SAR Test Report

For

Applicant Name:	**SOTEN TECHNOLOGY (HONGKONG) CO., LIMITED**
Address:	FLAT/RM A10 9/F SILVERCORP INTERNATIONAL TOWER, 707-713 NATHAN ROAD MONGKOK KL, Hong Kong
EUT Name:	RUGGED TABLET PC
Brand Name:	HUGEROCK
Model Number:	W105

Issued By

Company Name:	**BTF Testing Lab (Shenzhen) Co., Ltd.**
Address:	101/201/301, Building 1, Block 2, Tantou Industrial Park,Tantou Community, Songgang Subdistrict, Bao'an District, Shenzhen, China
Report Number:	BTF250514R00501
Test Standards:	FCC 47 CFR§2.1093 IEEE1528-2013 IEEE C95.1-2019 KDB447498 D01 KDB865664 D01 KDB865664 D02 KDB941225 D01 KDB941225 D05 KDB248227 D01 KDB941225 D06 KDB648474 D04 KDB690783 D01
FCC ID:	2AI62-W105
Test Conclusion:	Pass
Test Date:	2025-05-22 to 2025-05-28
Date of Issue:	2025-05-29
Tested By:	Jim. Yin
	Jim Yin / Tester
Date:	2025-05-29
Reviewed By:	Amenda Zhong
	Amenda Zhong / Project Engineer
Date:	2025-05-29
Approved By:	Ryan.CJ
	Ryan.CJ / EMC Manager
Date:	2025-05-29

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Revision History		
Version	Issue Date	Revisions Content
R_V0	2025-05-29	Original
Note:	*Once the revision has been made, then previous versions reports are invalid.*	

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1. Introduction

1.1 Identification of Testing Laboratory

Company Name:	BTF Testing Lab (Shenzhen) Co., Ltd.
Address:	101/201/301, Building 1, Block 2, Tantou Industrial Park,Tantou Community, Songgang Subdistrict, 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:	101/201/301, Building 1, Block 2, Tantou Industrial Park,Tantou Community, Songgang Subdistrict, Bao'an District, Shenzhen, China
Description:	All measurement facilities used to collect the measurement data are located at 101/201/301, Building 1, Block 2, Tantou Industrial Park,Tantou Community, Songgang Subdistrict, Bao'an District, Shenzhen, China
FCC Registration Number	518915
Designation Number	CN1409

1.3 Laboratory Condition

Ambient Temperature:	21℃ to 25℃
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.

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2. Product Information

2.1 Application Information

Company Name:	SOTEN TECHNOLOGY (HONGKONG) CO., LIMITED
Address:	FLAT/RM A10 9/F SILVERCORP INTERNATIONAL TOWER, 707-713 NATH AN ROAD MONGKOK KL, Hong Kong

2.2 Manufacturer Information

Company Name:	Shenzhen SOTEN Technology Co., Ltd
Address:	10th Floor, 2nd Building, BaiWang Research and development building, N o. 5308 Shahe west road, Xili, Nanshan district, ShenZhen, China

2.3 Factory Information

Company Name:	Shenzhen SOTEN Technology Co., Ltd
Address:	10th Floor,2nd Building,BaiWang Research and development building, No. 530 8 Shahe west road,Xili,Nanshan district,ShenZhen, China

2.4 General Description of Equipment under Test (EUT)

EUT Name	RUGGED TABLET PC
Under Test Model Name	W105

2.5 Equipment under Test Ancillary Equipment

Ancillary Equipment 1	Rechargeable Battery	
	Capacity	5000mAh
	Rated Voltage	7.6V

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 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: 824.2 ~ 848.8 MHz	RX: 869.2 ~ 893.8 MHz
	GSM 1900	TX: 1850.2 ~ 1909.8 MHz	RX: 1930.2 ~ 1989.8 MHz
	WCDMA Band 2	TX: 1852.4 ~ 1907.6 MHz	RX: 1932.4 ~ 1987.6 MHz
	WCDMA Band 4	TX:1712.4 ~ 1752.6MHz	RX: 2112.4 ~ 2152.6MHz
	WCDMA Band 5	TX: 826.4 ~ 846.6MHz	RX: 871.4 ~ 891.6MHz
	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
	802.11b/g/n(HT20)	2412 ~ 2462 MHz	
	802.11n(HT40)	2422 ~ 2452 MHz	
	802.11a /802.11n(HT20) /802.11ac(VHT20/40/80)	5180 ~ 5240 MHz	
	Bluetooth	2402 ~ 2480 MHz	
Antenna Type	WWAN: PIFA Antenna and External Antenna (Optional) 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		
	☐ Production unit	☒ 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 D01	General RF Exposure Guidance v06
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.

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3.3 Test Result Summary

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

<Highest Reported standalone SAR>

Exposure Position	Frequency Band	Reported SAR (W/kg)	Equipment Class	Highest Reported SAR (W/kg)
Hotspot(Body) 1-g SAR (0 mm Gap)	GSM 850	0.52	PCB	**0.85**
	GSM 1900	0.84		
	WCDMA Band II	0.85		
	WCDMA Band IV	0.05		
	WCDMA Band V	0.52		
	LTE Band 2	0.85		
	LTE Band 4	0.51		
	LTE Band 5	0.18		
	LTE Band 7	0.07		
	WLAN 2.4 GHz	0.15	DTS	
	WLAN 5.2 GHz	0.35	NII	
	Bluetooth	0.06	DSS	

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
Hotspot(Body) 1-g SAR (0 mm Gap)	WCDMA Band II/ LTE Band 2 + WLAN 5.2 GHz -1+ WLAN 5.2 GHz -2	1.54	1.6	Pass

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3.4 Test Uncertainty

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

Uncertainty Budget of 1g/10gpsSAR for DUT with COMOSAR											
Ambiente temperature: 18-25ºC & ΔT≤2 ºC Humedity: 30-70% Frequency range: 150MHz-7500MHz											
Symbol	Input quantity Xi (source of uncertainty)	PDF_i	Unc. $a(x_i)$ [±%]	Div. q_i	$u(x_i)$= a(xi)/qi	c_i 1g	c_i 10 g	u(y)= c_i*u(xi) 1g [± %]	u(y)= c_i*u(xi) 10g [± %]	v_i	Frequency range [MHz]
Measurement System errors											
CF	Probe calibration	N (k=2)	11.00	2.00	5.50	1.00	1.00	5.50	5.50	∞	150-450
			14.00	2.00	7.00	1.00	1.00	7.00	7.00	∞	600-7500
CF_{drift}	Probe calibration drift	R	2.30	1.73	1.33	1.00	1.00	1.33	1.33	∞	150-450
			4.00	1.73	2.31	1.00	1.00	2.31	2.31	∞	600-7500
LIN	Probe linearity	R	4.70	1.73	2.71	1.00	1.00	2.71	2.71	∞	150-7500
	Detection limit	R	1.00	1.73	0.58	1.00	1.00	0.58	0.58	∞	
BBS	Broadband signal	R	0.00	1.73	0.00	1.00	1.00	0.00	0.00	∞	
ISO	Axial Isotropy	R	3.50	1.73	2.02	0.71	0.71	1.43	1.43	∞	
	Hemispherical Isotropy	R	5.90	1.73	3.41	0.71	0.71	2.41	2.41	∞	
DAE	Boundary effect	R	1.00	1.73	0.58	1.00	1.00	0.58	0.58	∞	
	Integration time	R	1.40	1.73	0.81	1.00	1.00	0.81	0.81	∞	
	Response time	R	0.00	1.73	0.00	1.00	1.00	0.00	0.00	∞	
	Readout electronics	N	0.50	1.00	0.50	1.00	1.00	0.50	0.50	∞	
AMB	Noise	R	3.00	1.73	1.73	1.00	1.00	1.73	1.73	∞	
	Reflections	R	3.00	1.73	1.73	1.00	1.00	1.73	1.73	∞	
Δ_{xyz}	Positioner Mechanical Tolerance	R	1.40	1.73	0.81	0.14	0.14	0.12	0.12	∞	≥150 & ≤3000
			3.28	1.73	1.89	0.33	0.33	0.62	0.62	∞	>3000 & ≤6000
			3.28	1.73	1.89	0.33	0.33	0.62	0.62	∞	>6000 & ≤7500
	Positioning with respect to Phantom Shell	R	1.40	1.73	0.81	0.14	0.14	0.12	0.12	∞	≥150 & ≤3000
			3.28	1.73	1.89	0.33	0.33	0.62	0.62	∞	>3000 & ≤6000
			3.28	1.73	1.89	0.33	0.33	0.62	0.62	∞	>6000 & ≤7500
DAT	Data processing errors	R	2.30	1.73	1.33	1.00	1.00	1.33	1.33	∞	150-7500
Phanom and DUTerros											
LIQ(σ,ε)	Conductivity measurement	N	4.07	1.00	4.07	0.79	0.77	3.22	3.13	9	150-7500
	Permitivity measurement	N	5.06	1.00	5.06	0.23	0.26	1.16	1.32	9	
$LIQ(T_c)$	Liquid Conductivity - Temperature Uncertainty	R	2.50	1.73	1.44	0.79	0.77	1.14	1.11	∞	
	Liquid Permittivity - Temperature Uncertainty	R	2.50	1.73	1.44	0.23	0.26	0.33	0.38	∞	
EPS	Shell permittivity	R	2.90	1.73	1.67	0.00	0.00	0.00	0.00	∞	≥150 & ≤3000
			2.90	1.73	1.67	0.25	0.25	0.42	0.42	∞	>3000 & ≤6000
			2.90	1.73	1.67	0.50	0.50	0.84	0.84	∞	>6000 & ≤7500
DIS	Distance between the radiating element of the DUT and the phantom medium	N	2.70	1.00	2.70	2.00	2.00	5.40	5.40	∞	≥150 & ≤3000
			2.70	1.00	2.70	2.00	2.00	5.40	5.40	∞	>3000 & ≤6000
			3.20	1.00	3.20	2.00	2.00	6.40	6.40	∞	>6000 & ≤7500
D_{xyz}	Repeatability of positioning the DUT or source against the phantom	N	2.60	1.00	2.60	1.00	1.00	2.60	2.60	13	150-7500
H	Device holder effects	N	3.00	1.00	3.00	1.00	1.00	3.00	3.00	23	
MOD	Effect of operating mode on probe sensitivity	R	8.20	1.73	4.73	1.00	1.00	4.73	4.73	∞	
RF_{drift}	Variation in SAR due to drift in output of DUT	R	5.00	1.73	2.89	1.00	1.00	2.89	2.89		
Corrections to the SAR result											
C(ε',σ)	Phantom deviation from target (ε',σ)	N	1.90	1.00	1.90	1.00	1.00	1.90	1.90		150-7500
C(R)	SAR scaling	R	5.00	1.73	2.89	1.00	1.00	2.89	2.89		
u(ΔSAR)	Combined uncertainty							12.54	12.53		150-450
								13.40	13.40		≥600 & ≤3000
								13.44	13.43		>3000 & ≤6000
								13.89	13.88		>6000 & ≤7500
U	**Expanded uncertainty (95% confidence interval)**							**25.08**	**25.07**		**150-450**
								26.80	**26.79**		**≥600 & ≤3000**
								26.87	**26.86**		**>3000 & ≤6000**
								27.77	**27.76**		**>6000 & ≤7500**

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3.4.2 Measurement uncertainly evaluation for system check

Uncertainty Budget of 1g/10g psSAR for System Validation/Check COMOSAR											
Ambiente temperature: 18-25 °C & ΔT≤2°C Humedity: 30-70% Frequency range: 150MHz-7500MHz											
Symbol	**Input quantity Xi (source of uncertainty)**	**PDF$_i$**	**Unc. a(x$_i$) [±%]**	**Div. q$_i$**	**u(x$_i$)= a(xi)/ qi**	**c$_i$ 1g**	**c$_i$ 10 g**	**u(y)= c$_i$*u(xi) 1g [± %]**	**u(y)= c$_i$*u(xi) 10g [± %]**	**v$_i$**	**Frequency range [MHz]**
Measurement System errors											
CF	Probe calibration	N (k= 2)	11.00	2.00	5.50	1.00	1.00	5.50	5.50	∞	150-450
			14.00	2.00	7.00	1.00	1.00	7.00	7.00	∞	600-7500
CF$_{drift}$	Probe calibration drift	R	2.30	1.73	1.33	1.00	1.00	1.33	1.33	∞	150-450
			4.00	1.73	2.31	1.00	1.00	2.31	2.31	∞	600-7500
LIN	Probe linearity	R	4.70	1.73	2.71	1.00	1.00	2.71	2.71	∞	150-7500
	Detection limit	R	1.00	1.73	0.58	1.00	1.00	0.58	0.58	∞	
ISO	Axial Isotropy	R	3.50	1.73	2.02	0.71	0.71	1.43	1.43	∞	
	Hemispherical Isotropy	R	5.90	1.73	3.41	0.71	0.71	2.41	2.41	∞	
DAE	Boundary effect	R	1.00	1.73	0.58	1.00	1.00	0.58	0.58	∞	
	Integration time	R	1.40	1.73	0.81	1.00	1.00	0.81	0.81	∞	
	Response time	R	0.00	1.73	0.00	1.00	1.00	0.00	0.00	∞	
	Readout electronics	N	0.50	1.00	0.50	1.00	1.00	0.50	0.50	∞	
AMB	Noise	R	3.00	1.73	1.73	1.00	1.00	1.73	1.73	∞	
	Reflections	R	3.00	1.73	1.73	1.00	1.00	1.73	1.73	∞	
Δ$_{xyz}$	Positioner Mechanical Tolerance	R	1.40	1.73	0.81	0.14	0.14	0.12	0.12	∞	≥150 & ≤3000
			3.28	1.73	1.89	0.33	0.33	0.62	0.62	∞	>3000 & ≤6000
			3.28	1.73	1.89	0.33	0.33	0.62	0.62	∞	>6000 & ≤10000
	Positioning with respect to Phantom Shell	R	1.40	1.73	0.81	0.14	0.14	0.12	0.12	∞	≥150 & ≤3000
			3.28	1.73	1.89	0.33	0.33	0.62	0.62	∞	>3000 & ≤6000
			3.28	1.73	1.89	0.33	0.33	0.62	0.62	∞	>6000 & ≤10000
DAT	Data processing errors	R	2.30	1.73	1.33	1.00	1.00	1.33	1.33	∞	150-7500
Phanom and Dipoles erros											
LIQ(σ,ε)	Conductivity measurement	N	4.07	1.00	4.07	0.79	0.77	3.22	3.13	9	150-7500
	Permitivity measurement	N	5.06	1.00	5.06	0.23	0.26	1.16	1.32	9	
LIQ(T$_c$)	Liquid Conductivity - Temperature Uncertainty	R	2.50	1.73	1.44	0.79	0.77	1.14	1.11	∞	
	Liquid Permittivity - Temperature Uncertainty	R	2.50	1.73	1.44	0.23	0.26	0.33	0.38	∞	
EPS	Shell permittivity	R	2.90	1.73	1.67	0.00	0.00	0.00	0.00	∞	≥150 & ≤3000
			2.90	1.73	1.67	0.25	0.25	0.42	0.42	∞	>3000 & ≤6000
			2.90	1.73	1.67	0.50	0.50	0.84	0.84	∞	>6000 & ≤10000
DIS	Distance between the radiating element of the DUT and the phantom medium	N	2.70	1.00	2.70	2.00	2.00	5.40	5.40	∞	≥150 & ≤3000
			2.70	1.00	2.70	2.00	2.00	5.40	5.40	∞	>3000 & ≤6000
			3.20	1.00	3.20	2.00	2.00	6.40	6.40	∞	>6000 & ≤10000
VAL	Deviation of experimental antennas	N	4.50	1.73	2.60	1.00	1.00	2.60	2.60		150-7500
	Other uncertainty contributions	R	2.00	1.00	2.00	1.00	1.00	2.00	2.00		
P$_{in}$	Uncertainty in accepted power	R	3.00	1.73	1.73	1.00	1.00	1.73	1.73		
Corrections to the SAR result											
C(ε',σ)	Phantom deviation from target (ε',σ)	N	1.90	1.00	1.90	1.00	1.00	1.90	1.90		150-7500
u(ΔSAR)	Combined uncertainty							10.78	10.77		150-450
								11.77	11.76		≥600 & ≤3000
								11.81	11.80		>3000 & ≤6000
								12.32	12.31		>6000 & ≤7500
U	**Expanded uncertainty (95% confidence interval)**							**21.56**	**21.54**		**150-450**
								23.54	**23.52**		**≥600 & ≤3000**
								23.62	**23.60**		**>3000 & ≤6000**
								24.64	**24.62**		**>6000 & ≤7500**

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4. Measurement System

4.1 Specific Absorption Rate (SAR) Definition

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

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

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

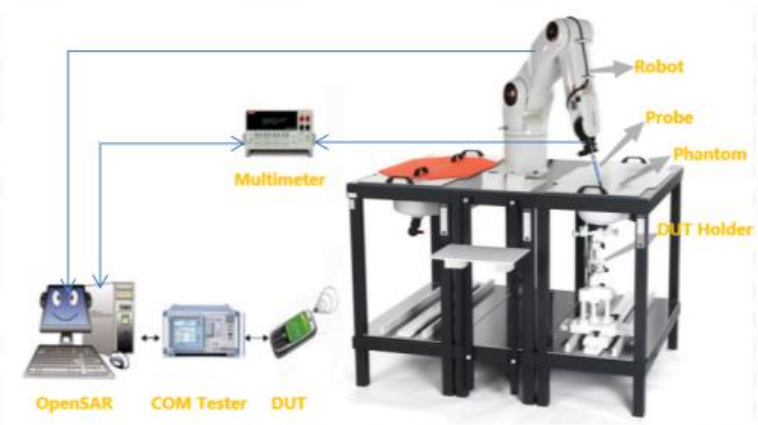
SAR is expressed in units of Watts per kilogram (W/kg) SAR measurement can be related to the electrical field in the tissue by

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

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

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 (±30°).
· 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>=4GHz.
- Probe linearity: <0.25dB.
- Axial Isotropy: <0.25dB.
- Spherical Isotropy: <0.50dB.
- Calibration range: 150 to 6000 MHz for head & body simulating liquid
- Angle between probe axis (evaluation axis) and surface normal line: less than 20°.

4.2.4 Phantoms

SAM Phantom

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

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SAM Phantom

The thickness of the phantom amounts to 2 mm±0.2 mm. The materials for the phantom do not affect the radiation of the device under test (DUT) : εr' <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±0.2 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 600mm±5mm and width 400mm±5mm.
The phantom shell is made of low-loss and low-permittivity material, having loss tangent tanδ ≤ 0.05 and relative permittivity:
εr' ≤ 5 for f ≤ 3 GHz
3 ≤εr' ≤ 5 for f > 3 GHz
The thickness of the bottom-wall of the flat phantom is 2.0 mm with a tolerance of ± 0.2 mm.

Technical & mechanical characteristics	
Shell thickness	2 mm ± 0.2 mm
Filling volume	25 L
Dimensions	600 mm x 400 mm x 200mm
Permittivity	4.4
Loss tangent	0.017

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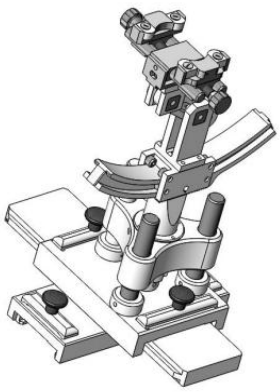
4.2.5 Device Holder



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.

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

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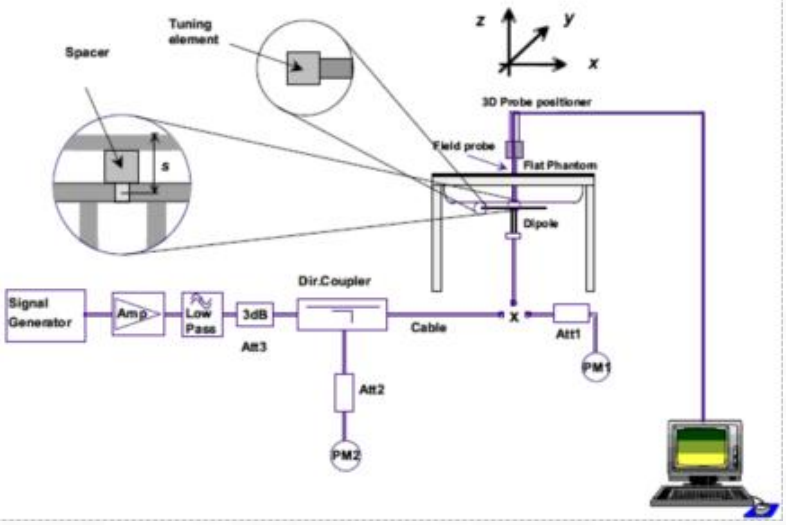
5. System Verification

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

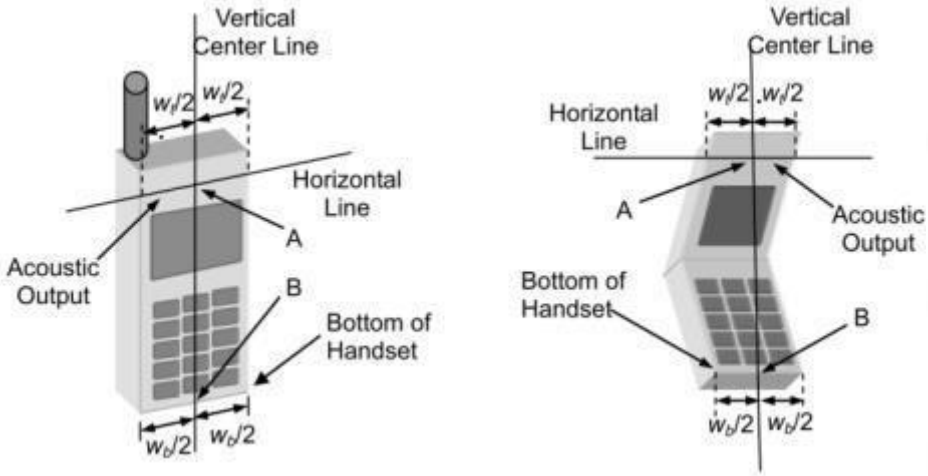
Head exposure is limited to next to the ear voice mode operations. Head SAR compliance is tested according to the test positions defined in IEEE Std 1528-2013 using the SAM phantom illustrated as below.

6.1.1 Two Imaginary Lines on the Handset

(a) 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.

(b) 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.

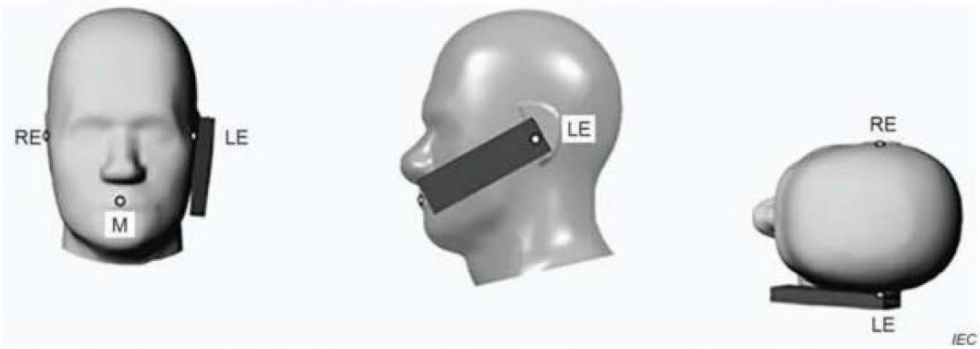
(c) The two lines intersect at point A. Note that for many handsets, point A coincides with the center of the acoustic output; however, the acoustic output may be located elsewhere on the horizontal line. Also note that the vertical center line is not necessarily parallel to the front face of the handset, especially for clamshell handsets, handsets with flip covers, and other irregularly shaped handsets.



6.1.2 Two Imaginary Lines on the Handset

(a) To position the device with the vertical center line of the body of the device and the horizontal line crossing the center piece in a plane parallel to the sagittal plane of the phantom. While maintaining the device in this plane, align the vertical center line with the reference plane containing the three ear and mouth reference point (M: Mouth, RE: Right Ear, and LE: Left Ear) and align the center of the ear piece with the line RE-LE.

