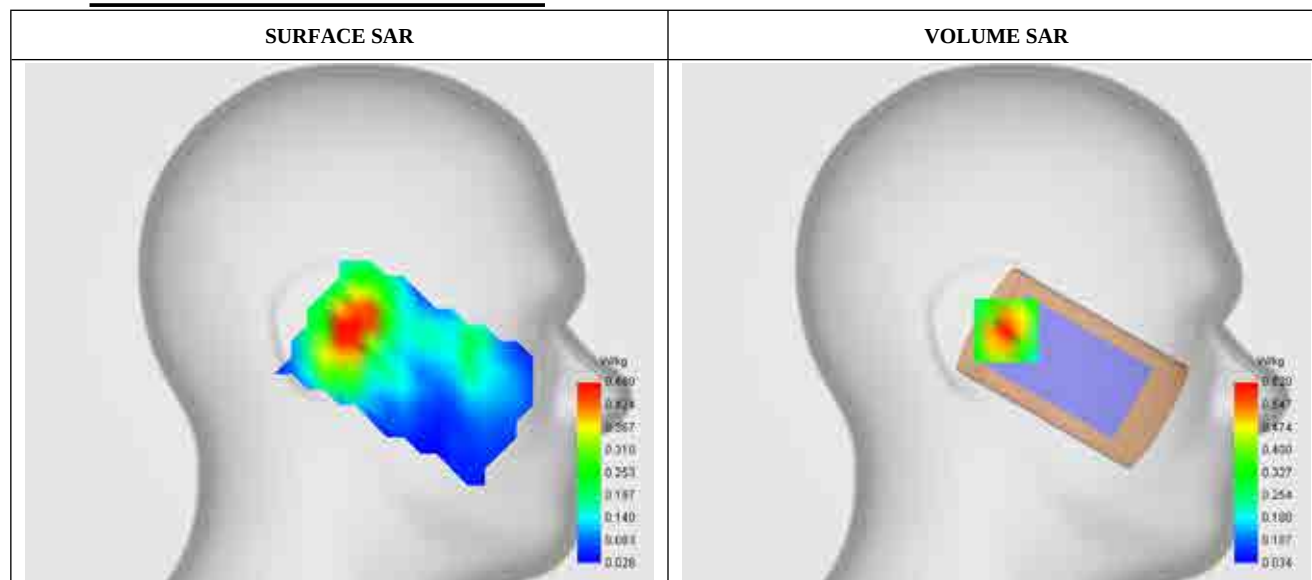
A. Experimental conditions.

Probe	0523-EPGO-403
ConvF	2.05
Area Scan	dx=8mm dy=8mm, Complete
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5.0mm,Complete
Phantom	Left head
Device Position	Cheek
Band	GSM1900
Channels/Frequency	Middle (661)/ frequency 1880.000 Mhz

B. Permittivity

Middle TX Frequency (MHz)	1880.000
Relative permittivity (real part)	40.000
Relative permittivity (imaginary part)	13.408
Conductivity (S/m)	1.400

C. SAR Surface and Volume



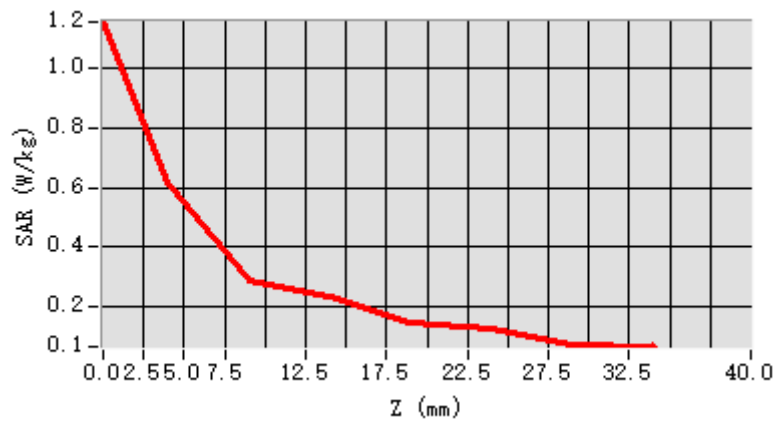
Maximum location: X=-5.00, Y=-3.00 ; SAR Peak: 1.13 W/kg

D. SAR 1g & 10g

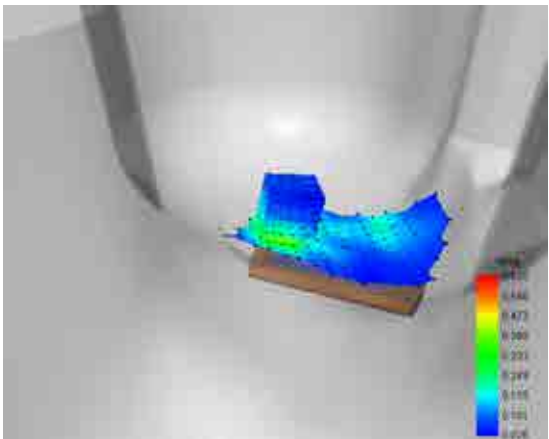
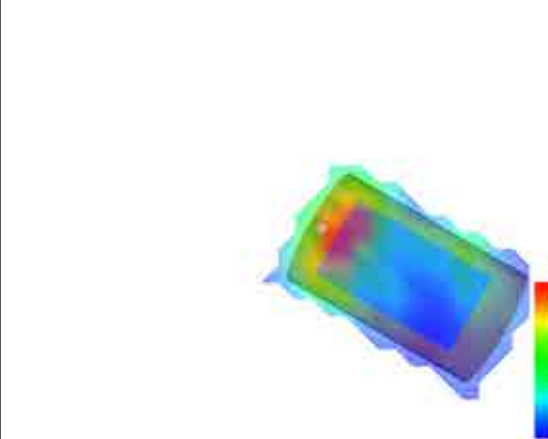
SAR 10g (W/Kg)	0.340
SAR 1g (W/Kg)	0.616
Variation (%)	-3.700
Horizontal validation criteria: minimum distance (mm)	16.000000
Vertical validation criteria: SAR ratio M2/M1 (%)	46.774194

E. Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	1.156	0.620	0.290	0.235	0.149	0.125	0.071



F. 3D Image

3D screen shot	Hot spot position
	

#4

Date of measurement: 15/11/2025

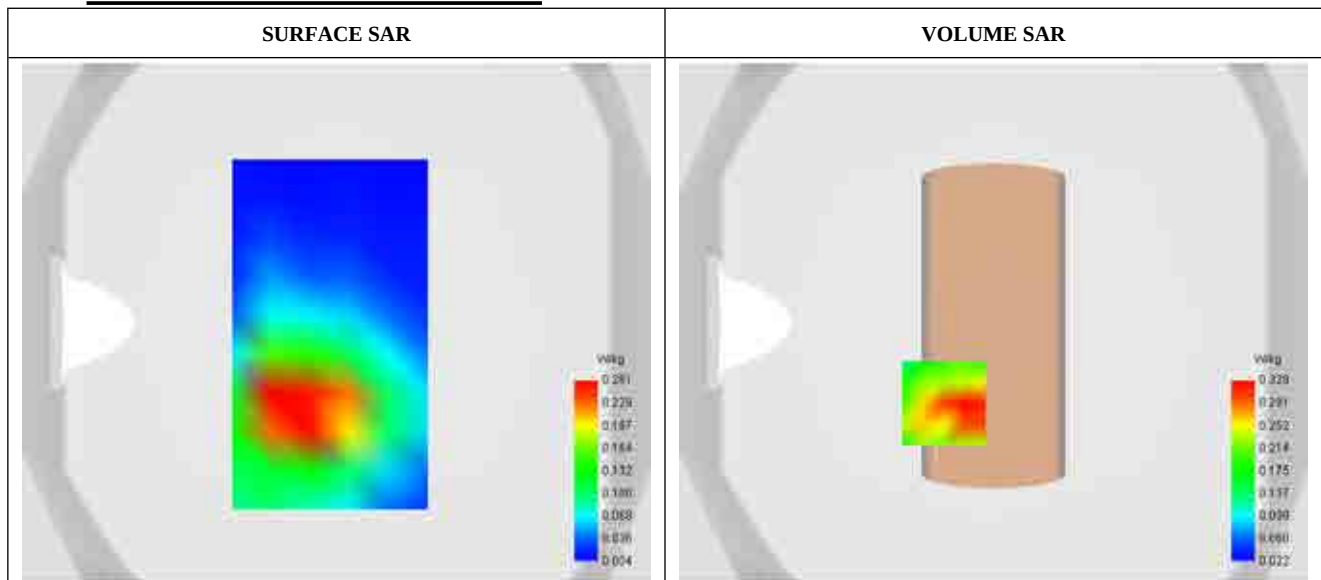
A. Experimental conditions.

Probe	0523-EPGO-403
ConvF	2.05
Area Scan	dx=15mm dy=15mm, User defined
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5.0mm,Complete
Phantom	Validation plane
Device Position	Body
Band	GSM1900
Channels/Frequency	Middle (661)/ frequency 1880.000 Mhz

B. Permittivity

Middle TX Frequency (MHz)	1880.000
Relative permittivity (real part)	40.000
Relative permittivity (imaginary part)	13.408
Conductivity (S/m)	1.400

C. SAR Surface and Volume



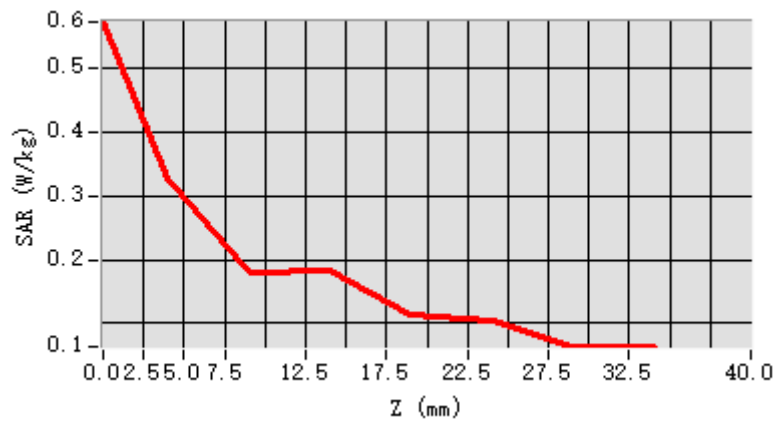
Maximum location: X=-19.00, Y=-31.00 ; SAR Peak: 0.48 W/kg

D. SAR 1g & 10g

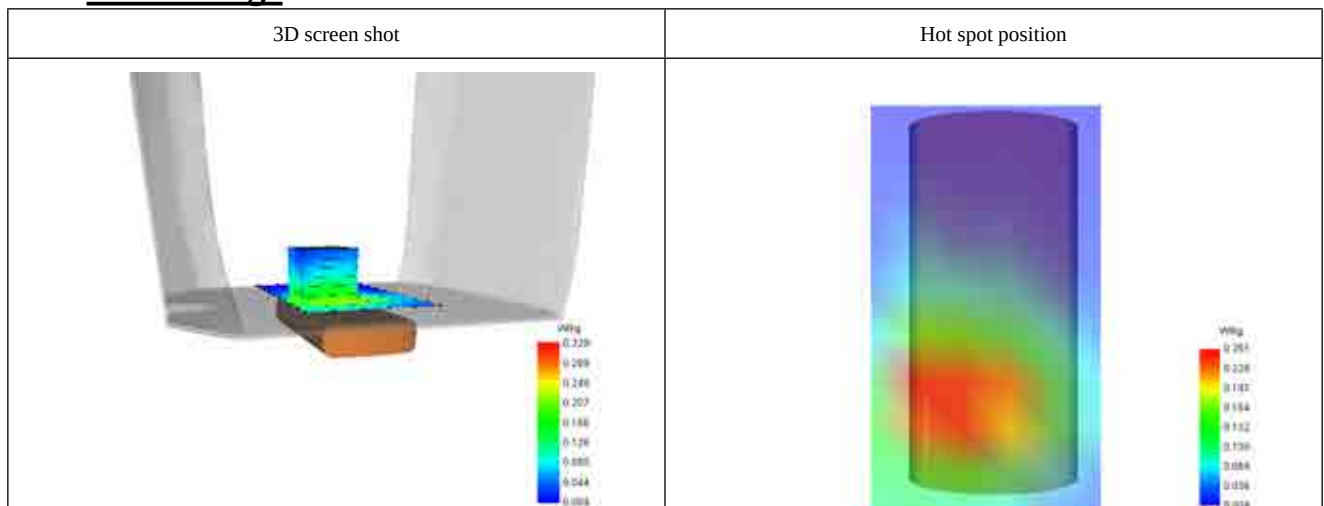
SAR 10g (W/Kg)	0.199
SAR 1g (W/Kg)	0.320
Variation (%)	3.410
Horizontal validation criteria: minimum distance (mm)	28.844410
Vertical validation criteria: SAR ratio M2/M1 (%)	54.407295

E. Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.574	0.329	0.179	0.184	0.115	0.105	0.063



F. 3D Image



#5

Date of measurement: 15/11/2025

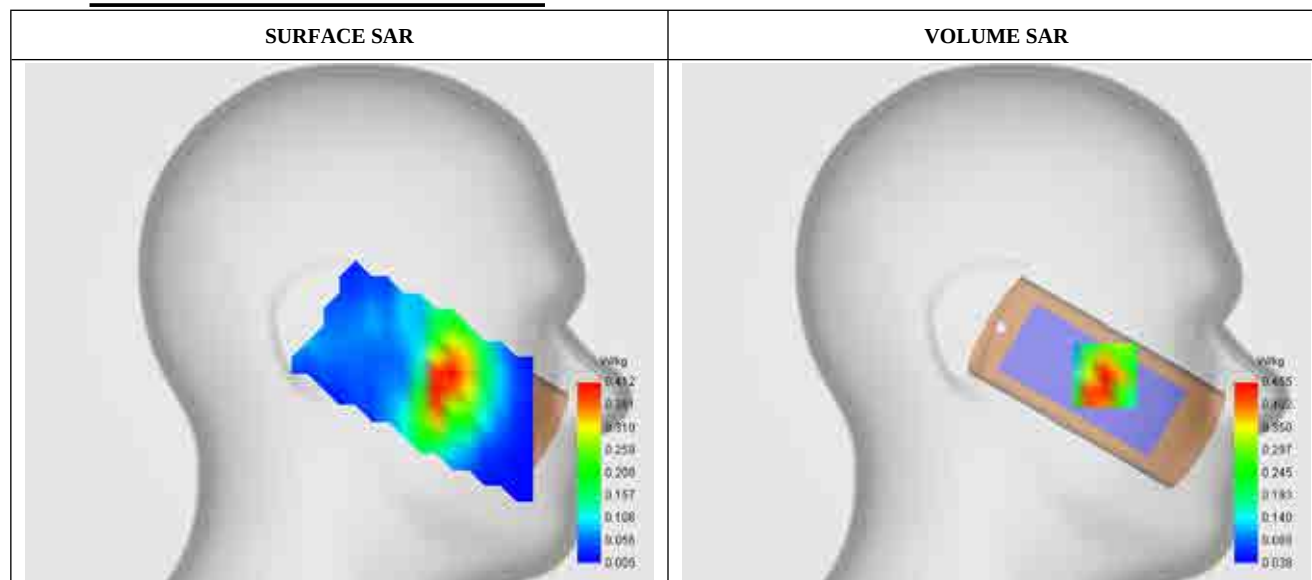
A. Experimental conditions.

Probe	0523-EPGO-403
ConvF	2.05
Area Scan	dx=8mm dy=8mm, Complete
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5.0mm,Complete
Phantom	Left head
Device Position	Cheek
Band	Band 2 (1900)
Channels/Frequency	Middle (9400)/ frequency 1880.000 Mhz

B. Permittivity

Middle TX Frequency (MHz)	1880.000
Relative permittivity (real part)	40.000
Relative permittivity (imaginary part)	13.408
Conductivity (S/m)	1.400

C. SAR Surface and Volume



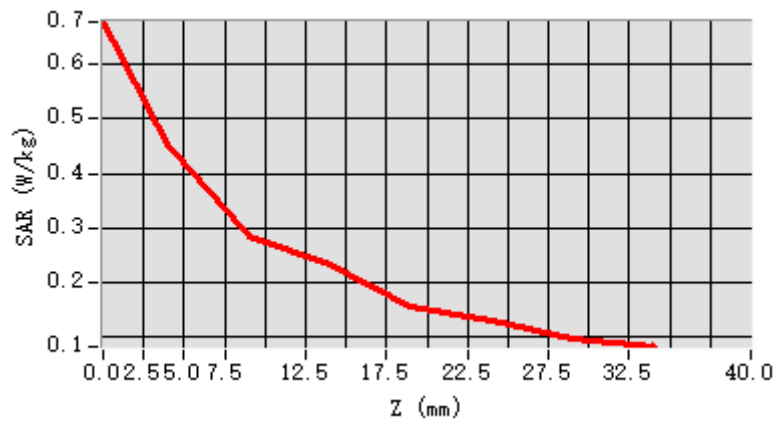
Maximum location: X=-54.00, Y=-25.00 ; SAR Peak: 0.68 W/kg

D. SAR 1g & 10g

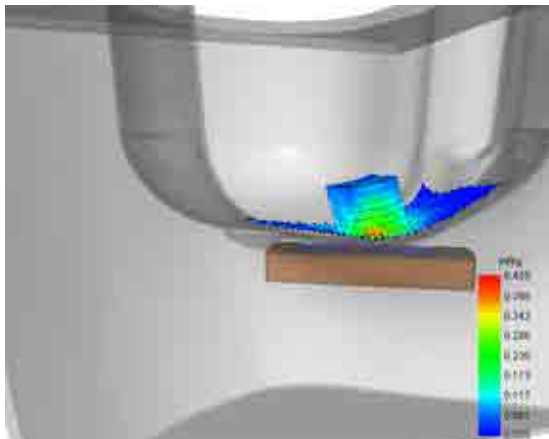
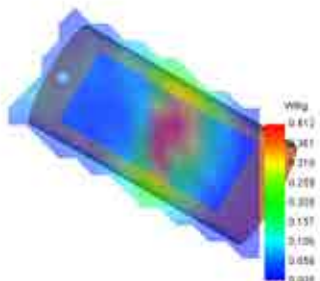
SAR 10g (W/Kg)	0.261
SAR 1g (W/Kg)	0.439
Variation (%)	0.780
Horizontal validation criteria: minimum distance (mm)	16.000000
Vertical validation criteria: SAR ratio M2/M1 (%)	62.637363

E. Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.678	0.455	0.285	0.234	0.157	0.132	0.099



F. 3D Image

3D screen shot	Hot spot position
	

#6

Date of measurement: 15/11/2025

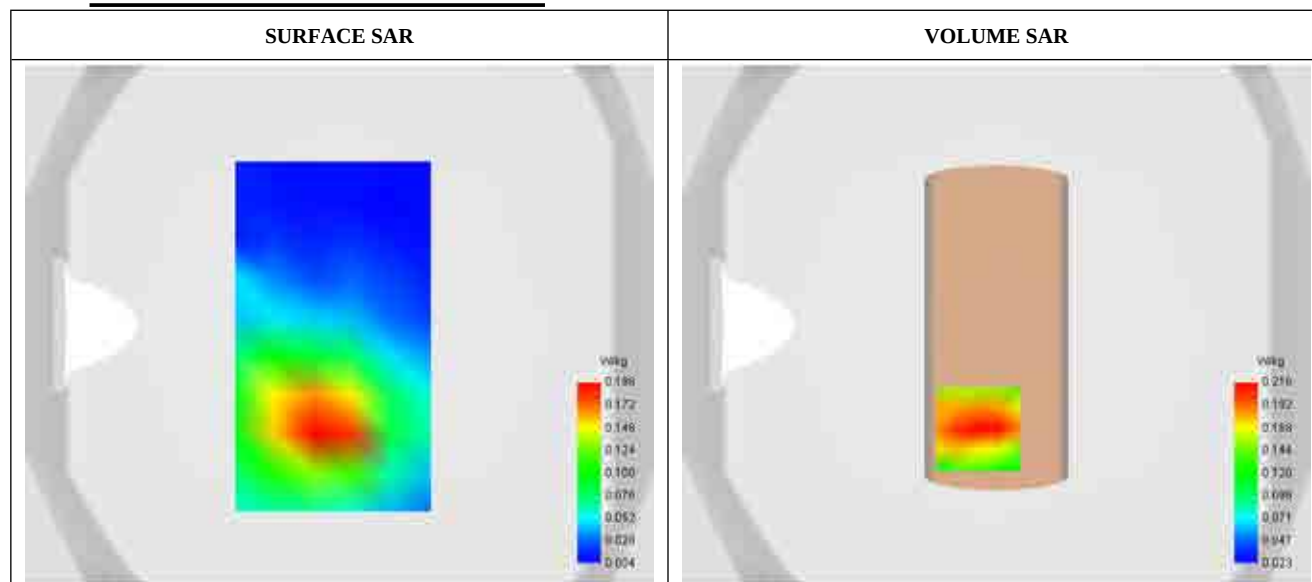
A. Experimental conditions.

Probe	0523-EPGO-403
ConvF	2.05
Area Scan	dx=15mm dy=15mm, User defined
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5.0mm,Complete
Phantom	Validation plane
Device Position	Body
Band	Band 2 (1900)
Channels/Frequency	Middle (9400)/ frequency 1880.000 Mhz

B. Permittivity

Middle TX Frequency (MHz)	1880.000
Relative permittivity (real part)	40.000
Relative permittivity (imaginary part)	13.408
Conductivity (S/m)	1.400

C. SAR Surface and Volume



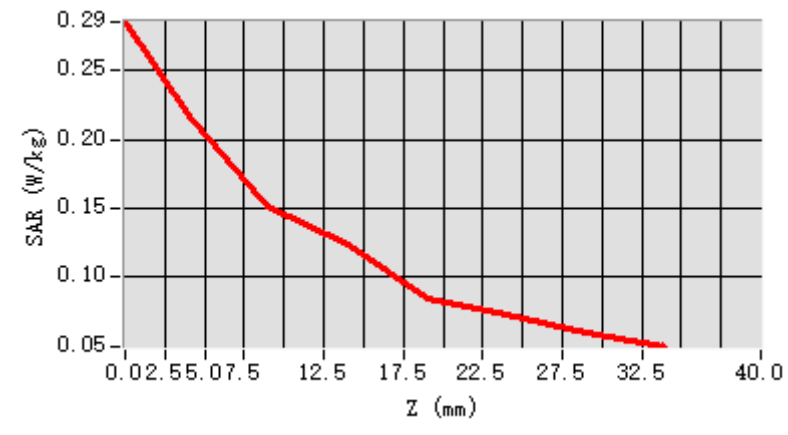
Maximum location: X=-7.00, Y=-40.00 ; SAR Peak: 0.31 W/kg

D. SAR 1g & 10g

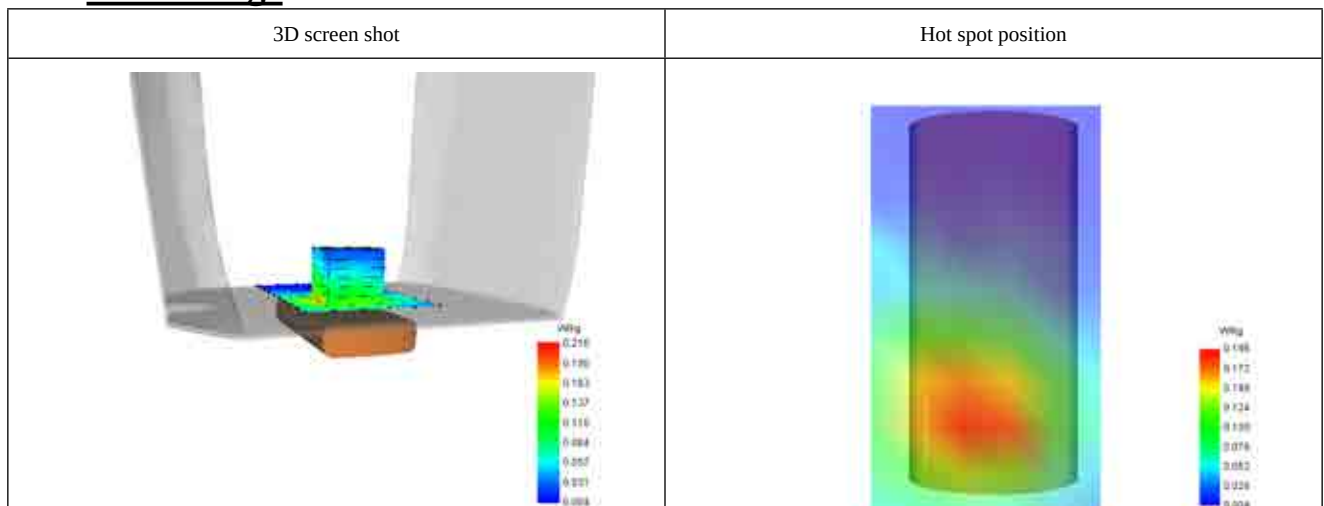
SAR 10g (W/Kg)	0.135
SAR 1g (W/Kg)	0.207
Variation (%)	0.330
Horizontal validation criteria: minimum distance (mm)	-1.000000
Vertical validation criteria: SAR ratio M2/M1 (%)	69.907407

E. Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.285	0.216	0.151	0.123	0.085	0.073	0.060



F. 3D Image



#7

Date of measurement: 13/11/2025

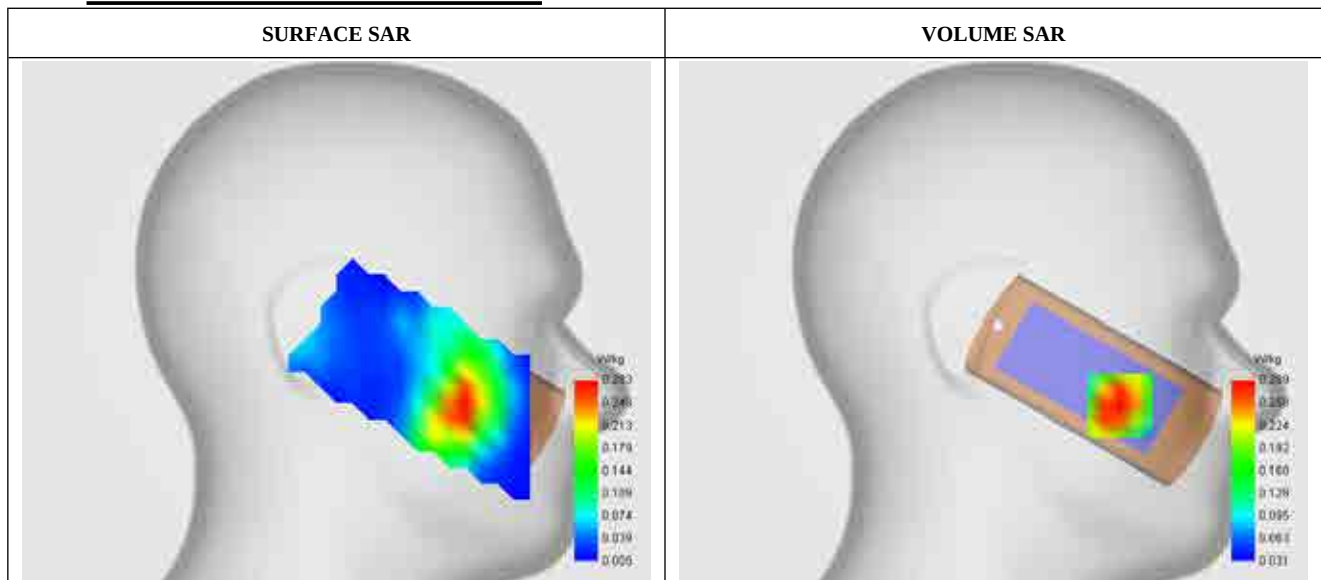
A. Experimental conditions.

Probe	0523-EPGO-403
ConvF	1.66
Area Scan	dx=8mm dy=8mm, Complete
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5.0mm,Complete
Phantom	Left head
Device Position	Cheek
Band	Band 5 (850)
Channels/Frequency	Middle (4182)/ frequency 836.400 Mhz

B. Permittivity

Middle TX Frequency (MHz)	836.400
Relative permittivity (real part)	41.500
Relative permittivity (imaginary part)	19.400
Conductivity (S/m)	0.901

C. SAR Surface and Volume



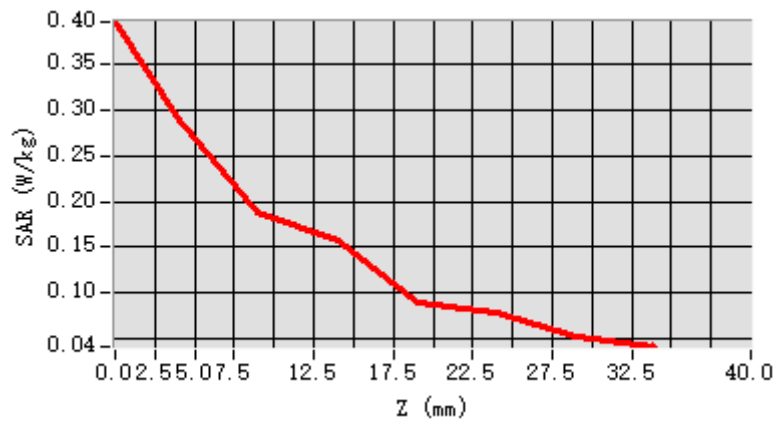
Maximum location: X=-63.00, Y=-41.00 ; SAR Peak: 0.44 W/kg

D. SAR 1g & 10g

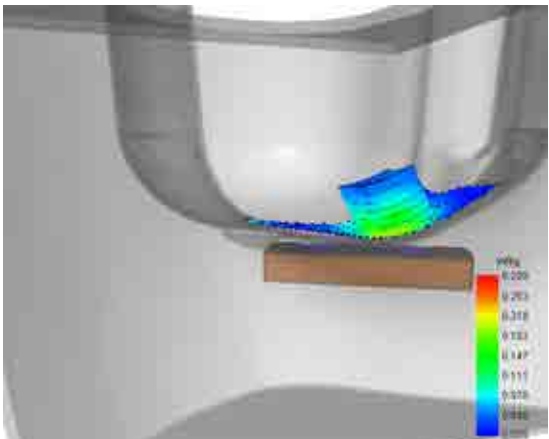
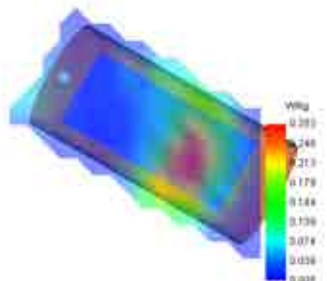
SAR 10g (W/Kg)	0.179
SAR 1g (W/Kg)	0.285
Variation (%)	0.240
Horizontal validation criteria: minimum distance (mm)	17.888544
Vertical validation criteria: SAR ratio M2/M1 (%)	65.397924

E. Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.397	0.289	0.189	0.158	0.090	0.078	0.052



F. 3D Image

3D screen shot	Hot spot position
	

#8

Date of measurement: 13/11/2025

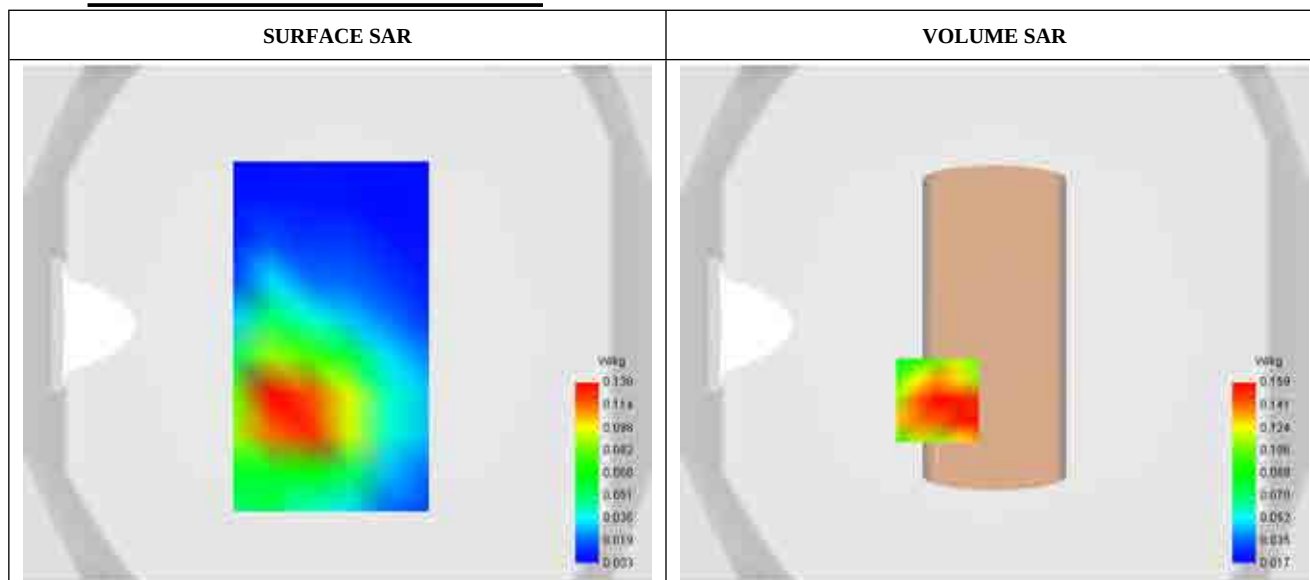
A. Experimental conditions.

Probe	0523-EPGO-403
ConvF	1.66
Area Scan	dx=15mm dy=15mm, User defined
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5.0mm,Complete
Phantom	Validation plane
Device Position	Body
Band	Band 5 (850)
Channels/Frequency	Middle (4182)/ frequency 836.400 Mhz

B. Permittivity

Middle TX Frequency (MHz)	836.400
Relative permittivity (real part)	41.500
Relative permittivity (imaginary part)	19.400
Conductivity (S/m)	0.901

C. SAR Surface and Volume



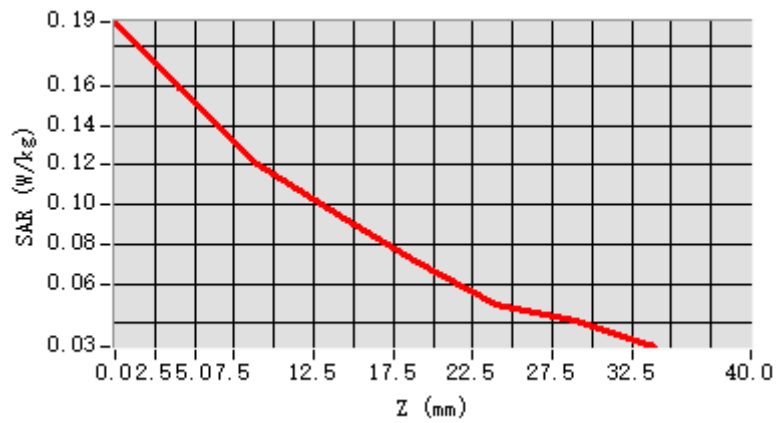
Maximum location: X=-22.00, Y=-29.00 ; SAR Peak: 0.22 W/kg

D. SAR 1g & 10g

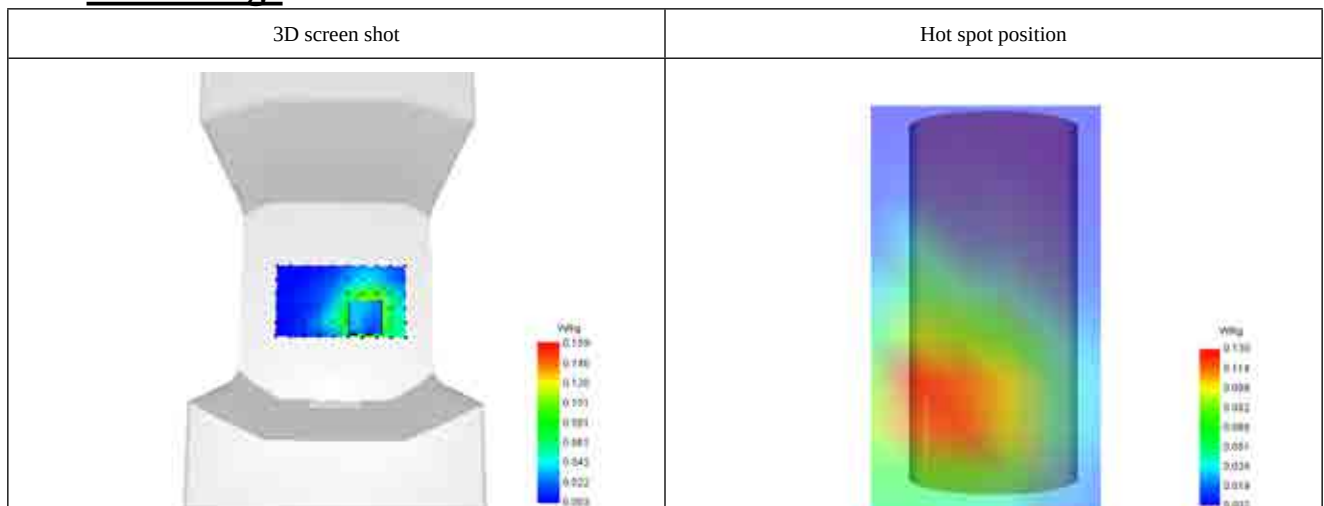
SAR 10g (W/Kg)	0.101
SAR 1g (W/Kg)	0.155
Variation (%)	2.580
Horizontal validation criteria: minimum distance (mm)	22.627417
Vertical validation criteria: SAR ratio M2/M1 (%)	76.100629

E. Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.192	0.159	0.121	0.095	0.071	0.049	0.042



F. 3D Image



#9

Date of measurement: 18/11/2025

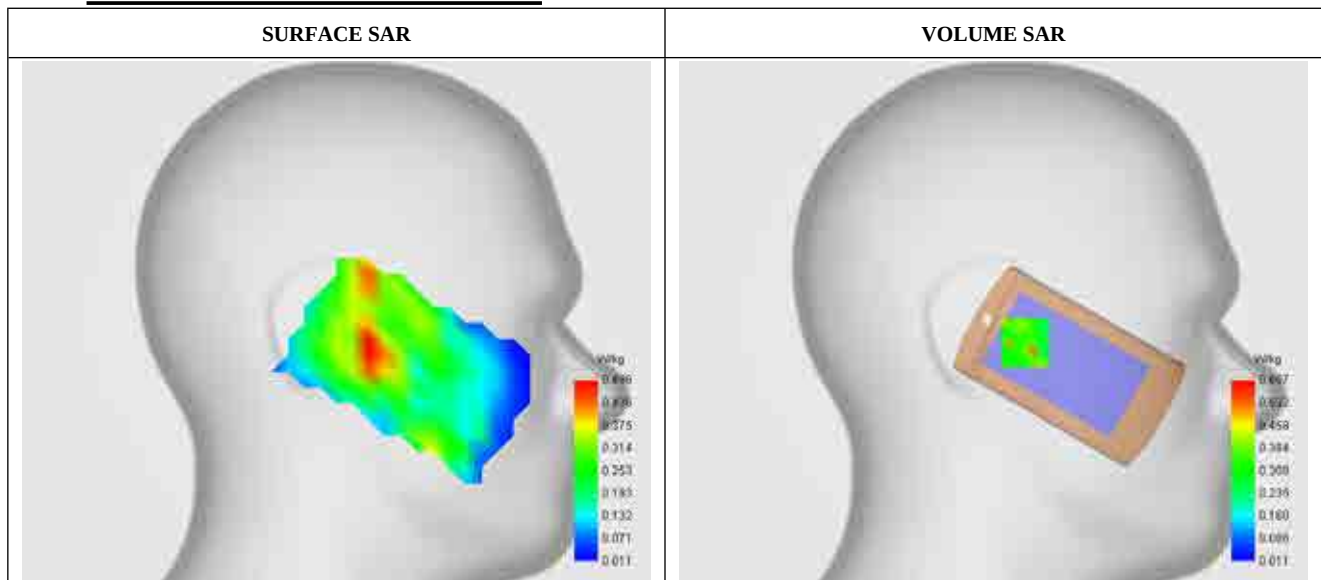
A. Experimental conditions.

Probe	0523-EPGO-403
ConvF	2.30
Area Scan	dx=8mm dy=8mm, Complete
Zoom Scan	7x7x12,dx=4mm dy=4mm dz=2.0mm,Complete
Phantom	Left head
Device Position	Cheek
Band	U-NII-1
Channels/Frequency	Middle (40)/ frequency 5200.000 Mhz

B. Permittivity

Middle TX Frequency (MHz)	5200.000
Relative permittivity (real part)	36.000
Relative permittivity (imaginary part)	16.130
Conductivity (S/m)	4.660

C. SAR Surface and Volume



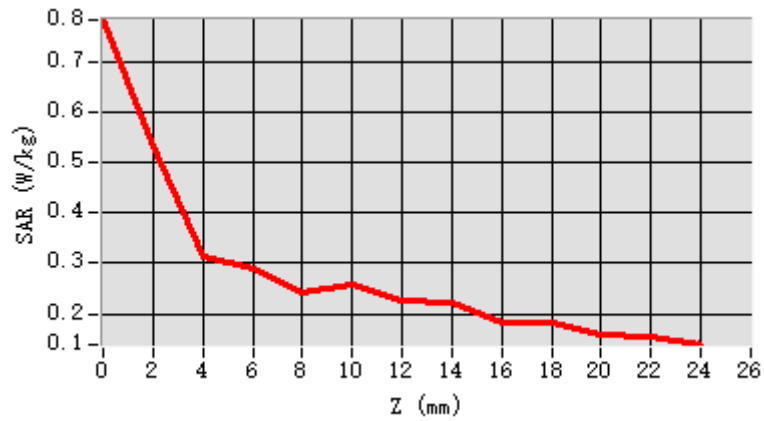
Maximum location: X=-16.00, Y=-10.00 ; SAR Peak: 1.90 W/kg

D. SAR 1g & 10g

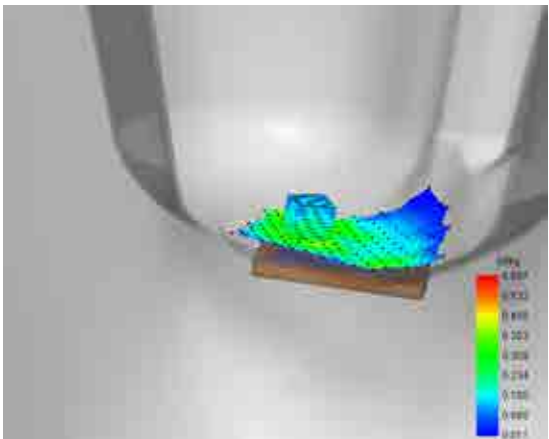
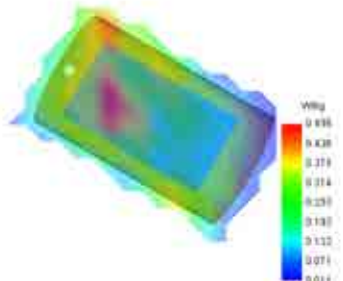
SAR 10g (W/Kg)	0.212
SAR 1g (W/Kg)	0.418
Variation (%)	-1.810
Horizontal validation criteria: minimum distance (mm)	4.000000
Vertical validation criteria: SAR ratio M2/M1 (%)	59.245283

E. Z Axis Scan

Z (mm)	0.00	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00
SAR (W/Kg)	0.782	0.530	0.314	0.291	0.242	0.258	0.224	0.220	0.184	0.182	0.159	0.153



F. 3D Image

3D screen shot	Hot spot position
	

#10

Date of measurement: 18/11/2025

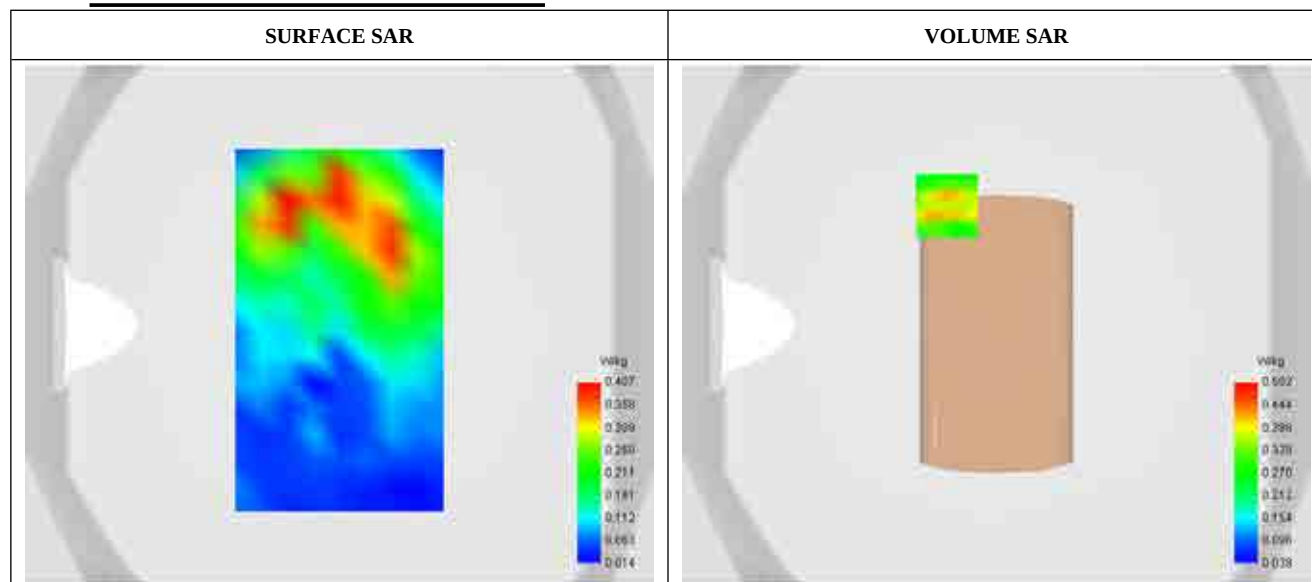
A. Experimental conditions.

