





# SAR Test Report

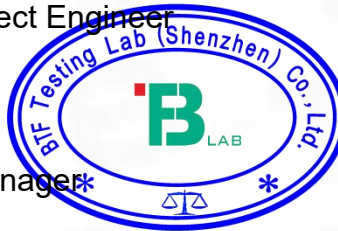
## For

**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 (2+32)

## 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:** BTF231007R00501  
**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-BV4800-32  
**Test Conclusion:** Pass  
**Test Date:** 2023-10-30 to 2023-10-31  
**Date of Issue:** 2023-11-01

**Prepared By:**   
Monica Zhou / Project Engineer  
**Date:** 2023-11-01  
**Approved By:**   
Ryan.CJ / EMC Manager  
**Date:** 2023-11-01



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Revision History		
Version	Issue Date	Revisions Content
R_V0	2023-11-01	Original
<i>Note:</i>	<i>Once the revision has been made, then previous versions reports are invalid.</i>	

## Table of Contents

1. Introduction .....	4
1.1 Identification of Testing Laboratory .....	4
1.2 Identification of the Responsible Testing Location .....	4
1.3 Laboratory Condition .....	4
1.4 Announcement .....	4
2. Product Information .....	5
2.1 Application Information .....	5
2.2 Manufacturer Information .....	5
2.3 Factory Information .....	5
2.4 General Description of Equipment under Test (EUT) .....	5
2.5 Equipment under Test Ancillary Equipment .....	5
2.6 Technical Information .....	5
3. Summary of Test Results .....	7
3.1 Test Standards .....	7
3.2 Device Category and SAR Limit .....	7
3.3 Test Result Summary .....	8
3.4 Test Uncertainty .....	9
4. Measurement System .....	11
4.1 Specific Absorption Rate (SAR) Definition .....	11
4.2 MVG SAR System .....	11
5. System Verification .....	15
5.1 Purpose of System Check .....	15
5.2 System Check Setup .....	16
6. TEST POSITION CONFIGURATIONS .....	16
6.1 Head Exposure Conditions .....	16
6.2 Body-worn Position Conditions .....	18
6.3 Hotspot Mode Exposure Position Conditions .....	19
6.4 Product Specific 10g Exposure Consideration .....	19
7. Measurement Procedure .....	20
7.1 Measurement Process Diagram .....	20
7.2 SAR Scan General Requirement .....	21
7.3 Measurement Procedure .....	22
7.4 Area & Zoom Scan Procedure .....	22
8. Conducted RF Output Power .....	23
8.1 GSM .....	23
8.2 WCDMA .....	24
8.3 LTE .....	25
8.4 Wi-Fi .....	36
8.5 Bluetooth .....	38
9. Test Exclusion Consideration .....	39
9.1 SAR Test Exclusion Consideration Table .....	39
10. Test Result .....	40
11. SAR Measurement Variability .....	46
12. Simultaneous Transmission .....	47
12.1 Simultaneous Transmission Mode Considerations .....	47
12.2 Sum SAR of Simultaneous Transmission .....	47
13. Test Equipment List .....	48
ANNEX A Simulating Liquid Verification Result .....	49
ANNEX B System Check Result .....	49
ANNEX C Test Data .....	66
ANNEX D SAR Test Setup Photos .....	134
ANNEX E EUT External and Internal Photos .....	136
ANNEX F Calibration Information .....	136

## 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 H K CHINA

### 2.2 Manufacturer Information

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

### 2.3 Factory Information

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

### 2.4 General Description of Equipment under Test (EUT)

EUT Name	Mobile Phone
Under Test Model Name	BV4800 (2+32)
HW Version	HCT-M662MB-B2
SW Version	BV4800_NEU_M662_V1.0
Sample No.	BTFSN231007E001-1/3

### 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)
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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		
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	
Antenna Type	WWAN: PIFA Antenna WLAN: PIFA Antenna BT: 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	0.092	PCE	0.533
	GSM 1900	0.089		
	WCDMA Band II	0.133		
	WCDMA Band IV	0.099		
	WCDMA Band V	0.234		
	LTE Band 2	0.157		
	LTE Band 4	0.075		
	LTE Band 5	0.212		
	LTE Band 7	0.112		
	LTE Band 12	0.155		
	LTE Band 13	0.197		
	LTE Band 17	0.154		
	LTE Band 26	0.241		
	LTE Band 66	0.106		
	WLAN 2.4 GHz	0.533	DTS	
WLAN 5.2 GHz	0.292	NII		
WLAN 5.8 GHz	0.199			
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	0.244	PCB	0.584
	GSM 1900	0.481		
	WCDMA Band II	0.476		
	WCDMA Band IV	0.584		
	WCDMA Band V	0.293		
	LTE Band 2	0.400		
	LTE Band 4	0.312		
	LTE Band 5	0.273		
	LTE Band 7	0.506		
	LTE Band 12	0.129		
	LTE Band 13	0.202		
	LTE Band 17	0.130		
	LTE Band 26	0.229		
	LTE Band 66	0.445		
	WLAN 2.4 GHz	0.174	DTS	
WLAN 5.2 GHz	0.171	NII		
WLAN 5.8 GHz	0.107			

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 26 + 2.4G WIFI	0.774	1.6	Pass
Hotspot(Body) 1-g SAR (10 mm Gap)	WCDMA Band 4 + 2.4G WIFI	0.744	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
<b>Measurement System</b>								
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	∞
<b>Test sample Related</b>								
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	∞
<b>Phantom and Tissue Parameters</b>								
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
<b>Measurement System</b>								
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	∞
<b>Dipole</b>								
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	∞
<b>Phantom and Tissue Parameters</b>								
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 ( $\rho$ ). The equation description is as below:

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

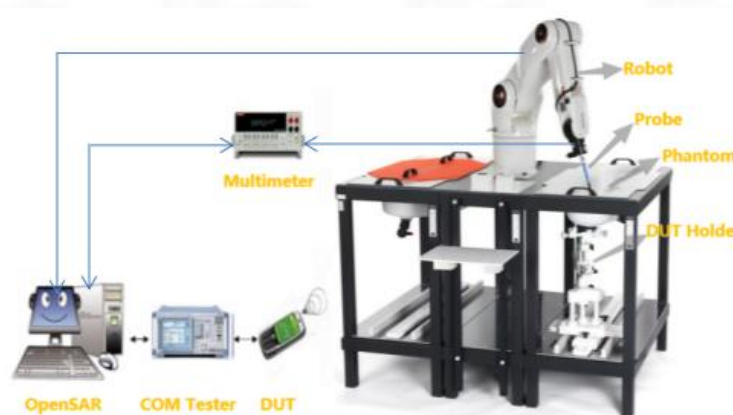
SAR is expressed in units of Watts per kilogram (W/kg) SAR measurement can be related to the electrical field in the tissue by

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

Where:  $\sigma$  is the conductivity of the tissue,  
 $\rho$  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  $20^\circ$ .



#### 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.



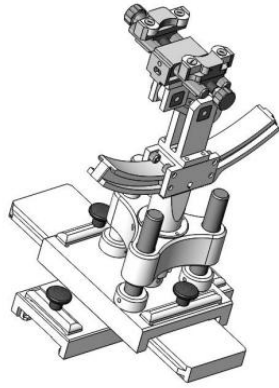
**ELLI Phantom**

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.

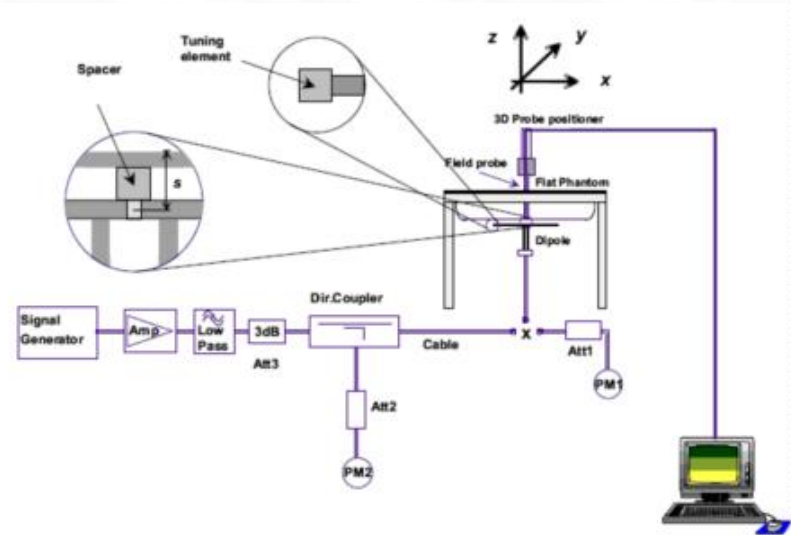
Head (Reference IEEE1528)								
Frequency (MHz)	Water (%)	Sugar (%)	Cellulose (%)	Salt (%)	Preventol (%)	DGBE (%)	Conductivity $\sigma$ (S/m)	Permittivity $\epsilon$
750	41.1	57.0	0.2	1.4	0.2	0	0.89	41.9
835	40.3	57.9	0.2	1.4	0.2	0	0.90	41.5
900	40.3	57.9	0.2	1.4	0.2	0	0.97	41.5
1800, 1900, 2000	55.2	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 $\sigma$ (S/m)	Permittivity $\epsilon$
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 $\sigma$ (S/m)	Permittivity $\epsilon$
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 $\sigma$ (S/m)	Permittivity $\epsilon$
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.

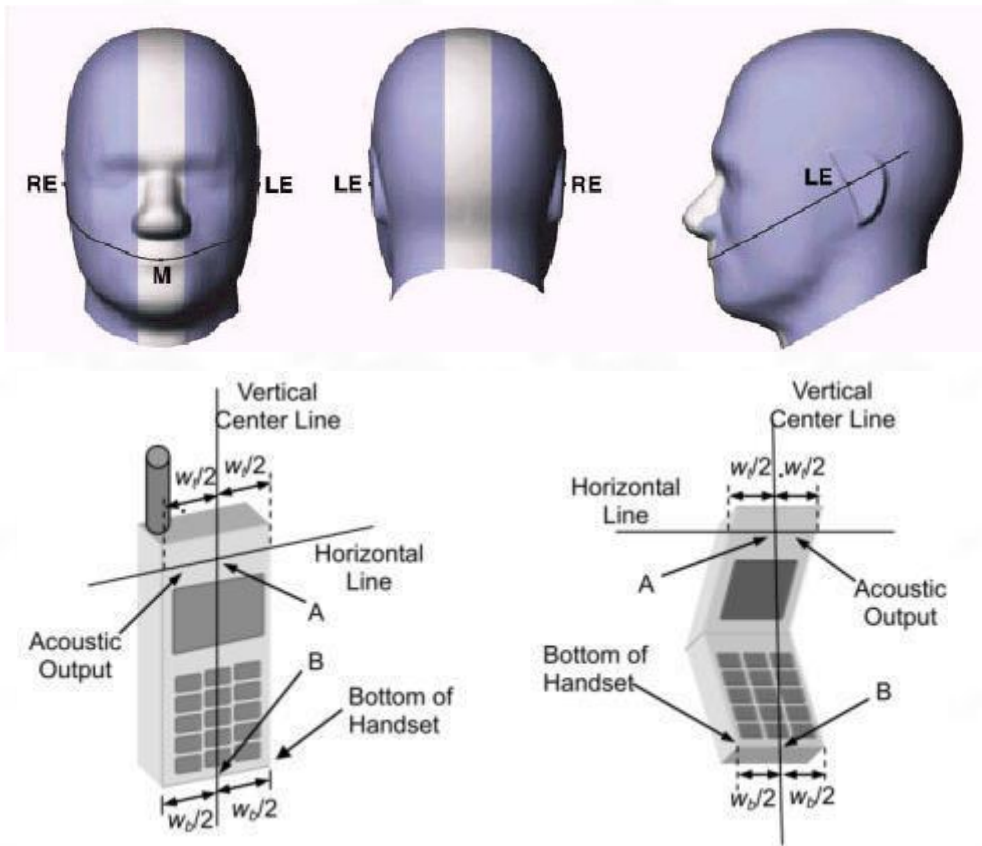
### 6.1 Head Exposure Conditions

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.





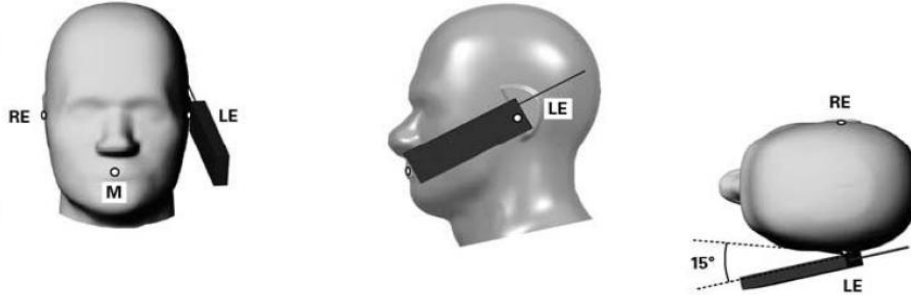
### 6.1.2 Two Imaginary Lines on the Handset

- (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.

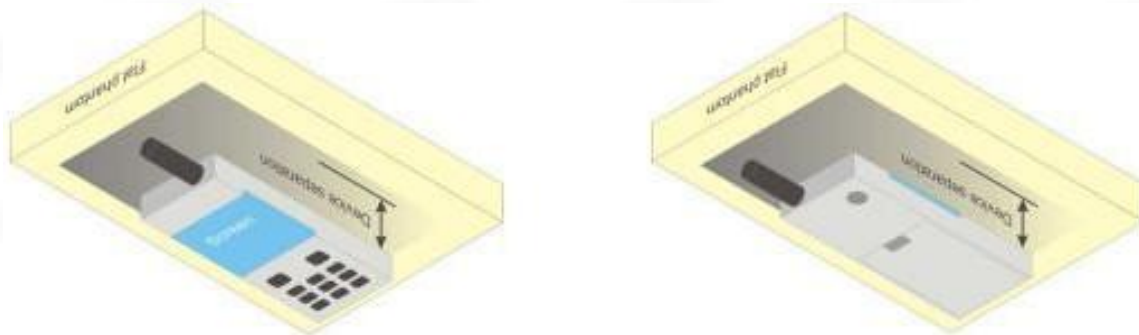


## 6.2 Body-worn Position Conditions

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.

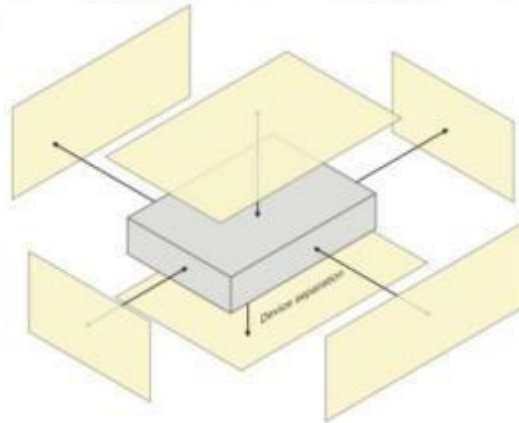
Body-worn accessories that do not contain metallic or conductive components may be tested according to worst-case exposure configurations, typically according to the smallest test separation distance required for the group of body-worn accessories with similar operating and exposure characteristics. 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  $\leq 5$  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

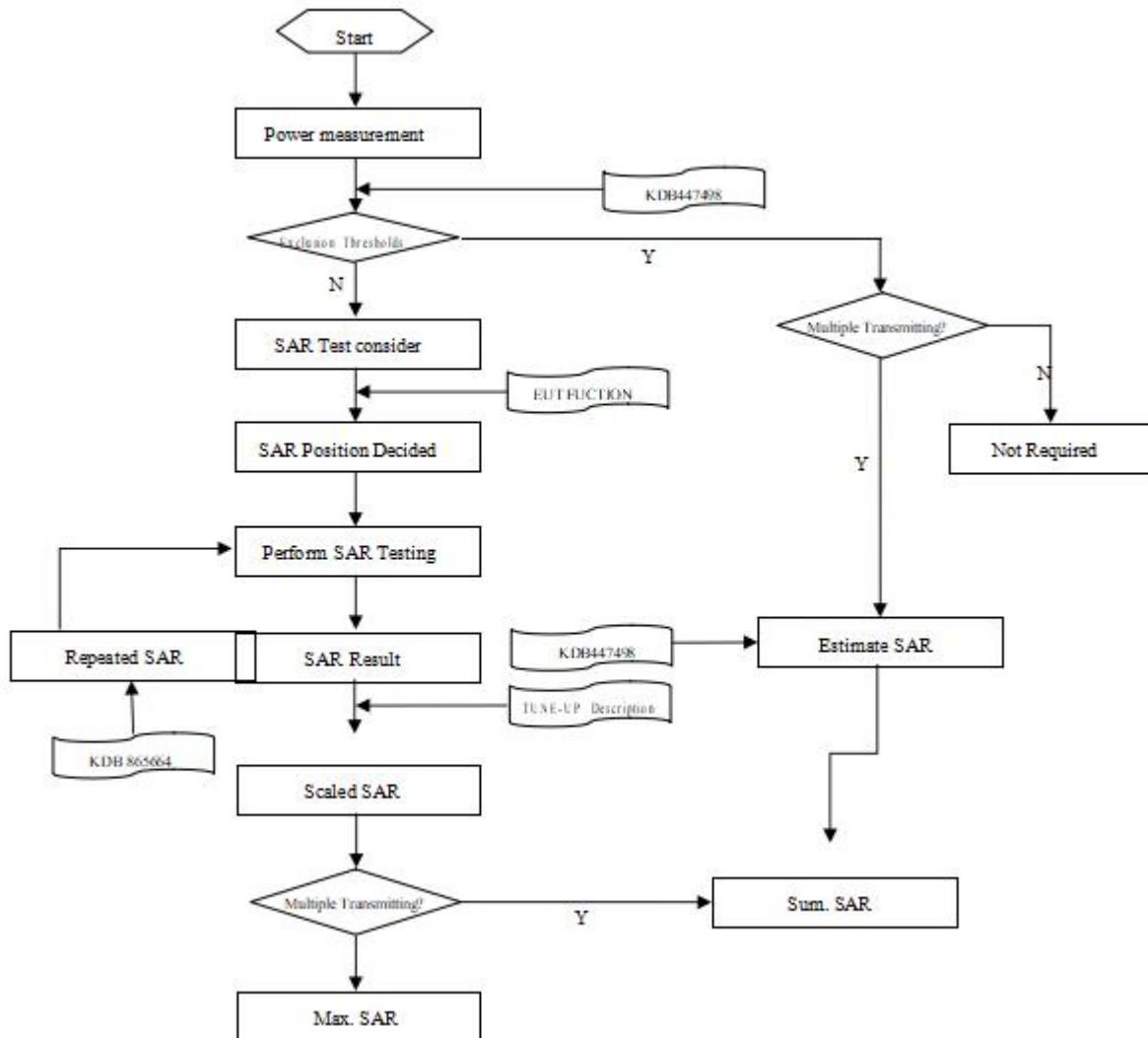
According with FCC KDB 648474 D04, for smart phones with a display diagonal dimension > 15.0 cm or an overall diagonal dimension > 16.0 cm that provide similar mobile web access and multimedia support found in mini-tablets or UMPC mini-tablets that support voice calls next to the ear, unless it is confirmed 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  $\leq 25$  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		<b>31.50</b>	31.37	31.27	<b>31.44</b>	-9.03	22.34	22.24	<b>22.41</b>
GPRS (GMSK)	1Tx slot	31.50	31.36	31.26	31.40	-9.03	22.33	22.23	22.37
	2Tx slots	31.00	30.64	30.52	30.67	-6.02	24.62	24.50	24.65
	3Tx slots	29.00	28.95	28.81	28.96	-4.26	24.69	24.55	24.70
	4Tx slots	<b>28.00</b>	27.91	27.79	<b>27.93</b>	-3.01	24.90	24.78	<b>24.92</b>
EGPRS (8PSK)	1Tx slot	25.50	25.36	25.16	25.26	-9.03	16.33	16.13	16.23
	2Tx slots	27.00	24.54	26.37	26.58	-6.02	18.52	20.35	20.56
	3Tx slots	22.50	22.44	22.35	22.46	-4.26	18.18	18.09	18.20
	4Tx slots	21.50	21.34	21.23	21.39	-3.01	18.33	18.22	18.38
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		<b>28.00</b>	27.80	27.92	<b>27.94</b>	-9.03	18.77	18.89	<b>18.91</b>
GPRS (GMSK)	1Tx slot	28.00	27.80	27.89	27.91	-9.03	18.77	18.86	18.88
	2Tx slots	27.50	27.32	27.44	27.47	-6.02	21.30	21.42	21.45
	3Tx slots	26.50	25.84	25.97	26.05	-4.26	21.58	21.71	21.79
	4Tx slots	<b>25.00</b>	24.77	24.90	<b>24.98</b>	-3.01	21.76	21.89	<b>21.97</b>
EGPRS (8PSK)	1Tx slot	26.50	25.95	26.07	26.36	-9.03	16.92	17.04	17.33
	2Tx slots	26.00	24.78	25.27	25.61	-6.02	18.76	19.25	19.59
	3Tx slots	24.00	22.87	23.21	23.52	-4.26	18.61	18.95	19.26
	4Tx slots	22.50	21.46	21.65	22.20	-3.01	18.45	18.64	19.19

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		<b>22.00</b>	<b>21.60</b>	21.32	21.02
HSDPA	Subtest-1	19.50	19.16	18.96	18.75
	Subtest-2	19.50	19.15	18.93	18.64
	Subtest-3	19.50	19.19	18.90	18.63
	Subtest-4	19.50	19.09	18.92	18.67
HSUPA	Subtest-1	17.50	17.14	16.85	16.68
	Subtest-2	17.50	17.02	16.62	16.56
	Subtest-3	17.50	17.07	16.35	16.06
	Subtest-4	17.00	16.62	16.74	16.57
	Subtest-5	17.00	16.91	16.36	16.09
Mode		Maximum Tune-up(dBm)	WCDMA Band IV		
			Conducted Power (dBm)		
			CH1312	CH1413	CH1513
RMC 12.2K		<b>21.50</b>	20.49	20.97	<b>21.28</b>
HSDPA	Subtest-1	19.50	18.79	18.64	19.04
	Subtest-2	19.50	18.68	18.65	19.05
	Subtest-3	19.50	18.68	18.66	19.15
	Subtest-4	19.50	18.69	18.56	19.00
HSUPA	Subtest-1	17.00	16.58	16.51	16.90
	Subtest-2	17.00	16.12	16.24	16.95
	Subtest-3	17.00	16.55	16.28	16.58
	Subtest-4	17.00	16.36	16.25	16.64
	Subtest-5	17.00	16.36	16.30	16.84
Mode		Maximum Tune-up(dBm)	WCDMA Band V		
			Conducted Power (dBm)		
			CH4132	CH4183	CH4233
RMC 12.2K		<b>22.50</b>	22.05	<b>22.09</b>	22.05
HSDPA	Subtest-1	20.00	19.80	19.66	19.82
	Subtest-2	20.00	19.87	19.70	19.73
	Subtest-3	20.00	19.86	19.84	19.82
	Subtest-4	20.00	19.81	19.68	19.72
HSUPA	Subtest-1	18.00	17.75	17.80	17.73
	Subtest-2	18.00	17.23	17.33	17.75
	Subtest-3	18.00	17.57	17.68	17.08
	Subtest-4	18.00	17.56	17.20	17.13
	Subtest-5	18.00	17.57	17.67	17.09

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  $\leq 1.2$  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	23.50	23.16	23.02	22.60	
			2	23.50	23.29	23.13	22.73	
			5	23.50	23.18	23.02	22.58	
		3	0	23.50	23.31	23.13	22.78	
			2	23.50	23.33	23.16	22.80	
			3	23.50	23.28	23.10	22.75	
	16QAM	6	0	22.50	22.28	22.13	21.75	
			0	22.50	22.33	22.20	21.67	
			2	22.50	22.45	22.30	21.76	
		1	5	22.50	22.34	22.18	21.68	
			0	22.50	22.23	22.07	21.94	
			2	22.50	22.27	22.09	21.96	
3	3	22.50	22.21	22.03	21.92			
	6	21.50	21.31	21.13	20.73			
	0	21.50	21.31	21.13	20.73			
Bandwidth	Modulation	RB allocation	RB offset	Maximum Tune-up(dBm)	18615	18900	19185	
					1851.5MHz	1880.0MHz	1908.5MHz	
3MHz	QPSK	1	0	23.50	23.26	23.06	22.53	
			7	23.50	23.40	23.21	22.39	
			14	23.50	23.24	23.06	22.23	
		8	0	22.50	22.23	22.12	21.29	
			4	22.50	22.27	22.13	21.31	
			7	22.50	22.24	22.09	21.27	
	15	0	22.50	22.21	22.09	21.29		
	16QAM	1	0	22.50	22.32	22.26	21.78	
			7	22.50	22.41	22.36	21.94	
			14	22.50	22.19	22.15	21.75	
		8	0	21.50	21.30	21.08	20.45	
			4	21.50	21.35	21.09	20.49	
			7	21.50	21.28	21.05	20.46	
		15	0	21.50	21.28	21.06	20.36	
		Bandwidth	Modulation	RB allocation	RB offset	Maximum Tune-up(dBm)	18625	18900
						1852.5MHz	1880.0MHz	1907.5MHz
5MHz	QPSK	1	0	23.50	23.14	22.51	22.19	
			13	23.50	23.23	22.64	22.34	
			24	23.50	23.17	22.47	22.20	
		12	0	22.50	22.27	21.61	21.27	
			6	22.50	22.22	21.92	21.36	
			13	22.00	21.90	21.78	21.28	
	25	0	22.00	21.74	21.78	21.30		
	16QAM	1	0	22.00	21.75	21.76	21.08	
			13	22.00	21.86	21.92	21.24	
			24	22.00	21.82	21.75	21.11	
		12	0	21.00	20.80	20.69	20.27	
			6	21.00	20.78	20.90	20.37	
			13	21.00	20.67	20.91	20.29	
		25	0	21.50	20.80	21.02	20.31	

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	23.50	23.24	22.61	22.37	
			25	23.50	23.38	22.71	22.37	
			49	23.50	23.24	22.52	22.25	
		25	0	22.50	22.28	21.67	21.41	
			13	22.50	22.25	21.75	21.36	
			25	22.50	22.19	21.73	21.35	
	50	0	22.50	22.05	21.74	21.41		
		16QAM	1	0	22.00	21.86	21.80	21.92
				25	22.00	21.87	21.88	21.98
	49			22.00	21.72	21.73	21.81	
	15MHz	QPSK	1	0	23.50	23.15	22.55	22.33
				38	23.50	23.21	22.57	22.35
				74	23.50	23.11	22.42	22.16
			36	0	22.50	22.24	21.74	21.41
				18	22.50	22.29	21.82	21.40
39				22.50	22.37	21.74	21.35	
16QAM	1	0	22.50	22.36	21.69	21.88		
		38	22.50	22.24	21.74	21.90		
		74	22.50	22.08	21.58	21.68		
	36	0	21.00	20.81	20.65	20.46		
		18	21.00	20.72	20.80	20.43		
		39	21.00	20.77	20.69	20.37		
20MHz	QPSK	1	0	23.00	22.93	22.45	22.28	
			50	<b>23.50</b>	<b>23.22</b>	22.77	22.51	
			99	23.00	22.72	22.27	22.08	
		50	0	22.00	21.76	21.61	21.44	
			25	22.00	21.74	21.59	21.45	
			50	22.00	<b>21.83</b>	21.47	21.34	
16QAM	1	0	22.00	21.79	21.59	21.42		
		50	22.00	21.98	21.66	21.54		
		99	22.50	22.37	21.99	21.81		
	50	0	21.00	20.70	20.60	20.43		
		25	21.00	20.78	20.62	20.44		
		50	21.00	20.82	20.52	20.34		
100	0	21.00	20.81	20.60	20.47			

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	23.00	22.91	22.95	22.91
			2	23.50	23.04	23.09	23.07
			5	23.00	22.92	22.96	22.95
		3	0	23.50	22.93	23.06	23.03
			2	23.50	22.99	23.06	23.08
			3	23.50	22.95	23.01	23.03
	6	0	22.50	21.95	22.00	22.04	
	16QAM	1	0	22.50	21.87	21.96	22.07
			2	22.50	21.99	22.04	22.21
			5	22.50	21.91	21.96	22.08
		3	0	22.50	21.97	22.02	21.98
			2	22.50	21.99	22.05	21.99
3			22.50	21.95	22.01	22.00	
6	0	21.50	20.86	20.93	21.04		
Bandwidth	Modulation	RB allocation	RB offset	Maximum Tune-up(dBm)	19965	20175	20385
					1711.5MHz	1732.5MHz	1753.5MHz
3MHz	QPSK	1	0	23.00	22.99	22.94	22.67
			7	23.50	23.08	23.05	22.55
			14	23.00	22.97	22.94	22.42
		8	0	22.00	21.89	21.96	21.44
			4	22.00	21.93	21.94	21.69
			7	22.00	21.88	21.72	21.62
	15	0	22.00	21.88	21.67	21.57	
	16QAM	1	0	22.00	21.92	21.70	21.90
			7	22.50	22.04	21.76	22.04
			14	22.00	21.90	21.62	21.94
		8	0	21.00	20.94	20.65	20.55
			4	21.00	20.98	20.66	20.63
7			21.00	20.92	20.60	20.60	
15	0	21.00	20.89	20.64	20.45		
Bandwidth	Modulation	RB allocation	RB offset	Maximum Tune-up(dBm)	19976	20175	20375
					1712.5MHz	1732.5MHz	1752.5MHz
5MHz	QPSK	1	0	23.00	22.84	22.35	22.29
			13	23.00	22.95	22.45	22.45
			24	23.00	22.85	22.36	22.38
		12	0	22.00	21.84	21.42	21.35
			6	22.00	21.90	21.50	21.44
			13	22.00	21.88	21.40	21.45
	25	0	22.00	21.83	21.40	21.40	
	16QAM	1	0	22.00	21.48	21.60	21.18
			13	22.00	21.52	21.72	21.27
			24	22.00	21.42	21.60	21.23
		12	0	20.50	20.32	20.44	20.34
			6	21.00	20.43	20.50	20.43
13			20.50	20.33	20.44	20.43	
25	0	20.50	20.37	20.38	20.41		

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	23.00	22.92	22.40	22.32	
			25	23.00	22.87	22.57	22.56	
			49	23.00	22.50	22.41	22.39	
		25	0	22.00	21.40	21.50	21.38	
			13	22.00	21.55	21.47	21.41	
			25	22.00	21.53	21.47	21.49	
	50	0	21.50	21.46	21.49	21.41		
		16QAM	1	0	22.00	21.40	21.56	21.83
				25	22.50	21.62	21.76	22.05
	49			22.00	21.41	21.55	21.89	
	25		0	21.00	20.49	20.50	20.43	
			13	21.00	20.51	20.45	20.46	
			25	21.00	20.62	20.49	20.54	
	50	0	20.50	20.47	20.46	20.45		
	Bandwidth	Modulation	RB allocation	RB offset	Maximum Tune-up(dBm)	20025	20175	20325
1717.5MHz						1732.5MHz	1747.5MHz	
15MHz	QPSK	1	0	23.00	22.70	22.33	22.27	
			38	22.50	22.44	22.43	22.35	
			74	22.50	22.36	22.28	22.32	
		36	0	21.50	21.45	21.46	21.43	
			18	22.00	21.51	21.49	21.44	
			39	21.50	21.47	21.48	21.42	
	75	0	21.50	21.49	21.47	21.43		
	16QAM	1	0	22.00	21.61	21.50	21.85	
			38	22.00	21.74	21.61	21.96	
			74	22.00	21.65	21.47	21.85	
		36	0	20.50	20.41	20.47	20.40	
			18	20.50	20.45	20.45	20.41	
			39	20.50	20.42	20.49	20.46	
	75	0	20.50	20.43	20.45	20.43		
	Bandwidth	Modulation	RB allocation	RB offset	Maximum Tune-up(dBm)	20050	20175	20300
1720.0MHz						1732.5MHz	1745.0MHz	
20MHz	QPSK	1	0	22.50	22.16	22.20	22.12	
			50	<b>23.00</b>	22.54	<b>22.57</b>	22.50	
			99	22.50	22.17	22.22	22.18	
		50	0	21.50	21.38	<b>21.45</b>	21.37	
			25	21.50	21.41	21.44	21.39	
			50	21.50	21.38	21.38	21.44	
	100	0	21.50	21.40	21.46	21.42		
	16QAM	1	0	22.00	21.64	21.36	21.43	
			50	22.50	22.02	21.72	21.78	
			99	22.00	21.71	21.38	21.46	
		50	0	20.50	20.38	20.48	20.42	
			25	20.50	20.43	20.42	20.42	
			50	20.50	20.36	20.40	20.42	
	100	0	20.50	20.41	20.47	20.47		

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	23.00	22.98	22.67	22.65
			2	23.50	23.08	22.47	22.81
			5	23.00	22.94	22.37	22.65
		3	0	23.50	23.03	22.50	22.62
			2	23.50	23.08	22.50	22.30
			3	23.50	23.06	22.48	22.31
	16QAM	1	0	22.00	21.97	21.55	21.17
			2	22.50	22.06	21.67	21.29
			5	22.00	21.99	21.53	21.27
		3	0	22.50	22.12	21.49	21.39
			2	22.50	22.12	21.50	21.37
			3	22.50	22.11	21.51	21.37
6	0	21.00	20.97	20.46	20.18		
Bandwidth	Modulation	RB allocation	RB offset	Maximum Tune-up(dBm)	20415	20525	20635
					825.5MHz	836.5MHz	847.5MHz
3MHz	QPSK	1	0	23.50	23.01	22.34	22.15
			7	23.50	23.13	22.53	22.28
			14	23.00	22.74	22.33	22.13
		8	0	22.00	21.73	21.38	21.18
			4	22.00	21.61	21.44	21.24
			7	21.50	21.46	21.37	21.18
	15	0	22.00	21.55	21.42	21.23	
	16QAM	1	0	22.00	21.56	21.56	21.76
			7	22.00	21.67	21.72	21.91
			14	22.00	21.48	21.54	21.77
		8	0	21.00	20.55	20.40	20.38
			4	21.00	20.56	20.45	20.45
			7	21.00	20.51	20.36	20.40
		15	0	21.00	20.51	20.40	20.32

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	22.50	22.33	22.28	22.08	
			13	23.00	22.52	22.41	22.23	
			24	22.50	22.38	22.25	22.11	
		12	0	21.50	21.43	21.35	21.22	
			6	21.50	21.49	21.37	21.23	
			13	21.50	21.49	21.38	21.14	
		25	0	21.50	21.45	21.42	21.14	
		16QAM	1	0	22.00	21.43	21.62	20.99
				13	22.00	21.64	21.75	21.10
	24			22.00	21.50	21.52	20.97	
	12		0	20.50	20.35	20.42	20.27	
			6	20.50	20.47	20.42	20.28	
			13	20.50	20.44	20.42	20.13	
	25	0	20.50	20.48	20.41	20.23		

Bandwidth	Modulation	RB allocation	RB offset	Maximum Tune-up(dBm)	20450	20525	20600	
					829.0MHz	836.5MHz	844.0MHz	
10MHz	QPSK	1	0	22.50	22.42	22.32	22.25	
			25	<b>23.00</b>	<b>22.58</b>	22.46	22.23	
			49	22.50	22.40	22.22	22.14	
		25	0	21.50	21.45	21.45	21.28	
			13	21.50	<b>21.46</b>	21.39	21.20	
			25	21.50	21.43	21.36	21.10	
	50	0	21.50	21.45	21.41	21.20		
		16QAM	1	0	22.00	21.47	21.57	21.91
				25	22.00	21.60	21.68	21.90
	49			22.00	21.45	21.47	21.78	
	25	16QAM	25	0	21.00	20.57	20.50	20.36
				13	21.00	20.57	20.46	20.30
				25	21.00	20.54	20.41	20.13
	50	0	21.00	20.50	20.42	20.25		

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	23.00	22.85	22.28	22.58		
			12	23.00	22.96	22.47	22.73		
			24	23.00	22.93	22.38	22.64		
		12	0	22.00	21.91	21.35	21.57		
			6	22.00	21.94	21.38	21.61		
			13	22.00	21.87	21.38	21.61		
	25	0	22.00	21.53	21.34	21.55			
	16QAM	1	1	0	22.00	21.58	21.11	21.54	
				12	22.00	21.67	21.24	21.67	
				24	22.00	21.58	21.17	21.62	
		12	16QAM	12	0	20.50	20.38	20.33	20.42
					6	21.00	20.49	20.32	20.50
					13	21.00	20.43	20.33	20.50
		25	0	21.00	20.39	20.38	20.50		
		Bandwidth	Modulation	RB allocation	RB offset	Maximum Tune-up(dBm)	20800	21100	21400
2505.0MHz							2535.0MHz	2565.0MHz	
10MHz	QPSK	1	0	23.00	22.65	22.49	22.67		
			24	23.00	22.78	22.57	22.81		
			49	23.00	22.64	22.48	22.73		
		25	0	22.00	21.57	21.41	21.59		
			12	22.00	21.51	21.43	21.61		
			25	22.00	21.55	21.48	21.60		
	50	0	22.00	21.58	21.41	21.56			
		16QAM	1	0	22.50	21.56	21.59	22.02	
				24	22.50	21.67	21.70	22.06	
	49			22.50	21.54	21.59	22.05		
	25	16QAM	25	0	21.00	20.60	20.40	20.57	
				12	21.00	20.57	20.39	20.59	
				25	21.00	20.57	20.46	20.59	
	50	0	21.00	20.59	20.40	20.55			

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	22.59	22.44	22.48							
			38	23.00	22.65	22.48	22.69							
			74	23.00	22.51	22.36	22.60							
		38	0	22.00	21.65	21.54	21.67							
			18	22.00	21.62	21.57	21.74							
			37	22.00	21.66	21.56	21.76							
		75	0	22.00	21.61	21.53	21.68							
			16QAM	1	0	22.00	21.70	21.52	21.92					
					38	22.50	21.79	21.55	22.02					
	74	22.00			21.68	21.49	21.88							
	38	38	0	21.00	20.49	20.42	20.61							
			18	21.00	20.55	20.48	20.68							
			37	21.00	20.47	20.48	20.62							
	75	75	0	21.00	20.54	20.47	20.61							
			20850	21100	21350	2510.0MHz	2535.0MHz	2560.0MHz						
									20MHz	QPSK	1	0	22.50	22.33
	49	<b>23.00</b>										22.71	22.65	<b>22.78</b>
	99	22.50	22.28	22.26	22.47									
50	0	22.00	21.44	21.34	21.50									
	25	22.00	21.50	21.43	<b>21.52</b>									
	50	22.00	21.52	21.41	21.48									
100	0	22.00	21.48	21.35	21.52									
	16QAM	1	0	22.00	21.71	21.31	21.47							
			49	22.50	22.09	21.63	21.91							
99			22.00	21.70	21.41	21.57								
50		0	20.50	20.38	20.29	20.49								
		25	21.00	20.50	20.39	20.53								
		50	21.00	20.51	20.40	20.47								
100	0	21.00	20.48	20.33	20.51									

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	22.15	22.10	22.11		
			2	22.50	22.13	22.18	22.23		
			5	22.50	22.06	22.07	22.18		
		3	0	22.50	22.19	22.16	22.25		
			2	22.50	22.19	22.20	22.31		
			3	22.50	22.17	22.21	22.26		
		6	0	21.50	21.13	21.15	21.22		
			16QAM	1	0	21.50	21.17	21.08	21.29
					2	21.50	21.21	21.19	21.42
	5	21.50			21.07	21.18	21.32		
	3	0		21.50	21.40	21.25	21.23		
		2		21.50	21.43	21.24	21.28		
		3		21.50	21.39	21.26	21.28		
	6	0	20.50	20.19	20.14	20.27			

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	22.23	22.13	22.17	
			7	22.50	22.33	22.30	22.35	
			14	22.50	22.21	22.18	22.25	
		8	0	21.50	21.17	21.18	21.23	
			4	21.50	21.23	21.23	21.30	
			7	21.50	21.19	21.15	21.23	
	15	0	21.50	21.20	21.23	21.23		
	16QAM	1	0	22.00	21.26	21.32	21.77	
			7	22.00	21.35	21.48	21.93	
			14	22.00	21.15	21.35	21.81	
		8	0	20.50	20.25	20.20	20.42	
			4	21.00	20.31	20.27	20.51	
			7	20.50	20.28	20.21	20.47	
		15	0	20.50	20.25	20.23	20.34	
		Bandwidth	Modulation	RB allocation	RB offset	Maximum Tune-up(dBm)	23035	23095
701.5MHz							707.5MHz	713.5MHz
5MHz	QPSK	1	0	22.50	22.15	22.08	22.17	
			13	22.50	22.23	22.19	22.28	
			24	22.50	22.16	22.15	22.24	
		12	0	21.50	21.06	21.18	21.11	
			6	21.50	21.21	21.24	21.26	
			13	21.50	21.27	21.20	21.23	
	25	0	21.50	21.22	21.21	21.20		
	16QAM	1	0	21.50	21.23	21.33	20.99	
			13	21.50	21.31	21.49	21.12	
			24	21.50	21.21	21.48	21.07	
		12	0	20.50	19.99	20.25	20.18	
			6	20.50	20.23	20.30	20.27	
			13	20.50	20.28	20.27	20.26	
		25	0	20.50	20.21	20.25	20.30	
		Bandwidth	Modulation	RB allocation	RB offset	Maximum Tune-up(dBm)	23060	23095
704.0MHz							707.5MHz	711.0MHz
10MHz	QPSK	1	0	22.50	22.13	22.12	22.13	
			25	<b>22.50</b>	22.34	22.31	<b>22.40</b>	
			49	22.50	22.27	22.29	22.27	
		25	0	21.50	21.03	21.30	21.35	
			13	21.50	21.22	21.25	21.32	
			25	21.50	21.18	21.31	<b>21.37</b>	
	50	0	21.50	21.12	21.28	21.41		
	16QAM	1	0	22.00	21.24	21.29	21.72	
			25	22.00	21.35	21.49	22.00	
			49	22.00	21.26	21.41	21.82	
		25	0	20.50	20.14	20.31	20.48	
			13	20.50	20.33	20.32	20.40	
			25	20.50	20.25	20.33	20.49	
		50	0	20.50	20.17	20.29	20.48	