(b) To move the device towards the phantom with the ear piece aligned with the line LE-RE until the phone touched the ear. While maintaining the device in the reference plane and maintaining the phone contact with the ear, move the bottom of the phone until any point on the front side is in contact with the cheek of the phantom or until contact with the ear is lost.



6.1.3 Titled Position

(a) To position the device in the “cheek” position described above.

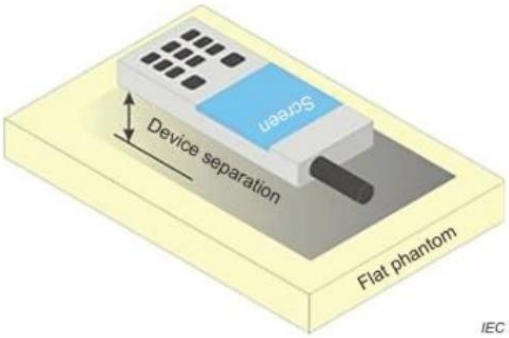
(b) While maintaining the device the reference plane described above and pivoting against the ear, moves it outward away from the mouth by an angle of 15 degrees or until contact with the ear is lost.

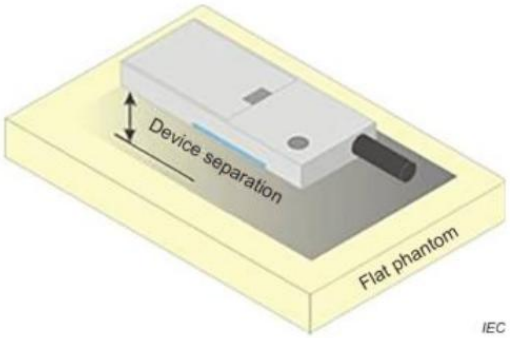
6.2 Body-worn Position Conditions

Body-worn accessory exposure is typically related to voice mode operations when handsets are carried in body-worn accessories. The body-worn accessory procedures in KDB 447498 are used to test for body-worn accessory SAR compliance, without a headset connected to it. This enables the test results for such configuration to be compatible with that required for hotspot mode when the body-worn accessory test separation distance is greater than or equal to that required for hotspot mode. When the reported SAR for a body-worn accessory.

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

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





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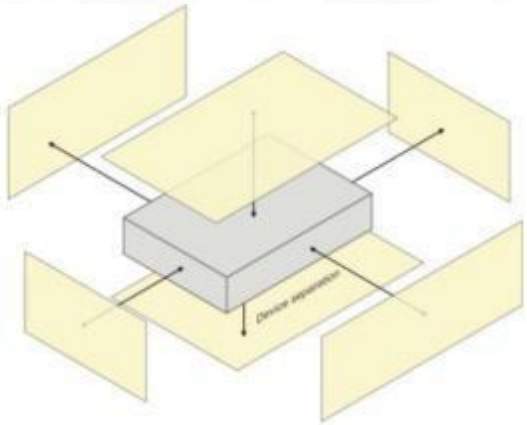
6.3 Hotspot Mode Exposure Position Conditions

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



6.4 Product Specific 10g Exposure Consideration

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

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

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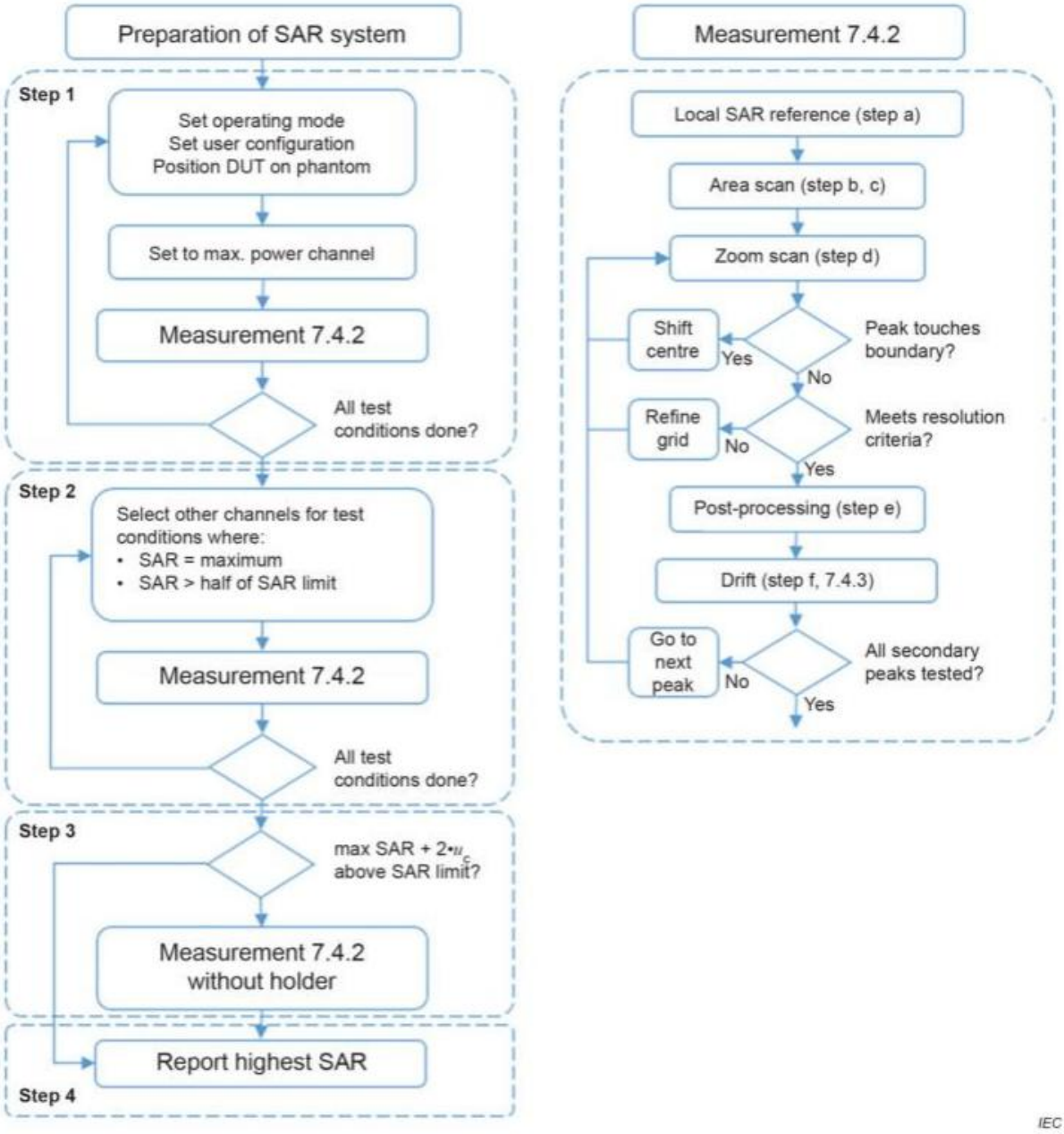
7. Measurement Procedure

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	½·δ·ln(2)±0.5 mm
Maximum probe angle from probe axis to phantom surface normal at the measurement location			30°±1°	20°±1°
Maximum area scan spatial resolution: Δx Area , Δy Area			≤ 2 GHz: ≤ 15 mm 2 – 3 GHz: ≤ 12 mm	3–4 GHz: ≤ 12 mm 4 – 6 GHz: ≤ 10 mm
			When the x or y dimension of the test device, in the measurement plane orientation, is smaller than the above, the measurement resolution must be ≤ the corresponding x or y dimension of the test device with at least one measurement point on the test device.	
Maximum zoom scan spatial resolution: Δx Zoom , Δy Zoom			≤ 2 GHz: ≤ 8 mm 2 –3 GHz: ≤ 5 mm*	3–4 GHz: ≤ 5 mm* 4 – 6 GHz: ≤ 4 mm*
Maximum zoom scan spatial resolution, normal to phantom surface	uniform grid: Δz Zoom (n)		≤ 5 mm	3–4 GHz: ≤ 4 mm
				4–5 GHz: ≤ 3 mm
				5–6 GHz: ≤ 2 mm
	graded grid	Δz Zoom (1): between 1st two points closest to phantom surface	≤ 4 mm	3–4 GHz: ≤ 3 mm
				4–5 GHz: ≤ 2.5 mm
				5–6 GHz: ≤ 2 mm
		Δz Zoom (n>1): between subsequent points	≤ 1.5·Δz Zoom (n-1)	
Minimum zoom scan volume	x, y, z		≥30 mm	3–4 GHz: ≥ 28 mm
				4–5 GHz: ≥ 25 mm
				5–6 GHz: ≥ 22 mm

Note:

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.

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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 to16 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.

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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		33.50	33.13	32.85	**33.41**	-9.03	24.10	23.82	**24.38**
GPRS (GMSK)	1Tx slot	33.50	33.12	32.85	32.94	-9.03	24.09	23.82	23.91
	2Tx slots	33.00	**32.57**	32.12	32.25	-6.02	**26.55**	26.10	26.23
	3Tx slots	30.50	30.48	30.17	29.88	-4.26	26.22	25.91	25.62
	4Tx slots	28.50	28.04	28.01	27.93	-3.01	25.03	25.00	24.92
EGPRS (8PSK)	1Tx slot	28.50	28.25	28.22	28.26	-9.03	19.22	19.19	19.23
	2Tx slots	26.50	25.81	25.87	26.12	-6.02	19.79	19.85	20.10
	3Tx slots	24.50	24.27	24.34	24.35	-4.26	20.01	20.08	20.09
	4Tx slots	22.50	22.45	22.44	22.16	-3.01	19.44	19.43	19.15
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		30.00	29.10	29.71	**29.82**	-9.03	20.07	20.68	**20.79**
GPRS (GMSK)	1Tx slot	30.00	29.74	29.71	29.84	-9.03	20.71	20.68	20.81
	2Tx slots	29.00	28.75	28.85	**28.95**	-6.02	22.73	22.83	**22.93**
	3Tx slots	27.00	26.23	26.64	26.61	-4.26	21.97	22.38	22.35
	4Tx slots	25.50	25.11	25.32	25.42	-3.01	22.10	22.31	22.41
EGPRS (8PSK)	1Tx slot	28.50	28.12	28.33	27.91	-9.03	19.09	19.30	18.88
	2Tx slots	26.50	26.31	26.37	26.35	-6.02	20.29	20.35	20.33
	3Tx slots	26.00	24.53	24.54	24.32	-4.26	20.27	20.28	20.06
	4Tx slots	23.00	22.52	21.91	21.95	-3.01	19.51	18.90	18.94

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

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8.2 WCDMA

Mode		Maximum Tune-up(dBm)	WCDMA Band II		
			Conducted Power (dBm)		
			CH9262	CH9400	CH9538
			1852.4	1880.0	1907.6
RMC 12.2K		**24.00**	23.21	23.58	**23.62**
HSDPA	Subtest-1	23.00	22.37	22.50	22.46
	Subtest-2	22.00	21.85	21.98	21.82
	Subtest-3	22.00	21.84	21.95	21.92
	Subtest-4	22.00	21.45	21.51	21.65
HSUPA	Subtest-1	22.50	22.04	22.18	22.01
	Subtest-2	21.50	21.32	21.43	21.31
	Subtest-3	22.00	21.68	21.76	21.65
	Subtest-4	21.50	21.07	21.36	21.15
	Subtest-5	21.50	21.28	21.44	21.34
Mode		Maximum Tune-up(dBm)	WCDMA Band IV		
			Conducted Power (dBm)		
			CH1312	CH1413	CH1513
			1712.4	1732.6	1752.6
RMC 12.2K		**23.50**	23.21	**23.30**	23.11
HSDPA	Subtest-1	22.50	22.32	22.35	22.42
	Subtest-2	22.00	21.81	21.85	21.97
	Subtest-3	22.00	21.84	21.82	21.95
	Subtest-4	22.00	21.58	21.55	21.64
HSUPA	Subtest-1	22.00	21.98	21.96	22.07
	Subtest-2	21.50	21.24	21.38	21.33
	Subtest-3	22.00	21.54	21.65	21.69
	Subtest-4	21.50	20.92	21.04	21.04
	Subtest-5	21.50	21.17	21.25	21.30
Mode		Maximum Tune-up(dBm)	WCDMA Band V		
			Conducted Power (dBm)		
			CH4132	CH4182	CH4233
			826.4	836.4	846.6
RMC 12.2K		**23.50**	22.17	**23.33**	22.25
HSDPA	Subtest-1	23.00	22.22	22.53	22.32
	Subtest-2	22.00	21.71	21.73	21.50
	Subtest-3	22.00	21.77	21.84	21.61
	Subtest-4	21.50	21.46	21.47	21.31
HSUPA	Subtest-1	22.00	21.75	21.84	21.75
	Subtest-2	21.50	21.09	21.24	21.12
	Subtest-3	21.50	21.38	21.44	21.31
	Subtest-4	21.00	20.77	20.94	20.79
	Subtest-5	21.50	21.01	21.25	21.04
Per KDB 941225 D01, when the maximum output power and tune-up tolerance specified for production units in a secondary mode is ≤1/2dB higher than the primary mode (RMC12.2kbps) or when the highest reported SAR of the primary mode is scaled by the ratio of specified maximum output power and tune-up tolerance of secondary to primary mode and the adjusted SAR is ≤ 1.2 W/kg, SAR measurement is not required for the secondary mode.					

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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	24.00	23.46	23.53	23.65
			2	24.00	23.54	23.58	23.70
			5	24.00	23.52	23.70	23.66
		3	0	24.00	23.48	23.59	23.72
			1	24.00	23.46	23.59	23.68
			3	24.00	23.53	23.72	23.80
		6	0	23.00	22.50	22.62	22.77
	16QAM	1	0	23.50	22.93	22.66	23.37
			2	23.50	22.95	22.65	23.40
			5	23.50	22.98	22.78	23.42
		3	0	23.00	22.35	22.55	22.65
			1	23.00	22.32	22.55	22.64
			3	23.00	22.37	22.61	22.55
		6	0	22.00	21.66	21.82	21.84
Bandwidth	Modulation	RB allocation	RB offset	Maximum Tune-up(dBm)	18615	18900	19185
					1851.5MHz	1880.0MHz	1908.5MHz
3MHz	QPSK	1	0	24.00	23.39	23.59	23.64
			8	24.00	23.49	23.69	23.70
			14	24.00	23.39	23.71	23.61
		8	0	23.00	22.56	22.54	22.71
			4	23.00	22.51	22.49	22.70
			7	23.00	22.59	22.73	22.74
		15	0	23.00	22.48	22.59	22.70
	16QAM	1	0	23.50	22.55	22.81	23.40
			8	23.50	22.61	22.77	23.49
			14	23.50	22.60	22.86	23.35
		8	0	22.50	21.72	21.85	22.01
			4	22.50	21.73	21.82	22.03
			7	22.00	21.76	21.95	21.99
		15	0	22.00	21.61	21.54	21.86
Bandwidth	Modulation	RB allocation	RB offset	Maximum Tune-up(dBm)	18625	18900	19175
					1852.5MHz	1880.0MHz	1907.5MHz
5MHz	QPSK	1	0	24.00	23.65	23.59	23.75
			12	24.00	23.72	23.66	23.79
			24	24.00	23.68	23.71	23.75
		12	0	23.00	22.57	22.59	22.69
			6	23.00	22.51	22.56	22.71
			13	23.00	22.52	22.72	22.63
		25	0	23.00	22.54	22.55	22.73
	16QAM	1	0	22.50	21.92	22.38	22.41
			12	22.50	21.96	22.50	22.39
			24	23.00	21.96	22.55	22.45
		12	0	22.00	21.62	21.72	21.88
			6	22.00	21.67	21.73	21.90
			13	22.00	21.60	21.79	21.88
		25	0	22.00	21.70	21.56	21.87

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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	24.00	23.41	23.57	23.57
			24	24.00	23.47	23.61	23.65
			49	24.00	23.43	23.71	23.67
		25	0	23.00	22.57	22.62	22.74
			12	23.00	22.58	22.62	22.70
			25	23.00	22.57	22.77	22.69
		50	0	23.00	22.54	22.61	22.73
	16QAM	1	0	23.50	22.57	22.64	23.38
			24	23.50	22.63	22.61	23.46
			49	23.50	22.64	22.78	23.42
		25	0	22.00	21.62	21.76	21.83
			12	22.00	21.62	21.79	21.80
			25	22.00	21.60	21.97	21.84
		50	0	22.00	21.66	21.75	21.84
Bandwidth	Modulation	RB allocation	RB offset	Maximum Tune-up(dBm)	18675	18900	19125
					1857.5MHz	1880.0MHz	1902.5MHz
15MHz	QPSK	1	0	24.50	23.45	23.40	23.66
			38	24.00	23.54	23.57	23.65
			74	24.00	23.35	23.63	23.73
		38	0	23.00	22.54	22.65	22.69
			18	23.00	22.58	22.63	22.69
			37	23.00	22.57	22.63	22.70
		75	0	23.00	22.57	22.63	22.70
	16QAM	1	0	23.50	22.65	22.66	23.35
			38	23.50	22.63	22.79	23.43
			74	23.50	22.62	22.77	23.45
		38	0	23.00	22.60	22.62	22.67
			18	23.00	22.58	22.63	22.69
			37	23.00	22.57	22.63	22.70
		75	0	22.00	21.59	21.67	21.75
Bandwidth	Modulation	RB allocation	RB offset	Maximum Tune-up(dBm)	18700	18900	19100
					1860.0MHz	1880.0MHz	1900.0MHz
20MHz	QPSK	1	0	**24.00**	23.61	**23.84**	23.71
			49	24.00	23.75	23.70	23.76
			99	24.00	23.64	23.61	23.78
		50	0	23.00	22.54	**22.63**	22.54
			25	23.00	22.51	22.53	22.53
			50	23.00	22.59	22.49	22.59
		100	0	23.00	22.60	22.53	22.55
	16QAM	1	0	23.00	22.21	22.89	22.55
			49	23.00	22.29	22.97	22.56
			99	23.50	22.36	23.07	22.62
		50	0	22.00	21.69	21.64	21.65
			25	22.00	21.68	21.64	21.69
			50	22.00	21.74	21.77	21.70
		100	0	22.00	21.64	21.64	21.61

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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	24.00	23.69	23.51	23.61
			2	24.00	23.64	23.57	23.57
			5	24.00	23.67	23.63	23.54
		3	0	24.00	23.67	23.63	23.59
			1	24.00	23.63	23.64	23.60
			3	24.00	23.59	23.73	23.63
		6	0	23.00	22.61	22.63	22.50
	16QAM	1	0	23.50	22.41	23.19	22.98
			2	23.50	22.41	23.26	23.01
			5	23.50	22.37	23.21	22.98
		3	0	23.00	22.25	22.50	22.35
			1	22.50	22.29	22.49	22.35
			3	22.50	22.32	22.37	22.39
		6	0	22.00	21.55	21.56	21.71
Bandwidth	Modulation	RB allocation	RB offset	Maximum Tune-up(dBm)	19965	20175	20385
					1711.5MHz	1732.5MHz	1753.5MHz
3MHz	QPSK	1	0	23.50	23.30	23.48	23.49
			8	24.00	23.36	23.53	23.49
			14	23.50	23.30	23.49	23.49
		8	0	23.00	22.56	22.48	22.51
			4	23.00	22.57	22.51	22.52
			7	23.00	22.50	22.57	22.48
		15	0	23.00	22.52	22.51	22.51
	16QAM	1	0	23.50	22.55	22.65	23.15
			8	23.50	22.52	22.51	23.20
			14	23.50	22.48	22.60	23.13
		8	0	22.00	21.73	21.74	21.78
			4	22.00	21.70	21.70	21.78
			7	22.00	21.64	21.75	21.75
		15	0	22.00	21.58	21.43	21.60
Bandwidth	Modulation	RB allocation	RB offset	Maximum Tune-up(dBm)	19976	20175	20375
					1712.5MHz	1732.5MHz	1752.5MHz
5MHz	QPSK	1	0	24.00	23.68	23.58	23.65
			12	24.00	23.66	23.55	23.67
			24	24.00	23.56	23.54	23.60
		12	0	23.00	22.56	22.54	22.48
			6	23.00	22.56	22.57	22.48
			13	23.00	22.47	22.51	22.53
		25	0	23.00	22.53	22.51	22.52
	16QAM	1	0	22.50	21.93	22.35	22.21
			12	22.50	21.92	22.32	22.14
			24	22.50	21.91	22.31	22.14
		12	0	22.00	21.61	21.64	21.68
			6	22.00	21.60	21.61	21.64
			13	22.00	21.52	21.62	21.70
		25	0	22.00	21.60	21.48	21.62

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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	24.50	24.00	24.31	24.30
			24	24.50	24.07	24.31	24.40
			49	24.50	24.03	24.43	24.42
		25	0	23.50	23.19	23.33	23.37
			12	23.50	23.19	23.35	23.41
			25	23.50	23.17	23.39	23.35
		50	0	23.50	23.15	23.34	23.35
	16QAM	1	0	23.50	23.26	23.39	24.10
			24	23.50	23.25	23.40	24.18
			49	23.50	23.31	23.45	24.11
		25	0	23.00	22.27	22.60	22.51
			12	23.00	22.26	22.61	22.52
			25	23.00	22.24	22.59	22.52
		50	0	23.00	22.27	22.53	22.49
Bandwidth	Modulation	RB allocation	RB offset	Maximum Tune-up(dBm)	20025	20175	20325
					1717.5MHz	1732.5MHz	1747.5MHz
15MHz	QPSK	1	0	24.50	24.02	24.18	24.27
			38	24.50	24.00	24.24	24.40
			74	24.50	24.15	24.29	24.43
		38	0	23.50	23.13	23.31	23.37
			18	23.50	23.19	23.29	23.39
			37	23.50	23.18	23.29	23.40
		75	0	23.50	23.18	23.28	23.40
	16QAM	1	0	23.50	23.17	23.37	24.07
			38	23.50	23.27	23.40	24.12
			74	23.50	23.29	23.44	24.14
		38	0	23.50	23.19	23.30	23.39
			18	23.50	23.19	23.29	23.39
			37	23.50	23.18	23.29	23.40
		75	0	22.50	22.24	22.44	22.46
Bandwidth	Modulation	RB allocation	RB offset	Maximum Tune-up(dBm)	20050	20175	20300
					1720.0MHz	1732.5MHz	1745.0MHz
20MHz	QPSK	1	0	24.50	24.21	24.38	24.45
			49	**25.00**	24.32	24.49	**24.62**
			99	25.00	24.38	24.54	24.54
		50	0	23.50	23.17	23.28	23.30
			25	23.50	23.11	23.29	23.32
			50	23.50	23.23	23.38	**23.40**
		100	0	23.50	23.15	23.32	23.39
	16QAM	1	0	24.00	22.80	23.71	23.29
			49	24.00	22.87	23.80	23.32
			99	24.00	22.94	23.75	23.39
		50	0	23.00	22.34	22.46	22.50
			25	23.00	22.35	22.46	22.51
			50	23.00	22.40	22.49	22.56
		100	0	23.00	22.31	22.52	22.46

