FCC SAR TEST REPORT

Report No: STS1807042H03

Issued for

Shanghai Unihertz E-Commerce Co., Ltd

Room 302, No. 5, Lane 59, Shennan Rd, Minhang district，Shanghai, China 201108

Product Name:	Smart phone
Brand Name:	Unihertz
Model Name:	Atom
Series Model:	N/A
FCC ID:	2AK6CATOM
Test Standard:	ANSI/IEEE Std. C95.1
	FCC 47 CFR Part 2 (2.1093)
	IEEE 1528: 2013
Max. Report SAR (1g):	Head:1.323 W/kg
	Body:1.260 W/kg

Shenzhen STS Test Services Co., Ltd.
1/F., Building B, Zhuoke Science Park, No.190,Chongqing Road,
Fuyong Street, Bao'an District, Shenzhen, Guangdong,China
TEL: +86-755 3688 6288 FAX: +86-755 3688 6277 E-mail:sts@stsapp.com

Test Report Certification

Applicant's name ..... :	COMMERCIAL LINK INTERNATIONAL S.A.S
Address ..... :	Room 302, No. 5, Lane 59, Shennan Rd, Minhang district，Shanghai, China 201108
Manufacture's Name ..... :	OBLUE Communication Technology Co.,Ltd.
Address ..... :	Room 406, Hivac Building,No. 2 North keji Rd,North Hi-Tech Industry Park,Nanshan district，shenzhen, China 201108

Product description

Product name ..... :	Smart phone
Brand name ..... :	Unihertz
Model name ..... :	Atom
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..... :	06 Aug. 2018~13 Aug. 2018
Date of Issue..... :	18 Aug. 2018
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

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	Smart phone			
Brand Name	Unihertz			
Model Name	Atom			
Series Model	N/A			
FCC ID	2AK6CATOM			
Model Difference	N/A			
Adapter	Input: AC 100-240V,300mA, 50/60 Hz Output: DC 5V,1500mA			
Battery	Rated Voltage: 3.85V; Charge Limit: 4.4V; Capacity: 2000mAh			
Device Category	Portable			
Product stage	Production unit			
RF Exposure Environment	General Population / Uncontrolled			
IMEI	356979054792291			
Hardware Version	G35_V1.2			
Software Version	alps-mp-01.mp1			
Frequency Range	GSM 850:824.2~848.8MHz PCS1900:1850.2~1909.8MHz WCDMA Band II:1852.4~1907.6MHz WCDMA IV:1712.4~1752.6 MHz WCDMA Band V:826.4~846.6MHz LTE Band 2:1850.7~1909.3MHz LTE Band 4:1710.7~1754.3MHz LTE Band 5:824.7~848.3MHz LTE Band 7:2502.5~2567.5MHz LTE Band 12:699.7~715.3MHz LTE Band 13:779.5~784.5MHz		LTE Band 17:706.5~713.5MHz LTE Band 25:1850.7~1914.3MHz LTE Band 26:814.7~848.3MHz CDMA BC0: 824.04 MHz to 848.97 MHz CDMA BC1: 1850 MHz to 1910 MHz WLAN 802.11b/g/n(HT20):2412~2462MHz WLAN 802.11n(HT40):2422~2452MHz WLAN 802.11a/n(HT20/40):5150~5250MHz WLAN 802.11a/n(HT20/40):5250~5350MHz WLAN 802.11a/n(HT20/40):5470~5725MHz WLAN 802.11a/n(HT20/40):5725~5875MHz Bluetooth:2402~ 2480MHz	
Max. Reported SAR(1g): (Limit:1.6W/kg)	Band	Mode	Head (W/kg)	Body Worn and Hotspot(W/kg)
	PCE	GSM 850	0.817	0.866
	PCE	GSM 1900	0.996	0.842
	PCE	WCDMA Band II	0.704	0.410
	PCE	WCDMA Band IV	0.982	0.172
	PCE	WCDMA Band V	0.561	0.431
	PCE	LTE Band 2	0.817	0.433
	PCE	LTE Band 4	1.323	0.580
	PCE	LTE Band 5	0.693	0.612
	PCE	LTE Band 7	0.887	1.260

Max. Reported SAR(1g): (Limit:1.6W/kg)	PCE	LTE Band 12	0.396	0.451
	PCE	LTE Band 13	0.658	0.380
	PCE	LTE Band 17	0.359	0.470
	PCE	LTE Band 25	0.678	0.370
	PCE	LTE Band 26	0.514	0.497
	PCE	LTE Band 41	0.281	0.395
	DTS	2.4G WLAN	0.065	0.093
	NII	5.2G WLAN	0.147	0.071
	NII	5.3G WLAN	0.074	0.101
	NII	5.6G WLAN	0.042	0.046
	NII	5.8G WLAN	0.039	0.045
	PCE	CDMA BC0	0.794	0.724
	PCE	CDMA BC1	1.209	0.730
	DSS	Bluetooth Note	0.084	0.084
1-g Sum SAR			1.470	1.361
FCC Equipment Class	Licensed Portable Transmitter Held to Ear (PCE) Part 15 Spread Spectrum Transmitter (DSS) Digital Transmission System (DTS)			
Operating Mode:	GSM: GSM Voice; GPRS; EGPRS Class 12; CDMA: EVDO WCDMA:RMC,HSDPA,HSUPA Release 6; LTE:QPSK,16QAM; WLAN: 802.11 b/g/n(HT20) /n(HT40); Bluetooth: 3.0+EDR (GFSK +π/4DQPSK+8DPSK) ; BLE			
Antenna Specification:	GSM,WCDMA,LTE: PIFA Antenna BT,WLAN: PIFA Antenna			
SIM Card	Support dual-SIM, dual standby, the multiple SIM card with two lines cannot transmitting at the same time			
Hotspot Mode:	Support			
DTM Mode:	Not Support			

Note:
1. Bluetooth SAR was estimated
2. The dual SIM card mobile has 2 SIM slots and supports dual SIM dual standby. The WWAN radio transmission will be enabled by either one SIM at a time (Single active)
3. After pre-scan two SIM cards power, we found test result of the SIM1 was the worse, so we chose SIM1 card to perform all tests.
4. 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.
Add. : 1/F., Building B, Zhuoke Science Park, No.190, Chongqing Road,
Fuyong Street, Bao'an District, Shenzhen, Guangdong, China
CNAS Registration No.: L7649
FCC 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:

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

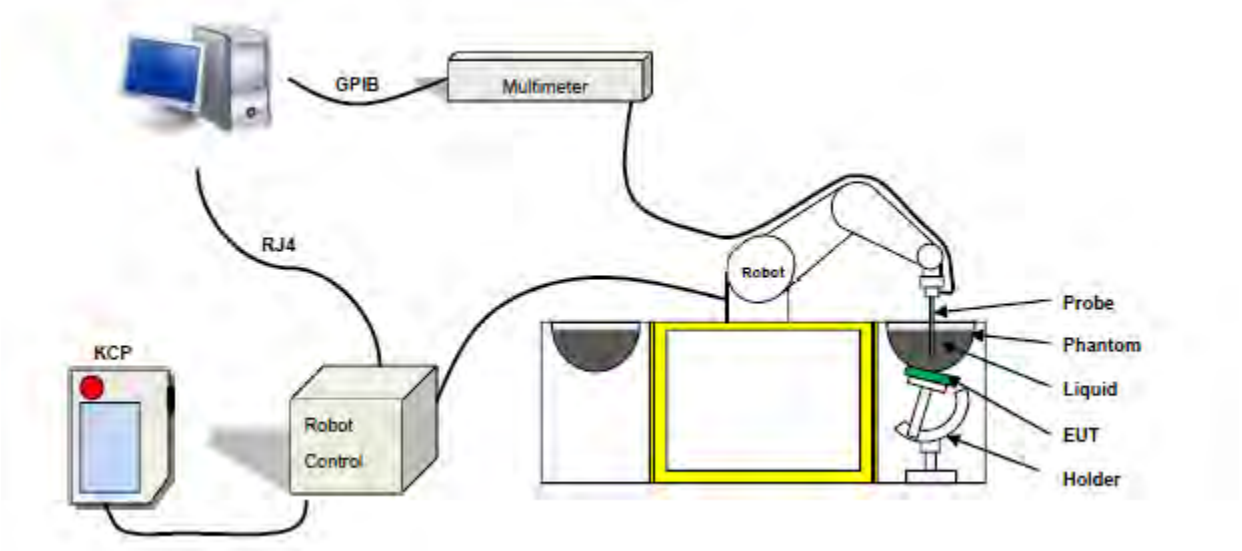
SAR is expressed in units of Watts per kilogram (W/kg) SAR measurement can be related to the electrical field in the tissue by

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

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 OpenSAR 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 45/15 EPGO281 with following specifications is used

- Dynamic range: 0.01-100 W/kg
- Tip Diameter: 2.5 mm
- Length of Individual Dipoles: 2 mm
- Maximum external diameter: 8 mm
- Distance between dipole/probe extremity: 8 mm (repeatability better than +/- 1mm)
- Probe linearity: 0±2.60%(0.11dB)
- Axial Isotropy: ＜0.25 dB
- Spherical Isotropy: ＜0.25 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*

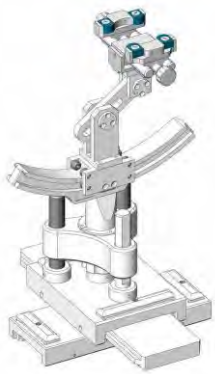
3.2.2 Phantom

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]					
2018-08-06	22.7	51	750 MHz	22.4	Permittivity:	41.9	42.20	0.71	±5
					Conductivity:	0.89	0.88	0.25	±5
2018-08-07	23.2	53	835 MHz	22.8	Permittivity:	41.5	41.37	-0.31	±5
					Conductivity:	0.9	0.91	1.25	±5
2018-08-08	23.5	50	1800 MHz	23.2	Permittivity:	40	41.32	3.30	±5
					Conductivity:	1.40	1.42	1.47	±5
2018-08-09	23.4	55	1900 MHz	23.1	Permittivity:	40	39.84	-0.39	±5
					Conductivity:	1.4	1.40	0.16	±5
2018-08-10	23.2	52	2450 MHz	22.8	Permittivity:	39.2	40.16	2.45	±5
					Conductivity:	1.8	1.84	2.08	±5
2018-08-11	23.1	51	2600 MHz	22.7	Permittivity:	39.0	37.81	-3.06	±5
					Conductivity:	1.96	2.00	2.03	±5
2018-08-12	23.3	54	5200 MHz	22.9	Permittivity:	36.0	36.35	0.97	±5
					Conductivity:	4.66	4.57	-1.93	±5
2018-08-12	23.3	54	5300 MHz	22.9	Permittivity:	35.9	35.53	-1.03	±5
					Conductivity:	4.76	4.70	-1.26	±5
2018-08-13	22.6	58	5600 MHz	23.3	Permittivity:	35.5	35.78	0.79	±5
					Conductivity:	5.07	5.13	1.18	±5
2018-08-13	22.6	58	5800 MHz	23.3	Permittivity:	35.3	35.2	-0.28	±5
					Conductivity:	5.27	5.19	-1.52	±5

