



FCC SAR TEST REPORT

Report No.: STS2002163H01

Issued for

CO-COMM SERVICIOS TELECOMUNICACIONES S.L.

Serrano Galvache 56, Edif. Abedul 4A, Madrid, Spain

Product Name:	4G Fixed Wireless Phone
Brand Name:	COCOMM
Model Name:	CC555
Series Model:	N/A
FCC ID:	2AUR3-CC555
Test Standard:	ANSI/IEEE Std. C95.1
	FCC 47 CFR Part 2 (2.1093)
	IEEE 1528: 2013
Max. Report SAR (1g):	Body: 1.312 W/kg

Any reproduction of this document must be done in full. No single part of this document may be reproduced without permission from STS, All Test Data Presented in this report is only applicable to presented Test sample.

ShenZhen STS Test Services Co.,Ltd.

A 1/F, Building B, Zhuoke Science Park, No.190 Chongqing Road, HepingShequ, Fuyong Sub-District, Bao'an District, Shenzhen, Guang Dong, China

TEL: +86-755 3688 6288 FAX: +86-755 3688 6277 E-mail:sts@stsapp.com





Test Report Certification

Applicant's name: CO-COMM SERVICIOS TELECOMUNICACIONES S.L.

Address: Serrano Galvache 56, Edif. Abedul 4A, Madrid, Spain

Manufacture's Name: CO-COMM SERVICIOS TELECOMUNICACIONES S.L.

Address: Serrano Galvache 56, Edif. Abedul 4A, Madrid, Spain

Product description

Product name: 4G Fixed Wireless Phone

Brand name: COCOMM

Model name: CC555

Series Model.....: N/A

Standards: ANSI/IEEE Std. C95.1-1992
FCC 47 CFR Part 2 (2.1093)
IEEE 1528: 2013

The device was tested by Shenzhen STS Test Services Co., Ltd. in accordance with the measurement methods and procedures specified in KDB 865664 The test results in this report apply only to the tested sample of the stated device/equipment. Other similar device/equipment will not necessarily produce the same results due to production tolerance and measurement uncertainties.

Date of Test:

Date (s) of performance of tests: 02 Apr. 2020~10 Apr. 2020

Date of Issue.....: 11 Apr. 2020

Test Result.....: **Pass**

Testing Engineer : Aaron Bu.
(Aaron Bu)

Technical Manager : Jason Lu
(Jason Lu)

Authorized Signatory : Vita Li
(Vita Li)





Table of Contents

1.General Information	5
1.1 EUT Description	5
1.2 Test Environment	7
1.3 Test Factory	7
2.Test Standards And Limits	8
3. SAR Measurement System	9
3.1 Definition of Specific Absorption Rate (SAR)	9
3.2 SAR System	9
4. Tissue Simulating Liquids	12
4.1 Simulating Liquids Parameter Check	12
5. SAR System Validation	14
5.1 Validation System	14
5.2 Validation Result	14
6. SAR Evaluation Procedures	15
7. EUT Antenna Location Sketch	16
8. EUT Test Position	17
8.1 Body-worn Position Conditions:	17
8.2 Hotspot mode exposure position condition	17
9. Uncertainty	18
9.1 Measurement Uncertainty	18
9.2 System validation Uncertainty	19
10. Conducted Power Measurement	20
10.1 Test Result	20
10.2 Tune-up Power	34
10.3 SAR Test Exclusions Applied	37
11. EUT And Test Setup Photo	38
11.1 EUT Photo	38
11.2 Setup Photo	41
12. SAR Result Summary	44
12.2 Body-worn	44
12.3 repeated SAR measurement	48
13. Equipment List	51
Appendix A. System Validation Plots	52
Appendix B. SAR Test Plots	62
Appendix C. Probe Calibration And Dipole Calibration Report	73



Revision History

Rev.	Issue Date	Report No.	Effect Page	Contents
00	11 Apr. 2020	STS2002163H01	ALL	Initial Issue

Note: **Format version** of the report -V01





1. General Information

Environmental evaluation measurements of specific absorption rate (SAR) distributions in emulated human head and body tissues exposed to radio frequency (RF) radiation from wireless portable devices for compliance with the rules and regulations of the U.S. Federal Communications Commission (FCC).

1.1 EUT Description

Product Name	4G Fixed Wireless Phone		
Brand Name	COCOMM		
Model Name	CC555		
Series Model	N/A		
Model Difference	N/A		
Battery	Rated Voltage: 3.7V; Charge Limit: 4.2V; Capacity: 1050mAh		
IMEI	359078070354868		
Hardware Version	CC555lv2.1		
Software Version	CC555vMX020.0.0		
Frequency Range	GSM 850:824.2~848.8MHz PCS1900:1850.2~1909.8MHz WCDMA Band II:1852.4~1907.6MHz WCDMA Band V:826.4~846.6MHz LTE Band 4:1710.7~1754.3MHz LTE Band 5:824.7~848.3MHz LTE Band 7:2502.5~2567.5MHz LTE Band 66:1710~1780MHz WLAN 802.11b/g/n(HT20):2412~2462MHz WLAN 802.11n(HT40):2422~2452MHz Bluetooth: 2402~ 2480MHz		
Max. Reported SAR(1g): (Limit:1.6W/kg)	Band	Mode	Body Worn (W/kg)
	PCB	GSM 850	0.258
	PCB	EGPRS 850	0.408
	PCB	GSM 1900	0.791
	PCB	EGPRS 1900	1.075
	PCB	WCDMA Band II	0.766
	PCB	WCDMA Band V	0.392
	PCB	LTE Band 4	0.782
	PCB	LTE Band 5	0.298
	PCB	LTE Band 7	1.312
	PCB	LTE Band 66	0.926
	DTS	2.4G WLAN	0.177
	DTS	Bluetooth ^{Note}	0.084
1-g Sum SAR			1.489
FCC Equipment Class	PCS Licensed Transmitter Digital Transmission System (DTS)		



Operating Mode:	GSM: GSM Voice; GPRS; EGPRS Class 12; WCDMA:RMC,HSDPA,HSUPA Release 6; LTE:QPSK,16QAM; WLAN: 802.11 b/g/n(HT20/40); Bluetooth: 4.1+EDR (GFSK + π /4DQPSK+8DPSK) ; BLE
Antenna Specification:	GSM,WCDMA,LTE: External Antenna BT,WLAN: PIFA Antenna
SIM Card	Only support single card
Hotspot Mode:	Support
DTM Mode:	Not Support
Note: 1. Bluetooth was estimated 2. The EUT battery must be fully charged and checked periodically during the test to ascertain uniform power	





1.2 Test Environment

Ambient conditions in the SAR laboratory:

Items	Required
Temperature (°C)	18-25
Humidity (%RH)	30-70

1.3 Test Factory

ShenZhen STS Test Services Co.,Ltd.

A 1/F, Building B, Zhuoke Science Park, No.190 Chongqing Road, HepingShequ, Fuyong Sub-District, Bao'an District, Shenzhen, Guang Dong, China

FCC test Firm Registration No.: 625569

IC Registration No.: 12108A

A2LA Certificate No.: 4338.01





2. Test Standards And Limits

No.	Identity	Document Title
1	47 CFR Part 2	Frequency Allocations and Radio Treaty Matters; General Rules and Regulations
2	ANSI/IEEE Std. C95.1-1992	IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz
3	IEEE Std. 1528-2013	Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques
4	FCC KDB 447498 D01 v06	Mobile and Portable Device RF Exposure Procedures and Equipment Authorization Policies
5	FCC KDB 865664 D01 v01r04	SAR Measurement 100 MHz to 6 GHz
6	FCC KDB 865664 D02 v01r02	RF Exposure Reporting
7	FCC KDB 941225 D01 v03r01	SAR Measurement Procedures for 3G Devices
8	FCC KDB 941225 D05 v02r05	SAR for LTE Devices
9	FCC KDB 941225 D06 v02r01	Hotspot Mode SAR
10	FCC KDB 648474 D04 v01r03	SAR Evaluation Considerations for Wireless Handsets
11	FCC KDB 248227 D01 Wi-Fi SAR v02r02	SAR Considerations for 802.11 Devices

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

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

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

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

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

Population/Uncontrolled Environments:

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

Occupational/Controlled Environments:

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

NOTE

GENERAL POPULATION/UNCONTROLLED EXPOSURE

PARTIAL BODY LIMIT

1.6 W/kg

3. SAR Measurement System

3.1 Definition of Specific Absorption Rate (SAR)

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

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

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

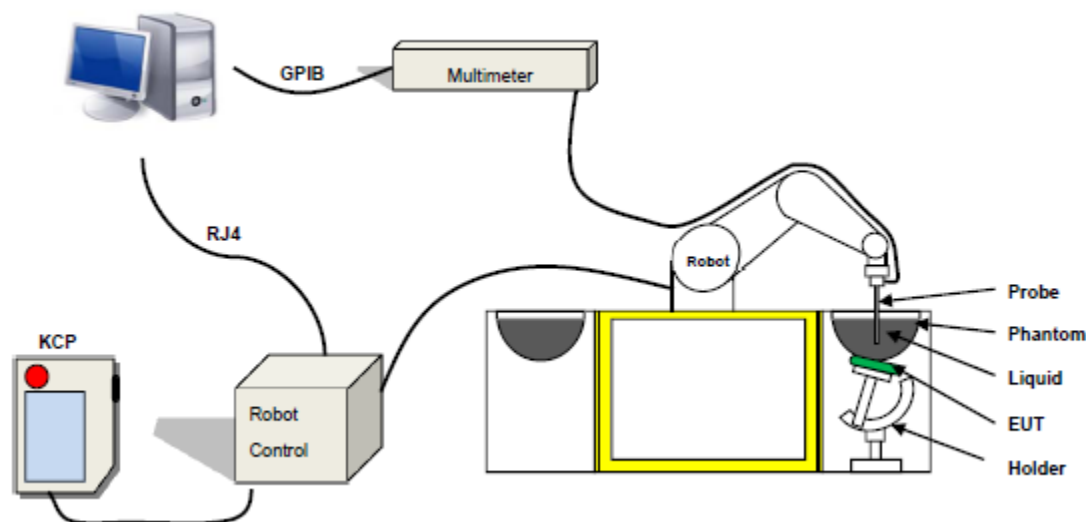
SAR is expressed in units of Watts per kilogram (W/kg) SAR measurement can be related to the electrical field in the tissue by

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

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

3.2 SAR System

MVG SAR System Diagram:



COMOSAR is a system that is able to determine the SAR distribution inside a phantom of human being according to different standards. The COMOSAR system consists of the following items:

- Main computer to control all the system
- 6 axis robot
- Data acquisition system
- Miniature E-field probe
- Phone holder
- Head simulating tissue

The following figure shows the system.



The EUT under test operating at the maximum power level is placed in the phone holder, under the phantom, which is filled with head simulating liquid. The E-Field probe measures the electric field inside the phantom. The Open SAR software computes the results to give a SAR value in a 1g or 10g mass.

3.2.1 Probe

For the measurements the Specific Dosimetric E-Field Probe SN 41/18 EPG0334 with following specifications is used

- Probe Length: 330 mm
- Length of Individual Dipoles: 2 mm
- Maximum external diameter: 8 mm
- Probe Tip External Diameter: 2.5 mm
- Distance between dipole/probe extremity: 1 mm
- Dynamic range: 0.01-100 W/kg
- Probe linearity: 3%
- Axial Isotropy: < 0.10 dB
- Spherical Isotropy: < 0.10 dB
- Calibration range: 450 MHz to 6 GHz for head & body simulating liquid.
- Angle between probe axis (evaluation axis) and surface normal line: less than 30°



Figure 1-MVG COMOSAR Dosimetric E field Dipole

3.2.2 Phantom

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

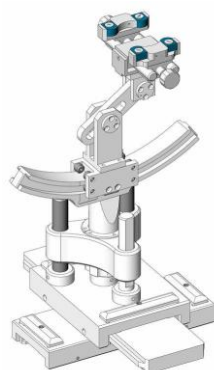


Figure-SN 32/14 SAM115



Figure-SN 32/14 SAM116

3.2.3 Device Holder



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



4. Tissue Simulating Liquids

4.1 Simulating Liquids Parameter Check

The head tissue dielectric parameters recommended by the IEEE SCC-34/SC-2 in P1528 have been incorporated in the following table. These head parameters are derived from planar layer models simulating the highest expected SAR for the dielectric properties and tissue thickness variations in a human head. Other head and body tissue parameters that have not been specified in P1528 are derived from the tissue dielectric parameters computed from the 4-Cole-Cole equations described in Reference [12] and extrapolated according to the head parameters specified in P1528.

Head Tissue

Frequency (MHz)	cellulose	DGBE	HEC	NaCl	Preventol	Sugar	X100	Water	Conductivity	Permittivity
	%	%	%	%	%	%	%	%	σ	ϵ_r
750	0.2	/	/	1.4	0.2	57.0	/	41.1	0.89	41.9
835	0.2	/	/	1.4	0.2	57.9	/	40.3	0.90	41.5
900	0.2	/	/	1.4	0.2	57.9	/	40.3	0.97	41.5
1800	/	44.5	/	0.3	/	/	30.45	55.2	1.4	40.0
1900	/	44.5	/	0.3	/	/	30.45	55.2	1.4	40.0
2000	/	44.5	/	0.3	/	/	/	55.2	1.4	40.0
2450	/	44.9	/	0.1	/	/	/	55.0	1.80	39.2
2600	/	45.0	/	0.1	/	/	/	54.9	1.96	39.0

Body Tissue

Frequency (MHz)	cellulose	DGBE	HEC	NaCl	Preventol	Sugar	X100	Water	Conductivity	Permittivity
	%	%	%	%	%	%	%	%	σ	ϵ_r
750	0.2	/	/	0.9	0.1	47.2	/	51.7	0.96	55.5
835	0.2	/	/	0.9	0.1	48.2	/	50.8	0.97	55.2
900	0.2	/	/	0.9	0.1	48.2	/	50.8	1.05	55.0
1800	/	29.4	/	0.4	/	/	30.45	70.2	1.52	53.3
1900	/	29.4	/	0.4	/	/	30.45	70.2	1.52	53.3
2000	/	29.4	/	0.4	/	/	/	70.2	1.52	53.3
2450	/	31.3	/	0.1	/	/	/	68.6	1.95	52.7
2600	/	31.7	/	0.1	/	/	/	68.2	2.16	52.3

Tissue dielectric parameters for head and body phantoms				
Frequency	ϵ_r		σ	
			S/m	
	Head	Body	Head	Body
300	45.3	58.2	0.87	0.92
450	43.5	56.7	0.87	0.94
900	41.5	55.0	0.97	1.05
1450	40.5	54.0	1.20	1.30
1800	40.0	53.3	1.40	1.52
2450	39.2	52.7	1.80	1.95
3000	38.5	52.0	2.40	2.73
5800	35.3	48.2	5.27	6.00

**LIQUID MEASUREMENT RESULTS**

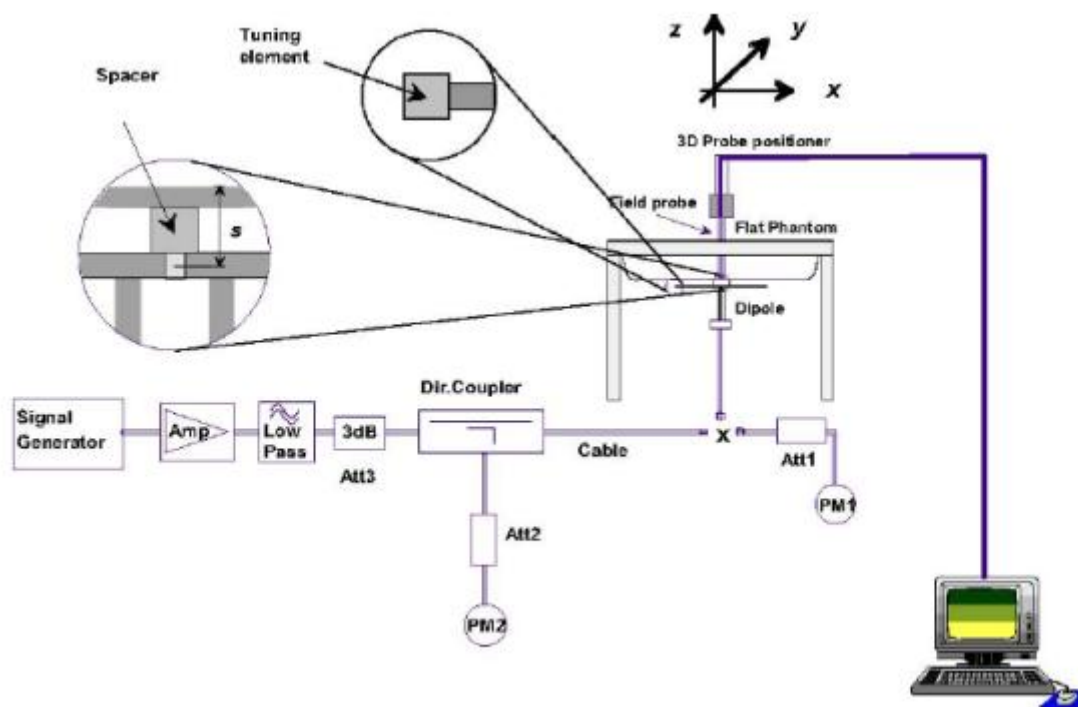
Date	Ambient condition		Body Simulating Liquid		Parameters	Target	Measured	Deviation [%]	Limited [%]
	Temp. [°C]	Humidity [%]	Frequency	Temp. [°C]					
2020-04-02	21.7	52	835 MHz	21.4	Permittivity:	55.2	55.79	1.07	±5
					Conductivity:	0.97	1.00	3.09	±5
2020-04-03	22.7	59	1800 MHz	22.5	Permittivity:	53.3	52.84	-0.86	±5
					Conductivity:	1.52	1.50	-1.32	±5
2020-04-07	21.9	54	1900 MHz	21.6	Permittivity:	53.3	52.78	-0.98	±5
					Conductivity:	1.52	1.54	1.32	±5
2020-04-09	21.9	50	2450 MHz	21.6	Permittivity:	52.7	53.12	0.80	±5
					Conductivity:	1.95	1.98	1.54	±5
2020-04-10	22.3	47	2600 MHz	22.0	Permittivity:	52.5	52.36	-0.27	±5
					Conductivity:	2.16	2.23	3.24	±5

5. SAR System Validation

5.1 Validation System

Each MVG system is equipped with one or more system validation kits. These units, together with the predefined measurement procedures within the MVG software, enable the user to conduct the system performance check and system validation. System kit includes a dipole, and dipole device holder.