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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	24.00	23.69	23.51	23.61
			2	24.00	23.64	23.57	23.57
			5	24.00	23.67	23.63	23.54
		3	0	24.00	23.67	23.63	23.59
			1	24.00	23.63	23.64	23.60
			3	24.00	23.59	23.73	23.63
		6	0	23.00	22.61	22.63	22.50
	16QAM	1	0	23.50	22.41	23.19	22.98
			2	23.50	22.41	23.26	23.01
			5	23.50	22.37	23.21	22.98
		3	0	23.00	22.25	22.50	22.35
			1	22.50	22.29	22.49	22.35
			3	22.50	22.32	22.37	22.39
		6	0	22.00	21.55	21.56	21.71
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	23.30	23.48	23.49
			8	24.00	23.36	23.53	23.49
			14	23.50	23.30	23.49	23.49
		8	0	23.00	22.56	22.48	22.51
			4	23.00	22.57	22.51	22.52
			7	23.00	22.50	22.57	22.48
		15	0	23.00	22.52	22.51	22.51
	16QAM	1	0	23.50	22.55	22.65	23.15
			8	23.50	22.52	22.51	23.20
			14	23.50	22.48	22.60	23.13
		8	0	22.00	21.73	21.74	21.78
			4	22.00	21.70	21.70	21.78
			7	22.00	21.64	21.75	21.75
		15	0	22.00	21.58	21.43	21.60
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	24.00	23.68	23.58	23.65
			12	24.00	23.66	23.55	23.67
			24	24.00	23.56	23.54	23.60
		12	0	23.00	22.56	22.54	22.48
			6	23.00	22.56	22.57	22.48
			13	23.00	22.47	22.51	22.53
		25	0	23.00	22.53	22.51	22.52
	16QAM	1	0	22.50	21.93	22.35	22.21
			12	22.50	21.92	22.32	22.14
			24	22.50	21.91	22.31	22.14
		12	0	22.00	21.61	21.64	21.68
			6	22.00	21.60	21.61	21.64
			13	22.00	21.52	21.62	21.70
		25	0	22.00	21.60	21.48	21.62

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Bandwidth	Modulation	RB allocation	RB offset	Maximum Tune-up(dBm)	20450	20525	20600
					829.0MHz	836.5MHz	844.0MHz
10MHz	QPSK	1	0	24.00	23.36	23.50	23.52
			24	**24.00**	23.28	23.48	**23.57**
			49	24.00	23.33	23.44	23.55
		25	0	23.00	22.51	22.58	22.50
			12	23.00	22.52	22.51	**22.61**
			25	23.00	22.51	22.51	22.53
		50	0	23.00	22.48	22.56	22.52
	16QAM	1	0	23.30	22.58	22.53	23.20
			24	23.50	22.53	22.54	23.20
			49	23.50	22.51	22.56	23.14
		25	0	22.00	21.47	21.75	21.64
			12	22.00	21.48	21.75	21.63
			25	22.00	21.51	21.69	21.60
		50	0	22.00	21.44	21.63	21.58

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	22.20	22.17	22.63
			12	23.00	22.27	22.24	22.69
			24	23.00	22.32	22.29	22.67
		12	0	22.00	21.18	21.31	21.58
			6	22.00	21.22	21.32	21.61
			13	22.00	21.20	21.34	21.62
		25	0	22.00	21.21	21.37	21.59
	16QAM	1	0	21.50	20.55	21.30	21.29
			12	21.50	20.64	21.32	21.26
			24	21.50	20.63	21.37	21.38
		12	0	21.00	20.29	20.46	20.56
			6	21.00	20.29	20.47	20.58
			13	21.00	20.27	20.44	20.67
		25	0	21.00	20.38	20.45	20.66
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	22.23	22.38	22.52
			24	23.00	22.28	22.46	22.55
			49	23.00	22.35	22.52	22.62
		25	0	22.00	21.27	21.38	21.59
			12	22.00	21.24	21.35	21.58
			25	22.00	21.28	21.41	21.57
		50	0	22.00	21.28	21.37	21.56
	16QAM	1	0	22.00	21.15	21.19	21.64
			24	22.00	21.18	21.19	21.72
			49	22.00	21.17	21.22	21.77
		25	0	21.00	20.33	20.45	20.68
			12	21.00	20.29	20.47	20.70
			25	21.00	20.35	20.50	20.76
		50	0	21.00	20.41	20.52	20.71

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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	22.50	22.15	22.26	22.48
			38	23.00	22.30	22.34	22.57
			74	23.00	22.38	22.36	22.62
		38	0	22.00	21.30	21.35	21.57
			18	22.00	21.29	21.35	21.59
			37	22.00	21.28	21.35	21.59
		75	0	22.00	21.28	21.35	21.59
	16QAM	1	0	22.50	21.08	21.43	22.15
			38	22.50	21.11	21.44	22.26
			74	22.50	21.11	21.41	22.31
		38	0	22.00	21.29	21.35	21.58
			18	22.00	21.29	21.35	21.59
			37	22.00	21.28	21.35	21.59
		75	0	21.00	20.36	20.51	20.68
Bandwidth	Modulation	RB allocation	RB offset	Maximum Tune-up(dBm)	20850	21100	21350
					2510.0MHz	2535.0MHz	2560.0MHz
20MHz	QPSK	1	0	23.00	22.32	22.44	22.54
			49	**23.00**	22.47	22.55	**22.72**
			99	23.00	22.49	22.63	22.70
		50	0	22.00	21.32	21.36	21.52
			25	22.00	21.30	21.38	21.51
			50	22.00	21.31	21.44	**21.59**
		100	0	22.00	21.29	21.38	21.53
	16QAM	1	0	22.00	20.95	21.74	21.40
			49	22.00	21.02	21.78	21.48
			99	22.00	21.01	21.78	21.59
		50	0	21.00	20.39	20.46	20.63
			25	21.00	20.40	20.47	20.60
			50	21.00	20.48	20.51	20.71
		100	0	21.00	20.36	20.52	20.56

8.4 Wi-Fi

2.4G WIFI

Ant.1						
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	15.93	16.00	No
		6	2437	15.81	16.00	No
		11	2462	**16.18**	**16.50**	Yes
	802.11g	1	2412	14.99	15.00	No
		6	2437	15.07	15.50	No
		11	2462	15.14	15.50	No
	802.11n(HT20)	1	2412	14.79	15.00	No
		6	2437	14.90	15.50	No
		11	2462	15.12	15.50	No
	802.11n(HT40)	3	2422	15.38	15.50	No
		6	2437	15.38	15.50	No
		9	2452	13.21	13.50	No

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Ant.2						
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	15.74	16.00	No
		6	2437	15.75	16.00	No
		11	2462	**16.31**	**16.50**	Yes
	802.11g	1	2412	14.85	15.00	No
		6	2437	15.05	15.50	No
		11	2462	15.26	15.50	No
	802.11n(HT20)	1	2412	14.77	15.00	No
		6	2437	15.11	15.50	No
		11	2462	15.21	15.50	No
	802.11n(HT40)	3	2422	15.51	16.00	No
		6	2437	15.55	16.00	No
		9	2452	14.69	15.00	No
MIMO						
Band (GHz)	Mode	Channel	Freq. (MHz)	Average Power (dBm)	Maximum Tune-up(dBm)	SAR Test Require.
2.4g Wifi (2.4~2.4835)	802.11n(HT20)	1	2412	17.79	18.00	No
		6	2437	18.02	18.50	No
		11	2462	18.18	18.50	No
	802.11n(HT40)	3	2422	18.46	18.50	No
		6	2437	**18.48**	**18.50**	YES
		9	2452	17.02	17.50	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 ≤ 1.2W/kg.						

5G WIFI

Ant.1						
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	14.50	15.00	No
		40	5200	14.72	15.00	No
		48	5240	14.31	14.50	No
	802.11n(HT20)	36	5180	14.45	14.50	No
		40	5200	14.63	15.00	No
		48	5240	14.17	14.50	No
	802.11ac(VHT20)	36	5180	14.15	14.50	No
		40	5200	14.32	14.50	No
		48	5240	13.97	14.00	No
	802.11n(HT40)	38	5190	13.26	13.50	No
		46	5230	**15.45**	**15.50**	Yes
	802.11ac(VHT40)	38	5190	12.98	13.00	No
		46	5230	15.04	15.50	No
	802.11ac(VHT80)	42	5210	11.81	12.00	No
Ant.2						
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	14.07	14.50	No
		40	5200	14.53	15.00	No
		48	5240	14.25	14.50	No
	802.11n(HT20)	36	5180	14.01	14.50	No
		40	5200	14.53	15.00	No
		48	5240	14.17	14.50	No
	802.11ac(VHT20)	36	5180	13.77	14.00	No
		40	5200	14.33	14.50	No
		48	5240	13.96	14.00	No
	802.11n(HT40)	38	5190	13.15	13.50	No
		46	5230	**15.54**	**16.00**	Yes

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	802.11ac(VHT40)	38	5190	12.87	13.00	No
		46	5230	15.24	15.50	No
	802.11ac(VHT80)	42	5210	12.24	12.50	No
MIMO						
Band (GHz)	Mode	Channel	Freq. (MHz)	Average Power (dBm)	Maximum Tune-up(dBm)	SAR Test Require.
U-NII-1 (5.150~5.250)	802.11n(HT20)	36	5180	17.25	17.50	No
		40	5200	17.59	18.00	No
		48	5240	17.18	18.50	No
	802.11ac(VHT20)	36	5180	16.97	17.00	No
		40	5200	17.34	17.50	No
		48	5240	16.98	17.00	No
	802.11n(HT40)	38	5190	16.22	16.50	No
		46	5230	18.51	19.00	No
	802.11ac(VHT40)	38	5190	15.94	16.00	No
		46	5230	**18.15**	**18.50**	Yes
	802.11ac(VHT80)	42	5210	15.04	15.50	No

8.5 Bluetooth

EDR (Antenna1)	Mode	Maximum Tune-up(dBm)	Average Conducted Output Power(dBm)		
			0	39	78
			2402MHz	2441MHz	2480MHz
	GFSK	5.50	4.20	4.26	5.09
	π/4QPSK	6.50	5.33	5.34	6.19
	8DPSK	6.50	5.52	5.56	6.37
BLE (Antenna1)	Mode	Maximum Tune-up(dBm)	Average Conducted Output Power(dBm)		
			0	20	39
			2402MHz	2440MHz	2480MHz
	1Mbps	8.00	6.83	6.92	7.57
	2Mbps	**10.00**	9.00	8.95	**9.56**
EDR (Antenna2)	Mode	Maximum Tune-up(dBm)	Average Conducted Output Power(dBm)		
			0	39	78
			2402MHz	2441MHz	2480MHz
	GFSK	5.50	4.24	4.47	5.33
	π/4QPSK	6.50	5.47	5.52	6.31
	8DPSK	9.00	5.68	8.04	8.68
BLE (Antenna2)	Mode	Maximum Tune-up(dBm)	Average Conducted Output Power(dBm)		
			0	20	39
			2402MHz	2440MHz	2480MHz
	1Mbps	8.00	6.83	6.92	7.77
	2Mbps	**9.50**	8.91	8.90	**9.49**

Note

1. Per KDB 447498 D01 General RF Exposure Guidance v06, the 1-g SAR test exclusion thresholds for 300 MHz to 6 GHz at *test separation distances* ≤ 40 cm are determined by:

MHz	5	10	15	20	25	mm
150	39	77	116	155	194	*SAR Test Exclusion Threshold* (mW)
300	27	55	82	110	137	
450	22	45	67	89	112	
835	16	33	49	66	82	
900	16	32	47	63	79	
1500	12	24	37	49	61	
1900	11	22	33	44	54	
2450	10	19	29	38	48	
3600	8	16	24	32	40	
5200	7	13	20	26	33	
5400	6	13	19	26	32	
5800	6	12	19	25	31	

*When the minimum test separation distance is < 5 mm, a distance of 5 mm is applied to determine estimated SAR. .
The output power of all data rate were prescan, just the worst case (the lowest data rate) of all mode were shown in report.

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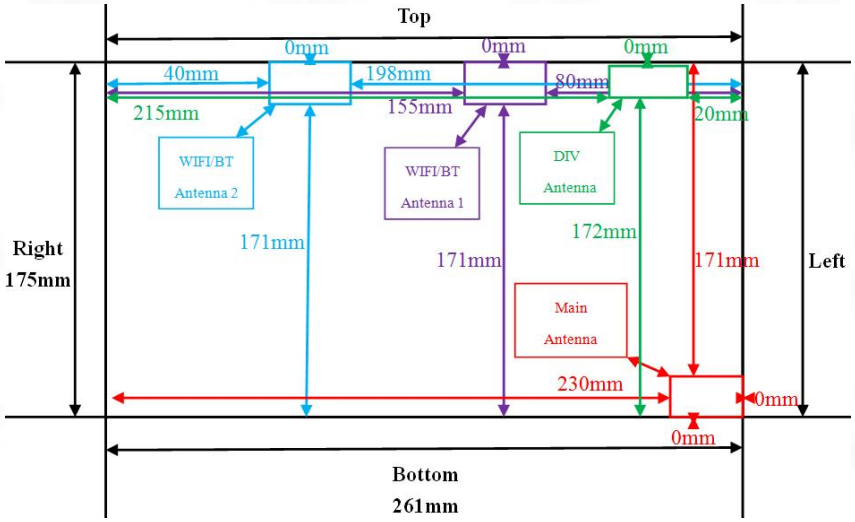
9. Test Exclusion Consideration

Antenna information:



WWAN Main Antenna	GSM/WCDMA/LTE TX/RX
WLAN/BT Antenna	WLAN/BT TX/RX

Note:
1. KDB 447498 D01v06, 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	230	171	<25
BT/Wifi (Antenna1)	<25	<25	80	155	<25	171
BT/Wifi (Antenna2)	<25	<25	198	40	<25	171
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	No	Yes	No
BT/Wifi	Yes	Yes	No	No	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:

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

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10. Test Result

Body(hotspot open, 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 Reported SAR (W/kg)	Meas. No.
GPRS 850+2slots	Front	128	824.2	1.20	0.31	100	1.00	32.57	33.00	1.104	0.34	/
	Back	128	824.2	3.70	0.47	100	1.00	32.57	33.00	1.104	**0.52**	1#
	Left	128	824.2	-1.25	0.11	100	1.00	32.57	33.00	1.104	0.12	/
	Bottom	128	824.2	0.10	0.10	100	1.00	32.57	33.00	1.104	0.11	/
Body(hotspot open, 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 Reported SAR (W/kg)	Meas. No.
GPRS 1900+2slots	Front	810	1909.8	-2.75	0.38	100	1.00	28.95	29.00	1.012	0.38	/
	Back	512	1850.2	1.26	0.76	100	1.00	28.75	29.00	1.059	0.81	/
		661	1880.0	-1.26	0.74	100	1.00	28.85	29.00	1.035	0.77	/
		810	1909.8	0.21	0.83	100	1.00	28.95	29.00	1.012	**0.84**	2#
	Left	810	1909.8	1.26	0.20	100	1.00	28.95	29.00	1.012	0.20	/
	Bottom	810	1909.8	0.21	0.15	100	1.00	28.95	29.00	1.012	0.15	/

Body(hotspot open, 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 Reported SAR (W/kg)	Meas. No.
WCDMA Band 2 (RMC*)	Front	9538	1907.6	-1.59	0.30	100	1.00	23.62	24.00	1.091	0.33	/
	Back	9262	1852.4	1.26	0.72	100	1.00	23.21	24.00	1.199	0.85	/
		9400	1880.0	1.20	0.74	100	1.00	23.58	24.00	1.102	0.82	/
		9538	1907.6	-0.42	0.80	100	1.00	23.62	24.00	1.091	**0.85**	3#
	Left	9538	1907.6	1.30	0.11	100	1.00	23.62	24.00	1.091	0.12	/
	Bottom	9538	1907.6	-2.15	0.11	100	1.00	23.62	24.00	1.091	0.12	/
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 Reported SAR (W/kg)	Meas. No.
WCDMA Band 4 (RMC*)	Front	1413	1732.6	-1.06	0.02	100	1.00	23.30	23.50	1.047	0.02	/
	Back	1413	1732.6	-0.27	0.05	100	1.00	23.30	23.50	1.047	**0.05**	4#
	Left	1413	1732.6	-2.30	0.02	100	1.00	23.30	23.50	1.047	0.02	/
	Bottom	1413	1732.6	0.19	0.02	100	1.00	23.30	23.50	1.047	0.02	/
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 Reported SAR (W/kg)	Meas. No.
WCDMA Band 5 (RMC*)	Front	4182	836.4	1.58	0.35	100	1.00	23.33	23.50	1.040	0.36	/
	Back	4182	836.4	0.94	0.50	100	1.00	23.33	23.50	1.040	**0.52**	5#
	Left	4182	836.4	0.30	0.07	100	1.00	23.33	23.50	1.040	0.07	/
	Bottom	4182	836.4	-3.51	0.10	100	1.00	23.33	23.50	1.040	0.10	/

Body(hotspot open, 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	Front	18900	1880	0.89	0.56	100	1.00	23.84	24.00	1.038	0.58	/
		Back	18700	1860	-1.26	0.80	100	1.00	23.75	24.00	1.059	0.85	/
			18900	1880	1.31	0.82	100	1.00	23.84	24.00	1.038	**0.85**	6#
			19100	1900	-2.91	0.80	100	1.00	23.78	24.00	1.052	0.84	/
		Left	18900	1880	1.51	0.26	100	1.00	23.84	24.00	1.038	0.27	/
		Bottom	18900	1880	0.26	0.23	100	1.00	23.84	24.00	1.038	0.24	/
	50%RB	Front	18900	1880	2.71	0.45	100	1.00	22.63	23.00	1.089	0.49	/
		Back	18700	1860	1.06	0.75	100	1.00	22.59	23.00	1.099	0.82	/
			18900	1880	0.26	0.78	100	1.00	22.63	23.00	1.089	0.85	/
			19100	1900	-2.51	0.73	100	1.00	22.59	23.00	1.099	0.80	/
		Left	18900	1880	1.06	0.16	100	1.00	22.63	23.00	1.089	0.17	/
		Bottom	18900	1880	-0.21	0.08	100	1.00	22.63	23.00	1.089	0.09	/

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Body(hotspot open, 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	Front	20300	1745	2.61	0.26	100	1.00	24.62	25.00	1.091	0.28	/
		Back	20300	1745	-3.03	0.47	100	1.00	24.62	25.00	1.091	**0.51**	7#
		Left	20300	1745	1.20	0.06	100	1.00	24.62	25.00	1.091	0.07	/
		Bottom	20300	1745	-0.84	0.08	100	1.00	24.62	25.00	1.091	0.09	/
	50%RB	Front	20300	1745	-1.16	0.21	100	1.00	23.40	24.50	1.288	0.27	/
		Back	20300	1745	-1.95	0.37	100	1.00	23.40	24.50	1.288	0.48	/
		Left	20300	1745	-1.59	0.04	100	1.00	23.40	24.50	1.288	0.05	/
		Bottom	20300	1745	0.54	0.08	100	1.00	23.40	24.50	1.288	0.10	/

Body(hotspot open, 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	Front	20600	844	-3.51	0.09	100	1.00	23.57	24.00	1.104	0.10	/
		Back	20600	844	3.39	0.16	100	1.00	23.57	24.00	1.104	**0.18**	8#
		Left	20600	844	0.51	0.03	100	1.00	23.57	24.00	1.104	0.03	/
		Bottom	20600	844	1.10	0.03	100	1.00	23.57	24.00	1.104	0.03	/
	50%RB	Front	20600	844	-0.61	0.06	100	1.00	22.61	23.00	1.094	0.07	/
		Back	20600	844	1.26	0.12	100	1.00	22.61	23.00	1.094	0.13	/
		Left	20600	844	1.58	0.02	100	1.00	22.61	23.00	1.094	0.02	/
		Bottom	20600	844	0.52	0.02	100	1.00	22.61	23.00	1.094	0.02	/

Body(hotspot open, 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	Front	21350	2560	0.20	0.04	100	1.00	22.72	23.00	1.067	0.04	/
		Back	21350	2560	2.59	0.07	100	1.00	22.72	23.00	1.067	**0.07**	9#
		Left	21350	2560	-1.25	0.02	100	1.00	22.72	23.00	1.067	0.02	/
		Bottom	21350	2560	-2.17	0.02	100	1.00	22.72	23.00	1.067	0.02	/
	50%RB	Front	21350	2560	-2.51	0.02	100	1.00	21.59	22.00	1.099	0.02	/
		Back	21350	2560	1.20	0.05	100	1.00	21.59	22.00	1.099	0.05	/
		Left	21350	2560	-1.58	0.02	100	1.00	21.59	22.00	1.099	0.02	/
		Bottom	21350	2560	0.56	0.02	100	1.00	21.59	22.00	1.099	0.02	/

Body(hotspot open, 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 (Antenna1)	Front	11	2462	-1.52	0.06	100	1.00	16.18	16.50	1.076	0.06	/
	Back	11	2462	-2.18	0.14	100	1.00	16.18	16.50	1.076	0.15	/
	Top	11	2462	-1.58	0.02	100	1.00	16.18	16.50	1.076	0.02	/
2.4g (2.4~2.4835) 802.11b (Antenna2)	Front	11	2462	-2.51	0.08	100	1.00	16.31	16.50	1.045	0.08	/
	Back	11	2462	-2.03	0.14	100	1.00	16.31	16.50	1.045	**0.15**	10#
	Top	11	2462	0.50	0.04	100	1.00	16.31	16.50	1.045	0.04	/
2.4g (2.4~2.4835) 802.11n(HT40) MIMO	Front	6	2437	2.74	0.05	100	1.00	18.48	18.50	1.005	0.05	/
	Back	6	2437	1.20	0.10	100	1.00	18.48	18.50	1.005	0.10	/
	Top	6	2437	0.15	0.02	100	1.00	18.48	18.50	1.005	0.02	/

Body(hotspot open, 0mm Gap)												
Mode	Position	Ch.	Freq. (MHz)	Power Drift (%)	1g Meas SAR (W/kg)	Duty cycle (%)	Duty cycle Factor	Meas. Power (dBm)	Max. tune-up power (dBm)	Scaling Factor	1g Scaled SAR (W/kg)	Meas. No.
U-NII-1 (5.150~5.250) 802.11n(HT40) (Antenna1)	Front	46	5230	2.45	0.20	100	1.00	15.45	15.50	1.012	0.20	/
	Back	46	5230	-4.86	0.35	100	1.00	15.45	15.50	1.012	**0.35**	11#
	Top	46	5230	0.89	0.13	100	1.00	15.45	15.50	1.012	0.13	/
U-NII-1 (5.150~5.250) 802.11n(HT40) (Antenna2)	Front	46	5230	-2.89	0.16	100	1.00	15.54	16.00	1.112	0.18	/
	Back	46	5230	-2.07	0.31	100	1.00	15.54	16.00	1.112	0.34	/
	Top	46	5230	0.51	0.08	100	1.00	15.54	16.00	1.112	0.09	/

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U-NII-1 (5.150~5.250) 802.11n(HT40) MIMO	Front	46	5230	-1.16	0.14	100	1.00	18.15	18.50	1.084	0.15	/
	Back	46	5230	0.31	0.29	100	1.00	18.15	18.50	1.084	0.31	/
	Top	46	5230	1.25	0.04	100	1.00	18.15	18.50	1.084	0.04	/

Body(hotspot open, 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.
BLE (Antenna1)	Front	39	2480	-2.15	0.02	100	1.00	9.56	10.00	1.107	0.02	/
	Back	39	2480	1.59	0.05	100	1.00	9.56	10.00	1.107	**0.06**	12#
	Top	39	2480	0.12	0.03	100	1.00	9.56	10.00	1.107	0.03	/
BLE (Antenna2)	Front	39	2480	-1.26	0.02	100	1.00	9.49	10.00	1.125	0.02	/
	Back	39	2480	1.52	0.03	100	1.00	9.49	10.00	1.125	0.03	/
	Top	39	2480	0.15	0.02	100	1.00	9.49	10.00	1.125	0.02	/

Note:

1. The maximum SAR Value of each test band is marked bold.
2. SAR plot is provided only for the highest measured SAR in each exposure configuration, wireless mode and frequency band combination.
3. Per KDB 447498 D01 v06, for each exposure position, if the highest output power channel Reported SAR ≤ 0.8W/kg, other channels SAR testing is not necessary.
4. Per KDB 447498 D01 v06, body-worn use is evaluated with the device positioned at 0mm from a flat phantom respectively filled with head tissue-equivalent medium.
5. Per KDB 447498 D01 v06, the report SAR is measured SAR value adjusted for maximum tune-up tolerance. Scaling Factor=10^[(tune-up limit power(dBm) - Ave.power power (dBm))/10], where tune-up limit is the maximum rated power among all production units.
   Reported SAR(W/kg)=Measured SAR (W/kg)*Scaling Factor.