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	22.61	22.56	22.54	
			13	23.00	22.74	22.73	22.66	
			24	23.00	22.63	22.54	22.48	
		12	0	22.00	21.60	21.68	21.67	
			6	22.00	21.76	21.69	21.70	
			13	22.00	21.69	21.65	21.60	
	25	0	22.00	21.67	21.64	21.66		
	16QAM	1	0	22.00	21.52	21.71	21.86	
			13	22.00	21.65	21.82	21.96	
			24	22.00	21.47	21.68	21.81	
		12	0	21.00	20.64	20.69	20.73	
			6	21.00	20.79	20.69	20.72	
			13	21.00	20.67	20.61	20.65	
		25	0	21.00	20.73	20.71	20.67	
		Bandwidth	Modulation	RB allocation	RB offset	Maximum Tune-up(dBm)	23230	
10MHz		QPSK	1	0	23.50	23.21		
	25			<b>23.50</b>	<b>23.30</b>			
	49			23.50	23.08			
	25		0	22.50	22.18			
			13	22.50	<b>22.25</b>			
			25	22.50	22.13			
	50	0	22.50	22.16				
	16QAM	1	0	23.00	22.81			
			25	23.00	22.92			
			49	23.00	22.73			
		25	0	21.50	21.25			
			13	21.50	21.12			
			25	21.00	20.82			
		50	0	21.00	20.72			
		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	22.56	22.10	22.09
			13	23.00	22.69	22.29	22.31
			24	23.00	22.61	22.16	22.15
		12	0	22.00	21.61	21.23	21.14
			6	22.00	21.68	21.23	21.27
			13	22.00	21.60	21.25	21.24
	25	0	22.00	21.61	21.23	21.21	
	16QAM	1	0	21.50	21.43	21.23	21.40
			13	22.00	21.28	21.37	21.57
			24	21.50	21.06	21.26	21.46
		12	0	20.50	20.14	20.21	20.19
			6	20.50	20.22	20.25	20.37
			13	20.50	20.13	20.28	20.34
		25	0	20.50	20.19	20.32	20.25

Bandwidth	Modulation	RB allocation	RB offset	Maximum Tune-up(dBm)	23780	23790	23800	
					709MHz	710MHz	711MHz	
10MHz	QPSK	1	0	22.50	22.10	22.04	22.04	
			25	<b>22.50</b>	<b>22.34</b>	22.31	22.31	
			49	22.50	22.29	22.23	22.23	
		25	0	21.50	21.29	21.33	21.27	
			13	21.50	21.24	21.22	21.28	
			25	21.50	<b>21.37</b>	21.36	21.36	
	50	0	21.50	21.31	21.34	21.32		
		16QAM	1	0	22.00	21.10	21.22	21.66
				25	22.00	21.34	21.52	21.96
	49			22.00	21.29	21.44	21.81	
	25	25	0	20.50	20.39	20.38	20.42	
			13	20.50	20.39	20.28	20.37	
			25	20.50	20.45	20.43	20.47	
	50	0	20.50	20.35	20.41	20.40		

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	22.50	22.25	22.29	22.23
			38	<b>22.50</b>	<b>22.34</b>	22.33	22.11
			74	22.50	22.25	22.14	22.08
		36	0	21.50	21.33	21.42	21.24
			18	21.50	<b>21.47</b>	21.39	21.22
			39	21.50	21.41	21.32	21.07
	75	0	21.50	21.36	21.35	21.14	
	16QAM	1	0	22.00	21.86	21.71	21.43
			38	22.50	22.00	21.79	21.33
			74	22.00	21.95	21.58	21.23
		36	0	20.50	20.38	20.37	20.28
			18	20.50	20.46	20.36	20.26
			39	20.50	20.45	20.36	20.15
		75	0	20.50	20.42	20.36	20.21

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	23.00	22.11	22.09	22.57
			2	23.00	22.22	22.23	22.67
			5	23.00	22.13	22.15	22.56
		3	0	23.00	22.21	22.26	22.58
			2	23.00	22.25	22.28	22.60
			3	23.00	22.19	22.25	22.59
	6	0	22.00	21.22	21.23	21.57	
	16QAM	1	0	22.00	21.27	21.15	21.52
			2	22.00	21.38	21.26	21.65
			5	22.00	21.29	21.16	21.53
		3	0	22.00	21.14	21.46	21.62
			2	22.00	21.18	21.46	21.62
			3	22.00	21.18	21.45	21.56
		6	0	21.00	20.21	20.23	20.50

Bandwidth	Modulation	RB allocation	RB offset	Maximum Tune-up(dBm)	131987	132322	132657	
					1711.5MHz	1745.0MHz	1778.5MHz	
3MHz	QPSK	1	0	23.00	22.19	22.15	22.52	
			7	23.00	22.34	22.34	22.66	
			14	23.00	22.20	22.18	22.51	
		8	0	22.00	21.20	21.21	21.53	
			4	22.00	21.22	21.23	21.58	
			7	22.00	21.17	21.22	21.56	
	15	0	22.00	21.15	21.19	21.52		
	16QAM	1	0	22.00	21.20	21.36	21.99	
			7	22.50	21.33	21.50	22.16	
			14	22.00	21.17	21.36	21.97	
		8	0	21.00	20.21	20.20	20.65	
			4	21.00	20.27	20.23	20.73	
			7	21.00	20.23	20.19	20.69	
		15	0	21.00	20.17	20.17	20.60	
		Bandwidth	Modulation	RB allocation	RB offset	Maximum Tune-up(dBm)	131997	132322
1712.5MHz							1745.0MHz	1777.5MHz
5MHz	QPSK	1	0	22.50	22.10	22.07	22.38	
			13	23.00	22.26	22.24	22.56	
			24	22.50	22.09	22.18	22.45	
		12	0	21.50	21.13	21.12	21.46	
			6	22.00	21.21	21.23	21.55	
			13	22.00	21.20	21.17	21.55	
	25	0	21.50	21.12	21.18	21.48		
	16QAM	1	0	21.50	21.11	21.35	21.23	
			13	22.00	21.31	21.52	21.43	
			24	21.50	21.15	21.41	21.31	
		12	0	21.00	20.08	20.20	20.52	
			6	21.00	20.18	20.27	20.57	
			13	21.00	20.11	20.25	20.51	
		25	0	21.00	20.14	20.17	20.54	
		Bandwidth	Modulation	RB allocation	RB offset	Maximum Tune-up(dBm)	132022	132322
1715.0MHz							1745.0MHz	1775.0MHz
10MHz	QPSK	1	0	22.50	22.18	22.09	22.39	
			25	23.00	22.39	22.35	22.66	
			49	23.00	22.14	22.28	22.54	
		25	0	22.00	21.21	21.20	21.57	
			13	22.00	21.23	21.23	21.58	
			25	22.00	21.27	21.37	21.54	
	50	0	22.00	21.25	21.27	21.57		
	16QAM	1	0	22.00	21.21	21.28	21.93	
			25	22.50	21.33	21.53	22.18	
			49	22.50	21.14	21.44	22.03	
		25	0	21.00	20.29	20.19	20.63	
			13	21.00	20.29	20.26	20.63	
			25	21.00	20.31	20.35	20.64	
		50	0	21.00	20.25	20.24	20.59	

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	22.10	22.01	22.34	
			38	23.00	22.21	22.23	22.52	
			74	22.50	22.02	22.16	22.43	
		36	0	22.00	21.25	21.22	21.56	
			18	22.00	21.28	21.31	21.62	
			39	22.00	21.23	21.39	21.66	
		75	0	22.00	21.24	21.27	21.62	
		16QAM	1	0	22.00	21.42	21.17	21.82
				38	22.50	21.53	21.41	22.03
	74			22.00	21.36	21.27	21.94	
	36		0	21.00	20.18	20.17	20.55	
			18	21.00	20.23	20.25	20.60	
			39	21.00	20.16	20.34	20.58	
	75	0	21.00	20.17	20.28	20.58		
	Bandwidth	Modulation	RB allocation	RB offset	Maximum Tune-up(dBm)	132072	132322	132572
1720.0MHz						1745.0MHz	1770.0MHz	
20MHz	QPSK	1	0	22.50	21.90	21.83	22.14	
			50	<b>23.00</b>	22.28	22.35	<b>22.56</b>	
			99	22.50	21.79	22.08	22.31	
		50	0	22.00	21.17	21.15	<b>21.52</b>	
			25	22.00	21.16	21.27	21.52	
			50	21.50	21.05	21.30	21.42	
		100	0	21.50	21.09	21.23	21.49	
		16QAM	1	0	21.50	21.44	21.01	21.37
				50	22.00	21.78	21.59	21.84
	99			22.00	21.30	21.26	21.57	
	50		0	21.00	20.18	20.16	20.51	
			25	20.50	20.17	20.27	20.45	
			50	20.50	20.08	20.28	20.41	
	100		0	21.00	20.10	20.26	20.52	

### 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	<b>16.93</b>	<b>17.00</b>	Yes
		6	2437	16.35	16.50	No
		11	2462	16.09	16.50	No
	802.11g	1	2412	20.46	20.50	No
		6	2437	19.54	20.00	No
		11	2462	18.67	19.00	No
	802.11n(HT20)	1	2412	20.22	20.50	No
		6	2437	19.24	19.50	No
		11	2462	18.41	18.50	No
	802.11n(HT40)	3	2422	19.26	19.50	No
		6	2437	18.86	19.00	No
		9	2452	18.45	18.50	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	6.07	6.50	No
		40	5200	6.21	6.50	No
		48	5240	<b>7.26</b>	<b>7.50</b>	Yes
	802.11n(HT20)	36	5180	6.76	7.00	No
		40	5200	6.16	6.50	No
		48	5240	7.11	7.50	No
	802.11ac(VHT20)	36	5180	5.95	6.00	No
		40	5200	6.33	6.50	No
		48	5240	7.12	7.50	No
	802.11n(HT40)	38	5190	6.13	6.50	No
		46	5230	6.83	7.00	No
	802.11ac(VHT40)	38	5190	2.97	3.00	No
		46	5230	6.79	7.00	No
802.11ac(VHT80)	42	5210	6.99	7.00	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	9.95	10.00	No
		157	5785	10.69	11.00	No
		165	5825	<b>10.80</b>	<b>11.00</b>	Yes
	802.11n(HT20)	149	5745	9.10	9.50	No
		157	5785	9.41	9.50	No
		165	5825	10.25	10.50	No
	802.11ac(VHT20)	149	5745	7.41	7.50	No
		157	5785	7.10	7.50	No
		165	5825	7.76	8.00	No
	802.11n(HT40)	151	5755	9.07	9.50	No
		159	5795	9.45	9.50	No
	802.11ac(VHT40)	151	5755	7.23	7.50	No
		159	5795	7.86	8.00	No
802.11ac(VHT80)	155	5775	8.26	8.50	No	

### 8.5 Bluetooth

EDR	Mode	Maximum Tune-up(dBm)	Average Conducted Output Power (dBm)		
			0	39	78
			2402MHz	2441MHz	2480MHz
			GFSK	-1.00	-1.01
$\pi/4$ QPSK	-1.50	-1.70	-3.20	-3.23	
8DPSK	-1.50	-1.76	-3.25	-3.24	

BLE	Mode	Maximum Tune-up(dBm)	Average Conducted Output Power (dBm)		
			0	20	39
			2402MHz	2440MHz	2480MHz
			1Mbps	-5.50	-5.67
2Mbps	-5.50	-5.70	-6.62	-8.02	

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	-1.00	0.79	0	2.79	No
0	2.402	-1.00	0.79	10	10.39	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  $\leq 40$  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

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

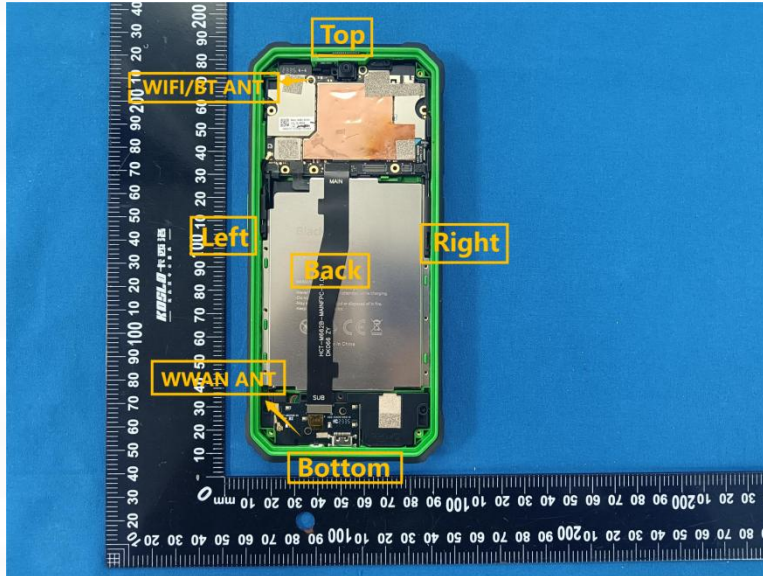
$$x = -\log_{10} \left( \frac{60}{ERP_{20 \text{ cm}} \sqrt{f}} \right)$$

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  $\leq 50$  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	-1.00	0.79	Estimated SAR(W/kg)	0.033	0.016

## 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	0.088	100.00	1.000	31.44	31.50	1.014	0.089	/
	Left Tilt	251	848.8	3.010	0.035	100.00	1.000	31.44	31.50	1.014	0.035	/
	Right Cheek	251	848.8	-1.460	0.091	100.00	1.000	31.44	31.50	1.014	<b>0.092</b>	1#
	Right Tilt	251	848.8	-1.840	0.037	100.00	1.000	31.44	31.50	1.014	0.038	/
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	2.900	0.176	100.00	1.000	27.93	28.00	1.016	0.179	/
	Back	251	848.8	-3.120	0.240	100.00	1.000	27.93	28.00	1.016	<b>0.244</b>	2#
	Left	251	848.8	-1.710	0.103	100.00	1.000	27.93	28.00	1.016	0.105	/
	Bottom	251	848.8	2.930	0.219	100.00	1.000	27.93	28.00	1.016	0.223	/

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	0.086	100.00	1.000	27.94	28.00	1.014	0.087	/
	Left Tilt	810	1909.8	0.090	0.065	100.00	1.000	27.94	28.00	1.014	0.066	/
	Right Cheek	810	1909.8	-2.580	0.088	100.00	1.000	27.94	28.00	1.014	<b>0.089</b>	3#
	Right Tilt	810	1909.8	2.590	0.069	100.00	1.000	27.94	28.00	1.014	0.070	/
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	0.680	0.385	100.00	1.000	24.98	25.00	1.005	0.387	/
	Back	810	1909.8	-1.810	0.479	100.00	1.000	24.98	25.00	1.005	<b>0.481</b>	4#
	Left	810	1909.8	4.700	0.208	100.00	1.000	24.98	25.00	1.005	0.209	/
	Bottom	810	1909.8	-1.420	0.426	100.00	1.000	24.98	25.00	1.005	0.428	/

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	9262	1852.4	1.002	0.118	100.00	1.000	21.60	22.00	1.096	0.129	/
	Left Tilt	9262	1852.4	0.990	0.076	100.00	1.000	21.60	22.00	1.096	0.083	/
	Right Cheek	9262	1852.4	-1.890	0.121	100.00	1.000	21.60	22.00	1.096	<b>0.133</b>	5#
	Right Tilt	9262	1852.4	-4.860	0.080	100.00	1.000	21.60	22.00	1.096	0.088	/
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	9262	1852.4	-3.390	0.269	100.00	1.000	21.60	22.00	1.096	0.295	/
	Back	9262	1852.4	-0.760	0.434	100.00	1.000	21.60	22.00	1.096	<b>0.476</b>	6#
	Left	9262	1852.4	-2.980	0.124	100.00	1.000	21.60	22.00	1.096	0.136	/
	Bottom	9262	1852.4	-3.570	0.286	100.00	1.000	21.60	22.00	1.096	0.313	/

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	0.091	100.00	1.000	21.28	21.50	1.052	0.096	/
	Left Tilt	1513	1752.6	0.890	0.075	100.00	1.000	21.28	21.50	1.052	0.079	/
	Right Cheek	1513	1752.6	1.460	0.094	100.00	1.000	21.28	21.50	1.052	<b>0.099</b>	7#
	Right Tilt	1513	1752.6	-1.500	0.077	100.00	1.000	21.28	21.50	1.052	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 4 (RMC*)	Front	1513	1752.6	-0.030	0.421	100.00	1.000	21.28	21.50	1.052	0.443	/
	Back	1513	1752.6	2.650	0.555	100.00	1.000	21.28	21.50	1.052	<b>0.584</b>	8#
	Left	1513	1752.6	0.770	0.236	100.00	1.000	21.28	21.50	1.052	0.248	/
	Bottom	1513	1752.6	-3.390	0.498	100.00	1.000	21.28	21.50	1.052	0.524	/



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	0.209	100.00	1.000	22.09	22.50	1.099	0.230	/
	Left Tilt	4183	836.6	0.977	0.125	100.00	1.000	22.09	22.50	1.099	0.137	/
	Right Cheek	4183	836.6	-2.570	0.213	100.00	1.000	22.09	22.50	1.099	<b>0.234</b>	9#
	Right Tilt	4183	836.6	1.240	0.129	100.00	1.000	22.09	22.50	1.099	0.142	/
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	4.180	0.131	100.00	1.000	22.09	22.50	1.099	0.144	/
	Back	4183	836.6	4.310	0.267	100.00	1.000	22.09	22.50	1.099	<b>0.293</b>	10#
	Left	4183	836.6	1.100	0.072	100.00	1.000	22.09	22.50	1.099	0.079	/
	Bottom	4183	836.6	-4.410	0.087	100.00	1.000	22.09	22.50	1.099	0.096	/

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	-1.930	0.143	100.00	1.000	23.22	23.50	1.067	0.153	/
		Left Tilt	18700	1860.0	0.890	0.100	100.00	1.000	23.22	23.50	1.067	0.107	/
		Right Cheek	18700	1860.0	-0.110	0.147	100.00	1.000	23.22	23.50	1.067	<b>0.157</b>	11#
		Right Tilt	18700	1860.0	0.680	0.102	100.00	1.000	23.22	23.50	1.067	0.109	/
	50%RB	Left Cheek	18700	1860.0	3.190	0.131	100.00	1.000	21.83	22.00	1.040	0.136	/
		Left Tilt	18700	1860.0	0.551	0.090	100.00	1.000	21.83	22.00	1.040	0.094	/
		Right Cheek	18700	1860.0	2.830	0.136	100.00	1.000	21.83	22.00	1.040	0.141	/
		Right Tilt	18700	1860.0	2.014	0.092	100.00	1.000	21.83	22.00	1.040	0.096	/
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	-4.310	0.287	100.00	1.000	23.22	23.50	1.067	0.306	/
		Back	18700	1860.0	-2.060	0.375	100.00	1.000	23.22	23.50	1.067	<b>0.400</b>	12#
		Left	18700	1860.0	3.000	0.142	100.00	1.000	23.22	23.50	1.067	0.152	/
		Bottom	18700	1860.0	-2.420	0.330	100.00	1.000	23.22	23.50	1.067	0.352	/
	50%RB	Front	18700	1860.0	-1.023	0.261	100.00	1.000	21.83	22.00	1.040	0.271	/
		Back	18700	1860.0	0.653	0.343	100.00	1.000	21.83	22.00	1.040	0.357	/
		Left	18700	1860.0	-0.322	0.121	100.00	1.000	21.83	22.00	1.040	0.126	/
		Bottom	18700	1860.0	2.315	0.304	100.00	1.000	21.83	22.00	1.040	0.316	/

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	20175	1732.5	-1.930	0.062	100.00	1.000	22.57	23.00	1.104	0.068	/
		Left Tilt	20175	1732.5	0.890	0.031	100.00	1.000	22.57	23.00	1.104	0.034	/
		Right Cheek	20175	1732.5	-3.840	0.068	100.00	1.000	22.57	23.00	1.104	<b>0.075</b>	13#
		Right Tilt	20175	1732.5	-2.890	0.034	100.00	1.000	22.57	23.00	1.104	0.038	/
	50%RB	Left Cheek	20175	1732.5	3.190	0.052	100.00	1.000	21.45	21.50	1.012	0.053	/
		Left Tilt	20175	1732.5	0.551	0.027	100.00	1.000	21.45	21.50	1.012	0.027	/
		Right Cheek	20175	1732.5	1.220	0.058	100.00	1.000	21.45	21.50	1.012	0.059	/
		Right Tilt	20175	1732.5	2.014	0.029	100.00	1.000	21.45	21.50	1.012	0.029	/
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	20175	1732.5	0.090	0.196	100.00	1.000	22.57	23.00	1.104	0.216	/
		Back	20175	1732.5	-2.750	0.283	100.00	1.000	22.57	23.00	1.104	<b>0.312</b>	14#
		Left	20175	1732.5	-2.220	0.105	100.00	1.000	22.57	23.00	1.104	0.116	/
		Bottom	20175	1732.5	-1.610	0.239	100.00	1.000	22.57	23.00	1.104	0.264	/
	50%RB	Front	20175	1732.5	-1.023	0.168	100.00	1.000	21.45	21.50	1.012	0.170	/
		Back	20175	1732.5	0.653	0.257	100.00	1.000	21.45	21.50	1.012	0.260	/
		Left	20175	1732.5	-0.322	0.098	100.00	1.000	21.45	21.50	1.012	0.099	/
		Bottom	20175	1732.5	-4.510	0.210	100.00	1.000	21.45	21.50	1.012	0.213	/

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	-1.930	0.185	100.00	1.000	22.58	23.00	1.102	0.204	/
		Left Tilt	20450	829.0	0.890	0.110	100.00	1.000	22.58	23.00	1.102	0.121	/
		Right Cheek	20450	829.0	-2.050	0.192	100.00	1.000	22.58	23.00	1.102	<b>0.212</b>	15#
		Right Tilt	20450	829.0	0.280	0.116	100.00	1.000	22.58	23.00	1.102	0.128	/
	50%RB	Left Cheek	20450	829.0	3.190	0.169	100.00	1.000	21.46	21.50	1.009	0.171	/
		Left Tilt	20450	829.0	0.551	0.100	100.00	1.000	21.46	21.50	1.009	0.101	/
		Right Cheek	20450	829.0	1.220	0.178	100.00	1.000	21.46	21.50	1.009	0.180	/
		Right Tilt	20450	829.0	2.014	0.104	100.00	1.000	21.46	21.50	1.009	0.105	/

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	0.860	0.178	100.00	1.000	22.58	23.00	1.102	0.196	/
		Back	20450	829.0	1.830	0.248	100.00	1.000	22.58	23.00	1.102	<b>0.273</b>	16#
		Left	20450	829.0	4.340	0.099	100.00	1.000	22.58	23.00	1.102	0.109	/
		Bottom	20450	829.0	-4.290	0.213	100.00	1.000	22.58	23.00	1.102	0.235	/
	50%RB	Front	20450	829.0	0.350	0.165	100.00	1.000	21.46	21.50	1.009	0.166	/
		Back	20450	829.0	0.653	0.220	100.00	1.000	21.46	21.50	1.009	0.222	/
		Left	20450	829.0	-0.322	0.089	100.00	1.000	21.46	21.50	1.009	0.090	/
		Bottom	20450	829.0	2.315	0.201	100.00	1.000	21.46	21.50	1.009	0.203	/

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	-0.906	0.103	100.00	1.000	22.78	23.00	1.052	0.108	/
		Left Tilt	21350	2560.0	3.650	0.068	100.00	1.000	22.78	23.00	1.052	0.072	/
		Right Cheek	21350	2560.0	2.570	0.106	100.00	1.000	22.78	23.00	1.052	<b>0.112</b>	17#
		Right Tilt	21350	2560.0	-0.481	0.071	100.00	1.000	22.78	23.00	1.052	0.075	/
	50%RB	Left Cheek	21350	2560.0	2.376	0.095	100.00	1.000	21.52	22.00	1.117	0.106	/
		Left Tilt	21350	2560.0	-1.111	0.061	100.00	1.000	21.52	22.00	1.117	0.068	/
		Right Cheek	21350	2560.0	-2.967	0.101	100.00	1.000	21.52	22.00	1.117	0.113	/
		Right Tilt	21350	2560.0	0.591	0.065	100.00	1.000	21.52	22.00	1.117	0.073	/

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	0.974	0.388	100.00	1.000	22.78	23.00	1.052	0.408	/
		Back	21350	2560.0	3.000	0.481	100.00	1.000	22.78	23.00	1.052	<b>0.506</b>	18#
		Left	21350	2560.0	4.207	0.235	100.00	1.000	22.78	23.00	1.052	0.247	/
		Bottom	21350	2560.0	-4.313	0.429	100.00	1.000	22.78	23.00	1.052	0.451	/
	50%RB	Front	21350	2560.0	-0.670	0.351	100.00	1.000	21.52	22.00	1.117	0.392	/
		Back	21350	2560.0	-0.198	0.448	100.00	1.000	21.52	22.00	1.117	0.500	/
		Left	21350	2560.0	-0.649	0.198	100.00	1.000	21.52	22.00	1.117	0.221	/
		Bottom	21350	2560.0	1.857	0.402	100.00	1.000	21.52	22.00	1.117	0.449	/

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	-1.930	0.146	100.00	1.000	22.40	22.50	1.023	0.149	/
		Left Tilt	23130	711.0	0.890	0.082	100.00	1.000	22.40	22.50	1.023	0.084	/
		Right Cheek	23130	711.0	-2.060	0.152	100.00	1.000	22.40	22.50	1.023	<b>0.155</b>	19#
		Right Tilt	23130	711.0	-1.700	0.089	100.00	1.000	22.40	22.50	1.023	0.091	/
	50%RB	Left Cheek	23130	711.0	3.190	0.140	100.00	1.000	21.37	21.50	1.030	0.144	/
		Left Tilt	23130	711.0	0.551	0.073	100.00	1.000	21.37	21.50	1.030	0.075	/
		Right Cheek	23130	711.0	1.220	0.145	100.00	1.000	21.37	21.50	1.030	0.149	/
		Right Tilt	23130	711.0	2.024	0.077	100.00	1.000	21.37	21.50	1.030	0.079	/

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	-1.960	0.084	100.00	1.000	22.40	22.50	1.023	0.086	/
		Back	23130	711.0	-0.930	0.126	100.00	1.000	22.40	22.50	1.023	<b>0.129</b>	20#
		Left	23130	711.0	-2.040	0.053	100.00	1.000	22.40	22.50	1.023	0.054	/
		Bottom	23130	711.0	2.110	0.102	100.00	1.000	22.40	22.50	1.023	0.104	/
	50%RB	Front	23130	711.0	-1.023	0.078	100.00	1.000	21.37	21.50	1.030	0.080	/
		Back	23130	711.0	0.653	0.111	100.00	1.000	21.37	21.50	1.030	0.114	/
		Left	23130	711.0	-0.322	0.048	100.00	1.000	21.37	21.50	1.030	0.049	/
		Bottom	23130	711.0	2.315	0.091	100.00	1.000	21.37	21.50	1.030	0.094	/

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	-1.930	0.182	100.00	1.000	23.30	23.50	1.047	0.191	/
		Left Tilt	23230	782.0	0.890	0.120	100.00	1.000	23.30	23.50	1.047	0.126	/
		Right Cheek	23230	782.0	-1.230	0.188	100.00	1.000	23.30	23.50	1.047	<b>0.197</b>	21#
		Right Tilt	23230	782.0	-2.270	0.123	100.00	1.000	23.30	23.50	1.047	0.129	/
	50%RB	Left Cheek	23230	782.0	3.190	0.161	100.00	1.000	22.25	22.50	1.059	0.170	/
		Left Tilt	23230	782.0	0.551	0.107	100.00	1.000	22.25	22.50	1.059	0.113	/
		Right Cheek	23230	782.0	1.220	0.169	100.00	1.000	22.25	22.50	1.059	0.179	/
		Right Tilt	23230	782.0	2.014	0.112	100.00	1.000	22.25	22.50	1.059	0.119	/

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	-4.650	0.101	100.00	1.000	23.30	23.50	1.047	0.106	/
		Back	23230	782.0	-2.060	0.193	100.00	1.000	23.30	23.50	1.047	<b>0.202</b>	22#
		Left	23230	782.0	3.340	0.075	100.00	1.000	23.30	23.50	1.047	0.079	/
		Bottom	23230	782.0	2.320	0.144	100.00	1.000	23.30	23.50	1.047	0.151	/
	50%RB	Front	23230	782.0	-1.023	0.094	100.00	1.000	22.25	22.50	1.059	0.100	/
		Back	23230	782.0	0.653	0.167	100.00	1.000	22.25	22.50	1.059	0.177	/
		Left	23230	782.0	-0.322	0.068	100.00	1.000	22.25	22.50	1.059	0.072	/
		Bottom	23230	782.0	2.315	0.118	100.00	1.000	22.25	22.50	1.059	0.125	/

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	23780	709.0	-4.536	0.142	100.00	1.000	22.34	22.50	1.038	0.147	/
		Left Tilt	23780	709.0	-1.859	0.079	100.00	1.000	22.34	22.50	1.038	0.082	/
		Right Cheek	23780	709.0	-3.010	0.148	100.00	1.000	22.34	22.50	1.038	<b>0.154</b>	23#
		Right Tilt	23780	709.0	2.297	0.082	100.00	1.000	22.34	22.50	1.038	0.085	/
	50%RB	Left Cheek	23780	709.0	-2.043	0.117	100.00	1.000	21.37	21.50	1.030	0.121	/
		Left Tilt	23780	709.0	-0.198	0.063	100.00	1.000	21.37	21.50	1.030	0.065	/
		Right Cheek	23780	709.0	-0.649	0.125	100.00	1.000	21.37	21.50	1.030	0.129	/
		Right Tilt	23780	709.0	1.857	0.067	100.00	1.000	21.37	21.50	1.030	0.069	/

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	23780	709.0	3.228	0.084	100.00	1.000	22.34	22.50	1.038	0.087	/
		Back	23780	709.0	1.970	0.125	100.00	1.000	22.34	22.50	1.038	<b>0.130</b>	24#
		Left	23780	709.0	1.266	0.053	100.00	1.000	22.34	22.50	1.038	0.055	/
		Bottom	23780	709.0	-0.046	0.099	100.00	1.000	22.34	22.50	1.038	0.103	/
	50%RB	Front	23780	709.0	-2.040	0.075	100.00	1.000	21.37	21.50	1.030	0.077	/
		Back	23780	709.0	-1.702	0.106	100.00	1.000	21.37	21.50	1.030	0.109	/
		Left	23780	709.0	-0.654	0.047	100.00	1.000	21.37	21.50	1.030	0.048	/
		Bottom	23780	709.0	-0.916	0.091	100.00	1.000	21.37	21.50	1.030	0.094	/

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	-1.930	0.227	100.00	1.000	22.34	22.50	1.038	0.236	/
		Left Tilt	26765	821.5	0.890	0.139	100.00	1.000	22.34	22.50	1.038	0.144	/
		Right Cheek	26765	821.5	-2.590	0.232	100.00	1.000	22.34	22.50	1.038	<b>0.241</b>	25#
		Right Tilt	26765	821.5	2.830	0.146	100.00	1.000	22.34	22.50	1.038	0.152	/
	50%RB	Left Cheek	26765	821.5	3.190	0.203	100.00	1.000	21.47	21.50	1.007	0.204	/
		Left Tilt	26765	821.5	0.551	0.108	100.00	1.000	21.47	21.50	1.007	0.109	/
		Right Cheek	26765	821.5	1.220	0.207	100.00	1.000	21.47	21.50	1.007	0.208	/
		Right Tilt	26765	821.5	2.014	0.116	100.00	1.000	21.47	21.50	1.007	0.117	/

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	-1.550	0.175	100.00	1.000	22.34	22.50	1.038	0.182	/
		Back	26765	821.5	-2.090	0.221	100.00	1.000	22.34	22.50	1.038	<b>0.229</b>	26#
		Left	26765	821.5	1.940	0.093	100.00	1.000	22.34	22.50	1.038	0.097	/
		Bottom	26765	821.5	-1.200	0.197	100.00	1.000	22.34	22.50	1.038	0.204	/
	50%RB	Front	26765	821.5	-1.023	0.141	100.00	1.000	21.47	21.50	1.007	0.142	/
		Back	26765	821.5	0.653	0.206	100.00	1.000	21.47	21.50	1.007	0.207	/
		Left	26765	821.5	-0.322	0.088	100.00	1.000	21.47	21.50	1.007	0.089	/
		Bottom	26765	821.5	-4.510	0.165	100.00	1.000	21.47	21.50	1.007	0.166	/

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	-1.930	0.092	100.00	1.000	22.56	23.00	1.107	0.102	/
		Left Tilt	132572	1770.0	0.890	0.051	100.00	1.000	22.56	23.00	1.107	0.056	/
		Right Cheek	132572	1770.0	2.200	0.096	100.00	1.000	22.56	23.00	1.107	<b>0.106</b>	27#
		Right Tilt	132572	1770.0	-1.290	0.058	100.00	1.000	22.56	23.00	1.107	0.064	/
	50%RB	Left Cheek	132572	1770.0	3.190	0.073	100.00	1.000	21.52	22.00	1.117	0.082	/
		Left Tilt	132572	1770.0	0.551	0.043	100.00	1.000	21.52	22.00	1.117	0.048	/
		Right Cheek	132572	1770.0	1.220	0.076	100.00	1.000	21.52	22.00	1.117	0.085	/
		Right Tilt	132572	1770.0	2.014	0.047	100.00	1.000	21.52	22.00	1.117	0.052	/

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	-0.600	0.321	100.00	1.000	22.56	23.00	1.107	0.355	/
		Back	132572	1770.0	2.600	0.402	100.00	1.000	22.56	23.00	1.107	<b>0.445</b>	28#
		Left	132572	1770.0	-1.850	0.135	100.00	1.000	22.56	23.00	1.107	0.149	/
		Bottom	132572	1770.0	3.180	0.379	100.00	1.000	22.56	23.00	1.107	0.420	/
	50%RB	Front	132572	1770.0	-1.023	0.296	100.00	1.000	21.52	22.00	1.117	0.331	/
		Back	132572	1770.0	0.653	0.384	100.00	1.000	21.52	22.00	1.117	0.429	/
		Left	132572	1770.0	-0.322	0.126	100.00	1.000	21.52	22.00	1.117	0.141	/
		Bottom	132572	1770.0	-4.510	0.351	100.00	1.000	21.52	22.00	1.117	0.392	/

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	1.550	0.513	100.00	1.000	16.93	17.00	1.016	0.521	/
	Left Tilt	1	2412	0.390	0.357	100.00	1.000	16.93	17.00	1.016	0.363	/
	Right Cheek	1	2412	-1.650	0.525	100.00	1.000	16.93	17.00	1.016	<b>0.533</b>	29#
	Right Tilt	1	2412	1.530	0.364	100.00	1.000	16.93	17.00	1.016	0.370	/

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	-2.540	0.171	100.00	1.000	16.93	17.00	1.016	<b>0.174</b>	30#
	Back	1	2412	2.540	0.157	100.00	1.000	16.93	17.00	1.016	0.160	/
	Right	1	2412	3.220	0.077	100.00	1.000	16.93	17.00	1.016	0.078	/
	Top	1	2412	0.770	0.133	100.00	1.000	16.93	17.00	1.016	0.135	/

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) 802.11a)	Left Cheek	48	5240	-1.350	0.268	100.00	1.000	7.26	7.50	1.057	0.283	/
	Left Tilt	48	5240	0.300	0.138	100.00	1.000	7.26	7.50	1.057	0.146	/
	Right Cheek	48	5240	-2.050	0.276	100.00	1.000	7.26	7.50	1.057	<b>0.292</b>	31#
	Right Tilt	48	5240	1.400	0.145	100.00	1.000	7.26	7.50	1.057	0.153	/
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) 802.11a)	Front	48	5240	1.040	0.162	100.00	1.000	7.26	7.50	1.057	<b>0.171</b>	32#
	Back	48	5240	0.998	0.146	100.00	1.000	7.26	7.50	1.057	0.154	/
	Right	48	5240	-1.380	0.070	100.00	1.000	7.26	7.50	1.057	0.074	/
	Top	48	5240	2.560	0.127	100.00	1.000	7.26	7.50	1.057	0.134	/

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) 802.11a)	Left Cheek	165	5825	0.829	0.182	100.00	1.000	10.80	11.00	1.047	0.191	/
	Left Tilt	165	5825	-2.098	0.108	100.00	1.000	10.80	11.00	1.047	0.113	/
	Right Cheek	165	5825	1.280	0.190	100.00	1.000	10.80	11.00	1.047	<b>0.199</b>	33#
	Right Tilt	165	5825	-1.955	0.114	100.00	1.000	10.80	11.00	1.047	0.119	/
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) 802.11a)	Front	165	5825	3.414	0.094	100.00	1.000	10.80	11.00	1.047	0.098	/
	Back	165	5825	1.470	0.102	100.00	1.000	10.80	11.00	1.047	<b>0.107</b>	34#
	Right	165	5825	-0.406	0.051	100.00	1.000	10.80	11.00	1.047	0.053	/
	Top	165	5825	-1.206	0.076	100.00	1.000	10.80	11.00	1.047	0.080	/

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<sup>4</sup>[(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  $\leq 1.45$  W/kg and the ratio of these highest SAR values, i.e., largest divided by smallest value, is  $\leq 1.10$ , 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  $\geq 0.80$  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  $\geq 1.45$  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  $\geq 1.5$  W/kg, perform a third repeated measurement.

Note: For 1g SAR, the highest measured 1g SAR is  $0.555 < 0.80$  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 2 Tx antennas, WWAN main antenna, 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

### 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	SPLSR	Remark
			WWAN	WIFI 2.4G	WIFI 5G	Bluetooth					
LTE Band 26 QPSK (15MHz)	Left Cheek	1RB	0.236	0.521	0.283	<b>0.033</b>	0.757	0.519	0.269	N/A	N/A
	Left Tilt		0.144	0.363	0.146	0.033	0.507	0.290	0.177	N/A	N/A
	Right Cheek		<b>0.241</b>	<b>0.533</b>	<b>0.292</b>	0.033	<b>0.774</b>	0.533	0.274	N/A	N/A
	Right Tilt		0.152	0.37	0.153	0.033	0.522	0.305	0.185	N/A	N/A
	Left Cheek	50%RB	0.204	0.521	0.283	0.033	0.725	0.487	0.237	N/A	N/A
	Left Tilt		0.109	0.363	0.146	0.033	0.472	0.255	0.142	N/A	N/A
	Right Cheek		0.208	0.533	0.292	0.033	0.741	0.500	0.241	N/A	N/A
	Right Tilt		0.117	0.37	0.153	0.033	0.487	0.270	0.150	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	SPLSR	Remark
		WWAN	WIFI 2.4G	WIFI 5G	BT					
WCDMA Band 4	Front	0.443	<b>0.174</b>	<b>0.171</b>	<b>0.016</b>	0.617	0.614	0.459	N/A	N/A
	Back	<b>0.584</b>	0.160	0.154	0.016	<b>0.744</b>	0.738	0.600	N/A	N/A
	Left	0.248	/	/	/	0.248	0.248	0.248	N/A	N/A
	Right	/	0.078	0.074	0.016	0.078	0.074	0.016	N/A	N/A
	Top	/	0.135	0.134	0.016	0.135	0.134	0.016	N/A	N/A
	Bottom	0.524	/	/	/	0.524	0.524	0.524	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)	$\epsilon_r$		$\sigma$ (s/m)		Delta ( $\epsilon_r$ )	Delta ( $\sigma$ )	Limit	Temp (°C)	Date
	Target	Measured	Target	Measured					
750	41.90	43.61	0.89	0.86	4.08%	-3.37%	±10%	20.0	30/10/2023
835	41.50	43.25	0.90	0.87	4.22%	-3.33%	±10%	20.0	30/10/2023
1800	40.00	41.53	1.40	1.37	3.83%	-2.14%	±10%	20.0	30/10/2023
1900	40.00	39.88	1.40	1.41	-0.30%	0.71%	±10%	20.0	30/10/2023
2450	39.20	41.39	1.80	1.81	5.59%	0.56%	±10%	20.0	31/10/2023
2600	39.00	38.88	1.96	1.97	-0.31%	0.51%	±10%	20.0	31/10/2023
5200	36.00	35.88	4.66	4.70	-0.33%	0.86%	±10%	20.0	31/10/2023
5800	35.30	38.06	5.27	5.31	7.82%	0.76%	±10%	20.0	31/10/2023

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: 30/10/2023

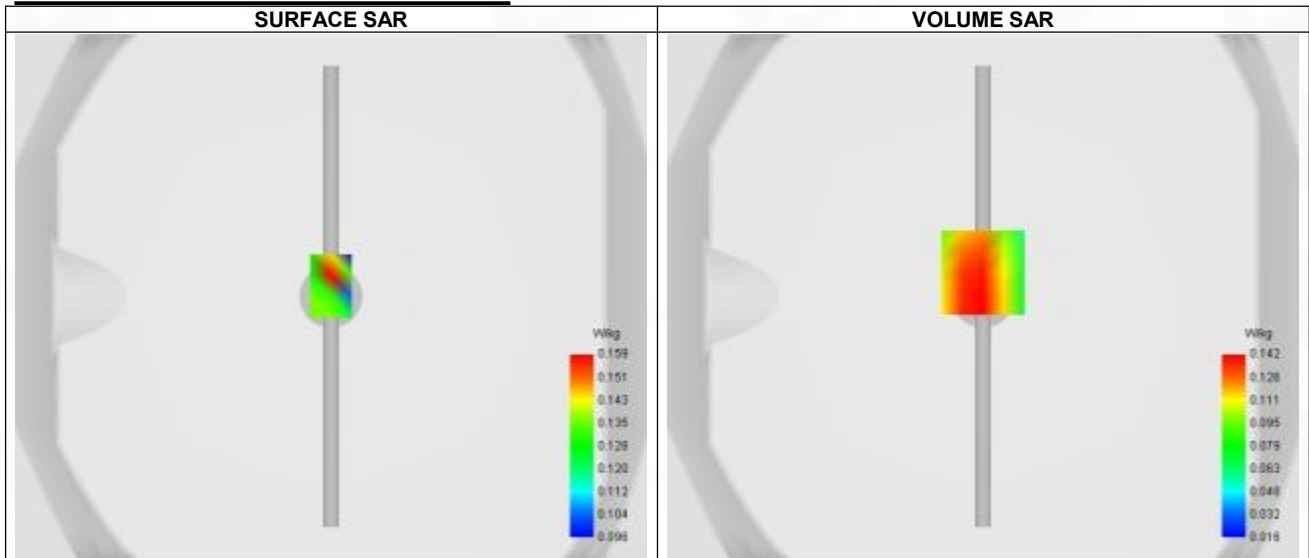
#### A. Experimental conditions.

