





SAR Test Report

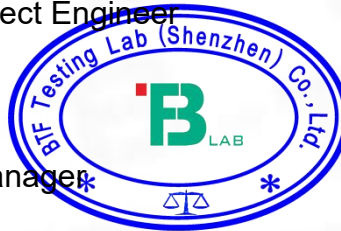
For

Applicant Name: DOKE COMMUNICATION (HK) LIMITED
Address: RM 1902 EASEY COMM BLDG 253-261 HENNESSY ROAD
WANCHAI HK CHINA
EUT Name: Mobile Phone
Brand Name: Blackview
Model Number: BV4800 (3+64)

Issued By

Company Name: BTF Testing Lab (Shenzhen) Co., Ltd.
Address: F101, 201 and 301, Building 1, Block 2, Tantou Industrial Park,
Tantou Community, Songgang Street, Bao'an District, Shenzhen,
China
Report Number: BTF231007R00701
Test Standards: FCC 47 CFR§2.1093 IEEE1528-2013 IEEE C95.1-2019
KDB447498 D04 KDB865664 D01 KDB865664 D02
KDB941225 D01 KDB941225 D05 KDB248227 D01
KDB941225 D06 KDB648474 D04 KDB690783 D01
FCC ID: 2A7DX-BV4800-64
Test Conclusion: Pass
Test Date: 2023-10-31 to 2023-11-01
Date of Issue: 2023-11-02

Prepared By: 
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Date: 2023-11-02
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Date: 2023-11-02



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Revision History		
Version	Issue Date	Revisions Content
R_V0	2023-11-02	Original
<i>Note:</i>	<i>Once the revision has been made, then previous versions reports are invalid.</i>	

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1. Introduction

1.1 Identification of Testing Laboratory

Company Name:	BTF Testing Lab (Shenzhen) Co., Ltd.
Address:	F101, 201 and 301, Building 1, Block 2, Tantou Industrial Park, Tantou Community, Songgang Street, Bao'an District, Shenzhen, China
Phone Number:	+86-0755-23146130
Fax Number:	+86-0755-23146130

1.2 Identification of the Responsible Testing Location

Test Location:	BTF Testing Lab (Shenzhen) Co., Ltd.
Address:	F101, 201 and 301, Building 1, Block 2, Tantou Industrial Park, Tantou Community, Songgang Street, Bao'an District, Shenzhen, China
Description:	All measurement facilities used to collect the measurement data are located at F101,201 and 301, Building 1, Block 2, Tantou Industrial Park, Tantou Community, Songgang Street, Bao'an District, Shenzhen, China
FCC Registration Number	518915
Designation Number	CN1330

1.3 Laboratory Condition

Ambient Temperature:	21°C to 25°C
Ambient Relative Humidity:	48% to 59%
Ambient Pressure:	100 kPa to 102 kPa

1.4 Announcement

- (1) The test report reference to the report template version v0.
- (2) The test report is invalid if not marked with the signatures of the persons responsible for preparing, reviewing and approving the test report.
- (3) The test report is invalid if there is any evidence and/or falsification.
- (4) This document may not be altered or revised in any way unless done so by BTF and all revisions are duly noted in the revisions section.
- (5) Content of the test report, in part or in full, cannot be used for publicity and/or promotional purposes without prior written approval from the laboratory.
- (6) The laboratory is only responsible for the data released by the laboratory, except for the part provided by the applicant.

2. Product Information

2.1 Application Information

Company Name:	DOKE COMMUNICATION (HK) LIMITED
Address:	RM 1902 EASEY COMM BLDG 253-261 HENNESSY ROAD WANCHAI HK C HINA

2.2 Manufacturer Information

Company Name:	Shenzhen DOKE Electronic Co., Ltd.
Address:	801, Building3, 7th Industrial Zone, Yulv Community, Yutang Road, Guangming District, Shenzhen, China

2.3 Factory Information

Company Name:	Shenzhen DOKE Electronic Co., Ltd.
Address:	801, Building3, 7th Industrial Zone, Yulv Community, Yutang Road, Guangming District, Shenzhen, China

2.4 General Description of Equipment under Test (EUT)

EUT Name	Mobile Phone
Under Test Model Name	BV4800 (3+64)
HW Version	HCT-M662MB-B2
SW Version	BV4800_NEU_M662_V1.0
Sample No.	BTFSN231007E002-1/3

2.5 Equipment under Test Ancillary Equipment

Ancillary Equipment 1	Rechargeable Battery	
	Capacity	5180mAh
	Rated Voltage	3.85V

2.6 Technical Information

Network and Wireless connectivity	2G Network GSM/GPRS/EGPRS 850/1900 3G Network WCDMA/HSDPA/HSUPA Band 2/4/5 4G Network FDD LTE Band 2/4/5/7/12/13/17/26/66 2.4G WIFI 802.11b, 802.11g, 802.11n(HT20/40) 5G WIFI 802.11a, 802.11n(HT20/40), 802.11ac(VHT20/40/80) BT (EDR+BLE) NFC
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The requirement for the following technical information of the EUT was tested in this report:

Operating Mode	GSM, WCDMA, LTE, WLAN, Bluetooth, NFC		
Frequency Range	GSM 850	TX: 824 ~ 849 MHz	RX: 869 ~ 894 MHz
	GSM 1900	TX: 1850 ~ 1910 MHz	RX: 1930 ~ 1990 MHz
	WCDMA Band 2	TX: 1850 ~ 1910 MHz	RX: 1930 ~ 1990 MHz
	WCDMA Band 4	TX: 1710 ~ 1755 MHz	RX: 2110 ~ 2155 MHz
	WCDMA Band 5	TX: 824 ~ 849 MHz	RX: 869 ~ 894 MHz
	LTE Band 2	TX: 1850 ~ 1910 MHz	RX: 1930 ~ 1990 MHz
	LTE Band 4	TX: 1710 ~ 1755 MHz	RX: 2110 ~ 2155 MHz
	LTE Band 5	TX: 824 ~ 849 MHz	RX: 869 ~ 894 MHz
	LTE Band 7	TX: 2500 ~ 2570 MHz	RX: 2620 ~ 2690 MHz
	LTE Band 12	TX: 698 ~ 716 MHz	RX: 728 ~ 746 MHz
	LTE Band 13	TX: 777 ~ 787 MHz	RX: 746 ~ 756 MHz
	LTE Band 17	TX: 704 ~ 716 MHz	RX: 734 ~ 746 MHz
	LTE Band 26	TX: 814 ~ 849 MHz	RX: 859 ~ 894 MHz
	LTE Band 66	TX: 1710 ~ 1780 MHz	RX: 2110 ~ 2200 MHz
	802.11b/g/n(HT20)	2412 ~ 2462 MHz	
	802.11n(HT40)	2422 ~ 2452 MHz	
	802.11a /802.11n(HT20/40) /802.11ac(VHT20/40/80)	5150 ~ 5250 MHz 5725 ~ 5850 MHz	
	Bluetooth	2402 ~ 2480 MHz	
NFC	13.56 MHz		
Antenna Type	WWAN: PIFA Antenna WLAN: PIFA Antenna BT: PIFA Antenna NFC: PIFA Antenna		
Hotspot Function	Support		
Power Reduction	Not Support		
Exposure Category	General Population/Uncontrolled exposure		
EUT Stage	Portable Device		
Product	Type		
	<input type="checkbox"/> Production unit	<input checked="" type="checkbox"/> Identical prototype	

3. Summary of Test Results

3.1 Test Standards

No.	Identity	Document Title
1	47 CFR Part 2.1093	Radiofrequency radiation exposure evaluation: portable devices
2	IEEE1528-2013	Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate in the Human Head from Wireless Communications Devices: Measurement Techniques
3	IEEE C95.1-2019	IEEE Standard for Safety Levels with Respect to Human Exposure to Electric, Magnetic, and Electromagnetic Fields, 0 Hz to 300 GHz
4	KDB447498 D04	Interim General RF Exposure Guidance v01
5	KDB865664 D01	SAR measurement 100MHz to 6GHz v01r04
6	KDB865664 D02	RF Exposure Reporting v01r02
7	KDB941225 D01	3G SAR Procedures v03r01
8	KDB941225 D05	SAR for LTE Devices v02r05
9	KDB248227 D01	802.11 Wi-Fi SAR v02r02
10	KDB941225 D06	Hotspot Mode v02r01
11	KDB648474 D04	Handset SAR v01r03
12	KDB690783 D01	SAR Listings on Grant v01r03

3.2 Device Category and SAR Limit

This device belongs to portable device category because its radiating structure is allowed to be used within 20 centimeters of the body of the user. Limit for General Population/Uncontrolled exposure should be applied for this device, it is 1.6 W/kg as averaged over any 1 gram of tissue.

Body Position	SAR Value (W/Kg)	
	General Population/ Uncontrolled Exposure	Occupational/ Controlled Exposure
Whole-Body SAR (averaged over the entire body)	0.08	0.4
Partial-Body SAR (averaged over any 1 gram of tissue)	1.60	8.0
SAR for hands, wrists, feet and ankles (averaged over any 10 grams of tissue)	4.0	20.0

NOTE:

General Population/Uncontrolled Exposure: Locations where there is the exposure of individuals who have no knowledge or control of their exposure. General population/uncontrolled exposure limits are applicable to situations in which the general public may be exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Members of the general public would come under this category when exposure is not employment-related; for example, in the case of a wireless transmitter that exposes persons in its vicinity.

Occupational/Controlled Exposure: Locations where there is exposure that may be incurred by persons who are aware of the potential for exposure. In general, occupational/controlled exposure limits are applicable to situations in which persons are exposed as a consequence of their employment, who have been made fully aware of the potential for exposure and can exercise control over their exposure. This exposure category is also applicable when the exposure is of a transient nature due to incidental passage through a location where the exposure levels may be higher than the general population/uncontrolled limits, but the exposed person is fully aware of the potential for exposure and can exercise control over his or her exposure by leaving the area or by some other appropriate means.

3.3 Test Result Summary

The maximum results of Specific Absorption Rate (SAR) found during test as follows:

<Highest Reported standalone SAR Summary>

Exposure Position	Frequency Band	Reported SAR (W/kg)	Equipment Class	Highest Reported SAR (W/kg)
Head 1-g SAR (0 mm Gap)	GSM 850	0.132	PCE	0.375
	GSM 1900	0.099		
	WCDMA Band II	0.128		
	WCDMA Band IV	0.104		
	WCDMA Band V	0.226		
	LTE Band 2	0.165		
	LTE Band 4	0.092		
	LTE Band 5	0.261		
	LTE Band 7	0.101		
	LTE Band 12	0.185		
	LTE Band 13	0.222		
	LTE Band 17	0.176		
	LTE Band 26	0.255		
	LTE Band 66	0.150		
	WLAN 2.4 GHz	0.375	DTS	
WLAN 5.2 GHz	0.231	NII		
WLAN 5.8 GHz	0.360			
Exposure Position	Frequency Band	Reported SAR (W/kg)	Equipment Class	Highest Reported SAR (W/kg)
Hotspot(Body) 1-g SAR (10 mm Gap)	GSM 850	0.278	PCB	0.771
	GSM 1900	0.395		
	WCDMA Band II	0.433		
	WCDMA Band IV	0.771		
	WCDMA Band V	0.297		
	LTE Band 2	0.400		
	LTE Band 4	0.486		
	LTE Band 5	0.272		
	LTE Band 7	0.476		
	LTE Band 12	0.184		
	LTE Band 13	0.213		
	LTE Band 17	0.255		
	LTE Band 26	0.249		
	LTE Band 66	0.488		
	WLAN 2.4 GHz	0.148	NII	
WLAN 5.2 GHz	0.092			
WLAN 5.8 GHz	0.235			

This device is in compliance with Specific Absorption Rate(SAR) for general population/uncontrolled exposure limits (1.6 W/kg) specified in FCC47 CFR part 2(2.1093) and ANSI/IEEE C95.1-2019, and had been tested in accordance with the measurement methods and procedures specified in IEEE 1528-2013.

<Highest Reported Simultaneous SAR>

Exposure Position	Simultaneous Configuration	Highest Reported Simultaneous Transmission SAR (W/kg)	Limit (W/kg)	Verdict
Head 1-g SAR (0 mm Gap)	LTE Band 5 + 2.4G WIFI	0.636	1.6	Pass
Hotspot(Body) 1-g SAR (10 mm Gap)	WCDMA Band 4 + 5G WIFI	1.006	1.6	Pass

3.4 Test Uncertainty

3.4.1 Measurement uncertainty evaluation for SAR test

Measurement uncertainty evaluation for SAR test (300MHz to 6GHz)

Uncertainty Component	Tol (+-%)	Prob. Dist.	Div.	Ci (1g)	Ci (10g)	1g Ui (+-%)	10 g Ui (+-%)	Vi veff
Measurement System								
Probe calibration	5.8	N	1	1	1	5.80	5.80	∞
Axial Isotropy	3.5	R	√3	√0.5	√0.5	1.43	1.43	∞
Hemispherical Isotropy	5.9	R	√3	√0.5	√0.5	2.41	2.41	∞
Boundary effect	1.0	R	√3	1	1	0.58	0.58	∞
Linearity	4.7	R	√3	1	1	2.71	2.71	∞
System detection limits	1.0	R	√3	1	1	0.58	0.58	∞
Modulation response	3.0	R	√3	1	1	1.73	1.73	∞
Readout Electronics	0.5	N	1	1	1	0.50	0.50	∞
Response Time	0	R	√3	1	1	0.00	0.00	∞
Integration Time	1.4	R	√3	1	1	0.81	0.81	∞
RF ambient Conditions - Noise	3.0	R	√3	1	1	1.73	1.73	∞
RF ambient Conditions - Reflections	3.0	R	√3	1	1	1.73	1.73	∞
Probe positioner Mechanical Tolerance	1.4	R	√3	1	1	0.81	0.81	∞
Probe positioning with respect to Phantom Shell	1.4	R	√3	1	1	0.81	0.81	∞
Extrapolation, interpolation and integration Algorithms for Max. SAR Evaluation	2.3	R	√3	1	1	1.33	1.33	∞
Test sample Related								
Test sample positioning	2.6	N	1	1	1	2.60	2.60	11
Device Holder Uncertainty	3.0	N	1	1	1	3.00	3.00	7
Output power Variation - SAR drift measurement	5.0	R	√3	1	1	2.89	2.89	∞
SAR scaling	2.0	R	√3	1	1	1.15	1.15	∞
Phantom and Tissue Parameters								
Phantom Shell Uncertainty - Shape, Thickness and Permittivity	4	R	√3	1	1	2.31	2.31	∞
Uncertainty in SAR correction for deviation in permittivity and conductivity	2.0	N	1	1	0.84	2.00	1.68	∞
Liquid conductivity measurement	4.0	N	1	0.78	0.71	3.12	2.84	5
Liquid permittivity measurement	5.0	N	1	0.23	0.26	1.15	1.30	5
Liquid Conductivity - Temperature Uncertainty	2.5	R	√3	0.78	0.71	1.13	1.02	∞
Liquid permittivity - Temperature Uncertainty	2.5	R	√3	0.23	0.26	0.33	0.38	∞
Combined Standard Uncertainty		RSS				10.47	10.34	
Expanded Uncertainty (95% Confidence interval)		k				20.95	20.69	

* This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

3.4.2 Measurement uncertainty evaluation for system check

Uncertainty Component	Tol (+-%)	Prob. Dist.	Div.	Ci (1g)	Ci (10 g)	1g Ui (+-%)	10 g Ui (+-%)	Vi veff
Measurement System								
Probe calibration	5.8	N	1	1	1	5.80	5.80	∞
Axial Isotropy	3.5	R	√3	1	1	2.02	2.02	∞
Hemispherical Isotropy	5.9	R	√3	0	0	0.00	0.00	∞
Boundary effect	1	R	√3	1	1	0.58	0.58	∞
Linearity	4.7	R	√3	1	1	2.71	2.71	∞
System detection limits	1	R	√3	1	1	0.58	0.58	∞
Modulation response	0	N	√3	0	0	0.00	0.00	∞
Readout Electronics	0.5	N	1	1	1	0.50	0.50	∞
Response Time	0	R	√3	0	0	0.00	0.00	∞
Integration Time	1.4	R	√3	0	0	0.00	0.00	∞
RF ambient Conditions - Noise	3	R	√3	1	1	1.73	1.73	∞
RF ambient Conditions - Reflections	3	R	√3	1	1	1.73	1.73	∞
Probe positioner Mechanical Tolerance	1.4	R	√3	1	1	0.81	0.81	∞
Probe positioning with respect to Phantom Shell	1.4	R	√3	1	1	0.81	0.81	∞
Extrapolation, interpolation and integration Algorithms for Max. SAR Evaluation	2.3	R	√3	1	1	1.33	1.33	∞
Dipole								
Deviation of experimental source from numerical source	5	N	1	1	1	5.00	5.00	∞
Input Power and SAR drift measurement	0.5	R	√3	1	1	0.29	0.29	∞
Dipole Axis to Liquid Dist.	2.0	R	√3	1	1	1.15	1.15	∞
Phantom and Tissue Parameters								
Phantom Shell Uncertainty - Shape, Thickness and Permittivity	4	R	√3	1	1	2.31	2.31	∞
Uncertainty in SAR correction for deviation in permittivity and conductivity	2.0	N	1	1	0.84	2.00	1.68	∞
Liquid conductivity measurement	4	N	1	0.78	0.71	3.12	2.84	5
Liquid permittivity measurement	5.0	N	1	0.23	0.26	1.15	1.30	5
Liquid Conductivity - Temperature Uncertainty	2.5	R	√3	0.78	0.71	1.13	1.02	∞
Liquid permittivity - Temperature Uncertainty	2.5	R	√3	0.23	0.26	0.33	0.38	∞
Combined Standard Uncertainty		RSS				10.16	10.03	
Expanded Uncertainty (95% Confidence interval)		k				20.32	20.06	

4. Measurement System

4.1 Specific Absorption Rate (SAR) Definition

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

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

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

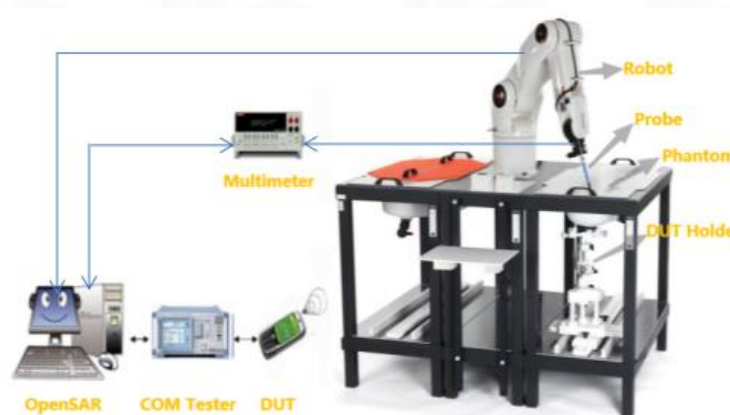
SAR is expressed in units of Watts per kilogram (W/kg) SAR measurement can be related to the electrical field in the tissue by

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

Where: σ is the conductivity of the tissue,
ρ is the mass density of the tissue and E is the RMS electrical field strength.

4.2 MVG SAR System

4.2.1 SAR system diagram



4.2.2 Robot



- A standard high precision 6-axis robot (Denso) with teaches pendant with Scanning System
- It must be able to scan all the volume of the phantom to evaluate the tridimensional distribution of SAR.
 - Must be able to set the probe orthogonal of the surface of the phantom ($\pm 30^\circ$).
 - Detects stresses on the probe and stop itself if necessary to keep the integrity of the probe.

4.2.3 E-Field Probe

For the measurements, the Specific Dosimetric SSE2 E-Field Probe with following specifications is used:

- Dynamic range: 0.01-100 W/kg
- Tip diameter: 2mm for SSE2
- Distance between probe tip and sensor centre: 1mm for SSE2
- Distance between sensor centre and the inner phantom surface: 2mm for $f \geq 4\text{GHz}$.
- Probe linearity: $< 0.25\text{dB}$.
- Axial Isotropy: $< 0.25\text{dB}$.
- Spherical Isotropy: $< 0.50\text{dB}$.
- Calibration range: 150 to 6000 MHz for head & body simulating liquid
- Angle between probe axis (evaluation axis) and surface normal line: less than 20° .



4.2.4 Phantoms

SAM Phantom

For the measurements the Specific Anthropomorphic Mannequin (SAM) defined by the IEEE SCC-34/SC2 group is used. The probe scanning of the E-Field is done in the 2 halves of the normalized head. The normalized shape of the phantom corresponds to the dimensions of 90% of an adult head size. It enables the dosimetric evaluation of left and right-hand phone usage and includes an additional flat phantom part for the simplified body performance check. The phantom set-up includes a cover, which prevents the evaporation of the liquid.



SAM Phantom

The thickness of the phantom amounts to $2\text{ mm} \pm 0.2\text{ mm}$. The materials for the phantom do not affect the radiation of the device under test (DUT) : $\epsilon_r' < 5$
The head is filled with tissue simulating liquid. The hand do not have to be modeled.

TWIN SAM phantom

	Mechanical	Electrical	
Overall thickness	$2 \pm 0.2\text{ mm}$ (except ear area)	Relative permittivity	3.4
Dimensions	1000 mm(L) x 500 mm(W) x 200 mm(H)	Loss tangent	0.02
Maximum volume	27 L		
Material	Fiberglass based		

ELLIPTICAL Phantom

The phantom is for Body performance check filled with tissue-equivalent liquid to a depth of at least 150 mm, whose shell material is resistant to damage or reaction with tissue-equivalent liquid chemicals.



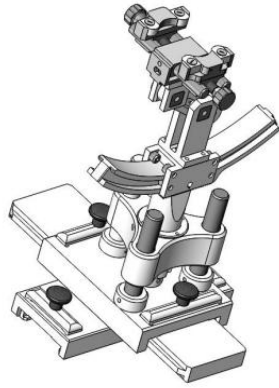
ELLI Phantom

The shape of the phantom is an ellipse with length $600\text{mm} \pm 5\text{mm}$ and width $400\text{mm} \pm 5\text{mm}$. The phantom shell is made of low-loss and low-permittivity material, having loss tangent $\tan\delta \leq 0.05$ and relative permittivity:
 $\epsilon_r' \leq 5$ for $f \leq 3\text{ GHz}$
 $3 \leq \epsilon_r' \leq 5$ for $f > 3\text{ GHz}$
 The thickness of the bottom-wall of the flat phantom is 2.0 mm with a tolerance of $\pm 0.2\text{ mm}$.

Technical & mechanical characteristics

Shell thickness	$2\text{ mm} \pm 0.2\text{ mm}$
Filling volume	25 L
Dimensions	600 mm x 400 mm x 200mm
Permittivity	4.4
Loss tangent	0.017

4.2.5 Device Holder



System Material	Permittivity	Loss tangent
Delrin	3.7	0.005

(The positioning system allows obtaining cheek and tilting position with a very good accuracy. In compliance with CENELEC, the tilt angle uncertainty is lower than 1°.)

System Material	Permittivity	Loss tangent
PMMA	2.9	0.028

4.2.6 Simulating Liquid

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 height from the ear reference point (ERP) of the phantom to the liquid top surface is larger than 15 cm. For body SAR testing, the liquid height from the center of the flat phantom to the liquid top surface is larger than 15 cm. The nominal dielectric values of the tissue simulating liquids in the phantom and the tolerance of 5%.

Head Liquid Depth



Body Liquid Depth



The following table gives the recipes for tissue simulating liquid and the theoretical Conductivity/Permittivity.

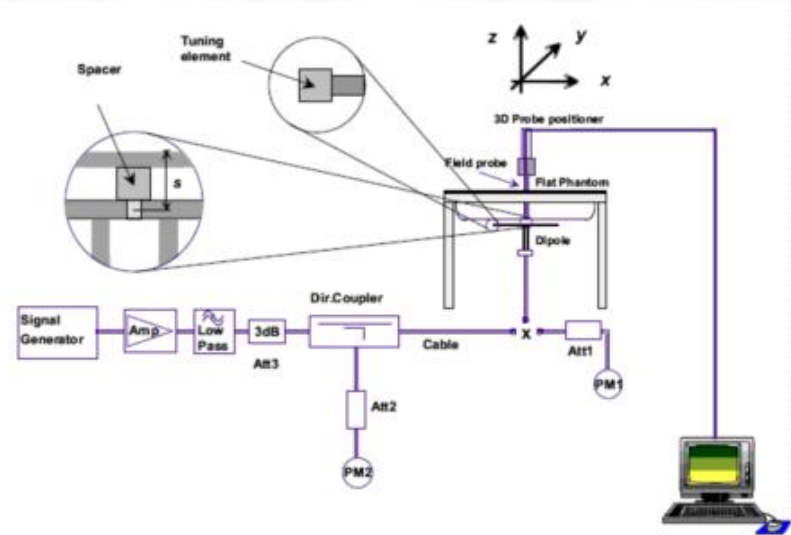
Head (Reference IEEE1528)								
Frequency (MHz)	Water (%)	Sugar (%)	Cellulose (%)	Salt (%)	Preventol (%)	DGBE (%)	Conductivity σ (S/m)	Permittivity ϵ
750	41.1	57.0	0.2	1.4	0.2	0	0.89	41.9
835	40.3	57.9	0.2	1.4	0.2	0	0.90	41.5
900	40.3	57.9	0.2	1.4	0.2	0	0.97	41.5
1800, 1900, 2000	55.2	0	0	0.3	0	44.5	1.4	40.0
2450	55.0	0	0	0.1	0	44.9	1.80	39.2
2600	54.9	0	0	0.1	0	45.0	1.96	39.0
Frequency (MHz)	Water (%)	Hexyl Carbitol (%)			Triton X-100 (%)		Conductivity σ (S/m)	Permittivity ϵ
5200	62.52	17.24			17.24		4.66	36.0
5800	62.52	17.24			17.24		5.27	35.3
Body (From instrument manufacturer)								
Frequency (MHz)	Water (%)	Sugar (%)	Cellulose (%)	Salt (%)	Preventol (%)	DGBE (%)	Conductivity σ (S/m)	Permittivity ϵ
750	51.7	47.2	0	0.9	0.1	0	0.96	55.5
835	50.8	48.2	0	0.9	0.1	0	0.97	55.2
900	50.8	48.2	0	0.9	0.1	0	1.05	55.0
1800, 1900, 2000	70.2	0	0	0.4	0	29.4	1.52	53.3
2450	68.6	0	0	0.1	0	31.3	1.95	52.7
2600	68.2	0	0	0.1	0	31.7	2.16	52.5
Frequency(MHz)	Water	DGBE (%)			Salt (%)		Conductivity σ (S/m)	Permittivity ϵ
5200	78.60	21.40			/		5.30	49.00
5800	78.50	21.40			0.1		6.00	48.20

5. System Verification

5.1 Purpose of System Check

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

5.2 System Check Setup



6. TEST POSITION CONFIGURATIONS

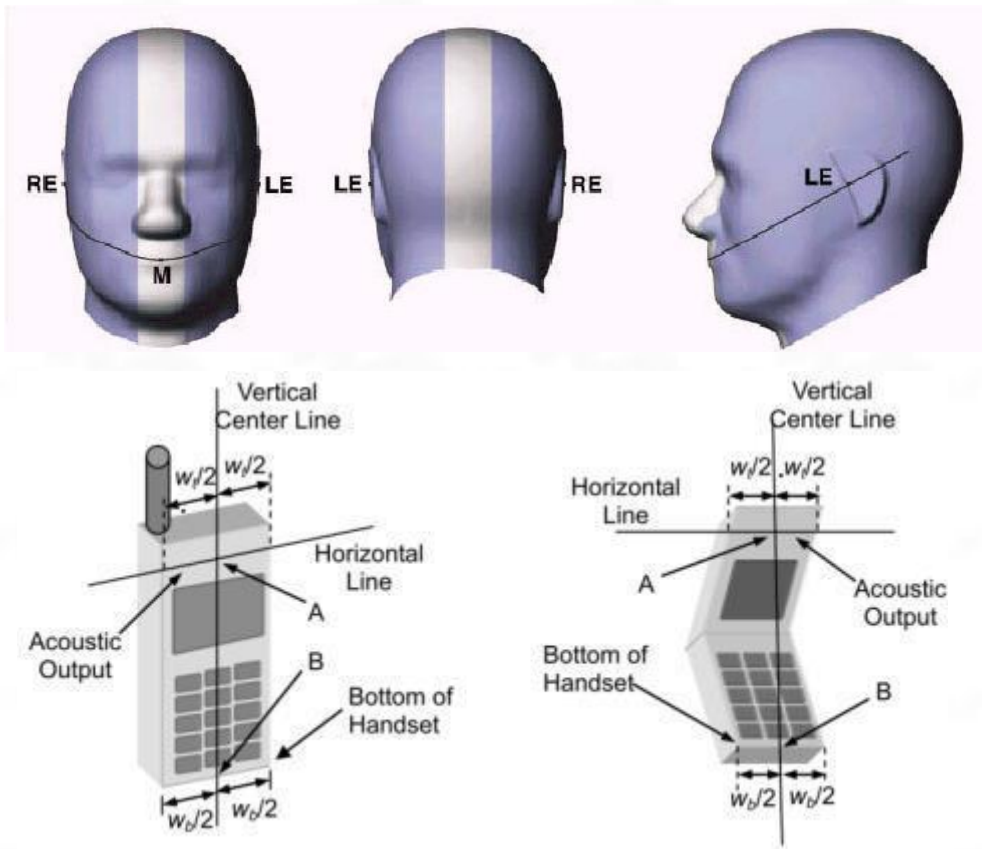
According to KDB 648474 D04 Handset, handsets are tested for SAR compliance in head, body-worn accessory and other use configurations described in the following subsections.

6.1 Head Exposure Conditions

Head exposure is limited to next to the ear voice mode operations. Head SAR compliance is tested according to the test positions defined in IEEE Std 1528-2013 using the SAM phantom illustrated as below.

6.1.1 Two Imaginary Lines on the Handset

- The vertical center line 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, and the midpoint of the width w_b of the bottom of the handset.
- The horizontal line is perpendicular to the vertical center line and passes through the center of the acoustic output. The horizontal line is also tangential to the face of the handset at point A.
- 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 center line is not necessarily parallel to the front face of the handset, especially for clamshell handsets, handsets with flip covers, and other irregularly shaped handsets.



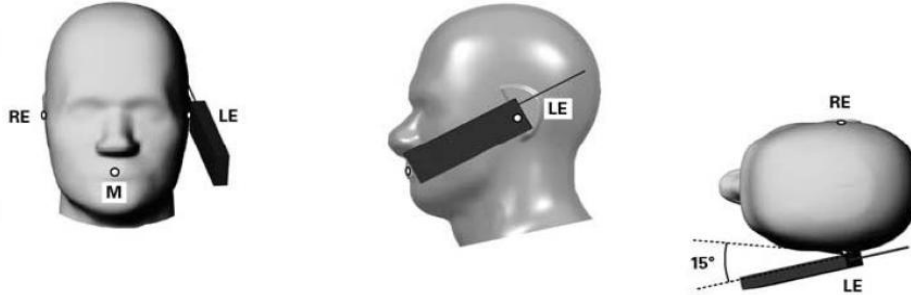
6.1.2 Two Imaginary Lines on the Handset

- (a) To position the device with the vertical center line of the body of the device and the horizontal line crossing the center piece in a plane parallel to the sagittal plane of the phantom. While maintaining the device in this plane, align the vertical center line with the reference plane containing the three ear and mouth reference point (M: Mouth, RE: Right Ear, and LE: Left Ear) and align the center of the ear piece with the line RE-LE.
- (b) To move the device towards the phantom with the ear piece aligned with the line LE-RE until the phone touched the ear. While maintaining the device in the reference plane and maintaining the phone contact with the ear, move the bottom of the phone until any point on the front side is in contact with the cheek of the phantom or until contact with the ear is lost.



6.1.3 Titled Position

- (a) To position the device in the “cheek” position described above.
- (b) While maintaining the device the reference plane described above and pivoting against the ear, moves it outward away from the mouth by an angle of 15 degrees or until contact with the ear is lost.

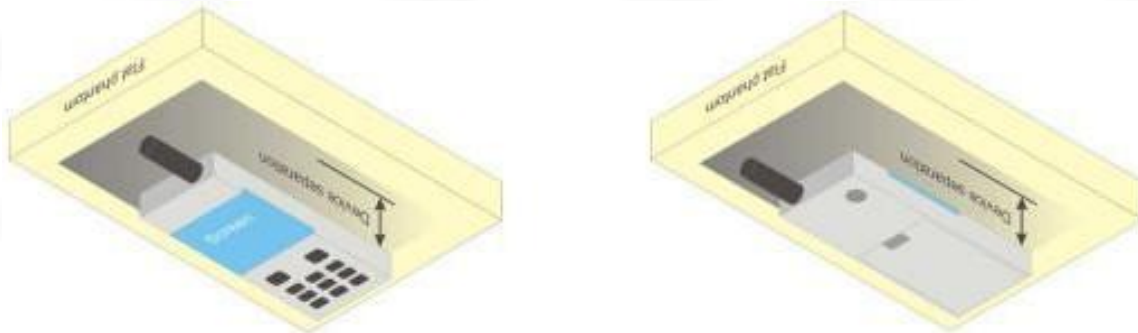


6.2 Body-worn Position Conditions

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 KDB 447498 are 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 the reported SAR for a body-worn accessory.

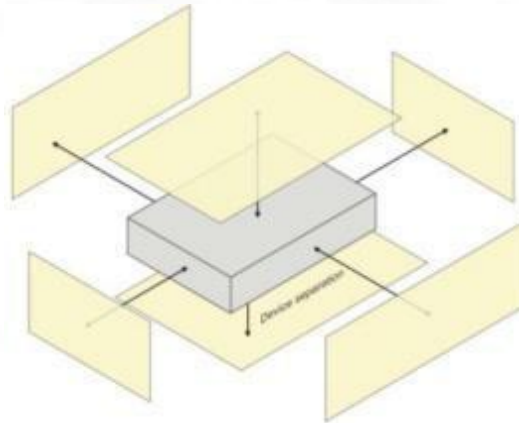
Body-worn accessories that do not contain metallic or conductive components may be tested according to worst-case exposure configurations, typically according to the smallest test separation distance required for the group of body-worn accessories with similar operating and exposure characteristics. All body-worn accessories containing metallic components are tested in conjunction with the host device.

Body-worn accessory SAR compliance is based on a single minimum test separation distance for all wireless and operating modes applicable to each body-worn accessory used by the host, and according to the relevant voice and/or data mode transmissions and operations. If a body-worn accessory supports voice only operations in its normal and expected use conditions, testing of data mode for body-worn compliance is not required. A conservative minimum test separation distance for supporting off-the-shelf body-worn accessories that may be acquired by users of consumer handsets is used to test for body-worn accessory SAR compliance. This distance is determined by the handset manufacturer, according to the requirements of Supplement C 01-01. Devices that are designed to operate on the body of users using lanyards and straps, or without requiring additional body-worn accessories, will be tested using a conservative minimum test separation distance ≤ 5 mm to support compliance.



6.3 Hotspot Mode Exposure Position Conditions

For handsets that support hotspot mode operations, with wireless router capabilities and various web browsing functions, the relevant hand and body exposure conditions are tested according to the hotspot SAR procedures in KDB 941225. A test separation distance of 10 mm is required between the phantom and all surfaces and edges with a transmitting antenna located within 25 mm from that surface or edge. When the form factor of a handset is smaller than 9 cm x 5 cm, a test separation distance of 5 mm (instead of 10 mm) is required for testing hotspot mode. When the separation distance required for body-worn accessory testing is larger than or equal to that tested for hotspot mode, in the same wireless mode and for the same surface of the phone, the hotspot mode SAR data may be used to support body-worn accessory SAR compliance for that particular configuration (surface).



6.4 Product Specific 10g Exposure Consideration

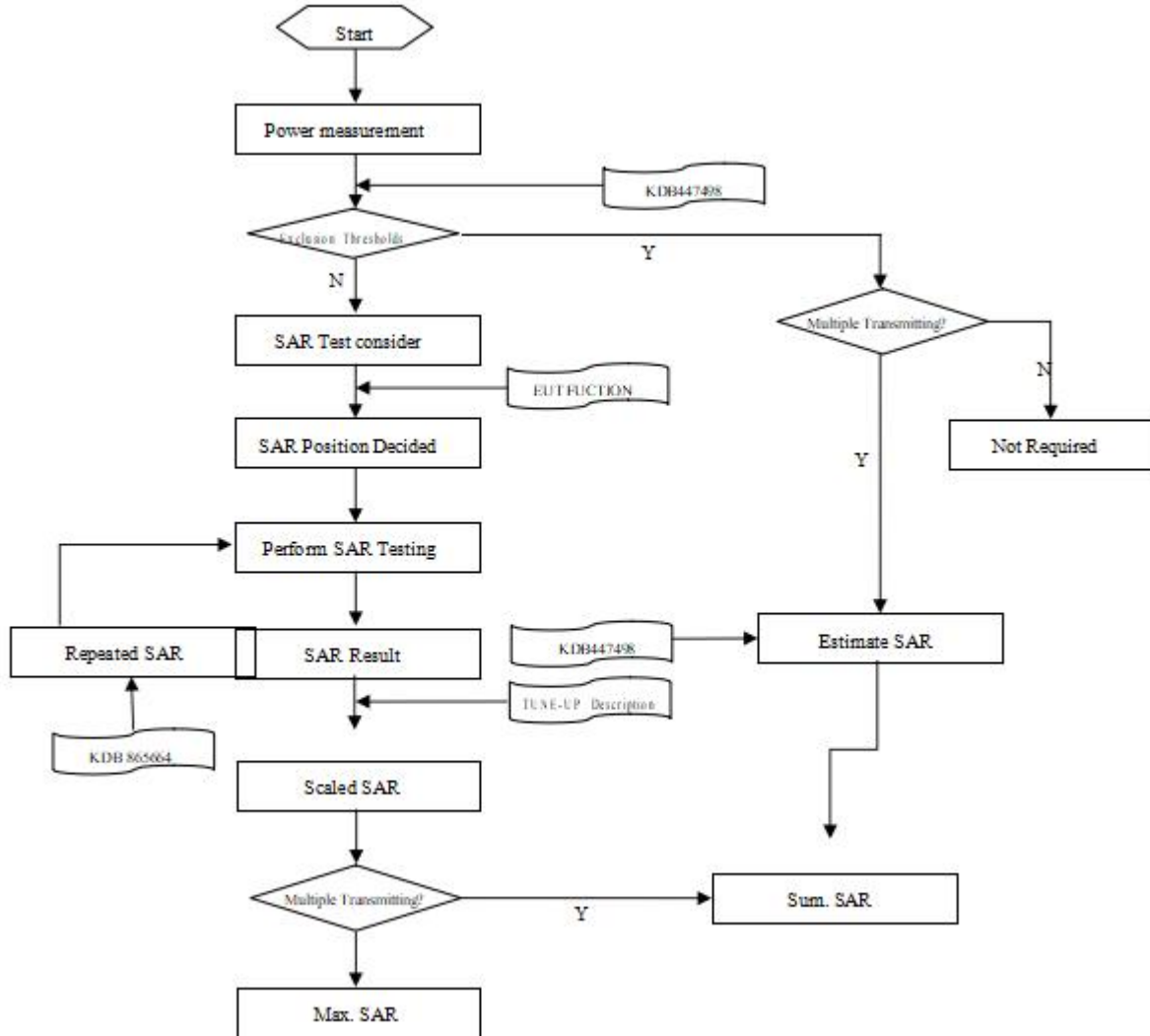
According with FCC KDB 648474 D04, for smart phones with a display diagonal dimension > 15.0 cm or an overall diagonal dimension > 16.0 cm that provide similar mobile web access and multimedia support found in mini-tablets or UMPC mini-tablets that support voice calls next to the ear, unless it is confirmed otherwise through KDB inquiries, the following phablet procedures should be applied to evaluate SAR compliance for each applicable wireless modes and frequency band. Devices marketed as phablets, regardless of form factors and operating characteristics must be tested as a phablet to determine SAR compliance;

The UMPC mini-tablet procedures must also be applied to test the SAR of all surfaces and edges with an antenna located at ≤ 25 mm from that surface or edge, in direct contact with a flat phantom, for 10-g extremity SAR according to the body-equivalent tissue dielectric parameters in KDB 865664 to address interactive hand use exposure conditions. The UMPC mini-tablet 1-g SAR at 5 mm is not required. When hotspot mode applies, 10-g extremity SAR is required only for the surfaces and edges with hotspot mode 1-g reported SAR > 1.2 W/kg.

7. Measurement Procedure

7.1 Measurement Process Diagram

Body SAR



7.2 SAR Scan General Requirement

Probe boundary effect error compensation is required for measurements with the probe tip closer than half a probe tip diameter to the phantom surface. Both the probe tip diameter and sensor offset distance must satisfy measurement protocols; to ensure probe boundary effect errors are minimized and the higher fields closest to the phantom surface can be correctly measured and extrapolated to the phantom surface for computing 1 g SAR. Tolerances of the post-processing algorithms must be verified by the test laboratory for the scan resolutions used in the SAR measurements, according to the reference distribution functions specified in IEEE Std 1528-2013.

		≤3GHz	>3GHz
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
	graded grid	Δz Zoom (1): between 1st two points closest to phantom surface	5–6 GHz: ≤ 2 mm
			3–4 GHz: ≤ 3 mm 4–5 GHz: ≤ 2.5 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: 1. δ is the penetration depth of a plane-wave at normal incidence to the tissue medium; see draft standard IEEE P1528- 2011 for details. 2. * When zoom scan is required and the reported SAR from the area scan based 1 g SAR estimation procedures of KDB 447498 is ≤ 1.4 W/kg, ≤ 8 mm, ≤ 7 mm and ≤ 5 mm zoom scan resolution may be applied, respectively, for 2 GHz to 3GHz, 3 GHz to 4 GHz and 4 GHz to 6 GHz.			

7.3 Measurement Procedure

The following steps are used for each test position

- a. Establish a call with the maximum output power with a base station simulator. The connection between the mobile and the base station simulator is established via air interface
- b. Measurement of the local E-field value at a fixed location. This value serves as a reference value for calculating a possible power drift.
- c. Measurement of the SAR distribution with a grid of 8 to 16mm * 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.
- d. 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.

7.4 Area & Zoom Scan Procedure

First Area Scan is used to locate the approximate location(s) of the local peak SAR value(s). The measurement grid within an Area Scan is defined by the grid extent, grid step size and grid offset. Next, in order to determine the EM field distribution in a three-dimensional spatial extension, Zoom Scan is required. The Zoom Scan is performed around the highest E-field value to determine the averaged SAR-distribution over 10 g. Area scan and zoom scan resolution setting follows KDB 865664 D01v01r04 quoted below.

When the 1 g SAR of the highest peak is within 2 dB of the SAR limit, additional zoom scans are required for other peaks within 2 dB of the highest peak that have not been included in any zoom scan to ensure there is no increase in SAR.

8. Conducted RF Output Power

8.1 GSM

Mode: GSM850		Maximum Tune-up(dBm)	Burst Average Power (dBm)			Division Factors	Frame-Average Power (dBm)		
			CH128	CH190	CH251		CH128	CH190	CH251
			824.2MHz	836.6MHz	848.8MHz		824.2MHz	836.6MHz	848.8MHz
GSM		31.50	31.35	31.26	31.41	-9.03	22.32	22.23	22.38
GPRS (GMSK)	1Tx slot	31.50	31.36	31.24	31.40	-9.03	22.33	22.21	22.37
	2Tx slots	31.00	30.63	30.51	30.67	-6.02	24.61	24.49	24.65
	3Tx slots	29.00	28.95	28.82	28.96	-4.26	24.69	24.56	24.70
	4Tx slots	28.00	27.92	27.79	27.93	-3.01	24.91	24.78	24.92
EGPRS (8PSK)	1Tx slot	25.50	25.44	25.18	25.45	-9.03	16.41	16.15	16.42
	2Tx slots	24.50	24.28	24.21	24.48	-6.02	18.26	18.19	18.46
	3Tx slots	24.00	22.37	23.50	22.44	-4.26	18.11	19.24	18.18
	4Tx slots	21.50	21.09	21.09	21.15	-3.01	18.08	18.08	18.14
Mode: GSM1900		Maximum Tune-up(dBm)	Burst Average Power (dBm)			Division Factors	Frame-Average Power (dBm)		
			CH512	CH661	CH810		CH512	CH661	CH810
			1850.2MHz	1880.0MHz	1909.8MHz		1850.2MHz	1880.0MHz	1909.8MHz
GSM		28.00	27.83	27.94	27.95	-9.03	18.80	18.91	18.92
GPRS (GMSK)	1Tx slot	28.00	27.83	27.92	27.93	-9.03	18.80	18.89	18.90
	2Tx slots	27.50	27.36	27.47	27.48	-6.02	21.34	21.45	21.46
	3Tx slots	26.50	25.88	25.99	26.07	-4.26	21.62	21.73	21.81
	4Tx slots	25.00	24.79	24.92	25.00	-3.01	21.78	21.91	21.99
EGPRS (8PSK)	1Tx slot	26.50	25.91	26.07	26.25	-9.03	16.88	17.04	17.22
	2Tx slots	26.00	24.84	25.70	25.50	-6.02	18.82	19.68	19.48
	3Tx slots	23.50	22.81	23.07	23.43	-4.26	18.55	18.81	19.17
	4Tx slots	22.50	21.48	21.85	22.08	-3.01	18.47	18.84	19.07
Note: 1) Division Factors To average the power, the division factor is as follows: 1Tx-slot = 1 transmit time slot out of 8 time slots=> conducted power divided by (8/1) => -9.03dB 2Tx-slots = 2 transmit time slots out of 8 time slots=> conducted power divided by (8/2) => -6.02dB 3Tx-slots = 3 transmit time slots out of 8 time slots=> conducted power divided by (8/3) => -4.26dB 4Tx-slots = 4 transmit time slots out of 8 time slots=> conducted power divided by (8/4) => -3.01dB									

8.2 WCDMA

Mode		Maximum Tune-up(dBm)	WCDMA Band II		
			Conducted Power (dBm)		
			CH9262	CH9400	CH9538
RMC 12.2K		21.50	20.95	21.36	20.94
HSDPA	Subtest-1	19.50	19.14	18.93	18.68
	Subtest-2	19.50	19.15	19.00	18.83
	Subtest-3	19.50	19.24	19.02	18.70
	Subtest-4	19.50	19.14	19.01	18.78
HSUPA	Subtest-1	17.50	17.21	16.73	16.79
	Subtest-2	17.50	17.05	16.77	16.18
	Subtest-3	17.00	16.91	16.91	16.64
	Subtest-4	17.00	16.64	16.39	16.18
	Subtest-5	17.00	16.63	16.91	16.18
Mode		Maximum Tune-up(dBm)	WCDMA Band IV		
			Conducted Power (dBm)		
			CH1312	CH1413	CH1513
RMC 12.2K		21.50	20.71	20.59	21.02
HSDPA	Subtest-1	19.00	18.51	18.41	18.94
	Subtest-2	19.50	18.46	18.43	19.00
	Subtest-3	19.00	18.49	18.50	18.95
	Subtest-4	19.00	18.51	18.42	18.93
HSUPA	Subtest-1	17.00	16.55	16.42	16.93
	Subtest-2	16.50	16.24	16.01	16.32
	Subtest-3	16.50	16.26	16.43	16.28
	Subtest-4	17.00	16.48	16.39	16.62
	Subtest-5	17.00	15.99	15.84	16.75
Mode		Maximum Tune-up(dBm)	WCDMA Band V		
			Conducted Power (dBm)		
			CH4132	CH4183	CH4233
RMC 12.2K		22.50	22.01	22.02	21.93
HSDPA	Subtest-1	20.00	19.78	19.70	19.81
	Subtest-2	20.00	19.83	19.77	19.80
	Subtest-3	20.00	19.90	19.76	19.81
	Subtest-4	20.00	19.85	19.71	19.74
HSUPA	Subtest-1	18.00	17.80	17.72	17.65
	Subtest-2	18.00	17.24	17.25	17.64
	Subtest-3	18.00	17.57	17.32	17.64
	Subtest-4	18.00	17.66	17.61	17.67
	Subtest-5	18.00	17.60	17.78	17.13

Per KDB 941225 D01, when the maximum output power and tune-up tolerance specified for production units in a secondary mode is $\leq 1/2$ dB higher than the primary mode (RMC12.2kbps) or when the highest reported SAR of the primary mode is scaled by the ratio of specified maximum output power and tune-up tolerance of secondary to primary mode and the adjusted SAR is ≤ 1.2 W/kg, SAR measurement is not required for the secondary mode.