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11. SAR Measurement Variability

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

SAR repeated measurement procedure:

1. When the highest measured SAR is < 0.80 W/kg, repeated measurement is not required.
2. When the highest measured SAR is >= 0.80 W/kg, repeat that measurement once.
3. If the ratio of largest to smallest SAR for the original and first repeated measurements is > 1.20, or when the original or repeated measurement is >= 1.45 W/kg, perform a second repeated measurement.
4. If the ratio of largest to smallest SAR for the original, first and second repeated measurements is > 1.20, and the original, first or second repeated measurement is >= 1.5 W/kg, perform a third repeated measurement.

Note: For 1g SAR, the highest measured 1g SAR is 0.83 > 0.80 W/kg, repeated measurement is as below.

Mode	Position	Ch.	Freq. (MHz)	1g Meas SAR (W/kg)	the ratio of largest to smallest SAR for the original and first repeated measurements
GPRS 1900+2slots	Back	810	1909.8	0.83	1.025
	Back-repeat	810	1909.8	0.81	
WCDMA Band 2	Back	9538	1907.6	0.80	1.066
	Back-repeat	9538	1907.6	0.75	
LTE Band 2 (BW: 20MHz 1%RB)	Back	18900	1880	0.85	1.037
	Back-repeat	18900	1880	0.82	
LTE Band 2 (BW: 20MHz 50%RB)	Back	18900	1880	0.85	1.063
	Back-repeat	18900	1880	0.80	

According to the above ratio result, we don’t need to perform a second repeated measurement for these bands.

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12. Simultaneous Transmission

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

12.1 Simultaneous Transmission Mode Considerations

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

Application Simultaneous Transmission information:

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

12.2 Sum SAR of Simultaneous Transmission

Hotspot(body-worn)

Band	Test Position	RB allocation	Scaled							Σ SAR (W/kg) WWAN + WIFI 2.4G-1+ WIFI 2.4G-2	Σ SAR (W/kg) WWAN + WIFI 2.4G-1 + WIFI 5G-2	Σ SAR (W/kg) WWAN + WIFI 2.4G-2 + WIFI 5G-1	Σ SAR (W/kg) WWAN + WIFI 5G-1 + WIFI 5G-2	Σ SAR (W/kg) WWAN + BT-1 + BT-2	SPLSR	Remark
			WWAN	WIFI 2.4G -1	WIFI 2.4G -2	WIFI 5G -1	WIFI 5G -2	Blue tooth -1	Blue tooth -2							
LTE Band 2 QPSK (20MHz)	Front	1RB	0.58	0.06	0.08	0.20	0.18	0.02	0.02	0.72	0.82	0.86	0.96	0.62	N/A	N/A
	Back		0.85	0.15	0.15	0.35	0.34	0.06	0.03	1.15	1.34	1.35	1.54	0.94	N/A	N/A
	Left		0.27	/	/	/	/	/	/	0.27	0.27	0.27	0.27	0.27	N/A	N/A
	Right		/	/	/	/	/	/	/	/	/	/	/	/	N/A	N/A
	Top		/	0.02	0.04	0.13	0.09	0.03	0.02	0.06	0.11	0.17	0.22	0.05	N/A	N/A
	Bottom		0.24							0.24	0.24	0.24	0.24	0.24	N/A	N/A
	Front	50%RB	0.49	0.06	0.08	0.20	0.18	0.02	0.02	0.63	0.73	0.77	0.87	0.53	N/A	N/A
	Back		0.85	0.15	0.15	0.35	0.34	0.06	0.03	1.15	1.34	1.35	1.54	0.94	N/A	N/A
	Left		0.17	/	/	/	/	/	/	0.17	0.17	0.17	0.17	0.17	N/A	N/A
	Right		/	/	/	/	/	/	/	/	/	/	/	/	N/A	N/A
	Top		/	0.02	0.04	0.13	0.09	0.03	0.02	0.06	0.11	0.17	0.22	0.05	N/A	N/A
	Bottom		0.09							0.09	0.09	0.09	0.09	0.09	N/A	N/A

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13. Test Equipment List

Description	Manufacturer	Model	Serial No./Version	Cal. Date	Cal. Due
E-Field Probe	MVG	SSE2	0125-EPGO-445	2025/02/01	2026/01/31
6 1/2 Digital Multimeter	Keithley	DMM6500	4527164	2024/10/25	2025/10/24
Wideband Radio Communication Tester	ROHDE & SCHWARZ	CmW500	161997	2024/10/25	2025/10/24
MXG Vector Signal Generator	Agilent	N5182A	MY46240163	2024/10/25	2025/10/24
E-Series Avg. Power Sensor	KEYSIGHT	E9300A	MY55050017	2025/04/02	2026/04/01
EPM Series Power Meter	KEYSIGHT	E4418B	MY41293435	2025/04/02	2026/04/01
MXA Signal Analyzer	KEYSIGHT	N9020A	MY54410409	2024/10/25	2025/10/24
Broadband Preamplifier	Schwarzbeck	BBV9718D	00008	2024/09/24	2025/09/23
3dB Attenuator	MIDWEST MICROWAVE	SMA-JK6G-3DB	N/A	2025/04/02	2026/04/01
Coupler	MERRIMAC	CWM-10R-10.8G	LOT-83391	2024/09/24	2025/09/24
750MHz Validation Dipole	MVG	SID750	07/22 DIP 0G750-655	2023/02/06	2026/02/05
835MHz Validation Dipole	MVG	SID835	07/22 DIP 0G835-656	2023/02/06	2026/02/05
1800MHz Validation Dipole	MVG	SID1800	07/22 DIP 1G800-657	2023/02/06	2026/02/05
1900MHz Validation Dipole	MVG	SID1900	07/22 DIP 1G900-658	2023/02/06	2026/02/05
2450MHz Validation Dipole	MVG	SID2450	07/22 DIP 2G450-662	2023/02/06	2026/02/05
2600MHz Validation Dipole	MVG	SID2600	07/22 DIP 2G600-663	2023/02/06	2026/02/05
5200MHz-5800MHz Validation Dipole	MVG	SID5000	07/22 DIP5G000-670	2023/02/06	2026/02/05
LIMESAR Dielectric Probe	MVG	SCLMP	06/22 OCPG88	2025/02/05	2026/02/04
ENA Series Network Analyzer	Agilent	E5071B	MY42301221	2024/10/25	2025/10/24
Thermometer	Riters	DT-232	21A11	2025/04/03	2026/04/02
Antenna network emulator	MVG	ANTA 74	07/22 ANTA 74	N/A	N/A
SAM Phantom	MVG	SAM	07/22 SAM149	N/A	N/A
Mobile Phone Positioning System	MVG	MSH 118	07/22 MSH 118	N/A	N/A
Mechanical Calibration Kit	PNA	N/A	N/A	2024/10/25	2025/10/24
Open SAR test software	MVG	N/A	V5.3.5	N/A	N/A

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.
5. Only one 3db attenuator is shown in the equipment list, but three are actually used.

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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)	εr		σ(s/m)		Delta (εr)	Delta (σ)	Limit	Temp (℃)	Date
	Target	Measured	Target	Measured					
835	41.50	42.46	0.90	0.92	2.31%	-2.17%	±5%	21.6	28/5/2025
1800	40.00	38.39	1.40	1.38	-4.03%	-1.43%	±5%	21.4	25/5/2025
1900	40.00	40.80	1.40	1.46	2.00%	4.28%	±5%	21.8	26/5/2025
2450	39.20	40.57	1.80	1.85	3.49%	2.78%	±5%	20.8	22/5/2025
2600	39.00	37.62	1.96	1.91	-3.54%	-2.55%	±5%	21.3	27/5/2025
5200	36.00	34.85	4.66	4.73	-3.19%	1.50%	±5%	21.3	27/5/2025
NOTE: The dielectric parameters of the tissue-equivalent liquid should be measured under similar ambient conditions and within 2 ℃ of the conditions expected during the SAR evaluation to satisfy protocol requirements.									

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)	10g SAR (W/Kg)	1g SAR (W/Kg)	10g SAR 1W input power normalized (W/Kg)	1g SAR 1W input power normalized (W/Kg)	10g SAR Standard target (1W) (W/Kg)	1g SAR Standard target (1W) (W/Kg)	10g SAR Deviation	1g SAR Deviation
835	100	0.57	1.04	5.70	10.40	6.22	9.56	-8.36%	-8.79%
1800	100	1.98	3.71	19.80	37.10	20.10	38.40	-1.49%	-3.39%
1900	100	1.89	3.81	18.90	38.10	20.50	39.70	-7.80%	-4.03%
2450	100	2.46	5.42	24.60	54.20	24.00	52.40	2.50%	3.44%
2600	100	2.51	5.43	25.10	54.30	24.60	55.30	2.03%	-1.81%
5200	100	2.31	6.72	23.10	67.20	21.29	73.88	8.50%	-9.04%

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ANNEX C SAR Dipole Calibrations

Justification for Extended SAR Dipole Calibrations

Referring to KDB 865664D01V01r04, if dipoles are verified in return loss (<-20dB, within 20% of prior calibration)and in impedance (within 5 ohm of prior calibration). the annual calibration is not necessary and the calibrationinterval can be extended.While calibration intervals not exceed 3 years.

Frequency (MHz)	Return loss(dB)		Impedance(Ω)				error range（%）		Results	Date of Measurement
	measurement	target	measurement		target		Return loss(±20%)	Impedance(±5Ω)	(P/F)	
			real part	imaginary part	real part	imaginary part				
CW750	-22.53	-25.44	56.05	1.8	55.2	-1.2	-11.44%	-3.8	P	5/2/2025
CW750	-20.92	-25.44	55.89	1.5	55.2	-1.2	-17.77%	3.4	P	5/2/2024
CW835	-25.81	-26.27	53.12	-2.2	52.5	-4.2	-1.75%	-2.6	P	5/2/2025
CW835	-29.88	-26.27	52.8	-1.7	52.5	-4.2	13.74%	2.8	P	5/2/2024
CW1800	-25.68	-26.54	52.43	1.2	52.8	+3.8	-3.24%	3.0	P	5/2/2025
CW1800	-24.55	-26.54	52.4	-0.2	52.8	+3.8	-7.50%	4.4	P	5/2/2024
CW1900	-26.07	-23.01	52.06	-5.9	51.0	-7.0	13.30%	-2.2	P	5/2/2025
CW1900	-25.67	-23.01	51.9	-5.3	51.0	-7.0	11.56%	2.6	P	5/2/2024
CW2450	-23.25	-21.23	48.27	6.3	49.4	+8.6	9.51%	3.4	P	5/2/2025
CW2450	-24.37	-21.23	48.3	5.7	49.4	+8.6	14.79%	4.0	P	5/2/2024
CW2600	-21.05	-23.05	57.15	5.7	54.3	+5.5	-8.68%	-3.1	P	5/2/2025
CW2600	-20.56	-23.05	57.3	5.7	54.3	+5.5	-10.80%	3.2	P	5/2/2024
CW5200	-22.20	-20.29	57.64	-5.7	58.76	-4.43	9.41%	2.4	P	5/2/2025
CW5200	-21.14	-20.29	58.4	-4.5	58.76	-4.43	4.19%	0.43	P	5/2/2024
CW5400	-27.95	-29.09	56.38	1.4	53.46	+0.61	-3.92%	-3.7	P	5/2/2025
CW5400	-27.63	-29.09	57.5	1.2	53.46	+0.61	-5.02%	4.63	P	5/2/2024
CW5600	-33.05	-31.06	50.54	0.8	52.76	-0.45	6.41%	1.0	P	5/2/2025
CW5600	-33.45	-31.06	51.7	0.7	52.76	-0.45	7.69%	2.21	P	5/2/2024
CW5800	-29.12	-28.48	51.34	-0.3	50.12	-3.76	2.25%	-4.7	P	5/2/2025
CW5800	-28.88	-28.48	50.8	0.1	50.12	-3.76	1.40%	4.34	P	5/2/2024

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System Performance Check Data (835 MHz)

System check at 835 MHz

Date of measurement: 28/5/2025

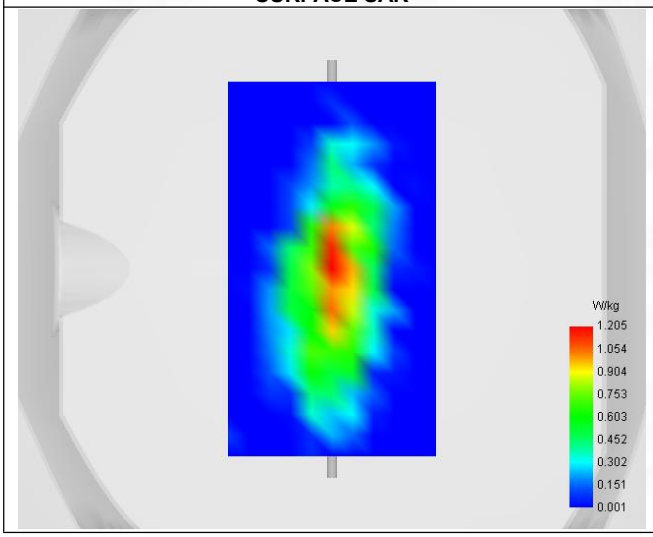
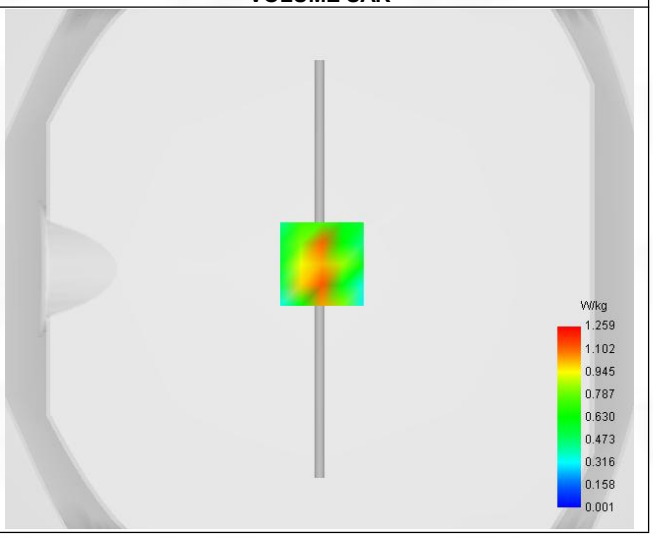
A. Experimental conditions.

Probe	0125-EPGO-445
ConvF	1.15
Area Scan	dx=8mm dy=8mm, Complete
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5mm,Complete
Phantom	Validation plane
Device Position	Dipole
Band	CW835
Channels	Middle
Signal	CW

B. Permitivity

Frequency (MHz)	835.000
Relative permitivity (real part)	42.457
Relative permitivity (imaginary part)	19.773
Conductivity (S/m)	0.921

C. SAR Surface and Volume

SURFACE SAR	VOLUME SAR
	

Maximum location: X=1.00, Y=2.00 ; SAR Peak: 2.17 W/kg

D. SAR 1g & 10g

SAR 10g (W/Kg)	0.571
SAR 1g (W/Kg)	1.042
Variation (%)	-2.670
Horizontal validation criteria: minimum distance (mm)	16.000
Vertical validation criteria: SAR ratio M2/M1 (%)	55.744

E. Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	1.971	1.122	0.420	0.349	0.001	0.001	0.001

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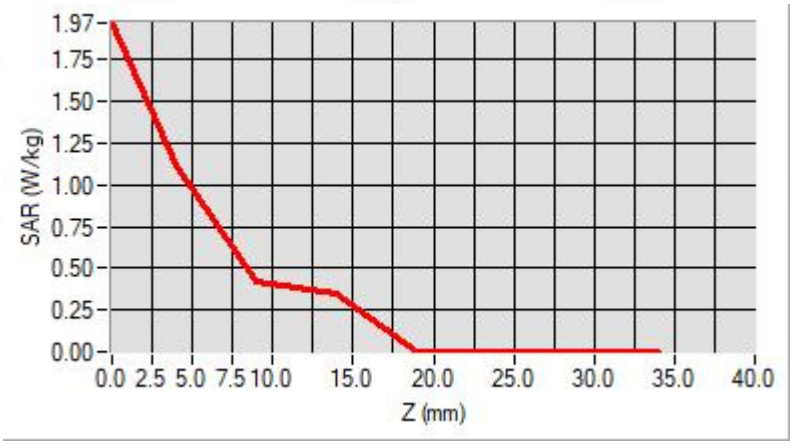
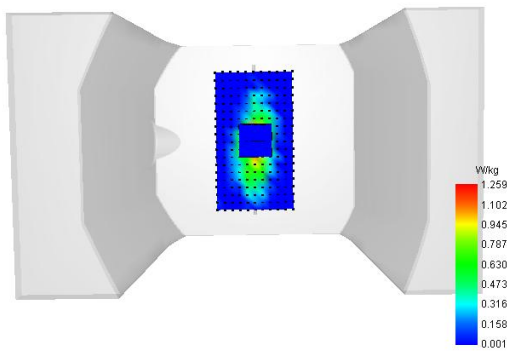
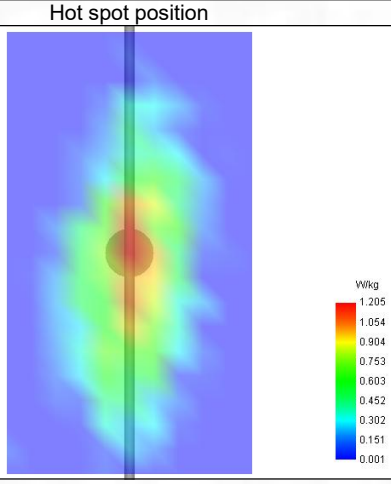


F. 3D Image

3D screen shot	Hot spot position
	

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System Performance Check Data (1800 MHz)

System check at 1800 MHz

Date of measurement: 25/5/2025

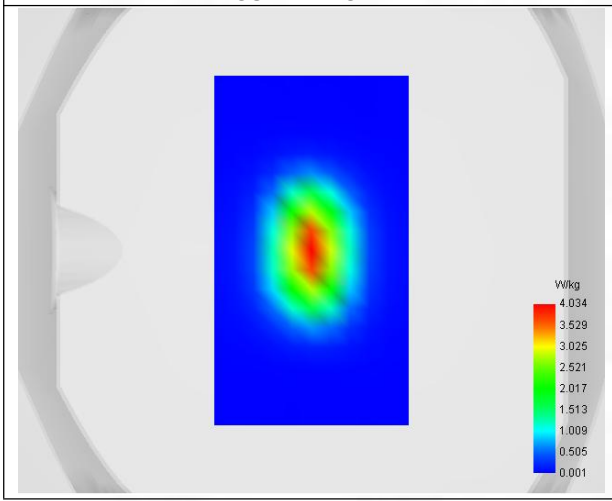
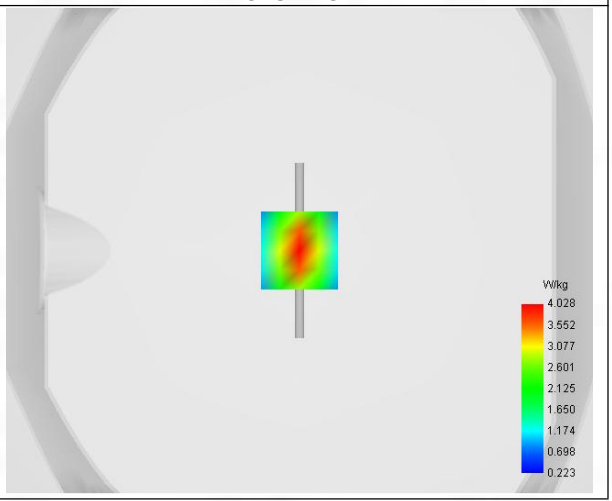
A. Experimental conditions.

Probe	0125-EPGO-445
ConvF	1.20
Area Scan	dx=8mm dy=8mm, Complete
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5.0mm,Complete
Phantom	Validation plane
Device Position	Dipole
Band	CW1800
Channels/Frequency	Middle
Signal	CW

B. Permitivity

Middle TX Frequency (MHz)	1800.000
Relative permitivity (real part)	38.390
Relative permitivity (imaginary part)	12.818
Conductivity (S/m)	1.376

C. SAR Surface and Volume

SURFACE SAR	VOLUME SAR
	

Maximum location: X=0.00, Y=0.00 ; SAR Peak: 6.17 W/kg

D. SAR 1g & 10g

SAR 10g (W/Kg)	1.979
SAR 1g (W/Kg)	3.712
Variation (%)	0.140
Horizontal validation criteria: minimum distance (mm)	16.000
Vertical validation criteria: SAR ratio M2/M1 (%)	57.646

E. Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	6.171	4.028	2.322	1.362	0.843

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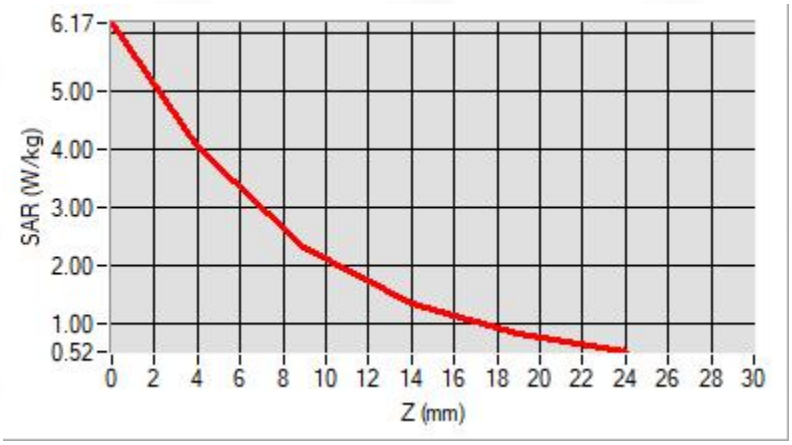
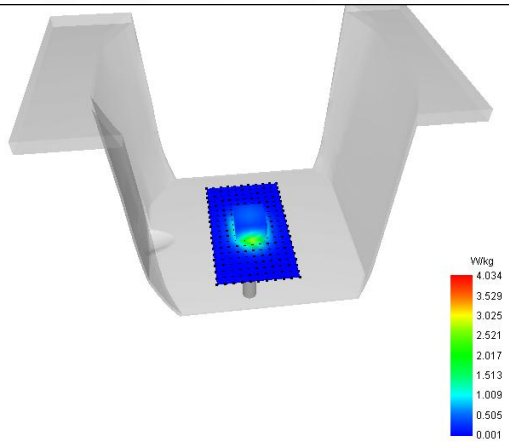
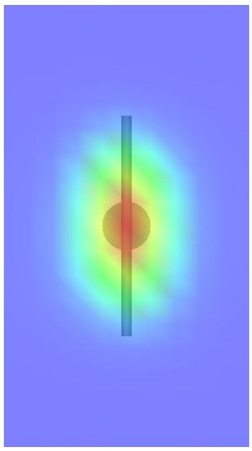


F. 3D Image

3D screen shot	Hot spot position
	

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System Performance Check Data (1900 MHz)

System check at 1900 MHz

Date of measurement: 5/26/2025

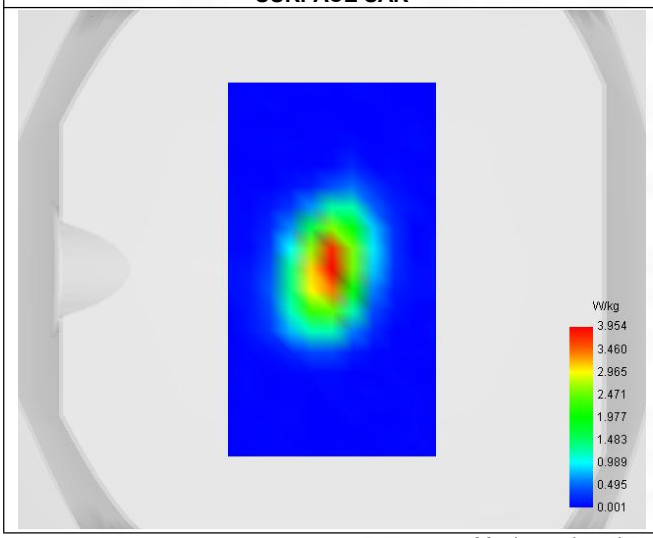
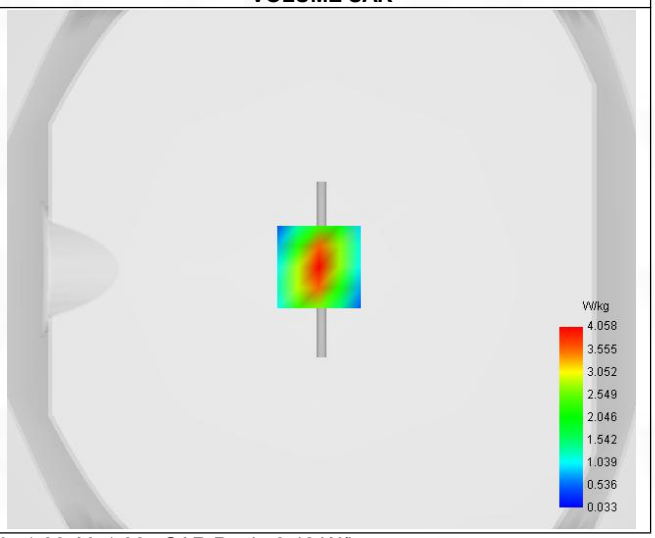
A. Experimental conditions.