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

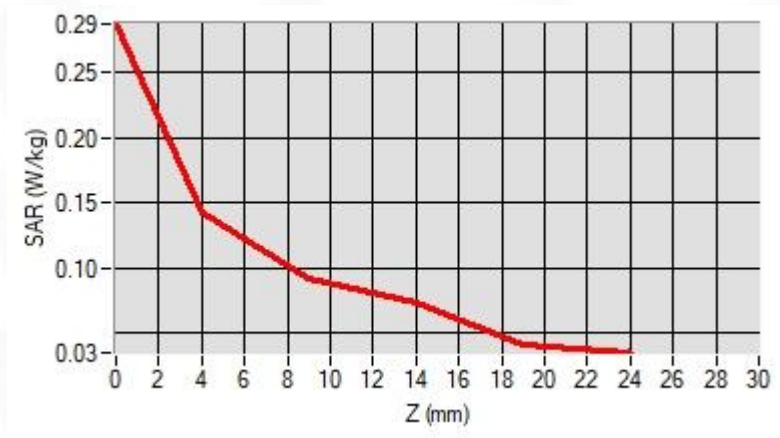


#### D. SAR 1g & 10g

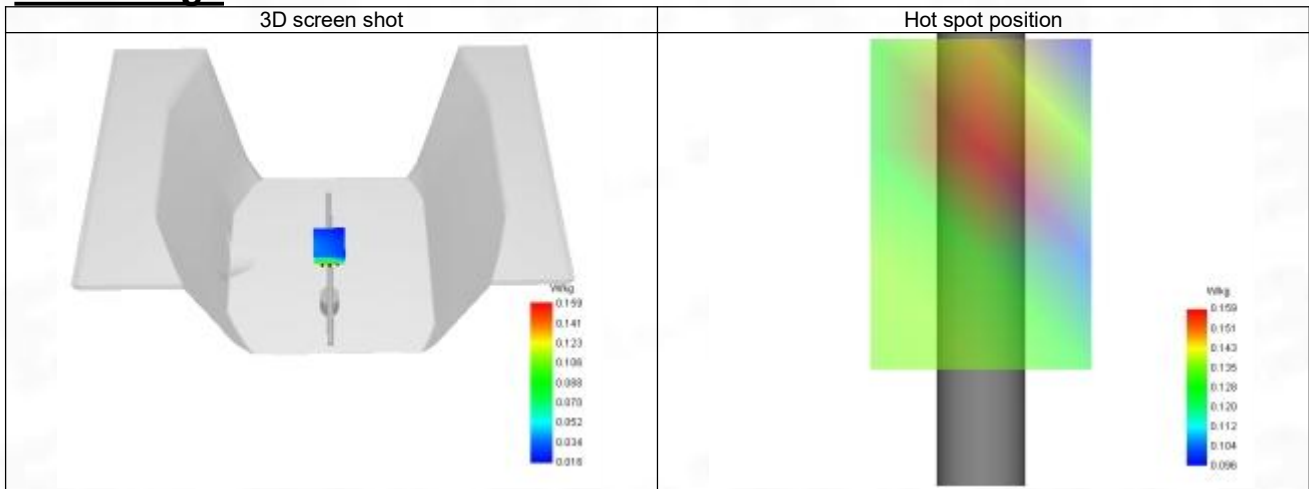
SAR 10g (W/Kg)	0.092
SAR 1g (W/Kg)	0.138
Variation (%)	-2.190
Horizontal validation criteria: minimum distance (mm)	0.000000
Vertical validation criteria: SAR ratio M2/M1 (%)	0.000000

#### 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: 30/10/2023

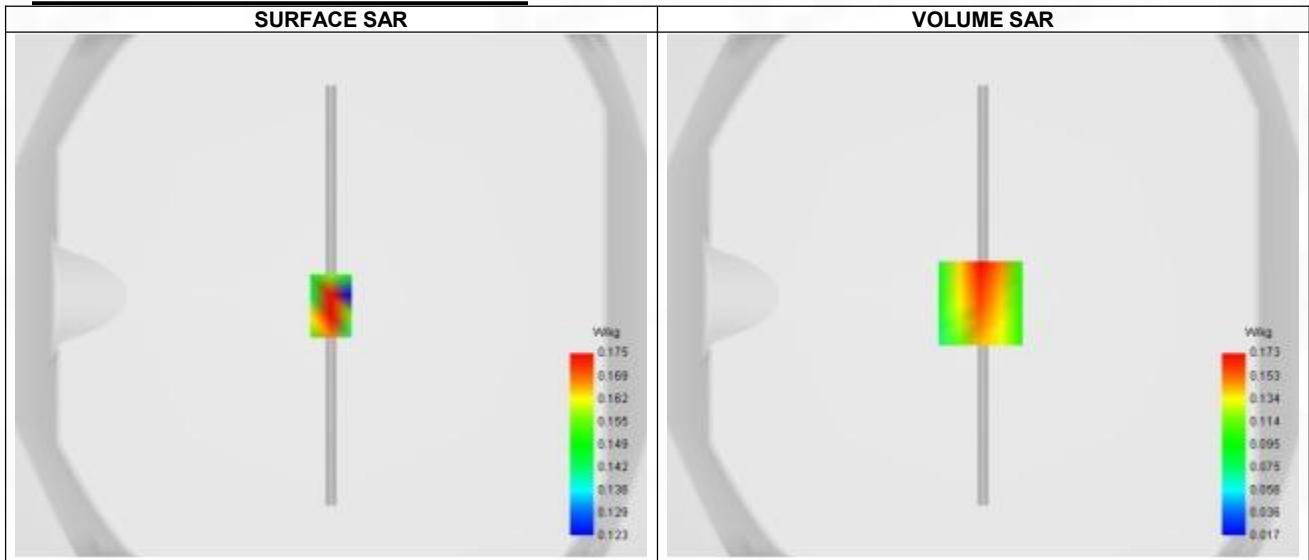
#### A. Experimental conditions.

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



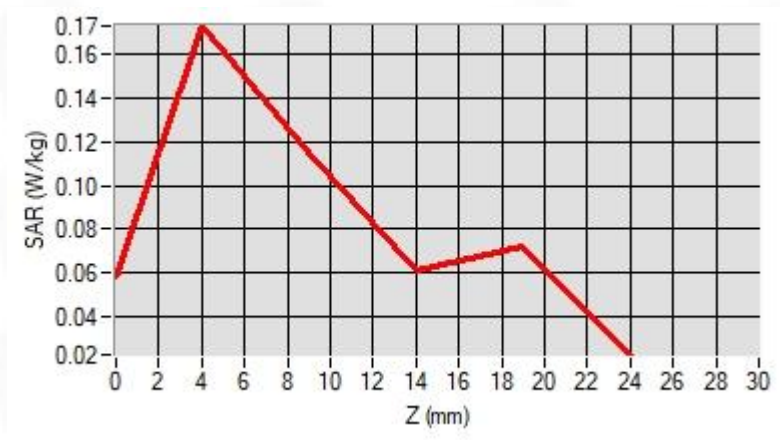
Maximum location: X=-1.00, Y=-3.00 ; SAR Peak: 0.26 W/kg

#### D. SAR 1g & 10g

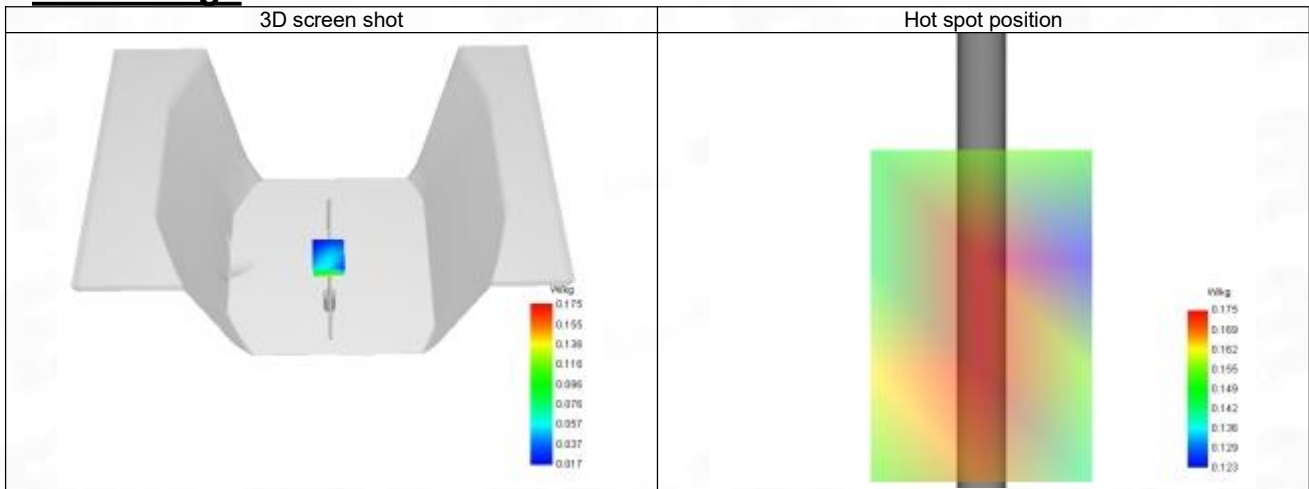
SAR 10g (W/Kg)	0.106
SAR 1g (W/Kg)	0.163
Variation (%)	-3.390
Horizontal validation criteria: minimum distance (mm)	0.000000
Vertical validation criteria: SAR ratio M2/M1 (%)	0.000000

#### 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: 30/10/2023

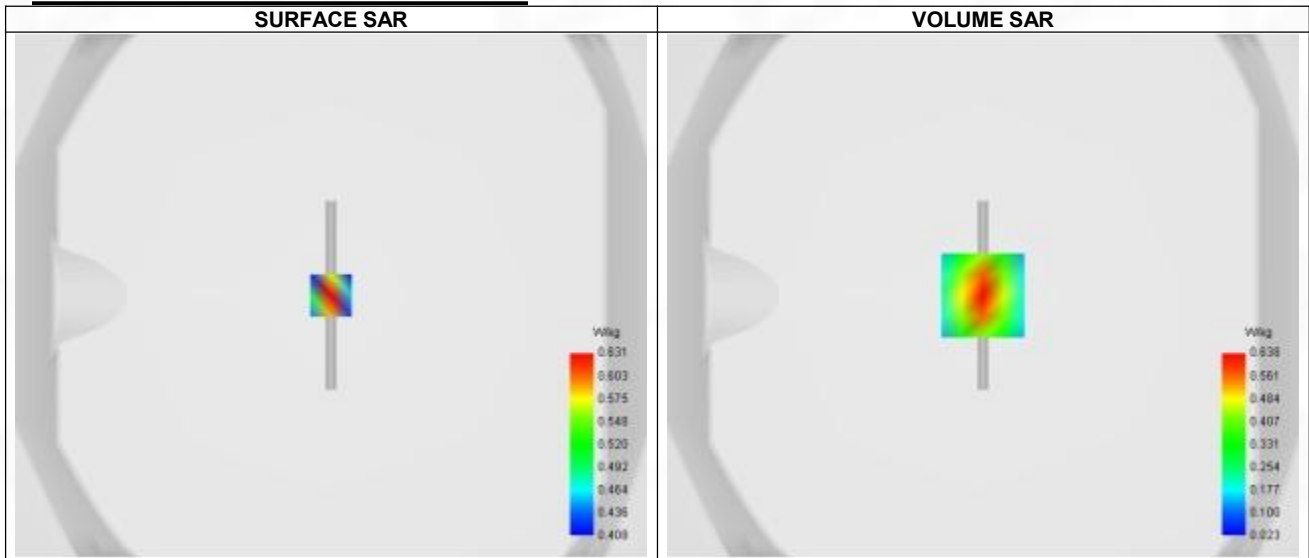
#### A. Experimental conditions.

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



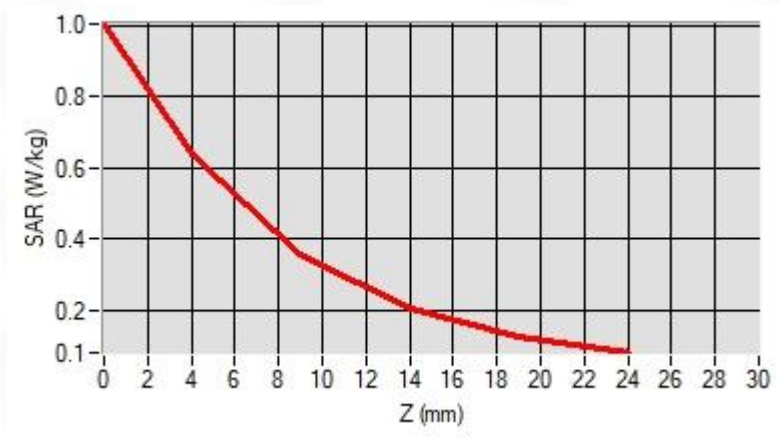
Maximum location: X=0.00, Y=0.00 ; SAR Peak: 1.00 W/kg

#### D. SAR 1g & 10g

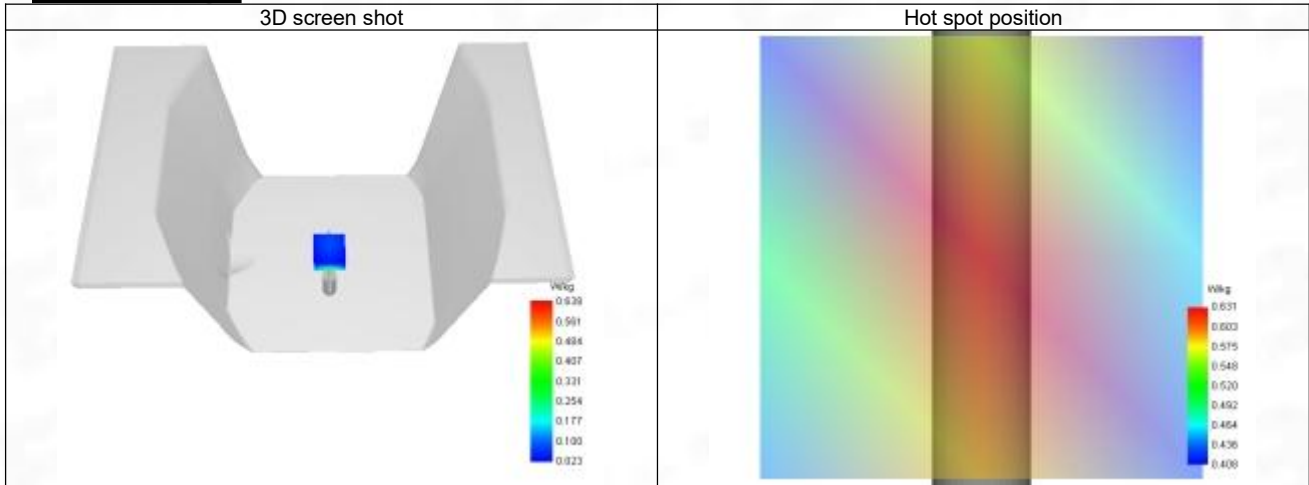
SAR 10g (W/Kg)	0.312
SAR 1g (W/Kg)	0.588
Variation (%)	-0.250
Horizontal validation criteria: minimum distance (mm)	0.000000
Vertical validation criteria: SAR ratio M2/M1 (%)	0.000000

#### 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: 30/10/2023

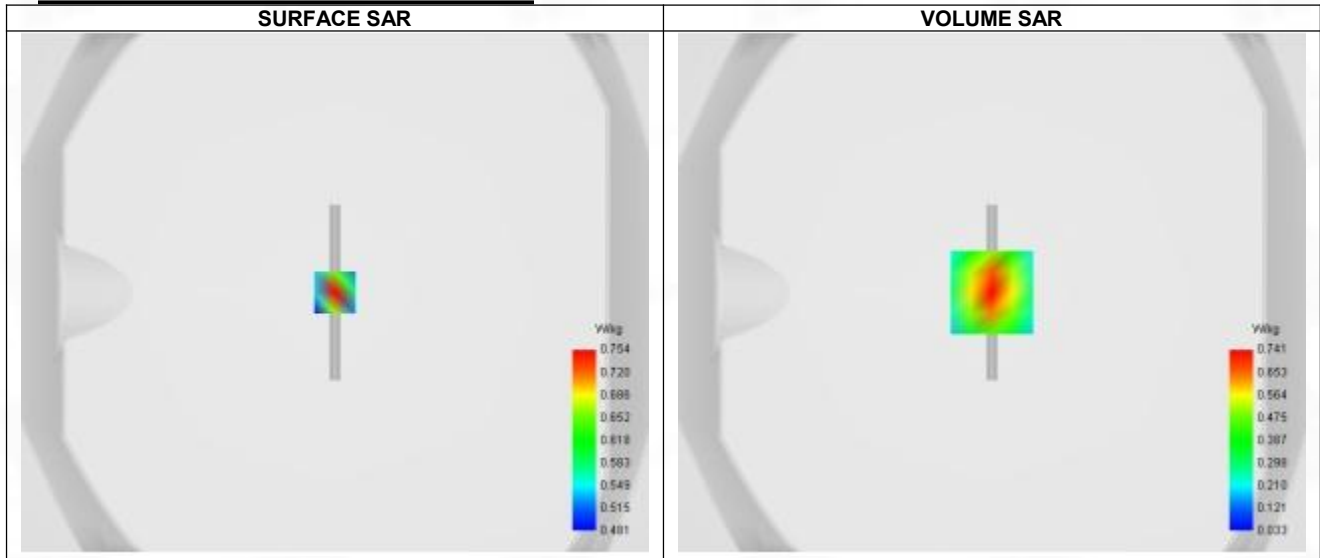
#### A. Experimental conditions.

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

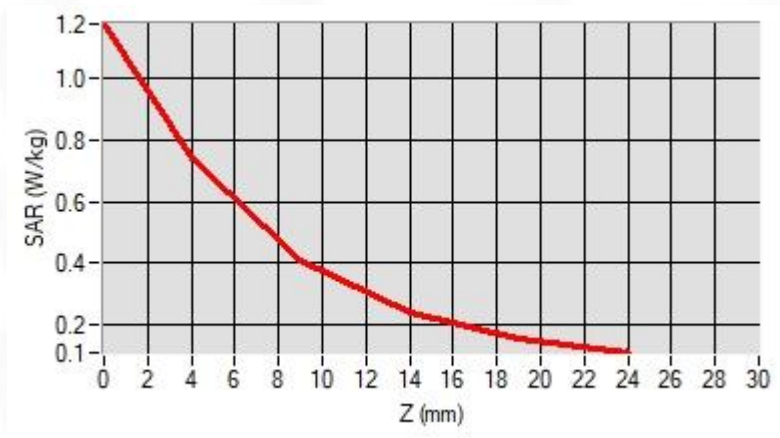
#### D. SAR 1g & 10g

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

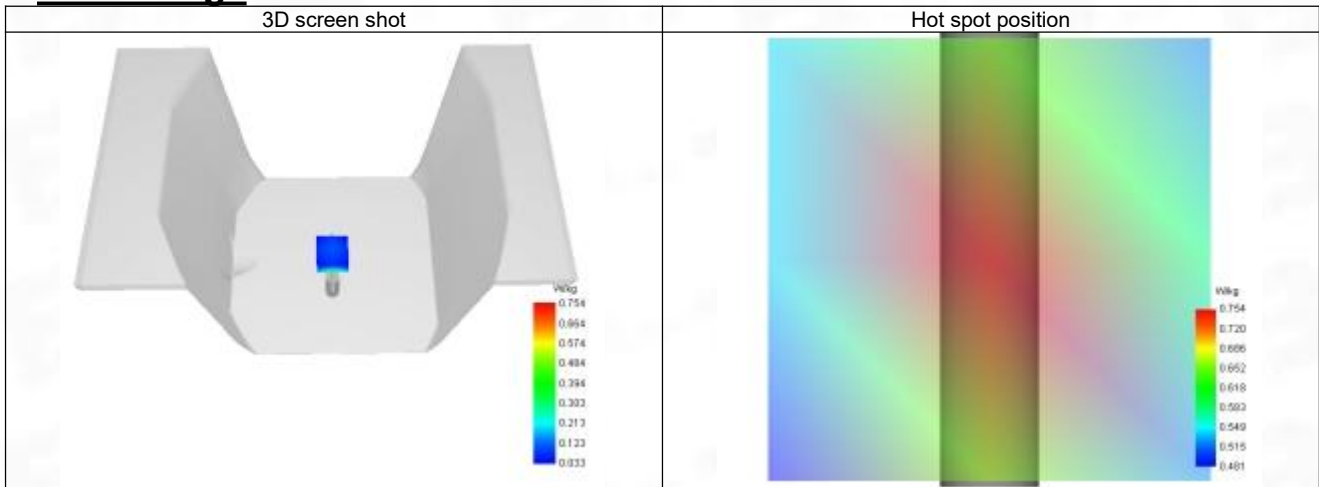
#### E. Z Axis Scan

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: 31/10/2023

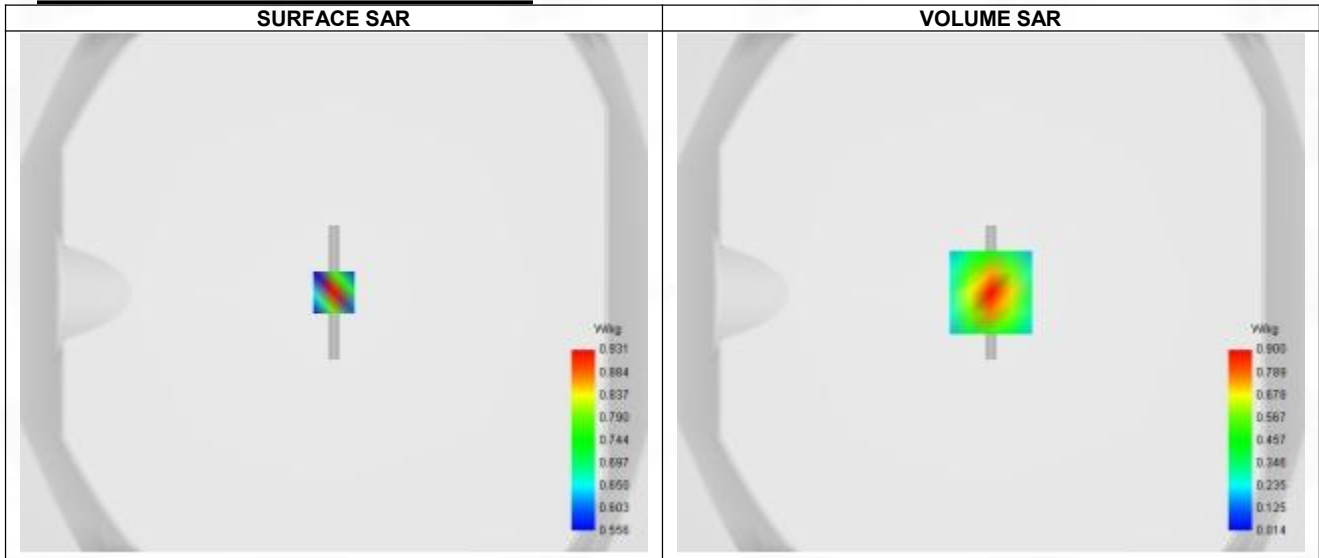
#### A. Experimental conditions.

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



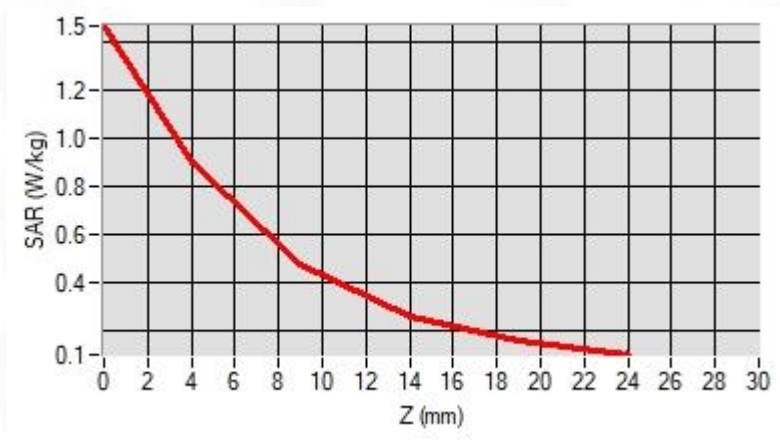
Maximum location: X=0.00, Y=0.00 ; SAR Peak: 1.47 W/kg

#### D. SAR 1g & 10g

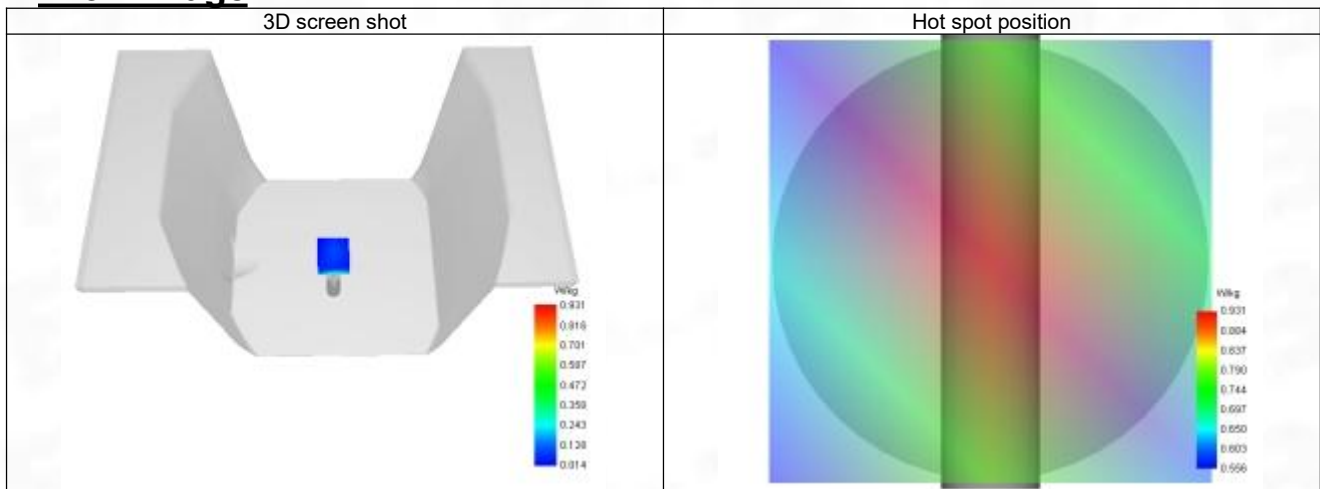
SAR 10g (W/Kg)	0.352
SAR 1g (W/Kg)	0.793
Variation (%)	-2.570
Horizontal validation criteria: minimum distance (mm)	0.000000
Vertical validation criteria: SAR ratio M2/M1 (%)	0.000000

#### 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: 31/10/2023

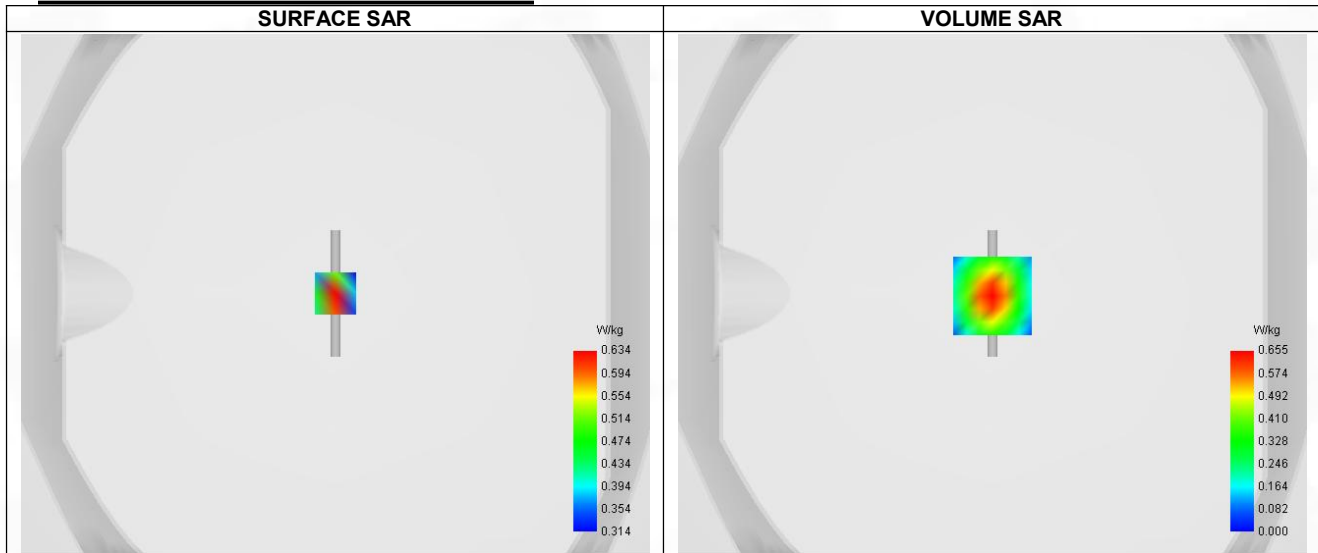
#### A. Experimental conditions.

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



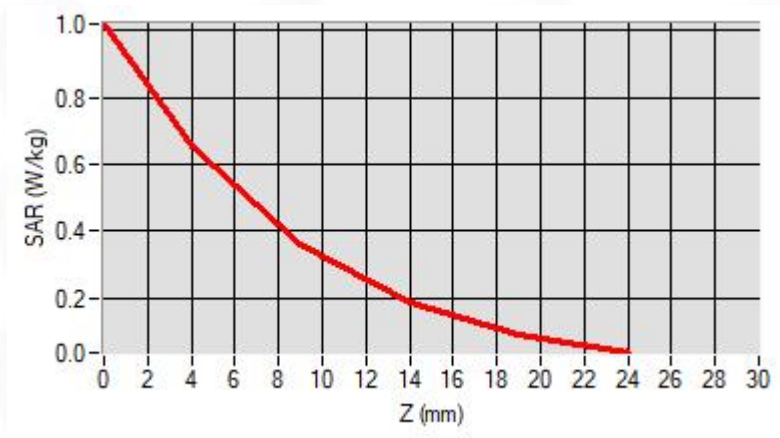
Maximum location: X=0.00, Y=-1.00 ; SAR Peak: 1.02 W/kg

#### D. SAR 1g & 10g

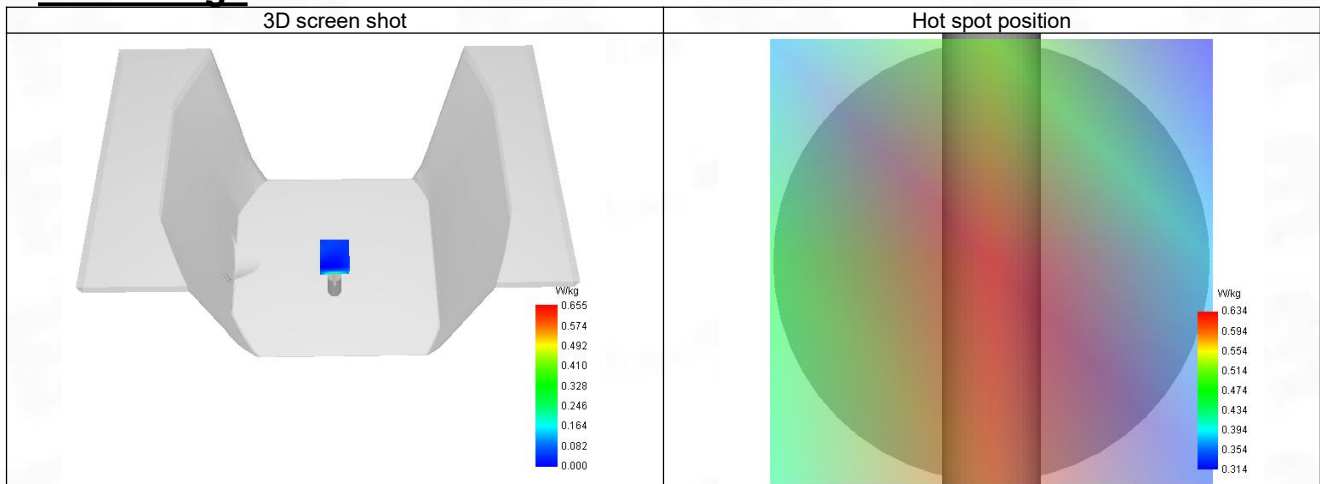
SAR 10g (W/Kg)	0.421
SAR 1g (W/Kg)	0.866
Variation (%)	2.980
Horizontal validation criteria: minimum distance (mm)	0.000000
Vertical validation criteria: SAR ratio M2/M1 (%)	0.000000

#### 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: 31/10/2023

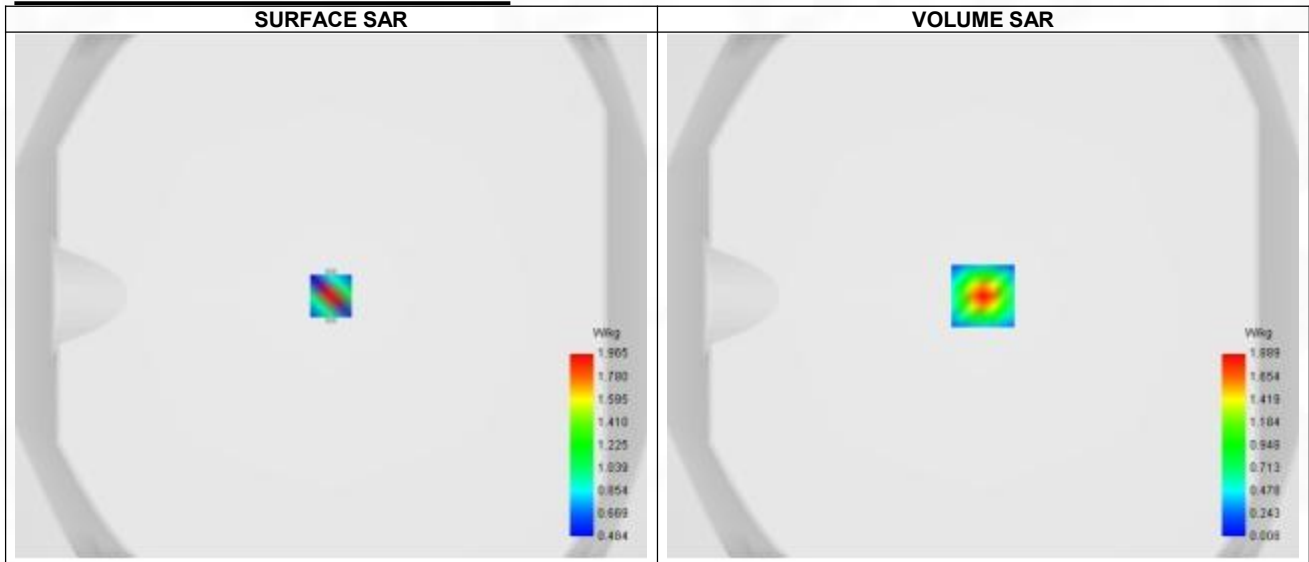
#### **A. Experimental conditions.**

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**



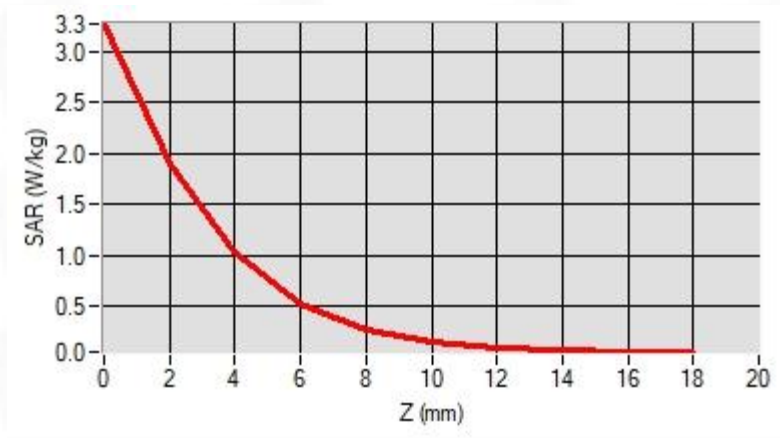
Maximum location: X=0.00, Y=0.00 ; SAR Peak: 3.38 W/kg

#### **D. SAR 1g & 10g**

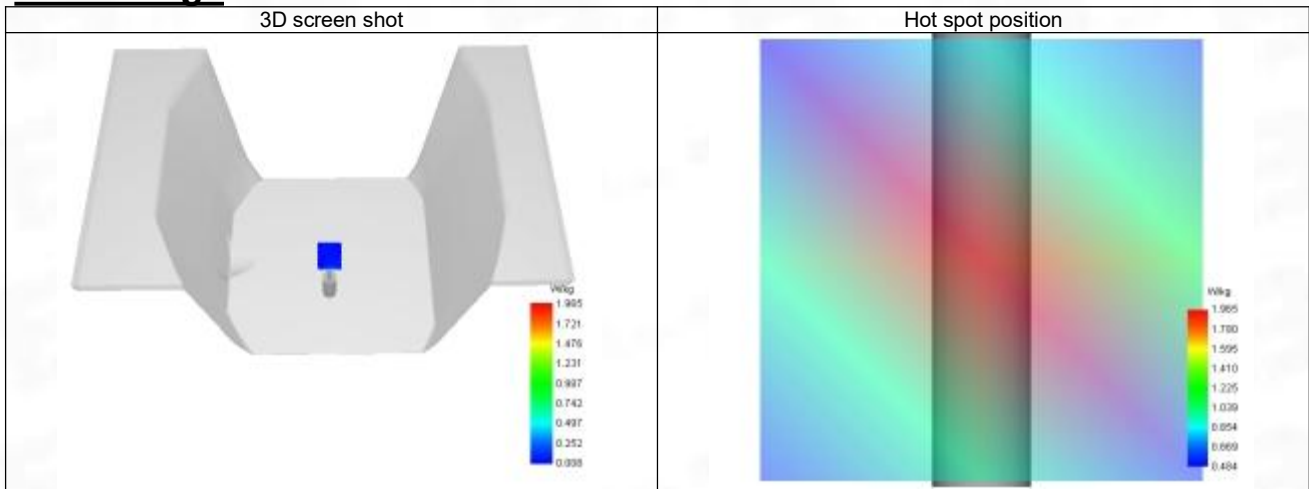
SAR 10g (W/Kg)	0.294
SAR 1g (W/Kg)	0.998
Variation (%)	-3.400
Horizontal validation criteria: minimum distance (mm)	0.000000
Vertical validation criteria: SAR ratio M2/M1 (%)	0.000000

#### **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: 31/10/2023

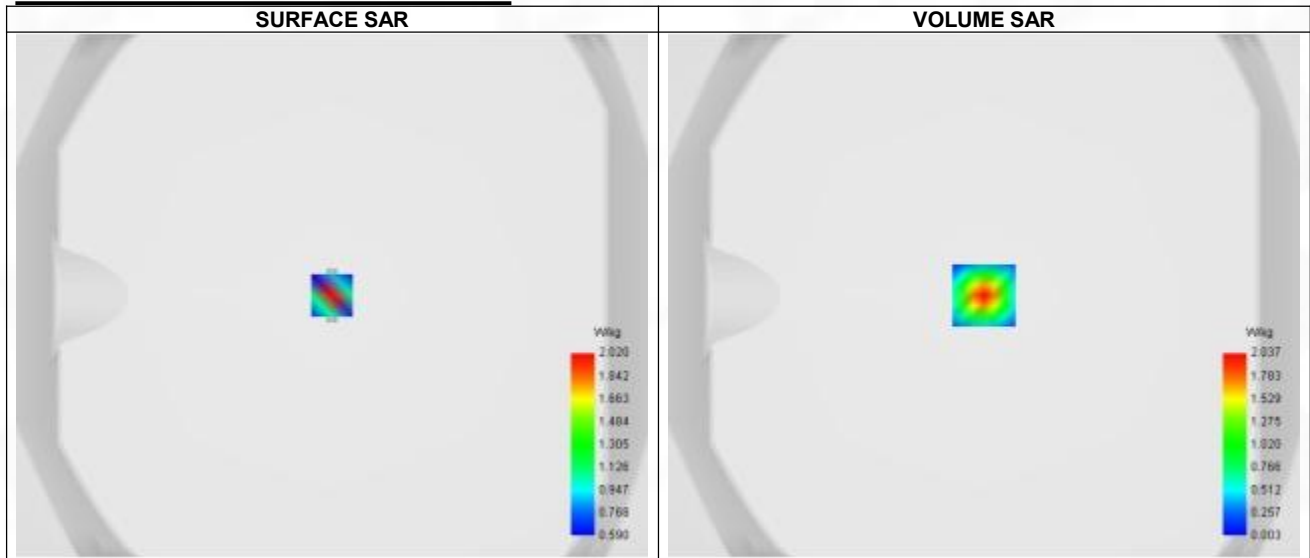
#### A. Experimental conditions.

