FCC SAR TEST REPORT

Report No.: STS2007339H01

Issued for

Shenzhen Leiwei Guoji Keji Co., Ltd.

Rm1012, Plaza Building, No.74 Baomin Road, Bao'an District, Shenzhen, China

Product Name:	4G smartwatch phone
Brand Name:	Ckyrin
Model Name:	S10
Series Model:	S20, S30, S40, S50, S60, S70, S80, S90, M10, M20, M30, M40, M50, M60, M70, M80, M90, K1, K2, K3, K4, K5, K6, K7, K8, K9, W1, W2, W3, W4, W5, W6, W7, W8, W9, Z1, Z2, Z3, Z4, Z5, Z6, Z7, Z8, Z9
FCC ID:	2AW57S10
Test Standard:	ANSI/IEEE Std. C95.1
	FCC 47 CFR Part 2 (2.1093)
	IEEE 1528: 2013
Max. Report SAR (1g):	Front of face: 1.157 W/kg
Max. Report SAR (10g):	Wrist: 1.653 W/kg

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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	:	Shenzhen Leiwei Guoji Keji Co., Ltd.
Address	:	Rm1012, Plaza Building, No.74 Baomin Road, Bao'an District, Shenzhen, China
Manufacture's Name	:	Shenzhen Leiwei Guoji Keji Co., Ltd.
Address	:	Rm1012, Plaza Building, No.74 Baomin Road, Bao'an District, Shenzhen, China

Product description

Product name	:	4G smartwatch phone
Brand name	:	Ckyrin
Model name	:	S10
Series Model	:	S20, S30, S40, S50, S60, S70, S80, S90, M10, M20, M30, M40, M50, M60, M70, M80, M90, K1, K2, K3, K4, K5, K6, K7, K8, K9, W1, W2, W3, W4, W5, W6, W7, W8, W9, Z1, Z2, Z3, Z4, Z5, Z6, Z7, Z8, Z9
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	:	01 Aug. 2020~06 Aug. 2020
Date of Issue	:	07 Aug. 2020
Test Result	:	**Pass**

Testing Engineer : Aaron Bu

(Aaron Bu)

Technical Manager : Sean She

(Sean she)

Authorized Signatory : Vita Li

(Vita Li)

Table of Contents

Revision History

Rev.	Issue Date	Report No.	Effect Page	Contents
00	07 Aug. 2020	STS2007339H01	ALL	Initial Issue

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 smartwatch phone			
Brand Name	Ckyrin			
Model Name	S10			
Series Model	S20, S30, S40, S50, S60, S70, S80, S90, M10, M20, M30, M40, M50, M60, M70, M80, M90, K1, K2, K3, K4, K5, K6, K7, K8, K9, W1, W2, W3, W4, W5, W6, W7, W8, W9, Z1, Z2, Z3, Z4, Z5, Z6, Z7, Z8, Z9			
Model Difference	Only different in model name.			
Battery	Rated Voltage: 3.8V Charge Limit: 4.35V Capacity: 900mAh			
Device Category	Portable			
Product stage	Production unit			
RF Exposure Environment	General Population / Uncontrolled			
IMEI	353919025680130			
Hardware Version	C7S_MB_V1.1_190308			
Software Version	S10_C7S_EN_V1.6_20200523			
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 7: 2502.5~2567.5MHz LTE Band 12: 699.7~715.3MHz WLAN802.11b/g/n(HT20): 2412~2462MHz WLAN 802.11n(HT40): 2422~2452MHz Bluetooth: 2402~ 2480MHz			
Max. Reported SAR	Band	Mode	Front of face-1g (W/kg)	Wrist-10g (W/kg)
	PCE	GSM 850	1.157	1.317
	PCE	GSM 1900	0.449	1.653
	PCE	WCDMA Band II	0.791	1.114
	PCE	WCDMA Band V	0.136	0.606
	PCE	LTE Band 7	0.679	1.696
	PCE	LTE Band 12	0.298	0.499
	DTS	2.4GHz WLAN	0.013	0.126
	DTS	Bluetooth Note	0.021	0.017
Sum SAR			1.178	1.822
Limit			1.6 W/kg	4.0 W/kg
FCC Equipment Class	Licensed Portable Transmitter Worn on body (PCT) 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) /n(HT40) BLE: GFSK
Antenna Specification:	GSM, WCDMA, LTE: PIFA Antenna BT, WLAN: PIFA Antenna
SIM Card	Only support single SIM Card.
Hotspot Mode	Not Support
DTM Mode	Not Support
Note: 1. Bluetooth SAR 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 (℃)	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:

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

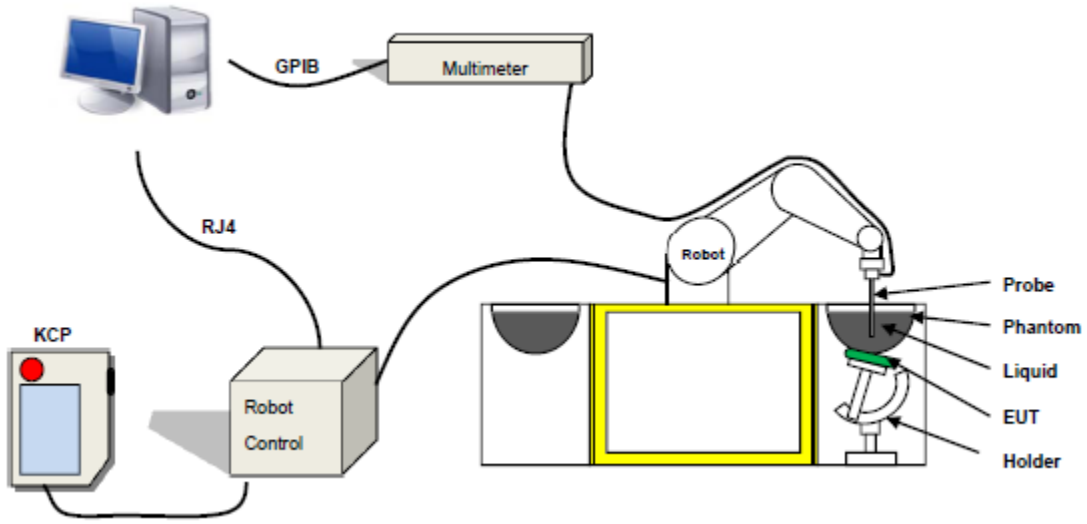
SAR is expressed in units of Watts per kilogram (W/kg) SAR measurement can be related to the electrical field in the tissue by

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

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

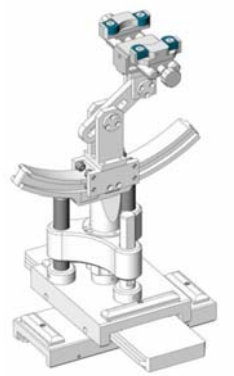
3.2.2 Phantom

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.

SN 32/14 SAM115

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. 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	εr
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	εr
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	εr		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		Head Simulating Liquid		Parameters	Target	Measured	Deviation [%]	Limited [%]
	Temp. [°C]	Humidity [%]	Frequency	Temp. [°C]					
2020-08-01	23.3	49	750 MHz	23.0	Permittivity:	41.9	41.33	-1.36	±5
					Conductivity:	0.88	0.87	-1.66	±5
2020-08-01	23.3	49	835 MHz	23.0	Permittivity:	41.5	42.38	2.12	±5
					Conductivity:	0.9	0.87	-3.48	±5
2020-08-04	22.9	48	1900 MHz	22.6	Permittivity:	40	38.53	-3.67	±5
					Conductivity:	1.4	1.42	1.60	±5
2020-08-05	23.4	55	2450 MHz	23.2	Permittivity:	39.2	37.92	-3.25	±5
					Conductivity:	1.8	1.78	-0.97	±5
2020-08-06	23.2	52	2600 MHz	23.0	Permittivity:	39.0	40.23	3.16	±5
					Conductivity:	1.96	1.99	1.29	±5

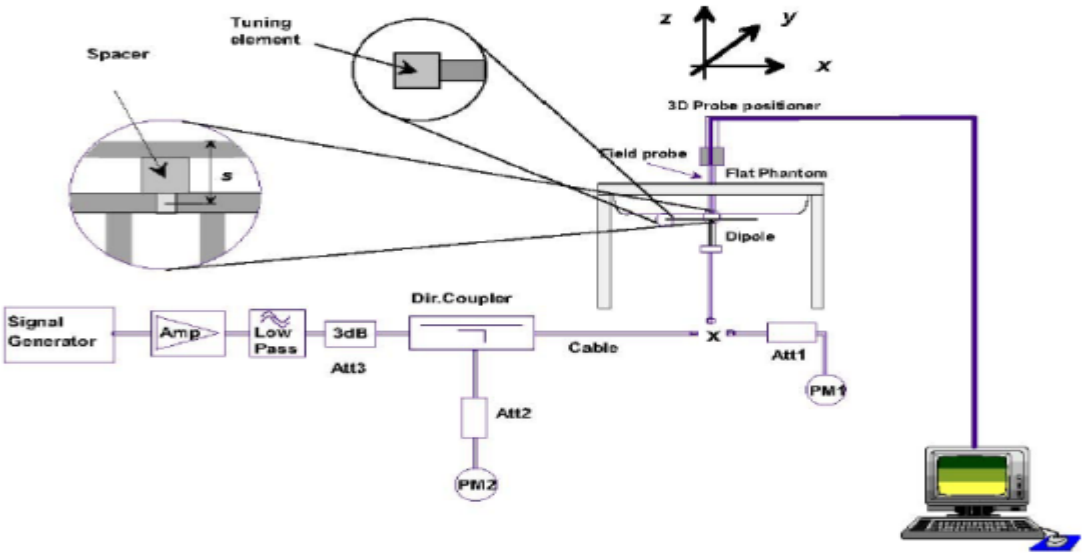
Date	Ambient condition		Body Simulating Liquid		Parameters	Target	Measured	Deviation [%]	Limited [%]
	Temp. [°C]	Humidity [%]	Frequency	Temp. [°C]					
2020-08-01	23.3	49	750 MHz	23.0	Permittivity:	55.5	55.76	0.47	±5
					Conductivity:	0.96	0.95	-1.08	±5
2020-08-01	23.3	49	835 MHz	23.0	Permittivity:	55.2	55.13	-0.13	±5
					Conductivity:	0.97	0.97	0.16	±5
2020-08-04	22.9	48	1900 MHz	22.6	Permittivity:	53.3	54.95	3.09	±5
					Conductivity:	1.52	1.52	0.29	±5
2020-08-05	23.4	55	2450 MHz	23.2	Permittivity:	52.7	51.03	-3.17	±5
					Conductivity:	1.95	1.98	1.48	±5
2020-08-06	23.2	52	2600 MHz	23.0	Permittivity:	52.5	53.31	1.55	±5
					Conductivity:	2.16	2.16	-0.02	±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
750 Head	100	0.870	8.70	8.49	2.49	2020-08-01
750 Body	100	0.890	8.90	8.49	4.82	2020-08-01
835 Head	100	0.922	9.22	9.56	-3.52	2020-08-01
835 Body	100	0.964	9.64	9.56	0.81	2020-08-01
1900 Head	100	4.032	40.32	39.7	1.56	2020-08-04
1900 Body	100	3.867	38.67	39.7	-2.59	2020-08-04
2450 Head	100	5.027	50.27	52.4	-4.07	2020-08-05
2450 Body	100	5.093	50.93	52.4	-2.80	2020-08-05
2600 Head	100	5.538	55.38	55.3	0.14	2020-08-06
2600 Body	100	5.637	56.37	55.3	1.94	2020-08-06

Note:

1. The tolerance limit of System validation ±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 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.
- 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 D01 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 Test Position

This EUT was tested in Front Face and Rear Face.

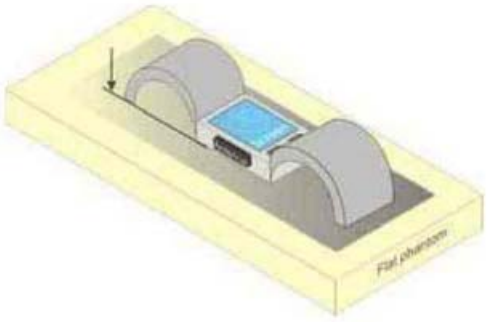
Limb-worn Position Conditions

Transmitters that are built-in within a wrist watch or similar wrist-worn devices typically operate in speaker mode for voice communication, with the device worn on the wrist and positioned next to the mouth. Next to the mouth exposure requires 1-g SAR and the wrist-worn condition requires 10-g extremity SAR

.

(1) Next to the mouth use is evaluated with the front of the device positioned at 10 mm from a flat phantom filled with head tissue-equivalent medium

(2) SAR for wrist exposure is evaluated with the back of the device positioned in direct contact against a flat phantom filled with body tissue-equivalent medium.



Test position for limb-worn devices

8. Uncertainty

8.1 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	$\sqrt{3}$	√0.5	√0.5	0.28	0.28	∞
Hemispherical Isotropy	1.045	R	$\sqrt{3}$	√0.5	√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	

8.2 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	

9. Conducted Power Measurement

9.1 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)	31.18	31.18	31.19	30.16	30.22	30.08
GPRS (GMSK, 1-Slot)	30.75	30.58	30.82	29.67	29.59	29.76
GPRS (GMSK, 2-Slot)	30.33	30.17	30.36	29.25	29.15	29.27
GPRS (GMSK, 3-Slot)	29.88	29.75	29.91	28.79	28.75	28.81
GPRS (GMSK, 4-Slot)	29.43	29.34	29.44	28.36	28.26	28.38
EGPRS(8PSK, 1-Slot)	26.33	26.41	26.42	29.71	29.66	29.75
EGPRS(8PSK, 2-Slot)	25.56	25.70	25.68	28.97	28.89	28.97
EGPRS(8PSK, 3-Slot)	24.77	24.91	24.92	28.24	28.13	28.18
EGPRS(8PSK, 4-Slot)	24.05	24.18	24.15	27.50	27.38	27.45

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)	22.15	22.15	22.16	21.13	21.19	21.05
GPRS (GMSK, 1-Slot)	21.72	21.55	21.79	20.64	20.56	20.73
GPRS (GMSK, 2-Slot)	24.31	24.15	24.34	23.23	23.13	23.25
GPRS (GMSK, 3-Slot)	25.62	25.49	25.65	24.53	24.49	24.55
GPRS (GMSK, 4-Slot)	26.42	26.33	26.43	25.35	25.25	25.37
EGPRS(8PSK, 1-Slot)	17.30	17.38	17.39	20.68	20.63	20.72
EGPRS(8PSK, 2-Slot)	19.54	19.68	19.66	22.95	22.87	22.95
EGPRS(8PSK, 3-Slot)	20.51	20.65	20.66	23.98	23.87	23.92
EGPRS(8PSK, 4-Slot)	21.04	21.17	21.14	24.49	24.37	24.44

Remark :
1. SAR testing was performed on the maximum frame-averaged power mode.
2. 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	21.20	21.34	21.47	21.64	21.52	21.24
RMC 12.2Kbps	21.24	21.36	21.48	21.67	21.55	21.28
HSDPA Subtest-1	20.95	21.13	21.14	21.45	21.30	21.40
HSDPA Subtest-2	20.47	20.63	20.68	21.02	20.89	20.91
HSDPA Subtest-3	20.00	20.14	20.26	20.69	20.41	20.55
HSDPA Subtest-4	19.56	19.67	19.77	20.27	20.03	20.22
HSUPA Subtest-1	20.92	20.96	21.01	21.29	21.26	21.21
HSUPA Subtest-2	19.98	19.98	20.11	20.35	20.29	20.24
HSUPA Subtest-3	19.95	19.50	19.75	20.21	19.89	19.86
HSUPA Subtest-4	19.58	19.19	19.38	19.85	19.55	19.39
HSUPA Subtest-5	18.16	17.76	17.96	18.44	18.09	17.90

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≤ CM≤3.5	MAX(CM-1,0)
Note: CM=1 for βc/βd=12/15, βhs/ βc=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	10.27
	6	2437	11.13
	11	2462	11.50
802.11g	1	2412	6.52
	6	2437	8.97
	11	2462	9.24
802.11n(HT 20)	1	2412	6.51
	6	2437	8.94
	11	2462	9.14
802.11n(HT 40)	3	2422	6.69
	6	2437	6.84
	9	2452	6.98

BLE

Mode	Channel Number	Frequency (MHz)	Average Power (dBm)
GFSK(1Mbps)	0	2402	-4.65
	19	2440	-3.73
	39	2480	-1.78

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 $\leqslant$ 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 ½ dB higher than the same configuration in QPSK and the reported SAR for the QPSK configuration is $\leqslant$ 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 ½ dB higher than the same configuration in the largest supported bandwidth, and the reported SAR for the largest supported bandwidth is $\leqslant$ 1.45 W/kg; Per KDB 941225 D05, smaller bandwidth SAR testing is not required.