The system check verifies that the system operates within its specifications. It's performed daily or before every SAR measurement. The system check uses normal SAR measurement in the flat section of the phantom with a matched dipole at a specified distance. The system validation setup is shown as below.



5.2 Validation Result

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

Freq.(MHz)	Power(mW)	Tested Value (W/Kg)	Normalized SAR (W/kg/W)	Target (W/Kg/W)	Tolerance(%)	Date
835 Body	100	0.951	9.51	9.56	-0.52	2020-04-02
1800 Body	100	3.886	38.86	38.4	1.20	2020-04-03
1900 Body	100	4.107	41.07	39.7	3.45	2020-04-07
2450 Body	100	5.137	51.37	52.4	-1.97	2020-04-09
2600 Body	100	5.406	54.06	55.3	-2.24	2020-04-10

Note:

1. The tolerance limit of System validation $\pm 10\%$.
2. The dipole input power (forward power) was 100 mW.
3. The results are normalized to 1 W input power.



6. SAR Evaluation Procedures

The procedure for assessing the average SAR value consists of the following steps:

The following steps are used for each test position

- 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
- Measurement of the local E-field value at a fixed location. This value serves as a reference value for calculating a possible power drift.
- Measurement of the SAR distribution with a grid of 8 to 16mm * 8 to 16 mm and a constant distance to the inner surface of the phantom. Since the sensors cannot directly measure at the inner phantom surface, the values between the sensors and the inner phantom surface are extrapolated. With these values the area of the maximum SAR is calculated by an interpolation scheme.
- 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.

Area Scan& Zoom Scan:

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 D01v01r01 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.

7. EUT Antenna Location Sketch

It is a Smart phone, support Bluetooth/WIFI/GSM/WCDMA/LTE modes.



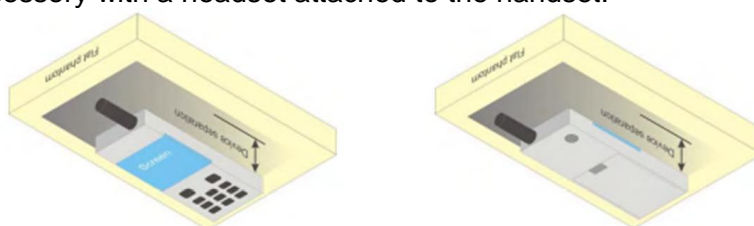
Note 1: The antenna information refer the manufacturer provide report, applicable only to the tested sample identified in the report.

8. EUT Test Position

This EUT was tested in Rear Face.

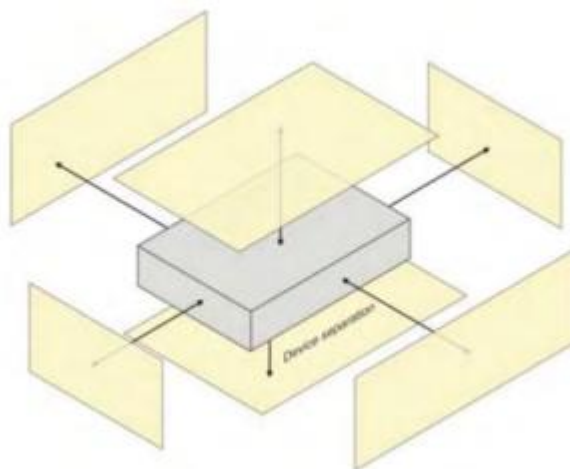
8.1 Body-worn Position Conditions:

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 Publication 447498 D01 should be used to test for body-worn accessory SAR compliance, without a headset connected to it. When the same wireless transmission configuration is used for testing body-worn accessory and hotspot mode SAR, respectively, in voice and data mode, SAR results for the most conservative *test separation distance* configuration may be used to support both SAR conditions. When the *reported SAR* for a body-worn accessory, measured without a headset connected to the handset, is $> 1.2 \text{ W/kg}$, the highest *reported SAR* configuration for that wireless mode and frequency band should be repeated for the body-worn accessory with a headset attached to the handset.



8.2 Hotspot mode exposure position condition

For handsets that support hotspot mode operations, with wireless router capabilities and various web browsing function, the relevant hand and body exposure condition 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 surface and edges with a transmitting antenna located within 25 mm from that surface or edge. When form factor of a handset is smaller than 9cm x 5cm, a test separation distance of 5mm (instead of 10mm) is required for testing hotspot mode. When the separate 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).





9. Uncertainty

9.1 Measurement Uncertainty

The following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in IEEE 1528: 2013. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

Uncertainty Component	Tol (+-%)	Prob. Dist.	Div.	Ci (1g)	Ci (10g)	1g Ui (+-%)	10g Ui (+-%)	vi
Measurement System								
Probe calibration	5.831	N	1	1	1	5.83	5.83	∞
Axial Isotropy	0.695	R	$\sqrt{3}$	$\sqrt{0.5}$	$\sqrt{0.5}$	0.28	0.28	∞
Hemispherical Isotropy	1.045	R	$\sqrt{3}$	$\sqrt{0.5}$	$\sqrt{0.5}$	0.43	0.43	∞
Boundary effect	1.0	R	$\sqrt{3}$	1	1	0.58	0.58	∞
Linearity	0.685	R	$\sqrt{3}$	1	1	0.40	0.40	∞
System detection limits	1.0	R	$\sqrt{3}$	1	1	0.58	0.58	∞
Modulation response	3.0	R	$\sqrt{3}$	1	1	1.73	1.73	∞
Readout Electronics	0.021	N	1	1	1	0.021	0.021	∞
Response Time	0	R	$\sqrt{3}$	1	1	0	0	∞
Integration Time	1.4	R	$\sqrt{3}$	1	1	0.81	0.81	∞
RF ambient conditions-Noise	3.0	R	$\sqrt{3}$	1	1	1.73	1.73	∞
RF ambient conditions-reflections	3.0	R	$\sqrt{3}$	1	1	1.73	1.73	∞
Probe positioner mechanical tolerance	1.4	R	$\sqrt{3}$	1	1	0.81	0.81	∞
Probe positioning with respect to phantom shell	1.4	R	$\sqrt{3}$	1	1	0.81	0.81	∞
Post-processing	2.3	R	$\sqrt{3}$	1	1	1.33	1.33	∞
Test sample Related								
Test sample positioning	2.6	N	1	1	1	2.6	2.6	∞
Device holder uncertainty	3	N	1	1	1	3	3	∞
SAR drift measurement	5	R	$\sqrt{3}$	1	1	2.89	2.89	∞
SAR scaling	5	R	$\sqrt{3}$	1	1	2.89	2.89	∞
Phantom and tissue parameters								
Phantom uncertainty (shape and thickness uncertainty)	4	R	$\sqrt{3}$	1	1	2.31	2.31	∞
Uncertainty in SAR correction for deviations in permittivity and conductivity	1.9	N	1	1	0.84	1.90	1.60	∞
Liquid conductivity (temperature uncertainty)	2.5	R	$\sqrt{3}$	0.78	0.71	1.13	1.02	∞
Liquid conductivity (measured)	4	N	1	0.78	0.71	3.12	2.84	M
Liquid permittivity (temperature uncertainty)	2.5	R	$\sqrt{3}$	0.23	0.26	0.33	0.38	∞
Liquid permittivity (measured)	5	N	1	0.23	0.26	1.15	1.30	M
Combined Standard Uncertainty		RSS				9.79	9.59	
Expanded Uncertainty (95% Confidence interval)		K=2				19.58	19.18	



9.2 System validation Uncertainty

Uncertainty Component	Tol (+-%)	Prob. Dist.	Div.	Ci (1g)	Ci (10g)	1g Ui (+-%)	10g Ui (+-%)	vi
Measurement System								
Probe calibration	5.831	N	1	1	1	5.83	5.83	∞
Axial Isotropy	0.695	R	$\sqrt{3}$	1	1	0.40	0.40	∞
Hemispherical Isotropy	1.045	R	$\sqrt{3}$	0	0	0.00	0.00	∞
Boundary effect	1.0	R	$\sqrt{3}$	1	1	0.58	0.58	∞
Linearity	0.685	R	$\sqrt{3}$	1	1	0.40	0.40	∞
System detection limits	1.0	R	$\sqrt{3}$	1	1	0.58	0.58	∞
Modulation response	3.0	R	$\sqrt{3}$	0	0	0.00	0.00	∞
Readout Electronics	0.021	N	1	1	1	0.021	0.021	∞
Response Time	0.0	R	$\sqrt{3}$	0	0	0.00	0.00	∞
Integration Time	1.4	R	$\sqrt{3}$	0	0	0.00	0.00	∞
RF ambient conditions-Noise	3.0	R	$\sqrt{3}$	1	1	1.73	1.73	∞
RF ambient conditions-reflections	3.0	R	$\sqrt{3}$	1	1	1.73	1.73	∞
Probe positioner mechanical tolerance	1.4	R	$\sqrt{3}$	1	1	0.81	0.81	∞
Probe positioning with respect to phantom shell	1.4	R	$\sqrt{3}$	1	1	0.81	0.81	∞
Post-Processing	2.3	R	$\sqrt{3}$	1	1	1.33	1.33	∞
System validation source								
Deviation of experimental dipole from numerical dipole	5.0	N	1	1	1	5.00	5.00	∞
Input power and SAR drift measurement	5.0	R	$\sqrt{3}$	1	1	2.89	2.89	∞
Other source contribution Uncertainty	2.0	R	$\sqrt{3}$	1	1	1.15	1.15	∞
Phantom and set-up								
Phantom uncertainty (shape and thickness uncertainty)	4.0	R	$\sqrt{3}$	1	1	2.31	2.31	∞
Uncertainty in SAR correction for deviations in permittivity and conductivity	1.9	N	1	1	0.84	1.90	1.60	∞
Liquid conductivity (temperature uncertainty)	2.5	R	$\sqrt{3}$	0.78	0.71	1.13	1.02	∞
Liquid conductivity (measured)	4	N	1	0.78	0.71	3.12	2.84	M
Liquid permittivity (temperature uncertainty)	2.5	R	$\sqrt{3}$	0.23	0.26	0.33	0.38	∞
Liquid permittivity (measured)	5	N	1	0.23	0.26	1.15	1.30	M
Combined Standard Uncertainty		RSS				9.718	9.517	
Expanded Uncertainty (95% Confidence interval)		K=2				19.44	19.04	



10. Conducted Power Measurement

10.1 Test Result

Burst Average Power (dBm)						
Band	GSM 850			PCS 1900		
Channel	128	190	251	512	661	810
Frequency (MHz)	824.2	836.6	848.8	1850.2	1880.0	1909.8
GSM(GMSK, 1-Slot)	31.07	31.08	31.12	29.20	29.19	29.35
GPRS (GMSK, 1-Slot)	29.05	29.01	28.95	26.32	26.32	26.65
GPRS (GMSK, 2-Slot)	28.57	28.59	28.46	25.85	25.84	26.17
GPRS (GMSK, 3-Slot)	28.11	28.12	28.00	25.38	25.39	25.74
GPRS (GMSK, 4-Slot)	27.63	27.64	27.50	24.98	24.98	25.33
EGPRS(8PSK, 1-Slot)	30.92	30.84	30.64	28.17	28.00	28.58
EGPRS(8PSK, 2-Slot)	30.20	30.08	29.87	27.38	27.28	27.82
EGPRS(8PSK, 3-Slot)	29.45	29.37	29.14	26.66	26.55	27.11
EGPRS(8PSK, 4-Slot)	28.66	28.59	28.40	25.91	25.81	26.40

Remark: GPRS, CS4 coding scheme. EGPRS, MCS5 coding scheme.
 Multi-Slot Class 8 , Support Max 4 downlink, 1 uplink , 5 working link
 Multi-Slot Class 10 , Support Max 4 downlink, 2 uplink , 5 working link
 Multi-Slot Class 12 , Support Max 4 downlink, 4 uplink , 5 working link

Fram- Average Power(dBm)						
Band	GSM 850			PCS 1900		
Channel	128	190	251	512	661	810
Frequency (MHz)	824.2	836.6	848.8	1850.2	1880.0	1909.8
GSM(GMSK, 1-Slot)	22.04	22.05	22.09	20.17	20.16	20.32
GPRS (GMSK, 1-Slot)	20.02	19.98	19.92	17.29	17.29	17.62
GPRS (GMSK, 2-Slot)	22.55	22.57	22.44	19.83	19.82	20.15
GPRS (GMSK, 3-Slot)	23.85	23.86	23.74	21.12	21.13	21.48
GPRS (GMSK, 4-Slot)	24.62	24.63	24.49	21.97	21.97	22.32
EGPRS(8PSK, 1-Slot)	21.89	21.81	21.61	19.14	18.97	19.55
EGPRS(8PSK, 2-Slot)	24.18	24.06	23.85	21.36	21.26	21.80
EGPRS(8PSK, 3-Slot)	25.19	25.11	24.88	22.40	22.29	22.85
EGPRS(8PSK, 4-Slot)	25.65	25.58	25.39	22.90	22.80	23.39

Remark :

- SAR testing was performed on the maximum frame-averaged power mode.
- The frame-averaged power is linearly proportion to the slot number configured and it is linearly scaled the maximum

burst-averaged power based on time slots. The calculated method is shown as below:
 Frame-averaged power = Burst averaged power (1 Tx Slot) – 9.03 dB
 Frame-averaged power = Burst averaged power (2 Tx Slots) – 6.02 dB
 Frame-averaged power = Burst averaged power (3 Tx Slots) - 4.26 dB
 Frame-averaged power = Burst averaged power (4 Tx Slots) – 3.01 dB



WCDMA

Band	WCDMA Band V			WCDMA Band II		
Channel	4132	4183	4233	9262	9400	9538
Frequency (MHz)	826.4	836.6	846.6	1852.4	1880.0	1907.6
AMR 12.2Kbps	19.88	19.89	20.08	20.57	20.40	21.11
RMC 12.2Kbps	19.93	19.92	20.09	20.62	20.45	21.14
HSDPA Subtest-1	18.78	18.82	19.06	18.55	18.29	18.90
HSDPA Subtest-2	18.37	18.42	18.62	18.07	17.83	18.41
HSDPA Subtest-3	17.94	17.96	18.17	17.61	17.36	18.02
HSDPA Subtest-4	17.63	17.49	17.84	17.14	16.87	17.72
HSUPA Subtest-1	18.84	18.82	18.97	18.50	18.23	19.91
HSUPA Subtest-2	17.88	17.82	18.04	17.56	17.24	19.00
HSUPA Subtest-3	17.87	17.36	17.62	17.54	16.78	18.68
HSUPA Subtest-4	17.39	16.92	17.24	17.17	16.44	18.28
HSUPA Subtest-5	15.93	15.52	15.83	15.68	15.01	16.85

According to 3GPP 25.101 sub-clause 6.2.2 , the maximum output power is allowed to be reduced by following the table.

Table 6.1A: UE maximum output power with HS-DPCCH and E-DCH

UE Transmit Channel Configuration	CM(db)	MPR(db)
For all combinations of ,DPDCH,DPCCH HS-DPDCH,E-DPDCH and E-DPCCH	$0 \leq CM \leq 3.5$	MAX(CM-1,0)
Note: CM=1 for $\beta_c/\beta_d=12/15$, $\beta_{hs}/\beta_c=24/15$.For all other combinations of DPDCH, DPCCH, HS-DPCCH, E-DPDCH and E-DPCCH the MPR is based on the relative CM difference.		

The device supports MPR to solve linearity issues (ACLR or SEM) due to the higher peak-to average ratios (PAR) of the HSUPA signal. This prevents saturating the full range of the TX DAC inside of device and provides a reduced power output to the RF transceiver chip according to the Cubic Metric (a function of the combinations of DPDCH, DPCCH, HS-DPCCH, E-DPDCH and E-DPCCH).

When E-DPDCH channels are present the beta gains on those channels are reduced firsts to try to get the power under the allowed limit. If the beta gains are lowered as far as possible, then a hard limiting is applied at the maximum allowed level.

The SW currently recalculates the cubic metric every time the beta gains on the E-DPDCH are reduced. The cubic metric will likely get lower each time this is done .However, there is no reported reduction of maximum output power in the HSUPA mode since the device also provides a compensation for the power back-off by increasing the gain of TX_AGC in the transceiver (PA) device.

The end effect is that the DUT output power is identical to the case where there is no MPR in the device.

**WLAN**

Mode	Channel Number	Frequency (MHz)	Average Power (dBm)
802.11b	1	2412	16.90
	6	2437	16.79
	11	2462	16.40
802.11g	1	2412	12.40
	6	2437	14.68
	11	2462	14.22
802.11n(HT 20)	1	2412	12.75
	6	2437	12.72
	11	2462	12.48
802.11n(HT 40)	3	2422	12.64
	6	2437	12.64
	9	2452	12.65

Bluetooth

Mode	Channel Number	Frequency (MHz)	Average Power (dBm)
GFSK(1Mbps)	0	2402	5.57
	39	2441	5.54
	78	2480	4.41
$\pi/4$ -DQPSK(2Mbps)	0	2402	2.75
	39	2441	2.91
	78	2480	1.48
8DPSK(3Mbps)	0	2402	3.79
	39	2441	3.27
	78	2480	1.83

BLE

Mode	Channel Number	Frequency (MHz)	Average Power (dBm)
GFSK(1Mbps)	0	2402	4.59
	19	2440	4.48
	39	2480	3.48



LTE Conducted Power

General Note:

1. Anritsu CMW500 base station simulator was used to setup the connection with EUT; the frequency band, channel bandwidth, RB allocation configuration, modulation type are set in the base station simulator to configure EUT transmitting at maximum power and at different configurations which are requested to be reported to FCC, for conducted power measurement and SAR testing.
2. Per KDB 941225 D05, when a properly configured base station simulator is used for the SAR and power measurements, spectrum plots for each RB allocation and offset configuration is not required.
3. Per KDB 941225 D05, start with the largest channel bandwidth and measure SAR for QPSK with 1 RB allocation, using the RB offset and required test channel combination with the highest maximum output power for RB offsets at the upper edge, middle and lower edge of each required test channel.
4. Per KDB 941225 D05, 50% RB allocation for QPSK SAR testing follows 1RB QPSK allocation procedure.
5. Per KDB 941225 D05, For QPSK with 100% RB allocation, SAR is not required when the highest maximum output power for 100 % RB allocation is less than the highest maximum output power in 50% and 1 RB allocations and the highest reported SAR for 1 RB and 50% RB allocation are ≤ 0.8 W/kg. Otherwise, SAR is measured for the highest output power channel; and if the reported SAR is > 1.45 W/kg, the remaining required test channels must also be tested.
6. Per KDB 941225 D05, 16QAM output power for each RB allocation configuration is $>$ not $\frac{1}{2}$ dB higher than the same configuration in QPSK and the reported SAR for the QPSK configuration is ≤ 1.45 W/kg; Per KDB 941225 D05, 16QAM SAR testing is not required.
7. Per KDB 941225 D05, Smaller bandwidth output power for each RB allocation configuration is $>$ not $\frac{1}{2}$ dB higher than the same configuration in the largest supported bandwidth, and the reported SAR for the largest supported bandwidth is ≤ 1.45 W/kg; Per KDB 941225 D05, smaller bandwidth SAR testing is not required.