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

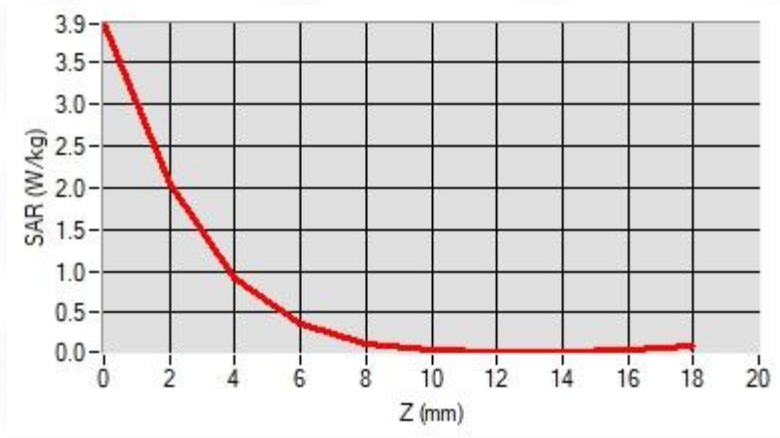
#### D. SAR 1g & 10g

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

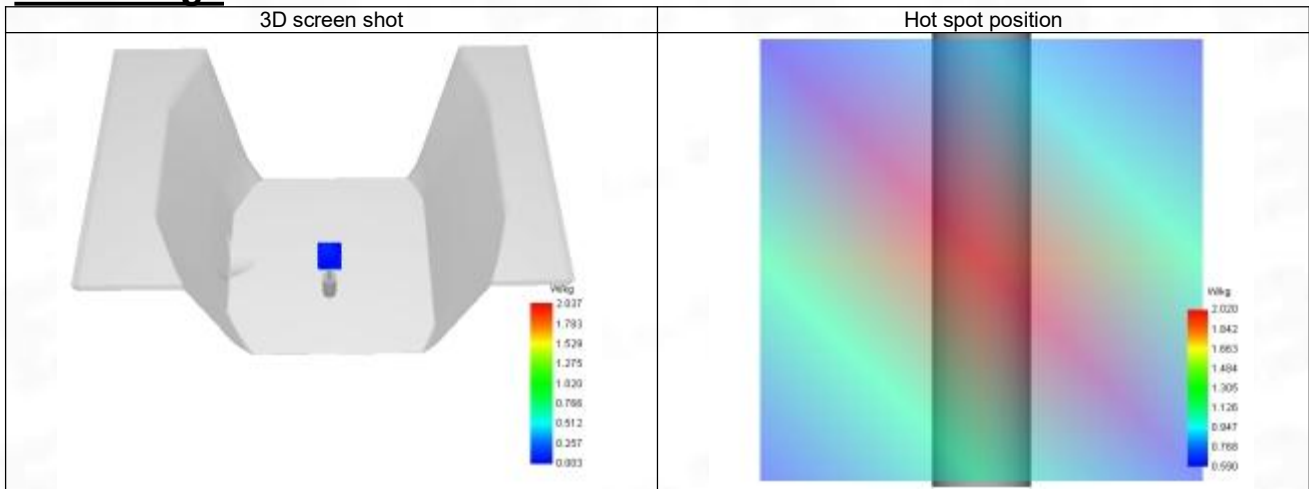
#### E. Z Axis Scan

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: 30/10/2023

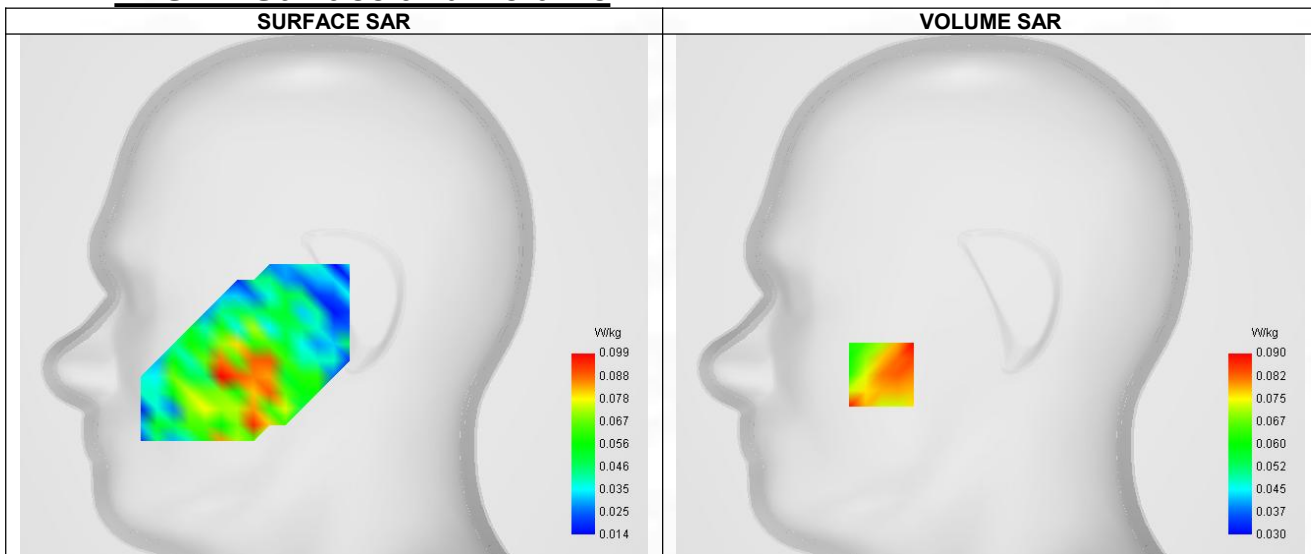
#### A. Experimental conditions.

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	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



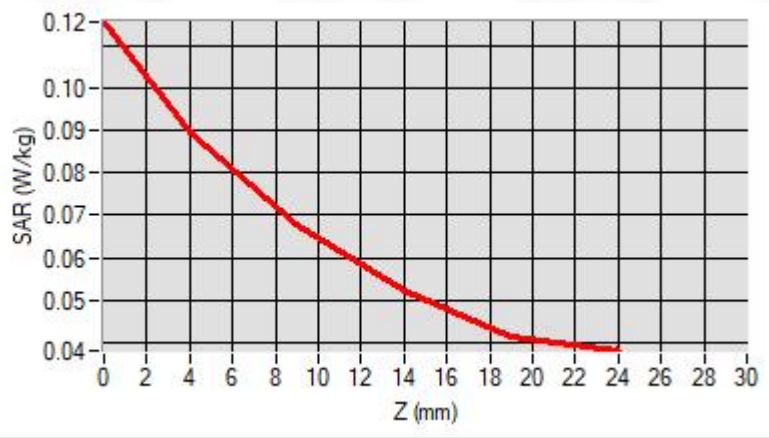
Maximum location: X=-54.00, Y=-39.00 ; SAR Peak: 0.13 W/kg

#### D. SAR 1g & 10g

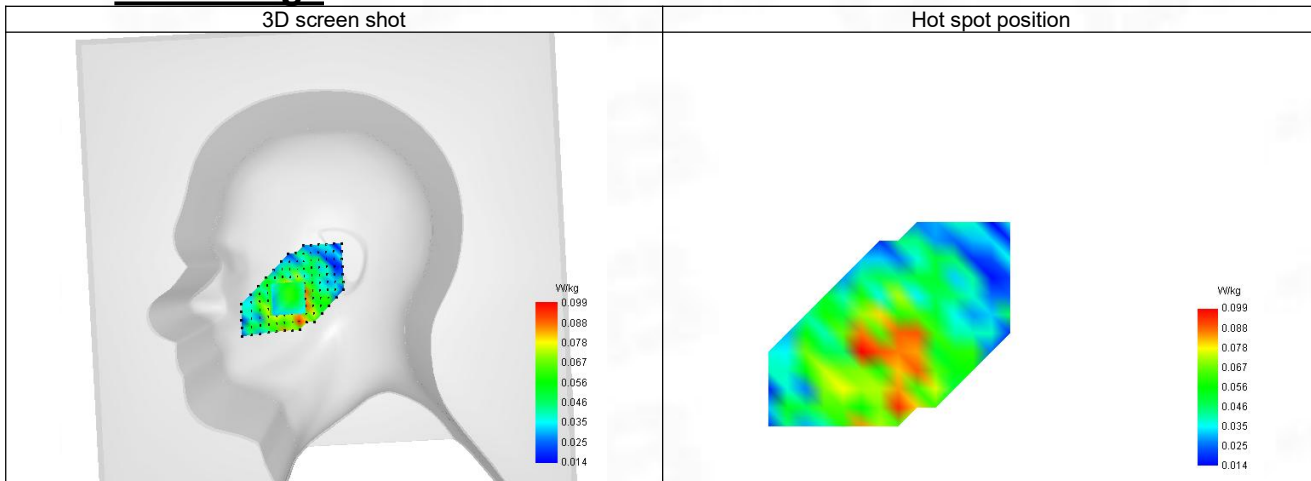
SAR 10g (W/Kg)	0.067
SAR 1g (W/Kg)	0.091
Variation (%)	-1.460
Horizontal validation criteria: minimum distance (mm)	0.000000
Vertical validation criteria: SAR ratio M2/M1 (%)	0.000000

#### E. Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.115	0.090	0.068	0.052	0.041



### 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: 30/10/2023

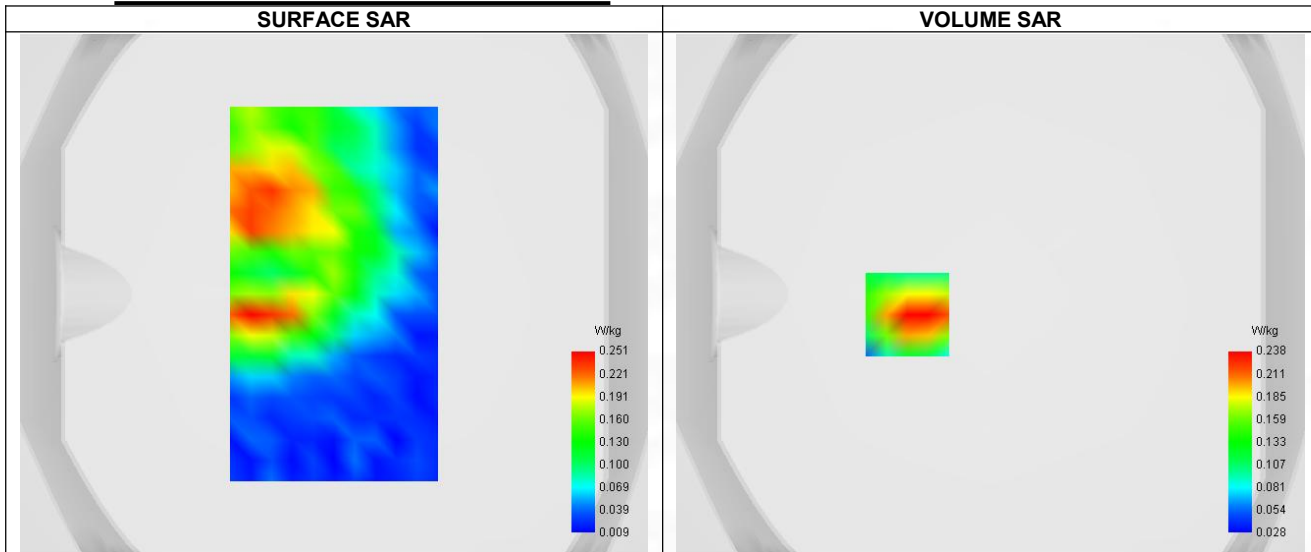
**A. Experimental conditions.**

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**



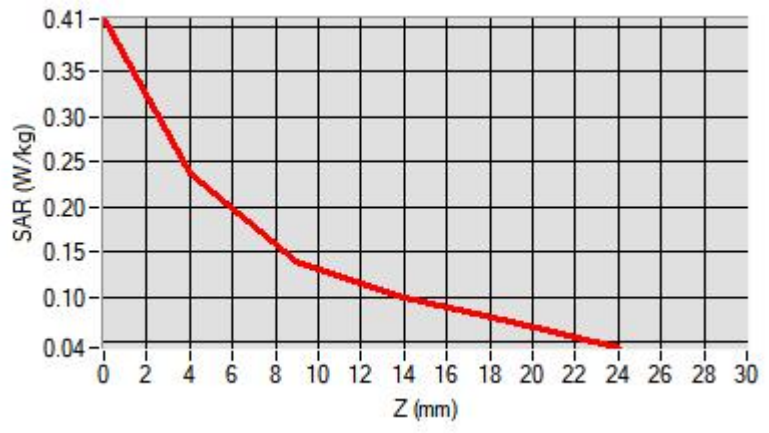
Maximum location: X=-32.00, Y=-8.00 ; SAR Peak: 0.34 W/kg

**D. SAR 1g & 10g**

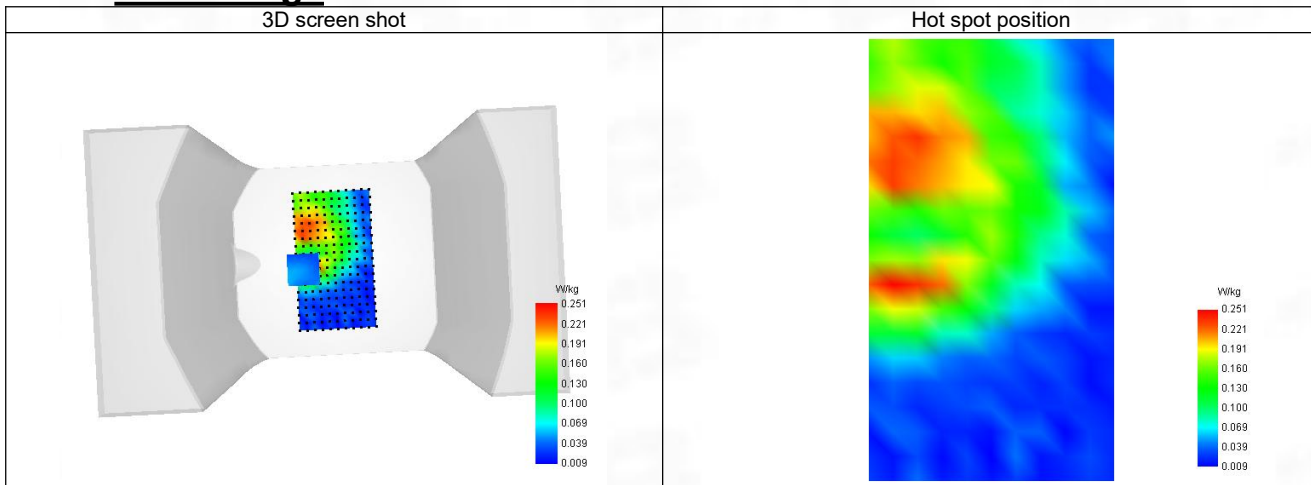
SAR 10g (W/Kg)	0.145
SAR 1g (W/Kg)	0.240
Variation (%)	-3.120
Horizontal validation criteria: minimum distance (mm)	0.000000
Vertical validation criteria: SAR ratio M2/M1 (%)	0.000000

**E. Z Axis Scan**

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.409	0.238	0.138	0.098	0.072



### F. 3D Image



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

**SAR Measurement at GSM1900 (Cheek, Right)**

Date of measurement: 30/10/2023

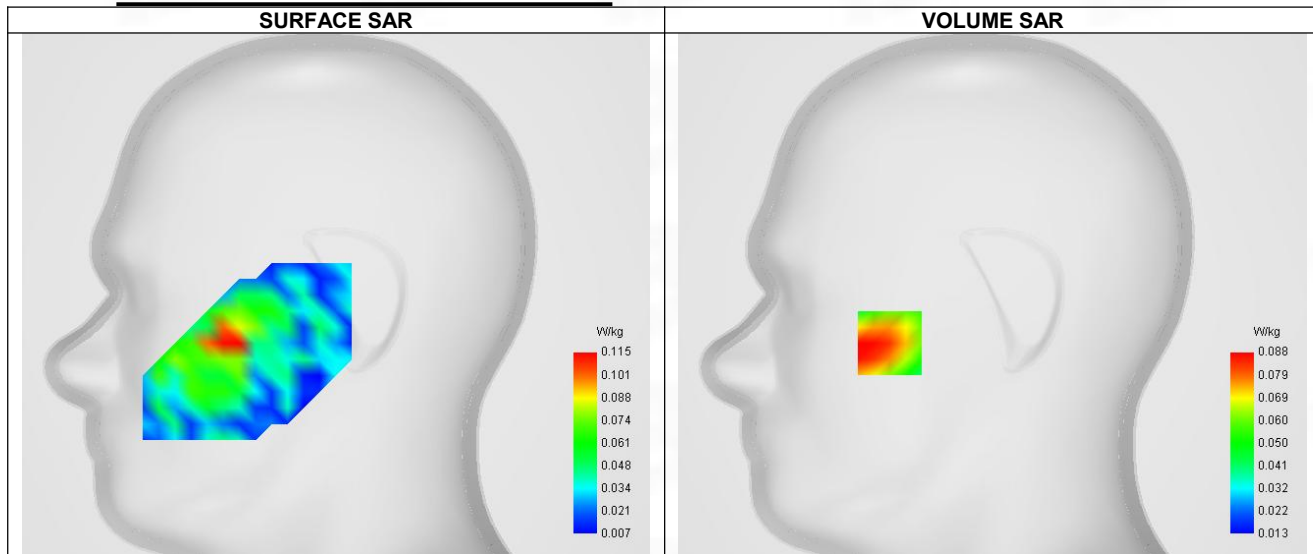
**A. Experimental conditions.**

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	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**



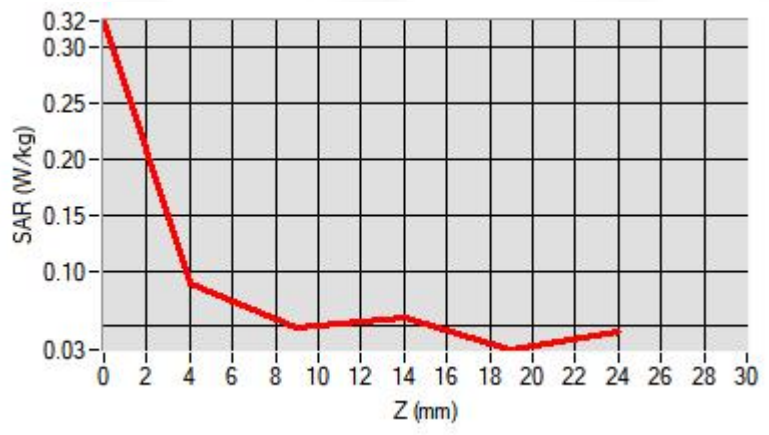
Maximum location: X=-51.00, Y=-24.00 ; SAR Peak: 0.12 W/kg

**D. SAR 1g & 10g**

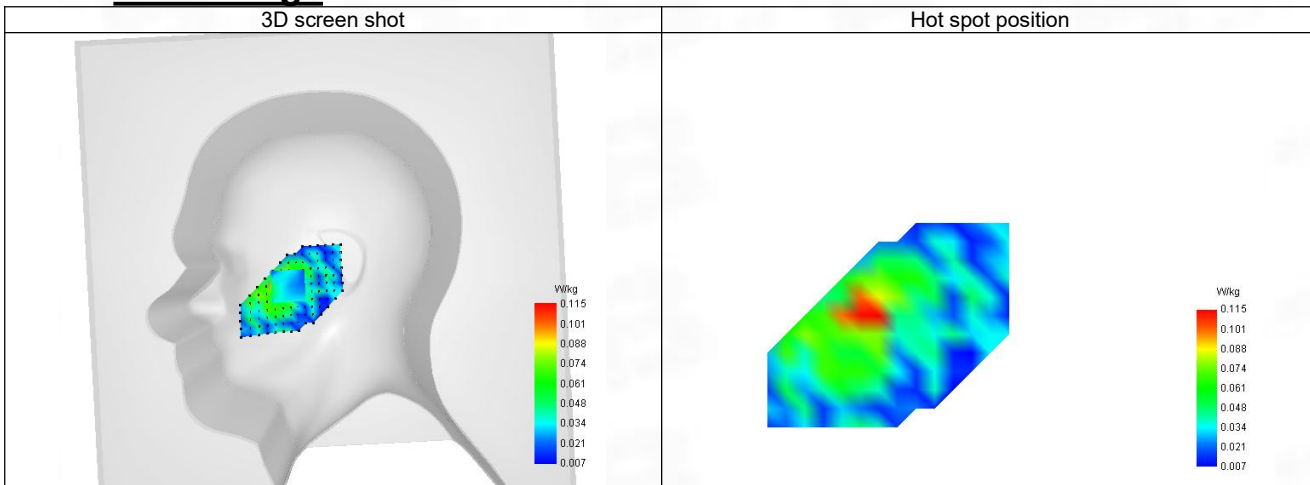
SAR 10g (W/Kg)	0.062
SAR 1g (W/Kg)	0.088
Variation (%)	-2.580
Horizontal validation criteria: minimum distance (mm)	0.000000
Vertical validation criteria: SAR ratio M2/M1 (%)	0.000000

**E. Z Axis Scan**

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.324	0.088	0.049	0.058	0.029



### 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: 30/10/2023

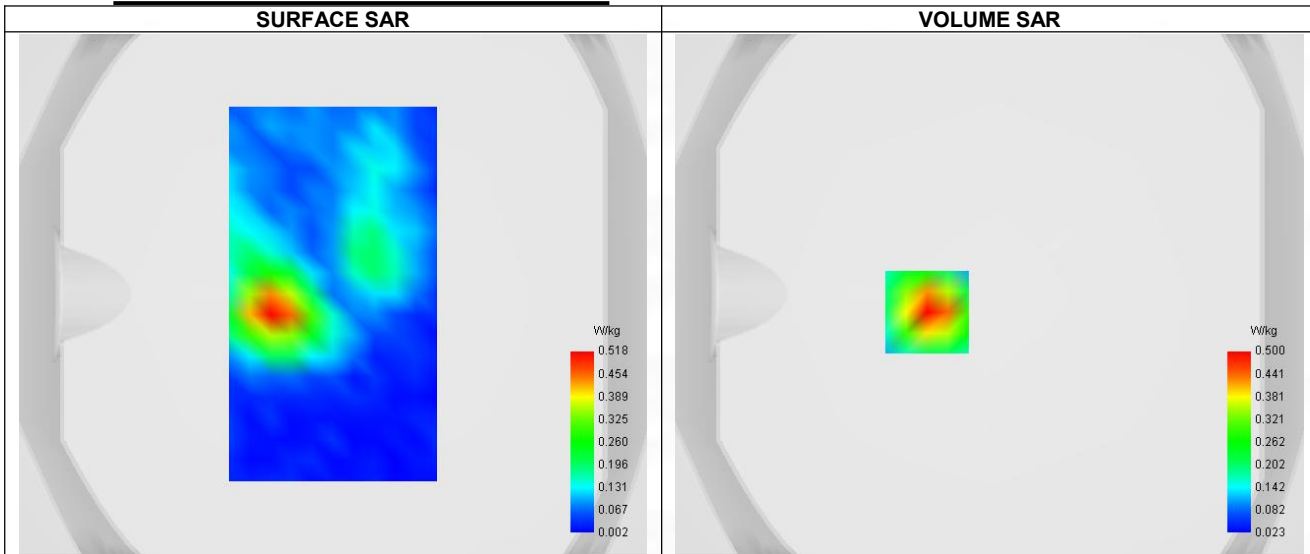
**A. Experimental conditions.**

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=-24.00, Y=-7.00 ; SAR Peak: 0.75 W/kg

**D. SAR 1g & 10g**

SAR 10g (W/Kg)	0.256
SAR 1g (W/Kg)	0.479
Variation (%)	-1.810
Horizontal validation criteria: minimum distance (mm)	0.000000
Vertical validation criteria: SAR ratio M2/M1 (%)	0.000000

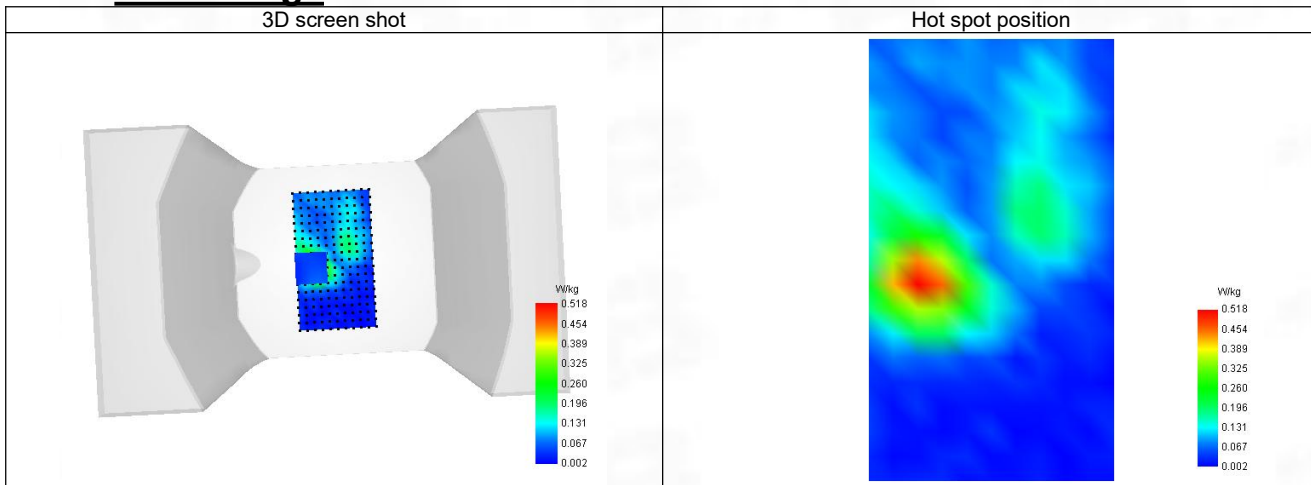
**E. Z Axis Scan**

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.742	0.500	0.298	0.174	0.100





### F. 3D Image



**5-Head with front position in dist. 0mm on Channel 9262 in WCDMA Band 2**

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

Date of measurement: 30/10/2023

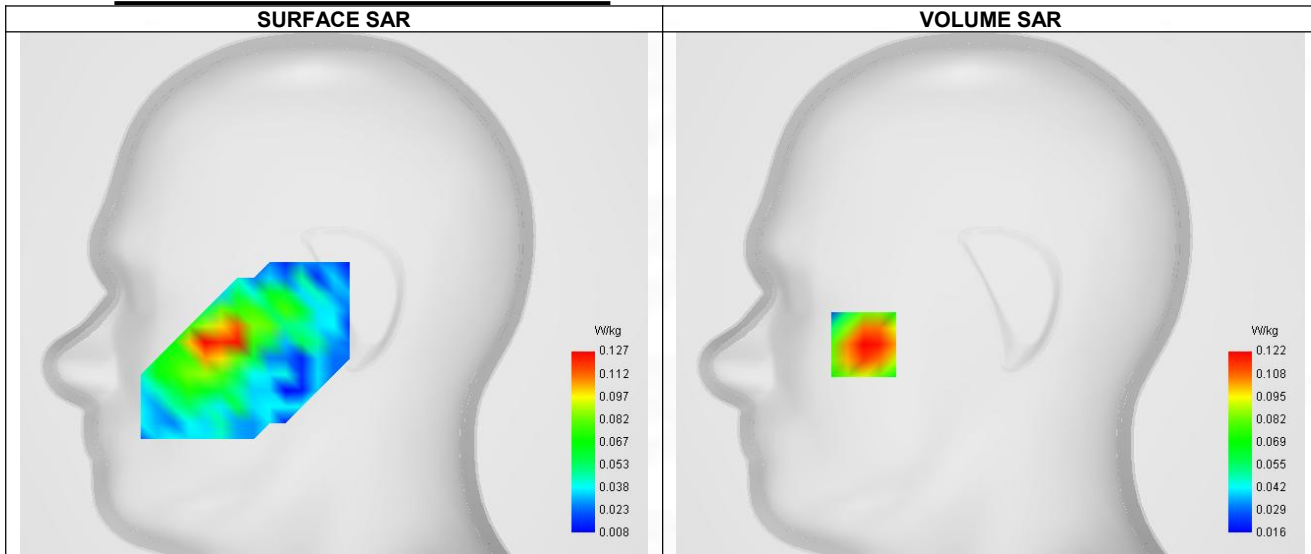
**A. Experimental conditions.**

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	Lower (9262)
Signal	WCDMA
Mode	Release 99
Connection Type	RMC, 12.2 kbps

**B. Permittivity**

Frequency (MHz)	1852.400
Relative permittivity (real part)	40.665
Relative permittivity (imaginary part)	13.718
Conductivity (S/m)	1.391

**C. SAR Surface and Volume**



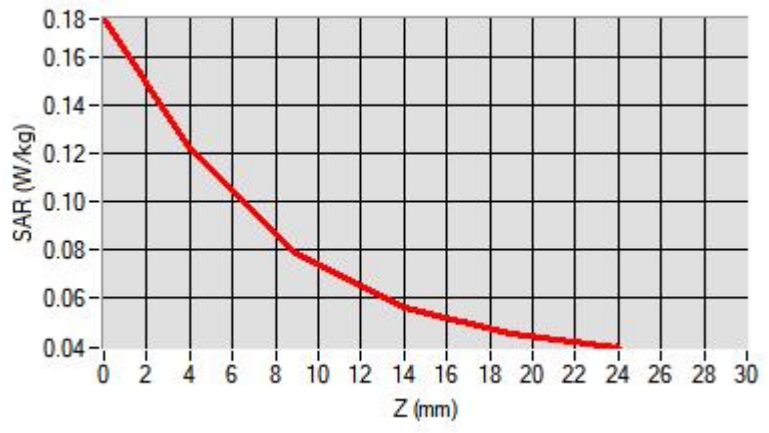
Maximum location: X=-63.00, Y=-25.00 ; SAR Peak: 0.18 W/kg

**D. SAR 1g & 10g**

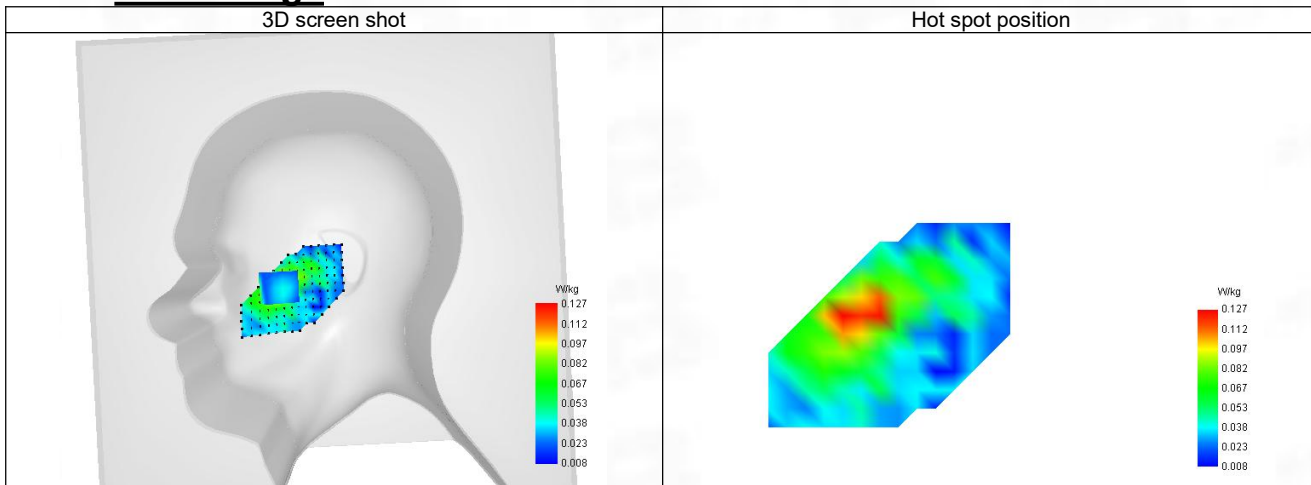
SAR 10g (W/Kg)	0.077
SAR 1g (W/Kg)	0.121
Variation (%)	-1.890
Horizontal validation criteria: minimum distance (mm)	0.000000
Vertical validation criteria: SAR ratio M2/M1 (%)	0.000000

**E. Z Axis Scan**

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.176	0.122	0.079	0.056	0.045



### F. 3D Image



**6-Body with back position in dist. 10mm on Channel 9262 in WCDMA Band 2**

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

Date of measurement: 30/10/2023

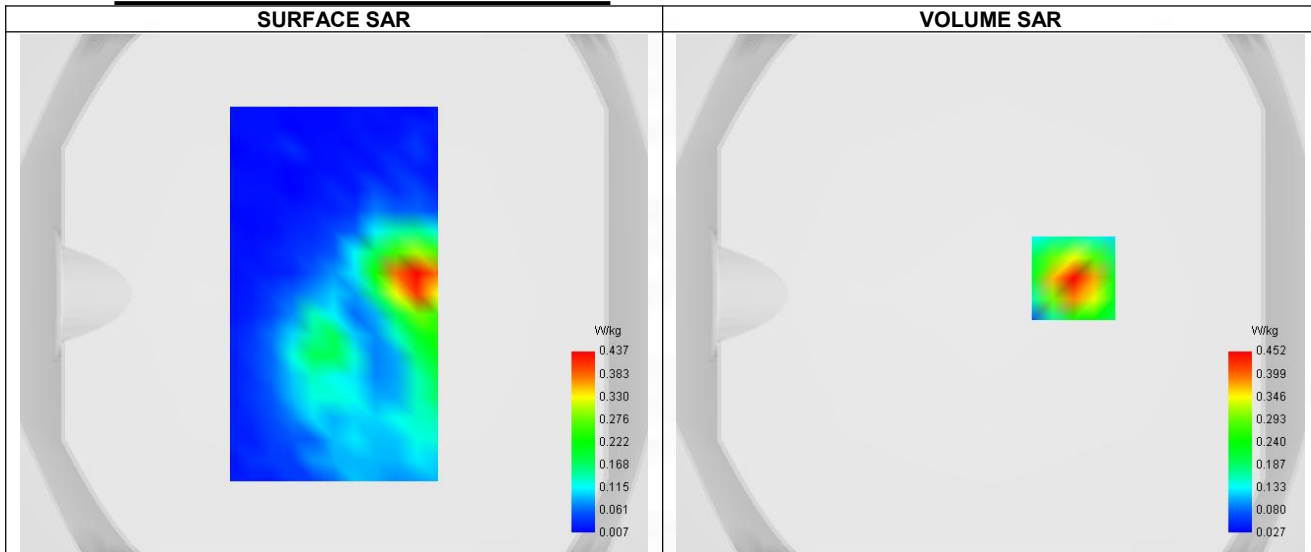
**A. Experimental conditions.**

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	Band 2 (1900)
Channels	Lower (9262)
Signal	WCDMA
Mode	Release 99
Connection Type	RMC, 12.2 kbps

**B. Permittivity**

Frequency (MHz)	1852.400
Relative permittivity (real part)	40.665
Relative permittivity (imaginary part)	13.718
Conductivity (S/m)	1.391

**C. SAR Surface and Volume**



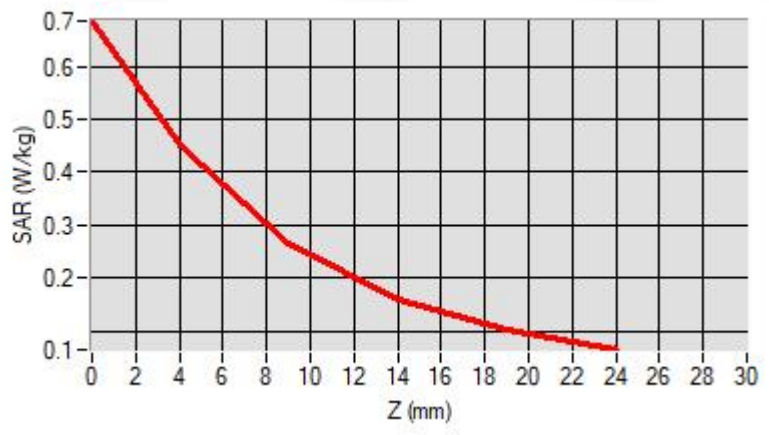
Maximum location: X=32.00, Y=6.00 ; SAR Peak: 0.69 W/kg

**D. SAR 1g & 10g**

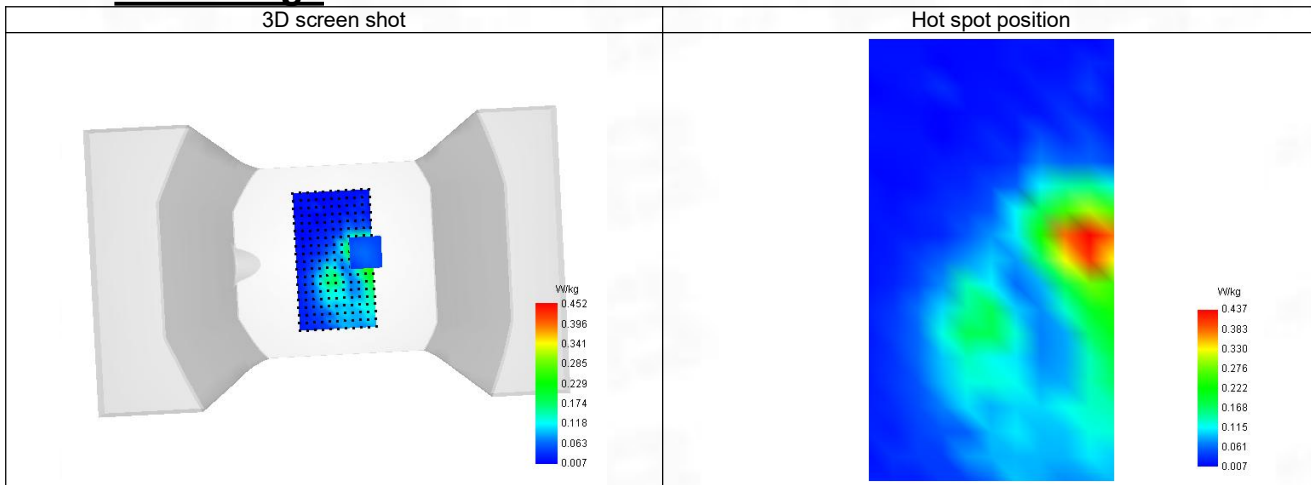
SAR 10g (W/Kg)	0.234
SAR 1g (W/Kg)	0.434
Variation (%)	-0.760
Horizontal validation criteria: minimum distance (mm)	0.000000
Vertical validation criteria: SAR ratio M2/M1 (%)	0.000000

**E. Z Axis Scan**

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.685	0.452	0.265	0.159	0.101



### 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: 30/10/2023

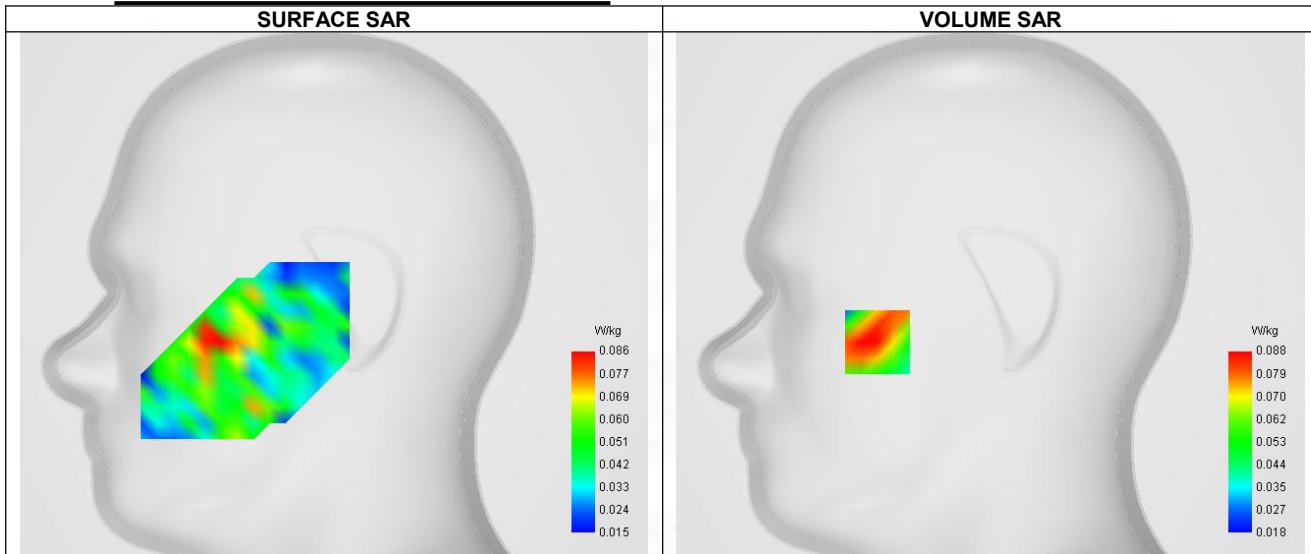
**A. Experimental conditions.**

Probe	SN 04/22 EPGO365
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**



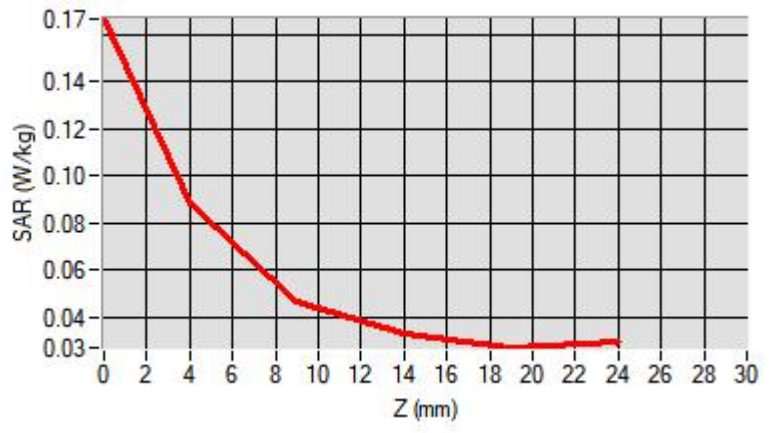
Maximum location: X=-56.00, Y=-24.00 ; SAR Peak: 0.17 W/kg