Probe	0523-EPGO-403
ConvF	2.30
Area Scan	dx=10mm dy=10mm, Complete
Zoom Scan	7x7x12,dx=4mm dy=4mm dz=2.0mm,Complete
Phantom	Validation plane
Device Position	Body
Band	U-NII-1
Channels/Frequency	Middle (40)/ frequency 5200.000 Mhz

B. Permittivity

Middle TX Frequency (MHz)	5200.000
Relative permittivity (real part)	36.000
Relative permittivity (imaginary part)	16.130
Conductivity (S/m)	4.660

C. SAR Surface and Volume



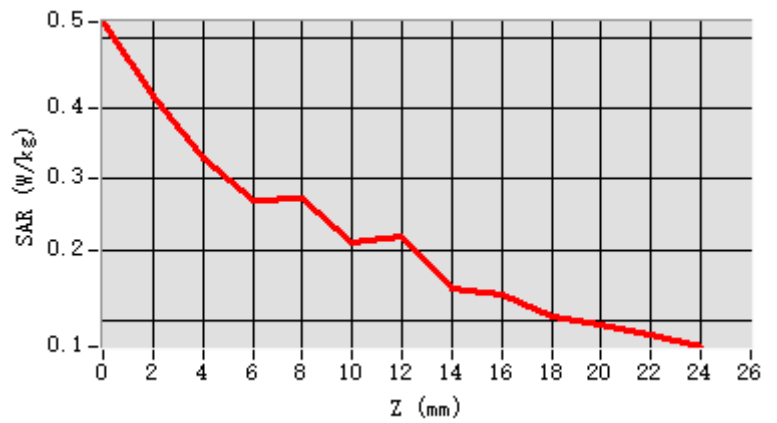
Maximum location: X=-19.00, Y=46.00 ; SAR Peak: 0.78 W/kg

D. SAR 1g & 10g

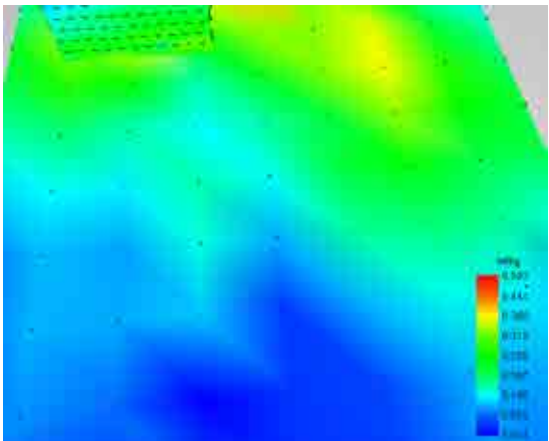
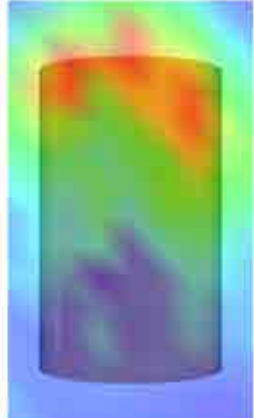
SAR 10g (W/Kg)	0.168
SAR 1g (W/Kg)	0.319
Variation (%)	3.740
Horizontal validation criteria: minimum distance (mm)	14.422205
Vertical validation criteria: SAR ratio M2/M1 (%)	78.758950

E. Z Axis Scan

Z (mm)	0.00	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00	24.00
SAR (W/Kg)	0.522	0.419	0.330	0.270	0.272	0.212	0.220	0.146	0.137	0.106	0.094	0.079	0.079



F. 3D Image

3D screen shot	Hot spot position
	

#11

Date of measurement: 19/11/2025

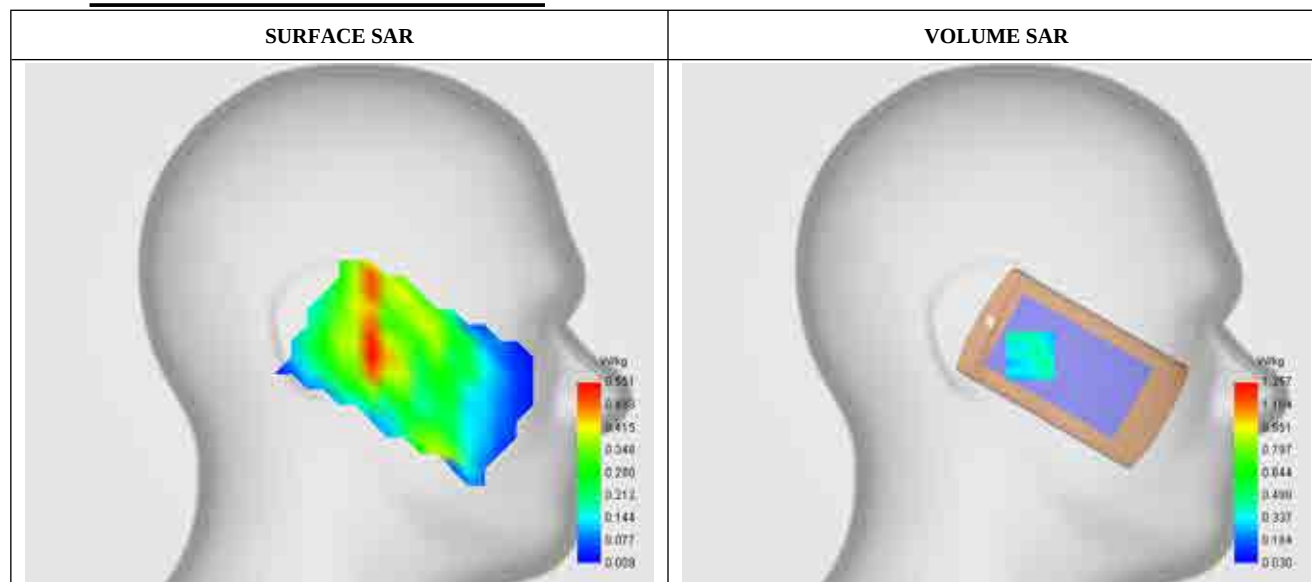
A. Experimental conditions.

Probe	0523-EPGO-403
ConvF	2.30
Area Scan	dx=8mm dy=8mm, Complete
Zoom Scan	7x7x12,dx=4mm dy=4mm dz=2.0mm,Complete
Phantom	Left head
Device Position	Cheek
Band	U-NII-2a
Channels/Frequency	Low (52)/ frequency 5260.000 Mhz

B. Permittivity

Middle TX Frequency (MHz)	5260.000
Relative permittivity (real part)	35.920
Relative permittivity (imaginary part)	16.158
Conductivity (S/m)	4.722

C. SAR Surface and Volume



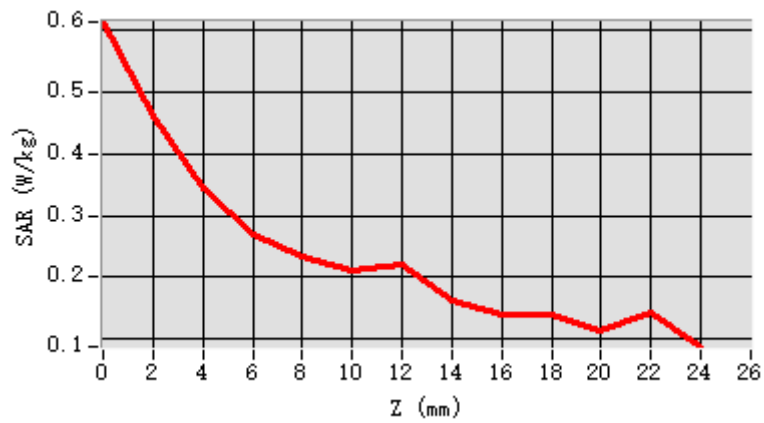
Maximum location: X=-17.00, Y=-15.00 ; SAR Peak: 2.47 W/kg

D. SAR 1g & 10g

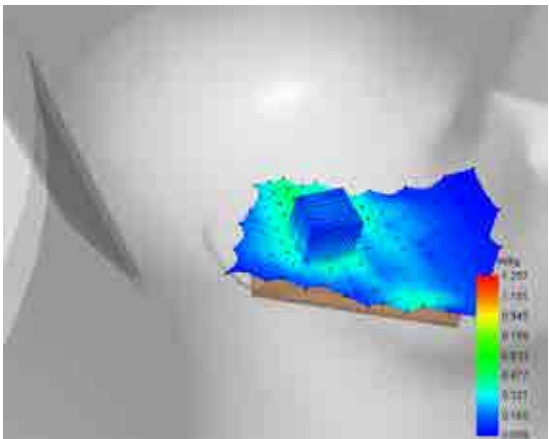
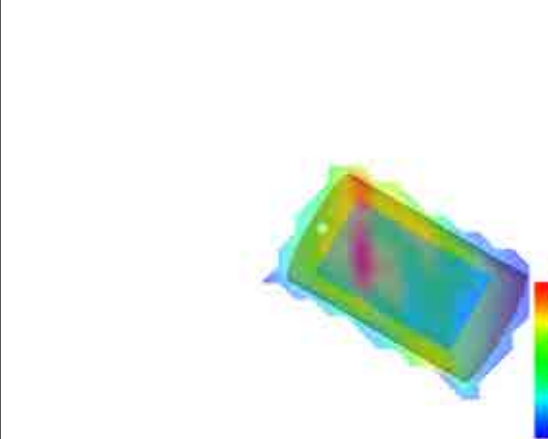
SAR 10g (W/Kg)	0.216
SAR 1g (W/Kg)	0.527
Variation (%)	-0.780
Horizontal validation criteria: minimum distance (mm)	-1.000000
Vertical validation criteria: SAR ratio M2/M1 (%)	74.620390

E. Z Axis Scan

Z (mm)	0.00	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00
SAR (W/Kg)	0.614	0.461	0.344	0.270	0.234	0.210	0.221	0.161	0.140	0.138	0.113	0.142



F. 3D Image

3D screen shot	Hot spot position
	

#12

Date of measurement: 19/11/2025

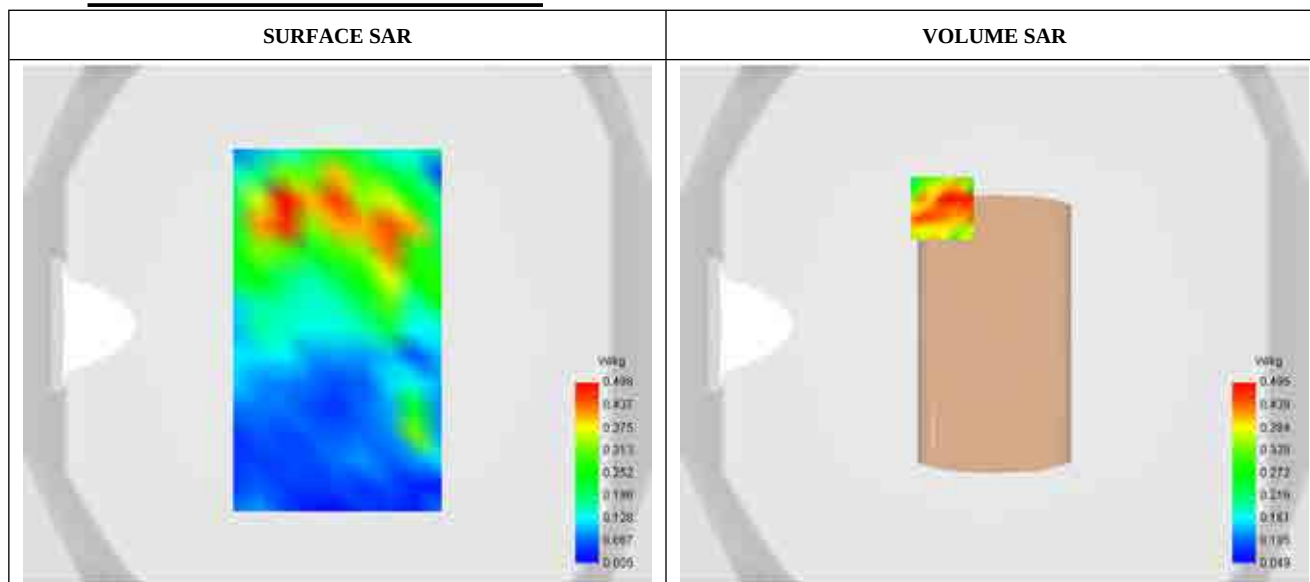
A. Experimental conditions.

Probe	0523-EPGO-403
ConvF	2.30
Area Scan	dx=10mm dy=10mm, Complete
Zoom Scan	7x7x12,dx=4mm dy=4mm dz=2.0mm,Complete
Phantom	Validation plane
Device Position	Body
Band	U-NII-2a
Channels/Frequency	Low (52)/ frequency 5260.000 Mhz

B. Permittivity

Middle TX Frequency (MHz)	5260.000
Relative permittivity (real part)	35.920
Relative permittivity (imaginary part)	16.158
Conductivity (S/m)	4.722

C. SAR Surface and Volume



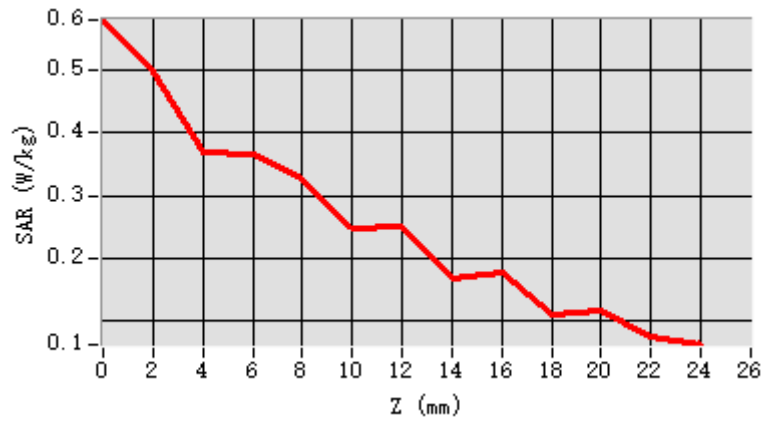
Maximum location: X=-20.00, Y=45.00 ; SAR Peak: 0.75 W/kg

D. SAR 1g & 10g

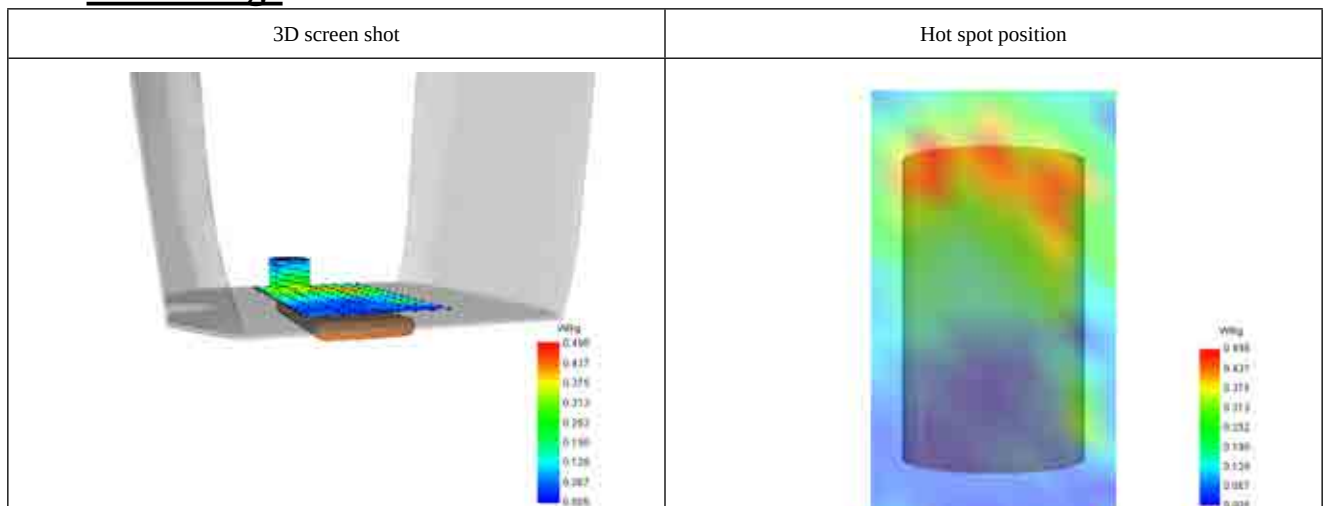
SAR 10g (W/Kg)	0.224
SAR 1g (W/Kg)	0.414
Variation (%)	0.680
Horizontal validation criteria: minimum distance (mm)	17.888544
Vertical validation criteria: SAR ratio M2/M1 (%)	74.343434

E. Z Axis Scan

Z (mm)	0.00	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00	24.00
SAR (W/Kg)	0.579	0.495	0.368	0.366	0.328	0.247	0.249	0.169	0.177	0.110	0.116	0.077	



F. 3D Image



#13

Date of measurement: 20/11/2025

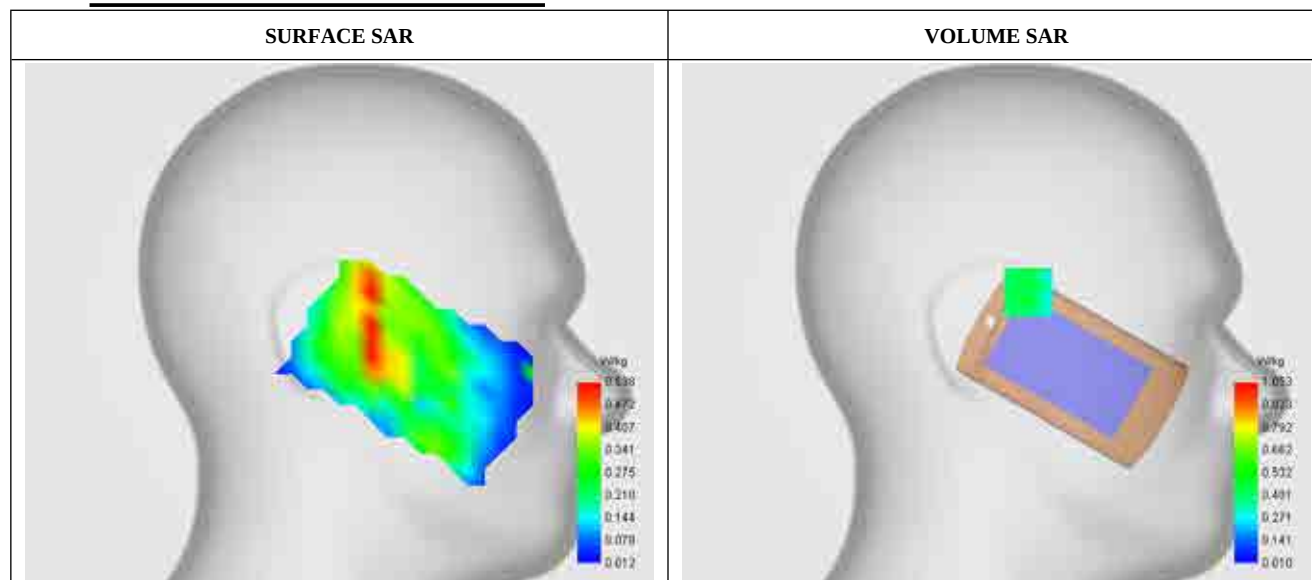
A. Experimental conditions.

Probe	0523-EPGO-403
ConvF	2.29
Area Scan	dx=8mm dy=8mm, Complete
Zoom Scan	7x7x12,dx=4mm dy=4mm dz=2.0mm,Complete
Phantom	Left head
Device Position	Cheek
Band	U-NII-2c
Channels/Frequency	High (140)/ frequency 5700.000 Mhz

B. Permittivity

Middle TX Frequency (MHz)	5700.000
Relative permittivity (real part)	35.500
Relative permittivity (imaginary part)	16.300
Conductivity (S/m)	5.162

C. SAR Surface and Volume



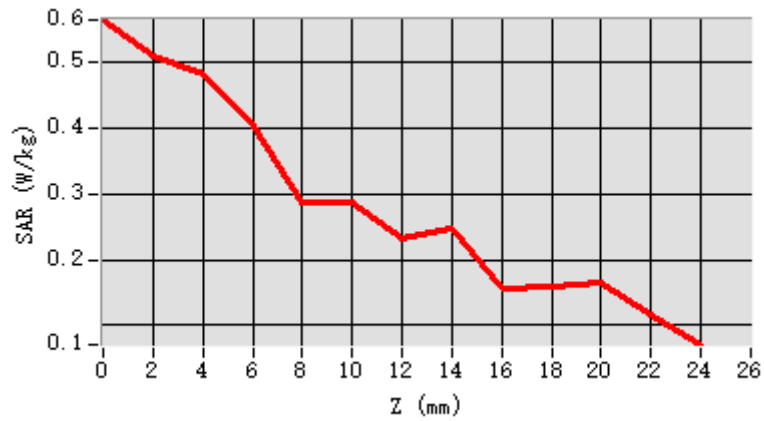
Maximum location: X=-16.00, Y=16.00 ; SAR Peak: 2.98 W/kg

D. SAR 1g & 10g

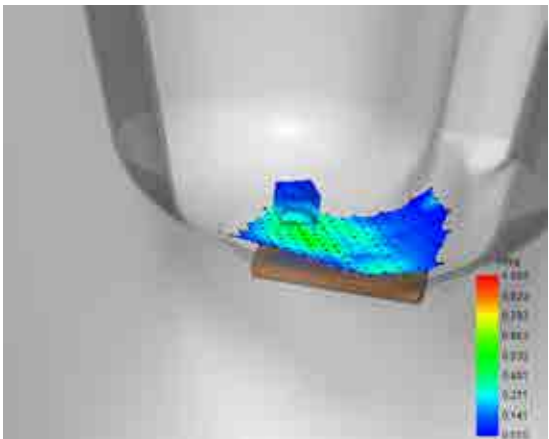
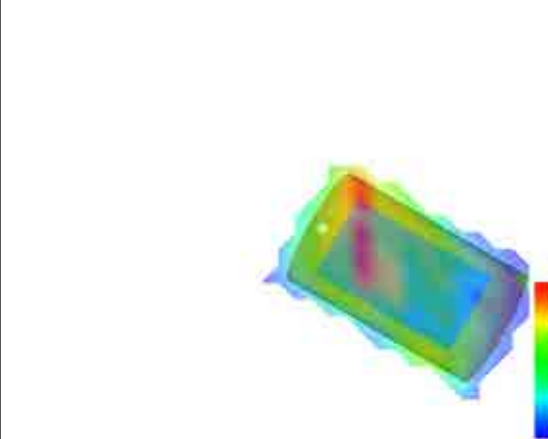
SAR 10g (W/Kg)	0.219
SAR 1g (W/Kg)	0.586
Variation (%)	-1.620
Horizontal validation criteria: minimum distance (mm)	20.000000
Vertical validation criteria: SAR ratio M2/M1 (%)	94.881890

E. Z Axis Scan

Z (mm)	0.00	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00
SAR (W/Kg)	0.564	0.508	0.482	0.403	0.287	0.287	0.231	0.246	0.156	0.160	0.164	0.117



F. 3D Image

3D screen shot	Hot spot position
	

#14

Date of measurement: 20/11/2025

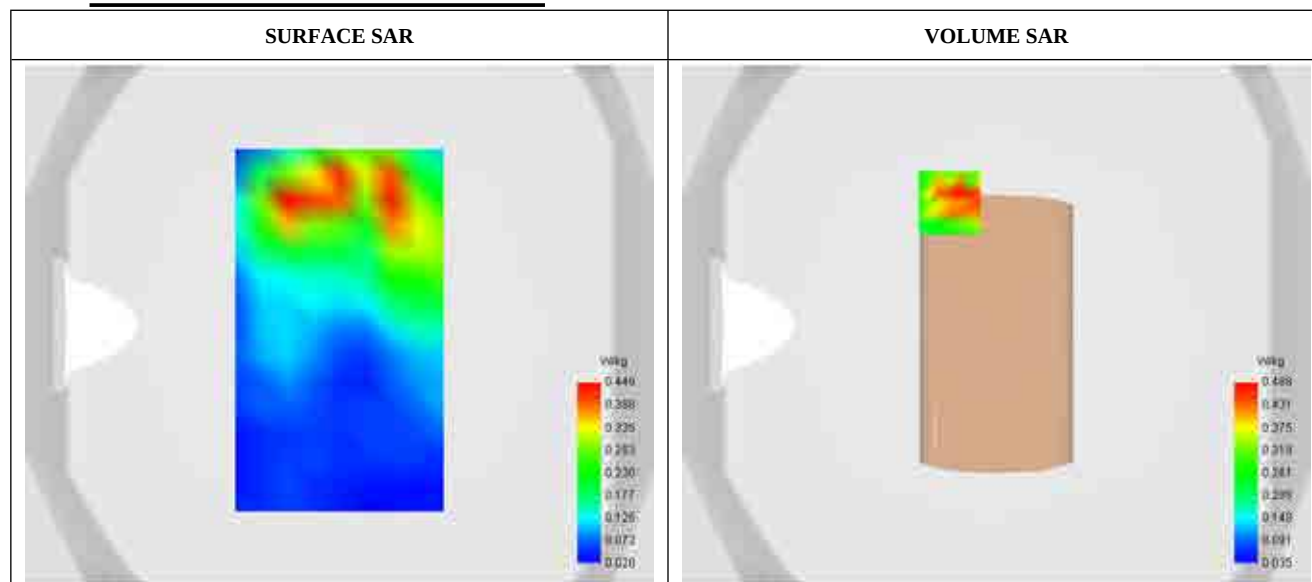
A. Experimental conditions.

Probe	0523-EPGO-403
ConvF	2.29
Area Scan	dx=10mm dy=10mm, Complete
Zoom Scan	7x7x12,dx=4mm dy=4mm dz=2.0mm,Complete
Phantom	Validation plane
Device Position	Body
Band	U-NII-2c
Channels/Frequency	High (140)/ frequency 5700.000 Mhz

B. Permittivity

Middle TX Frequency (MHz)	5700.000
Relative permittivity (real part)	35.500
Relative permittivity (imaginary part)	16.300
Conductivity (S/m)	5.162

C. SAR Surface and Volume



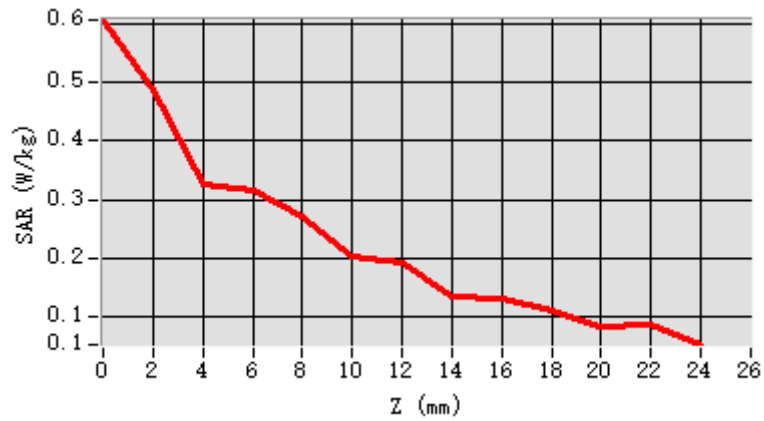
Maximum location: X=-18.00, Y=47.00 ; SAR Peak: 0.70 W/kg

D. SAR 1g & 10g

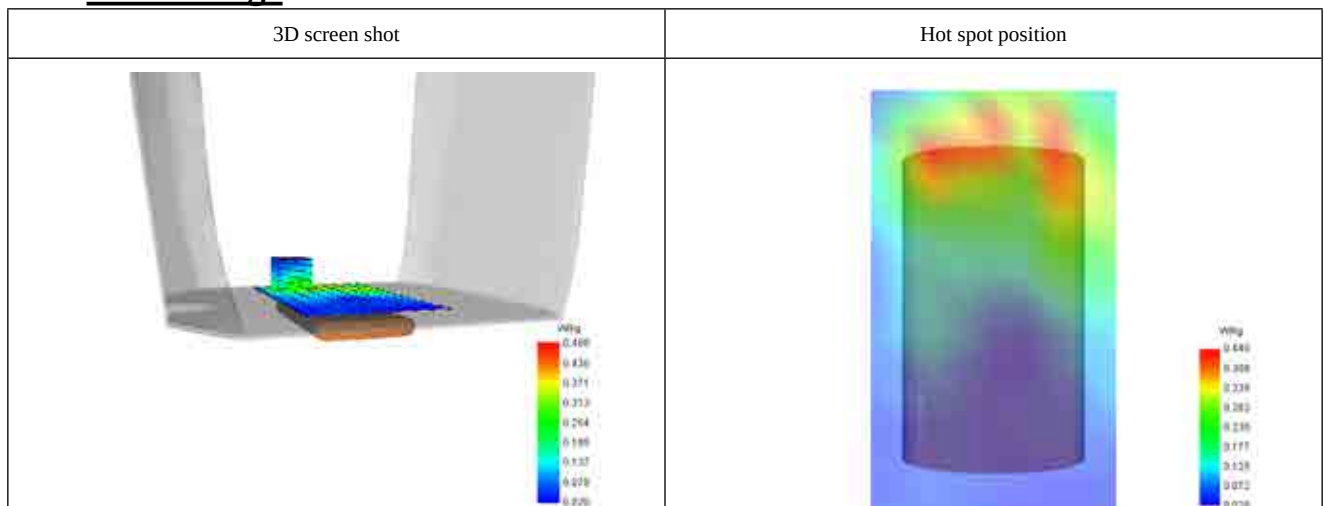
SAR 10g (W/Kg)	0.186
SAR 1g (W/Kg)	0.356
Variation (%)	4.080
Horizontal validation criteria: minimum distance (mm)	17.888544
Vertical validation criteria: SAR ratio M2/M1 (%)	67.008197

E. Z Axis Scan

Z (mm)	0.00	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00
SAR (W/Kg)	0.606	0.488	0.327	0.317	0.274	0.203	0.192	0.136	0.132	0.111	0.086	0.086



F. 3D Image



#15

Date of measurement: 21/11/2025

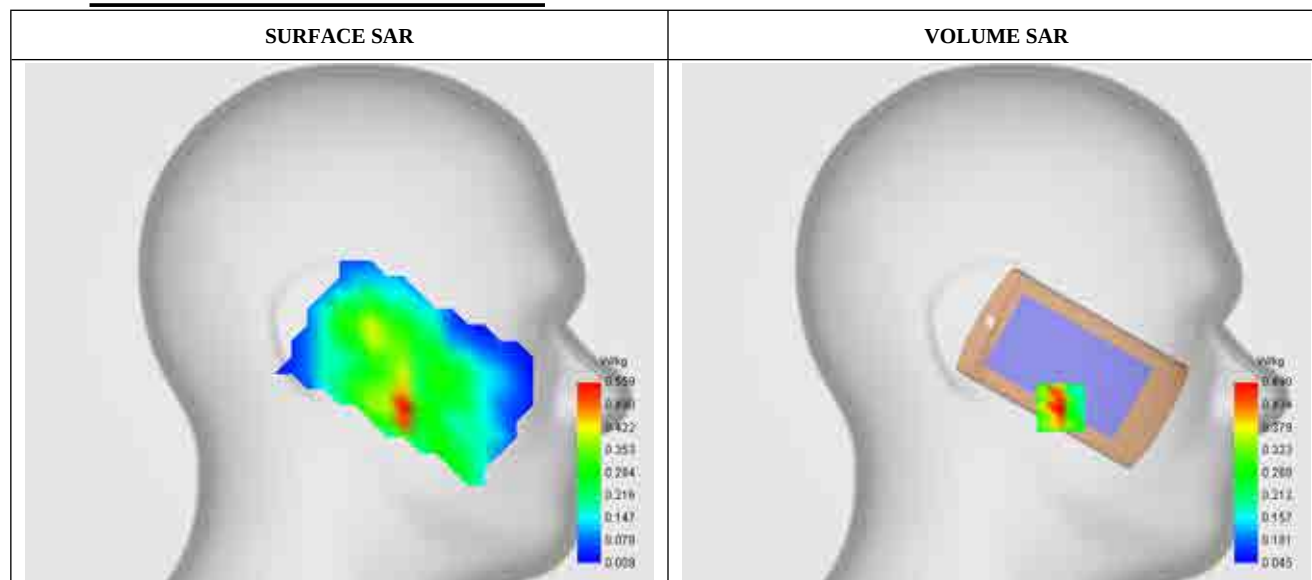
A. Experimental conditions.

Probe	0523-EPGO-403
ConvF	2.27
Area Scan	dx=8mm dy=8mm, Complete
Zoom Scan	7x7x12,dx=4mm dy=4mm dz=2.0mm,Complete
Phantom	Left head
Device Position	Cheek
Band	U-NII-3
Channels/Frequency	High (165)/ frequency 5825.000 Mhz

B. Permittivity

Middle TX Frequency (MHz)	5825.000
Relative permittivity (real part)	35.315
Relative permittivity (imaginary part)	16.355
Conductivity (S/m)	5.293

C. SAR Surface and Volume



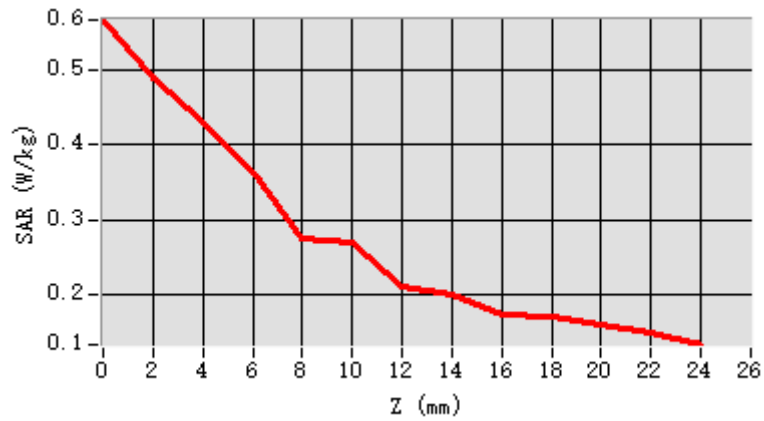
Maximum location: X=-32.00, Y=-41.00 ; SAR Peak: 0.90 W/kg

D. SAR 1g & 10g

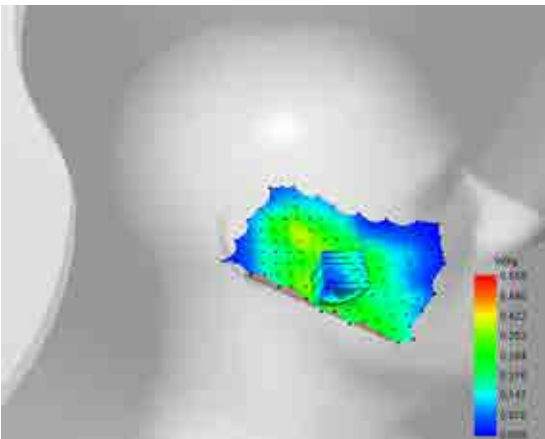
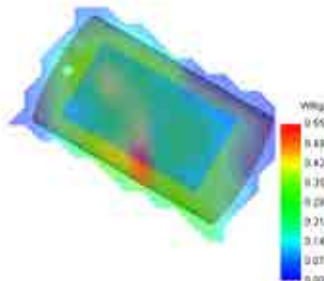
SAR 10g (W/Kg)	0.240
SAR 1g (W/Kg)	0.379
Variation (%)	1.950
Horizontal validation criteria: minimum distance (mm)	8.000000
Vertical validation criteria: SAR ratio M2/M1 (%)	88.163265

E. Z Axis Scan

Z (mm)	0.00	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00
SAR (W/Kg)	0.568	0.490	0.432	0.364	0.274	0.271	0.212	0.200	0.173	0.170	0.159	0.149



F. 3D Image

3D screen shot	Hot spot position
	

#16

Date of measurement: 21/11/2025

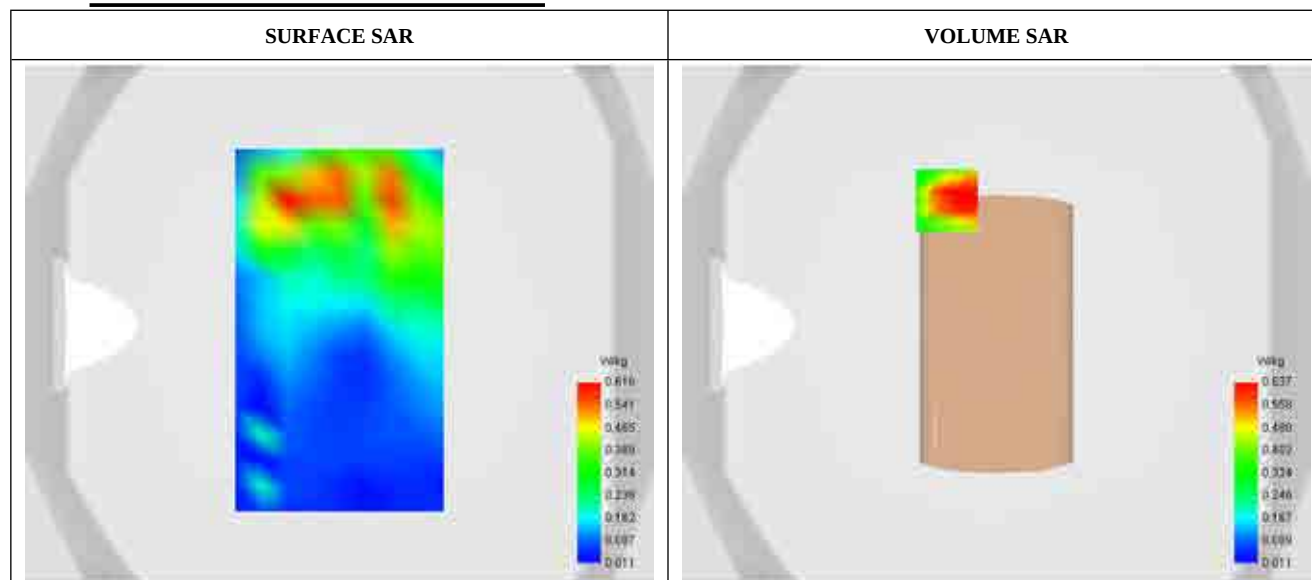
A. Experimental conditions.

Probe	0523-EPGO-403
ConvF	2.27
Area Scan	dx=10mm dy=10mm, Complete
Zoom Scan	7x7x12,dx=4mm dy=4mm dz=2.0mm,Complete
Phantom	Validation plane
Device Position	Body
Band	U-NII-3
Channels/Frequency	High (165)/ frequency 5825.000 Mhz

B. Permittivity

Middle TX Frequency (MHz)	5825.000
Relative permittivity (real part)	35.315
Relative permittivity (imaginary part)	16.355
Conductivity (S/m)	5.293

C. SAR Surface and Volume



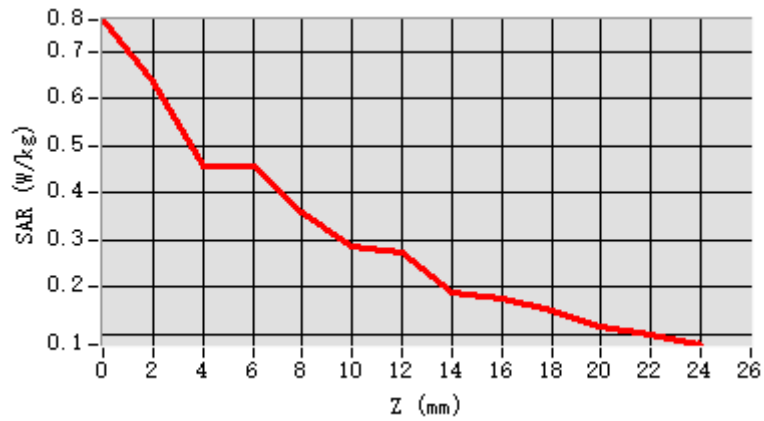
Maximum location: X=-19.00, Y=48.00 ; SAR Peak: 1.06 W/kg

D. SAR 1g & 10g

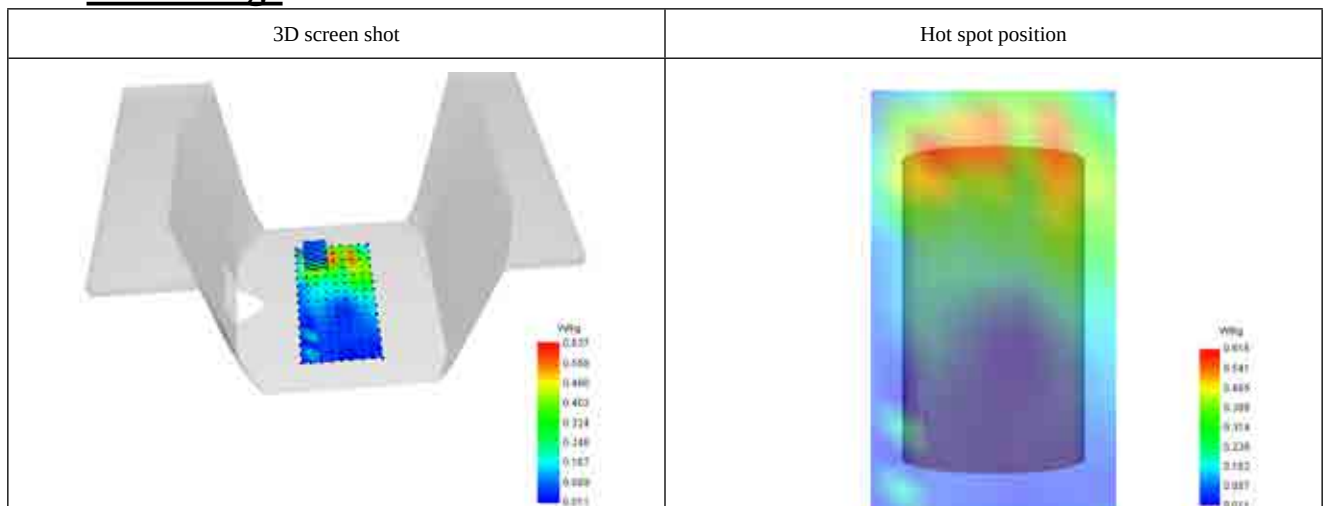
SAR 10g (W/Kg)	0.254
SAR 1g (W/Kg)	0.518
Variation (%)	-1.260
Horizontal validation criteria: minimum distance (mm)	16.492423
Vertical validation criteria: SAR ratio M2/M1 (%)	71.742543

E. Z Axis Scan

Z (mm)	0.00	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00	24.00
SAR (W/Kg)	0.766	0.637	0.457	0.458	0.358	0.288	0.271	0.190	0.174	0.150	0.117	0.098	0.098



F. 3D Image



#17

Date of measurement: 16/11/2025

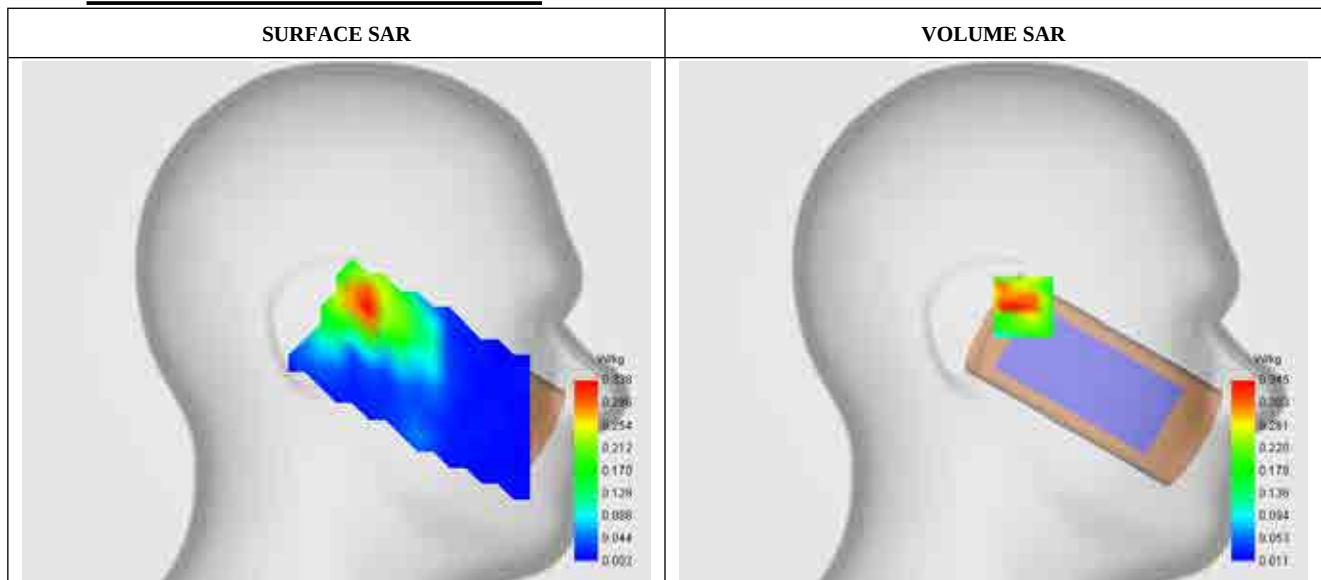
A. Experimental conditions.