LTE BAND 4

LTE Band 4 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
1.4	1	0	QPSK	23.82	24.04	24.00
1.4	1	2		23.58	23.76	23.79
1.4	1	5		23.38	23.52	23.58
1.4	3	0		23.08	23.24	23.34
1.4	3	1		22.87	22.96	23.12
1.4	3	2		22.64	22.73	22.89
1.4	6	0		22.42	22.51	22.67
1.4	1	0	16-QAM	23.56	23.75	23.72
1.4	1	2		23.30	23.53	23.46
1.4	1	5		23.02	23.29	23.21
1.4	3	0		22.75	23.03	23.01
1.4	3	1		22.48	22.78	22.75
1.4	3	2		22.23	22.51	22.53
1.4	6	0		21.97	22.29	22.32
3	1	0	QPSK	24.02	23.57	23.88
3	1	7		23.79	23.28	23.66
3	1	14		23.50	23.00	23.40
3	8	0		23.27	22.76	23.18
3	8	4		23.06	22.51	22.88
3	8	7		22.86	22.29	22.63
3	15	0		22.63	22.06	22.43
3	1	0	16-QAM	23.79	23.32	23.62
3	1	7		23.54	23.07	23.33
3	1	14		23.27	22.86	23.11
3	8	0		23.03	22.63	22.85
3	8	4		22.78	22.36	22.58
3	8	7		22.57	22.14	22.30
3	15	0		22.27	21.91	22.04



LTE BAND 4

LTE Band 4 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
5	1	0	QPSK	23.54	23.71	23.66
5	1	12		23.25	23.49	23.36
5	1	24		22.99	23.22	23.07
5	12	0		22.78	23.02	22.82
5	12	6		22.51	22.77	22.59
5	12	11		22.22	22.55	22.31
5	25	0		22.01	22.26	22.07
5	1	0	16-QAM	23.27	23.49	23.40
5	1	12		23.02	23.25	23.15
5	1	24		22.74	23.01	22.86
5	12	0		22.51	22.75	22.59
5	12	6		22.28	22.50	22.30
5	12	11		22.07	22.28	22.06
5	25	0		21.79	22.04	21.82
10	1	0	QPSK	23.76	23.70	23.83
10	1	24		23.47	23.42	23.63
10	1	49		23.26	23.18	23.42
10	25	0		22.97	22.90	23.17
10	25	12		22.73	22.69	22.90
10	25	24		22.53	22.48	22.61
10	50	0		22.31	22.25	22.39
10	1	0	16-QAM	23.47	23.46	23.62
10	1	24		23.18	23.18	23.36
10	1	49		22.91	22.95	23.09
10	25	0		22.62	22.66	22.82
10	25	12		22.34	22.39	22.60
10	25	24		22.07	22.11	22.36
10	50	0		21.85	21.85	22.15



LTE BAND 4

LTE Band 4 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
15	1	0	QPSK	23.55	23.89	23.87
15	1	37		23.31	23.69	23.62
15	1	74		23.07	23.41	23.40
15	36	0		22.86	23.13	23.20
15	36	18		22.63	22.89	22.93
15	36	39		22.36	22.66	22.72
15	75	0		22.11	22.44	22.50
15	1	0	16-QAM	23.34	23.60	23.64
15	1	38		23.13	23.31	23.39
15	1	75		22.89	23.04	23.14
15	36	0		22.65	22.84	22.90
15	36	18		22.42	22.55	22.61
15	36	39		22.17	22.25	22.35
15	75	0		21.90	21.97	22.09
20	1	0	QPSK	24.15	24.21	24.32
20	1	49		23.85	23.91	24.08
20	1	99		23.62	23.64	23.86
20	50	0		23.38	23.42	23.61
20	50	24		23.16	23.12	23.36
20	50	49		22.92	22.88	23.13
20	100	0		22.72	22.60	22.90
20	1	0	16-QAM	23.88	23.92	24.11
20	1	49		23.65	23.66	23.88
20	1	99		23.36	23.42	23.58
20	50	0		23.10	23.20	23.31
20	50	24		22.86	22.95	23.11
20	50	49		22.62	22.66	22.87
20	100	0		22.41	22.39	22.57



LTE BAND 5

LTE Band 5 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
1.4	1	0	QPSK	22.35	22.27	22.14
1.4	1	2		22.09	22.03	21.87
1.4	1	5		21.86	21.77	21.65
1.4	3	0		21.64	21.51	21.39
1.4	3	1		21.34	21.30	21.09
1.4	3	2		21.07	21.02	20.80
1.4	6	0		20.78	20.79	20.59
1.4	1	0	16-QAM	22.07	21.97	21.92
1.4	1	2		21.86	21.72	21.70
1.4	1	5		21.59	21.49	21.41
1.4	3	0		21.34	21.19	21.13
1.4	3	1		21.12	20.95	20.86
1.4	3	2		20.84	20.73	20.57
1.4	6	0		20.61	20.43	20.35
3	1	0	QPSK	22.37	22.05	22.12
3	1	7		22.12	21.77	21.86
3	1	14		21.88	21.48	21.60
3	8	0		21.59	21.21	21.37
3	8	4		21.37	21.00	21.12
3	8	7		21.13	20.71	20.88
3	15	0		20.88	20.51	20.59
3	1	0	16-QAM	22.08	21.80	21.83
3	1	7		21.82	21.51	21.55
3	1	14		21.57	21.29	21.28
3	8	0		21.33	21.05	20.98
3	8	4		21.13	20.77	20.77
3	8	7		20.90	20.47	20.57
3	15	0		20.65	20.25	20.33



LTE BAND 5

LTE Band 5 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
5	1	0	QPSK	22.29	22.18	22.22
5	1	12		22.04	21.95	21.97
5	1	24		21.76	21.69	21.70
5	12	0		21.48	21.48	21.46
5	12	6		21.27	21.19	21.25
5	12	11		21.00	20.95	21.05
5	25	0		20.72	20.71	20.84
5	1	0	16-QAM	22.04	21.94	21.96
5	1	12		21.81	21.65	21.71
5	1	24		21.52	21.37	21.42
5	12	0		21.28	21.08	21.22
5	12	6		20.99	20.84	21.00
5	12	11		20.78	20.62	20.79
5	25	0		20.52	20.33	20.50
10	1	0	QPSK	22.58	22.41	22.64
10	1	24		22.38	22.18	22.36
10	1	49		22.11	21.89	22.14
10	25	0		21.83	21.66	21.86
10	25	12		21.60	21.42	21.57
10	25	24		21.36	21.17	21.30
10	50	0		21.14	20.88	21.07
10	1	0	16-QAM	22.31	22.20	22.34
10	1	24		22.09	21.99	22.06
10	1	49		21.80	21.73	21.77
10	25	0		21.51	21.43	21.53
10	25	12		21.24	21.14	21.30
10	25	24		20.95	20.94	21.01
10	50	0		20.71	20.71	20.80



LTE BAND 7

LTE Band 7 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
5	1	0	QPSK	20.09	20.11	20.13
5	1	12		19.80	19.85	19.91
5	1	24		19.52	19.60	19.67
5	12	0		19.29	19.31	19.47
5	12	6		19.05	19.07	19.25
5	12	11		18.85	18.80	19.04
5	25	0		18.59	18.56	18.77
5	1	0	16-QAM	19.85	19.85	19.86
5	1	12		19.55	19.60	19.59
5	1	24		19.29	19.40	19.36
5	12	0		19.01	19.15	19.10
5	12	6		18.79	18.88	18.90
5	12	11		18.57	18.62	18.65
5	25	0		18.35	18.39	18.37
10	1	0	QPSK	20.12	20.20	20.04
10	1	24		19.86	20.00	19.81
10	1	49		19.57	19.76	19.55
10	25	0		19.29	19.48	19.29
10	25	12		19.07	19.24	19.04
10	25	24		18.83	18.98	18.76
10	50	0		18.54	18.77	18.50
10	1	0	16-QAM	19.84	19.96	19.82
10	1	24		19.56	19.73	19.60
10	1	49		19.28	19.47	19.34
10	25	0		19.00	19.20	19.06
10	25	12		18.76	18.95	18.82
10	25	24		18.47	18.74	18.61
10	50	0		18.17	18.50	18.37



LTE BAND 7

LTE Band 7 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
15	1	0	QPSK	20.30	20.22	20.24
15	1	37		20.10	19.92	19.95
15	1	74		19.83	19.67	19.69
15	36	0		19.62	19.39	19.46
15	36	18		19.34	19.15	19.18
15	36	39		19.11	18.87	18.93
15	75	0		18.90	18.60	18.64
15	1	0	16-QAM	20.03	19.93	19.95
15	1	38		19.79	19.68	19.73
15	1	75		19.52	19.41	19.48
15	36	0		19.32	19.17	19.24
15	36	18		19.12	18.96	18.96
15	36	39		18.86	18.70	18.68
15	75	0		18.60	18.41	18.46
20	1	0	QPSK	20.42	20.51	20.73
20	1	49		20.19	20.23	20.46
20	1	99		19.96	19.98	20.20
20	50	0		19.66	19.71	19.92
20	50	24		19.37	19.46	19.72
20	50	49		19.17	19.23	19.43
20	100	0		18.90	18.95	19.22
20	1	0	16-QAM	20.13	20.23	20.44
20	1	49		19.90	19.97	20.23
20	1	99		19.60	19.73	19.98
20	50	0		19.35	19.48	19.71
20	50	24		19.12	19.26	19.44
20	50	49		18.82	19.01	19.20
20	100	0		18.54	18.79	18.94



LTE BAND 66

LTE Band 66 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
1.4	1	0	QPSK	23.55	23.98	23.77
1.4	1	2		23.29	23.78	23.47
1.4	1	5		23.05	23.53	23.26
1.4	3	0		22.85	23.31	22.98
1.4	3	1		22.63	23.10	22.73
1.4	3	2		22.40	22.81	22.53
1.4	6	0		22.13	22.53	22.26
1.4	1	0	16-QAM	23.27	23.69	23.54
1.4	1	2		23.03	23.42	23.25
1.4	1	5		22.75	23.16	23.01
1.4	3	0		22.50	22.91	22.73
1.4	3	1		22.28	22.65	22.44
1.4	3	2		22.02	22.35	22.24
1.4	6	0		21.77	22.13	21.97
3	1	0	QPSK	23.40	23.51	23.34
3	1	7		23.20	23.24	23.09
3	1	14		22.99	23.03	22.87
3	8	0		22.69	22.79	22.63
3	8	4		22.43	22.49	22.41
3	8	7		22.15	22.25	22.17
3	15	0		21.90	22.01	21.95
3	1	0	16-QAM	23.13	23.26	23.11
3	1	7		22.88	22.98	22.87
3	1	14		22.61	22.76	22.58
3	8	0		22.32	22.55	22.36
3	8	4		22.10	22.29	22.07
3	8	7		21.88	22.09	21.81
3	15	0		21.67	21.86	21.61



LTE BAND 66

LTE Band 66 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
5	1	0	QPSK	23.86	23.94	23.88
5	1	12		23.61	23.65	23.64
5	1	24		23.38	23.42	23.40
5	12	0		23.10	23.13	23.12
5	12	6		22.83	22.85	22.84
5	12	11		22.58	22.59	22.57
5	25	0		22.34	22.36	22.34
5	1	0	16-QAM	23.60	23.73	23.62
5	1	12		23.34	23.47	23.33
5	1	24		23.10	23.27	23.05
5	12	0		22.87	23.06	22.79
5	12	6		22.58	22.78	22.53
5	12	11		22.34	22.51	22.25
5	25	0		22.06	22.30	22.03
10	1	0	QPSK	23.69	23.84	23.51
10	1	24		23.47	23.56	23.25
10	1	49		23.25	23.36	23.04
10	25	0		22.98	23.06	22.81
10	25	12		22.74	22.79	22.55
10	25	24		22.47	22.57	22.32
10	50	0		22.17	22.27	22.02
10	1	0	16-QAM	23.47	23.54	23.27
10	1	24		23.18	23.28	23.07
10	1	49		22.92	23.05	22.79
10	25	0		22.72	22.81	22.59
10	25	12		22.48	22.58	22.31
10	25	24		22.24	22.32	22.08
10	50	0		21.97	22.02	21.80



LTE BAND 66

LTE Band 66 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
15	1	0	QPSK	23.64	23.87	23.58
15	1	37		23.36	23.59	23.36
15	1	74		23.11	23.31	23.11
15	36	0		22.87	23.04	22.87
15	36	18		22.57	22.84	22.57
15	36	39		22.34	22.55	22.27
15	75	0		22.07	22.29	22.06
15	1	0		16-QAM	23.39	23.66
15	1	38	23.15		23.38	23.08
15	1	75	22.92		23.10	22.88
15	36	0	22.67		22.80	22.68
15	36	18	22.38		22.52	22.46
15	36	39	22.08		22.31	22.23
15	75	0	21.79		22.05	22.01
20	1	0	QPSK		24.00	24.08
20	1	49		23.75	23.85	23.88
20	1	99		23.49	23.60	23.60
20	50	0		23.28	23.37	23.35
20	50	24		23.08	23.15	23.12
20	50	49		22.82	22.95	22.86
20	100	0		22.56	22.69	22.62
20	1	0		16-QAM	23.76	23.88
20	1	49	23.50		23.62	23.68
20	1	99	23.25		23.32	23.46
20	50	0	22.96		23.06	23.20
20	50	24	22.74		22.79	22.96
20	50	49	22.46		22.59	22.67
20	100	0	22.23		22.34	22.45



10.2 Tune-up Power

Mode	GSM850(AVG)	GSM1900(AVG)
GSM/PCS	31±1dBm	29±1dBm
GPRS (1 Slot)	29±1dBm	26±1dBm
GPRS (2 Slot)	28±1dBm	26±1dBm
GPRS (3 Slot)	28±1dBm	25±1dBm
GPRS (4 Slot)	27±1dBm	25±1dBm
EDGE (1 Slot)	30±1dBm	28±1dBm
EDGE (2 Slot)	30±1dBm	27±1dBm
EDGE (3 Slot)	29±1dBm	27±1dBm
EDGE (4 Slot)	28±1dBm	26±1dBm

Mode	WCDMA Band V(AVG)	WCDMA Band II(AVG)
AMR	20±1dBm	20.2±1dBm
RMC	20±1dBm	20.2±1dBm
HSDPA Subtest-1	19±1dBm	18±1dBm
HSDPA Subtest-2	18±1dBm	18±1dBm
HSDPA Subtest-3	18±1dBm	18±1dBm
HSDPA Subtest-4	17±1dBm	17±1dBm
HSUPA Subtest-1	18±1dBm	19±1dBm
HSUPA Subtest-2	18±1dBm	18.2±1dBm
HSUPA Subtest-3	17±1dBm	17.7±1dBm
HSUPA Subtest-4	17±1dBm	17.4±1dBm
HSUPA Subtest-5	15±1dBm	16±1dBm



WLAN (2.4Gband)

Mode	WLAN(AVG)	
IEEE 802.11b	16±1dBm	
IEEE 802.11g	Low	12±1dBm
	Middle	14±1dBm
	High	14±1dBm
IEEE 802.11n(HT 20)	12±1dBm	
IEEE 802.11n(HT 40)	12±1dBm	

BT

Mode	BT(AVG)
GFSK	5±1dBm
$\pi/4$ -DQPSK	2±1dBm
8DPSK	2.8±1dBm

BLE

Mode	BLE(AVG)
GFSK	4±1dBm



LTE

BW[MHz]	RB Size	Mode	Band 4	Band 5	Band 7	Band 66
1.4	1	QPSK	24±1dBm	22±1dBm	N/A	23±1dBm
1.4	3		23±1dBm	21±1dBm	N/A	22±1dBm
1.4	6		22±1dBm	20±1dBm	N/A	22±1dBm
1.4	1	16- QAM	23±1dBm	22±1dBm	N/A	23±1dBm
1.4	3		23±1dBm	21±1dBm	N/A	22±1dBm
1.4	6		22±1dBm	20±1dBm	N/A	21±1dBm
3	1	QPSK	24±1dBm	22±1dBm	N/A	23±1dBm
3	8		23±1dBm	21±1dBm	N/A	22±1dBm
3	15		22±1dBm	20±1dBm	N/A	21±1dBm
3	1	16- QAM	23±1dBm	22±1dBm	N/A	23±1dBm
3	8		23±1dBm	21±1dBm	N/A	22±1dBm
3	15		22±1dBm	20±1dBm	N/A	21±1dBm
5	1	QPSK	23±1dBm	22±1dBm	20±1dBm	23±1dBm
5	12		22±1dBm	21±1dBm	19±1dBm	23±1dBm
5	25		22±1dBm	20±1dBm	18±1dBm	22±1dBm
5	1	16- QAM	23±1dBm	22±1dBm	19±1dBm	23±1dBm
5	12		22±1dBm	21±1dBm	19±1dBm	23±1dBm
5	25		22±1dBm	20±1dBm	18±1dBm	22±1dBm
10	1	QPSK	23±1dBm	22±1dBm	20±1dBm	23±1dBm
10	25		23±1dBm	21±1dBm	19±1dBm	23±1dBm
10	50		22±1dBm	21±1dBm	18±1dBm	22±1dBm
10	1	16- QAM	23±1dBm	22±1dBm	19±1dBm	23±1dBm
10	25		23±1dBm	21±1dBm	19±1dBm	22±1dBm
10	50		22±1dBm	20±1dBm	18±1dBm	22±1dBm
15	1	QPSK	23±1dBm	N/A	20±1dBm	23±1dBm
15	36		23±1dBm	N/A	19±1dBm	23±1dBm
15	75		22±1dBm	N/A	18±1dBm	22±1dBm
15	1	16- QAM	23±1dBm	N/A	20±1dBm	23±1dBm
15	36		22±1dBm	N/A	19±1dBm	22±1dBm
15	75		22±1dBm	N/A	18±1dBm	22±1dBm
20	1	QPSK	24±1dBm	N/A	20±1dBm	24±1dBm
20	50		23±1dBm	N/A	19±1dBm	23±1dBm
20	100		22±1dBm	N/A	19±1dBm	22±1dBm
20	1	16- QAM	24±1dBm	N/A	20±1dBm	23±1dBm
20	50		23±1dBm	N/A	19±1dBm	23±1dBm
20	100		22±1dBm	N/A	18±1dBm	22±1dBm



10.3 SAR Test Exclusions Applied

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

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

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

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

$$\frac{\text{Max Power of Channel (mW)}}{\text{Test Separation Dist (mm)}} * \sqrt{\text{Frequency (GHz)}} \leq 3.0$$

Based on the maximum conducted power of **Bluetooth Body** (rounded to the nearest mW) and the antenna to user separation distance,

Bluetooth Body SAR was not required; $[(3.981/5) * \sqrt{2.480}] = 1.25 < 3.0$.