LTE BAND 7

LTE Band 7 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
5	1	0	QPSK	23.10	23.25	23.08
5	1	12		22.86	22.96	22.84
5	1	24		22.65	22.67	22.55
5	12	0		22.42	22.41	22.31
5	12	6		22.21	22.13	22.09
5	12	11		21.92	21.90	21.79
5	25	0		21.67	21.63	21.52
5	1	0	16-QAM	22.89	23.03	22.81
5	1	12		22.62	22.80	22.57
5	1	24		22.32	22.55	22.33
5	12	0		22.04	22.32	22.03
5	12	6		21.75	22.07	21.78
5	12	11		21.51	21.77	21.58
5	25	0		21.31	21.56	21.31
10	1	0	QPSK	22.95	23.00	23.06
10	1	24		22.72	22.71	22.76
10	1	49		22.52	22.50	22.54
10	25	0		22.25	22.24	22.25
10	25	12		22.00	21.97	21.95
10	25	24		21.78	21.77	21.70
10	50	0		21.48	21.48	21.48
10	1	0	16-QAM	22.69	22.74	22.84
10	1	24		22.48	22.45	22.64
10	1	49		22.20	22.22	22.41
10	25	0		21.93	21.94	22.13
10	25	12		21.66	21.73	21.91
10	25	24		21.40	21.52	21.61
10	50	0		21.17	21.30	21.36

LTE BAND 7

LTE Band 7 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
15	1	0	QPSK	23.15	23.08	23.05
15	1	37		22.91	22.84	22.84
15	1	74		22.70	22.59	22.57
15	36	0		22.43	22.38	22.35
15	36	18		22.19	22.10	22.05
15	36	39		21.90	21.81	21.79
15	75	0		21.70	21.57	21.51
15	1	0	16-QAM	22.91	22.87	22.78
15	1	38		22.69	22.63	22.51
15	1	75		22.47	22.41	22.25
15	36	0		22.20	22.15	21.96
15	36	18		21.97	21.93	21.72
15	36	39		21.68	21.64	21.46
15	75	0		21.48	21.36	21.17
20	1	0	QPSK	23.40	23.36	23.42
20	1	49		23.19	23.11	23.13
20	1	99		22.94	22.87	22.88
20	50	0		22.68	22.66	22.66
20	50	24		22.46	22.39	22.41
20	50	49		22.22	22.11	22.17
20	100	0		22.00	21.84	21.88
20	1	0	16-QAM	23.12	23.10	23.14
20	1	49		22.85	22.87	22.93
20	1	99		22.56	22.60	22.70
20	50	0		22.30	22.31	22.49
20	50	24		22.07	22.02	22.24
20	50	49		21.83	21.72	22.01
20	100	0		21.53	21.43	21.74

LTE BAND 12

LTE Band 12 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
1.4	1	0	QPSK	25.52	25.49	25.53
1.4	1	2		25.23	25.25	25.31
1.4	1	5		24.96	25.01	25.04
1.4	3	0		24.72	24.72	24.83
1.4	3	1		24.49	24.44	24.55
1.4	3	2		24.28	24.24	24.33
1.4	6	0		24.06	23.99	24.11
1.4	1	0	16-QAM	25.23	25.20	25.25
1.4	1	2		24.98	24.97	24.97
1.4	1	5		24.72	24.76	24.76
1.4	3	0		24.49	24.54	24.48
1.4	3	1		24.24	24.28	24.25
1.4	3	2		23.98	24.05	24.00
1.4	6	0		23.75	23.76	23.78
3	1	0	QPSK	25.15	25.18	25.07
3	1	7		24.86	24.92	24.77
3	1	14		24.65	24.71	24.48
3	8	0		24.40	24.41	24.26
3	8	4		24.16	24.21	24.02
3	8	7		23.93	23.96	23.79
3	15	0		23.66	23.72	23.58
3	1	0	16-QAM	24.88	24.96	24.83
3	1	7		24.61	24.72	24.58
3	1	14		24.37	24.45	24.32
3	8	0		24.12	24.19	24.09
3	8	4		23.88	23.94	23.80
3	8	7		23.64	23.67	23.59
3	15	0		23.36	23.39	23.34

LTE BAND 12

LTE Band 12 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
5	1	0	QPSK	25.54	25.47	25.44
5	1	12		25.31	25.17	25.22
5	1	24		25.03	24.89	25.01
5	12	0		24.77	24.68	24.77
5	12	6		24.54	24.43	24.52
5	12	11		24.25	24.20	24.29
5	25	0		23.98	23.97	24.03
5	1	0	16-QAM	25.32	25.20	25.20
5	1	12		25.11	24.95	24.98
5	1	24		24.87	24.69	24.70
5	12	0		24.67	24.46	24.44
5	12	6		24.40	24.22	24.18
5	12	11		24.18	23.93	23.89
5	25	0		23.97	23.73	23.66
10	1	0	QPSK	25.68	25.52	25.60
10	1	24		25.40	25.27	25.34
10	1	49		25.12	25.01	25.12
10	25	0		24.82	24.71	24.91
10	25	12		24.53	24.45	24.61
10	25	24		24.23	24.20	24.40
10	50	0		24.00	23.97	24.12
10	1	0	16-QAM	25.45	25.31	25.30
10	1	24		25.19	25.09	25.04
10	1	49		24.96	24.80	24.81
10	25	0		24.66	24.51	24.55
10	25	12		24.44	24.28	24.25
10	25	24		24.17	24.01	23.97
10	50	0		23.89	23.72	23.72

9.2 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:
[(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm)]·[√f(GHZ)] ≤ 3.0 for 1-g SAR and ≤ 7.5 for 10-g extremity SAR, where:

- f(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.

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

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

Bluetooth Front of face SAR was not required; [(0.664/10)* √2.480] = **0.26** < 3.0.

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

Bluetooth Wrist SAR was not required; [(0.664/5)* √2.480] = **0.79** < 7.5.

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

2.4 GHz WLAN Front of face SAR was required; [(14.125/10)* √2.462] = **3.48** > 3.0.

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

2.4 GHz WLAN Wrist SAR was required; [(14.125/5)* √2.462] = **6.96** < 7.5.

11. EUT and Test Setup Photo

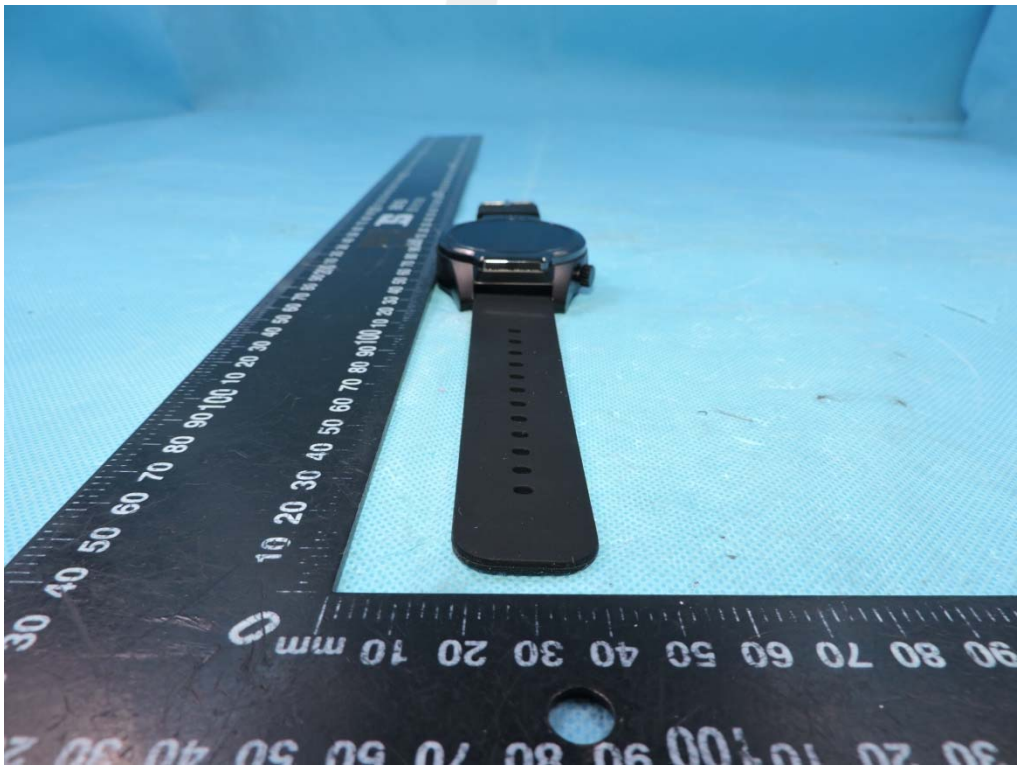
11.1 EUT Photo

Front side

Back side

Top Edge

Bottom Edge



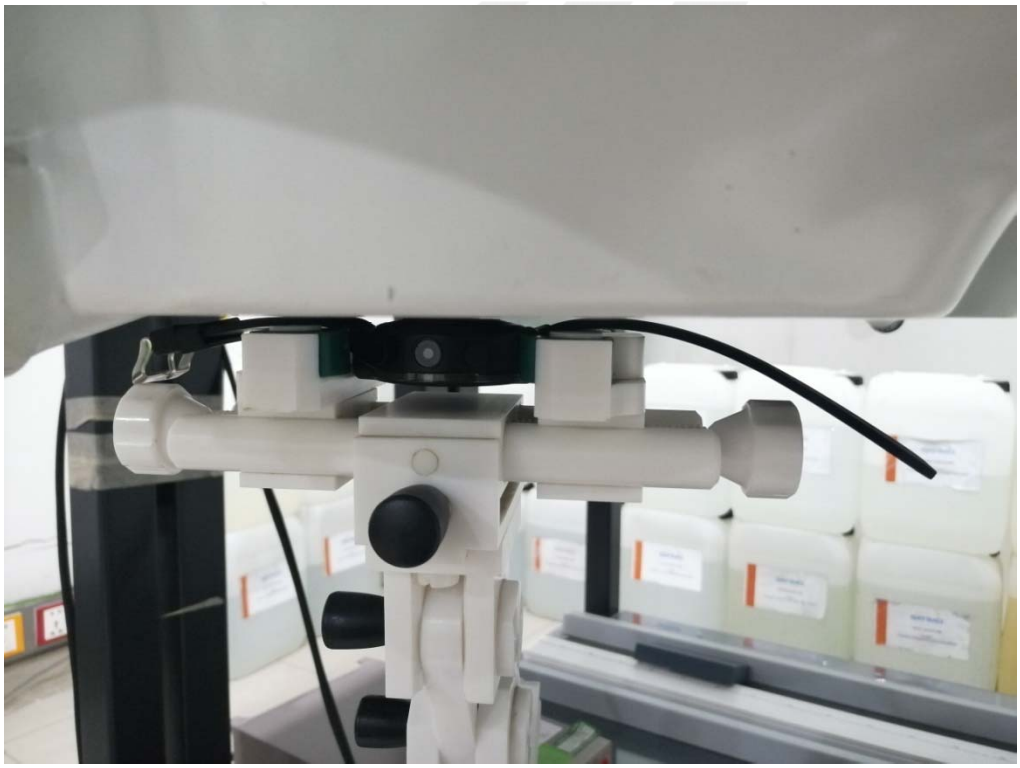
Left Edge

Right Edge

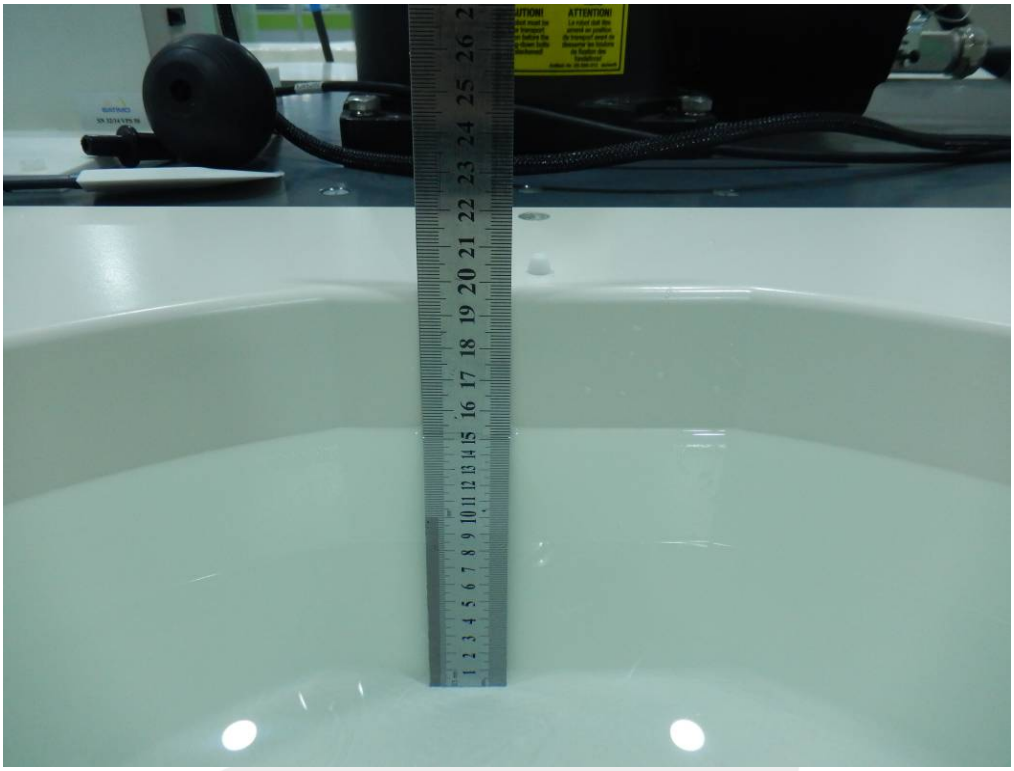
11.2 Setup Photo

Front of face (separation distance is 10mm)

Wrist (separation distance is 0mm)



Liquid depth (15 cm)



12. SAR Result Summary

12.1 Front of face 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 850	EGPRS Data-4 Slot	Front of face	128	0.892	2.62	32	31.18	1.077	/
GSM 850	EGPRS Data-4 Slot	Front of face	190	0.810	-2.85	32	31.18	0.978	/
GSM 850	EGPRS Data-4 Slot	Front of face	251	0.960	-3.42	32	31.19	**1.157**	1
GSM1900	EGPRS Data-4 Slot	Front of face	661	0.375	1.18	31	30.22	**0.449**	3
WCDMA II	RMC	Front of face	9262	0.728	-3.70	22	21.64	**0.791**	5
WCDMA V	RMC	Front of face	4233	0.120	2.29	22	21.47	**0.136**	7

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	Front of face	11	0.012	-3.28	12	11.50	100	**0.013**	9

Band	BW (MHz)	Mod.	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 7	20M	QPSK	Front of face	21350	0.594	1.74	24	23.42	**0.679**	11
LTE Band 12	10M	QPSK	Front of face	23060	0.277	0.32	26	25.68	**0.298**	13

Note:

1. The test separation of all above table is 10mm.
2. Per KDB865664 D01, Repeated measurement is not required when the original highest measured SAR is <0.80 W/kg

12.2 Wrist SAR

Band	Mode	Test Position	Ch.	Result 10g (W/Kg)	Power Drift(%)	Max.Turn-up Power(dBm)	Meas.Output Power(dBm)	Scaled SAR (W/Kg)	Meas. No.
GSM 850	EGPRS Data-4 Slot	Wrist	251	1.093	-3.99	32	31.19	**1.317**	2
GSM1900	EGPRS Data-4 Slot	Wrist	661	1.381	-0.89	31	30.22	**1.653**	4
WCDMA II	RMC	Wrist	9262	1.025	-2.93	22	21.64	**1.114**	6
WCDMA V	RMC	Wrist	4233	0.536	0.31	22	21.47	**0.606**	8