8.3 LTE

Band 2

LTE-FDD Band 2				Maximum Tune-up(dBm)	Conducted Power(dBm)		
Bandwidth	Modulation	RB allocation	RB offset		18607	18900	19193
					1850.7MHz	1880.0MHz	1909.3MHz
1.4MHz	QPSK	1	0	23.00	22.86	22.63	22.42
			2	23.00	22.96	22.73	22.51
			5	23.00	22.84	22.65	21.95
		3	0	23.00	22.96	22.76	21.95
			2	23.50	23.01	22.80	21.99
			3	23.00	22.95	22.78	22.01
	16QAM	6	0	22.00	21.96	21.76	20.95
			1	22.50	22.02	21.64	20.90
			2	22.50	22.14	21.77	21.00
		3	5	22.50	22.04	21.66	20.95
			0	22.00	21.92	21.93	21.02
			2	22.00	21.93	21.96	20.96
3	22.00	21.94	21.91	21.02			
6	0	21.00	20.95	20.76	19.91		
Bandwidth	Modulation	RB allocation	RB offset	Maximum Tune-up(dBm)	18615	18900	19185
					1851.5MHz	1880.0MHz	1908.5MHz
3MHz	QPSK	1	0	23.00	22.96	22.20	21.96
			7	23.00	22.58	22.35	22.07
			14	22.50	22.40	22.19	21.90
		8	0	21.50	21.43	21.26	20.98
			4	21.50	21.46	21.28	21.00
			7	21.50	21.42	21.23	20.95
	15	0	21.50	21.43	21.22	20.97	
	16QAM	1	0	21.50	21.45	21.38	21.48
			7	22.00	21.60	21.55	21.63
			14	21.50	21.40	21.38	21.42
		8	0	20.50	20.49	20.22	20.14
			4	21.00	20.52	20.26	20.18
7			20.50	20.49	20.20	20.13	
15	0	20.50	20.47	20.18	20.06		
Bandwidth	Modulation	RB allocation	RB offset	Maximum Tune-up(dBm)	18625	18900	19175
					1852.5MHz	1880.0MHz	1907.5MHz
5MHz	QPSK	1	0	22.50	22.34	22.17	21.97
			13	22.50	22.47	22.26	22.07
			24	22.50	22.31	22.14	21.91
		12	0	21.50	21.40	21.23	21.00
			6	21.50	21.49	21.30	21.11
			13	21.50	21.42	21.24	21.04
	25	0	21.50	21.42	21.24	21.02	
	16QAM	1	0	21.50	21.43	21.45	20.86
			13	22.00	21.55	21.57	20.94
			24	21.50	21.42	21.43	20.81
		12	0	20.50	20.40	20.25	20.02
			6	20.50	20.47	20.33	20.09
13			20.50	20.38	20.27	20.05	
25	0	20.50	20.48	20.23	20.06		

LTE-FDD Band 2				Maximum Tune-up(dBm)	Conducted Power(dBm)									
Bandwidth	Modulation	RB allocation	RB offset		18650	18900	19150							
					1855.0MHz	1880.0MHz	1905.0MHz							
10MHz	QPSK	1	0	22.50	22.44	22.36	22.24							
			25	23.00	22.60	22.47	22.30							
			49	22.50	22.48	22.33	22.09							
		25	0	22.00	21.54	21.41	21.29							
			13	21.50	21.47	21.40	21.23							
			25	22.00	21.55	21.40	21.18							
	16QAM	50	0	22.00	21.54	21.41	21.23							
			1	0	22.00	21.48	21.59	21.80						
				25	22.00	21.65	21.68	21.83						
		49		22.00	21.58	21.56	21.62							
		25	0	21.00	20.66	20.46	20.35							
			13	21.00	20.61	20.46	20.30							
			25	21.00	20.68	20.46	20.26							
			50	0	21.00	20.59	20.43	20.26						
				18675	1857.5MHz	18900	19125	18675	1880.0MHz	1902.5MHz				
15MHz	QPSK										1	0	22.50	22.44
		38	23.00									22.53	22.36	22.19
		74	22.50	22.49	22.21	22.01								
36		0	22.00	21.60	21.43	21.33								
		18	22.00	21.62	21.43	21.27								
		39	22.00	21.69	21.41	21.23								
75	0	22.00	21.65	21.45	21.26									
	16QAM	1	0	22.00	21.82	21.53	21.78							
			38	22.00	21.95	21.53	21.78							
74			22.00	21.90	21.46	21.51								
36		0	21.00	20.57	20.40	20.32								
		18	21.00	20.58	20.41	20.30								
		39	21.00	20.66	20.38	20.22								
75	0	21.00	20.60	20.42	20.26									
	18700	1860.0MHz	18900	19100	18700	1880.0MHz	1900.0MHz							
								20MHz	QPSK	1	0	22.50	22.23	22.25
50											23.00	22.65	22.50	22.47
99	22.50	22.24	22.14	21.95										
50	0	22.00	21.52	21.37	21.39									
	25	22.00	21.63	21.38	21.39									
	50	22.00	21.71	21.23	21.23									
16QAM	100	0	22.00	21.65	21.32	21.35								
		1	0	22.00	21.77	21.56	21.49							
			50	22.50	22.23	21.80	21.76							
	99		22.00	21.80	21.41	21.22								
	50	0	21.00	20.57	20.45	20.39								
		25	21.00	20.62	20.45	20.38								
		50	21.00	20.73	20.34	20.22								
		100	0	21.00	20.70	20.42	20.36							

Band 4

LTE-FDD Band 4				Maximum Tune-up(dBm)	Conducted Power(dBm)			
Bandwidth	Modulation	RB allocation	RB offset		19957	20175	20393	
					1710.7MHz	1732.5MHz	1754.3MHz	
1.4MHz	QPSK	1	0	22.50	22.02	21.50	22.15	
			2	22.50	22.15	21.62	22.27	
			5	22.50	21.61	21.52	22.16	
		3	0	22.50	21.50	21.65	22.28	
			2	22.50	21.59	21.67	22.33	
			3	22.50	21.57	21.64	22.28	
	6	0	21.50	20.57	20.62	21.29		
	16QAM	1	0	21.50	20.47	20.69	21.14	
			2	21.50	20.60	20.84	21.28	
			5	21.50	20.53	20.71	21.21	
		3	0	21.50	20.59	20.60	21.45	
			2	21.50	20.62	20.62	21.49	
			3	21.50	20.59	20.62	21.43	
		6	0	20.50	19.49	19.66	20.28	
		Bandwidth	Modulation	RB allocation	RB offset	Maximum Tune-up(dBm)	19965	20175
						1711.5MHz	1732.5MHz	1753.5MHz
3MHz	QPSK	1	0	22.50	21.60	21.58	22.14	
			7	22.50	21.75	21.72	22.29	
			14	22.50	21.66	21.57	22.22	
		8	0	21.50	20.57	20.64	21.19	
			4	21.50	20.63	20.64	21.25	
			7	21.50	20.60	20.61	21.23	
	15	0	21.50	20.56	20.60	21.17		
	16QAM	1	0	22.00	20.56	20.77	21.65	
			7	22.00	20.72	20.90	21.83	
			14	22.00	20.63	20.76	21.70	
		8	0	20.50	19.61	19.61	20.32	
			4	20.50	19.66	19.63	20.41	
			7	20.50	19.64	19.59	20.39	
		15	0	20.50	19.60	19.59	20.24	
		Bandwidth	Modulation	RB allocation	RB offset	Maximum Tune-up(dBm)	19976	20175
						1712.5MHz	1732.5MHz	1752.5MHz
5MHz	QPSK	1	0	22.50	21.50	21.51	22.01	
			13	22.50	21.68	21.61	22.21	
			24	22.50	21.61	21.53	22.18	
		12	0	21.50	20.54	20.58	21.11	
			6	21.50	20.64	20.63	21.21	
			13	21.50	20.63	20.59	21.24	
	25	0	21.50	20.55	20.57	21.15		
	16QAM	1	0	21.00	20.57	20.78	20.88	
			13	21.50	20.74	20.93	21.06	
			24	21.50	20.70	20.79	21.04	
		12	0	20.50	19.53	19.63	20.07	
			6	20.50	19.58	19.67	20.18	
			13	20.50	19.59	19.60	20.19	
		25	0	20.50	19.56	19.56	20.18	

LTE-FDD Band 4				Maximum Tune-up(dBm)	Conducted Power(dBm)				
Bandwidth	Modulation	RB allocation	RB offset		20000	20175	20350		
					1715.0MHz	1732.5MHz	1750.0MHz		
10MHz	QPSK	1	0	22.00	21.61	21.61	21.84		
			25	22.50	21.94	21.72	22.24		
			49	22.50	21.74	21.59	22.19		
		25	0	21.50	20.67	20.70	21.01		
			13	21.50	20.74	20.64	21.13		
			25	21.50	20.82	20.65	21.25		
		50	0	21.50	20.74	20.66	21.13		
			16QAM	1	0	21.50	20.54	20.76	21.40
					25	22.00	20.89	20.94	21.78
	49	22.00			20.71	20.77	21.68		
	25	0		20.50	19.74	19.70	20.07		
		13		20.50	19.80	19.66	20.18		
		25		20.50	19.92	19.67	20.30		
	50	0	20.50	19.77	19.66	20.14			
		Bandwidth	Modulation	RB allocation	RB offset	Maximum Tune-up(dBm)	20025	20175	20325
1717.5MHz							1732.5MHz	1747.5MHz	
15MHz	QPSK	1	0	22.00	21.51	21.58	21.60		
			38	22.00	21.73	21.59	21.95		
			74	22.50	21.60	21.58	22.10		
		36	0	21.00	20.76	20.71	20.87		
			18	21.00	20.83	20.69	20.99		
			39	21.50	20.82	20.74	21.16		
		75	0	21.00	20.80	20.70	20.99		
			16QAM	1	0	21.50	20.80	20.74	21.13
					38	21.50	21.06	20.79	21.48
	74	22.00			20.92	20.76	21.60		
	36	0		20.00	19.70	19.67	19.83		
		18		20.00	19.72	19.63	19.99		
		39		20.50	19.74	19.66	20.15		
	75	0	20.00	19.74	19.61	20.00			
		Bandwidth	Modulation	RB allocation	RB offset	Maximum Tune-up(dBm)	20050	20175	20300
1720.0MHz							1732.5MHz	1745.0MHz	
20MHz	QPSK	1	0	21.50	21.27	21.40	21.30		
			50	22.00	21.76	21.71	21.99		
			99	22.00	21.29	21.51	21.93		
		50	0	21.00	20.63	20.63	20.72		
			25	21.00	20.67	20.57	20.89		
			50	21.50	20.60	20.55	21.05		
		100	0	21.00	20.62	20.61	20.91		
			16QAM	1	0	21.00	20.81	20.61	20.61
					50	21.50	21.28	20.86	21.25
	99	21.50			20.86	20.71	21.21		
	50	0		20.00	19.57	19.63	19.71		
		25		20.00	19.63	19.57	19.90		
		50		20.50	19.60	19.58	20.04		
	100	0	20.00	19.65	19.62	19.93			

Band 5

LTE-FDD Band 5				Maximum Tune-up(dBm)	Conducted Power(dBm)		
Bandwidth	Modulation	RB allocation	RB offset		20407	20525	20643
					824.7MHz	836.5MHz	848.3MHz
1.4MHz	QPSK	1	0	23.50	23.16	22.57	22.31
			2	23.50	23.27	22.76	22.41
			5	23.50	23.16	22.58	22.29
		3	0	23.00	22.76	22.73	22.49
			2	23.00	22.80	22.71	22.48
			3	23.00	22.78	22.69	22.45
	16QAM	1	0	22.00	21.69	21.75	21.31
			2	22.00	21.82	21.83	21.48
			5	22.00	21.78	21.74	21.36
		3	0	22.00	21.86	21.71	21.69
			2	22.00	21.93	21.72	21.71
			3	22.00	21.83	21.71	21.68
6	0	21.00	20.69	20.67	20.42		
Bandwidth	Modulation	RB allocation	RB offset	Maximum Tune-up(dBm)	20415	20525	20635
					825.5MHz	836.5MHz	847.5MHz
3MHz	QPSK	1	0	23.00	22.76	22.62	22.32
			7	23.00	22.88	22.74	22.46
			14	23.00	22.72	22.56	22.29
		8	0	22.00	21.75	21.60	21.34
			4	22.00	21.76	21.63	21.41
			7	22.00	21.69	21.58	21.36
	15	0	22.00	21.72	21.63	21.39	
	16QAM	1	0	22.00	21.80	21.83	21.96
			7	22.50	21.91	21.92	22.08
			14	22.00	21.79	21.72	21.93
		8	0	21.00	20.80	20.63	20.60
			4	21.00	20.84	20.67	20.65
			7	21.00	20.80	20.59	20.60
		15	0	21.00	20.78	20.62	20.54

LTE-FDD Band 5				Maximum Tune-up(dBm)	Conducted Power(dBm)		
Bandwidth	Modulation	RB allocation	RB offset		20425	20525	20625
					826.5MHz	836.5MHz	846.5MHz
5MHz	QPSK	1	0	23.00	22.62	22.51	22.32
			13	23.00	22.76	22.59	22.43
			24	23.00	22.64	22.46	22.29
		12	0	22.00	21.66	21.55	21.40
			6	22.00	21.75	21.62	21.41
			13	22.00	21.72	21.61	21.32
	25	0	22.00	21.69	21.61	21.34	
	16QAM	1	0	22.00	21.71	21.84	21.19
			13	22.00	21.86	21.95	21.29
			24	22.00	21.77	21.78	21.17
		12	0	21.00	20.65	20.62	20.40
			6	21.00	20.75	20.68	20.45
			13	21.00	20.70	20.64	20.34
		25	0	21.00	20.75	20.60	20.42

Bandwidth	Modulation	RB allocation	RB offset	Maximum Tune-up(dBm)	20450	20525	20600
					829.0MHz	836.5MHz	844.0MHz
10MHz	QPSK	1	0	23.00	22.70	22.60	22.45
			25	23.00	22.83	22.71	22.44
			49	23.00	22.68	22.45	22.30
		25	0	22.00	21.73	21.67	21.49
			13	22.00	21.72	21.61	21.41
			25	22.00	21.67	21.59	21.31
	50	0	22.00	21.73	21.59	21.37	
	16QAM	1	0	22.50	21.71	21.84	22.08
			25	22.50	21.84	21.90	22.10
			49	22.00	21.73	21.62	21.94
		25	0	21.00	20.84	20.74	20.58
			13	21.00	20.83	20.67	20.48
			25	21.00	20.82	20.64	20.37
		50	0	21.00	20.76	20.62	20.44

Band 7

LTE-FDD Band 7				Maximum Tune-up(dBm)	Conducted Power(dBm)			
Bandwidth	Modulation	RB allocation	RB offset		20775	21100	21425	
				2502.5MHz	2535.0MHz	2567.5MHz		
5MHz	QPSK	1	0	23.50	23.02	22.44	22.61	
			12	23.00	22.66	22.53	22.79	
			24	23.00	22.65	22.47	22.69	
		12	0	22.00	21.66	21.41	21.62	
			6	22.00	21.69	21.48	21.67	
			13	22.00	21.70	21.51	21.66	
	25	0	22.00	21.67	21.46	21.60		
	16QAM	1	0	22.00	21.64	21.58	21.36	
			12	22.00	21.73	21.68	21.55	
			24	22.00	21.66	21.59	21.49	
		12	0	21.00	20.57	20.41	20.57	
			6	21.00	20.63	20.46	20.59	
			13	21.00	20.60	20.50	20.59	
		25	0	21.00	20.64	20.43	20.59	
		Bandwidth	Modulation	RB allocation	RB offset	Maximum Tune-up(dBm)	20800	21100
2505.0MHz							2535.0MHz	2565.0MHz
10MHz	QPSK	1	0	23.00	22.83	22.62	22.75	
			24	23.00	22.92	22.71	22.96	
			49	23.00	22.77	22.63	22.90	
		25	0	22.00	21.67	21.54	21.68	
			12	22.00	21.69	21.56	21.71	
			25	22.00	21.75	21.60	21.72	
	50	0	22.00	21.71	21.54	21.68		
	16QAM	1	0	22.50	21.71	21.67	22.12	
			24	22.50	21.84	21.78	22.18	
			49	22.50	21.72	21.71	22.18	
		25	0	21.00	20.73	20.50	20.69	
			12	21.00	20.73	20.50	20.72	
			25	21.00	20.77	20.61	20.72	
		50	0	21.00	20.68	20.52	20.65	

LTE-FDD Band 7				Maximum Tune-up(dBm)	Conducted Power(dBm)				
Bandwidth	Modulation	RB allocation	RB offset		20825	21100	21375		
					2507.5MHz	2535.0MHz	2562.5MHz		
15MHz	QPSK	1	0	23.00	22.72	22.55	22.64		
			38	23.00	22.76	22.62	22.83		
			74	23.00	22.63	22.52	22.78		
		38	0	22.00	21.84	21.67	21.81		
			18	22.00	21.83	21.73	21.87		
			37	22.00	21.86	21.69	21.89		
		75	0	22.00	21.83	21.70	21.84		
			16QAM	1	0	22.50	21.86	21.61	22.03
					38	22.50	21.98	21.66	22.12
	74	22.50			21.84	21.62	22.09		
	38	0		21.00	20.70	20.57	20.74		
		18		21.00	20.75	20.60	20.76		
		37		21.00	20.71	20.61	20.78		
	75	0		21.00	20.72	20.59	20.74		
		Bandwidth		Modulation	RB allocation	RB offset	Maximum Tune-up(dBm)	20850	21100
2510.0MHz								2535.0MHz	2560.0MHz
20MHz	QPSK	1	0	22.50	22.48	22.37	22.43		
			49	23.00	22.88	22.75	22.92		
			99	23.00	22.41	22.45	22.62		
		50	0	22.00	21.59	21.43	21.58		
			25	22.00	21.67	21.56	21.68		
			50	22.00	21.64	21.53	21.62		
		100	0	22.00	21.65	21.52	21.62		
			16QAM	1	0	22.00	21.90	21.44	21.63
					49	22.50	22.29	21.80	22.08
	99	22.00			21.85	21.54	21.73		
	50	0		21.00	20.57	20.41	20.57		
		25		21.00	20.67	20.55	20.60		
		50		21.00	20.63	20.55	20.55		
	100	0		21.00	20.65	20.50	20.61		

Band 12

LTE-FDD Band 12				Maximum Tune-up(dBm)	Conducted Power(dBm)				
Bandwidth	Modulation	RB allocation	RB offset		23017	23095	23173		
					699.7MHz	707.5MHz	715.3MHz		
1.4MHz	QPSK	1	0	22.50	22.22	22.14	22.21		
			2	22.50	22.24	22.21	22.31		
			5	22.50	22.13	22.16	22.26		
		3	0	22.50	22.18	22.21	22.34		
			2	22.50	22.15	22.27	22.40		
			3	22.50	22.16	22.30	22.34		
		6	0	21.50	21.09	21.22	21.25		
			16QAM	1	0	21.50	21.08	21.23	21.15
					2	21.50	21.19	21.38	21.29
	5	21.50			21.12	21.31	21.23		
	3	0		21.50	21.25	21.20	21.48		
		2		22.00	21.28	21.23	21.56		
		3		22.00	21.26	21.27	21.51		
	6	0		20.50	20.12	20.27	20.33		

Bandwidth	Modulation	RB allocation	RB offset	Maximum Tune-up(dBm)	23025	23095	23165	
					700.5MHz	707.5MHz	714.5MHz	
3MHz	QPSK	1	0	22.50	22.20	22.12	22.41	
			7	23.00	22.29	22.29	22.60	
			14	23.00	22.14	22.63	22.50	
		8	0	21.50	21.12	21.40	21.45	
			4	22.00	21.18	21.46	21.53	
			7	22.00	21.15	21.38	21.50	
	15	0	21.50	21.15	21.40	21.47		
	16QAM	1	0	22.50	21.24	21.53	22.03	
			7	22.50	21.32	21.70	22.19	
			14	22.50	21.17	21.56	22.04	
		8	0	21.00	20.19	20.38	20.65	
			4	21.00	20.27	20.46	20.73	
			7	21.00	20.22	20.40	20.67	
		15	0	21.00	20.21	20.39	20.55	
		Bandwidth	Modulation	RB allocation	RB offset	Maximum Tune-up(dBm)	23035	23095
701.5MHz							707.5MHz	713.5MHz
5MHz	QPSK	1	0	22.50	22.22	22.20	22.38	
			13	22.50	22.33	22.39	22.49	
			24	22.50	22.26	22.32	22.45	
		12	0	21.50	21.16	21.35	21.38	
			6	21.50	21.34	21.40	21.47	
			13	21.50	21.38	21.37	21.44	
	25	0	21.50	21.31	21.37	21.42		
	16QAM	1	0	22.00	21.36	21.50	21.21	
			13	22.00	21.43	21.65	21.31	
			24	22.00	21.38	21.62	21.32	
		12	0	20.50	20.15	20.39	20.39	
			6	20.50	20.33	20.48	20.49	
			13	20.50	20.40	20.39	20.47	
		25	0	21.00	20.34	20.41	20.50	
		Bandwidth	Modulation	RB allocation	RB offset	Maximum Tune-up(dBm)	23060	23095
704.0MHz							707.5MHz	711.0MHz
10MHz	QPSK	1	0	22.50	22.27	22.22	22.21	
			25	23.00	22.43	22.46	22.50	
			49	22.50	22.42	22.41	22.44	
		25	0	22.00	21.18	21.46	21.50	
			13	21.50	21.32	21.39	21.45	
			25	22.00	21.30	21.43	21.55	
	50	0	22.00	21.19	21.43	21.54		
	16QAM	1	0	22.00	21.29	21.39	21.83	
			25	22.50	21.47	21.68	22.18	
			49	22.50	21.39	21.61	22.04	
		25	0	21.00	20.25	20.50	20.60	
			13	21.00	20.43	20.45	20.56	
			25	21.00	20.39	20.51	20.64	
		50	0	21.00	20.25	20.45	20.56	

Band 13

LTE-FDD Band 13				Maximum Tune-up(dBm)	Conducted Power(dBm)			
Bandwidth	Modulation	RB allocation	RB offset		23205	23230	23255	
					779.5MHz	782.0MHz	784.5MHz	
5MHz	QPSK	1	0	23.00	22.83	22.77	22.73	
			13	23.00	22.94	22.89	22.86	
			24	23.00	22.80	22.73	22.69	
		12	0	22.00	21.84	21.90	21.85	
			6	22.00	21.95	21.87	21.84	
			13	22.00	21.86	21.79	21.76	
	25	0	22.00	21.88	21.80	21.80		
	16QAM	1	0	22.50	21.92	22.04	21.60	
			13	22.50	22.03	22.17	21.74	
			24	22.50	21.93	22.02	21.57	
		12	0	21.00	20.77	20.88	20.86	
			6	21.00	20.94	20.93	20.86	
			13	21.00	20.88	20.81	20.79	
		25	0	21.00	20.92	20.83	20.86	
		Bandwidth	Modulation	RB allocation	RB offset	Maximum Tune-up(dBm)	23230	
10MHz		QPSK	1	0	23.50	23.42		
	25			24.00	23.55			
	49			23.50	23.36			
	25		0	22.50	22.37			
			13	22.50	22.42			
			25	22.50	22.03			
	50	0	22.00	21.84				
	16QAM	1	0	22.50	22.09			
			25	22.50	22.15			
			49	22.50	22.03			
		25	0	21.00	20.94			
			13	21.00	20.96			
			25	21.00	20.88			
		50	0	21.00	20.88			
		Bandwidth	Modulation	RB allocation	RB offset	Maximum Tune-up(dBm)	782.0MHz	

Band 17

LTE-FDD Band 17				Maximum Tune-up(dBm)	Conducted Power(dBm)		
Bandwidth	Modulation	RB allocation	RB offset		23755	23790	23825
					706.5MHz	710MHz	713.5MHz
5MHz	QPSK	1	0	23.00	22.74	22.24	22.30
			13	23.00	22.86	22.39	22.48
			24	23.00	22.81	22.32	22.33
		12	0	22.00	21.78	21.39	21.33
			6	22.00	21.85	21.37	21.49
			13	22.00	21.63	21.38	21.39
	25	0	21.50	21.27	21.36	21.40	
	16QAM	1	0	22.00	21.26	21.50	21.13
			13	22.00	21.42	21.71	21.32
			24	22.00	21.39	21.60	21.24
		12	0	20.50	20.26	20.37	20.34
			6	21.00	20.34	20.43	20.50
			13	20.50	20.26	20.47	20.43
		25	0	20.50	20.34	20.39	20.44

Bandwidth	Modulation	RB allocation	RB offset	Maximum Tune-up(dBm)	23780	23790	23800
					709MHz	710MHz	711MHz
10MHz	QPSK	1	0	22.50	22.22	22.20	22.22
			25	23.00	22.47	22.46	22.51
			49	22.50	22.46	22.41	22.42
		25	0	21.50	21.44	21.45	21.45
			13	21.50	21.39	21.37	21.45
			25	22.00	21.51	21.55	21.50
	50	0	22.00	21.45	21.50	21.52	
	16QAM	1	0	22.00	21.24	21.38	21.78
			25	22.50	21.49	21.70	22.12
			49	22.50	21.47	21.62	22.03
		25	0	21.00	20.55	20.52	20.59
			13	21.00	20.54	20.48	20.52
			25	21.00	20.65	20.60	20.61
		50	0	21.00	20.54	20.54	20.58

Band 26

LTE-FDD Band 26				Maximum Tune-up(dBm)	Conducted Power(dBm)		
Bandwidth	Modulation	RB allocation	RB offset		26765	26865	26965
					821.5MHz	831.5MHz	841.5MHz
15MHz	QPSK	1	0	23.50	23.06	22.56	22.36
			38	23.50	23.14	22.61	22.35
			74	23.50	23.05	22.38	22.22
		36	0	22.50	22.13	21.63	21.42
			18	22.00	21.78	21.60	21.45
			39	22.00	21.68	21.58	21.34
	75	0	22.00	21.63	21.58	21.37	
	16QAM	1	0	22.50	21.99	21.71	22.07
			38	22.50	22.09	21.81	22.01
			74	22.00	21.95	21.58	21.88
		36	0	21.00	20.59	20.64	20.52
			18	21.00	20.66	20.63	20.47
			39	21.00	20.63	20.59	20.30
		75	0	21.00	20.65	20.63	20.41

Band 66

LTE-FDD Band 66				Maximum Tune-up(dBm)	Conducted Power(dBm)		
Bandwidth	Modulation	RB allocation	RB offset		131979	132322	132665
					1710.7MHz	1745.0MHz	1779.3MHz
1.4MHz	QPSK	1	0	22.50	22.01	21.78	22.37
			2	22.50	22.11	21.93	22.46
			5	22.50	21.74	21.82	22.38
		3	0	22.50	21.53	21.88	22.47
			2	22.50	21.56	21.96	22.49
			3	22.50	21.58	21.91	22.45
	6	0	21.50	20.57	20.88	21.47	
	16QAM	1	0	21.50	20.43	20.94	21.34
			2	21.50	20.58	21.09	21.48
			5	21.50	20.51	20.97	21.36
		3	0	22.00	20.58	20.87	21.62
			2	22.00	20.58	20.84	21.67
			3	22.00	20.58	20.90	21.65
		6	0	20.50	19.46	19.92	20.47

Bandwidth	Modulation	RB allocation	RB offset	Maximum Tune-up(dBm)	131987	132322	132657	
					1711.5MHz	1745.0MHz	1778.5MHz	
3MHz	QPSK	1	0	22.50	21.58	21.82	22.37	
			7	23.00	21.76	22.01	22.55	
			14	22.50	21.63	21.90	22.40	
		8	0	21.50	20.56	20.84	21.41	
			4	21.50	20.61	20.94	21.47	
			7	21.50	20.58	20.88	21.42	
	15	0	21.50	20.54	20.88	21.41		
	16QAM	1	0	22.00	20.53	21.00	21.86	
			7	22.50	20.73	21.18	22.05	
			14	22.00	20.59	21.05	21.84	
		8	0	21.00	19.59	19.87	20.54	
			4	21.00	19.66	19.90	20.61	
			7	21.00	19.61	19.87	20.59	
		15	0	20.50	19.59	19.86	20.47	
		Bandwidth	Modulation	RB allocation	RB offset	Maximum Tune-up(dBm)	131997	132322
1712.5MHz							1745.0MHz	1777.5MHz
5MHz	QPSK	1	0	22.50	21.43	21.72	22.25	
			13	22.50	21.65	21.92	22.42	
			24	22.50	21.54	21.87	22.31	
		12	0	21.50	20.51	20.79	21.38	
			6	21.50	20.61	20.90	21.42	
			13	21.50	20.60	20.93	21.42	
	25	0	21.50	20.52	20.85	21.36		
	16QAM	1	0	21.50	20.49	20.97	21.09	
			13	21.50	20.73	21.18	21.26	
			24	21.50	20.63	21.10	21.20	
		12	0	20.50	19.47	19.81	20.35	
			6	20.50	19.56	19.95	20.42	
			13	20.50	19.53	19.98	20.40	
		25	0	20.50	19.53	19.85	20.41	
		Bandwidth	Modulation	RB allocation	RB offset	Maximum Tune-up(dBm)	132022	132322
1715.0MHz							1745.0MHz	1775.0MHz
10MHz	QPSK	1	0	22.50	21.57	21.66	22.25	
			25	23.00	21.81	22.03	22.52	
			49	22.50	21.67	22.03	22.43	
		25	0	21.50	20.64	20.80	21.44	
			13	21.50	20.68	20.94	21.43	
			25	21.50	20.74	21.09	21.45	
	50	0	21.50	20.73	20.97	21.49		
	16QAM	1	0	22.00	20.51	20.87	21.76	
			25	22.50	20.84	21.20	22.05	
			49	22.00	20.64	21.20	21.91	
		25	0	21.00	19.70	19.82	20.50	
			13	21.00	19.75	19.96	20.50	
			25	21.00	19.80	20.08	20.50	
		50	0	20.50	19.70	19.96	20.47	

LTE-FDD Band 66				Maximum Tune-up(dBm)	Conducted Power(dBm)			
Bandwidth	Modulation	RB allocation	RB offset		132047	132322	132597	
					1717.5MHz	1745.0MHz	1772.5MHz	
15MHz	QPSK	1	0	22.50	21.47	21.54	22.24	
			38	22.50	21.70	21.91	22.36	
			74	22.50	21.53	21.99	22.31	
		36	0	21.50	20.73	20.81	21.46	
			18	21.50	20.77	20.95	21.48	
			39	22.00	20.75	21.15	21.51	
	75	0	21.50	20.74	20.97	21.47		
	16QAM	1	0	22.00	20.77	20.70	21.68	
			38	22.00	21.02	21.10	21.89	
			74	22.00	20.83	21.17	21.80	
		36	0	20.50	19.65	19.74	20.41	
			18	20.50	19.68	19.93	20.47	
			39	20.50	19.68	20.09	20.46	
		75	0	20.50	19.68	19.96	20.42	
		Bandwidth	Modulation	RB allocation	RB offset	Maximum Tune-up(dBm)	132072	132322
						1720.0MHz	1745.0MHz	1770.0MHz
20MHz	QPSK	1	0	22.00	21.27	21.33	22.00	
			50	22.50	21.76	22.05	22.40	
			99	22.50	21.27	21.95	22.17	
		50	0	21.50	20.66	20.70	21.38	
			25	21.50	20.65	20.90	21.31	
			50	21.50	20.56	21.05	21.25	
	100	0	21.50	20.61	20.90	21.31		
	16QAM	1	0	21.50	20.77	20.54	21.26	
			50	22.00	21.26	21.21	21.68	
			99	21.50	20.83	21.12	21.48	
		50	0	20.50	19.61	19.67	20.34	
			25	20.50	19.66	19.93	20.31	
			50	20.50	19.59	20.06	20.24	
		100	0	20.50	19.63	19.93	20.32	

8.4 Wi-Fi

Band (GHz)	Mode	Channel	Freq. (MHz)	Average Power (dBm)	Maximum Tune-up(dBm)	SAR Test Require.
2.4g Wifi (2.4~2.4835)	802.11b	1	2412	14.91	15.00	Yes
		6	2437	14.22	14.50	No
		11	2462	13.58	14.00	No
	802.11g	1	2412	18.00	18.00	No
		6	2437	10.04	10.50	No
		11	2462	9.08	9.50	No
	802.11n(HT20)	1	2412	10.68	11.00	No
		6	2437	9.62	10.00	No
		11	2462	8.68	9.00	No
	802.11n(HT40)	3	2422	9.89	10.00	No
		6	2437	9.44	9.50	No
		9	2452	8.50	9.00	No

Note: SAR is not required for the following 2.4 GHz OFDM conditions as the highest reported SAR for DSSS is adjusted by the ratio of OFDM to DSSS specified maximum output power and the adjusted SAR is $\leq 1.2W/kg$.

Band (GHz)	Mode	Channel	Freq. (MHz)	Average Power (dBm)	Maximum Tune-up(dBm)	SAR Test Require.
U-NII-1 (5.150~5.250)	802.11a	36	5180	6.79	7.00	No
		40	5200	6.96	7.00	No
		48	5240	7.75	8.00	No
	802.11n(HT20)	36	5180	6.92	7.00	No
		40	5200	7.19	7.50	No
		48	5240	7.91	8.00	Yes
	802.11ac(VHT20)	36	5180	6.93	7.00	No
		40	5200	7.10	7.50	No
		48	5240	7.82	8.00	No
	802.11n(HT40)	38	5190	7.20	7.50	No
		46	5230	7.67	8.00	No
	802.11ac(VHT40)	38	5190	7.11	7.50	No
		46	5230	7.53	8.00	No
802.11ac(VHT80)	42	5210	7.65	8.00	No	
Band (GHz)	Mode	Channel	Freq. (MHz)	Average Power (dBm)	Maximum Tune-up(dBm)	SAR Test Require.
U-NII-3 (5.725~5.850)	802.11a	149	5745	10.89	11.00	No
		157	5785	11.21	11.50	No
		165	5825	11.48	11.50	No
	802.11n(HT20)	149	5745	10.84	11.00	No
		157	5785	11.12	11.50	No
		165	5825	11.75	12.00	Yes
	802.11ac(VHT20)	149	5745	10.82	11.00	No
		157	5785	11.37	11.50	No
		165	5825	10.76	11.00	No
	802.11n(HT40)	151	5755	11.31	11.50	No
		159	5795	11.67	12.00	No
	802.11ac(VHT40)	151	5755	10.59	11.00	No
		159	5795	10.90	11.00	No
802.11ac(VHT80)	155	5775	8.56	9.00	No	

8.5 Bluetooth

EDR	Mode	Maximum Tune-up(dBm)	Average Conducted Output Power (dBm)		
			0	39	78
			2402MHz	2441MHz	2480MHz
	GFSK	4.00	3.65	0.62	0.52
	$\pi/4$ QPSK	3.00	2.77	-0.04	-0.18
	8DPSK	3.00	2.74	0.00	-0.13
BLE	Mode	Maximum Tune-up(dBm)	Average Conducted Output Power (dBm)		
			0	20	39
			2402MHz	2440MHz	2480MHz
	1Mbps	-4.50	-4.59	-5.13	-6.25
	2Mbps	-4.00	-4.50	-5.61	-6.65

8.6 NFC

Maximum Tune-up(dBm)	Average Conducted Output Power (dBm)
	13.56MHz
-36.00	-36.21

Channel	Frequency (GHz)	Max. Tune-up Power (dBm)	Max. Power (mW)	Test distance (mm)	Exclusion thresholds for 1-g SAR(mW)	RF exposure evaluation required
0	2.402	4.00	2.51	0	2.79	No
0	2.402	4.00	2.51	10	10.39	No
/	0.01356	-36.00	2.51x10 ⁴	0	71	No

Note

- Per KDB 447498 D04 Interim General RF Exposure Guidance v01, the 1-g SAR test exclusion thresholds for 300 MHz to 6 GHz at *test separation distances* ≤ 40 cm are determined by:

$$P_{th} \text{ (mW)} = \begin{cases} ERP_{20 \text{ cm}}(d/20 \text{ cm})^x & d \leq 20 \text{ cm} \\ ERP_{20 \text{ cm}} & 20 \text{ cm} < d \leq 40 \text{ cm} \end{cases} \quad \text{(B.2)}$$

where

$$P_{th} \text{ (mW)} = ERP_{20 \text{ cm}} \text{ (mW)} = \begin{cases} 2040f & 0.3 \text{ GHz} \leq f < 1.5 \text{ GHz} \\ 3060 & 1.5 \text{ GHz} \leq f \leq 6 \text{ GHz} \end{cases} \quad \text{(B.1)}$$

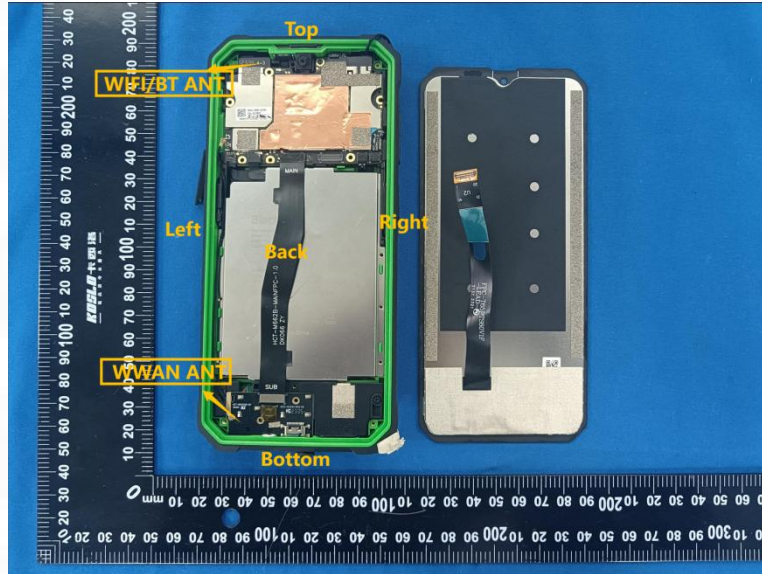
$$x = -\log_{10} \left(\frac{60}{ERP_{20 \text{ cm}} \sqrt{f}} \right)$$

and f is in GHz, d is the separation distance (cm), and $ERP_{20 \text{ cm}}$ is per Formula (B.1).

- *When the minimum test separation distance is < 5 mm, a distance of 5 mm is applied to determine estimated SAR.
- Per KDB 248227 D01 v02r02, choose the highest output power channel to test SAR and determine further SAR exclusion.
 - The output power of all data rate were prescan, just the worst case (the lowest data rate) of all mode were shown in report.

9. Test Exclusion Consideration

Antenna information:



WWAN Main Antenna	GSM/WCDMA/LTE TX/RX
WLAN/BT Antenna	WLAN/BT TX/RX
Note: 1. KDB 447498 D04v01, particular DUT edges were not required to be evaluated for SAR if the antenna-to-edge distance is greater than 2.5cm. 2. Per KDB648474 D04, 10-g extremity SAR is not required when Body-Worn mode 1-g reported SAR < 1.2W/Kg.	

Distance of The Antenna to the EUT surface and edge (mm)						
Antenna	Front Side (mm)	Back Side (mm)	Left Edge (mm)	Right Edge (mm)	Top Edge (mm)	Bottom Edge (mm)
WWAN	<25	<25	<25	69	161	<25
BT/Wifi	<25	<25	68	<25	<25	167
Positions for SAR tests: Hotspot mode						
Antenna	Front Side (mm)	Back Side (mm)	Left Edge (mm)	Right Edge (mm)	Top Edge (mm)	Bottom Edge (mm)
WWAN	Yes	Yes	Yes	No	No	Yes
BT/Wifi	Yes	Yes	No	Yes	Yes	No

9.1 SAR Test Exclusion Consideration Table

Per KDB 447498 requires when the standalone SAR test exclusion of section 4.3.1 is applied to an antenna that transmits simultaneously with other antennas, the standalone SAR must be estimated according to the following format to determine simultaneous transmission SAR test exclusion:

$(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm}) \cdot [\sqrt{f(\text{GHz})} / x]$
 W/kg for test separation distances ≤ 50 mm;
 where $x = 7.5$ for 1-g SAR, and $x = 18.75$ for 10-g SAR.
 0.4 W/kg for 1-g SAR and 1.0 W/kg for 10-g SAR, when the test separation distances is > 50 mm

Mode	Channel	Frequency (GHz)	Max tune-up power (dBm)	Max. Power (mW)	Exposure Position	Head	Body-worn
					Test Dist.(mm)	0	10
BT	0	2.402	4.00	2.51	Estimated SAR(W/kg)	0.207	0.052
NFC	/	0.01356	-36.00	2.51x10 ⁻⁴		3.74x10 ⁻⁷	4.54x10 ⁻⁷

10. Test Result

Head(0mm gap)												
Mode	Position	Ch.	Freq. (MHz)	Power Drift (%)	1g Meas. SAR (W/kg)	Duty cycle (%)	Duty cycle Factor	Meas. Power (dBm)	Max. tune-up power (dBm)	Scaling Factor	1g Scaled SAR (W/kg)	Meas. No.
GSM 850 (voice)	Left Cheek	251	848.8	2.650	0.123	100.00	1.000	31.41	31.50	1.021	0.126	/
	Left Tilt	251	848.8	3.010	0.067	100.00	1.000	31.41	31.50	1.021	0.068	/
	Right Cheek	251	848.8	-2.650	0.129	100.00	1.000	31.41	31.50	1.021	0.132	1#
	Right Tilt	251	848.8	1.860	0.070	100.00	1.000	31.41	31.50	1.021	0.071	/
Body(hotspot open, 10mm Gap)												
Mode	Position	Ch.	Freq. (MHz)	Power Drift (%)	1g Meas. SAR (W/kg)	Duty cycle (%)	Duty cycle Factor	Meas. Power (dBm)	Max. tune-up power (dBm)	Scaling Factor	1g Scaled SAR (W/kg)	Meas. No.
GPRS 850+4slots	Front	251	848.8	-2.870	0.125	100.00	1.000	27.93	28.00	1.016	0.127	/
	Back	251	848.8	-4.360	0.274	100.00	1.000	27.93	28.00	1.016	0.278	2#
	Left	251	848.8	-1.710	0.046	100.00	1.000	27.93	28.00	1.016	0.047	/
	Bottom	251	848.8	2.760	0.089	100.00	1.000	27.93	28.00	1.016	0.090	/

Head(0mm gap)												
Mode	Position	Ch.	Freq. (MHz)	Power Drift (%)	1g Meas. SAR (W/kg)	Duty cycle (%)	Duty cycle Factor	Meas. Power (dBm)	Max. tune-up power (dBm)	Scaling Factor	1g Scaled SAR (W/kg)	Meas. No.
GSM 1900 (voice)	Left Cheek	810	1909.8	-1.300	0.074	100.00	1.000	27.95	28.00	1.012	0.075	/
	Left Tilt	810	1909.8	0.090	0.092	100.00	1.000	27.95	28.00	1.012	0.093	/
	Right Cheek	810	1909.8	4.650	0.076	100.00	1.000	27.95	28.00	1.012	0.077	/
	Right Tilt	810	1909.8	-0.800	0.098	100.00	1.000	27.95	28.00	1.012	0.099	3#
Body(hotspot open, 10mm Gap)												
Mode	Position	Ch.	Freq. (MHz)	Power Drift (%)	1g Meas. SAR (W/kg)	Duty cycle (%)	Duty cycle Factor	Meas. Power (dBm)	Max. tune-up power (dBm)	Scaling Factor	1g Scaled SAR (W/kg)	Meas. No.
GPRS 1900+4slots	Front	810	1909.8	-2.590	0.332	100.00	1.000	25.00	25.00	1.000	0.332	/
	Back	810	1909.8	1.310	0.395	100.00	1.000	25.00	25.00	1.000	0.395	4#
	Left	810	1909.8	-2.130	0.185	100.00	1.000	25.00	25.00	1.000	0.185	/
	Bottom	810	1909.8	-1.890	0.340	100.00	1.000	25.00	25.00	1.000	0.340	/

Head(0mm gap)												
Mode	Position	Ch.	Freq. (MHz)	Power Drift (%)	1g Meas. SAR (W/kg)	Duty cycle (%)	Duty cycle Factor	Meas. Power (dBm)	Max. tune-up power (dBm)	Scaling Factor	1g Scaled SAR (W/kg)	Meas. No.
WCDMA Band 2 (RMC*)	Left Cheek	9400	1880.0	1.002	0.120	100.00	1.000	21.36	21.50	1.033	0.124	/
	Left Tilt	9400	1880.0	0.990	0.074	100.00	1.000	21.36	21.50	1.033	0.076	/
	Right Cheek	9400	1880.0	-2.210	0.124	100.00	1.000	21.36	21.50	1.033	0.128	5#
	Right Tilt	9400	1880.0	2.600	0.078	100.00	1.000	21.36	21.50	1.033	0.081	/
Body(hotspot open, 10mm Gap)												
Mode	Position	Ch.	Freq. (MHz)	Power Drift (%)	1g Meas. SAR (W/kg)	Duty cycle (%)	Duty cycle Factor	Meas. Power (dBm)	Max. tune-up power (dBm)	Scaling Factor	1g Scaled SAR (W/kg)	Meas. No.
WCDMA Band 2 (RMC*)	Front	9400	1880.0	-1.650	0.376	100.00	1.000	21.36	21.50	1.033	0.388	/
	Back	9400	1880.0	-2.340	0.419	100.00	1.000	21.36	21.50	1.033	0.433	6#
	Left	9400	1880.0	1.770	0.192	100.00	1.000	21.36	21.50	1.033	0.198	/
	Bottom	9400	1880.0	-1.020	0.395	100.00	1.000	21.36	21.50	1.033	0.408	/

Head(0mm gap)												
Mode	Position	Ch.	Freq. (MHz)	Power Drift (%)	1g Meas. SAR (W/kg)	Duty cycle (%)	Duty cycle Factor	Meas. Power (dBm)	Max. tune-up power (dBm)	Scaling Factor	1g Scaled SAR (W/kg)	Meas. No.
WCDMA Band 4 (RMC*)	Left Cheek	1513	1752.6	1.112	0.089	100.00	1.000	21.02	21.50	1.117	0.099	/
	Left Tilt	1513	1752.6	0.890	0.053	100.00	1.000	21.02	21.50	1.117	0.059	/
	Right Cheek	1513	1752.6	0.390	0.093	100.00	1.000	21.02	21.50	1.117	0.104	7#
	Right Tilt	1513	1752.6	-1.500	0.056	100.00	1.000	21.02	21.50	1.117	0.063	/
Body(hotspot open, 10mm Gap)												
Mode	Position	Ch.	Freq. (MHz)	Power Drift (%)	1g Meas. SAR (W/kg)	Duty cycle (%)	Duty cycle Factor	Meas. Power (dBm)	Max. tune-up power (dBm)	Scaling Factor	1g Scaled SAR (W/kg)	Meas. No.
WCDMA Band 4 (RMC*)	Front	1513	1752.6	-0.030	0.584	100.00	1.000	21.02	21.50	1.117	0.652	/
	Back	1513	1752.6	-2.220	0.690	100.00	1.000	21.02	21.50	1.117	0.771	8#
	Left	1513	1752.6	0.770	0.349	100.00	1.000	21.02	21.50	1.117	0.390	/
	Bottom	1513	1752.6	-3.390	0.611	100.00	1.000	21.02	21.50	1.117	0.682	/

Head(0mm gap)												
Mode	Position	Ch.	Freq. (MHz)	Power Drift (%)	1g Meas SAR (W/kg)	Duty cycle (%)	Duty cycle Factor	Meas. Power (dBm)	Max. tune-up power (dBm)	Scaling Factor	1g Scaled SAR (W/kg)	Meas. No.
WCDMA Band 5 (RMC*)	Left Cheek	4183	836.6	1.151	0.198	100.00	1.000	22.02	22.50	1.117	0.221	/
	Left Tilt	4183	836.6	0.977	0.107	100.00	1.000	22.02	22.50	1.117	0.120	/
	Right Cheek	4183	836.6	-1.770	0.202	100.00	1.000	22.02	22.50	1.117	0.226	9#
	Right Tilt	4183	836.6	1.240	0.113	100.00	1.000	22.02	22.50	1.117	0.126	/
Body(hotspot open, 10mm Gap)												
Mode	Position	Ch.	Freq. (MHz)	Power Drift (%)	1g Meas SAR (W/kg)	Duty cycle (%)	Duty cycle Factor	Meas. Power (dBm)	Max. tune-up power (dBm)	Scaling Factor	1g Scaled SAR (W/kg)	Meas. No.
WCDMA Band 5 (RMC*)	Front	4183	836.6	-1.500	0.210	100.00	1.000	22.02	22.50	1.117	0.235	/
	Back	4183	836.6	-2.810	0.266	100.00	1.000	22.02	22.50	1.117	0.297	10#
	Left	4183	836.6	2.710	0.105	100.00	1.000	22.02	22.50	1.117	0.117	/
	Bottom	4183	836.6	-3.290	0.234	100.00	1.000	22.02	22.50	1.117	0.261	/

Head(0mm gap)													
Mode	Channel Type	Position	Ch.	Freq. (MHz)	Power Drift (%)	1g Meas SAR (W/kg)	Duty cycle (%)	Duty cycle Factor	Meas. Power (dBm)	Max. tune-up power (dBm)	Scaling Factor	1g Scaled SAR (W/kg)	Meas. No.
Band 2 (BW: 20MHz)	1RB	Left Cheek	18700	1860.0	-1.816	0.148	100.00	1.000	22.65	23.00	1.084	0.160	/
		Left Tilt	18700	1860.0	1.091	0.084	100.00	1.000	22.65	23.00	1.084	0.091	/
		Right Cheek	18700	1860.0	2.290	0.152	100.00	1.000	22.65	23.00	1.084	0.165	11#
		Right Tilt	18700	1860.0	0.657	0.088	100.00	1.000	22.65	23.00	1.084	0.095	/
	50%RB	Left Cheek	18700	1860.0	2.170	0.141	100.00	1.000	21.71	22.00	1.069	0.151	/
		Left Tilt	18700	1860.0	-0.300	0.068	100.00	1.000	21.71	22.00	1.069	0.073	/
		Right Cheek	18700	1860.0	2.503	0.145	100.00	1.000	21.71	22.00	1.069	0.155	/
		Right Tilt	18700	1860.0	1.556	0.072	100.00	1.000	21.71	22.00	1.069	0.077	/
Body(hotspot open, 10mm Gap)													
Mode	Channel Type	Position	Ch.	Freq. (MHz)	Power Drift (%)	1g Meas SAR (W/kg)	Duty cycle (%)	Duty cycle Factor	Meas. Power (dBm)	Max. tune-up power (dBm)	Scaling Factor	1g Scaled SAR (W/kg)	Meas. No.
Band 2 (BW: 20MHz)	1RB	Front	18700	1860.0	-4.196	0.302	100.00	1.000	22.65	23.00	1.084	0.327	/
		Back	18700	1860.0	-3.220	0.369	100.00	1.000	22.65	23.00	1.084	0.400	12#
		Left	18700	1860.0	2.867	0.135	100.00	1.000	22.65	23.00	1.084	0.146	/
		Bottom	18700	1860.0	-2.443	0.328	100.00	1.000	22.65	23.00	1.084	0.356	/
	50%RB	Front	18700	1860.0	-2.043	0.287	100.00	1.000	21.71	22.00	1.069	0.307	/
		Back	18700	1860.0	-0.198	0.342	100.00	1.000	21.71	22.00	1.069	0.366	/
		Left	18700	1860.0	-0.649	0.118	100.00	1.000	21.71	22.00	1.069	0.126	/
		Bottom	18700	1860.0	1.857	0.303	100.00	1.000	21.71	22.00	1.069	0.324	/

Head(0mm gap)													
Mode	Channel Type	Position	Ch.	Freq. (MHz)	Power Drift (%)	1g Meas SAR (W/kg)	Duty cycle (%)	Duty cycle Factor	Meas. Power (dBm)	Max. tune-up power (dBm)	Scaling Factor	1g Scaled SAR (W/kg)	Meas. No.
Band 4 (BW: 20MHz)	1RB	Left Cheek	20300	1745.0	-1.816	0.088	100.00	1.000	21.99	22.00	1.002	0.088	/
		Left Tilt	20300	1745.0	1.091	0.047	100.00	1.000	21.99	22.00	1.002	0.047	/
		Right Cheek	20300	1745.0	2.050	0.092	100.00	1.000	21.99	22.00	1.002	0.092	13#
		Right Tilt	20300	1745.0	-2.913	0.051	100.00	1.000	21.99	22.00	1.002	0.051	/
	50%RB	Left Cheek	20300	1745.0	2.170	0.082	100.00	1.000	21.05	21.50	1.109	0.091	/
		Left Tilt	20300	1745.0	-0.300	0.040	100.00	1.000	21.05	21.50	1.109	0.044	/
		Right Cheek	20300	1745.0	0.893	0.086	100.00	1.000	21.05	21.50	1.109	0.095	/
		Right Tilt	20300	1745.0	1.556	0.043	100.00	1.000	21.05	21.50	1.109	0.048	/
Body(hotspot open, 10mm Gap)													
Mode	Channel Type	Position	Ch.	Freq. (MHz)	Power Drift (%)	1g Meas SAR (W/kg)	Duty cycle (%)	Duty cycle Factor	Meas. Power (dBm)	Max. tune-up power (dBm)	Scaling Factor	1g Scaled SAR (W/kg)	Meas. No.
Band 4 (BW: 20MHz)	1RB	Front	20300	1745.0	0.204	0.410	100.00	1.000	21.99	22.00	1.002	0.411	/
		Back	20300	1745.0	1.710	0.485	100.00	1.000	21.99	22.00	1.002	0.486	14#
		Left	20300	1745.0	-2.353	0.237	100.00	1.000	21.99	22.00	1.002	0.237	/
		Bottom	20300	1745.0	-1.633	0.435	100.00	1.000	21.99	22.00	1.002	0.436	/
	50%RB	Front	20300	1745.0	-2.043	0.385	100.00	1.000	21.05	21.50	1.109	0.427	/
		Back	20300	1745.0	-0.198	0.436	100.00	1.000	21.05	21.50	1.109	0.484	/
		Left	20300	1745.0	-0.649	0.208	100.00	1.000	21.05	21.50	1.109	0.231	/
		Bottom	20300	1745.0	-4.968	0.411	100.00	1.000	21.05	21.50	1.109	0.456	/

Head(0mm gap)													
Mode	Channel Type	Position	Ch.	Freq. (MHz)	Power Drift (%)	1g Meas SAR (W/kg)	Duty cycle (%)	Duty cycle Factor	Meas. Power (dBm)	Max. tune-up power (dBm)	Scaling Factor	1g Scaled SAR (W/kg)	Meas. No.
Band 5 (BW: 10MHz)	1RB	Left Cheek	20450	829.0	-1.816	0.243	100.00	1.000	22.83	23.00	1.040	0.253	/
		Left Tilt	20450	829.0	1.091	0.130	100.00	1.000	22.83	23.00	1.040	0.135	/
		Right Cheek	20450	829.0	-4.050	0.251	100.00	1.000	22.83	23.00	1.040	0.261	15#
		Right Tilt	20450	829.0	0.257	0.133	100.00	1.000	22.83	23.00	1.040	0.138	/
	50%RB	Left Cheek	20450	829.0	2.170	0.218	100.00	1.000	21.73	22.00	1.064	0.232	/
		Left Tilt	20450	829.0	-0.300	0.101	100.00	1.000	21.73	22.00	1.064	0.107	/
		Right Cheek	20450	829.0	0.893	0.221	100.00	1.000	21.73	22.00	1.064	0.235	/
		Right Tilt	20450	829.0	1.556	0.103	100.00	1.000	21.73	22.00	1.064	0.110	/

Body(hotspot open, 10mm Gap)													
Mode	Channel Type	Position	Ch.	Freq. (MHz)	Power Drift (%)	1g Meas SAR (W/kg)	Duty cycle (%)	Duty cycle Factor	Meas. Power (dBm)	Max. tune-up power (dBm)	Scaling Factor	1g Scaled SAR (W/kg)	Meas. No.
Band 5 (BW: 10MHz)	1RB	Front	20450	829.0	0.974	0.204	100.00	1.000	22.83	23.00	1.040	0.212	/
		Back	20450	829.0	-1.650	0.262	100.00	1.000	22.83	23.00	1.040	0.272	16#
		Left	20450	829.0	4.207	0.106	100.00	1.000	22.83	23.00	1.040	0.110	/
		Bottom	20450	829.0	-4.313	0.231	100.00	1.000	22.83	23.00	1.040	0.240	/
	50%RB	Front	20450	829.0	-0.670	0.182	100.00	1.000	21.73	22.00	1.064	0.194	/
		Back	20450	829.0	-0.198	0.243	100.00	1.000	21.73	22.00	1.064	0.259	/
		Left	20450	829.0	-0.649	0.095	100.00	1.000	21.73	22.00	1.064	0.101	/
		Bottom	20450	829.0	1.857	0.220	100.00	1.000	21.73	22.00	1.064	0.234	/