Based on the maximum conducted power of **2.4 GHz WLAN Body** (rounded to the nearest mW) and the antenna to user separation distance,

2.4 GHz WLAN SAR was required; $[(50.119/10) * \sqrt{2.462}] = 7.86 > 3.0$.

11. EUT And Test Setup Photo

11.1 EUT Photo

Front side



Back side



Top Edge



Bottom Edge



Left Edge



Right Edge



11.2 Setup Photo

The antennal parallel with the back of device
(separation distance is 10mm)



The antennal perpendicular with the back of device
(separation distance is 10mm)

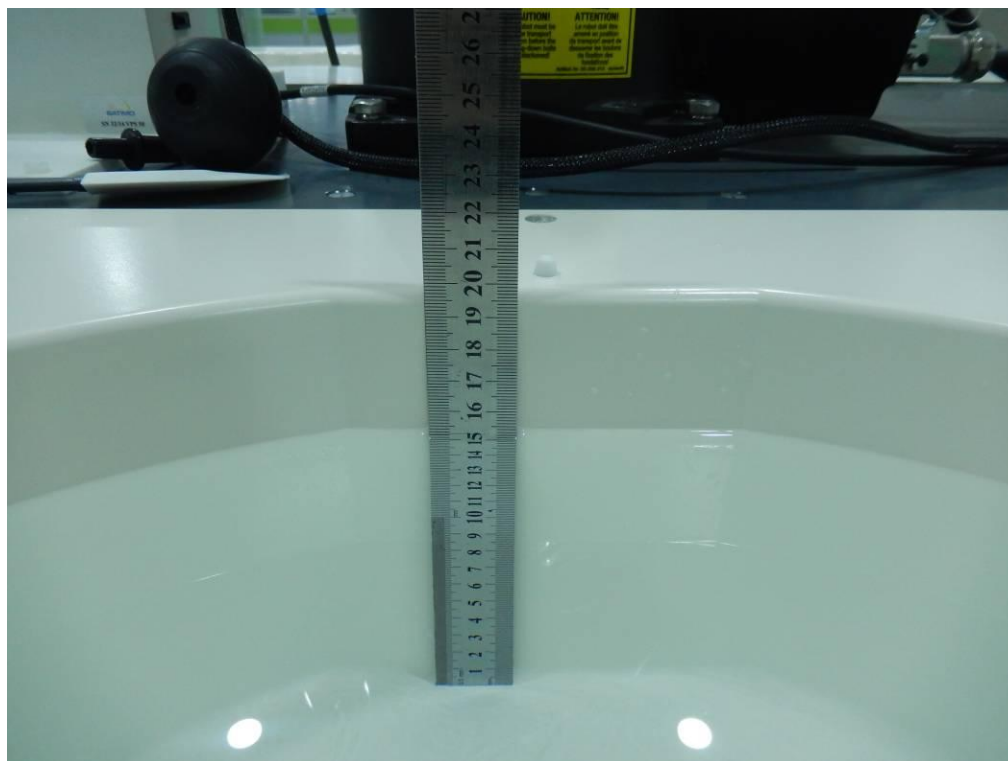




The antennal parallel with the top of device
(separation distance is 10mm)



Liquid depth (15 cm)





12. SAR Result Summary

12.2 Body-worn

Band	Mode	Test Position	Ch.	Result 1g (W/Kg)	Power Drift(%)	Max.Turn-up Power(dBm)	Meas.Output Power(dBm)	Scaled SAR (W/Kg)	Meas. No.
GSM 850	Voice	Antenna parallel to the back	251	0.112	-3.11	32	31.12	0.137	/
		Antenna perpendicular to the back	251	0.058	-2.29	32	31.12	0.071	/
		Antenna parallel to the top	251	0.211	0.06	32	31.12	0.258	1
GSM 850	EGPRS Data-4 Slot	Antenna parallel to the back	128	0.226	1.44	28	27.64	0.246	/
		Antenna perpendicular to the back	128	0.043	2.38	28	27.64	0.047	/
		Antenna parallel to the top	128	0.376	0.17	28	27.64	0.408	2
GSM1900	Voice	Antenna parallel to the back	810	0.414	1.60	30	29.35	0.481	/
		Antenna perpendicular to the back	810	0.092	-1.26	30	29.35	0.107	/
		Antenna parallel to the top	810	0.681	-1.17	30	29.35	0.791	3
GSM1900	EGPRS Data-4 Slot	Antenna parallel to the back	810	0.586	0.65	26	25.33	0.684	/
		Antenna perpendicular to the back	810	0.178	-1.57	26	25.33	0.208	/
		Antenna parallel to the top	810	0.921	-0.91	26	25.33	1.075	4
WCDMA II	RMC	Antenna parallel to the back	9538	0.462	-3.41	21.2	21.14	0.468	/
		Antenna perpendicular to the back	9538	0.098	0.21	21.2	21.14	0.099	/
		Antenna parallel to the top	9538	0.755	3.79	21.2	21.14	0.766	5
WCDMA V	RMC	Antenna parallel to the back	4233	0.153	1.87	21	20.09	0.189	/
		Antenna perpendicular to the back	4233	0.056	1.01	21	20.09	0.069	/
		Antenna parallel to the top	4233	0.318	-2.54	21	20.09	0.392	6



Band	Mode	Test Position	Ch.	Result 1g (W/Kg)	Power Drift(%)	Max.Turn-up Power(dBm)	Meas.Output Power(dBm)	Duty cycle(%)	Scaled SAR (W/Kg)	Meas. No.
WLAN	802.11b	Antenna parallel to the back	1	0.173	-1.83	17	16.90	100	0.177	7
		Antenna perpendicular to the back	1	0.168	1.17	17	16.90	100	0.172	/
		Antenna parallel to the top	1	0.025	-3.24	17	16.90	100	0.026	/

Note:

1. The test separation of all above table is 10mm.
2. Per KDB 447498 D01, the reported SAR is the measured SAR value adjusted for maximum tune-up tolerance.
 - a. Tune-up scaling Factor = tune-up limit power (mW) / EUT RF power (mW), where tune-up limit is the maximum rated power among all production units.
 - b. For WWAN: Scaled SAR(W/kg)= Measured SAR(W/kg)*Tune-up Scaling Factor
3. Per KDB 248227- When the highest reported SAR for DSSS is adjusted by the ratio of OFDM to DSSS specified maximum output power and the adjusted SAR is ≤ 1.2 W/kg. (The highest reported SAR for DSSS is adjusted by the ratio of OFDM to DSSS specified maximum output power was 0.106 W/Kg for Body)
4. When the user enables the personal Wireless router functions for the handsets, actual operations include simultaneous transmission of both the Wi-Fi transmitting frequency and thus cannot be evaluated for SAR under actual use conditions. The "Portable Hotspot" feature on the handset was NOT activated, to ensure the SAR measurements were evaluated for a single transmission frequency RF signal.



Band	BW (MHz)	Mod.	RB Size	RB offset	Test Position	Ch.	Result 1g (W/Kg)	Power Drift(%)	Max. Turn-up Power(dBm)	Meas. Output Power(dBm)	Scaled SAR (W/Kg)	Meas. No.
LTE Band 4	20M	QPSK	1	0	Antenna parallel to the back	20300	0.418	-1.71	25	24.32	0.489	/
			50	0	Antenna parallel to the back	20175	0.326	-2.36	24	23.61	0.357	/
			1	0	Antenna perpendicular to the back	20175	0.114	-0.50	25	24.32	0.133	/
			50	0	Antenna perpendicular to the back	20175	0.086	0.85	24	23.61	0.094	/
			1	0	Antenna parallel to the top	20175	0.669	3.16	25	24.32	0.782	8
			50	0	Antenna parallel to the top	20175	0.518	2.47	24	23.61	0.567	/
LTE Band 5	10M	QPSK	1	0	Antenna parallel to the back	20600	0.155	0.69	23	22.64	0.168	/
			25	0	Antenna parallel to the back	20600	0.113	0.46	22	21.86	0.117	/
			1	0	Antenna perpendicular to the back	20600	0.068	-3.66	23	22.64	0.074	/
			25	0	Antenna perpendicular to the back	20600	0.045	-1.48	22	21.86	0.046	/
			1	0	Antenna parallel to the top	20600	0.274	-1.37	23	22.64	0.298	9
			25	0	Antenna parallel to the top	20600	0.182	-1.49	22	21.86	0.188	/



LTE Band 7	20M	QPSK	1	0	Antenna parallel to the back	21350	0.742	-1.98	21	20.73	0.790	/
			50	0	Antenna parallel to the back	21350	0.538	-2.11	20	19.92	0.548	/
			1	0	Antenna perpendicular to the back	21350	0.243	-1.34	21	20.73	0.259	/
			50	0	Antenna perpendicular to the back	21350	0.176	0.45	20	19.92	0.179	/
			1	0	Antenna parallel to the top	20850	1.074	-2.22	21	20.42	1.227	/
			1	0	Antenna parallel to the top	21100	1.115	3.18	21	20.51	1.248	/
			1	0	Antenna parallel to the top	21350	1.233	1.31	21	20.73	1.312	10
			50	0	Antenna parallel to the top	21350	0.914	-2.08	20	19.92	0.931	/
LTE Band 66	20M	QPSK	1	0	Antenna parallel to the back	132572	0.486	2.70	25	24.12	0.595	/
			50	0	Antenna parallel to the back	132322	0.353	-2.93	24	23.37	0.408	/
			1	0	Antenna perpendicular to the back	132572	0.112	0.29	25	24.12	0.137	/
			50	0	Antenna perpendicular to the back	132322	0.085	3.49	24	23.37	0.098	/
			1	0	Antenna parallel to the top	132072	0.675	0.73	25	24.00	0.850	/
			1	0	Antenna parallel to the top	132322	0.703	1.22	25	24.08	0.869	/
			1	0	Antenna parallel to the top	132572	0.756	-3.47	25	24.12	0.926	11
			50	0	Antenna parallel to the top	132322	0.645	-1.51	24	23.37	0.746	/
			100	0	Antenna parallel to the top	132322	0.511	-2.65	23	22.69	0.549	/

**Repeated SAR**

Band	Mode	Test Position	Ch.	Result 1g (W/Kg)	Power Drift(%)	Max.Turn-up Power(dBm)	Meas.Output Power(dBm)	Scaled SAR(W/Kg)	Meas. No.
GSM 1900	GPRS Data-4 Slot	Antenna parallel to the top	810	0.884	1.20	26	25.33	1.031	/
LTE Band 7	QPSK	Antenna parallel to the top	21350	1.265	-0.87	21	20.73	1.346	/
LTE Band 66	QPSK	Antenna parallel to the top	132572	0.728	-1.35	25	24.12	0.892	/

12.3 repeated SAR measurement

Band	Mode	Test Position	Ch.	Original Measured SAR 1g(mW/g)	1 st Repeated SAR 1g	Ratio	Original Measured SAR 1g(mW/g)	2nd Repeated SAR 1g	Ratio
GSM 1900	GPRS Data-4 Slot	Antenna parallel to the top	810	0.921	0.884	1.04	-	-	-
LTE Band 7	QPSK	Antenna parallel to the top	21350	1.233	1.265	1.03	-	-	-
LTE Band 66	QPSK	Antenna parallel to the top	132572	0.756	0.728	1.04	-	-	-

Note:

1. Per KDB 865664 D01V01,for each frequency band ,repeated SAR measurement is required only when the measured SAR is $\geq 0.8W/Kg$.
2. Per KDB 865664 D01V01,if the ratio of largest to smallest SAR for the original and first repeated measurement is ≤ 1.2 and the measured SAR $< 1.45W/Kg$, only one repeated measurement is required.
3. Perform a second repeated measurement only if the ratio of largest to smallest SAR for the original and first repeated measurements is > 1.20 or when the original or repeated measurement is $\geq 1.45W/Kg$
4. The ratio is the difference in percentage between original and repeated measured SAR.

**Simultaneous Multi-band Transmission Evaluation:**

Application Simultaneous Transmission information:

Position	Simultaneous state
Body	1. GSM + WLAN
	2. GSM + Bluetooth
	3. WCDMA + WLAN
	4. WCDMA + Bluetooth
	5. LTE + WLAN
	6. LTE + Bluetooth

NOTE:

- Bluetooth and WLAN can't simultaneous transmission at the same time.
- For simultaneous transmission at head and body exposure position, 2 transmitters simultaneous transmission was the worst state.
- Based upon KDB 447498 D01, BT SAR is excluded as below table.
- If the test separation distance is <5mm, 5mm is used for excluded SAR calculation.
- For minimum test separation distance $\leq 50\text{mm}$, Bluetooth standalone SAR is excluded according to $[(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm})] \cdot [\sqrt{f} (\text{GHz}) / x] \leq 3.0$ for 1-g SAR and ≤ 7.5 for 10-g extremity SAR
- The reported SAR summation is calculated based on the same configuration and test position.
- KDB 447498 / 4.3.2 (2) when standalone SAR test exclusion applies to an antenna that transmits simultaneously with other antennas, the standalone SAR must be estimated according to following to determine simultaneous transmission SAR test exclusion:
 - $(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm}) \cdot [\sqrt{f} (\text{GHz}) / x] \text{ W/kg}$ for test separation distances $\leq 50 \text{ mm}$; Where $x = 7.5$ for 1-g SAR, and $x = 18.75$ for 10-g SAR.
 - 0.4W/Kg for 1-g SAR and 1.0W/Kg for 10-g SAR, when the separation distance is $>50\text{mm}$.

Estimated SAR		Maximum Power		Antenna to user(mm)	Frequency(GHz)	Stand alone SAR(1g) [W/kg]
		dBm	mW			
BT	Body	6	3.981	10	2.480	0.084



Simultaneous Mode	Position	Mode	Max. 1-g SAR (W/kg)	1-g Sum SAR (W/kg)
GSM + 2.4GHz WLAN	Body	GSM Voice	0.258	0.435
		2.4GHz WLAN	0.177	
GSM + 2.4GHz WLAN	Body	GSM Data	0.408	0.585
		2.4GHz WLAN	0.177	
WCDMA + 2.4GHz WLAN	Body	WCDMA	0.766	0.943
		2.4GHz WLAN	0.177	
LTE + 2.4GHz WLAN	Body	LTE	1.312	1.489
		2.4GHz WLAN	0.177	
GSM + Bluetooth	Body	GSM Voice	0.258	0.342
		Bluetooth	0.084	
GSM + Bluetooth	Body	GSM Data	0.408	0.492
		Bluetooth	0.084	
WCDMA + Bluetooth	Body	WCDMA	0.766	0.850
		Bluetooth	0.084	
LTE + Bluetooth	Body	LTE	1.312	1.396
		Bluetooth	0.084	

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 SPLSR.



13. Equipment List

Kind of Equipment	Manufacturer	Type No.	Serial No.	Last Calibration	Calibrated Until
835MHz Dipole	MVG	SID835	SN 30/14 DIP0G835-332	2017.08.15	2020.08.14
1800MHz Dipole	MVG	SID1800	SN 30/14 DIP1G800-329	2017.08.15	2020.08.14
1900MHz Dipole	MVG	SID1900	SN 30/14 DIP1G900-333	2017.08.15	2020.08.14
2450MHzDipole	MVG	SID2450	SN 30/14 DIP2G450-335	2017.08.15	2020.08.14
2600MHz Dipole	MVG	SID2600	SN 30/14 DIP2G600-336	2017.08.15	2020.08.14
E-Field Probe	MVG	SSE2	SN 41/18 EPGO334	2019.06.04	2020.06.03
Dielectric Probe Kit	MVG	SCLMP	SN 32/14 OCPG67	2019.11.25	2020.11.24
Antenna	MVG	ANTA3	SN 07/13 ZNTA52	N/A	N/A
Phantom1	MVG	SAM	SN 32/14 SAM115	N/A	N/A
Phantom2	MVG	SAM	SN 32/14 SAM116	N/A	N/A
Phone holder	MVG	N/A	SN 32/14 MSH97	N/A	N/A
Laptop holder	MVG	N/A	SN 32/14 LSH29	N/A	N/A
Attenuator	Agilent	99899	DC-18GHz	N/A	N/A
Directional coupler	Narda	4226-20	3305	N/A	N/A
Network Analyzer	Agilent	8753ES	US38432810	2019.10.11	2020.10.10
Multi Meter	Keithley	Multi Meter 2000	4050073	2019.10.11	2020.10.10
Signal Generator	Agilent	N5182A	MY50140530	2019.10.09	2020.10.08
Wireless Communication Test Set	Agilent	8960-E5515C	MY48360751	2019.10.09	2020.10.08
Wireless Communication Test Set	R&S	CMW500	117239	2019.10.09	2020.10.08
Power Amplifier	DESAY	ZHL-42W	9638	2019.10.09	2020.10.08
Power Meter	R&S	NRP	100510	2019.10.16	2020.10.15
Power Meter	Agilent	E4419B	QB43312265	2019.10.12	2020.10.11
Power Sensor	R&S	NRP-Z11	101919	2019.10.12	2020.10.11
Power Sensor	HP	E9300A	US39210170	2019.10.09	2020.10.08
Temperature hygrometer	SuWei	SW-108	N/A	2019.10.13	2020.10.12
Thermograph	Elitech	RC-4	S/N EF7176501537	2019.10.11	2020.10.10

Note:

Per KDB 865664 D01, Dipole SAR Validation Verification, STS LAB has adopted 3 years calibration intervals. On an 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
- Return-loss in within 20% of calibrated measurement

Appendix A. System Validation Plots

System Performance Check Data (835MHz Body)

Type: Phone measurement (Complete)

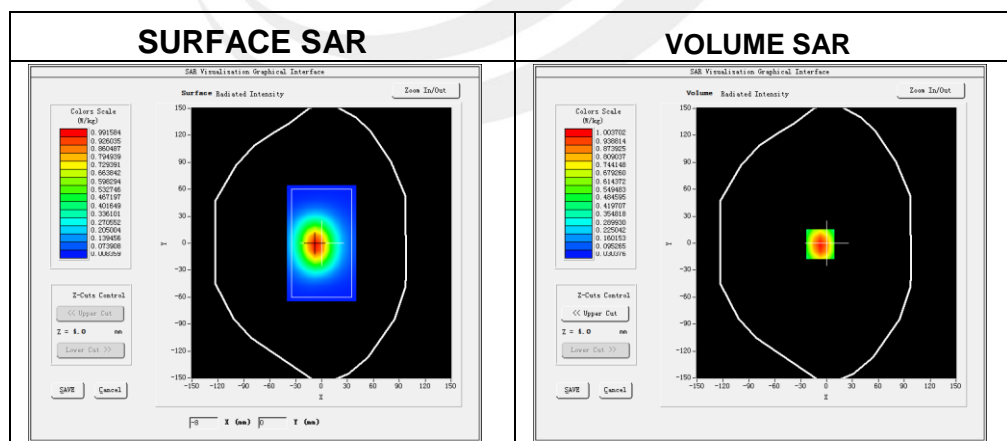
Area scan resolution: dx=8mm, dy=8mm

Zoom scan resolution: dx=8mm, dy=8mm, dz=5mm

Date of measurement: 2020-04-02

Experimental conditions.