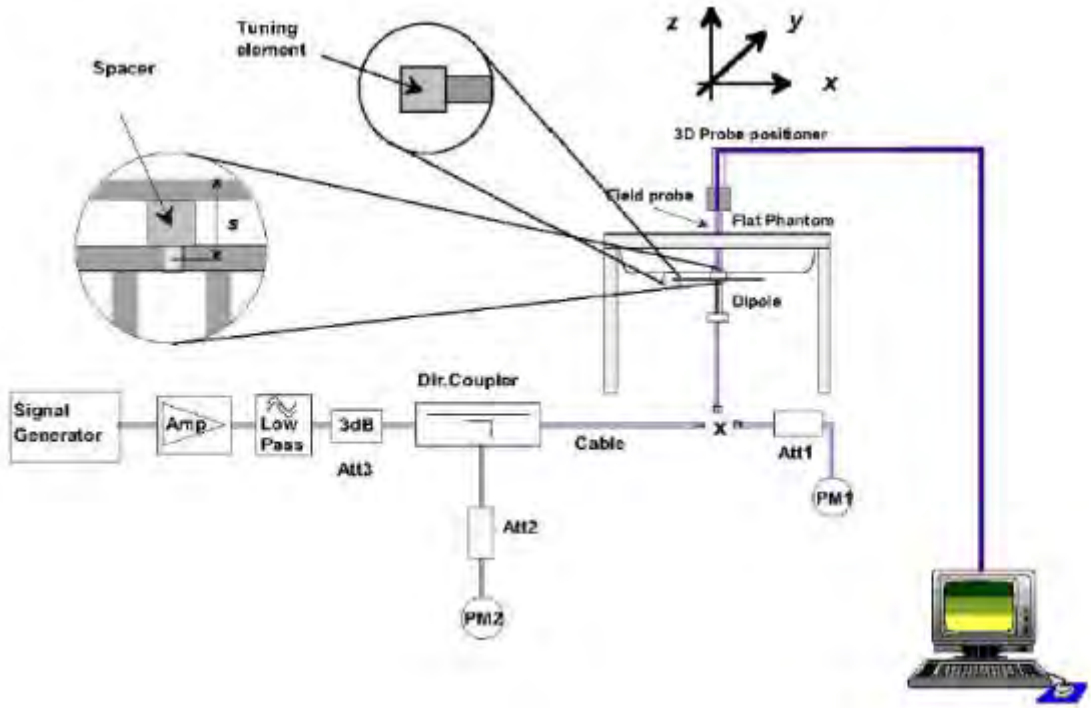
Date	Ambient condition		Body Simulating Liquid		Parameters	Target	Measured	Deviation [%]	Limited [%]
	Temp. [°C]	Humidity [%]	Frequency	Temp. [°C]					
2018-08-06	22.7	51	750 MHz	22.4	Permittivity:	55.5	55.47	-0.05	±5
					Conductivity:	0.96	0.99	3.05	±5
2018-08-07	23.2	53	835 MHz	22.8	Permittivity:	55.2	55.58	0.70	±5
					Conductivity:	0.97	0.99	2.52	±5
2018-08-08	23.5	50	1800 MHz	23.2	Permittivity:	53.3	53.63	0.61	±5
					Conductivity:	1.52	1.52	-0.16	±5
2018-08-09	23.4	55	1900 MHz	23.1	Permittivity:	53.3	52.30	-1.87	±5
					Conductivity:	1.52	1.53	0.35	±5
2018-08-10	23.2	52	2450 MHz	22.8	Permittivity:	52.7	51.85	-1.61	±5
					Conductivity:	1.95	1.95	0.24	±5
2018-08-11	23.1	51	2600 MHz	22.7	Permittivity:	52.5	52.09	-0.79	±5
					Conductivity:	2.16	2.18	1.00	±5
2018-08-12	23.3	54	5200 MHz	22.9	Permittivity:	49.0	46.91	-4.27	±5
					Conductivity:	5.30	5.15	-2.83	±5
2018-08-12	23.3	54	5300 MHz	22.9	Permittivity:	48.70	49.20	1.03	±5
					Conductivity:	5.53	5.39	-2.53	±5
2018-08-13	22.6	58	5600 MHz	23.3	Permittivity:	48.5	50.37	3.86	±5
					Conductivity:	5.77	5.90	2.25	±5
2018-08-13	22.6	58	5800 MHz	23.3	Permittivity:	48.2	47.86	-0.71	±5
					Conductivity:	6.00	6.05	0.83	±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	0.797	7.97	8.49	-6.18	2018-08-06
750 Body	100	0.834	8.34	8.49	-1.82	2018-08-06
835 Head	100	0.989	9.89	9.56	3.48	2018-08-07
835 Body	100	0.926	9.26	9.56	-3.09	2018-08-07
1800 Head	100	3.880	38.80	38.4	1.03	2018-08-08
1800 Body	100	4.083	40.83	38.4	6.34	2018-08-08
1900 Head	100	4.112	41.12	39.7	3.58	2018-08-09
1900 Body	100	3.958	39.58	39.7	-0.29	2018-08-09
2450 Head	100	5.384	53.84	52.4	2.75	2018-08-10
2450 Body	100	5.113	51.13	52.4	-2.42	2018-08-10
2600 Head	100	5.698	56.98	55.3	3.04	2018-08-11
2600 Body	100	5.382	53.82	55.3	-2.68	2018-08-11
5200 Head	100	15.61	156.1	159	-1.82	2018-08-12
5200 Body	100	15.65	156.5	159	-1.57	2018-08-12
5300 Head	100	16.46	164.6	166.4	-1.08	2018-08-12
5300 Body	100	16.79	167.9	166.4	0.90	2018-08-12
5600 Head	100	17.18	171.8	173.8	-1.15	2018-08-13
5600 Body	100	17.23	172.3	173.8	-0.86	2018-08-13
5800 Head	100	17.10	171.0	181.2	-5.63	2018-08-13
5800 Body	100	18.75	187.5	181.2	3.48	2018-08-13

Note: The tolerance limit of System validation ±10%.

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

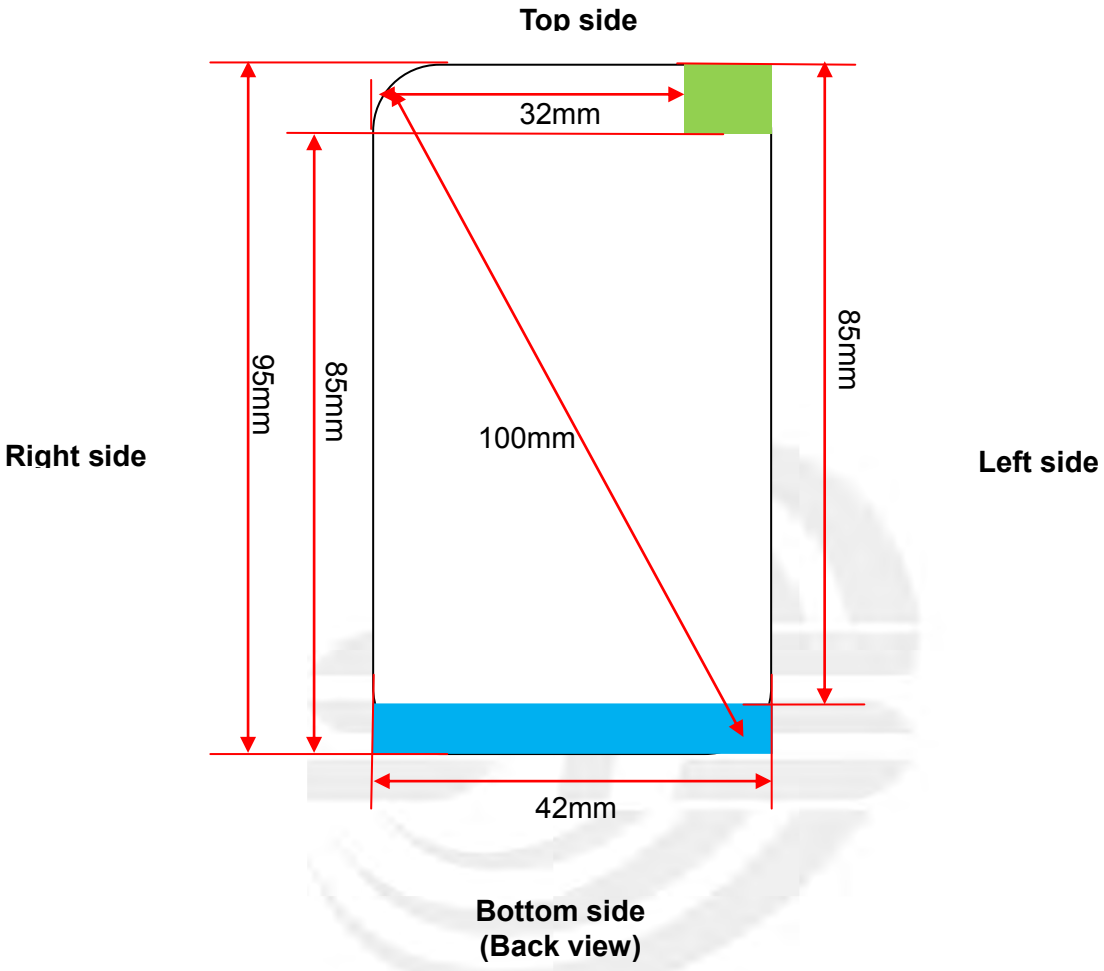
- Establish a call with the maximum output power with a base station simulator. The connection between the mobile and the base station simulator is established via air interface
- Measurement of the local E-field value at a fixed location. This value serves as a reference value for calculating a possible 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 Antenna Location Sketch

It is a Smart phone, support GSM/WCDMA/LTE mode.



7.1 SAR test exclusion consider table

According with FCC KDB 447498 D01, appendix A, <SAR test exclusion thresholds for 100MHz ~6GHz and≤50mm＞table, this device SAR test configurations consider as following:

Band	Test position configurations					
	Front	Back	Right edge	Left edge	Top edge	Bottom edge
WWAN	＜5mm	＜5mm	＜5mm	＜5mm	85mm	＜5mm
	Yes	Yes	Yes	Yes	No	Yes
WLAN/BT	＜5mm	＜5mm	32mm	＜5mm	＜5mm	85mm
	Yes	Yes	No	Yes	Yes	No

Note：

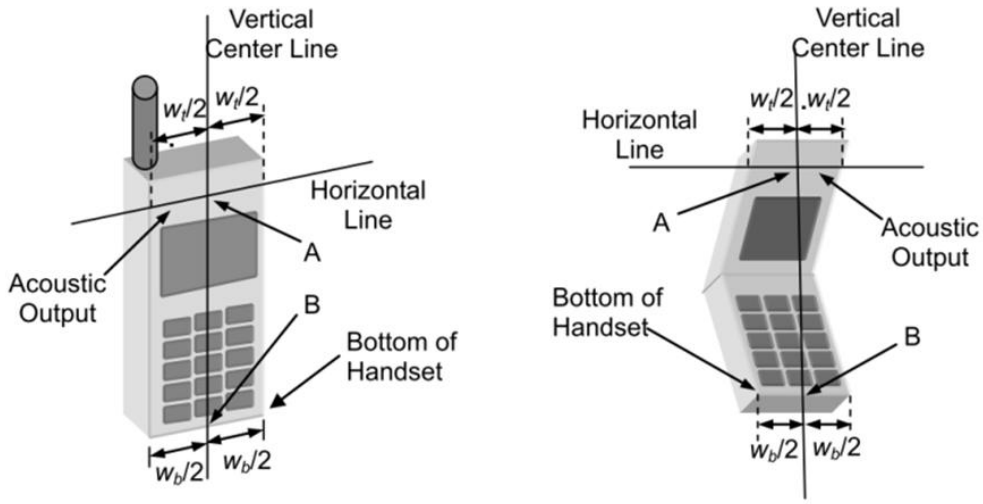
1. maximum power is the source-based time-average power and represents the maximum RF output power among production units.
2. per KDB 447498 D01, for larger devices, the test separation distance of adjacent edge configuration is determined by the closest separation between the antenna and the user.
3. per KDB 447498 D01, standalone SAR test exclusion threshold is applied; if the distance of the antenna to the user is <5mm, 5mm is user to determine SAR exclusion threshold
4. per KDB 447498 D01, the 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distance ≤50mm 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 for10-g extremity SAR ,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
   For <50mm distance, we just calculate mW of the exclusion threshold value(3.0)to do compare
5. per KDB 447498 D01, at 100 MHz to 6GHz and for test separation distances >50mm, the SAR test exclusion threshold is determined according to the following
   a)[threshold at 50mm in step 1]+(test separation distance -50mm)*(f (MHz)/150)]Mw, at 100 MHz to 1500 MHz
   b) [threshold at 50mm in step1]+(test separation distance -50mm) *10]mW at＞ 1500MHz and≤6GHz
6. Per KDB 447498 D02, RMC 12.2kbps setting is used to evaluate SAR. If HSDPA/ HSUPA/DC-HSDPA output power is<0.25db higher than RMC 12.2Kbps,or reported SAR with RMC 12.2kbps setting is ≤1.2W/Kg, HSDPA/HSUPA/DC-HSDPA SAR evaluation can be excluded.
7. Per KDB 248227 D01, choose the highest output power channel to test SAR and determine futher SAR exclusion 8.for each frequency band ,testing at higher data rates and higher order modulations is not required when the maximum average output power for each of each of these configurations is less than 1/4db higher than those measured at the lower data rate than 11b mode ,thus the SAR can be excluded.

8. EUT Test Position

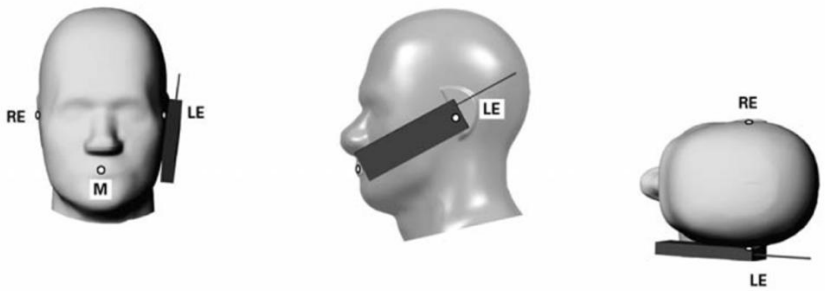
This EUT was tested in Right Cheek, Right Titled, Left Cheek, Left Titled, Front Face and Rear Face.