Head(0mm gap)													
Mode	Channel Type	Position	Ch.	Freq. (MHz)	Power Drift (%)	1g Meas SAR (W/kg)	Duty cycle (%)	Duty cycle Factor	Meas. Power (dBm)	Max. tune-up power (dBm)	Scaling Factor	1g Scaled SAR (W/kg)	Meas. No.
Band 7 (BW: 20MHz)	1RB	Left Cheek	21350	2560.0	1.088	0.096	100.00	1.000	22.92	23.00	1.019	0.098	/
		Left Tilt	21350	2560.0	2.122	0.052	100.00	1.000	22.92	23.00	1.019	0.053	/
		Right Cheek	21350	2560.0	-2.270	0.099	100.00	1.000	22.92	23.00	1.019	0.101	17#
		Right Tilt	21350	2560.0	-4.336	0.055	100.00	1.000	22.92	23.00	1.019	0.056	/
	50%RB	Left Cheek	21350	2560.0	-1.690	0.082	100.00	1.000	21.68	22.00	1.076	0.088	/
		Left Tilt	21350	2560.0	-1.049	0.047	100.00	1.000	21.68	22.00	1.076	0.051	/
		Right Cheek	21350	2560.0	-0.976	0.089	100.00	1.000	21.68	22.00	1.076	0.096	/
		Right Tilt	21350	2560.0	1.399	0.049	100.00	1.000	21.68	22.00	1.076	0.053	/

Body(hotspot open, 10mm Gap)													
Mode	Channel Type	Position	Ch.	Freq. (MHz)	Power Drift (%)	1g Meas SAR (W/kg)	Duty cycle (%)	Duty cycle Factor	Meas. Power (dBm)	Max. tune-up power (dBm)	Scaling Factor	1g Scaled SAR (W/kg)	Meas. No.
Band 7 (BW: 20MHz)	1RB	Front	21350	2560.0	2.228	0.375	100.00	1.000	22.92	23.00	1.019	0.382	/
		Back	21350	2560.0	-1.800	0.467	100.00	1.000	22.92	23.00	1.019	0.476	18#
		Left	21350	2560.0	1.266	0.205	100.00	1.000	22.92	23.00	1.019	0.209	/
		Bottom	21350	2560.0	-0.046	0.433	100.00	1.000	22.92	23.00	1.019	0.441	/
	50%RB	Front	21350	2560.0	-2.040	0.366	100.00	1.000	21.68	22.00	1.076	0.394	/
		Back	21350	2560.0	-1.702	0.448	100.00	1.000	21.68	22.00	1.076	0.482	/
		Left	21350	2560.0	-0.654	0.189	100.00	1.000	21.68	22.00	1.076	0.203	/
		Bottom	21350	2560.0	-0.916	0.413	100.00	1.000	21.68	22.00	1.076	0.444	/

Head(0mm gap)													
Mode	Channel Type	Position	Ch.	Freq. (MHz)	Power Drift (%)	1g Meas SAR (W/kg)	Duty cycle (%)	Duty cycle Factor	Meas. Power (dBm)	Max. tune-up power (dBm)	Scaling Factor	1g Scaled SAR (W/kg)	Meas. No.
Band 12 (BW: 10MHz)	1RB	Left Cheek	23130	711.0	-1.816	0.161	100.00	1.000	22.50	23.00	1.122	0.181	/
		Left Tilt	23130	711.0	1.091	0.087	100.00	1.000	22.50	23.00	1.122	0.098	/
		Right Cheek	23130	711.0	-2.890	0.165	100.00	1.000	22.50	23.00	1.122	0.185	19#
		Right Tilt	23130	711.0	-1.723	0.091	100.00	1.000	22.50	23.00	1.122	0.102	/
	50%RB	Left Cheek	23130	711.0	2.170	0.152	100.00	1.000	21.55	22.00	1.109	0.169	/
		Left Tilt	23130	711.0	-0.300	0.076	100.00	1.000	21.55	22.00	1.109	0.084	/
		Right Cheek	23130	711.0	0.893	0.155	100.00	1.000	21.55	22.00	1.109	0.172	/
		Right Tilt	23130	711.0	1.566	0.078	100.00	1.000	21.55	22.00	1.109	0.087	/

Body(hotspot open, 10mm Gap)													
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Mode	Channel Type	Position	Ch.	Freq. (MHz)	Power Drift (%)	1g Meas SAR (W/kg)	Duty cycle (%)	Duty cycle Factor	Meas. Power (dBm)	Max. tune-up power (dBm)	Scaling Factor	1g Scaled SAR (W/kg)	Meas. No.
Band 12 (BW: 10MHz)	1RB	Front	23130	711.0	-1.846	0.114	100.00	1.000	22.50	23.00	1.122	0.128	/
		Back	23130	711.0	-1.820	0.164	100.00	1.000	22.50	23.00	1.122	0.184	20#
		Left	23130	711.0	3.173	0.066	100.00	1.000	22.50	23.00	1.122	0.074	/
		Bottom	23130	711.0	0.087	0.136	100.00	1.000	22.50	23.00	1.122	0.153	/
	50%RB	Front	23130	711.0	-2.043	0.108	100.00	1.000	21.55	22.00	1.109	0.120	/
		Back	23130	711.0	-0.198	0.151	100.00	1.000	21.55	22.00	1.109	0.167	/
		Left	23130	711.0	-0.649	0.061	100.00	1.000	21.55	22.00	1.109	0.068	/
		Bottom	23130	711.0	1.857	0.125	100.00	1.000	21.55	22.00	1.109	0.139	/

Head(0mm gap)													
Mode	Channel Type	Position	Ch.	Freq. (MHz)	Power Drift (%)	1g Meas SAR (W/kg)	Duty cycle (%)	Duty cycle Factor	Meas. Power (dBm)	Max. tune-up power (dBm)	Scaling Factor	1g Scaled SAR (W/kg)	Meas. No.
Band 13 (BW: 10MHz)	1RB	Left Cheek	23230	782.0	-1.816	0.195	100.00	1.000	23.55	24.00	1.109	0.216	/
		Left Tilt	23230	782.0	1.091	0.100	100.00	1.000	23.55	24.00	1.109	0.111	/
		Right Cheek	23230	782.0	-3.140	0.200	100.00	1.000	23.55	24.00	1.109	0.222	21#
		Right Tilt	23230	782.0	-2.293	0.103	100.00	1.000	23.55	24.00	1.109	0.114	/
	50%RB	Left Cheek	23230	782.0	2.170	0.189	100.00	1.000	22.42	22.50	1.019	0.193	/
		Left Tilt	23230	782.0	-0.300	0.094	100.00	1.000	22.42	22.50	1.019	0.096	/
		Right Cheek	23230	782.0	0.893	0.192	100.00	1.000	22.42	22.50	1.019	0.196	/
		Right Tilt	23230	782.0	1.556	0.096	100.00	1.000	22.42	22.50	1.019	0.098	/

Body(hotspot open, 10mm Gap)													
Mode	Channel Type	Position	Ch.	Freq. (MHz)	Power Drift (%)	1g Meas SAR (W/kg)	Duty cycle (%)	Duty cycle Factor	Meas. Power (dBm)	Max. tune-up power (dBm)	Scaling Factor	1g Scaled SAR (W/kg)	Meas. No.
Band 13 (BW: 10MHz)	1RB	Front	23230	782.0	-4.536	0.135	100.00	1.000	23.55	24.00	1.109	0.150	/
		Back	23230	782.0	-1.450	0.192	100.00	1.000	23.55	24.00	1.109	0.213	22#
		Left	23230	782.0	-2.473	0.077	100.00	1.000	23.55	24.00	1.109	0.085	/
		Bottom	23230	782.0	1.297	0.167	100.00	1.000	23.55	24.00	1.109	0.185	/
	50%RB	Front	23230	782.0	-2.043	0.127	100.00	1.000	22.42	22.50	1.019	0.129	/
		Back	23230	782.0	-0.198	0.177	100.00	1.000	22.42	22.50	1.019	0.180	/
		Left	23230	782.0	-0.649	0.072	100.00	1.000	22.42	22.50	1.019	0.073	/
		Bottom	23230	782.0	1.857	0.159	100.00	1.000	22.42	22.50	1.019	0.162	/

Head(0mm gap)													
Mode	Channel Type	Position	Ch.	Freq. (MHz)	Power Drift (%)	1g Meas SAR (W/kg)	Duty cycle (%)	Duty cycle Factor	Meas. Power (dBm)	Max. tune-up power (dBm)	Scaling Factor	1g Scaled SAR (W/kg)	Meas. No.
Band 17 (BW: 10MHz)	1RB	Left Cheek	23800	711.0	-1.816	0.153	100.00	1.000	22.51	23.00	1.119	0.171	/
		Left Tilt	23800	711.0	1.091	0.085	100.00	1.000	22.51	23.00	1.119	0.095	/
		Right Cheek	23800	711.0	2.500	0.159	100.00	1.000	22.51	23.00	1.119	0.178	23#
		Right Tilt	23800	711.0	2.807	0.087	100.00	1.000	22.51	23.00	1.119	0.097	/
	50%RB	Left Cheek	23800	711.0	2.170	0.140	100.00	1.000	21.50	22.00	1.122	0.157	/
		Left Tilt	23800	711.0	-0.300	0.075	100.00	1.000	21.50	22.00	1.122	0.084	/
		Right Cheek	23800	711.0	0.893	0.143	100.00	1.000	21.50	22.00	1.122	0.160	/
		Right Tilt	23800	711.0	1.556	0.079	100.00	1.000	21.50	22.00	1.122	0.089	/

Body(hotspot open, 10mm Gap)													
Mode	Channel Type	Position	Ch.	Freq. (MHz)	Power Drift (%)	1g Meas SAR (W/kg)	Duty cycle (%)	Duty cycle Factor	Meas. Power (dBm)	Max. tune-up power (dBm)	Scaling Factor	1g Scaled SAR (W/kg)	Meas. No.
Band 17 (BW: 10MHz)	1RB	Front	23800	711.0	-1.436	0.113	100.00	1.000	22.51	23.00	1.119	0.126	/
		Back	23800	711.0	-2.900	0.157	100.00	1.000	22.51	23.00	1.119	0.176	24#
		Left	23800	711.0	1.807	0.067	100.00	1.000	22.51	23.00	1.119	0.075	/
		Bottom	23800	711.0	-1.223	0.132	100.00	1.000	22.51	23.00	1.119	0.148	/
	50%RB	Front	23800	711.0	-2.043	0.107	100.00	1.000	21.50	22.00	1.122	0.120	/
		Back	23800	711.0	-0.198	0.144	100.00	1.000	21.50	22.00	1.122	0.162	/
		Left	23800	711.0	-0.649	0.060	100.00	1.000	21.50	22.00	1.122	0.067	/
		Bottom	23800	711.0	-4.968	0.124	100.00	1.000	21.50	22.00	1.122	0.139	/

Head(0mm gap)													
Mode	Channel Type	Position	Ch.	Freq. (MHz)	Power Drift (%)	1g Meas SAR (W/kg)	Duty cycle (%)	Duty cycle Factor	Meas. Power (dBm)	Max. tune-up power (dBm)	Scaling Factor	1g Scaled SAR (W/kg)	Meas. No.

Band 26 (BW: 15MHz)	1RB	Left Cheek	26765	821.5	2.428	0.231	100.00	1.000	23.14	23.50	1.086	0.251	/
		Left Tilt	26765	821.5	-1.258	0.127	100.00	1.000	23.14	23.50	1.086	0.138	/
		Right Cheek	26765	821.5	-2.260	0.235	100.00	1.000	23.14	23.50	1.086	0.255	25#
		Right Tilt	26765	821.5	0.906	0.129	100.00	1.000	23.14	23.50	1.086	0.140	/
	50%RB	Left Cheek	26765	821.5	-3.063	0.215	100.00	1.000	22.13	22.50	1.089	0.234	/
		Left Tilt	26765	821.5	2.049	0.114	100.00	1.000	22.13	22.50	1.089	0.124	/
		Right Cheek	26765	821.5	-0.976	0.217	100.00	1.000	22.13	22.50	1.089	0.236	/
		Right Tilt	26765	821.5	1.399	0.118	100.00	1.000	22.13	22.50	1.089	0.129	/

Body(hotspot open, 10mm Gap)

Mode	Channel Type	Position	Ch.	Freq. (MHz)	Power Drift (%)	1g Meas SAR (W/kg)	Duty cycle (%)	Duty cycle Factor	Meas. Power (dBm)	Max. tune-up power (dBm)	Scaling Factor	1g Scaled SAR (W/kg)	Meas. No.
Band 26 (BW: 15MHz)	1RB	Front	26765	821.5	2.314	0.175	100.00	1.000	23.14	23.50	1.086	0.190	/
		Back	26765	821.5	2.620	0.229	100.00	1.000	23.14	23.50	1.086	0.249	26#
		Left	26765	821.5	-3.063	0.103	100.00	1.000	23.14	23.50	1.086	0.112	/
		Bottom	26765	821.5	-1.283	0.193	100.00	1.000	23.14	23.50	1.086	0.210	/
	50%RB	Front	26765	821.5	-2.043	0.158	100.00	1.000	22.13	22.50	1.089	0.172	/
		Back	26765	821.5	-0.198	0.201	100.00	1.000	22.13	22.50	1.089	0.219	/
		Left	26765	821.5	-0.649	0.089	100.00	1.000	22.13	22.50	1.089	0.097	/
		Bottom	26765	821.5	1.857	0.176	100.00	1.000	22.13	22.50	1.089	0.192	/

Head(0mm gap)

Mode	Channel Type	Position	Ch.	Freq. (MHz)	Power Drift (%)	1g Meas SAR (W/kg)	Duty cycle (%)	Duty cycle Factor	Meas. Power (dBm)	Max. tune-up power (dBm)	Scaling Factor	1g Scaled SAR (W/kg)	Meas. No.
Band 66 (BW: 20MHz)	1RB	Left Cheek	132572	1770.0	-1.816	0.142	100.00	1.000	22.40	22.50	1.023	0.145	/
		Left Tilt	132572	1770.0	1.091	0.081	100.00	1.000	22.40	22.50	1.023	0.083	/
		Right Cheek	132572	1770.0	-1.730	0.147	100.00	1.000	22.40	22.50	1.023	0.150	27#
		Right Tilt	132572	1770.0	-1.313	0.085	100.00	1.000	22.40	22.50	1.023	0.087	/
	50%RB	Left Cheek	132572	1770.0	2.170	0.136	100.00	1.000	21.38	21.50	1.028	0.140	/
		Left Tilt	132572	1770.0	-0.300	0.070	100.00	1.000	21.38	21.50	1.028	0.072	/
		Right Cheek	132572	1770.0	0.893	0.139	100.00	1.000	21.38	21.50	1.028	0.143	/
		Right Tilt	132572	1770.0	1.556	0.072	100.00	1.000	21.38	21.50	1.028	0.074	/

Body(hotspot open, 10mm Gap)

Mode	Channel Type	Position	Ch.	Freq. (MHz)	Power Drift (%)	1g Meas SAR (W/kg)	Duty cycle (%)	Duty cycle Factor	Meas. Power (dBm)	Max. tune-up power (dBm)	Scaling Factor	1g Scaled SAR (W/kg)	Meas. No.
Band 66 (BW: 20MHz)	1RB	Front	132572	1770.0	-0.486	0.392	100.00	1.000	22.40	22.50	1.023	0.401	/
		Back	132572	1770.0	2.610	0.477	100.00	1.000	22.40	22.50	1.023	0.488	28#
		Left	132572	1770.0	-1.983	0.157	100.00	1.000	22.40	22.50	1.023	0.161	/
		Bottom	132572	1770.0	1.157	0.431	100.00	1.000	22.40	22.50	1.023	0.441	/
	50%RB	Front	132572	1770.0	-2.043	0.374	100.00	1.000	21.38	21.50	1.028	0.384	/
		Back	132572	1770.0	-0.198	0.452	100.00	1.000	21.38	21.50	1.028	0.465	/
		Left	132572	1770.0	-0.649	0.131	100.00	1.000	21.38	21.50	1.028	0.135	/
		Bottom	132572	1770.0	-4.968	0.420	100.00	1.000	21.38	21.50	1.028	0.432	/

Head(0mm gap)

Mode	Position	Ch.	Freq. (MHz)	Power Drift (%)	1g Meas SAR (W/kg)	Duty cycle (%)	Duty cycle Factor	Meas. Power (dBm)	Max. tune-up power (dBm)	Scaling Factor	1g Scaled SAR (W/kg)	Meas. No.
2.4g (2.4~2.4835) 802.11b	Left Cheek	1	2412	1.664	0.358	100.00	1.000	14.91	15.00	1.021	0.366	/
	Left Tilt	1	2412	0.591	0.186	100.00	1.000	14.91	15.00	1.021	0.190	/
	Right Cheek	1	2412	-1.430	0.367	100.00	1.000	14.91	15.00	1.021	0.375	29#
	Right Tilt	1	2412	1.507	0.191	100.00	1.000	14.91	15.00	1.021	0.195	/

Body(hotspot open, 10mm Gap)

Mode	Position	Ch.	Freq. (MHz)	Power Drift (%)	1g Meas SAR (W/kg)	Duty cycle (%)	Duty cycle Factor	Meas. Power (dBm)	Max. tune-up power (dBm)	Scaling Factor	1g Scaled SAR (W/kg)	Meas. No.
2.4g (2.4~2.4835) 802.11b	Front	1	2412	-1.396	0.097	100.00	1.000	14.91	15.00	1.021	0.099	/
	Back	1	2412	1.020	0.145	100.00	1.000	14.91	15.00	1.021	0.148	30#
	Right	1	2412	1.947	0.075	100.00	1.000	14.91	15.00	1.021	0.077	/
	Top	1	2412	0.747	0.127	100.00	1.000	14.91	15.00	1.021	0.130	/

Head(0mm gap)

Mode	Position	Ch.	Freq. (MHz)	Power Drift (%)	1g Meas SAR (W/kg)	Duty cycle (%)	Duty cycle Factor	Meas. Power (dBm)	Max. tune-up power (dBm)	Scaling Factor	1g Scaled SAR (W/kg)	Meas. No.
U-NII-1 (5.150-5.250) 802.11n(HT40)	Left Cheek	48	5240	-1.236	0.221	100.00	1.000	7.91	8.00	1.021	0.226	/
	Left Tilt	48	5240	0.501	0.132	100.00	1.000	7.91	8.00	1.021	0.135	/
	Right Cheek	48	5240	1.120	0.226	100.00	1.000	7.91	8.00	1.021	0.231	31#
	Right Tilt	48	5240	1.377	0.136	100.00	1.000	7.91	8.00	1.021	0.139	/

Body(hotspot open, 10mm Gap)

Mode	Position	Ch.	Freq. (MHz)	Power Drift (%)	1g Meas SAR (W/kg)	Duty cycle (%)	Duty cycle Factor	Meas. Power (dBm)	Max. tune-up power (dBm)	Scaling Factor	1g Scaled SAR (W/kg)	Meas. No.
U-NII-1 (5.150-5.250) 802.11n(HT40)	Front	48	5240	0.544	0.070	100.00	1.000	7.91	8.00	1.021	0.071	/
	Back	48	5240	-1.930	0.090	100.00	1.000	7.91	8.00	1.021	0.092	32#
	Right	48	5240	-1.513	0.037	100.00	1.000	7.91	8.00	1.021	0.038	/
	Top	48	5240	2.537	0.074	100.00	1.000	7.91	8.00	1.021	0.076	/

Head(0mm gap)

Mode	Position	Ch.	Freq. (MHz)	Power Drift (%)	1g Meas SAR (W/kg)	Duty cycle (%)	Duty cycle Factor	Meas. Power (dBm)	Max. tune-up power (dBm)	Scaling Factor	1g Scaled SAR (W/kg)	Meas. No.
U-NII-3 (5.725-5.850) 802.11n(HT20)	Left Cheek	165	5825	1.550	0.322	100.00	1.000	11.75	12.00	1.059	0.341	/
	Left Tilt	165	5825	0.390	0.242	100.00	1.000	11.75	12.00	1.059	0.256	/
	Right Cheek	165	5825	-0.020	0.340	100.00	1.000	11.75	12.00	1.059	0.360	33#
	Right Tilt	165	5825	-1.002	0.248	100.00	1.000	11.75	12.00	1.059	0.263	/

Body(hotspot open, 10mm Gap)

Mode	Position	Ch.	Freq. (MHz)	Power Drift (%)	1g Meas SAR (W/kg)	Duty cycle (%)	Duty cycle Factor	Meas. Power (dBm)	Max. tune-up power (dBm)	Scaling Factor	1g Scaled SAR (W/kg)	Meas. No.
U-NII-3 (5.725-5.850) 802.11n(HT20)	Front	165	5825	2.870	0.210	100.00	1.000	11.75	12.00	1.059	0.222	/
	Back	165	5825	-1.320	0.222	100.00	1.000	11.75	12.00	1.059	0.235	34#
	Right	165	5825	-2.680	0.201	100.00	1.000	11.75	12.00	1.059	0.213	/
	Top	165	5825	-1.330	0.183	100.00	1.000	11.75	12.00	1.059	0.194	/

Note:

- The maximum SAR Value of each test band is marked bold.
- SAR plot is provided only for the highest measured SAR in each exposure configuration, wireless mode and frequency band combination.
- Per KDB 447498 D04 v01, for each exposure position, if the highest output power channel Reported SAR ≤ 0.8W/kg, other channels SAR testing is not necessary.
- Per KDB 447498 D04 v01, head/body-worn use is evaluated with the device positioned at 0mm/10 mm from a head/flat phantom respectively filled with head tissue-equivalent medium.
- Per KDB Publication 941225 D06 where SAR test considerations for handsets (L x W ≥ 9 cm x 5 cm) are based on a composite test separation distance of 10 mm from the front, back and edges of the device with antennas 2.5 cm or closer to the edge of the device, 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.
- Per KDB 447498 D04 v01, the report SAR is measured SAR value adjusted for maximum tune-up tolerance. Scaling Factor=10^[(tune-up limit power(dBm) - Ave.power power (dBm))/10], where tune-up limit is the maximum rated power among all production units.
Reported SAR(W/kg)=Measured SAR (W/kg)*Scaling Factor.

11. SAR Measurement Variability

According to KDB 865664 D01, SAR measurement variability was assessed for each frequency band, which is determined by the SAR probe calibration point and tissue-equivalent medium used for the device measurements. When both head and body tissue-equivalent media are required for SAR measurements in a frequency band, the variability measurement procedures should be applied to the tissue medium with the highest measured SAR, using the highest measured SAR configuration for that tissue-equivalent medium. Alternatively, if the highest measured SAR for both head and body tissue-equivalent media are ≤ 1.45 W/kg and the ratio of these highest SAR values, i.e., largest divided by smallest value, is ≤ 1.10 , the highest SAR configuration for either head or body tissue-equivalent medium may be used to perform the repeated measurement. These additional measurements are repeated after the completion of all measurements requiring the same head or body tissue-equivalent medium in a frequency band. The test device should be returned to ambient conditions (normal room temperature) with the battery fully charged before it is re-mounted on the device holder for the repeated measurement(s) to minimize any unexpected variations in the repeated results.

SAR repeated measurement procedure:

1. When the highest measured SAR is < 0.80 W/kg, repeated measurement is not required.
2. When the highest measured SAR is ≥ 0.80 W/kg, repeat that measurement once.
3. 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, perform a second repeated measurement.
4. If the ratio of largest to smallest SAR for the original, first and second repeated measurements is > 1.20 , and the original, first or second repeated measurement is ≥ 1.5 W/kg, perform a third repeated measurement.

Note: For 1g SAR, the highest measured 1g SAR is $0.690 < 0.80$ W/kg, repeated measurement is not required.

12. Simultaneous Transmission

Simultaneous transmission SAR test exclusion is determined for each operating configuration and exposure condition according to the reported standalone SAR of each applicable simultaneous transmitting antenna. When the sum of SAR 1g of all simultaneously transmitting antennas in an operating mode and exposure condition combination is within the SAR limit (SAR 1g 1.6 W/kg), the simultaneous transmission SAR is not required. When the sum of SAR 1g is greater than the SAR limit (SAR 1g 1.6 W/kg), SAR test exclusion is determined by the SAR to Peak Location Ratio (SPLSR).

12.1 Simultaneous Transmission Mode Considerations

Simultaneous transmission SAR test exclusion is determined for each operating configuration and exposure condition according to the reported standalone SAR of each applicable simultaneous transmitting antenna. The device has 3 Tx antennas, WWAN main antenna, NFC antenna support NFC, Wifi/BT antenna supports 2.4G/5G Wi-Fi and BT. The 2 antennas can always transmit simultaneously. The work mode combination is showed as below table.

Application Simultaneous Transmission information:

NO.	Configuration	Head	Body-worn
1	WWAN+WIFI(2.4g)	Yes	Yes
2	WWAN+WIFI(5g)	Yes	Yes
3	WWAN+BT	Yes	Yes
4	WWAN+NFC	Yes	Yes

12.2 Sum SAR of Simultaneous Transmission

Head

Band	Test Position	RB allocation	Scaled					Σ SAR (W/kg) WWAN + WIFI 2.4G	Σ SAR (W/kg) WWAN + WIFI 5G	Σ SAR (W/kg) WWAN + BT	Σ SAR (W/kg) WWAN + NFC	SPLSR	Remark
			WWAN	WIFI 2.4G	WIFI 5G	Bluetooth	NFC						
LTE Band 5 QPSK (10MHz)	Left Cheek	1RB	0.253	0.366	0.341	0.207	0.000	0.619	0.594	0.460	0.253	N/A	N/A
	Left Tilt		0.135	0.190	0.256	0.207	0.000	0.325	0.391	0.342	0.135	N/A	N/A
	Right Cheek		0.261	0.375	0.360	0.207	0.000	0.636	0.621	0.468	0.261	N/A	N/A
	Right Tilt		0.138	0.195	0.263	0.207	0.000	0.333	0.401	0.345	0.138	N/A	N/A
	Left Cheek	50%RB	0.232	0.366	0.341	0.207	0.000	0.598	0.573	0.439	0.232	N/A	N/A
	Left Tilt		0.107	0.190	0.256	0.207	0.000	0.297	0.363	0.314	0.107	N/A	N/A
	Right Cheek		0.235	0.375	0.360	0.207	0.000	0.610	0.595	0.442	0.235	N/A	N/A
	Right Tilt		0.110	0.195	0.263	0.207	0.000	0.305	0.373	0.317	0.110	N/A	N/A

Hotspot(body-worn)

Band	Test Position	Scaled SAR					Σ SAR (W/kg) WWAN + WIFI 2.4G	Σ SAR (W/kg) WWAN + WIFI 5G	Σ SAR (W/kg) WWAN + BT	Σ SAR (W/kg) WWAN + NFC	SPLSR	Remark
		WWAN	WIFI 2.4G	WIFI 5G	BT	NFC						
WCDMA Band 4 (RMC*)	Front	0.652	0.099	0.222	0.052	0.000	0.751	0.874	0.704	0.652	N/A	N/A
	Back	0.771	0.148	0.235	0.052	0.000	0.919	1.006	0.823	0.771	N/A	N/A
	Left	0.390	/	/	/	/	0.390	0.390	0.390	0.390	N/A	N/A
	Right	/	0.077	0.213	0.052	0.000	0.077	0.213	0.052	0.000	N/A	N/A
	Top	/	0.130	0.194	0.052	0.000	0.130	0.194	0.052	0.000	N/A	N/A
	Bottom	0.682	/	/	/	/	0.682	0.682	0.682	0.682	N/A	N/A

13. Test Equipment List

Description	Manufacturer	Model	Serial No./Version	Cal. Date	Cal. Due
E-Field Probe	MVG	SSE2	04/22 EPG0365	2023/02/06	2024/02/05
6 1/2 Digital Multimeter	Keithley	DMM6500	4527164	2023/09/24	2024/09/23
Wideband Radio Communication Tester	ROHDE & SCHWARZ	CMW500	161997	2023/09/24	2024/09/23
MXG Vector Signal Generator	Agilent	N5182A	MY46240163	2023/09/24	2024/09/23
E-Series Avg. Power Sensor	KEYSIGHT	E9300A	MY55050017	2023/03/24	2024/03/23
EPM Series Power Meter	KEYSIGHT	E4418B	MY41293435	2023/03/24	2024/03/23
10dB Attenuator	MIDWEST MICROWAVE	263-10dB	/	2023/03/24	2024/03/23
Coupler	MERRIMAC	CWM-10R-10.8G	LOT-83391	2023/03/24	2024/03/23
750MHz Validation Dipole	MVG	SID750	07/22 DIP 0G750-655	2023/02/06	2024/02/05
835MHz Validation Dipole	MVG	SID835	07/22 DIP 0G835-656	2023/02/06	2024/02/05
1800MHz Validation Dipole	MVG	SID1800	07/22 DIP 1G800-657	2023/02/06	2024/02/05
1900MHz Validation Dipole	MVG	SID1900	07/22 DIP 1G900-658	2023/02/06	2024/02/05
2450MHz Validation Dipole	MVG	SID2450	07/22 DIP 2G450-662	2023/02/06	2024/02/05
2600MHz Validation Dipole	MVG	SID2600	07/22 DIP 2G600-663	2023/02/06	2024/02/05
5200MHz-5800MHz Validation Dipole	MVG	SID5000	07/22 DIP5G000-670	2023/02/06	2024/02/05
LIMESAR Dielectric Probe	MVG	SCLMP	06/22 OCPG88	/	/
ENA Series Network Analyzer	Agilent	E5071B	MY42301221	2023/09/24	2024/09/23
Thermometer	Riters	DT-232	21A11	2023/03/24	2024/03/23
Antenna network emulator	MVG	ANTA 74	07/22 ANTA 74	/	/
SAM Phantom	MVG	SAM	07/22 SAM149	/	/
Mobile Phone Positioning System	MVG	MSH 118	07/22 MSH 118	/	/
Mechanical Calibration Kit	PNA	/	/	/	/
Open SAR test software	MVG	/	V5.3.5	/	/

Note: For dipole antennas, BTF has adopted 3 years as calibration intervals, and on annual basis, every measurement dipole has been evaluated and is in compliance with the following criteria:

1. There is no physical damage on the dipole;
2. System validation with specific dipole is within 10% of calibrated value;
3. Return-loss in within 20% of calibrated measurement.
4. Impedance (real or imaginary parts) in within 5 Ohms of calibrated measurement.

ANNEX A Simulating Liquid Verification Result

The dielectric parameters of the liquids were verified prior to the SAR evaluation using an SCLMP Dielectric Probe Kit.

Dielectric performance of tissue simulating liquid									
Frequency (MHz)	ϵ_r		σ (s/m)		Delta (ϵ_r)	Delta (σ)	Limit	Temp (°C)	Date
	Target	Measured	Target	Measured					
750	41.90	43.61	0.89	0.86	4.08%	-3.37%	±10%	20.0	31/10/2023
835	41.50	43.25	0.90	0.87	4.22%	-3.33%	±10%	20.0	31/10/2023
1800	40.00	41.53	1.40	1.37	3.83%	-2.14%	±10%	20.0	31/10/2023
1900	40.00	39.88	1.40	1.41	-0.30%	0.71%	±10%	20.0	31/10/2023
2450	39.20	41.39	1.80	1.81	5.59%	0.56%	±10%	20.0	1/11/2023
2600	39.00	38.88	1.96	1.97	-0.31%	0.51%	±10%	20.0	1/11/2023
5200	36.00	35.88	4.66	4.70	-0.33%	0.86%	±10%	20.0	1/11/2023
5800	35.30	38.06	5.27	5.31	7.82%	0.76%	±10%	20.0	1/11/2023

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.

ANNEX B System Check Result

Comparing to the original SAR value provided by MVG, the validation data should be within its specification of 10 % (for 10 g).

Frequency (MHz)	Input Power (mW)	1g SAR (W/Kg)	10g SAR (W/Kg)	1g SAR 1W input power normalized (W/Kg)	10g SAR 1W input power normalized (W/Kg)	1g SAR Standard target (1W) (W/Kg)	10g SAR Standard target (1W) (W/Kg)	1g SAR Deviation	10g SAR Deviation
750	16	0.138	0.092	8.63	5.75	8.25	5.38	4.55%	6.88%
835	16	0.163	0.106	10.19	6.63	9.79	6.17	4.06%	7.37%
1800	16	0.588	0.312	36.75	19.50	39.33	20.61	-6.56%	-5.39%
1900	16	0.630	0.322	39.38	20.13	40.97	20.7	-3.89%	-2.78%
2450	16	0.793	0.352	49.56	22.00	54.4	23.86	-8.89%	-7.80%
2600	16	0.866	0.421	54.13	26.31	57.14	24.48	-5.28%	7.49%
5200	13	0.998	0.294	76.77	22.62	73.88	21.29	3.91%	6.23%
5800	13	1.023	0.280	78.69	21.54	74.21	21.50	6.04%	0.18%

System Performance Check Data (750 MHz)

System check at 750 MHz

Date of measurement: 31/10/2023

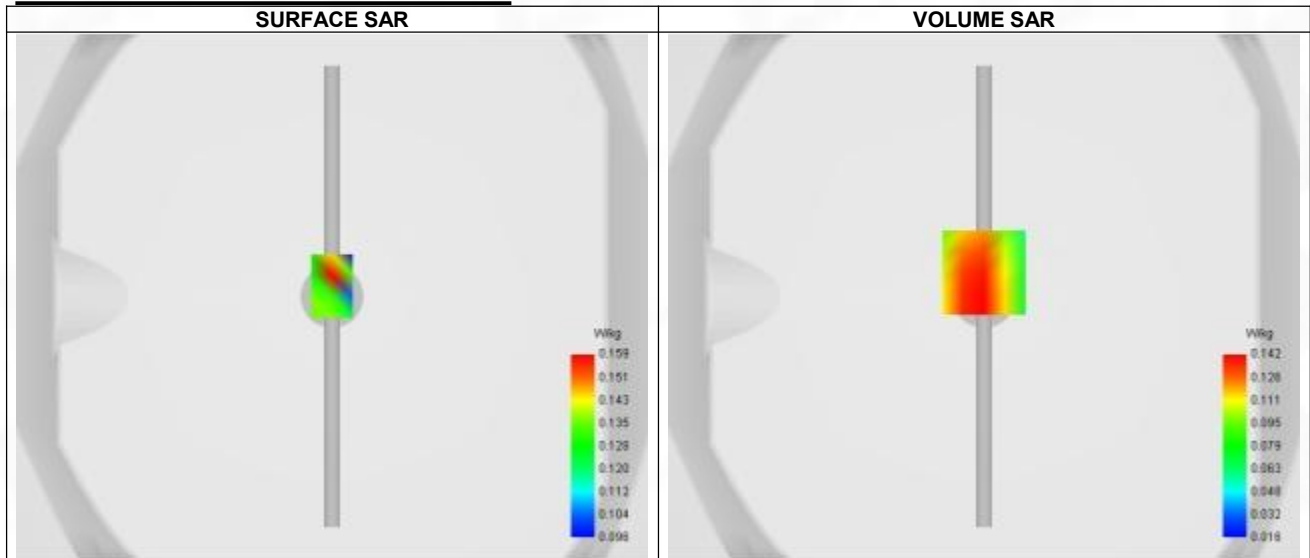
A. Experimental conditions.

Probe	SN 04/22 EPG0365
ConvF	1.65
Area Scan	dx=8mm dy=8mm, Adaptive 1 max
Zoom Scan	5x5x7, dx=8mm dy=8mm dz=5mm, Complete
Phantom	Validation plane
Device Position	Dipole
Band	CW750
Channels	Middle
Signal	CW

B. Permittivity

Frequency (MHz)	750.000
Relative permittivity (real part)	43.610
Relative permittivity (imaginary part)	21.460
Conductivity (S/m)	0.860

C. SAR Surface and Volume



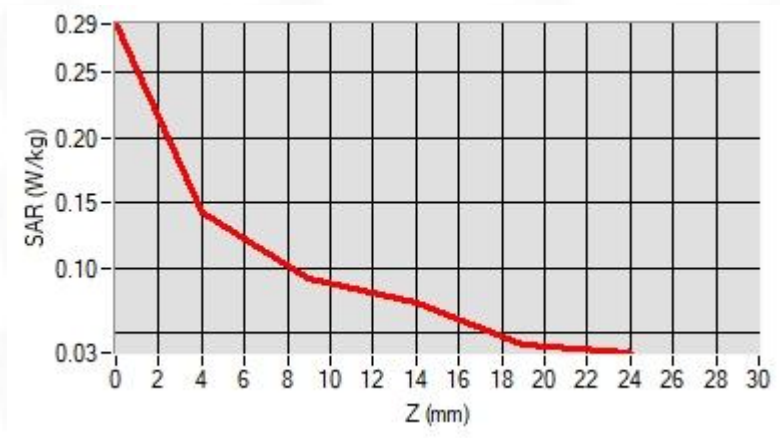
Maximum location: X=0.00, Y=9.00 ; SAR Peak: 0.20 W/kg

D. SAR 1g & 10g

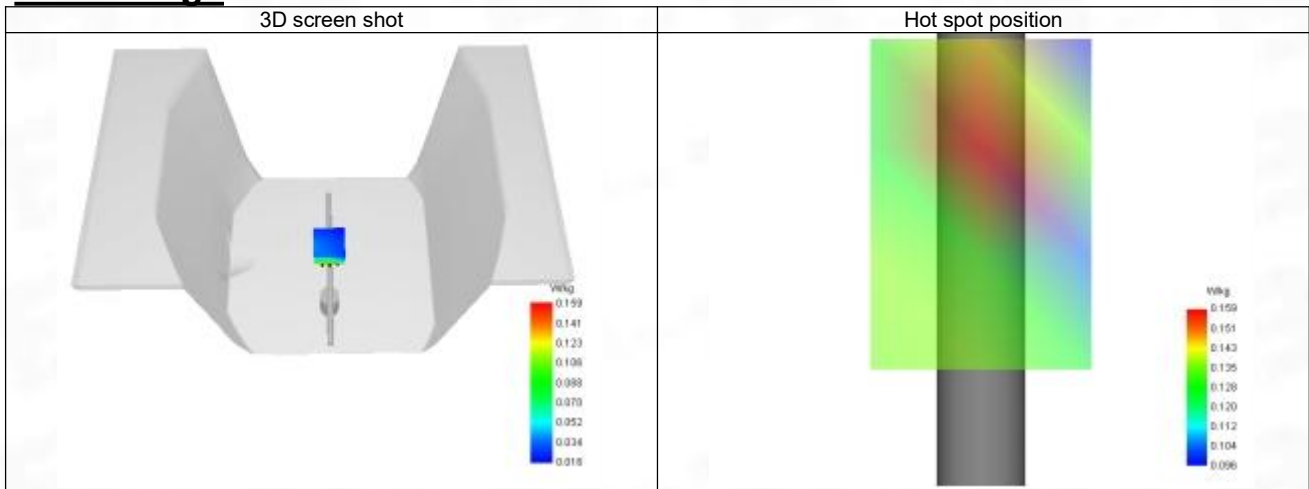
SAR 10g (W/Kg)	0.092
SAR 1g (W/Kg)	0.138
Variation (%)	-2.190
Horizontal validation criteria: minimum distance (mm)	0.000000
Vertical validation criteria: SAR ratio M2/M1 (%)	0.000000

E. Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.287	0.142	0.092	0.073	0.042



F. 3D Image



System Performance Check Data (835 MHz)

System check at 835 MHz

Date of measurement: 31/10/2023

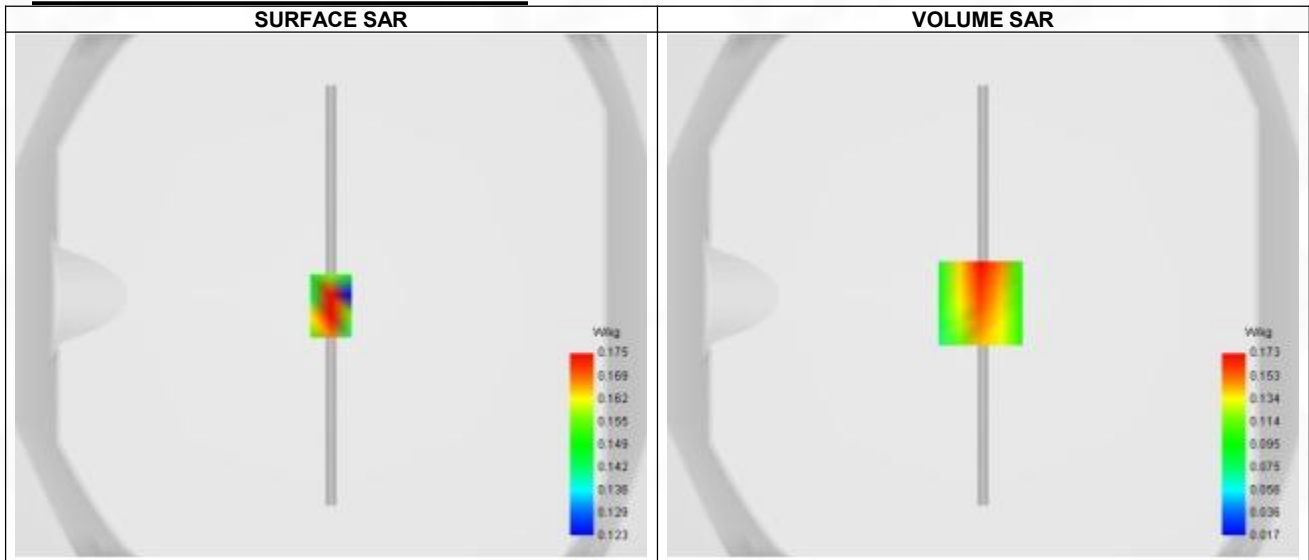
A. Experimental conditions.

Probe	SN 04/22 EPG0365
ConvF	1.68
Area Scan	dx=8mm dy=8mm, Adaptive 1 max
Zoom Scan	5x5x7, dx=8mm dy=8mm dz=5mm, Complete
Phantom	Validation plane
Device Position	Dipole
Band	CW835
Channels	Middle
Signal	CW

B. Permittivity

Frequency (MHz)	835.000
Relative permittivity (real part)	43.250
Relative permittivity (imaginary part)	19.490
Conductivity (S/m)	0.870

C. SAR Surface and Volume



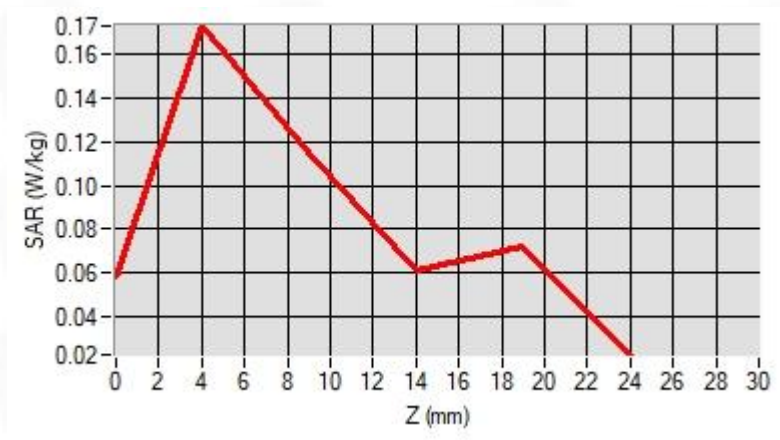
Maximum location: X=-1.00, Y=-3.00 ; SAR Peak: 0.26 W/kg

D. SAR 1g & 10g

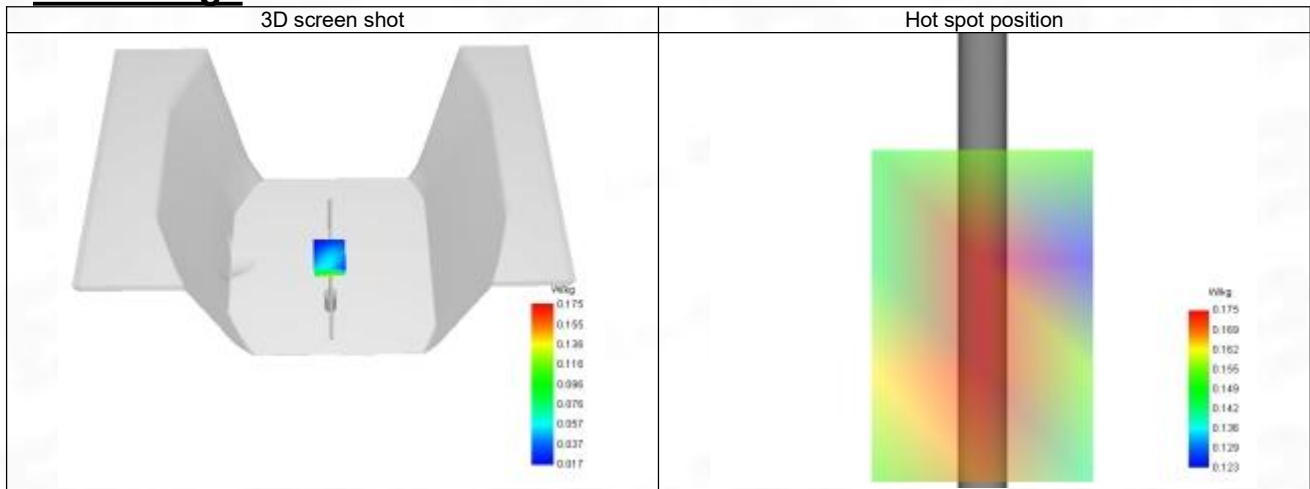
SAR 10g (W/Kg)	0.106
SAR 1g (W/Kg)	0.163
Variation (%)	-3.390
Horizontal validation criteria: minimum distance (mm)	0.000000
Vertical validation criteria: SAR ratio M2/M1 (%)	0.000000

E. Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.059	0.173	0.115	0.061	0.072



F. 3D Image



System Performance Check Data (1800 MHz)

System check at 1800 MHz

Date of measurement: 31/10/2023

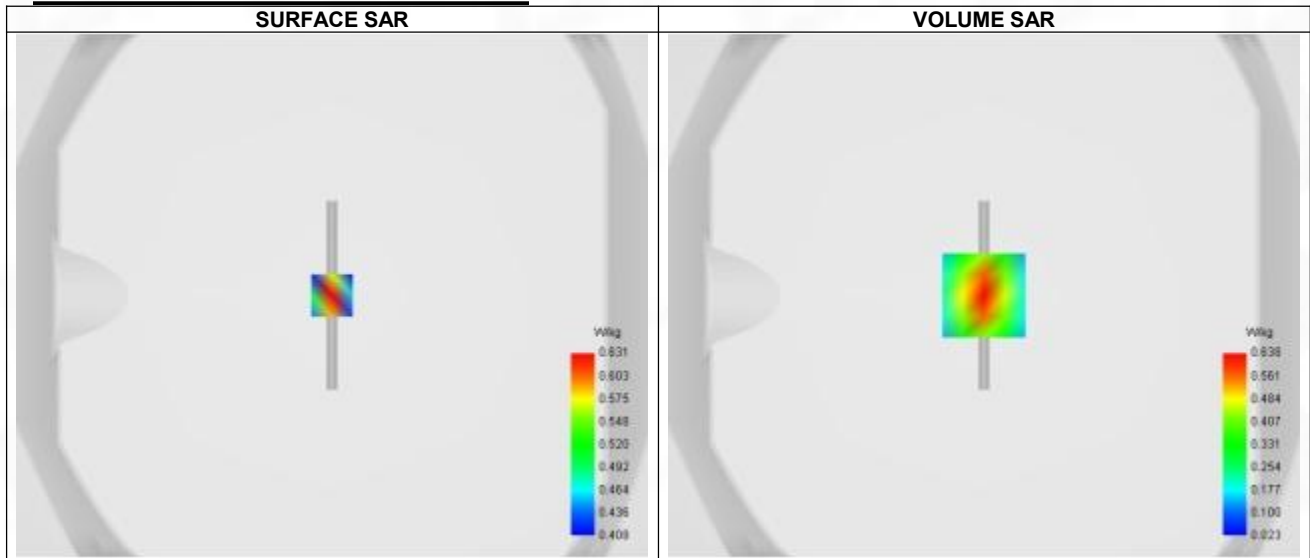
A. Experimental conditions.

Probe	SN 04/22 EPG0365
ConvF	1.96
Area Scan	dx=8mm dy=8mm, Adaptive 1 max
Zoom Scan	5x5x7, dx=8mm dy=8mm dz=5mm, Complete
Phantom	Validation plane
Device Position	Dipole
Band	CW1800
Channels	Middle
Signal	CW

B. Permittivity

Frequency (MHz)	1800.000
Relative permittivity (real part)	41.530
Relative permittivity (imaginary part)	14.090
Conductivity (S/m)	1.370

C. SAR Surface and Volume



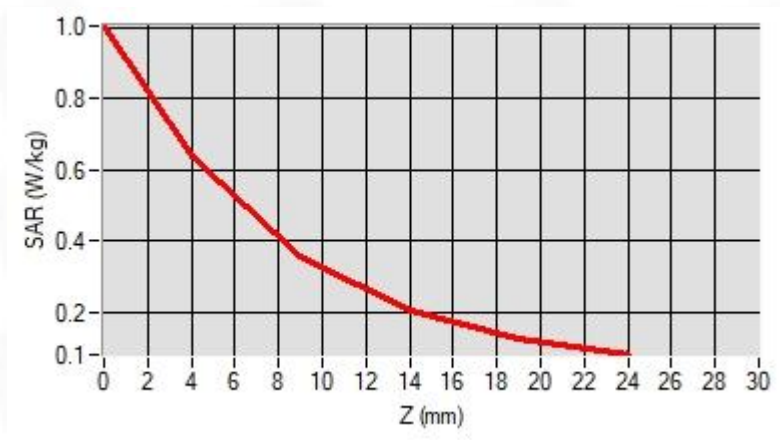
Maximum location: X=0.00, Y=0.00 ; SAR Peak: 1.00 W/kg

D. SAR 1g & 10g

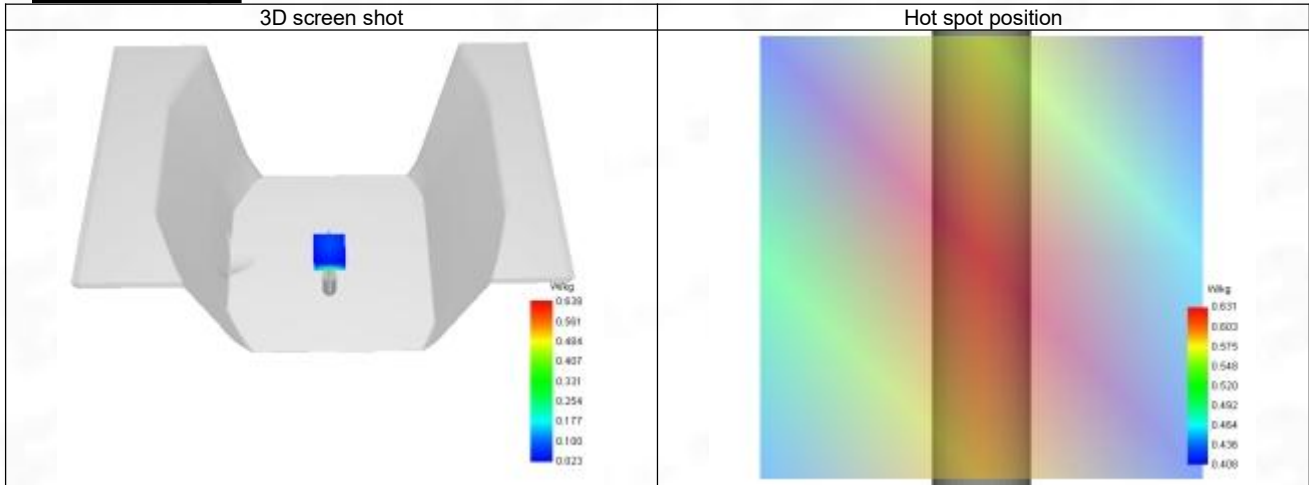
SAR 10g (W/Kg)	0.312
SAR 1g (W/Kg)	0.588
Variation (%)	-0.250
Horizontal validation criteria: minimum distance (mm)	0.000000
Vertical validation criteria: SAR ratio M2/M1 (%)	0.000000

E. Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	1.003	0.638	0.356	0.204	0.127



F. 3D Image



System Performance Check Data (1900 MHz)

System check at 1900 MHz

Date of measurement: 31/10/2023

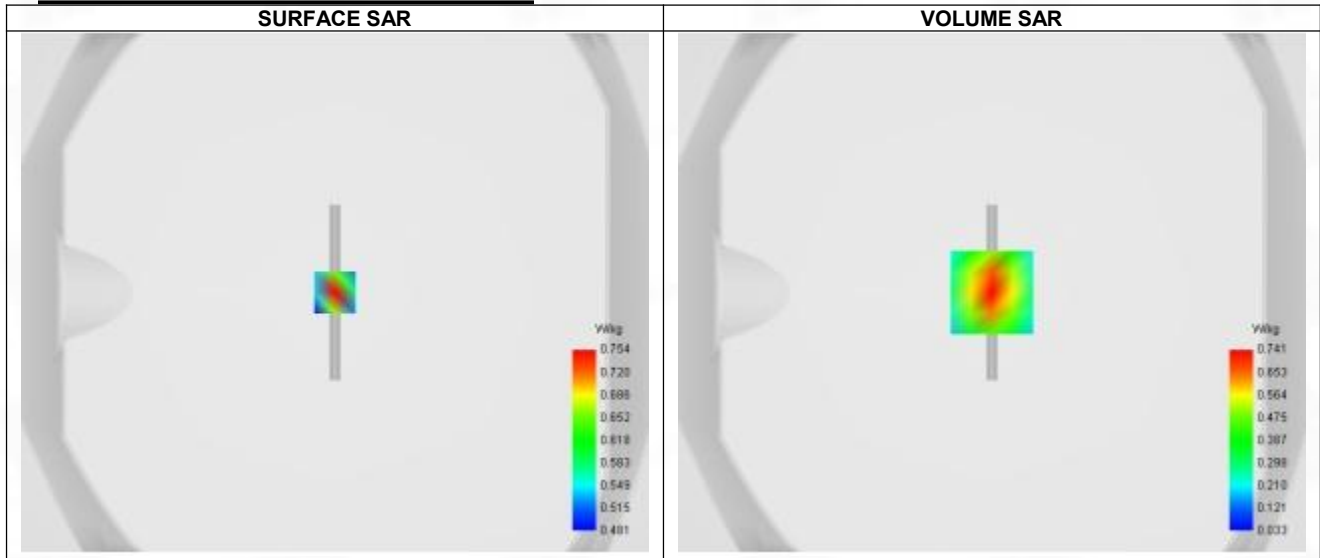
A. Experimental conditions.