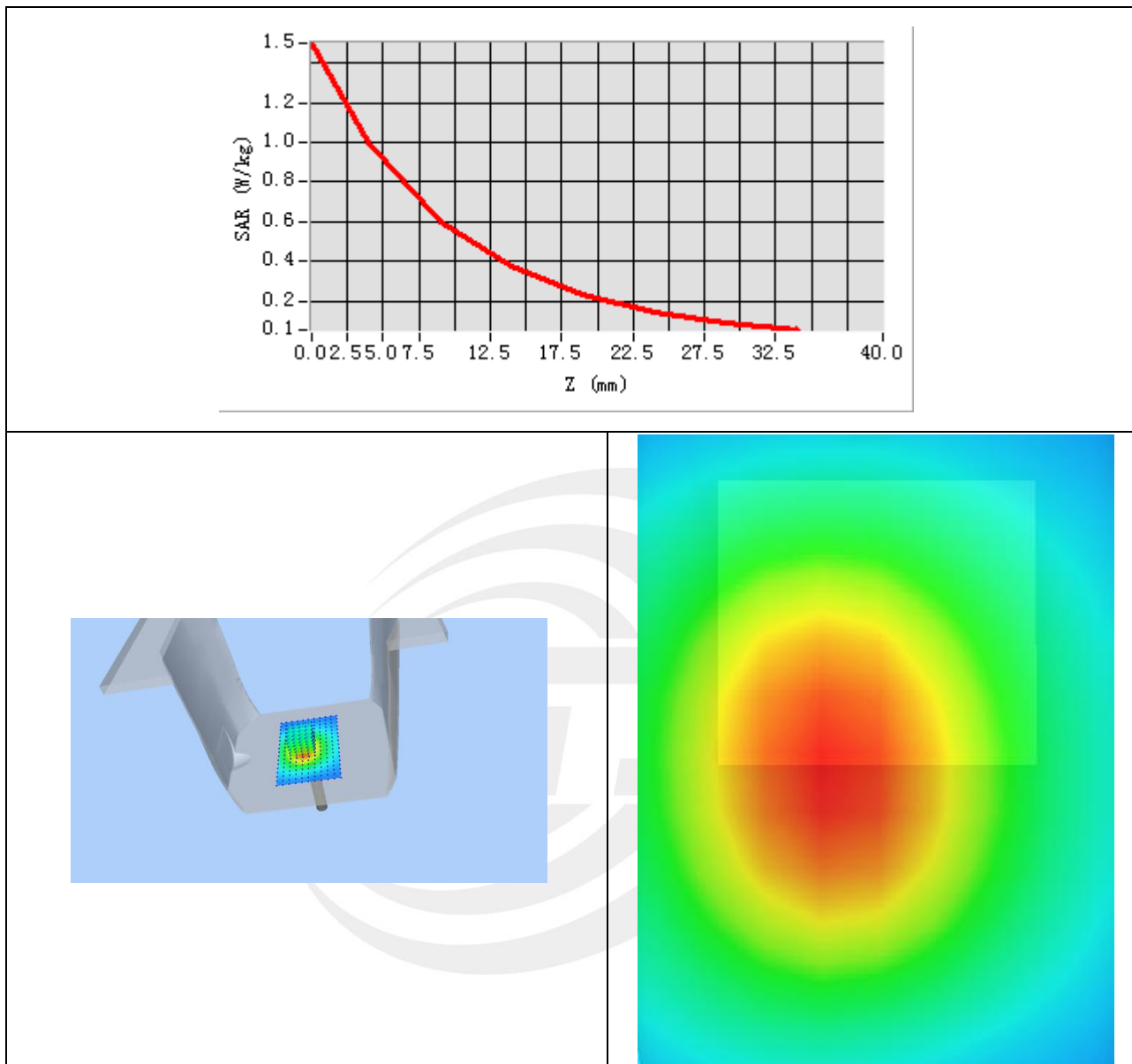
Probe	
Phantom	Validation plane
Device Position	-
Band	835MHz
Channels	-
Signal	CW
Frequency (MHz)	835MHz
Relative permittivity	55.79
Conductivity (S/m)	1.00
Power drift (%)	2.15
Probe	SN 41/18 EPGO334
ConvF:	1.53
Crest factor:	1:1



Maximum location: X=-7.00, Y=-1.00

SAR 10g (W/Kg)	0.657561
SAR 1g (W/Kg)	0.950763

Z Axis Scan



**System Performance Check Data(1800MHz Body)**

Type: Phone measurement (Complete)

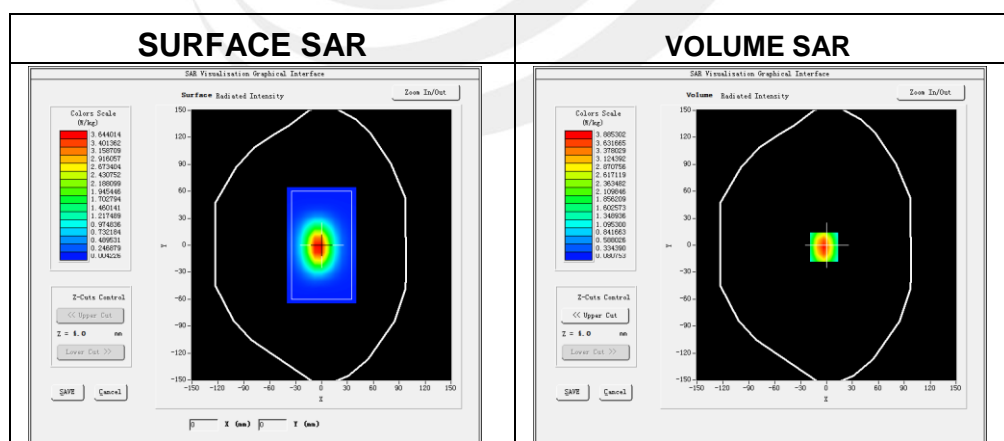
Area scan resolution: dx=8mm, dy=8mm

Zoom scan resolution: dx=8mm, dy=8mm, dz=5mm

Date of measurement: 2020-04-03

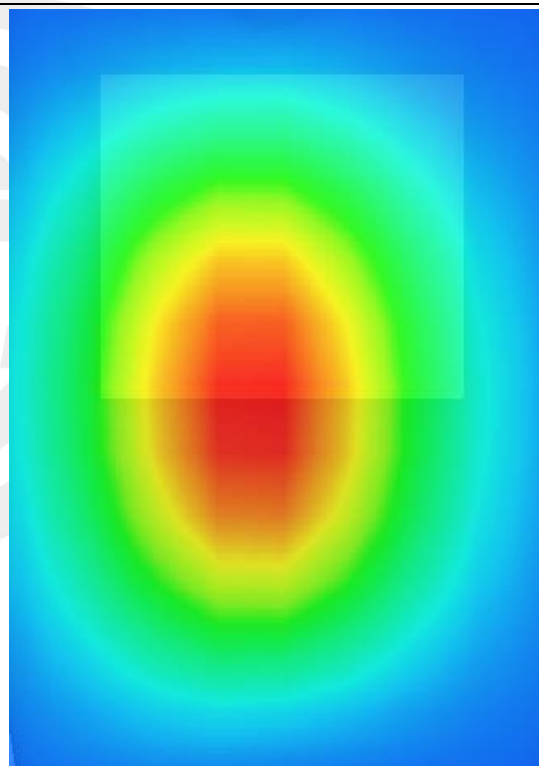
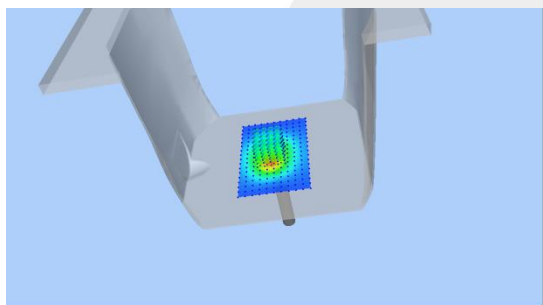
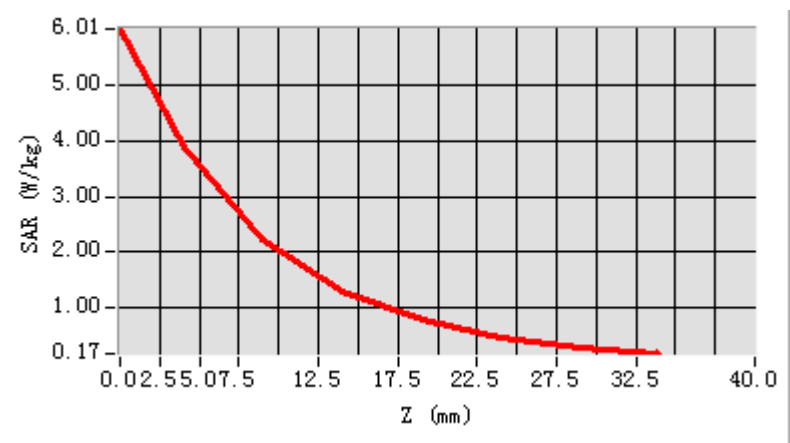
Experimental conditions.

Phantom	Validation plane
Device Position	-
Band	1800MHz
Channels	-
Signal	CW
Frequency (MHz)	1800MHz
Relative permittivity	52.84
Conductivity (S/m)	1.50
Power drift (%)	-1.14
Probe	SN 41/18 EPGO334
ConvF	1.66
Crest factor:	1:1

**Maximum location: X=-3.00, Y=-2.00**

SAR 10g (W/Kg)	2.065135
SAR 1g (W/Kg)	3.866063

Z Axis Scan





System Performance Check Data (1900MHz Body)

Type: Phone measurement (Complete)

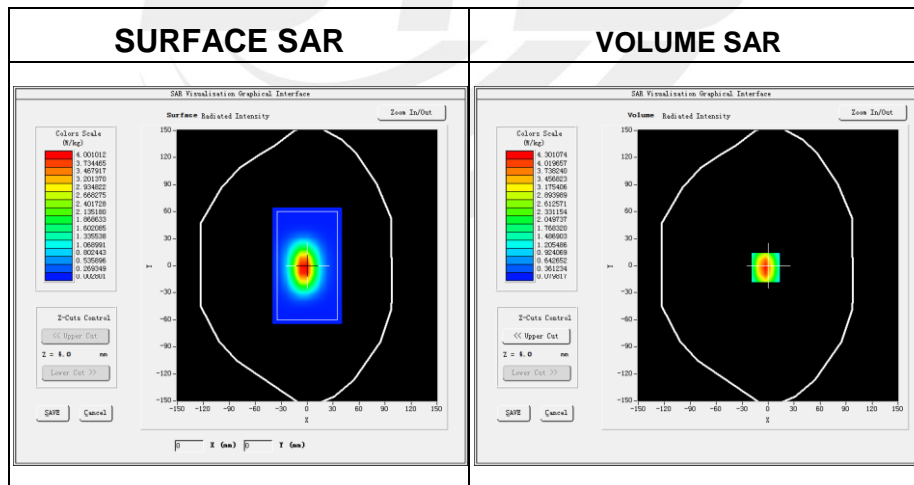
Area scan resolution: dx=8mm, dy=8mm

Zoom scan resolution: dx=8mm, dy=8mm, dz=5mm

Date of measurement: 2020-04-07

Experimental conditions.

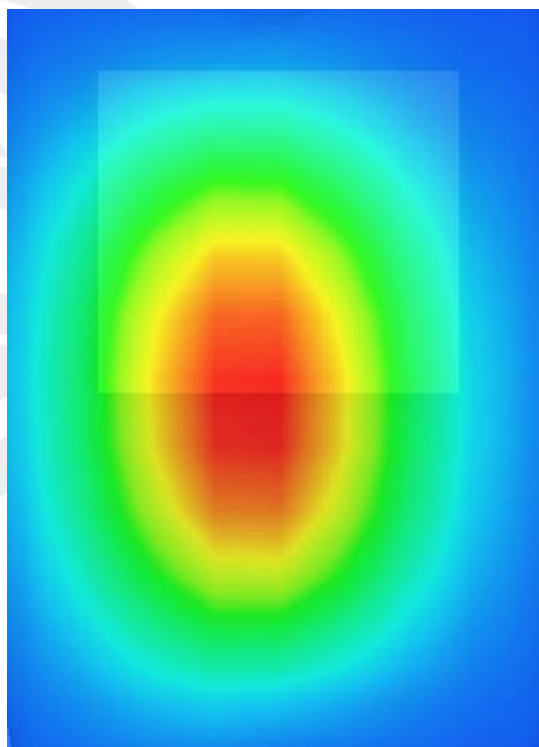
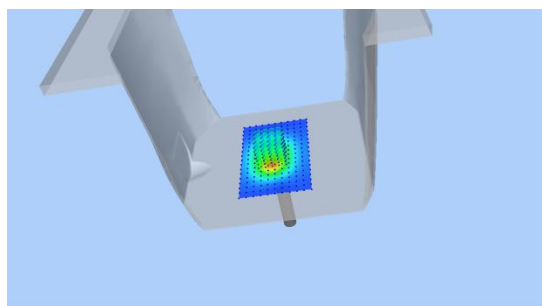
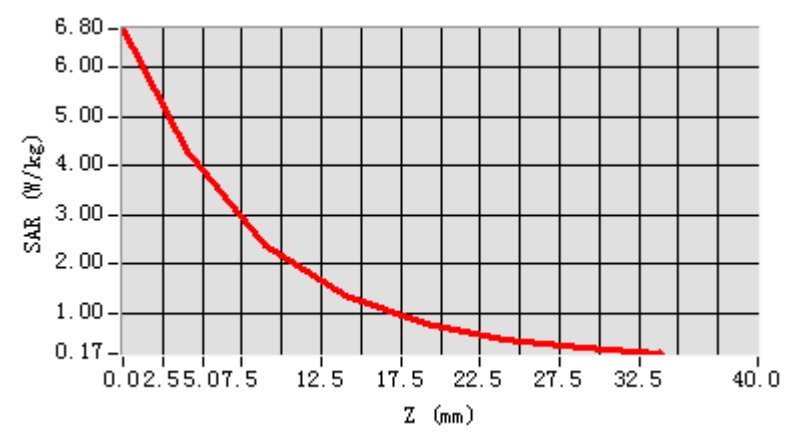
Device Position	-
Band	1900MHz
Channels	-
Signal	CW
Frequency (MHz)	1900
Relative permittivity	52.78
Conductivity (S/m)	1.54
Power drift (%)	-0.68
Probe	SN 41/18 EPGO334
ConvF:	1.88
Crest factor:	1:1



Maximum location: X=-3.00, Y=-2.00

SAR 10g (W/Kg)	2.164752
SAR 1g (W/Kg)	4.106877

Z Axis Scan



System Performance Check Data (2450MHz Body)

Type: Phone measurement (Complete)

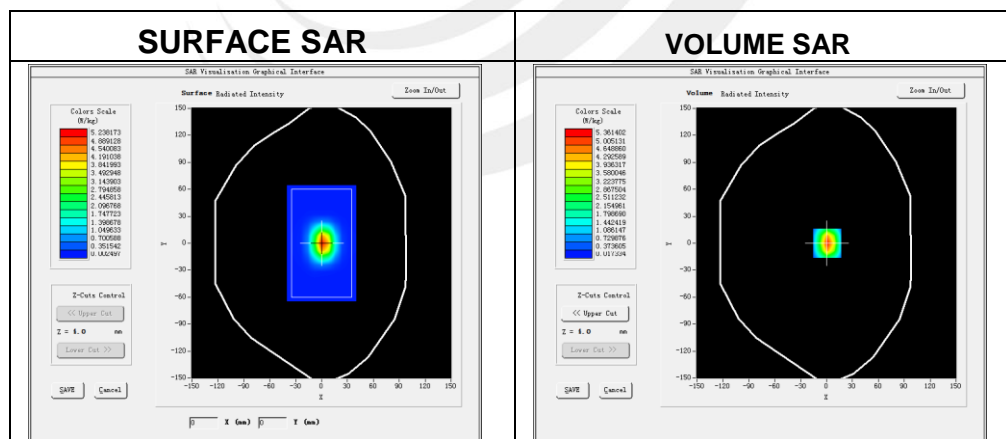
Area scan resolution: dx=8mm, dy=8mm

Zoom scan resolution: dx=8mm, dy=8mm, dz=5mm

Date of measurement: 2020-04-09

Experimental conditions.