Probe	0523-EPGO-403
ConvF	2.38
Area Scan	dx=8mm dy=8mm, Complete
Zoom Scan	7x7x7,dx=5mm dy=5mm dz=5.0mm,Complete
Phantom	Left head
Device Position	Cheek
Band	ISM
Channels/Frequency	High (11)/ frequency 2462.000 Mhz

B. Permittivity

Middle TX Frequency (MHz)	2462.000
Relative permittivity (real part)	39.214
Relative permittivity (imaginary part)	13.210
Conductivity (S/m)	1.807

C. SAR Surface and Volume



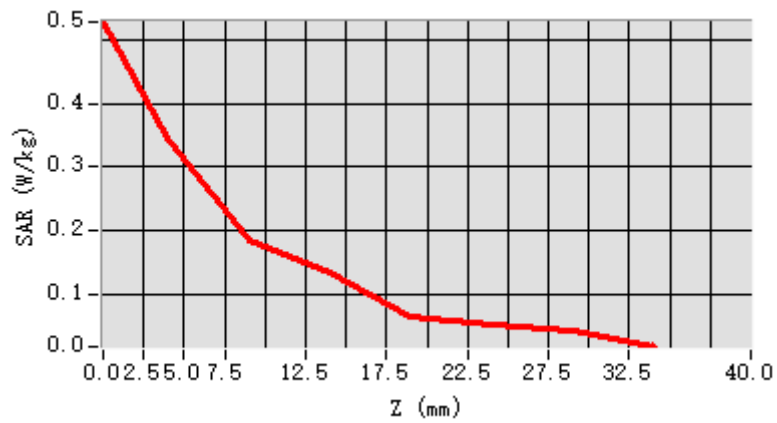
Maximum location: X=-15.00, Y=8.00 ; SAR Peak: 0.62 W/kg

D. SAR 1g & 10g

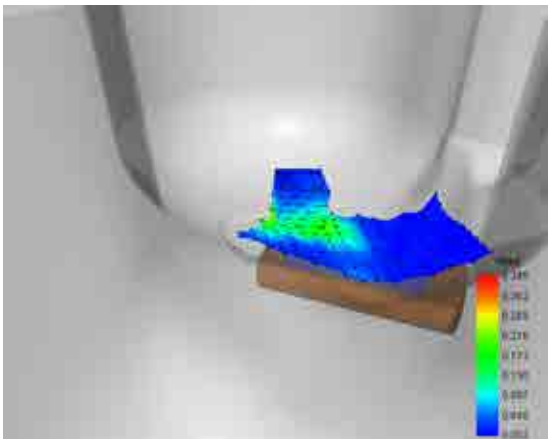
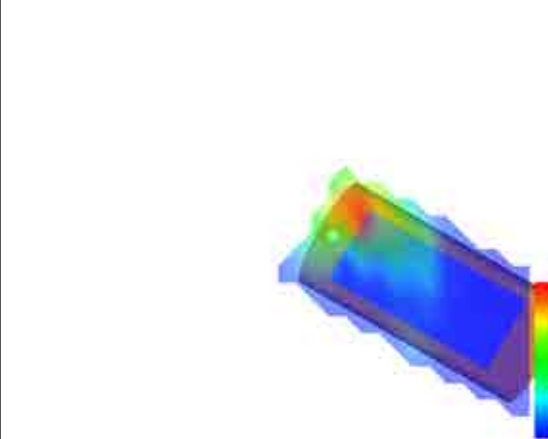
SAR 10g (W/Kg)	0.149
SAR 1g (W/Kg)	0.306
Variation (%)	-2.030
Horizontal validation criteria: minimum distance (mm)	14.142136
Vertical validation criteria: SAR ratio M2/M1 (%)	53.333333

E. Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.528	0.345	0.184	0.132	0.063	0.050	0.041



F. 3D Image

3D screen shot	Hot spot position
	

#18

Date of measurement: 16/11/2025

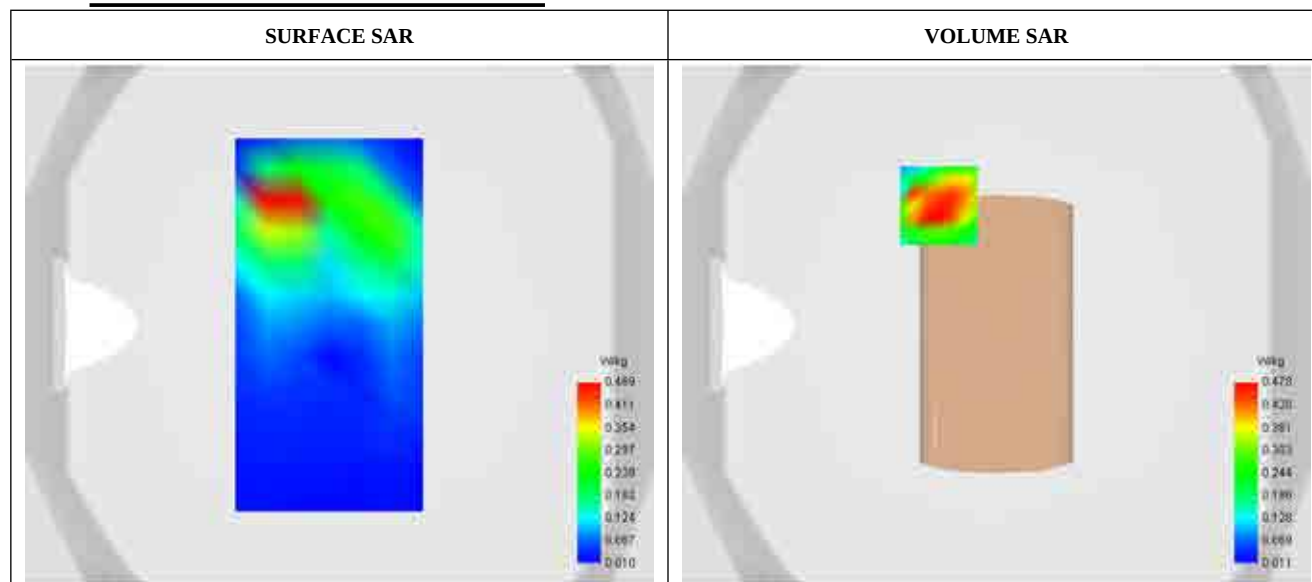
A. Experimental conditions.

Probe	0523-EPGO-403
ConvF	2.38
Area Scan	dx=12mm dy=12mm, Complete
Zoom Scan	7x7x7,dx=5mm dy=5mm dz=5.0mm,Complete
Phantom	Validation plane
Device Position	Body
Band	ISM
Channels/Frequency	High (11)/ frequency 2462.000 Mhz

B. Permittivity

Middle TX Frequency (MHz)	2462.000
Relative permittivity (real part)	39.214
Relative permittivity (imaginary part)	13.210
Conductivity (S/m)	1.807

C. SAR Surface and Volume



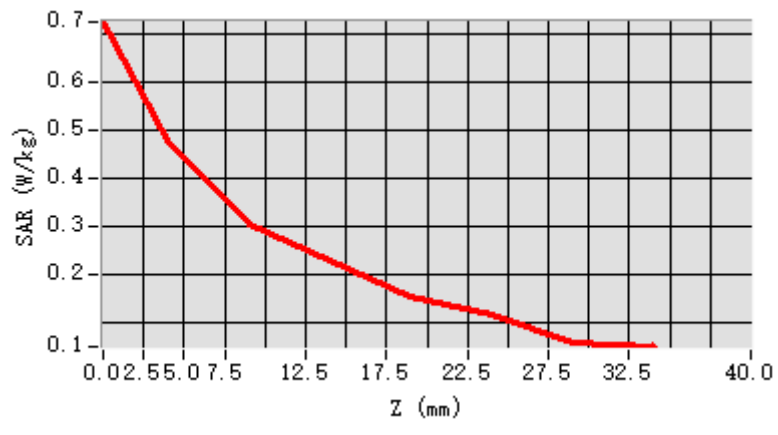
Maximum location: X=-22.00, Y=46.00 ; SAR Peak: 0.88 W/kg

D. SAR 1g & 10g

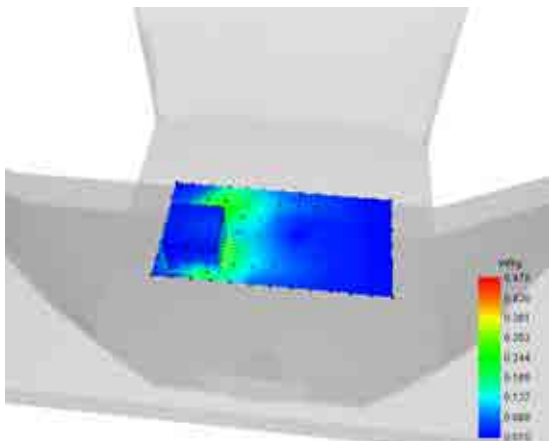
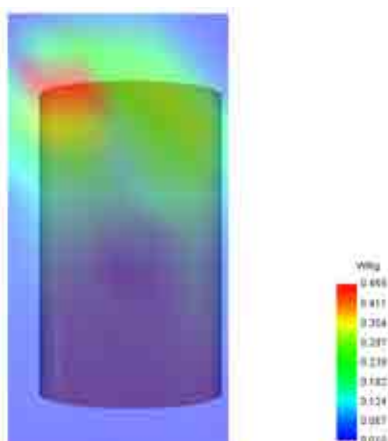
SAR 10g (W/Kg)	0.246
SAR 1g (W/Kg)	0.420
Variation (%)	-4.750
Horizontal validation criteria: minimum distance (mm)	11.180340
Vertical validation criteria: SAR ratio M2/M1 (%)	63.807531

E. Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.725	0.478	0.305	0.228	0.153	0.118	0.059



F. 3D Image

3D screen shot	Hot spot position
	

#19

Date of measurement: 15/11/2025

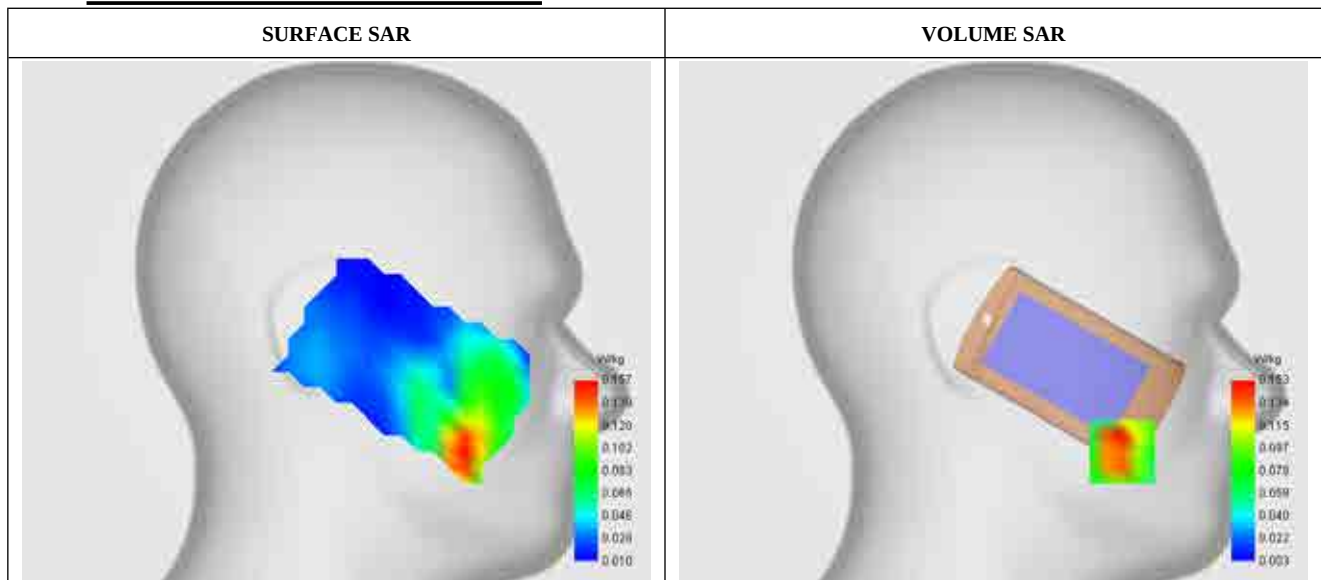
A. Experimental conditions.

Probe	0523-EPGO-403
ConvF	2.05
Area Scan	dx=8mm dy=8mm, Complete
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5.0mm,Complete
Phantom	Left head
Device Position	Cheek
Band	LTE band 2
Channels/Frequency	Middle (18900)/ frequency 1880.000 Mhz

B. Permittivity

Middle TX Frequency (MHz)	1880.000
Relative permittivity (real part)	40.000
Relative permittivity (imaginary part)	13.455
Conductivity (S/m)	1.404

C. SAR Surface and Volume



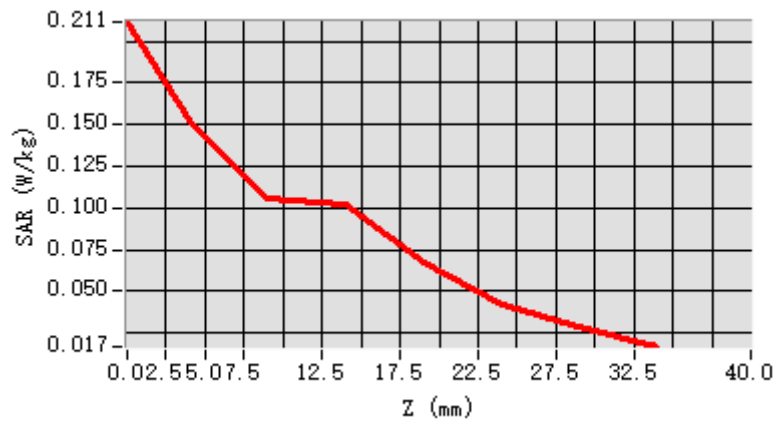
Maximum location: X=-64.00, Y=-64.00 ; SAR Peak: 0.24 W/kg

D. SAR 1g & 10g

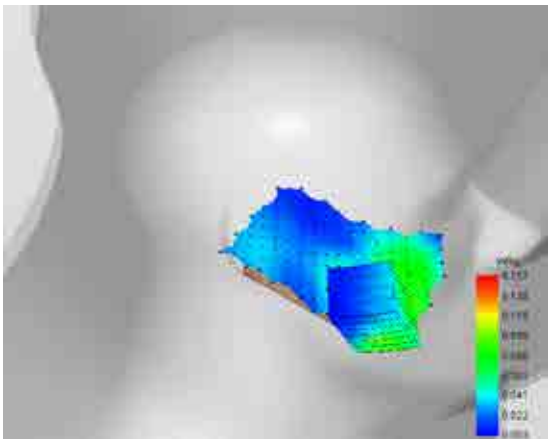
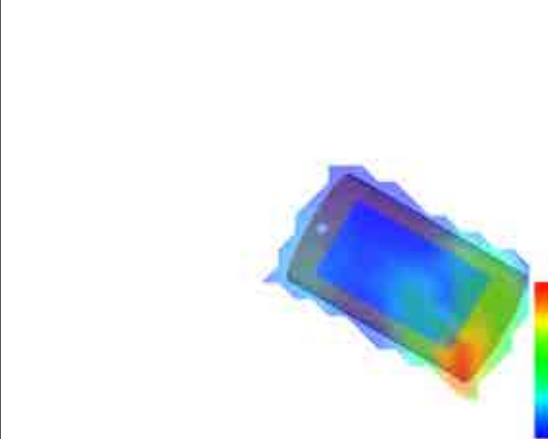
SAR 10g (W/Kg)	0.097
SAR 1g (W/Kg)	0.148
Variation (%)	-1.660
Horizontal validation criteria: minimum distance (mm)	11.313708
Vertical validation criteria: SAR ratio M2/M1 (%)	68.627451

E. Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.211	0.153	0.105	0.102	0.067	0.042	0.029



F. 3D Image

3D screen shot	Hot spot position
	

#20

Date of measurement: 15/11/2025

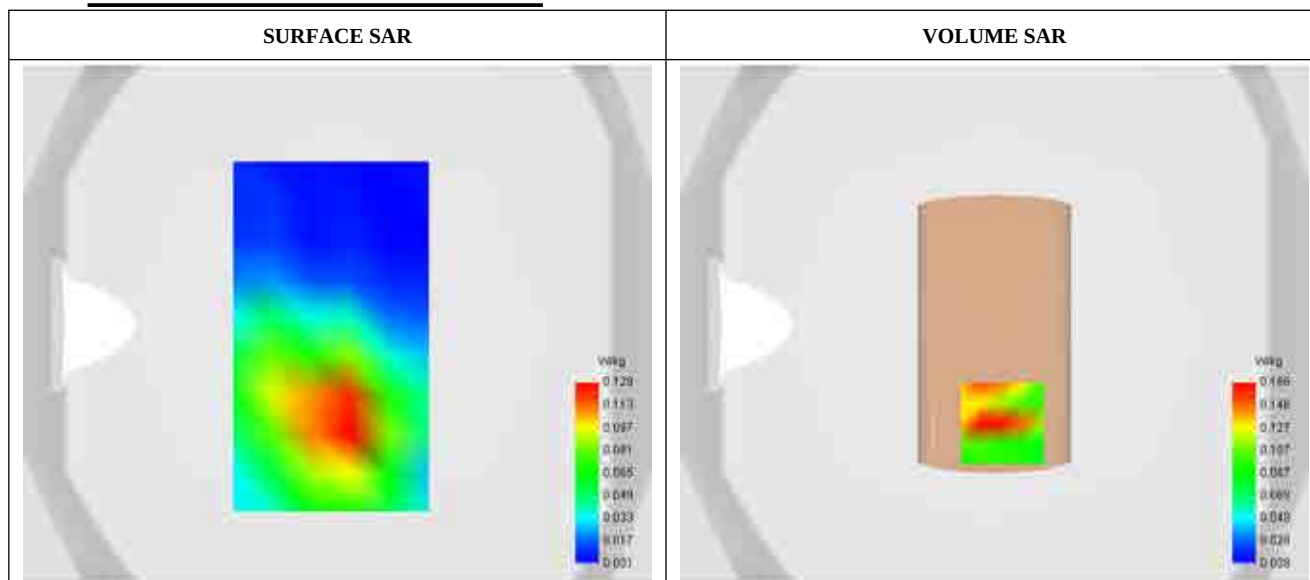
A. Experimental conditions.

Probe	0523-EPGO-403
ConvF	2.05
Area Scan	dx=15mm dy=15mm, Complete
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5.0mm,Complete
Phantom	Validation plane
Device Position	Body
Band	LTE band 2
Channels/Frequency	Middle (18900)/ frequency 1880.000 Mhz

B. Permittivity

Middle TX Frequency (MHz)	1880.000
Relative permittivity (real part)	40.000
Relative permittivity (imaginary part)	13.455
Conductivity (S/m)	1.404

C. SAR Surface and Volume



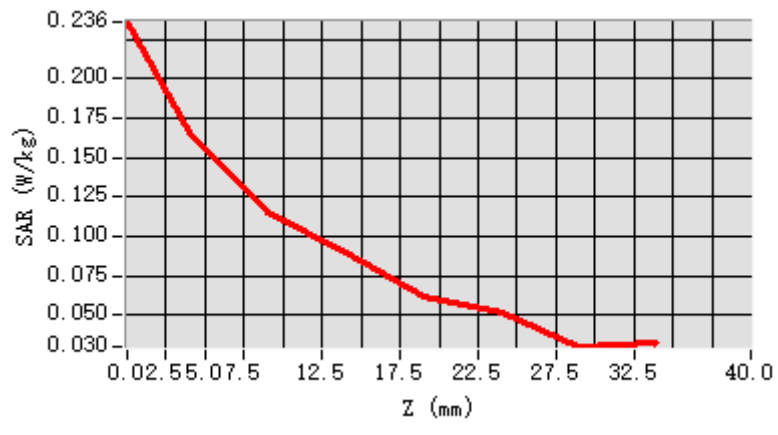
Maximum location: X=3.00, Y=-38.00 ; SAR Peak: 0.27 W/kg

D. SAR 1g & 10g

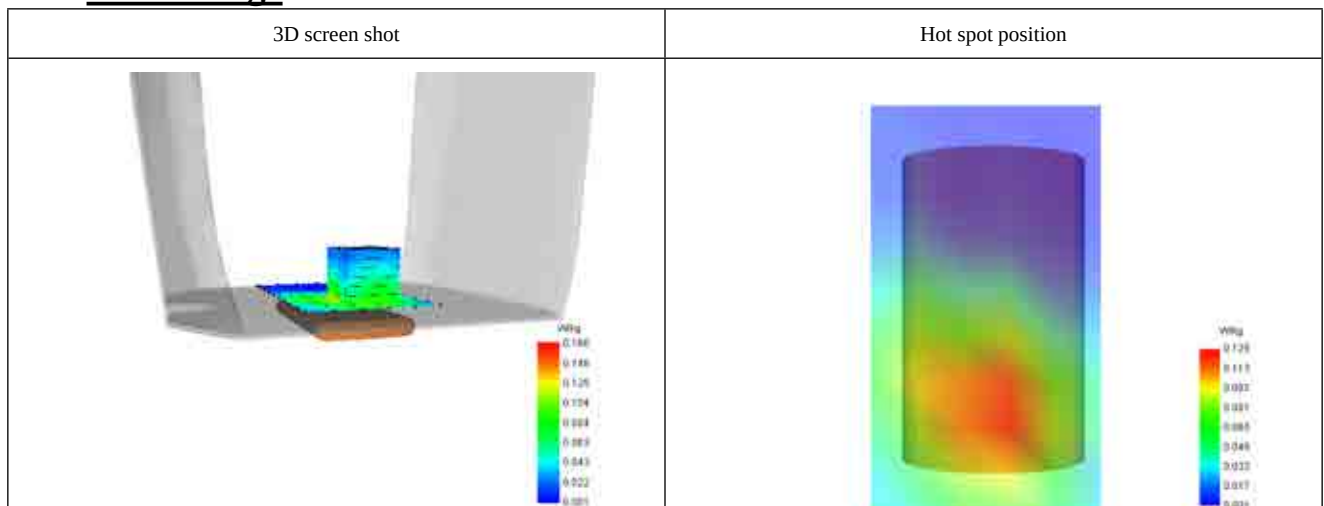
SAR 10g (W/Kg)	0.092
SAR 1g (W/Kg)	0.157
Variation (%)	-4.100
Horizontal validation criteria: minimum distance (mm)	28.844410
Vertical validation criteria: SAR ratio M2/M1 (%)	69.277108

E. Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.236	0.166	0.115	0.090	0.062	0.051	0.030



F. 3D Image



#21

Date of measurement: 14/11/2025

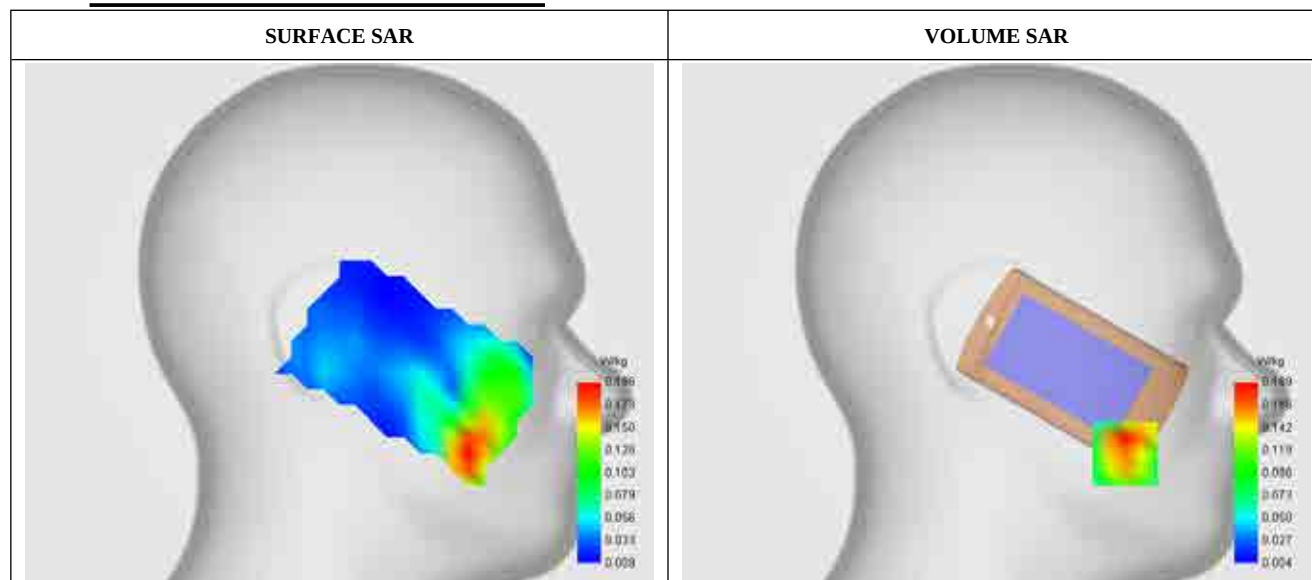
A. Experimental conditions.

Probe	0523-EPGO-403
ConvF	2.09
Area Scan	dx=8mm dy=8mm, Complete
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5.0mm,Complete
Phantom	Left head
Device Position	Cheek
Band	LTE band 4
Channels/Frequency	Middle (20175)/ frequency 1732.500 Mhz

B. Permittivity

Middle TX Frequency (MHz)	1732.500
Relative permittivity (real part)	40.122
Relative permittivity (imaginary part)	14.153
Conductivity (S/m)	1.362

C. SAR Surface and Volume



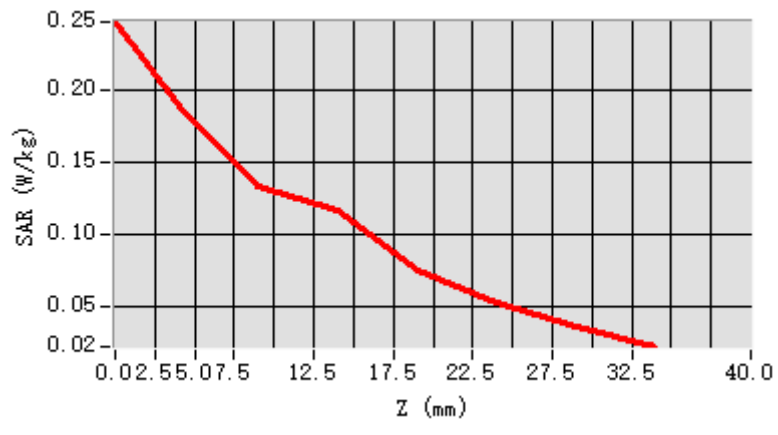
Maximum location: X=-64.00, Y=-64.00 ; SAR Peak: 0.27 W/kg

D. SAR 1g & 10g

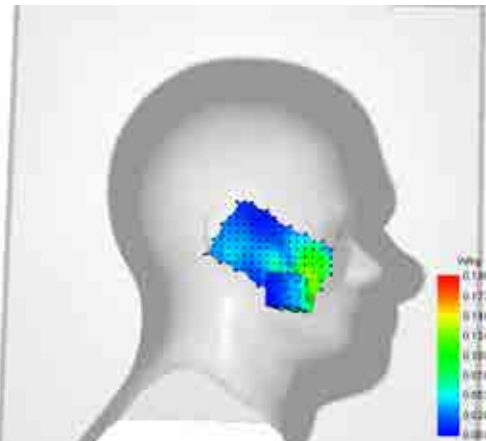
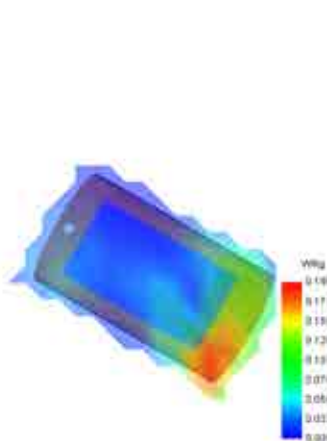
SAR 10g (W/Kg)	0.119
SAR 1g (W/Kg)	0.179
Variation (%)	1.810
Horizontal validation criteria: minimum distance (mm)	11.313708
Vertical validation criteria: SAR ratio M2/M1 (%)	70.370370

E. Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.248	0.189	0.133	0.116	0.075	0.053	0.035



F. 3D Image

3D screen shot	Hot spot position
	

#22

Date of measurement: 14/11/2025

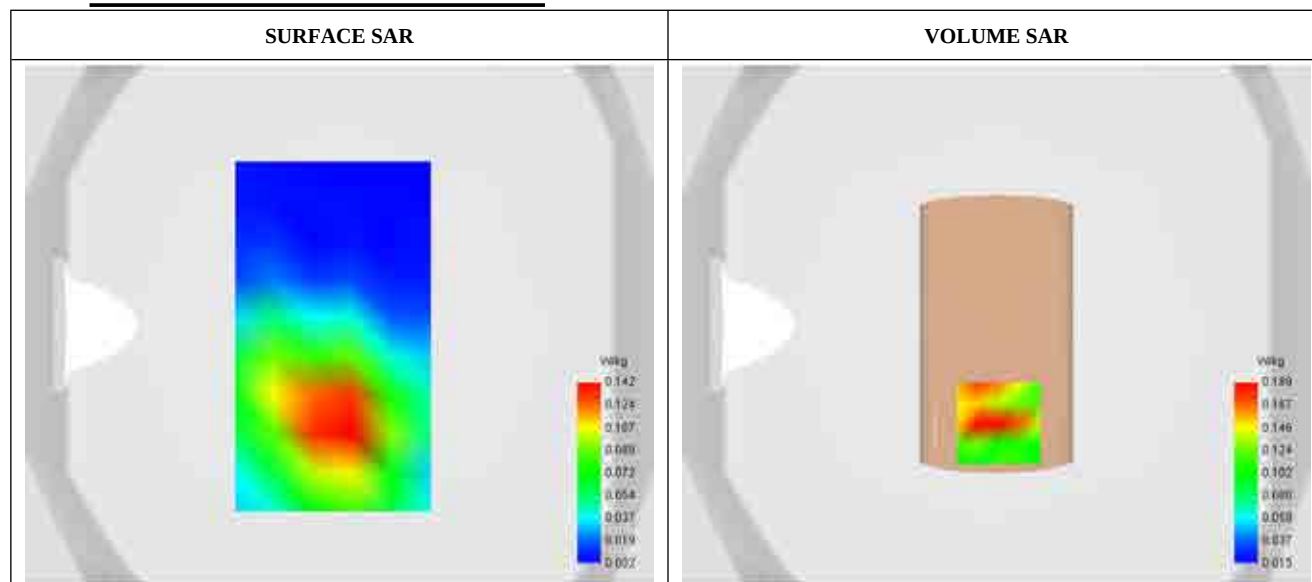
A. Experimental conditions.

Probe	0523-EPGO-403
ConvF	2.09
Area Scan	dx=15mm dy=15mm, Complete
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5.0mm,Complete
Phantom	Validation plane
Device Position	Body
Band	LTE band 4
Channels/Frequency	Middle (20175)/ frequency 1732.500 Mhz

B. Permittivity

Middle TX Frequency (MHz)	1732.500
Relative permittivity (real part)	40.122
Relative permittivity (imaginary part)	14.153
Conductivity (S/m)	1.362

C. SAR Surface and Volume



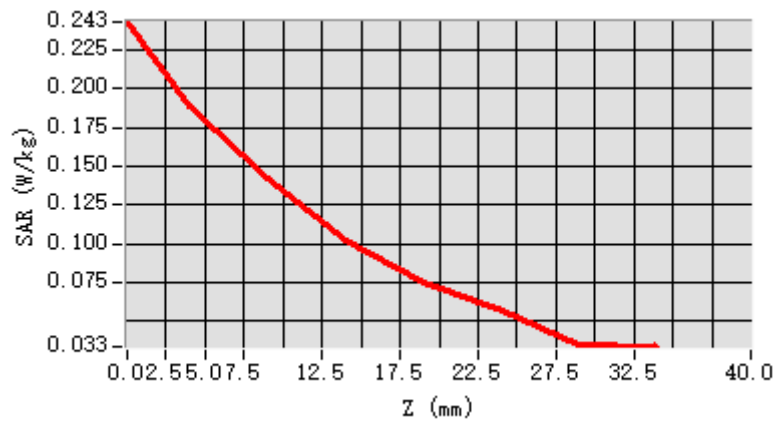
Maximum location: X=1.00, Y=-38.00 ; SAR Peak: 0.31 W/kg

D. SAR 1g & 10g

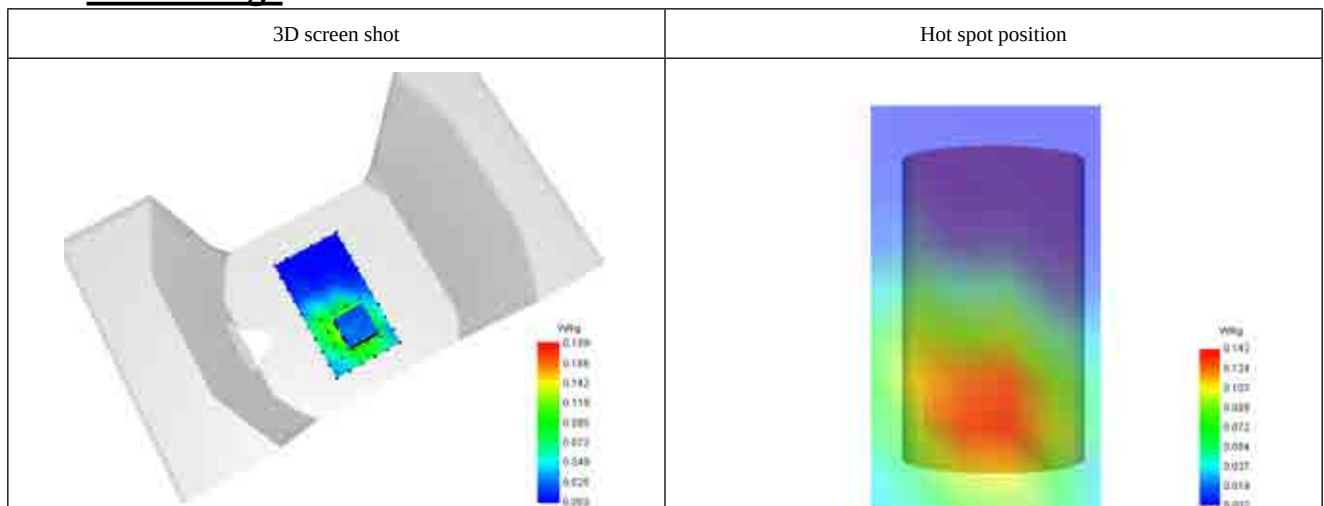
SAR 10g (W/Kg)	0.105
SAR 1g (W/Kg)	0.182
Variation (%)	-0.400
Horizontal validation criteria: minimum distance (mm)	16.000000
Vertical validation criteria: SAR ratio M2/M1 (%)	75.661376

E. Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.243	0.189	0.143	0.102	0.075	0.057	0.034



F. 3D Image



#23

Date of measurement: 13/11/2025

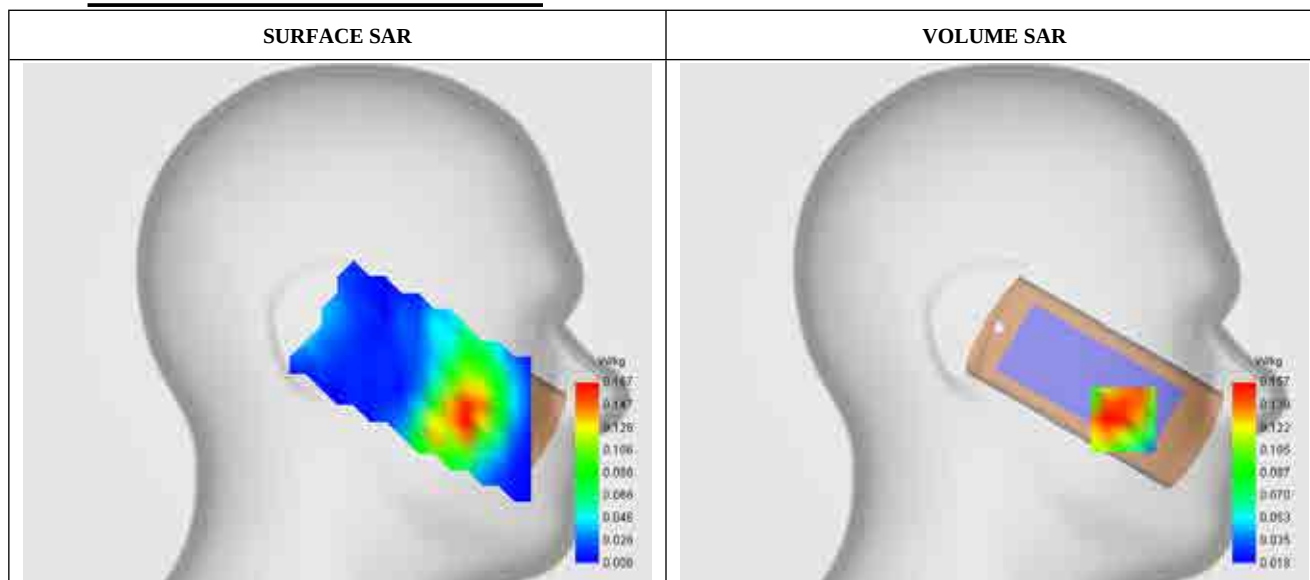
A. Experimental conditions.

Probe	0523-EPGO-403
ConvF	1.66
Area Scan	dx=8mm dy=8mm, Complete
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5.0mm,Complete
Phantom	Left head
Device Position	Cheek
Band	LTE band 5
Channels/Frequency	Middle (20525)/ frequency 836.500 Mhz

B. Permittivity

Middle TX Frequency (MHz)	836.500
Relative permittivity (real part)	41.501
Relative permittivity (imaginary part)	19.407
Conductivity (S/m)	0.902

C. SAR Surface and Volume



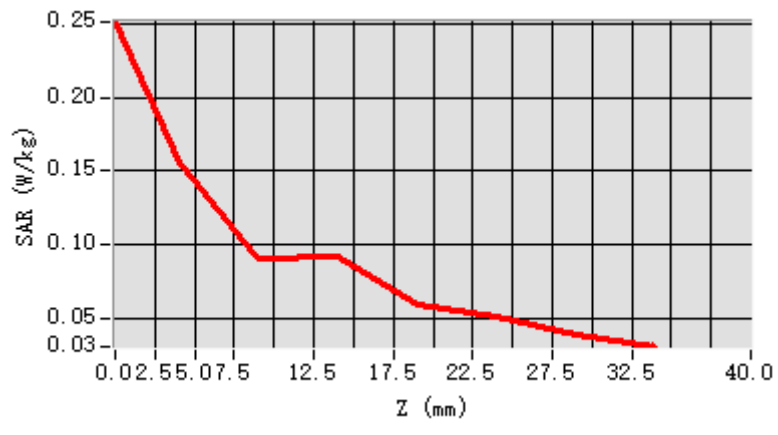
Maximum location: X=-64.00, Y=-47.00 ; SAR Peak: 0.22 W/kg

D. SAR 1g & 10g

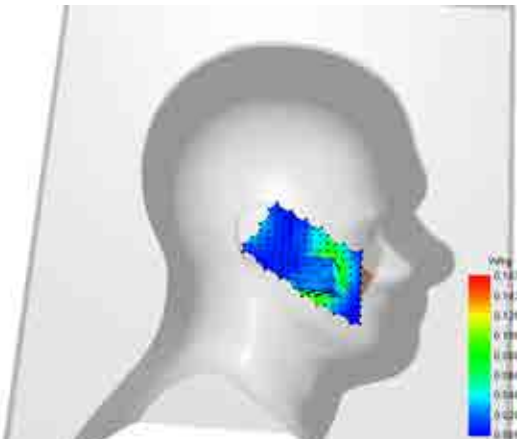
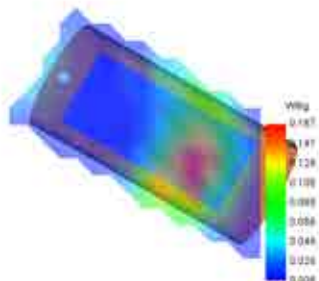
SAR 10g (W/Kg)	0.100
SAR 1g (W/Kg)	0.153
Variation (%)	0.260
Horizontal validation criteria: minimum distance (mm)	17.888544
Vertical validation criteria: SAR ratio M2/M1 (%)	57.324841

E. Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.252	0.157	0.090	0.092	0.059	0.051	0.038



F. 3D Image

3D screen shot	Hot spot position
	

#24

Date of measurement: 13/11/2025

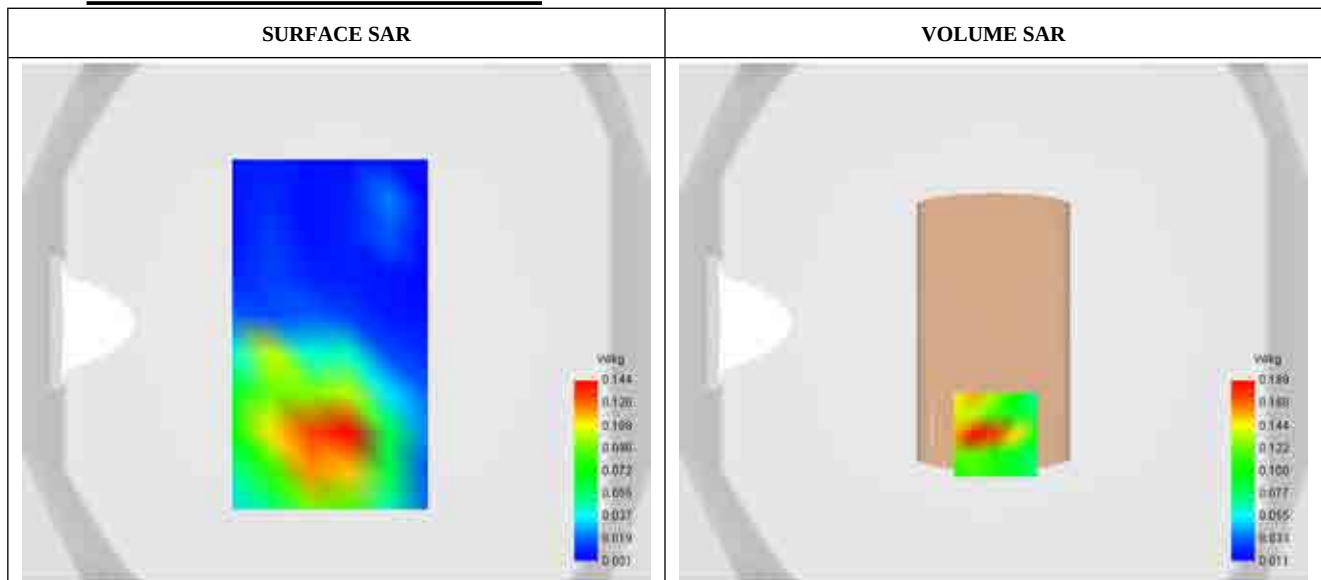
A. Experimental conditions.