Probe	SN 04/22 EPG0365
ConvF	2.24
Area Scan	dx=8mm dy=8mm, Adaptive 1 max
Zoom Scan	5x5x7, dx=8mm dy=8mm dz=5mm, Complete
Phantom	Validation plane
Device Position	Dipole
Band	CW1900
Channels	Middle
Signal	CW

B. Permittivity

Frequency (MHz)	1900.000
Relative permittivity (real part)	39.880
Relative permittivity (imaginary part)	13.380
Conductivity (S/m)	1.410

C. SAR Surface and Volume



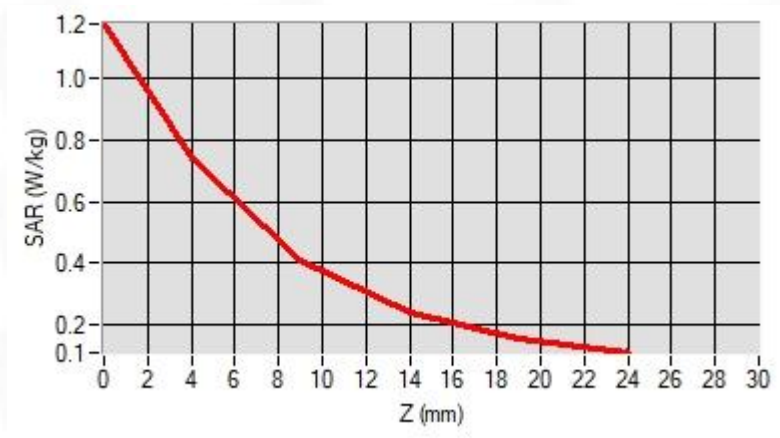
Maximum location: X=0.00, Y=0.00 ; SAR Peak: 1.18 W/kg

D. SAR 1g & 10g

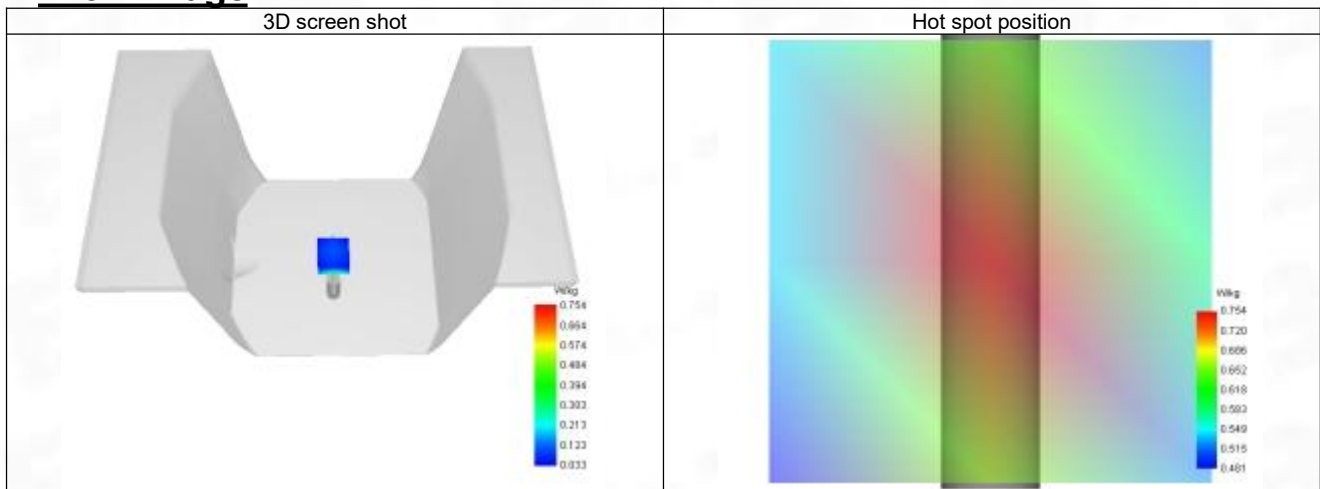
SAR 10g (W/Kg)	0.322
SAR 1g (W/Kg)	0.630
Variation (%)	-2.080
Horizontal validation criteria: minimum distance (mm)	0.000000
Vertical validation criteria: SAR ratio M2/M1 (%)	0.000000

E. Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	1.201	0.759	0.402	0.239	0.156



F. 3D Image



System Performance Check Data (2450 MHz)

System check at 2450 MHz

Date of measurement: 1/11/2023

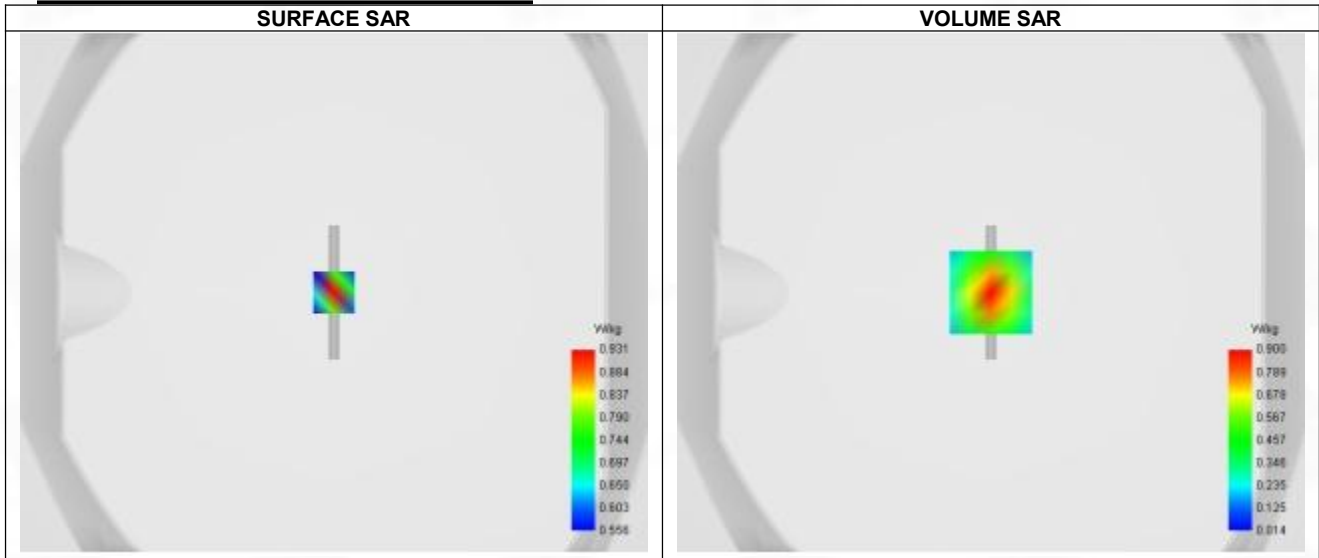
A. Experimental conditions.

Probe	SN 04/22 EPG0365
ConvF	2.36
Area Scan	dx=8mm dy=8mm, Adaptive 1 max
Zoom Scan	5x5x7, dx=8mm dy=8mm dz=5mm, Complete
Phantom	Validation plane
Device Position	Dipole
Band	CW2450
Channels	Middle
Signal	CW

B. Permittivity

Frequency (MHz)	2450.000
Relative permittivity (real part)	41.390
Relative permittivity (imaginary part)	13.340
Conductivity (S/m)	1.810

C. SAR Surface and Volume



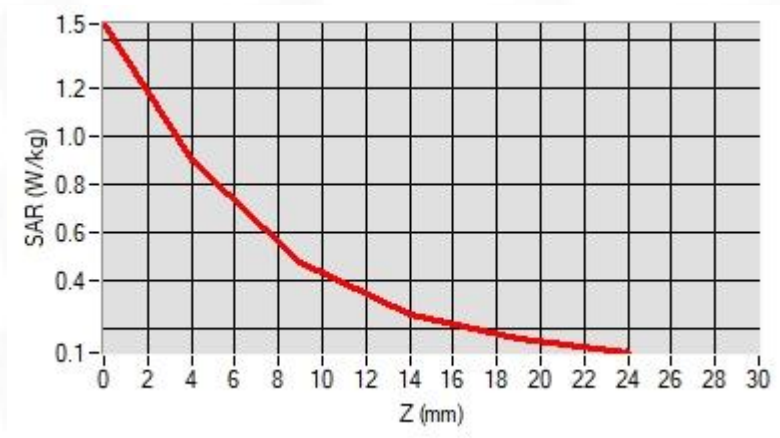
Maximum location: X=0.00, Y=0.00 ; SAR Peak: 1.47 W/kg

D. SAR 1g & 10g

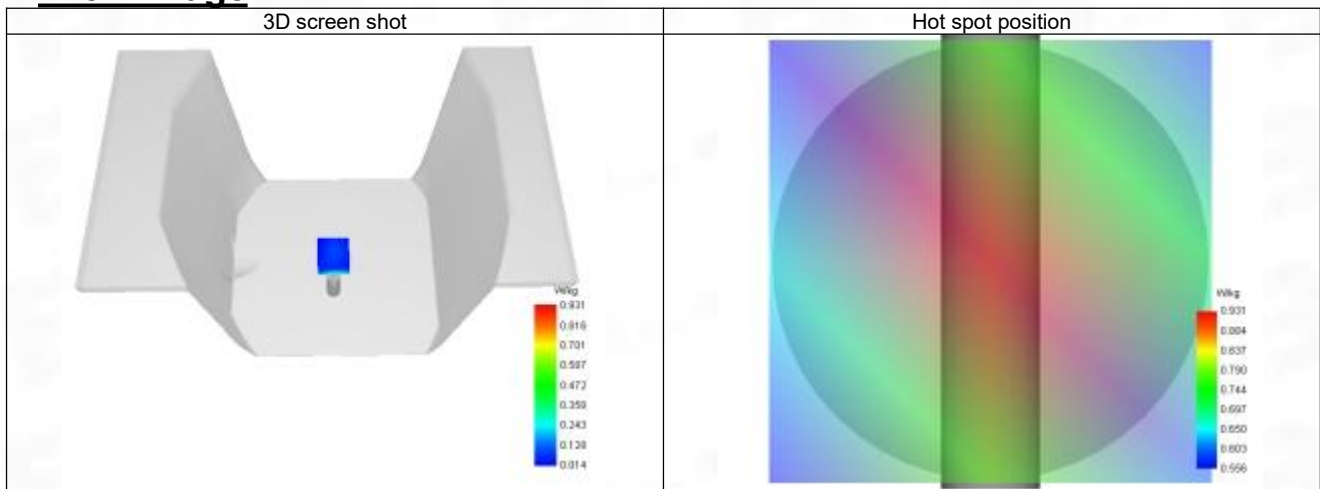
SAR 10g (W/Kg)	0.352
SAR 1g (W/Kg)	0.793
Variation (%)	-2.570
Horizontal validation criteria: minimum distance (mm)	0.000000
Vertical validation criteria: SAR ratio M2/M1 (%)	0.000000

E. Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	1.466	0.900	0.477	0.261	0.158



F. 3D Image



System Performance Check Data (2600 MHz)

System check at 2600 MHz

Date of measurement: 1/11/2023

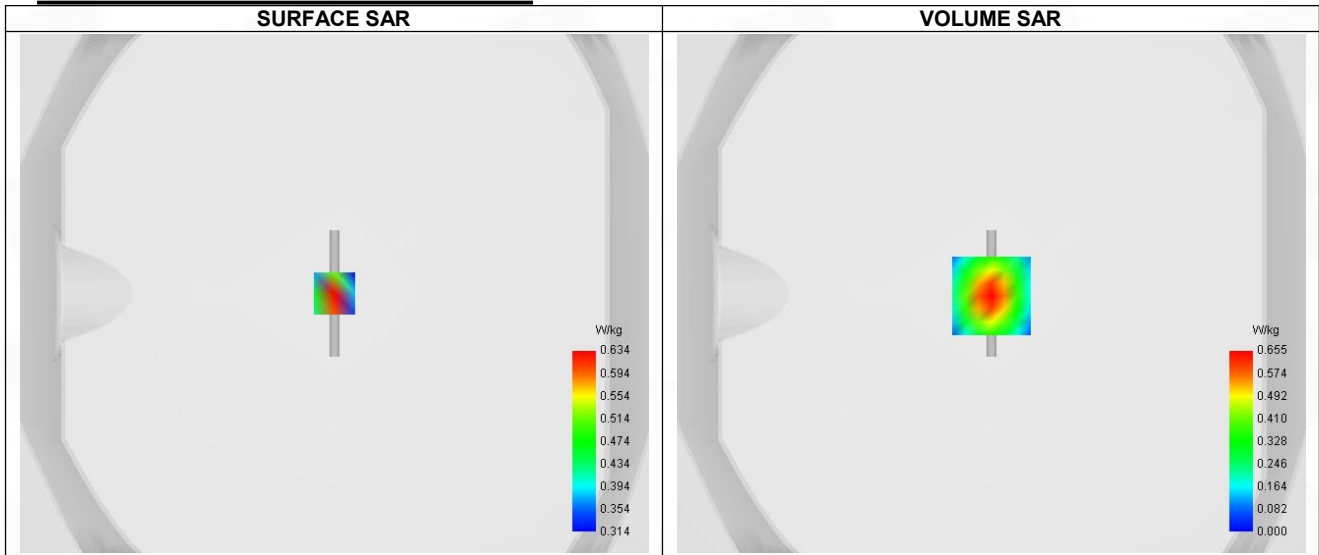
A. Experimental conditions.

Probe	SN 04/22 EPG0365
ConvF	2.40
Area Scan	dx=8mm dy=8mm, Adaptive 1 max
Zoom Scan	5x5x7, dx=8mm dy=8mm dz=5mm, Complete
Phantom	Validation plane
Device Position	Dipole
Band	CW2600
Channels	Middle
Signal	CW

B. Permittivity

Frequency (MHz)	2600.000
Relative permittivity (real part)	38.880
Relative permittivity (imaginary part)	12.690
Conductivity (S/m)	1.970

C. SAR Surface and Volume



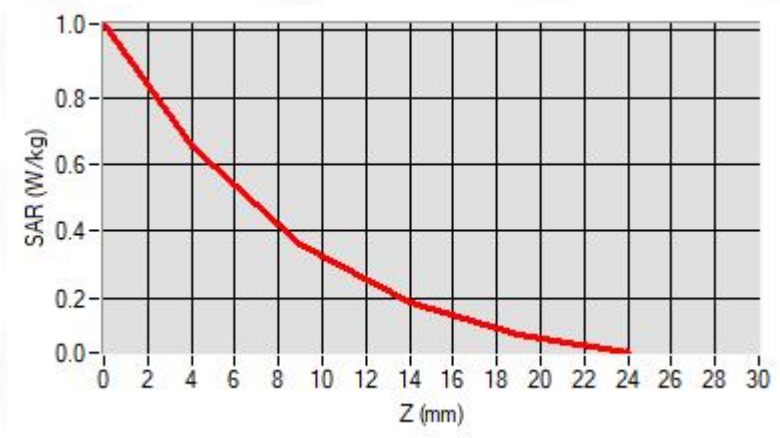
Maximum location: X=0.00, Y=-1.00 ; SAR Peak: 1.02 W/kg

D. SAR 1g & 10g

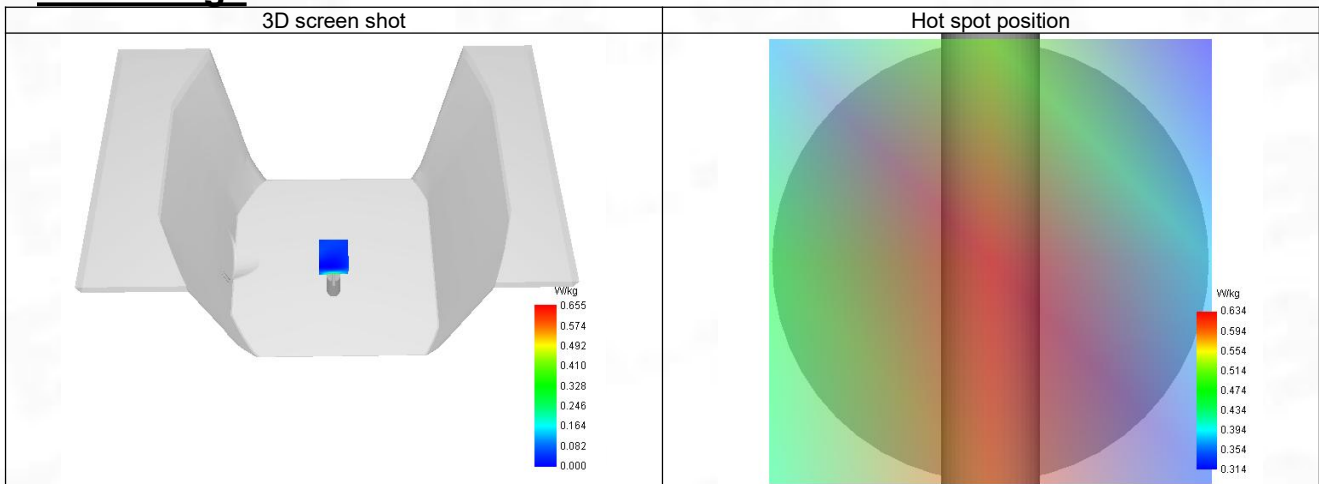
SAR 10g (W/Kg)	0.421
SAR 1g (W/Kg)	0.866
Variation (%)	2.980
Horizontal validation criteria: minimum distance (mm)	0.000000
Vertical validation criteria: SAR ratio M2/M1 (%)	0.000000

E. Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	1.020	0.655	0.359	0.187	0.091



F. 3D Image



System Performance Check Data (5200 MHz)

System check at 5200 MHz

Date of measurement: 1/11/2023

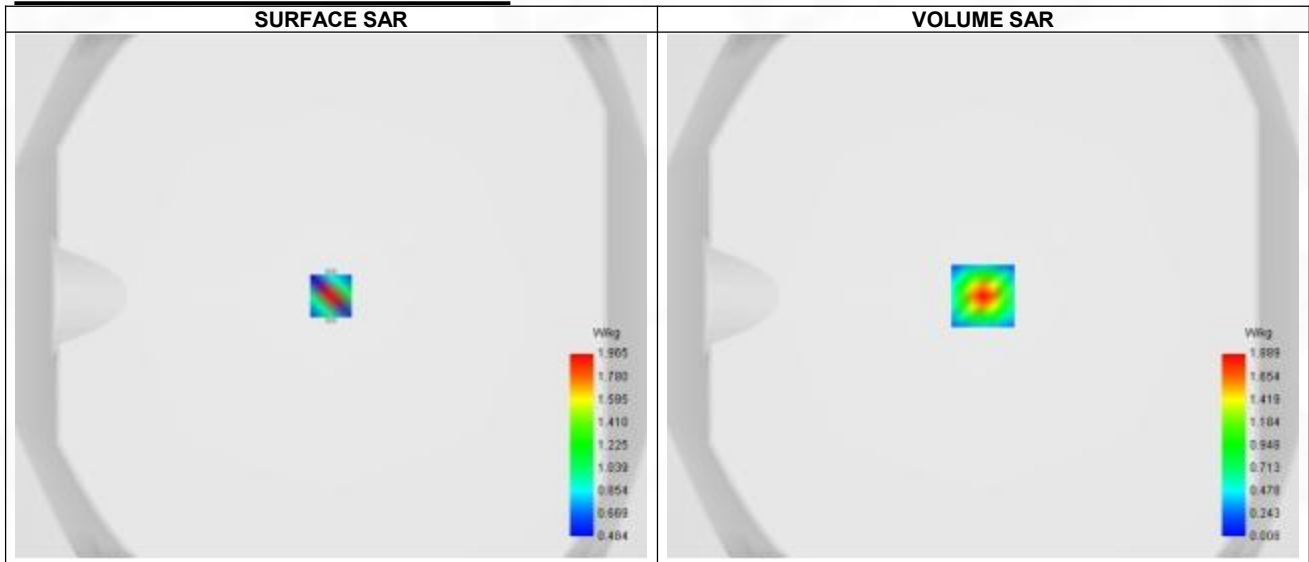
A. Experimental conditions.

Probe	SN 04/22 EPGO365
ConvF	2.24
Area Scan	dx=8mm dy=8mm, Adaptive 1 max
Zoom Scan	7x7x12, dx=4mm dy=4mm dz=5mm, Complete
Phantom	Validation plane
Device Position	Dipole
Band	CW5200
Channels	Middle
Signal	CW

B. Permittivity

Frequency (MHz)	5200.000
Relative permittivity (real part)	35.880
Relative permittivity (imaginary part)	16.250
Conductivity (S/m)	4.700

C. SAR Surface and Volume



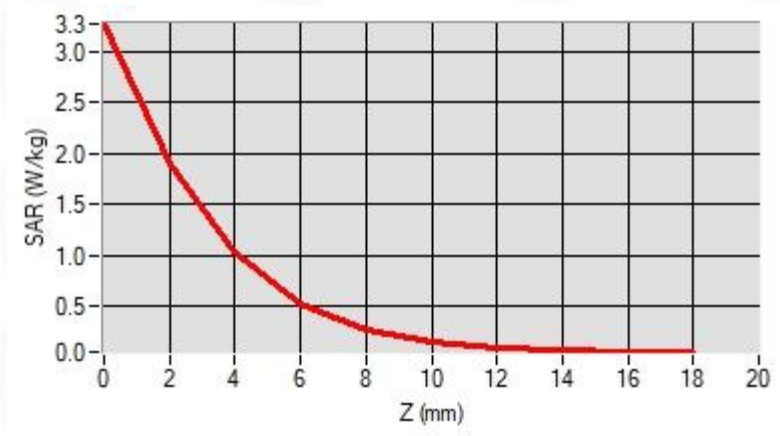
Maximum location: X=0.00, Y=0.00 ; SAR Peak: 3.38 W/kg

D. SAR 1g & 10g

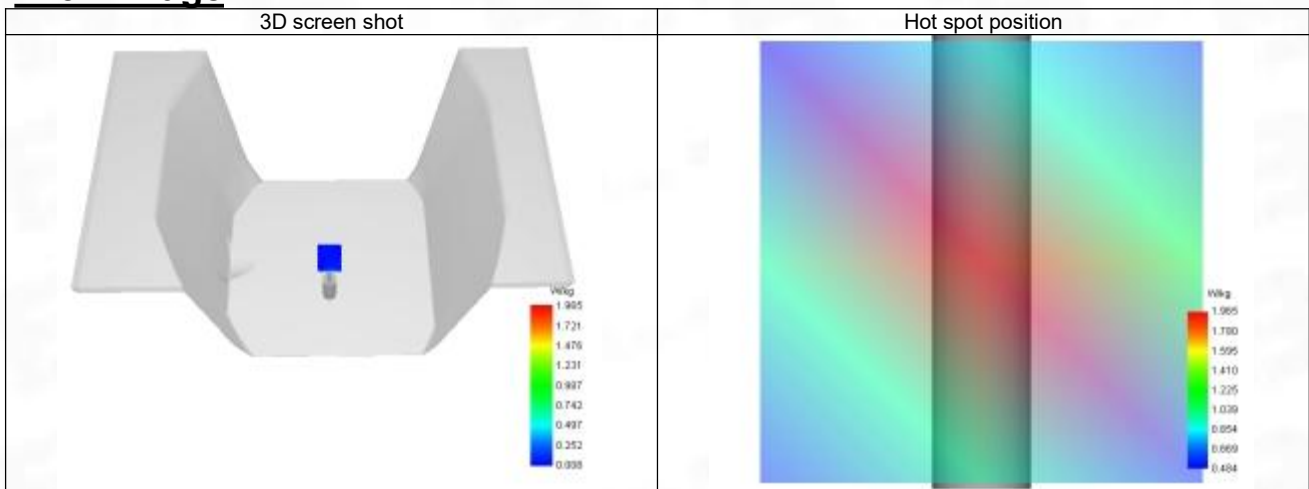
SAR 10g (W/Kg)	0.294
SAR 1g (W/Kg)	0.998
Variation (%)	-3.400
Horizontal validation criteria: minimum distance (mm)	0.000000
Vertical validation criteria: SAR ratio M2/M1 (%)	0.000000

E. Z Axis Scan

Z (mm)	0.00	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00
SAR (W/Kg)	3.268	1.889	1.021	0.523	0.266	0.142	0.085	0.060	0.052



F. 3D Image



System Performance Check Data (5800 MHz)

System check at 5800 MHz

Date of measurement: 1/11/2023

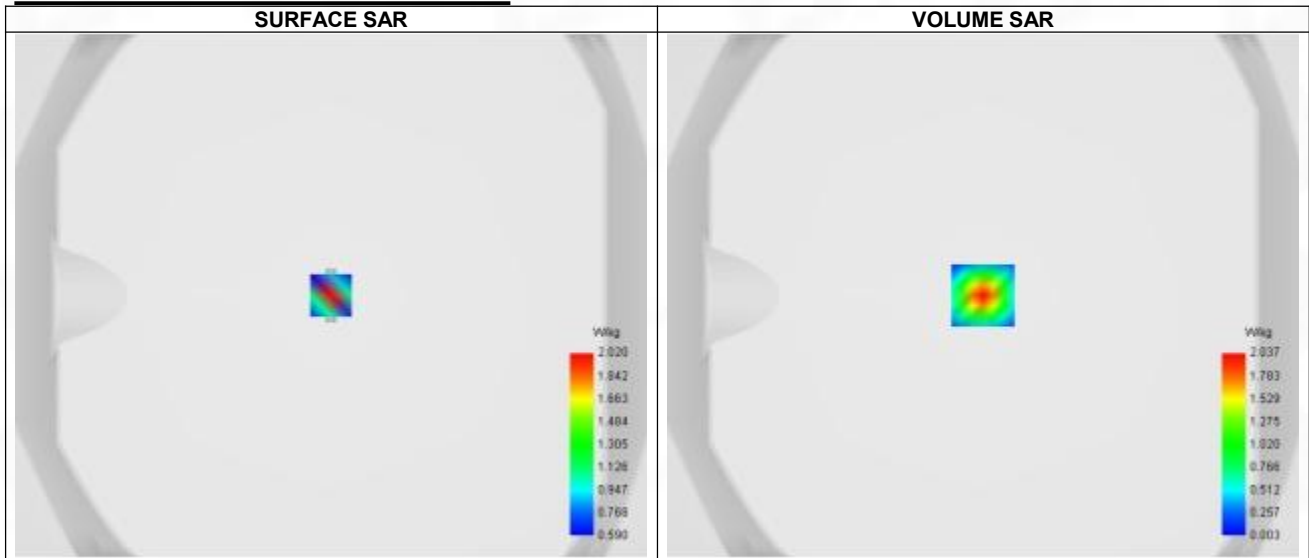
A. Experimental conditions.

Probe	SN 04/22 EPG0365
ConvF	2.04
Area Scan	dx=8mm dy=8mm, Adaptive 1 max
Zoom Scan	7x7x12,dx=4mm dy=4mm dz=2mm,Complete
Phantom	Validation plane
Device Position	Dipole
Band	CW5800
Channels	Middle
Signal	CW

B. Permittivity

Frequency (MHz)	5800.000
Relative permittivity (real part)	38.060
Relative permittivity (imaginary part)	16.480
Conductivity (S/m)	5.310

C. SAR Surface and Volume



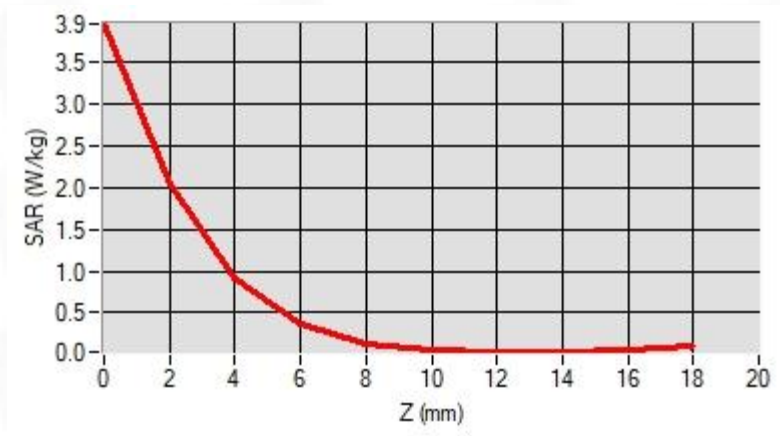
Maximum location: X=0.00, Y=0.00 ; SAR Peak: 4.17 W/kg

D. SAR 1g & 10g

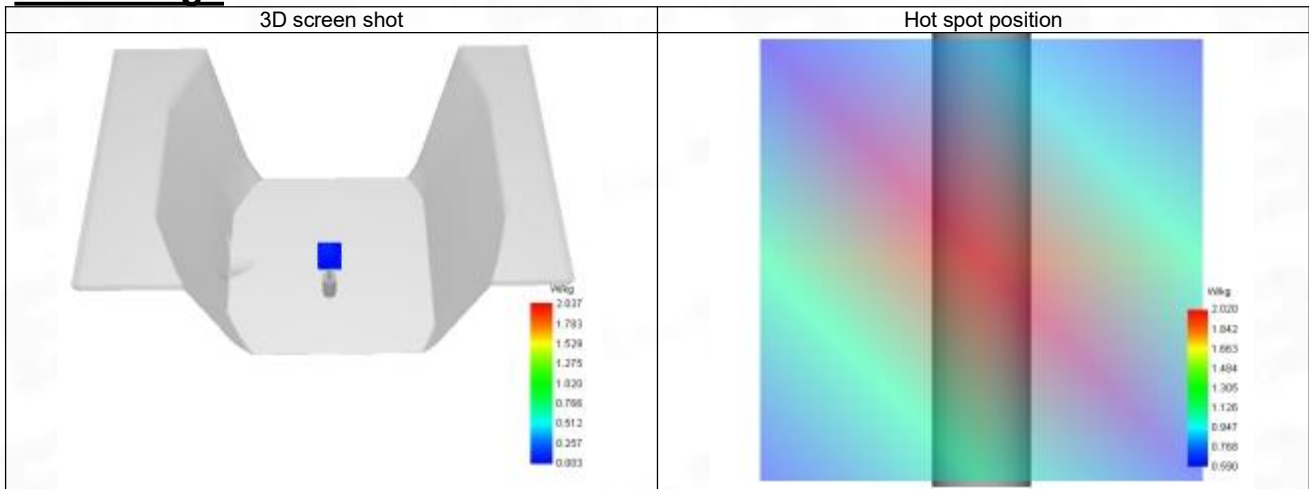
SAR 10g (W/Kg)	0.280
SAR 1g (W/Kg)	1.023
Variation (%)	0.490
Horizontal validation criteria: minimum distance (mm)	0.000000
Vertical validation criteria: SAR ratio M2/M1 (%)	0.000000

E. Z Axis Scan

Z (mm)	0.00	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00
SAR (W/Kg)	3.948	2.037	0.915	0.361	0.135	0.055	0.033	0.037	0.059



F. 3D Image



ANNEX C Test Data

1-Head with front position in dist. 0mm on Channel 251 in GSM850 voice

SAR Measurement at GSM850 (Cheek, Right)

Date of measurement: 31/10/2023

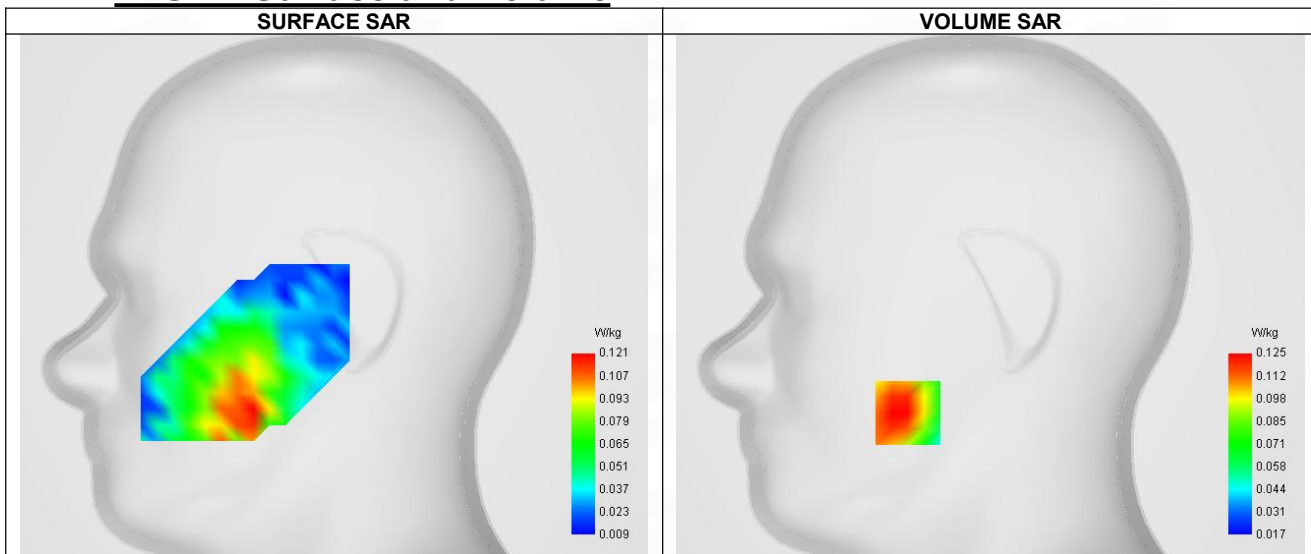
A. Experimental conditions.

Probe	SN 04/22 EPGO365
ConvF	1.68
Area Scan	sam_direct_droit2_surf8mm.txt
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5mm,Complete
Phantom	Right head
Device Position	Cheek
Band	GSM850
Channels	Higher (251)
Signal	TDMA (GSM)
Modulation	GMSK

B. Permittivity

Frequency (MHz)	848.800
Relative permittivity (real part)	43.225
Relative permittivity (imaginary part)	19.413
Conductivity (S/m)	0.877

C. SAR Surface and Volume



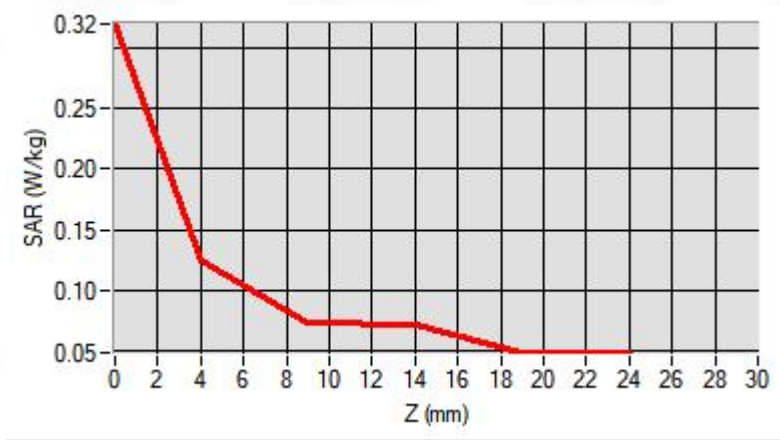
Maximum location: X=-41.00, Y=-58.00 ; SAR Peak: 0.16 W/kg

D. SAR 1g & 10g

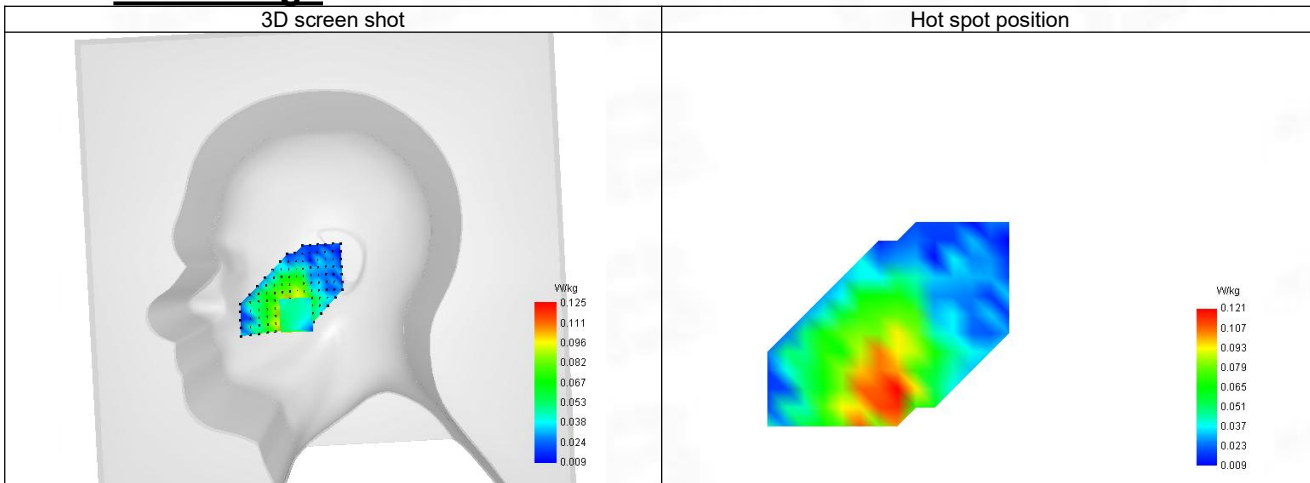
SAR 10g (W/Kg)	0.083
SAR 1g (W/Kg)	0.129
Variation (%)	-2.650
Horizontal validation criteria: minimum distance (mm)	0.000000
Vertical validation criteria: SAR ratio M2/M1 (%)	0.000000

E. Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.319	0.125	0.074	0.072	0.049



F. 3D Image



2-Body with back position in dist. 10mm on Channel 251 in GPRS850+4slots

SAR Measurement at GPRS850 (Body, Validation Plane)

Date of measurement: 31/10/2023

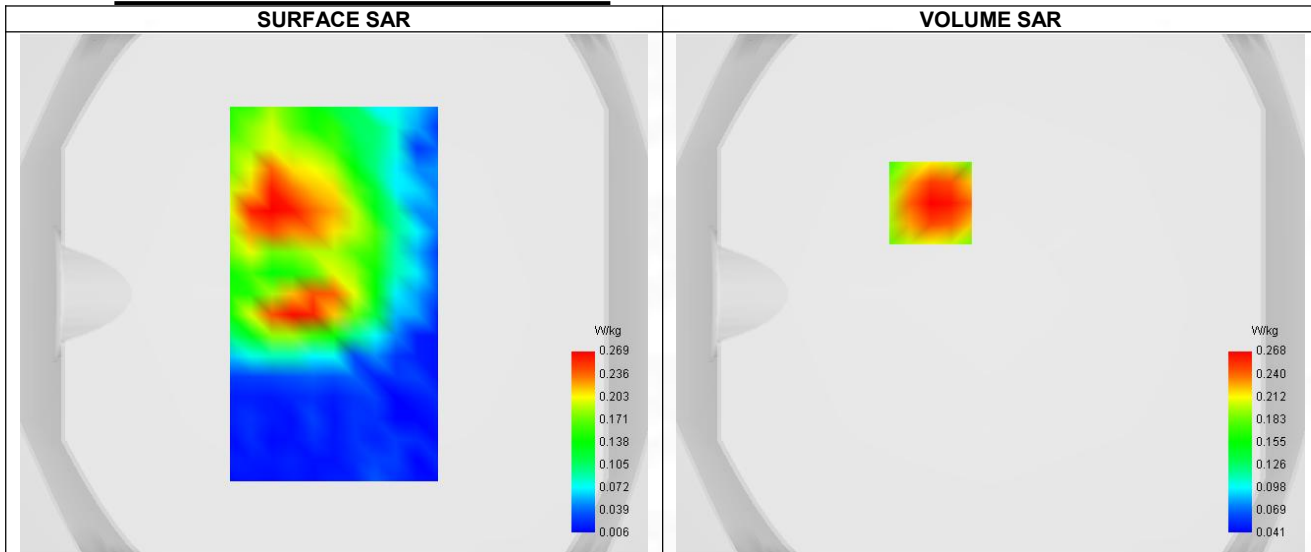
A. Experimental conditions.

Probe	SN 04/22 EPG0365
ConvF	1.68
Area Scan	surf_sam_plan.txt
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5mm,Complete
Phantom	Validation plane
Device Position	Body
Band	GPRS850
Channels	Higher (251)
Signal	TDMA (GPRS)
Modulation	GMSK (CS-1)
TX-slots	4

B. Permittivity

Frequency (MHz)	848.800
Relative permittivity (real part)	43.225
Relative permittivity (imaginary part)	19.413
Conductivity (S/m)	0.877

C. SAR Surface and Volume



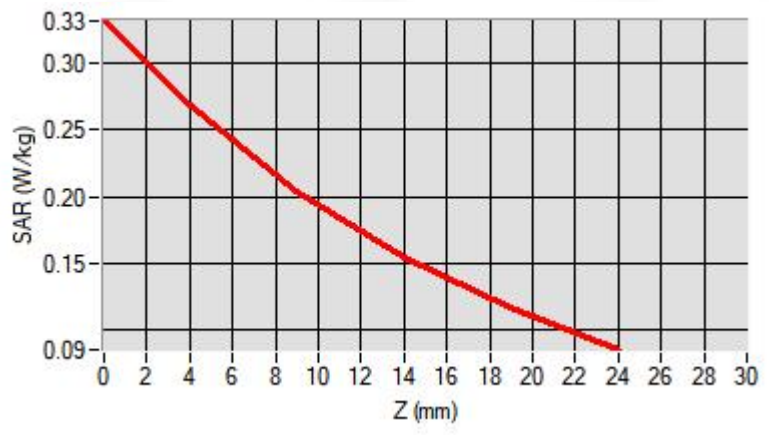
Maximum location: X=-23.00, Y=35.00 ; SAR Peak: 0.34 W/kg

D. SAR 1g & 10g

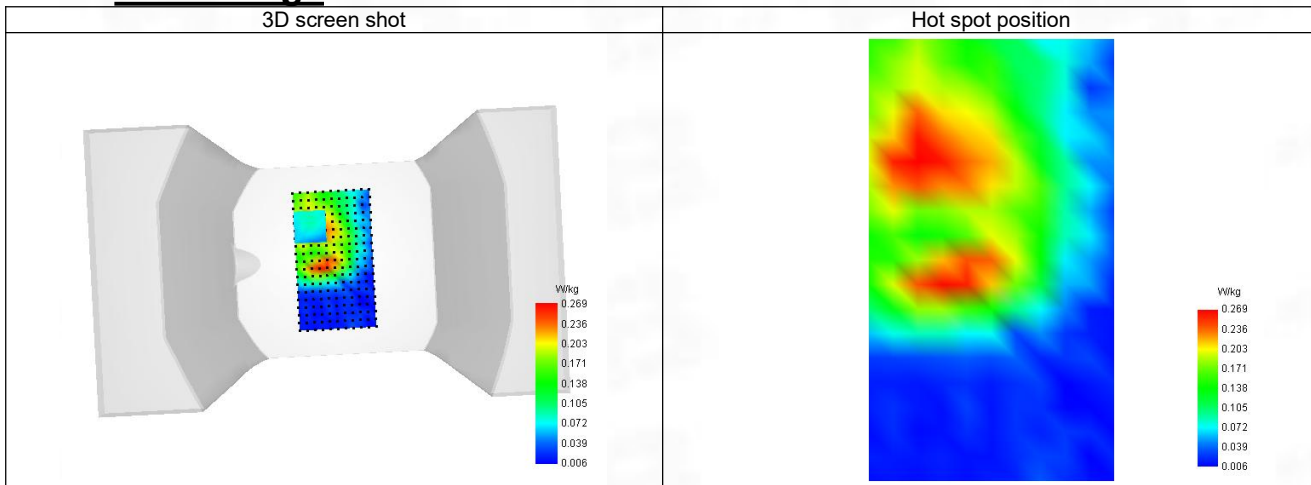
SAR 10g (W/Kg)	0.192
SAR 1g (W/Kg)	0.274
Variation (%)	-4.360
Horizontal validation criteria: minimum distance (mm)	0.000000
Vertical validation criteria: SAR ratio M2/M1 (%)	0.000000

E. Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.332	0.268	0.205	0.155	0.117



F. 3D Image



3-Head with front position in dist. 0mm on Channel 810 in GSM1900 voice

SAR Measurement at GSM1900 (Tilt, Right)

Date of measurement: 31/10/2023

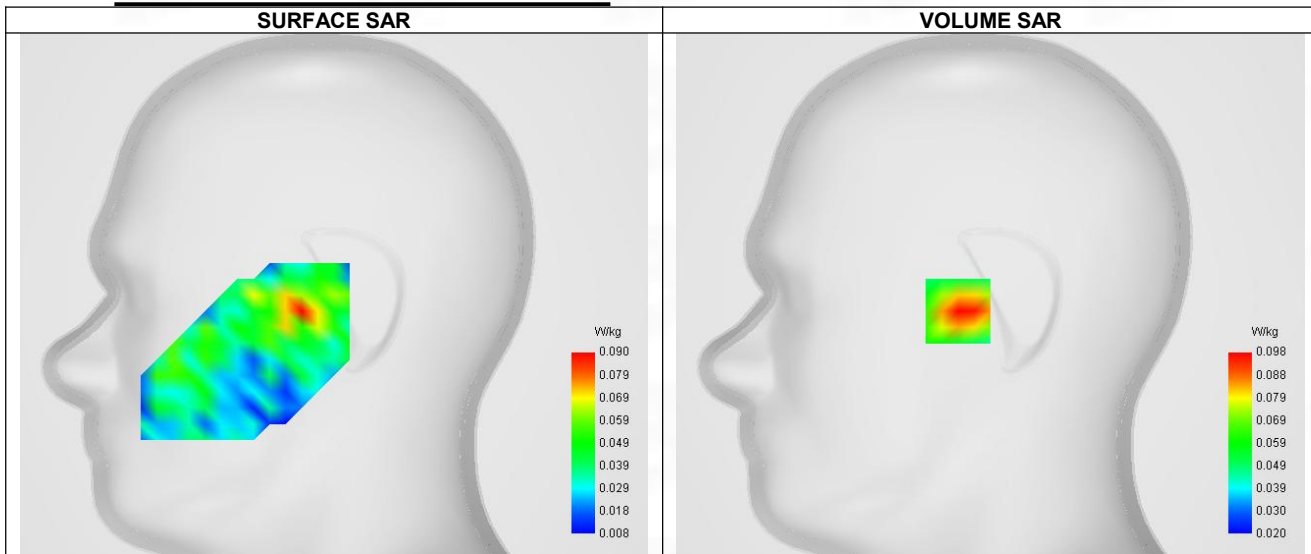
A. Experimental conditions.

Probe	SN 04/22 EPG0365
ConvF	2.24
Area Scan	sam_direct_droit2_surf8mm.txt
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5mm,Complete
Phantom	Right head
Device Position	Tilt
Band	GSM1900
Channels	Higher (810)
Signal	TDMA (GSM)
Modulation	GMSK

B. Permittivity

Frequency (MHz)	1909.800
Relative permittivity (real part)	39.907
Relative permittivity (imaginary part)	13.379
Conductivity (S/m)	1.417

C. SAR Surface and Volume



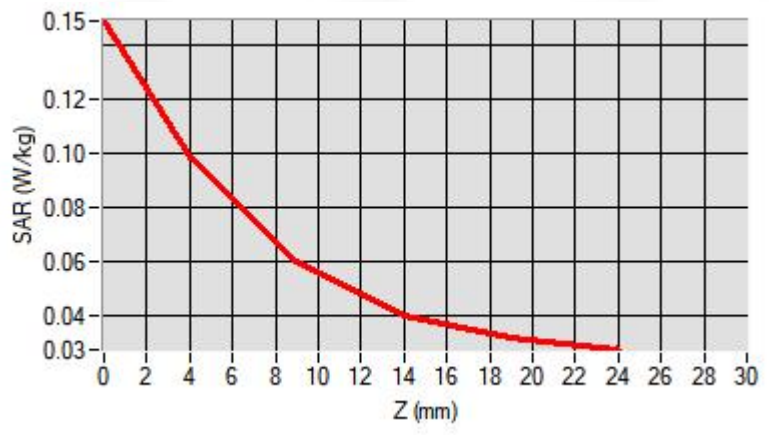
Maximum location: X=-16.00, Y=-8.00 ; SAR Peak: 0.15 W/kg

D. SAR 1g & 10g

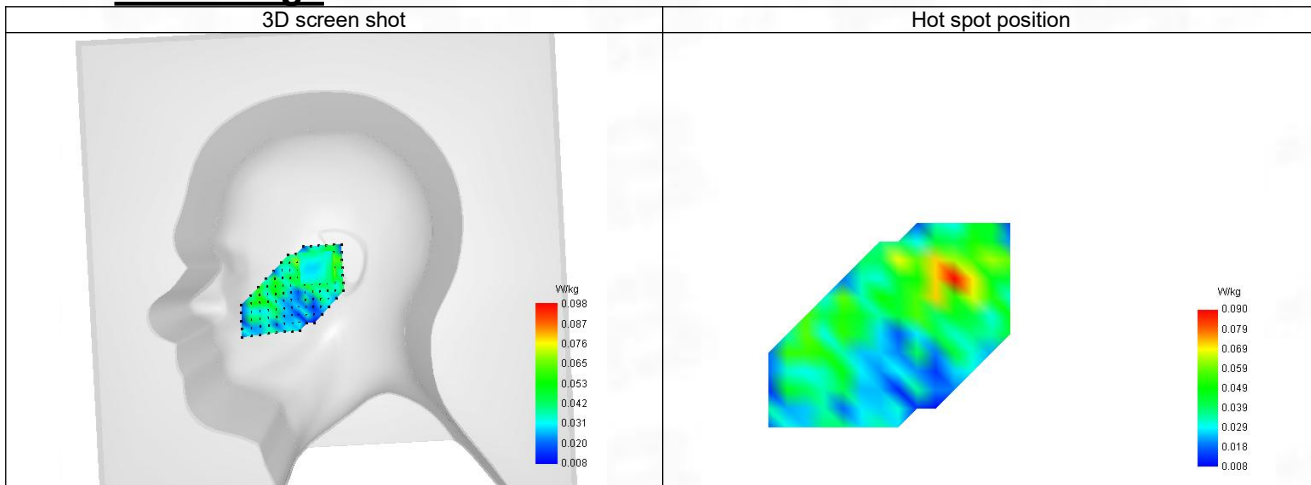
SAR 10g (W/Kg)	0.066
SAR 1g (W/Kg)	0.098
Variation (%)	-0.800
Horizontal validation criteria: minimum distance (mm)	0.000000
Vertical validation criteria: SAR ratio M2/M1 (%)	0.000000

E. Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.149	0.098	0.060	0.040	0.032



F. 3D Image



4-Body with back position in dist. 10mm on Channel 810 in GPRS1900+4slots

SAR Measurement at GPRS1900 (Body, Validation Plane)

Date of measurement: 31/10/2023

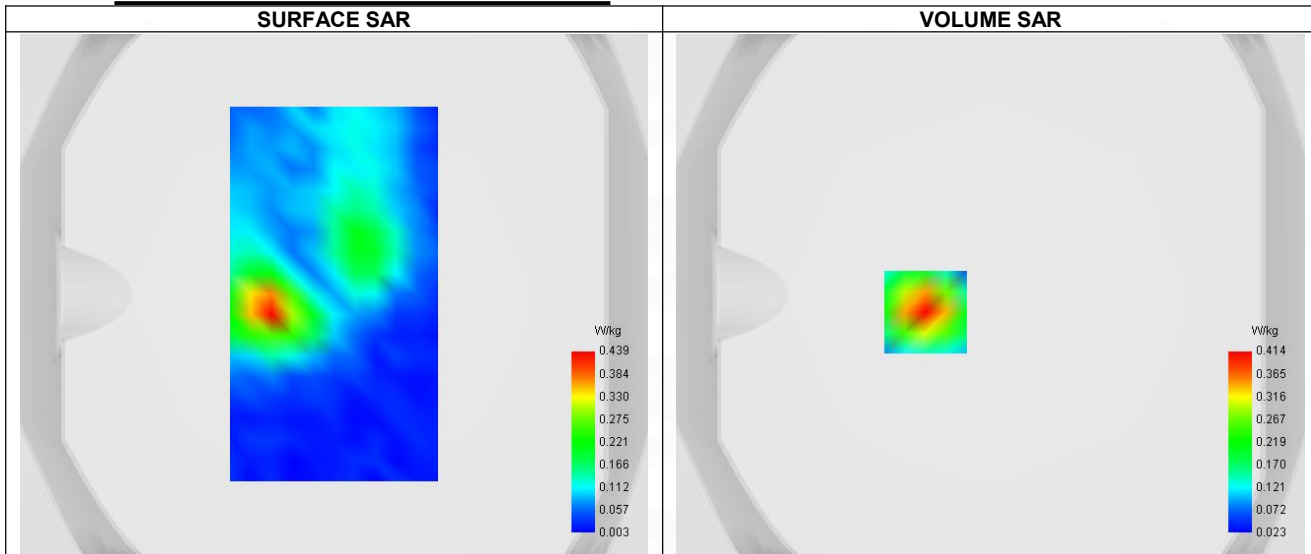
A. Experimental conditions.