Band	BW (MHz)	Mod.	Test Position	Ch.	Result 10g (W/Kg)	Power Drift(%)	Max. Turn-up Power(dBm)	Meas. Output Power(dBm)	Scaled SAR (W/Kg)	Meas. No.
LTE Band 7	20M	QPSK	Wrist	21350	1.484	-0.84	24	23.42	**1.696**	10
LTE Band 12	10M	QPSK	Wrist	23060	0.464	-3.72	26	25.68	**0.499**	12

Note:

1. The test separation of all above table is 0mm.
2. Per KDB865664 D01, Repeated measurement is not required when the original highest measured SAR is <2.00 W/kg

Repeated SAR

Band	BW (MHz)	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	EGPRS Data-4 Slot	Front of face	251	0.901	-2.29	32	31.19	1.086	/

12.3 repeated SAR measurement

Band	BW (MHz)	Test Position	Ch.	Original Measured SAR 1g(mW/g)	1st Repeated SAR 1g	Ratio	Original Measured SAR 1g(mW/g)	2nd Repeated SAR 1g	Ratio
GSM 850	EGPRS Data-4 Slot	Front of face	251	0.960	0.901	1.03	-	-	-

Note:

1. Per KDB 865664 D01,for each frequency band ,repeated SAR measurement is required only when the measured SAR is≥0.8W/Kg.
2. Per KDB 865664 D01,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 ≥ 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
Front of Face	1. GSM + 2.4GHz WLAN
	2. GSM + Bluetooth
	3. WCDMA + 2.4GHz WLAN
	4. WCDMA + Bluetooth
	5. LTE + 2.4GHz WLAN
	6. LTE + Bluetooth
Wrist	1. GSM + 2.4GHz WLAN
	2. GSM + Bluetooth
	3. WCDMA + 2.4GHz WLAN
	4. WCDMA + Bluetooth
	5. LTE + 2.4GHz WLAN
	6. LTE + Bluetooth

NOTE:

1. Bluetooth and WLAN can't simultaneous transmission at the same time.
2. For simultaneous transmission at head and body exposure position, 2 transmitters simultaneous transmission was the worst state.
3. Based upon KDB 447498 D01, BT SAR is excluded as below table.
4. If the test separation distance is <5mm, 5mm is used for excluded SAR calculation.
5. For minimum test separation distance≦50mm,Bluetooth standalone SAR is excluded according to [(max. power of channel, including tune-up tolerance, mW)/ (min. test separation distance, mm)·[√f (GHz) /x] ≦3.0 for 1-g SAR and ≦7.5 for 10-g extremity SAR
6. The reported SAR summation is calculated based on the same configuration and test position.
7. 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:
   a) (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.
   b) 0.4W/Kg for 1-g SAR and 1.0W/Kg for 10-g SAR, when the separation distance is >50mm.

Estimated SAR		Maximum Power		Antenna to user(mm)	Frequency(GHz)	Stand Alone SAR [W/kg]
		dBm	mW			
BT	Front of face(1g)	0	1	10	2.480	0.021
	Wrist(10g)			5	2.480	0.017

Estimated SAR		Maximum Power		Antenna to user(mm)	Frequency(GHz)	Stand Alone SAR [W/kg]
		dBm	mW			
WIFI	Wrist(10g)	12	15.849	5	2.462	0.265

Simultaneous Mode	Position	Mode	Max. SAR (W/kg)	Sum SAR (W/kg)
GSM + 2.4GHz WLAN	Front of face(1g)	GSM	1.157	1.170
		2.4GHz WLAN	0.013	
	Wrist(10g)	GSM	1.653	1.918
		2.4GHz WLAN	0.265	
GSM + Bluetooth	Front of face(1g)	GSM	1.157	1.178
		Bluetooth	0.021	
	Wrist(10g)	GSM	1.653	1.670
		Bluetooth	0.017	
WCDMA + 2.4GHz WLAN	Front of face(1g)	WCDMA	0.791	0.804
		2.4GHz WLAN	0.013	
	Wrist(10g)	WCDMA	1.114	1.379
		2.4GHz WLAN	0.265	
WCDMA + Bluetooth	Front of face(1g)	WCDMA	0.791	0.812
		Bluetooth	0.021	
	Wrist(10g)	WCDMA	1.114	1.131
		Bluetooth	0.017	
LTE + 2.4GHz WLAN	Front of face(1g)	LTE	0.679	0.692
		2.4GHz WLAN	0.013	
	Wrist(10g)	LTE	1.696	1.961
		2.4GHz WLAN	0.265	
LTE + Bluetooth	Front of face(1g)	LTE	0.679	0.700
		Bluetooth	0.021	
	Wrist(10g)	LTE	1.696	1.713
		Bluetooth	0.017	

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.

13. Equipment List

Kind of Equipment	Manufacturer	Type No.	Serial No.	Last Calibration	Calibrated Until
750MHz Dipole	MVG	SID750	SN 30/14 DIP0G750-331	2020.07.14	2023.07.13
835MHz Dipole	MVG	SID835	SN 30/14 DIP0G835-332	2020.07.14	2023.07.13
1900MHz Dipole	MVG	SID1900	SN 30/14 DIP1G900-333	2020.07.14	2023.07.13
2450MHzDipole	MVG	SID2450	SN 30/14 DIP2G450-335	2020.07.14	2023.07.13
2600MHz Dipole	MVG	SID2600	SN 30/14 DIP2G600-336	2020.07.14	2023.07.13
E-Field Probe	MVG	SSE2	SN 41/18 EPGO334	2020.06.03	2021.06.02
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 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

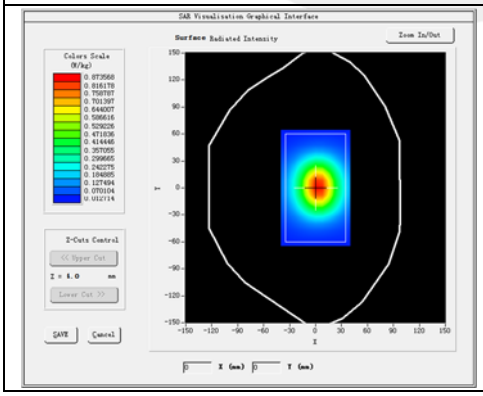
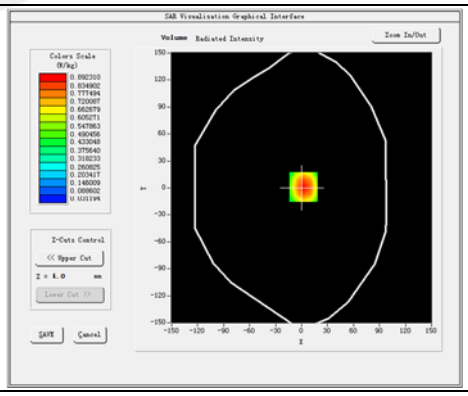
Appendix A. System Validation Plots

System Performance Check Data (750MHz Head)

Type: Phone measurement (Complete)
Area scan resolution: dx=8mm, dy=8mm
Zoom scan resolution: dx=8mm, dy=8mm, dz=5mm
Date of measurement: 2020-08-01

Experimental conditions

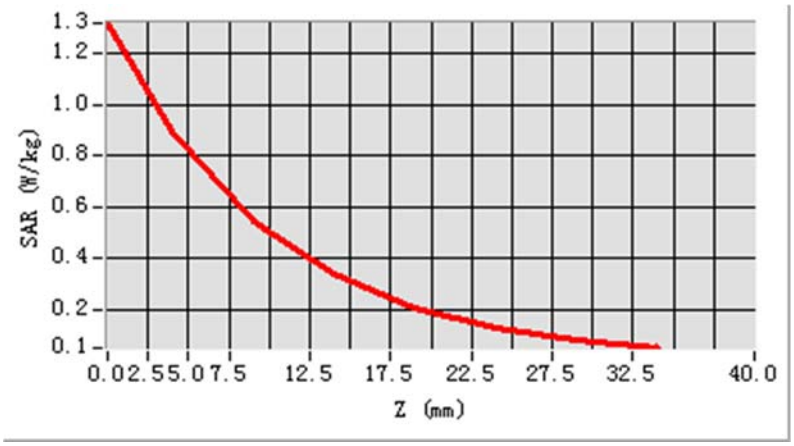
Phantom	Validation plane
Device Position	-
Band	750MHz
Channels	-
Signal	CW
Frequency (MHz)	750MHz
Relative permittivity	41.33
Conductivity (S/m)	0.87
Power drift (%)	1.12
Probe	SN 41/18 EPGO334
ConvF	1.43
Crest factor	1:1

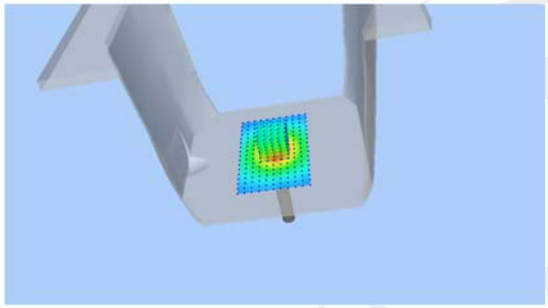
SURFACE SAR	VOLUME SAR
	

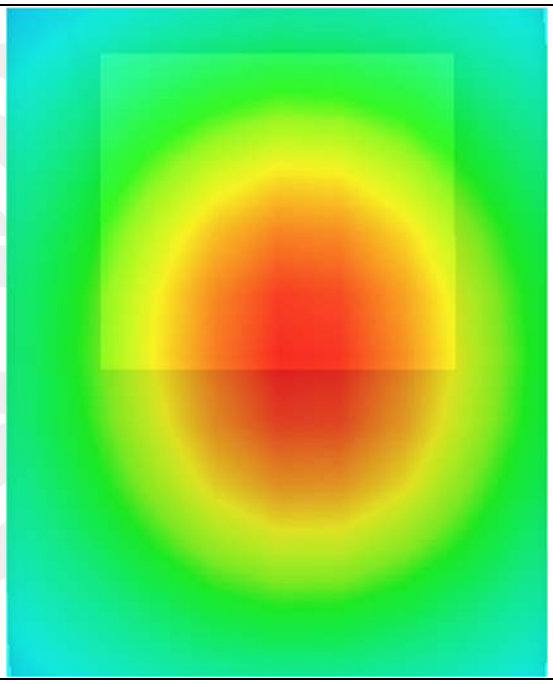
Maximum location: X=2.00, Y=1.00

SAR 10g (W/Kg)	0.552880
SAR 1g (W/Kg)	0.852753

Z Axis Scan


SAR (W/kg)
1.3
1.2
1.0
0.8
0.6
0.4
0.2
0.1
0.0
2.5
5.0
7.5
12.5
17.5
22.5
27.5
32.5
40.0
Z (mm)



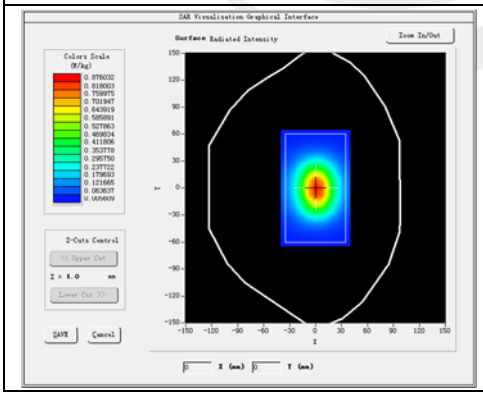
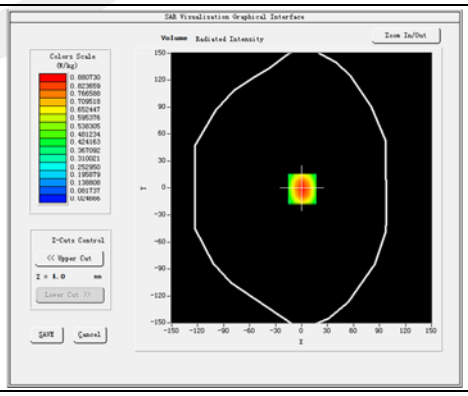


System Performance Check Data (750MHz Body)

Type: Phone measurement (Complete)
Area scan resolution: dx=8mm, dy=8mm
Zoom scan resolution: dx=8mm, dy=8mm, dz=5mm
Date of measurement: 2020-08-01

Experimental conditions.

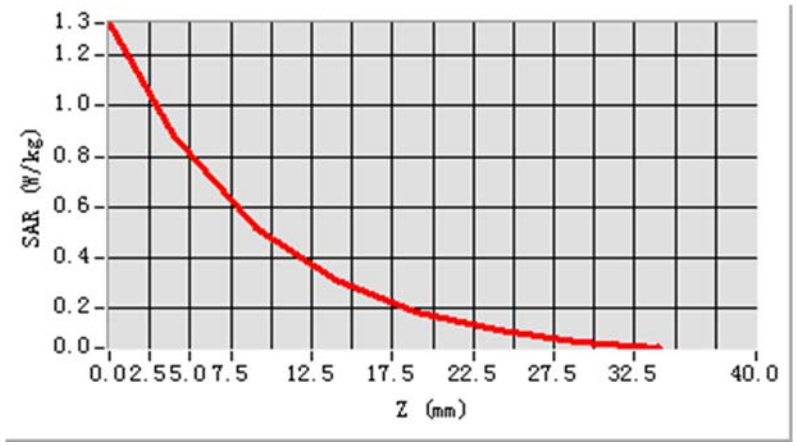
Probe	
Phantom	Validation plane
Device Position	-
Band	750MHz
Channels	-
Signal	CW
Frequency (MHz)	750MHz
Relative permittivity	55.76
Conductivity (S/m)	0.95
Power drift (%)	-2.08
Probe	SN 41/18 EPGO334
ConvF:	1.49
Crest factor:	1:1

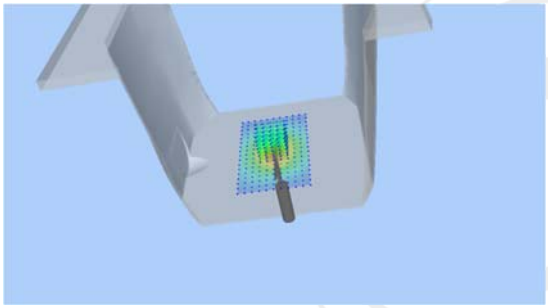
SURFACE SAR	VOLUME SAR
	

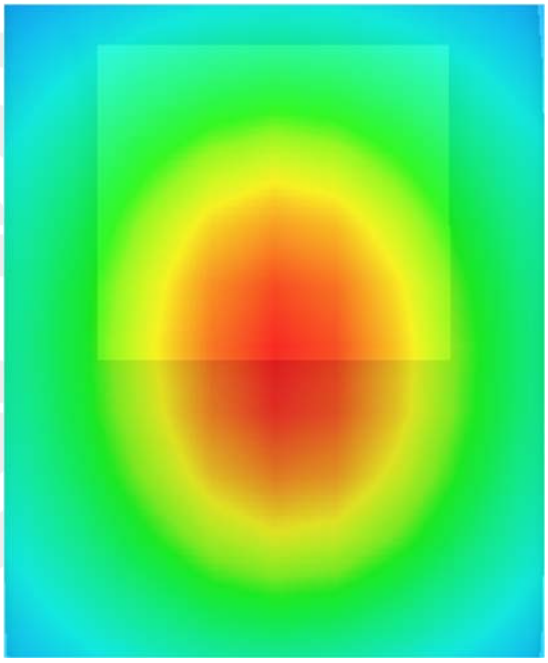
Maximum location: X=1.00, Y=-1.00

SAR 10g (W/Kg)	0.568372
SAR 1g (W/Kg)	0.828768

Z Axis Scan


1.3
1.2
1.0
0.8
0.6
0.4
0.2
0.0
SAR (W/kg)
0.0 2.5 5.0 7.5 12.5 17.5 22.5 27.5 32.5 40.0
Z (mm)