Probe	0523-EPGO-403
ConvF	1.66
Area Scan	dx=15mm dy=15mm, Complete
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5.0mm,Complete
Phantom	Validation plane
Device Position	Body
Band	LTE band 5
Channels/Frequency	Middle (20525)/ frequency 836.500 Mhz

B. Permittivity

Middle TX Frequency (MHz)	836.500
Relative permittivity (real part)	41.501
Relative permittivity (imaginary part)	19.407
Conductivity (S/m)	0.902

C. SAR Surface and Volume



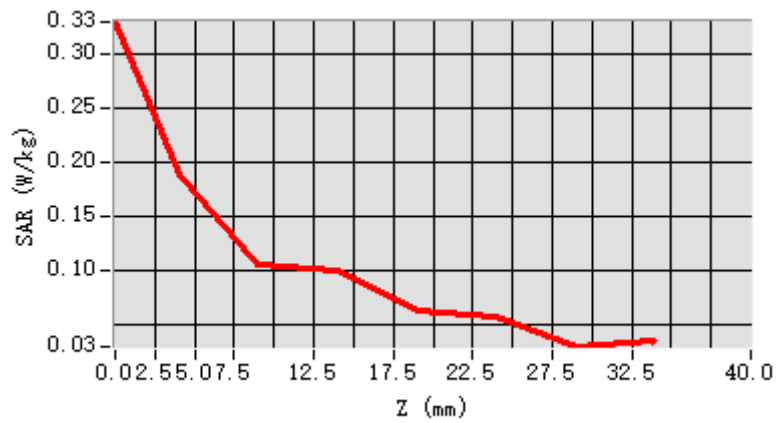
Maximum location: X=1.00, Y=-43.00 ; SAR Peak: 0.31 W/kg

D. SAR 1g & 10g

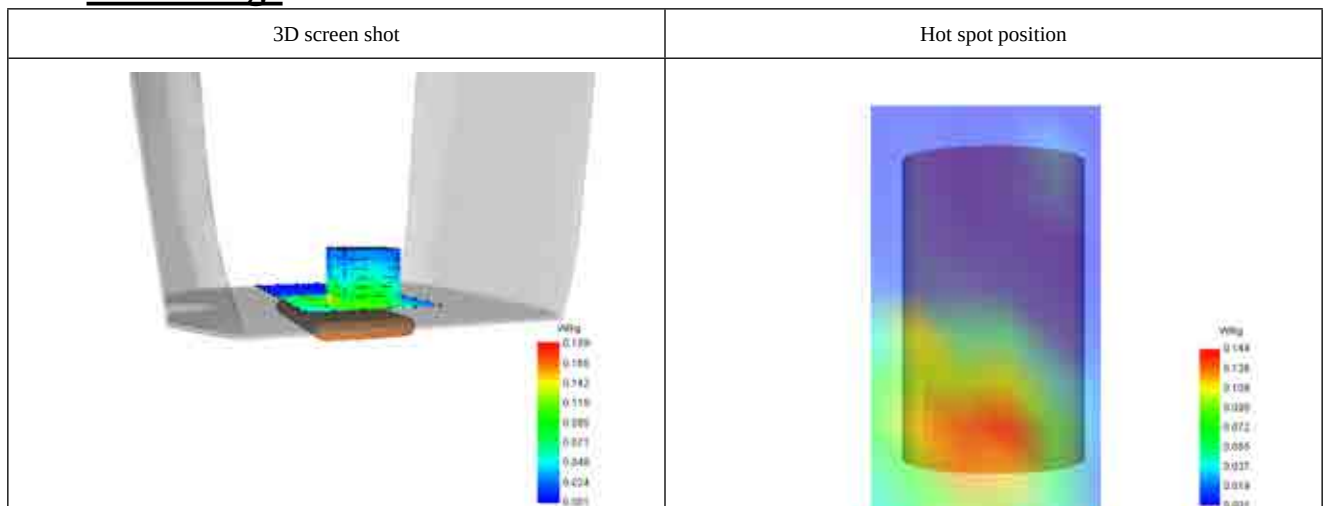
SAR 10g (W/Kg)	0.095
SAR 1g (W/Kg)	0.176
Variation (%)	-0.340
Horizontal validation criteria: minimum distance (mm)	17.888544
Vertical validation criteria: SAR ratio M2/M1 (%)	55.555555

E. Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.329	0.189	0.105	0.100	0.063	0.058	0.030



F. 3D Image



#25

Date of measurement: 17/11/2025

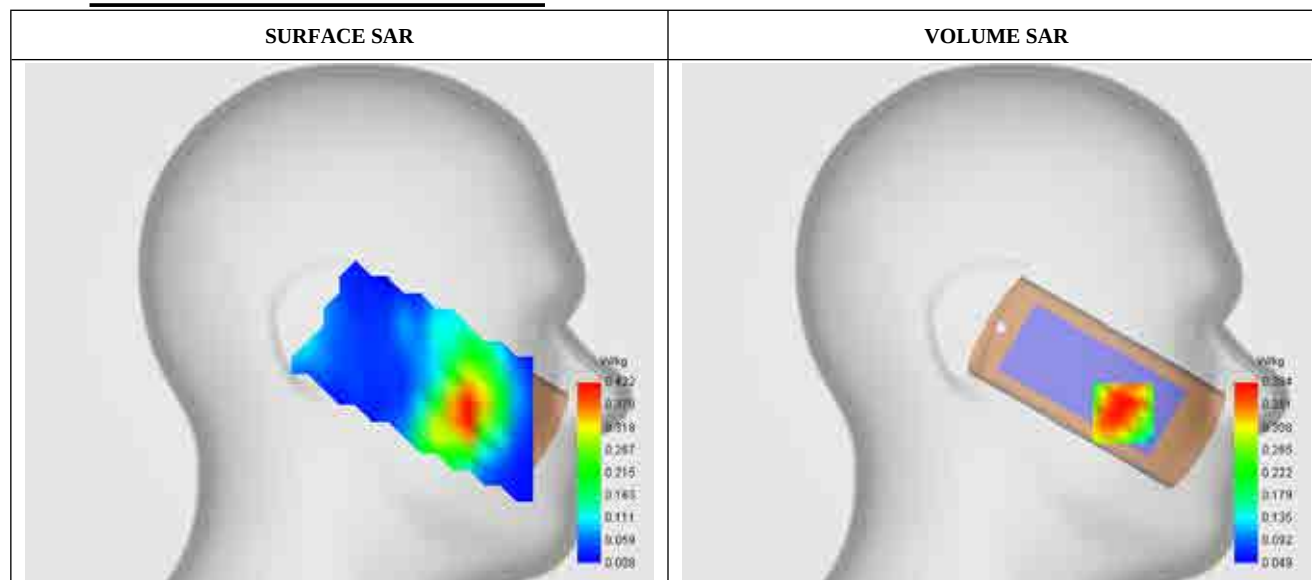
A. Experimental conditions.

Probe	0523-EPGO-403
ConvF	2.35
Area Scan	dx=8mm dy=8mm, Complete
Zoom Scan	7x7x7,dx=5mm dy=5mm dz=5.0mm,Complete
Phantom	Left head
Device Position	Cheek
Band	LTE band 7
Channels/Frequency	Middle (21100)/ frequency 2535.000 Mhz

B. Permittivity

Middle TX Frequency (MHz)	2535.000
Relative permittivity (real part)	39.095
Relative permittivity (imaginary part)	13.404
Conductivity (S/m)	1.888

C. SAR Surface and Volume



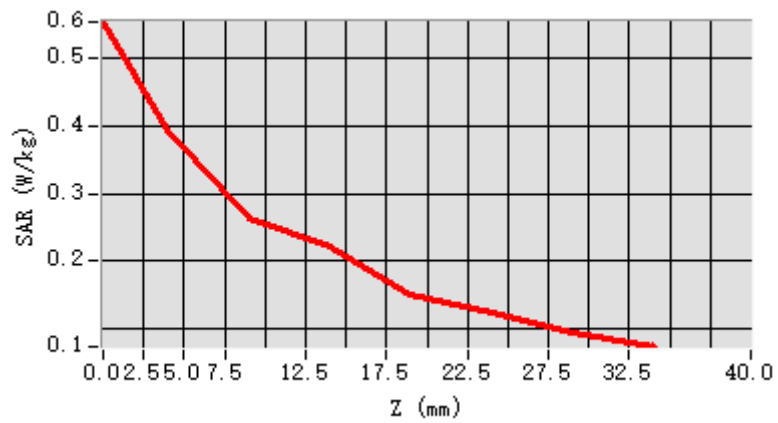
Maximum location: X=-63.00, Y=-44.00 ; SAR Peak: 0.59 W/kg

D. SAR 1g & 10g

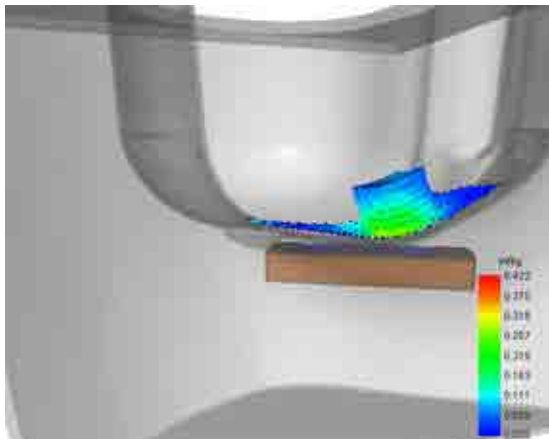
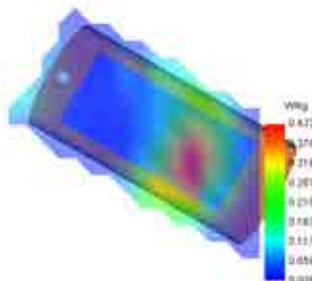
SAR 10g (W/Kg)	0.239
SAR 1g (W/Kg)	0.360
Variation (%)	3.760
Horizontal validation criteria: minimum distance (mm)	18.027756
Vertical validation criteria: SAR ratio M2/M1 (%)	66.751269

E. Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.553	0.394	0.263	0.221	0.150	0.123	0.095



F. 3D Image

3D screen shot	Hot spot position
	

#26

Date of measurement: 17/11/2025

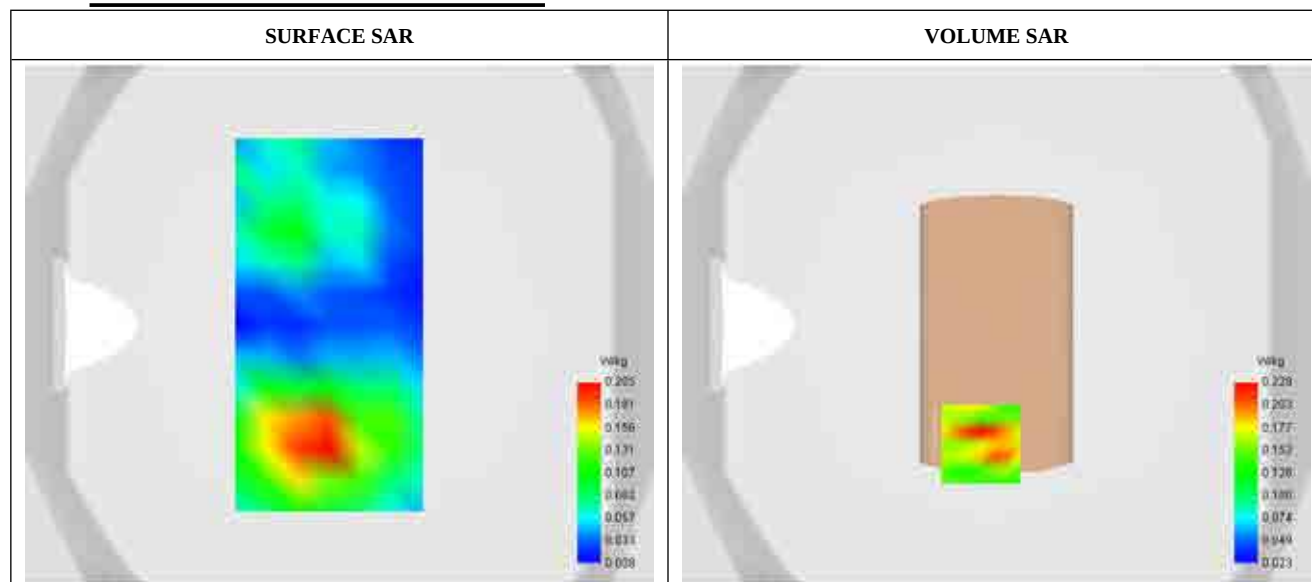
A. Experimental conditions.

Probe	0523-EPGO-403
ConvF	2.35
Area Scan	dx=12mm dy=12mm, Complete
Zoom Scan	7x7x7,dx=5mm dy=5mm dz=5.0mm,Complete
Phantom	Validation plane
Device Position	Body
Band	LTE band 7
Channels/Frequency	Middle (21100)/ frequency 2535.000 Mhz

B. Permittivity

Middle TX Frequency (MHz)	2535.000
Relative permittivity (real part)	39.095
Relative permittivity (imaginary part)	13.404
Conductivity (S/m)	1.888

C. SAR Surface and Volume



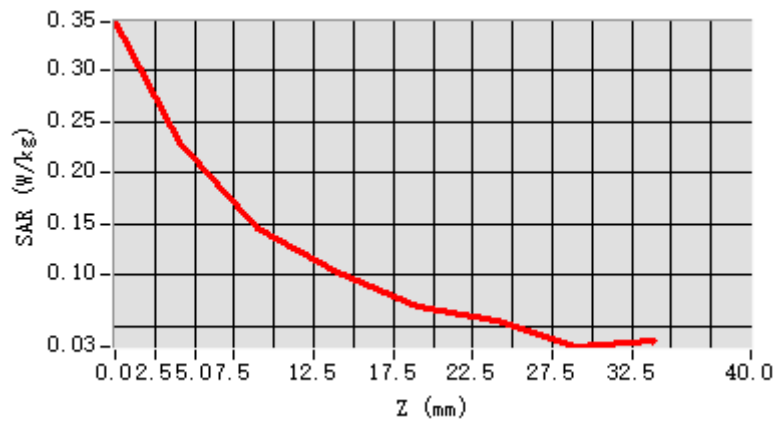
Maximum location: X=-6.00, Y=-46.00 ; SAR Peak: 0.31 W/kg

D. SAR 1g & 10g

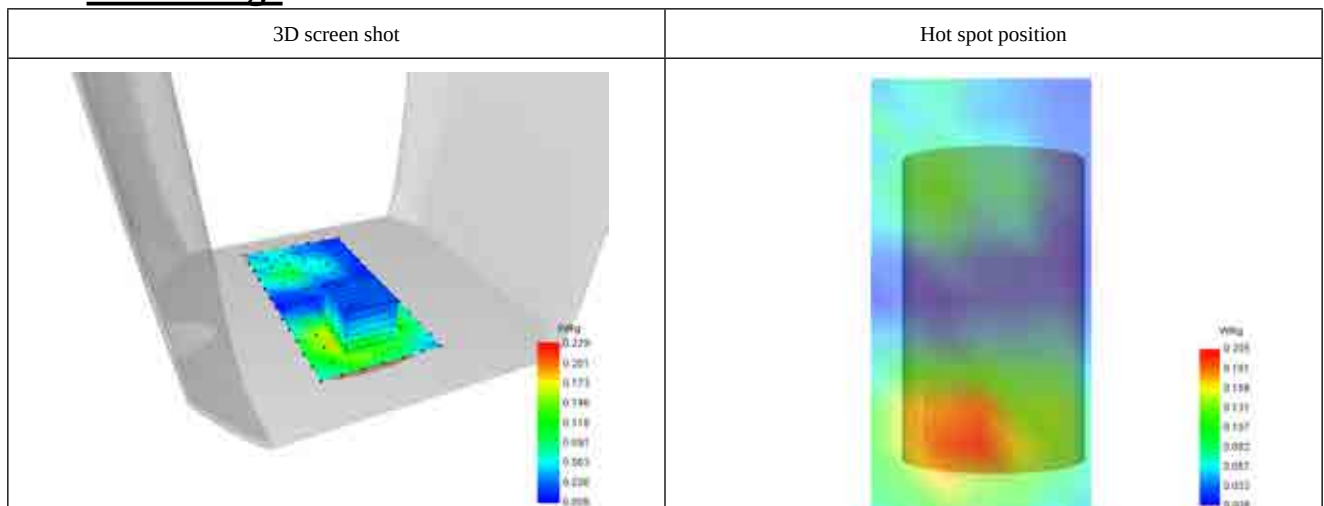
SAR 10g (W/Kg)	0.124
SAR 1g (W/Kg)	0.183
Variation (%)	-2.300
Horizontal validation criteria: minimum distance (mm)	-1.000000
Vertical validation criteria: SAR ratio M2/M1 (%)	63.755459

E. Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.347	0.229	0.146	0.102	0.069	0.055	0.030



F. 3D Image



#27

Date of measurement: 12/11/2025

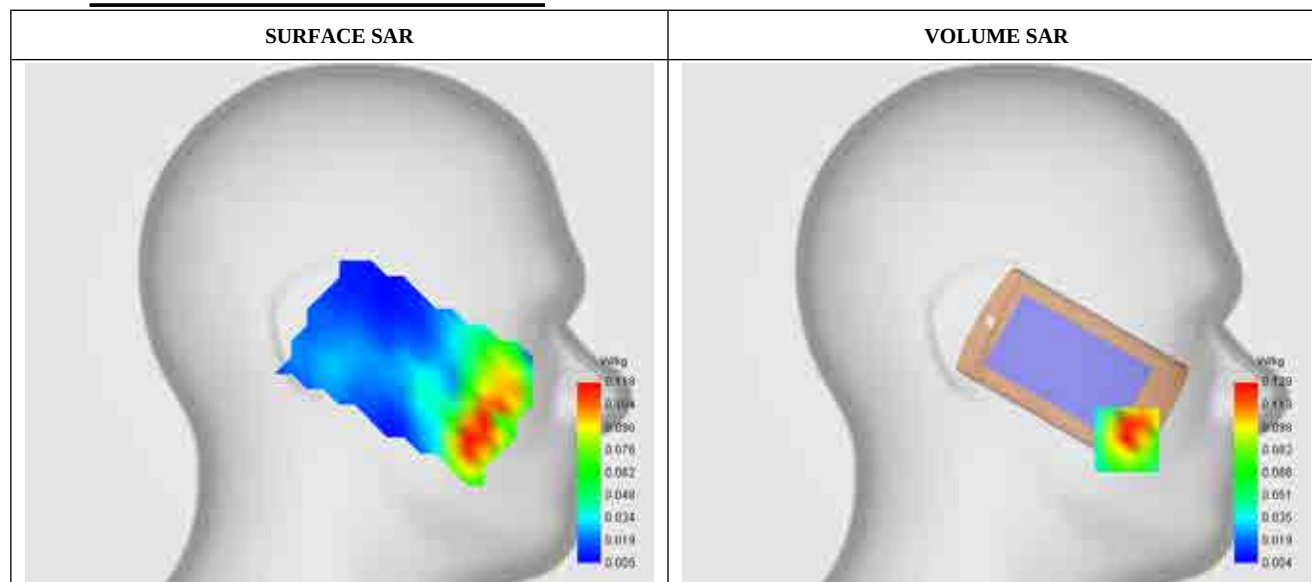
A. Experimental conditions.

Probe	0523-EPGO-403
ConvF	1.65
Area Scan	dx=8mm dy=8mm, Complete
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5.0mm,Complete
Phantom	Left head
Device Position	Cheek
Band	LTE band 12
Channels/Frequency	Middle (23095)/ frequency 707.500 Mhz

B. Permittivity

Middle TX Frequency (MHz)	707.500
Relative permittivity (real part)	42.136
Relative permittivity (imaginary part)	23.345
Conductivity (S/m)	0.918

C. SAR Surface and Volume



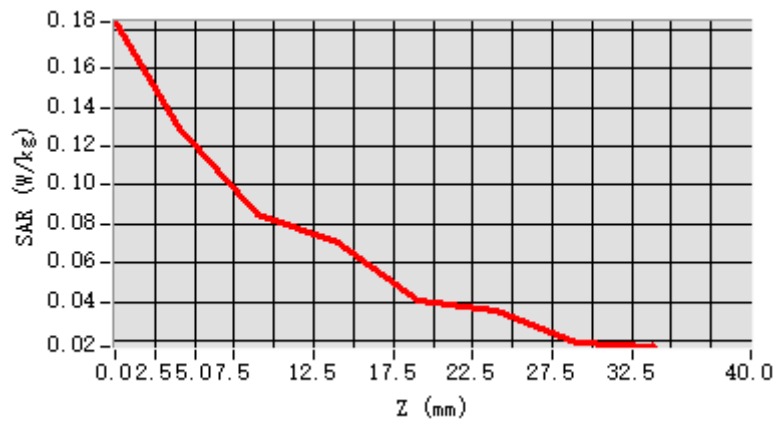
Maximum location: X=-65.00, Y=-57.00 ; SAR Peak: 0.19 W/kg

D. SAR 1g & 10g

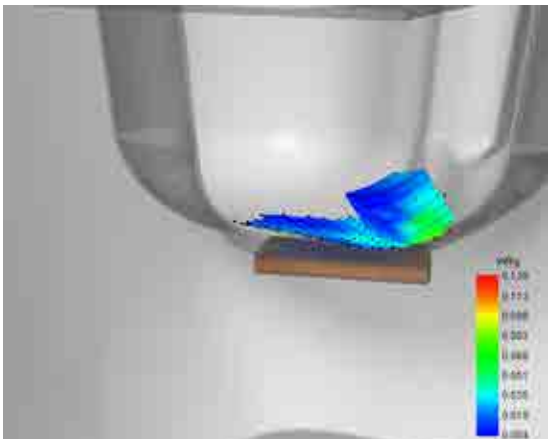
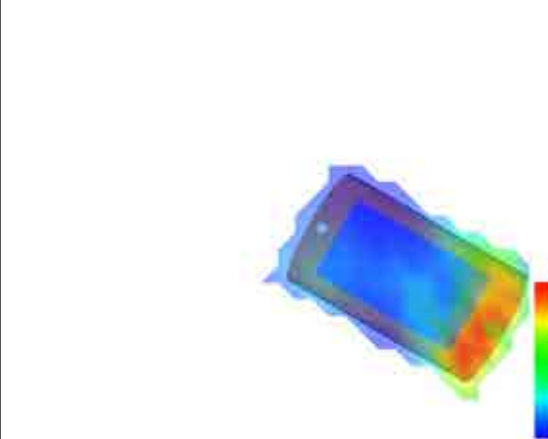
SAR 10g (W/Kg)	0.081
SAR 1g (W/Kg)	0.130
Variation (%)	2.950
Horizontal validation criteria: minimum distance (mm)	16.000000
Vertical validation criteria: SAR ratio M2/M1 (%)	65.891473

E. Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.184	0.129	0.085	0.071	0.041	0.036	0.019



F. 3D Image

3D screen shot	Hot spot position
	

#28

Date of measurement: 12/11/2025

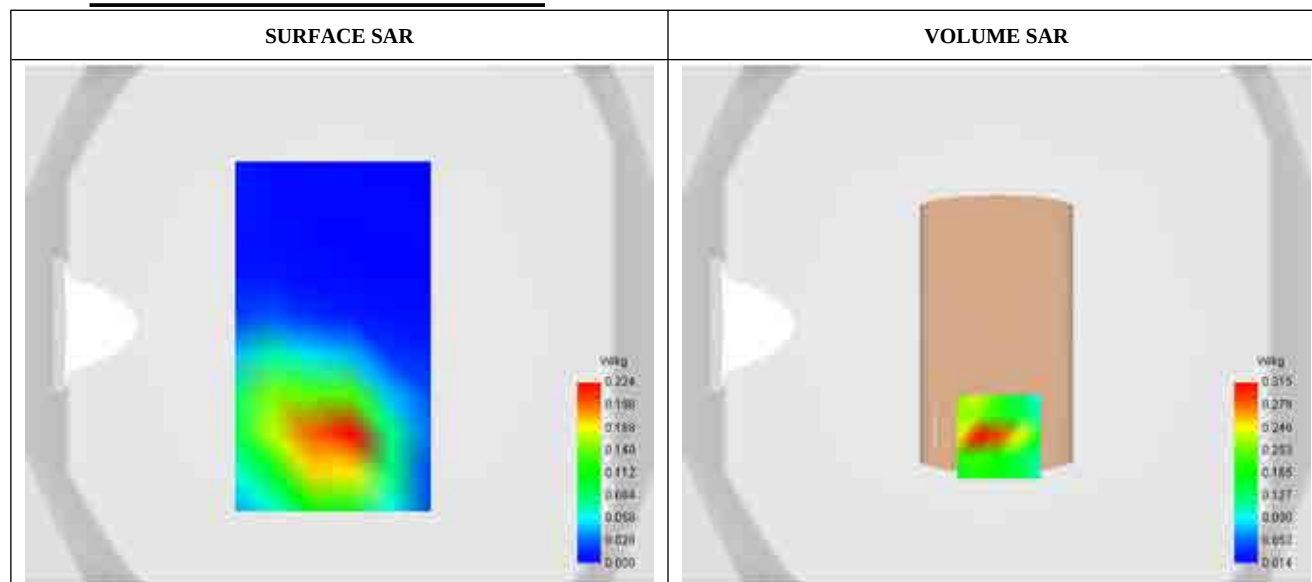
A. Experimental conditions.

Probe	0523-EPGO-403
ConvF	1.65
Area Scan	dx=15mm dy=15mm, Complete
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5.0mm,Complete
Phantom	Validation plane
Device Position	Body
Band	LTE band 12
Channels/Frequency	Middle (23095)/ frequency 707.500 Mhz

B. Permittivity

Middle TX Frequency (MHz)	707.500	
Relative permittivity (real part)	42.136	
Relative permittivity (imaginary part)	23.345	
Conductivity (S/m)	0.918	

C. SAR Surface and Volume



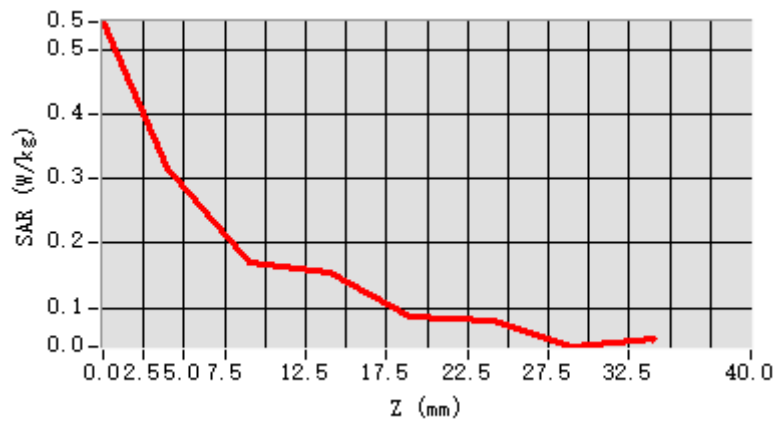
Maximum location: X=1.00, Y=-43.00 ; SAR Peak: 0.51 W/kg

D. SAR 1g & 10g

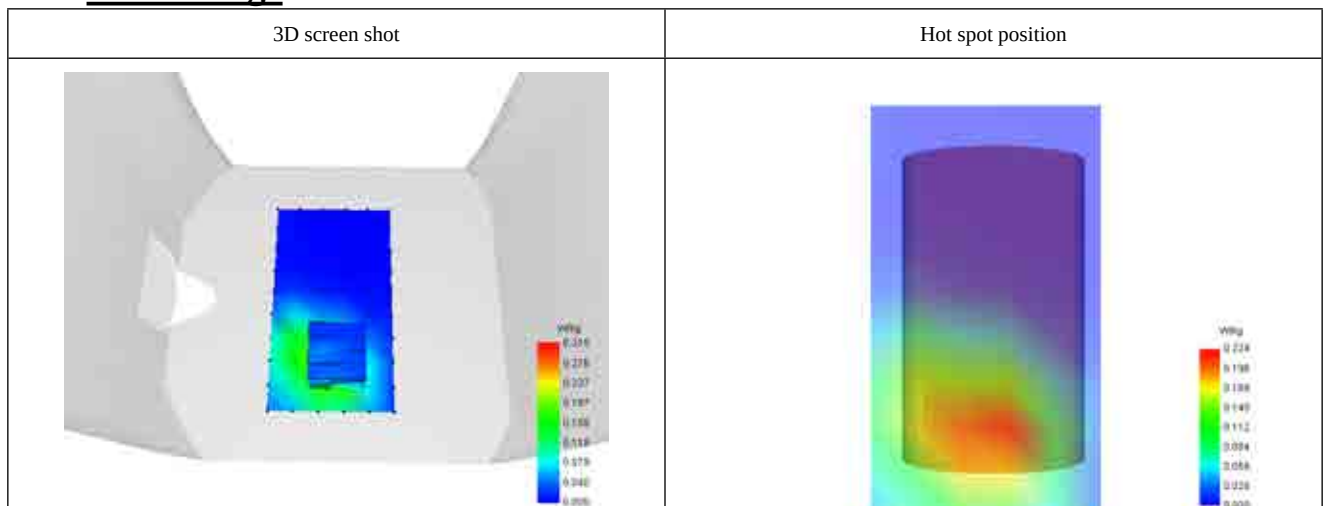
SAR 10g (W/Kg)	0.157
SAR 1g (W/Kg)	0.290
Variation (%)	0.440
Horizontal validation criteria: minimum distance (mm)	17.888544
Vertical validation criteria: SAR ratio M2/M1 (%)	53.968254

E. Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.542	0.315	0.170	0.156	0.086	0.080	0.040



F. 3D Image



#29

Date of measurement: 12/11/2025

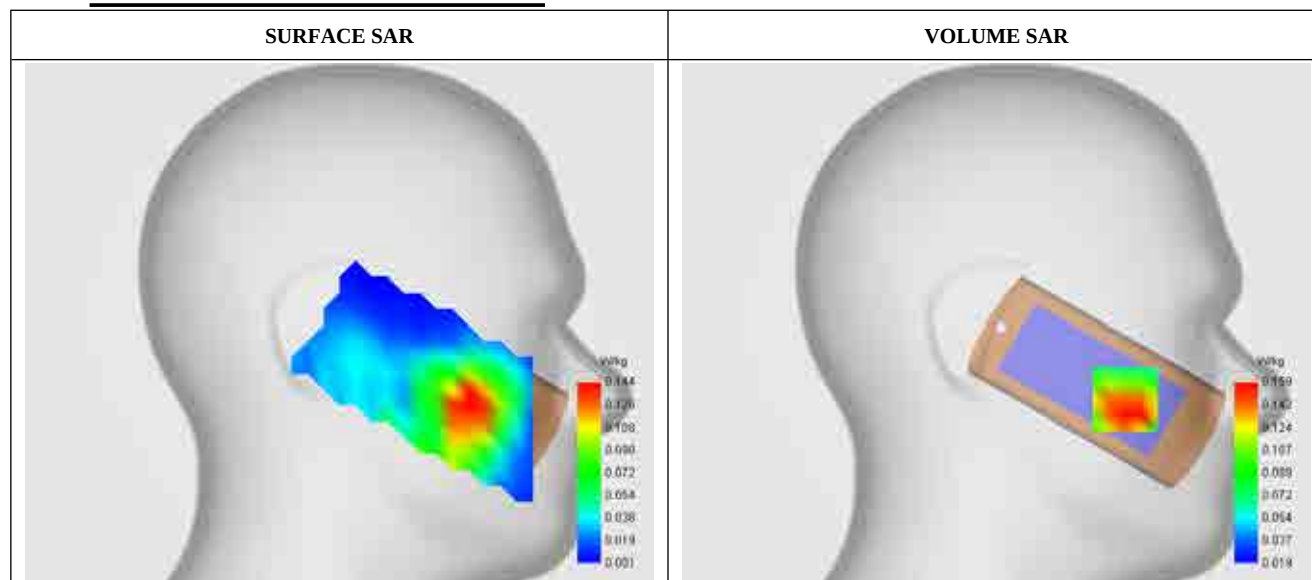
A. Experimental conditions.

Probe	0523-EPGO-403
ConvF	1.65
Area Scan	dx=8mm dy=8mm, Complete
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5.0mm,Complete
Phantom	Left head
Device Position	Cheek
Band	LTE band 14
Channels/Frequency	Middle (23330)/ frequency 793.000 Mhz

B. Permittivity

Middle TX Frequency (MHz)	793.000
Relative permittivity (real part)	41.706
Relative permittivity (imaginary part)	20.410
Conductivity (S/m)	0.899

C. SAR Surface and Volume



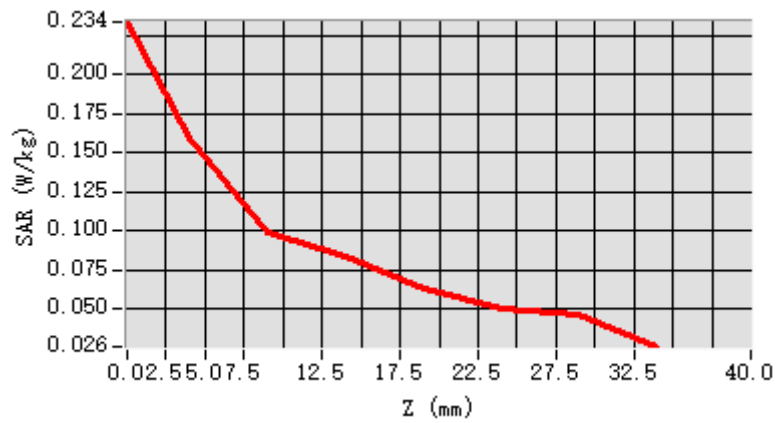
Maximum location: X=-64.00, Y=-37.00 ; SAR Peak: 0.24 W/kg

D. SAR 1g & 10g

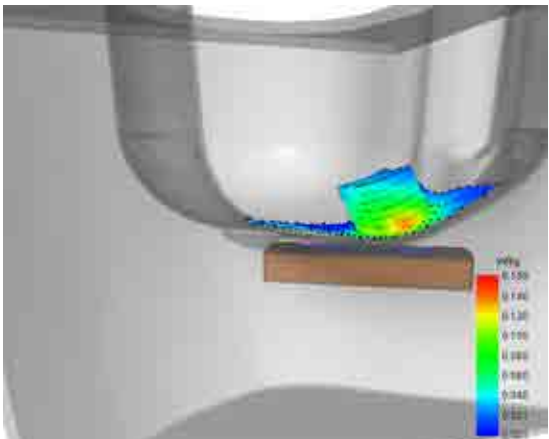
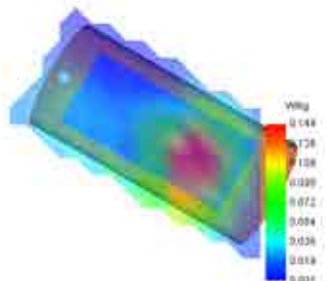
SAR 10g (W/Kg)	0.096
SAR 1g (W/Kg)	0.157
Variation (%)	1.450
Horizontal validation criteria: minimum distance (mm)	24.000000
Vertical validation criteria: SAR ratio M2/M1 (%)	62.264151

E. Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.234	0.159	0.099	0.083	0.063	0.050	0.047



F. 3D Image

3D screen shot	Hot spot position
	

#30

Date of measurement: 12/11/2025

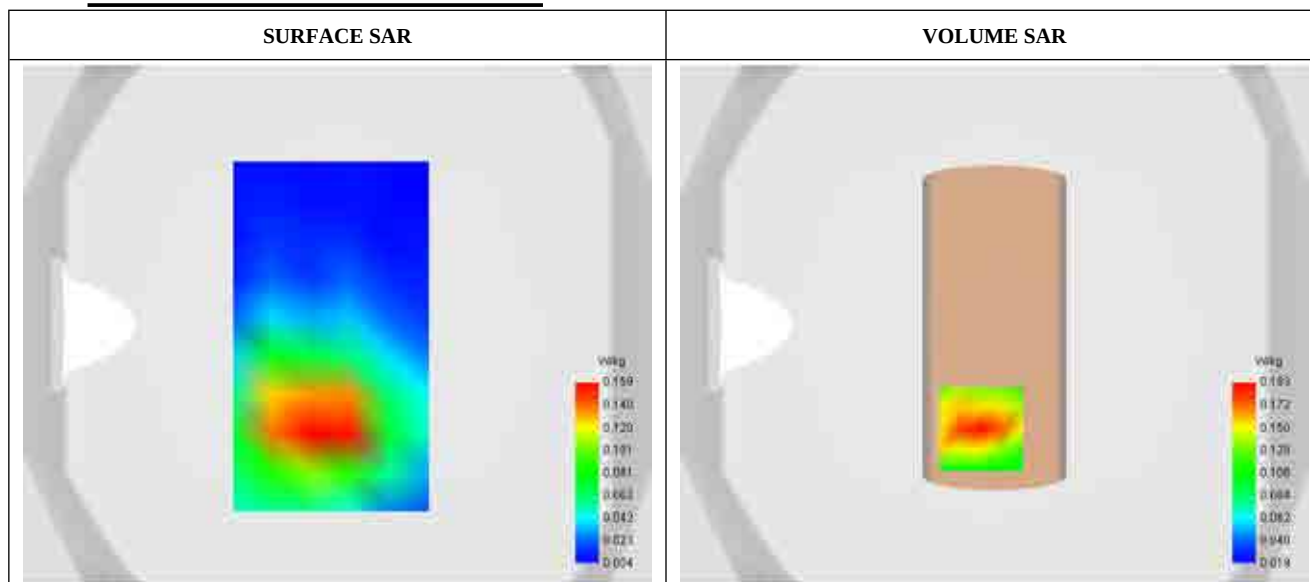
A. Experimental conditions.

Probe	0523-EPGO-403
ConvF	1.65
Area Scan	dx=15mm dy=15mm, User defined
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5.0mm,Complete
Phantom	Validation plane
Device Position	Body
Band	LTE band 14
Channels/Frequency	Middle (23330)/ frequency 793.000 Mhz

B. Permittivity

Middle TX Frequency (MHz)	793.000
Relative permittivity (real part)	41.706
Relative permittivity (imaginary part)	20.410
Conductivity (S/m)	0.899

C. SAR Surface and Volume



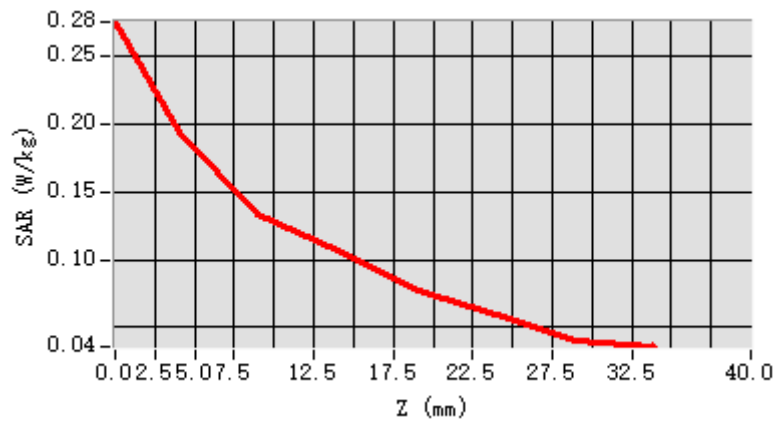
Maximum location: X=-5.00, Y=-40.00 ; SAR Peak: 0.28 W/kg

D. SAR 1g & 10g

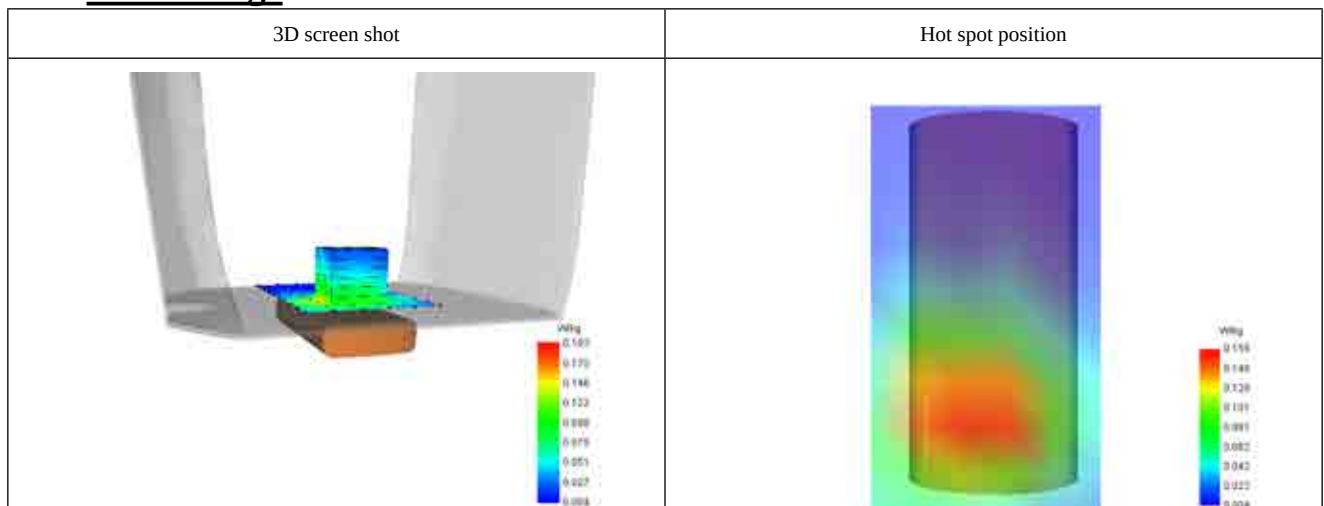
SAR 10g (W/Kg)	0.120
SAR 1g (W/Kg)	0.184
Variation (%)	0.520
Horizontal validation criteria: minimum distance (mm)	22.627417
Vertical validation criteria: SAR ratio M2/M1 (%)	69.430052

E. Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.275	0.193	0.134	0.106	0.078	0.059	0.040



F. 3D Image



#31

Date of measurement: 12/11/2025

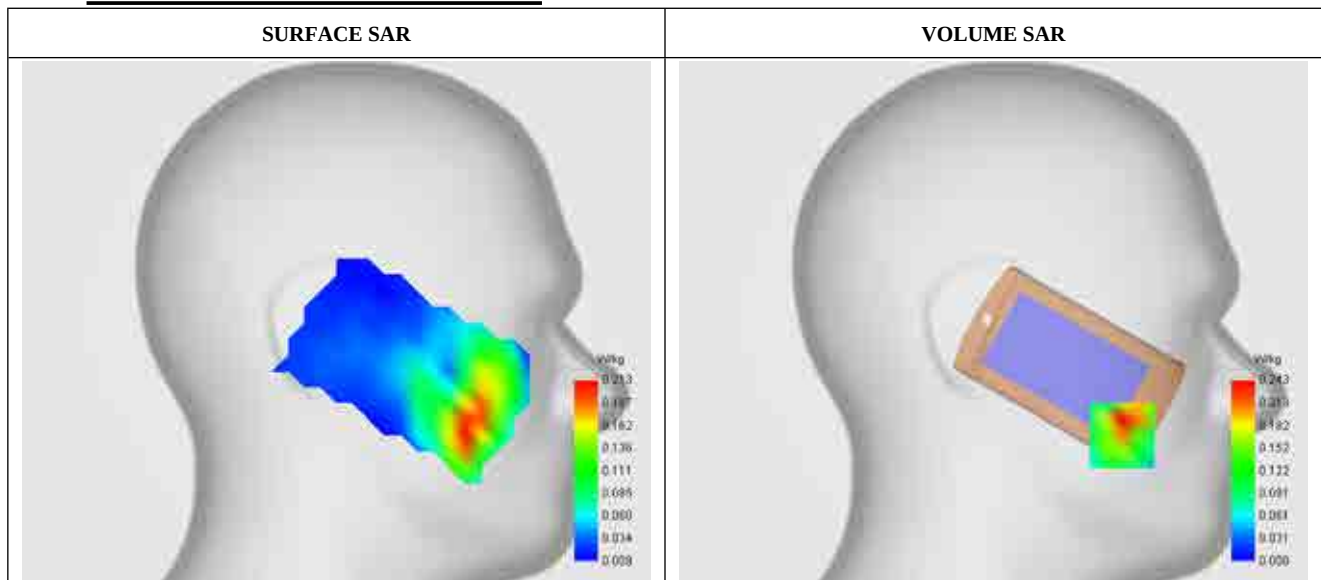
A. Experimental conditions.

Probe	0523-EPGO-403
ConvF	1.65
Area Scan	dx=8mm dy=8mm, Complete
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5.0mm,Complete
Phantom	Left head
Device Position	Cheek
Band	LTE band 17
Channels/Frequency	Middle (23790)/ frequency 710.000 Mhz

B. Permittivity

Middle TX Frequency (MHz)	710.000
Relative permittivity (real part)	42.123
Relative permittivity (imaginary part)	23.233
Conductivity (S/m)	0.916

C. SAR Surface and Volume



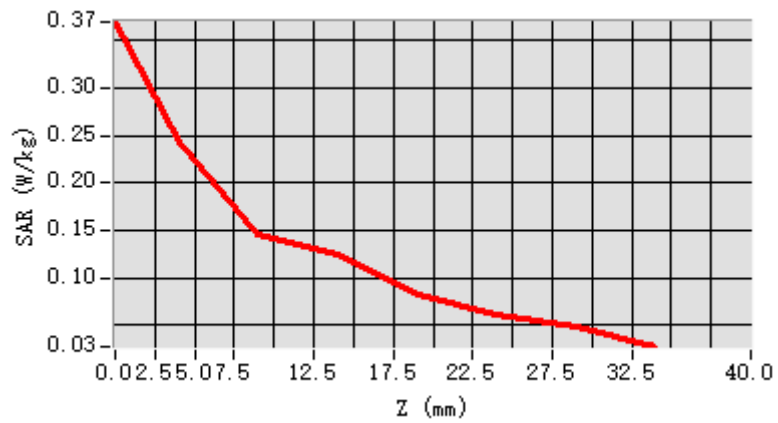
Maximum location: X=-64.00, Y=-56.00 ; SAR Peak: 0.31 W/kg

D. SAR 1g & 10g

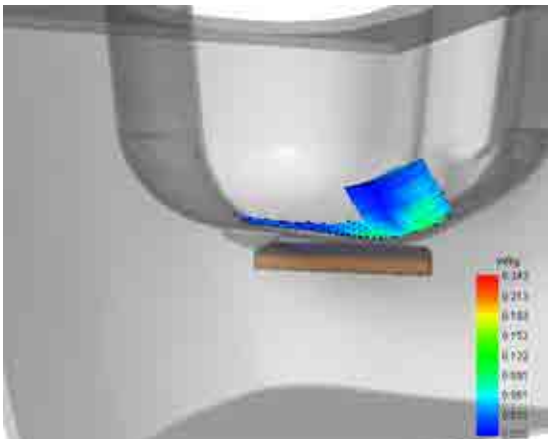
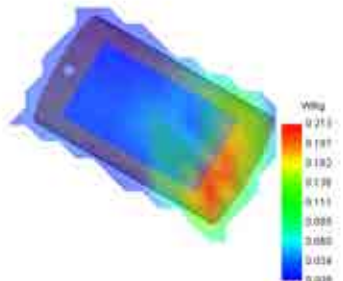
SAR 10g (W/Kg)	0.146
SAR 1g (W/Kg)	0.227
Variation (%)	3.940
Horizontal validation criteria: minimum distance (mm)	11.313708
Vertical validation criteria: SAR ratio M2/M1 (%)	60.082305

E. Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.369	0.243	0.146	0.126	0.083	0.061	0.048



F. 3D Image

3D screen shot	Hot spot position
	

#32

Date of measurement: 12/11/2025

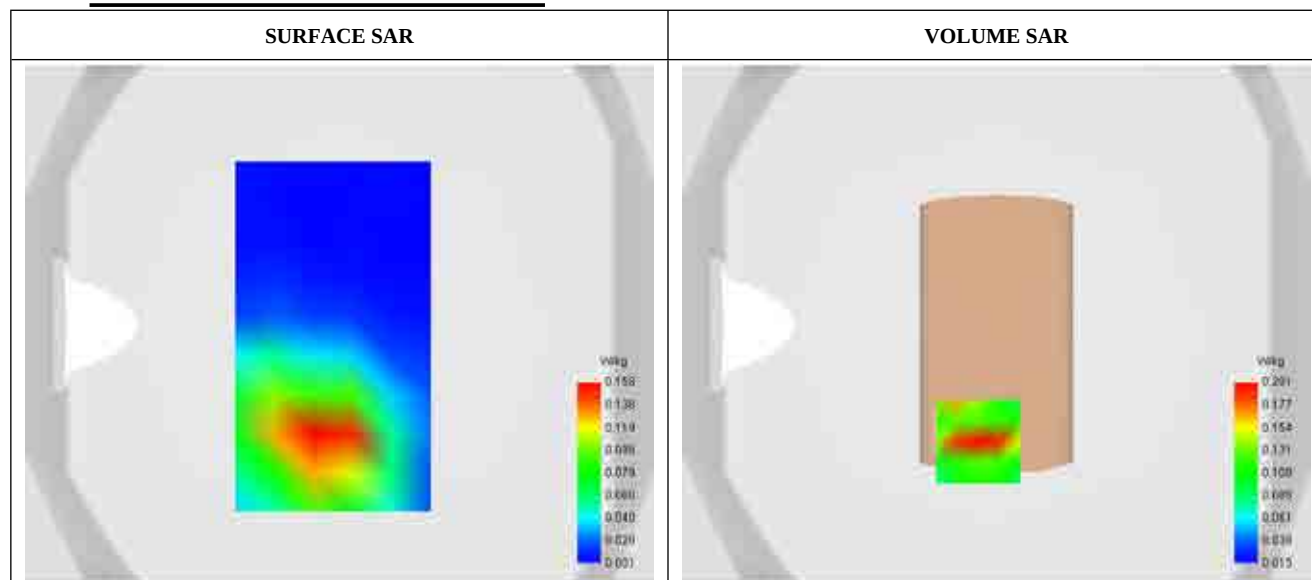
A. Experimental conditions.