Probe	SN 04/22 EPGO365
ConvF	2.24
Area Scan	surf_sam_plan.txt
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5mm,Complete
Phantom	Validation plane
Device Position	Body
Band	GPRS1900
Channels	Higher (810)
Signal	TDMA (GPRS)
Modulation	GMSK (CS-1)
TX-slots	4

B. Permittivity

Frequency (MHz)	1909.800
Relative permittivity (real part)	39.907
Relative permittivity (imaginary part)	13.379
Conductivity (S/m)	1.417

C. SAR Surface and Volume



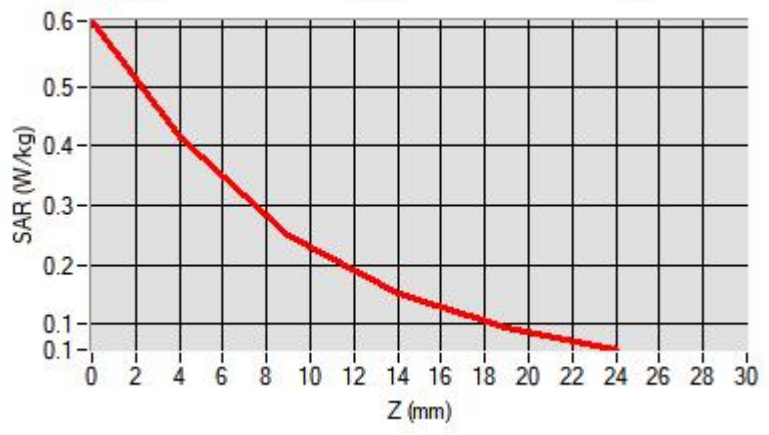
Maximum location: X=-25.00, Y=-7.00 ; SAR Peak: 0.61 W/kg

D. SAR 1g & 10g

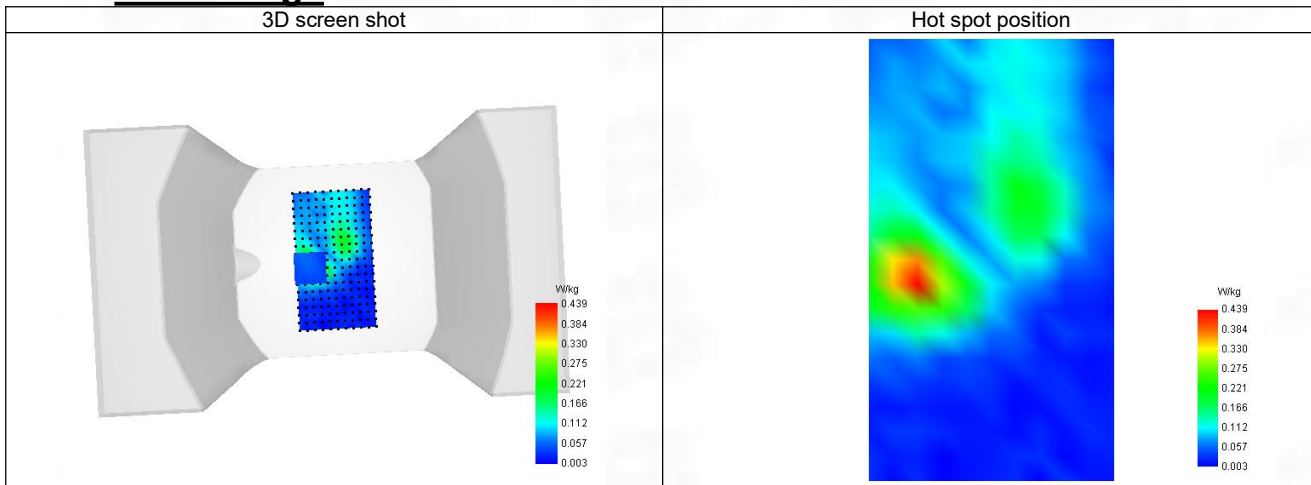
SAR 10g (W/Kg)	0.212
SAR 1g (W/Kg)	0.395
Variation (%)	1.310
Horizontal validation criteria: minimum distance (mm)	0.000000
Vertical validation criteria: SAR ratio M2/M1 (%)	0.000000

E. Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.610	0.414	0.250	0.152	0.094



F. 3D Image



5-Head with front position in dist. 0mm on Channel 9400 in WCDMA Band 2

SAR Measurement at Band 2 (1900) (Cheek, Right)

Date of measurement: 31/10/2023

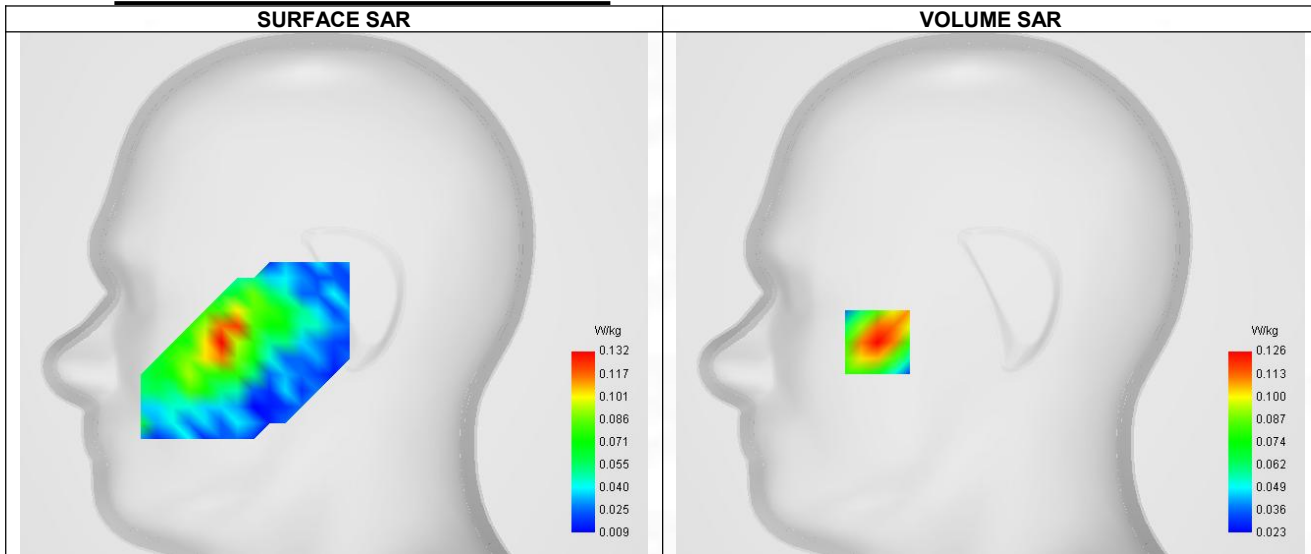
A. Experimental conditions.

Probe	SN 04/22 EPGO365
ConvF	2.24
Area Scan	sam_direct_droit2_surf8mm.txt
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5mm,Complete
Phantom	Right head
Device Position	Cheek
Band	Band 2 (1900)
Channels	Middle (9400)
Signal	WCDMA
Mode	Release 99
Connection Type	RMC, 12.2 kbps

B. Permittivity

Frequency (MHz)	1880.000
Relative permittivity (real part)	40.210
Relative permittivity (imaginary part)	13.522
Conductivity (S/m)	1.402

C. SAR Surface and Volume



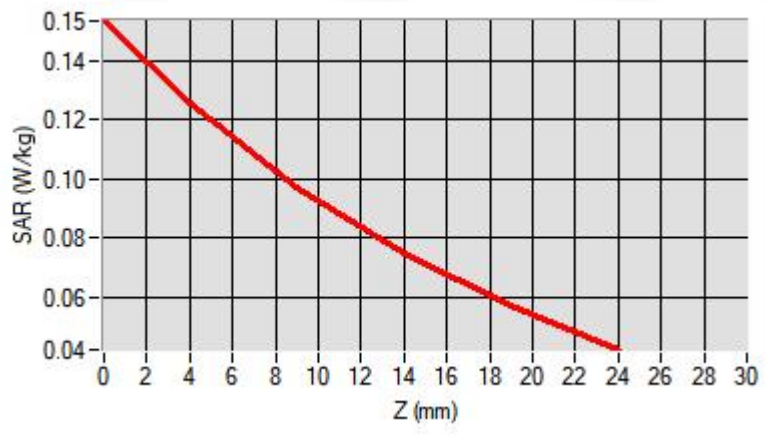
Maximum location: X=-56.00, Y=-24.00 ; SAR Peak: 0.16 W/kg

D. SAR 1g & 10g

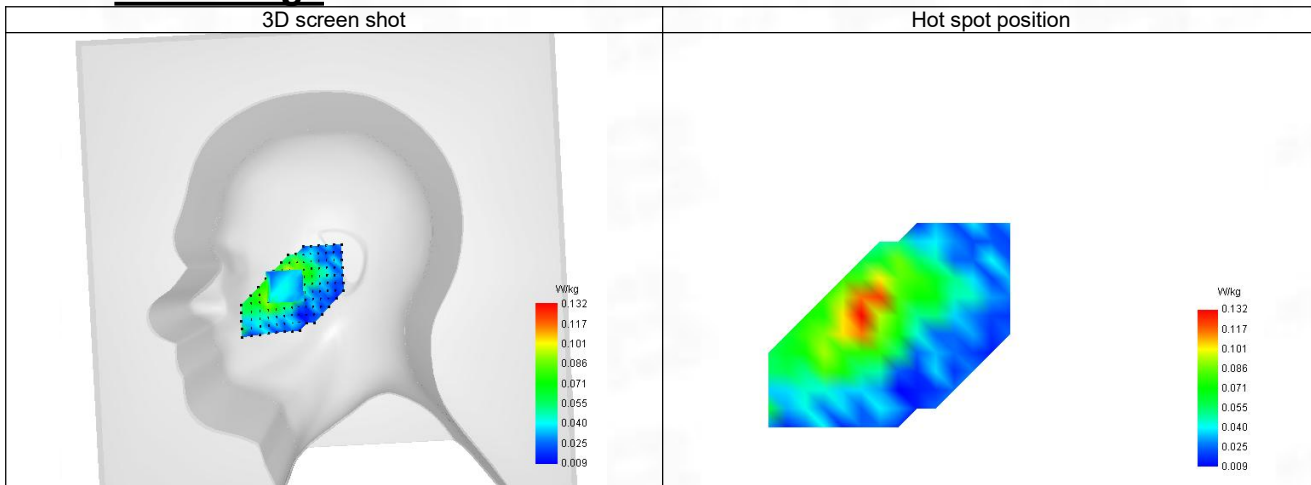
SAR 10g (W/Kg)	0.085
SAR 1g (W/Kg)	0.124
Variation (%)	-2.210
Horizontal validation criteria: minimum distance (mm)	0.000000
Vertical validation criteria: SAR ratio M2/M1 (%)	0.000000

E. Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.154	0.126	0.097	0.075	0.057



F. 3D Image



6-Body with back position in dist. 10mm on Channel 9400 in WCDMA Band 2

SAR Measurement at Band 2 (1900) (Body, Validation Plane)

Date of measurement: 31/10/2023

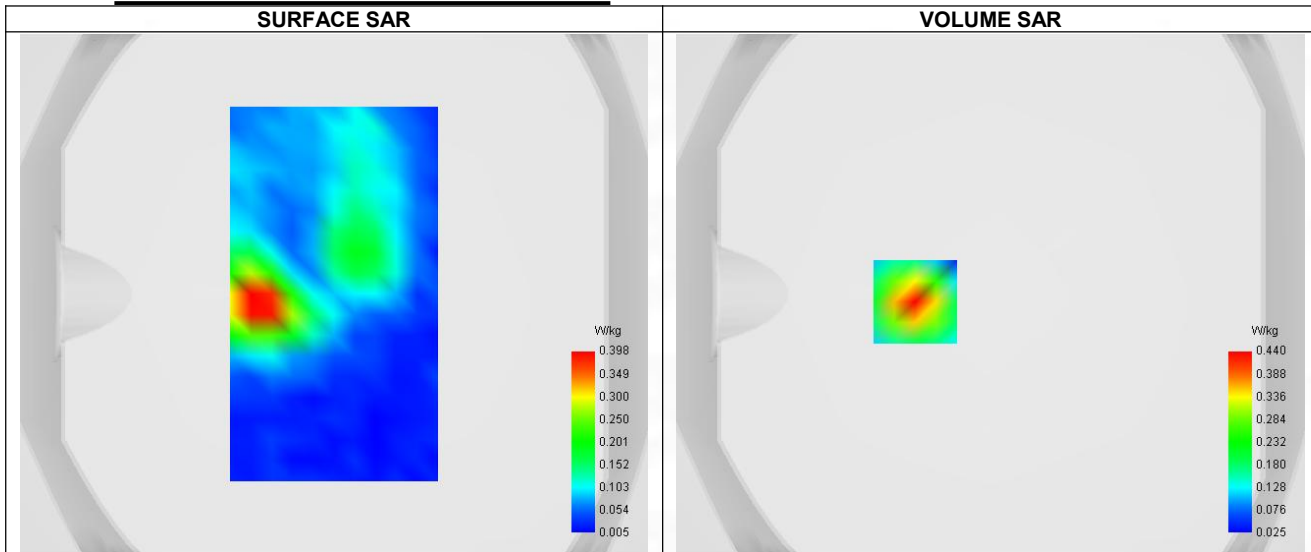
A. Experimental conditions.

Probe	SN 04/22 EPG0365
ConvF	2.24
Area Scan	surf_sam_plan.txt
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5mm,Complete
Phantom	Validation plane
Device Position	Body
Band	Band 2 (1900)
Channels	Middle (9400)
Signal	WCDMA
Mode	Release 99
Connection Type	RMC, 12.2 kbps

B. Permittivity

Frequency (MHz)	1880.000
Relative permittivity (real part)	40.210
Relative permittivity (imaginary part)	13.522
Conductivity (S/m)	1.402

C. SAR Surface and Volume



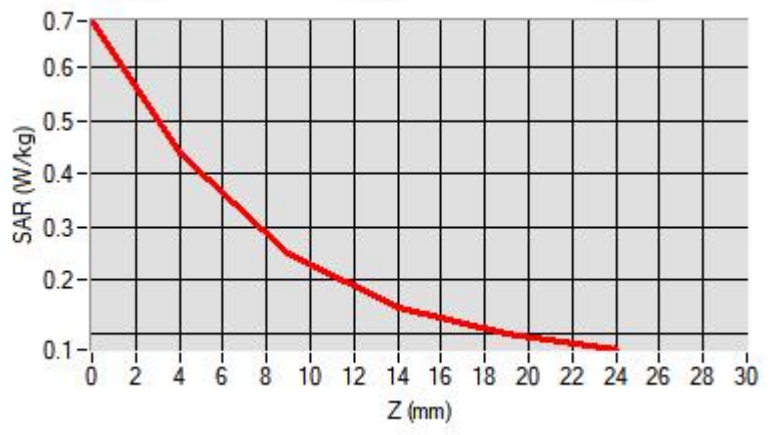
Maximum location: X=-29.00, Y=-3.00 ; SAR Peak: 0.69 W/kg

D. SAR 1g & 10g

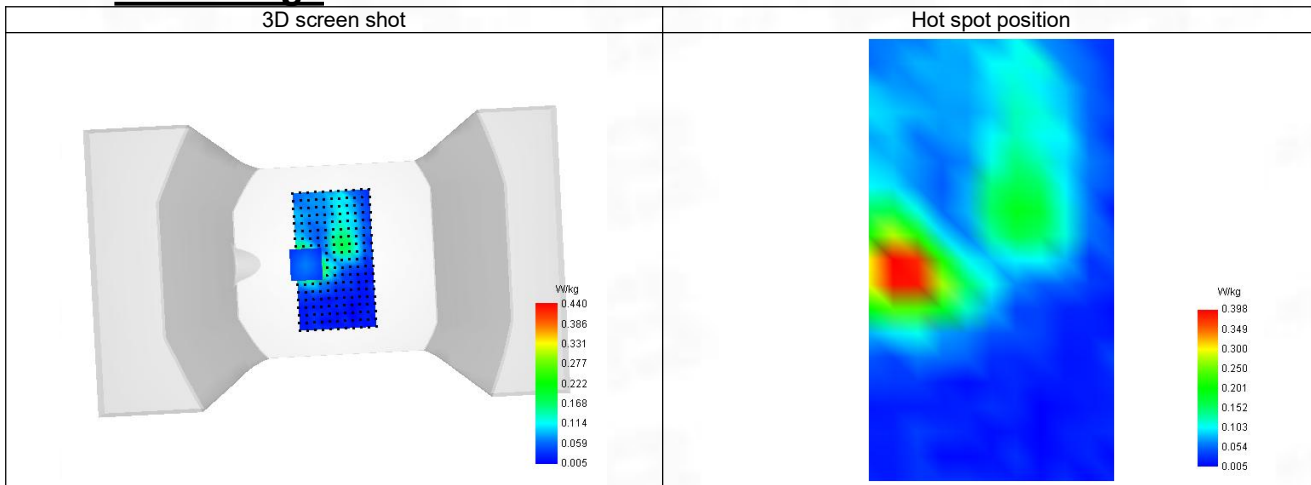
SAR 10g (W/Kg)	0.220
SAR 1g (W/Kg)	0.419
Variation (%)	-2.340
Horizontal validation criteria: minimum distance (mm)	0.000000
Vertical validation criteria: SAR ratio M2/M1 (%)	0.000000

E. Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.687	0.440	0.250	0.149	0.099



F. 3D Image



7-Head with front position in dist. 0mm on Channel 1513 in WCDMA Band 4

SAR Measurement at Band 4 (1700) (Cheek, Right)

Date of measurement: 31/10/2023

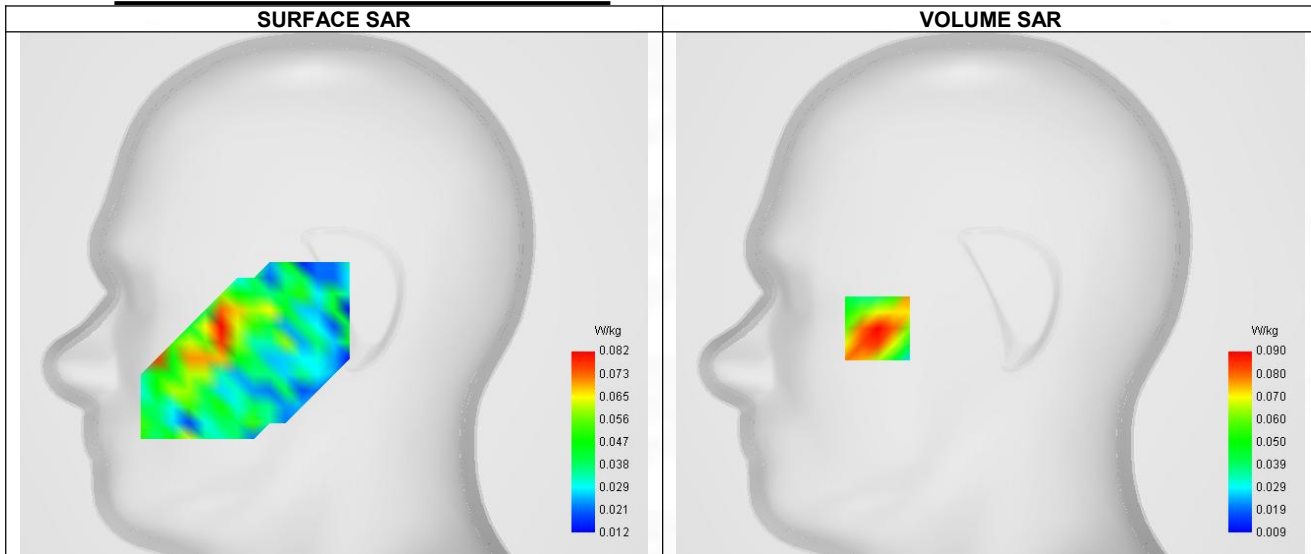
A. Experimental conditions.

Probe	SN 04/22 EPG0365
ConvF	1.96
Area Scan	sam_direct_droit2_surf8mm.txt
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5mm,Complete
Phantom	Right head
Device Position	Cheek
Band	Band 4 (1700)
Channels	Higher (1513)
Signal	WCDMA
Mode	Release 99
Connection Type	RMC, 12.2 kbps

B. Permittivity

Frequency (MHz)	1752.600
Relative permittivity (real part)	41.614
Relative permittivity (imaginary part)	14.355
Conductivity (S/m)	1.345

C. SAR Surface and Volume



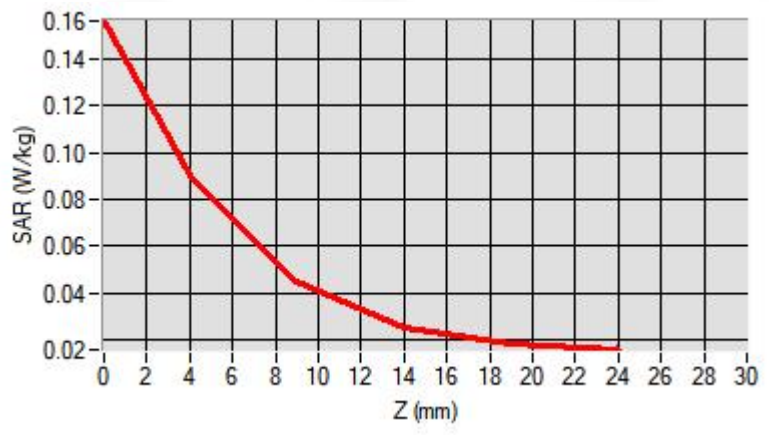
Maximum location: X=-56.00, Y=-17.00 ; SAR Peak: 0.16 W/kg

D. SAR 1g & 10g

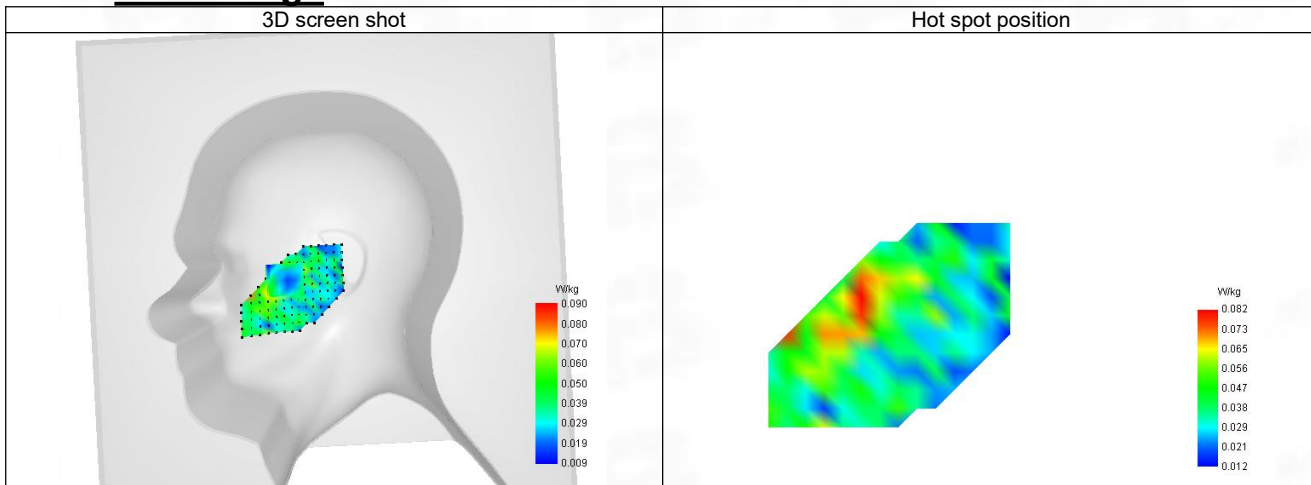
SAR 10g (W/Kg)	0.057
SAR 1g (W/Kg)	0.093
Variation (%)	0.390
Horizontal validation criteria: minimum distance (mm)	0.000000
Vertical validation criteria: SAR ratio M2/M1 (%)	0.000000

E. Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.156	0.090	0.045	0.025	0.018



F. 3D Image



8-Body with back position in dist. 10mm on Channel 1513 in WCDMA Band 4

SAR Measurement at Band 4 (1700) (Body, Validation Plane)

Date of measurement: 31/10/2023

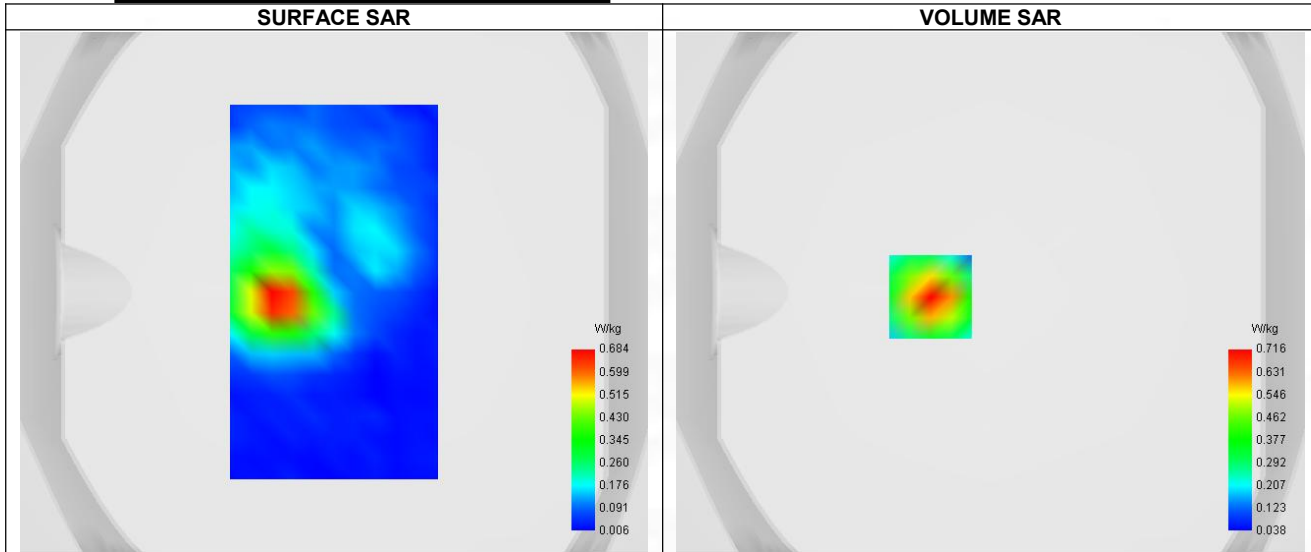
A. Experimental conditions.

Probe	SN 04/22 EPG0365
ConvF	1.96
Area Scan	surf_sam_plan.txt
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5mm,Complete
Phantom	Validation plane
Device Position	Body
Band	Band 4 (1700)
Channels	Higher (1513)
Signal	WCDMA
Mode	Release 99
Connection Type	RMC, 12.2 kbps

B. Permittivity

Frequency (MHz)	1752.600
Relative permittivity (real part)	41.614
Relative permittivity (imaginary part)	14.355
Conductivity (S/m)	1.345

C. SAR Surface and Volume



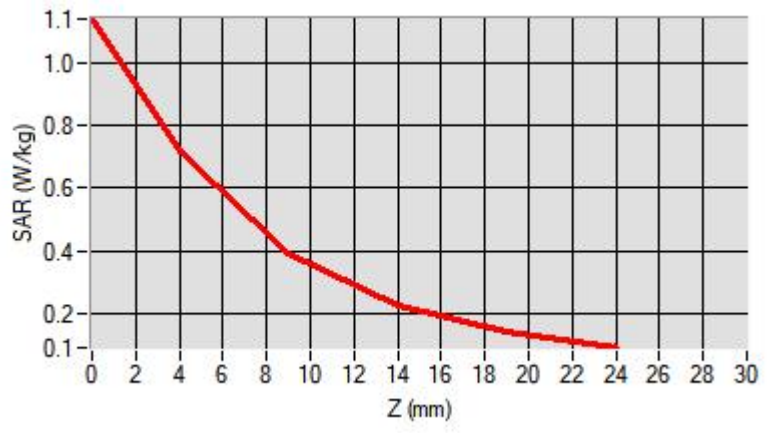
Maximum location: X=-23.00, Y=-2.00 ; SAR Peak: 1.14 W/kg

D. SAR 1g & 10g

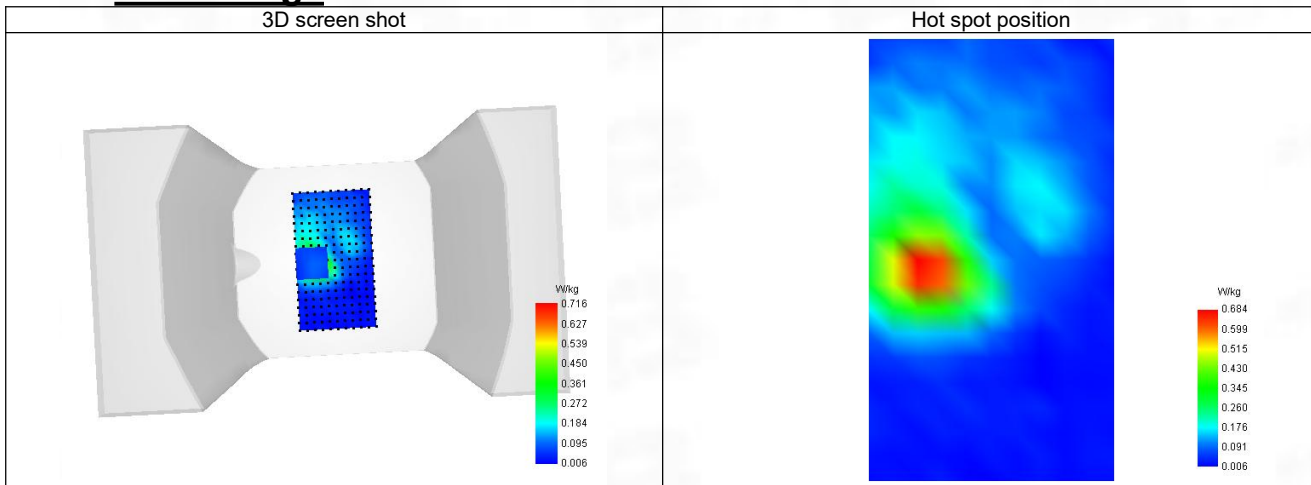
SAR 10g (W/Kg)	0.361
SAR 1g (W/Kg)	0.690
Variation (%)	-2.220
Horizontal validation criteria: minimum distance (mm)	0.000000
Vertical validation criteria: SAR ratio M2/M1 (%)	0.000000

E. Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	1.140	0.716	0.394	0.224	0.140



F. 3D Image



9-Head with front position in dist. 0mm on Channel 4183 in WCDMA Band 5

SAR Measurement at Band 5 (850) (Cheek, Right)

Date of measurement: 31/10/2023

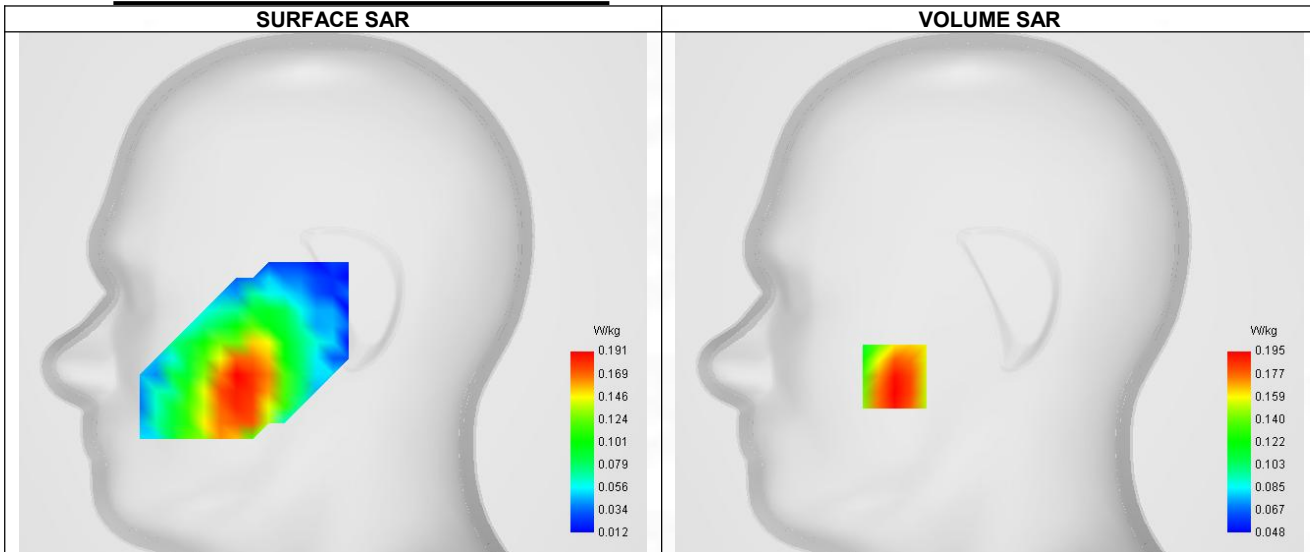
A. Experimental conditions.

Probe	SN 04/22 EPG0365
ConvF	1.68
Area Scan	sam_direct_droit2_surf8mm.txt
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5mm,Complete
Phantom	Right head
Device Position	Cheek
Band	Band 5 (850)
Channels	Middle (4183)
Signal	WCDMA
Mode	Release 99
Connection Type	RMC, 12.2 kbps

B. Permittivity

Frequency (MHz)	836.600
Relative permittivity (real part)	43.247
Relative permittivity (imaginary part)	19.481
Conductivity (S/m)	0.871

C. SAR Surface and Volume



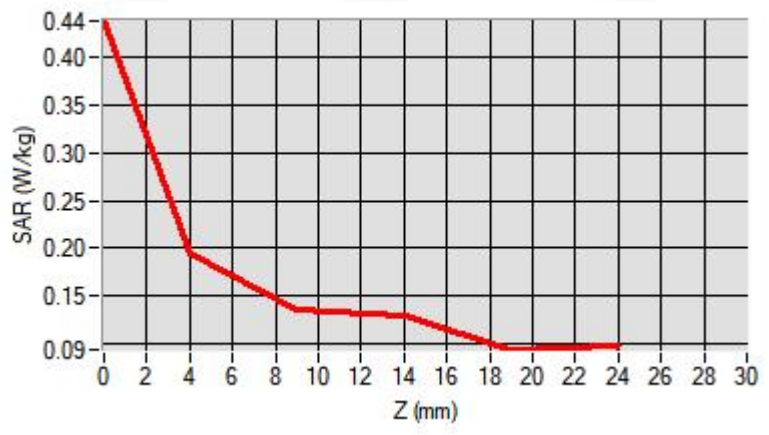
Maximum location: X=-47.00, Y=-41.00 ; SAR Peak: 0.24 W/kg

D. SAR 1g & 10g

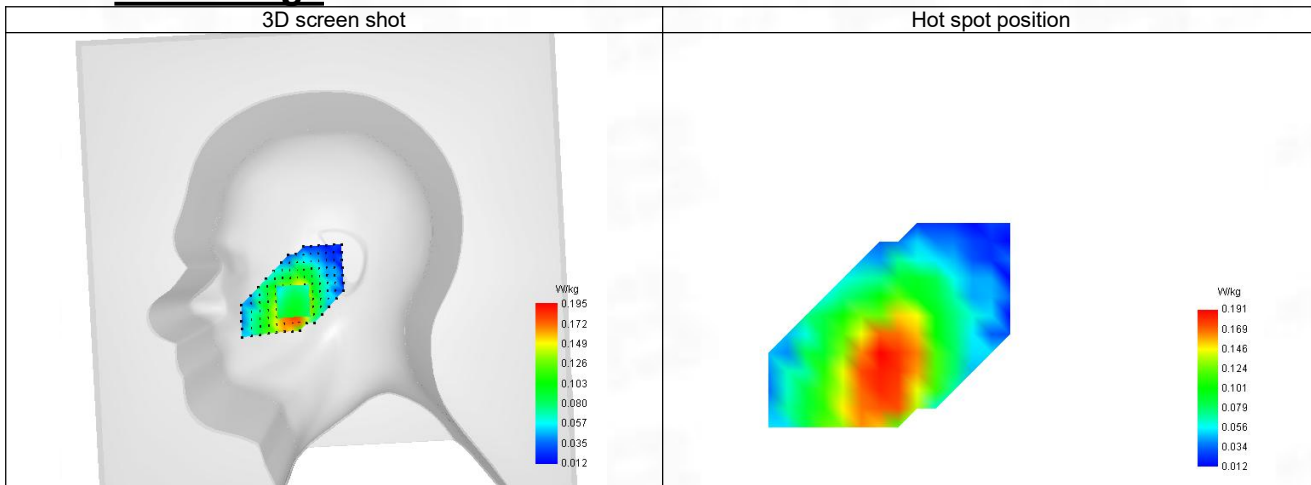
SAR 10g (W/Kg)	0.155
SAR 1g (W/Kg)	0.202
Variation (%)	-1.770
Horizontal validation criteria: minimum distance (mm)	0.000000
Vertical validation criteria: SAR ratio M2/M1 (%)	0.000000

E. Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.438	0.195	0.135	0.129	0.093



F. 3D Image



10-Body with back position in dist. 10mm on Channel 4183 in WCDMA Band 5

SAR Measurement at Band 5 (850) (Body, Validation Plane)

Date of measurement: 31/10/2023

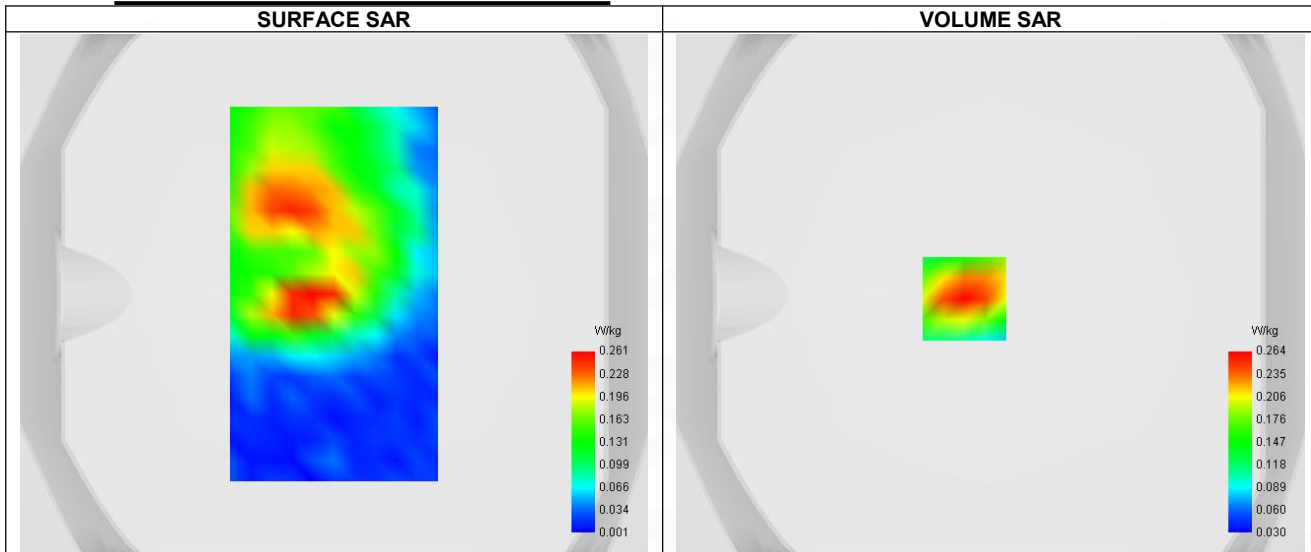
A. Experimental conditions.

Probe	SN 04/22 EPG0365
ConvF	1.68
Area Scan	surf_sam_plan.txt
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5mm,Complete
Phantom	Validation plane
Device Position	Body
Band	Band 5 (850)
Channels	Middle (4183)
Signal	WCDMA
Mode	Release 99
Connection Type	RMC, 12.2 kbps

B. Permittivity

Frequency (MHz)	836.600
Relative permittivity (real part)	43.247
Relative permittivity (imaginary part)	19.481
Conductivity (S/m)	0.871

C. SAR Surface and Volume



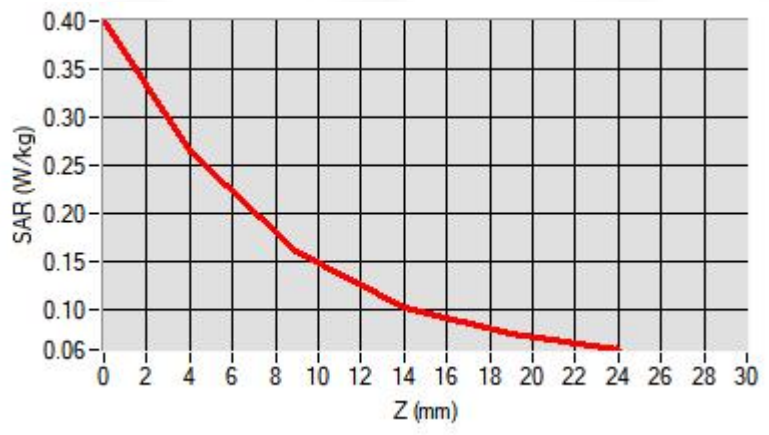
Maximum location: X=-10.00, Y=-2.00 ; SAR Peak: 0.41 W/kg

D. SAR 1g & 10g

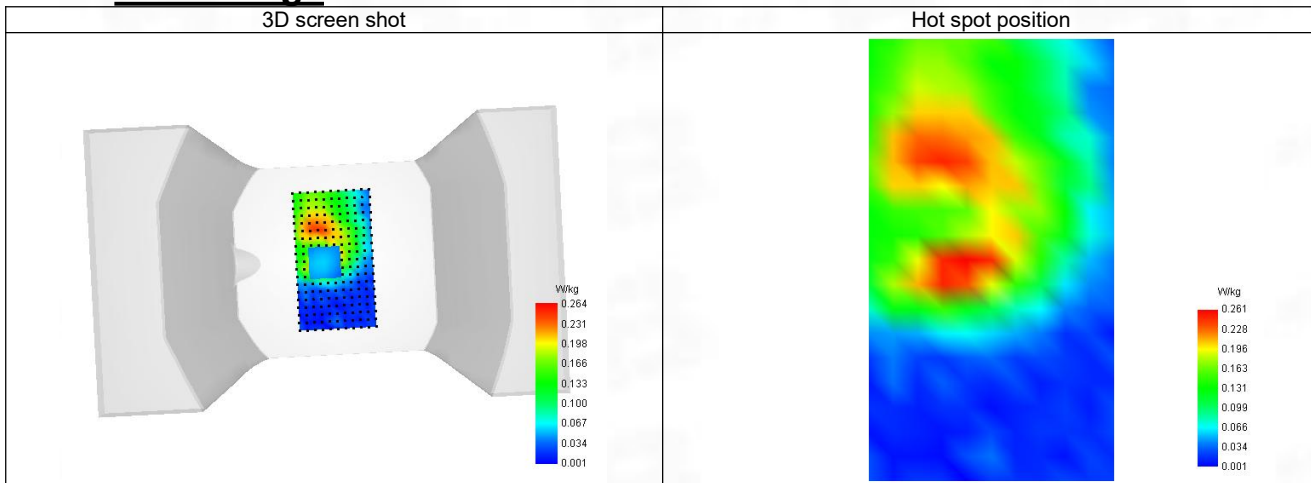
SAR 10g (W/Kg)	0.158
SAR 1g (W/Kg)	0.266
Variation (%)	-2.810
Horizontal validation criteria: minimum distance (mm)	0.000000
Vertical validation criteria: SAR ratio M2/M1 (%)	0.000000

E. Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.399	0.264	0.159	0.102	0.074



F. 3D Image



11-Head with front position in dist. 0mm on Channel 18700 in LTE band 2

SAR Measurement at LTE band 2 (Cheek, Right)

Date of measurement: 31/10/2023

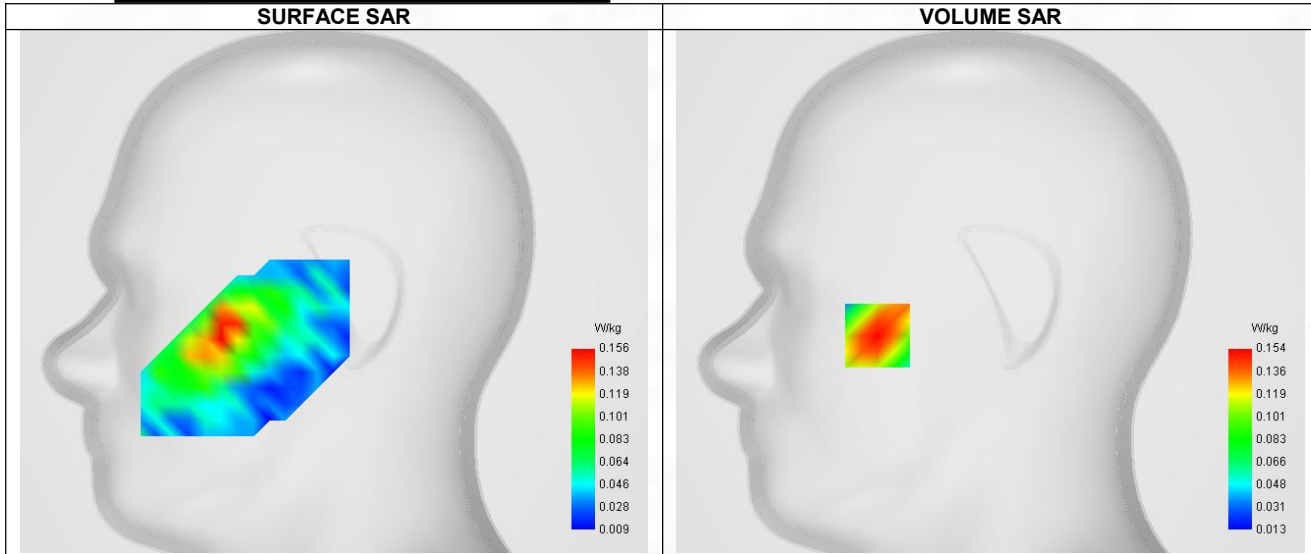
A. Experimental conditions.

Probe	SN 04/22 EPG0365
ConvF	2.24
Area Scan	sam_direct_droit2_surf8mm.txt
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5mm,Complete
Phantom	Right head
Device Position	Cheek
Band	LTE band 2
Channels	Lower (18700)
Signal	LTE FDD
Cell Bandwidth	20 Mhz
Modulation	SC-OFDM - QPSK
RB offset	50
RB size	1

B. Permittivity

Frequency (MHz)	1860.090
Relative permittivity (real part)	40.539
Relative permittivity (imaginary part)	13.663
Conductivity (S/m)	1.394

C. SAR Surface and Volume



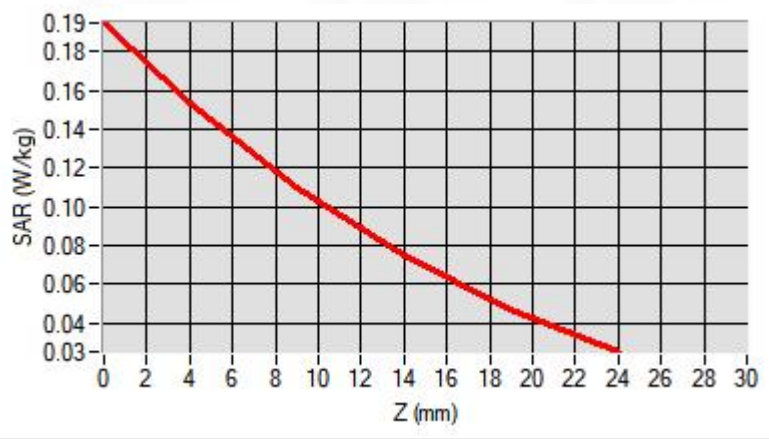
Maximum location: X=-56.00, Y=-22.00 ; SAR Peak: 0.23 W/kg

D. SAR 1g & 10g

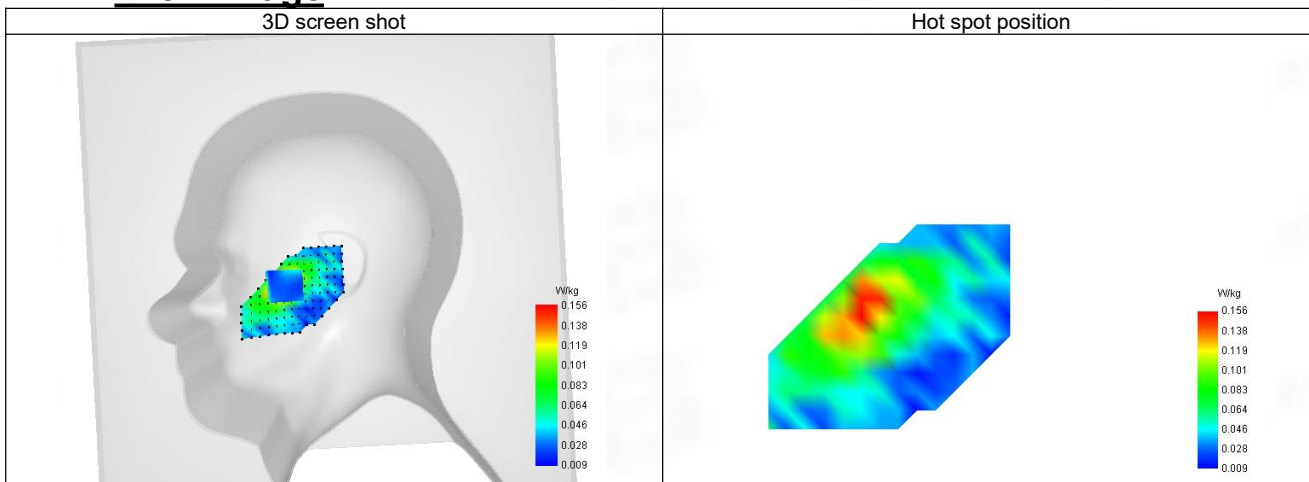
SAR 10g (W/Kg)	0.097
SAR 1g (W/Kg)	0.152
Variation (%)	2.290
Horizontal validation criteria: minimum distance (mm)	0.000000
Vertical validation criteria: SAR ratio M2/M1 (%)	0.000000

E. Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.195	0.154	0.110	0.074	0.046



F. 3D Image



12-Body with back position in dist. 10mm on Channel 18700 in LTE band 2

SAR Measurement at LTE band 2 (Body, Validation Plane)

Date of measurement: 31/10/2023

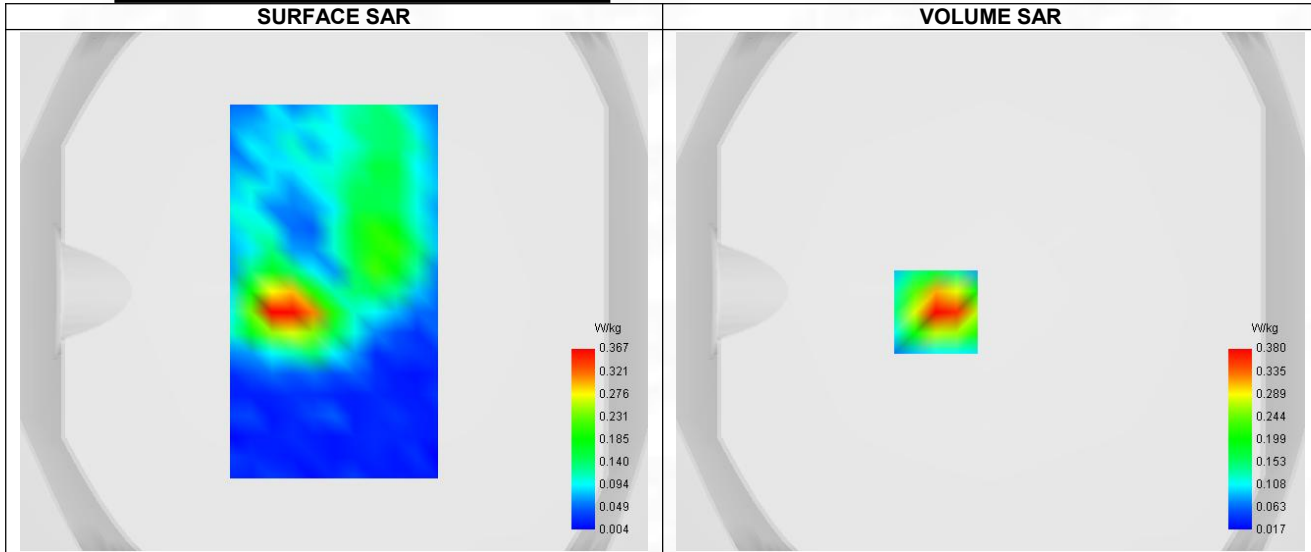
A. Experimental conditions.