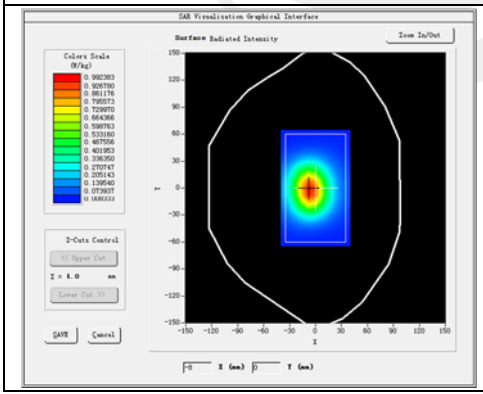
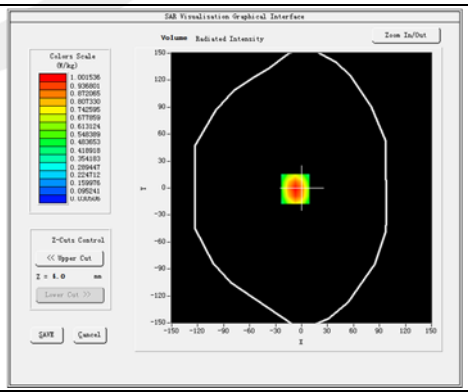
System Performance Check Data (835MHz Head)

Type: Phone measurement (Complete)

Area scan resolution: dx=8mm, dy=8mm
Zoom scan resolution: dx=8mm, dy=8mm, dz=5mm
Date of measurement: 2020-08-01

Experimental conditions

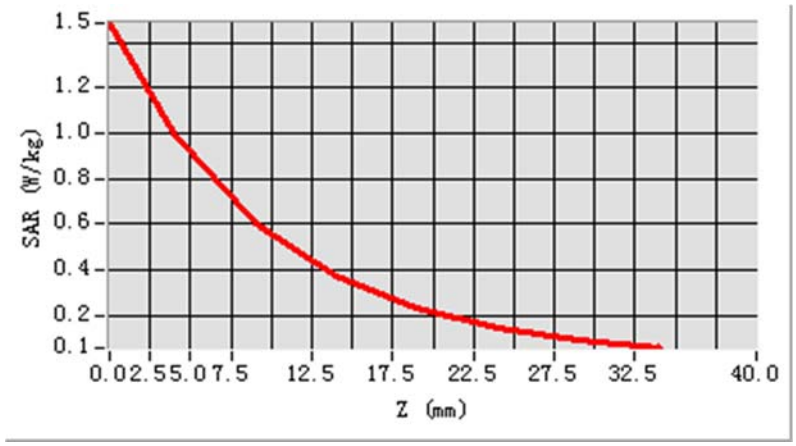
Phantom	Validation plane
Device Position	-
Band	835MHz
Channels	-
Signal	CW
Frequency (MHz)	835MHz
Relative permittivity	42.38
Conductivity (S/m)	0.87
Power drift (%)	1.27
Probe	SN 41/18 EPGO334
ConvF:	1.48
Crest factor:	1:1

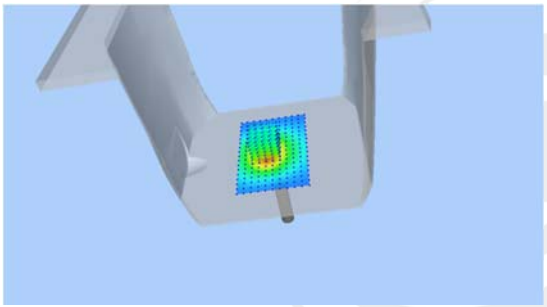
SURFACE SAR	VOLUME SAR
	

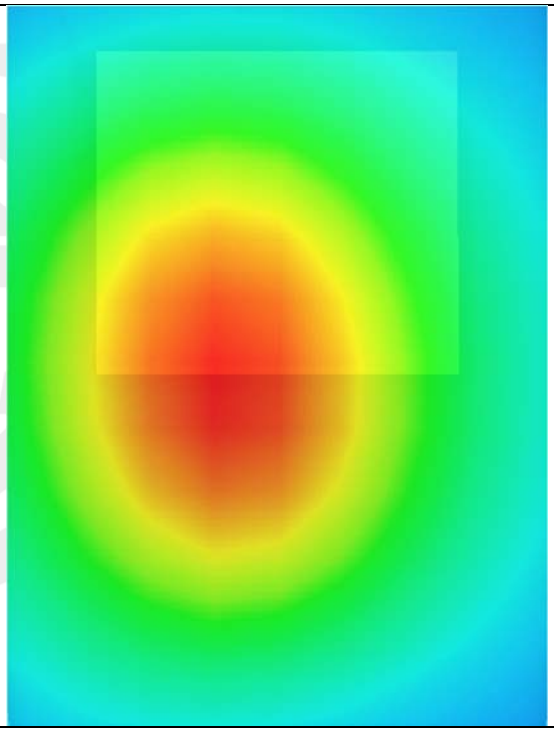
Maximum location: X=-7.00, Y=-1.00

SAR 10g (W/Kg)	0.632507
SAR 1g (W/Kg)	0.910683

Z Axis Scan


1.5
1.2
1.0
0.8
0.6
0.4
0.2
0.1
SAR (W/kg)
0.0 2.5 5.0 7.5 12.5 17.5 22.5 27.5 32.5 40.0
Z (mm)



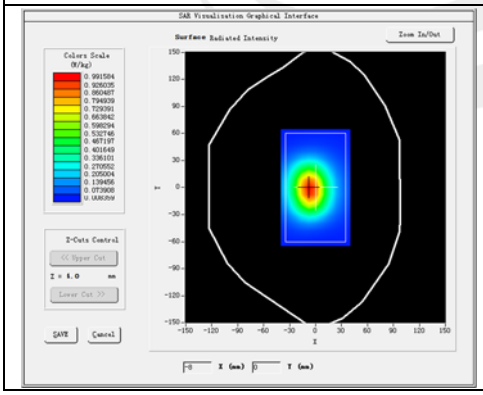
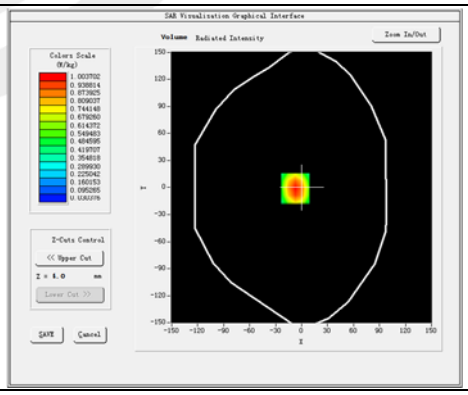


System Performance Check Data (835MHz Body)

Type: Phone measurement (Complete)
Area scan resolution: dx=8mm, dy=8mm
Zoom scan resolution: dx=8mm, dy=8mm, dz=5mm
Date of measurement: 2020-08-01

Experimental conditions.

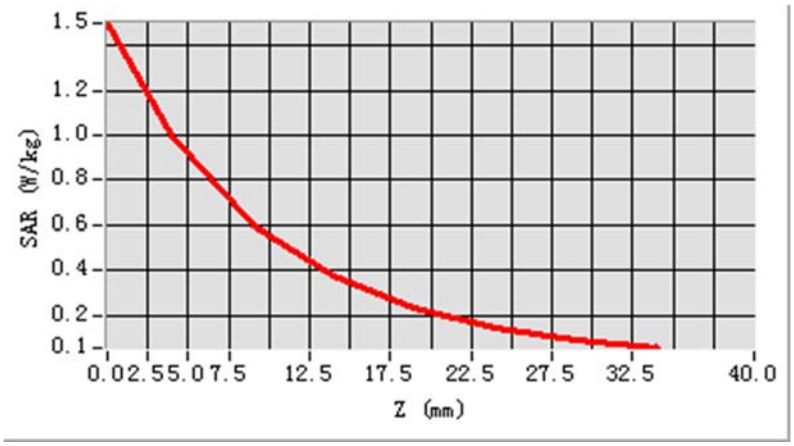
Probe	
Phantom	Validation plane
Device Position	-
Band	835MHz
Channels	-
Signal	CW
Frequency (MHz)	835MHz
Relative permittivity	55.13
Conductivity (S/m)	0.97
Power drift (%)	2.12
Probe	SN 41/18 EPGO334
ConvF:	1.53
Crest factor:	1:1

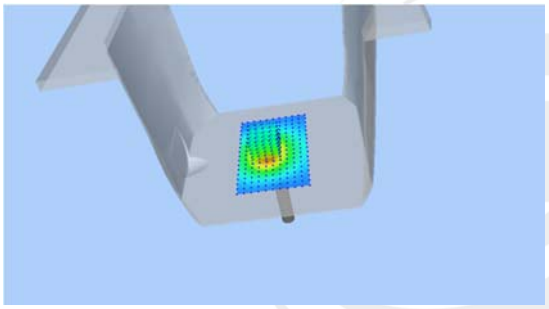
SURFACE SAR	VOLUME SAR
	

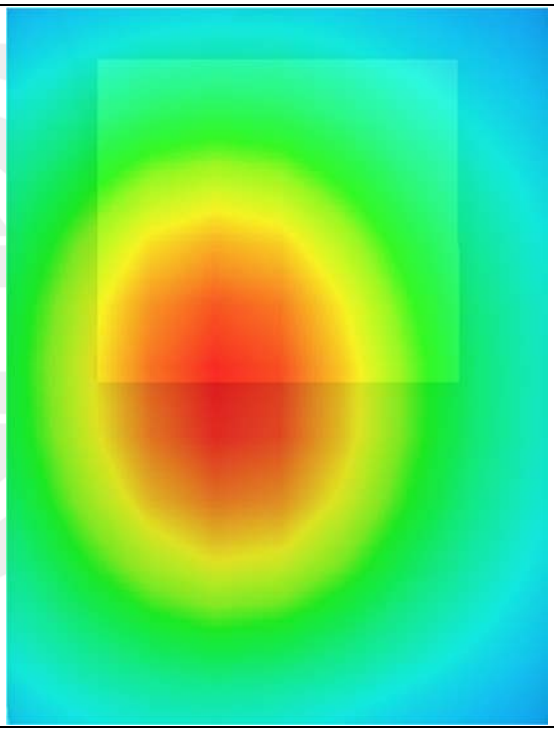
Maximum location: X=-7.00, Y=-1.00

SAR 10g (W/Kg)	0.640873
SAR 1g (W/Kg)	0.973458

Z Axis Scan


1.5
1.2
1.0
0.8
0.6
0.4
0.2
0.1
SAR (W/kg)
0.0 2.5 5.0 7.5 12.5 17.5 22.5 27.5 32.5 40.0
Z (mm)



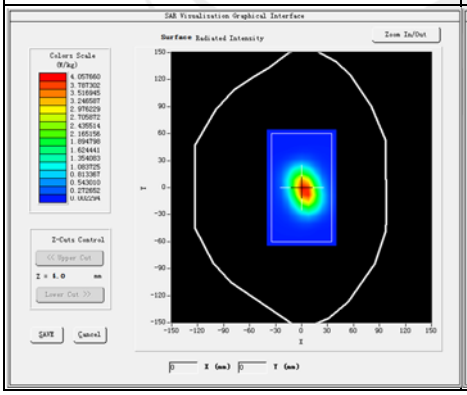
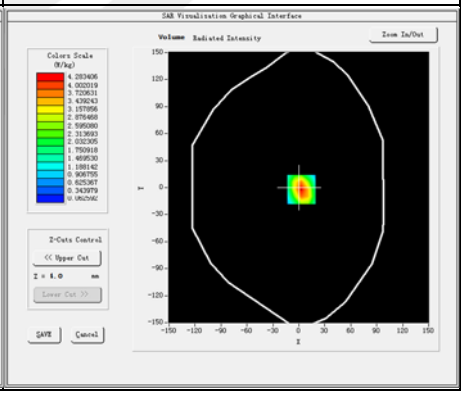


System Performance Check Data (1900MHz Head)

Type: Phone measurement (Complete)
Area scan resolution: dx=8mm, dy=8mm
Zoom scan resolution: dx=8mm, dy=8mm, dz=5mm
Date of measurement: 2020-08-04

Experimental conditions.

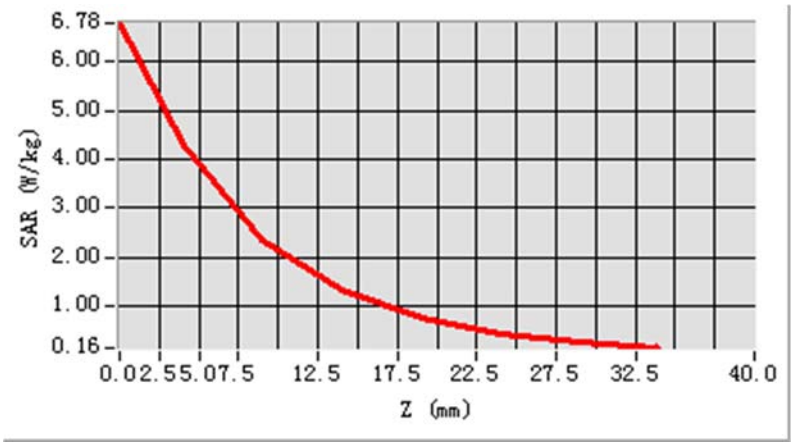
Phantom	Validation plane
Device Position	-
Band	1900MHz
Channels	-
Signal	CW
Frequency (MHz)	1900MHz
Relative permittivity	38.53
Conductivity (S/m)	1.42
Power drift (%)	3.14
Probe	SN 41/18 EPGO334
ConvF:	1.84
Crest factor:	1:1

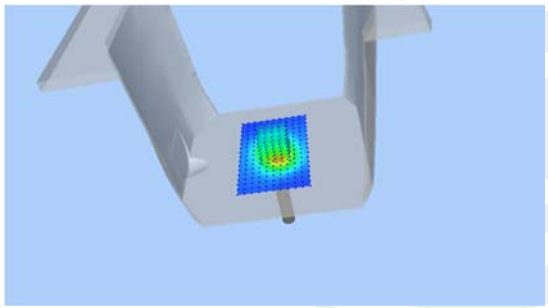
SURFACE SAR	VOLUME SAR
	

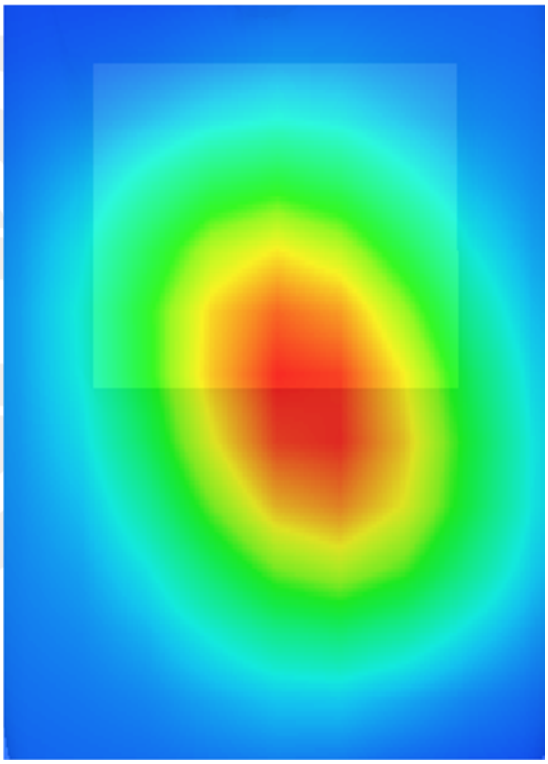
Maximum location: X=3.00, Y=-2.00

SAR 10g (W/Kg)	2.082147
SAR 1g (W/Kg)	4.012773

Z Axis Scan


6.78
6.00
5.00
4.00
3.00
2.00
1.00
0.16
SAR (W/kg)
0.0 2.5 5.0 7.5 12.5 17.5 22.5 27.5 32.5 40.0
Z (mm)



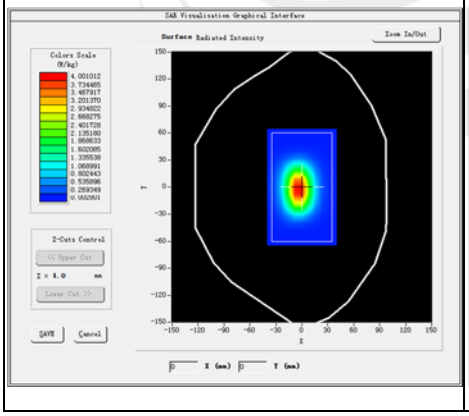
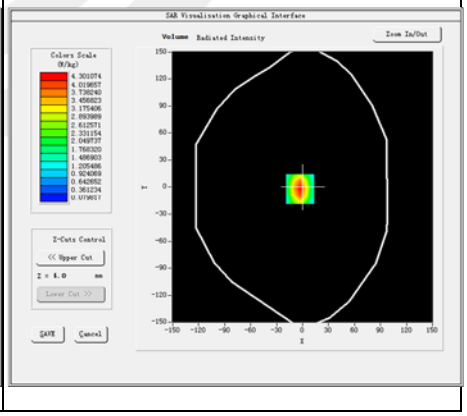


System Performance Check Data (1900MHz Body)

Type: Phone measurement (Complete)
Area scan resolution: dx=8mm, dy=8mm
Zoom scan resolution: dx=8mm, dy=8mm, dz=5mm
Date of measurement: 2020-08-04

Experimental conditions.