Probe	0125-EPGO-445
ConvF	1.31
Area Scan	dx=8mm dy=8mm, Complete
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5mm,Complete
Phantom	Validation plane
Device Position	Dipole
Band	CW1900
Channels	Middle
Signal	CW

B. Permitivity

Frequency (MHz)	1900.000
Relative permitivity (real part)	40.803
Relative permitivity (imaginary part)	13.797
Conductivity (S/m)	1.461

C. SAR Surface and Volume

SURFACE SAR	VOLUME SAR
	

Maximum location: X=-1.00, Y=1.00 ; SAR Peak: 6.42 W/kg

D. SAR 1g & 10g

SAR 10g (W/Kg)	1.887
SAR 1g (W/Kg)	3.813
Variation (%)	-2.610
Horizontal validation criteria: minimum distance (mm)	16.000
Vertical validation criteria: SAR ratio M2/M1 (%)	54.359

E. Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	6.471	4.058	2.206	1.273	0.720	0.424	0.259

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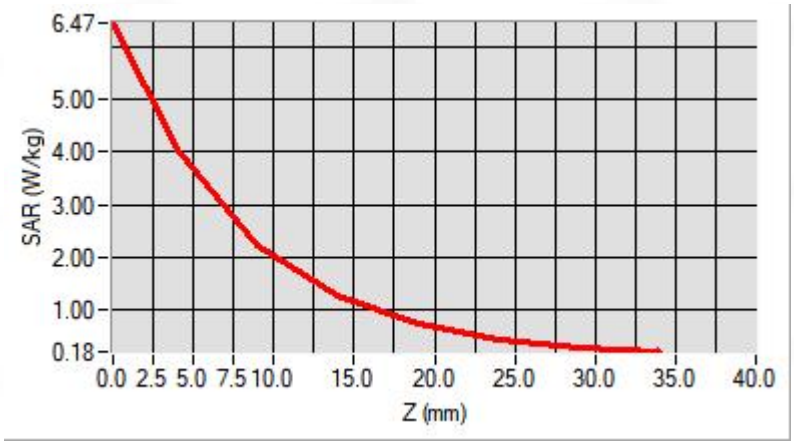
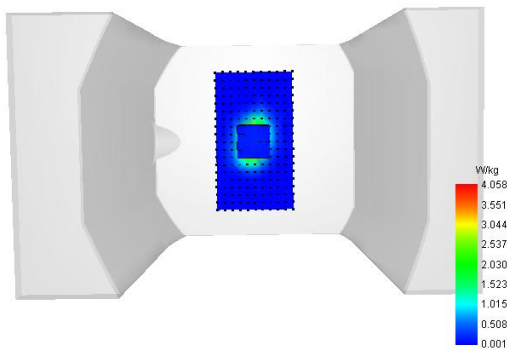
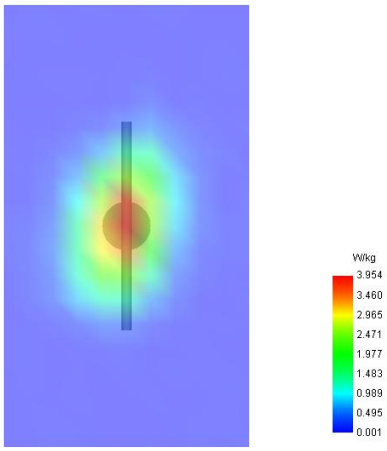


F. 3D Image

3D screen shot	Hot spot position
	

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System Performance Check Data (2450 MHz)

System check at 2450 MHz

Date of measurement: 22/5/2025

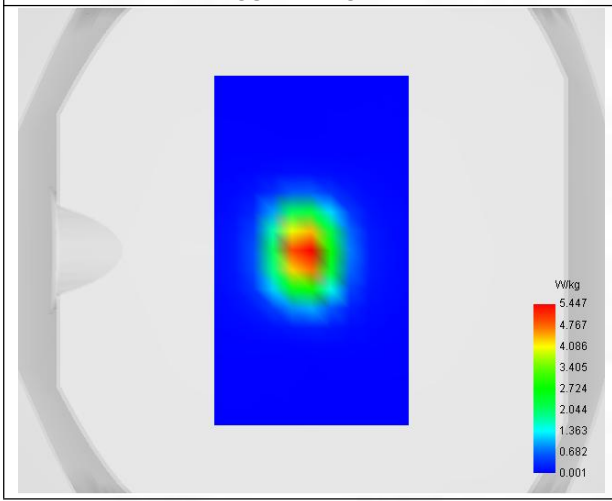
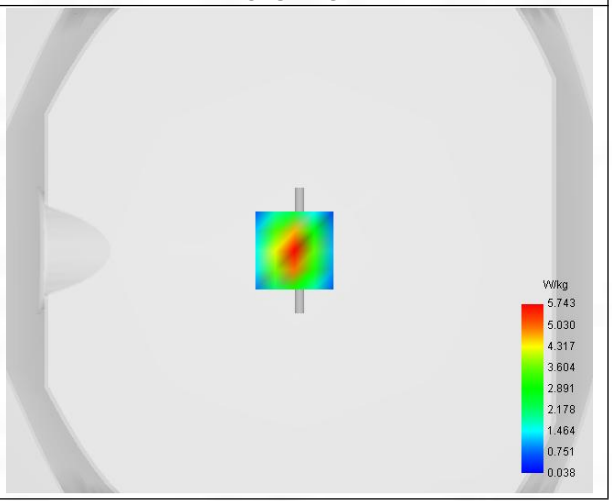
A. Experimental conditions.

Probe	0125-EPGO-445
ConvF	1.40
Area Scan	dx=8mm dy=8mm, Complete
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5.0mm,Complete
Phantom	Validation plane
Device Position	Dipole
Band	CW2450
Channels/Frequency	Middle
Signal	CW

B. Permitivity

Middle TX Frequency (MHz)	2450.000
Relative permitivity (real part)	40.572
Relative permitivity (imaginary part)	14.139
Conductivity (S/m)	1.851

C. SAR Surface and Volume

SURFACE SAR	VOLUME SAR
	

Maximum location: X=-2.00, Y=0.00 ; SAR Peak: 9.42 W/kg

D. SAR 1g & 10g

SAR 10g (W/Kg)	2.464
SAR 1g (W/Kg)	5.415
Variation (%)	-0.350
Horizontal validation criteria: minimum distance (mm)	11.314
Vertical validation criteria: SAR ratio M2/M1 (%)	51.370

E. Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	9.458	5.743	2.950	1.558	0.831	0.447	0.244

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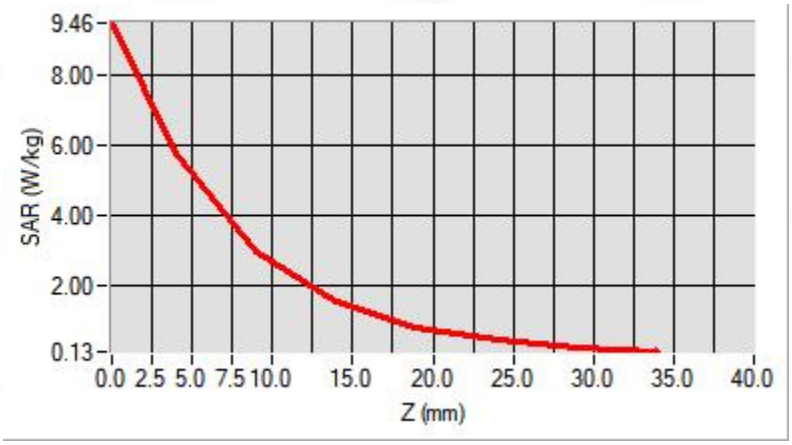
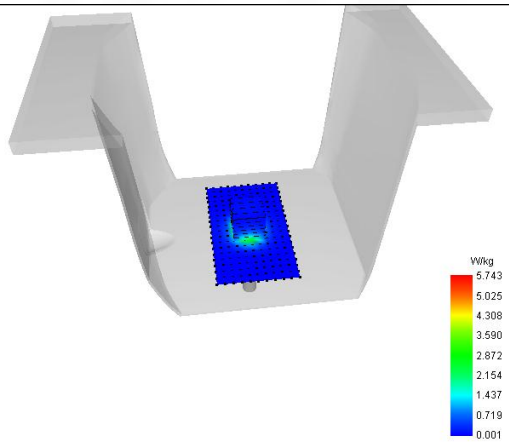
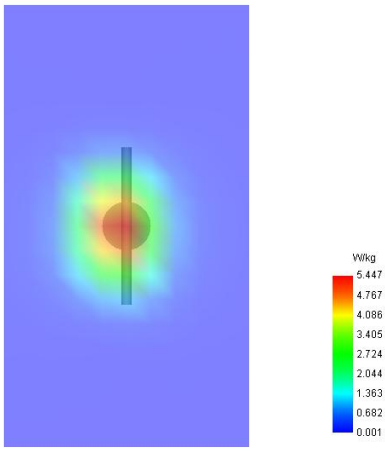


F. 3D Image

3D screen shot	Hot spot position
	

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System Performance Check Data (2600 MHz)

System check at 2600 MHz

Date of measurement: 27/5/2025

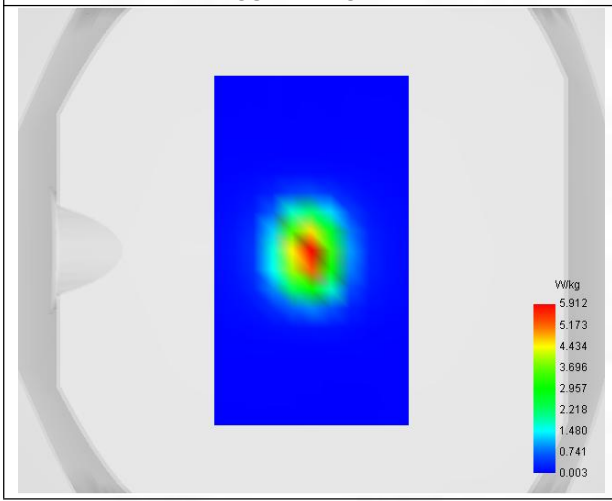
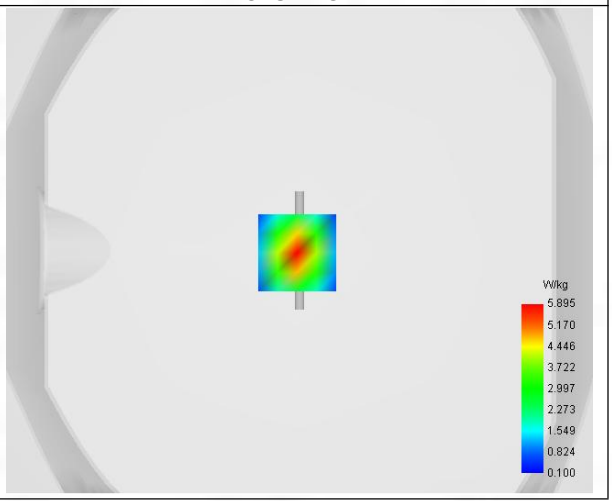
A. Experimental conditions.

Probe	0125-EPGO-445
ConvF	1.27
Area Scan	dx=8mm dy=8mm, Complete
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5.0mm,Complete
Phantom	Validation plane
Device Position	Body
Band	CW2600
Channels/Frequency	Middle
Signal	CW

B. Permitivity

Middle TX Frequency (MHz)	2600.000
Relative permitivity (real part)	37.621
Relative permitivity (imaginary part)	12.550
Conductivity (S/m)	1.905

C. SAR Surface and Volume

SURFACE SAR	VOLUME SAR
	

Maximum location: X=-1.00, Y=-1.00 ; SAR Peak: 9.88 W/kg

D. SAR 1g & 10g

SAR 10g (W/Kg)	2.512
SAR 1g (W/Kg)	5.426
Variation (%)	-2.700
Horizontal validation criteria: minimum distance (mm)	16.000
Vertical validation criteria: SAR ratio M2/M1 (%)	50.008

E. Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	9.892	5.895	2.948	1.466	0.775

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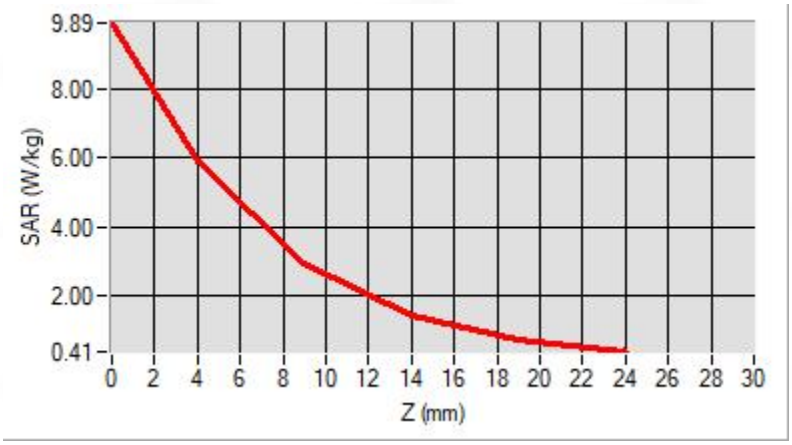
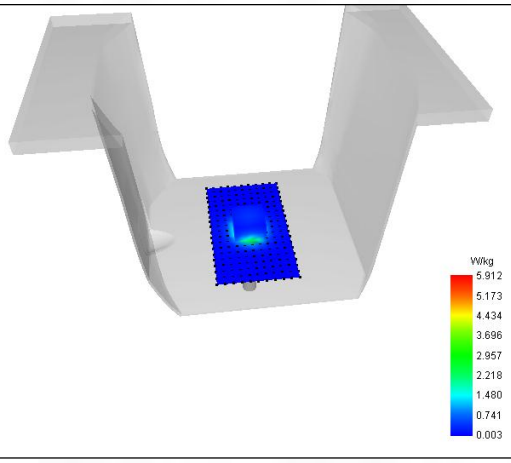
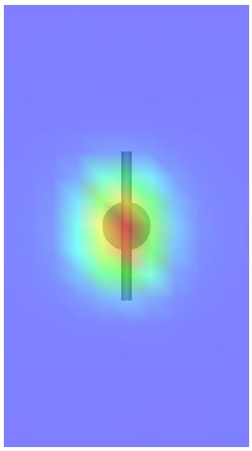


F. 3D Image

3D screen shot	Hot spot position
	

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System Performance Check Data (5200 MHz)

System check at 5200 MHz

Date of measurement: 27/5/2025

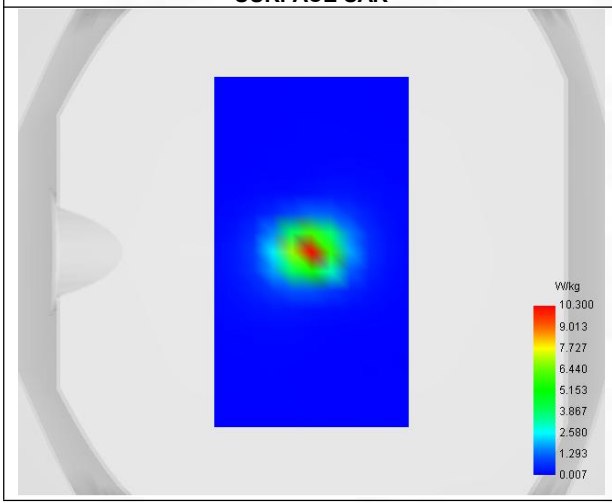
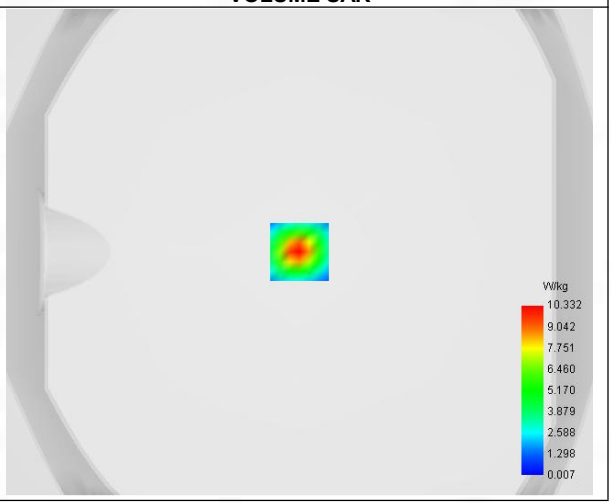
A. Experimental conditions.

Probe	0125-EPGO-445
ConvF	1.18
Area Scan	dx=8mm dy=8mm, Complete
Zoom Scan	7x7x12,dx=4mm dy=4mm dz=2.0mm,Complete
Phantom	Validation plane
Device Position	Dipole
Band	CW5200
Channels/Frequency	Higher
Signal	CW

B. Permitivity

Middle TX Frequency (MHz)	5200.000
Relative permitivity (real part)	34.851
Relative permitivity (imaginary part)	16.112
Conductivity (S/m)	4.725

C. SAR Surface and Volume

SURFACE SAR	VOLUME SAR
	

Maximum location: X=0.00, Y=0.00 ; SAR Peak: 17.63 W/kg

D. SAR 1g & 10g

SAR 10g (W/Kg)	2.305
SAR 1g (W/Kg)	6.715
Variation (%)	-2.060
Horizontal validation criteria: minimum distance (mm)	8.944
Vertical validation criteria: SAR ratio M2/M1 (%)	54.799

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)	16.786	10.332	5.662	3.171	1.785	1.008	0.578	0.315	0.189

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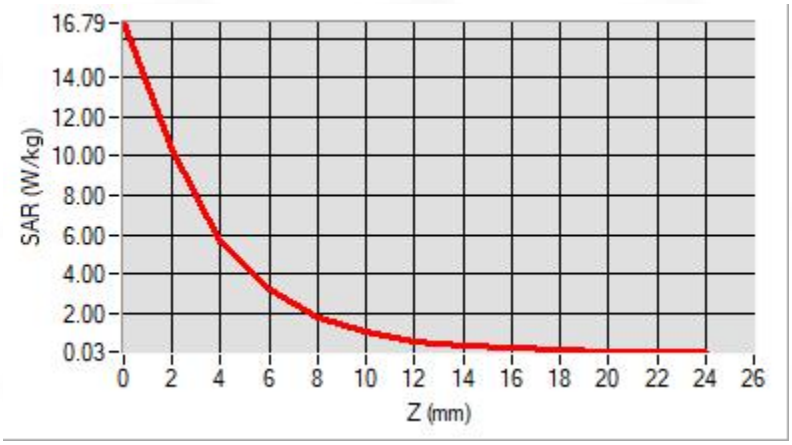
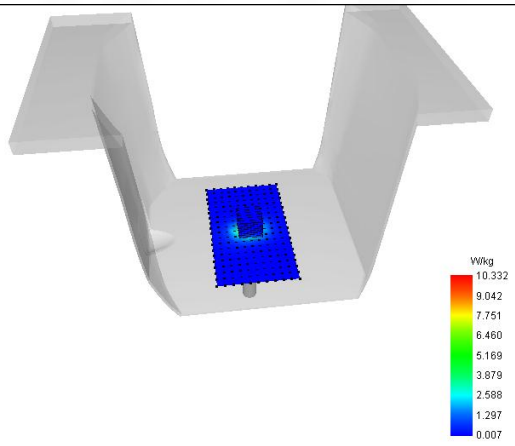
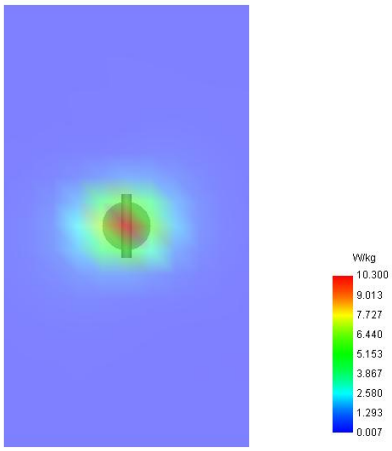


F. 3D Image

3D screen shot	Hot spot position
	

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ANNEX D Test Data

1-Body with back position in dist. 0mm on Channel 128 in GPRS 850+2slots

SAR Measurement at GPRS850 (Body, Validation Plane)

Date of measurement: 28/5/2025

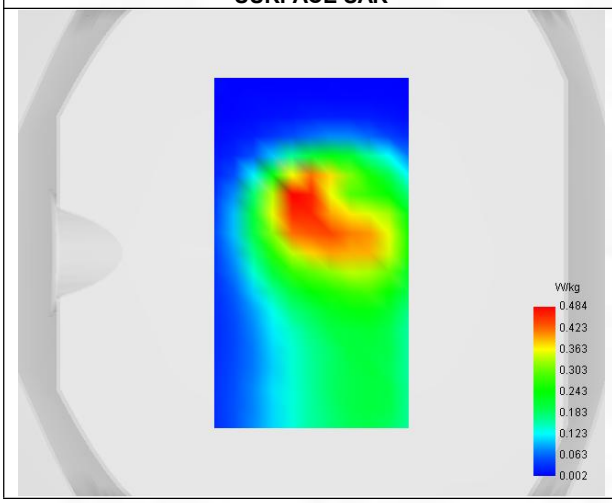
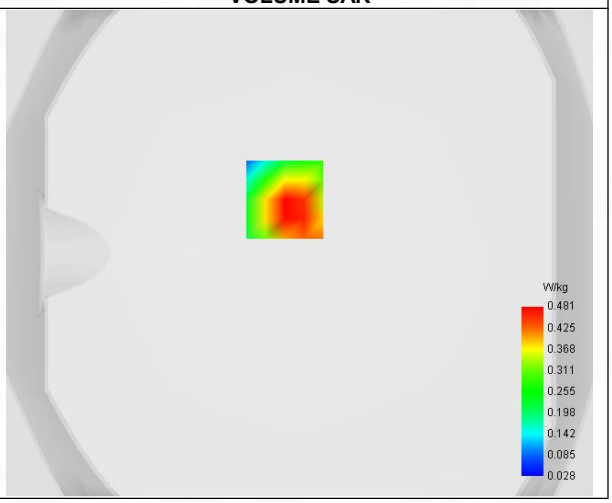
A. Experimental conditions.