Probe	0523-EPGO-403
ConvF	1.65
Area Scan	dx=15mm dy=15mm, Complete
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5.0mm,Complete
Phantom	Validation plane
Device Position	Body
Band	LTE band 17
Channels/Frequency	Middle (23790)/ frequency 710.000 Mhz

B. Permittivity

Middle TX Frequency (MHz)	710.000
Relative permittivity (real part)	42.123
Relative permittivity (imaginary part)	23.233
Conductivity (S/m)	0.916

C. SAR Surface and Volume



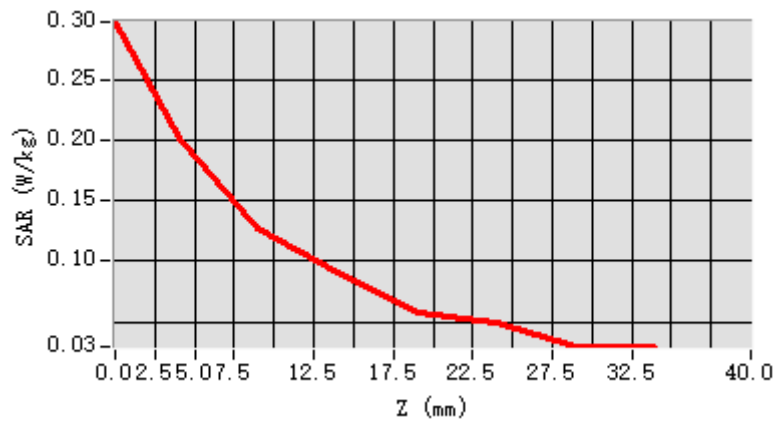
Maximum location: X=-7.00, Y=-45.00 ; SAR Peak: 0.30 W/kg

D. SAR 1g & 10g

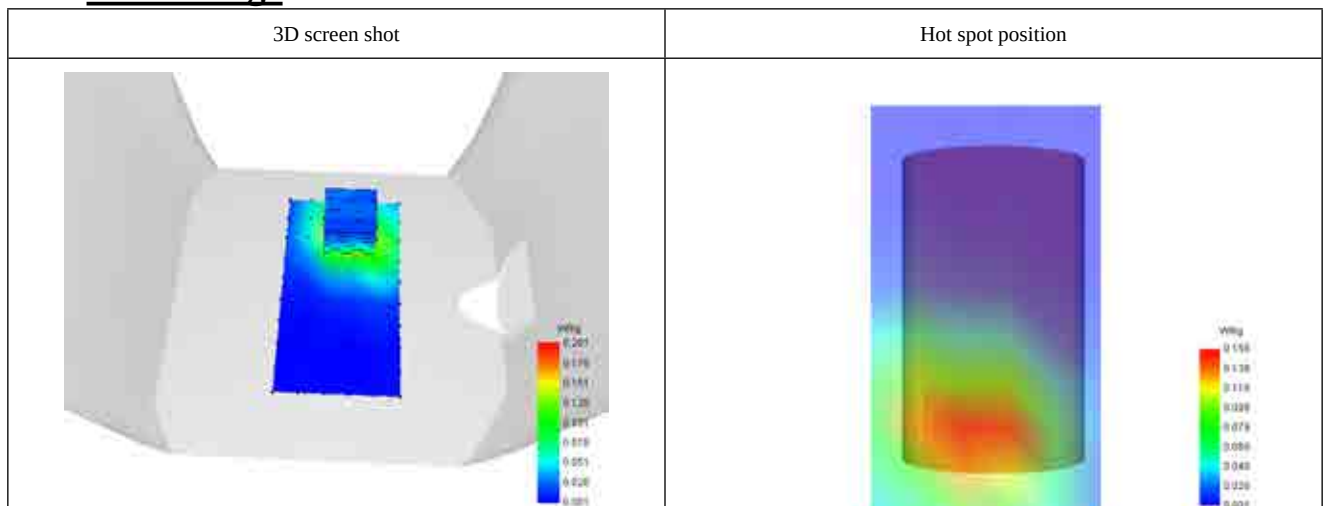
SAR 10g (W/Kg)	0.104
SAR 1g (W/Kg)	0.183
Variation (%)	2.730
Horizontal validation criteria: minimum distance (mm)	17.888544
Vertical validation criteria: SAR ratio M2/M1 (%)	62.686567

E. Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.297	0.201	0.126	0.091	0.057	0.049	0.030



F. 3D Image



#33

Date of measurement: 15/11/2025

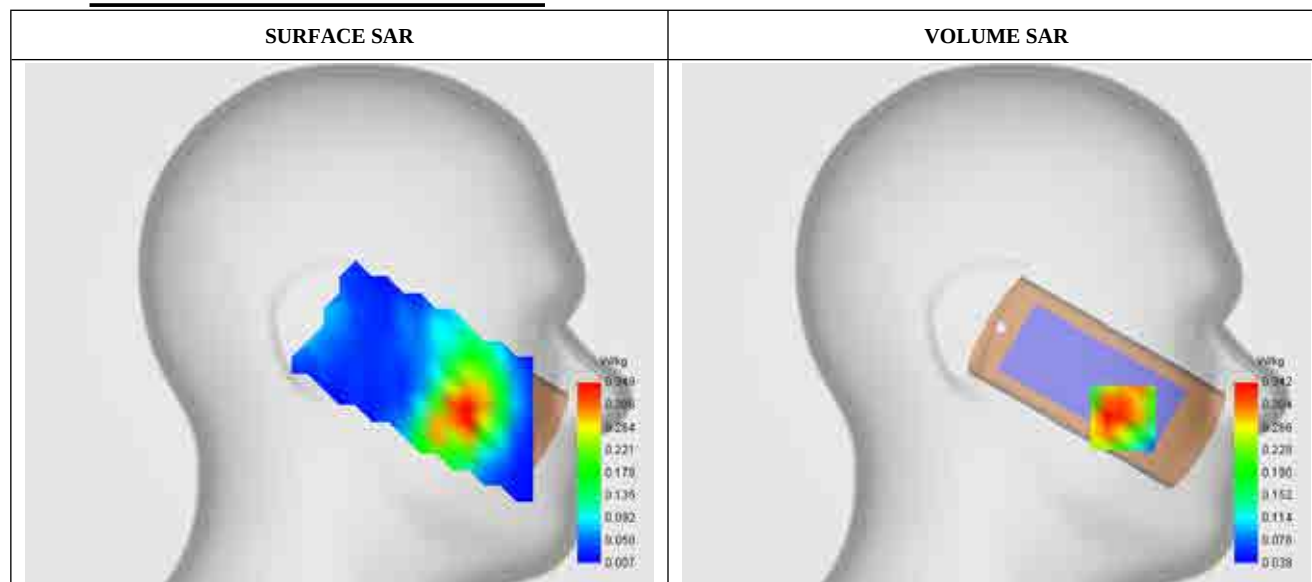
A. Experimental conditions.

Probe	0523-EPGO-403
ConvF	2.05
Area Scan	dx=8mm dy=8mm, Complete
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5.0mm,Complete
Phantom	Left head
Device Position	Cheek
Band	LTE band 25
Channels/Frequency	Middle (26365)/ frequency 1882.500 Mhz

B. Permittivity

Middle TX Frequency (MHz)	1882.500
Relative permittivity (real part)	40.000
Relative permittivity (imaginary part)	13.436
Conductivity (S/m)	1.404

C. SAR Surface and Volume



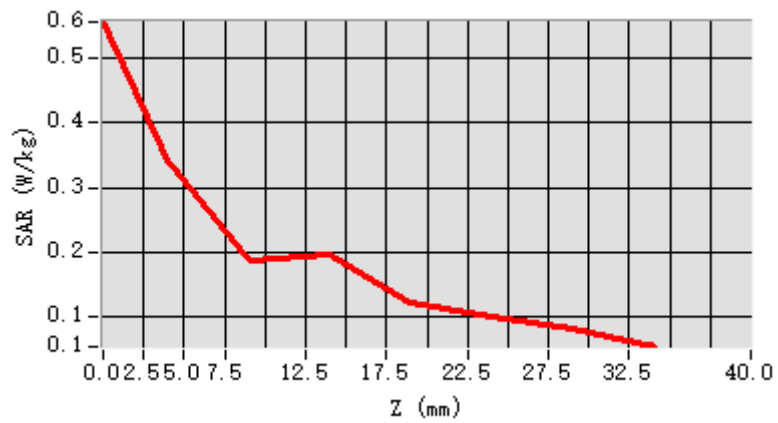
Maximum location: X=-63.00, Y=-46.00 ; SAR Peak: 0.48 W/kg

D. SAR 1g & 10g

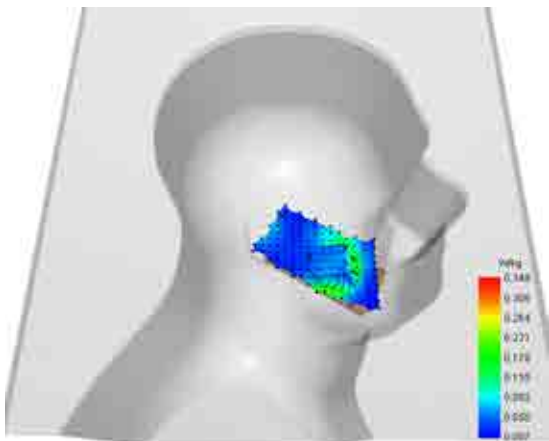
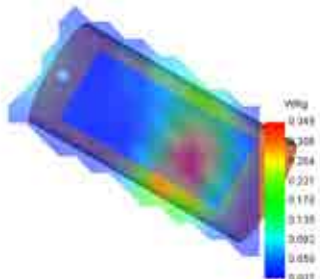
SAR 10g (W/Kg)	0.213
SAR 1g (W/Kg)	0.332
Variation (%)	0.800
Horizontal validation criteria: minimum distance (mm)	17.888544
Vertical validation criteria: SAR ratio M2/M1 (%)	55.263158

E. Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.556	0.342	0.189	0.196	0.124	0.100	0.082



F. 3D Image

3D screen shot	Hot spot position
	

#34

Date of measurement: 15/11/2025

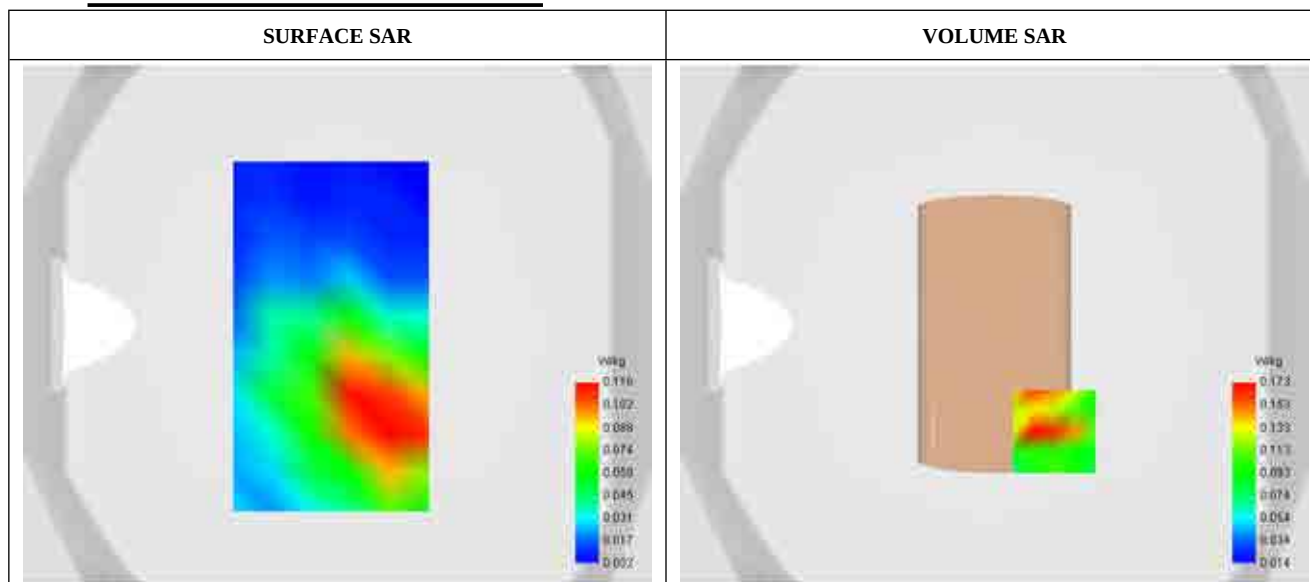
A. Experimental conditions.

Probe	0523-EPGO-403
ConvF	2.05
Area Scan	dx=15mm dy=15mm, Complete
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5.0mm,Complete
Phantom	Validation plane
Device Position	Body
Band	LTE band 25
Channels/Frequency	Middle (26365)/ frequency 1882.500 Mhz

B. Permittivity

Middle TX Frequency (MHz)	1882.500
Relative permittivity (real part)	40.000
Relative permittivity (imaginary part)	13.436
Conductivity (S/m)	1.404

C. SAR Surface and Volume



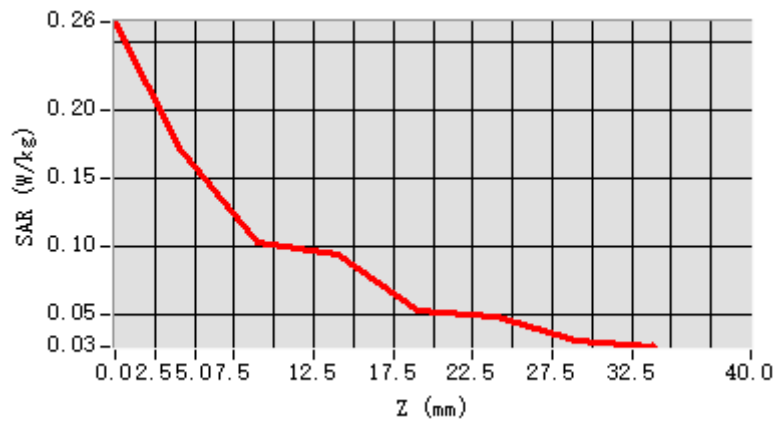
Maximum location: X=23.00, Y=-41.00 ; SAR Peak: 0.25 W/kg

D. SAR 1g & 10g

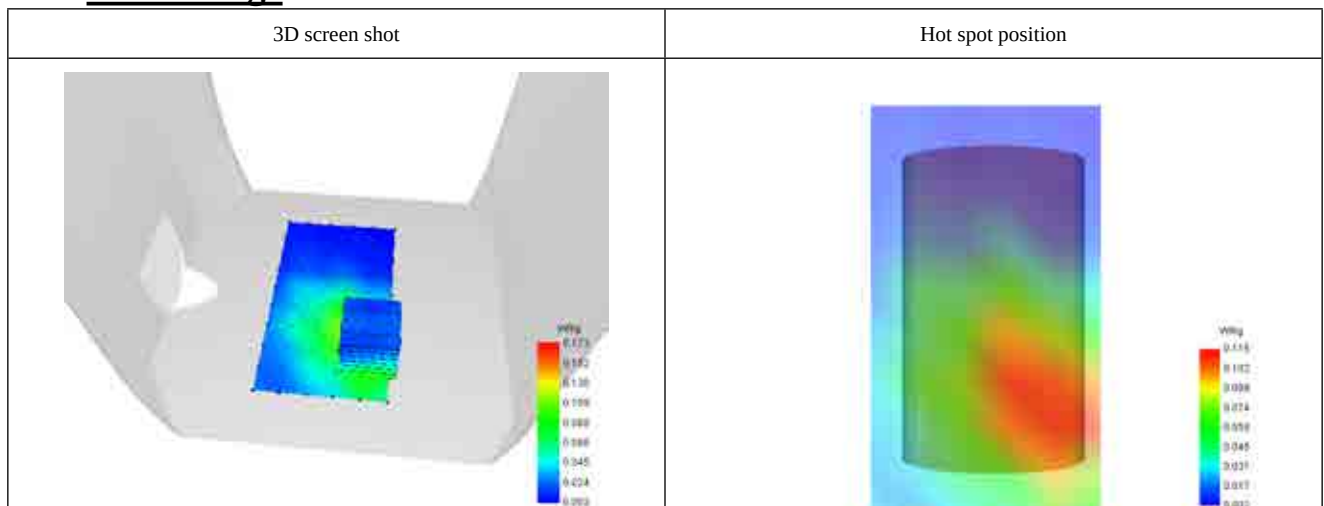
SAR 10g (W/Kg)	0.092
SAR 1g (W/Kg)	0.158
Variation (%)	-3.800
Horizontal validation criteria: minimum distance (mm)	17.888544
Vertical validation criteria: SAR ratio M2/M1 (%)	59.537572

E. Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.265	0.173	0.103	0.094	0.053	0.048	0.030



F. 3D Image



#35

Date of measurement: 13/11/2025

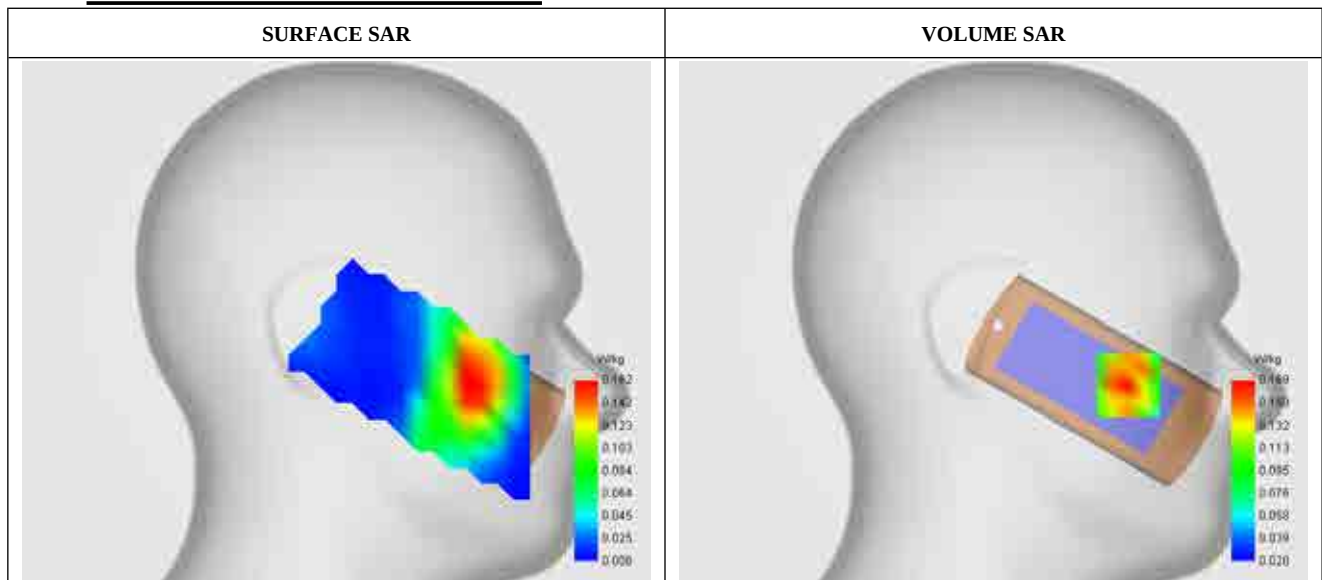
A. Experimental conditions.

Probe	0523-EPGO-403
ConvF	1.66
Area Scan	dx=8mm dy=8mm, Complete
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5.0mm,Complete
Phantom	Left head
Device Position	Cheek
Band	LTE band 26A
Channels/Frequency	Middle (26865)/ frequency 819.000 Mhz

B. Permittivity

Middle TX Frequency (MHz)	819.000
Relative permittivity (real part)	41.536
Relative permittivity (imaginary part)	19.574
Conductivity (S/m)	0.891

C. SAR Surface and Volume



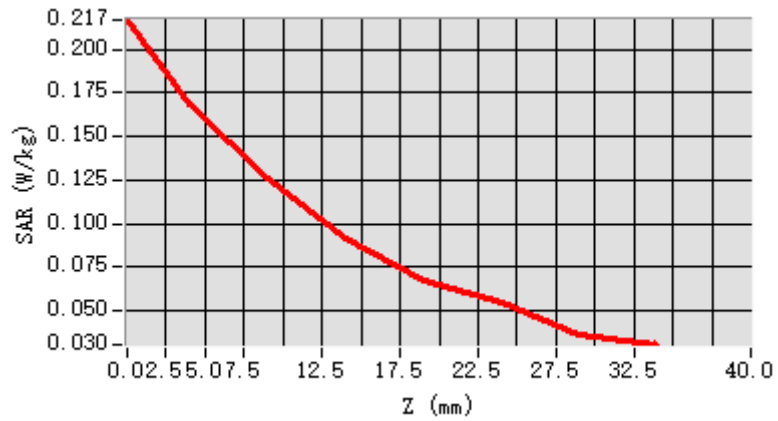
Maximum location: X=-67.00, Y=-31.00 ; SAR Peak: 0.24 W/kg

D. SAR 1g & 10g

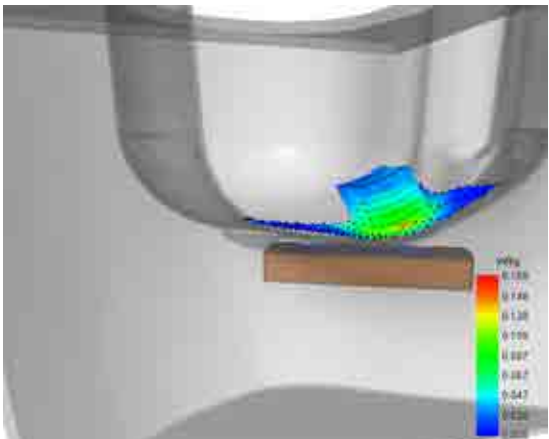
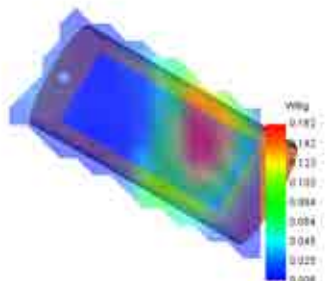
SAR 10g (W/Kg)	0.111
SAR 1g (W/Kg)	0.163
Variation (%)	0.250
Horizontal validation criteria: minimum distance (mm)	22.627417
Vertical validation criteria: SAR ratio M2/M1 (%)	74.556213

E. Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.217	0.169	0.126	0.091	0.067	0.055	0.036



F. 3D Image

3D screen shot	Hot spot position
	

#36

Date of measurement: 13/11/2025

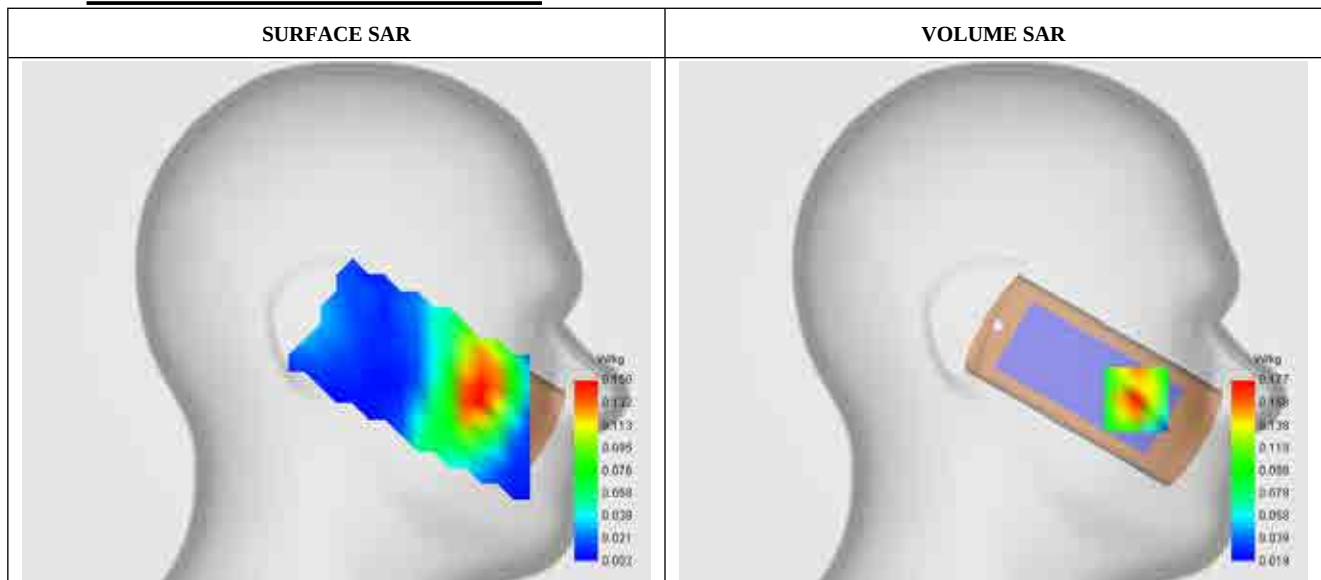
A. Experimental conditions.

Probe	0523-EPGO-403
ConvF	1.66
Area Scan	dx=8mm dy=8mm, Complete
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5.0mm,Complete
Phantom	Left head
Device Position	Cheek
Band	LTE band 26B
Channels/Frequency	Middle (26865)/ frequency 831.500 Mhz

B. Permittivity

Middle TX Frequency (MHz)	831.500
Relative permittivity (real part)	41.534
Relative permittivity (imaginary part)	19.572
Conductivity (S/m)	0.904

C. SAR Surface and Volume



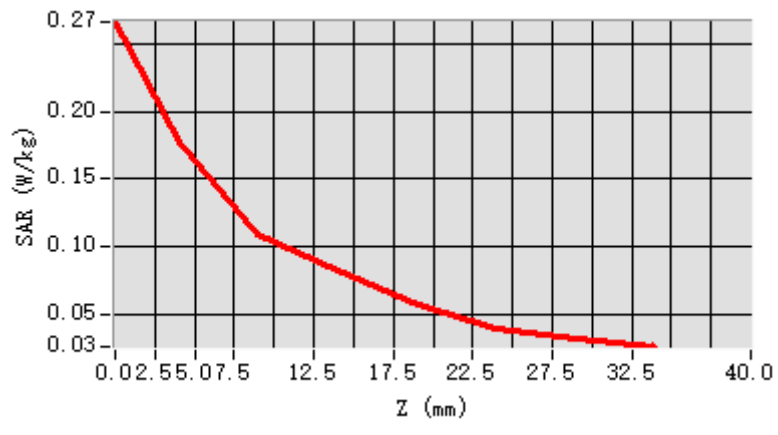
Maximum location: X=-71.00, Y=-38.00 ; SAR Peak: 0.27 W/kg

D. SAR 1g & 10g

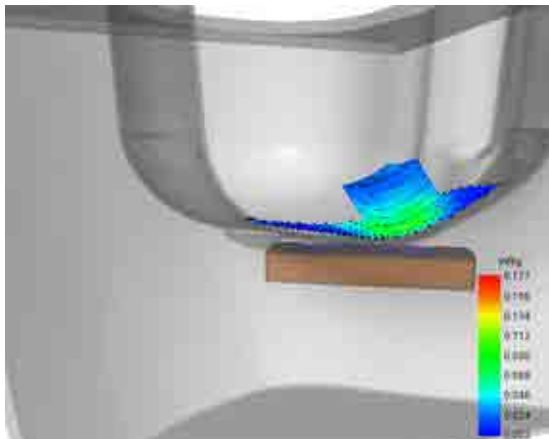
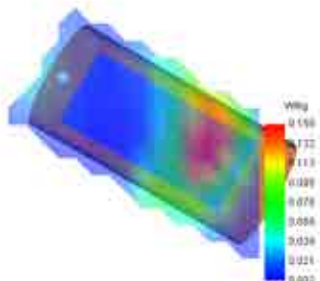
SAR 10g (W/Kg)	0.102
SAR 1g (W/Kg)	0.168
Variation (%)	-0.070
Horizontal validation criteria: minimum distance (mm)	16.000000
Vertical validation criteria: SAR ratio M2/M1 (%)	62.146893

E. Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.266	0.177	0.110	0.084	0.058	0.041	0.032



F. 3D Image

3D screen shot	Hot spot position
	

#37

Date of measurement: 13/11/2025

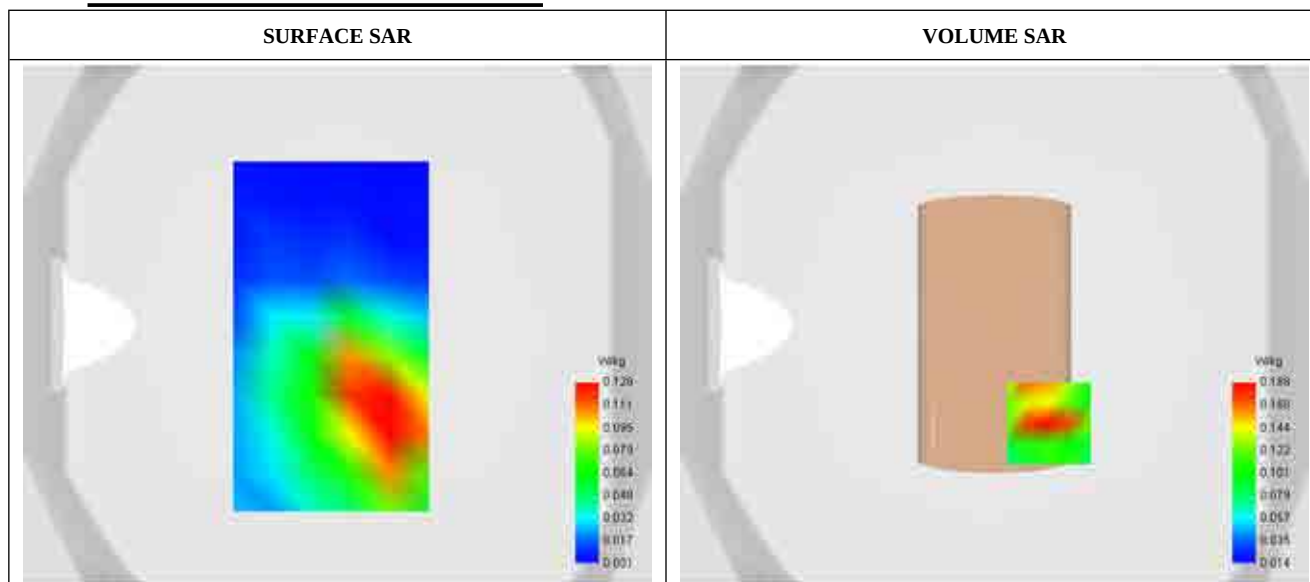
A. Experimental conditions.

Probe	0523-EPGO-403
ConvF	1.66
Area Scan	dx=15mm dy=15mm, Complete
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5.0mm,Complete
Phantom	Validation plane
Device Position	Body
Band	LTE band 26A
Channels/Frequency	Middle (26865)/ frequency 819.000 Mhz

B. Permittivity

Middle TX Frequency (MHz)	819.000
Relative permittivity (real part)	41.536
Relative permittivity (imaginary part)	19.574
Conductivity (S/m)	0.891

C. SAR Surface and Volume



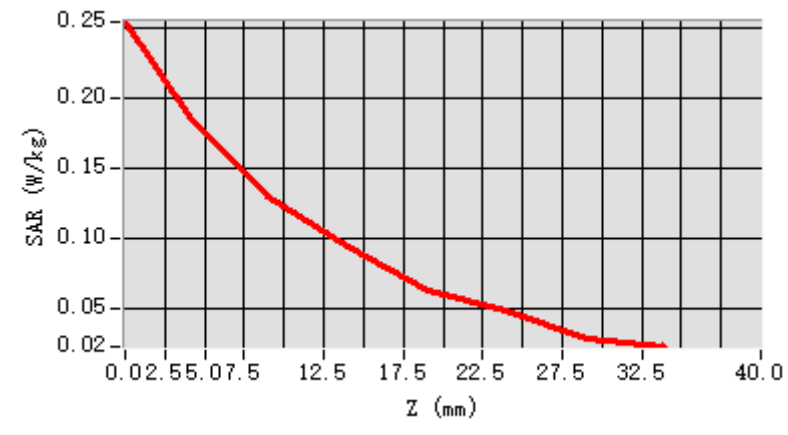
Maximum location: X=21.00, Y=-38.00 ; SAR Peak: 0.27 W/kg

D. SAR 1g & 10g

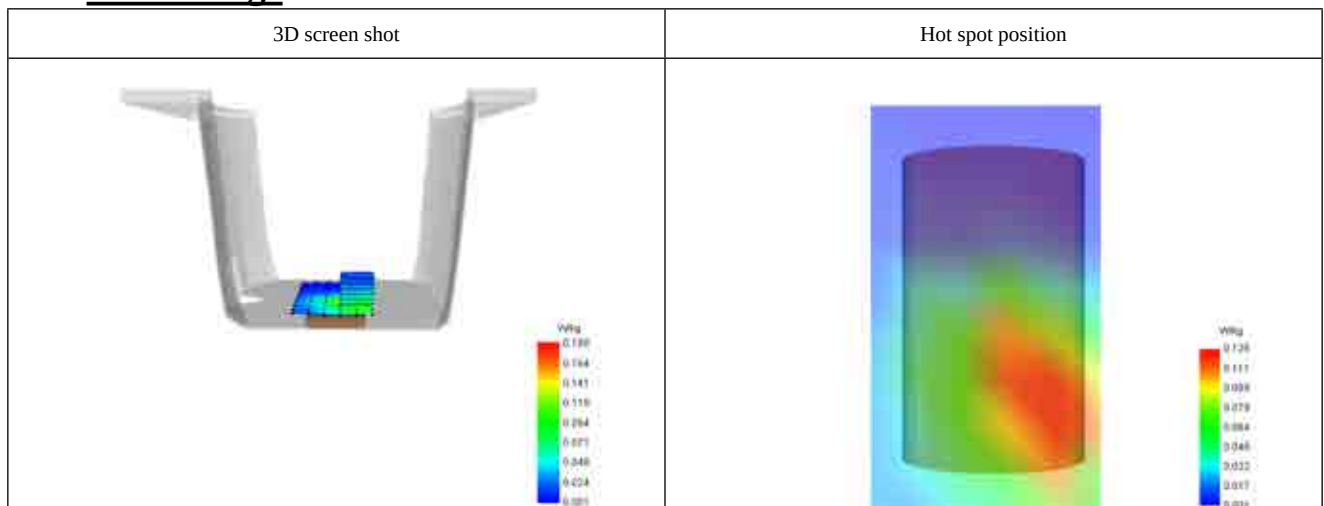
SAR 10g (W/Kg)	0.102
SAR 1g (W/Kg)	0.172
Variation (%)	1.170
Horizontal validation criteria: minimum distance (mm)	17.888544
Vertical validation criteria: SAR ratio M2/M1 (%)	69.148936

E. Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.255	0.188	0.130	0.094	0.062	0.049	0.029



F. 3D Image



#38

Date of measurement: 13/11/2025

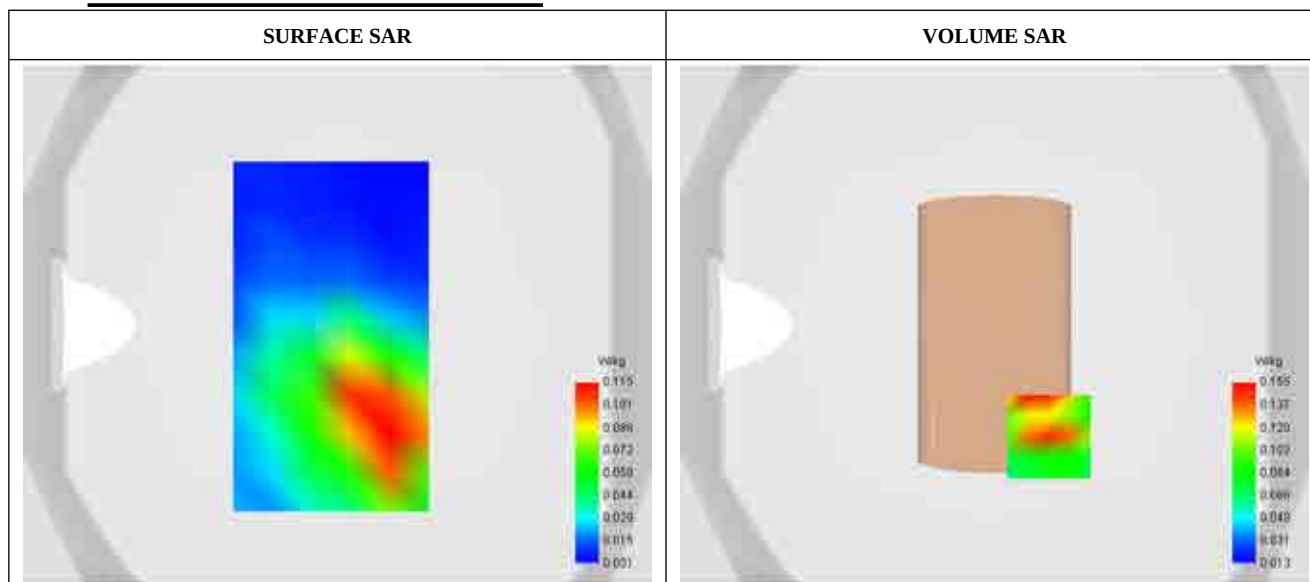
A. Experimental conditions.

Probe	0523-EPGO-403
ConvF	1.66
Area Scan	dx=15mm dy=15mm, Complete
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5.0mm,Complete
Phantom	Validation plane
Device Position	Body
Band	LTE band 26B
Channels/Frequency	Middle (26865)/ frequency 831.500 Mhz

B. Permittivity

Middle TX Frequency (MHz)	831.500
Relative permittivity (real part)	41.534
Relative permittivity (imaginary part)	19.572
Conductivity (S/m)	0.904

C. SAR Surface and Volume



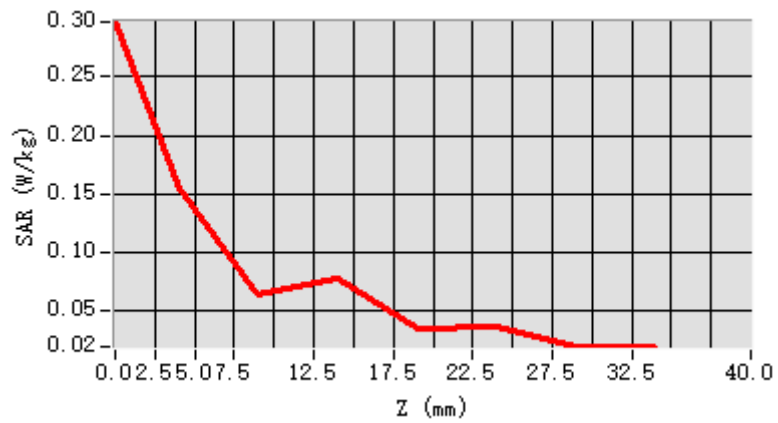
Maximum location: X=21.00, Y=-43.00 ; SAR Peak: 0.21 W/kg

D. SAR 1g & 10g

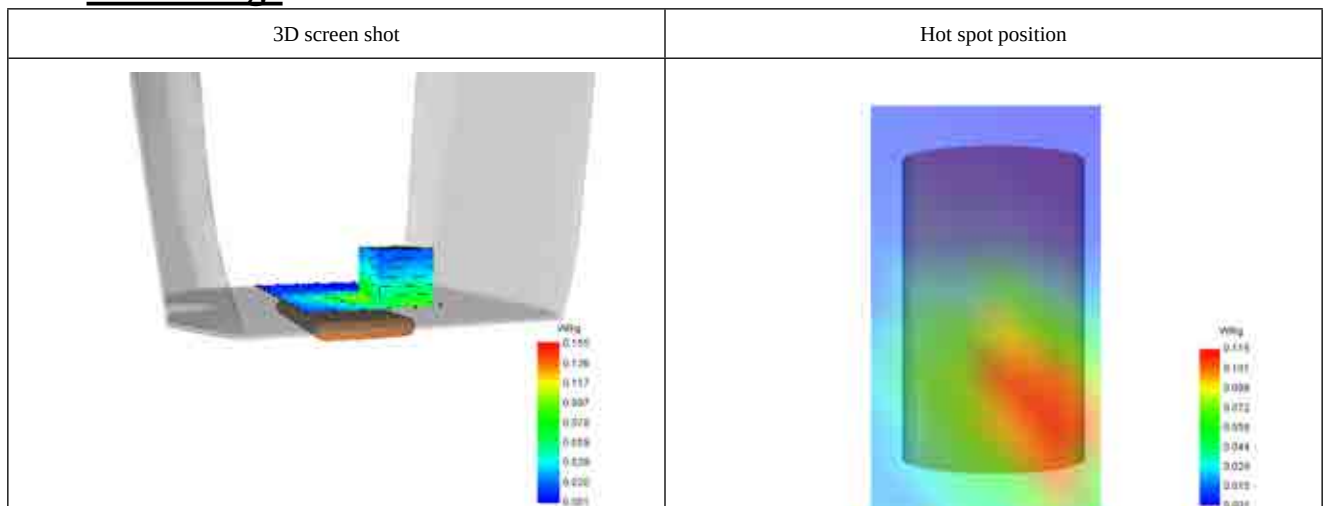
SAR 10g (W/Kg)	0.071
SAR 1g (W/Kg)	0.131
Variation (%)	1.540
Horizontal validation criteria: minimum distance (mm)	24.000000
Vertical validation criteria: SAR ratio M2/M1 (%)	41.935484

E. Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.296	0.155	0.065	0.079	0.036	0.037	0.021



F. 3D Image



#39

Date of measurement: 17/11/2025

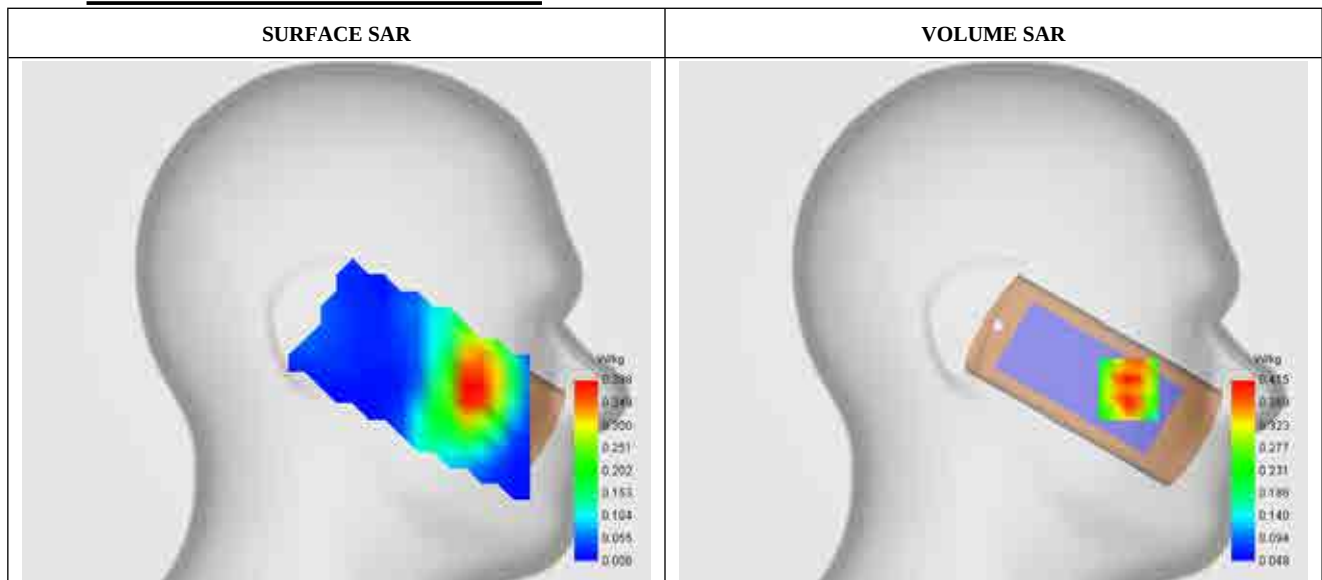
A. Experimental conditions.