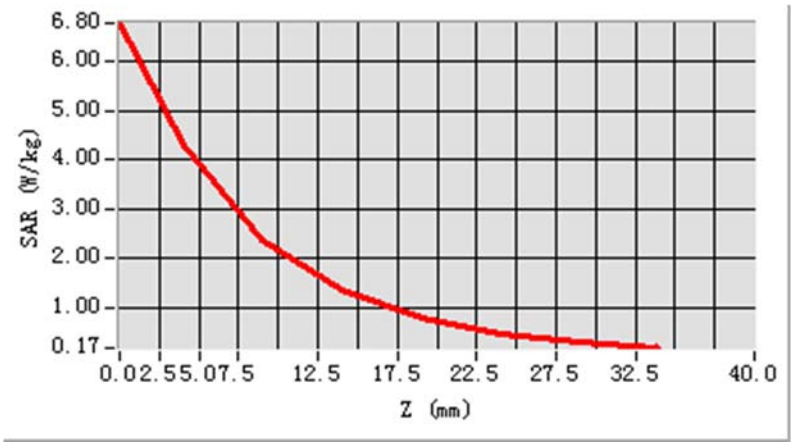
Device Position	-
Band	1900MHz
Channels	-
Signal	CW
Frequency (MHz)	1900
Relative permittivity	54.95
Conductivity (S/m)	1.52
Power drift (%)	-1.86
Probe	SN 41/18 EPGO334
ConvF:	1.88
Crest factor:	1:1

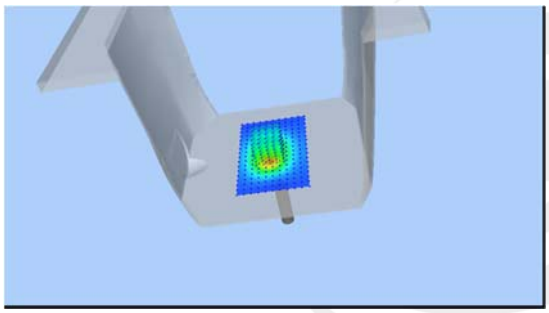
SURFACE SAR	VOLUME SAR
	

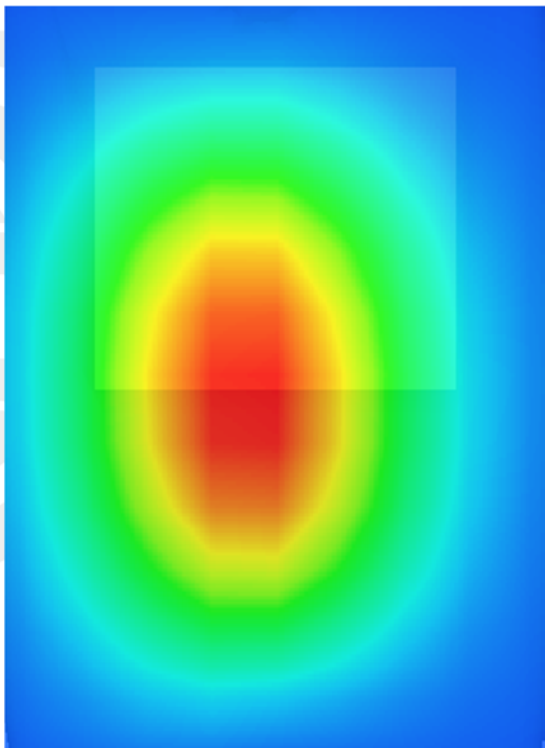
Maximum location: X=-3.00, Y=-2.00

SAR 10g (W/Kg)	2.042858
SAR 1g (W/Kg)	3.924378

Z Axis Scan


6.80
6.00
5.00
4.00
3.00
2.00
1.00
0.17
SAR (W/kg)
0.0 2.5 5.0 7.5 12.5 17.5 22.5 27.5 32.5 40.0
Z (mm)



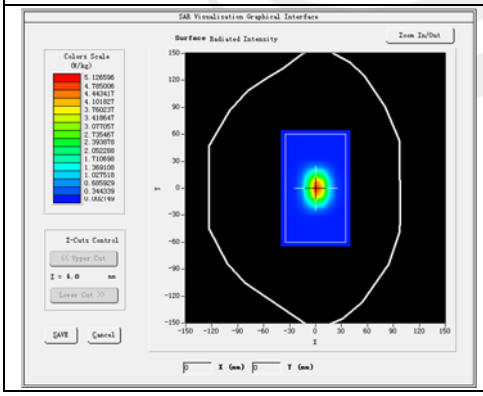
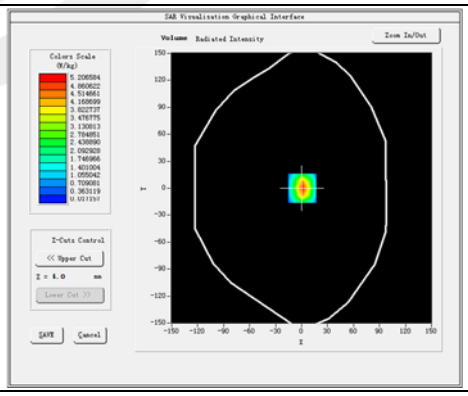


System Performance Check Data (2450MHz Head)

Type: Phone measurement (Complete)
Area scan resolution: dx=8mm, dy=8mm
Zoom scan resolution: dx=8mm, dy=8mm, dz=5mm
Date of measurement: 2020-08-05

Experimental conditions.

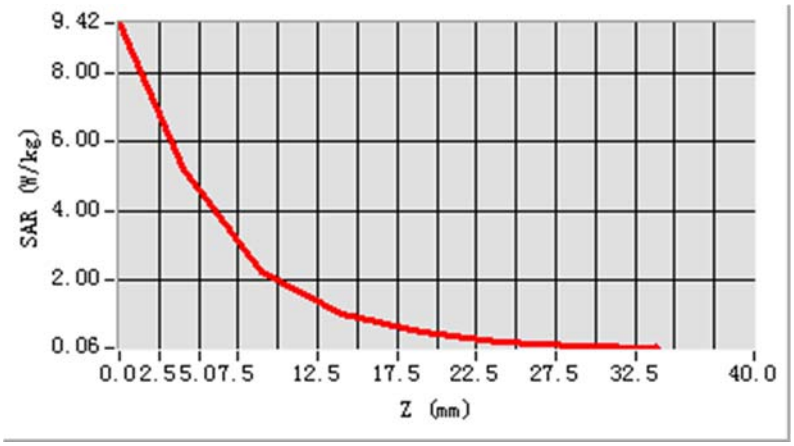
Device Position	Validation plane
Band	2450 MHz
Channels	-
Signal	CW
Frequency (MHz)	2450
Relative permittivity	37.92
Conductivity (S/m)	1.78
Power drift (%)	0.95
Probe	SN 41/18 EPGO334
ConvF	1.97
Crest factor:	1:1

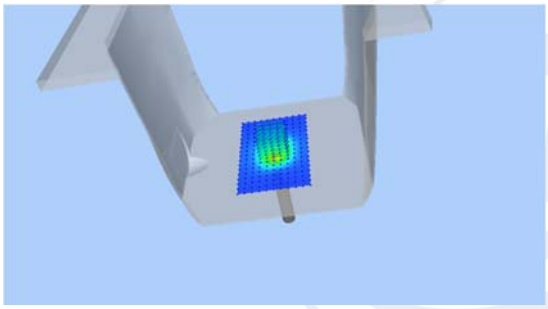
SURFACE SAR	VOLUME SAR
	

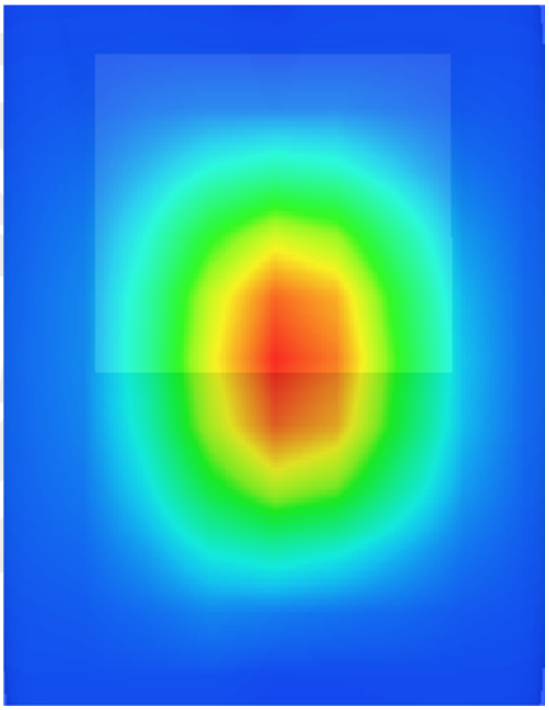
Maximum location: X=1.00, Y=0.00

SAR 10g (W/Kg)	2.384572
SAR 1g (W/Kg)	5.224237

Z Axis Scan


9.42
8.00
6.00
4.00
2.00
0.06
SAR (W/kg)
0.0 2.5 5.0 7.5 12.5 17.5 22.5 27.5 32.5 40.0
Z (mm)



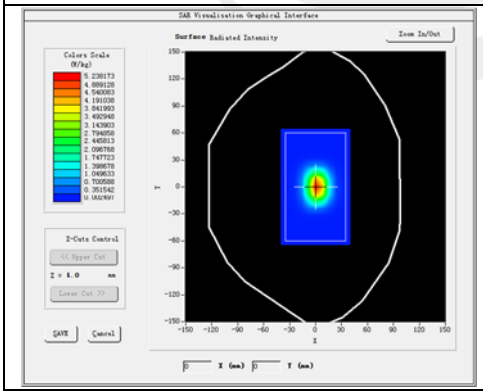
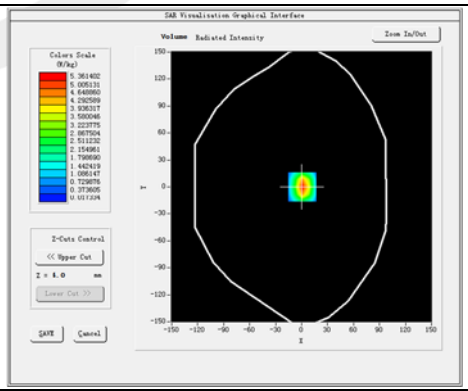


System Performance Check Data (2450MHz Body)

Type: Phone measurement (Complete)
Area scan resolution: dx=8mm, dy=8mm
Zoom scan resolution: dx=8mm, dy=8mm, dz=5mm
Date of measurement: 2020-08-05

Experimental conditions.

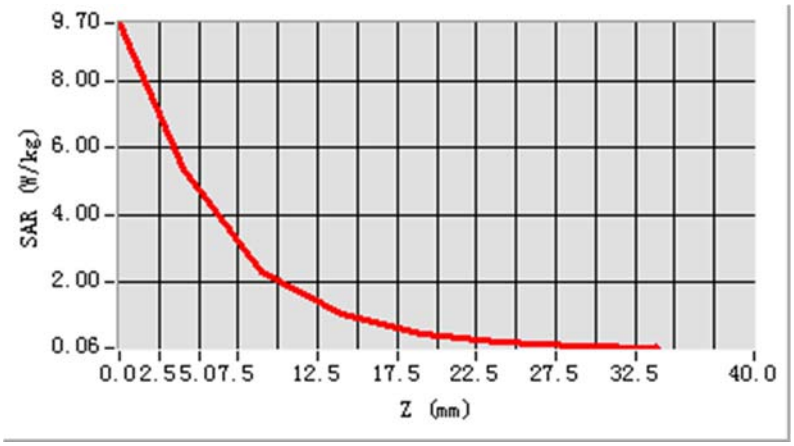
Device Position	Validation plane
Band	2450 MHz
Channels	-
Signal	CW
Frequency (MHz)	2450
Relative permittivity	51.03
Conductivity (S/m)	1.98
Power drift (%)	2.27
Probe	SN 41/18 EPGO334
ConvF	2.02
Crest factor:	1:1

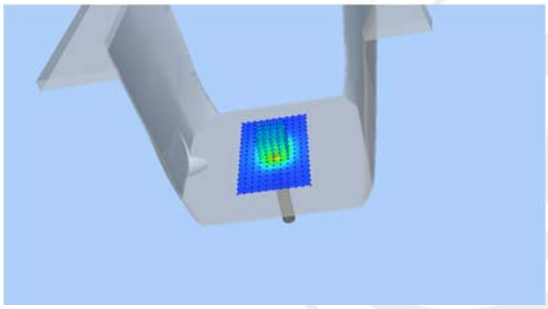
SURFACE SAR	VOLUME SAR
	

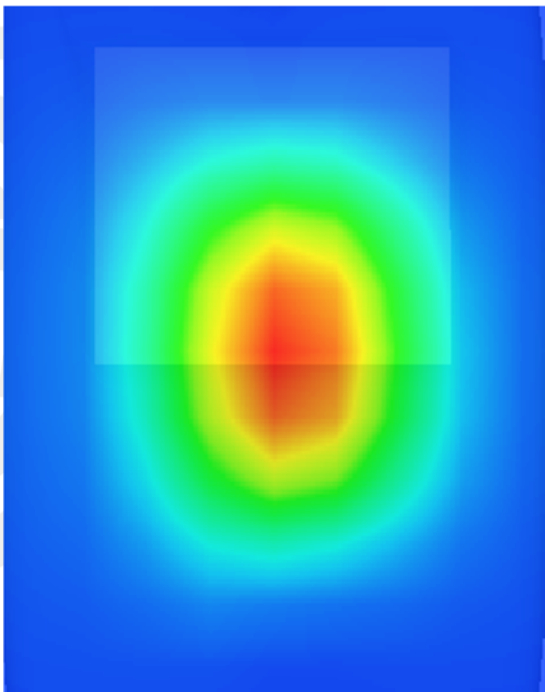
Maximum location: X=1.00, Y=0.00

SAR 10g (W/Kg)	2.572538
SAR 1g (W/Kg)	5.421583

Z Axis Scan


9.70
8.00
6.00
4.00
2.00
0.06
SAR (W/kg)
0.0 2.5 5.0 7.5 12.5 17.5 22.5 27.5 32.5 40.0
Z (mm)



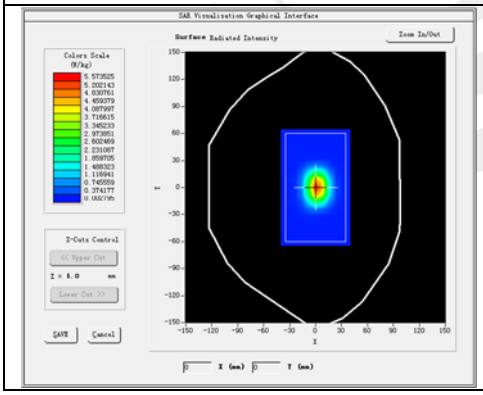
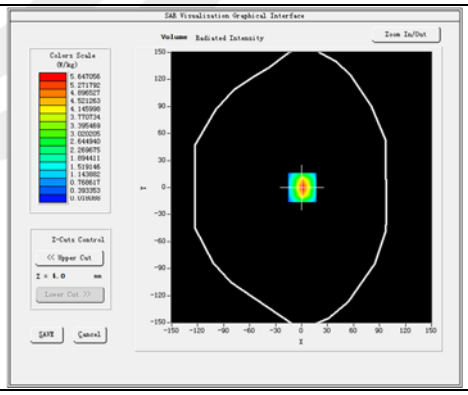


System Performance Check Data(2600MHz Head)

Type: Phone measurement (Complete)
Area scan resolution: dx=8mm, dy=8mm
Zoom scan resolution: dx=8mm, dy=8mm, dz=5mm
Date of measurement: 2020-08-06

Experimental conditions.