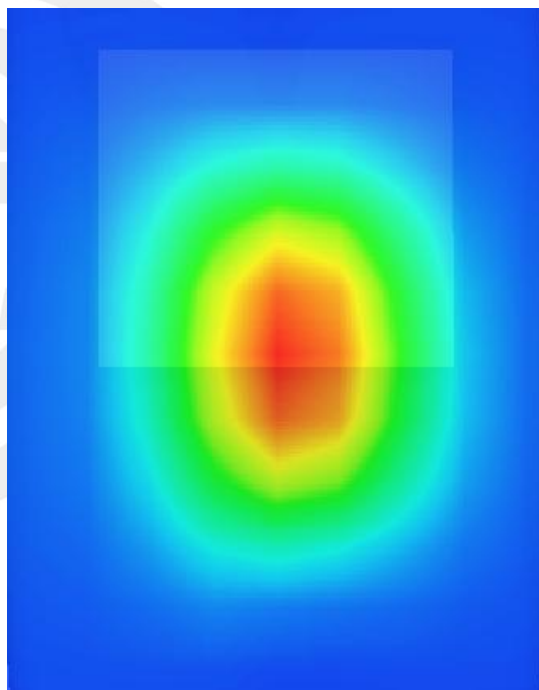
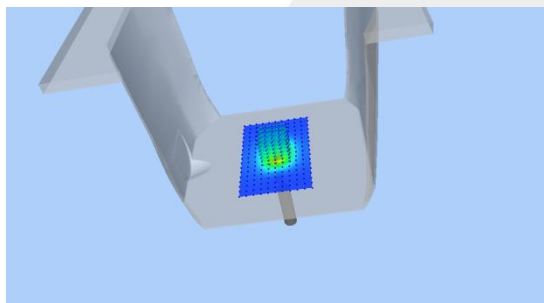
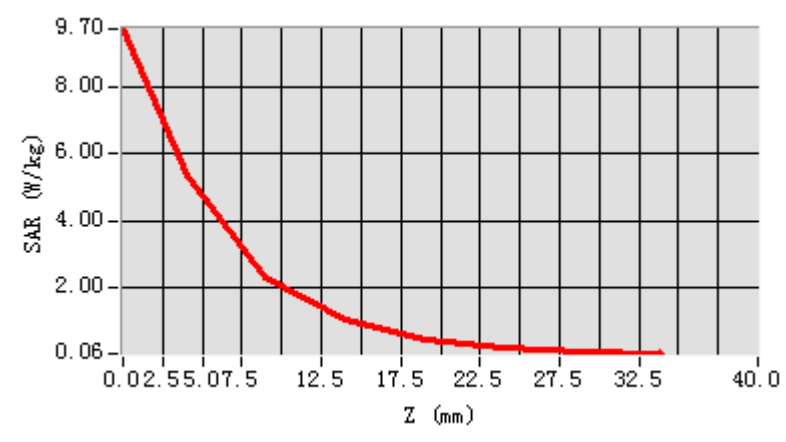
Device Position	Validation plane
Band	2450 MHz
Channels	-
Signal	CW
Frequency (MHz)	2450
Relative permittivity	53.12
Conductivity (S/m)	1.98
Power drift (%)	-1.43
Probe	SN 41/18 EPGO334
ConvF	2.02
Crest factor:	1:1



Maximum location: X=1.00, Y=0.00

SAR 10g (W/Kg)	2.449684
SAR 1g (W/Kg)	5.137128

Z Axis Scan



System Performance Check Data (2600MHz Body)

Type: Phone measurement (Complete)

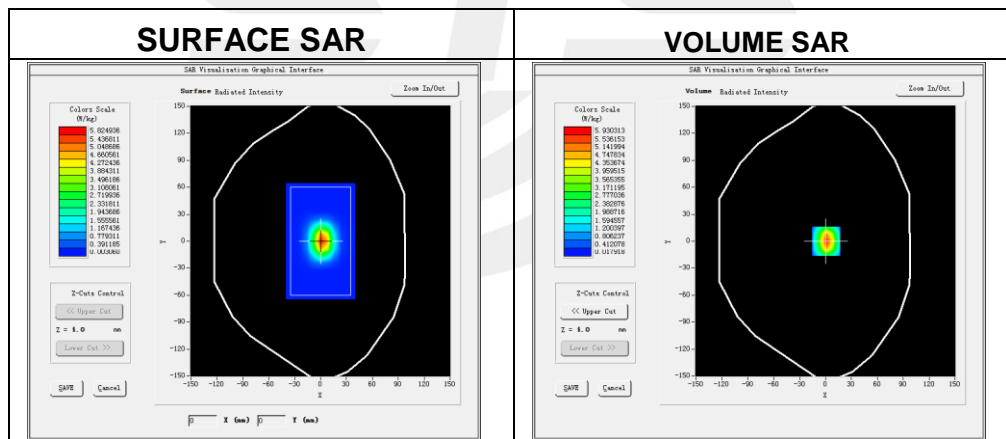
Area scan resolution: dx=8mm, dy=8mm

Zoom scan resolution: dx=8mm, dy=8mm, dz=5mm

Date of measurement: 2020-04-10

Experimental conditions.

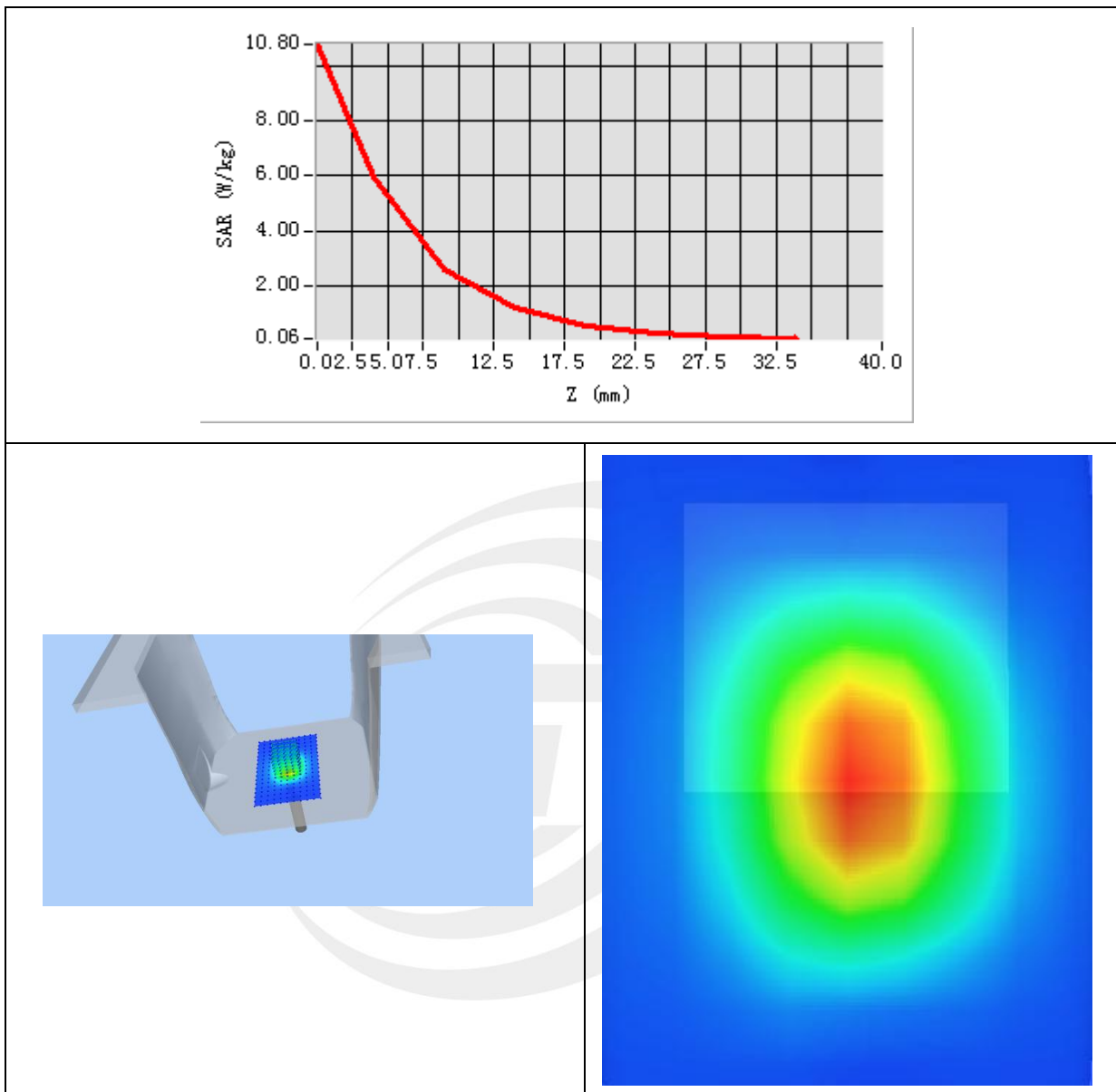
Device Position	Validation plane
Band	2600 MHz
Channels	-
Signal	CW
Frequency (MHz)	2600
Relative permittivity	52.36
Conductivity (S/m)	2.23
Power drift (%)	0.75
Probe	SN 41/18 EPGO334
ConvF	1.92
Crest factor:	1:1



Maximum location: X=3.00, Y=1.00

SAR 10g (W/Kg)	2.435150
SAR 1g (W/Kg)	5.405347

Z Axis Scan



Appendix B. SAR Test Plots

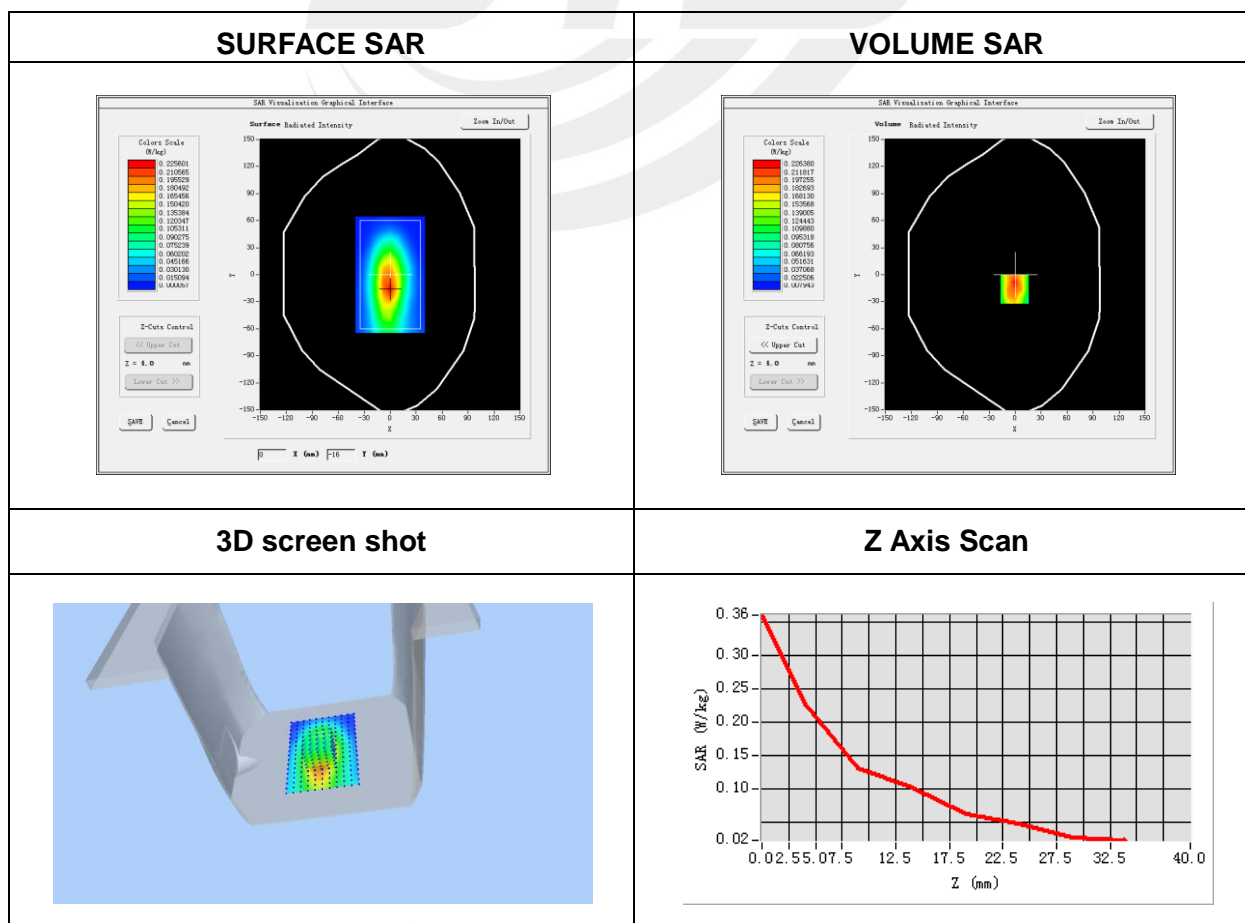
Plot 1: DUT: 4G Fixed Wireless Phone; EUT Model: CC555

Test Date	2020-04-02
Probe	SN 41/18 EPGO334
ConvF	1.53
Area Scan	dx=8mm dy=8mm, h= 5.00 mm
Zoom Scan	5x5x7, dx=8mm dy=8mm dz=5mm, Complete/ndx=8mm dy=8mm, h= 5.00 mm
Phantom	Validation plane
Device Position	Antenna parallel to the top
Band	GSM 850
Channels	High
Signal	TDMA (Crest factor: 8.32)
Frequency (MHz)	848.8
Relative permittivity (real part)	55.79
Conductivity (S/m)	1.00
Variation (%)	0.06

Maximum location: X=-1.00, Y=-16.00

SAR Peak: 0.33 W/kg

SAR 10g (W/Kg)	0.131738
SAR 1g (W/Kg)	0.210714



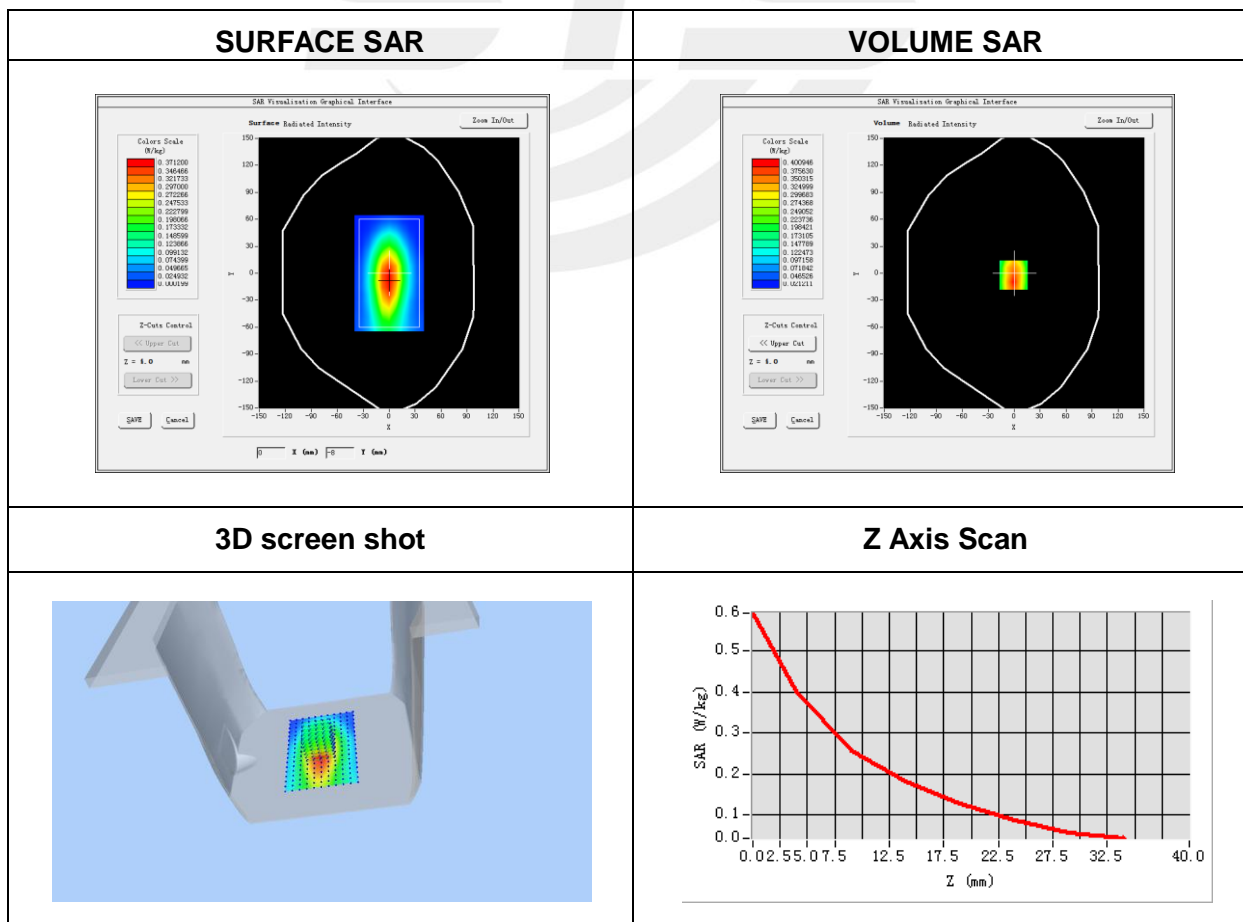
Plot 2: DUT: 4G Fixed Wireless Phone; EUT Model: CC555

Test Date	2020-04-02
Probe	SN 41/18 EPGO334
ConvF	1.53
Area Scan	dx=8mm dy=8mm, h= 5.00 mm
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5mm, Complete/ndx=8mm dy=8mm, h= 5.00 mm
Phantom	Validation plane
Device Position	Antenna parallel to the top
Band	EGPRS 850
Channels	Low
Signal	Duty Cycle: 2.00 (Crest factor: 2.0)
Frequency (MHz)	824.2
Relative permittivity (real part)	55.79
Conductivity (S/m)	1.00
Variation (%)	0.17

Maximum location: X=-1.00, Y=-2.00

SAR Peak: 0.59 W/kg

SAR 10g (W/Kg)	0.234579
SAR 1g (W/Kg)	0.376378



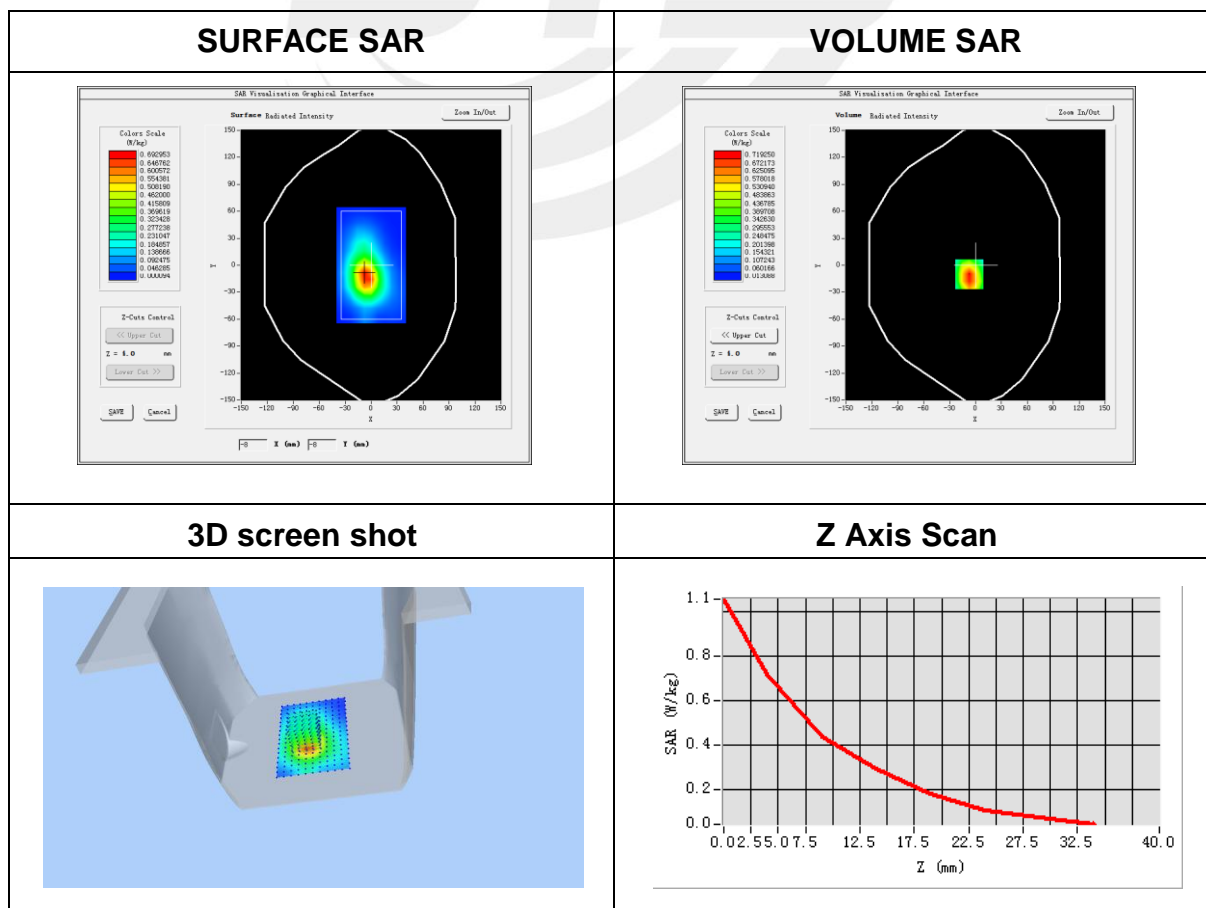
Plot 3: DUT: 4G Fixed Wireless Phone; EUT Model: CC555