8.1 Define Two Imaginary Lines On The Handset

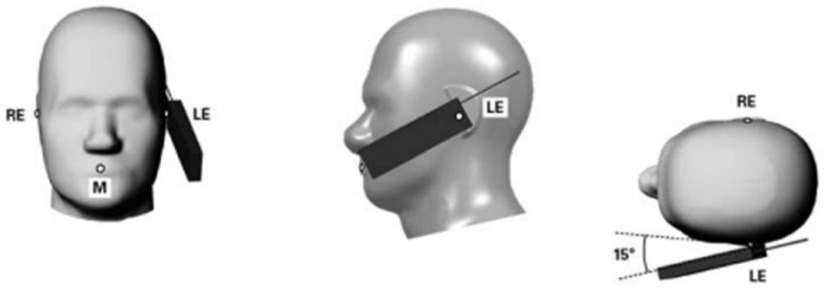
(1)The vertical centerline passes through two points on the front side of the handset the midpoint of the width wt of the handset at the level of the acoustic output, and the midpoint of the width wb of the handset.
(2)The horizontal line is perpendicular to the vertical centerline and passes through the center of the acoustic output. The horizontal line is also tangential to the face of the handset at point A.
(3)The two lines intersect at point A. Note that for many handsets, point A coincides with the center of the acoustic output; however, the acoustic output may be located elsewhere on the horizontal line. Also note that the vertical centerline is not necessarily to the front face of the handset, especially for clamshell handsets, handsets with flip covers, and other irregularly shaped handsets.



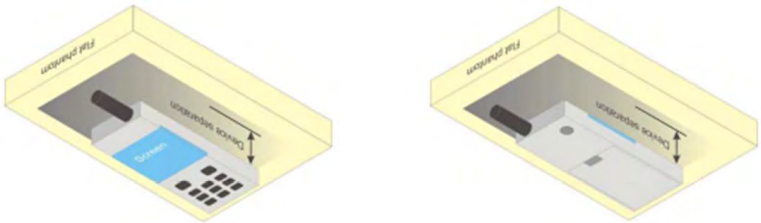
Cheek Position
1)To position the device with the vertical center line of the body of the device and the horizontal line crossing the center piece in a plane parallel to the sagittal plane of the phantom. While maintaining the device in this plane, align the vertical center line with the reference plane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



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

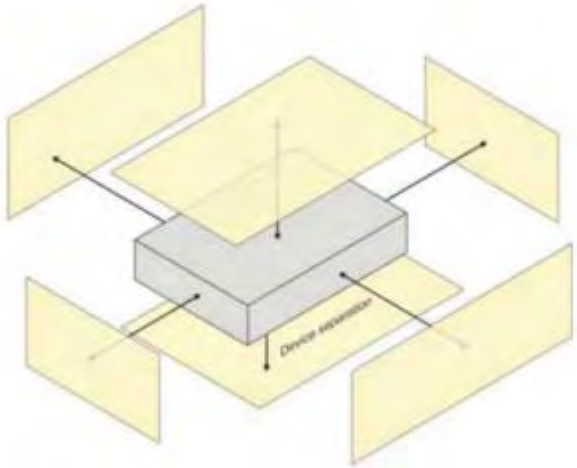


Body-worn Position Conditions:
Body-worn accessory exposure is typically related to voice mode operations when handsets are carried in body-worn accessories. The body-worn accessory procedures in KDB Publication 447498 D01 should be used to test for body-worn accessory SAR compliance, without a headset 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 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 form 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.

NO	Source	Tol(%)	Prob. Dist.	Div. k	ci (1g)	ci (10g)	1gUi	10gUi	Veff
Measurement System									
1	Probe calibration	5.8	N	1	1	1	5.8	5.8	∞
2	Axial isotropy	3.5	R	√3	$(1\text{-cp})^{1/2}$	$(1\text{-cp})^{1/2}$	1.43	1.43	∞
3	Hemispherical isotropy	5.9	R	√3	$\sqrt{C_p}$	$\sqrt{C_p}$	2.41	2.41	∞
4	Boundary effect	1.0	R	√3	1	1	0.58	0.58	∞
5	Linearity	4.7	R	√3	1	1	2.71	2.71	∞
6	System Detection limits	1.0	R	√3	1	1	0.58	0.58	∞
7	Readout electronics	0.5	N	1	1	1	0.50	0.50	∞
8	Response time	0	R	√3	1	1	0	0	∞
9	Integration time	1.4	R	√3	1	1	0.81	0.81	∞
10	Ambient noise	3.0	R	√3	1	1	1.73	1.73	∞
11	Ambient reflections	3.0	R	√3	1	1	1.73	1.73	∞
12	Probe positioner mech. restrictions	1.4	R	√3	1	1	0.81	0.81	∞
13	Probe positioning with respect to phantom shell	1.4	R	√3	1	1	0.81	0.81	∞
14	Max.SAR evaluation	1.0	R	√3	1	1	0.6	0.6	∞
Test sample related									

15	Device positioning	2.6	N	1	1	1	2.6	2.6	11
16	Device holder	3	N	1	1	1	3.0	3.0	7
17	Drift of output power	5.0	R	√3	1	1	2.89	2.89	∞
Phantom and set-up									
18	Phantom uncertainty	4.0	R	√3	1	1	2.31	2.31	∞
19	Liquid conductivity (target)	2.5	N	1	0.78	0.71	1.95	1.78	5
20	Liquid conductivity (meas)	4	N	1	0.23	0.26	0.92	1.04	5
21	Liquid Permittivity (target)	2.5	N	1	0.78	0.71	1.95	1.78	∞
22	Liquid Permittivity (meas)	5.0	N	1	0.23	0.26	1.15	1.30	∞
Combined standard			RSS	$U_C = \sqrt{\sum_{i=1}^{n} C_i^2 U_i^2}$			10.63%	10.54%	
Expanded uncertainty (P=95%)		$U = k\, U_C$,k=2					21.26%	21.08%	

9.2 System validation Uncertainty

NO	Source	Tol(%)	Prob. Dist.	Div. k	ci (1g)	ci (10g)	1gUi	10gUi	Veff
Measurement System									
1	Probe calibration	5.8	N	1	1	1	5.8	5.8	∞
2	Axial isotropy	3.5	R	√3	$(1\text{-cp})^{1/2}$	$(1\text{-cp})^{1/2}$	1.43	1.43	∞
3	Hemispherical isotropy	5.9	R	√3	$\sqrt{C_p}$	$\sqrt{C_p}$	2.41	2.41	∞
4	Boundary effect	1.0	R	√3	1	1	0.58	0.58	∞
5	Linearity	4.7	R	√3	1	1	2.71	2.71	∞
6	System Detection limits	1.0	R	√3	1	1	0.58	0.58	∞
7	Modulation response	0	N	1	1	1	0	0	∞
8	Readout electronics	0.5	N	1	1	1	0.50	0.50	∞
9	Response time	0	R	√3	1	1	0	0	∞
10	Integration time	1.4	R	√3	1	1	0.81	0.81	∞
11	Ambient noise	3.0	R	√3	1	1	1.73	1.73	∞
12	Ambient reflections	3.0	R	√3	1	1	1.73	1.73	∞
13	Probe positioner mech. restrictions	1.4	R	√3	1	1	0.81	0.81	∞
14	Probe positioning with respect to phantom shell	1.4	R	√3	1	1	0.81	0.81	∞
15	Max.SAR evaluation	1.0	R	√3	1	1	0.6	0.6	∞
Dipole									
16	Deviation of experimental source from	4	N	1	1	1	4.00	4.00	∞

17	Input power and SAR drit measurement	5	R	√3	1	1	2.89	2.89	∞
18	Dipole Axis to liquid Distance	2	R	√3	1	1			∞
Phantom and set-up									
19	Phantom uncertainty	4.0	R	√3	1	1	2.31	2.31	∞
20	Uncertainty in SAR correction for deviation(in	2.0	N	1	1	0.84	2	1.68	∞
21	Liquid conductivity (target)	2	N	1	1	0.84	2.00	1.68	∞
22	Liquid conductivity (temperature uncertainty)	2.5	N	1	0.78	0.71	1.95	1.78	5
23	Liquid conductivity (meas)	4	N	1	0.23	0.26	0.92	1.04	5
24	Liquid Permittivity (target)	2.5	N	1	0.78	0.71	1.95	1.78	∞
25	Liquid Permittivity (temperature uncertainty)	2.5	N	1	0.78	0.71	1.95	1.78	5
26	Liquid Permittivity (meas)	5.0	N	1	0.23	0.26	1.15	1.30	∞
Combined standard			RSS	$U_C = \sqrt{\sum_{i=1}^{n} C_i^2 U_i^2}$			10.15%	10.05%	
Expanded uncertainty (P=95%)		$U = k\, U_C$,k=2					20.29%	20.10%	

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)	32.28	32.20	32.10	29.05	29.06	28.68
GPRS (GMSK, 1-Slot)	32.26	32.18	32.09	29.03	29.05	28.65
GPRS (GMSK, 2-Slot)	31.79	31.71	31.65	28.61	28.56	28.25
GPRS (GMSK, 3-Slot)	31.34	31.31	31.19	28.20	28.09	27.79
GPRS (GMSK, 4-Slot)	30.90	30.86	30.71	27.75	27.69	27.34
EGPRS(8PSK, 1-Slot)	27.20	27.08	26.89	24.49	24.40	24.80
EGPRS(8PSK, 2-Slot)	26.42	26.38	26.14	23.73	23.66	24.05
EGPRS(8PSK, 3-Slot)	25.67	25.67	25.42	22.99	22.88	23.25
EGPRS(8PSK, 4-Slot)	24.92	24.94	24.67	22.21	22.11	22.47
Remark: GPRS, CS4 coding scheme. EGPRS, MCS9 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)	23.25	23.17	23.07	20.02	20.03	19.65
GPRS (GMSK, 1-Slot)	23.23	23.15	23.06	20.00	20.02	19.62
GPRS (GMSK, 2-Slot)	25.77	25.69	25.63	22.59	22.54	22.23
GPRS (GMSK, 3-Slot)	27.08	27.05	26.93	23.94	23.83	23.53
GPRS (GMSK, 4-Slot)	27.89	27.85	27.70	24.74	24.68	24.33
EGPRS(8PSK, 1-Slot)	18.17	18.05	17.86	15.46	15.37	15.77
EGPRS(8PSK, 2-Slot)	20.40	20.36	20.12	17.71	17.64	18.03
EGPRS(8PSK, 3-Slot)	21.41	21.41	21.16	18.73	18.62	18.99
EGPRS(8PSK, 4-Slot)	21.91	21.93	21.66	19.20	19.10	19.46
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 IV			WCDMA Band II		
Channel	4132	4183	4233	1312	1413	1513	9262	9400	9538
Frequency (MHz)	826.4	836.6	846.6	1712.6	1740	1752.4	1852.4	1880.0	1907.6
AMR 12.2Kbps	22.73	22.76	22.80	21.82	21.86	22.01	22.34	21.84	21.79
RMC 12.2Kbps	22.82	22.84	22.86	21.98	22.06	22.20	22.40	22.10	21.93
HSDPA Subtest-1	22.01	21.93	21.70	20.94	21.05	21.15	21.26	21.06	20.86
HSDPA Subtest-2	21.57	21.46	21.24	20.54	20.61	20.66	20.84	20.62	20.44
HSDPA Subtest-3	21.11	20.98	20.76	20.24	20.14	20.33	20.53	20.16	20.07
HSDPA Subtest-4	20.68	20.51	20.33	19.85	19.69	19.90	20.10	19.84	19.67
HSUPA Subtest-1	21.95	21.83	21.23	20.89	21.02	20.69	21.17	21.04	20.39
HSUPA Subtest-2	21.06	20.93	20.28	20.02	20.03	19.77	20.17	20.09	19.48
HSUPA Subtest-3	20.92	20.44	19.79	19.91	19.61	19.46	20.04	19.69	19.13
HSUPA Subtest-4	20.52	19.96	19.36	19.53	19.13	19.12	19.55	19.21	18.64
HSUPA Subtest-5	19.04	18.53	17.92	18.13	17.67	17.65	18.06	17.75	17.21

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.