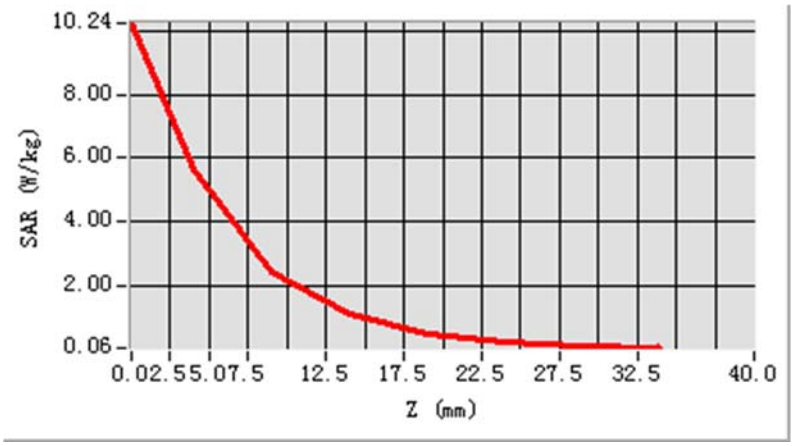
Device Position	Validation plane
Band	2600 MHz
Channels	-
Signal	CW
Frequency (MHz)	2600
Relative permittivity	40.23
Conductivity (S/m)	1.99
Power drift (%)	-0.63
Probe	SN 41/18 EPGO334
ConvF	1.85
Crest factor:	1:1

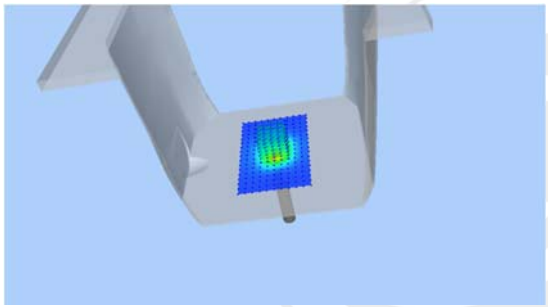
SURFACE SAR	VOLUME SAR
	

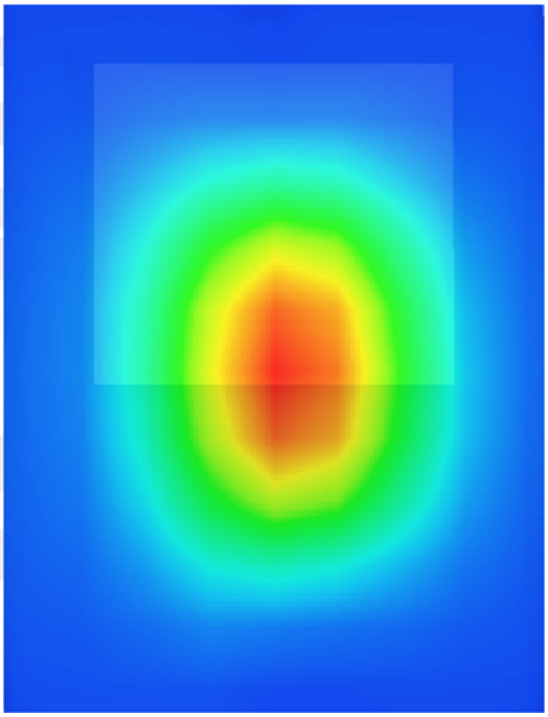
Maximum location: X=1.00, Y=0.00

SAR 10g (W/Kg)	2.568277
SAR 1g (W/Kg)	5.383472

Z Axis Scan


10.24
8.00
6.00
4.00
2.00
0.06
SAR (W/kg)
0.0 2.5 5.0 7.5 12.5 17.5 22.5 27.5 32.5 40.0
Z (mm)



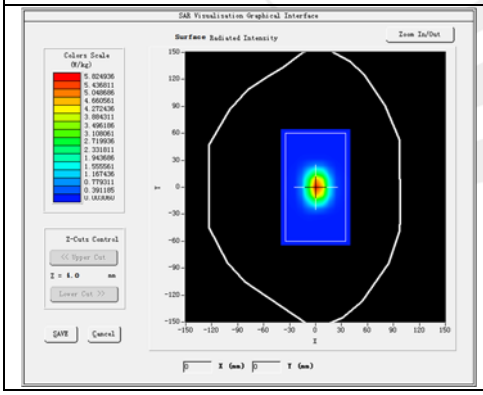
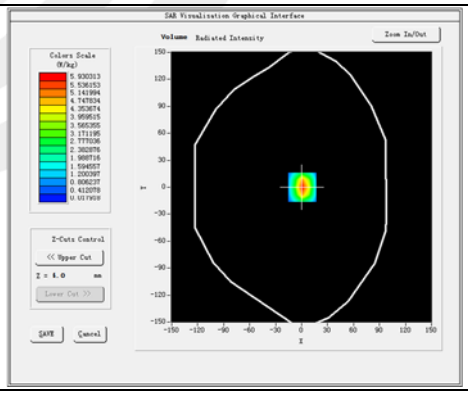


System Performance Check Data (2600MHz Body)

Type: Phone measurement (Complete)
Area scan resolution: dx=8mm, dy=8mm
Zoom scan resolution: dx=8mm, dy=8mm, dz=5mm
Date of measurement: 2020-08-06

Experimental conditions.

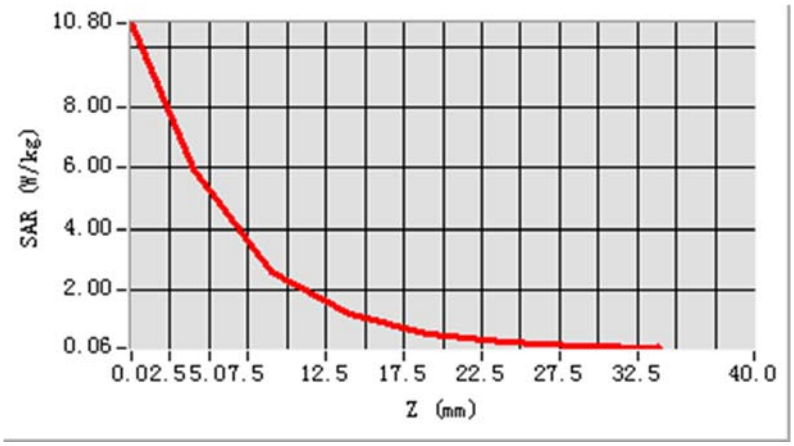
Device Position	Validation plane
Band	2600 MHz
Channels	-
Signal	CW
Frequency (MHz)	2600
Relative permittivity	53.31
Conductivity (S/m)	2.16
Power drift (%)	1.15
Probe	SN 41/18 EPGO334
ConvF	1.92
Crest factor:	1:1

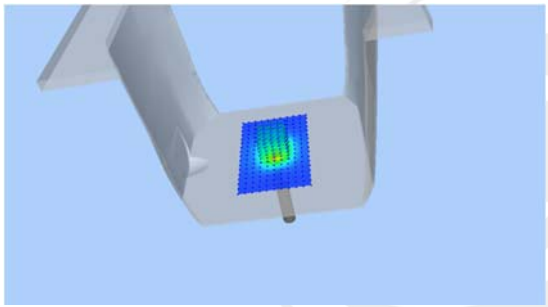
SURFACE SAR	VOLUME SAR
	

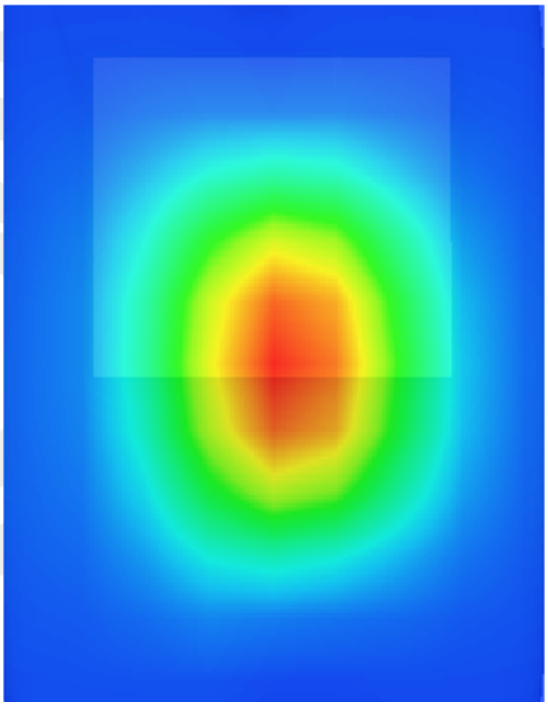
Maximum location: X=3.00, Y=1.00

SAR 10g (W/Kg)	2.582437
SAR 1g (W/Kg)	5.742853

Z Axis Scan


10.80
8.00
6.00
4.00
2.00
0.06
SAR (W/kg)
0.0 2.5 5.0 7.5 12.5 17.5 22.5 27.5 32.5 40.0
Z (mm)





Appendix B. SAR Test Plots

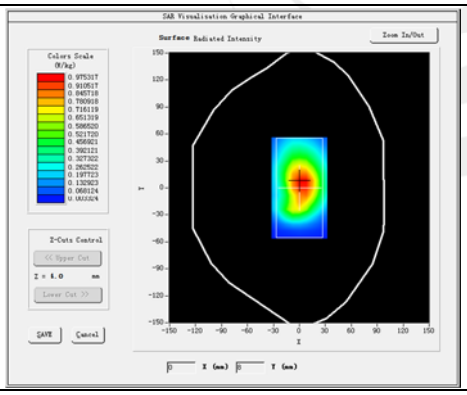
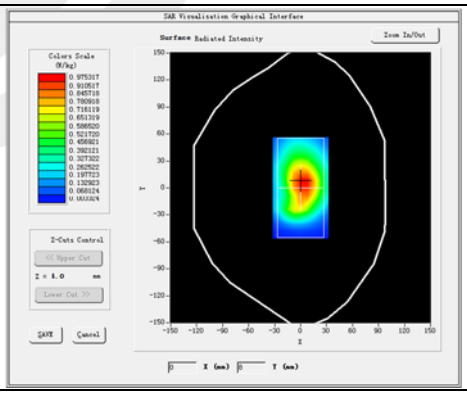
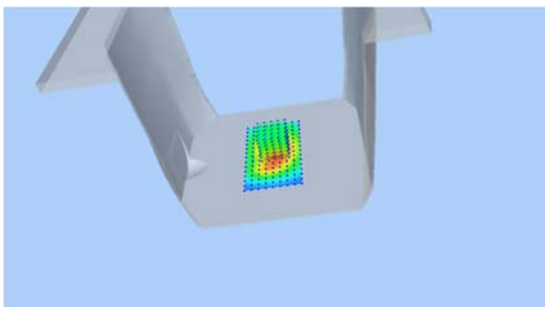
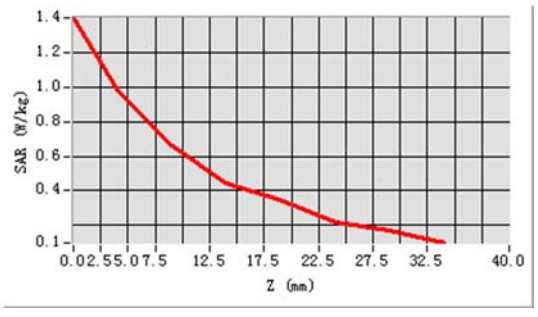
Plot 1: DUT: 4G smartwatch phone; EUT Model: S10

Test Date	2020-08-01
Probe	SN 41/18 EPGO334
ConvF	1.48
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	Front of face
Band	GSM 850
Channels	High
Signal	Duty Cycle: 2.00 (Crest factor: 2.0)
Frequency (MHz)	848.8
Relative permittivity (real part)	41.50
Conductivity (S/m)	0.90
Variation (%)	-2.93

Maximum location: X=3.00, Y=6.00

SAR Peak: 1.36 W/kg

SAR 10g (W/Kg)	0.625292
SAR 1g (W/Kg)	0.959873

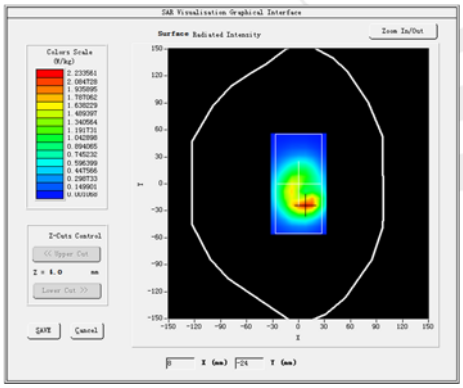
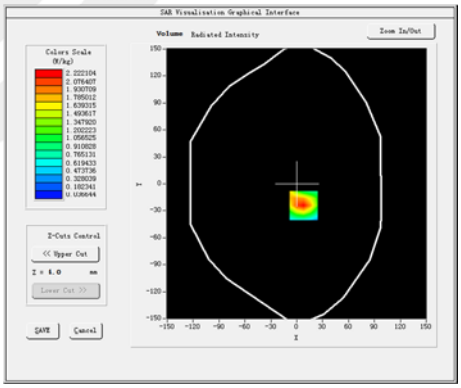
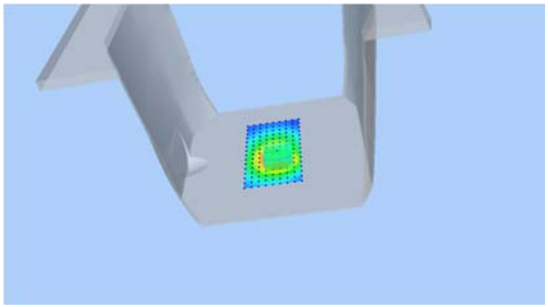
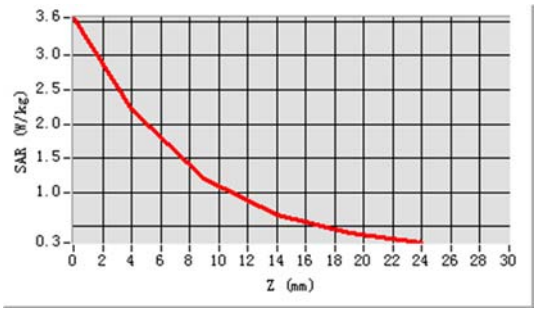
SURFACE SAR	VOLUME SAR
	
3D screen shot	**Z Axis Scan**
	

Plot 2: DUT: 4G smartwatch phone; EUT Model: S10

Test Date	2020-08-01
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	Wrist
Band	GSM 850
Channels	High
Signal	Duty Cycle: 2.00 (Crest factor: 2.0)
Frequency (MHz)	848.8
Relative permittivity (real part)	41.5
Conductivity (S/m)	0.91
Variation (%)	-3.58

Maximum location: X=8.00, Y=-24.00
SAR Peak: 3.58 W/kg

SAR 10g (W/Kg)	1.093163
SAR 1g (W/Kg)	2.078891

SURFACE SAR	VOLUME SAR
	
3D screen shot	**Z Axis Scan**
	

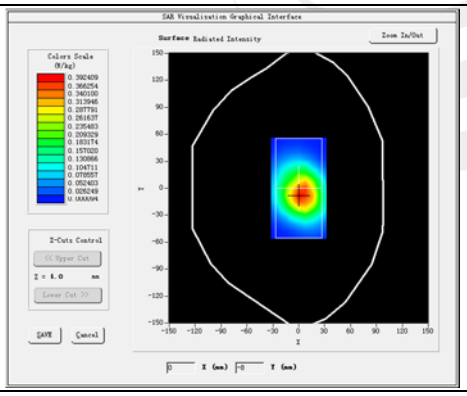
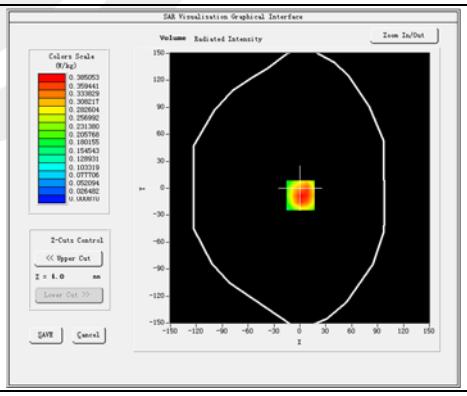
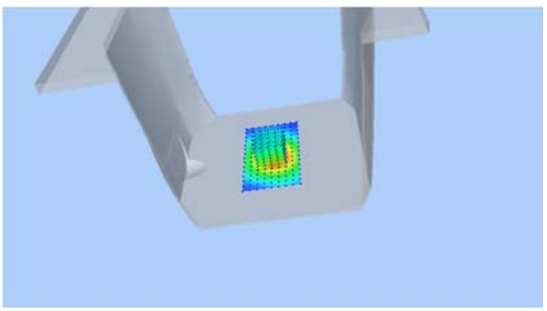
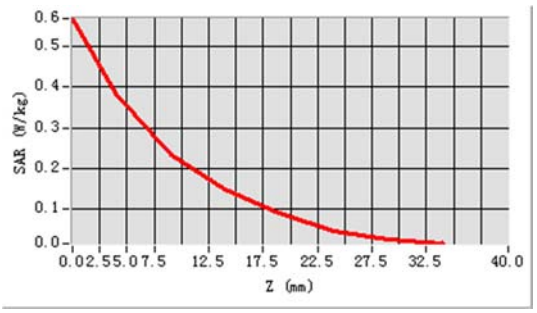
Plot 3: DUT: 4G smartwatch phone; EUT Model: S10