Probe	SN 04/22 EPG0365
ConvF	2.24
Area Scan	surf_sam_plan.txt
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5mm,Complete
Phantom	Validation plane
Device Position	Body
Band	LTE band 2
Channels	Lower (18700)
Signal	LTE FDD
Cell Bandwidth	20 Mhz
Modulation	SC-OFDM - QPSK
RB offset	50
RB size	1

B. Permittivity

Frequency (MHz)	1860.090
Relative permittivity (real part)	40.539
Relative permittivity (imaginary part)	13.663
Conductivity (S/m)	1.394

C. SAR Surface and Volume



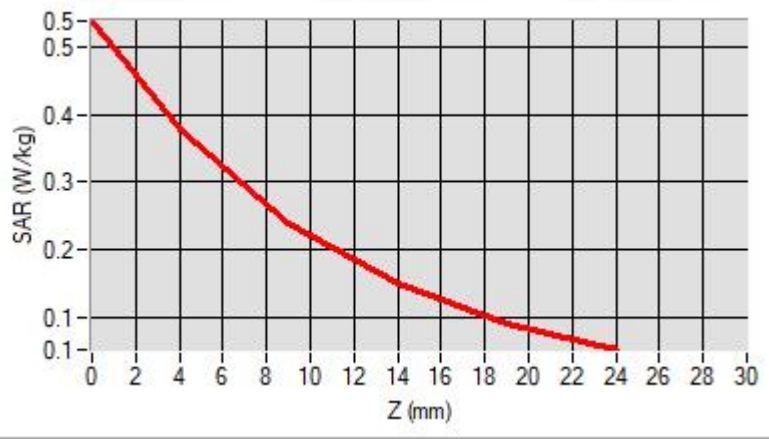
Maximum location: X=-21.00, Y=-8.00 ; SAR Peak: 0.56 W/kg

D. SAR 1g & 10g

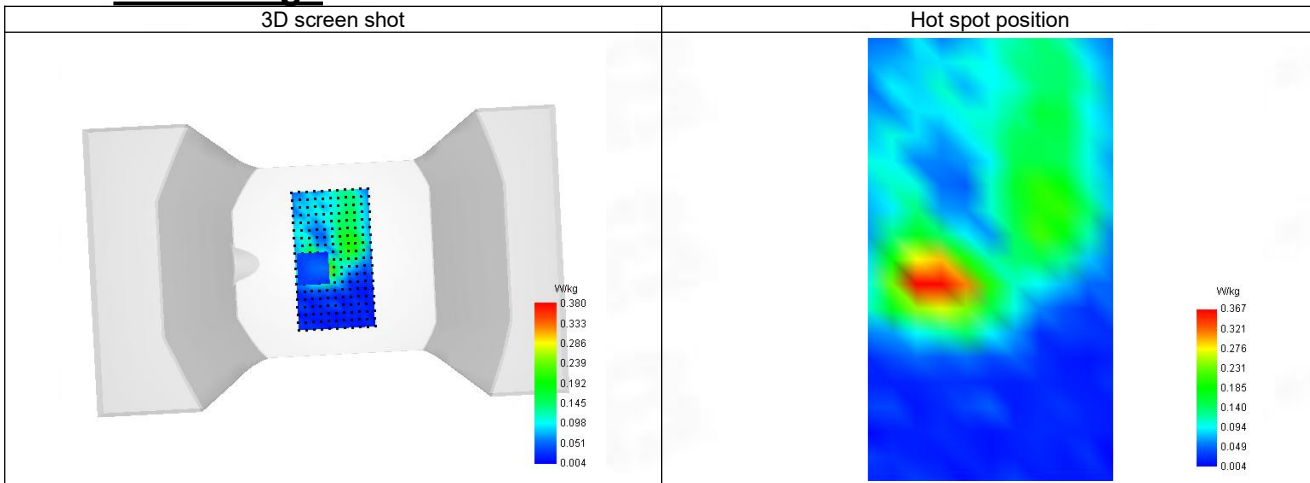
SAR 10g (W/Kg)	0.199
SAR 1g (W/Kg)	0.369
Variation (%)	-3.220
Horizontal validation criteria: minimum distance (mm)	0.000000
Vertical validation criteria: SAR ratio M2/M1 (%)	0.000000

E. Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.540	0.380	0.240	0.148	0.090



F. 3D Image



13-Head with front position in dist. 0mm on Channel 20300 in LTE band 4

SAR Measurement at LTE band 4 (Cheek, Right)

Date of measurement: 31/10/2023

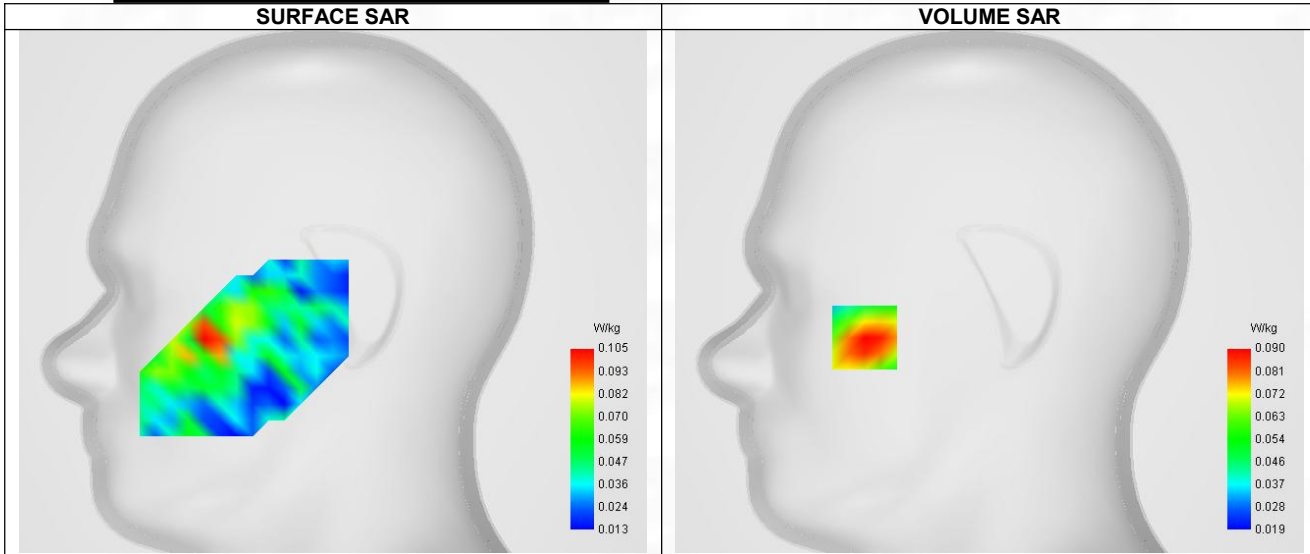
A. Experimental conditions.

Probe	SN 04/22 EPG0365
ConvF	1.96
Area Scan	sam_direct_droit2_surf8mm.txt
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5mm,Complete
Phantom	Right head
Device Position	Cheek
Band	LTE band 4
Channels	Higher (20300)
Signal	LTE FDD
Cell Bandwidth	20 Mhz
Modulation	SC-OFDM - QPSK
RB offset	50
RB size	1

B. Permittivity

Frequency (MHz)	1745.090
Relative permittivity (real part)	41.628
Relative permittivity (imaginary part)	14.397
Conductivity (S/m)	1.342

C. SAR Surface and Volume



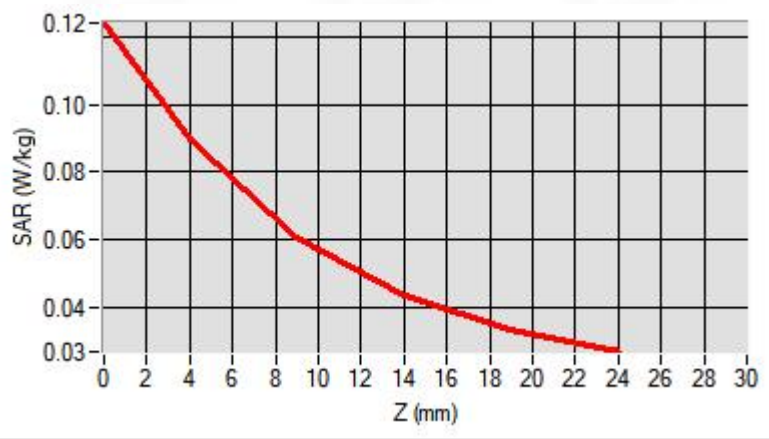
Maximum location: X=-62.00, Y=-23.00 ; SAR Peak: 0.14 W/kg

D. SAR 1g & 10g

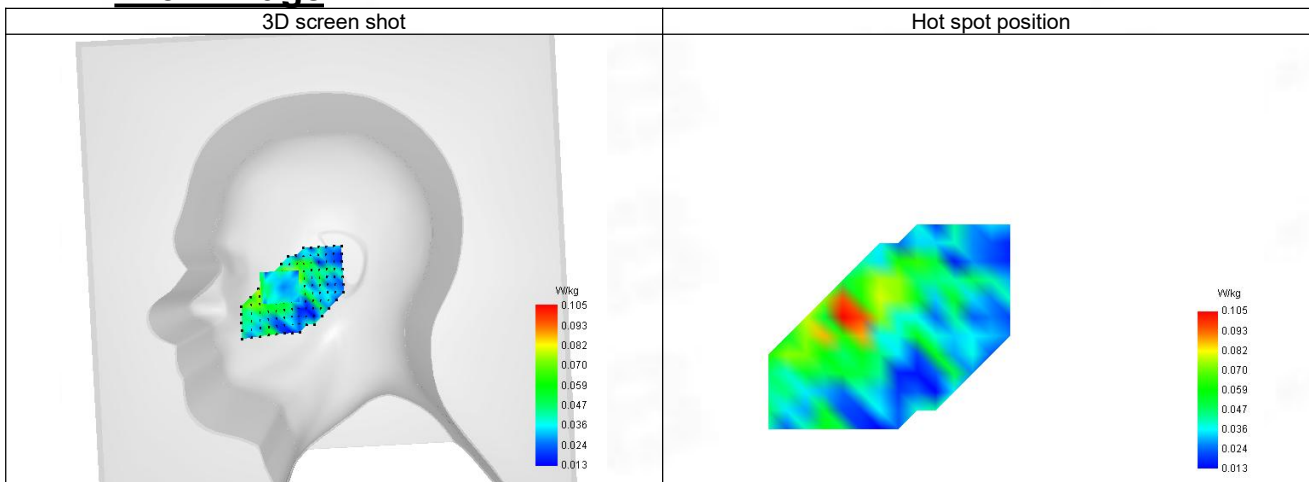
SAR 10g (W/Kg)	0.062
SAR 1g (W/Kg)	0.092
Variation (%)	2.050
Horizontal validation criteria: minimum distance (mm)	0.000000
Vertical validation criteria: SAR ratio M2/M1 (%)	0.000000

E. Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.124	0.090	0.061	0.043	0.033



F. 3D Image



14-Body with back position in dist. 10mm on Channel 20300 in LTE band 4

SAR Measurement at LTE band 4 (Body, Validation Plane)

Date of measurement: 31/10/2023

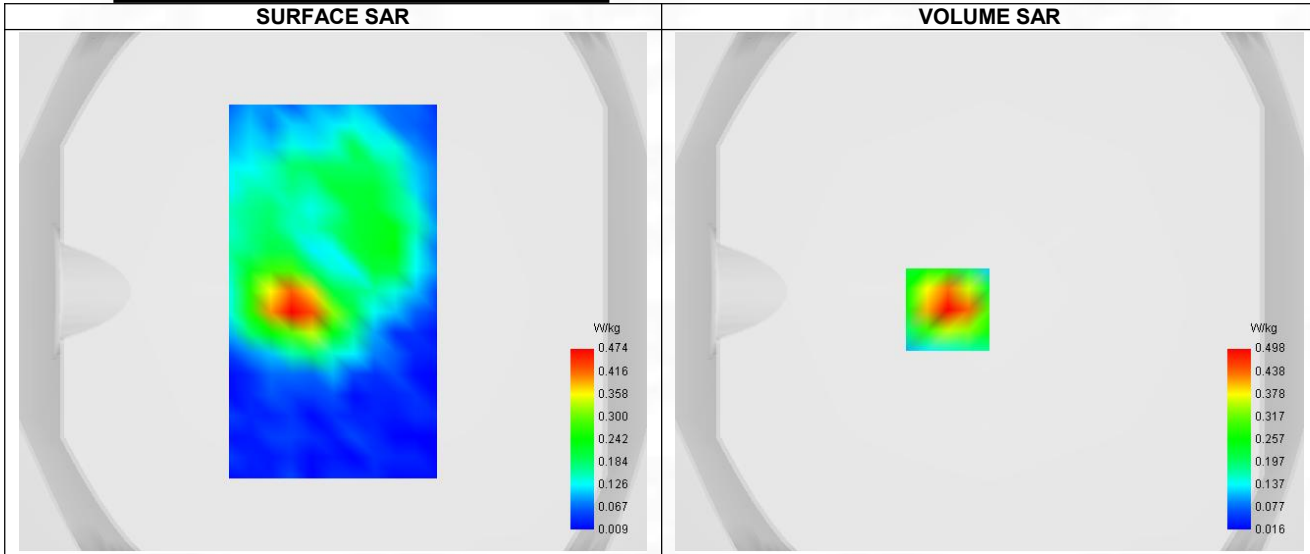
A. Experimental conditions.

Probe	SN 04/22 EPG0365
ConvF	1.96
Area Scan	surf_sam_plan.txt
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5mm,Complete
Phantom	Validation plane
Device Position	Body
Band	LTE band 4
Channels	Higher (20300)
Signal	LTE FDD
Cell Bandwidth	20 Mhz
Modulation	SC-OFDM - QPSK
RB offset	50
RB size	1

B. Permittivity

Frequency (MHz)	1745.090
Relative permittivity (real part)	41.628
Relative permittivity (imaginary part)	14.397
Conductivity (S/m)	1.342

C. SAR Surface and Volume



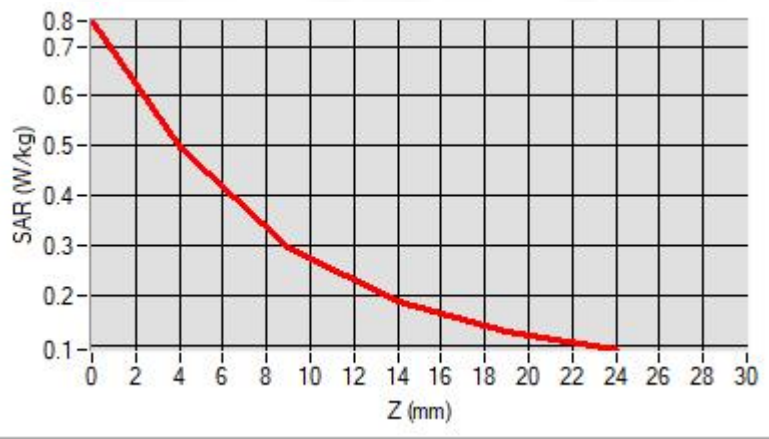
Maximum location: X=-16.00, Y=-7.00 ; SAR Peak: 0.76 W/kg

D. SAR 1g & 10g

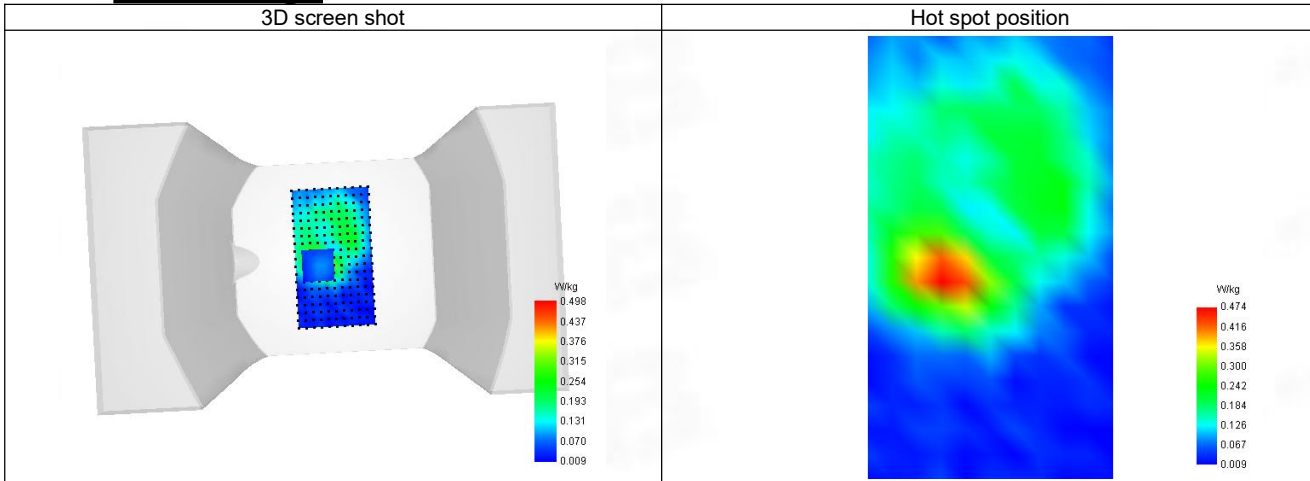
SAR 10g (W/Kg)	0.265
SAR 1g (W/Kg)	0.485
Variation (%)	1.710
Horizontal validation criteria: minimum distance (mm)	0.000000
Vertical validation criteria: SAR ratio M2/M1 (%)	0.000000

E. Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.751	0.498	0.297	0.185	0.126



F. 3D Image



15-Head with front position in dist. 0mm on Channel 20450 in LTE band 5

SAR Measurement at LTE band 5 (Cheek, Right)

Date of measurement: 31/10/2023

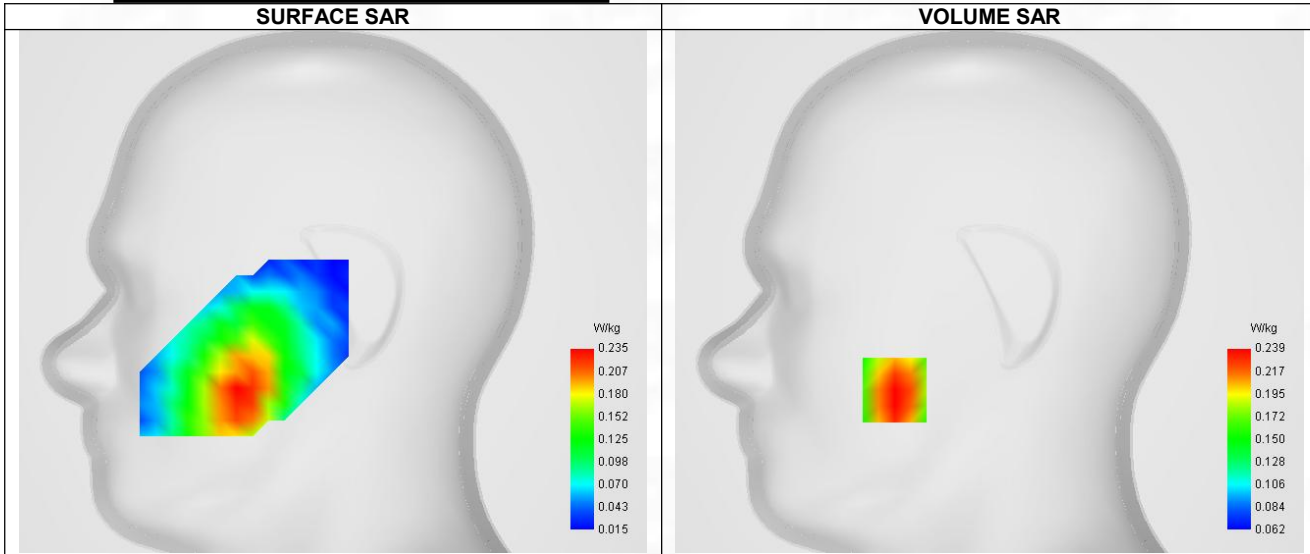
A. Experimental conditions.

Probe	SN 04/22 EPG0365
ConvF	1.68
Area Scan	sam_direct_droit2_surf8mm.txt
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5mm,Complete
Phantom	Right head
Device Position	Cheek
Band	LTE band 5
Channels	Lower (20450)
Signal	LTE FDD
Cell Bandwidth	10 Mhz
Modulation	SC-OFDM - QPSK
RB offset	25
RB size	1

B. Permittivity

Frequency (MHz)	829.090
Relative permittivity (real part)	43.275
Relative permittivity (imaginary part)	19.627
Conductivity (S/m)	0.869

C. SAR Surface and Volume



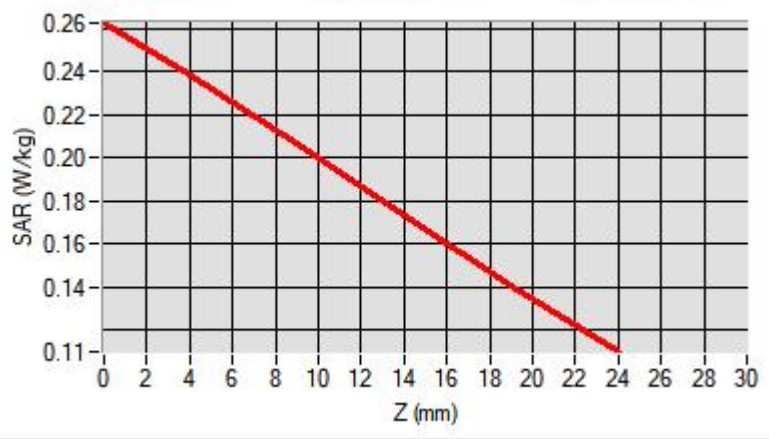
Maximum location: X=-47.00, Y=-49.00 ; SAR Peak: 0.30 W/kg

D. SAR 1g & 10g

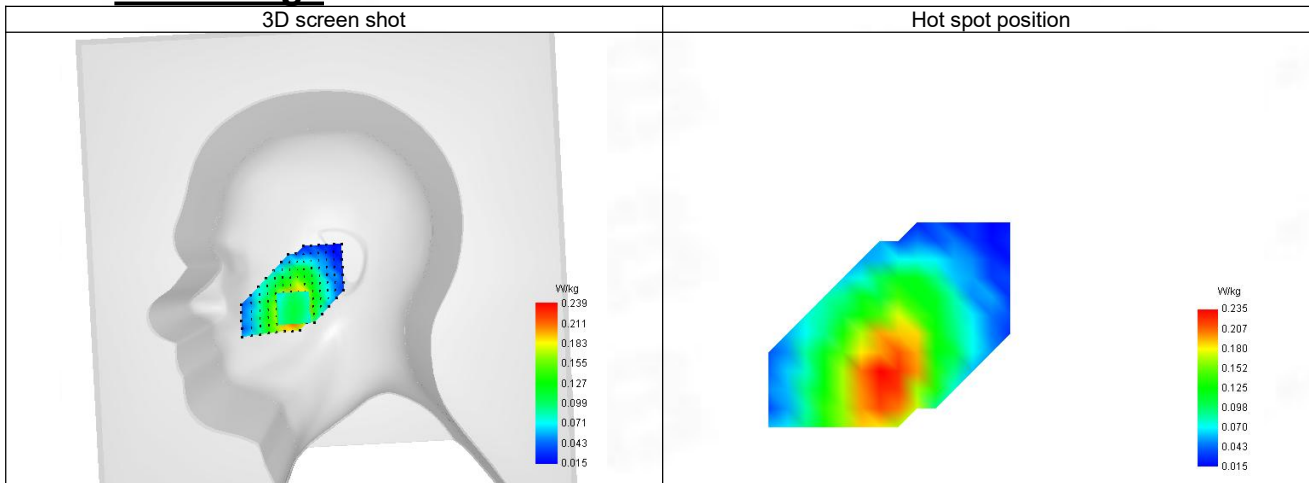
SAR 10g (W/Kg)	0.191
SAR 1g (W/Kg)	0.251
Variation (%)	-4.050
Horizontal validation criteria: minimum distance (mm)	0.000000
Vertical validation criteria: SAR ratio M2/M1 (%)	0.000000

E. Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.263	0.239	0.207	0.174	0.141



F. 3D Image



16-Body with back position in dist. 10mm on Channel 20450 in LTE band 5

SAR Measurement at LTE band 5 (Body, Validation Plane)

Date of measurement: 31/10/2023

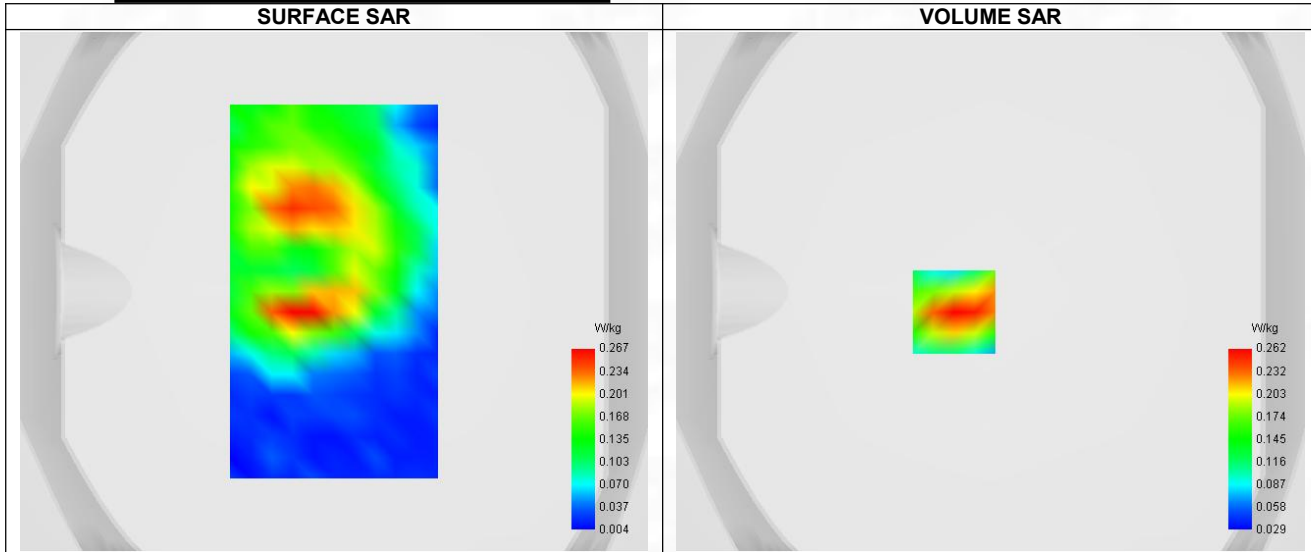
A. Experimental conditions.

Probe	SN 04/22 EPG0365
ConvF	1.68
Area Scan	surf_sam_plan.txt
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5mm,Complete
Phantom	Validation plane
Device Position	Body
Band	LTE band 5
Channels	Lower (20450)
Signal	LTE FDD
Cell Bandwidth	10 Mhz
Modulation	SC-OFDM - QPSK
RB offset	25
RB size	1

B. Permittivity

Frequency (MHz)	829.090
Relative permittivity (real part)	43.275
Relative permittivity (imaginary part)	19.627
Conductivity (S/m)	0.869

C. SAR Surface and Volume



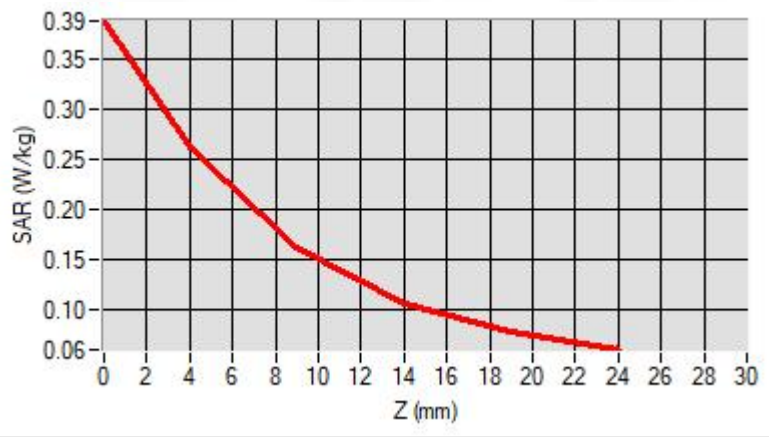
Maximum location: X=-14.00, Y=-8.00 ; SAR Peak: 0.39 W/kg

D. SAR 1g & 10g

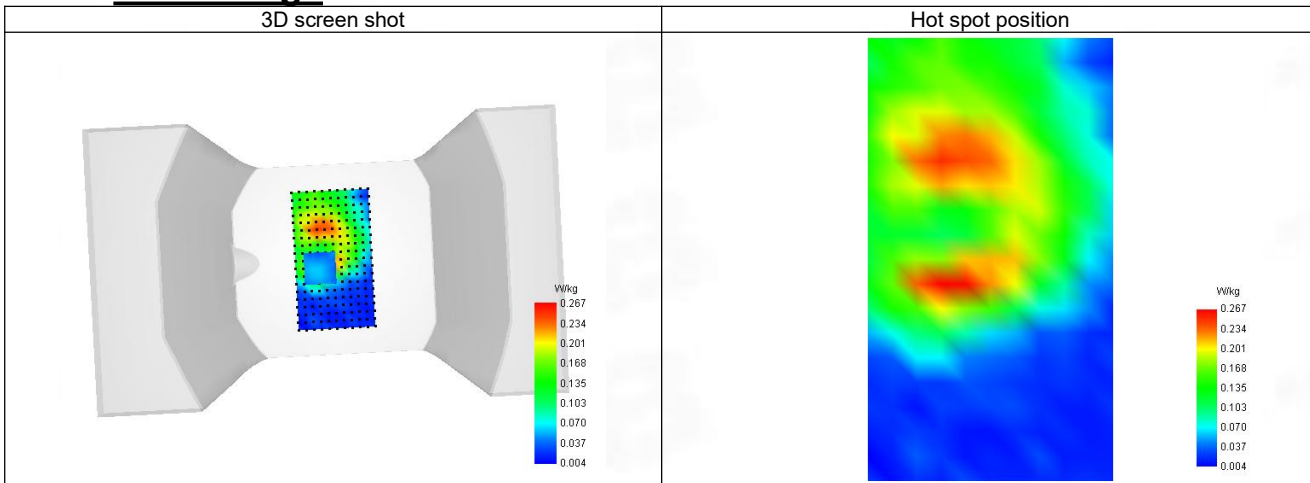
SAR 10g (W/Kg)	0.154
SAR 1g (W/Kg)	0.262
Variation (%)	-1.650
Horizontal validation criteria: minimum distance (mm)	0.000000
Vertical validation criteria: SAR ratio M2/M1 (%)	0.000000

E. Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.388	0.262	0.161	0.106	0.077



F. 3D Image



17-Head with front position in dist. 0mm on Channel 21350 in LTE band 7

SAR Measurement at LTE band 7 (Cheek, Right)

Date of measurement: 1/11/2023

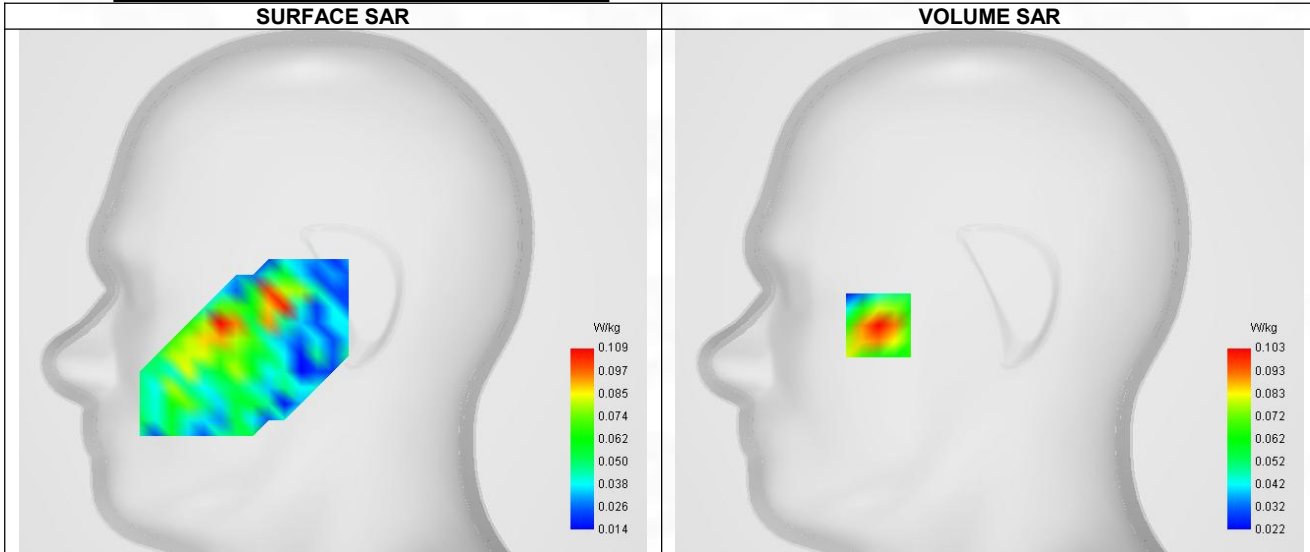
A. Experimental conditions.

Probe	SN 04/22 EPGO365
ConvF	2.40
Area Scan	sam_direct_droit2_surf8mm.txt
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5mm,Complete
Phantom	Right head
Device Position	Cheek
Band	LTE band 7
Channels	Higher (21350)
Signal	LTE FDD
Cell Bandwidth	20 Mhz
Modulation	SC-OFDM - QPSK
RB offset	49
RB size	1

B. Permittivity

Frequency (MHz)	2559.910
Relative permittivity (real part)	39.551
Relative permittivity (imaginary part)	12.864
Conductivity (S/m)	1.927

C. SAR Surface and Volume



Maximum location: X=-55.00, Y=-17.00 ; SAR Peak: 0.16 W/kg

D. SAR 1g & 10g

SAR 10g (W/Kg)	0.061
SAR 1g (W/Kg)	0.099
Variation (%)	-2.270
Horizontal validation criteria: minimum distance (mm)	0.000000
Vertical validation criteria: SAR ratio M2/M1 (%)	0.000000

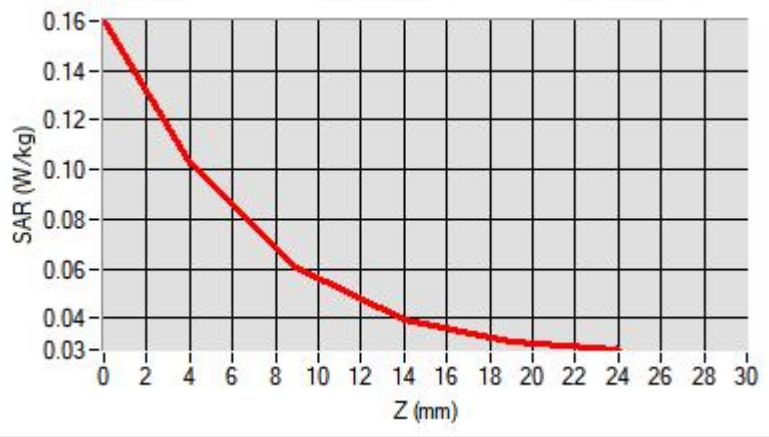
E. Z Axis Scan

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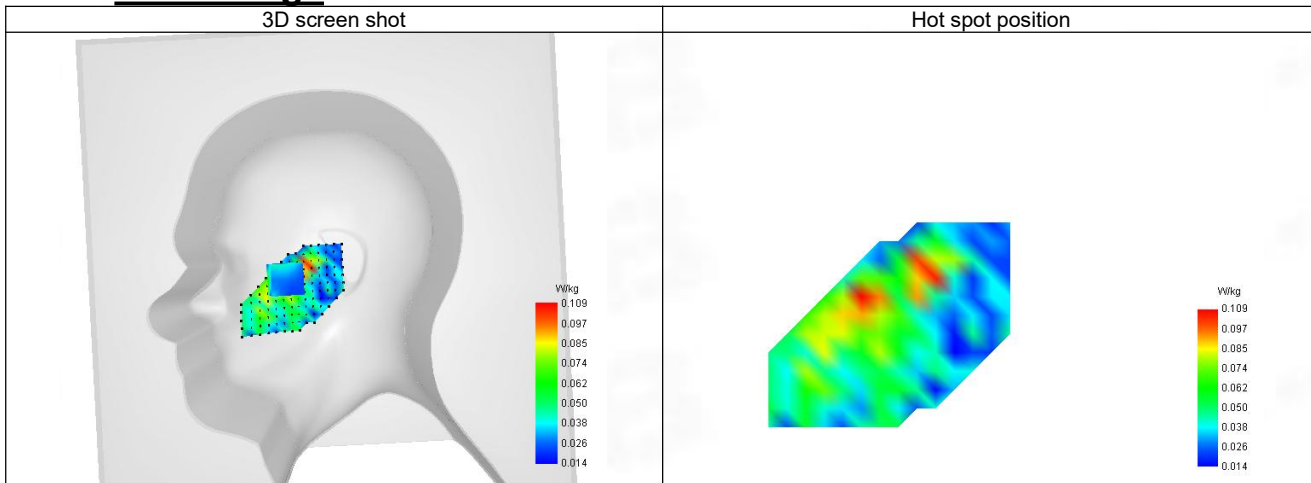
BTF Testing Lab (Shenzhen) Co., Ltd.

F101, 201 and 301, Building 1, Block 2, Tantou Industrial Park, Tantou Community, Songgang Street, Bao'an District, Shenzhen, China

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.160	0.103	0.060	0.039	0.031



F. 3D Image



18-Body with back position in dist. 10mm on Channel 21350 in LTE band 7

SAR Measurement at LTE band 7 (Body, Validation Plane)

Date of measurement: 1/11/2023

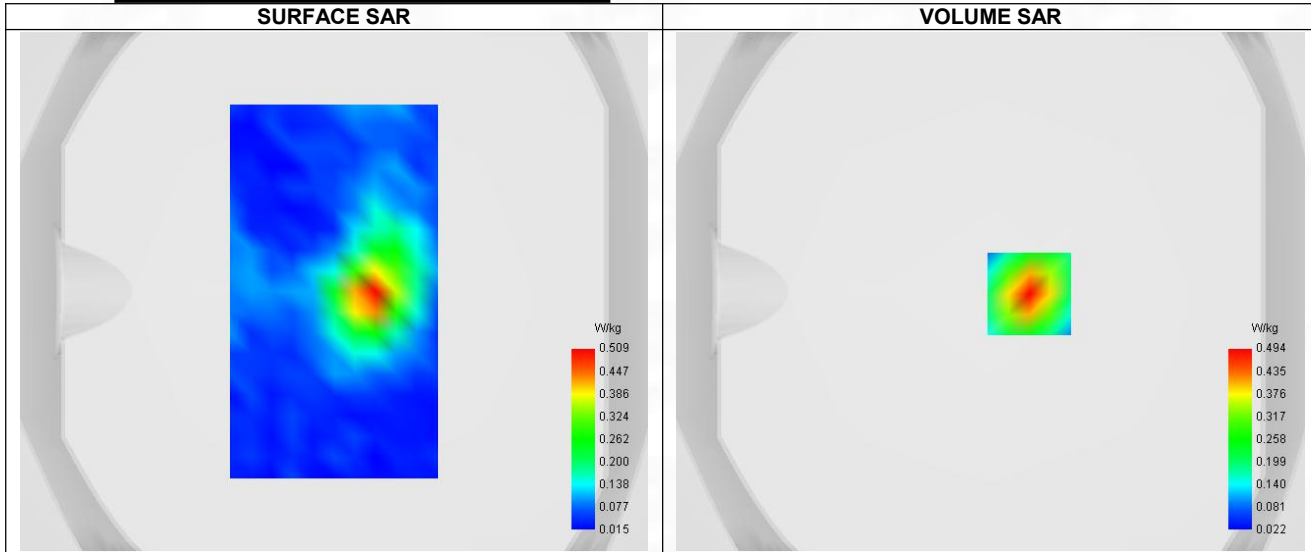
A. Experimental conditions.

Probe	SN 04/22 EPG0365
ConvF	2.40
Area Scan	surf_sam_plan.txt
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5mm,Complete
Phantom	Validation plane
Device Position	Body
Band	LTE band 7
Channels	Higher (21350)
Signal	LTE FDD
Cell Bandwidth	20 Mhz
Modulation	SC-OFDM - QPSK
RB offset	49
RB size	1

B. Permittivity

Frequency (MHz)	2559.910
Relative permittivity (real part)	39.551
Relative permittivity (imaginary part)	12.864
Conductivity (S/m)	1.927

C. SAR Surface and Volume



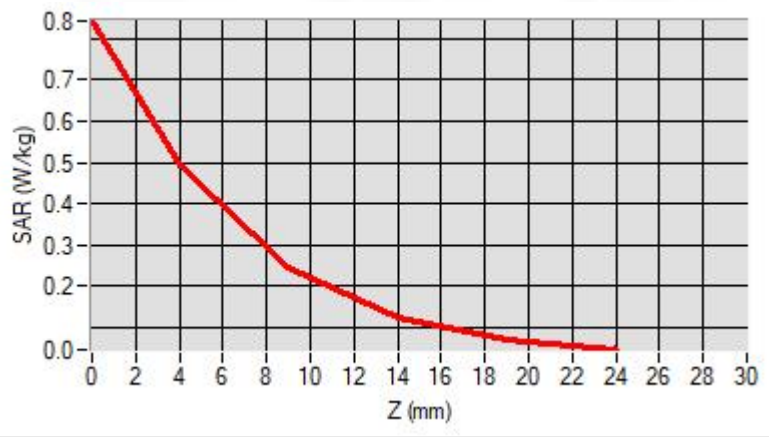
Maximum location: X=15.00, Y=-1.00 ; SAR Peak: 0.84 W/kg

D. SAR 1g & 10g

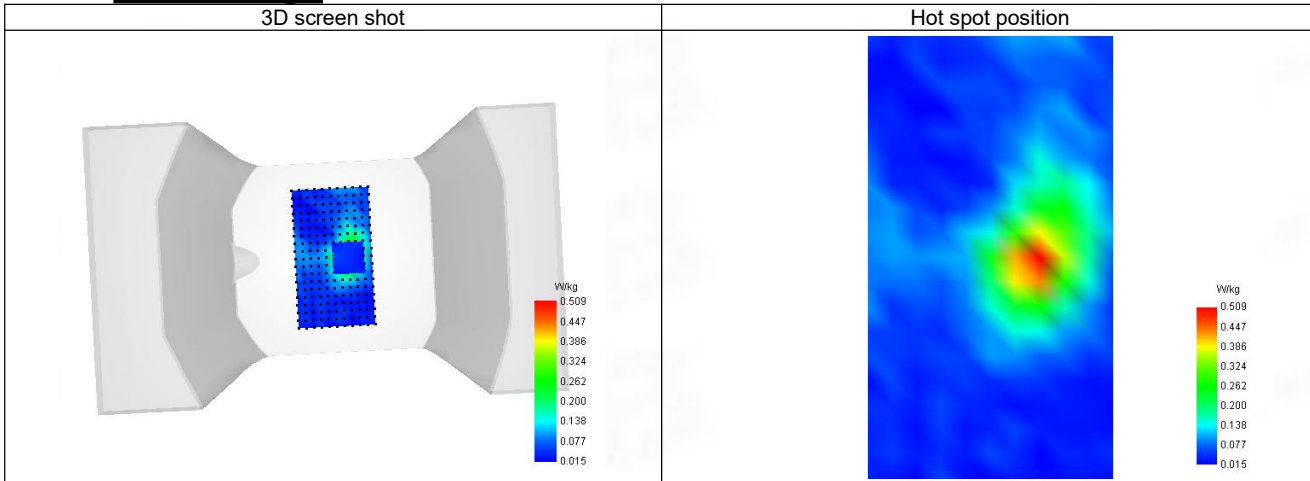
SAR 10g (W/Kg)	0.230
SAR 1g (W/Kg)	0.467
Variation (%)	-1.800
Horizontal validation criteria: minimum distance (mm)	0.000000
Vertical validation criteria: SAR ratio M2/M1 (%)	0.000000

E. Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.843	0.494	0.244	0.124	0.072



F. 3D Image



19-Head with front position in dist. 0mm on Channel 23130 in LTE band 12

SAR Measurement at LTE band 12 (Cheek, Right)

Date of measurement: 31/10/2023

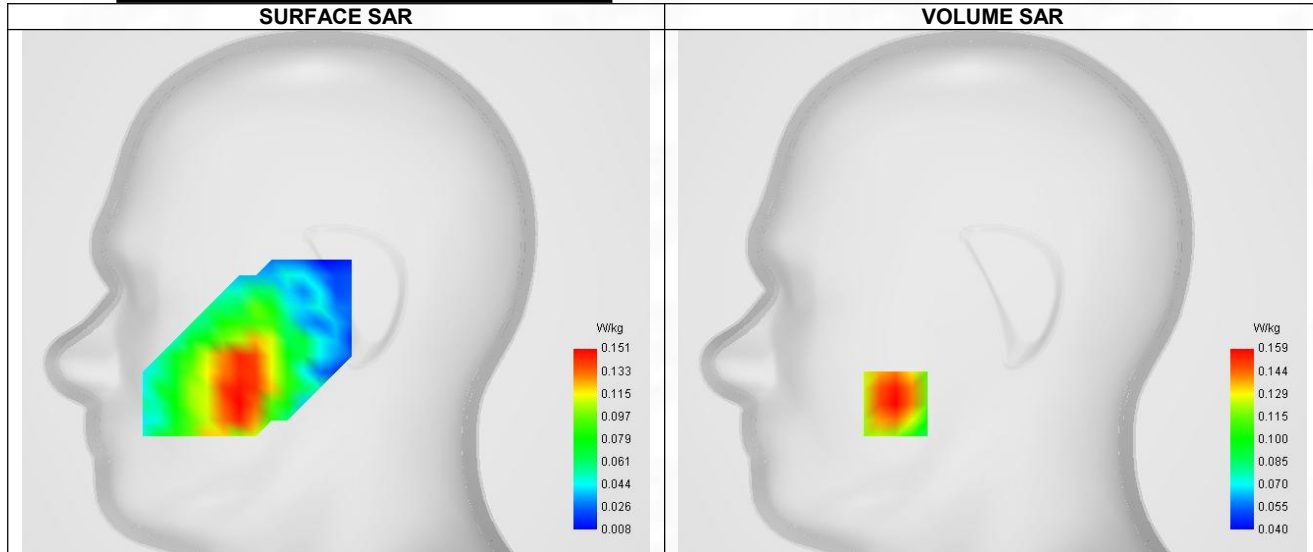
A. Experimental conditions.

Probe	SN 04/22 EPG0365
ConvF	1.65
Area Scan	sam_direct_droit2_surf8mm.txt
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5mm,Complete
Phantom	Right head
Device Position	Cheek
Band	LTE band 12
Channels	Higher (23130)
Signal	LTE FDD
Cell Bandwidth	10 Mhz
Modulation	SC-OFDM - QPSK
RB offset	25
RB size	1

B. Permittivity

Frequency (MHz)	711.090
Relative permittivity (real part)	43.775
Relative permittivity (imaginary part)	22.362
Conductivity (S/m)	0.855

C. SAR Surface and Volume



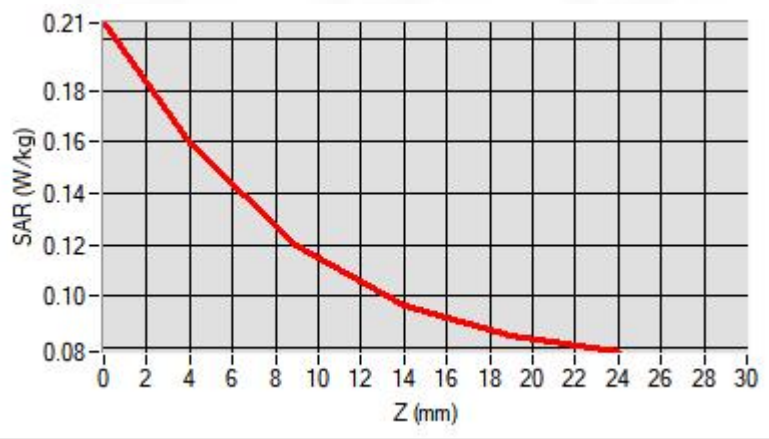
Maximum location: X=-48.00, Y=-56.00 ; SAR Peak: 0.21 W/kg

D. SAR 1g & 10g

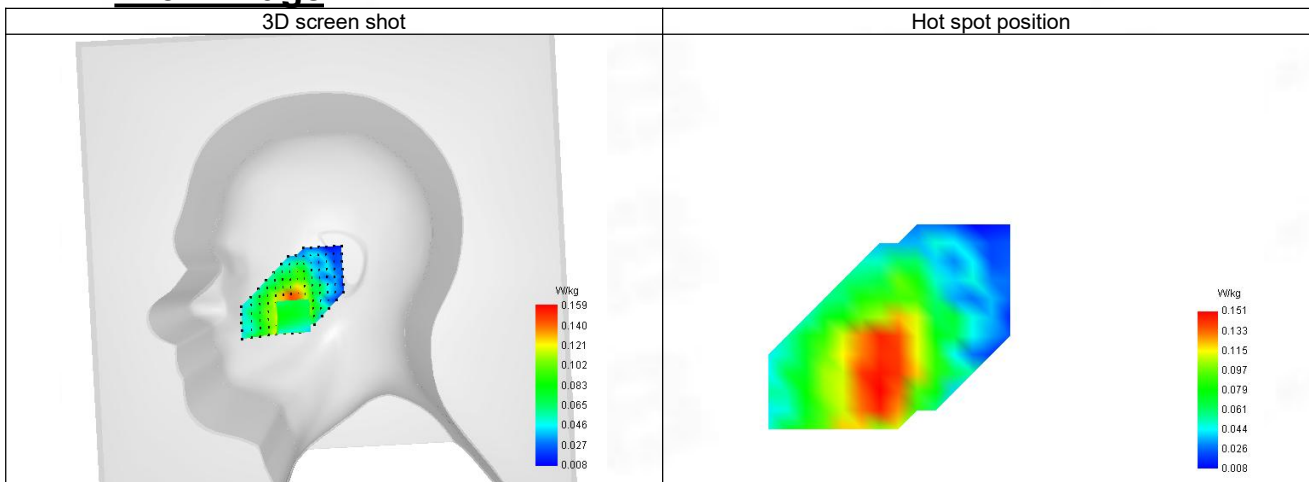
SAR 10g (W/Kg)	0.125
SAR 1g (W/Kg)	0.165
Variation (%)	-2.890
Horizontal validation criteria: minimum distance (mm)	0.000000
Vertical validation criteria: SAR ratio M2/M1 (%)	0.000000

E. Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.207	0.159	0.119	0.096	0.085



F. 3D Image



20-Body with back position in dist. 10mm on Channel 23130 in LTE band 12

SAR Measurement at LTE band 12 (Body, Validation Plane)

Date of measurement: 31/10/2023

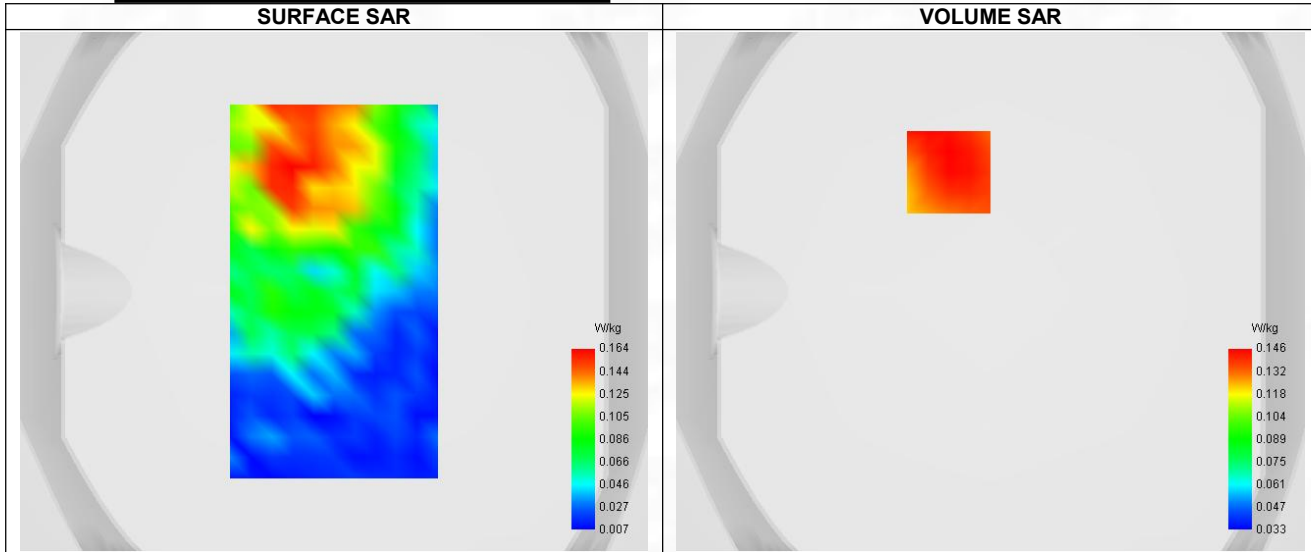
A. Experimental conditions.