Test Date	2020-04-07
Probe	SN 41/18 EPGO334
ConvF	1.88
Area Scan	dx=8mm dy=8mm, h= 5.00 mm
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5mm, Complete/ndx=8mm dy=8mm, h= 5.00 mm
Phantom	Validation plane
Device Position	Antenna parallel to the top
Band	GSM 1900
Channels	High
Signal	TDMA (Crest factor: 8.32)
Frequency (MHz)	1909.8
Relative permittivity (real part)	52.78
Conductivity (S/m)	1.54
Variation (%)	-1.17

Maximum location: X=-7.00, Y=-10.00

SAR Peak: 1.08 W/kg

SAR 10g (W/Kg)	0.383065
SAR 1g (W/Kg)	0.681378



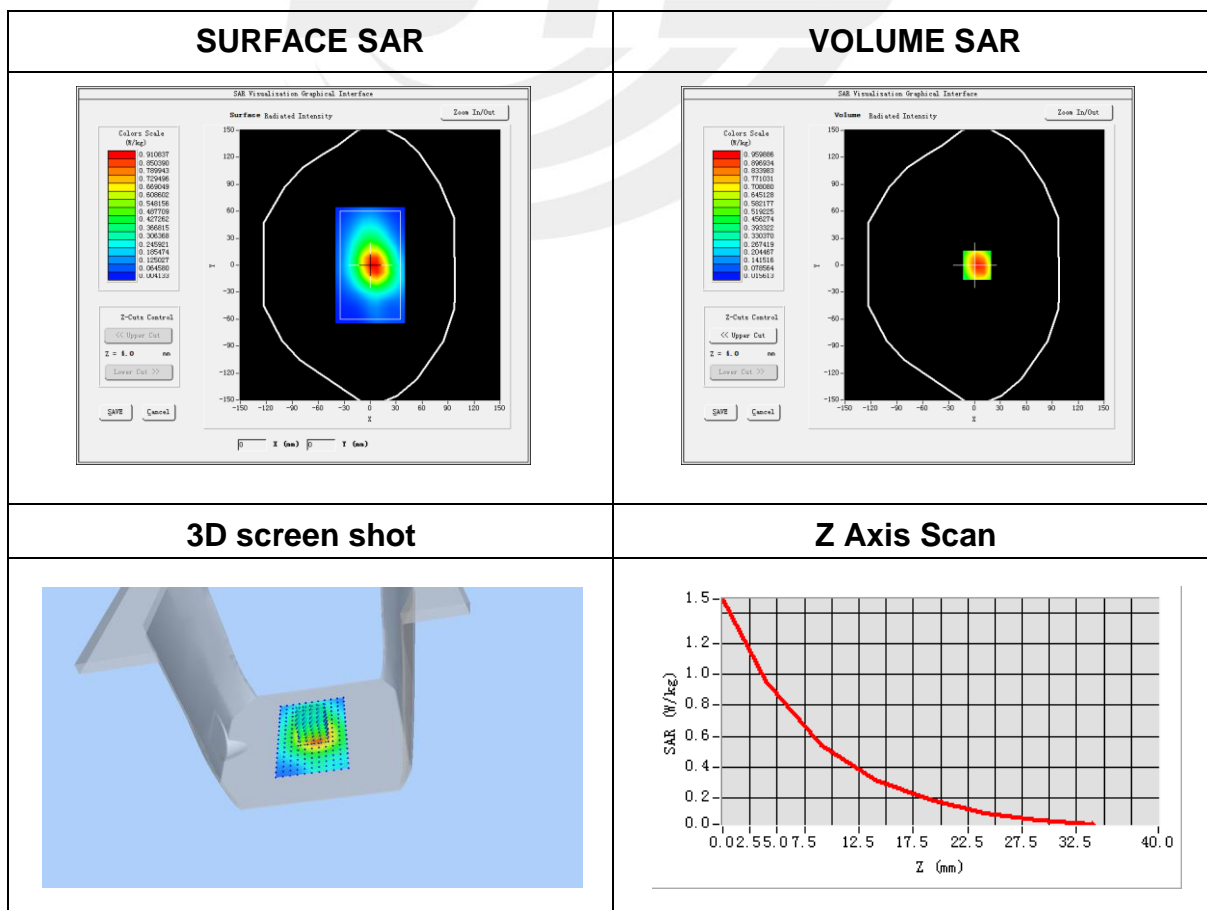
Plot 4: DUT: 4G Fixed Wireless Phone; EUT Model: CC555

Test Date	2020-04-07
Probe	SN 41/18 EPGO334
ConvF	1.88
Area Scan	dx=8mm dy=8mm, h= 5.00 mm
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5mm, Complete/ndx=8mm dy=8mm, h= 5.00 mm
Phantom	Validation plane
Device Position	Antenna parallel to the top
Band	EGPRS 1900
Channels	Middle
Signal	Duty Cycle: 2.00 (Crest factor: 2.0)
Frequency (MHz)	1909.8
Relative permittivity (real part)	52.78
Conductivity (S/m)	1.54
Variation (%)	-0.91

Maximum location: X=3.00, Y=0.00

SAR Peak: 1.49 W/kg

SAR 10g (W/Kg)	0.506749
SAR 1g (W/Kg)	0.920963



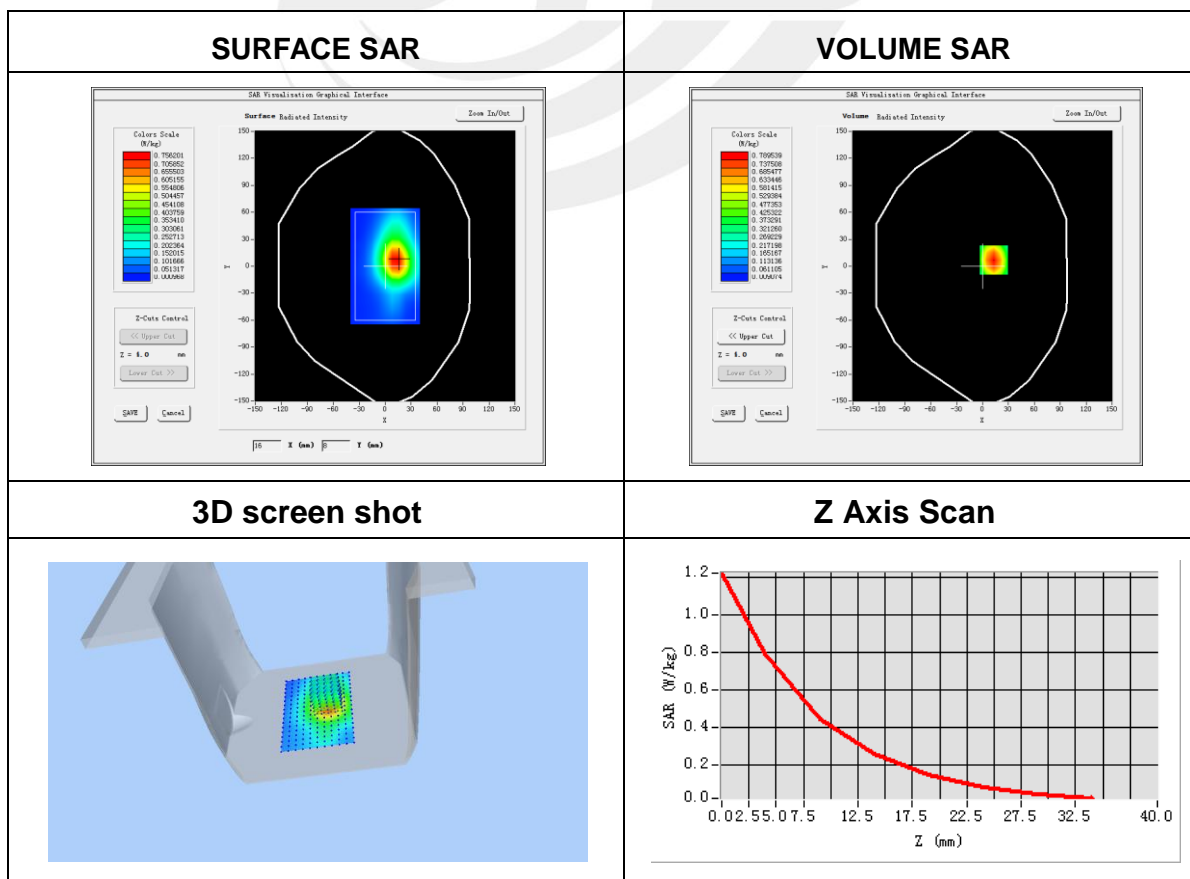
Plot 5: DUT: 4G Fixed Wireless Phone; EUT Model: CC555

Test Date	2020-04-07
Probe	SN 41/18 EPGO334
ConvF	1.88
Area Scan	dx=8mm dy=8mm, h= 5.00 mm
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5mm, Complete/ndx=8mm dy=8mm, h= 5.00 mm
Phantom	Validation plane
Device Position	Antenna parallel to the top
Band	WCDMA II
Channels	High
Signal	WCDMA (Crest factor: 1.0)
Frequency (MHz)	1907.6
Relative permittivity (real part)	52.78
Conductivity (S/m)	1.54
Variation (%)	3.79

Maximum location: X=13.00, Y=7.00

SAR Peak: 1.22 W/kg

SAR 10g (W/Kg)	0.408233
SAR 1g (W/Kg)	0.755211



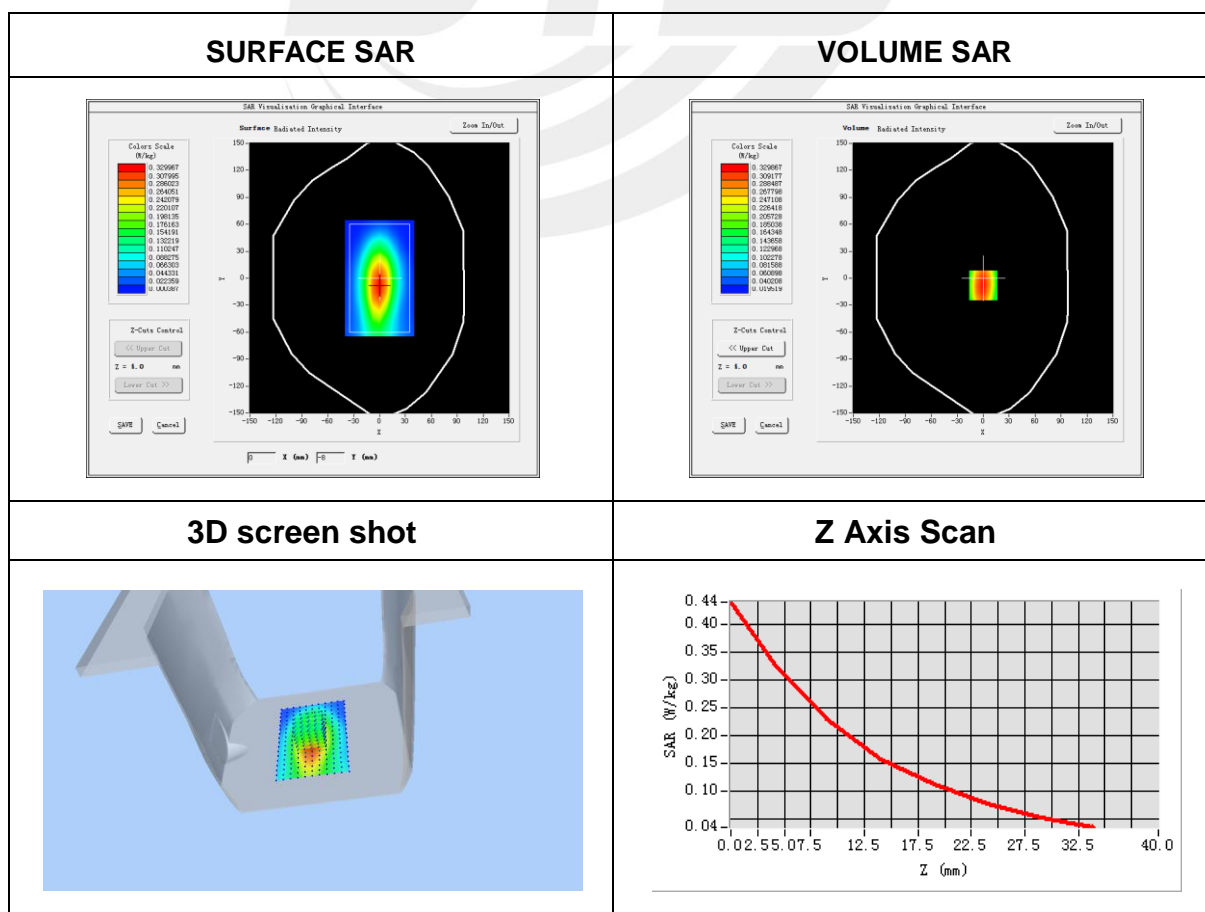
Plot 6: DUT: 4G Fixed Wireless Phone; EUT Model: CC555

Test Date	2020-04-02
Probe	SN 41/18 EPGO334
ConvF	1.53
Area Scan	dx=8mm dy=8mm, h= 5.00 mm
Zoom Scan	5x5x7, dx=8mm dy=8mm dz=5mm, Complete/ndx=8mm dy=8mm, h= 5.00 mm
Phantom	Validation plane
Device Position	Antenna parallel to the top
Band	WCDMA V
Channels	High
Signal	WCDMA (Crest factor: 1.0)
Frequency (MHz)	846.6
Relative permittivity (real part)	55.79
Conductivity (S/m)	1.00
Variation (%)	-2.54

Maximum location: X=0.00, Y=-8.00

SAR Peak: 0.45 W/kg

SAR 10g (W/Kg)	0.204924
SAR 1g (W/Kg)	0.317787



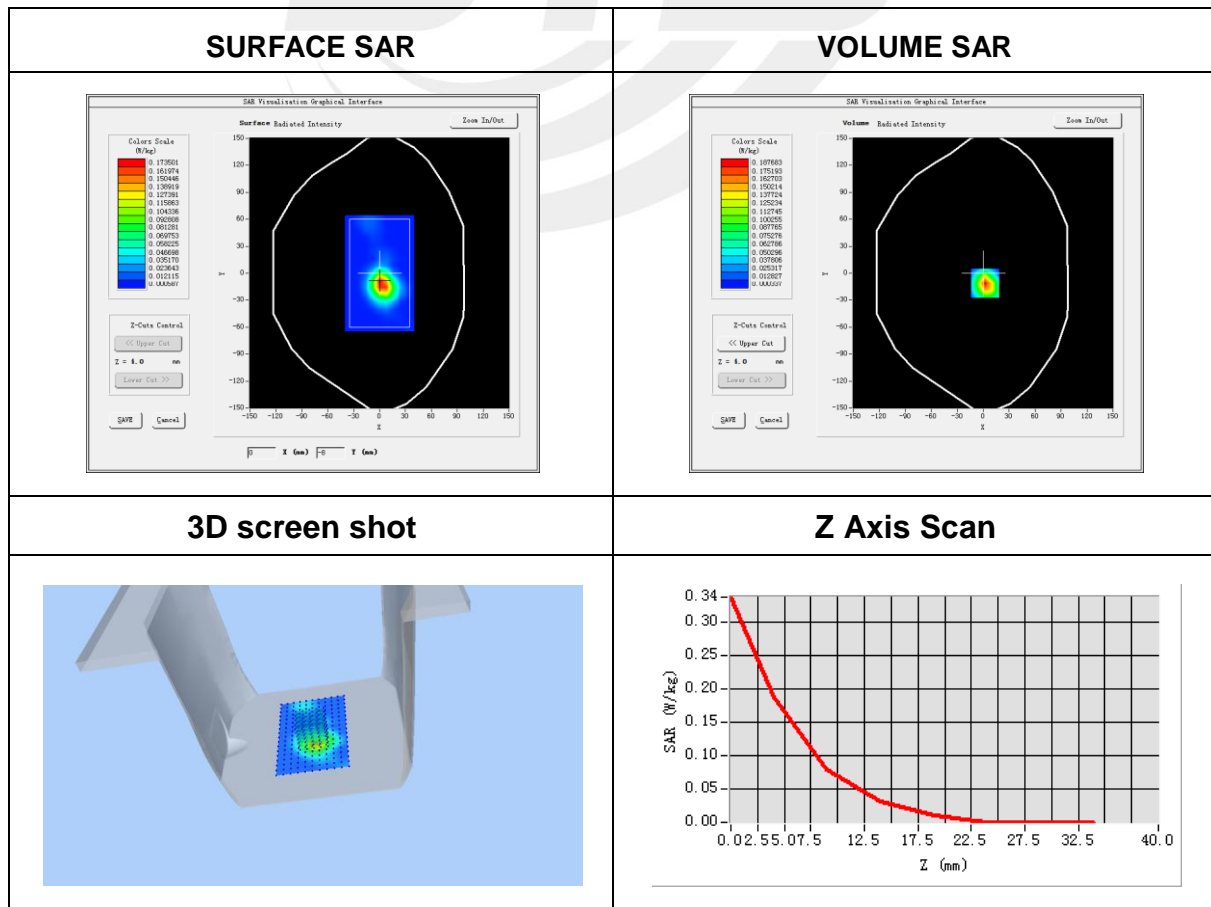
Plot 7: DUT: 4G Fixed Wireless Phone; EUT Model: CC555