Test Date	2020-08-04
Probe	SN 41/18 EPGO334
ConvF	1.84
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	Front of face
Band	GSM 1900
Channels	Middle
Signal	Duty Cycle: 1:2.00 (Crest factor: 2.0)
Frequency (MHz)	1880.0
Relative permittivity (real part)	53.30
Conductivity (S/m)	1.52
Variation (%)	-0.59

Maximum location: X=1.00, Y=-8.00

SAR Peak: 0.58 W/kg

SAR 10g (W/Kg)	0.214666
SAR 1g (W/Kg)	0.374670

SURFACE SAR	VOLUME SAR
	
3D screen shot	**Z Axis Scan**
	

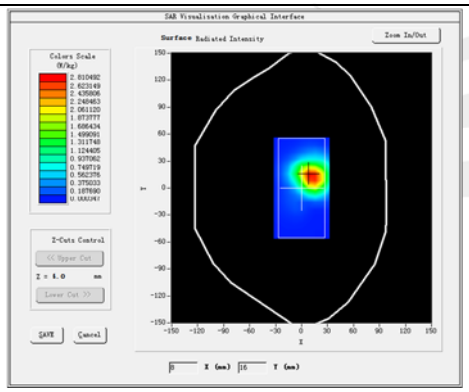
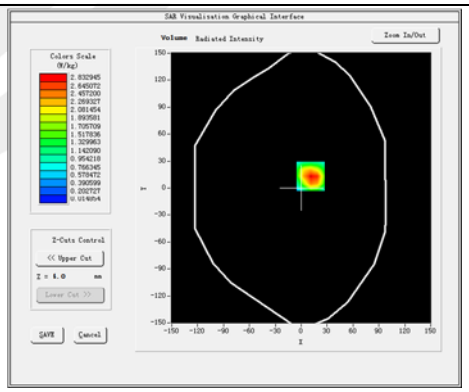
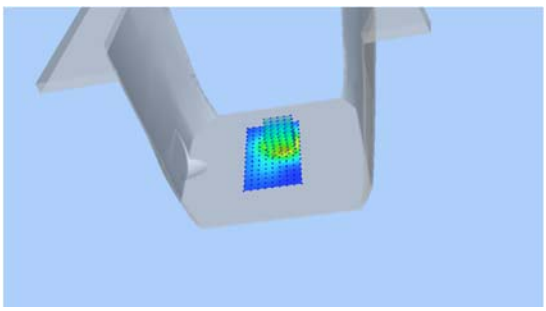
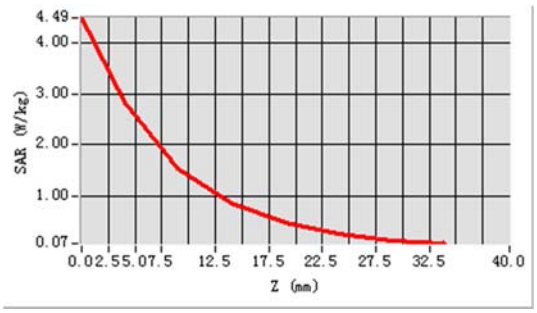
Plot 4: DUT: 4G smartwatch phone; EUT Model: S10

Test Date	2020-08-04
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	Wrist
Band	GSM 1900
Channels	Middle
Signal	Duty Cycle: 1:2.00 (Crest factor: 2.0)
Frequency (MHz)	1880.0
Relative permittivity (real part)	40.00
Conductivity (S/m)	1.40
Variation (%)	5.05

Maximum location: X=11.00, Y=13.00

SAR Peak: 4.62 W/kg

SAR 10g (W/Kg)	1.381106
SAR 1g (W/Kg)	2.719670

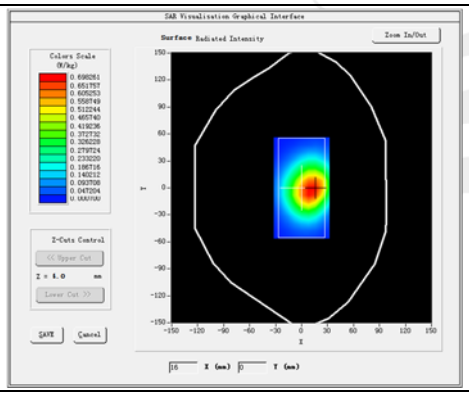
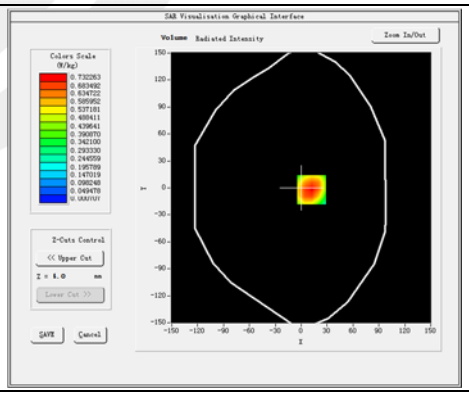
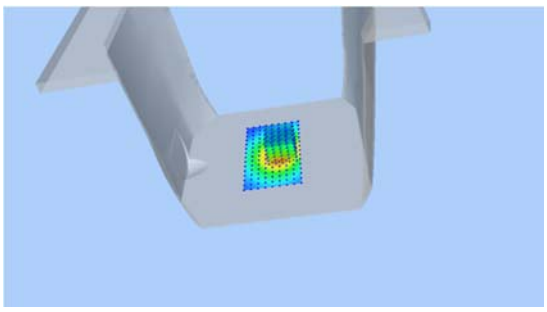
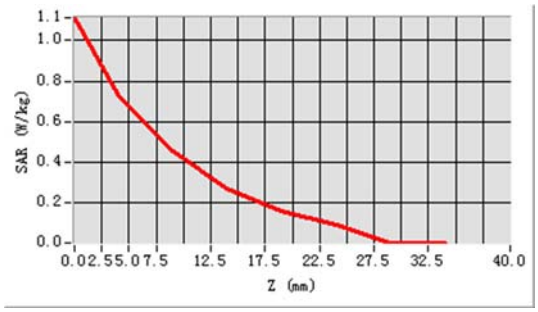
SURFACE SAR	VOLUME SAR
	
3D screen shot	**Z Axis Scan**
	

Plot 5: DUT: 4G smartwatch phone; EUT Model: S10

Test Date	2020-08-04
Probe	SN 41/18 EPGO334
ConvF	1.84
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	Front of face
Band	WCDMA II
Channels	Low
Signal	WCDMA (Crest factor: 1.0)
Frequency (MHz)	1852.4
Relative permittivity (real part)	39.57
Conductivity (S/m)	1.43
Variation (%)	2.61

Maximum location: X=12.00, Y=-2.00
SAR Peak: 1.11 W/kg

SAR 10g (W/Kg)	0.413076
SAR 1g (W/Kg)	0.728266

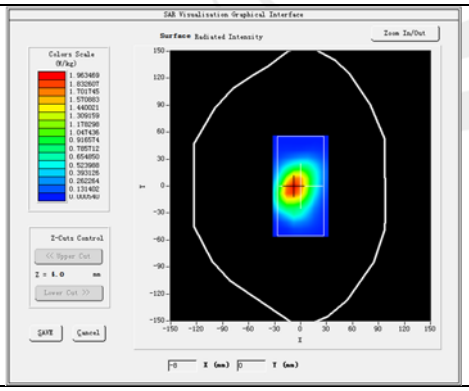
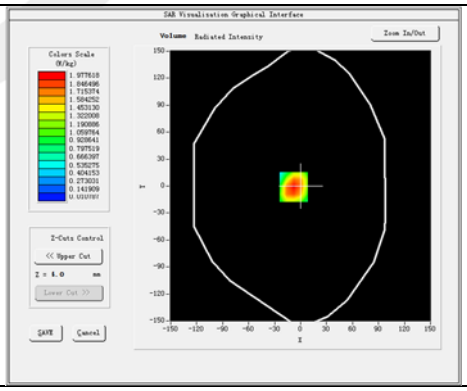
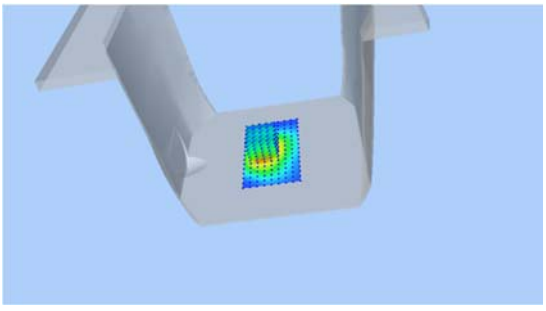
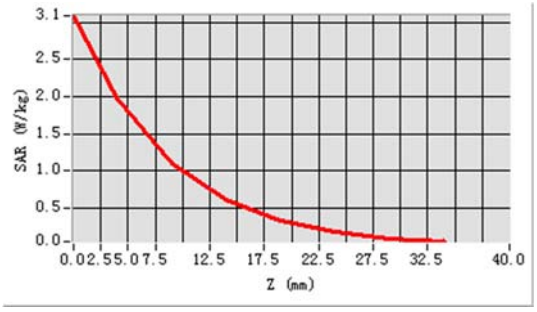
SURFACE SAR	VOLUME SAR
	
3D screen shot	**Z Axis Scan**
	

Plot 6: DUT: 4G smartwatch phone; EUT Model: S10

Test Date	2020-08-04
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	Wrist
Band	WCDMA II
Channels	Low
Signal	WCDMA (Crest factor: 1.0)
Frequency (MHz)	1852.4
Relative permittivity (real part)	39.57
Conductivity (S/m)	1.43
Variation (%)	-0.78

Maximum location: X=-8.00, Y=-1.00
SAR Peak: 3.20 W/kg

SAR 10g (W/Kg)	1.024822
SAR 1g (W/Kg)	1.930828

SURFACE SAR	VOLUME SAR
	
3D screen shot	**Z Axis Scan**
	

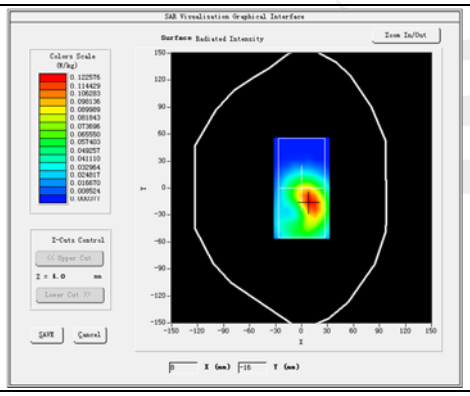
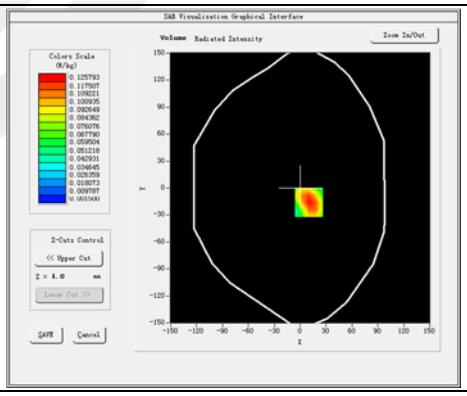
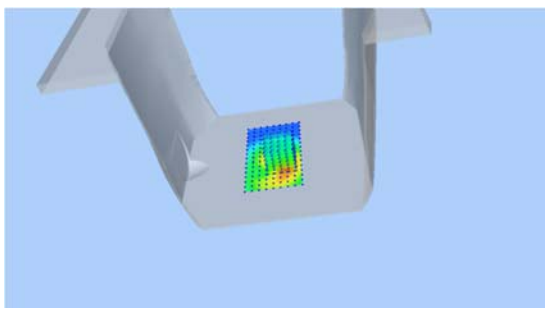
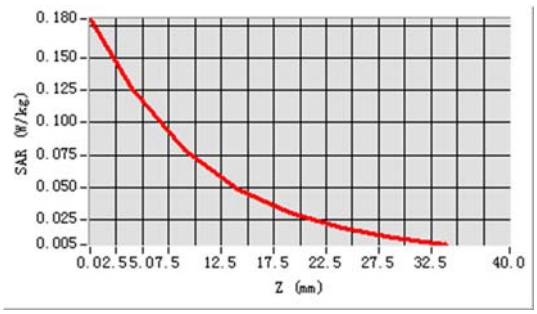
Plot 7: DUT: 4G smartwatch phone; EUT Model: S10

Test Date	2020-08-01
Probe	SN 41/18 EPGO334
ConvF	1.48
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	Front of face
Band	WCDMA V
Channels	High
Signal	WCDMA (Crest factor: 1.0)
Frequency (MHz)	846.6
Relative permittivity (real part)	43.39
Conductivity (S/m)	0.92
Variation (%)	0.75

Maximum location: X=10.00, Y=-16.00

SAR Peak: 0.18 W/kg

SAR 10g (W/Kg)	0.070661
SAR 1g (W/Kg)	0.120158

SURFACE SAR	VOLUME SAR
	
3D screen shot	**Z Axis Scan**
	

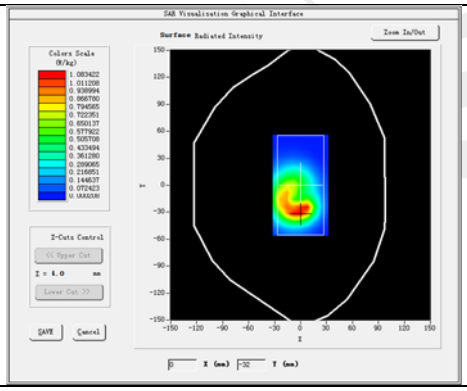
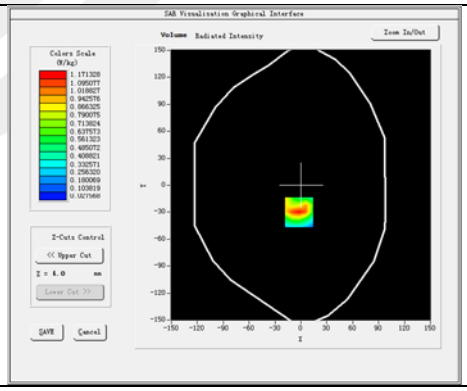
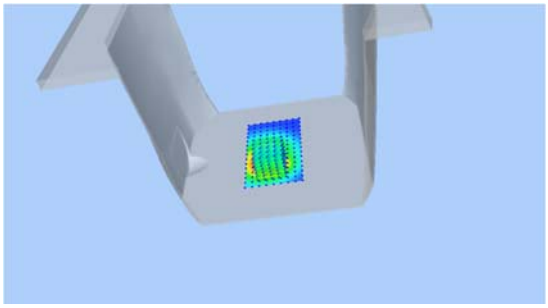
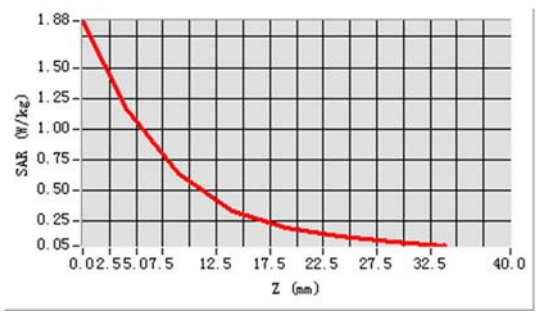
Plot 8: DUT: 4G smartwatch phone; EUT Model: S10