CDMA Conducted Power Test Result:

Band	CDMA BC0			CDMA BC1		
Channel	1013	384	777	25	600	1175
Frequency (MHz)	824.7	836.52	848.31	1851.25	1880.00	1908.75
CDMA	23.28	23.35	23.26	20.23	20.31	19.63

WLAN

Mode	Channel Number	Frequency (MHz)	Average Power (dBm)
802.11b	1	2412	9.71
	6	2437	9.61
	11	2462	9.91
802.11g	1	2412	5.94
	6	2437	7.24
	11	2462	5.74
802.11n(HT 20)	1	2412	5.84
	6	2437	7.34
	11	2462	5.74
802.11n(HT 40)	3	2422	3.33
	6	2437	4.53
	9	2452	3.33

LAN (5.2Gband)

Mode	Channel Number	Frequency (MHz)	Average EIRP Power (dBm)
802.11a	36	5180	8.07
	40	5200	9.02
	48	5240	8.42
802.11 n-HT20	36	5180	9.13
	40	5200	9.62
	48	5240	9.29
802.11 n-HT40	38	5190	7.93
	46	5230	7.22

WLAN (5.3Gband)

Mode	Channel Number	Frequency (MHz)	Average EIRP Power (dBm)
802.11a	52	5260	8.93
	60	5300	8.21
	64	5320	8.57
802.11 n-HT20	52	5260	9.78
	60	5300	8.52
	64	5320	9.14
802.11 n-HT40	54	5270	7.84
	62	5310	7.56

WLAN (5.6Gband)

Mode	Channel Number	Frequency (MHz)	Average EIRP Power (dBm)
802.11a	100	5500	8.93
	116	5580	7.42
	140	5700	6.82
802.11 n-HT20	100	5500	8.71
	116	5580	8.66
	140	5700	7.26
802.11 n-HT40	102	5510	7.35
	110	5550	7.04
	134	5670	7.55

WLAN (5.8Gband)

Mode	Channel Number	Frequency (MHz)	Average EIRP Power (dBm)
802.11a	149	5745	7.37
	157	5785	6.02
	165	5825	6.87
802.11 n-HT20	149	5745	7.46
	157	5785	6.14
	165	5825	6.57
802.11 n-HT40	151	5755	6.36
	159	5795	5.94

Bluetooth

Mode	Channel Number	Frequency (MHz)	Average Power (dBm)
GFSK(1Mbps)	0	2402	-1.59
	39	2441	-0.25
	78	2480	-1.32
π/4-DQPSK(2Mbps)	0	2402	-3.12
	39	2441	-1.97
	78	2480	-3.15
8DPSK(3Mbps)	0	2402	-3.36
	39	2441	-2.07
	78	2480	-3.39

BLE

Mode	Channel Number	Frequency (MHz)	Average Power (dBm)
GFSK(1Mbps)	0	2402	0.03
	19	2440	2.48
	39	2480	1.27

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 ½ 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 ½ 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 2

LTE Band 2 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
1.4	1	0	QPSK	21.23	21.18	21.14
1.4	1	2		21.38	21.32	21.25
1.4	1	5		21.19	21.19	21.13
1.4	3	0		21.34	21.37	21.33
1.4	3	1		21.43	21.39	21.37
1.4	3	2		21.39	21.34	21.33
1.4	6	0		20.25	20.2	20.2
1.4	1	0	16-QAM	20.44	20.49	20.1
1.4	1	2		20.56	20.59	20.17
1.4	1	5		20.42	20.49	20.11
1.4	3	0		20.42	20.35	20.32
1.4	3	1		20.41	20.34	20.36
1.4	3	2		20.42	20.36	20.3
1.4	6	0		19.38	19.35	19.35
3	1	0	QPSK	21.21	21.22	21.19
3	1	7		21.35	21.3	21.31
3	1	14		21.16	21.23	21.14
3	8	0		20.24	20.18	20.19
3	8	4		20.29	20.26	20.2
3	8	7		20.23	20.13	20.15
3	15	0		20.26	20.2	20.21
3	1	0	16-QAM	20.4	20.46	20.42
3	1	7		20.56	20.59	20.58
3	1	14		20.48	20.46	20.46
3	8	0		19.49	19.44	19.39
3	8	4		19.55	19.44	19.43
3	8	7		19.51	19.4	19.33
3	15	0		19.42	19.36	19.33

LTE BAND 2

LTE Band 2 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
5	1	0	QPSK	21.14	21.11	21.07
5	1	12		21.44	21.37	21.33
5	1	24		21.14	21.12	21.09
5	12	0		20.31	20.26	20.29
5	12	6		20.35	20.25	20.23
5	12	11		20.28	20.2	20.2
5	25	0		20.29	20.23	20.23
5	1	0	16-QAM	20.3	20.17	20.52
5	1	12		20.57	20.39	20.77
5	1	24		20.35	20.14	20.51
5	12	0		19.45	19.52	19.29
5	12	6		19.48	19.51	19.29
5	12	11		19.44	19.47	19.24
5	25	0		19.34	19.36	19.32
10	1	0	QPSK	21.16	21.17	21.16
10	1	24		21.34	21.3	21.33
10	1	49		21.16	21.18	21.16
10	25	0		20.45	20.35	20.34
10	25	12		20.43	20.28	20.3
10	25	24		20.41	20.25	20.22
10	50	0		20.45	20.28	20.27
10	1	0	16-QAM	20.4	20.42	20.42
10	1	24		20.62	20.63	20.54
10	1	49		20.41	20.44	20.39
10	25	0		19.55	19.5	19.54
10	25	12		19.53	19.38	19.51
10	25	24		19.55	19.37	19.4
10	50	0		19.48	19.33	19.34

LTE BAND 2

LTE Band 2 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
15	1	0	QPSK	21.24	21.2	21.25
15	1	37		20.98	20.98	21.04
15	1	74		20.7	20.69	20.84
15	36	0		20.43	20.46	20.59
15	36	18		20.2	20.22	20.36
15	36	39		19.93	20.01	20.09
15	75	0		19.73	19.81	19.88
15	1	0	16-QAM	20.95	20.94	21.03
15	1	38		20.73	20.72	20.79
15	1	75		20.5	20.47	20.54
15	36	0		20.22	20.25	20.24
15	36	18		20	20.01	19.94
15	36	39		19.76	19.72	19.74
15	75	0		19.47	19.49	19.45
20	1	0	QPSK	21.53	21.51	21.45
20	1	49		20.97	21.01	21.00
20	1	99		20.72	20.77	20.77
20	50	0		20.46	20.5	20.53
20	50	24		20.16	20.26	20.24
20	50	49		19.94	19.99	19.99
20	100	0		19.69	19.76	19.73
20	1	0	16-QAM	20.99	20.98	20.98
20	1	49		20.75	20.71	20.77
20	1	99		20.54	20.49	20.57
20	50	0		20.28	20.26	20.29
20	50	24		20.04	19.99	20.04
20	50	49		19.78	19.71	19.76
20	100	0		19.53	19.43	19.53

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	21.23	21.21	21.22
1.4	1	2		21.38	21.32	21.32
1.4	1	5		21.26	21.21	21.22
1.4	3	0		21.37	21.3	21.31
1.4	3	1		21.41	21.39	21.37
1.4	3	2		21.39	21.43	21.36
1.4	6	0		20.28	20.25	20.23
1.4	1	0	16-QAM	20.15	20.47	20.45
1.4	1	2		20.24	20.52	20.5
1.4	1	5		20.22	20.5	20.48
1.4	3	0		20.38	20.35	20.27
1.4	3	1		20.4	20.4	20.35
1.4	3	2		20.37	20.35	20.28
1.4	6	0		19.45	19.39	19.4
3	1	0	QPSK	21.36	21.34	21.29
3	1	7		21.48	21.51	21.46
3	1	14		21.33	21.36	21.21
3	8	0		20.39	20.33	20.33
3	8	4		20.42	20.39	20.38
3	8	7		20.34	20.35	20.31
3	15	0		20.4	20.34	20.32
3	1	0	16-QAM	20.56	20.55	20.52
3	1	7		20.68	20.71	20.6
3	1	14		20.56	20.47	20.49
3	8	0		19.66	19.58	19.47
3	8	4		19.65	19.63	19.5
3	8	7		19.61	19.54	19.43
3	15	0		19.49	19.44	19.44

LTE BAND 4

LTE Band 4 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
5	1	0	QPSK	21.25	21.23	21.2
5	1	12		21.54	21.45	21.49
5	1	24		21.24	21.22	21.21
5	12	0		20.39	20.25	20.28
5	12	6		20.42	20.35	20.34
5	12	11		20.37	20.38	20.3
5	25	0		20.36	20.34	20.28
5	1	0	16-QAM	20.38	20.25	20.54
5	1	12		20.67	20.51	20.87
5	1	24		20.39	20.25	20.56
5	12	0		19.52	19.48	19.32
5	12	6		19.55	19.58	19.36
5	12	11		19.57	19.61	19.28
5	25	0		19.41	19.43	19.36
10	1	0	QPSK	21.32	21.32	21.24
10	1	24		21.41	21.43	21.38
10	1	49		21.27	21.27	21.24
10	25	0		20.46	20.28	20.35
10	25	12		20.44	20.36	20.31
10	25	24		20.38	20.4	20.25
10	50	0		20.44	20.36	20.32
10	1	0	16-QAM	20.48	20.53	20.36
10	1	24		20.65	20.63	20.53
10	1	49		20.56	20.5	20.48
10	25	0		19.61	19.44	19.54
10	25	12		19.58	19.49	19.5
10	25	24		19.55	19.53	19.44
10	50	0		19.5	19.42	19.36

LTE BAND 4

LTE Band 4 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
15	1	0	QPSK	21.58	21.53	21.52
15	1	37		21.28	21.32	21.25
15	1	74		21.01	21.04	21
15	36	0		20.77	20.77	20.77
15	36	18		20.54	20.51	20.57
15	36	39		20.3	20.29	20.35
15	75	0		20.09	20.03	20.08
15	1	0	16-QAM	21.3	21.31	21.23
15	1	38		21.06	21.11	20.96
15	1	75		20.79	20.91	20.69
15	36	0		20.55	20.68	20.45
15	36	18		20.3	20.46	20.24
15	36	39		20.01	20.18	19.95
15	75	0		19.72	19.97	19.73
20	1	0	QPSK	21.61	21.56	21.54
20	1	49		21.36	21.31	21.31
20	1	99		21.13	21.02	21.05
20	50	0		20.86	20.73	20.82
20	50	24		20.58	20.46	20.57
20	50	49		20.37	20.18	20.36
20	100	0		20.1	19.96	20.14
20	1	0	16-QAM	21.35	21.3	21.27
20	1	49		21.11	21.05	20.99
20	1	99		20.9	20.77	20.7
20	50	0		20.63	20.54	20.45
20	50	24		20.34	20.29	20.2
20	50	49		20.06	20.03	19.9
20	100	0		19.84	19.75	19.67

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	21.81	21.76	21.76
1.4	1	2		21.86	21.9	21.82
1.4	1	5		21.79	21.76	21.72
1.4	3	0		21.92	21.87	21.85
1.4	3	1		21.96	21.92	21.94
1.4	3	2		21.91	21.87	21.86
1.4	6	0		20.88	20.84	20.86
1.4	1	0	16-QAM	20.78	21.06	21.06
1.4	1	2		20.88	21.22	21.11
1.4	1	5		20.76	21.01	21.09
1.4	3	0		20.91	21.01	20.91
1.4	3	1		21.06	21	20.94
1.4	3	2		20.99	20.91	20.91
1.4	6	0		20	19.91	20
3	1	0	QPSK	21.9	21.9	21.86
3	1	7		21.98	22.01	22.01
3	1	14		21.83	21.85	21.9
3	8	0		20.98	20.92	20.97
3	8	4		21	20.99	20.98
3	8	7		20.97	20.92	20.9
3	15	0		20.97	20.92	20.95
3	1	0	16-QAM	21.17	21.17	21.17
3	1	7		21.28	21.3	21.31
3	1	14		21.15	21.13	21.17
3	8	0		20.15	20.1	20.05
3	8	4		20.17	20.12	20.01
3	8	7		20.15	20.06	19.95
3	15	0		20.05	19.97	19.99

LTE BAND 5

LTE Band 5 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
5	1	0	QPSK	22.01	22.03	22.04
5	1	12		21.74	21.75	21.78
5	1	24		21.48	21.53	21.5
5	12	0		21.21	21.28	21.28
5	12	6		21	21	21.03
5	12	11		20.71	20.77	20.76
5	25	0		20.46	20.56	20.55
5	1	0	16-QAM	21.74	21.74	21.82
5	1	12		21.5	21.51	21.57
5	1	24		21.21	21.3	21.37
5	12	0		20.97	21.05	21.07
5	12	6		20.7	20.77	20.81
5	12	11		20.42	20.54	20.54
5	25	0		20.15	20.3	20.32
10	1	0	QPSK	22.03	22.05	22.05
10	1	24		21.78	21.83	21.8
10	1	49		21.53	21.56	21.56
10	25	0		21.25	21.28	21.28
10	25	12		21.01	20.98	21.05
10	25	24		20.75	20.76	20.83
10	50	0		20.48	20.48	20.6
10	1	0	16-QAM	21.78	21.75	21.77
10	1	24		21.5	21.5	21.48
10	1	49		21.29	21.25	21.25
10	25	0		20.99	20.99	20.99
10	25	12		20.79	20.69	20.73
10	25	24		20.5	20.41	20.48
10	50	0		20.21	20.12	20.22