Probe	0125-EPGO-445
ConvF	1.15
Area Scan	dx=8mm dy=8mm, Complete
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5.0mm, Complete
Phantom	Validation plane
Device Position	Body
Band	GPRS850
Channels/Frequency	Lower (190)/ frequency 824.200 Mhz
Signal	TDMA (GPRS)
Modulation	GMSK (CS-1)
TX-slots	2

B. Permitivity

Middle TX Frequency (MHz)	824.200
Relative permitivity (real part)	42.338
Relative permitivity (imaginary part)	20.003
Conductivity (S/m)	0.915

C. SAR Surface and Volume

SURFACE SAR	VOLUME SAR
	

Maximum location: X=-6.00, Y=22.00 ; SAR Peak: 0.72 W/kg

D. SAR 1g & 10g

SAR 10g (W/Kg)	0.261
SAR 1g (W/Kg)	0.468
Variation (%)	3.700
Horizontal validation criteria: minimum distance (mm)	16.000
Vertical validation criteria: SAR ratio M2/M1 (%)	61.954

E. Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.700	0.481	0.298	0.186	0.119

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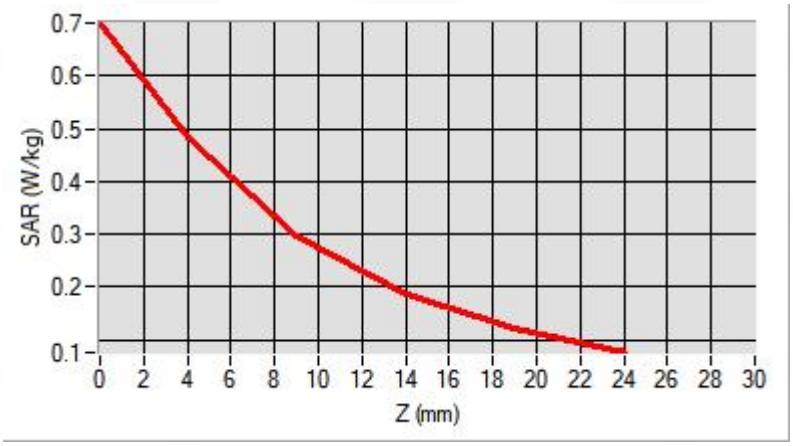
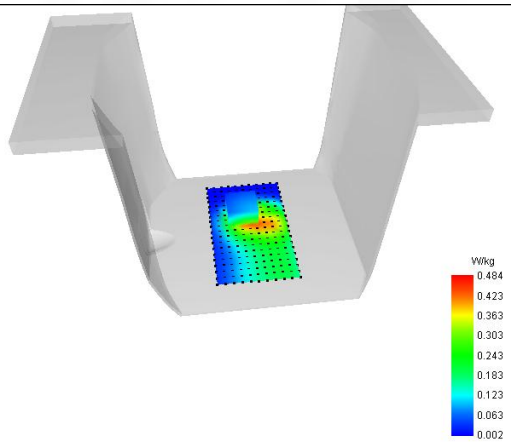
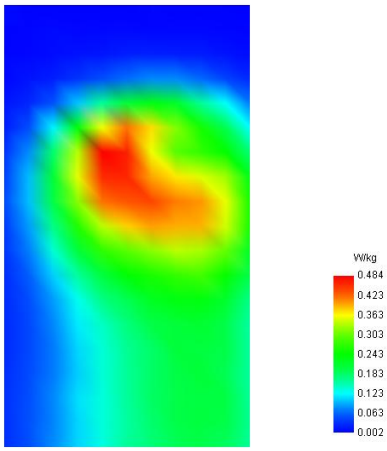


F. 3D Image

3D screen shot	Hot spot position
	

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2-Body with back position in dist. 0mm on Channel 810 in GPRS 1900+2slots

SAR Measurement at GPRS1900 (Body, Validation Plane)

Date of measurement: 26/5/2025

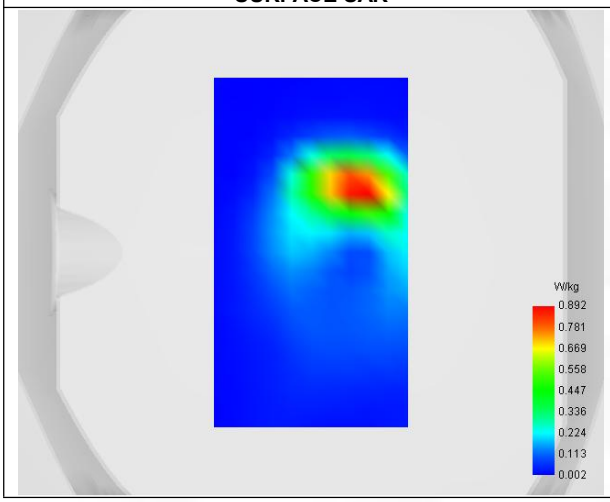
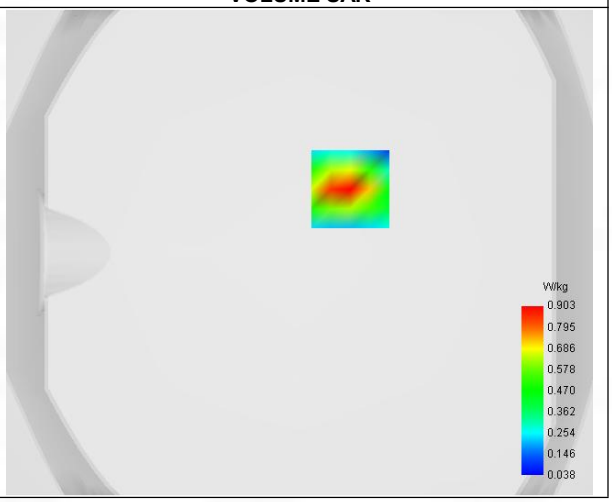
A. Experimental conditions.

Probe	0125-EPGO-445
ConvF	1.31
Area Scan	dx=8mm dy=8mm, Complete
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5.0mm, Complete
Phantom	Validation plane
Device Position	Body
Band	GPRS1900
Channels/Frequency	Higher (810)/ frequency 1909.800 Mhz
Signal	TDMA (GPRS)
Modulation	GMSK (CS-1)
TX-slots	2

B. Permitivity

Middle TX Frequency (MHz)	1909.800
Relative permitivity (real part)	40.799
Relative permitivity (imaginary part)	13.803
Conductivity (S/m)	1.468

C. SAR Surface and Volume

SURFACE SAR	VOLUME SAR
	

Maximum location: X=21.00, Y=26.00 ; SAR Peak: 1.36 W/kg

D. SAR 1g & 10g

SAR 10g (W/Kg)	0.444
SAR 1g (W/Kg)	0.833
Variation (%)	0.210
Horizontal validation criteria: minimum distance (mm)	16.000
Vertical validation criteria: SAR ratio M2/M1 (%)	60.022

E. Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	1.339	0.903	0.542	0.328	0.205

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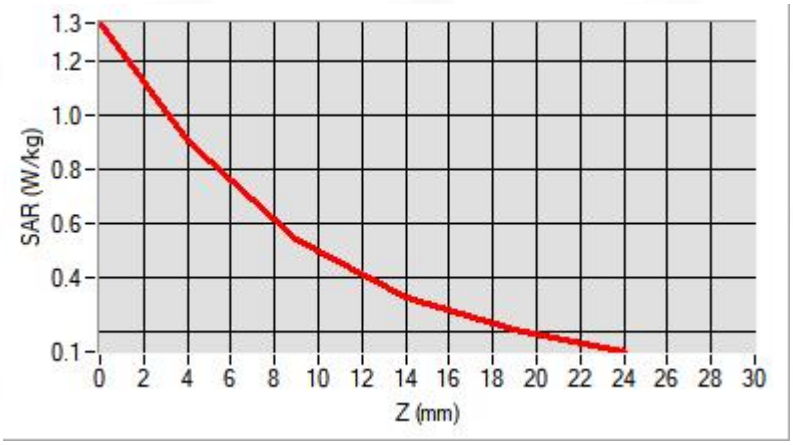
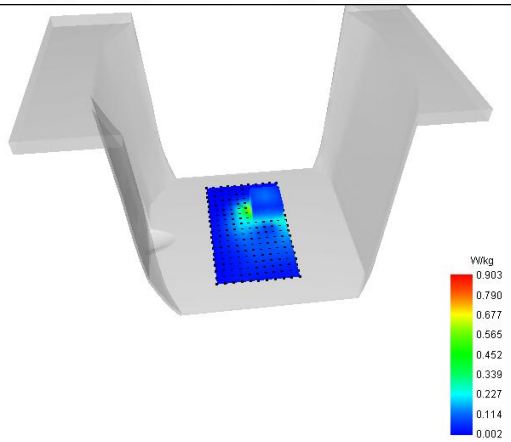
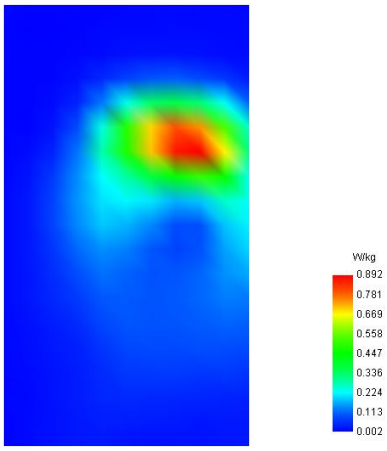


F. 3D Image

3D screen shot	Hot spot position
	

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3-Body with back position in dist. 0mm on Channel 9538 in WCDMA Band 2

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

Date of measurement: 26/5/2025

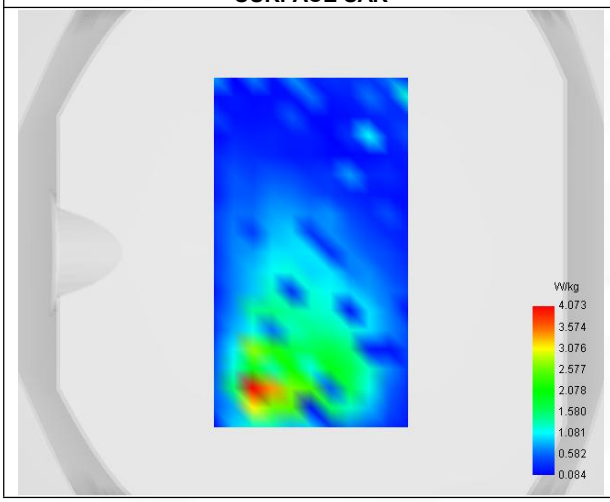
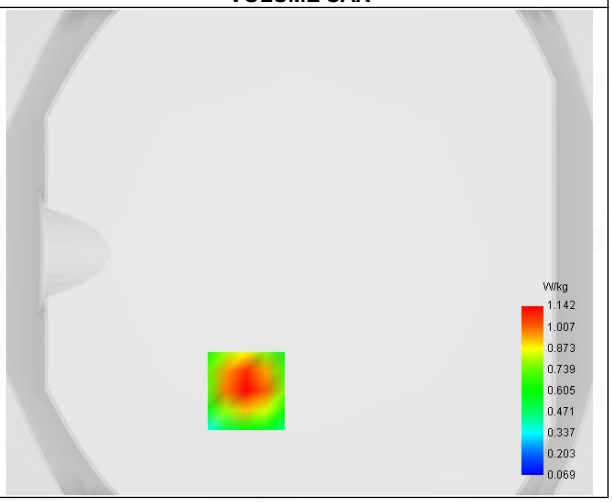
A. Experimental conditions.

Probe	0125-EPGO-445
ConvF	1.31
Area Scan	dx=8mm dy=8mm, Complete
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5.0mm, Complete
Phantom	Validation plane
Device Position	Body
Band	Band 2 (1900)
Channels/Frequency	Higher (9538)/ frequency 1907.600 Mhz
Signal	WCDMA
Mode	Release 99
Connection Type	RMC, 12.2 kbps

B. Permitivity

Middle TX Frequency (MHz)	1907.600
Relative permitivity (real part)	40.800
Relative permitivity (imaginary part)	13.802
Conductivity (S/m)	1.466

C. SAR Surface and Volume

SURFACE SAR	VOLUME SAR
	

Maximum location: X=-22.00, Y=-57.00 ; SAR Peak: 1.75 W/kg

D. SAR 1g & 10g

SAR 10g (W/Kg)	0.512
SAR 1g (W/Kg)	0.798
Variation (%)	-1.740
Horizontal validation criteria: minimum distance (mm)	17.888
Vertical validation criteria: SAR ratio M2/M1 (%)	57.793

E. Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	1.746	1.142	0.660	0.389	0.242

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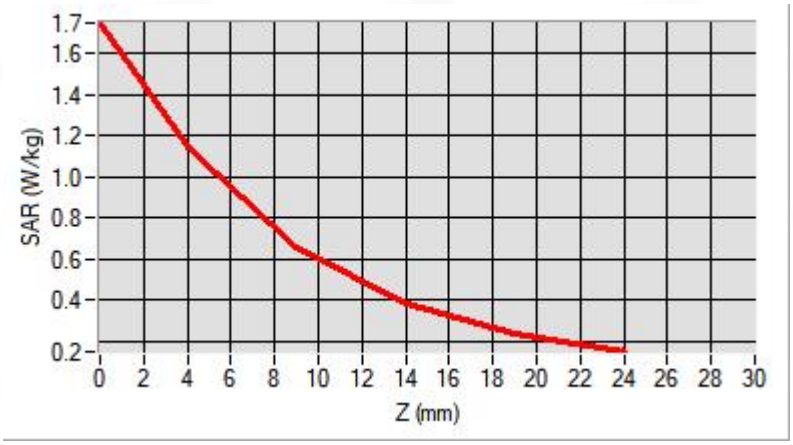
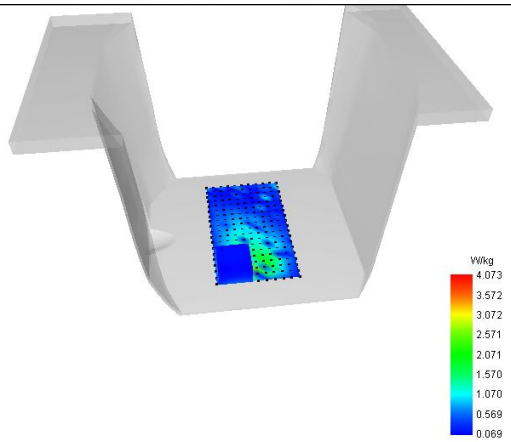
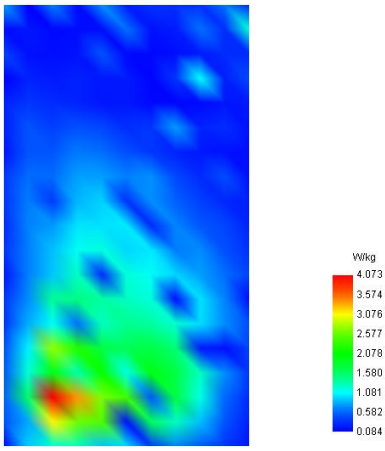


F. 3D Image

3D screen shot	Hot spot position
	

4-Body with back position in dist. 0mm on Channel 1413 in WCDMA Band 4

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

Date of measurement:25/5/2025

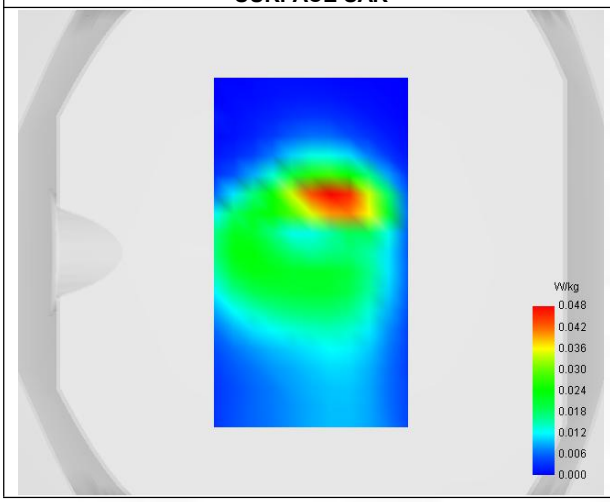
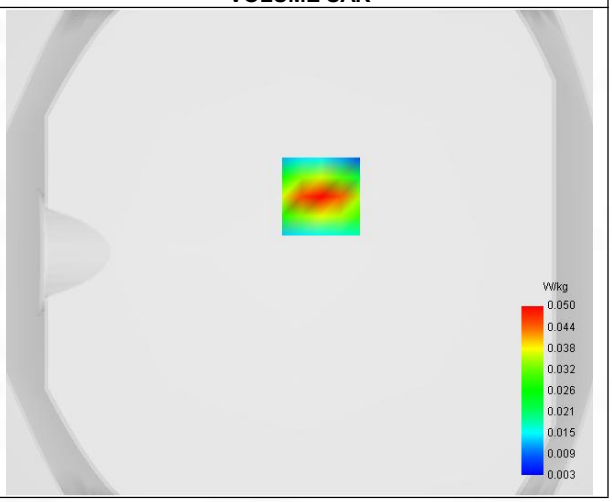
A. Experimental conditions.

Probe	0125-EPGO-445
ConvF	1.20
Area Scan	dx=8mm dy=8mm, Complete
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5.0mm, Complete
Phantom	Validation plane
Device Position	Body
Band	Band 4 (1700)
Channels/Frequency	Middle (1413)/ frequency 1732.600 Mhz
Signal	WCDMA
Mode	Release 99
Connection Type	RMC, 12.2 kbps

B. Permitivity

Middle TX Frequency (MHz)	1732.600
Relative permitivity (real part)	38.674
Relative permitivity (imaginary part)	13.304
Conductivity (S/m)	1.344

C. SAR Surface and Volume

SURFACE SAR	VOLUME SAR
	

Maximum location: X=9.00, Y=23.00 ; SAR Peak: 0.08 W/kg

D. SAR 1g & 10g

SAR 10g (W/Kg)	0.025
SAR 1g (W/Kg)	0.046
Variation (%)	-0.270
Horizontal validation criteria: minimum distance (mm)	16.000
Vertical validation criteria: SAR ratio M2/M1 (%)	56.000

E. Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.078	0.050	0.028	0.016	0.010

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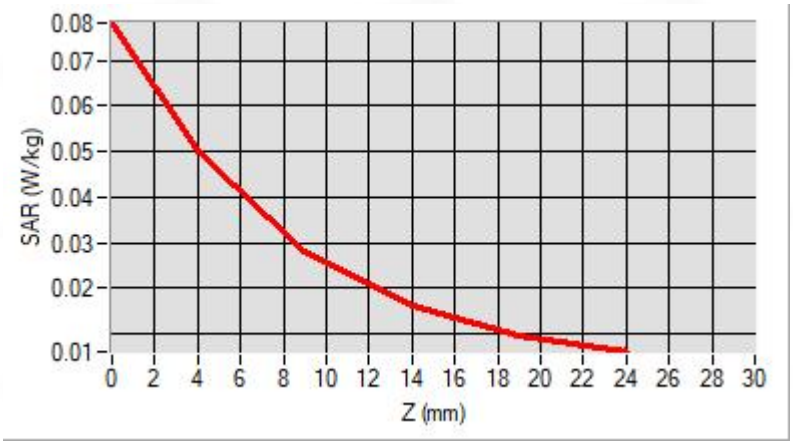
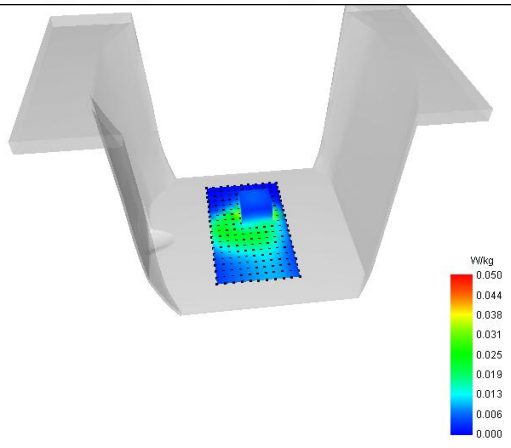
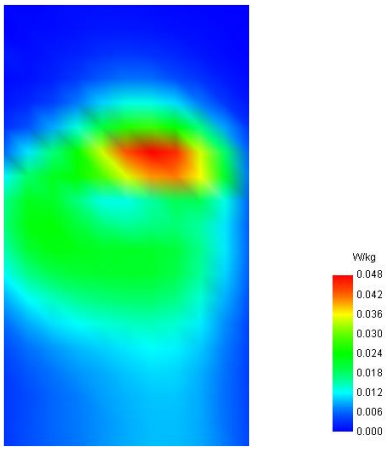


F. 3D Image

3D screen shot	Hot spot position
	

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5-Body with back position in dist. 0mm on Channel 4182 in WCDMA Band 5

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

Date of measurement: 28/5/2025

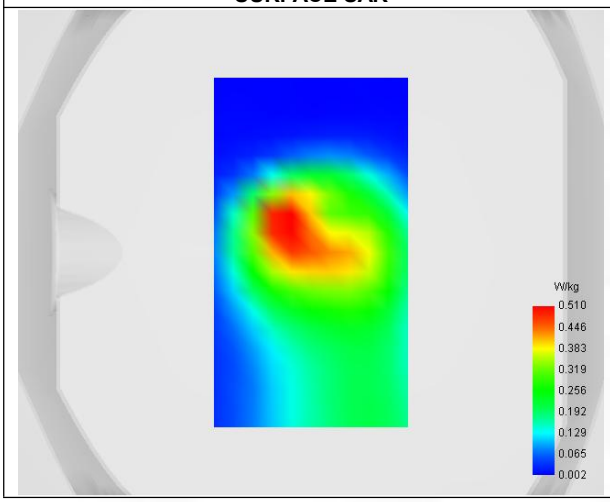
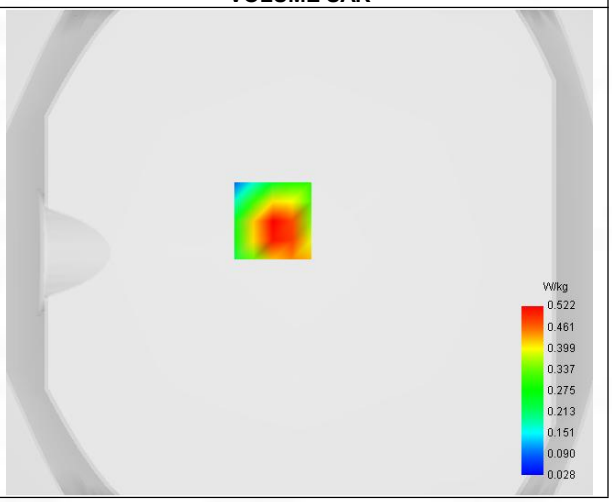
A. Experimental conditions.