Test Date	2020-08-01
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	Wrist
Band	WCDMA V
Channels	High
Signal	WCDMA (Crest factor: 1.0)
Frequency (MHz)	846.6
Relative permittivity (real part)	43.39
Conductivity (S/m)	0.92
Variation (%)	1.31

Maximum location: X=-2.00, Y=-30.00

SAR Peak: 1.91 W/kg

SAR 10g (W/Kg)	0.535713
SAR 1g (W/Kg)	1.080043

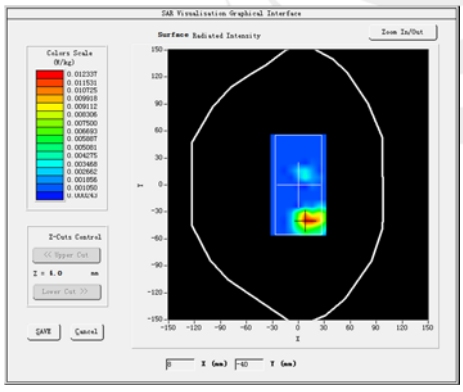
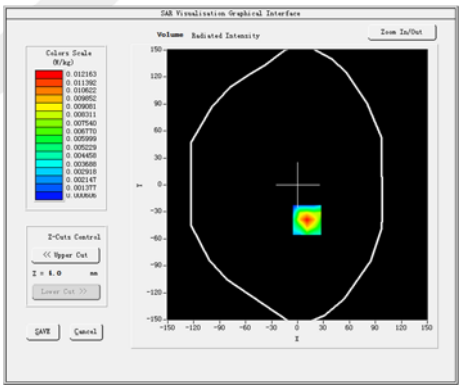
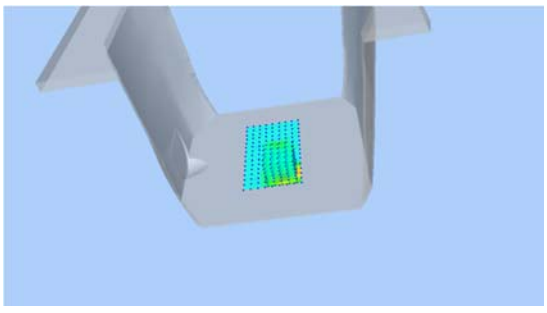
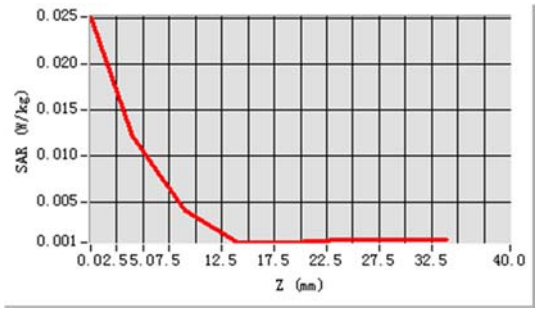
SURFACE SAR	VOLUME SAR
	
3D screen shot	**Z Axis Scan**
	

Plot 9: DUT: 4G smartwatch phone; EUT Model: S10

Test Date	2020-08-05
Probe	SN 41/18 EPGO334
ConvF	1.97
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	Front of face
Band	IEEE 802.11b ISM
Channels	High
Signal	IEEE802.b (Crest factor: 1.0)
Frequency (MHz)	2462
Relative permittivity (real part)	52.71
Conductivity (S/m)	1.94
Variation (%)	-3.62

Maximum location: X=11.00, Y=-39.00
SAR Peak: 0.03 W/kg

SAR 10g (W/Kg)	0.004500
SAR 1g (W/Kg)	0.012023

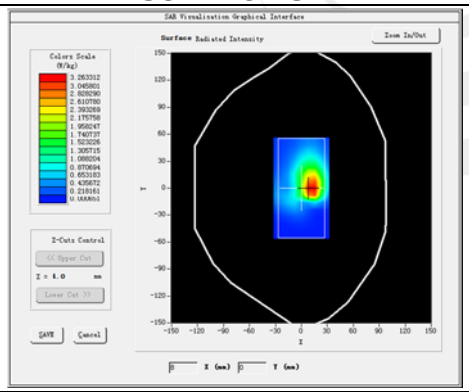
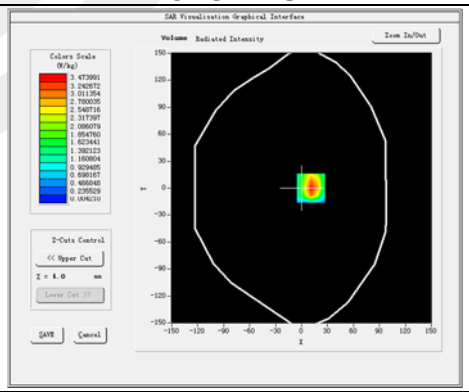
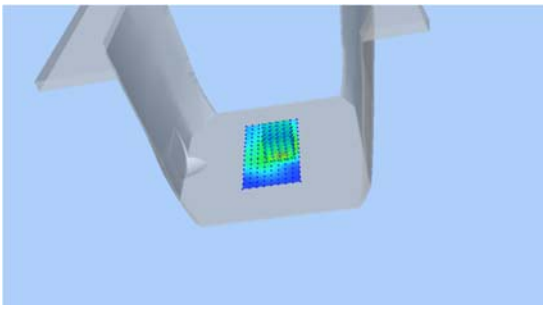
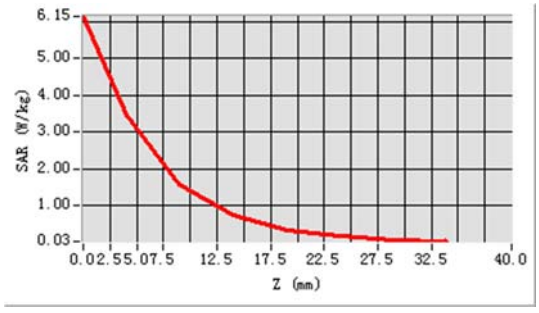
SURFACE SAR	VOLUME SAR
	
3D	**Z Axis Scan**
	

Plot 10: DUT: 4G smartwatch phone; EUT Model: S10

Test Date	2020-08-04
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	Wrist
Band	LTE Band 7(RB 1)
Channels	High
Signal	LTE (Crest factor: 1.0)
Frequency (MHz)	2560
Relative permittivity (real part)	39.09
Conductivity (S/m)	1.89
Variation (%)	-3.28

Maximum location: X=11.00, Y=0.00
SAR Peak: 6.82 W/kg

SAR 10g (W/Kg)	1.484478
SAR 1g (W/Kg)	3.404642

SURFACE SAR	VOLUME SAR
	
3D screen shot	**Z Axis Scan**
	

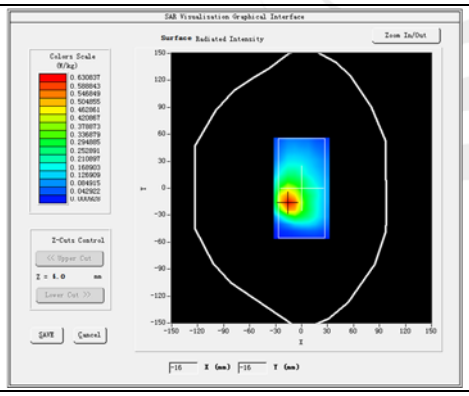
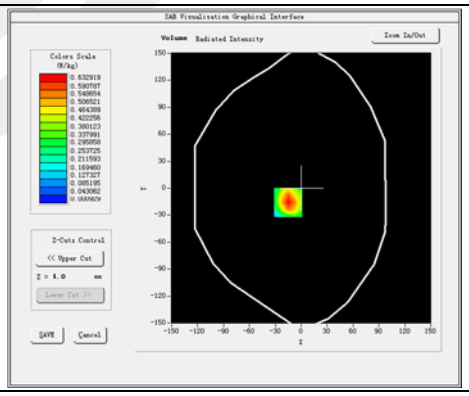
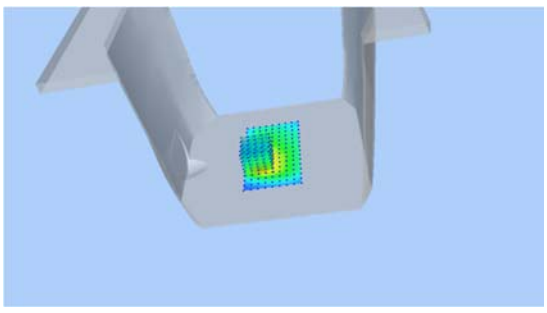
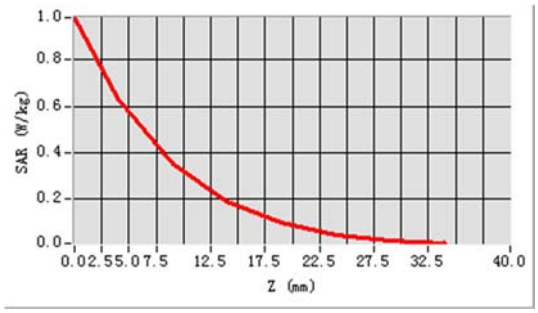
Plot 11: DUT: 4G smartwatch phone; EUT Model: S10

Test Date	2020-08-04
Probe	SN 41/18 EPGO334
ConvF	1.84
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	Front of face
Band	LTE Band 7 (RB 1)
Channels	High
Signal	LTE (Crest factor: 1.0)
Frequency (MHz)	2560
Relative permittivity (real part)	39.09
Conductivity (S/m)	1.89
Variation (%)	1.33

Maximum location: X=-15.00, Y=-16.00

SAR Peak: 0.99 W/kg

SAR 10g (W/Kg)	0.308443
SAR 1g (W/Kg)	0.594272

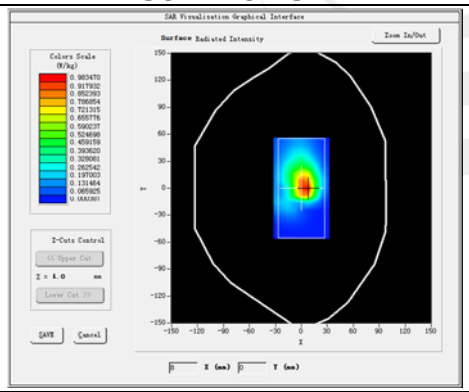
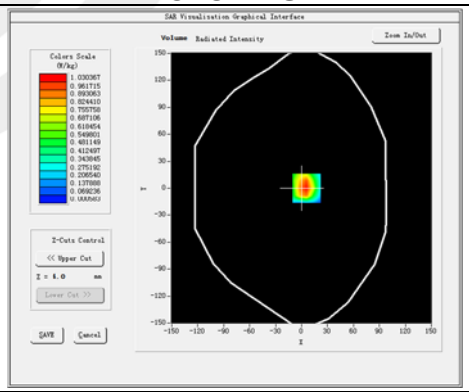
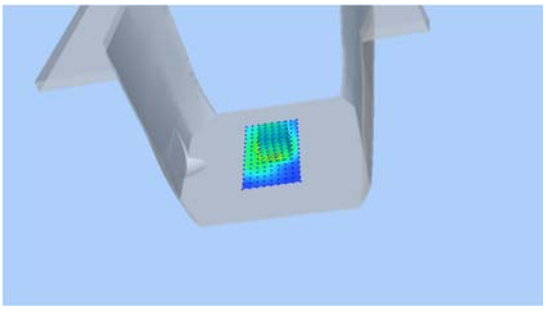
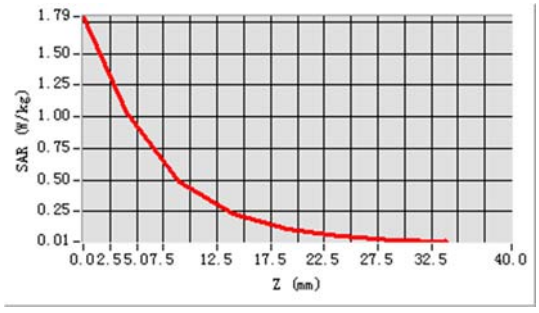
SURFACE SAR	VOLUME SAR
	
3D screen shot	**Z Axis Scan**
	

Plot 12: DUT: 4G smartwatch phone; EUT Model: S10

Test Date	2020-08-02
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	Wrist
Band	LTE Band 12 (RB 1)
Channels	Low
Signal	LTE (Crest factor: 1.0)
Frequency (MHz)	704
Relative permittivity (real part)	42.13
Conductivity (S/m)	0.91
Variation (%)	-3.87

Maximum location: X=6.00, Y=0.00
SAR Peak: 1.94 W/kg

SAR 10g (W/Kg)	0.464287
SAR 1g (W/Kg)	1.022981

SURFACE SAR	VOLUME SAR
	
3D screen shot	**Z Axis Scan**
	

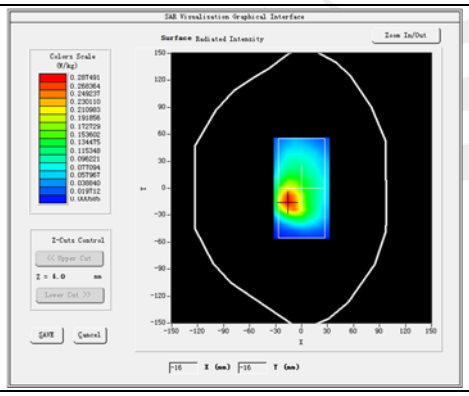
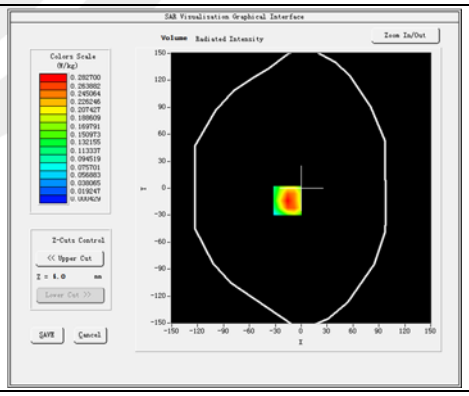
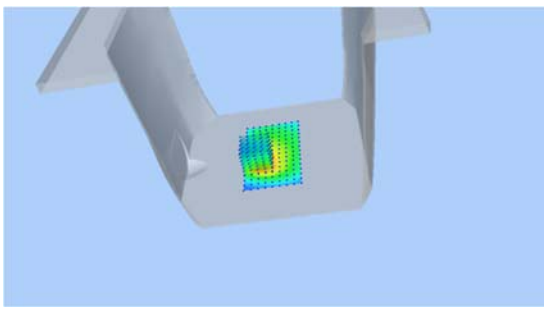
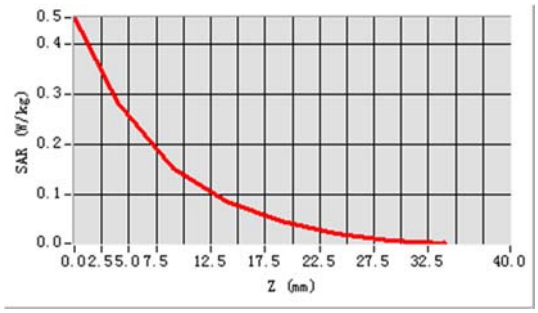
Plot 13: DUT: 4G smartwatch phone; EUT Model: S10

Test Date	2020-08-02
Probe	SN 41/18 EPGO334
ConvF	1.60
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	Front of face
Band	LTE Band 12 (RB 1)
Channels	Low
Signal	LTE (Crest factor: 1.0)
Frequency (MHz)	704
Relative permittivity (real part)	42.13
Conductivity (S/m)	0.91
Variation (%)	1.61

Maximum location: X=-16.00, Y=-14.00

SAR Peak: 0.46 W/kg

SAR 10g (W/Kg)	0.145542
SAR 1g (W/Kg)	0.276628

SURFACE SAR	VOLUME SAR
	
3D screen shot	**Z Axis Scan**
	

Appendix C. Probe Calibration and Dipole Calibration Report

Refer the appendix Calibration Report.

※※※※※END OF THE REPORT※※※※※