LTE BAND 7

LTE Band 7 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
5	1	0	QPSK	20.88	20.85	20.86
5	1	12		21.14	21.12	21.14
5	1	24		20.85	20.84	20.86
5	12	0		19.93	19.88	19.83
5	12	6		20	19.94	19.96
5	12	11		19.97	19.92	19.98
5	25	0		19.92	19.91	19.94
5	1	0	16-QAM	19.91	19.81	20.16
5	1	12		20.21	20.06	20.43
5	1	24		19.91	19.8	20.16
5	12	0		19.05	18.99	18.82
5	12	6		19.1	19.09	18.92
5	12	11		19.1	19.13	18.92
5	25	0		18.96	19	18.95
10	1	0	QPSK	20.96	20.88	20.95
10	1	24		21.06	20.99	21.05
10	1	49		20.91	20.89	20.95
10	25	0		19.99	19.87	19.9
10	25	12		19.97	19.93	19.94
10	25	24		19.96	20	20.01
10	50	0		19.96	19.94	19.96
10	1	0	16-QAM	20.08	20	20.05
10	1	24		20.2	20.14	20.14
10	1	49		20.04	20.05	20.04
10	25	0		19.07	18.92	19.01
10	25	12		19.05	19.01	19.08
10	25	24		19.02	19.04	19.12
10	50	0		18.98	18.95	19

LTE BAND 7

LTE Band 7 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
15	1	0	QPSK	21.16	21.13	21.16
15	1	37		20.87	20.88	20.93
15	1	74		20.6	20.65	20.7
15	36	0		20.38	20.42	20.41
15	36	18		20.16	20.16	20.13
15	36	39		19.95	19.87	19.89
15	75	0		19.71	19.66	19.63
15	1	0	16-QAM	20.88	20.85	20.87
15	1	38		20.65	20.62	20.63
15	1	75		20.36	20.4	20.35
15	36	0		20.07	20.2	20.13
15	36	18		19.83	19.91	19.87
15	36	39		19.55	19.64	19.66
15	75	0		19.34	19.4	19.42
20	1	0	QPSK	21.18	21.15	21.19
20	1	49		20.94	20.94	20.94
20	1	99		20.68	20.71	20.69
20	50	0		20.48	20.44	20.39
20	50	24		20.2	20.19	20.12
20	50	49		19.91	19.96	19.85
20	100	0		19.67	19.66	19.57
20	1	0	16-QAM	20.91	20.88	20.99
20	1	49		20.62	20.6	20.69
20	1	99		20.33	20.32	20.41
20	50	0		20.06	20.06	20.17
20	50	24		19.77	19.84	19.96
20	50	49		19.54	19.57	19.74
20	100	0		19.29	19.32	19.48

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	21.81	21.76	21.76
1.4	1	2		21.86	21.9	21.82
1.4	1	5		21.79	21.76	21.72
1.4	3	0		21.92	21.87	21.85
1.4	3	1		21.96	21.92	21.94
1.4	3	2		21.91	21.87	21.86
1.4	6	0		20.88	20.84	20.86
1.4	1	0	16-QAM	20.78	21.06	21.06
1.4	1	2		20.88	21.22	21.11
1.4	1	5		20.76	21.01	21.09
1.4	3	0		20.91	21.01	20.91
1.4	3	1		21.06	21	20.94
1.4	3	2		20.99	20.91	20.91
1.4	6	0		20	19.91	20
3	1	0	QPSK	21.9	21.9	21.86
3	1	7		21.98	22.01	22.01
3	1	14		21.83	21.85	21.9
3	8	0		20.98	20.92	20.97
3	8	4		21	20.99	20.98
3	8	7		20.97	20.92	20.9
3	15	0		20.97	20.92	20.95
3	1	0	16-QAM	21.17	21.17	21.17
3	1	7		21.28	21.3	21.31
3	1	14		21.15	21.13	21.17
3	8	0		20.15	20.1	20.05
3	8	4		20.17	20.12	20.01
3	8	7		20.15	20.06	19.95
3	15	0		20.05	19.97	19.99

LTE BAND 12

LTE Band 12 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
5	1	0	QPSK	22.01	22.03	22.04
5	1	12		21.74	21.75	21.78
5	1	24		21.48	21.53	21.5
5	12	0		21.21	21.28	21.28
5	12	6		21	21	21.03
5	12	11		20.71	20.77	20.76
5	25	0		20.46	20.56	20.55
5	1	0	16-QAM	21.74	21.74	21.82
5	1	12		21.5	21.51	21.57
5	1	24		21.21	21.3	21.37
5	12	0		20.97	21.05	21.07
5	12	6		20.7	20.77	20.81
5	12	11		20.42	20.54	20.54
5	25	0		20.15	20.3	20.32
10	1	0	QPSK	22.03	22.05	22.05
10	1	24		21.78	21.83	21.8
10	1	49		21.53	21.56	21.56
10	25	0		21.25	21.28	21.28
10	25	12		21.01	20.98	21.05
10	25	24		20.75	20.76	20.83
10	50	0		20.48	20.48	20.6
10	1	0	16-QAM	21.78	21.75	21.77
10	1	24		21.5	21.5	21.48
10	1	49		21.29	21.25	21.25
10	25	0		20.99	20.99	20.99
10	25	12		20.79	20.69	20.73
10	25	24		20.5	20.41	20.48
10	50	0		20.21	20.12	20.22

LTE BAND 13

LTE Band 13 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
5	1	0	QPSK	21.77	21.77	21.75
5	1	12		22	22	21.97
5	1	24		21.79	21.72	21.77
5	12	0		20.79	20.75	20.77
5	12	6		20.88	20.86	20.84
5	12	11		20.87	20.86	20.84
5	25	0		20.87	20.85	20.77
5	1	0	16-QAM	20.76	20.79	21.09
5	1	12		21.11	20.96	21.28
5	1	24		20.83	20.72	21.11
5	12	0		19.87	19.93	19.66
5	12	6		19.96	20	19.76
5	12	11		19.98	20.02	19.74
5	25	0		19.86	19.85	19.8
10	1	0	QPSK	N/A	21.8	N/A
10	1	24		N/A	22.12	N/A
10	1	49		N/A	21.81	N/A
10	25	0		N/A	20.82	N/A
10	25	12		N/A	20.89	N/A
10	25	24		N/A	20.87	N/A
10	50	0		N/A	20.85	N/A
10	1	0	16-QAM	N/A	20.94	N/A
10	1	24		N/A	21.05	N/A
10	1	49		N/A	20.93	N/A
10	25	0		N/A	19.89	N/A
10	25	12		N/A	19.96	N/A
10	25	24		N/A	19.91	N/A
10	50	0		N/A	19.84	N/A

LTE BAND 17

LTE Band 17 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
5	1	0	QPSK	21.57	21.52	21.59
5	1	12		22	21.98	21.92
5	1	24		21.62	21.54	21.61
5	12	0		20.69	20.7	20.65
5	12	6		20.7	20.71	20.7
5	12	11		20.66	20.66	20.65
5	25	0		20.68	20.71	20.67
5	1	0	16-QAM	20.89	20.91	20.99
5	1	12		21.38	21.38	21.36
5	1	24		20.91	20.91	20.97
5	12	0		19.78	19.93	19.7
5	12	6		19.84	19.9	19.8
5	12	11		19.78	19.85	19.71
5	25	0		19.73	19.73	19.72
10	1	0	QPSK	21.62	21.6	21.63
10	1	24		22.13	22.05	21.98
10	1	49		21.07	21.12	21.19
10	25	0		20.85	20.89	20.93
10	25	12		20.63	20.6	20.69
10	25	24		20.33	20.32	20.39
10	50	0		20.09	20.08	20.18
10	1	0	16-QAM	21.35	21.39	21.41
10	1	24		21.09	21.15	21.2
10	1	49		20.89	20.91	20.95
10	25	0		20.65	20.67	20.67
10	25	12		20.39	20.46	20.45
10	25	24		20.09	20.26	20.19
10	50	0		19.84	19.98	19.93

LTE BAND 25

LTE Band 25 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
1.4	1	0	QPSK	21.19	21.08	21.13
1.4	1	2		21.3	21.3	21.34
1.4	1	5		21.16	21.14	21.15
1.4	3	0		21.32	21.28	21.22
1.4	3	1		21.38	21.33	21.28
1.4	3	2		21.35	21.31	21.27
1.4	6	0		20.26	20.16	20.2
1.4	1	0	16-QAM	20.1	20.4	20.25
1.4	1	2		20.24	20.54	20.35
1.4	1	5		20.1	20.37	20.26
1.4	3	0		20.38	20.33	20.16
1.4	3	1		20.39	20.38	20.2
1.4	3	2		20.36	20.24	20.19
1.4	6	0		19.42	19.29	19.23
3	1	0	QPSK	21.16	21.13	21.13
3	1	7		21.32	21.28	21.29
3	1	14		21.12	21.07	21.17
3	8	0		20.23	20.14	20.12
3	8	4		20.21	20.14	20.12
3	8	7		20.16	20.1	20.11
3	15	0		20.2	20.13	20.12
3	1	0	16-QAM	20.35	20.42	20.28
3	1	7		20.51	20.51	20.4
3	1	14		20.36	20.34	20.15
3	8	0		19.49	19.36	19.25
3	8	4		19.46	19.35	19.24
3	8	7		19.42	19.33	19.22
3	15	0		19.34	19.26	19.21

LTE BAND 25

LTE Band 25 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
5	1	0	QPSK	21.09	21.08	21.04
5	1	12		21.33	21.3	21.28
5	1	24		21.1	21.08	21.03
5	12	0		20.25	20.13	20.11
5	12	6		20.27	20.17	20.16
5	12	11		20.19	20.13	20.14
5	25	0		20.22	20.16	20.1
5	1	0	16-QAM	20.2	20.11	20.44
5	1	12		20.46	20.33	20.65
5	1	24		20.25	20.05	20.38
5	12	0		19.43	19.39	19.12
5	12	6		19.39	19.44	19.18
5	12	11		19.36	19.41	19.14
5	25	0		19.29	19.26	19.18
10	1	0	QPSK	21.18	21.13	21.1
10	1	24		21.27	21.25	21.2
10	1	49		21.17	21.1	21.17
10	25	0		20.33	20.3	20.26
10	25	12		20.3	20.26	20.21
10	25	24		20.32	20.2	20.23
10	50	0		20.32	20.25	20.26
10	1	0	16-QAM	20.37	20.39	20.35
10	1	24		20.56	20.51	20.48
10	1	49		20.41	20.39	20.18
10	25	0		19.52	19.42	19.46
10	25	12		19.47	19.4	19.42
10	25	24		19.47	19.33	19.38
10	50	0		19.43	19.37	19.36

LTE BAND 25

LTE Band 25 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
15	1	0	QPSK	21.42	21.36	21.37
15	1	37		21.13	21.1	21.13
15	1	74		20.83	20.87	20.88
15	36	0		20.56	20.58	20.67
15	36	18		20.27	20.29	20.38
15	36	39		20.04	20.03	20.09
15	75	0		19.79	19.77	19.82
15	1	0	16-QAM	21.14	21.15	21.11
15	1	38		20.92	20.88	20.91
15	1	75		20.66	20.59	20.69
15	36	0		20.38	20.38	20.41
15	36	18		20.16	20.13	20.12
15	36	39		19.88	19.86	19.84
15	75	0		19.59	19.59	19.56
20	1	0	QPSK	21.44	21.38	21.4
20	1	49		21.24	21.15	21.11
20	1	99		20.95	20.95	20.89
20	50	0		20.74	20.7	20.69
20	50	24		20.47	20.42	20.4
20	50	49		20.24	20.16	20.16
20	100	0		20.04	19.94	19.91
20	1	0	16-QAM	21.21	21.15	21.1
20	1	49		21	20.86	20.86
20	1	99		20.73	20.63	20.65
20	50	0		20.47	20.38	20.39
20	50	24		20.18	20.12	20.11
20	50	49		19.9	19.84	19.9
20	100	0		19.61	19.6	19.61