Probe	SN 04/22 EPG0365
ConvF	1.65
Area Scan	surf_sam_plan.txt
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5mm,Complete
Phantom	Validation plane
Device Position	Body
Band	LTE band 12
Channels	Higher (23130)
Signal	LTE FDD
Cell Bandwidth	10 Mhz
Modulation	SC-OFDM - QPSK
RB offset	25
RB size	1

B. Permittivity

Frequency (MHz)	711.090
Relative permittivity (real part)	43.775
Relative permittivity (imaginary part)	22.362
Conductivity (S/m)	0.855

C. SAR Surface and Volume



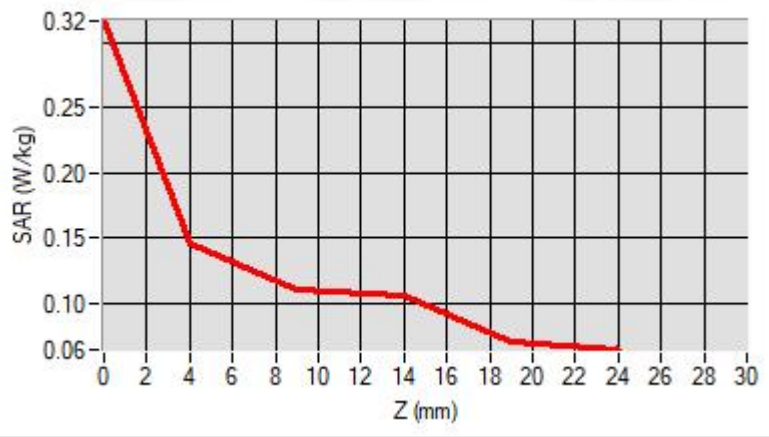
Maximum location: X=-16.00, Y=46.00 ; SAR Peak: 0.21 W/kg

D. SAR 1g & 10g

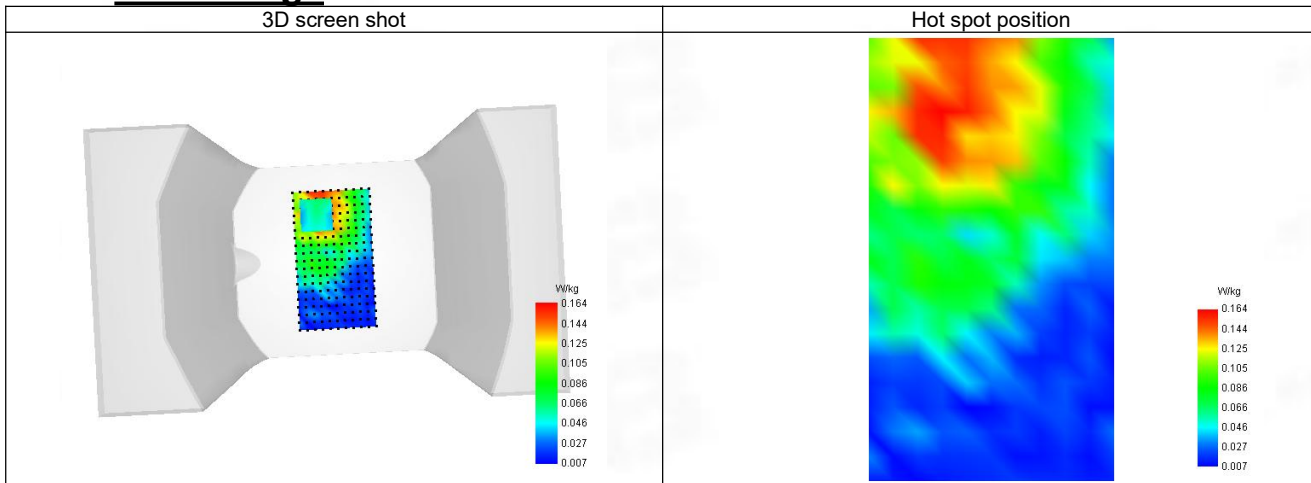
SAR 10g (W/Kg)	0.119
SAR 1g (W/Kg)	0.164
Variation (%)	-1.820
Horizontal validation criteria: minimum distance (mm)	0.000000
Vertical validation criteria: SAR ratio M2/M1 (%)	0.000000

E. Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.317	0.146	0.110	0.106	0.071



F. 3D Image



21-Head with front position in dist. 0mm on Channel 23230 in LTE band 13

SAR Measurement at LTE band 13 (Cheek, Right)

Date of measurement: 31/10/2023

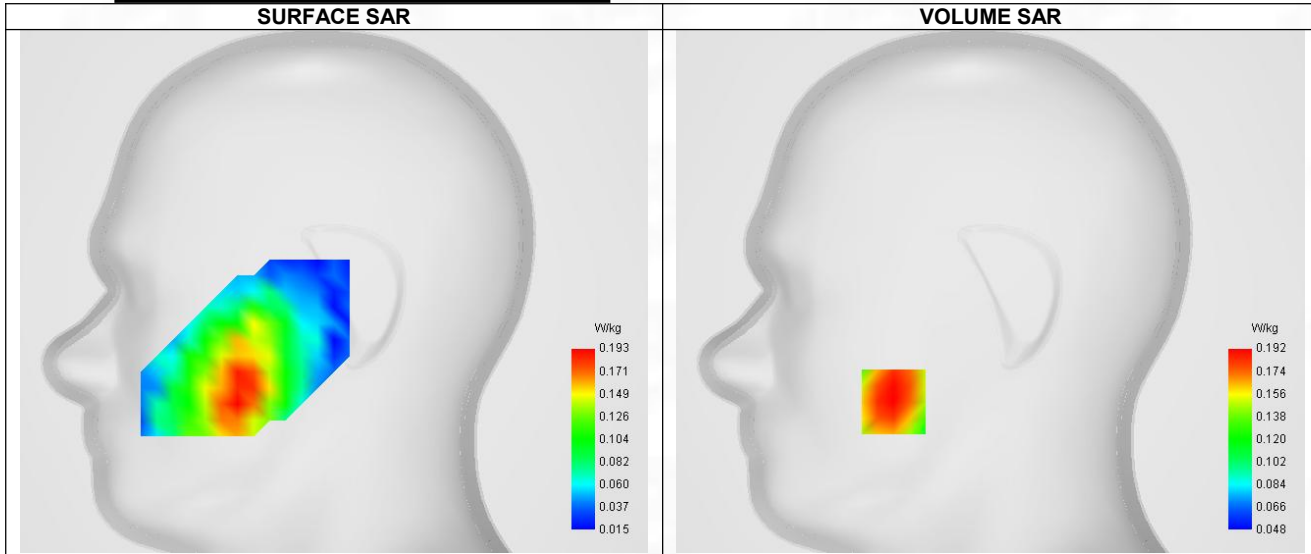
A. Experimental conditions.

Probe	SN 04/22 EPG0365
ConvF	1.65
Area Scan	sam_direct_droit2_surf8mm.txt
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5mm,Complete
Phantom	Right head
Device Position	Cheek
Band	LTE band 13
Channels	Middle (23230)
Signal	LTE FDD
Cell Bandwidth	10 Mhz
Modulation	SC-OFDM - QPSK
RB offset	25
RB size	1

B. Permittivity

Frequency (MHz)	782.090
Relative permittivity (real part)	43.474
Relative permittivity (imaginary part)	20.716
Conductivity (S/m)	0.864

C. SAR Surface and Volume



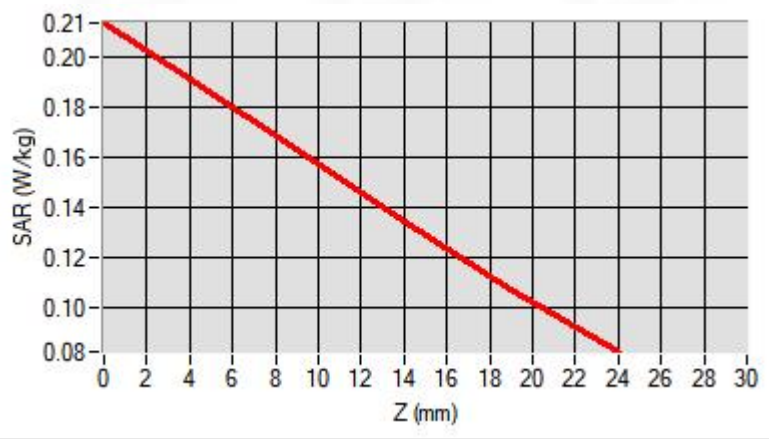
Maximum location: X=-48.00, Y=-55.00 ; SAR Peak: 0.23 W/kg

D. SAR 1g & 10g

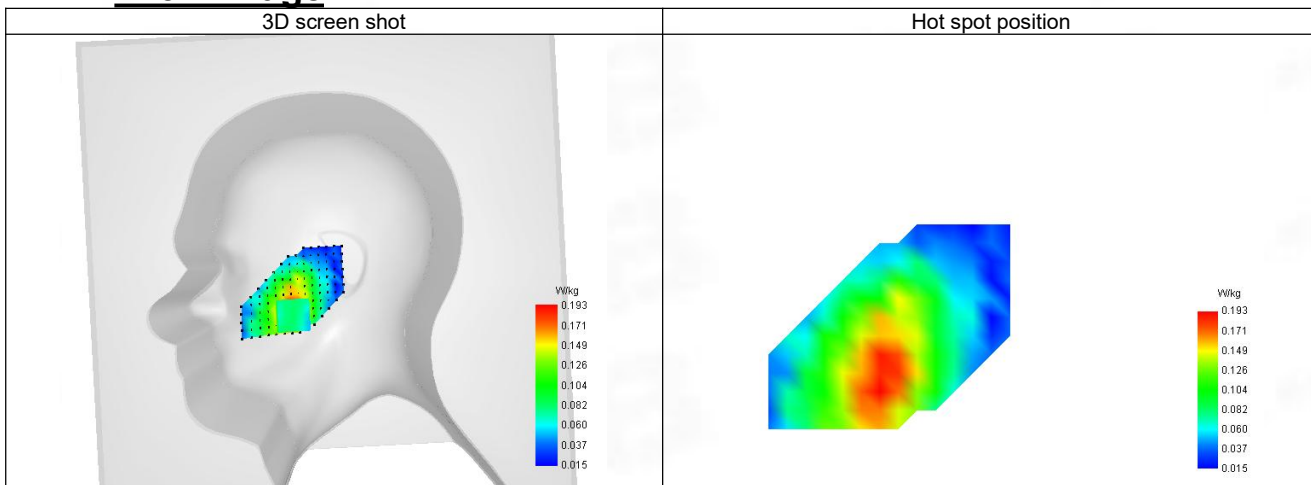
SAR 10g (W/Kg)	0.156
SAR 1g (W/Kg)	0.200
Variation (%)	-3.140
Horizontal validation criteria: minimum distance (mm)	0.000000
Vertical validation criteria: SAR ratio M2/M1 (%)	0.000000

E. Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.214	0.192	0.163	0.135	0.108



F. 3D Image



22-Body with back position in dist. 10mm on Channel 23230 in LTE band 13

SAR Measurement at LTE band 13 (Body, Validation Plane)

Date of measurement: 31/10/2023

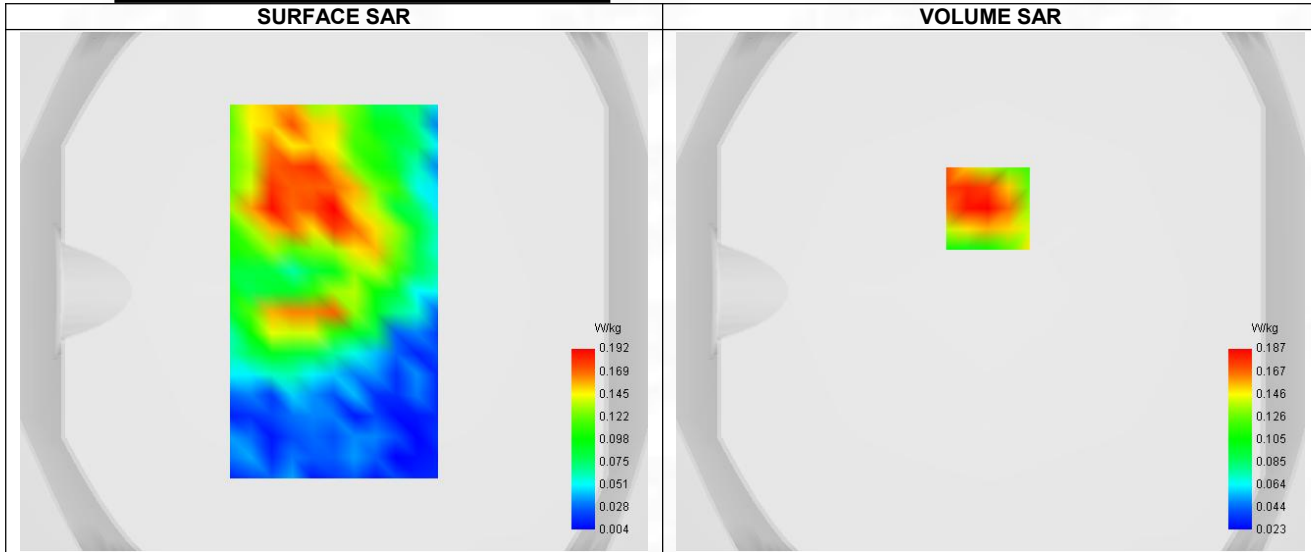
A. Experimental conditions.

Probe	SN 04/22 EPG0365
ConvF	1.65
Area Scan	surf_sam_plan.txt
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5mm,Complete
Phantom	Validation plane
Device Position	Body
Band	LTE band 13
Channels	Middle (23230)
Signal	LTE FDD
Cell Bandwidth	10 Mhz
Modulation	SC-OFDM - QPSK
RB offset	25
RB size	1

B. Permittivity

Frequency (MHz)	782.090
Relative permittivity (real part)	43.474
Relative permittivity (imaginary part)	20.716
Conductivity (S/m)	0.864

C. SAR Surface and Volume



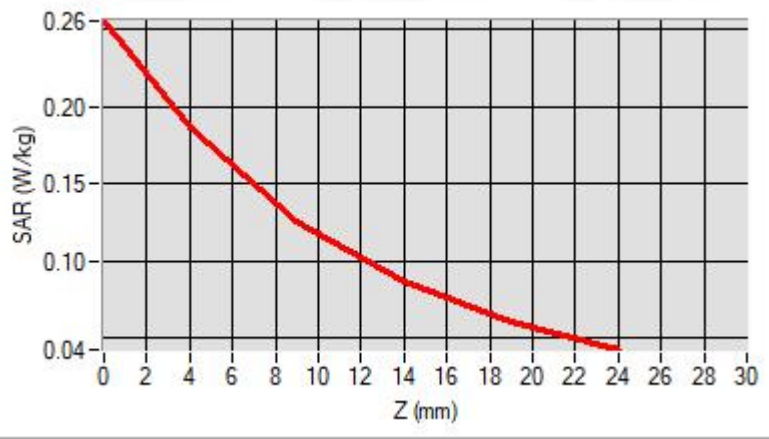
Maximum location: X=-1.00, Y=32.00 ; SAR Peak: 0.26 W/kg

D. SAR 1g & 10g

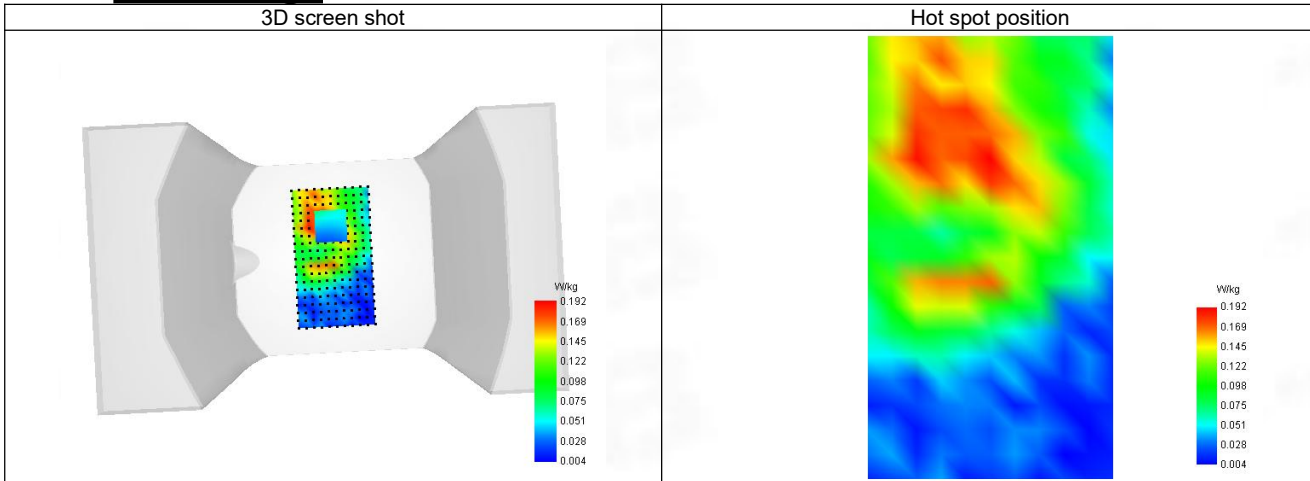
SAR 10g (W/Kg)	0.131
SAR 1g (W/Kg)	0.192
Variation (%)	-1.450
Horizontal validation criteria: minimum distance (mm)	0.000000
Vertical validation criteria: SAR ratio M2/M1 (%)	0.000000

E. Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.256	0.187	0.127	0.087	0.061



F. 3D Image



23-Head with front position in dist. 0mm on Channel 23800 in LTE band 17

SAR Measurement at LTE band 17 (Cheek, Right)

Date of measurement: 31/10/2023

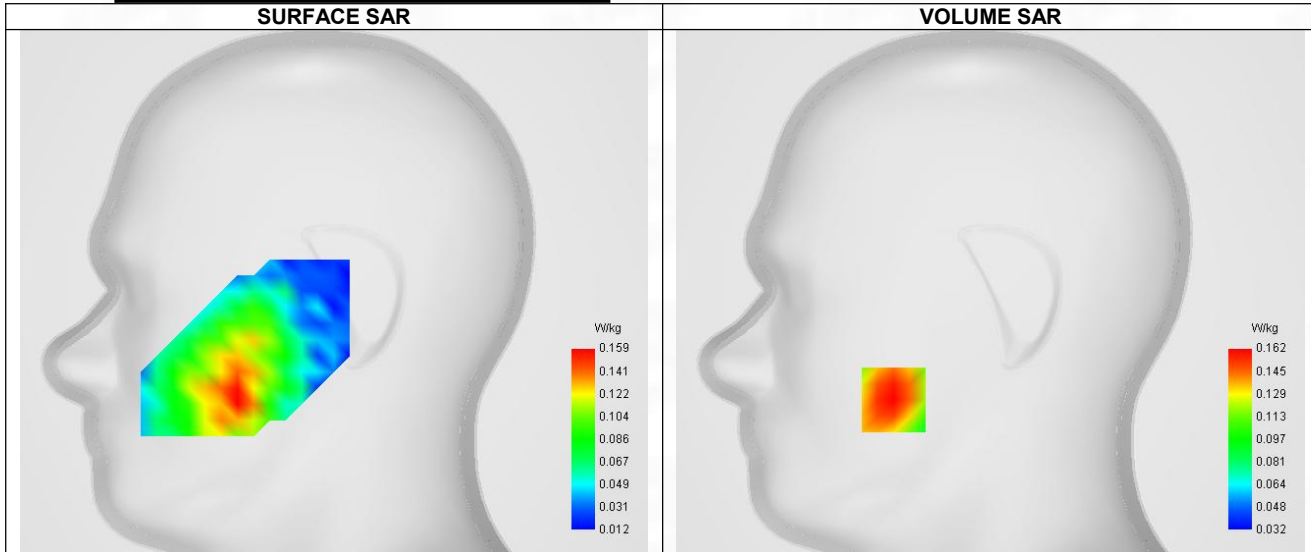
A. Experimental conditions.

Probe	SN 04/22 EPG0365
ConvF	1.65
Area Scan	sam_direct_droit2_surf8mm.txt
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5mm,Complete
Phantom	Right head
Device Position	Cheek
Band	LTE band 17
Channels	Higher (23800)
Signal	LTE FDD
Cell Bandwidth	10 Mhz
Modulation	SC-OFDM - QPSK
RB offset	25
RB size	1

B. Permittivity

Frequency (MHz)	711.090
Relative permittivity (real part)	43.775
Relative permittivity (imaginary part)	22.362
Conductivity (S/m)	0.855

C. SAR Surface and Volume



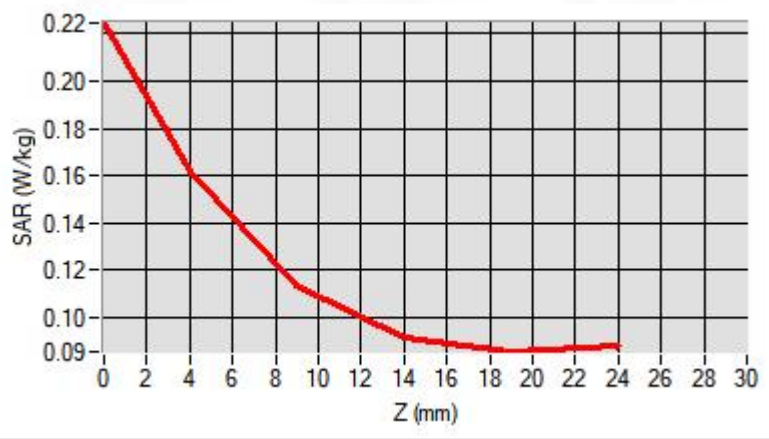
Maximum location: X=-48.00, Y=-54.00 ; SAR Peak: 0.22 W/kg

D. SAR 1g & 10g

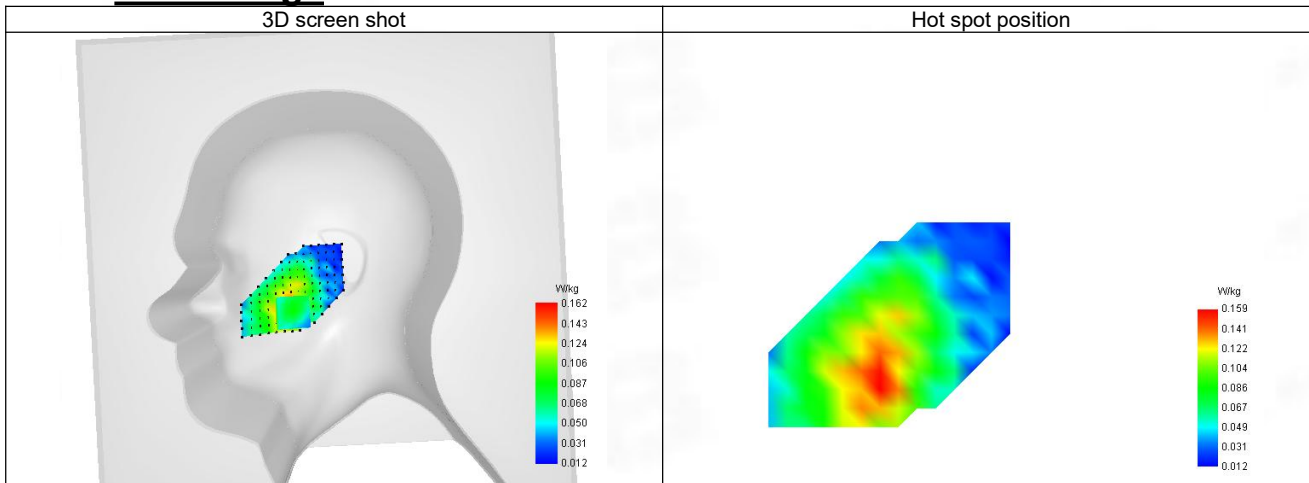
SAR 10g (W/Kg)	0.120
SAR 1g (W/Kg)	0.159
Variation (%)	2.500
Horizontal validation criteria: minimum distance (mm)	0.000000
Vertical validation criteria: SAR ratio M2/M1 (%)	0.000000

E. Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.225	0.162	0.113	0.091	0.085



F. 3D Image



24-Body with back position in dist. 10mm on Channel 23800 in LTE band 17

SAR Measurement at LTE band 17 (Body, Validation Plane)

Date of measurement: 31/10/2023

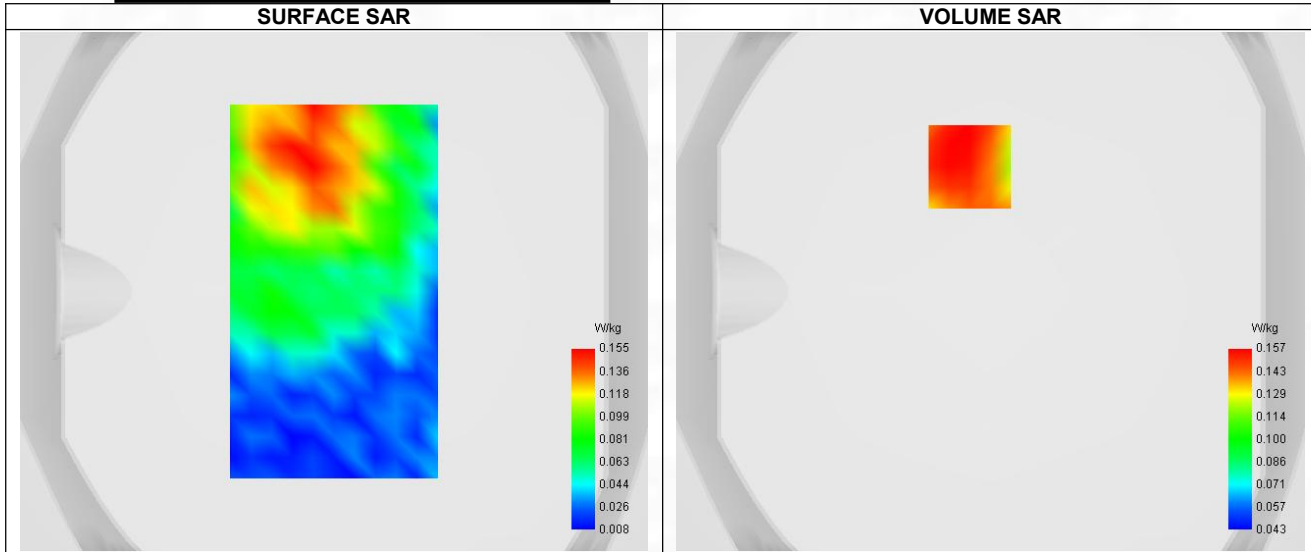
A. Experimental conditions.

Probe	SN 04/22 EPG0365
ConvF	1.65
Area Scan	surf_sam_plan.txt
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5mm,Complete
Phantom	Validation plane
Device Position	Body
Band	LTE band 17
Channels	Higher (23800)
Signal	LTE FDD
Cell Bandwidth	10 Mhz
Modulation	SC-OFDM - QPSK
RB offset	25
RB size	1

B. Permittivity

Frequency (MHz)	711.090
Relative permittivity (real part)	43.775
Relative permittivity (imaginary part)	22.362
Conductivity (S/m)	0.855

C. SAR Surface and Volume



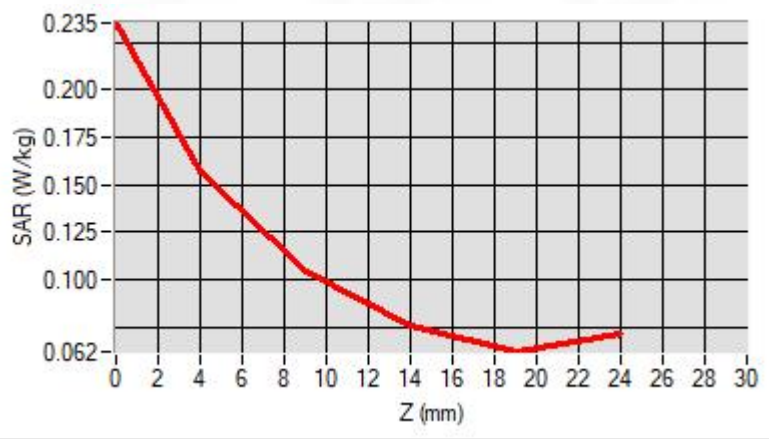
Maximum location: X=-8.00, Y=48.00 ; SAR Peak: 0.23 W/kg

D. SAR 1g & 10g

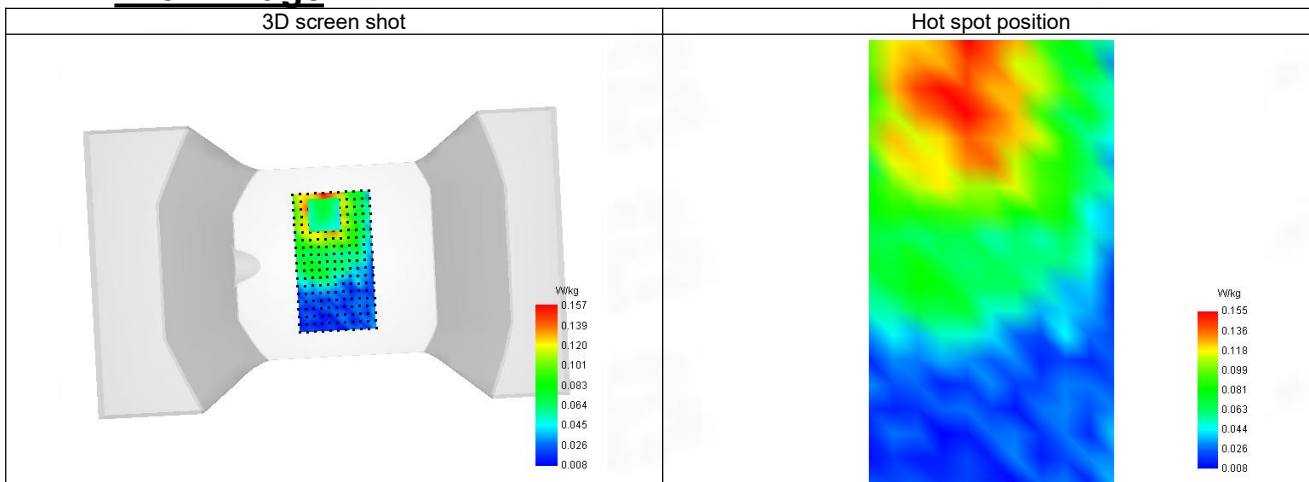
SAR 10g (W/Kg)	0.121
SAR 1g (W/Kg)	0.157
Variation (%)	-2.900
Horizontal validation criteria: minimum distance (mm)	0.000000
Vertical validation criteria: SAR ratio M2/M1 (%)	0.000000

E. Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.235	0.157	0.105	0.076	0.062



F. 3D Image



25-Head with front position in dist. 0mm on Channel 26765 in LTE band 26

SAR Measurement at LTE band 26 (Cheek, Right)

Date of measurement: 31/10/2023

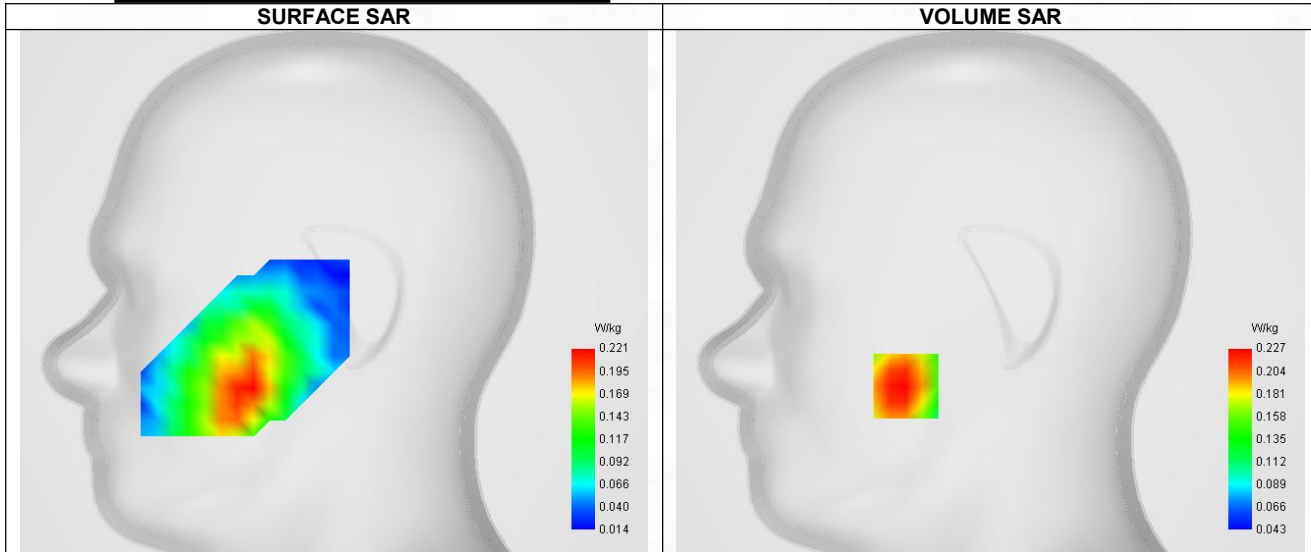
A. Experimental conditions.

Probe	SN 04/22 EPG0365
ConvF	1.68
Area Scan	sam_direct_droit2_surf8mm.txt
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5mm,Complete
Phantom	Right head
Device Position	Cheek
Band	LTE band 26
Channels	Lower (26765)
Signal	LTE FDD
Cell Bandwidth	15 Mhz
Modulation	SC-OFDM - QPSK
RB offset	38
RB size	1

B. Permittivity

Frequency (MHz)	821.680
Relative permittivity (real part)	43.306
Relative permittivity (imaginary part)	19.799
Conductivity (S/m)	0.868

C. SAR Surface and Volume



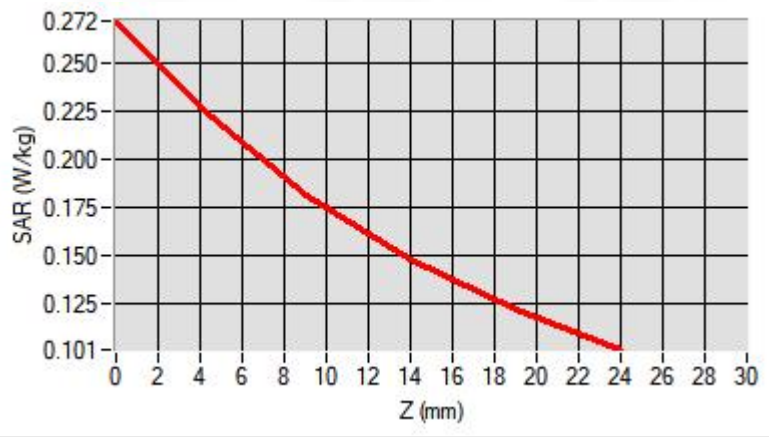
Maximum location: X=-42.00, Y=-47.00 ; SAR Peak: 0.28 W/kg

D. SAR 1g & 10g

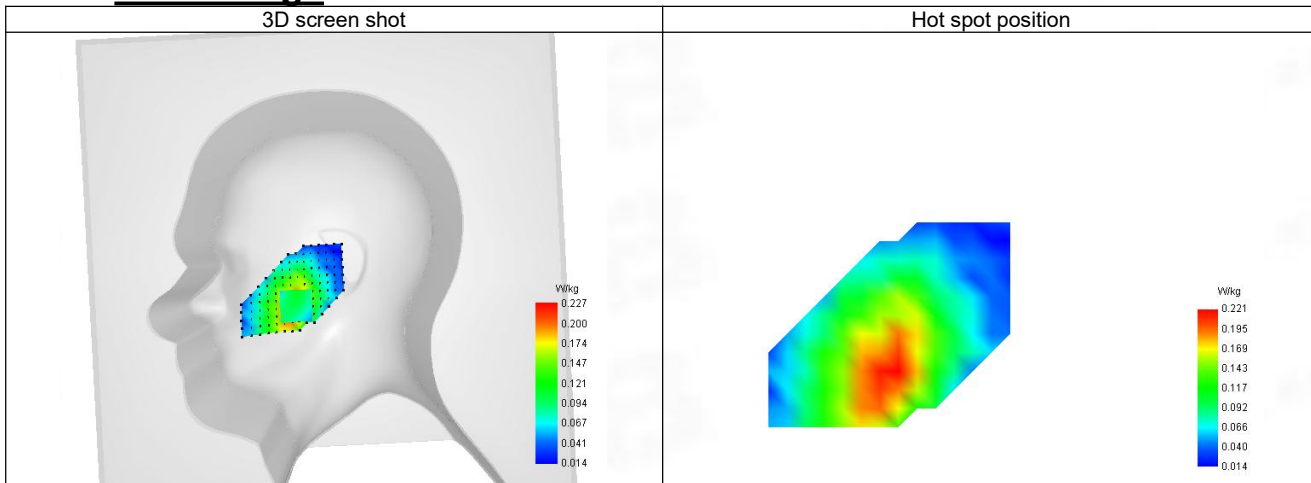
SAR 10g (W/Kg)	0.179
SAR 1g (W/Kg)	0.235
Variation (%)	-2.260
Horizontal validation criteria: minimum distance (mm)	0.000000
Vertical validation criteria: SAR ratio M2/M1 (%)	0.000000

E. Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.272	0.227	0.182	0.148	0.122



F. 3D Image



26-Body with back position in dist. 10mm on Channel 26765 in LTE band 26

SAR Measurement at LTE band 26 (Body, Validation Plane)

Date of measurement: 31/10/2023

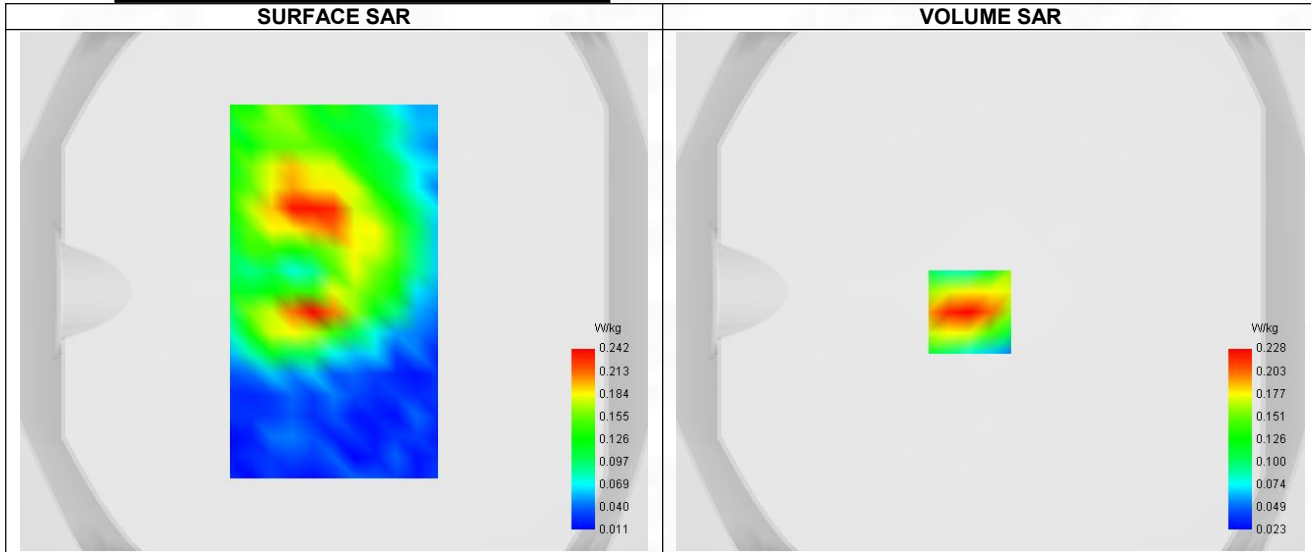
A. Experimental conditions.

Probe	SN 04/22 EPG0365
ConvF	1.68
Area Scan	surf_sam_plan.txt
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5mm,Complete
Phantom	Validation plane
Device Position	Body
Band	LTE band 26
Channels	Lower (26765)
Signal	LTE FDD
Cell Bandwidth	15 Mhz
Modulation	SC-OFDM - QPSK
RB offset	38
RB size	1

B. Permittivity

Frequency (MHz)	821.680
Relative permittivity (real part)	43.306
Relative permittivity (imaginary part)	19.799
Conductivity (S/m)	0.868

C. SAR Surface and Volume



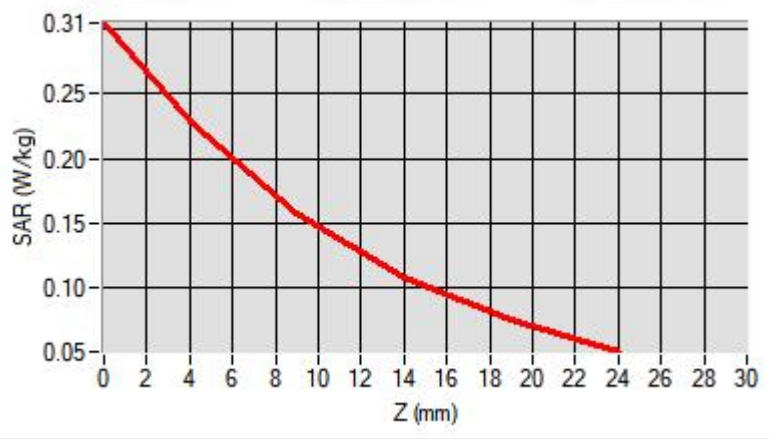
Maximum location: X=-8.00, Y=-8.00 ; SAR Peak: 0.31 W/kg

D. SAR 1g & 10g

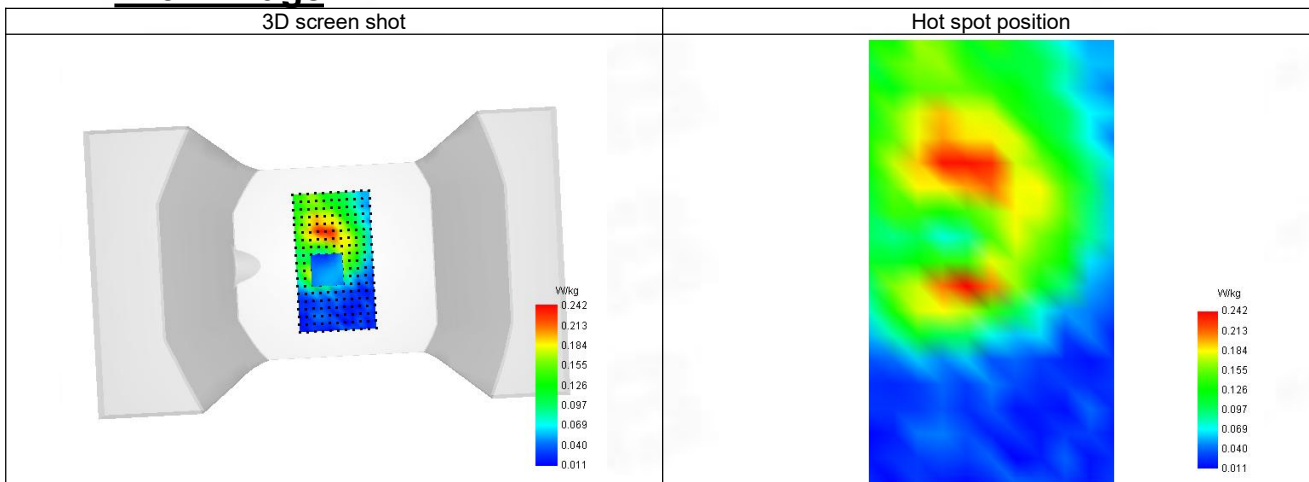
SAR 10g (W/Kg)	0.141
SAR 1g (W/Kg)	0.229
Variation (%)	2.620
Horizontal validation criteria: minimum distance (mm)	0.000000
Vertical validation criteria: SAR ratio M2/M1 (%)	0.000000

E. Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.305	0.228	0.157	0.108	0.075



F. 3D Image



27-Head with front position in dist. 0mm on Channel 132572 in LTE band 66

SAR Measurement at LTE band 66 (Cheek, Right)

Date of measurement: 31/10/2023

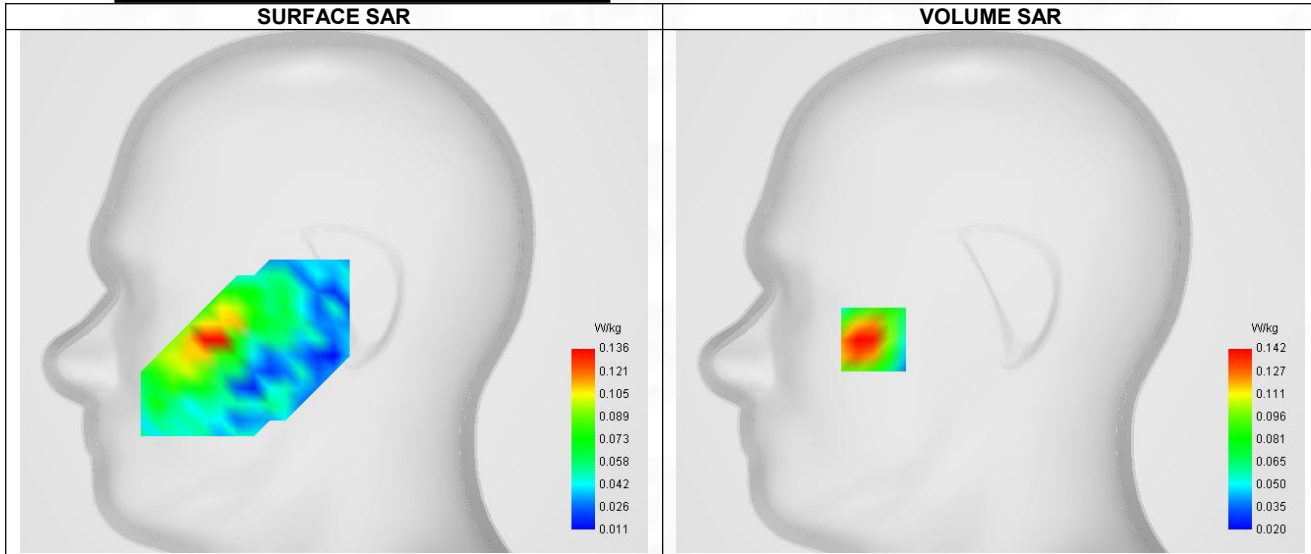
A. Experimental conditions.

Probe	SN 04/22 EPG0365
ConvF	1.96
Area Scan	sam_direct_droit2_surf8mm.txt
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5mm,Complete
Phantom	Right head
Device Position	Cheek
Band	LTE band 66
Channels	Higher (132572)
Signal	LTE FDD
Cell Bandwidth	20 Mhz
Modulation	SC-OFDM - QPSK
RB offset	50
RB size	1

B. Permittivity

Frequency (MHz)	1770.090
Relative permittivity (real part)	41.583
Relative permittivity (imaginary part)	14.257
Conductivity (S/m)	1.355

C. SAR Surface and Volume



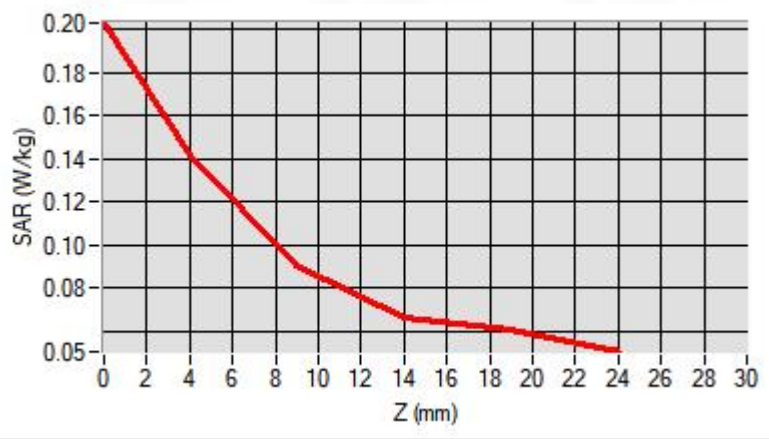
Maximum location: X=-58.00, Y=-24.00 ; SAR Peak: 0.22 W/kg

D. SAR 1g & 10g

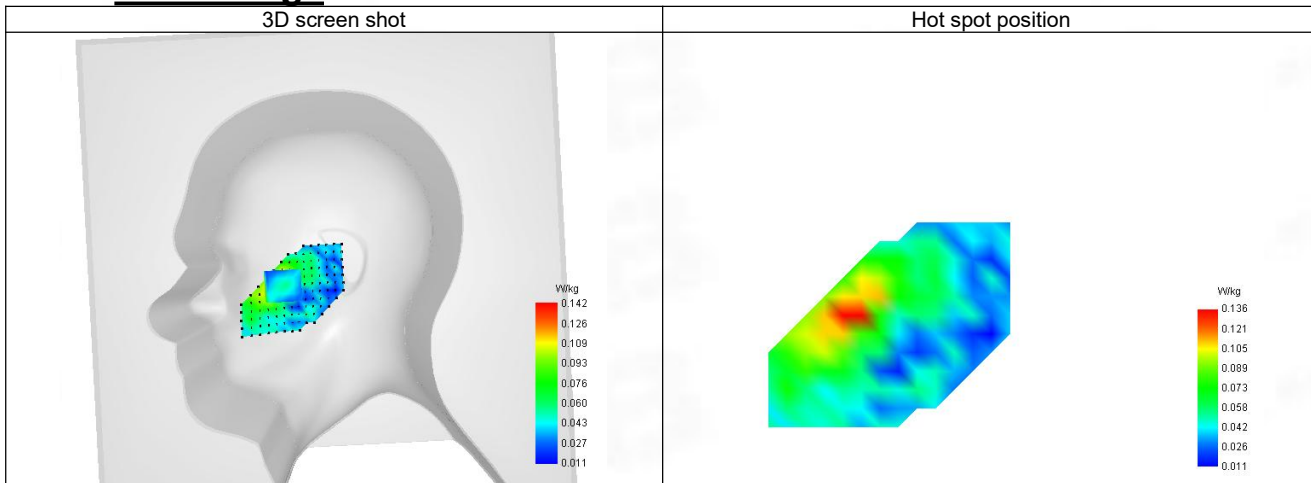
SAR 10g (W/Kg)	0.096
SAR 1g (W/Kg)	0.147
Variation (%)	-1.730
Horizontal validation criteria: minimum distance (mm)	0.000000
Vertical validation criteria: SAR ratio M2/M1 (%)	0.000000

E. Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.203	0.142	0.090	0.066	0.061



F. 3D Image



28-Body with back position in dist. 10mm on Channel 132572 in LTE band 66

SAR Measurement at LTE band 66 (Body, Validation Plane)

Date of measurement: 31/10/2023

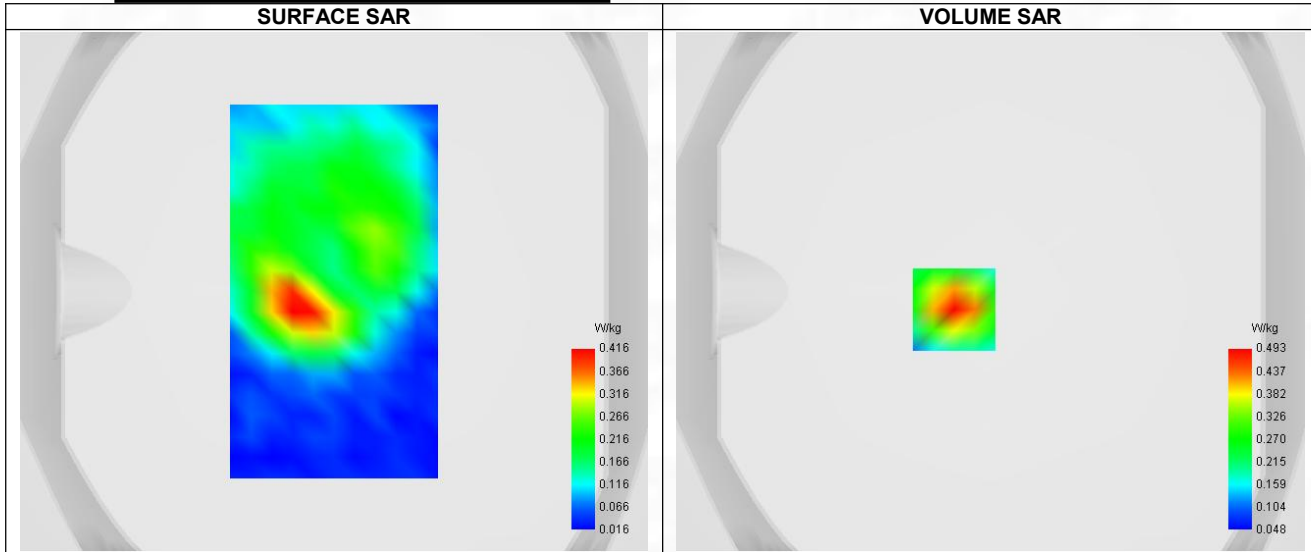
A. Experimental conditions.