Probe	0125-EPGO-445
ConvF	1.15
Area Scan	dx=8mm dy=8mm, Complete
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5.0mm, Complete
Phantom	Validation plane
Device Position	Body
Band	Band 5 (850)
Channels/Frequency	Middle (4182)/ frequency 836.400 Mhz
Signal	WCDMA
Mode	Release 99
Connection Type	RMC, 12.2 kbps

B. Permitivity

Middle TX Frequency (MHz)	836.600
Relative permitivity (real part)	42.450
Relative permitivity (imaginary part)	19.761
Conductivity (S/m)	0.922

C. SAR Surface and Volume

SURFACE SAR	VOLUME SAR
	

Maximum location: X=-11.00, Y=13.00 ; SAR Peak: 0.81 W/kg

D. SAR 1g & 10g

SAR 10g (W/Kg)	0.269
SAR 1g (W/Kg)	0.503
Variation (%)	0.940
Horizontal validation criteria: minimum distance (mm)	16.000
Vertical validation criteria: SAR ratio M2/M1 (%)	58.429

E. Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.797	0.522	0.305	0.183	0.119

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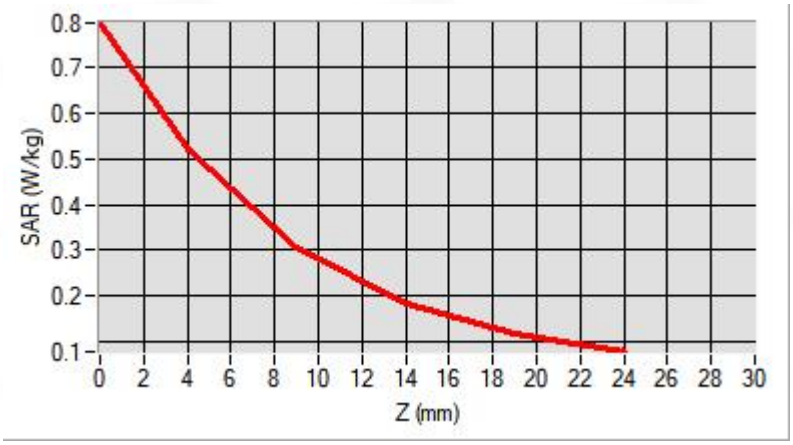
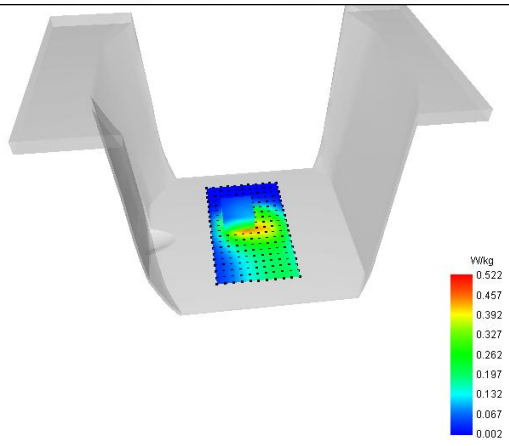
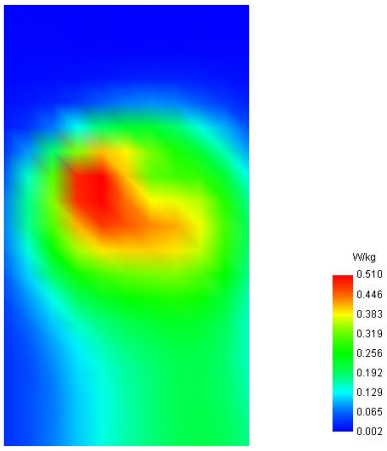


F. 3D Image

3D screen shot	Hot spot position
	

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6-Body with back position in dist. 0mm on Channel 18900 in LTE band 2

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

Date of measurement: 26/5/2025

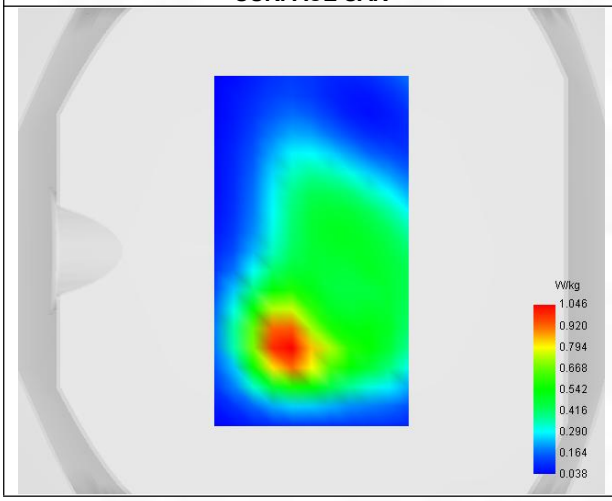
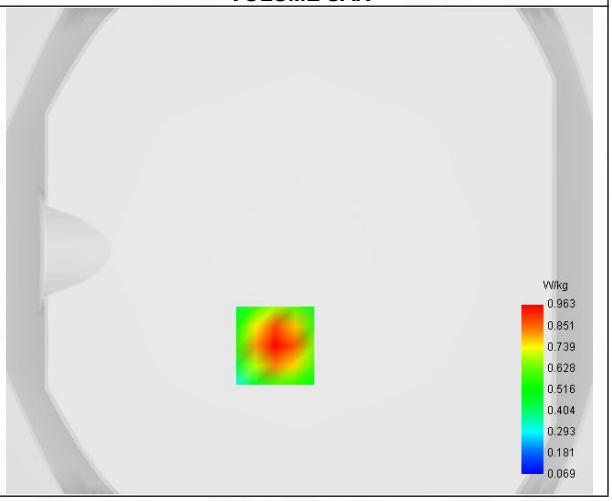
A. Experimental conditions.

Probe	0125-EPGO-445
ConvF	1.31
Area Scan	dx=8mm dy=8mm, Complete
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5.0mm, Complete
Phantom	Validation plane
Device Position	Body
Band	LTE band 2
Channels/Frequency	Middle (18900)/ frequency 1880.000 Mhz
Signal	LTE FDD
Cell Bandwidth	20 Mhz
Modulation	SC-OFDM - QPSK
RB offset	49
RB size	1

B. Permitivity

Middle TX Frequency (MHz)	1880.000
Relative permitivity (real part)	40.320
Relative permitivity (imaginary part)	13.601
Conductivity (S/m)	1.444

C. SAR Surface and Volume

SURFACE SAR	VOLUME SAR
	

Maximum location: X=-10.00, Y=-39.00 ; SAR Peak: 1.45 W/kg

D. SAR 1g & 10g

SAR 10g (W/Kg)	0.519
SAR 1g (W/Kg)	0.815
Variation (%)	1.310
Horizontal validation criteria: minimum distance (mm)	17.888
Vertical validation criteria: SAR ratio M2/M1 (%)	58.982

E. Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	1.450	0.963	0.568	0.340	0.212

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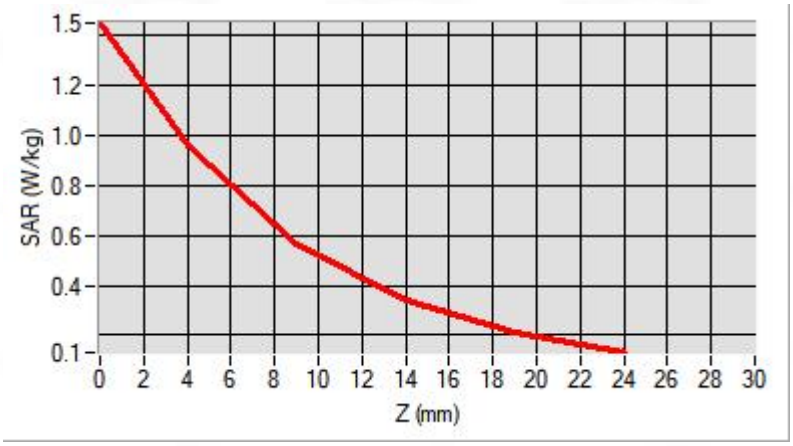
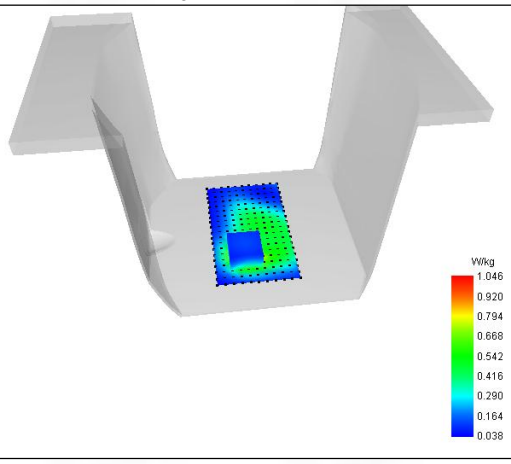
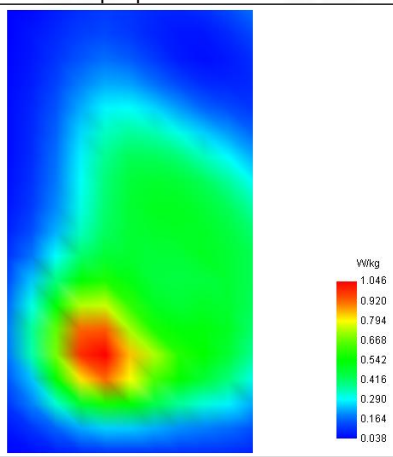


F. 3D Image

3D screen shot	Hot spot position
	

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7-Body with back position in dist. 0mm on Channel 20300 in LTE band 4

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

Date of measurement: 25/5/2025

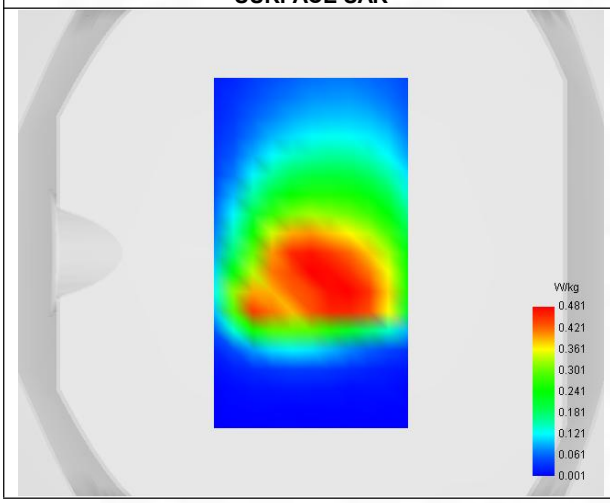
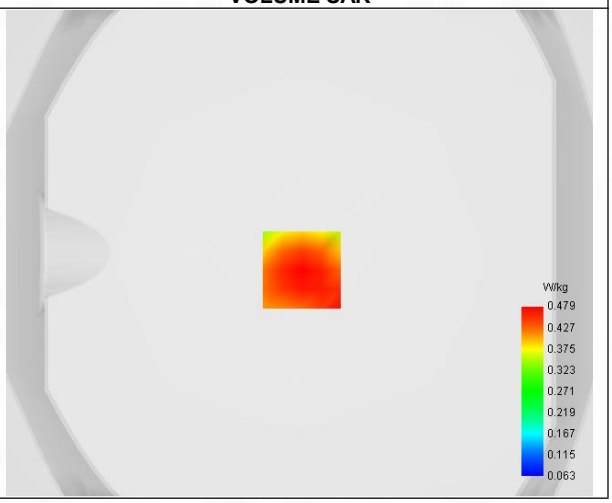
A. Experimental conditions.

Probe	0125-EPGO-445
ConvF	1.20
Area Scan	dx=8mm dy=8mm, Complete
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5.0mm, Complete
Phantom	Validation plane
Device Position	Body
Band	LTE band 4
Channels/Frequency	Higher (20300)/ frequency 1745.000 Mhz
Signal	LTE FDD
Cell Bandwidth	20 Mhz
Modulation	SC-OFDM - QPSK
RB offset	49
RB size	1

B. Permitivity

Middle TX Frequency (MHz)	1745.000
Relative permitivity (real part)	38.622
Relative permitivity (imaginary part)	13.214
Conductivity (S/m)	1.350

C. SAR Surface and Volume

SURFACE SAR	VOLUME SAR
	

Maximum location: X=1.00, Y=-7.00 ; SAR Peak: 0.75 W/kg

D. SAR 1g & 10g

SAR 10g (W/Kg)	0.278
SAR 1g (W/Kg)	0.470
Variation (%)	-3.030
Horizontal validation criteria: minimum distance (mm)	10.000
Vertical validation criteria: SAR ratio M2/M1 (%)	70.564

E. Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.629	0.479	0.338	0.238	0.168

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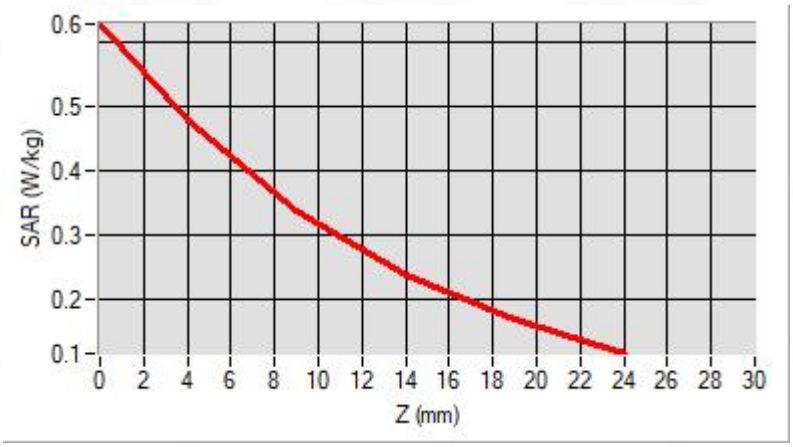
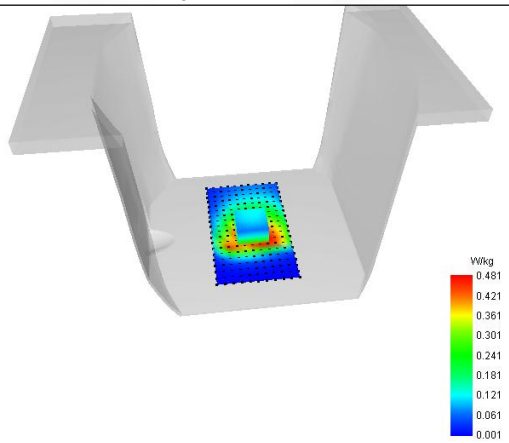
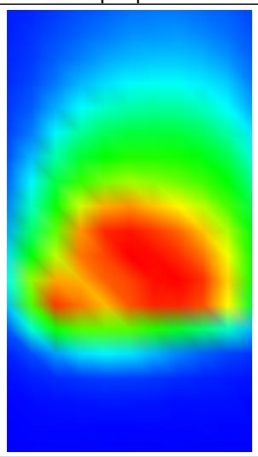


F. 3D Image

3D screen shot	Hot spot position
	

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8-Body with back position in dist. 0mm on Channel 20600 in LTE band 5

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

Date of measurement: 28/5/2025

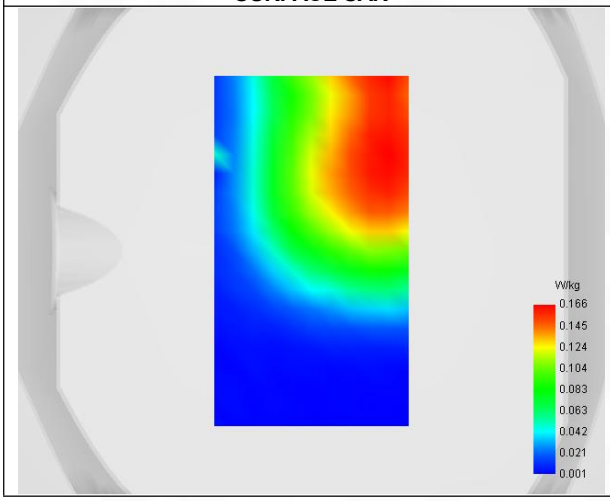
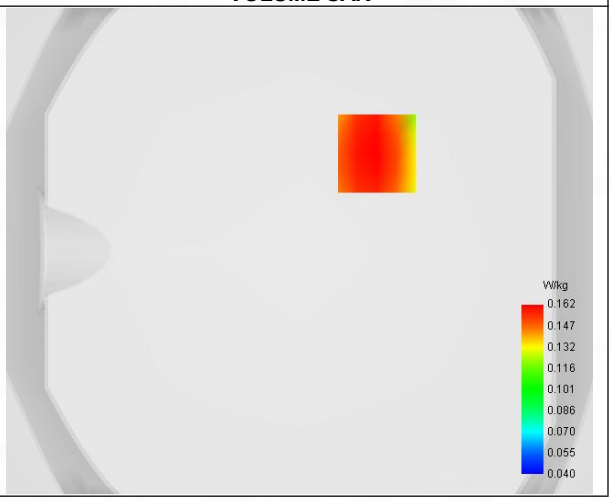
A. Experimental conditions.

Probe	0125-EPGO-445
ConvF	1.15
Area Scan	dx=8mm dy=8mm, Complete
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5.0mm, complete
Phantom	Validation plane
Device Position	Body
Band	LTE band 5
Channels/Frequency	Higher (20600)/ frequency 844.000 Mhz
Signal	LTE FDD
Cell Bandwidth	10 Mhz
Modulation	SC-OFDM - QPSK
RB offset	24
RB size	1

B. Permitivity

Middle TX Frequency (MHz)	844.000
Relative permitivity (real part)	42.419
Relative permitivity (imaginary part)	19.708
Conductivity (S/m)	0.925

C. SAR Surface and Volume

SURFACE SAR	VOLUME SAR
	

Maximum location: X=32.00, Y=40.00 ; SAR Peak: 0.20 W/kg

D. SAR 1g & 10g

SAR 10g (W/Kg)	0.109
SAR 1g (W/Kg)	0.158
Variation (%)	3.390
Horizontal validation criteria: minimum distance (mm)	10.000
Vertical validation criteria: SAR ratio M2/M1 (%)	77.778

E. Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.199	0.162	0.126	0.099	0.079

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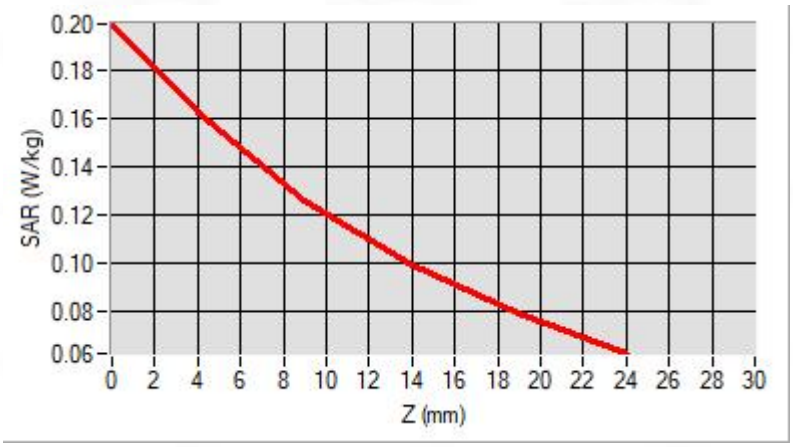
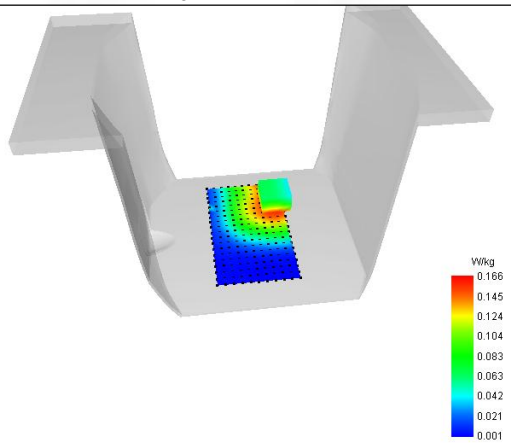
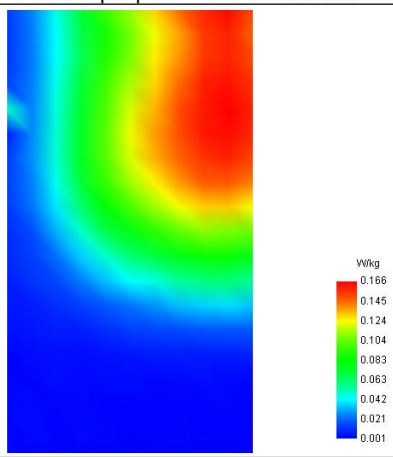


F. 3D Image

3D screen shot	Hot spot position
	

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9-Body with back position in dist. 0mm on Channel 21350 in LTE band 7

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

Date of measurement: 27/5/2025

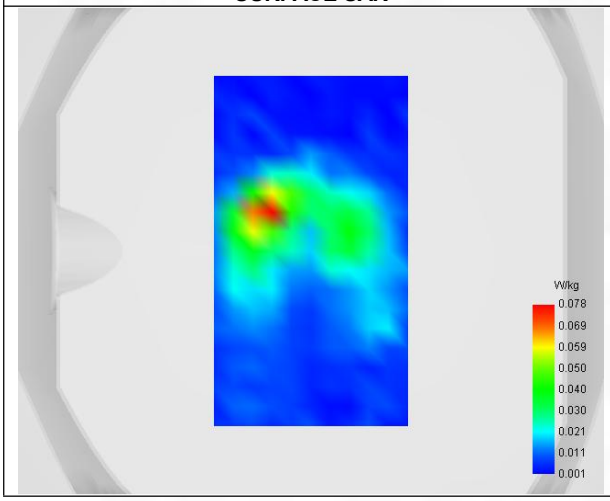
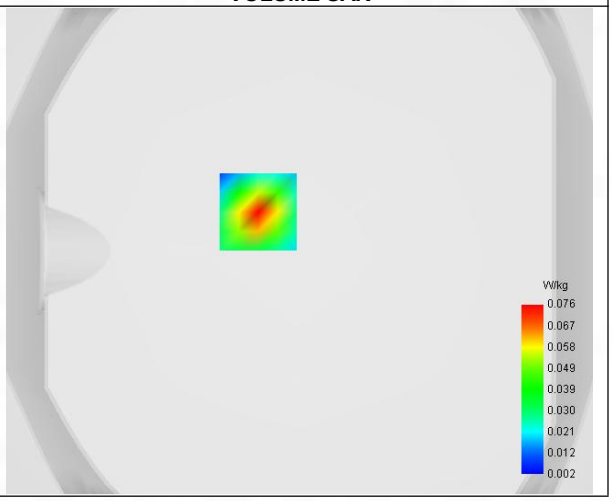
A. Experimental conditions.

Probe	0125-EPGO-445
ConvF	1.27
Area Scan	dx=8mm dy=8mm, Complete
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5.0mm, Complete
Phantom	Validation plane
Device Position	Body
Band	LTE band 7
Channels/Frequency	Higher (21350)/ frequency 2560.000 Mhz
Signal	LTE FDD
Cell Bandwidth	20 Mhz
Modulation	SC-OFDM - QPSK
RB offset	49
RB size	1

B. Permitivity

Middle TX Frequency (MHz)	2560.000
Relative permitivity (real part)	38.408
Relative permitivity (imaginary part)	12.974
Conductivity (S/m)	1.891

C. SAR Surface and Volume

SURFACE SAR	VOLUME SAR
	

Maximum location: X=-17.00, Y=16.00 ; SAR Peak: 0.18 W/kg

D. SAR 1g & 10g

SAR 10g (W/Kg)	0.031
SAR 1g (W/Kg)	0.074
Variation (%)	2.590
Horizontal validation criteria: minimum distance (mm)	16.000
Vertical validation criteria: SAR ratio M2/M1 (%)	35.526

E. Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.182	0.076	0.027	0.006	0.005

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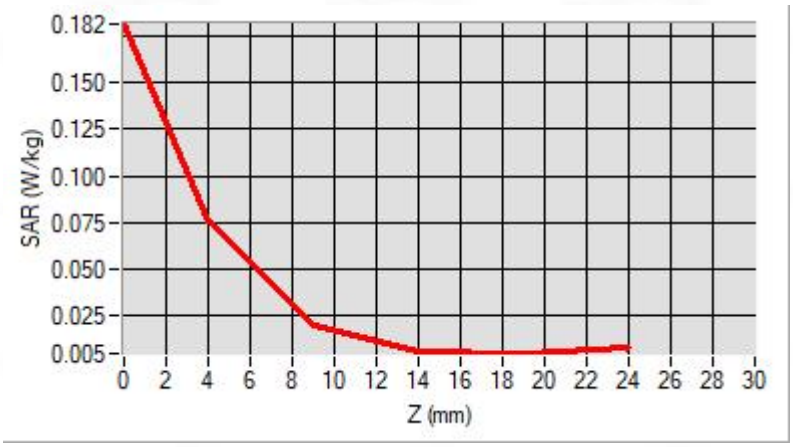
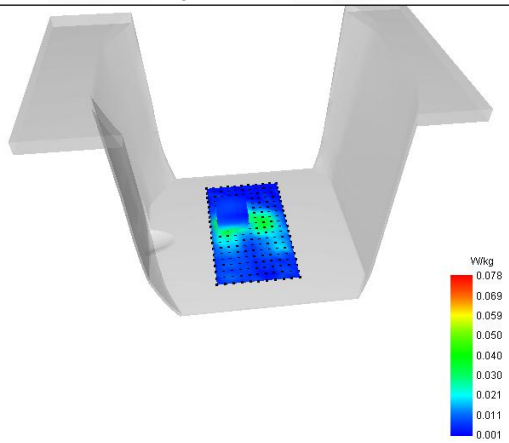
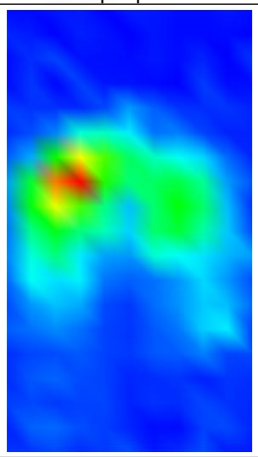


F. 3D Image

3D screen shot	Hot spot position
	

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10-Body with back position in dist. 0mm on Channel 11 in IEEE 802.11b ISM(antenna 2)

SAR Measurement at ISM (Body, Validation Plane)

Date of measurement: 22/5/2025

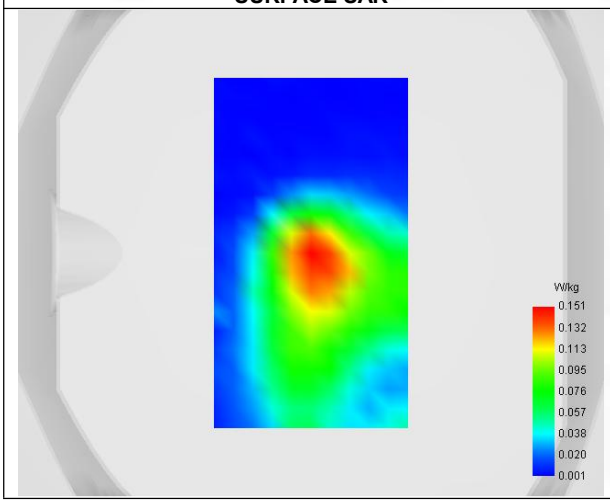
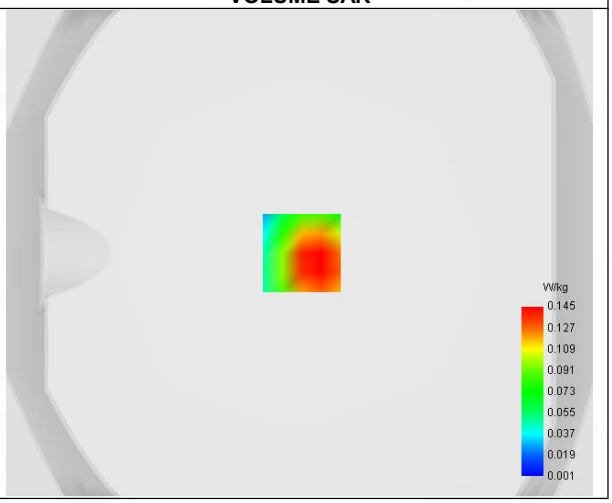
A. Experimental conditions.