Probe	0523-EPGO-403
ConvF	2.35
Area Scan	dx=8mm dy=8mm, Complete
Zoom Scan	7x7x7,dx=5mm dy=5mm dz=5.0mm,Complete
Phantom	Left head
Device Position	Cheek
Band	LTE band 41
Channels/Frequency	Middle (40620)/ frequency 2593.000 Mhz

B. Permittivity

Middle TX Frequency (MHz)	2593.000
Relative permittivity (real part)	39.018
Relative permittivity (imaginary part)	13.539
Conductivity (S/m)	1.950

C. SAR Surface and Volume



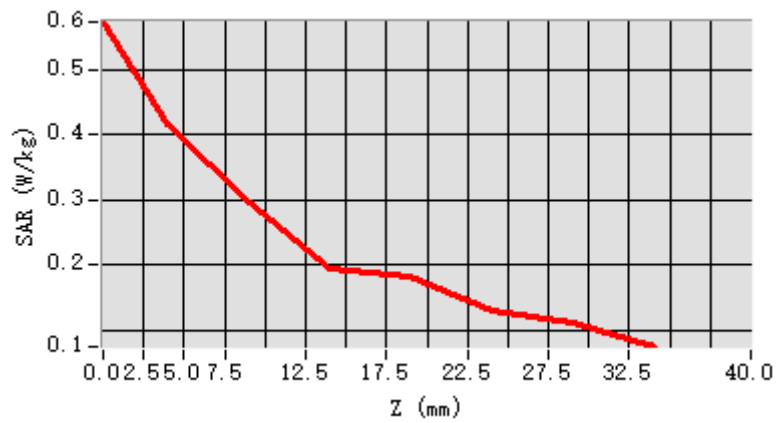
Maximum location: X=-67.00, Y=-33.00 ; SAR Peak: 0.59 W/kg

D. SAR 1g & 10g

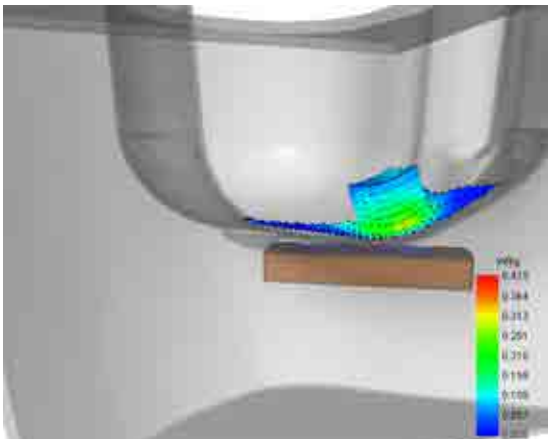
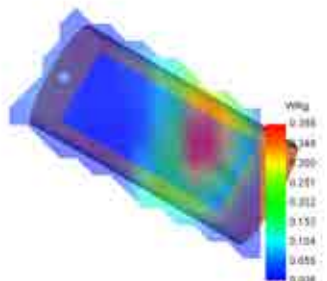
SAR 10g (W/Kg)	0.266
SAR 1g (W/Kg)	0.378
Variation (%)	0.300
Horizontal validation criteria: minimum distance (mm)	15.811388
Vertical validation criteria: SAR ratio M2/M1 (%)	71.084337

E. Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.573	0.415	0.295	0.193	0.182	0.131	0.113



F. 3D Image

3D screen shot	Hot spot position
	

#40

Date of measurement: 17/11/2025

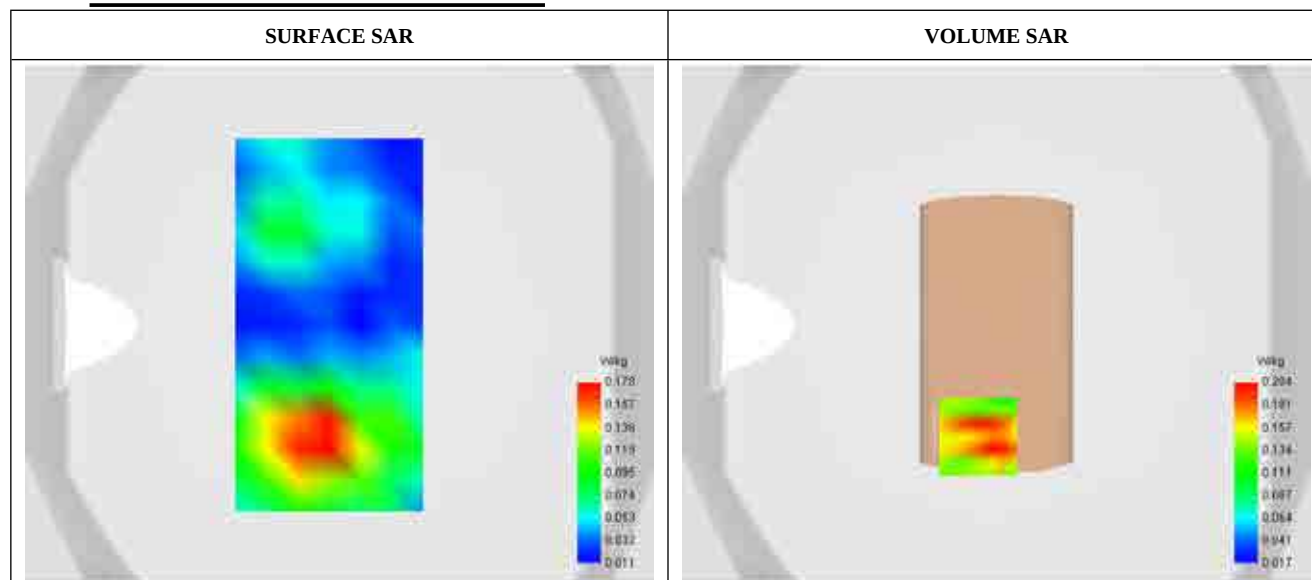
A. Experimental conditions.

Probe	0523-EPGO-403
ConvF	2.35
Area Scan	dx=12mm dy=12mm, Complete
Zoom Scan	7x7x7,dx=5mm dy=5mm dz=5.0mm,Complete
Phantom	Validation plane
Device Position	Body
Band	LTE band 41
Channels/Frequency	Middle (40620)/ frequency 2593.000 Mhz

B. Permittivity

Middle TX Frequency (MHz)	2593.000
Relative permittivity (real part)	39.018
Relative permittivity (imaginary part)	13.539
Conductivity (S/m)	1.950

C. SAR Surface and Volume



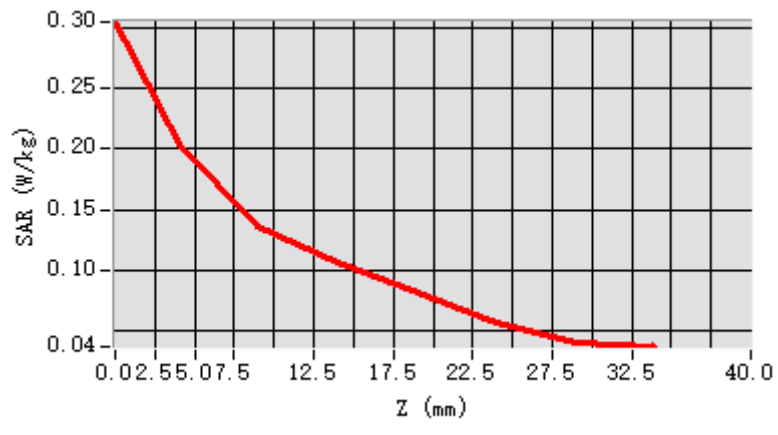
Maximum location: X=-7.00, Y=-43.00 ; SAR Peak: 0.27 W/kg

D. SAR 1g & 10g

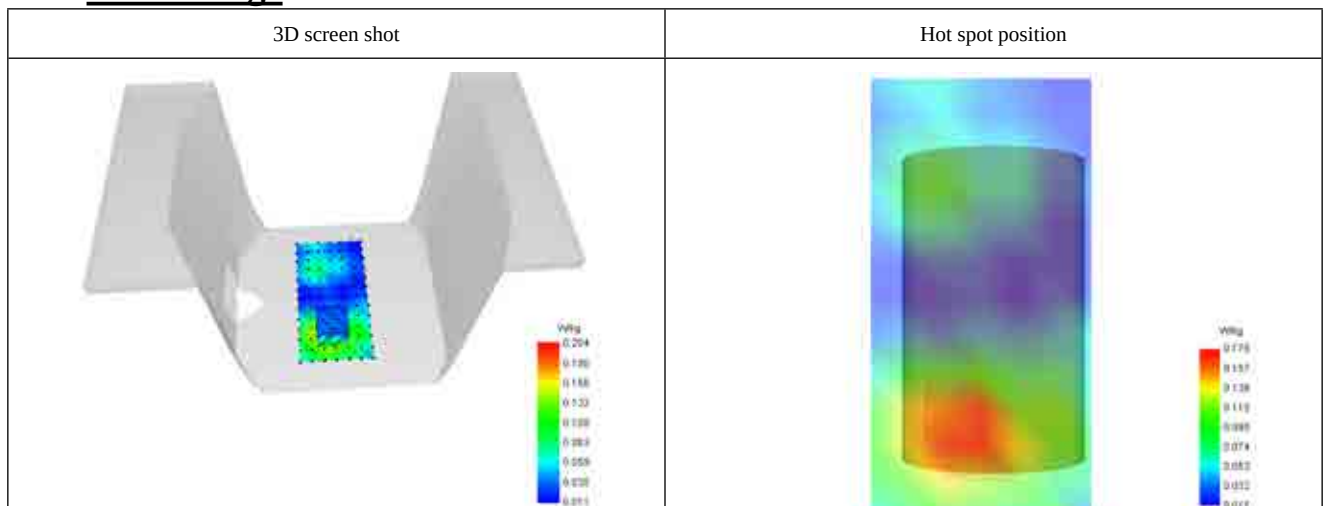
SAR 10g (W/Kg)	0.120
SAR 1g (W/Kg)	0.182
Variation (%)	3.990
Horizontal validation criteria: minimum distance (mm)	22.360680
Vertical validation criteria: SAR ratio M2/M1 (%)	66.666667

E. Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.305	0.204	0.136	0.107	0.082	0.057	0.040



F. 3D Image



#41

Date of measurement: 14/11/2025

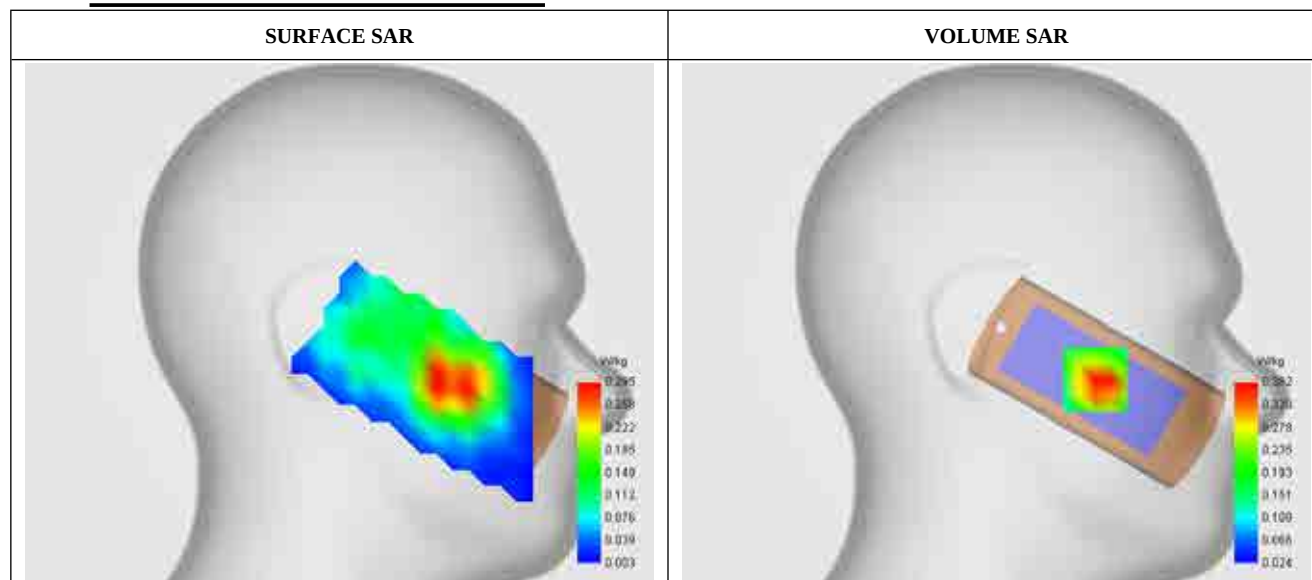
A. Experimental conditions.

Probe	0523-EPGO-403
ConvF	2.09
Area Scan	dx=8mm dy=8mm, Complete
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5.0mm,Complete
Phantom	Left head
Device Position	Cheek
Band	LTE band 66
Channels/Frequency	Middle (132322)/ frequency 1745.000 Mhz

B. Permittivity

Middle TX Frequency (MHz)	1745.000
Relative permittivity (real part)	40.110
Relative permittivity (imaginary part)	14.120
Conductivity (S/m)	1.369

C. SAR Surface and Volume



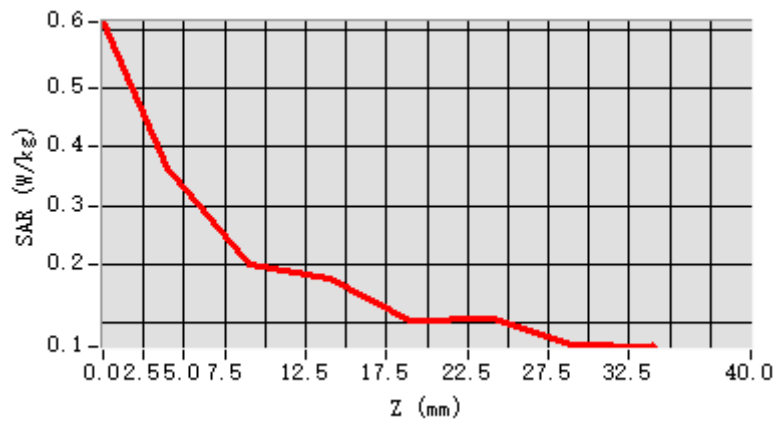
Maximum location: X=-49.00, Y=-27.00 ; SAR Peak: 0.63 W/kg

D. SAR 1g & 10g

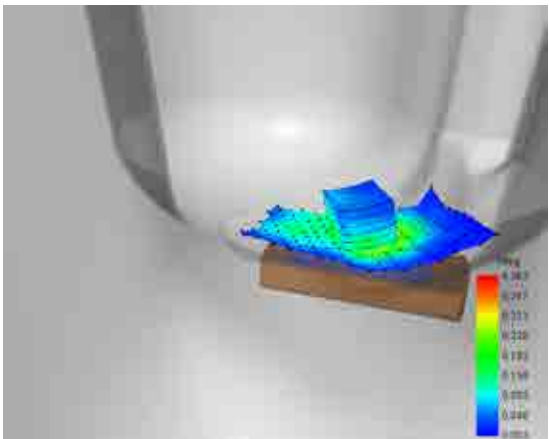
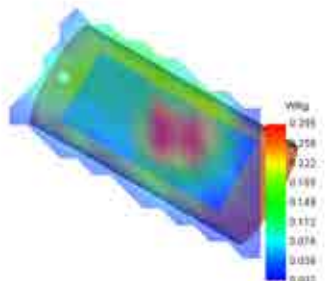
SAR 10g (W/Kg)	0.209
SAR 1g (W/Kg)	0.359
Variation (%)	3.080
Horizontal validation criteria: minimum distance (mm)	16.000000
Vertical validation criteria: SAR ratio M2/M1 (%)	54.696133

E. Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.614	0.362	0.198	0.176	0.105	0.107	0.062



F. 3D Image

3D screen shot	Hot spot position
	

#42

Date of measurement: 14/11/2025

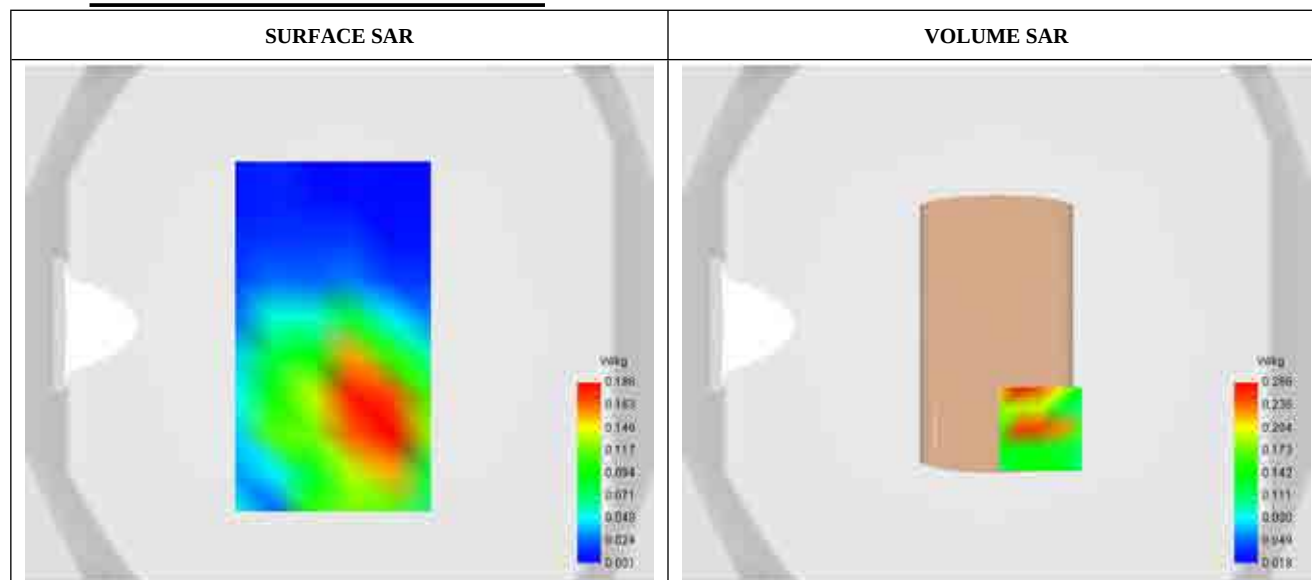
A. Experimental conditions.

Probe	0523-EPGO-403
ConvF	2.09
Area Scan	dx=15mm dy=15mm, Complete
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5.0mm,Complete
Phantom	Validation plane
Device Position	Body
Band	LTE band 66
Channels/Frequency	Middle (132322)/ frequency 1745.000 Mhz

B. Permittivity

Middle TX Frequency (MHz)	1745.000
Relative permittivity (real part)	40.110
Relative permittivity (imaginary part)	14.120
Conductivity (S/m)	1.369

C. SAR Surface and Volume



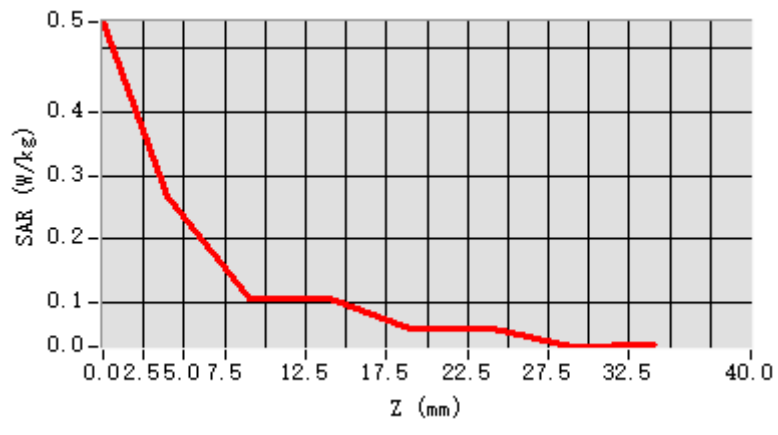
Maximum location: X=17.00, Y=-40.00 ; SAR Peak: 0.40 W/kg

D. SAR 1g & 10g

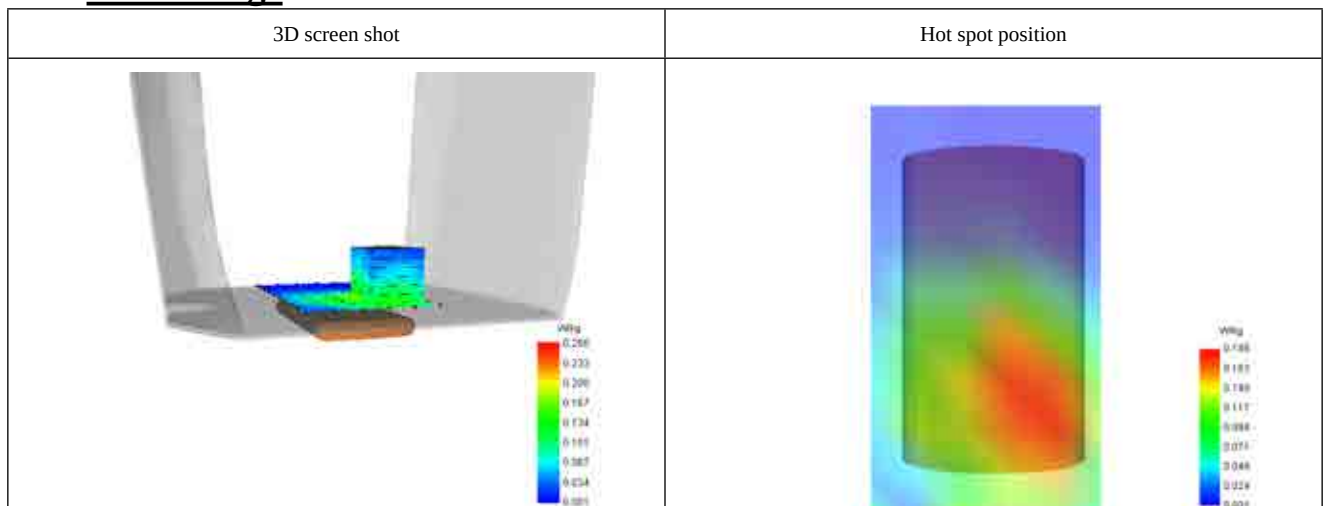
SAR 10g (W/Kg)	0.143
SAR 1g (W/Kg)	0.236
Variation (%)	-0.360
Horizontal validation criteria: minimum distance (mm)	17.888544
Vertical validation criteria: SAR ratio M2/M1 (%)	39.473684

E. Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.542	0.266	0.105	0.107	0.061	0.059	0.031



F. 3D Image



#43

Date of measurement: 16/11/2025

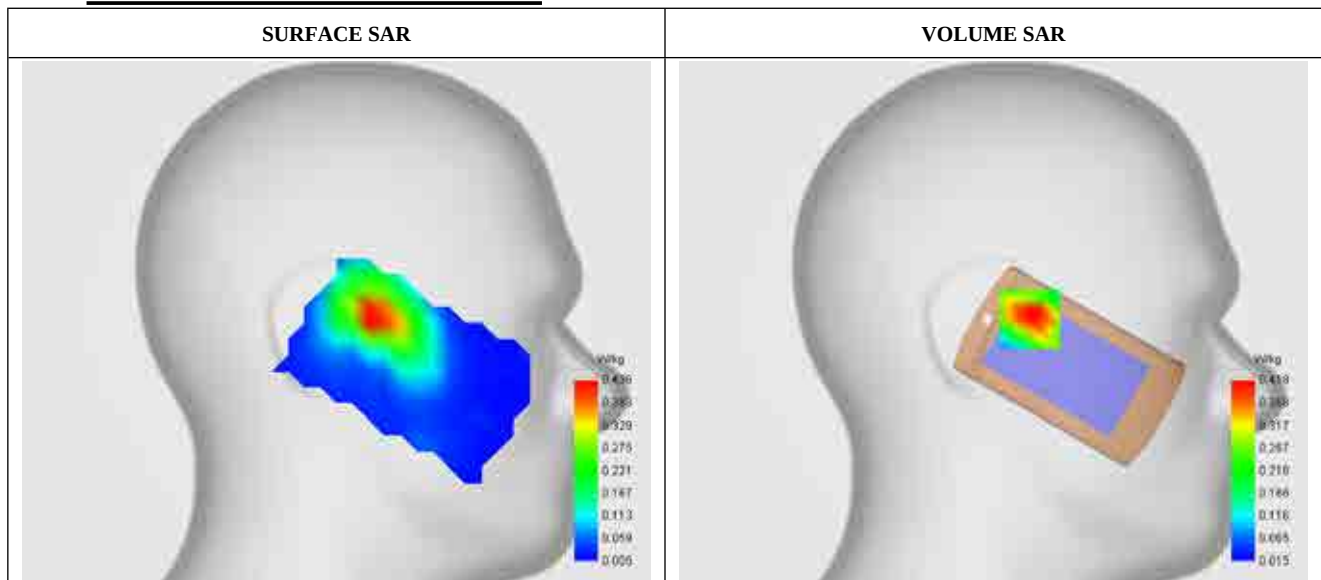
A. Experimental conditions.

Probe	0523-EPGO-403
ConvF	2.38
Area Scan	dx=8mm dy=8mm, Complete
Zoom Scan	7x7x7,dx=5mm dy=5mm dz=5.0mm,Complete
Phantom	Left head
Device Position	Cheek
Band	Bluetooth
Channels/Frequency	High (78)/ frequency 2480.000 Mhz

B. Permittivity

Middle TX Frequency (MHz)	2480.000
Relative permittivity (real part)	39.214
Relative permittivity (imaginary part)	13.210
Conductivity (S/m)	1.820

C. SAR Surface and Volume



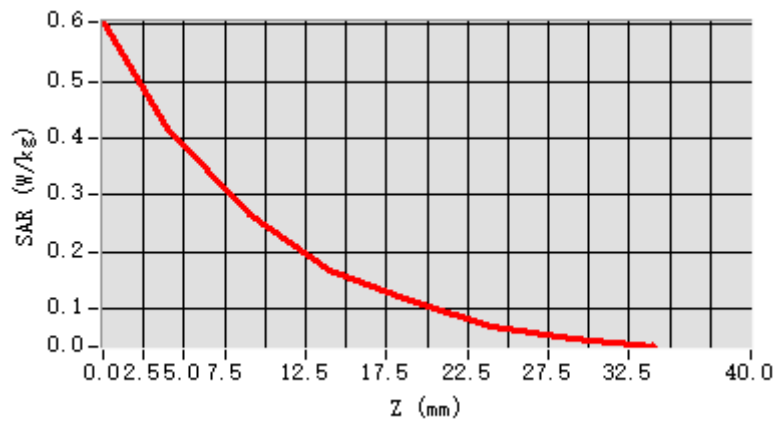
Maximum location: X=-18.00, Y=2.00 ; SAR Peak: 0.64 W/kg

D. SAR 1g & 10g

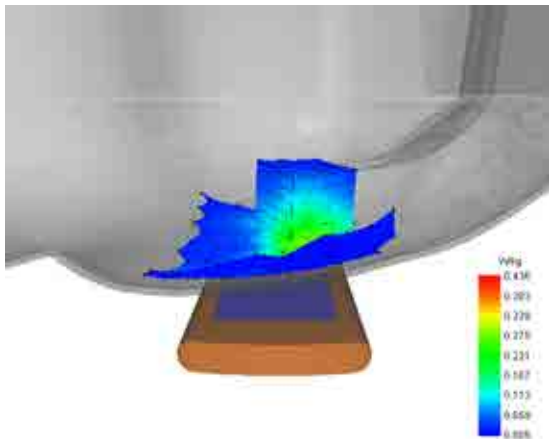
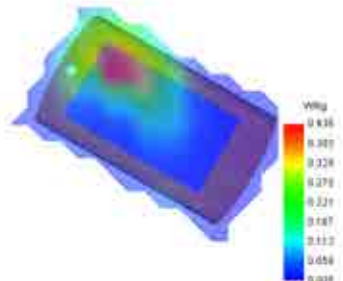
SAR 10g (W/Kg)	0.256
SAR 1g (W/Kg)	0.368
Variation (%)	1.020
Horizontal validation criteria: minimum distance (mm)	11.180340
Vertical validation criteria: SAR ratio M2/M1 (%)	63.397129

E. Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.605	0.418	0.265	0.168	0.115	0.069	0.048



F. 3D Image

3D screen shot	Hot spot position
	

#44

Date of measurement: 16/11/2025

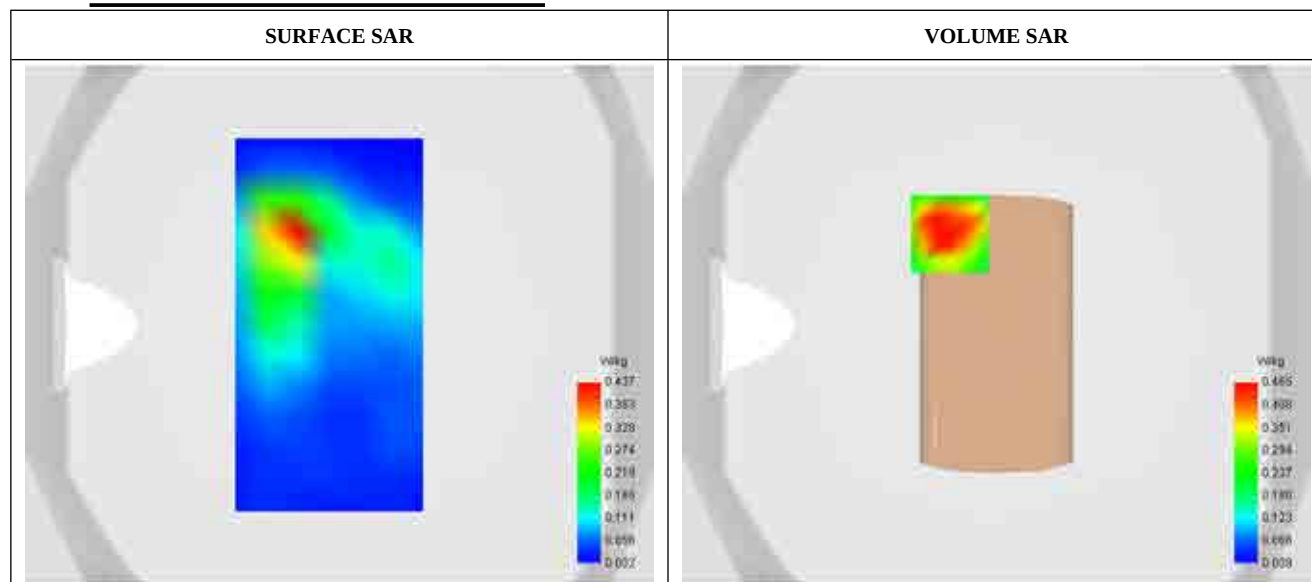
A. Experimental conditions.

Probe	0523-EPGO-403
ConvF	2.38
Area Scan	dx=12mm dy=12mm, Complete
Zoom Scan	7x7x7,dx=5mm dy=5mm dz=5.0mm,Complete
Phantom	Validation plane
Device Position	Body
Band	Bluetooth
Channels/Frequency	High (78)/ frequency 2480.000 Mhz

B. Permittivity

Middle TX Frequency (MHz)	2480.000
Relative permittivity (real part)	39.214
Relative permittivity (imaginary part)	13.210
Conductivity (S/m)	1.820

C. SAR Surface and Volume



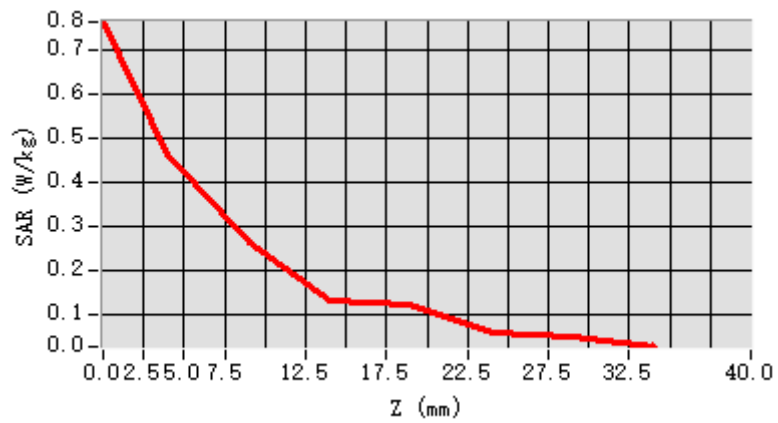
Maximum location: X=-18.00, Y=35.00 ; SAR Peak: 0.78 W/kg

D. SAR 1g & 10g

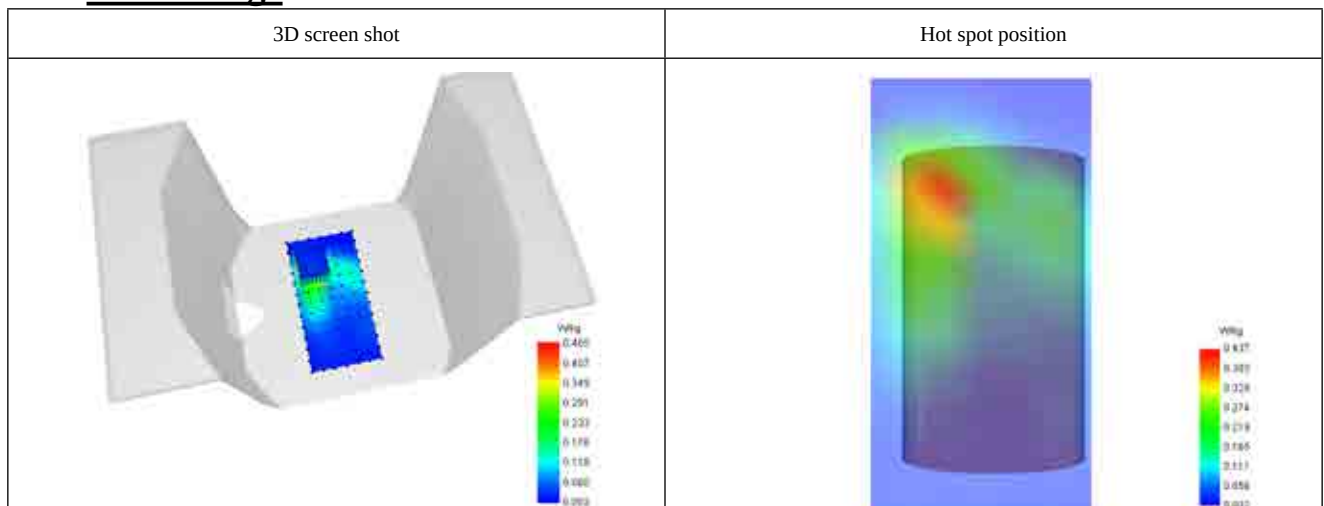
SAR 10g (W/Kg)	0.223
SAR 1g (W/Kg)	0.411
Variation (%)	2.150
Horizontal validation criteria: minimum distance (mm)	14.142136
Vertical validation criteria: SAR ratio M2/M1 (%)	56.559140

E. Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.764	0.465	0.263	0.135	0.124	0.063	0.053



F. 3D Image



Appendix D. Calibration Certificate

Table of contents
E Field Probe - EPGO0523-403
750 MHz Dipole - SN 03/15 DIP 0G750-355
835 MHz Dipole - SN 03/15 DIP 0G835-347
1800 MHz Dipole - SN 03/15 DIP 1G800-349
1900 MHz Dipole - SN 03/15 DIP 1G900-350
2450 MHz Dipole - SN 03/15 DIP 2G450-352
2600 MHz Dipole - SN 03/15 DIP 2G600-356
5000-6000 MHz Dipole - SN 03/14 WGA33



COMOSAR E-Field Probe Calibration Report

Ref : ACR.307.3.25.BES.A

**GUANGDONG ASIA HONGKE TEST
TECHNOLOGY CO., LTD**
NO.1/F,BUILDING B1, JUNFENG INDUSTRIAL PARK,
CHONGQING ROAD, HEPING COMMUNITY,
FUHAIHAI STREET, BAO'AN DISTRICT,SHENZHEN,
GUANGDONG 518055, P.R.CHINA
MVG COMOSAR DOSIMETRIC E-FIELD PROBE
SERIAL NO.: SN 39/21 EPG0523-403

Calibrated at MVG
Z.I. de la pointe du diable
Technopôle Brest Iroise – 295 avenue Alexis de Rochon
29280 PLOUZANE - FRANCE

Calibration date: 09/09/2025



Accreditations #2-6789
Scope available on www.cofrac.fr

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Summary:

This document presents the method and results from an accredited COMOSAR E-Field Probe calibration performed at MVG, using the CALIPROBE test bench, for use with a MVG COMOSAR system only. The test results covered by accreditation are traceable to the International System of Units (SI).



COMOSAR E-FIELD PROBE CALIBRATION REPORT

Ref: ACR.307.3.24.BES.A

	Name	Function	Date	Signature
Prepared by :	Jérôme Le Gall	Measurement Responsible	09/08/2025	
Checked by :	Jérôme Luc	Technical Manager	09/08/2025	
Approved by :	Yann Toutain	Laboratory Director	09/09/2025	

	Customer Name
Distribution :	Shenzhen Asia Hongke

Issue	Name	Date	Modifications
A	Jérôme Luc	9/09/2025	Initial release



COMOSAR E-FIELD PROBE CALIBRATION REPORT

Ref: ACR 307 3/24 BES A

TABLE OF CONTENTS

1	Device Under Test	4
2	Product Description	4
2.1	General Information	4
3	Measurement Method	4
3.1	Linearity	4
3.2	Sensitivity	4
3.3	Lower Detection Limit	5
3.4	Isotropy	5
3.1	Boundary Effect	5
4	Measurement Uncertainty	6
5	Calibration Measurement Results	6
5.1	Sensitivity in air	6
5.2	Linearity	7
5.3	Sensitivity in liquid	8
5.4	Isotropy	9
6	List of Equipment	10



COMOSAR E-FIELD PROBE CALIBRATION REPORT

Ref: ACR 307 3.24 BES.A

1 DEVICE UNDER TEST

Device Under Test	
Device Type	COMOSAR DOSIMETRIC E FIELD PROBE
Manufacturer	MVG
Model	SSE2
Serial Number	SN 39/21 EPG00523-403
Product Condition (new / used)	New
Frequency Range of Probe	0.15 GHz-6GHz
Resistance of Three Dipoles at Connector	Dipole 1: R1=0.199 M Ω Dipole 2: R2=0.218 M Ω Dipole 3: R3=0.210 M Ω

2 PRODUCT DESCRIPTION

2.1 GENERAL INFORMATION

MVG's COMOSAR E field Probes are built in accordance to the IEC/IEEE 62209-1528 and FCC KDB865664 D01 standards.



Figure 1 – MVG COMOSAR Dosimetric E field Probe

Probe Length	330 mm
Length of Individual Dipoles	2 mm
Maximum external diameter	8 mm
Probe Tip External Diameter	2.5 mm
Distance between dipoles / probe extremity	1 mm

3 MEASUREMENT METHOD

The IEC/IEEE 62209-1528 and FCC KDB865664 D01 standards provide recommended practices for the probe calibrations, including the performance characteristics of interest and methods by which to assess their affect. All calibrations / measurements performed meet the fore mentioned standards.

3.1 LINEARITY

The evaluation of the linearity was done in free space using the waveguide, performing a power sweep to cover the SAR range 0.01W/kg to 100W/kg.

3.2 SENSITIVITY

The sensitivity factors of the three dipoles were determined using a two step calibration method (air and tissue simulating liquid) using waveguides as outlined in the standards.

Page: 4/11

Template: ACR.DDB.N.YE.MVGB.ISSUE_COMOSAR_Probe_vE

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3.3 LOWER DETECTION LIMIT

The lower detection limit was assessed using the same measurement set up as used for the linearity measurement. The required lower detection limit is 10 mW/kg.

3.4 ISOTROPY

The axial isotropy was evaluated by exposing the probe to a reference wave from a standard dipole with the dipole mounted under the flat phantom in the test configuration suggested for system validations and checks. The probe was rotated along its main axis from 0 to 360 degrees in 15-degree steps. The hemispherical isotropy is determined by inserting the probe in a thin plastic box filled with tissue-equivalent liquid, with the plastic box illuminated with the fields from a half wave dipole. The dipole is rotated about its axis (0°–180°) in 15° increments. At each step the probe is rotated about its axis (0°–360°).

3.1 BOUNDARY EFFECT

The boundary effect is defined as the deviation between the SAR measured data and the expected exponential decay in the liquid when the probe is oriented normal to the interface. To evaluate this effect, the liquid filled flat phantom is exposed to fields from either a reference dipole or waveguide. With the probe normal to the phantom surface, the peak spatial average SAR is measured and compared to the analytical value at the surface.

The boundary effect uncertainty can be estimated according to the following uncertainty approximation formula based on linear and exponential extrapolations between the surface and $d_{be} + d_{step}$ along lines that are approximately normal to the surface:

$$SAR_{uncertainty} [\%] = \Delta SAR_{be} \frac{(d_{be} + d_{step})^2 (e^{-d_{be}/\delta/2})}{2d_{step} \delta/2} \text{ for } (d_{be} + d_{step}) < 10 \text{ mm}$$

where

$SAR_{uncertainty}$	is the uncertainty in percent of the probe boundary effect
d_{be}	is the distance between the surface and the closest <i>zoom-scan</i> measurement point, in millimetre
Δ_{step}	is the separation distance between the first and second measurement points that are closest to the phantom surface, in millimetre, assuming the boundary effect at the second location is negligible
δ	is the minimum penetration depth in millimetres of the head tissue-equivalent liquids defined in this standard, i.e., $\delta \approx 14$ mm at 3 GHz;
ΔSAR_{be}	in percent of SAR is the deviation between the measured SAR value, at the distance d_{be} from the boundary, and the analytical SAR value.

The measured worst case boundary effect SARuncertainty[%] for scanning distances larger than 4mm is 1.0% Limit (2%).



COMOSAR E-FIELD PROBE CALIBRATION REPORT

Ref: ACR 307 3/24 BES A

4 MEASUREMENT UNCERTAINTY

The guidelines outlined in the IEC/IEEE 62209-1528 and FCC KDB865664 D01 standards were followed to generate the measurement uncertainty associated with an E-field probe calibration using the waveguide technique. All uncertainties listed below represent an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of $k=2$, traceable to the Internationally Accepted Guides to Measurement Uncertainty.