**D. SAR 1g & 10g**

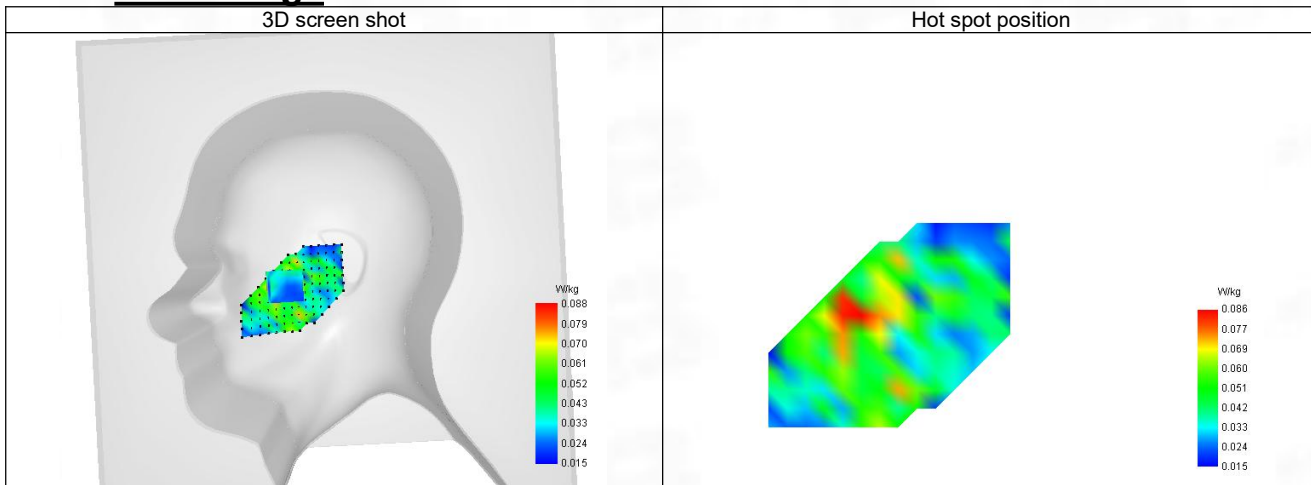
SAR 10g (W/Kg)	0.059
SAR 1g (W/Kg)	0.094
Variation (%)	1.460
Horizontal validation criteria: minimum distance (mm)	0.000000
Vertical validation criteria: SAR ratio M2/M1 (%)	0.000000

**E. Z Axis Scan**

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.167	0.088	0.047	0.033	0.027



### 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: 30/10/2023

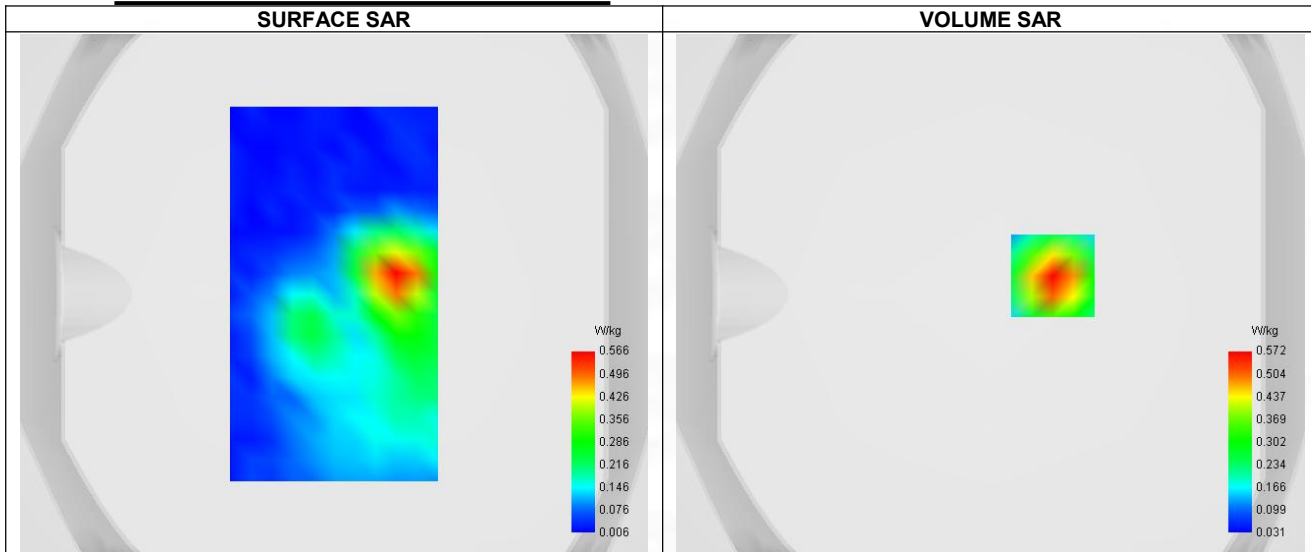
**A. Experimental conditions.**

Probe	SN 04/22 EPGO365
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=24.00, Y=7.00 ; SAR Peak: 0.87 W/kg

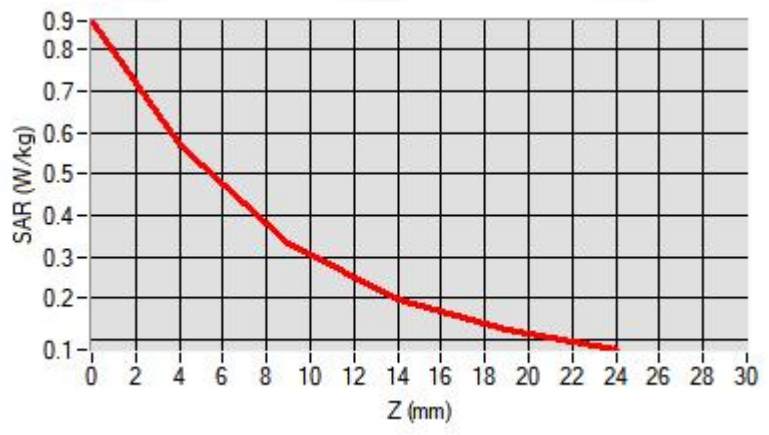
**D. SAR 1g & 10g**

SAR 10g (W/Kg)	0.299
SAR 1g (W/Kg)	0.555
Variation (%)	2.650
Horizontal validation criteria: minimum distance (mm)	0.000000
Vertical validation criteria: SAR ratio M2/M1 (%)	0.000000

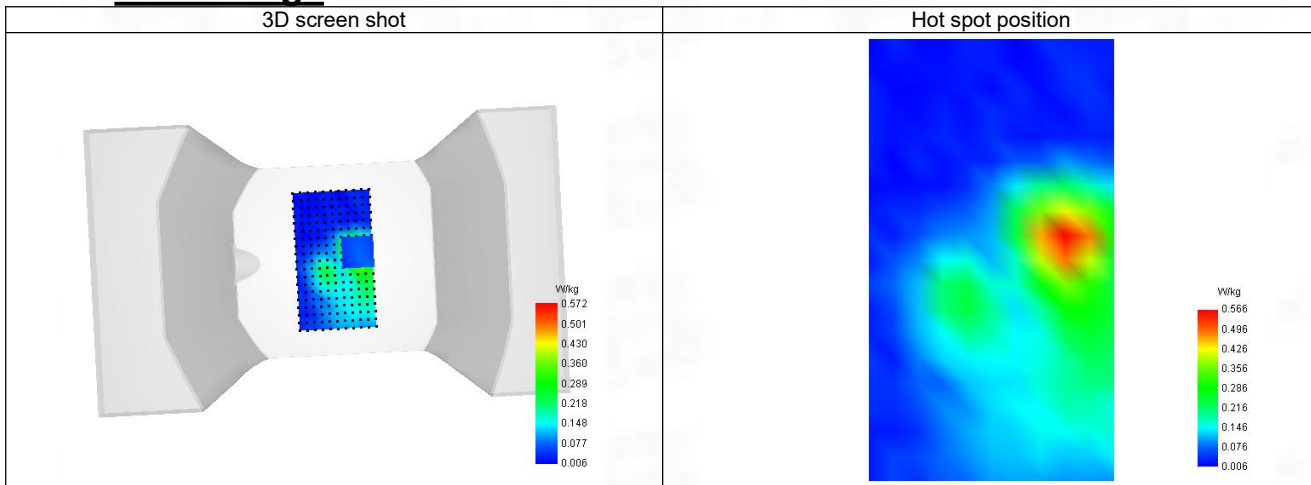
**E. Z Axis Scan**

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.870	0.572	0.333	0.196	0.122





### 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: 30/10/2023

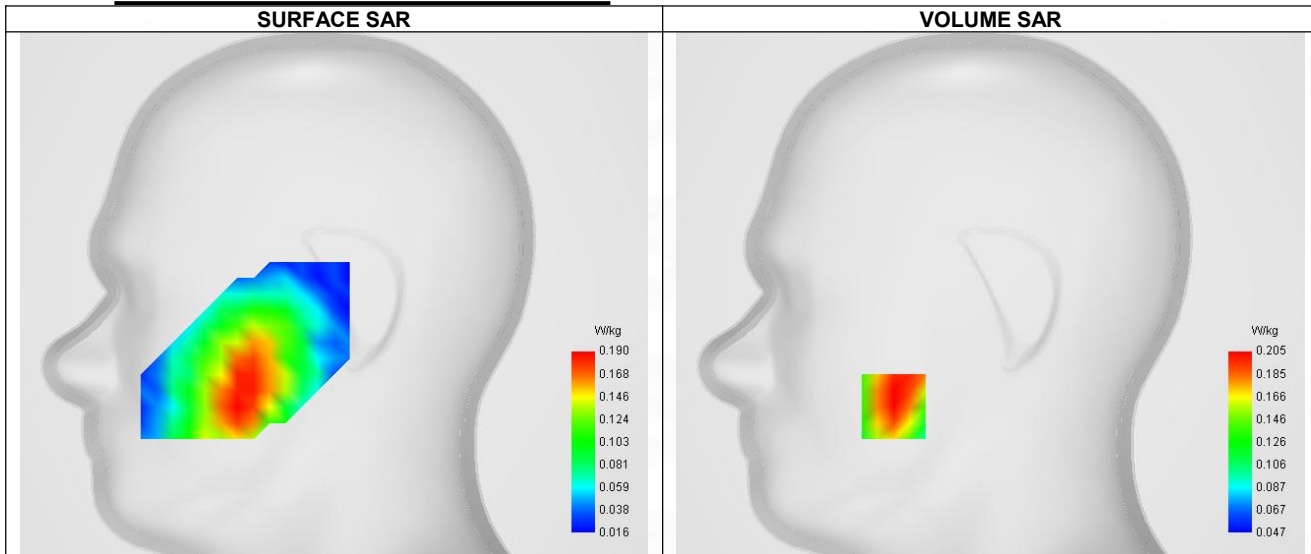
**A. Experimental conditions.**

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**



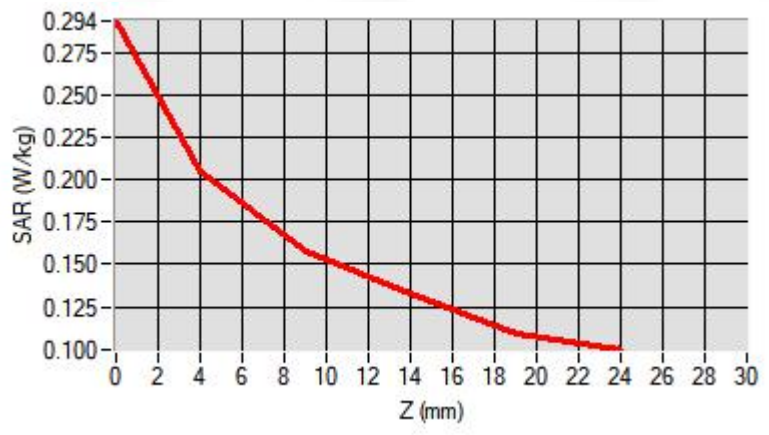
Maximum location: X=-48.00, Y=-56.00 ; SAR Peak: 0.25 W/kg

**D. SAR 1g & 10g**

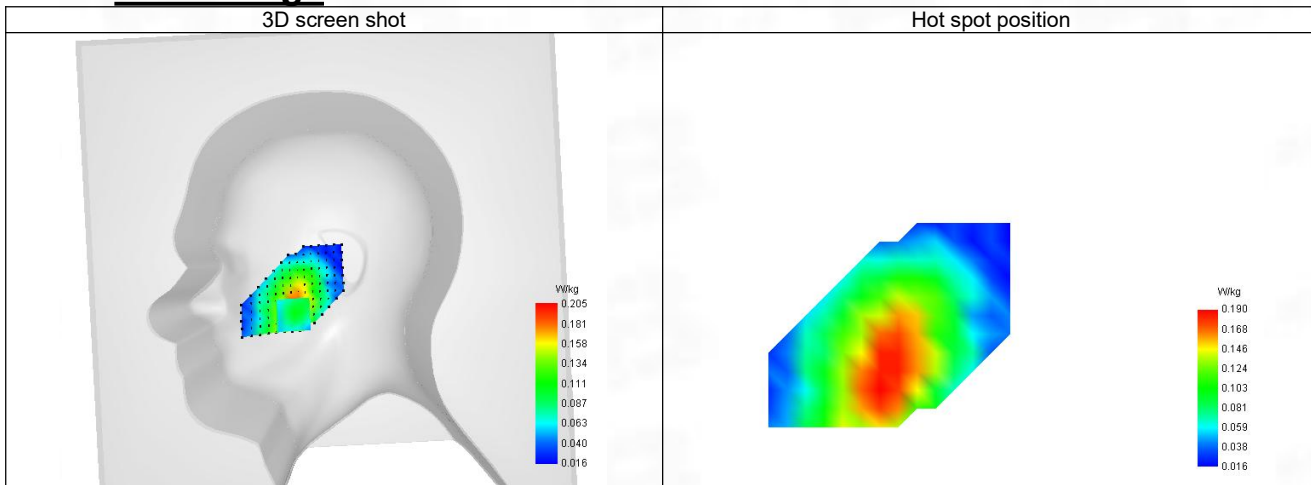
SAR 10g (W/Kg)	0.162
SAR 1g (W/Kg)	0.213
Variation (%)	-2.570
Horizontal validation criteria: minimum distance (mm)	0.000000
Vertical validation criteria: SAR ratio M2/M1 (%)	0.000000

**E. Z Axis Scan**

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.294	0.205	0.158	0.133	0.109



### 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: 30/10/2023

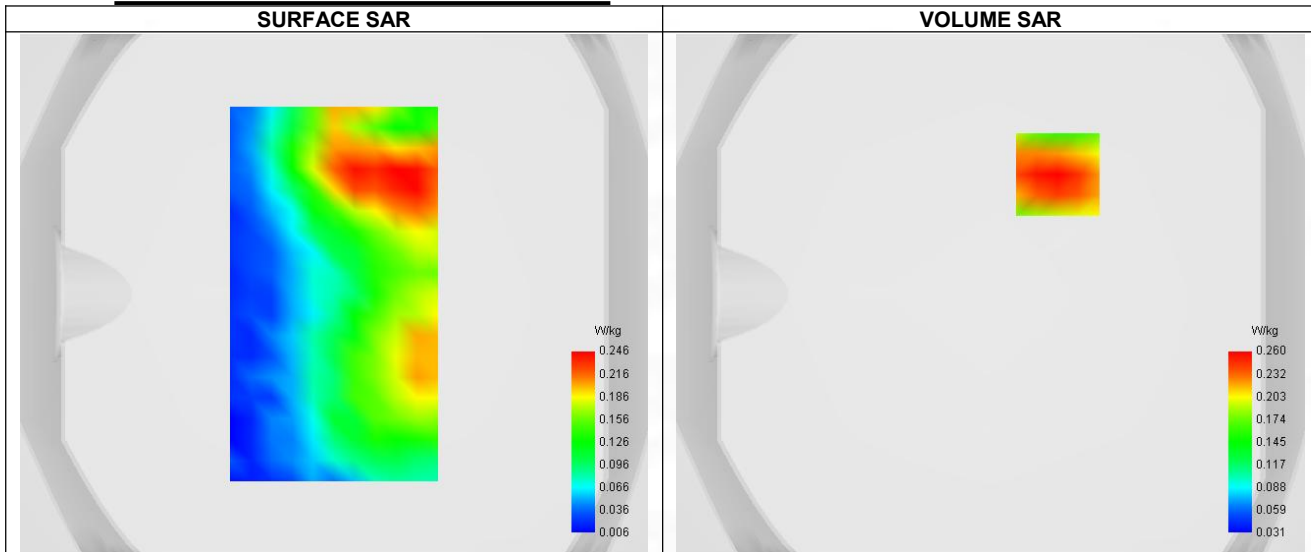
**A. Experimental conditions.**

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**



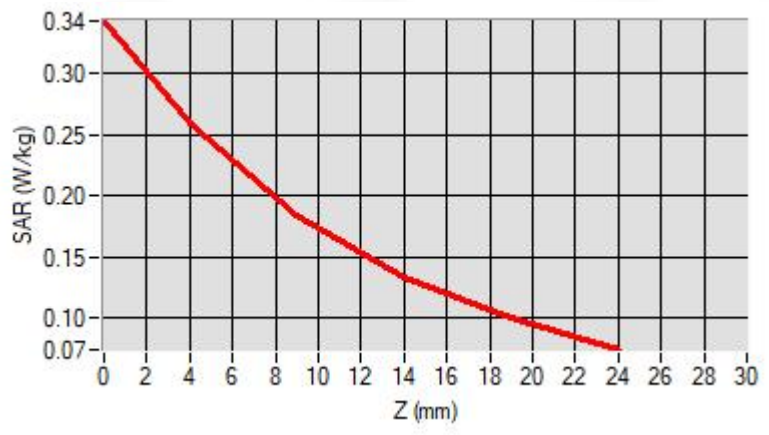
Maximum location: X=26.00, Y=46.00 ; SAR Peak: 0.35 W/kg

**D. SAR 1g & 10g**

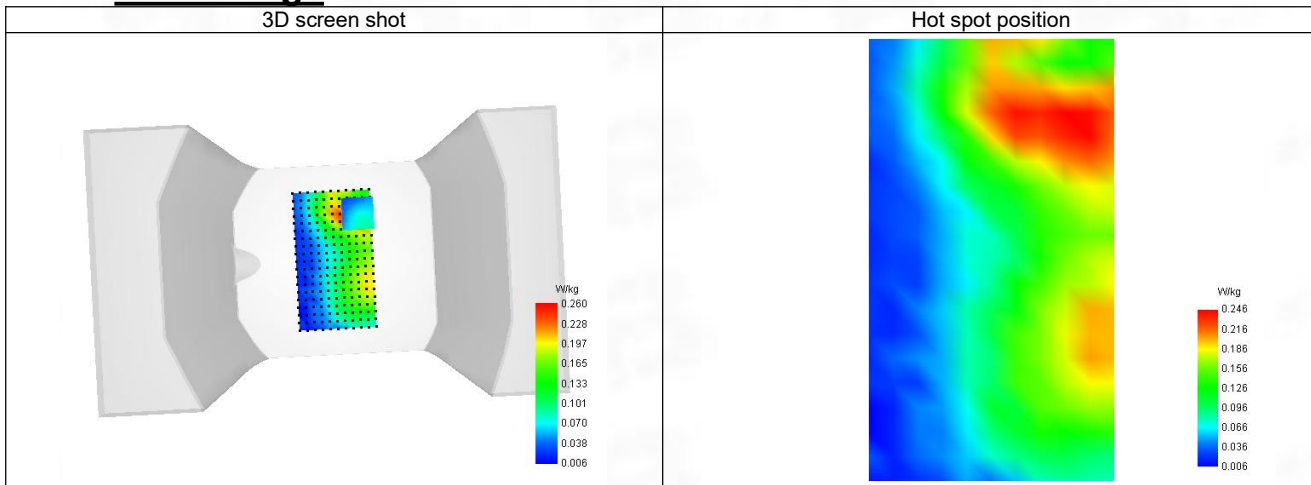
SAR 10g (W/Kg)	0.185
SAR 1g (W/Kg)	0.267
Variation (%)	4.310
Horizontal validation criteria: minimum distance (mm)	0.000000
Vertical validation criteria: SAR ratio M2/M1 (%)	0.000000

**E. Z Axis Scan**

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.343	0.260	0.185	0.134	0.099



### 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: 30/10/2023

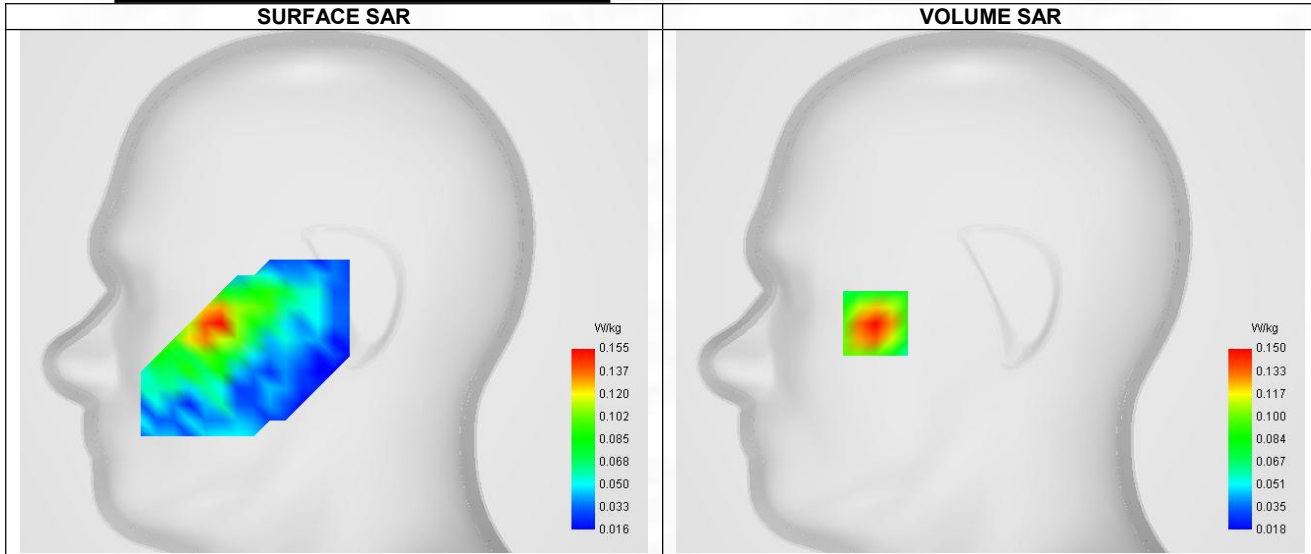
**A. Experimental conditions.**

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**



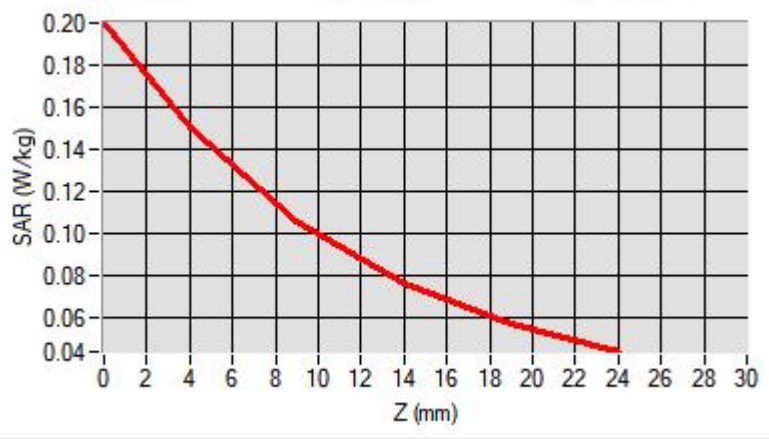
Maximum location: X=-57.00, Y=-16.00 ; SAR Peak: 0.20 W/kg

**D. SAR 1g & 10g**

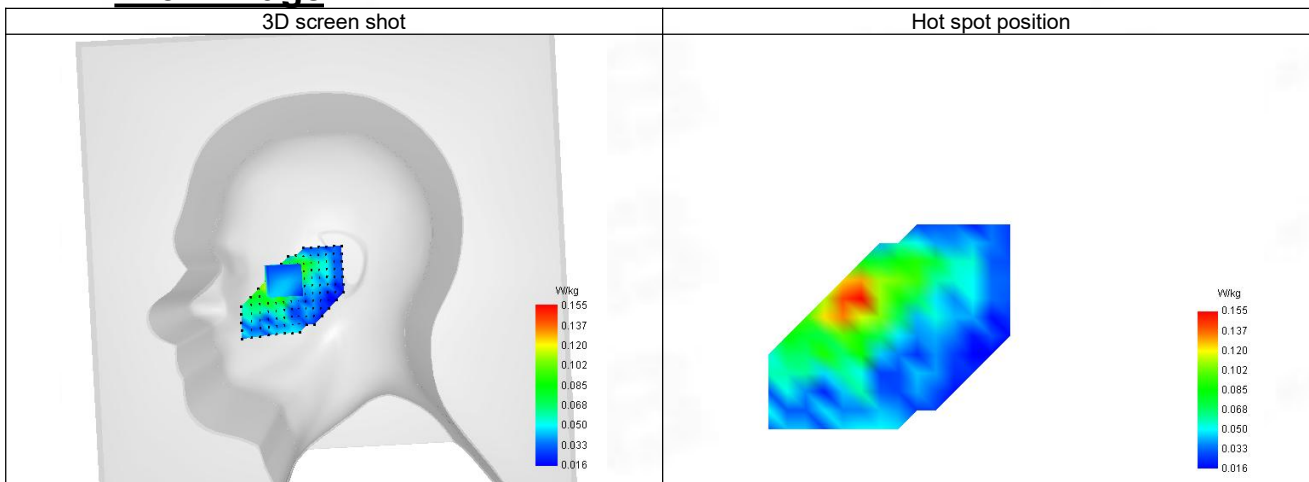
SAR 10g (W/Kg)	0.094
SAR 1g (W/Kg)	0.147
Variation (%)	-0.110
Horizontal validation criteria: minimum distance (mm)	0.000000
Vertical validation criteria: SAR ratio M2/M1 (%)	0.000000

**E. Z Axis Scan**

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.200	0.150	0.105	0.076	0.057



### 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: 30/10/2023

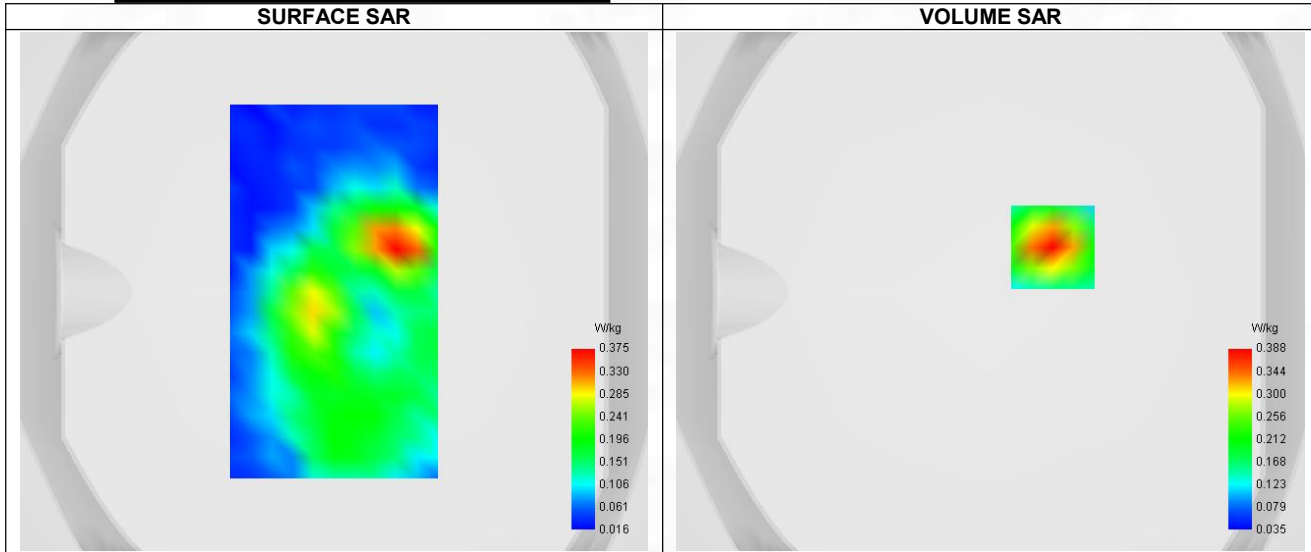
**A. Experimental conditions.**

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	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=24.00, Y=17.00 ; SAR Peak: 0.62 W/kg

**D. SAR 1g & 10g**

SAR 10g (W/Kg)	0.206
SAR 1g (W/Kg)	0.375
Variation (%)	-2.060
Horizontal validation criteria: minimum distance (mm)	0.000000
Vertical validation criteria: SAR ratio M2/M1 (%)	0.000000

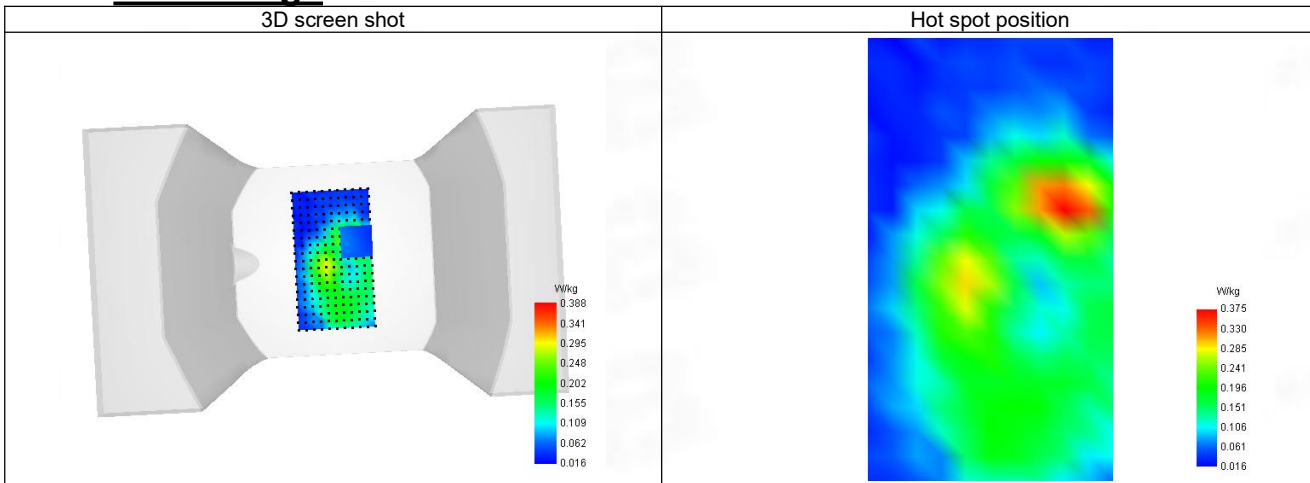
**E. Z Axis Scan**



Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.623	0.388	0.212	0.123	0.082



### F. 3D Image



**13-Head with front position in dist. 0mm on Channel 20175 in LTE band 4**

**SAR Measurement at LTE band 4 (Cheek, Right)**

Date of measurement: 30/10/2023

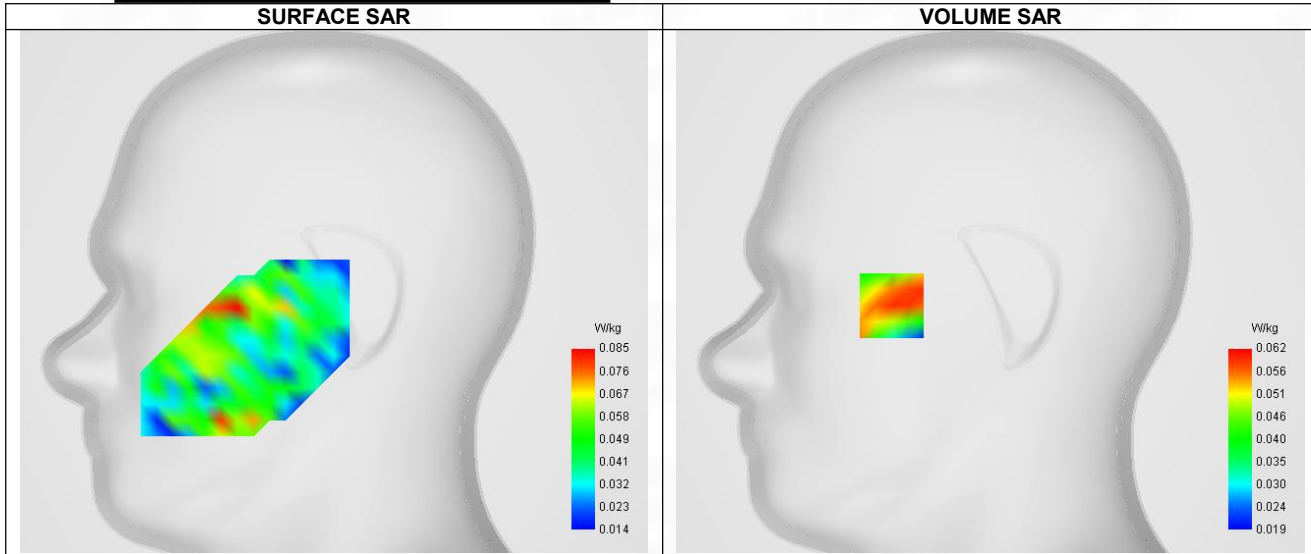
**A. Experimental conditions.**

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	Middle (20175)
Signal	LTE FDD
Cell Bandwidth	20 Mhz
Modulation	SC-OFDM - QPSK
RB offset	50
RB size	1

**B. Permittivity**

Frequency (MHz)	1732.590
Relative permittivity (real part)	41.650
Relative permittivity (imaginary part)	14.467
Conductivity (S/m)	1.335

**C. SAR Surface and Volume**



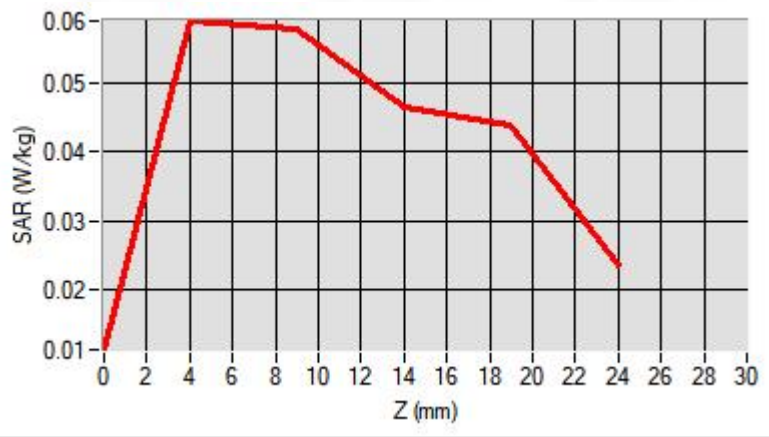
Maximum location: X=-49.00, Y=-7.00 ; SAR Peak: 0.07 W/kg

**D. SAR 1g & 10g**

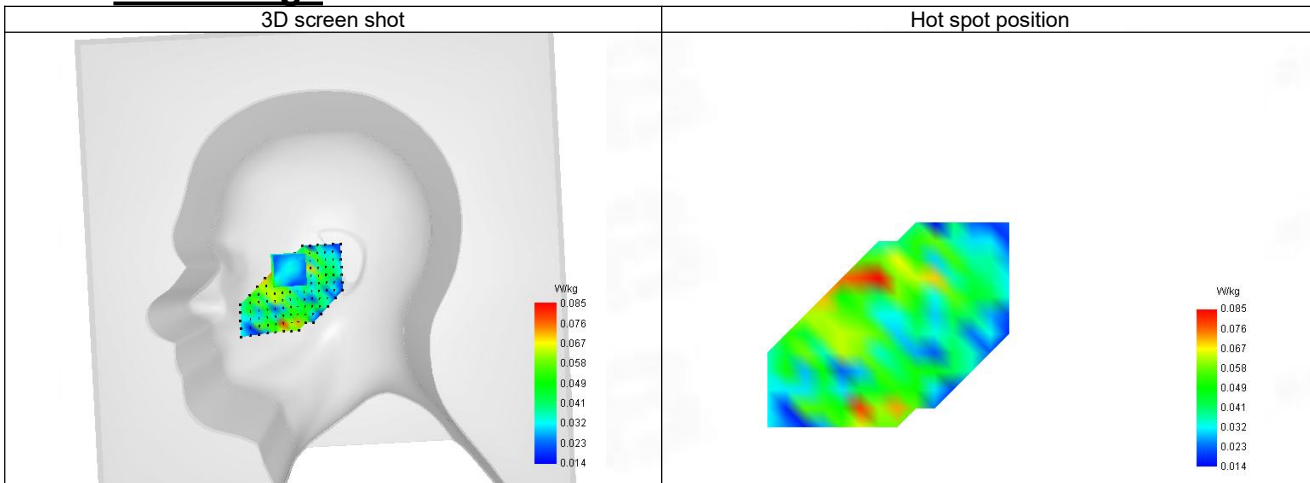
SAR 10g (W/Kg)	0.052
SAR 1g (W/Kg)	0.068
Variation (%)	-3.840
Horizontal validation criteria: minimum distance (mm)	0.000000
Vertical validation criteria: SAR ratio M2/M1 (%)	0.000000

**E. Z Axis Scan**

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.011	0.059	0.058	0.046	0.044



### F. 3D Image



**14-Body with back position in dist. 10mm on Channel 20175 in LTE band 4**

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

Date of measurement: 30/10/2023

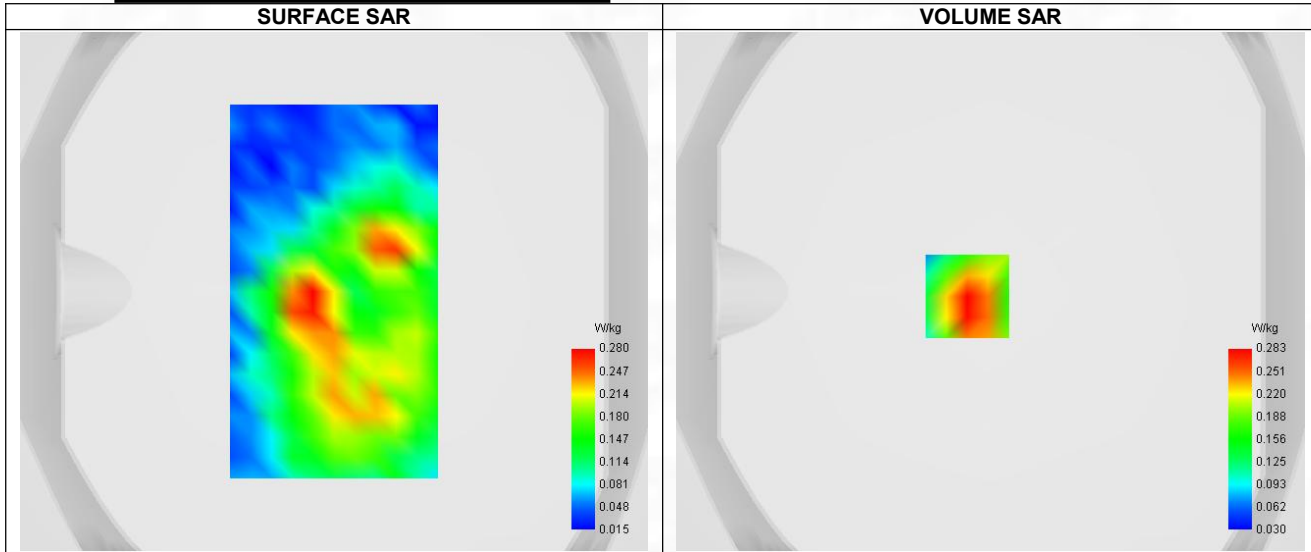
**A. Experimental conditions.**

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	Middle (20175)
Signal	LTE FDD
Cell Bandwidth	20 Mhz
Modulation	SC-OFDM - QPSK
RB offset	50
RB size	1

**B. Permittivity**

Frequency (MHz)	1732.590
Relative permittivity (real part)	41.650
Relative permittivity (imaginary part)	14.467
Conductivity (S/m)	1.335

**C. SAR Surface and Volume**



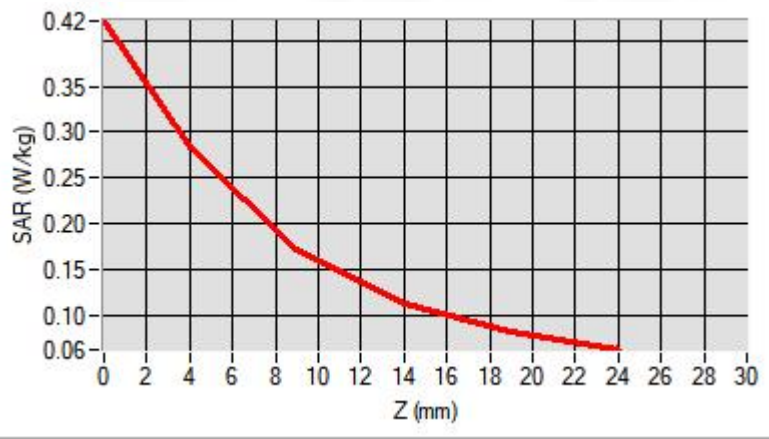
Maximum location: X=-9.00, Y=-2.00 ; SAR Peak: 0.43 W/kg

**D. SAR 1g & 10g**

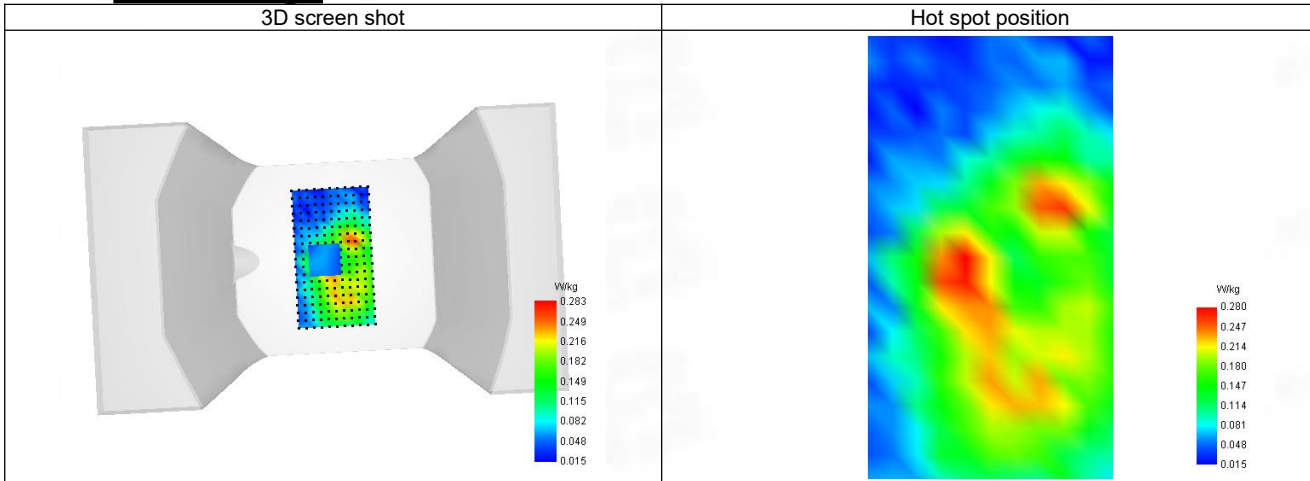
SAR 10g (W/Kg)	0.168
SAR 1g (W/Kg)	0.283
Variation (%)	-2.750
Horizontal validation criteria: minimum distance (mm)	0.000000
Vertical validation criteria: SAR ratio M2/M1 (%)	0.000000