Probe	SN 04/22 EPG0365
ConvF	1.96
Area Scan	surf_sam_plan.txt
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5mm,Complete
Phantom	Validation plane
Device Position	Body
Band	LTE band 66
Channels	Higher (132572)
Signal	LTE FDD
Cell Bandwidth	20 Mhz
Modulation	SC-OFDM - QPSK
RB offset	50
RB size	1

B. Permittivity

Frequency (MHz)	1770.090
Relative permittivity (real part)	41.583
Relative permittivity (imaginary part)	14.257
Conductivity (S/m)	1.355

C. SAR Surface and Volume



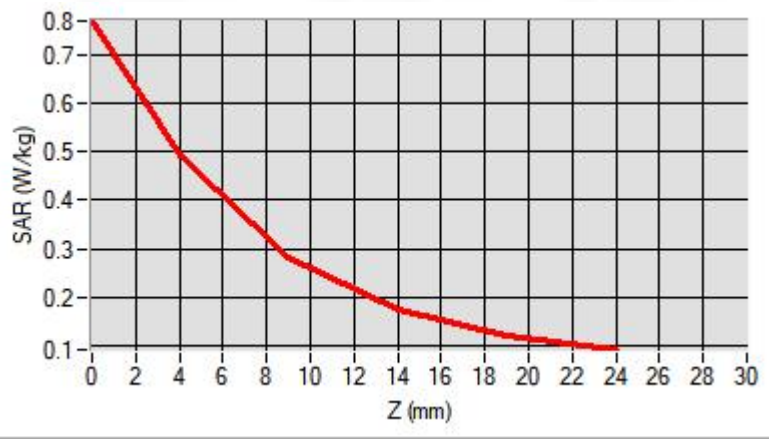
Maximum location: X=-14.00, Y=-7.00 ; SAR Peak: 0.77 W/kg

D. SAR 1g & 10g

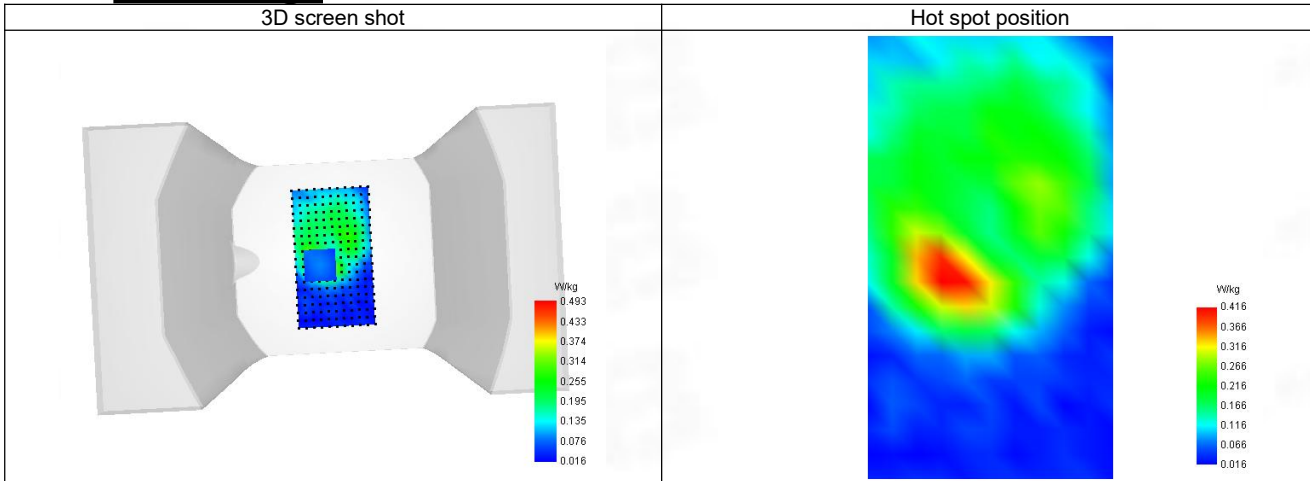
SAR 10g (W/Kg)	0.262
SAR 1g (W/Kg)	0.477
Variation (%)	2.610
Horizontal validation criteria: minimum distance (mm)	0.000000
Vertical validation criteria: SAR ratio M2/M1 (%)	0.000000

E. Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.770	0.493	0.282	0.173	0.120



F. 3D Image



29-Head with front position in dist. 0mm on Channel 1 in IEEE 802.11b ISM

SAR Measurement at IEEE 802.11b ISM (Cheek, Right)

Date of measurement: 1/11/2023

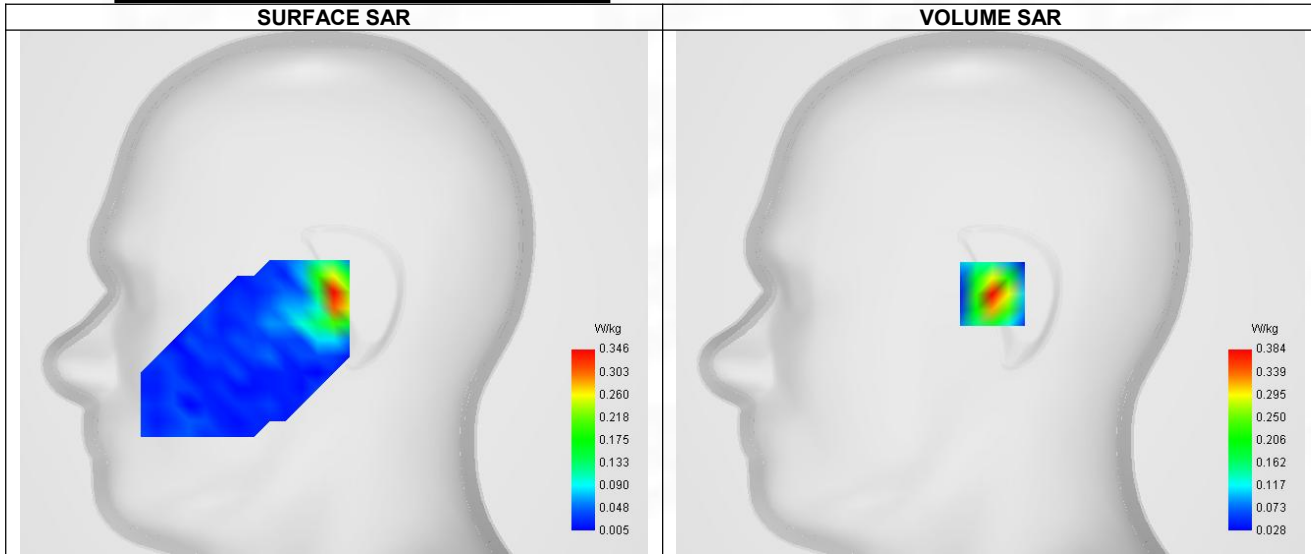
A. Experimental conditions.

Probe	SN 04/22 EPG0365
ConvF	2.36
Area Scan	sam_direct_droit2_surf8mm.txt
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5mm,Complete
Phantom	Right head
Device Position	Cheek
Band	IEEE 802.11b ISM
Channels	Lower (1)
Signal	IEEE 802.11

B. Permittivity

Frequency (MHz)	2412.000
Relative permittivity (real part)	41.286
Relative permittivity (imaginary part)	13.343
Conductivity (S/m)	1.782

C. SAR Surface and Volume



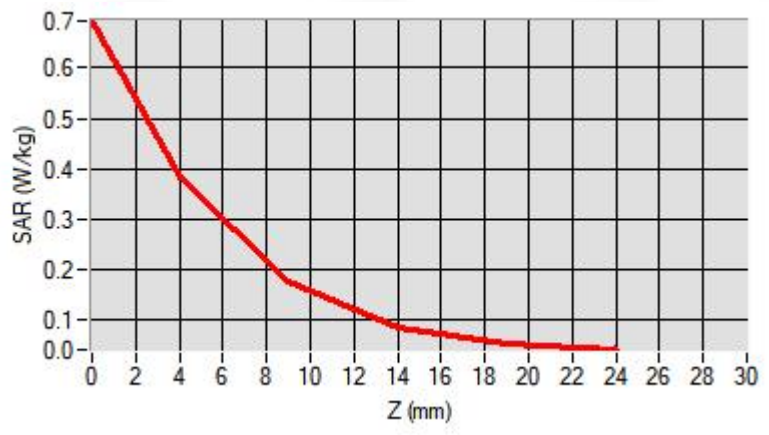
Maximum location: X=1.00, Y=-1.00 ; SAR Peak: 0.70 W/kg

D. SAR 1g & 10g

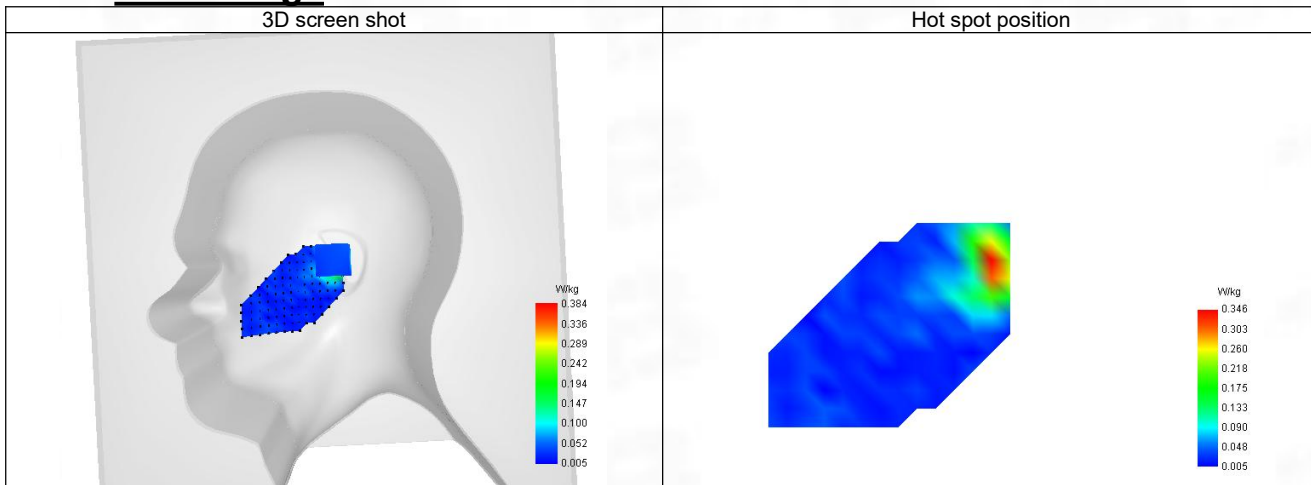
SAR 10g (W/Kg)	0.166
SAR 1g (W/Kg)	0.367
Variation (%)	-1.430
Horizontal validation criteria: minimum distance (mm)	0.000000
Vertical validation criteria: SAR ratio M2/M1 (%)	0.000000

E. Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.693	0.384	0.175	0.086	0.053



F. 3D Image



30-Body with front position in dist. 10mm on Channel 1 in IEEE 802.11b ISM

SAR Measurement at IEEE 802.11b ISM (Body, Validation Plane)

Date of measurement: 1/11/2023

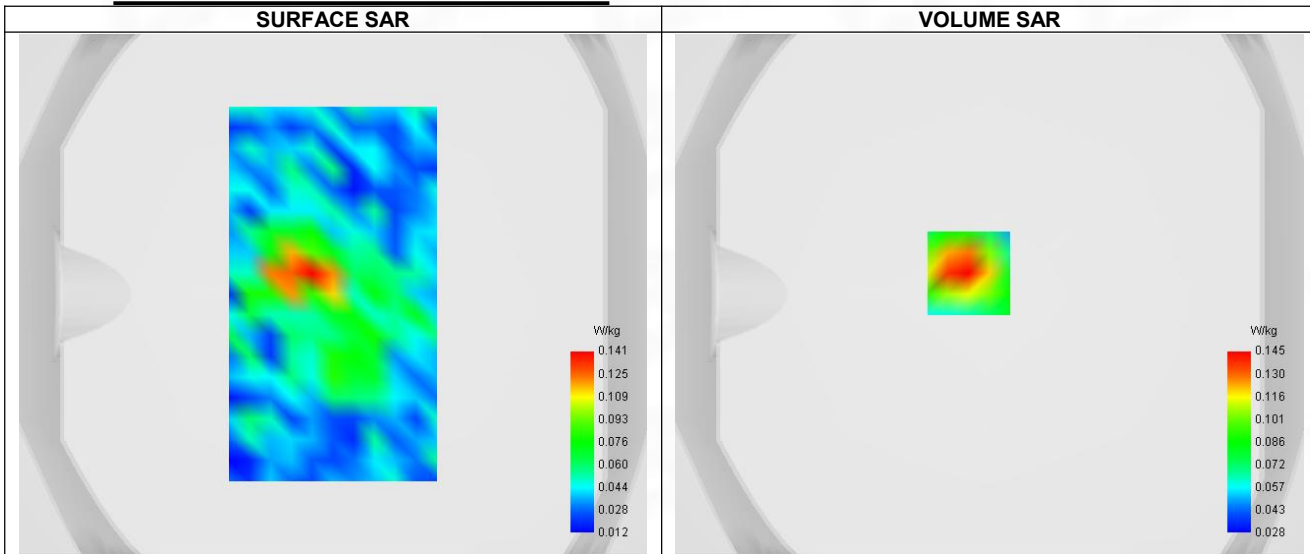
A. Experimental conditions.

Probe	SN 04/22 EPG0365
ConvF	2.36
Area Scan	surf_sam_plan.txt
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5mm,Complete
Phantom	Validation plane
Device Position	Body
Band	IEEE 802.11b ISM
Channels	Lower (1)
Signal	IEEE 802.11

B. Permittivity

Frequency (MHz)	2412.000
Relative permittivity (real part)	41.286
Relative permittivity (imaginary part)	13.343
Conductivity (S/m)	1.782

C. SAR Surface and Volume



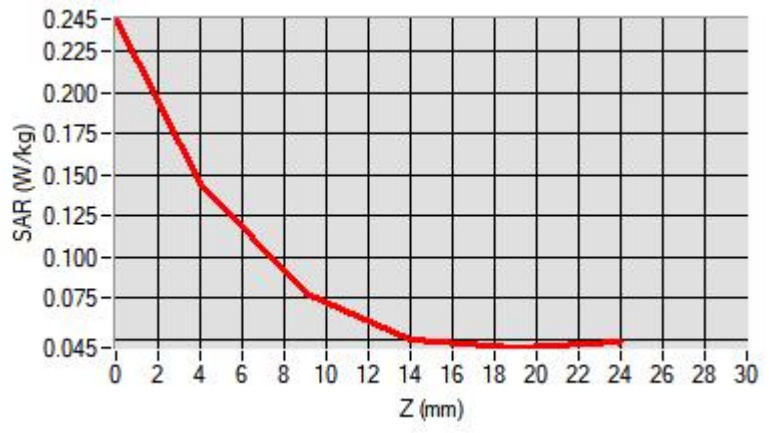
Maximum location: X=-8.00, Y=8.00 ; SAR Peak: 0.25 W/kg

D. SAR 1g & 10g

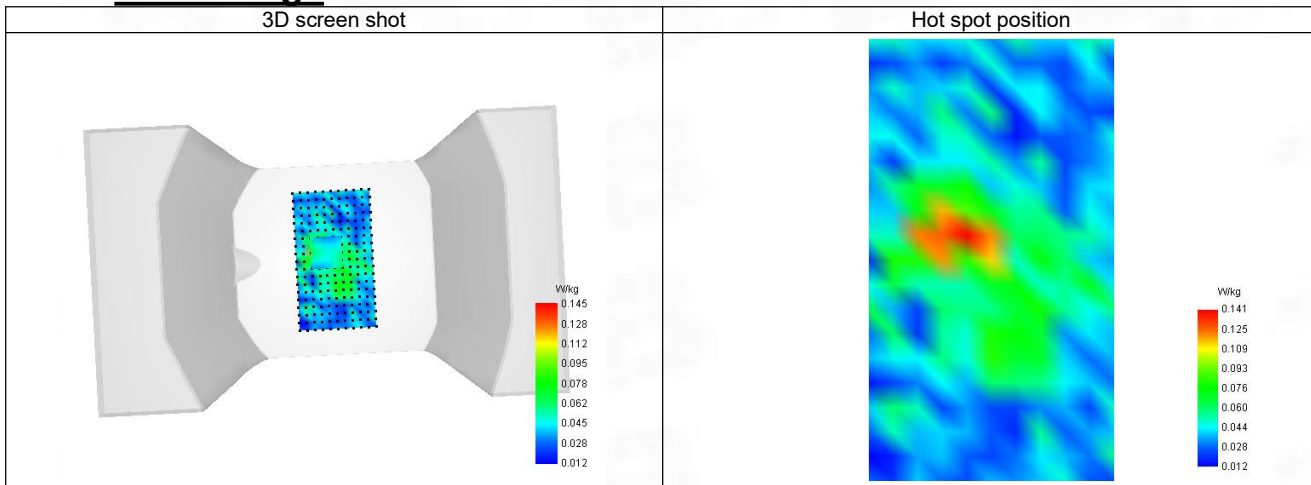
SAR 10g (W/Kg)	0.086
SAR 1g (W/Kg)	0.145
Variation (%)	1.020
Horizontal validation criteria: minimum distance (mm)	0.000000
Vertical validation criteria: SAR ratio M2/M1 (%)	0.000000

E. Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.245	0.145	0.077	0.050	0.045



F. 3D Image



31-Head with front position in dist. 0mm on Channel 48 in IEEE 802.11a U-NII

SAR Measurement at IEEE 802.11n U-NII (Cheek, Right)

Date of measurement: 1/11/2023

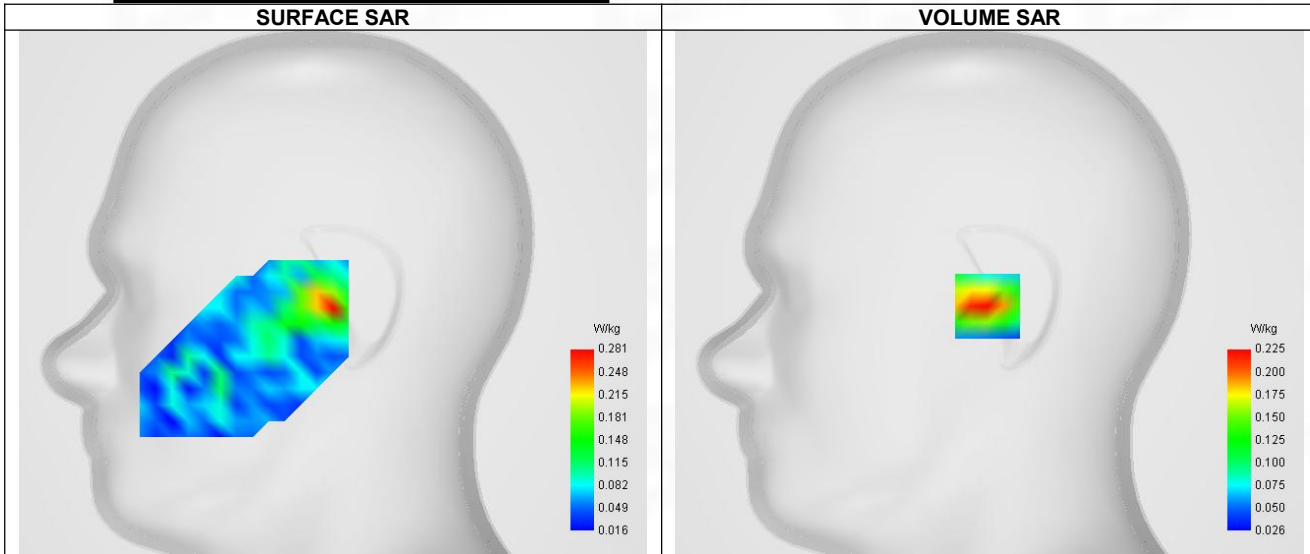
A. Experimental conditions.

Probe	SN 04/22 EPG0365
ConvF	2.24
Area Scan	sam_direct_droit2_surf8mm.txt
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5mm,Complete
Phantom	Right head
Device Position	Cheek
Band	IEEE 802.11n U-NII
Channels	Higher (48)
Signal	IEEE 802.11

B. Permittivity

Frequency (MHz)	5240.000
Relative permittivity (real part)	35.342
Relative permittivity (imaginary part)	16.264
Conductivity (S/m)	4.740

C. SAR Surface and Volume



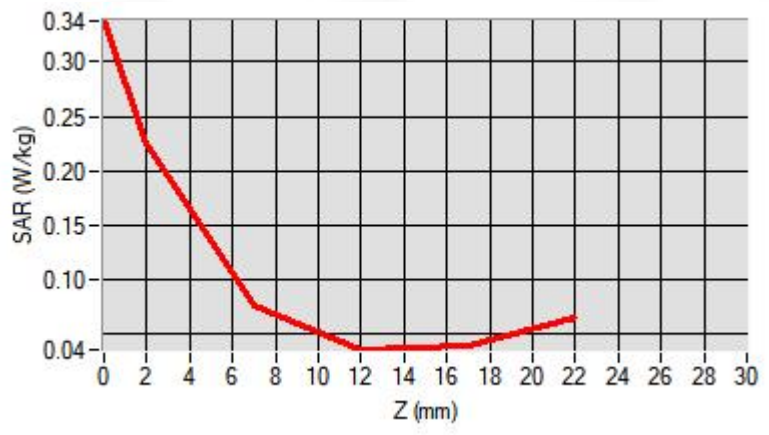
Maximum location: X=-1.00, Y=-7.00 ; SAR Peak: 0.50 W/kg

D. SAR 1g & 10g

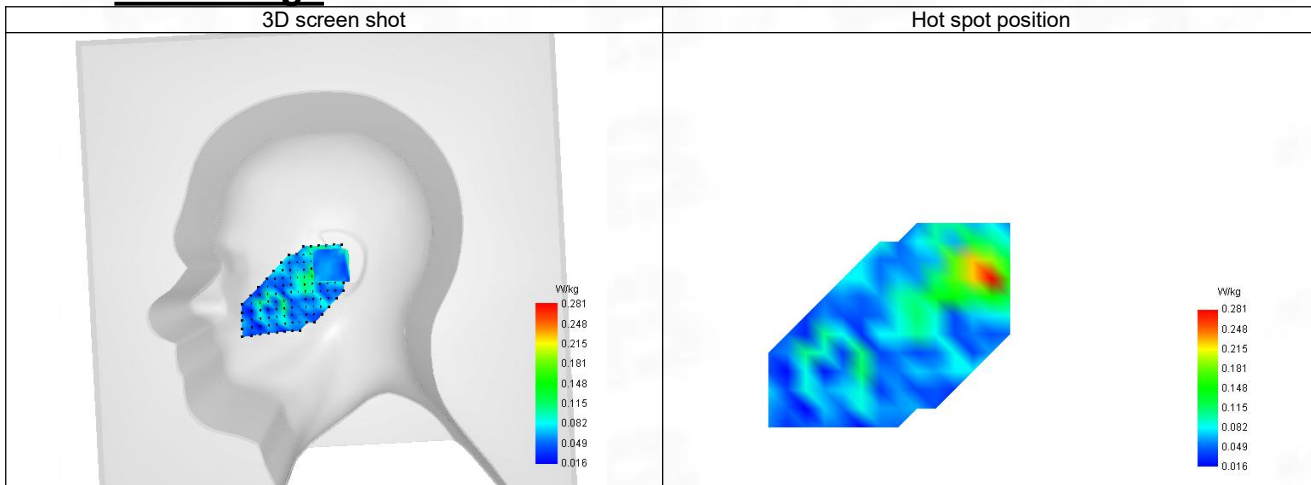
SAR 10g (W/Kg)	0.116
SAR 1g (W/Kg)	0.226
Variation (%)	1.120
Horizontal validation criteria: minimum distance (mm)	0.000000
Vertical validation criteria: SAR ratio M2/M1 (%)	0.000000

E. Z Axis Scan

Z (mm)	0.00	2.00	7.00	12.00	17.00
SAR (W/Kg)	0.337	0.225	0.077	0.036	0.039



F. 3D Image



32-Body with back position in dist. 10mm on Channel 48 in IEEE 802.11a U-NII

SAR Measurement at IEEE 802.11n U-NII (Body, Validation Plane)

Date of measurement: 1/11/2023

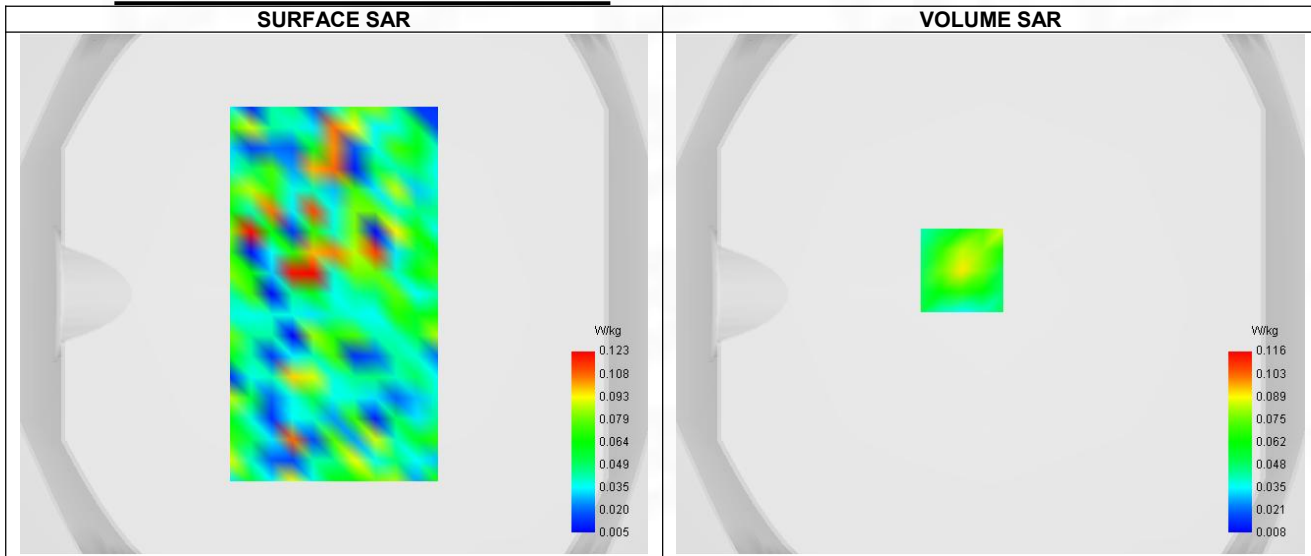
A. Experimental conditions.

Probe	SN 04/22 EPG0365
ConvF	2.24
Area Scan	surf_sam_plan.txt
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5mm,Complete
Phantom	Validation plane
Device Position	Body
Band	IEEE 802.11n U-NII
Channels	Higher (48)
Signal	IEEE 802.11

B. Permittivity

Frequency (MHz)	5240.000
Relative permittivity (real part)	35.342
Relative permittivity (imaginary part)	16.264
Conductivity (S/m)	4.740

C. SAR Surface and Volume



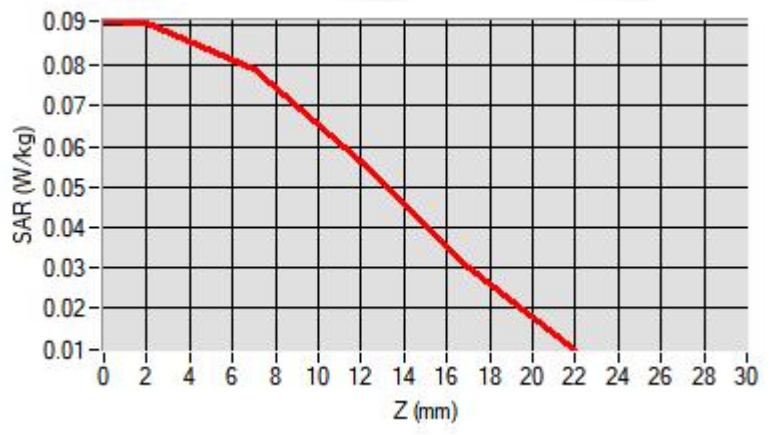
Maximum location: X=-11.00, Y=9.00 ; SAR Peak: 0.10 W/kg

D. SAR 1g & 10g

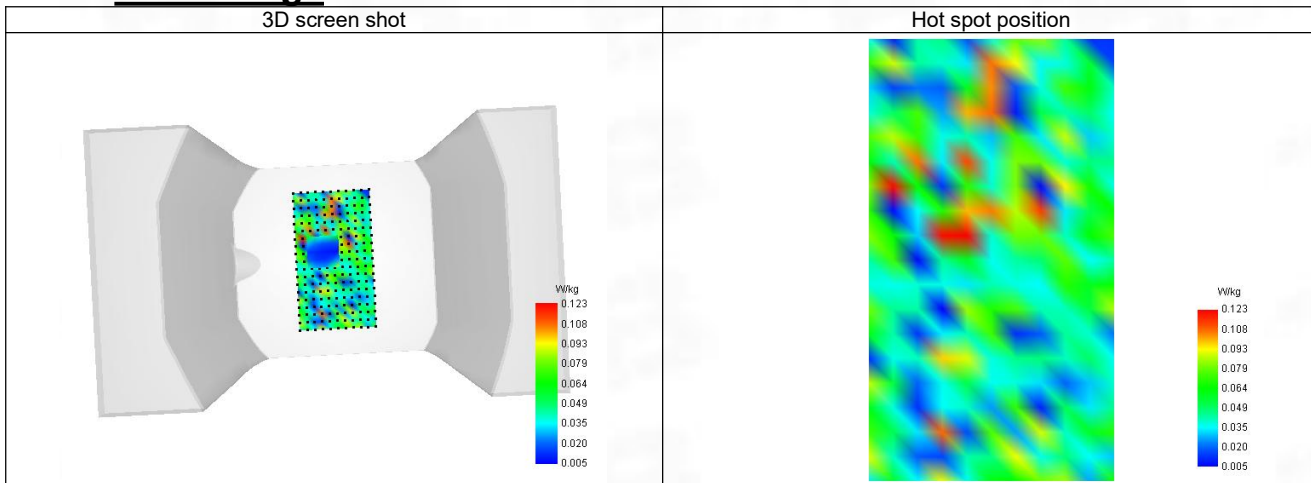
SAR 10g (W/Kg)	0.068
SAR 1g (W/Kg)	0.090
Variation (%)	-1.930
Horizontal validation criteria: minimum distance (mm)	0.000000
Vertical validation criteria: SAR ratio M2/M1 (%)	0.000000

E. Z Axis Scan

Z (mm)	0.00	2.00	7.00	12.00	17.00
SAR (W/Kg)	0.091	0.091	0.079	0.056	0.030



F. 3D Image



33-Head with front position in dist. 0mm on Channel 165 in IEEE 802.11n U-NII

SAR Measurement at IEEE 802.11n U-NII (Cheek, Right)

Date of measurement: 1/11/2023

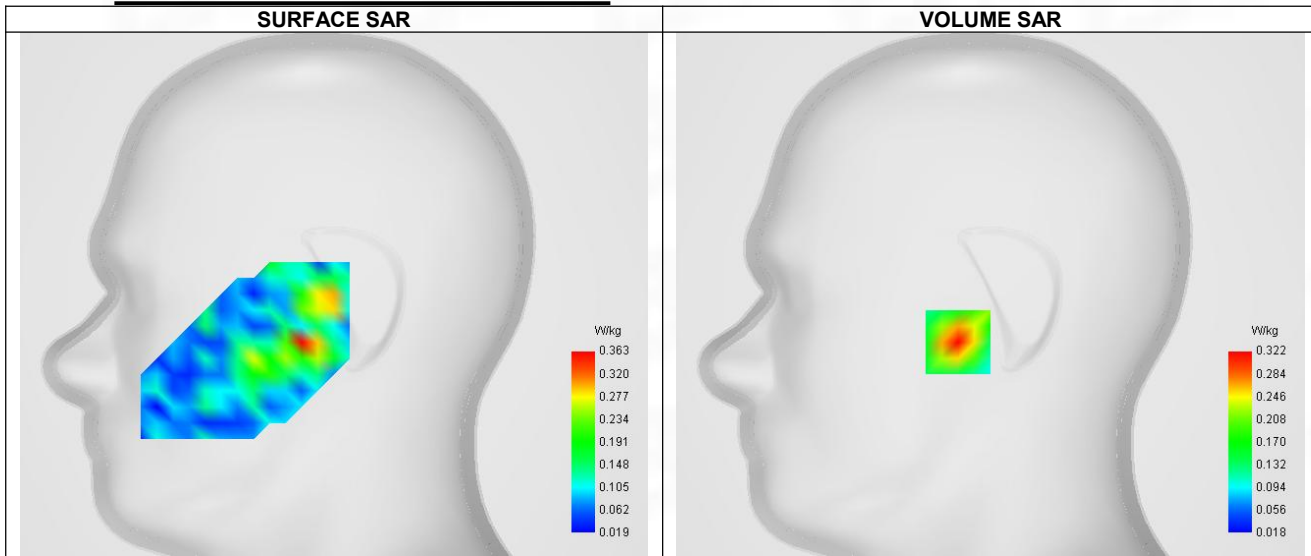
A. Experimental conditions.

Probe	SN 04/22 EPGO365
ConvF	2.04
Area Scan	sam_direct_droit2_surf8mm.txt
Zoom Scan	7x7x12,dx=4mm dy=4mm dz=2mm,Complete
Phantom	Right head
Device Position	Cheek
Band	IEEE 802.11n U-NII
Channels	Higher (165)
Signal	IEEE 802.11

B. Permittivity

Frequency (MHz)	5825.000
Relative permittivity (real part)	32.664
Relative permittivity (imaginary part)	16.488
Conductivity (S/m)	5.335

C. SAR Surface and Volume



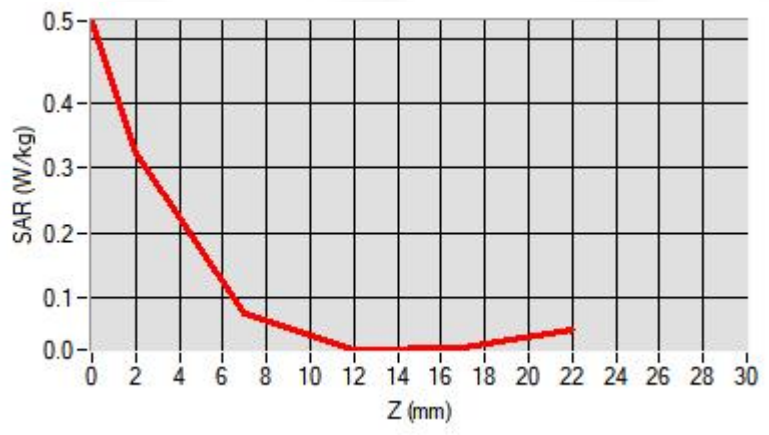
Maximum location: X=-16.00, Y=-24.00 ; SAR Peak: 0.82 W/kg

D. SAR 1g & 10g

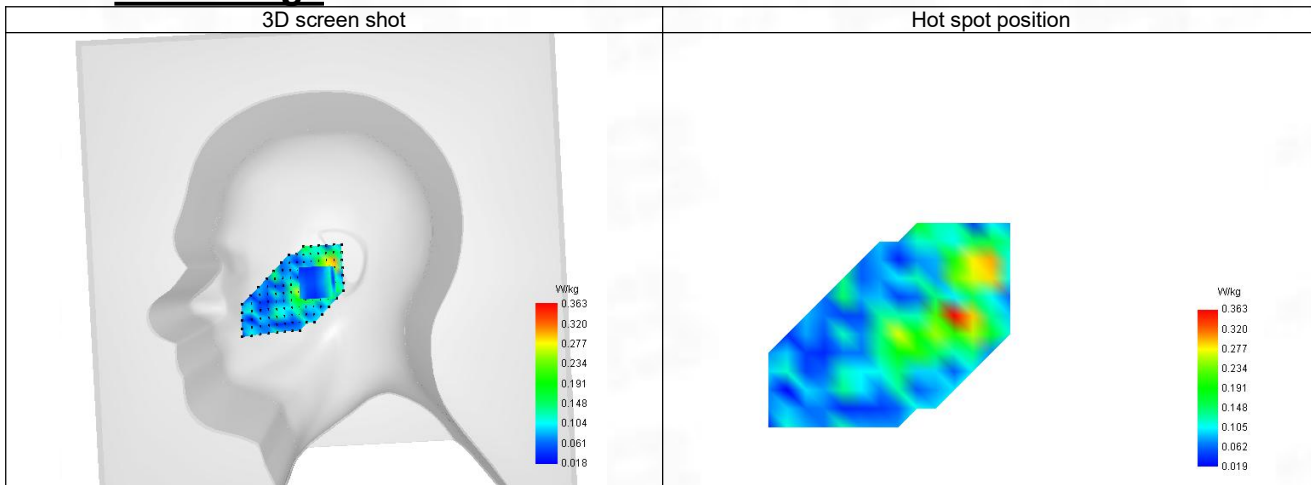
SAR 10g (W/Kg)	0.161
SAR 1g (W/Kg)	0.340
Variation (%)	-0.020
Horizontal validation criteria: minimum distance (mm)	0.000000
Vertical validation criteria: SAR ratio M2/M1 (%)	0.000000

E. Z Axis Scan

Z (mm)	0.00	2.00	7.00	12.00	17.00
SAR (W/Kg)	0.527	0.322	0.074	0.019	0.021



F. 3D Image



34-Body with back position in dist. 10mm on Channel 165 in IEEE 802.11n U-NII

SAR Measurement at IEEE 802.11n U-NII (Body, Validation Plane)

Date of measurement:1/11/2023

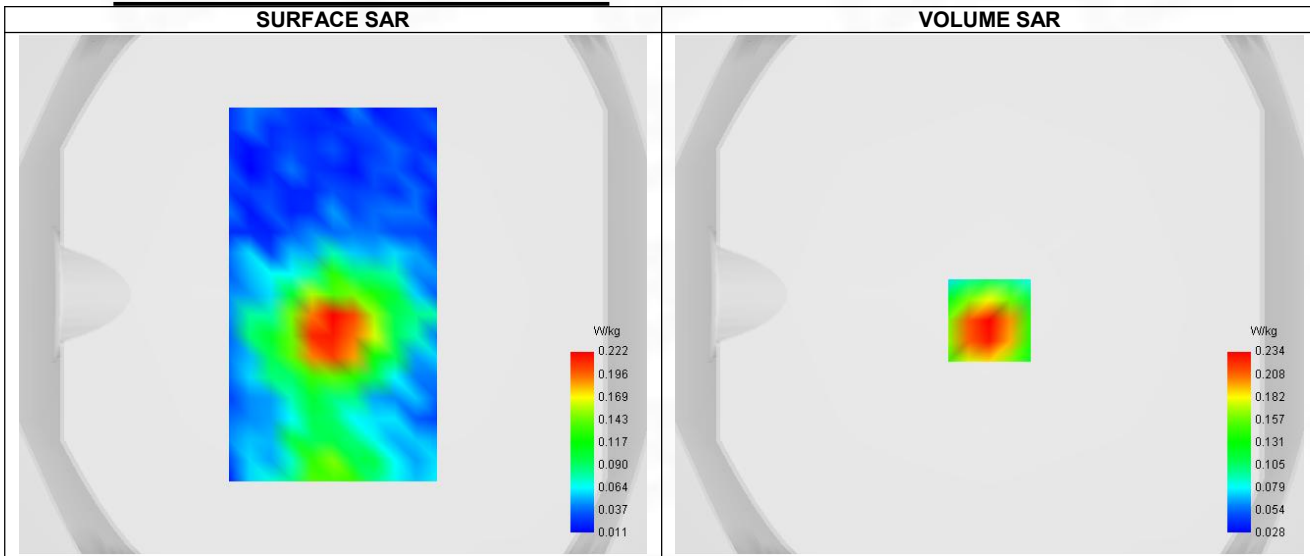
A. Experimental conditions.

Probe	SN 04/22 EPGO365
ConvF	2.24
Area Scan	surf_sam_plan.txt
Zoom Scan	7x7x12,dx=4mm dy=4mm dz=2mm,Complete
Phantom	Validation plane
Device Position	Body
Band	IEEE 802.11n U-NII
Channels	Higher (165)
Signal	IEEE 802.11

B. Permittivity

Frequency (MHz)	5825.000
Relative permittivity (real part)	32.664
Relative permittivity (imaginary part)	16.488
Conductivity (S/m)	5.335

C. SAR Surface and Volume



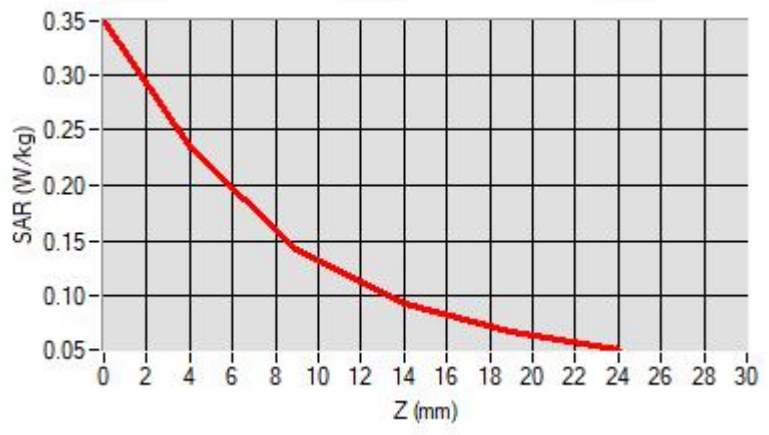
Maximum location: X=0.00, Y=-10.00 ; SAR Peak: 0.36 W/kg

D. SAR 1g & 10g

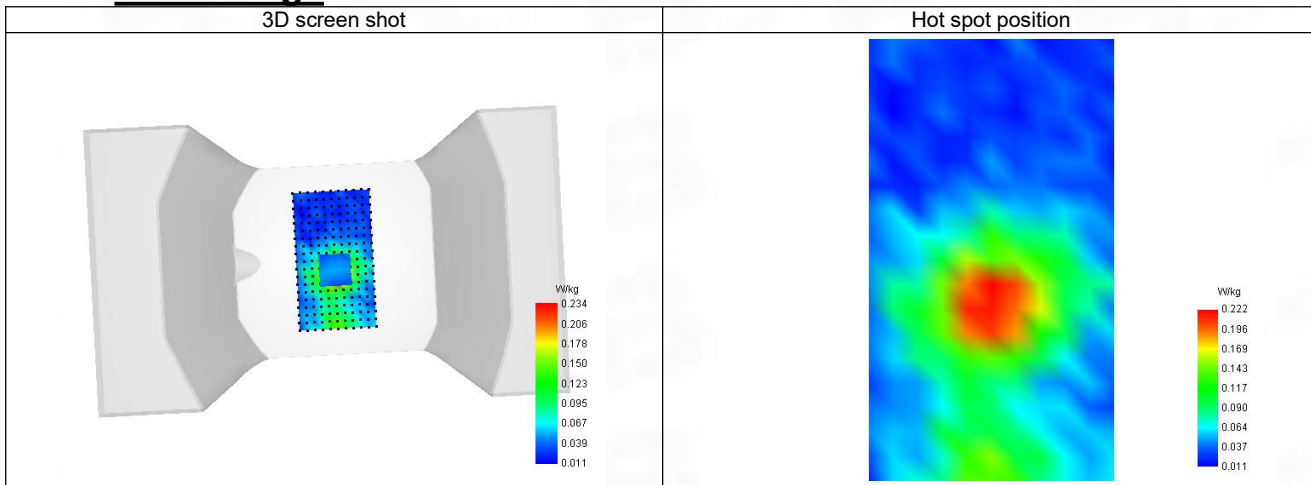
SAR 10g (W/Kg)	0.136
SAR 1g (W/Kg)	0.222
Variation (%)	-1.320
Horizontal validation criteria: minimum distance (mm)	0.000000
Vertical validation criteria: SAR ratio M2/M1 (%)	0.000000

E. Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.349	0.234	0.143	0.093	0.067

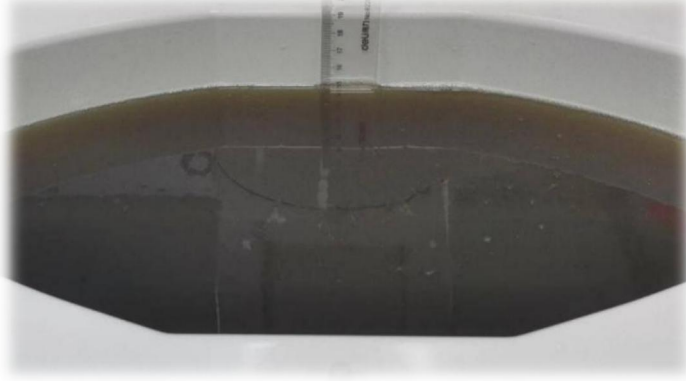


F. 3D Image

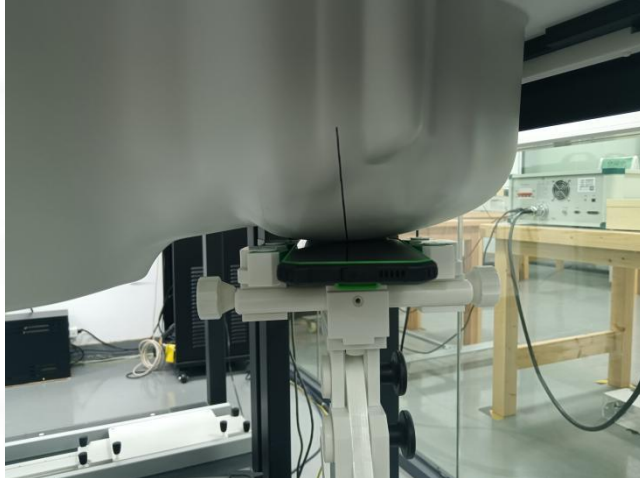


ANNEX D SAR Test Setup Photos

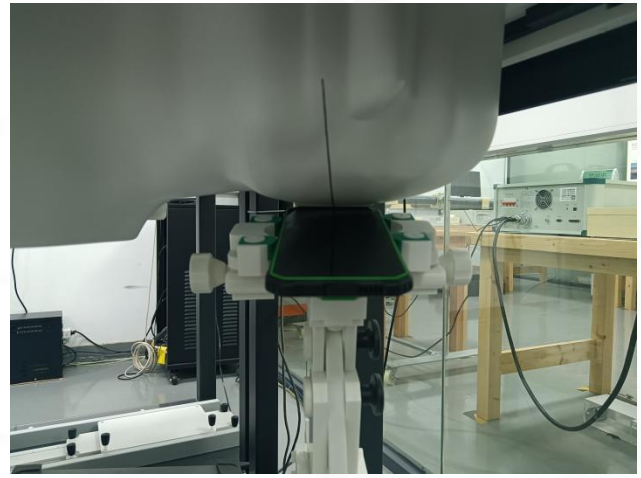
Reference Photo: simulation liquid depth 15cm



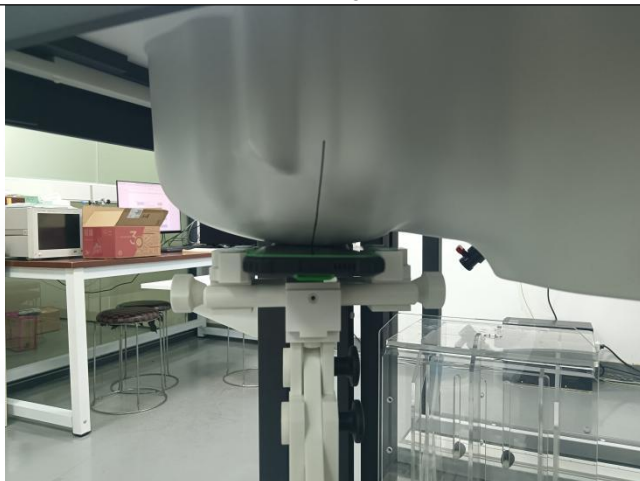
Reference Photos



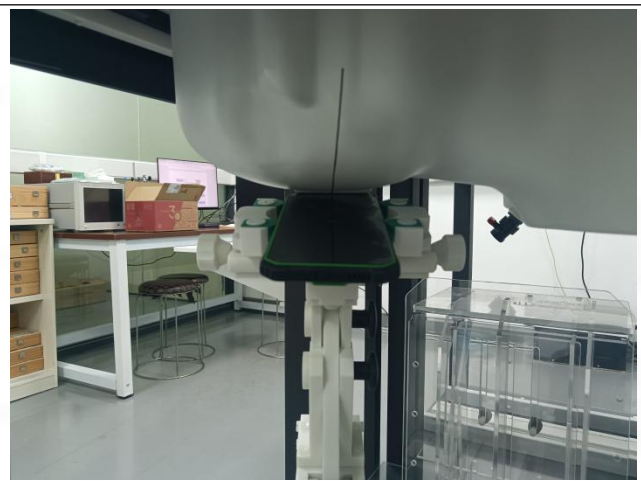
Left Head - Cheek



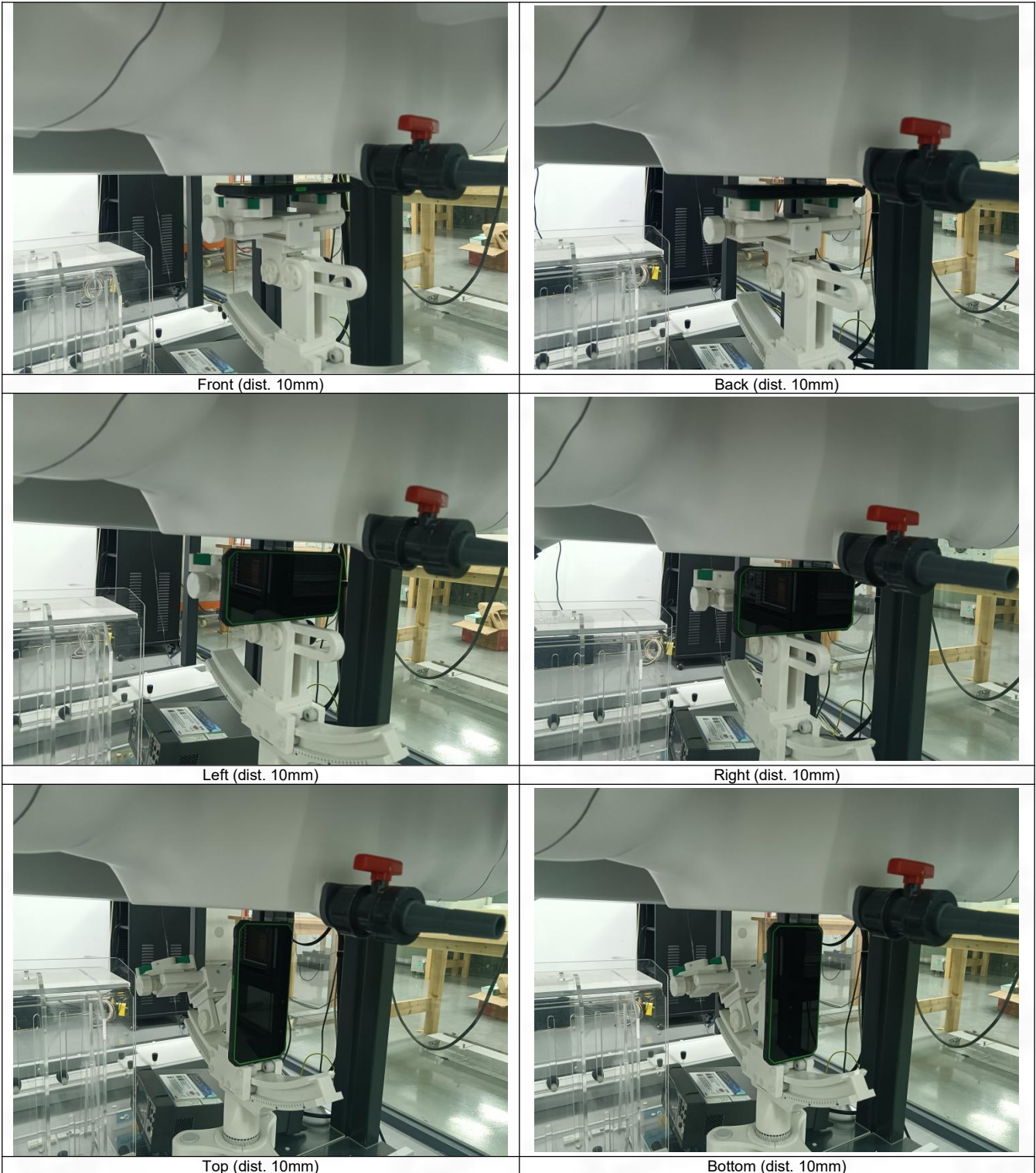
Left Head - Tilt



Right Head - Cheek



Right Head - Tilt



ANNEX E EUT External and Internal Photos

Please refer to RF Report.

ANNEX F Calibration Information

Please refer to the document "Calibration.pdf".



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--END OF REPORT--