Probe	0125-EPGO-445
ConvF	1.40
Area Scan	dx=8mm dy=8mm, Complete
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5.0mm, Complete
Phantom	Validation plane
Device Position	Body
Band	ISM
Channels/Frequency	Higher (11)/ frequency 2462.000 Mhz
Signal	IEEE 802.11 b

B. Permitivity

Middle TX Frequency (MHz)	2462.000
Relative permitivity (real part)	40.336
Relative permitivity (imaginary part)	14.012
Conductivity (S/m)	1.855

C. SAR Surface and Volume

SURFACE SAR	VOLUME SAR
	

Maximum location: X=1.00, Y=0.00 ; SAR Peak: 0.23 W/kg

D. SAR 1g & 10g

SAR 10g (W/Kg)	0.076
SAR 1g (W/Kg)	0.140
Variation (%)	-2.030
Horizontal validation criteria: minimum distance (mm)	17.888
Vertical validation criteria: SAR ratio M2/M1 (%)	35.862

E. Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.463	0.145	0.052	0.045	0.013

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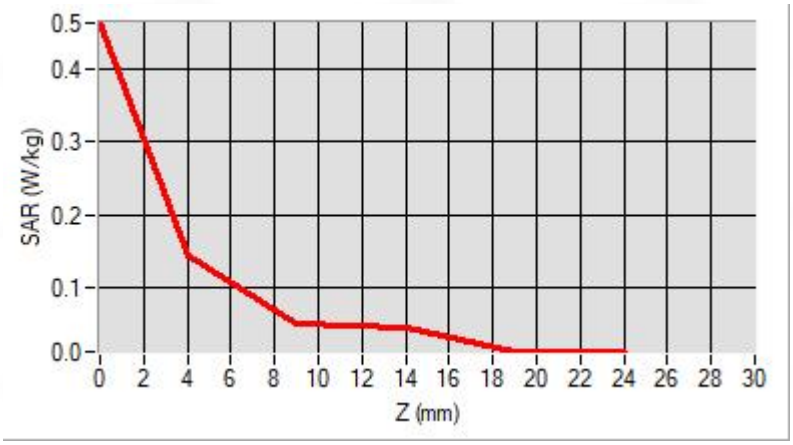
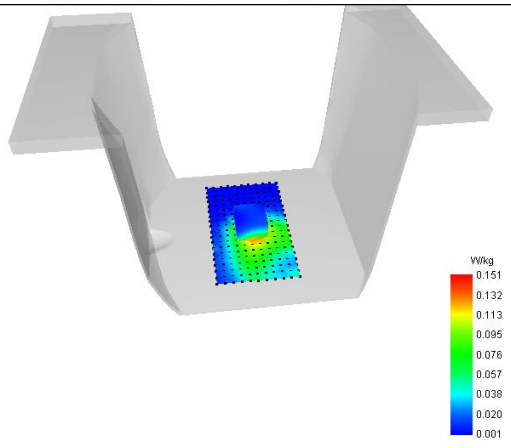
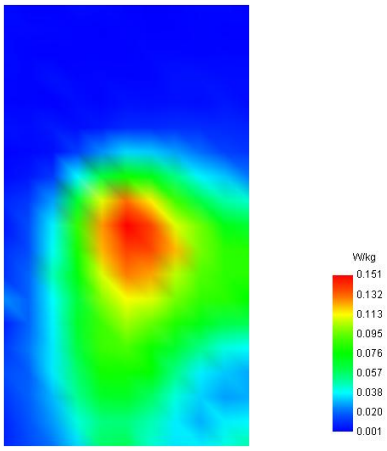


F. 3D Image

3D screen shot	Hot spot position
	

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11-Body with back position in dist. 0mm on Channel 46 in IEEE 802.11n U-NII(antenna 1)

SAR Measurement at U-NII-1 (Body, Validation Plane)

Date of measurement: 27/5/2025

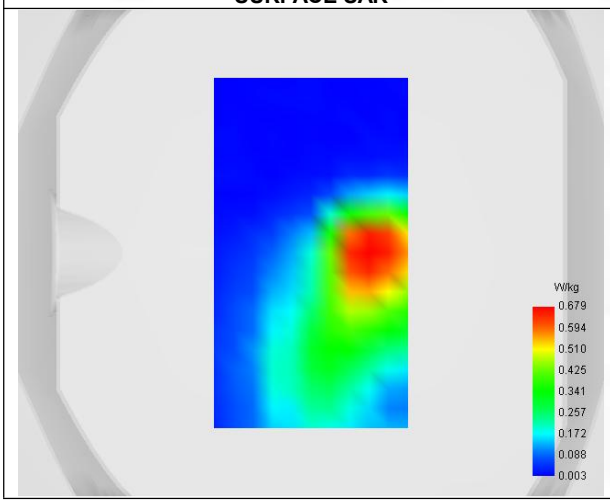
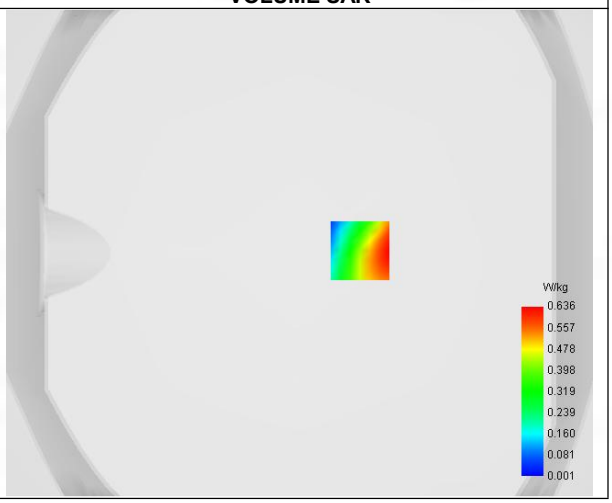
A. Experimental conditions.

Probe	0125-EPGO-445
ConvF	1.18
Area Scan	dx=8mm dy=8mm, Complete
Zoom Scan	7x7x12,dx=4mm dy=4mm dz=5.0mm, Complete
Phantom	Validation plane
Device Position	Body
Band	U-NII-1
Channels/Frequency	Middle (46)/ frequency 5230.000 Mhz
Signal	IEEE 802.11 n

B. Permitivity

Middle TX Frequency (MHz)	5230.000
Relative permitivity (real part)	34.908
Relative permitivity (imaginary part)	16.142
Conductivity (S/m)	4.720

C. SAR Surface and Volume

SURFACE SAR	VOLUME SAR
	

Maximum location: X=25.00, Y=1.00 ; SAR Peak: 0.94 W/kg

D. SAR 1g & 10g

SAR 10g (W/Kg)	0.134
SAR 1g (W/Kg)	0.347
Variation (%)	-4.860
Horizontal validation criteria: minimum distance (mm)	12.000
Vertical validation criteria: SAR ratio M2/M1 (%)	77.170

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)	0.789	0.608	0.471	0.366	0.290	0.233	0.190	0.157	0.131

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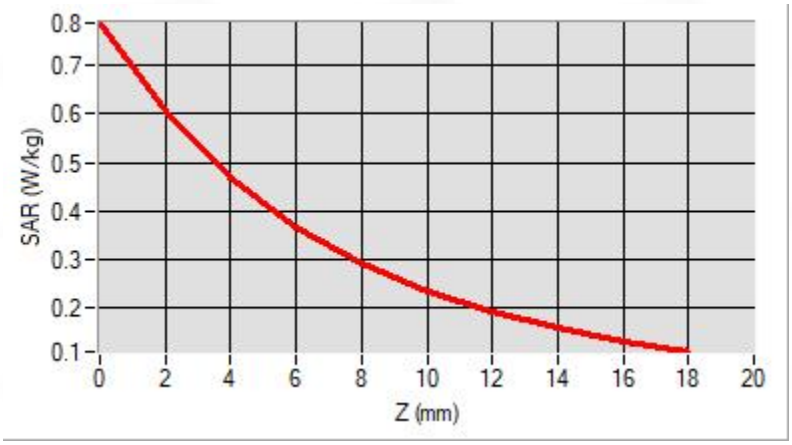
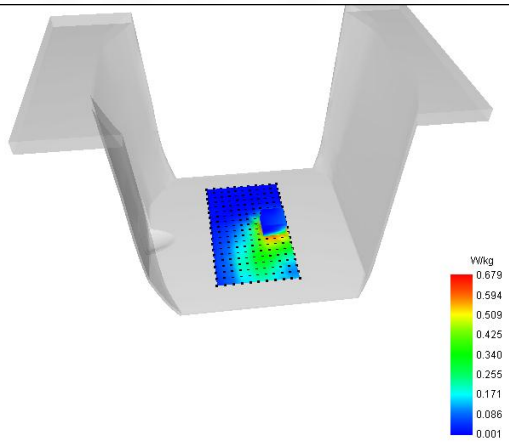
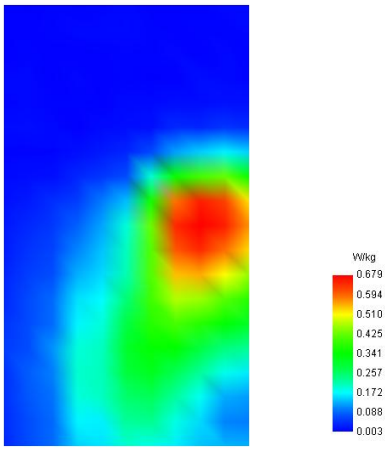


F. 3D Image

3D screen shot	Hot spot position
	

12-Body with back position in dist. 0mm on Channel 39 in Bluetooth(antenna 1)

SAR Measurement at Bluetooth (Body, Validation Plane)

Date of measurement: 22/5/2025

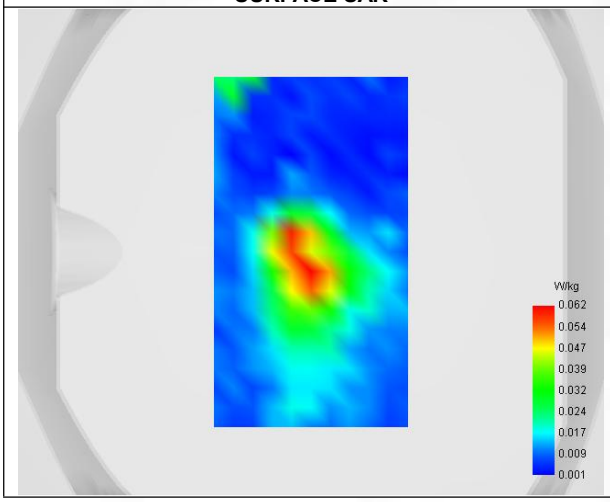
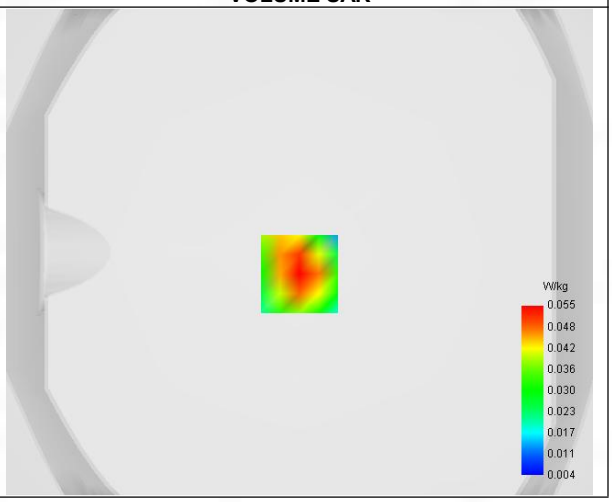
A. Experimental conditions.

Probe	0125-EPGO-445
ConvF	1.40
Area Scan	dx=8mm dy=8mm, Complete
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5.0mm, Complete
Phantom	Validation plane
Device Position	Body
Band	Bluetooth
Channels/Frequency	Higher (39)/ frequency 2480.000 Mhz
Signal	Bluetooth

B. Permitivity

Middle TX Frequency (MHz)	2480.000
Relative permitivity (real part)	39.982
Relative permitivity (imaginary part)	13.821
Conductivity (S/m)	1.862

C. SAR Surface and Volume

SURFACE SAR	VOLUME SAR
	

Maximum location: X=0.00, Y=-9.00 ; SAR Peak: 0.08 W/kg

D. SAR 1g & 10g

SAR 10g (W/Kg)	0.029
SAR 1g (W/Kg)	0.052
Variation (%)	-3.940
Horizontal validation criteria: minimum distance (mm)	17.888544
Vertical validation criteria: SAR ratio M2/M1 (%)	61.818

E. Z Axis Scan

Z (mm)	0.00	4.00	9.00	14.00	19.00
SAR (W/Kg)	0.078	0.055	0.034	0.021	0.013

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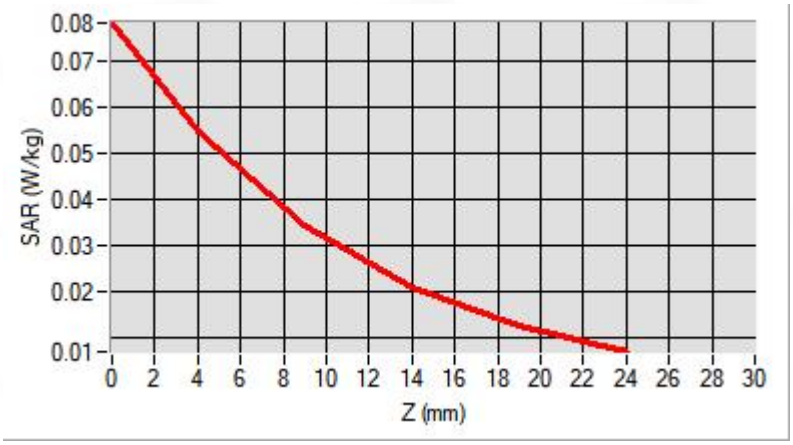
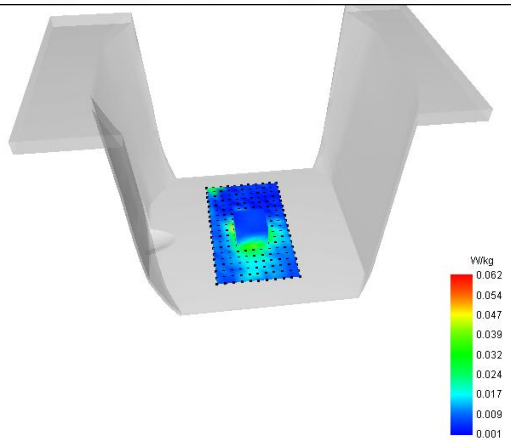
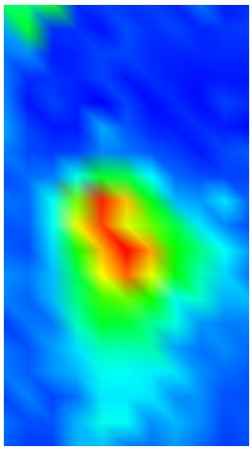


F. 3D Image

3D screen shot	Hot spot position
	

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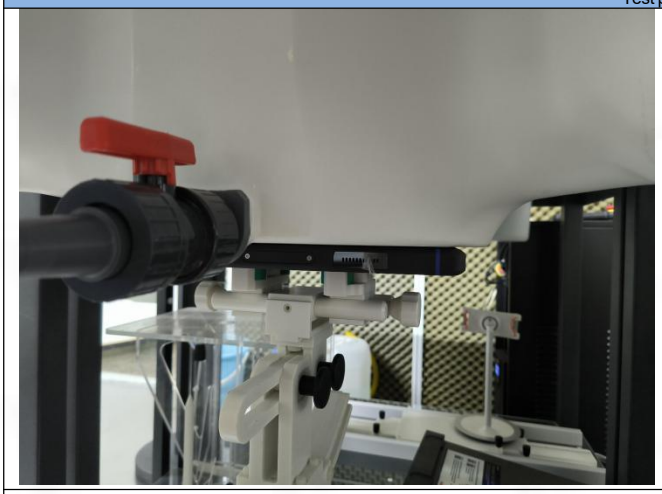
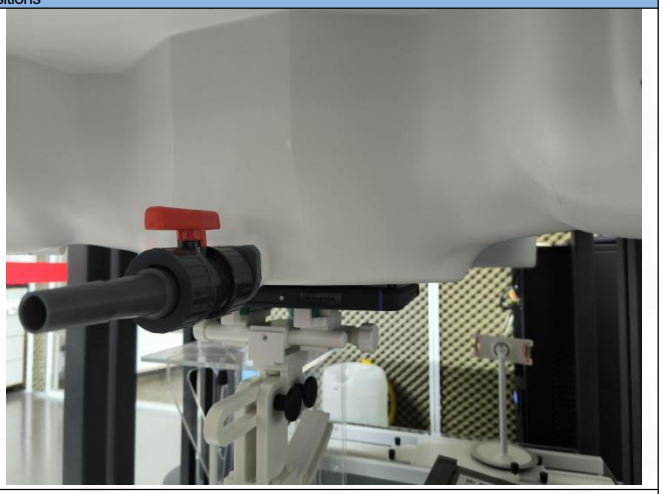
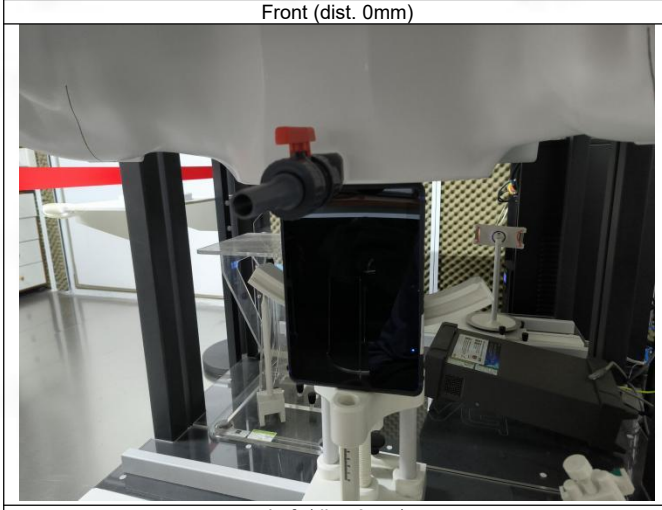
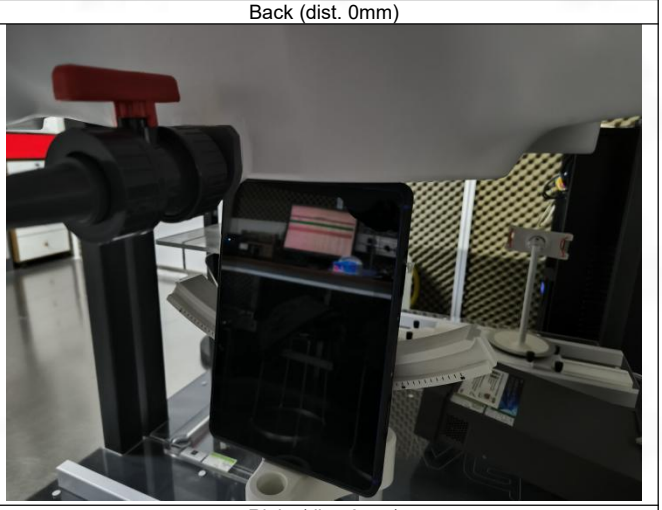
ANNEX E SAR Test Setup Photos

Reference Photo: simulation liquid depth 15cm

Test positions	
	
Front (dist. 0mm)	Back (dist. 0mm)
	
Left (dist. 0mm)	Right (dist. 0mm)

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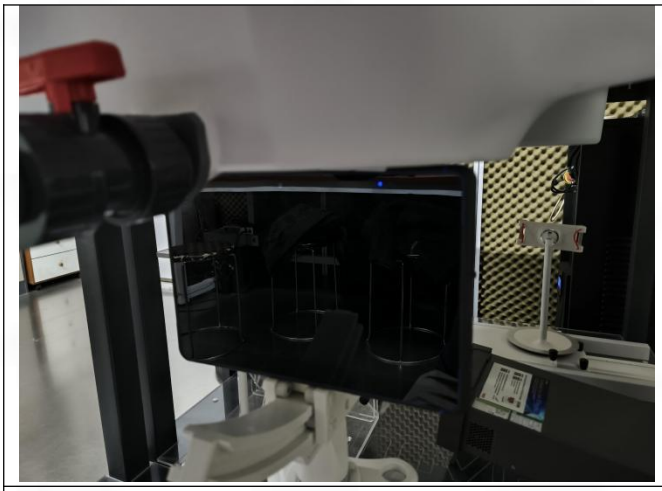	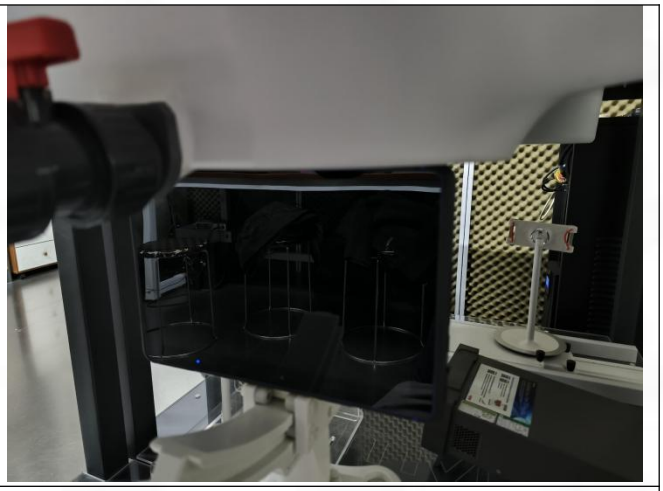
Top (dist. 0mm)	Bottom (dist. 0mm)

ANNEX F EUT External and Internal Photos

Please refer to RF Report.

ANNEX G Calibration Information

Please refer to the document “Calibration.pdf”.

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