**E. Z Axis Scan**

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.421	0.283	0.173	0.112	0.081



### 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: 30/10/2023

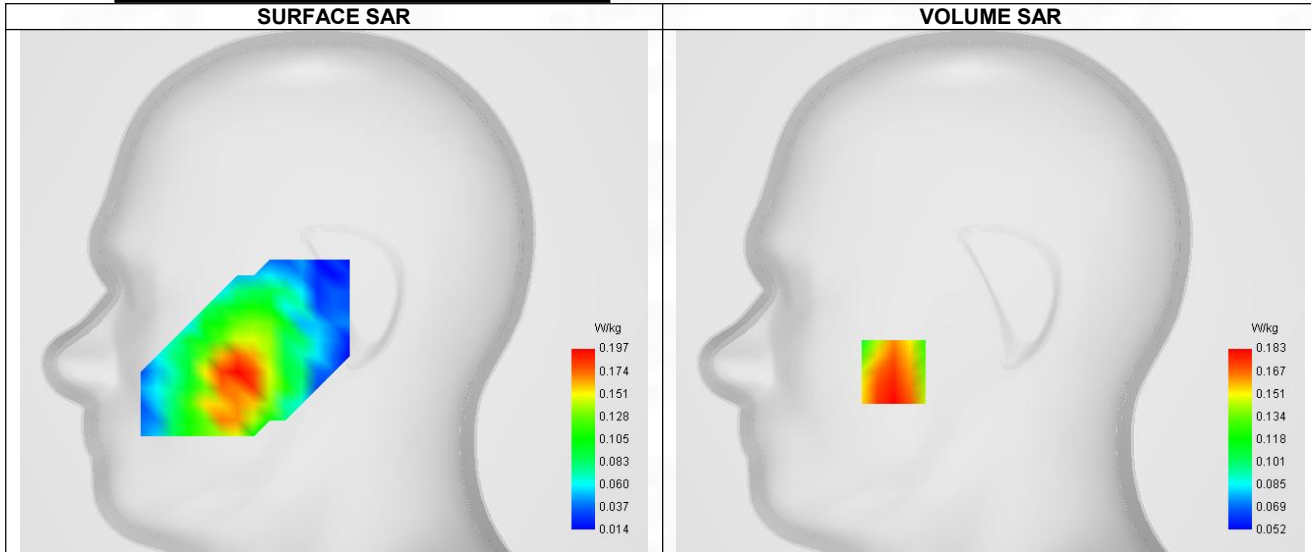
**A. Experimental conditions.**

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**



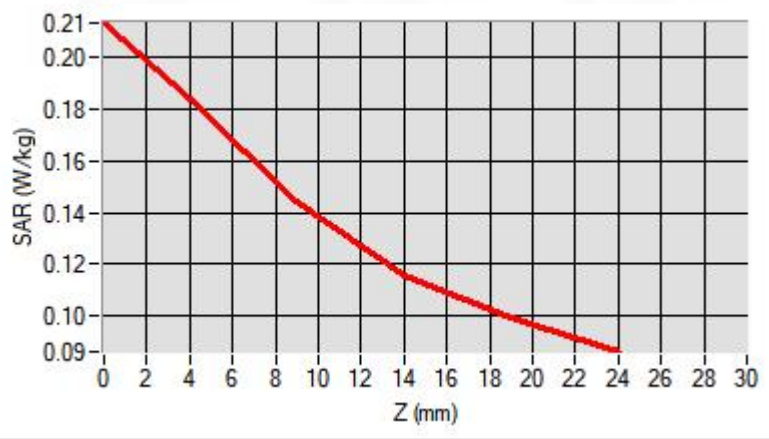
Maximum location: X=-48.00, Y=-40.00 ; SAR Peak: 0.23 W/kg

**D. SAR 1g & 10g**

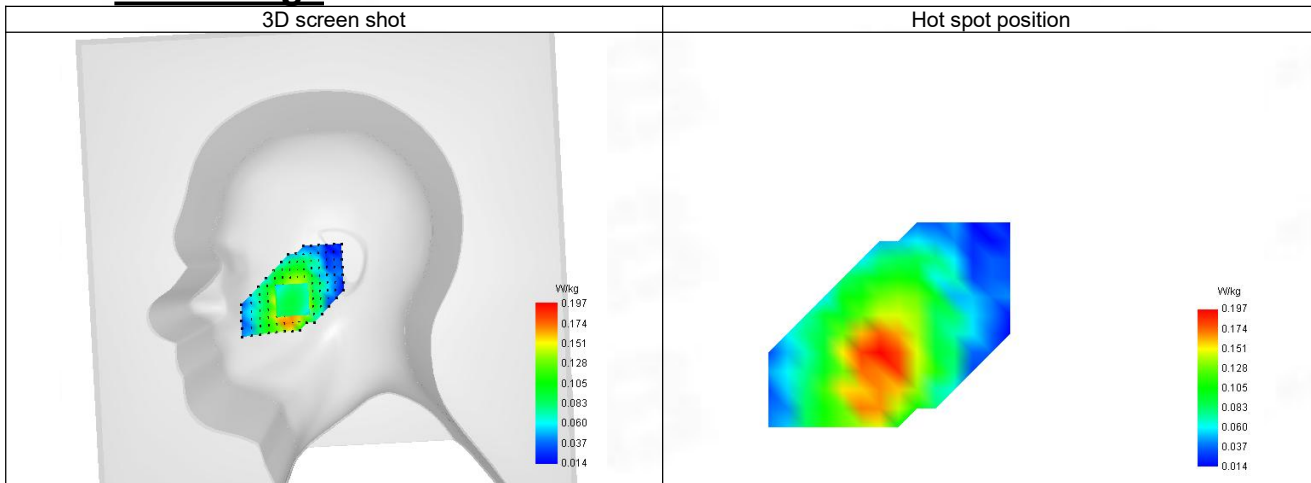
SAR 10g (W/Kg)	0.135
SAR 1g (W/Kg)	0.192
Variation (%)	-2.050
Horizontal validation criteria: minimum distance (mm)	0.000000
Vertical validation criteria: SAR ratio M2/M1 (%)	0.000000

**E. Z Axis Scan**

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.213	0.183	0.145	0.116	0.100



### 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: 30/10/2023

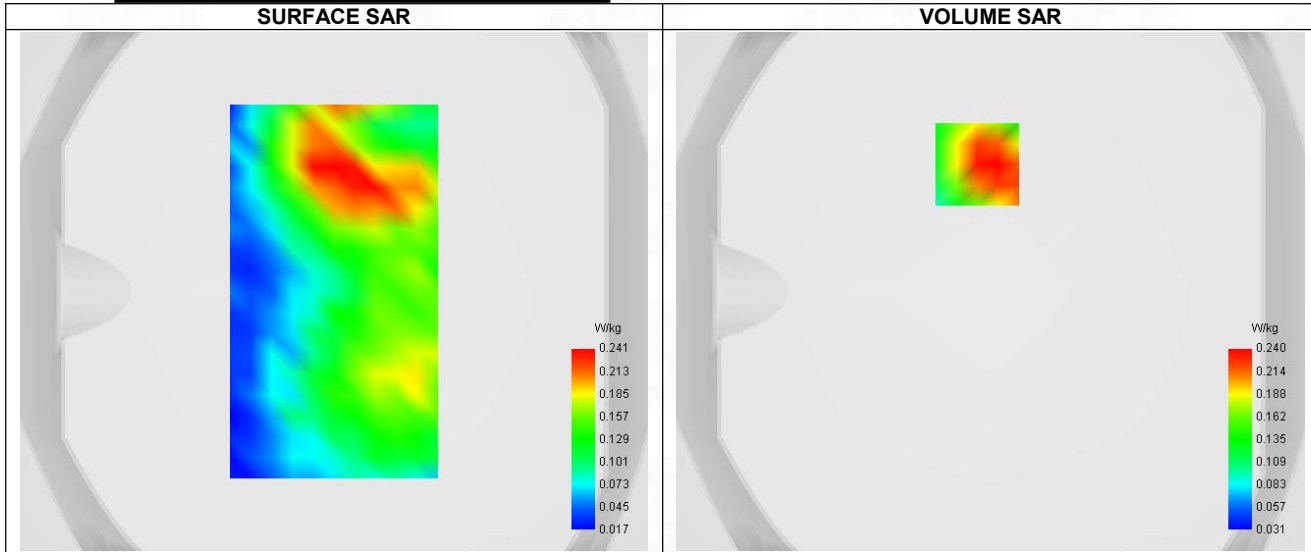
**A. Experimental conditions.**

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=-5.00, Y=49.00 ; SAR Peak: 0.36 W/kg

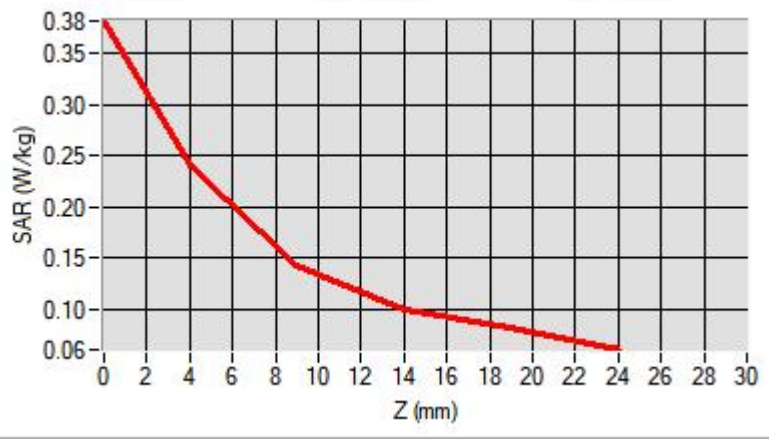
**D. SAR 1g & 10g**

SAR 10g (W/Kg)	0.159
SAR 1g (W/Kg)	0.248
Variation (%)	1.830
Horizontal validation criteria: minimum distance (mm)	0.000000
Vertical validation criteria: SAR ratio M2/M1 (%)	0.000000

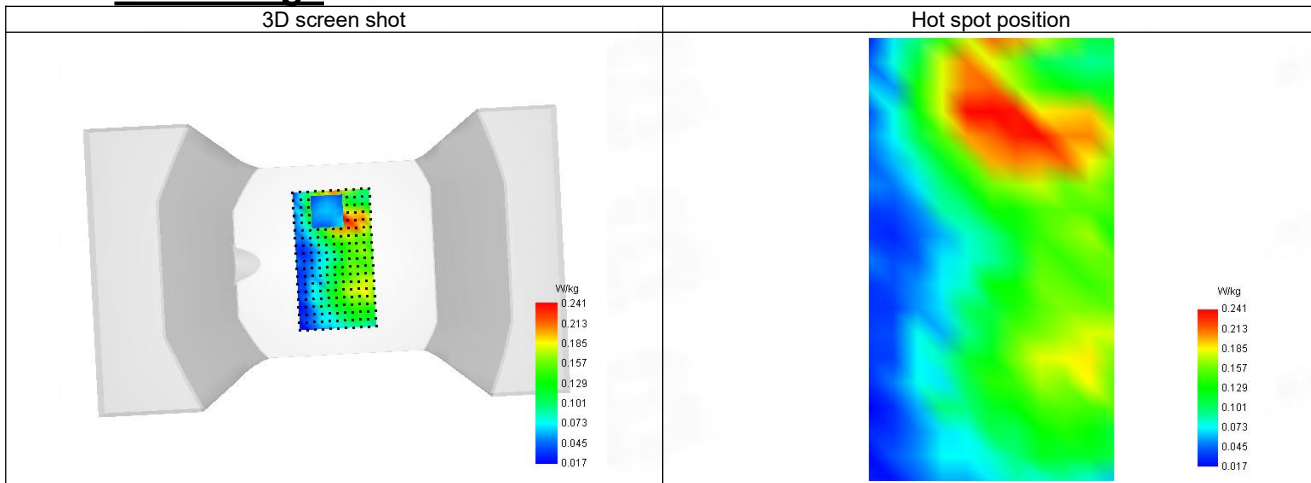
**E. Z Axis Scan**



Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.382	0.240	0.143	0.100	0.081



### 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: 31/10/2023

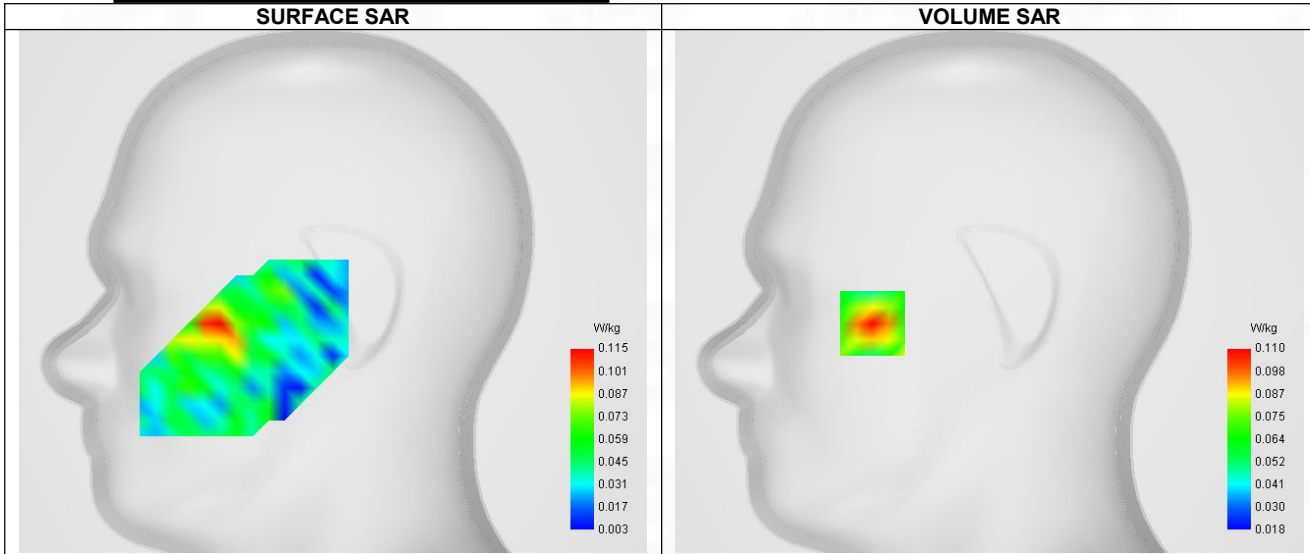
**A. Experimental conditions.**

Probe	SN 04/22 EPG0365
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**



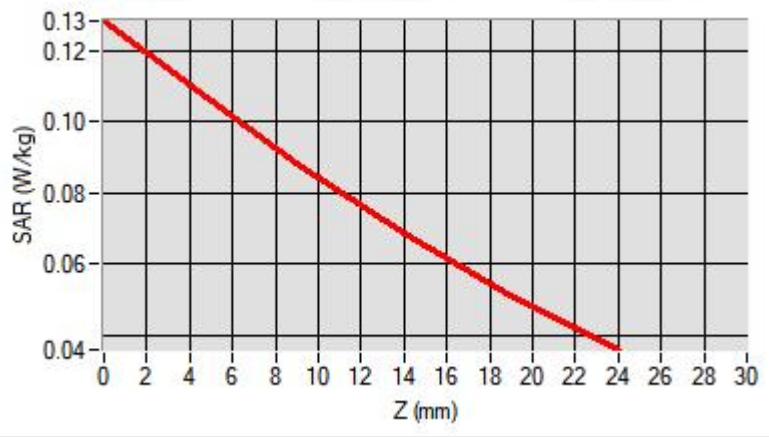
Maximum location: X=-58.00, Y=-16.00 ; SAR Peak: 0.13 W/kg

**D. SAR 1g & 10g**

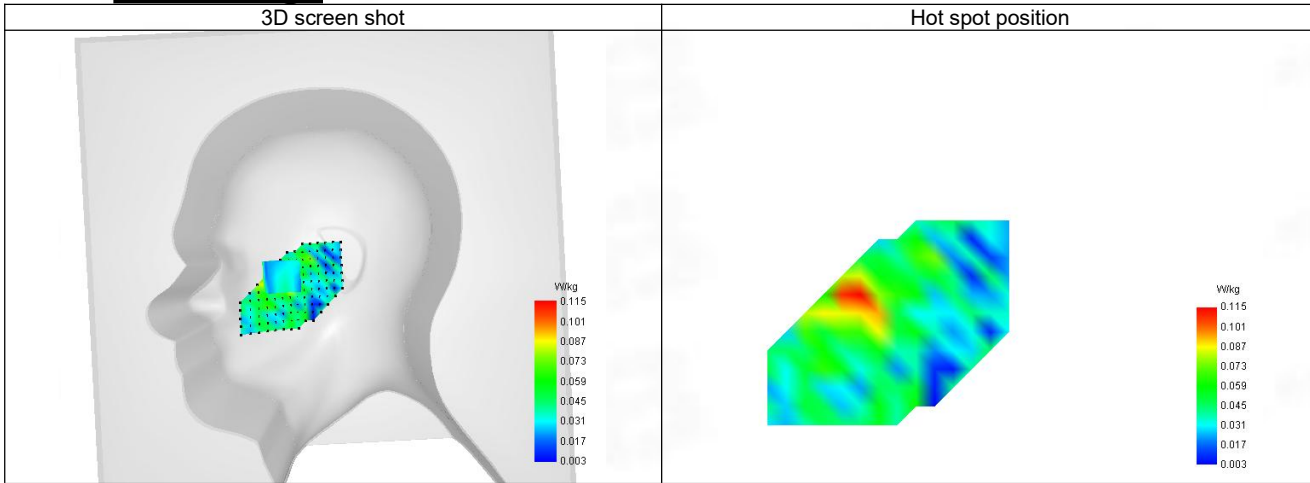
SAR 10g (W/Kg)	0.071
SAR 1g (W/Kg)	0.106
Variation (%)	2.570
Horizontal validation criteria: minimum distance (mm)	0.000000
Vertical validation criteria: SAR ratio M2/M1 (%)	0.000000

**E. Z Axis Scan**

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.128	0.110	0.088	0.069	0.051



### 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: 31/10/2023

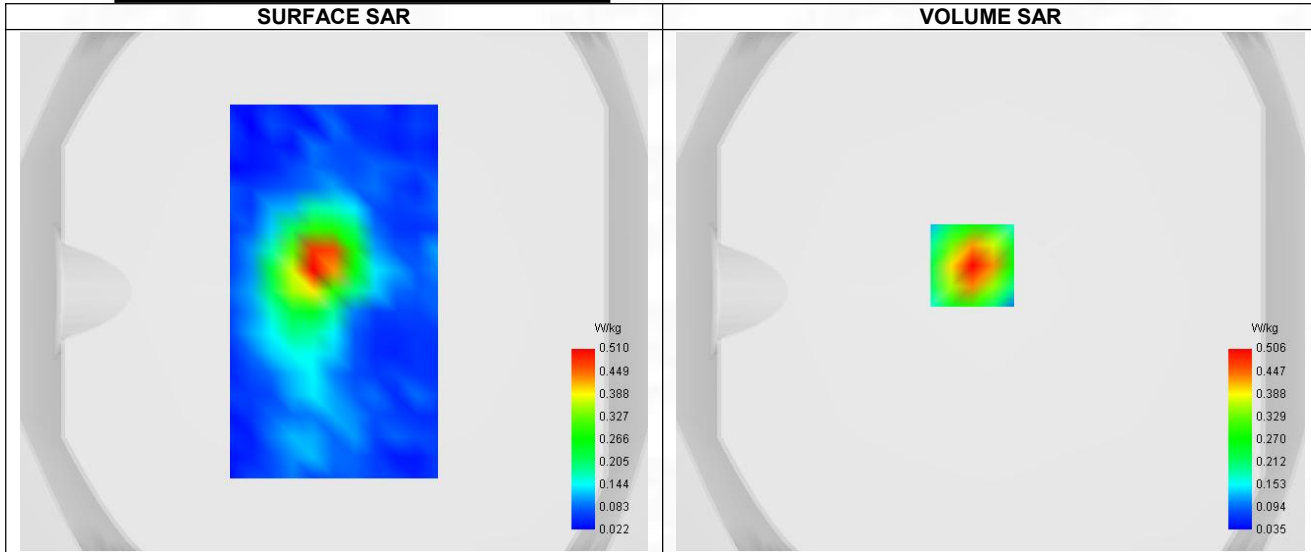
**A. Experimental conditions.**

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**



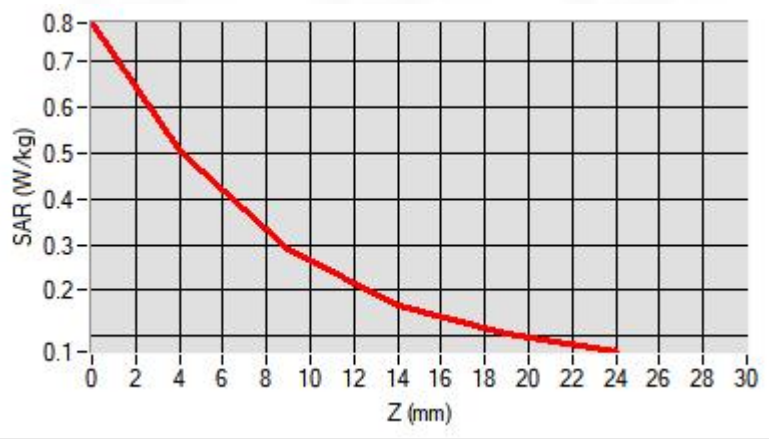
Maximum location: X=-7.00, Y=10.00 ; SAR Peak: 0.78 W/kg

**D. SAR 1g & 10g**

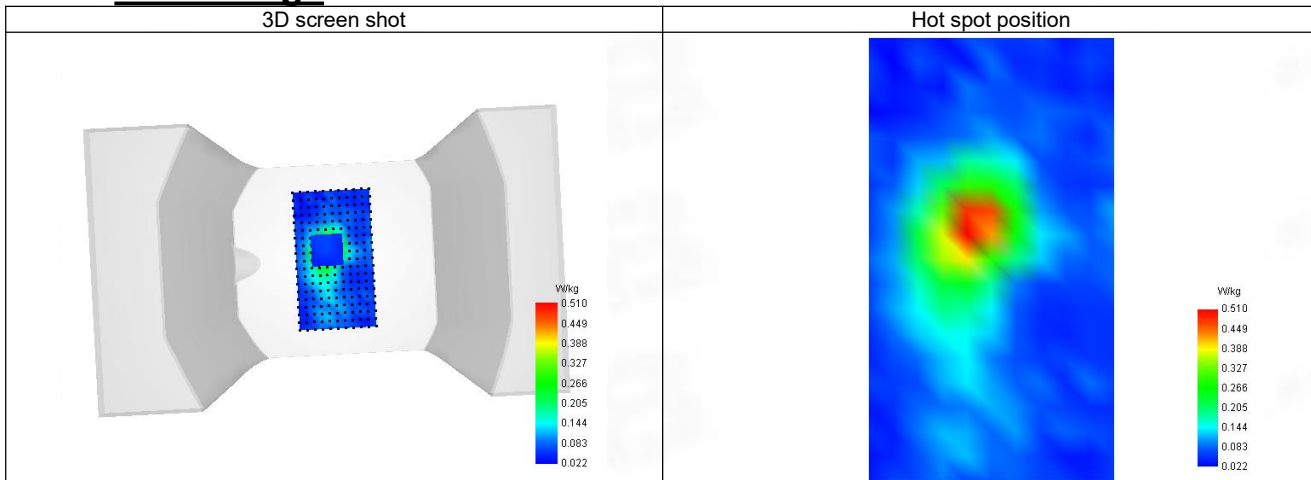
SAR 10g (W/Kg)	0.253
SAR 1g (W/Kg)	0.481
Variation (%)	3.000
Horizontal validation criteria: minimum distance (mm)	0.000000
Vertical validation criteria: SAR ratio M2/M1 (%)	0.000000

**E. Z Axis Scan**

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.784	0.506	0.288	0.167	0.104



### 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: 30/10/2023

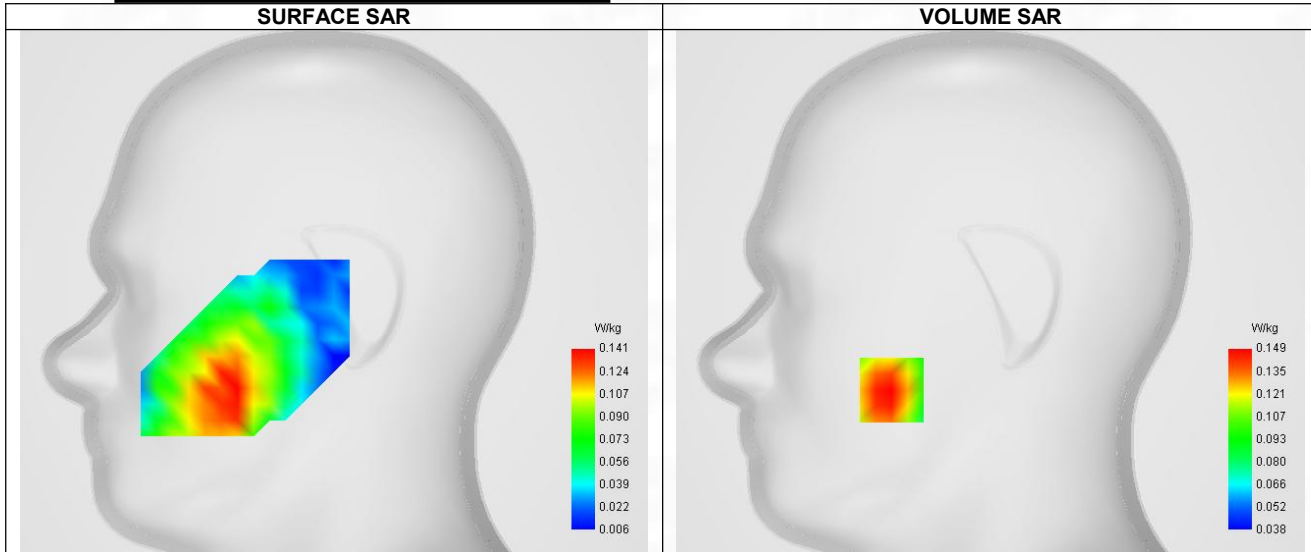
**A. Experimental conditions.**

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**



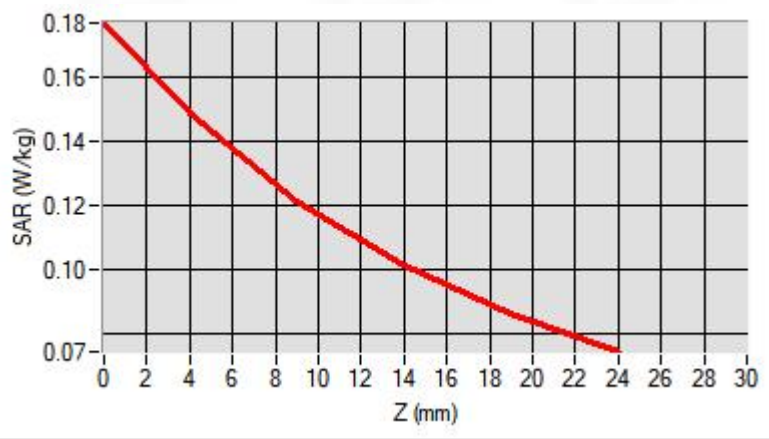
Maximum location: X=-49.00, Y=-49.00 ; SAR Peak: 0.18 W/kg

**D. SAR 1g & 10g**

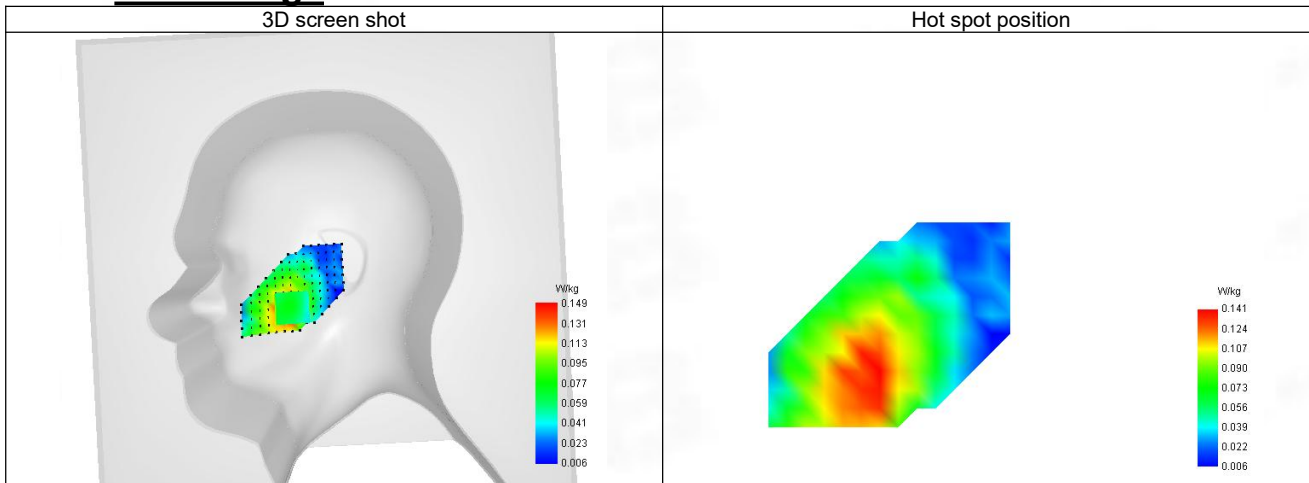
SAR 10g (W/Kg)	0.117
SAR 1g (W/Kg)	0.152
Variation (%)	-2.060
Horizontal validation criteria: minimum distance (mm)	0.000000
Vertical validation criteria: SAR ratio M2/M1 (%)	0.000000

**E. Z Axis Scan**

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.177	0.149	0.121	0.101	0.086



### 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: 30/10/2023

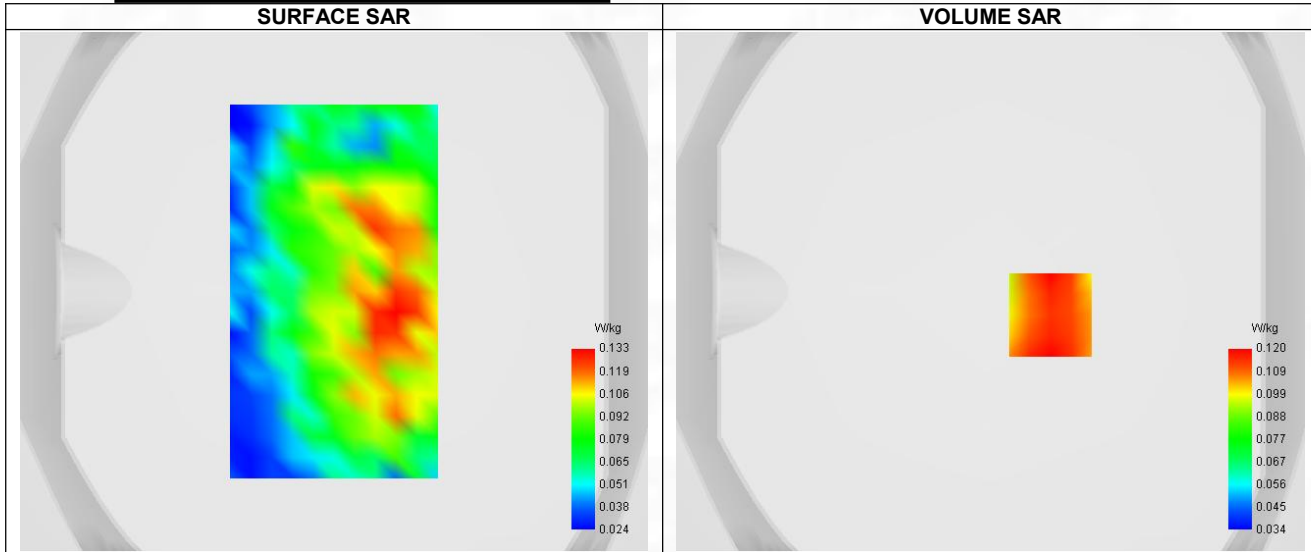
**A. Experimental conditions.**

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**



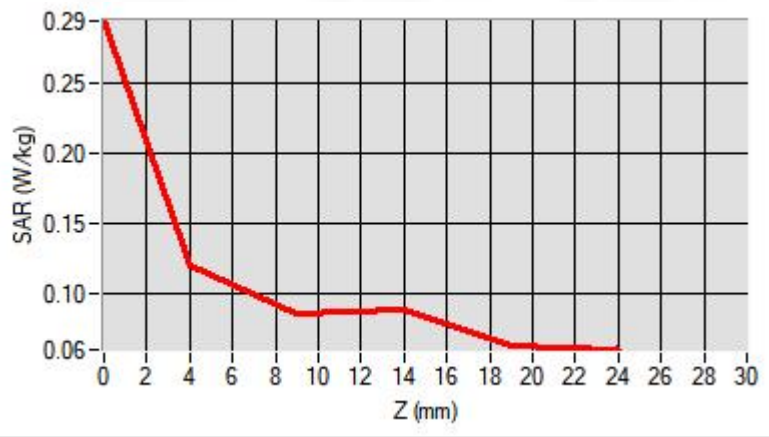
**D. SAR 1g & 10g**

SAR 10g (W/Kg)	0.097
SAR 1g (W/Kg)	0.126
Variation (%)	-0.930
Horizontal validation criteria: minimum distance (mm)	0.000000
Vertical validation criteria: SAR ratio M2/M1 (%)	0.000000

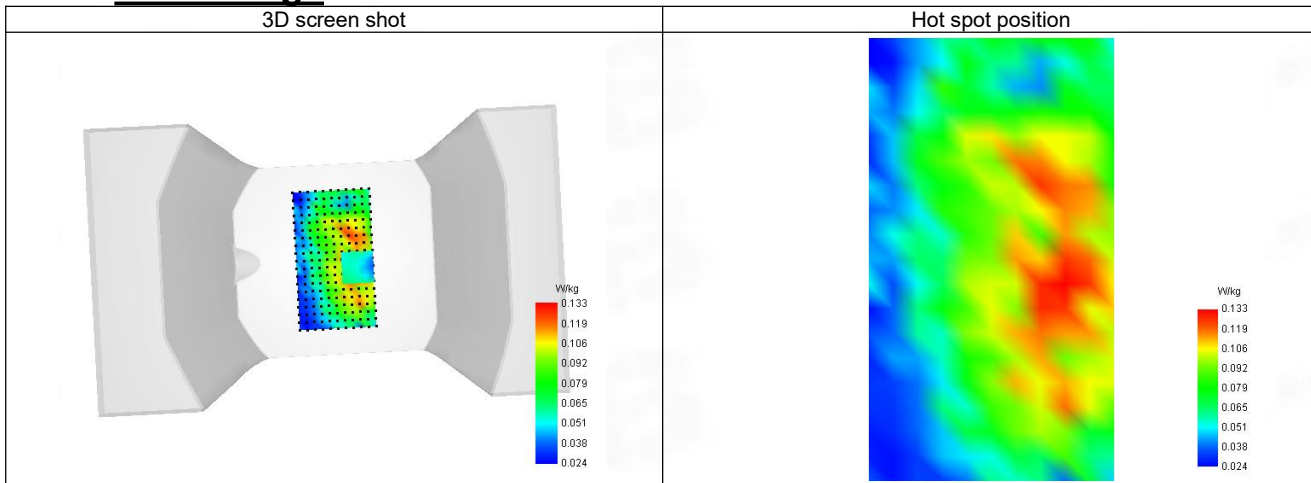
**E. Z Axis Scan**



Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.294	0.120	0.086	0.089	0.063



### 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: 30/10/2023

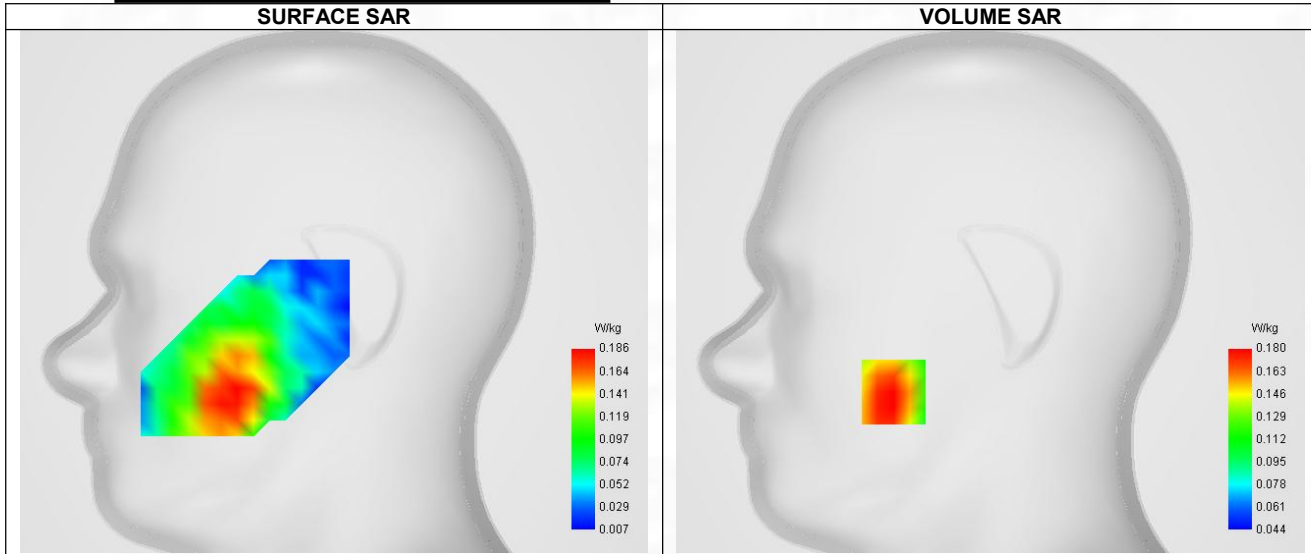
**A. Experimental conditions.**

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**



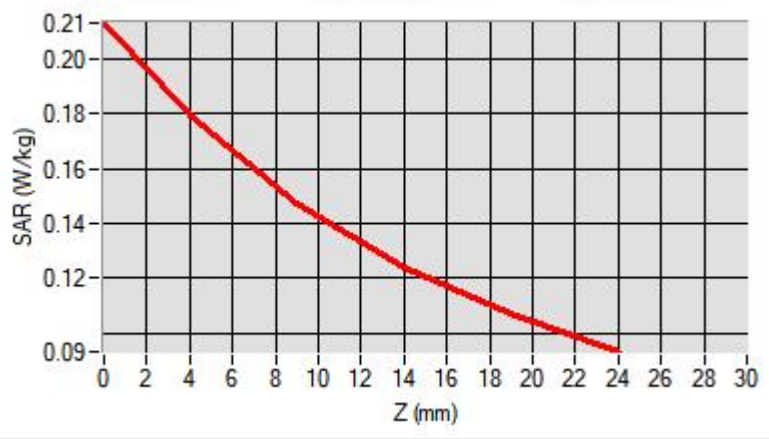
Maximum location: X=-48.00, Y=-50.00 ; SAR Peak: 0.23 W/kg

**D. SAR 1g & 10g**

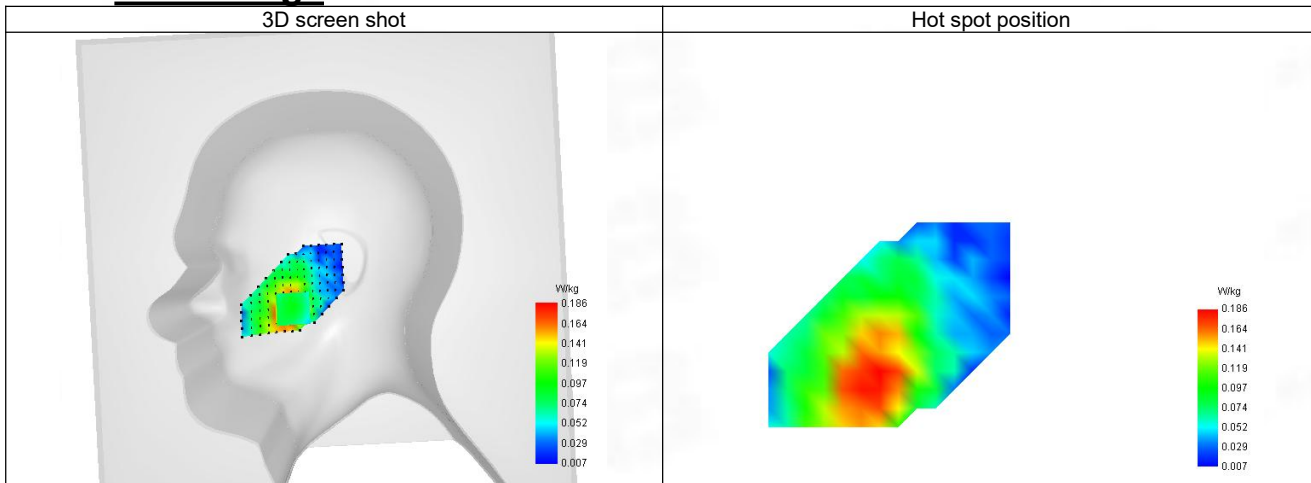
SAR 10g (W/Kg)	0.146
SAR 1g (W/Kg)	0.188
Variation (%)	-1.230
Horizontal validation criteria: minimum distance (mm)	0.000000
Vertical validation criteria: SAR ratio M2/M1 (%)	0.000000

**E. Z Axis Scan**

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.213	0.180	0.147	0.124	0.107