Test Date	2020-04-09
Probe	SN 41/18 EPGO334
ConvF	2.02
Area Scan	dx=8mm dy=8mm, h= 5.00 mm
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5mm, Complete/ndx=8mm dy=8mm, h= 5.00 mm
Phantom	Validation plane
Device Position	Antenna parallel to the back
Band	IEEE 802.11b ISM
Channels	Low
Signal	IEEE802.b (Crest factor: 1.0)
Frequency (MHz)	2412
Relative permittivity (real part)	53.12
Conductivity (S/m)	1.98
Variation (%)	-1.83

Maximum location: X=2.00, Y=-11.00

SAR Peak: 0.34 W/kg

SAR 10g (W/Kg)	0.069165
SAR 1g (W/Kg)	0.172601



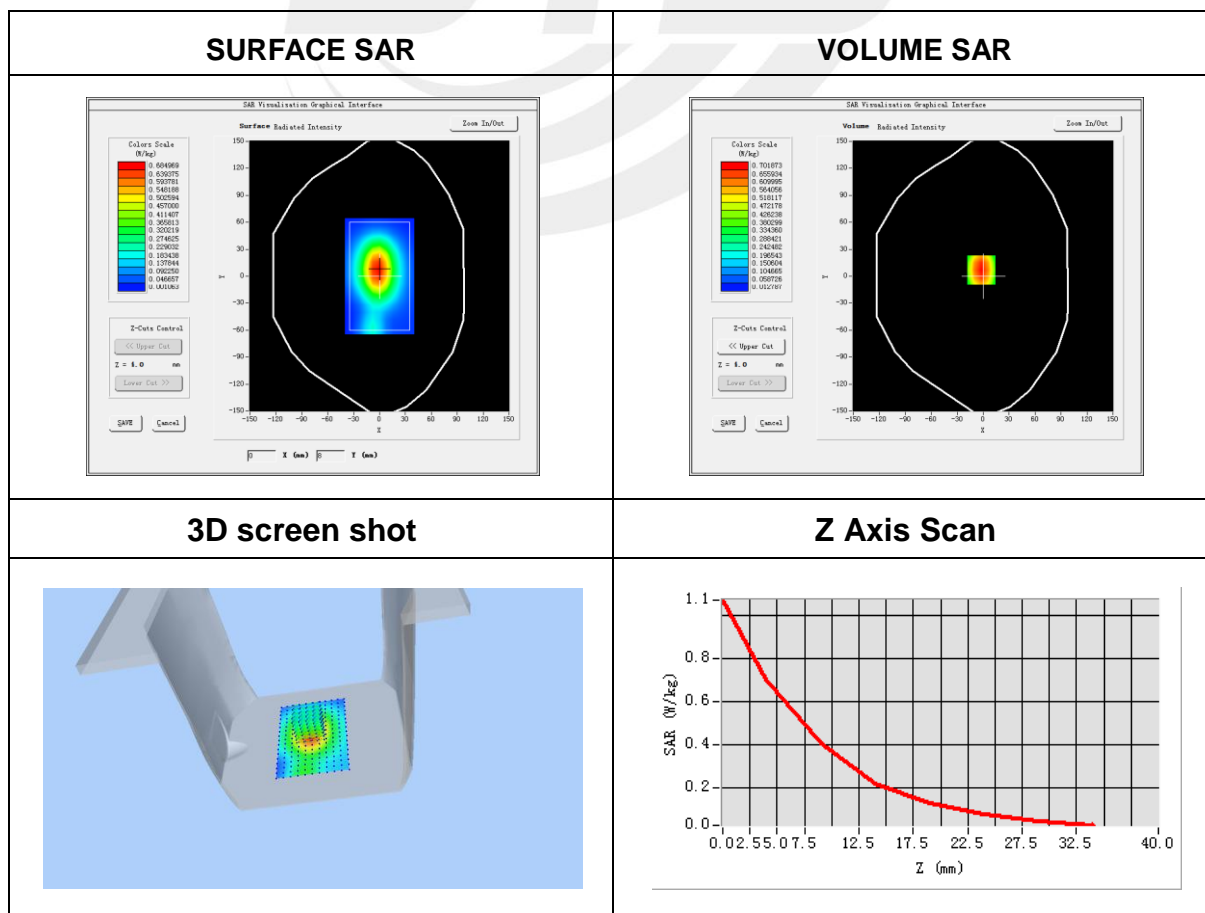
Plot 8: DUT: 4G Fixed Wireless Phone; EUT Model: CC555

Test Date	2020-04-03
Probe	SN 41/18 EPGO334
ConvF	1.66
Area Scan	dx=8mm dy=8mm, h= 5.00 mm
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5mm, Complete/ndx=8mm dy=8mm, h= 5.00 mm
Phantom	Validation plane
Device Position	Antenna parallel to the top
Band	LTE Band 4 (RB 1)
Channels	Middle
Signal	LTE (Crest factor: 1.0)
Frequency (MHz)	1732.5
Relative permittivity (real part)	52.84
Conductivity (S/m)	1.50
Variation (%)	3.16

Maximum location: X=-2.00, Y=7.00

SAR Peak: 1.08 W/kg

SAR 10g (W/Kg)	0.374544
SAR 1g (W/Kg)	0.669022



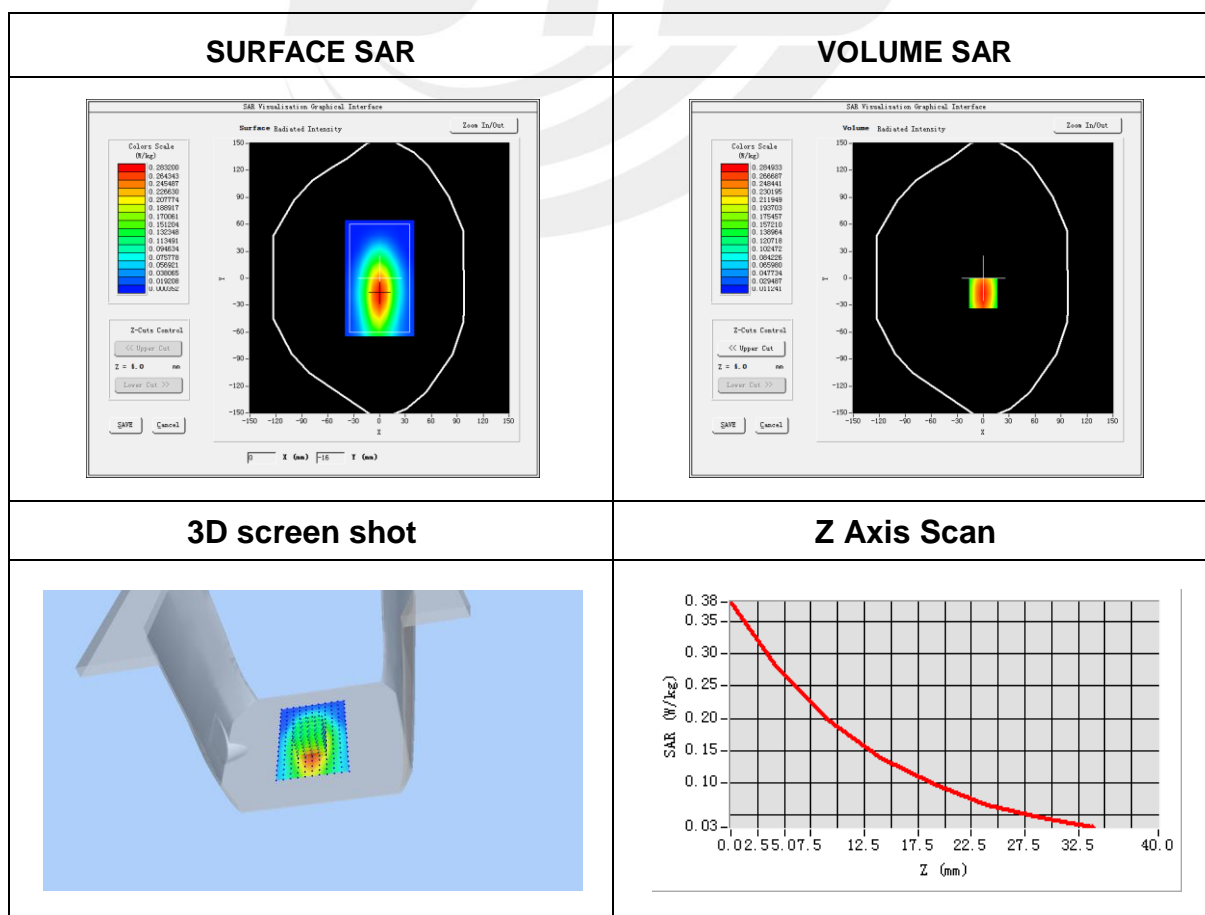
Plot 9: DUT: 4G Fixed Wireless Phone; EUT Model: CC555

Test Date	2020-04-02
Probe	SN 41/18 EPGO334
ConvF	1.53
Area Scan	dx=8mm dy=8mm, h= 5.00 mm
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5mm, Complete/ndx=8mm dy=8mm, h= 5.00 mm
Phantom	Validation plane
Device Position	Antenna parallel to the top
Band	LTE Band 5 (RB 1)
Channels	High
Signal	LTE (Crest factor: 1.0)
Frequency (MHz)	844.0
Relative permittivity (real part)	55.79
Conductivity (S/m)	1.00
Variation (%)	-1.37

Maximum location: X=0.00, Y=-17.00

SAR Peak: 0.38 W/kg

SAR 10g (W/Kg)	0.177036
SAR 1g (W/Kg)	0.273686



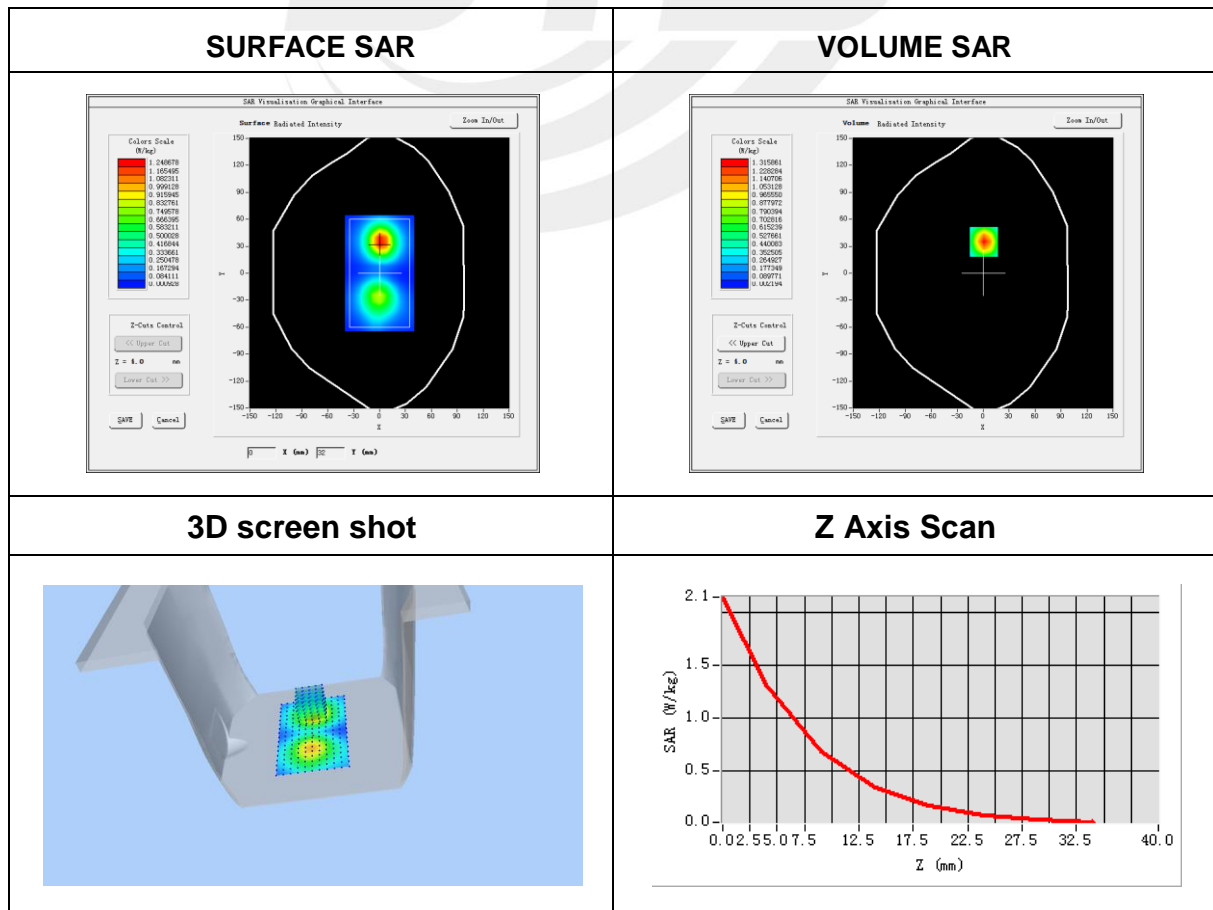
Plot 10: DUT: 4G Fixed Wireless Phone; EUT Model: CC555

Test Date	2020-04-10
Probe	SN 41/18 EPGO334
ConvF	1.92
Area Scan	dx=8mm dy=8mm, h= 5.00 mm
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5mm, Complete/ndx=8mm dy=8mm, h= 5.00 mm
Phantom	Validation plane
Device Position	Antenna parallel to the top
Band	LTE Band 7 (RB 1)
Channels	High
Signal	LTE (Crest factor: 1.0)
Frequency (MHz)	2560
Relative permittivity (real part)	56.36
Conductivity (S/m)	2.23
Variation (%)	1.31

Maximum location: X=1.00, Y=35.00

SAR Peak: 2.13 W/kg

SAR 10g (W/Kg)	0.599921
SAR 1g (W/Kg)	1.233450



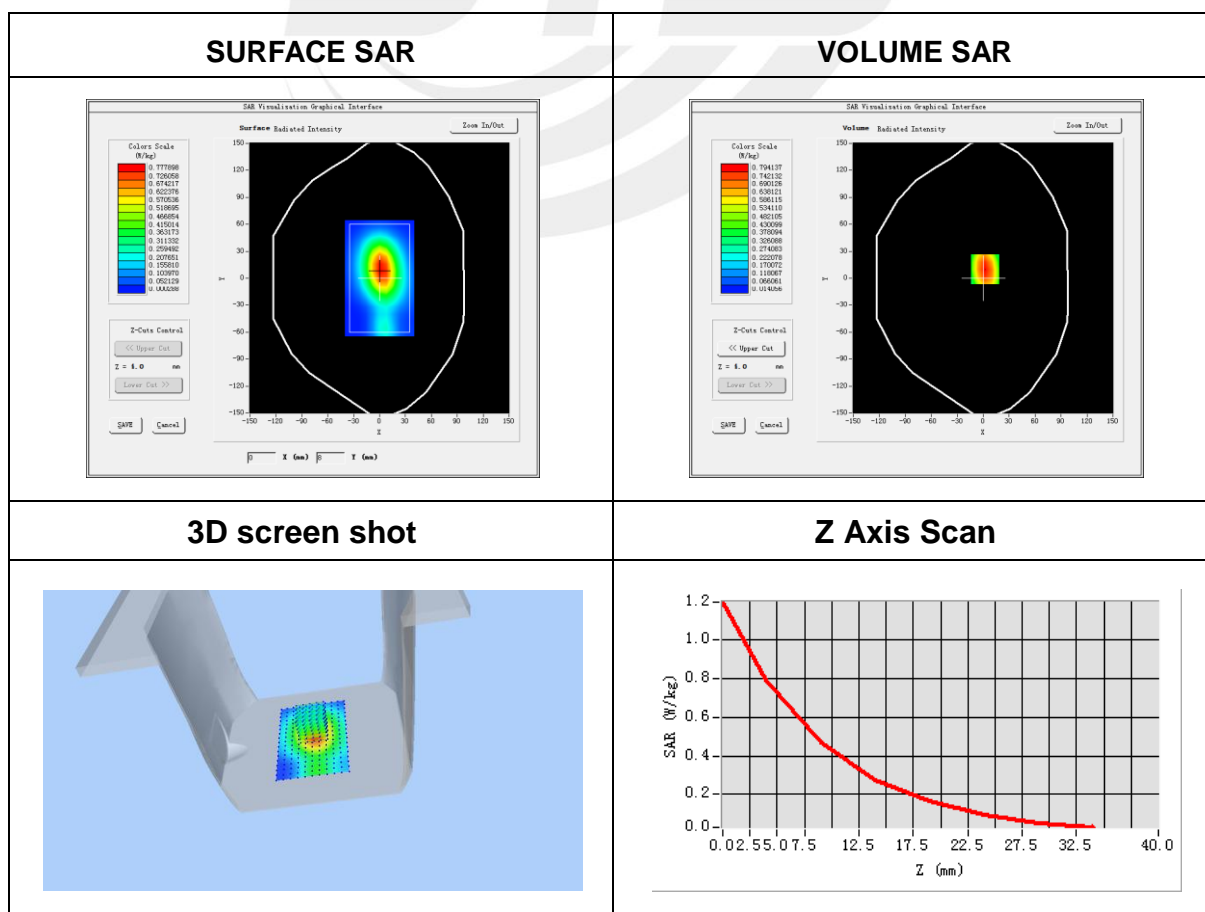
Plot 11: DUT: 4G Fixed Wireless Phone; EUT Model: CC555

Test Date	2020-04-03
Probe	SN 41/18 EPGO334
ConvF	1.66
Area Scan	dx=8mm dy=8mm, h= 5.00 mm
Zoom Scan	5x5x7,dx=8mm dy=8mm dz=5mm, Complete/ndx=8mm dy=8mm, h= 5.00 mm
Phantom	Validation plane
Device Position	Antenna parallel to the top
Band	LTE Band 66 (RB 1)
Channels	High
Signal	LTE (Crest factor: 1.0)
Frequency (MHz)	1770.0
Relative permittivity (real part)	52.84
Conductivity (S/m)	1.50
Variation (%)	-3.47

Maximum location: X=2.00, Y=10.00

SAR Peak: 1.19 W/kg

SAR 10g (W/Kg)	0.432230
SAR 1g (W/Kg)	0.756330





Appendix C. Probe Calibration And Dipole Calibration Report

Refer the appendix Calibration Report.

※※※※END OF THE REPORT※※※※