Uncertainty analysis of the probe calibration in waveguide					
ERROR SOURCES	Uncertainty value (%)	Probability Distribution	Divisor	ct	Standard Uncertainty (%)
Expanded uncertainty 95 % confidence level $k = 2$					14 %

5 CALIBRATION MEASUREMENT RESULTS

Calibration Parameters	
Liquid Temperature	20 +/- 1 °C
Lab Temperature	20 +/- 1 °C
Lab Humidity	30-70 %

5.1 SENSITIVITY IN AIR

Normx dipole 1 ($\mu\text{V}/(\text{V}/\text{m})^2$)	Normy dipole 2 ($\mu\text{V}/(\text{V}/\text{m})^2$)	Normz dipole 3 ($\mu\text{V}/(\text{V}/\text{m})^2$)
1.26	0.87	0.77

DCP dipole 1 (mV)	DCP dipole 2 (mV)	DCP dipole 3 (mV)
113	108	113

Calibration curves $e_i=f(V)$ ($i=1,2,3$) allow to obtain E-field value using the formula:

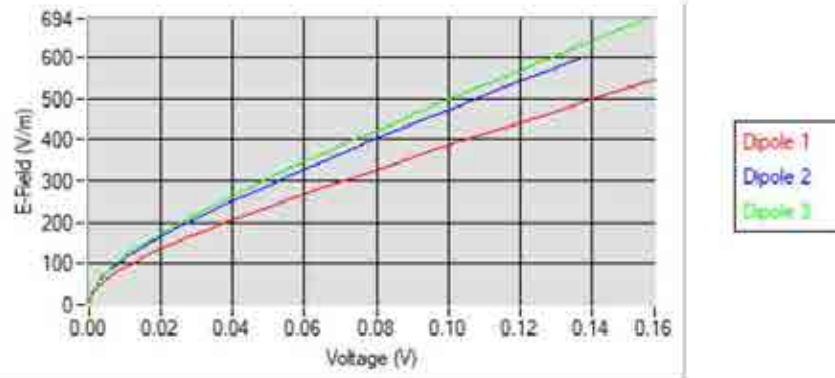
$$E = \sqrt{E_1^2 + E_2^2 + E_3^2}$$



COMOSAR E-FIELD PROBE CALIBRATION REPORT

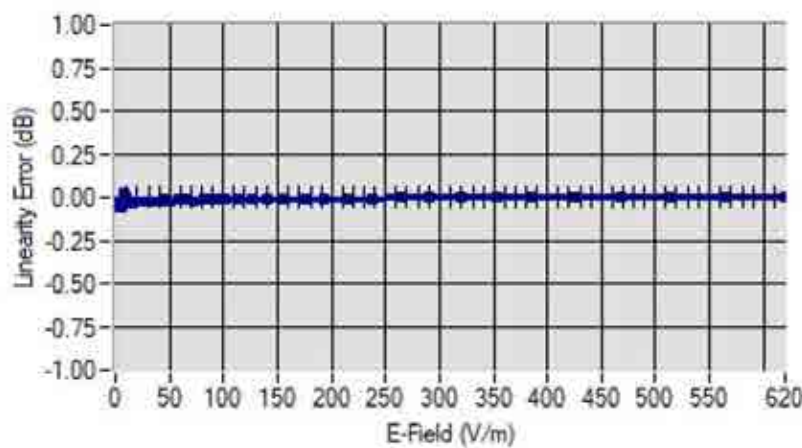
Ref: ACR 307 3/24 BES A

Calibration curves



5.2 LINEARITY

Linearity



Linearity: $\pm 1.42\%$ ($\pm 0.06\text{dB}$)



COMOSAR E-FIELD PROBE CALIBRATION REPORT

Ref: ACR 307 3/24 BES A

5.3 SENSITIVITY IN LIQUID

Liquid	Frequency (MHz +/- 100MHz)	ConvF
HL600	600	1.62
HL750	750	1.65
HL850	835	1.66
HL900	900	1.77
HL1500	1500	2.09
HL1750	1750	2.09
HL1800	1800	2.05
HL1900	1900	2.05
HL2000	2000	2.41
HL2100	2100	2.36
HL2300	2300	2.55
HL2450	2450	2.38
HL2600	2600	2.35
HL3300	3300	2.04
HL3500	3500	1.98
HL3700	3700	2.11
HL3900	3900	2.54
HL4200	4200	2.22
HL4600	4600	2.40
HL4900	4900	2.33
HL5200	5200	2.30
HL5400	5400	2.30
HL5600	5600	2.29
HL5800	5800	2.27

LOWER DETECTION LIMIT: 8mW/kg

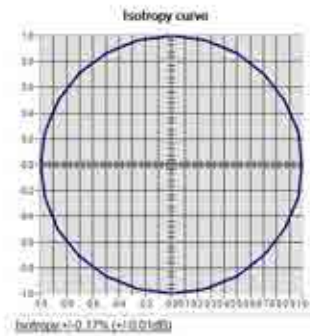


COMOSAR E-FIELD PROBE CALIBRATION REPORT

Ref: ACR_307.3.24.BES.A

5.4 ISOTROPY

HL1800 MHz





COMOSAR E-FIELD PROBE CALIBRATION REPORT

Ref: ACR 307 3/24 BES A

6 LIST OF EQUIPMENT

Equipment Summary Sheet				
Equipment Description	Manufacturer / Model	Identification No.	Current Calibration Date	Next Calibration Date
CALIPROBE Test Bench	Version 2	NA	Validated. No cal required.	Validated. No cal required.
Network Analyzer	Rohde & Schwarz ZVM	100203	08/2024	08/2027
Network Analyzer	Agilent 8753ES	MY40003210	10/2022	10/2025
Network Analyzer – Calibration kit	Rohde & Schwarz ZV-Z235	101223	05/2024	05/2027
Network Analyzer – Calibration kit	HP 85033D	3423A08186	06/2021	06/2027
Multimeter	Keithley 2000	1160271	02/2024	02/2027
Signal Generator	Rohde & Schwarz SMB	106589	04/2024	04/2027
Amplifier	MVG	MODU-023-C-0002	Characterized prior to test. No cal required.	Characterized prior to test. No cal required.
Power Meter	NI-USB 5680	170100013	06/2024	06/2027
Power Meter	Rohde & Schwarz NRVD	832839-056	11/2022	11/2025
Directional Coupler	Krytar 158020	131467	Characterized prior to test. No cal required.	Characterized prior to test. No cal required.
Waveguide	MVG	SN 32/16 WG4_1	Validated. No cal required.	Validated. No cal required.
Liquid transition	MVG	SN 32/16 WGLIQ_0G900_1	Validated. No cal required.	Validated. No cal required.
Waveguide	MVG	SN 32/16 WG6_1	Validated. No cal required.	Validated. No cal required.
Liquid transition	MVG	SN 32/16 WGLIQ_1G500_1	Validated. No cal required.	Validated. No cal required.
Waveguide	MVG	SN 32/16 WG8_1	Validated. No cal required.	Validated. No cal required.
Liquid transition	MVG	SN 32/16 WGLIQ_1G800B_1	Validated. No cal required.	Validated. No cal required.
Liquid transition	MVG	SN 32/16 WGLIQ_1G800H_1	Validated. No cal required.	Validated. No cal required.
Waveguide	MVG	SN 32/16 WG10_1	Validated. No cal required.	Validated. No cal required.
Liquid transition	MVG	SN 32/16 WGLIQ_3G500_1	Validated. No cal required.	Validated. No cal required.

Page: 10/11

Template: ACR.UDD.N.TY.MVGLISSUE.COMOSAR Probe v6

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COMOSAR E-FIELD PROBE CALIBRATION REPORT

Ref: ACR 307 3/24 BES A

Waveguide	MVG	SN 32/16 WG12_1	Validated. No cal required.	Validated. No cal required.
Liquid transition	MVG	SN 32/16 WGLIQ_5G000_1	Validated. No cal required.	Validated. No cal required.
Temperature / Humidity Sensor	Testo 184 H1	44225320	06/2024	06/2027



SAR Reference Dipole Calibration Report

Ref.: ACR.53.23.24.BES.A

GUANGDONG ASIA HONGKE TEST TECHNOLOGY CO., LTD

NO.1/F,BUILDING B1, JUNFENG INDUSTRIAL PARK,
CHONGQING ROAD, HEPING COMMUNITY ,
FUHAIHAI STREET, BAO'AN DISTRICT, SHENZHEN,
GUANGDONG 518055, P.R.CHINA

MVG COMOSAR REFERENCE DIPOLE

FREQUENCY: 750MHZ

SERIAL NO.: SN 03/15 DIP0G750-355

Calibrated at MVG

Z.I. de la pointe du diable

Technopôle Brest Iroise – 295 avenue Alexis de Rochon

29280 PLOUZANE - FRANCE

Calibration date: 02/21/2024



Accreditations #2-6739 and #2-6811
Scope available on www.cofrac.fr

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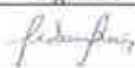
Summary:

This document presents the method and results from an accredited SAR reference dipole calibration performed in MVG using the COMOSAR test bench. All calibration results are traceable to national metrology institutions.



SAR REFERENCE DIPOLE CALIBRATION REPORT

REF - ACR-03-2474-BEE-B

	Name	Function	Date	Signature
Prepared by:	Pedro Ruiz	Measurement Responsible	2/22/2024	
Checked & approved by:	Jérôme Luc	Technical Manager	2/22/2024	
Authorized by:	Yann Toutain	Laboratory Director	2/27/2024	

Yann
Toutain ID

Signature
numérique de
Yann Toutain ID
Date: 2024.02.27
08:54:27 +01'00'

	Customer Name
Distribution :	Shenzhen Asia Hongke

Issue	Name	Date	Modifications
A	Pedro Ruiz	2/22/2024	Initial release



SAR REFERENCE DIPOLE CALIBRATION REPORT

REF: ACE-2013134 RES-A

TABLE OF CONTENTS

1	Introduction.....	4
2	Device Under Test	4
3	Product Description	4
3.1	General Information	4
4	Measurement Method.....	5
4.1	Mechanical Requirements	5
4.2	S11 parameter Requirements	5
4.3	SAR Requirements	5
5	Measurement Uncertainty.....	5
5.1	Mechanical dimensions	5
5.2	S11 Parameter	5
5.3	SAR	5
6	Calibration Results.....	6
6.1	Mechanical Dimensions	6
6.2	S11 parameter	6
6.3	SAR	6
7	List of Equipment	8



SAR REFERENCE DIPOLE CALIBRATION REPORT

REF: ACE-2023-04-RES-A

1 INTRODUCTION

This document contains a summary of the requirements set forth by the IEC/IEEE 62209-1528 and FCC KDB865664 D01 standards for reference dipoles used for SAR measurement system validations and the measurements that were performed to verify that the product complies with the fore mentioned standards.

2 DEVICE UNDER TEST

Device Under Test	
Device Type	COMOSAR 750 MHz REFERENCE DIPOLE
Manufacturer	MVG
Model	SID750
Serial Number	SN 03/15DIP0G750-355
Product Condition (new / used)	Used

3 PRODUCT DESCRIPTION

3.1 GENERAL INFORMATION

MVG's COMOSAR Validation Dipoles are built in accordance to the IEC/IEEE 62209-1528 and FCC KDB865664 D01 standards. The product is designed for use with the COMOSAR test bench only.



Figure 1 – MVG COMOSAR Validation Dipole



SAR REFERENCE DIPOLE CALIBRATION REPORT

REF: ACE-2013134-RES-A

4 MEASUREMENT METHOD

4.1 MECHANICAL REQUIREMENTS

The IEC/IEEE 62209-1528 and FCC KDB865664 D01 standards specify the mechanical components and dimensions of the validation dipoles, with the dimension's frequency and phantom shell thickness dependent. The COMOSAR test bench employs a 2 mm phantom shell thickness therefore the dipoles sold for use with the COMOSAR test bench comply with the requirements set forth for a 2 mm phantom shell thickness. A direct method is used with a ISO17025 calibrated caliper.

4.2 S11 PARAMETER REQUIREMENTS

The dipole used for SAR system validation measurements and checks must have a S11 of -20 dB or better. The S11 measurement shall be performed against a liquid filled flat phantom, with the phantom constructed as outlined in the fore mentioned standards. A direct method is used with a network analyser and its calibration kit, both with a valid ISO17025 calibration.

4.3 SAR REQUIREMENTS

The IEC/IEEE 62209-1528 and FCC KDB865664 D01 standards provide requirements for reference dipoles used for system validation measurements. The following measurements were performed to verify that the product complies with the fore-mentioned standards.

5 MEASUREMENT UNCERTAINTY

5.1 MECHANICAL DIMENSIONS

For the measurement in the range 0-300mm, the estimated expanded uncertainty (k=2) in calibration for the dimension measurement in mm is ± 0.20 mm with respect to measurement conditions.

For the measurement in the range 300-450mm, the estimated expanded uncertainty (k=2) in calibration for the dimension measurement in mm is ± 0.44 mm with respect to measurement conditions.

5.2 S11 PARAMETER

The estimated expanded uncertainty (k=2) in calibration for the S11 parameter in linear is ± 0.08 with respect to measurement conditions.

5.3 SAR

The guidelines outlined in the IEC/IEEE 62209-1528 and FCC KDB865664 D01 standards were followed to generate the measurement uncertainty for validation measurements.

The estimated expanded uncertainty (k=2) in calibration for the 1g and 10g SAR measurement in W/kg is $\pm 19\%$ with respect to measurement conditions.

Page: 5/8

Template: ACE-DDX-XX-MTG-01-SSUE, SAR Reference Dipole v1.

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SAR REFERENCE DIPOLE CALIBRATION REPORT

REF: ACE-2013134 RES-A

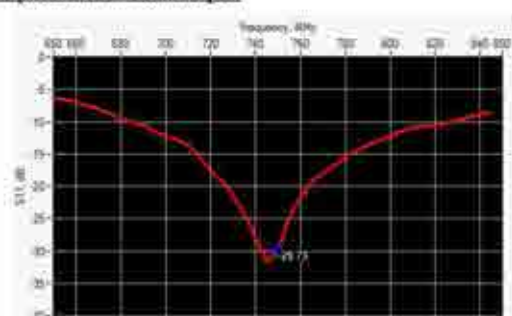
6 CALIBRATION RESULTS

6.1 MECHANICAL DIMENSIONS

L mm		h mm		d mm	
Measured	Required	Measured	Required	Measured	Required
-	176.00 +/- 2%	-	100.00 +/- 2%	-	6.35 +/- 2%

6.2 S11 PARAMETER

6.2.1 S11 parameter in Head Liquid



Frequency (MHz)	S11 parameter (dB)	Requirement (dB)	Impedance
750	-29.73	-20	52.5Ω + 2.2jΩ

6.3 SAR

The IEC/IEEE 62209-1528 and FCC KDB865664 D01 standards state that the system validation measurements must be performed using a reference dipole meeting the fore mentioned return loss and mechanical dimension requirements. The validation measurement must be performed against a liquid filled flat phantom, with the phantom constructed as outlined in the fore mentioned standards. Per the standards, the dipole shall be positioned below the bottom of the phantom, with the dipole length centered and parallel to the longest dimension of the flat phantom, with the top surface of the dipole at the described distance from the bottom surface of the phantom.

6.3.1 SAR with Head Liquid

The IEC/IEEE 62209-1528 and FCC KDB865664 D01 standards state that the system validation measurements should produce the SAR values shown below (for phantom thickness of 2 mm), within the uncertainty for the system validation. All SAR values are normalized to 1 W forward power. In bracket, the measured SAR is given with the used input power.

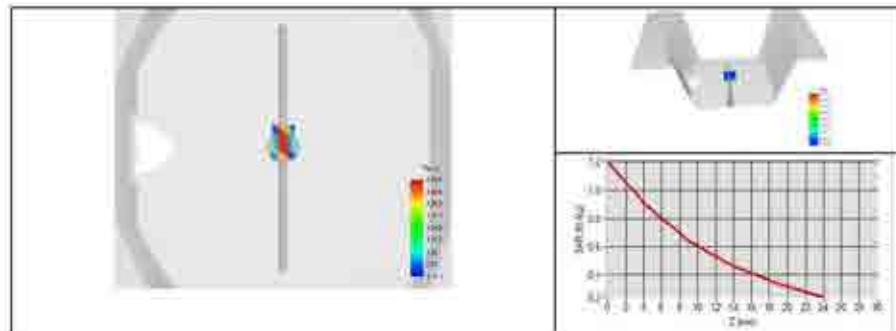


SAR REFERENCE DIPOLE CALIBRATION REPORT

REF: ACE-2013134 RES: A

Software	OPENSAR V5
Phantom	SN 13/09 SAM68
Probe	3523-EPGD-429
Liquid	Head Liquid Values: $\epsilon_{\text{ps}}' : 45.0$ $\sigma_{\text{ps}} : 0.87$
Distance between dipole center and liquid	15.0 mm
Area scan resolution	$dx=8\text{mm}/dy=8\text{mm}$
Zoom Scan Resolution	$dx=8\text{mm}/dy=8\text{mm}/dz=5\text{mm}$
Frequency	750 MHz
Input power	20 dBm
Liquid Temperature	20 +/- 1 °C
Lab Temperature	20 +/- 1 °C
Lab Humidity	30-70 %

Frequency	1g SAR (W/kg)			10g SAR (W/kg)		
	Measured	Measured normalized to 1W	Target normalized to 1W	Measured	Measured normalized to 1W	Target normalized to 1W
750 MHz	0.86	8.60	8.49	0.58	5.78	5.55





SAR REFERENCE DIPOLE CALIBRATION REPORT

REF: ACE-2023-04-BES-A

7 LIST OF EQUIPMENT

Equipment Summary Sheet				
Equipment Description	Manufacturer / Model	Identification No.	Current Calibration Date	Next Calibration Date
SAM Phantom	MVG	SN 13/09 SAM68	Validated. No cal required.	Validated. No cal required.
COMOSAR Test Bench	Version 3	NA	Validated. No cal required.	Validated. No cal required.
Network Analyzer	Rohde & Schwarz ZVM	100203	08/2021	08/2024
Network Analyzer – Calibration kit	Rohde & Schwarz ZV-Z235	101223	07/2022	07/2025
Calipers	Mitutoyo	SN 0009732	11/2022	11/2025
Reference Probe	MVG	3523-EPGO-429	11/2023	11/2024
Multimeter	Keithley 2000	4013982	02/2023	02/2026
Signal Generator	Rohde & Schwarz SMB	106589	03/2022	03/2025
Amplifier	MVG	MODU-023-C-0002	Characterized prior to test. No cal required.	Characterized prior to test. No cal required.
Power Meter	NI-USB 5680	170100013	06/2021	06/2024
Power Meter	Keysight U2000A	SN: MY62340002	10/2022	10/2025
Directional Coupler	Krytar 158020	131467	Characterized prior to test. No cal required.	Characterized prior to test. No cal required.
Temperature / Humidity Sensor	Testo 184 H1	44225320	06/2021	06/2024



SAR Reference Dipole Calibration Report

Ref: ACR.53.24.24.BES.A

GUANGDONG ASIA HONGKE TEST TECHNOLOGY CO., LTD

NO.1/F,BUILDING B1, JUNFENG INDUSTRIAL PARK,
CHONGQING ROAD, HEPING COMMUNITY ,
FUHAIHAI STREET, BAO'AN DISTRICT, SHENZHEN,
GUANGDONG 518055, P.R.CHINA

MVG COMOSAR REFERENCE DIPOLE

FREQUENCY: 835MHZ

SERIAL NO.: SN 03/15 DIP0G835-347

Calibrated at MVG

Z.L. de la pointe du diable

Technopôle Brest Iroise – 295 avenue Alexis de Rochon
29280 PLOUZANE – FRANCE

Calibration date: 02/21/2024



Accreditations 25-6789 and 25-6814
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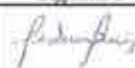
Summary:

This document presents the method and results from an accredited SAR reference dipole calibration performed in MVG using the COMOSAR test bench. All calibration results are traceable to national metrology institutions.



SAR REFERENCE DIPOLE CALIBRATION REPORT

Ref: ACE 23 24 04 B52A

	Name	Function	Date	Signature
Prepared by:	Pedro Ruiz	Measurement Responsible	2/22/2024	
Checked & approved by:	Jérôme Luc	Technical Manager	2/22/2024	
Authorized by:	Yann Toutain	Laboratory Director	2/27/2024	

Yann
Toutain ID

Signature monitored by
Se Yann Toutain ID
Date: 2024/02/27
(085311) 40109

	Customer Name
Distribution :	Shenzhen Asia Hongke

Issue	Name	Date	Modifications
A	Pedro Ruiz	2/22/2024	Initial release



SAR REFERENCE DIPOLE CALIBRATION REPORT

Rpt. ACR-23-24-0004

TABLE OF CONTENTS

1	Introduction.....	4
2	Device Under Test.....	4
3	Product Description.....	4
3.1	General Information.....	4
4	Measurement Method.....	5
4.1	Mechanical Requirements.....	5
4.2	S11 parameter Requirements.....	5
4.3	SAR Requirements.....	5
5	Measurement Uncertainty.....	5
5.1	Mechanical dimensions.....	5
5.2	S11 Parameter.....	5
5.3	SAR.....	5
6	Calibration Results.....	6
6.1	Mechanical Dimensions.....	6
6.2	S11 parameter.....	6
6.3	SAR.....	6
7	List of Equipment.....	8



SAR REFERENCE DIPOLE CALIBRATION REPORT

Rev: ACR-03-24-000-0

1 INTRODUCTION

This document contains a summary of the requirements set forth by the IEC/IEEE 62209-1528 and FCC KDB865664 D01 standards for reference dipoles used for SAR measurement system validations and the measurements that were performed to verify that the product complies with the fore mentioned standards.

2 DEVICE UNDER TEST

Device Under Test	
Device Type	COMOSAR 835 MHz REFERENCE DIPOLE
Manufacturer	MVG
Model	SID835
Serial Number	SN 03/15DIP0G835-347
Product Condition (new / used)	Used

3 PRODUCT DESCRIPTION

3.1 GENERAL INFORMATION

MVG's COMOSAR Validation Dipoles are built in accordance to the IEC/IEEE 62209-1528 and FCC KDB865664 D01 standards. The product is designed for use with the COMOSAR test bench only.



Figure 1 – MVG COMOSAR Validation Dipole



SAR REFERENCE DIPOLE CALIBRATION REPORT

Rev: A/CB-23-24-24-BEE-A

4 MEASUREMENT METHOD

4.1 MECHANICAL REQUIREMENTS

The IEC/IEEE 62209-1528 and FCC KDB865664 D01 standards specify the mechanical components and dimensions of the validation dipoles, with the dimension's frequency and phantom shell thickness dependent. The COMOSAR test bench employs a 2 mm phantom shell thickness therefore the dipoles sold for use with the COMOSAR test bench comply with the requirements set forth for a 2 mm phantom shell thickness. A direct method is used with a ISO17025 calibrated caliper.

4.2 S11 PARAMETER REQUIREMENTS

The dipole used for SAR system validation measurements and checks must have a S11 of -20 dB or better. The S11 measurement shall be performed against a liquid filled flat phantom, with the phantom constructed as outlined in the fore mentioned standards. A direct method is used with a network analyser and its calibration kit, both with a valid ISO17025 calibration.

4.3 SAR REQUIREMENTS

The IEC/IEEE 62209-1528 and FCC KDB865664 D01 standards provide requirements for reference dipoles used for system validation measurements. The following measurements were performed to verify that the product complies with the fore-mentioned standards.

5 MEASUREMENT UNCERTAINTY

5.1 MECHANICAL DIMENSIONS

For the measurement in the range 0-300mm, the estimated expanded uncertainty ($k=2$) in calibration for the dimension measurement in mm is ± 0.20 mm with respect to measurement conditions.

For the measurement in the range 300-450mm, the estimated expanded uncertainty ($k=2$) in calibration for the dimension measurement in mm is ± 0.44 mm with respect to measurement conditions.

5.2 S11 PARAMETER

The estimated expanded uncertainty ($k=2$) in calibration for the S11 parameter in linear is ± 0.08 with respect to measurement conditions.

5.3 SAR

The guidelines outlined in the IEC/IEEE 62209-1528 and FCC KDB865664 D01 standards were followed to generate the measurement uncertainty for validation measurements.

The estimated expanded uncertainty ($k=2$) in calibration for the 1g and 10g SAR measurement in W/kg is $\pm 19\%$ with respect to measurement conditions.

Page: 5/8

Template: \OCR\DDI\N.YLM\GRI\SECT_SAR Reference Dipole.rtf

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SAR REFERENCE DIPOLE CALIBRATION REPORT

Ref: ACR-20-2424-BB-B

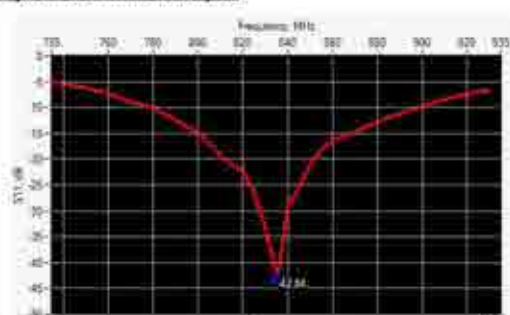
6 CALIBRATION RESULTS

6.1 MECHANICAL DIMENSIONS

L mm		h mm		d mm	
Measured	Required	Measured	Required	Measured	Required
-	161.00 +/- 2%	-	89.80 +/- 2%	-	3.60 +/- 2%

6.2 S11 PARAMETER

6.2.1 S11 parameter in Head Liquid



Frequency (MHz)	S11 parameter (dB)	Requirement (dB)	Impedance
835	-42.84	-20	50.5Ω + 0.5jΩ

6.3 SAR

The IEC/IEEE 62209-1528 and FCC KDB865664 D01 standards state that the system validation measurements must be performed using a reference dipole meeting the fore mentioned return loss and mechanical dimension requirements. The validation measurement must be performed against a liquid filled flat phantom, with the phantom constructed as outlined in the fore mentioned standards. Per the standards, the dipole shall be positioned below the bottom of the phantom, with the dipole length centered and parallel to the longest dimension of the flat phantom, with the top surface of the dipole at the described distance from the bottom surface of the phantom.

6.3.1 SAR with Head Liquid

The IEC/IEEE 62209-1528 and FCC KDB865664 D01 standards state that the system validation measurements should produce the SAR values shown below (for phantom thickness of 2 mm), within the uncertainty for the system validation. All SAR values are normalized to 1 W forward power. In bracket, the measured SAR is given with the used input power.

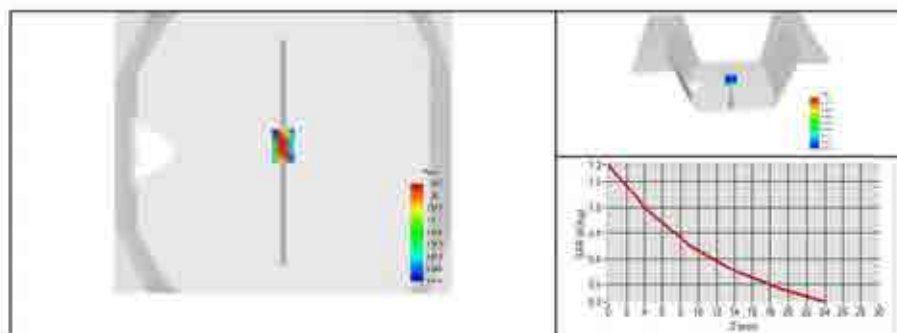


SAR REFERENCE DIPOLE CALIBRATION REPORT

Ref: ACR/53/24/BBB-B

Software	OPENSAR V5
Phantom	SN 13/09 SAM68
Probe	3523-EPGO-429
Liquid	Head Liquid Values: ϵ_p^* : 44.8 sigma: 0.90
Distance between dipole center and liquid	15.0 mm
Area scan resolution	$dx=8mm/dy=8mm$
Zoon Scan Resolution	$dx=8mm/dy=8mm/dz=5mm$
Frequency	835 MHz
Input power	20 dBm
Liquid Temperature	20 +/- 1 °C
Lab Temperature	20 +/- 1 °C
Lab Humidity	30-70 %

Frequency	1g SAR (W/kg)			10g SAR (W/kg)		
	Measured	Measured normalized to 1W	Target normalized to 1W	Measured	Measured normalized to 1W	Target normalized to 1W
835 MHz	0.94	9.40	9.56	0.63	6.28	6.22





SAR REFERENCE DIPOLE CALIBRATION REPORT

Rpt. ACR-23-242888-8

7 LIST OF EQUIPMENT

Equipment Summary Sheet				
Equipment Description	Manufacturer / Model	Identification No.	Current Calibration Date	Next Calibration Date
SAM Phantom	MVG	SN 13/09 SAM68	Validated. No cal required.	Validated. No cal required.
COMOSAR Test Bench	Version 3	NA	Validated. No cal required.	Validated. No cal required.
Network Analyzer	Rohde & Schwarz ZVM	100203	08/2021	08/2024
Network Analyzer – Calibration kit	Rohde & Schwarz ZV-Z235	101223	07/2022	07/2025
Calipers	Mitutoyo	SN 0009732	11/2022	11/2025
Reference Probe	MVG	3523-EPGO-429	11/2023	11/2024
Multimeter	Keithley 2000	4013982	02/2023	02/2026
Signal Generator	Rohde & Schwarz SMB	106589	03/2022	03/2025
Amplifier	MVG	MODU-023-C-0002	Characterized prior to test. No cal required.	Characterized prior to test. No cal required.
Power Meter	NI-USB 5680	170100013	06/2021	06/2024
Power Meter	Keysight U2000A	SN: MY82340002	10/2022	10/2025
Directional Coupler	Krytar 158020	131467	Characterized prior to test. No cal required.	Characterized prior to test. No cal required.
Temperature / Humidity Sensor	Testo 184 H1	44225320	08/2021	08/2024



SAR Reference Dipole Calibration Report

Ref: ACR.53.26.24.BES.A

GUANGDONG ASIA HONGKE TEST TECHNOLOGY CO., LTD

NO.1/F,BUILDING B1, JUNFENG INDUSTRIAL PARK,
CHONGQING ROAD, HEPING COMMUNITY ,
FUHAIHAI STREET, BAO'AN DISTRICT,SHENZHEN,
GUANGDONG 518055, P.R.CHINA

MVG COMOSAR REFERENCE DIPOLE

FREQUENCY: 1800MHZ

SERIAL NO.: SN 03/15 DIPIG800-349

Calibrated at MVG

Z.L. de la pointe du diable

Technopôle Brest Iroise – 295 avenue Alexis de Rochon
29280 PLOUZANE – FRANCE

Calibration date: 02/21/2024



Accreditations 25-6789 and 25-6814
Scope available on www.cofrac.fr

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Summary:

This document presents the method and results from an accredited SAR reference dipole calibration performed in MVG using the COMOSAR test bench. All calibration results are traceable to national metrology institutions.



SAR REFERENCE DIPOLE CALIBRATION REPORT

Ref: ACR-532624-BEN-A

	Name	Function	Date	Signature
Prepared by:	Pedro Ruiz	Measurement Responsible	2/22/2024	
Checked & approved by:	Jérôme Luc	Technical Manager	2/22/2024	
Authorized by:	Yann Toutain	Laboratory Director	2/27/2024	

Yann
Toutain ID

Signature
numérique de
Yann Toutain ID
Date : 2024.02.27
08:56:12 +0100

	Customer Name
Distribution :	Shenzhen Asia Hongke

Issue	Name	Date	Modifications
A	Pedro Ruiz	2/22/2024	Initial release



SAR REFERENCE DIPOLE CALIBRATION REPORT

Ref: ACR/53-24388-A

TABLE OF CONTENTS

1	Introduction.....	4
2	Device Under Test.....	4
3	Product Description.....	4
3.1	General Information.....	4
4	Measurement Method.....	5
4.1	Mechanical Requirements.....	5
4.2	S11 parameter Requirements.....	5
4.3	SAR Requirements.....	5
5	Measurement Uncertainty.....	5
5.1	Mechanical dimensions.....	5
5.2	S11 Parameter.....	5
5.3	SAR.....	5
6	Calibration Results.....	6
6.1	Mechanical Dimensions.....	6
6.2	S11 parameter.....	6
6.3	SAR.....	6
7	List of Equipment.....	8



SAR REFERENCE DIPOLE CALIBRATION REPORT

Rev: A/CB/23-24/0000-0

1 INTRODUCTION

This document contains a summary of the requirements set forth by the IEC/IEEE 62209-1528 and FCC KDB865664 D01 standards for reference dipoles used for SAR measurement system validations and the measurements that were performed to verify that the product complies with the fore mentioned standards.

2 DEVICE UNDER TEST

Device Under Test	
Device Type	COMOSAR 1800 MHz REFERENCE DIPOLE
Manufacturer	MVG
Model	SID1800
Serial Number	SN 03/15DIP1G800-349
Product Condition (new / used)	Used

3 PRODUCT DESCRIPTION

3.1 GENERAL INFORMATION

MVG's COMOSAR Validation Dipoles are built in accordance to the IEC/IEEE 62209-1528 and FCC KDB865664 D01 standards. The product is designed for use with the COMOSAR test bench only.



Figure 1 – MVG COMOSAR Validation Dipole



4 MEASUREMENT METHOD

4.1 MECHANICAL REQUIREMENTS

The IEC/IEEE 62209-1528 and FCC KDB865664 D01 standards specify the mechanical components and dimensions of the validation dipoles, with the dimension's frequency and phantom shell thickness dependent. The COMOSAR test bench employs a 2 mm phantom shell thickness therefore the dipoles sold for use with the COMOSAR test bench comply with the requirements set forth for a 2 mm phantom shell thickness. A direct method is used with a ISO17025 calibrated caliper.

4.2 S11 PARAMETER REQUIREMENTS

The dipole used for SAR system validation measurements and checks must have a S11 of -20 dB or better. The S11 measurement shall be performed against a liquid filled flat phantom, with the phantom constructed as outlined in the fore mentioned standards. A direct method is used with a network analyser and its calibration kit, both with a valid ISO17025 calibration.

4.3 SAR REQUIREMENTS

The IEC/IEEE 62209-1528 and FCC KDB865664 D01 standards provide requirements for reference dipoles used for system validation measurements. The following measurements were performed to verify that the product complies with the fore-mentioned standards.

5 MEASUREMENT UNCERTAINTY

5.1 MECHANICAL DIMENSIONS

For the measurement in the range 0-300mm, the estimated expanded uncertainty ($k=2$) in calibration for the dimension measurement in mm is ± 0.20 mm with respect to measurement conditions.

For the measurement in the range 300-450mm, the estimated expanded uncertainty ($k=2$) in calibration for the dimension measurement in mm is ± 0.44 mm with respect to measurement conditions.

5.2 S11 PARAMETER

The estimated expanded uncertainty ($k=2$) in calibration for the S11 parameter in linear is ± 0.08 with respect to measurement conditions.

5.3 SAR

The guidelines outlined in the IEC/IEEE 62209-1528 and FCC KDB865664 D01 standards were followed to generate the measurement uncertainty for validation measurements.

The estimated expanded uncertainty ($k=2$) in calibration for the 1g and 10g SAR measurement in W/kg is $\pm 19\%$ with respect to measurement conditions.



SAR REFERENCE DIPOLE CALIBRATION REPORT

Ref: ACR-53-24-0000-0

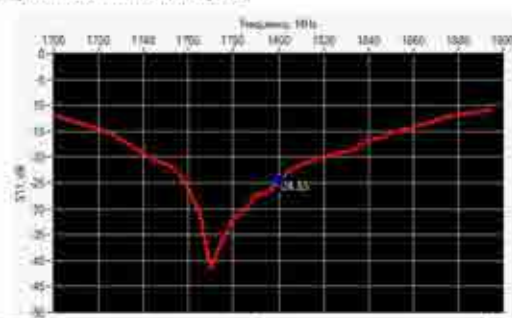
6 CALIBRATION RESULTS

6.1 MECHANICAL DIMENSIONS

L mm		h mm		d mm	
Measured	Required	Measured	Required	Measured	Required
-	72.00 +/- 2%	-	41.70 +/- 2%	-	3.60 +/- 2%

6.2 S11 PARAMETER

6.2.1 S11 parameter in Head Liquid



Frequency (MHz)	S11 parameter (dB)	Requirement (dB)	Impedance
1800	-24.53	-20	44.8Ω + 2.0jΩ

6.3 SAR

The IEC/IEEE 62209-1528 and FCC KDB865664 D01 standards state that the system validation measurements must be performed using a reference dipole meeting the fore mentioned return loss and mechanical dimension requirements. The validation measurement must be performed against a liquid filled flat phantom, with the phantom constructed as outlined in the fore mentioned standards. Per the standards, the dipole shall be positioned below the bottom of the phantom, with the dipole length centered and parallel to the longest dimension of the flat phantom, with the top surface of the dipole at the described distance from the bottom surface of the phantom.

6.3.1 SAR with Head Liquid

The IEC/IEEE 62209-1528 and FCC KDB865664 D01 standards state that the system validation measurements should produce the SAR values shown below (for phantom thickness of 2 mm), within the uncertainty for the system validation. All SAR values are normalized to 1 W forward power. In bracket, the measured SAR is given with the used input power.

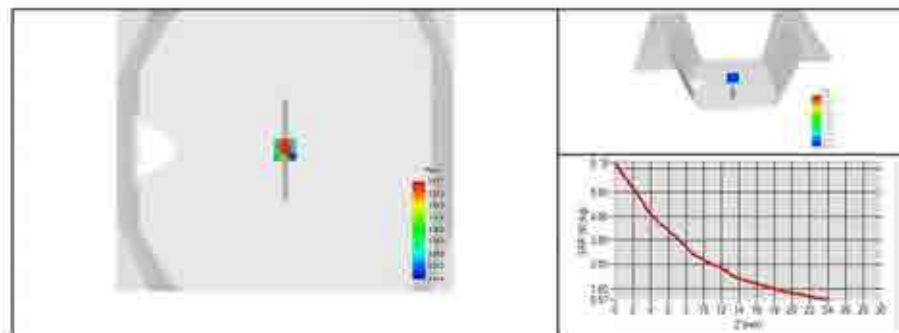


SAR REFERENCE DIPOLE CALIBRATION REPORT

File: AVE-23-2634-BE02.a

Software	OPENSAR V5
Phantom	SN 13/09 SAM68
Probe	3523-EPGO-429
Liquid	Head Liquid Values: $\epsilon_p = 42.7$ $\sigma = 1.36$
Distance between dipole center and liquid	10.0 mm
Area scan resolution	$dx = 8mm/dy = 8mm$
Zoon Scan Resolution	$dx = 8mm/dy = 8mm/dz = 5mm$
Frequency	1800 MHz
Input power	20 dBm
Liquid Temperature	20 $\pm$ 1 $^{\circ}$ C
Lab Temperature	20 $\pm$ 1 $^{\circ}$ C
Lab Humidity	30-70 %

Frequency	1g SAR (W/kg)			10g SAR (W/kg)		
	Measured	Measured normalized to 1W	Target normalized to 1W	Measured	Measured normalized to 1W	Target normalized to 1W
1800 MHz	3.71	37.06	38.40	2.00	20.01	20.10





SAR REFERENCE DIPOLE CALIBRATION REPORT

Ref: A/CB-53-24-IEEE-A

7 LIST OF EQUIPMENT

Equipment Summary Sheet				
Equipment Description	Manufacturer / Model	Identification No.	Current Calibration Date	Next Calibration Date
SAM Phantom	MVG	SN 13/09 SAM68	Validated. No cal required.	Validated. No cal required.
COMOSAR Test Bench	Version 3	NA	Validated. No cal required.	Validated. No cal required.
Network Analyzer	Rohde & Schwarz ZVM	100203	08/2021	08/2024
Network Analyzer – Calibration kit	Rohde & Schwarz ZV-Z235	101223	07/2022	07/2025
Calipers	Mitutoyo	SN 0009732	11/2022	11/2025
Reference Probe	MVG	3523-EPGO-429	11/2023	11/2024
Multimeter	Keithley 2000	4013982	02/2023	02/2026
Signal Generator	Rohde & Schwarz SMB	106589	03/2022	03/2025
Amplifier	MVG	MODU-023-C-0002	Characterized prior to test. No cal required.	Characterized prior to test. No cal required.
Power Meter	NI-USB 5680	170100013	06/2021	06/2024
Power Meter	Keysight U2000A	SN: MY62340002	10/2022	10/2025
Directional Coupler	Krytar 158020	131467	Characterized prior to test. No cal required.	Characterized prior to test. No cal required.
Temperature / Humidity Sensor	Testo 184 H1	44225320	06/2021	06/2024

Page: 8/8

Template: A/CB.DDD-N.YKAFVGBLSSUE_SAR Reference Dipole v1

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SAR Reference Dipole Calibration Report

Ref: ACR.53.27.24.BES.A

**GUANGDONG ASIA HONGKE TEST
TECHNOLOGY CO., LTD**
NO.1/F,BUILDING B1, JUNFENG INDUSTRIAL PARK,
CHONGQING ROAD, HEPING COMMUNITY ,
FUHAIHAI STREET, BAO'AN DISTRICT,SHENZHEN,
GUANGDONG 518055, P.R.CHINA
MVG COMOSAR REFERENCE DIPOLE
FREQUENCY: 1900MHZ
SERIAL NO.: SN 03/15 DIP1G900-350

Calibrated at MVG
Z.L. de la pointe du diable
Technopôle Brest Iroise – 295 avenue Alexis de Rochon
29280 PLOUZANE – FRANCE

Calibration date: 02/21/2024



Accreditations 25-6789 and 25-6814
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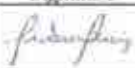
Summary:

This document presents the method and results from an accredited SAR reference dipole calibration performed in MVG using the COMOSAR test bench. All calibration results are traceable to national metrology institutions.



SAR REFERENCE DIPOLE CALIBRATION REPORT

ESP - ACE 31/27/24 BSS/A

	Name	Function	Date	Signature
Prepared by:	Pedro Ruiz	Measurement Responsible	2/22/2024	
Checked & approved by:	Jérôme Luc	Technical Manager	2/22/2024	
Authorized by:	Yann Toutain	Laboratory Director	2/27/2024	

Yann
Toutain ID

Signature
numérique de
Yann Toutain ID
Date: 2024.02.27
08:56:45 + 01'00'

	Customer Name
Distribution :	Shenzhen Asia Hongke

Issue	Name	Date	Modifications
A	Pedro Ruiz	2/22/2024	Initial release



SAR REFERENCE DIPOLE CALIBRATION REPORT

REF: A/CE-53.3714.EE0.0

TABLE OF CONTENTS

1	Introduction.....	4
2	Device Under Test.....	4
3	Product Description.....	4
3.1	General Information.....	4
4	Measurement Method.....	5
4.1	Mechanical Requirements.....	5
4.2	S11 parameter Requirements.....	5
4.3	SAR Requirements.....	5
5	Measurement Uncertainty.....	5
5.1	Mechanical dimensions.....	5
5.2	S11 Parameter.....	5
5.3	SAR.....	5
6	Calibration Results.....	6
6.1	Mechanical Dimensions.....	6
6.2	S11 parameter.....	6
6.3	SAR.....	6
7	List of Equipment.....	8



SAR REFERENCE DIPOLE CALIBRATION REPORT

REV: A/CN-03.07.14 E00.0

1 INTRODUCTION

This document contains a summary of the requirements set forth by the IEC/IEEE 62209-1528 and FCC KDB865664 D01 standards for reference dipoles used for SAR measurement system validations and the measurements that were performed to verify that the product complies with the fore mentioned standards.

2 DEVICE UNDER TEST

Device Under Test	
Device Type	COMOSAR 1900 MHz REFERENCE DIPOLE
Manufacturer	MVG
Model	SID1900
Serial Number	SN 03/15DIP1G900-350
Product Condition (new / used)	Used

3 PRODUCT DESCRIPTION

3.1 GENERAL INFORMATION

MVG's COMOSAR Validation Dipoles are built in accordance to the IEC/IEEE 62209-1528 and FCC KDB865664 D01 standards. The product is designed for use with the COMOSAR test bench only.



Figure 1 – MVG COMOSAR Validation Dipole



SAR REFERENCE DIPOLE CALIBRATION REPORT

REF: AITC-201714-BE01-0

4 MEASUREMENT METHOD

4.1 MECHANICAL REQUIREMENTS

The IEC/IEEE 62209-1528 and FCC KDB865664 D01 standards specify the mechanical components and dimensions of the validation dipoles, with the dimension's frequency and phantom shell thickness dependent. The COMOSAR test bench employs a 2 mm phantom shell thickness therefore the dipoles sold for use with the COMOSAR test bench comply with the requirements set forth for a 2 mm phantom shell thickness. A direct method is used with a ISO17025 calibrated caliper.

4.2 S11 PARAMETER REQUIREMENTS

The dipole used for SAR system validation measurements and checks must have a S11 of -20 dB or better. The S11 measurement shall be performed against a liquid filled flat phantom, with the phantom constructed as outlined in the fore mentioned standards. A direct method is used with a network analyser and its calibration kit, both with a valid ISO17025 calibration.

4.3 SAR REQUIREMENTS

The IEC/IEEE 62209-1528 and FCC KDB865664 D01 standards provide requirements for reference dipoles used for system validation measurements. The following measurements were performed to verify that the product complies with the fore-mentioned standards.

5 MEASUREMENT UNCERTAINTY

5.1 MECHANICAL DIMENSIONS

For the measurement in the range 0-300mm, the estimated expanded uncertainty ($k=2$) in calibration for the dimension measurement in mm is ± 0.20 mm with respect to measurement conditions.

For the measurement in the range 300-450mm, the estimated expanded uncertainty ($k=2$) in calibration for the dimension measurement in mm is ± 0.44 mm with respect to measurement conditions.

5.2 S11 PARAMETER

The estimated expanded uncertainty ($k=2$) in calibration for the S11 parameter in linear is ± 0.08 with respect to measurement conditions.

5.3 SAR

The guidelines outlined in the IEC/IEEE 62209-1528 and FCC KDB865664 D01 standards were followed to generate the measurement uncertainty for validation measurements.

The estimated expanded uncertainty ($k=2$) in calibration for the 1g and 10g SAR measurement in W/kg is $\pm 19\%$ with respect to measurement conditions.

Page: 5/8

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SAR REFERENCE DIPOLE CALIBRATION REPORT

REF: AITC-23-0714-BE01-0

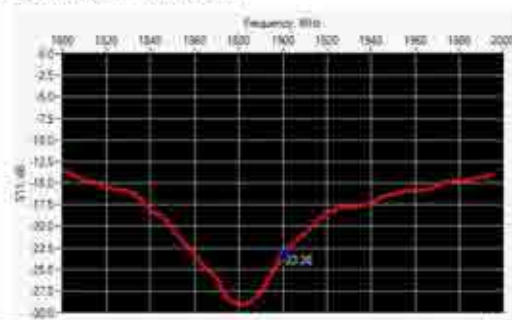
6 CALIBRATION RESULTS

6.1 MECHANICAL DIMENSIONS

L mm		h mm		d mm	
Measured	Required	Measured	Required	Measured	Required
-	68.00 +/- 2%	-	39.50 +/- 2%	-	3.60 +/- 2%

6.2 S11 PARAMETER

6.2.1 S11 parameter in Head Liquid



Frequency (MHz)	S11 parameter (dB)	Requirement (dB)	Impedance
1900	-23.28	-20	46.2Ω ± 5.4jΩ

6.3 SAR

The IEC/IEEE 62209-1528 and FCC KDB865664 D01 standards state that the system validation measurements must be performed using a reference dipole meeting the fore mentioned return loss and mechanical dimension requirements. The validation measurement must be performed against a liquid filled flat phantom, with the phantom constructed as outlined in the fore mentioned standards. Per the standards, the dipole shall be positioned below the bottom of the phantom, with the dipole length centered and parallel to the longest dimension of the flat phantom, with the top surface of the dipole at the described distance from the bottom surface of the phantom.