### 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: 30/10/2023

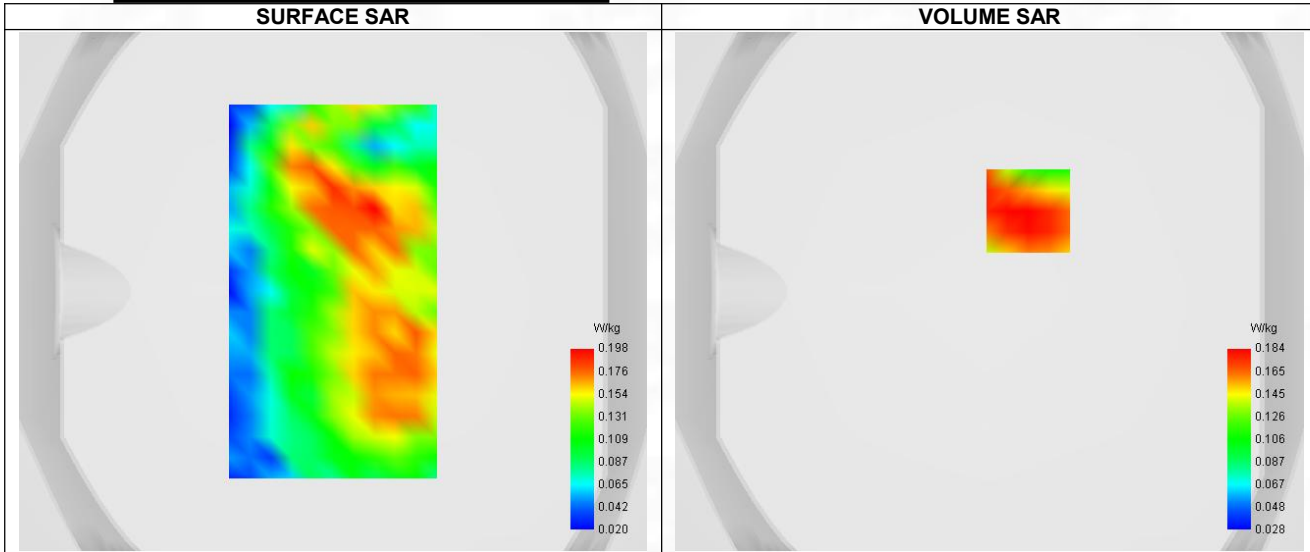
**A. Experimental conditions.**

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**



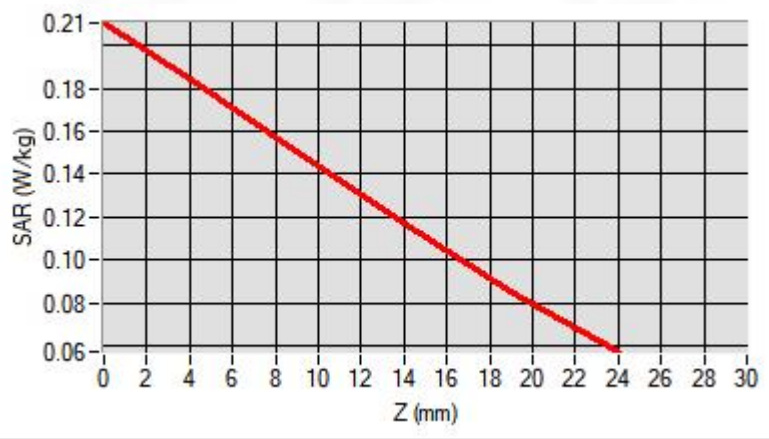
Maximum location: X=15.00, Y=31.00 ; SAR Peak: 0.25 W/kg

**D. SAR 1g & 10g**

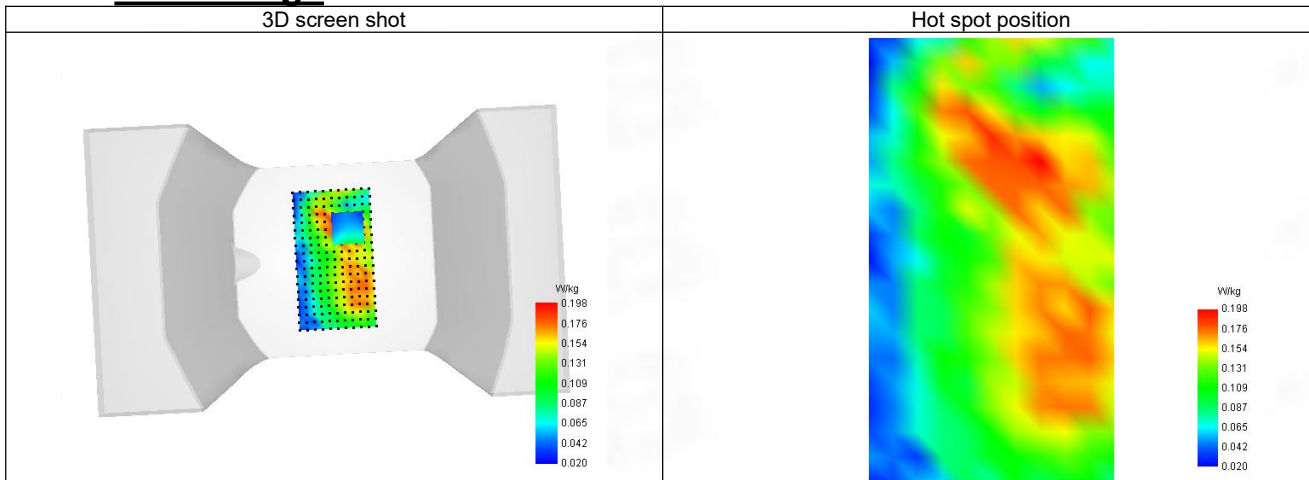
SAR 10g (W/Kg)	0.147
SAR 1g (W/Kg)	0.193
Variation (%)	-2.060
Horizontal validation criteria: minimum distance (mm)	0.000000
Vertical validation criteria: SAR ratio M2/M1 (%)	0.000000

**E. Z Axis Scan**

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.211	0.184	0.151	0.117	0.085



### F. 3D Image



**23-Head with front position in dist. 0mm on Channel 23780 in LTE band 17**

**SAR Measurement at LTE band 17 (Cheek, Right)**

Date of measurement: 30/10/2023

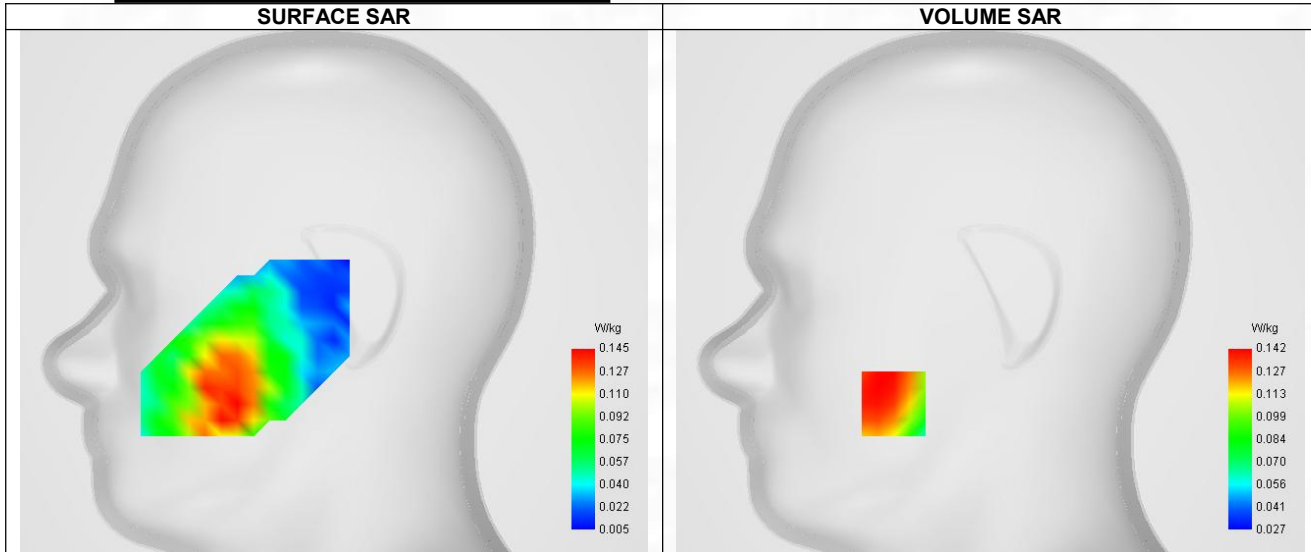
**A. Experimental conditions.**

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	Lower (23780)
Signal	LTE FDD
Cell Bandwidth	10 Mhz
Modulation	SC-OFDM - QPSK
RB offset	25
RB size	1

**B. Permittivity**

Frequency (MHz)	709.090
Relative permittivity (real part)	43.783
Relative permittivity (imaginary part)	22.408
Conductivity (S/m)	0.855

**C. SAR Surface and Volume**



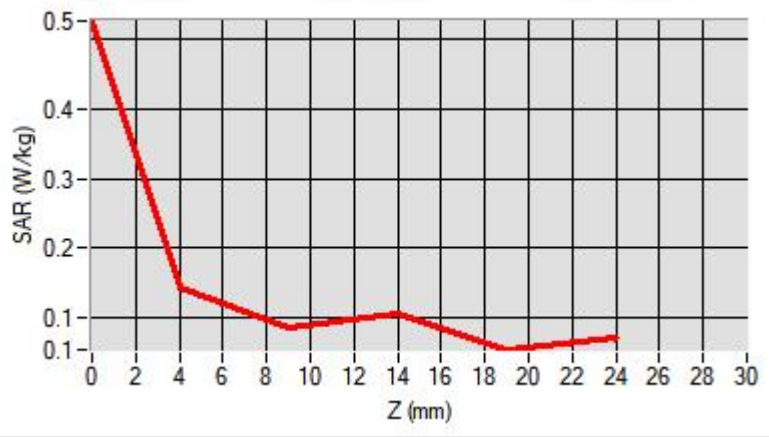
Maximum location: X=-48.00, Y=-56.00 ; SAR Peak: 0.17 W/kg

**D. SAR 1g & 10g**

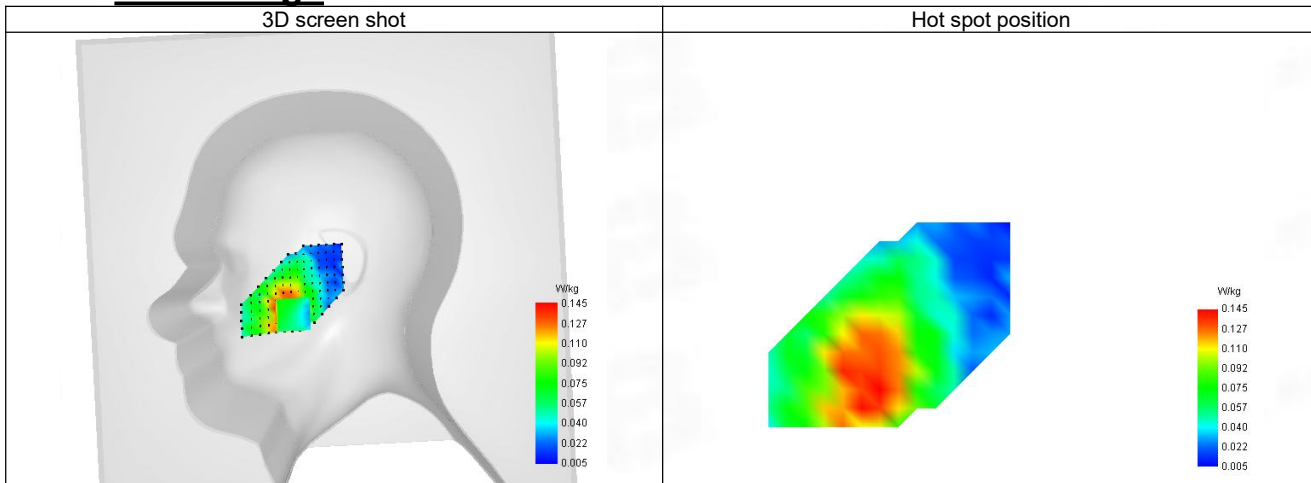
SAR 10g (W/Kg)	0.117
SAR 1g (W/Kg)	0.148
Variation (%)	-3.010
Horizontal validation criteria: minimum distance (mm)	0.000000
Vertical validation criteria: SAR ratio M2/M1 (%)	0.000000

**E. Z Axis Scan**

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.527	0.142	0.084	0.104	0.053



### F. 3D Image



**24-Body with back position in dist. 10mm on Channel 23780 in LTE band 17**

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

Date of measurement: 30/10/2023

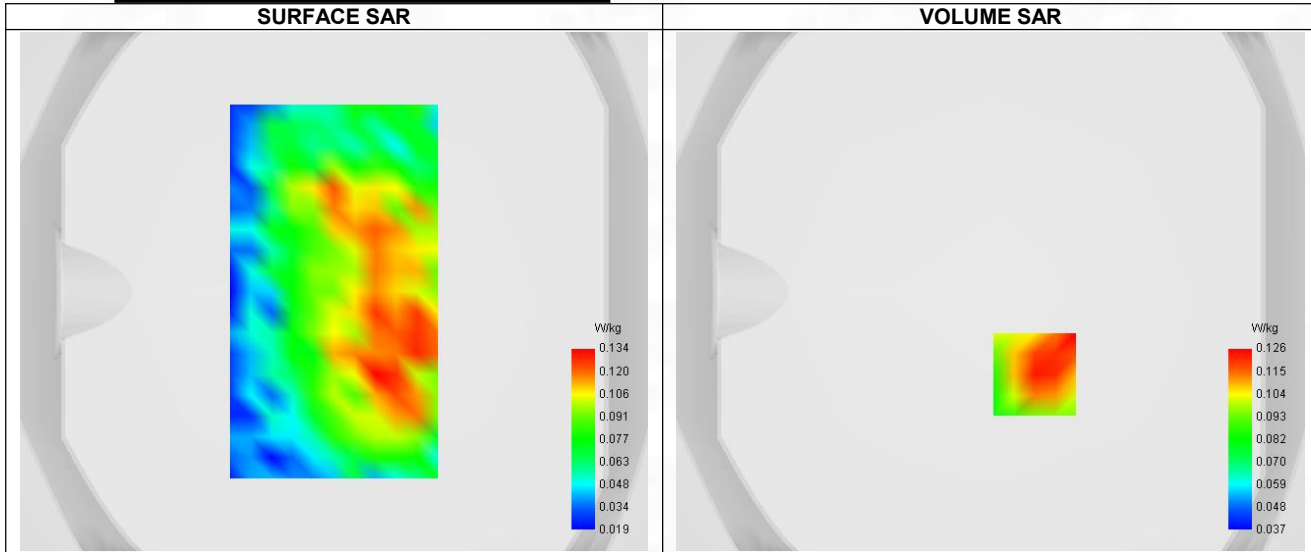
**A. Experimental conditions.**

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	Lower (23780)
Signal	LTE FDD
Cell Bandwidth	10 Mhz
Modulation	SC-OFDM - QPSK
RB offset	25
RB size	1

**B. Permittivity**

Frequency (MHz)	709.090
Relative permittivity (real part)	43.783
Relative permittivity (imaginary part)	22.408
Conductivity (S/m)	0.855

**C. SAR Surface and Volume**



Maximum location: X=17.00, Y=-32.00 ; SAR Peak: 0.17 W/kg

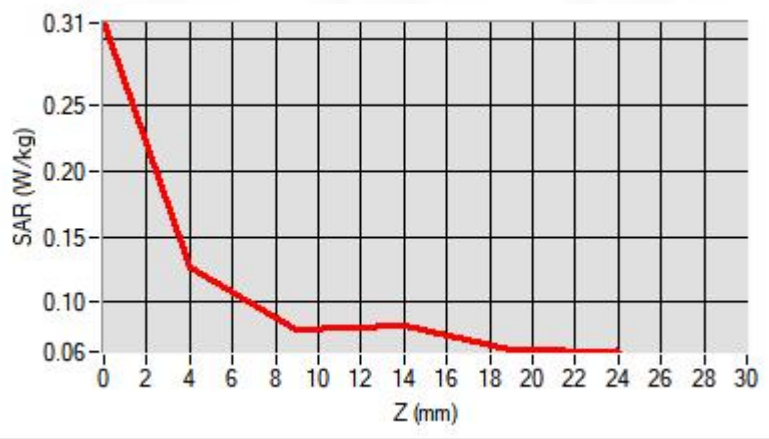
**D. SAR 1g & 10g**

SAR 10g (W/Kg)	0.092
SAR 1g (W/Kg)	0.125
Variation (%)	1.970
Horizontal validation criteria: minimum distance (mm)	0.000000
Vertical validation criteria: SAR ratio M2/M1 (%)	0.000000

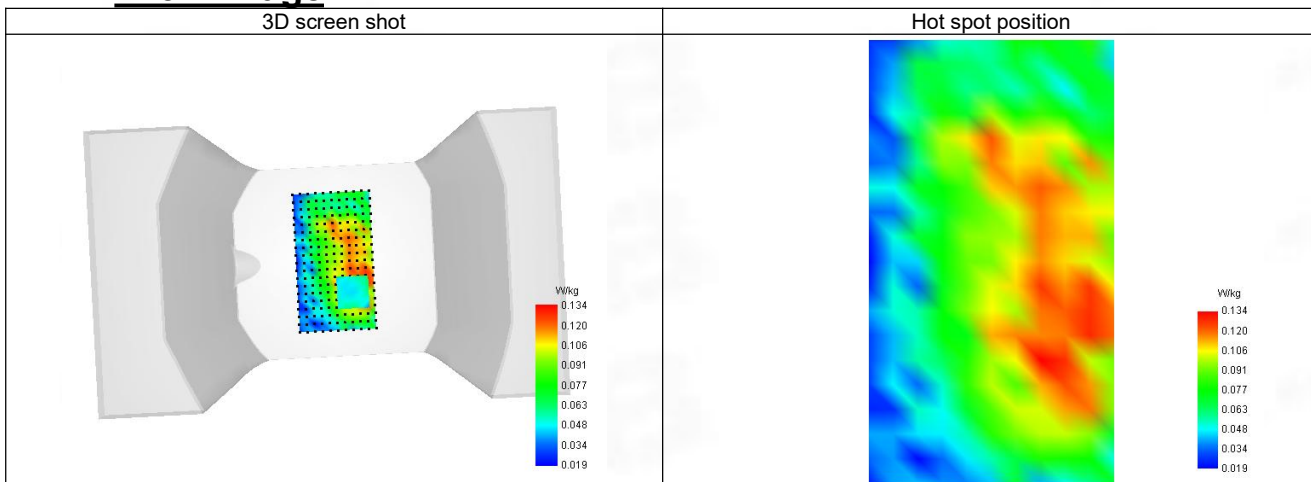
**E. Z Axis Scan**



Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.313	0.126	0.080	0.082	0.064



### 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: 30/10/2023

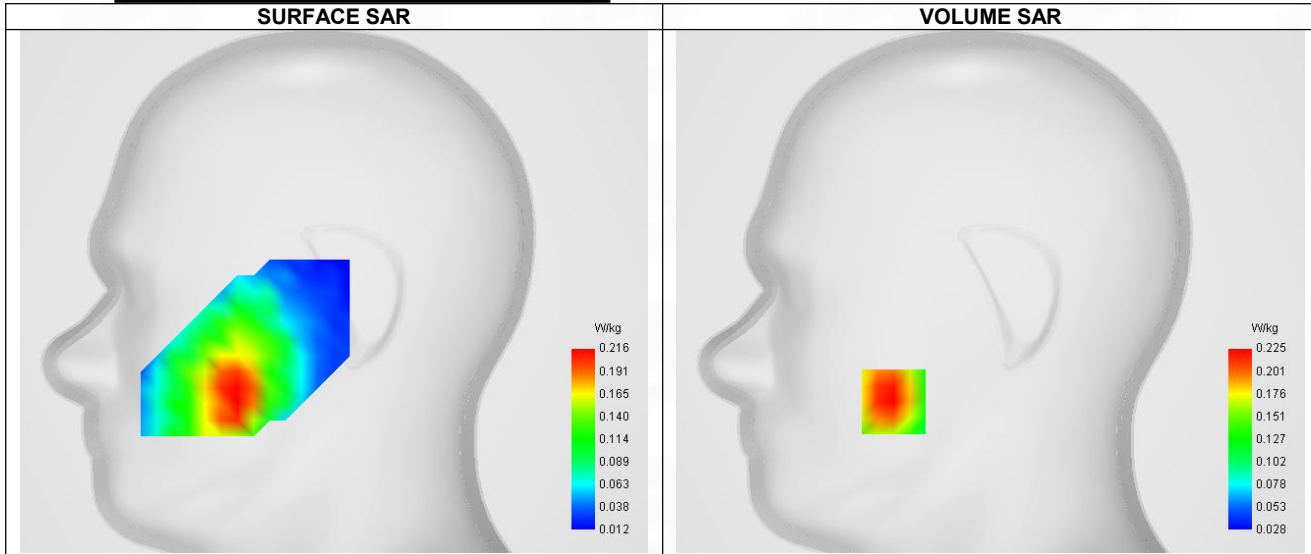
**A. Experimental conditions.**

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**



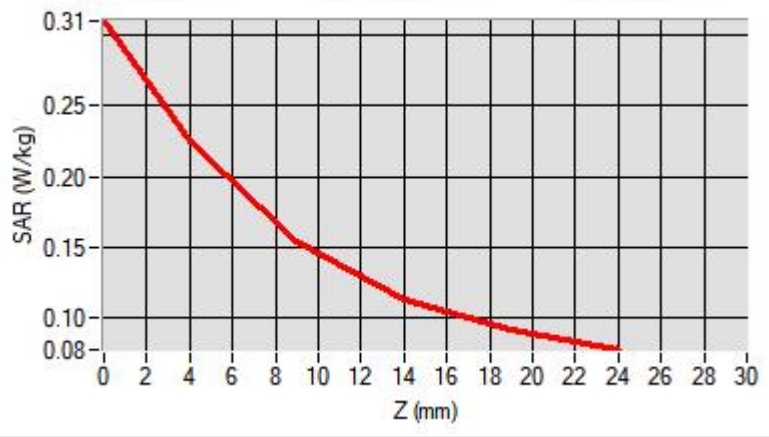
Maximum location: X=-48.00, Y=-55.00 ; SAR Peak: 0.32 W/kg

**D. SAR 1g & 10g**

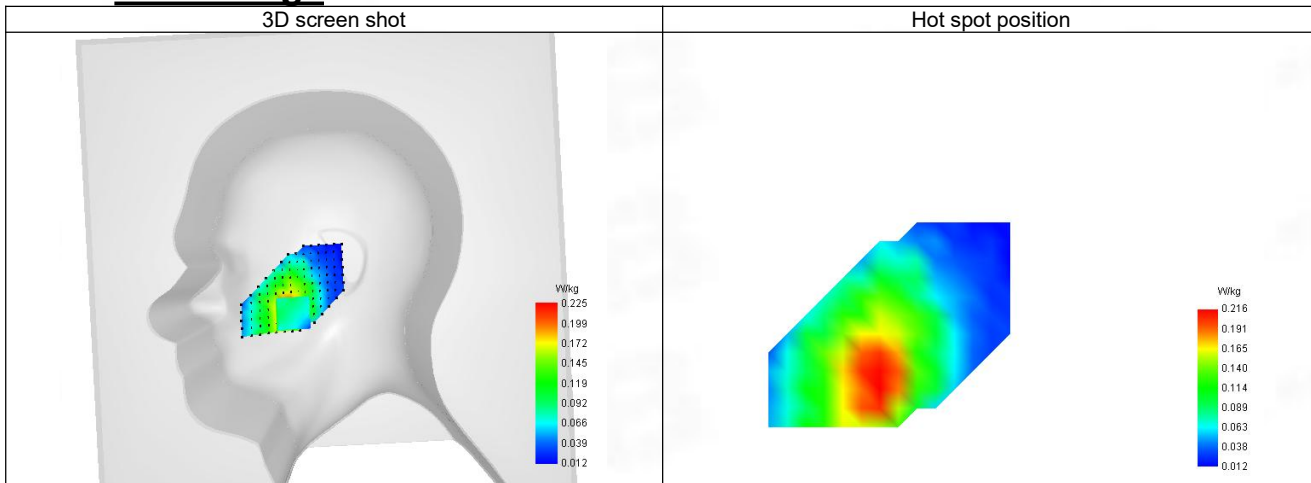
SAR 10g (W/Kg)	0.160
SAR 1g (W/Kg)	0.232
Variation (%)	-2.590
Horizontal validation criteria: minimum distance (mm)	0.000000
Vertical validation criteria: SAR ratio M2/M1 (%)	0.000000

**E. Z Axis Scan**

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.310	0.225	0.155	0.114	0.092



### 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: 30/10/2023

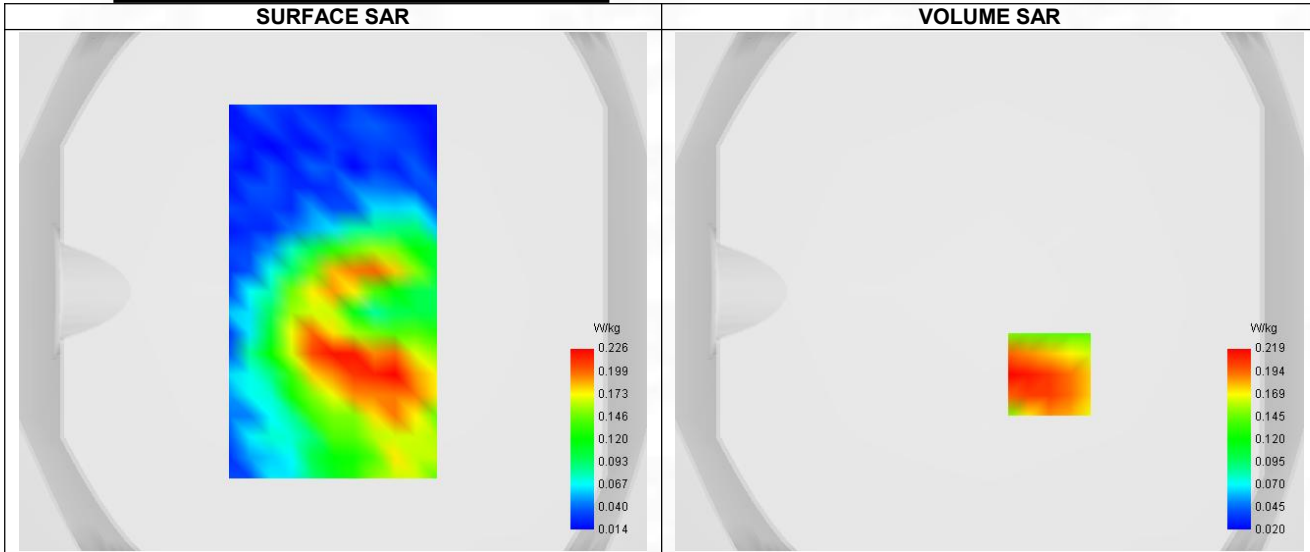
**A. Experimental conditions.**

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**



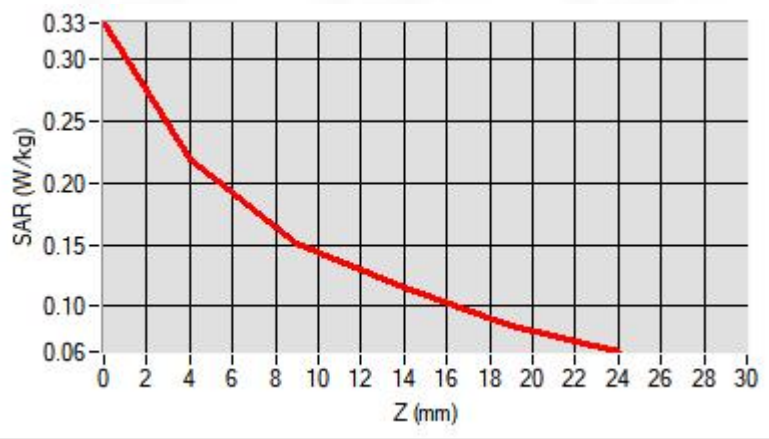
Maximum location: X=23.00, Y=-32.00 ; SAR Peak: 0.29 W/kg

**D. SAR 1g & 10g**

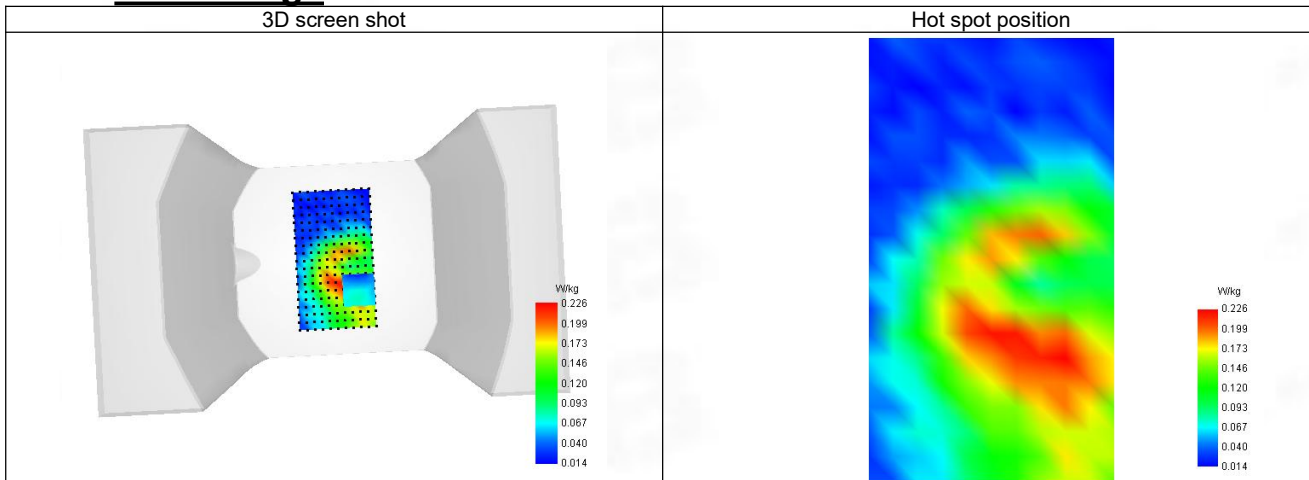
SAR 10g (W/Kg)	0.158
SAR 1g (W/Kg)	0.221
Variation (%)	-2.090
Horizontal validation criteria: minimum distance (mm)	0.000000
Vertical validation criteria: SAR ratio M2/M1 (%)	0.000000

**E. Z Axis Scan**

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.330	0.219	0.151	0.115	0.085



### 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: 30/10/2023

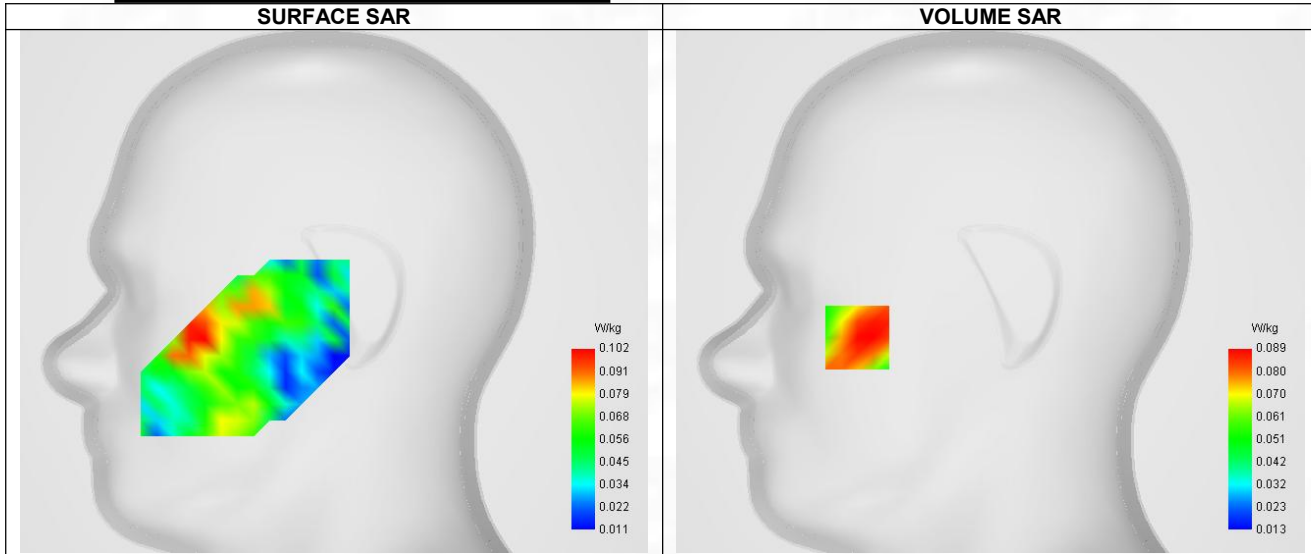
**A. Experimental conditions.**

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=-66.00, Y=-23.00 ; SAR Peak: 0.15 W/kg

**D. SAR 1g & 10g**

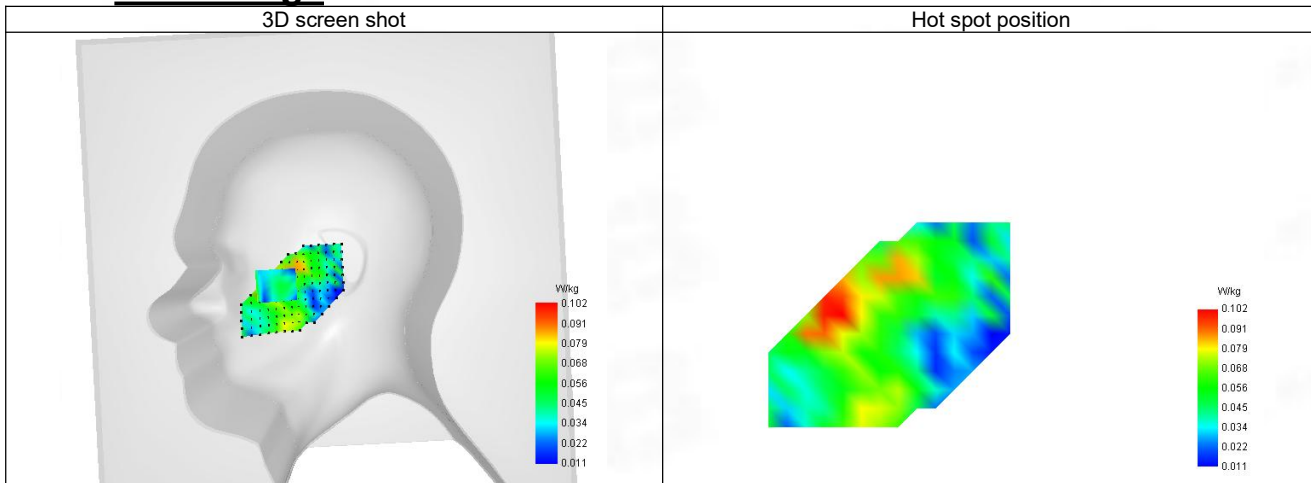
SAR 10g (W/Kg)	0.068
SAR 1g (W/Kg)	0.096
Variation (%)	2.200
Horizontal validation criteria: minimum distance (mm)	0.000000
Vertical validation criteria: SAR ratio M2/M1 (%)	0.000000

**E. Z Axis Scan**

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.128	0.089	0.055	0.041	0.042



### 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: 30/10/2023

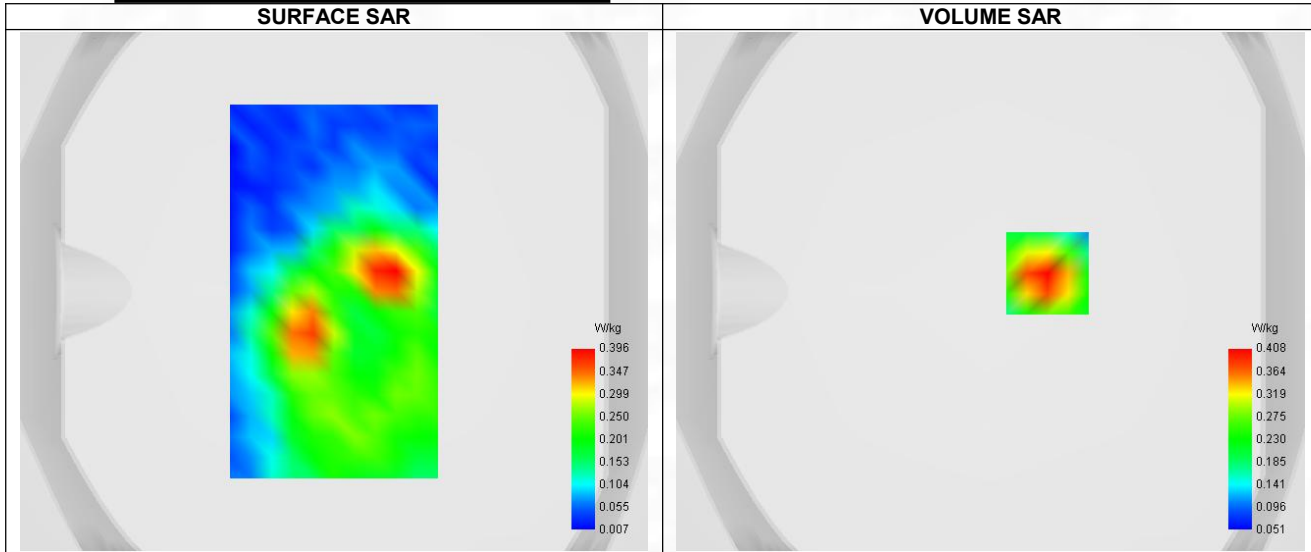
**A. Experimental conditions.**

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=22.00, Y=7.00 ; SAR Peak: 0.63 W/kg

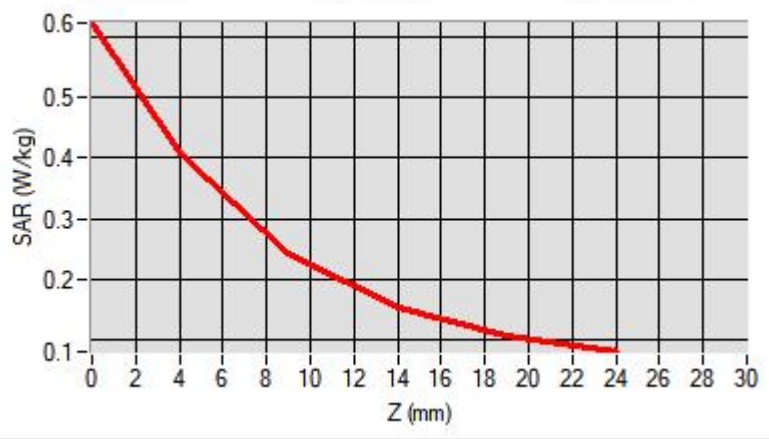
**D. SAR 1g & 10g**

SAR 10g (W/Kg)	0.229
SAR 1g (W/Kg)	0.402
Variation (%)	2.600
Horizontal validation criteria: minimum distance (mm)	0.000000
Vertical validation criteria: SAR ratio M2/M1 (%)	0.000000

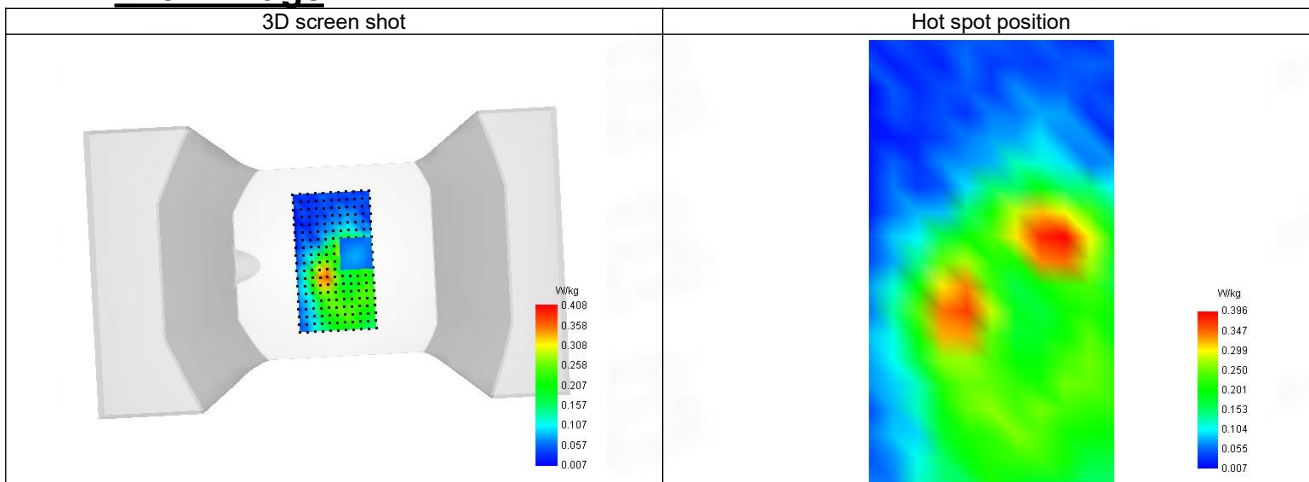
**E. Z Axis Scan**



Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.622	0.408	0.242	0.153	0.108