LTE BAND 26

LTE Band 26 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
1.4	1	0	QPSK	21.68	21.6	21.5
1.4	1	2		21.73	21.64	21.62
1.4	1	5		21.65	21.53	21.54
1.4	3	0		21.71	21.7	21.68
1.4	3	1		21.81	21.74	21.7
1.4	3	2		21.76	21.66	21.61
1.4	6	0		20.68	20.67	20.73
1.4	1	0	16-QAM	20.54	20.84	20.89
1.4	1	2		20.73	21	20.95
1.4	1	5		20.6	20.88	20.87
1.4	3	0		20.86	20.79	20.72
1.4	3	1		20.79	20.81	20.74
1.4	3	2		20.83	20.74	20.76
1.4	6	0		19.75	19.71	19.75
3	1	0	QPSK	21.71	21.67	21.58
3	1	7		21.81	21.75	21.72
3	1	14		21.65	21.6	21.6
3	8	0		20.75	20.68	20.71
3	8	4		20.78	20.71	20.7
3	8	7		20.75	20.72	20.63
3	15	0		20.74	20.73	20.66
3	1	0	16-QAM	20.95	20.93	20.87
3	1	7		21.05	21.08	21.11
3	1	14		20.97	20.91	20.93
3	8	0		19.92	19.84	19.83
3	8	4		19.98	19.88	19.76
3	8	7		19.93	19.86	19.74
3	15	0		19.8	19.75	19.72

LTE BAND 26

LTE Band 26 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
5	1	0	QPSK	21.66	21.59	21.45
5	1	12		21.87	21.78	21.71
5	1	24		21.59	21.57	21.53
5	12	0		20.7	20.62	20.64
5	12	6		20.8	20.69	20.68
5	12	11		20.72	20.78	20.57
5	25	0		20.72	20.73	20.62
5	1	0	16-QAM	20.78	20.66	20.94
5	1	12		21.07	20.93	21.15
5	1	24		20.8	20.65	21
5	12	0		19.83	19.81	19.64
5	12	6		19.92	19.89	19.65
5	12	11		19.83	19.91	19.53
5	25	0		19.73	19.72	19.66
10	1	0	QPSK	21.67	21.62	21.58
10	1	24		21.75	21.77	21.65
10	1	49		21.62	21.59	21.59
10	25	0		20.87	20.69	20.65
10	25	12		20.83	20.77	20.66
10	25	24		20.72	20.82	20.54
10	50	0		20.78	20.72	20.58
10	1	0	16-QAM	20.93	20.9	20.91
10	1	24		21.08	21.03	20.94
10	1	49		20.89	20.92	20.89
10	25	0		19.95	19.76	19.78
10	25	12		19.9	19.84	19.85
10	25	24		19.77	19.87	19.65
10	50	0		19.77	19.71	19.57

LTE BAND 26

LTE Band 26 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
15	1	0	QPSK	21.9	21.81	21.77
15	1	37		21.63	21.61	21.57
15	1	74		21.36	21.4	21.33
15	36	0		21.08	21.12	21.13
15	36	18		20.84	20.9	20.85
15	36	39		20.56	20.62	20.57
15	75	0		20.3	20.33	20.31
15	1	0	16-QAM	21.61	21.59	21.54
15	1	38		21.38	21.3	21.29
15	1	75		21.11	21.04	21.08
15	36	0		20.89	20.76	20.86
15	36	18		20.61	20.47	20.59
15	36	39		20.39	20.18	20.38
15	75	0		20.14	19.9	20.14

LTE BAND 41

LTE Band 41 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
5	1	0	QPSK	20.21	20.22	20.49
5	1	12		20.01	20.02	20.26
5	1	24		19.79	19.75	19.99
5	12	0		19.58	19.49	19.76
5	12	6		19.32	19.22	19.47
5	12	11		19.05	18.97	19.2
5	25	0		18.78	18.72	18.98
5	1	0	16-QAM	19.96	19.96	20.23
5	1	12		19.75	19.7	20
5	1	24		19.48	19.46	19.78
5	12	0		19.22	19.23	19.57
5	12	6		19.01	18.98	19.36
5	12	11		18.76	18.76	19.09
5	25	0		18.52	18.53	18.82
10	1	0	QPSK	19.24	19.4	19.46
10	1	24		18.94	19.17	19.21
10	1	49		18.66	18.97	19
10	25	0		18.44	18.7	18.71
10	25	12		18.23	18.47	18.42
10	25	24		17.97	18.25	18.16
10	50	0		17.73	18.01	17.92
10	1	0	16-QAM	19.03	19.16	19.19
10	1	24		18.82	18.87	18.96
10	1	49		18.56	18.58	18.67
10	25	0		18.26	18.36	18.44
10	25	12		18	18.14	18.19
10	25	24		17.79	17.9	17.98
10	50	0		17.58	17.64	17.71

LTE BAND 41

LTE Band 41 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
15	1	0	QPSK	20.25	20.28	20.53
15	1	37		20.02	20.05	20.24
15	1	74		19.81	19.79	20.02
15	36	0		19.52	19.52	19.82
15	36	18		19.27	19.25	19.57
15	36	39		19.05	19.04	19.31
15	75	0		18.77	18.75	19.03
15	1	0	16-QAM	20	19.98	20.3
15	1	38		19.76	19.77	20.01
15	1	75		19.49	19.49	19.74
15	36	0		19.2	19.28	19.5
15	36	18		18.97	19.08	19.26
15	36	39		18.71	18.78	19
15	75	0		18.44	18.55	18.74
20	1	0	QPSK	20.31	20.34	20.58
20	1	49		20.07	20.12	20.3
20	1	99		19.85	19.91	20.04
20	50	0		19.61	19.69	19.81
20	50	24		19.4	19.44	19.52
20	50	49		19.19	19.17	19.31
20	100	0		18.97	18.9	19.1
20	1	0	16-QAM	20.1	20.13	20.34
20	1	49		19.85	19.88	20.08
20	1	99		19.58	19.66	19.84
20	50	0		19.33	19.44	19.61
20	50	24		19.04	19.21	19.35
20	50	49		18.78	18.98	19.11
20	100	0		18.53	18.72	18.91

10.2 Tune-up Power

Mode	GSM850(AVG)	GSM1900(AVG)
GSM/PCS	32±1dBm	29±1dBm
GPRS (1 Slot)	32±1dBm	29±1dBm
GPRS (2 Slot)	31±1dBm	28±1dBm
GPRS (3 Slot)	31±1dBm	268±1dBm
GPRS (4 Slot)	30±1dBm	27±1dBm
EDGE (1 Slot)	27±1dBm	24±1dBm
EDGE (2 Slot)	26±1dBm	24±1dBm
EDGE (3 Slot)	25±1dBm	23±1dBm
EDGE (4 Slot)	24±1dBm	22±1dBm

Mode	WCDMA Band V(AVG)	WCDMA Band IV(AVG)	WCDMA Band II(AVG)
AMR	22±1dBm	22±1dBm	22±1dBm
RMC	22±1dBm	22±1dBm	22±1dBm
HSDPA Subtest-1	22±1dBm	21±1dBm	21±1dBm
HSDPA Subtest-2	21±1dBm	20±1dBm	20±1dBm
HSDPA Subtest-3	21±1dBm	20±1dBm	20±1dBm
HSDPA Subtest-4	20±1dBm	19±1dBm	20±1dBm
HSUPA Subtest-1	21±1dBm	21±1dBm	21±1dBm
HSUPA Subtest-2	21±1dBm	20±1dBm	20±1dBm
HSUPA Subtest-3	20±1dBm	19±1dBm	20±1dBm
HSUPA Subtest-4	20±1dBm	19±1dBm	19±1dBm
HSUPA Subtest-5	18.1±1dBm	18±1dBm	18±1dBm

Mode	CDMA BC0(AVG)	CDMA BC1(AVG)
CDMA	23±1dBm	20±1dBm

Mode	WLAN(AVG)
IEEE 802.11b	9±1dBm
IEEE 802.11g	6.3±1dBm
IEEE 802.11n(HT 20)	6.4±1dBm
IEEE 802.11n(HT 40)	4±1dBm

Mode	5.2G WLAN(AVG)
IEEE 802.11a	9±1dBm
IEEE 802.11n(HT 20)	9±1dBm
IEEE 802.11n(HT 40)	7±1dBm

Mode	5.3G WLAN(AVG)
IEEE 802.11a	8±1dBm
IEEE 802.11n(HT 20)	9±1dBm
IEEE 802.11n(HT 40)	7±1dBm

Mode	5.6G WLAN(AVG)	
IEEE 802.11a	Low	8±1dBm
	Middle	7±1dBm
	High	6±1dBm
IEEE 802.11n(HT 20)	8±1dBm	
IEEE 802.11n(HT 40)	7±1dBm	

Mode	5.8G WLAN(AVG)
IEEE 802.11a	7±1dBm
IEEE 802.11n(HT 20)	7±1dBm
IEEE 802.11n(HT 40)	6±1dBm

Mode	BT(AVG)
GFSK	-1±1dBm
π/4-DQPSK	-2.9±1dBm
8DPSK	-3±1dBm

Mode	BLE(AVG)	
GFSK	Low	0±1dBm
	Middle	2±1dBm
	High	1±1dBm

LTE

BW[MHz]	RB Size	Mode	Band 2	Band 4	Band 5	Band 7	Band 12
1.4	1	QPSK	21±1dBm	21±1dBm	21±1dBm	N/A	21±1dBm
1.4	3		21±1dBm	21±1dBm	21±1dBm	N/A	21±1dBm
1.4	6		20±1dBm	20±1dBm	20±1dBm	N/A	20±1dBm
1.4	1	16- QAM	20±1dBm	20±1dBm	21±1dBm	N/A	21±1dBm
1.4	3		20±1dBm	20±1dBm	21±1dBm	N/A	21±1dBm
1.4	6		19±1dBm	19±1dBm	20±1dBm	N/A	20±1dBm
3	1	QPSK	21±1dBm	21±1dBm	22±1dBm	N/A	22±1dBm
3	8		20±1dBm	20±1dBm	21±1dBm	N/A	21±1dBm
3	15		20±1dBm	20±1dBm	20±1dBm	N/A	20±1dBm
3	1	16- QAM	20±1dBm	20±1dBm	21±1dBm	N/A	21±1dBm
3	8		19±1dBm	19±1dBm	20±1dBm	N/A	20±1dBm
3	15		19±1dBm	19±1dBm	20±1dBm	N/A	20±1dBm
5	1	QPSK	21±1dBm	21±1dBm	22±1dBm	21±1dBm	22±1dBm
5	12		20±1dBm	20±1dBm	21±1dBm	20±1dBm	21±1dBm
5	25		20±1dBm	20±1dBm	20±1dBm	19±1dBm	20±1dBm
5	1	16- QAM	20±1dBm	20±1dBm	21±1dBm	20±1dBm	21±1dBm
5	12		19±1dBm	19±1dBm	21±1dBm	19±1dBm	21±1dBm
5	25		19±1dBm	19±1dBm	20±1dBm	19±1dBm	20±1dBm
10	1	QPSK	21±1dBm	21±1dBm	22±1dBm	21±1dBm	22±1dBm
10	25		20±1dBm	20±1dBm	21±1dBm	20±1dBm	21±1dBm
10	50		20±1dBm	20±1dBm	20±1dBm	19±1dBm	20±1dBm
10	1	16- QAM	20±1dBm	20±1dBm	21±1dBm	20±1dBm	21±1dBm
10	25		19±1dBm	19±1dBm	20±1dBm	19±1dBm	20±1dBm
10	50		19±1dBm	19±1dBm	20±1dBm	19±1dBm	20±1dBm
15	1	QPSK	21±1dBm	21±1dBm	N/A	21±1dBm	N/A
15	36		20±1dBm	20±1dBm	N/A	20±1dBm	N/A
15	75		19±1dBm	19±1dBm	N/A	19±1dBm	N/A
15	1	16- QAM	20±1dBm	20±1dBm	N/A	20±1dBm	N/A
15	36		20±1dBm	20±1dBm	N/A	20±1dBm	N/A
15	75		19±1dBm	19±1dBm	N/A	19±1dBm	N/A
20	1	QPSK	21±1dBm	21±1dBm	N/A	21±1dBm	N/A
20	50		20±1dBm	20±1dBm	N/A	20±1dBm	N/A
20	100		19±1dBm	20±1dBm	N/A	19±1dBm	N/A
20	1	16- QAM	20±1dBm	21±1dBm	N/A	20±1dBm	N/A
20	50		20±1dBm	20±1dBm	N/A	20±1dBm	N/A
20	100		19±1dBm	19±1dBm	N/A	19±1dBm	N/A