6.3.1 SAR with Head Liquid

The IEC/IEEE 62209-1528 and FCC KDB865664 D01 standards state that the system validation measurements should produce the SAR values shown below (for phantom thickness of 2 mm), within the uncertainty for the system validation. All SAR values are normalized to 1 W forward power. In bracket, the measured SAR is given with the used input power.

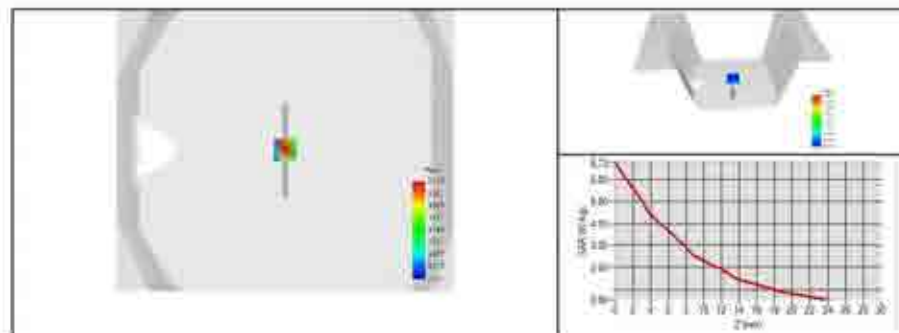


SAR REFERENCE DIPOLE CALIBRATION REPORT

RZF A/CZ 03.07.14 EEO.6

Software	OPENSAR V5
Phantom	SN 13/09 SAM68
Probe	3523-EPGO-429
Liquid	Head Liquid Values: ϵ_p : 42.5 σ : 1.39
Distance between dipole center and liquid	10.0 mm
Area scan resolution	$\Delta x=8\text{mm}/\Delta y=8\text{mm}$
Zoon Scan Resolution	$\Delta x=8\text{mm}/\Delta y=8\text{mm}/\Delta z=5\text{mm}$
Frequency	1900 MHz
Input power	20 dBm
Liquid Temperature	20 $\pm$ 1 $^{\circ}\text{C}$
Lab Temperature	20 $\pm$ 1 $^{\circ}\text{C}$
Lab Humidity	30-70 %

Frequency	1g SAR (W/kg)			10g SAR (W/kg)		
	Measured	Measured normalized to 1W	Target normalized to 1W	Measured	Measured normalized to 1W	Target normalized to 1W
1900 MHz	3.97	39.69	39.70	2.09	20.92	20.50





SAR REFERENCE DIPOLE CALIBRATION REPORT

PDF A/CZ-53.3714 B00.0

7 LIST OF EQUIPMENT

Equipment Summary Sheet				
Equipment Description	Manufacturer / Model	Identification No.	Current Calibration Date	Next Calibration Date
SAM Phantom	MVG	SN 13/09 SAM68	Validated. No cal required.	Validated. No cal required.
COMOSAR Test Bench	Version 3	NA	Validated. No cal required.	Validated. No cal required.
Network Analyzer	Rohde & Schwarz ZVM	100203	08/2021	08/2024
Network Analyzer – Calibration kit	Rohde & Schwarz ZV-Z235	101223	07/2022	07/2025
Calipers	Mitutoyo	SN 0009732	11/2022	11/2025
Reference Probe	MVG	3523-EPGO-429	11/2023	11/2024
Multimeter	Keithley 2000	4013982	02/2023	02/2026
Signal Generator	Rohde & Schwarz SMB	106589	03/2022	03/2025
Amplifier	MVG	MODU-023-C-0002	Characterized prior to test. No cal required.	Characterized prior to test. No cal required.
Power Meter	NI-USB 5680	170100013	06/2021	06/2024
Power Meter	Keysight U2000A	SN: MY62340002	10/2022	10/2025
Directional Coupler	Krytar 158020	131467	Characterized prior to test. No cal required.	Characterized prior to test. No cal required.
Temperature / Humidity Sensor	Testo 184 H1	44225320	08/2021	08/2024



SAR Reference Dipole Calibration Report

Ref: ACR.53.29.24.BES.A

**GUANGDONG ASIA HONGKE TEST
TECHNOLOGY CO., LTD**
NO.1/F,BUILDING B1, JUNFENG INDUSTRIAL PARK,
CHONGQING ROAD, HEPING COMMUNITY ,
FUHAIHAI STREET, BAO'AN DISTRICT, SHENZHEN,
GUANGDONG 518055, P.R.CHINA
MVG COMOSAR REFERENCE DIPOLE
FREQUENCY: 2450MHZ
SERIAL NO.: SN 03/15 DIP2G450-352

Calibrated at MVG
Z.L. de la pointe du diable
Technopôle Brest Iroise – 295 avenue Alexis de Rochon
29280 PLOUZANE – FRANCE

Calibration date: 02/21/2024



Accreditations 25-6789 and 25-6814
Scope available on www.cofrac.fr

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Summary:

This document presents the method and results from an accredited SAR reference dipole calibration performed in MVG using the COMOSAR test bench. All calibration results are traceable to national metrology institutions.



SAE REFERENCE DIPOLE CALIBRATION REPORT

Ref: AITSZ-251110043FW1

	Name	Function	Date	Signature
Prepared by:	Pedro Ruiz	Measurement Responsible	2/22/2024	
Checked & approved by:	Jérôme Luc	Technical Manager	2/22/2024	
Authorized by:	Yann Toutain	Laboratory Director	2/27/2024	

Yann
Toutain ID

Signature
numérique de
Yann Toutain ID
Date : 2024-02-27
08:57:39 +01'00'

	Customer Name
Distribution :	Shenzhen Asia Hongke

Issue	Name	Date	Modifications
A	Pedro Ruiz	2/22/2024	Initial release



SAR REFERENCE DIPOLE CALIBRATION REPORT

Rev: A/13-01-27-14 ESD-6

TABLE OF CONTENTS

1	Introduction.....	4
2	Device Under Test	4
3	Product Description	4
3.1	General Information	4
4	Measurement Method	5
4.1	Mechanical Requirements	5
4.2	S11 parameter Requirements	5
4.3	SAR Requirements	5
5	Measurement Uncertainty	5
5.1	Mechanical dimensions	5
5.2	S11 Parameter	5
5.3	SAR	5
6	Calibration Results	6
6.1	Mechanical Dimensions	6
6.2	S11 parameter	6
6.3	SAR	6
7	List of Equipment	8



SAR REFERENCE DIPOLE CALIBRATION REPORT

Rev: A/13-03-27-14 E00.0

1 INTRODUCTION

This document contains a summary of the requirements set forth by the IEC/IEEE 62209-1528 and FCC KDB865664 D01 standards for reference dipoles used for SAR measurement system validations and the measurements that were performed to verify that the product complies with the fore mentioned standards.

2 DEVICE UNDER TEST

Device Under Test	
Device Type	COMOSAR 2450 MHz REFERENCE DIPOLE
Manufacturer	MVG
Model	SID2450
Serial Number	SN 03/15DIP2G450-352
Product Condition (new / used)	Used

3 PRODUCT DESCRIPTION

3.1 GENERAL INFORMATION

MVG's COMOSAR Validation Dipoles are built in accordance to the IEC/IEEE 62209-1528 and FCC KDB865664 D01 standards. The product is designed for use with the COMOSAR test bench only.



Figure 1 – MVG COMOSAR Validation Dipole



SAR REFERENCE DIPOLE CALIBRATION REPORT

Rev: A/13-01-27-14 EEE-0

4 MEASUREMENT METHOD

4.1 MECHANICAL REQUIREMENTS

The IEC/IEEE 62209-1528 and FCC KDB865664 D01 standards specify the mechanical components and dimensions of the validation dipoles, with the dimension's frequency and phantom shell thickness dependent. The COMOSAR test bench employs a 2 mm phantom shell thickness therefore the dipoles sold for use with the COMOSAR test bench comply with the requirements set forth for a 2 mm phantom shell thickness. A direct method is used with a ISO17025 calibrated caliper.

4.2 S11 PARAMETER REQUIREMENTS

The dipole used for SAR system validation measurements and checks must have a S11 of -20 dB or better. The S11 measurement shall be performed against a liquid filled flat phantom, with the phantom constructed as outlined in the fore mentioned standards. A direct method is used with a network analyser and its calibration kit, both with a valid ISO17025 calibration.

4.3 SAR REQUIREMENTS

The IEC/IEEE 62209-1528 and FCC KDB865664 D01 standards provide requirements for reference dipoles used for system validation measurements. The following measurements were performed to verify that the product complies with the fore-mentioned standards.

5 MEASUREMENT UNCERTAINTY

5.1 MECHANICAL DIMENSIONS

For the measurement in the range 0-300mm, the estimated expanded uncertainty ($k=2$) in calibration for the dimension measurement in mm is ± 0.20 mm with respect to measurement conditions.

For the measurement in the range 300-450mm, the estimated expanded uncertainty ($k=2$) in calibration for the dimension measurement in mm is ± 0.44 mm with respect to measurement conditions.

5.2 S11 PARAMETER

The estimated expanded uncertainty ($k=2$) in calibration for the S11 parameter in linear is ± 0.08 with respect to measurement conditions.

5.3 SAR

The guidelines outlined in the IEC/IEEE 62209-1528 and FCC KDB865664 D01 standards were followed to generate the measurement uncertainty for validation measurements.

The estimated expanded uncertainty ($k=2$) in calibration for the 1g and 10g SAR measurement in W/kg is $\pm 19\%$ with respect to measurement conditions.

Page: 5/8

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SAR REFERENCE DIPOLE CALIBRATION REPORT

File: AITC-251110043FW1

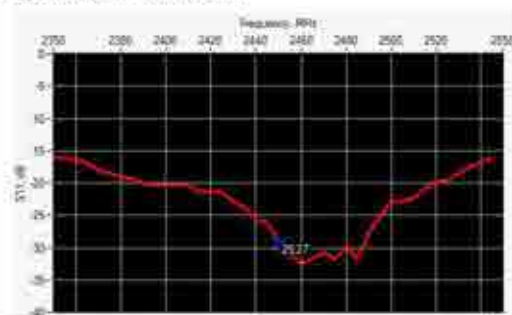
6 CALIBRATION RESULTS

6.1 MECHANICAL DIMENSIONS

L mm		h mm		d mm	
Measured	Required	Measured	Required	Measured	Required
-	51.50 +/- 2%	-	30.40 +/- 2%	-	3.60 +/- 2%

6.2 S11 PARAMETER

6.2.1 S11 parameter in Head Liquid



Frequency (MHz)	S11 parameter (dB)	Requirement (dB)	Impedance
2450	-29.27	-20	53.6Ω ± 0.1jΩ

6.3 SAR

The IEC/IEEE 62209-1528 and FCC KDB865664 D01 standards state that the system validation measurements must be performed using a reference dipole meeting the fore mentioned return loss and mechanical dimension requirements. The validation measurement must be performed against a liquid filled flat phantom, with the phantom constructed as outlined in the fore mentioned standards. Per the standards, the dipole shall be positioned below the bottom of the phantom, with the dipole length centered and parallel to the longest dimension of the flat phantom, with the top surface of the dipole at the described distance from the bottom surface of the phantom.

6.3.1 SAR with Head Liquid

The IEC/IEEE 62209-1528 and FCC KDB865664 D01 standards state that the system validation measurements should produce the SAR values shown below (for phantom thickness of 2 mm), within the uncertainty for the system validation. All SAR values are normalized to 1 W forward power. In bracket, the measured SAR is given with the used input power.

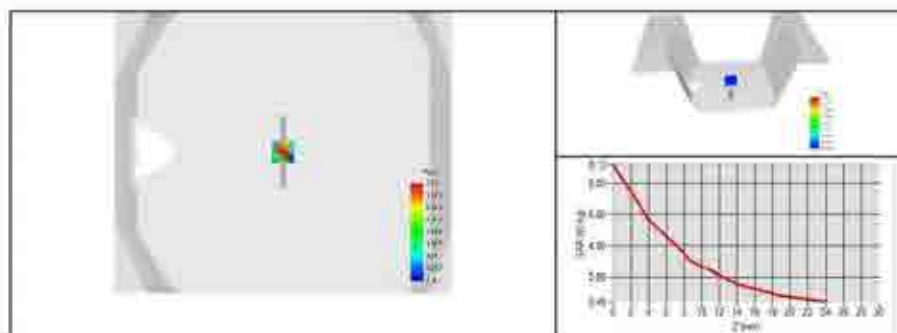


SAR REFERENCE DIPOLE CALIBRATION REPORT

File: AITSZ-251110043FW1

Software	OPENSAR V5
Phantom	SN 13/09 SAM68
Probe	3523-EPGO-429
Liquid	Head Liquid Values: ϵ_{ps} : 42.1 σ : 1.83
Distance between dipole center and liquid	10.0 mm
Area scan resolution	$dx=8mm/dy=8mm$
Zoon Scan Resolution	$dx=5mm/dy=5mm/dz=5mm$
Frequency	2450 MHz
Input power	20 dBm
Liquid Temperature	20 $\pm$ 1 $^{\circ}$ C
Lab Temperature	20 $\pm$ 1 $^{\circ}$ C
Lab Humidity	30-70 %

Frequency	1g SAR (W/kg)			10g SAR (W/kg)		
	Measured	Measured normalized to 1W	Target normalized to 1W	Measured	Measured normalized to 1W	Target normalized to 1W
2450 MHz	5.00	50.05	52.40	2.38	23.80	24.00





SAR REFERENCE DIPOLE CALIBRATION REPORT

Rev: A/25-03-2024 B&B

7 LIST OF EQUIPMENT

Equipment Summary Sheet				
Equipment Description	Manufacturer / Model	Identification No.	Current Calibration Date	Next Calibration Date
SAM Phantom	MVG	SN 13/09 SAM68	Validated. No cal required.	Validated. No cal required.
COMOSAR Test Bench	Version 3	NA	Validated. No cal required.	Validated. No cal required.
Network Analyzer	Rohde & Schwarz ZVM	100203	08/2021	08/2024
Network Analyzer – Calibration kit	Rohde & Schwarz ZV-Z235	101223	07/2022	07/2025
Calipers	Mitutoyo	SN 0009732	11/2022	11/2025
Reference Probe	MVG	3523-EPGO-429	11/2023	11/2024
Multimeter	Keithley 2000	4013982	02/2023	02/2026
Signal Generator	Rohde & Schwarz SMB	106589	03/2022	03/2025
Amplifier	MVG	MODU-023-C-0002	Characterized prior to test. No cal required.	Characterized prior to test. No cal required.
Power Meter	NI-USB 5680	170100013	06/2021	06/2024
Power Meter	Keysight U2000A	SN: MY62340002	10/2022	10/2025
Directional Coupler	Krytar 158020	131467	Characterized prior to test. No cal required.	Characterized prior to test. No cal required.
Temperature / Humidity Sensor	Testo 184 H1	44225320	08/2021	08/2024



SAR Reference Dipole Calibration Report

Ref: ACR.53.30.24.BES.A

**GUANGDONG ASIA HONGKE TEST
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NO.1/F,BUILDING B1, JUNFENG INDUSTRIAL PARK,
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GUANGDONG 518055, P.R.CHINA
MVG COMOSAR REFERENCE DIPOLE
FREQUENCY: 2600MHZ
SERIAL NO.: SN 03/15 DIP2G600-356

Calibrated at MVG
Z.L. de la pointe du diable
Technopôle Brest Iroise – 295 avenue Alexis de Rochon
29280 PLOUZANE – FRANCE

Calibration date: 02/21/2024



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Summary:

This document presents the method and results from an accredited SAR reference dipole calibration performed in MVG using the COMOSAR test bench. All calibration results are traceable to national metrology institutions.



SAR REFERENCE DIPOLE CALIBRATION REPORT

Ref: ACE 21 2024 B22-A

	Name	Function	Date	Signature
Prepared by:	Pedro Ruiz	Measurement Responsible	2/22/2024	
Checked & approved by:	Jérôme Luc	Technical Manager	2/22/2024	
Authorized by:	Yann Toutain	Laboratory Director	2/27/2024	

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Toutain
ID

Signature
numérique de
Yann Toutain ID
Date: 2024.02.27
08:58:12 +01'00'

	Customer Name
Distribution :	Shenzhen Asia Hongke

Issue	Name	Date	Modifications
A	Pedro Ruiz	2/22/2024	Initial release



SAR REFERENCE DIPOLE CALIBRATION REPORT

Rev: AVE-03-0034-BE01-A

TABLE OF CONTENTS

1	Introduction.....	4
2	Device Under Test.....	4
3	Product Description.....	4
3.1	General Information.....	4
4	Measurement Method.....	5
4.1	Mechanical Requirements.....	5
4.2	S11 parameter Requirements.....	5
4.3	SAR Requirements.....	5
5	Measurement Uncertainty.....	5
5.1	Mechanical dimensions.....	5
5.2	S11 Parameter.....	5
5.3	SAR.....	5
6	Calibration Results.....	6
6.1	Mechanical Dimensions.....	6
6.2	S11 parameter.....	6
6.3	SAR.....	6
7	List of Equipment.....	8



SAR REFERENCE DIPOLE CALIBRATION REPORT

Rev: A/CE-03-2014-BE01-A

1 INTRODUCTION

This document contains a summary of the requirements set forth by the IEC/IEEE 62209-1528 and FCC KDB865664 D01 standards for reference dipoles used for SAR measurement system validations and the measurements that were performed to verify that the product complies with the fore mentioned standards.

2 DEVICE UNDER TEST

Device Under Test	
Device Type	COMOSAR 2600 MHz REFERENCE DIPOLE
Manufacturer	MVG
Model	SID2600
Serial Number	SN 03/15DIP2G600-356
Product Condition (new / used)	Used

3 PRODUCT DESCRIPTION

3.1 GENERAL INFORMATION

MVG's COMOSAR Validation Dipoles are built in accordance to the IEC/IEEE 62209-1528 and FCC KDB865664 D01 standards. The product is designed for use with the COMOSAR test bench only.



Figure 1 – MVG COMOSAR Validation Dipole



SAR REFERENCE DIPOLE CALIBRATION REPORT

Rev: A/CE-03-0034-BE00-A

4 MEASUREMENT METHOD

4.1 MECHANICAL REQUIREMENTS

The IEC/IEEE 62209-1528 and FCC KDB865664 D01 standards specify the mechanical components and dimensions of the validation dipoles, with the dimension's frequency and phantom shell thickness dependent. The COMOSAR test bench employs a 2 mm phantom shell thickness therefore the dipoles sold for use with the COMOSAR test bench comply with the requirements set forth for a 2 mm phantom shell thickness. A direct method is used with a ISO17025 calibrated caliper.

4.2 S11 PARAMETER REQUIREMENTS

The dipole used for SAR system validation measurements and checks must have a S11 of -20 dB or better. The S11 measurement shall be performed against a liquid filled flat phantom, with the phantom constructed as outlined in the fore mentioned standards. A direct method is used with a network analyser and its calibration kit, both with a valid ISO17025 calibration.

4.3 SAR REQUIREMENTS

The IEC/IEEE 62209-1528 and FCC KDB865664 D01 standards provide requirements for reference dipoles used for system validation measurements. The following measurements were performed to verify that the product complies with the fore-mentioned standards.

5 MEASUREMENT UNCERTAINTY

5.1 MECHANICAL DIMENSIONS

For the measurement in the range 0-300mm, the estimated expanded uncertainty ($k=2$) in calibration for the dimension measurement in mm is ± 0.20 mm with respect to measurement conditions.

For the measurement in the range 300-450mm, the estimated expanded uncertainty ($k=2$) in calibration for the dimension measurement in mm is ± 0.44 mm with respect to measurement conditions.

5.2 S11 PARAMETER

The estimated expanded uncertainty ($k=2$) in calibration for the S11 parameter in linear is ± 0.08 with respect to measurement conditions.

5.3 SAR

The guidelines outlined in the IEC/IEEE 62209-1528 and FCC KDB865664 D01 standards were followed to generate the measurement uncertainty for validation measurements.

The estimated expanded uncertainty ($k=2$) in calibration for the 1g and 10g SAR measurement in W/kg is $\pm 19\%$ with respect to measurement conditions.

Page: 5/8

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SAR REFERENCE DIPOLE CALIBRATION REPORT

Rev: A/CE-53-3C34-BE01.0

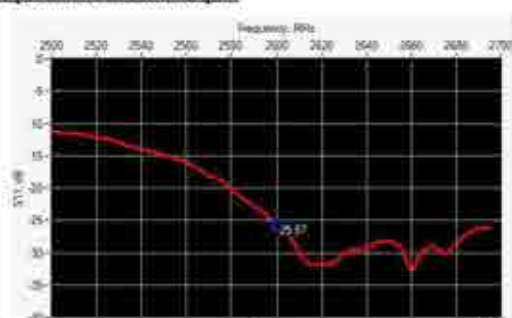
6 CALIBRATION RESULTS

6.1 MECHANICAL DIMENSIONS

L mm		h mm		d mm	
Measured	Required	Measured	Required	Measured	Required
-	48.50 +/- 2%	-	28.80 +/- 2%	-	3.60 +/- 2%

6.2 S11 PARAMETER

6.2.1 S11 parameter in Head Liquid



Frequency (MHz)	S11 parameter (dB)	Requirement (dB)	Impedance
2600	-25.57	-20	54.5Ω - 3.2jΩ

6.3 SAR

The IEC/IEEE 62209-1528 and FCC KDB865664 D01 standards state that the system validation measurements must be performed using a reference dipole meeting the fore mentioned return loss and mechanical dimension requirements. The validation measurement must be performed against a liquid filled flat phantom, with the phantom constructed as outlined in the fore mentioned standards. Per the standards, the dipole shall be positioned below the bottom of the phantom, with the dipole length centered and parallel to the longest dimension of the flat phantom, with the top surface of the dipole at the described distance from the bottom surface of the phantom.

6.3.1 SAR with Head Liquid

The IEC/IEEE 62209-1528 and FCC KDB865664 D01 standards state that the system validation measurements should produce the SAR values shown below (for phantom thickness of 2 mm), within the uncertainty for the system validation. All SAR values are normalized to 1 W forward power. In bracket, the measured SAR is given with the used input power.

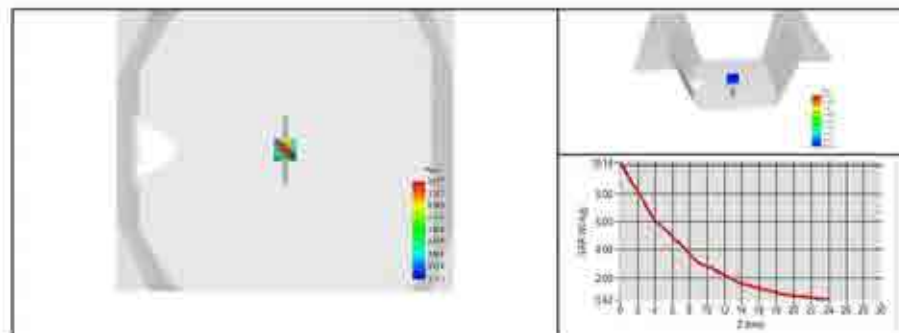


SAR REFERENCE DIPOLE CALIBRATION REPORT

File: AVE-53-3C34-BE02.a

Software	OPENSAR V5
Phantom	SN 13/09 SAM68
Probe	3523-EPGO-429
Liquid	Head Liquid Values: ϵ_{ps} : 41.3 sigma : 1.95
Distance between dipole center and liquid	10.0 mm
Area scan resolution	$dx=8mm/dy=8mm$
Zoon Scan Resolution	$dx=5mm/dy=5mm/dz=5mm$
Frequency	2600 MHz
Input power	20 dBm
Liquid Temperature	20 $\pm$ 1 $^{\circ}$ C
Lab Temperature	20 $\pm$ 1 $^{\circ}$ C
Lab Humidity	30-70 %

Frequency	1g SAR (W/kg)			10g SAR (W/kg)		
	Measured	Measured normalized to 1W	Target normalized to 1W	Measured	Measured normalized to 1W	Target normalized to 1W
2600 MHz	5.42	54.16	55.30	2.49	24.85	24.60





SAR REFERENCE DIPOLE CALIBRATION REPORT

Ref: ACR-53 30/24 SES-A

7 LIST OF EQUIPMENT

Equipment Summary Sheet				
Equipment Description	Manufacturer / Model	Identification No.	Current Calibration Date	Next Calibration Date
SAM Phantom	MVG	SN 13/09 SAM68	Validated. No cal required.	Validated. No cal required.
COMOSAR Test Bench	Version 3	NA	Validated. No cal required.	Validated. No cal required.
Network Analyzer	Rohde & Schwarz ZVM	100203	08/2021	08/2024
Network Analyzer – Calibration kit	Rohde & Schwarz ZV-Z235	101223	07/2022	07/2025
Calipers	Mitutoyo	SN 0009732	11/2022	11/2025
Reference Probe	MVG	3523-EPGO-429	11/2023	11/2024
Multimeter	Kethley 2000	4013982	02/2023	02/2026
Signal Generator	Rohde & Schwarz SMB	106589	03/2022	03/2025
Amplifier	MVG	MODU-023-C-0002	Characterized prior to test. No cal required.	Characterized prior to test. No cal required.
Power Meter	NI-USB 5680	170100013	06/2021	06/2024
Power Meter	Keysight U2000A	SN: MY62340002	10/2022	10/2025
Directional Coupler	Krytar 158020	131467	Characterized prior to test. No cal required.	Characterized prior to test. No cal required.
Temperature / Humidity Sensor	Testo 184 H1	44225320	06/2021	06/2024



SAR Reference Waveguide Calibration Report

Ref: ACR 53.31.24.BES.A

GUANGDONG ASIA HONGKE TEST TECHNOLOGY CO., LTD

NO.1/F,BUILDING B1, JUNFENG INDUSTRIAL PARK,
CHONGQING ROAD, HEPING COMMUNITY ,
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GUANGDONG 518055, P.R.CHINA

MVG COMOSAR REFERENCE WAVEGUIDE
FREQUENCY: 5000-6000 MHZ
SERIAL NO.: SN 13/14 WGA33

Calibrated at MVG

Z.I. de la pointe du diable

Technopôle Brest Iroise – 295 avenue Alexis de Rochon
29280 PLOUZANE - FRANCE

Calibration date: 02/21/2024



Accreditations #2-6789 and #2-6814
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Summary:

This document presents the method and results from an accredited SAR reference waveguide calibration performed at MVG, using the COMOSAR test bench. The test results covered by accreditation are traceable to the International System of Units (SI).



SAR REFERENCE WAVEGUIDE CALIBRATION REPORT

Ref: ACE-23-31-24-RES-A

	Name	Function	Date	Signature
Prepared by:	Pedro Ruiz	Measurement Responsible	2/22/2024	
Checked & approved by:	Jérôme Luc	Technical Manager	2/22/2024	
Authorized by:	Yann Toutain	Laboratory Director	2/27/2024	

Yann
Toutain ID

Signature
numérique de Yann
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Date: 2024.02.27
08:58:45 -0100

	Customer Name
Distribution :	Shenzhen Asia Hongke

Issue	Name	Date	Modifications
A.	Pedro Ruiz	2/22/2024	Initial release



SAR REFERENCE WAVEGUIDE CALIBRATION REPORT

Ref: ACR-53-31-34-002-A

TABLE OF CONTENTS

1	Introduction.....	4
2	Device Under Test.....	4
3	Product Description	4
3.1	General Information	4
4	Measurement Method	4
4.1	Mechanical Requirements	4
4.2	S11 parameter Requirements	4
4.3	SAR Requirements	5
5	Measurement Uncertainty	5
5.1	Mechanical dimensions	5
5.2	S11 Parameter	5
5.3	SAR	5
6	Calibration Results.....	5
6.1	Mechanical Dimensions	5
6.2	S11 parameter	6
6.3	SAR	6
7	List of Equipment	9



SAR REFERENCE WAVEGUIDE CALIBRATION REPORT

Ref: ACR-53-31-34-002-A

1 INTRODUCTION

This document contains a summary of the requirements set forth by the IEC/IEEE 62209-1528 and FCC KDB865664 D01 standards for reference waveguides used for SAR measurement system validations and the measurements that were performed to verify that the product complies with the fore mentioned standards.

2 DEVICE UNDER TEST

Device Under Test	
Device Type	COMOSAR 5000-6000 MHz REFERENCE WAVEGUIDE
Manufacturer	MVG
Model	SWG5500
Serial Number	SN 13/14 WGA 33
Product Condition (new / used)	Used

3 PRODUCT DESCRIPTION

3.1 GENERAL INFORMATION

MVG's COMOSAR Validation Waveguides are built in accordance to the IEC/IEEE 62209-1528 and FCC KDB865664 D01 standards.

4 MEASUREMENT METHOD

4.1 MECHANICAL REQUIREMENTS

The IEC/IEEE 62209-1528 and FCC KDB865664 D01 standards specify the mechanical components and dimensions of the validation dipoles, with the dimension's frequency and phantom shell thickness dependent. The COMOSAR test bench employs a 2 mm phantom shell thickness therefore the dipoles sold for use with the COMOSAR test bench comply with the requirements set forth for a 2 mm phantom shell thickness. A direct method is used with a ISO17025 calibrated caliper.

4.2 S11 PARAMETER REQUIREMENTS

The dipole used for SAR system validation measurements and checks must have a S11 of -8 dB or better. The S11 measurement shall be performed against a liquid filled flat phantom, with the phantom constructed as outlined in the fore mentioned standards. A direct method is used with a network analyser and its calibration kit, both with a valid ISO17025 calibration.



SAR REFERENCE WAVEGUIDE CALIBRATION REPORT

Ref: ACR-53-31-34-002-A

4.3 SAR REQUIREMENTS

The IEC/IEEE 62209-1528 and FCC KDB865664 D01 standards provide requirements for reference dipoles used for system validation measurements. The following measurements were performed to verify that the product complies with the fore-mentioned standards.

5 MEASUREMENT UNCERTAINTY

5.1 MECHANICAL DIMENSIONS

The estimated expanded uncertainty (k=2) in calibration for the dimension measurement in mm is +/- 0.20 mm with respect to measurement conditions.

5.2 S11 PARAMETER

The estimated expanded uncertainty (k=2) in calibration for the S11 parameter in linear is +/-0.08 with respect to measurement conditions.

5.3 SAR

The guidelines outlined in the IEC/IEEE 62209-1528 and FCC KDB865664 D01 standards were followed to generate the measurement uncertainty for validation measurements.

The estimated expanded uncertainty (k=2) in calibration for the 1g and 10g SAR measurement in W/kg is +/-19% with respect to measurement conditions.

6 CALIBRATION RESULTS

6.1 MECHANICAL DIMENSIONS

Frequency (MHz)	L (mm)		W (mm)		Lr (mm)		Wr (mm)	
	Required	Measured	Required	Measured	Required	Measured	Required	Measured
5800	40.39 ± 0.13	-	20.19 ± 0.13	-	61.03 ± 0.13	-	61.98 ± 0.13	-

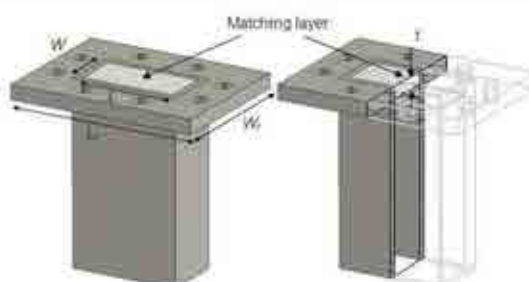


Figure 1: Validation Waveguide Dimensions

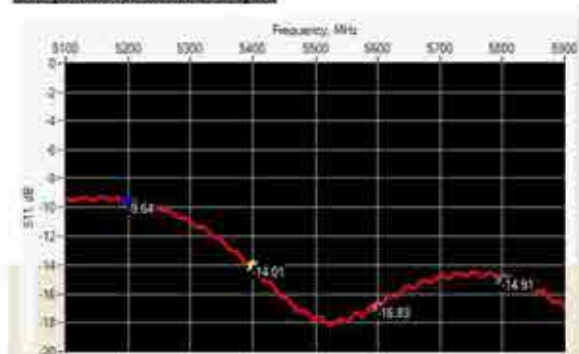


SAR REFERENCE WAVEGUIDE CALIBRATION REPORT

Ref: ACR-53-31-34-002-A

6.2 S11 PARAMETER

6.2.1 S11 parameter In Head Liquid



Frequency (MHz)	S11 parameter (dB)	Requirement (dB)	Impedance
5200	-9.64	-8	$25.80 \Omega - 6.58 j\Omega$
5400	-14.01	-8	$51.53 \Omega + 20.60 j\Omega$
5600	-16.83	-8	$44.12 \Omega - 12.35 j\Omega$
5800	-14.91	-8	$38.53 \Omega + 11.21 j\Omega$

6.3 SAR

The IEC/IEEE 62209-1528 and FCC KDB865664 D01 standards state that the system validation measurements must be performed using a reference waveguide meeting the fore mentioned return loss and mechanical dimension requirements. The validation measurement must be performed with the matching layer placed in the open end of the waveguide, with the waveguide and matching layer in direct contact with the phantom shell.

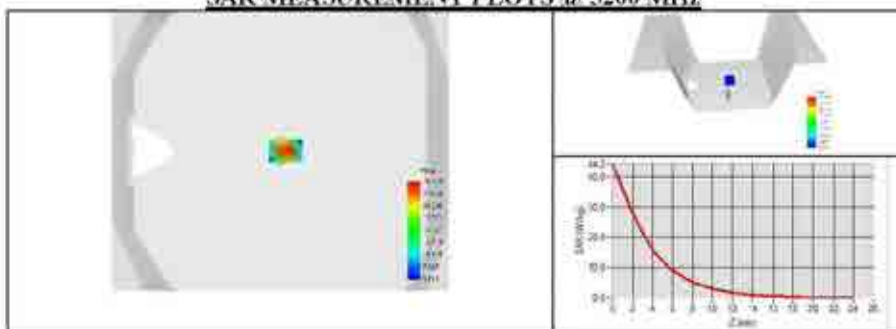
6.3.1 SAR With Head Liquid

At those frequencies, the target SAR value can not be generic. Hereunder is the target SAR value defined by MVG, within the uncertainty for the system validation. All SAR values are normalized to 1 W net power. In bracket, the measured SAR is given with the used input power.

	
SAR REFERENCE WAVEGUIDE CALIBRATION REPORT	
Ref: ACR-53-31-34-002-A	
Software	OPENSAR V5
Phantom	SN 13/09 SAM68
Probe	3523-EPGO-429
Liquid	Head Liquid Values 5200 MHz: ϵ_p' :34.16 sigma : 4.42 Head Liquid Values 5400 MHz: ϵ_p' :33.63 sigma : 4.64 Head Liquid Values 5600 MHz: ϵ_p' :33.12 sigma : 4.87 Head Liquid Values 5800 MHz: ϵ_p' :32.57 sigma : 5.12
Distance between dipole waveguide and liquid	0 mm
Area scan resolution	$dx=8mm/dy=8mm$
Zoon Scan Resolution	$dx=4mm/dy=4mm/dz=2mm$
Frequency	5200 MHz 5400 MHz 5600 MHz 5800 MHz
Input power	20 dBm
Liquid Temperature	20 +/- 1 °C
Lab Temperature	20 +/- 1 °C
Lab Humidity	30-70 %

Frequency (MHz)	1 g SAR (W/kg)			10 g SAR (W/kg)		
	Measured	Measured normalized to 1W	Target normalized to 1W	Measured	Measured normalized to 1W	Target normalized to 1W
5200	16.26	162.59	159.00	5.62	56.21	56.90
5400	15.98	159.81	166.40	5.50	55.00	58.43
5600	17.91	179.15	173.80	6.10	61.01	59.97
5800	18.22	182.20	181.20	6.13	61.32	61.50

SAR MEASUREMENT PLOTS @ 5200 MHz

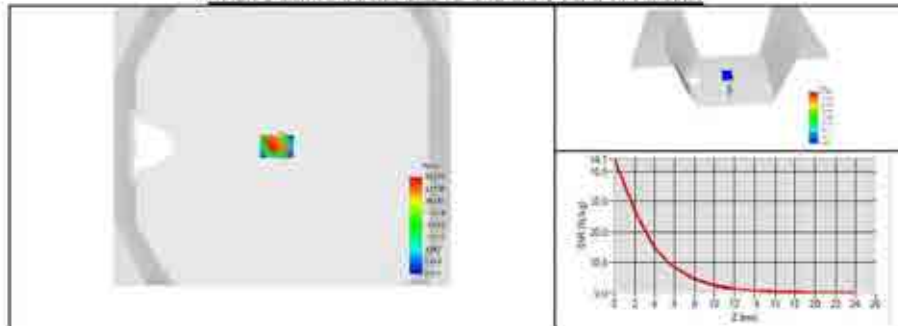




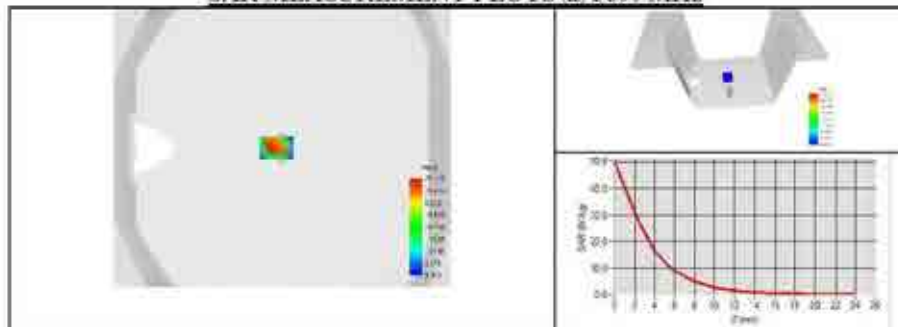
SAR REFERENCE WAVEGUIDE CALIBRATION REPORT

Rev: ACE-53-31-34-002-A

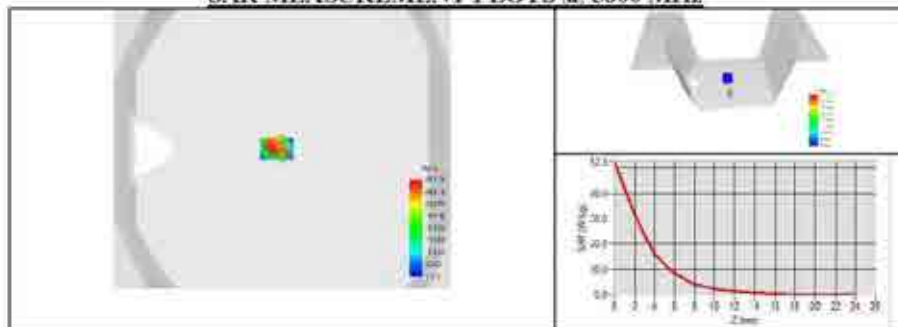
SAR MEASUREMENT PLOTS @ 5400 MHz



SAR MEASUREMENT PLOTS @ 5600 MHz



SAR MEASUREMENT PLOTS @ 5800 MHz





SAR REFERENCE WAVEGUIDE CALIBRATION REPORT

Ref: ACE-53-31-24-002-A

7 LIST OF EQUIPMENT

Equipment Summary Sheet				
Equipment Description	Manufacturer / Model	Identification No.	Current Calibration Date	Next Calibration Date
SAM Phantom	MVG	SN 13/09 SAM68	Validated, No cal required.	Validated, No cal required.
COMOSAR Test Bench	Version 3	NA	Validated, No cal required.	Validated, No cal required.
Network Analyzer	Rohde & Schwarz ZVM	100203	08/2021	08/2024
Network Analyzer – Calibration kit	Rohde & Schwarz ZV-Z235	101223	07/2022	07/2025
Calipers	Mitutoyo	SN 0009732	11/2022	11/2025
Reference Probe	MVG	3623-EPGO-431	11/2023	11/2024
Multimeter	Kelthley 2000	4013982	02/2023	02/2026
Signal Generator	Rohde & Schwarz SMB	108589	03/2022	03/2025
Amplifier	MVG	MODU-023-C-0002	Characterized prior to test. No cal required.	Characterized prior to test. No cal required.
Power Meter	NI-USB 5680	170100013	06/2021	06/2024
Power Meter	Keysight U2000A	SN: MY62340002	10/2022	10/2025
Directional Coupler	Krytar 158020	131467	Characterized prior to test. No cal required.	Characterized prior to test. No cal required.
Temperature / Humidity Sensor	Testo 184 H1	44225320	06/2021	06/2024

Appendix E. Justification of the extended calibration

If dipoles are verified in return loss ($<-20\text{dB}$, within 20% of prior calibration for below 3GHz, and $<-8\text{dB}$, within 20% of prior calibration for 5GHz to 6GHz), and in impedance (within 5 ohm of prior calibration), the annual calibration is not necessary and the calibration interval can be extended.

<Head 750MHz>

Return Loss (dB)	Delta (%)	Impedance	Delta(ohm)	Date of Measurement
-29.73	-	52.5	-	Feb. 21, 2024
-29.642	0.30	52.998	0.498	Feb. 20, 2025

The return loss is $<-20\text{dB}$, within 20% of prior calibration; the impedance is within 5 ohm of prior calibration. Therefore the verification result should support extended calibration.

<Head 835MHz>

Return Loss (dB)	Delta (%)	Impedance	Delta(ohm)	Date of Measurement
-42.84	-	50.5	-	Feb. 21, 2024
-42.803	0.09	50.592	0.092	Feb. 20, 2025

The return loss is $<-20\text{dB}$, within 20% of prior calibration; the impedance is within 5 ohm of prior calibration. Therefore the verification result should support extended calibration.

<Head 1800MHz>

Return Loss (dB)	Delta (%)	Impedance	Delta(ohm)	Date of Measurement
-24.53	-	44.8	-	Feb. 21, 2024
-24.545	0.06	44.809	0.009	Feb. 20, 2025

The return loss is $<-20\text{dB}$, within 20% of prior calibration; the impedance is within 5 ohm of prior calibration. Therefore the verification result should support extended calibration.

<Head 1900MHz>

Return Loss (dB)	Delta (%)	Impedance	Delta(ohm)	Date of Measurement
-23.28	-	46.2	-	Feb. 21, 2024
-23.518	1.02	46.516	0.316	Feb. 20, 2025

The return loss is $<-20\text{dB}$, within 20% of prior calibration; the impedance is within 5 ohm of prior calibration. Therefore the verification result should support extended calibration.

<Head 2450MHz>

Return Loss (dB)	Delta (%)	Impedance	Delta(ohm)	Date of Measurement
-29.27	-	53.6	-	Feb. 21, 2024
-29.39	0.41	53.742	0.142	Feb. 20, 2025

The return loss is <-20dB, within 20% of prior calibration; the impedance is within 5 ohm of prior calibration. Therefore the verification result should support extended calibration.

<Head 2600MHz>

Return Loss (dB)	Delta (%)	Impedance	Delta(ohm)	Date of Measurement
-25.57	-	54.5	-	Feb. 21, 2024
-25.248	1.26	54.653	0.153	Feb. 20, 2025

The return loss is <-20dB, within 20% of prior calibration; the impedance is within 5 ohm of prior calibration. Therefore the verification result should support extended calibration.

<Head 5200MHz>

Return Loss (dB)	Delta (%)	Impedance	Delta(ohm)	Date of Measurement
-9.64	-	25.80	-	Feb. 21, 2024
-9.1819	4.75	25.891	0.091	Feb. 20, 2025

The return loss is <-20dB, within 20% of prior calibration; the impedance is within 5 ohm of prior calibration. Therefore the verification result should support extended calibration.

<Head 5400MHz>

Return Loss (dB)	Delta (%)	Impedance	Delta(ohm)	Date of Measurement
-14.01	-	51.53	-	Feb. 21, 2024
-14.1612	1.08	51.870	0.340	Feb. 20, 2025

The return loss is <-20dB, within 20% of prior calibration; the impedance is within 5 ohm of prior calibration. Therefore the verification result should support extended calibration.

<Head 5600MHz>

Return Loss (dB)	Delta (%)	Impedance	Delta(ohm)	Date of Measurement
-16.83	-	44.12	-	Feb. 21, 2024
-16.9801	0.89	44.821	0.701	Feb. 20, 2025

The return loss is <-20dB, within 20% of prior calibration; the impedance is within 5 ohm of prior calibration. Therefore the verification result should support extended calibration.

<Head 5800MHz>

Return Loss (dB)	Delta (%)	Impedance	Delta(ohm)	Date of Measurement
-14.91	-	38.53	-	Feb. 21, 2024
-14.349	3.76	38.715	0.185	Feb. 20, 2025

The return loss is <-20dB, within 20% of prior calibration; the impedance is within 5 ohm of prior calibration. Therefore the verification result should support extended calibration.

END OF THE REPORT