### 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: 31/10/2023

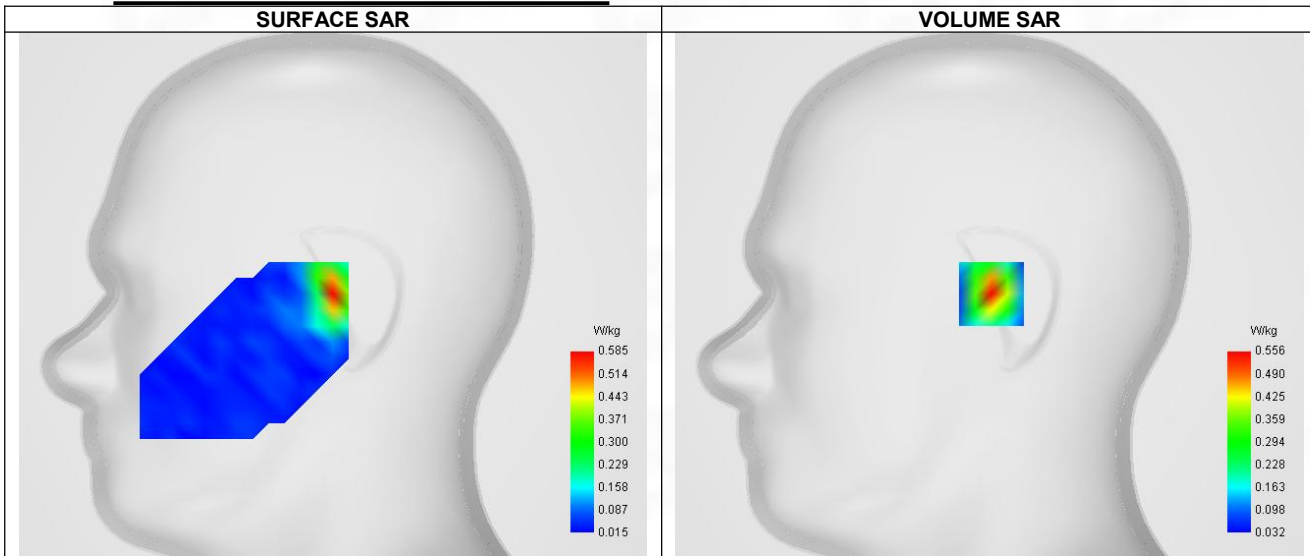
**A. Experimental conditions.**

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**



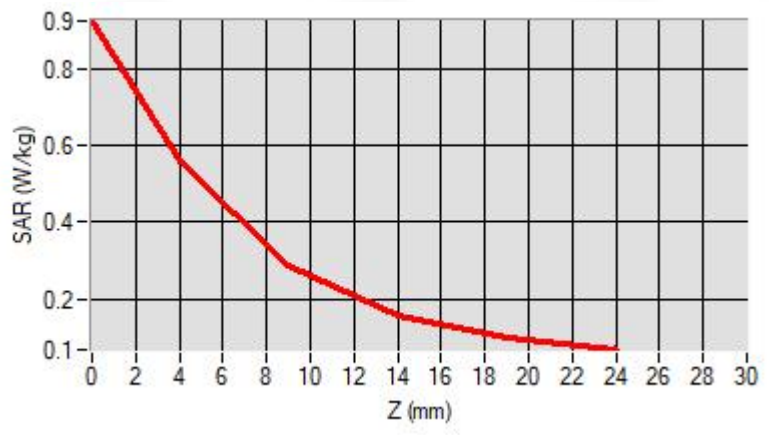
Maximum location: X=1.00, Y=0.00 ; SAR Peak: 0.93 W/kg

**D. SAR 1g & 10g**

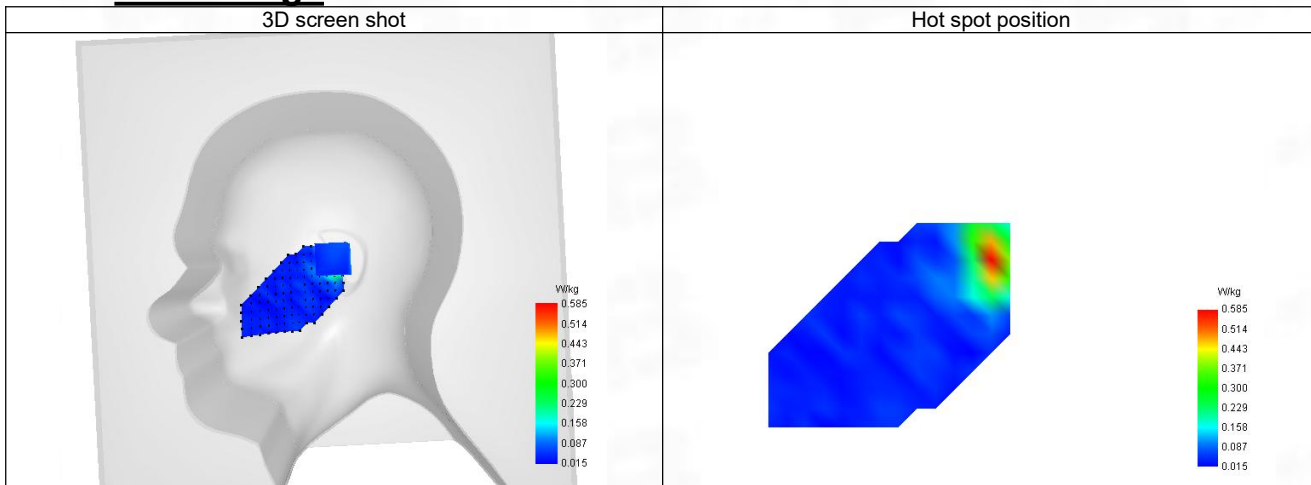
SAR 10g (W/Kg)	0.256
SAR 1g (W/Kg)	0.525
Variation (%)	-1.650
Horizontal validation criteria: minimum distance (mm)	0.000000
Vertical validation criteria: SAR ratio M2/M1 (%)	0.000000

**E. Z Axis Scan**

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.923	0.556	0.288	0.156	0.098



### 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: 31/10/2023

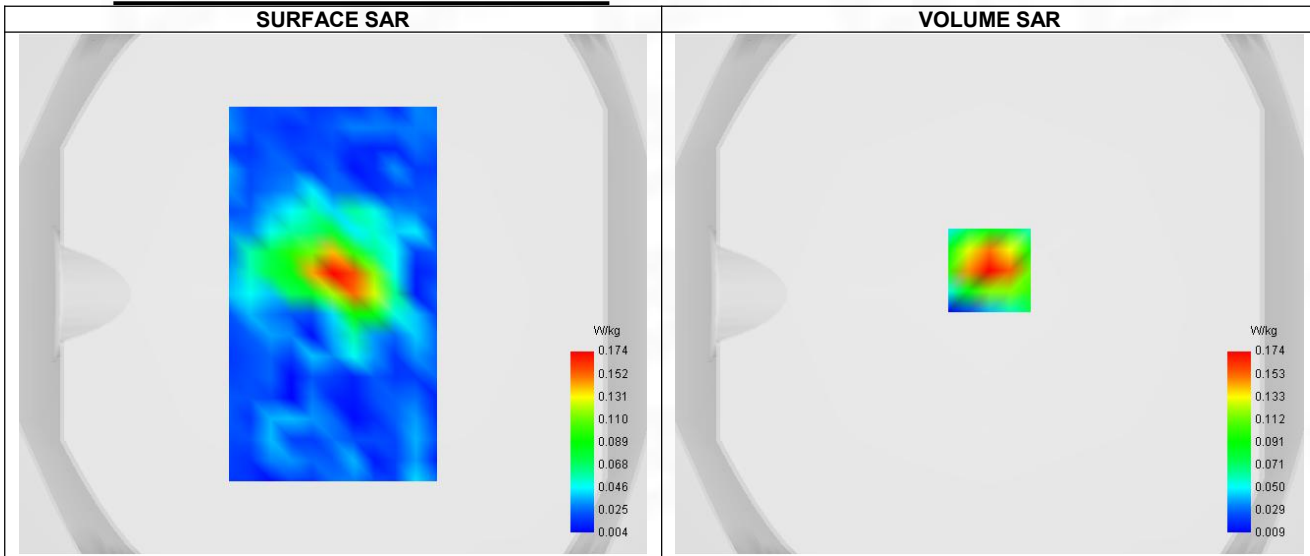
**A. Experimental conditions.**

Probe	SN 04/22 EPGO365
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**



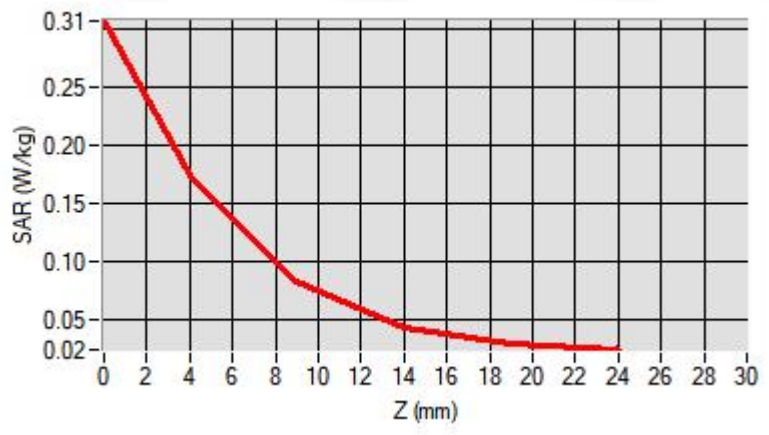
Maximum location: X=0.00, Y=9.00 ; SAR Peak: 0.31 W/kg

**D. SAR 1g & 10g**

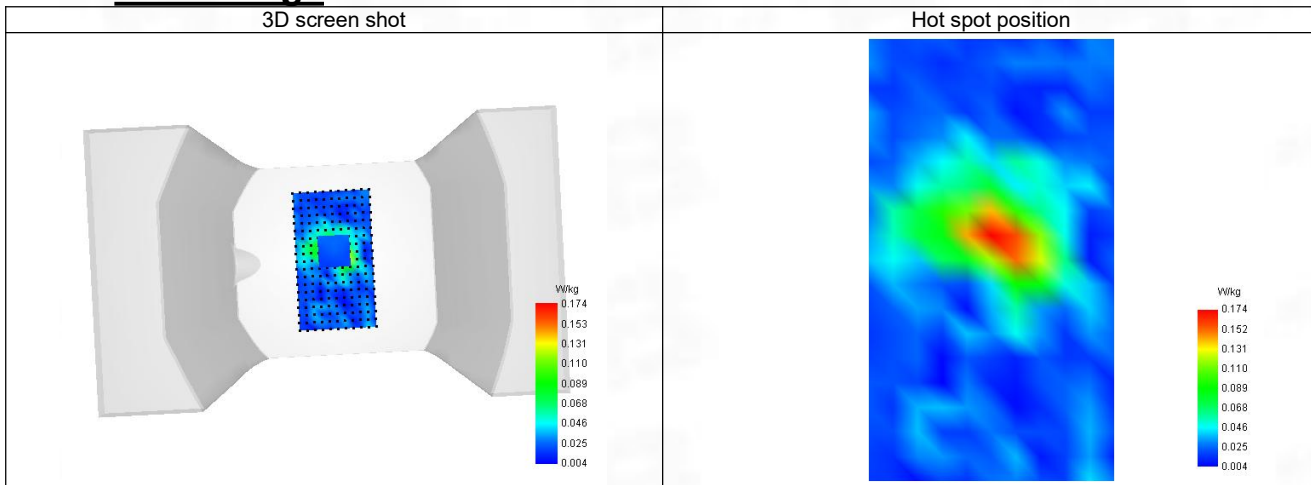
SAR 10g (W/Kg)	0.086
SAR 1g (W/Kg)	0.171
Variation (%)	-2.540
Horizontal validation criteria: minimum distance (mm)	0.000000
Vertical validation criteria: SAR ratio M2/M1 (%)	0.000000

**E. Z Axis Scan**

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.308	0.174	0.083	0.044	0.030



### F. 3D Image



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

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

Date of measurement: 31/10/2023

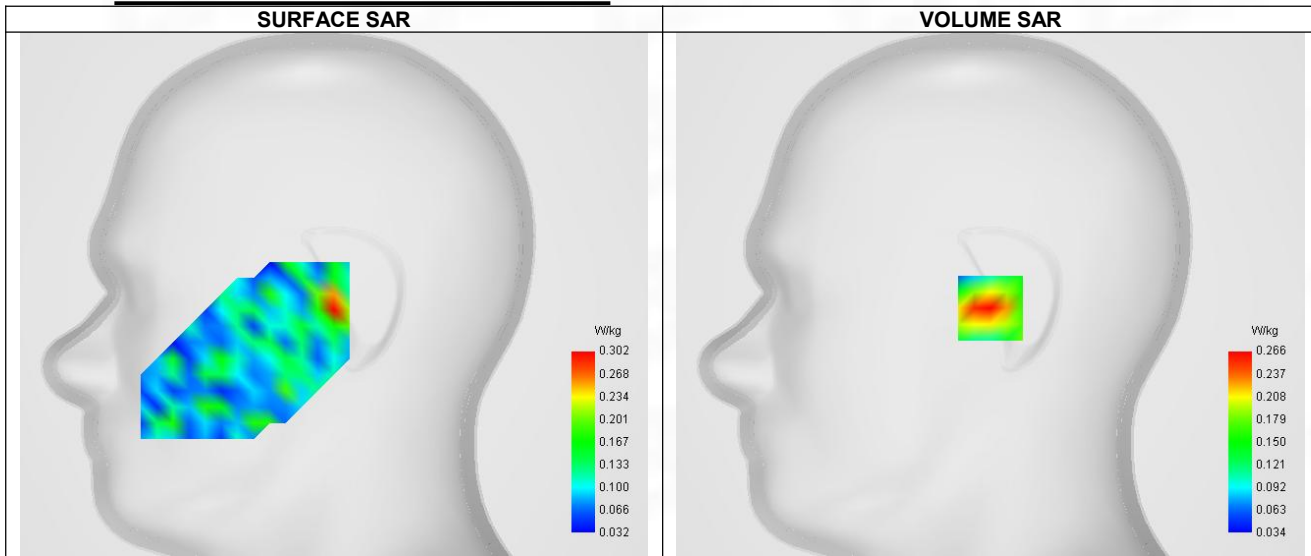
**A. Experimental conditions.**

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	IEEE 802.11a 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**



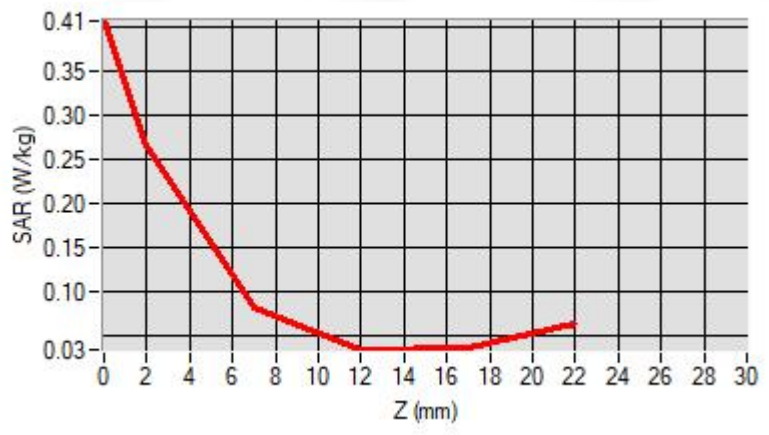
Maximum location: X=0.00, Y=-7.00 ; SAR Peak: 0.61 W/kg

**D. SAR 1g & 10g**

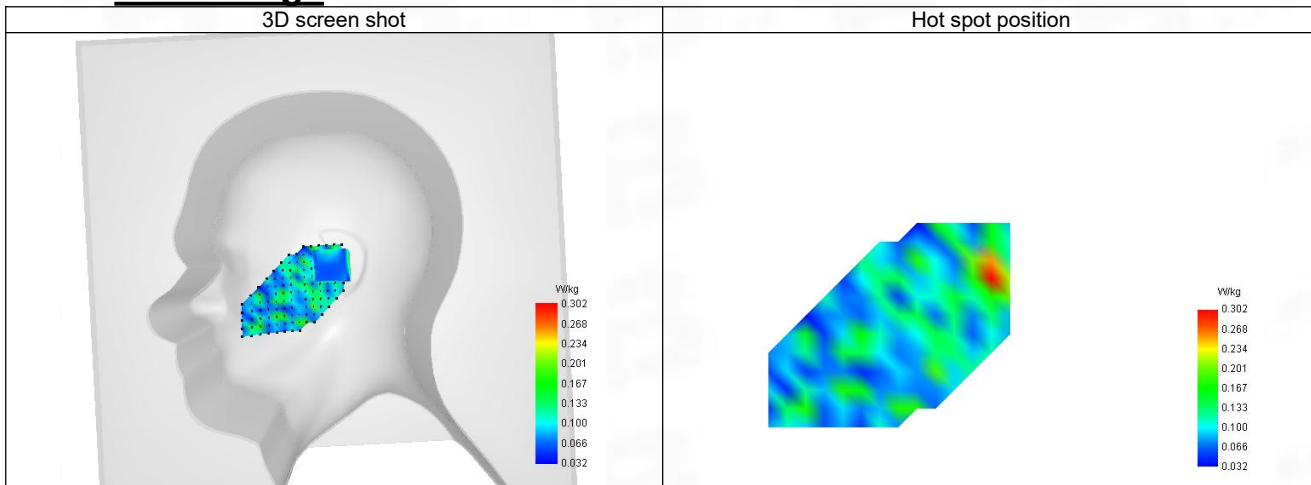
SAR 10g (W/Kg)	0.146
SAR 1g (W/Kg)	0.276
Variation (%)	-2.050
Horizontal validation criteria: minimum distance (mm)	0.000000
Vertical validation criteria: SAR ratio M2/M1 (%)	0.000000

**E. Z Axis Scan**

Z (mm)	0.00	2.00	7.00	12.00	17.00
SAR (W/Kg)	0.408	0.266	0.082	0.034	0.036



### F. 3D Image



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

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

Date of measurement: 31/10/2023

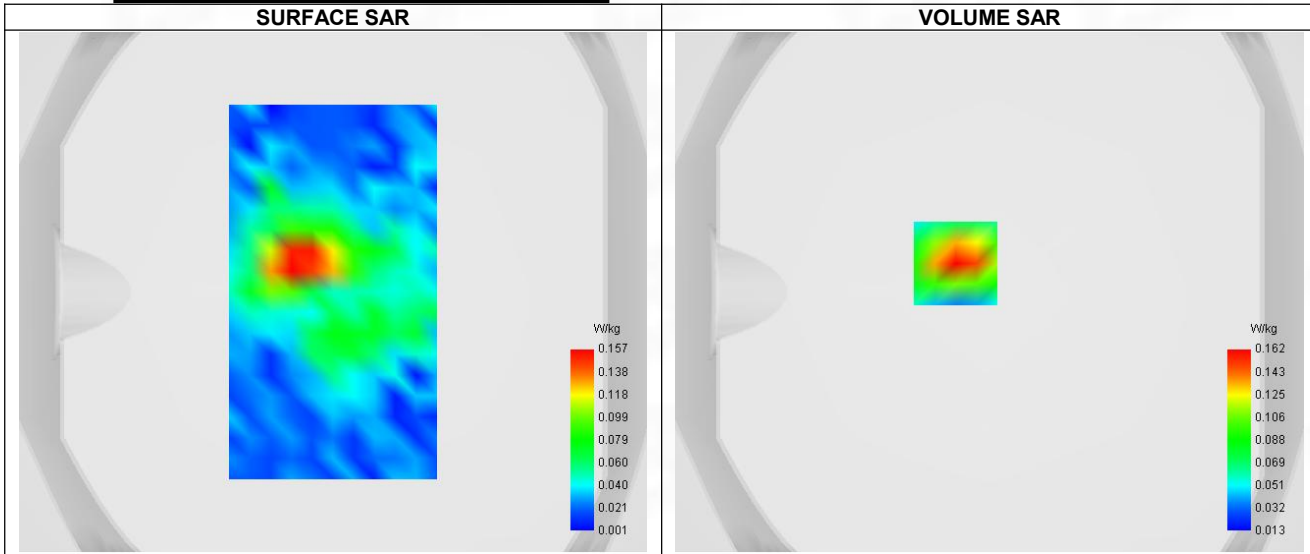
**A. Experimental conditions.**

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	IEEE 802.11a U-NII
Channels	Higher (48)
Signal	IEEE 802.11

**B. Permittivity**

Frequency (MHz)	5240.000
Relative permittivity (real part)	33.471
Relative permittivity (imaginary part)	16.685
Conductivity (S/m)	4.857

**C. SAR Surface and Volume**



Maximum location: X=-13.00, Y=11.00 ; SAR Peak: 0.26 W/kg

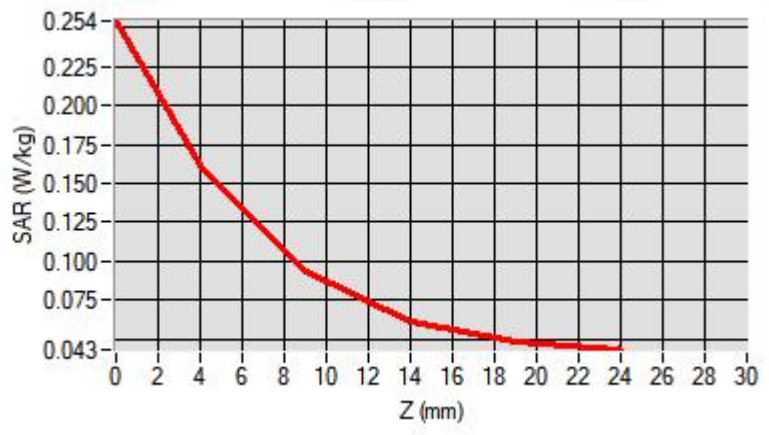
**D. SAR 1g & 10g**

SAR 10g (W/Kg)	0.086
SAR 1g (W/Kg)	0.162
Variation (%)	1.040
Horizontal validation criteria: minimum distance (mm)	0.000000
Vertical validation criteria: SAR ratio M2/M1 (%)	0.000000

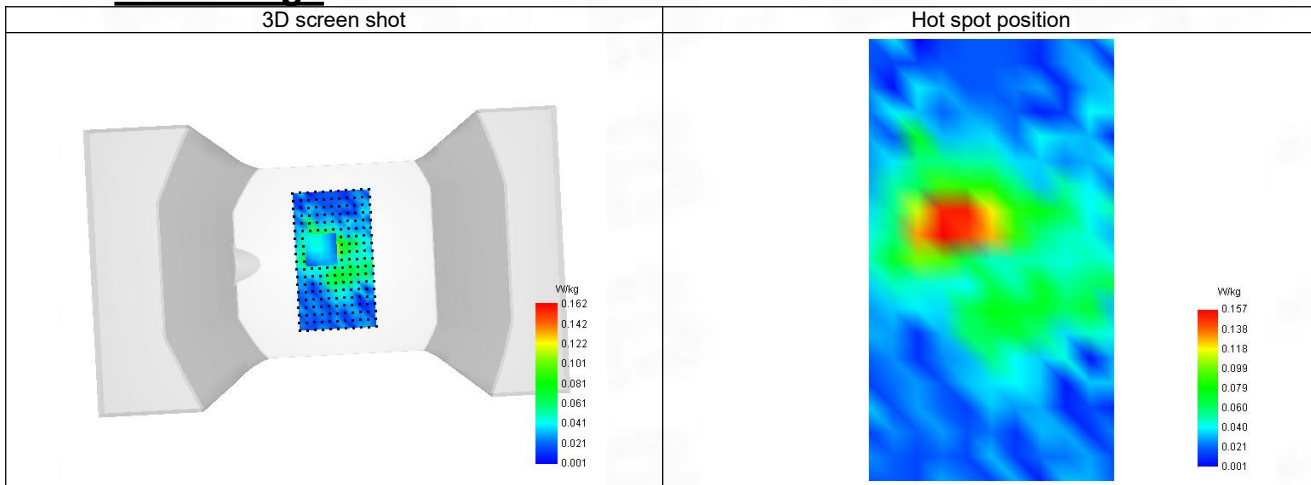
**E. Z Axis Scan**

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.254	0.162	0.094	0.061	0.048





### F. 3D Image



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

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

Date of measurement: 31/10/2023

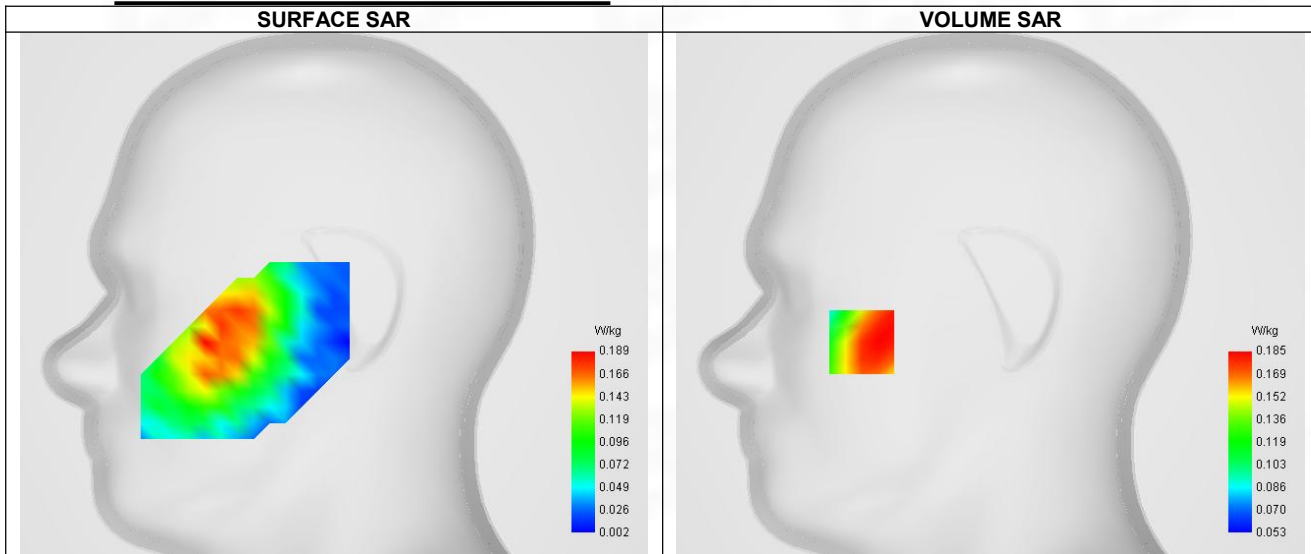
**A. Experimental conditions.**

Probe	SN 04/22 EPG0365
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 802.11a 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**



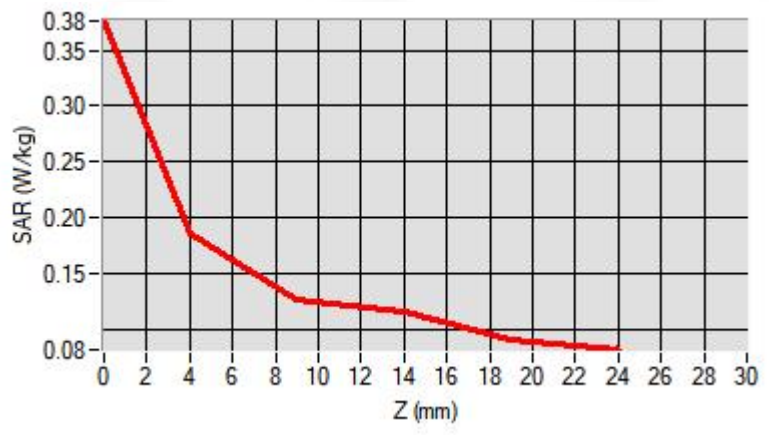
Maximum location: X=-64.00, Y=-24.00 ; SAR Peak: 0.23 W/kg

**D. SAR 1g & 10g**

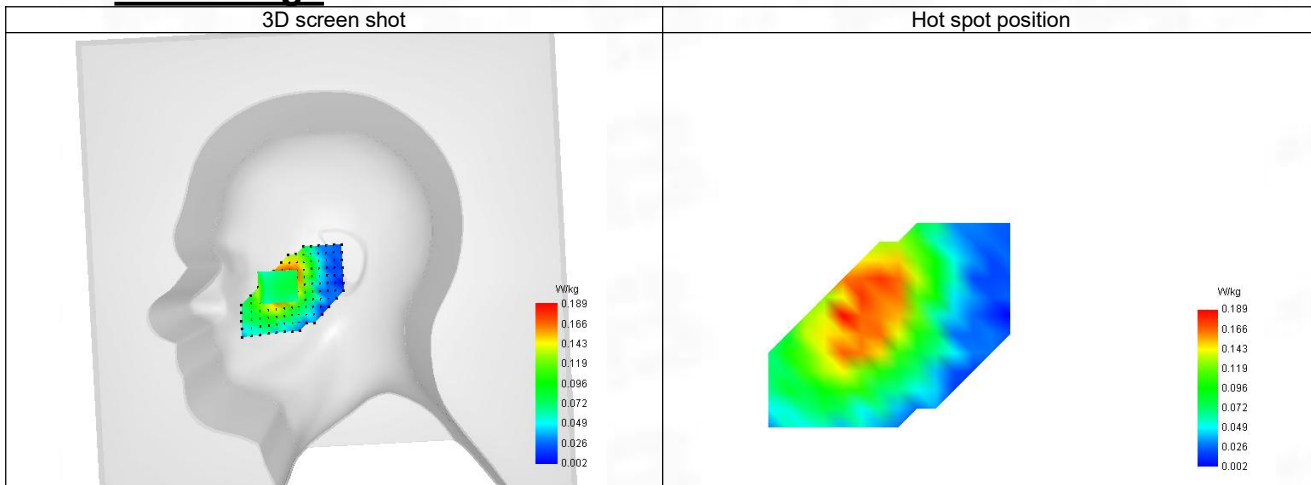
SAR 10g (W/Kg)	0.146
SAR 1g (W/Kg)	0.190
Variation (%)	1.280
Horizontal validation criteria: minimum distance (mm)	0.000000
Vertical validation criteria: SAR ratio M2/M1 (%)	0.000000

**E. Z Axis Scan**

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.376	0.185	0.127	0.117	0.090



### F. 3D Image



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

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

Date of measurement: 31/10/2023

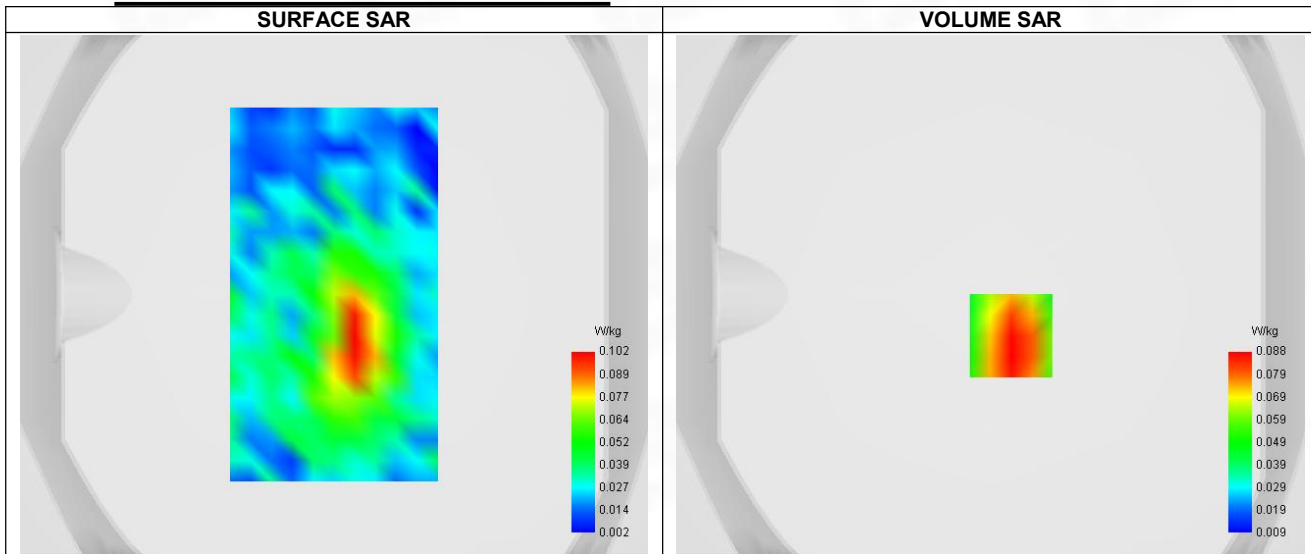
**A. Experimental conditions.**

Probe	SN 04/22 EPGO365
ConvF	2.24
Area Scan	surf_sam_plan.txt
Zoom Scan	7x7x12,dx=4mm dy=4mm dz=2mm,Complete
Phantom	Validation plane
Device Position	Body
Band	IEEE 802.11a 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**



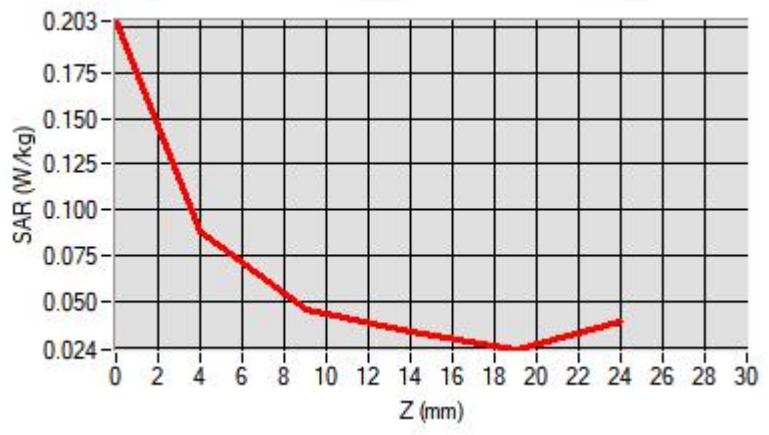
Maximum location: X=8.00, Y=-16.00 ; SAR Peak: 0.15 W/kg

**D. SAR 1g & 10g**

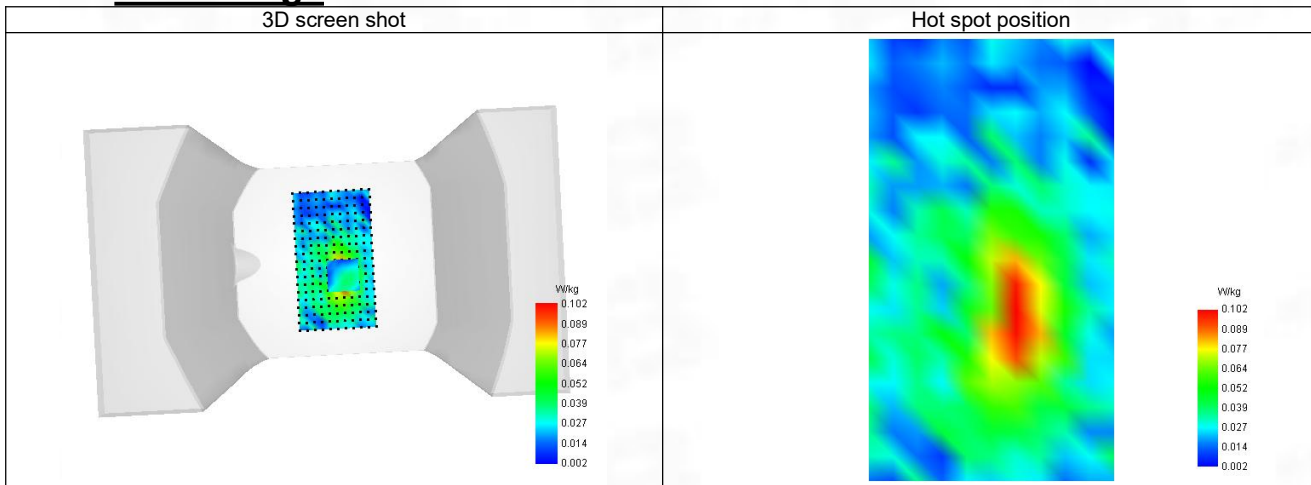
SAR 10g (W/Kg)	0.057
SAR 1g (W/Kg)	0.102
Variation (%)	1.470
Horizontal validation criteria: minimum distance (mm)	0.000000
Vertical validation criteria: SAR ratio M2/M1 (%)	0.000000

**E. Z Axis Scan**

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.203	0.088	0.045	0.034	0.024

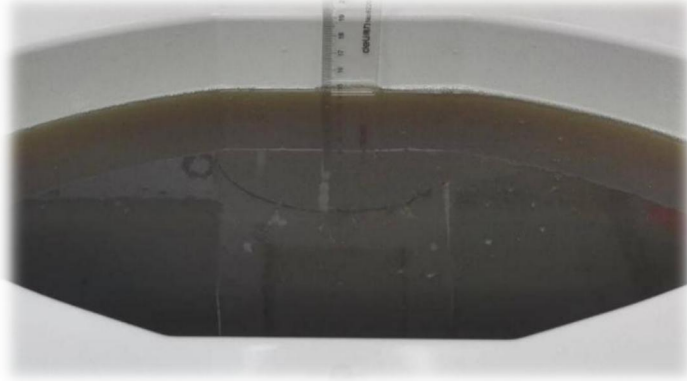


### F. 3D Image

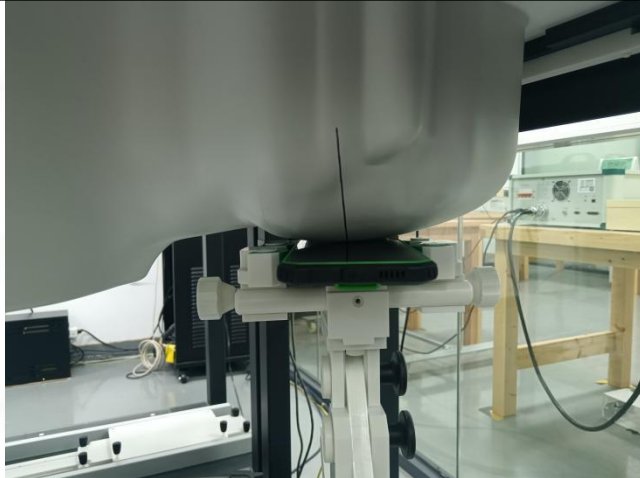


## ANNEX D SAR Test Setup Photos

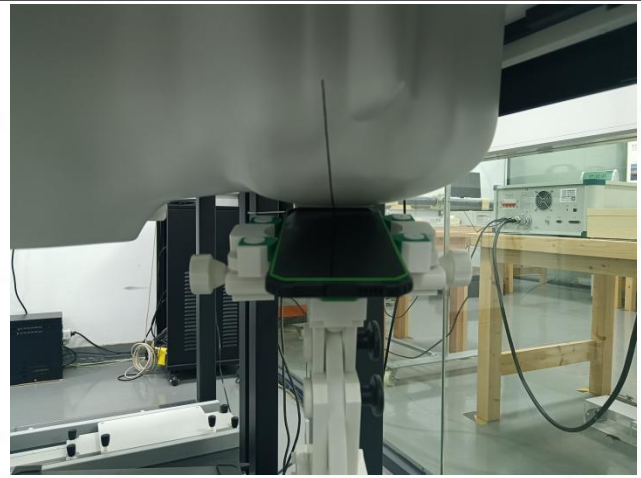
Reference Photo: simulation liquid depth 15cm



Reference Photos



Left Head - Cheek



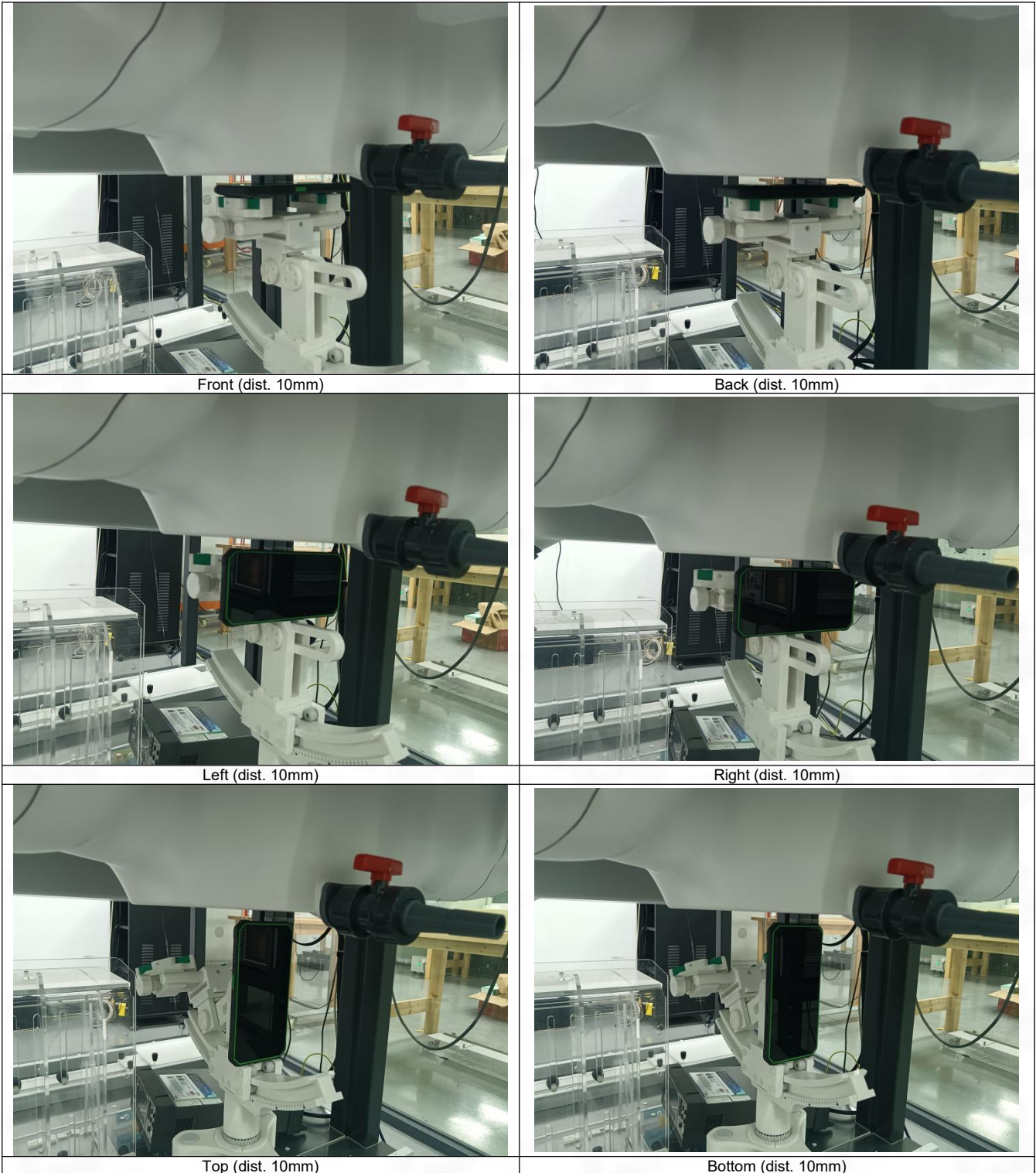
Left Head - Tilt



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--**