LTE

BW[MHz]	RB Size	Mode	Band 13	Band 17	Band 25	Band 26	Band 41
1.4	1	QPSK	N/A	N/A	21±1dBm	21±1dBm	N/A
1.4	3		N/A	N/A	21±1dBm	21±1dBm	N/A
1.4	6		N/A	N/A	20±1dBm	20±1dBm	N/A
1.4	1	16- QAM	N/A	N/A	20±1dBm	21±1dBm	N/A
1.4	3		N/A	N/A	20±1dBm	20±1dBm	N/A
1.4	6		N/A	N/A	19±1dBm	19±1dBm	N/A
3	1	QPSK	N/A	N/A	21±1dBm	21±1dBm	N/A
3	8		N/A	N/A	20±1dBm	20±1dBm	N/A
3	15		N/A	N/A	20±1dBm	20±1dBm	N/A
3	1	16- QAM	N/A	N/A	20±1dBm	21±1dBm	N/A
3	8		N/A	N/A	19±1dBm	19±1dBm	N/A
3	15		N/A	N/A	19±1dBm	19±1dBm	N/A
5	1	QPSK	22±1dBm	22±1dBm	21±1dBm	21±1dBm	20±1dBm
5	12		20±1dBm	20±1dBm	20±1dBm	20±1dBm	19±1dBm
5	25		20±1dBm	20±1dBm	20±1dBm	20±1dBm	18±1dBm
5	1	16- QAM	21±1dBm	21±1dBm	20±1dBm	21±1dBm	19±1dBm
5	12		20±1dBm	19±1dBm	19±1dBm	19±1dBm	19±1dBm
5	25		19±1dBm	19±1dBm	19±1dBm	19±1dBm	18±1dBm
10	1	QPSK	22±1dBm	22±1dBm	21±1dBm	21±1dBm	19±1dBm
10	25		20±1dBm	20±1dBm	20±1dBm	20±1dBm	18±1dBm
10	50		20±1dBm	20±1dBm	20±1dBm	20±1dBm	18±1dBm
10	1	16- QAM	21±1dBm	21±1dBm	20±1dBm	21±1dBm	19±1dBm
10	25		19±1dBm	20±1dBm	19±1dBm	19±1dBm	18±1dBm
10	50		19±1dBm	19±1dBm	19±1dBm	19±1dBm	17±1dBm
15	1	QPSK	N/A	N/A	21±1dBm	21±1dBm	20±1dBm
15	36		N/A	N/A	20±1dBm	21±1dBm	19±1dBm
15	75		N/A	N/A	19±1dBm	20±1dBm	19±1dBm
15	1	16- QAM	N/A	N/A	21±1dBm	21±1dBm	20±1dBm
15	36		N/A	N/A	20±1dBm	20±1dBm	19±1dBm
15	75		N/A	N/A	19±1dBm	20±1dBm	18±1dBm
20	1	QPSK	N/A	N/A	21±1dBm	N/A	20±1dBm
20	50		N/A	N/A	20±1dBm	N/A	19±1dBm
20	100		N/A	N/A	20±1dBm	N/A	19±1dBm
20	1	16- QAM	N/A	N/A	21±1dBm	N/A	20±1dBm
20	50		N/A	N/A	20±1dBm	N/A	19±1dBm
20	100		N/A	N/A	19±1dBm	N/A	18±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:
[(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 Head** (rounded to the nearest mW) and the antenna to user separation distance,
Bluetooth Head SAR was not required; [(1.995/5)* √2.480 = **0.63** < 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; [(1.995/5)* √2.480] = **0.63** < 3.0.

Based on the maximum conducted power of **2.4 GHz WLAN Head** (rounded to the nearest mW) and the antenna to user separation distance,
2.4 GHz WLAN SAR was required; [(10.000/5)* √2.462] = **3.14** > 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; [(10.000/5)* √2.462] = **3.14** > 3.0.

Based on the maximum conducted power of **5.2 GHz WLAN Head** (rounded to the nearest mW) and the antenna to user separation distance,
5.2 GHz WLAN SAR was required; [(10.000/5)* √5.200] = **4.56** > 3.0.

Based on the maximum conducted power of **5.2 GHz WLAN Body** (rounded to the nearest mW) and the antenna to user separation distance,
5.2 GHz WLAN SAR was not required; [(10.000/5)* √5.200] = **4.56** > 3.0.

Based on the maximum conducted power of **5.3 GHz WLAN Head** (rounded to the nearest mW) and the antenna to user separation distance,
5.3 GHz WLAN SAR was required; [(10.000/5)* √5.300] = **4.60** > 3.0.

Based on the maximum conducted power of **5.3 GHz WLAN Body** (rounded to the nearest mW) and the antenna to user separation distance,
5.3 GHz WLAN SAR was not required; [(10.000/5)* √5.300] = **4.60** > 3.0

Based on the maximum conducted power of **5.6 GHz WLAN Head** (rounded to the nearest mW) and the antenna to user separation distance,
5.6 GHz WLAN SAR was required; [(7.943/5)* √5.600] = **3.76** > 3.0.

Based on the maximum conducted power of **5.2 GHz WLAN Body** (rounded to the nearest mW) and the antenna to user separation distance,
5.6 GHz WLAN SAR was not required; [(7.943/5)* √5.600] = **3.76** > 3.0.

Based on the maximum conducted power of **5.8 GHz WLAN Head** (rounded to the nearest mW) and the antenna to user separation distance,
5.8 GHz WLAN SAR was required; [(6.310/5)* √5.800] = **3.04** > 3.0.

Based on the maximum conducted power of **5.8 GHz WLAN Body** (rounded to the nearest mW) and the antenna to user separation distance,
5.8 GHz WLAN SAR was not required; [(6.310/5)* √5.800] = **3.04** > 3.0.

11. EUT And Test Setup Photo

11.1 EUT Photo

Front side

Back side

Top side

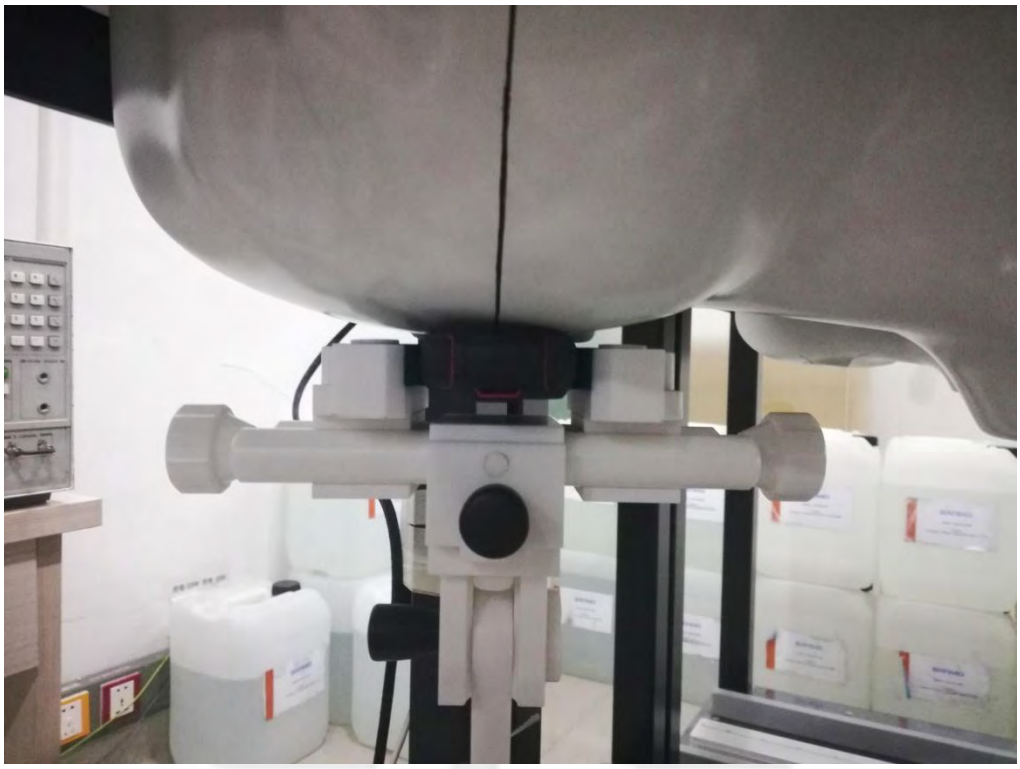
Bottom side

Left side

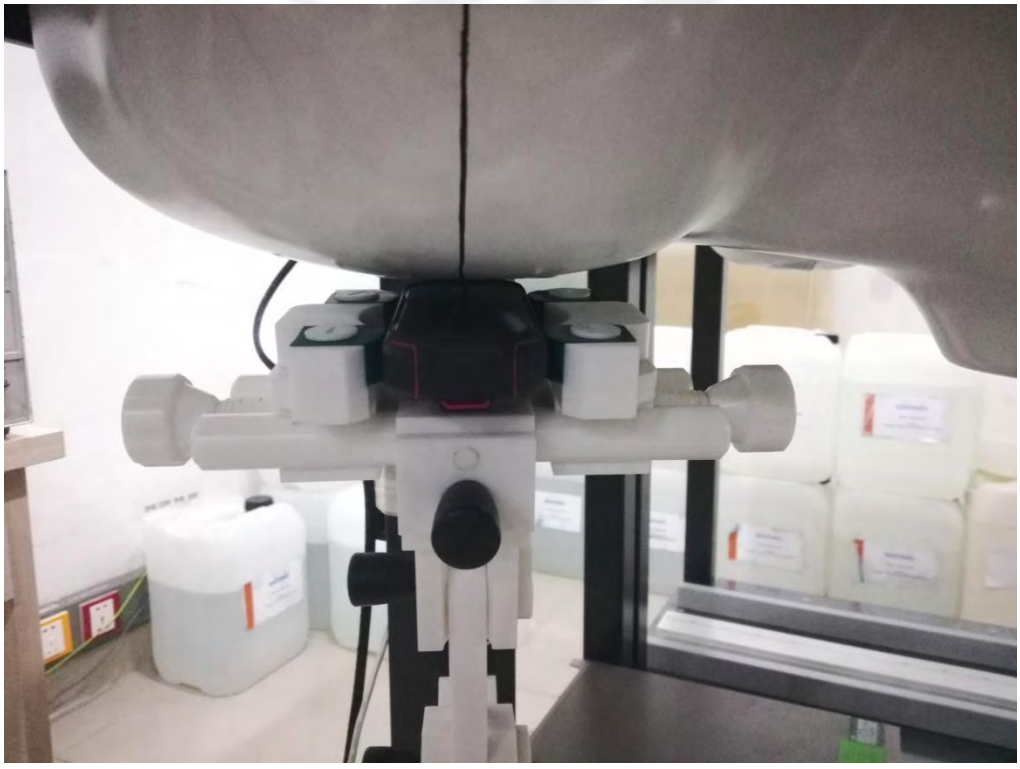
Right side

11.2 Setup Photo

Right Touch

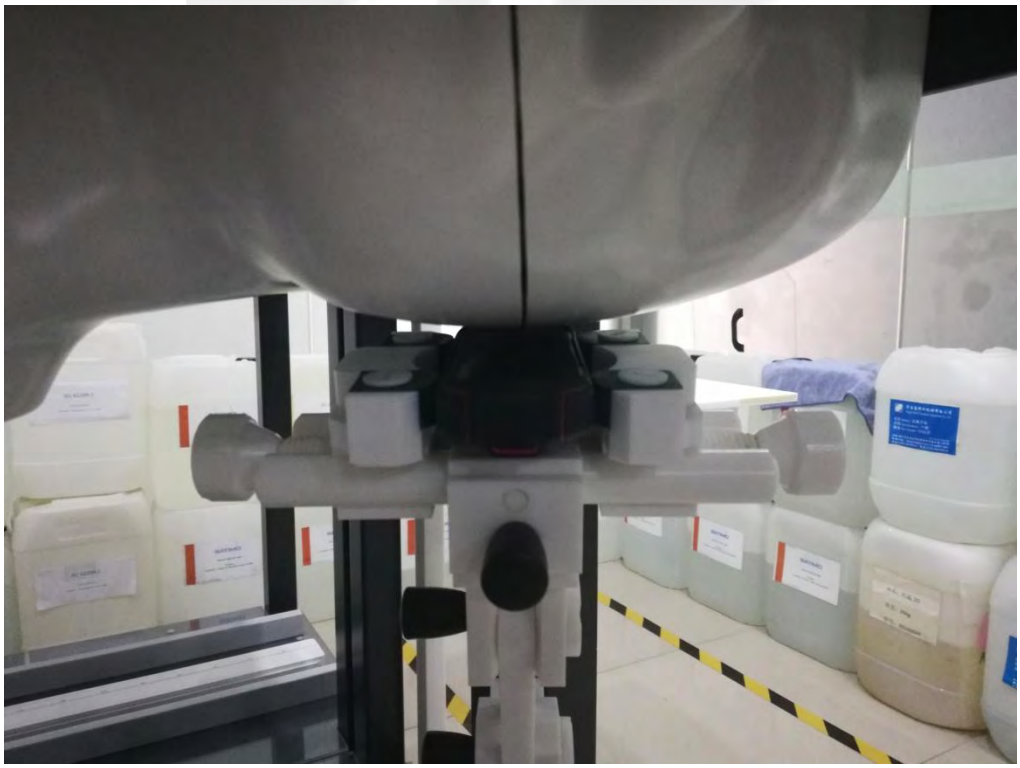


Right Tilt

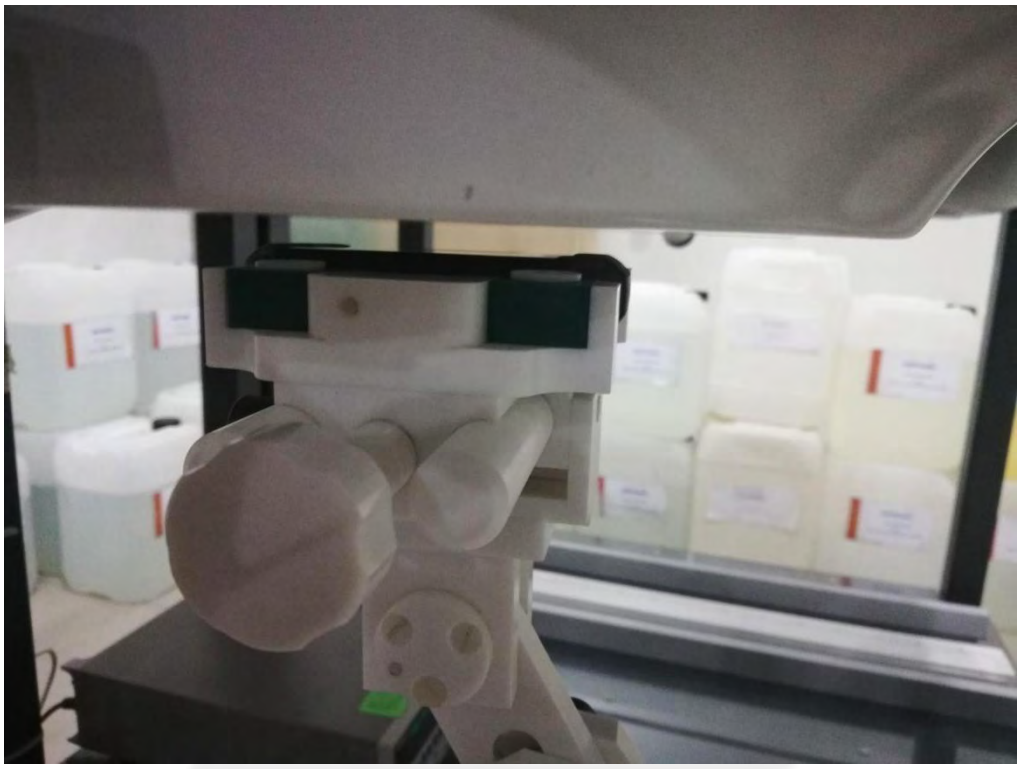


Left Touch

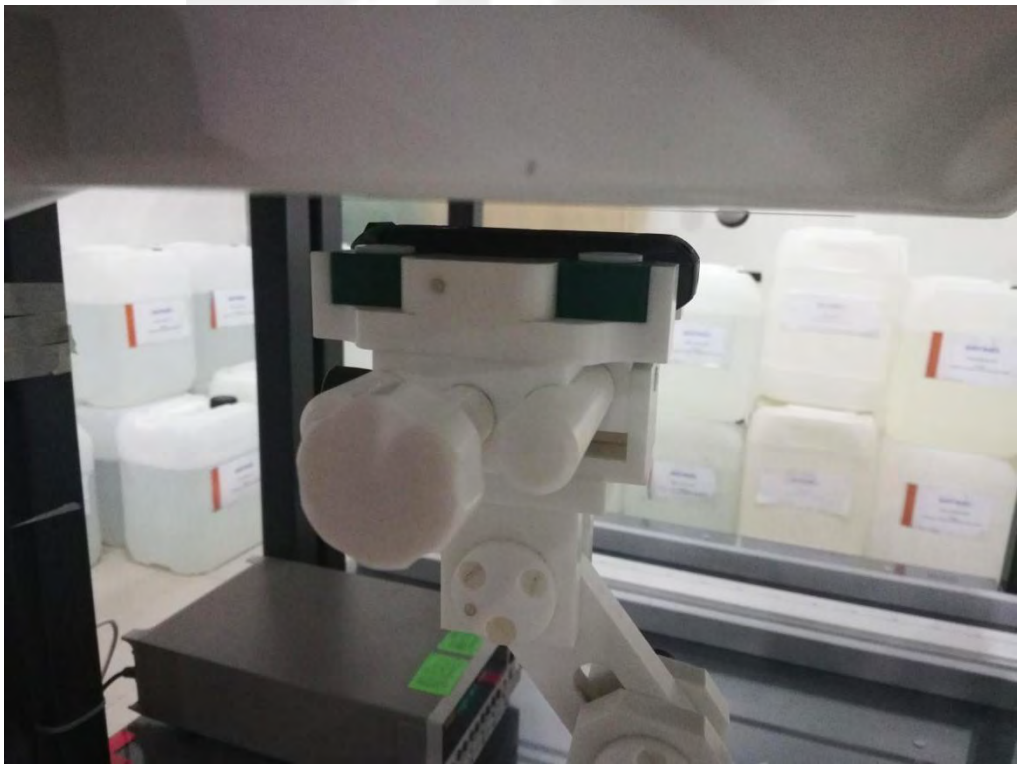
Left Tilt



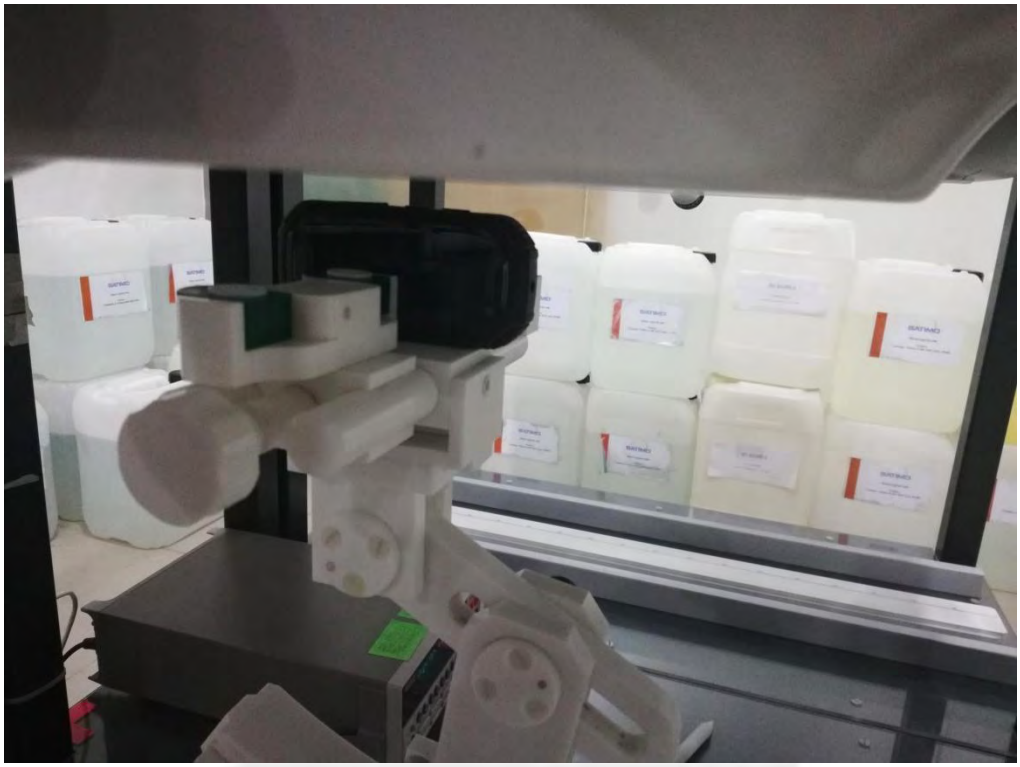
Body Front side(separation distance is 5mm)



Body Back side(separation distance is 5mm)

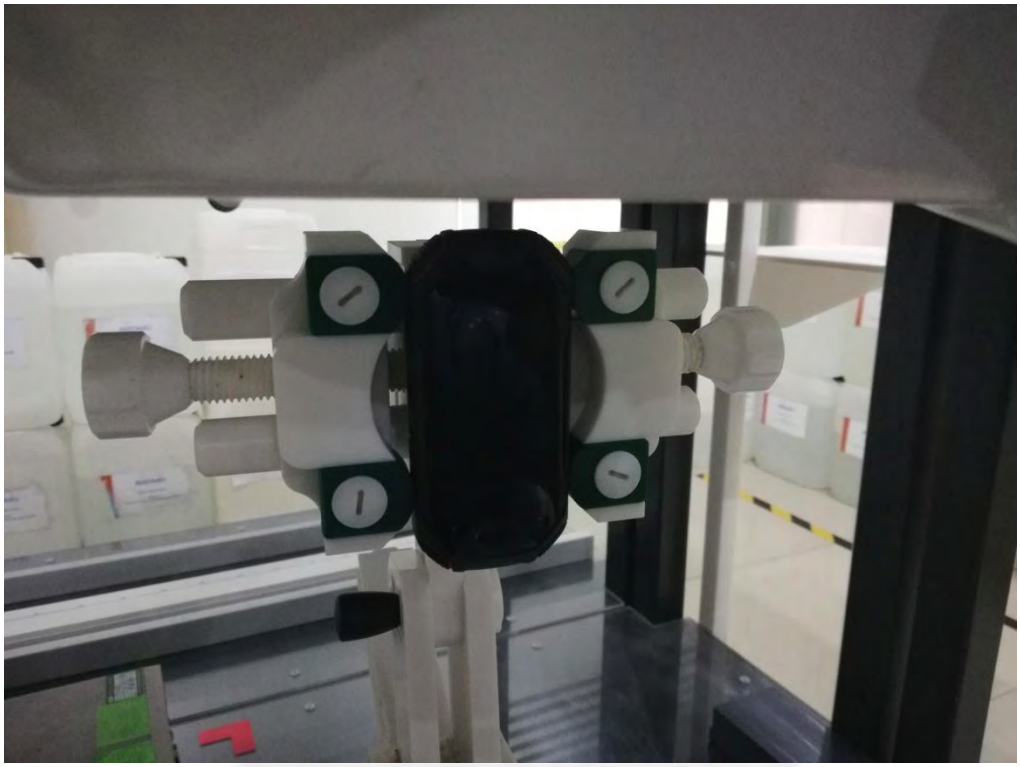


Body left side(separation distance is 5mm)

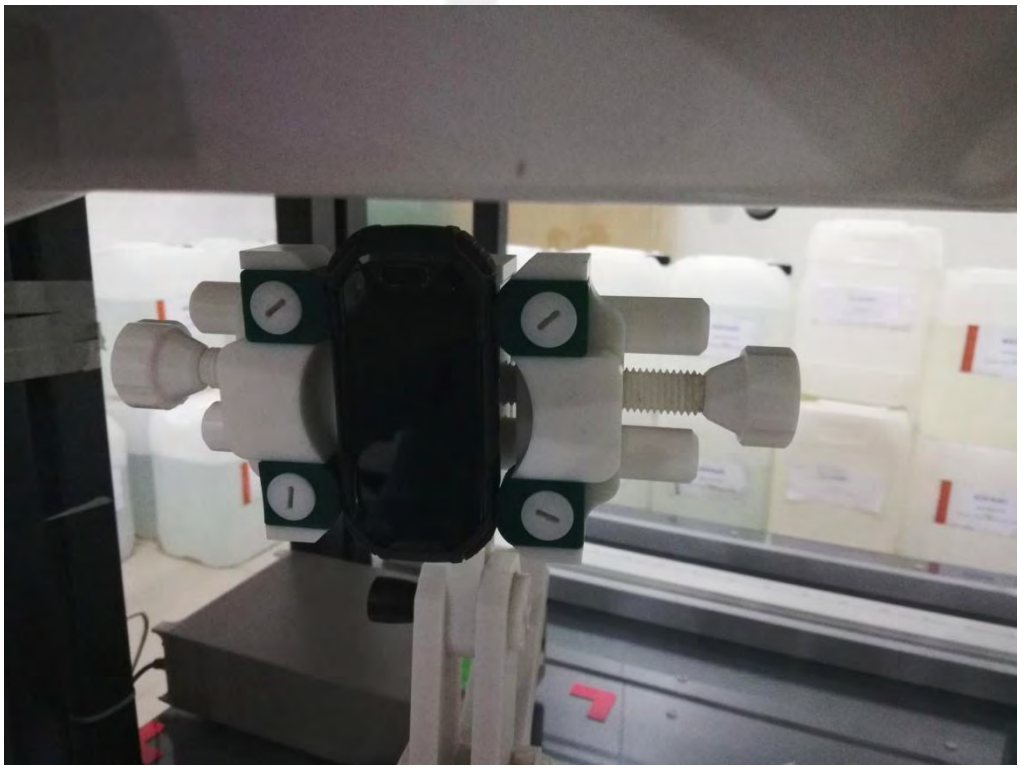


Body right side(separation distance is 5mm)

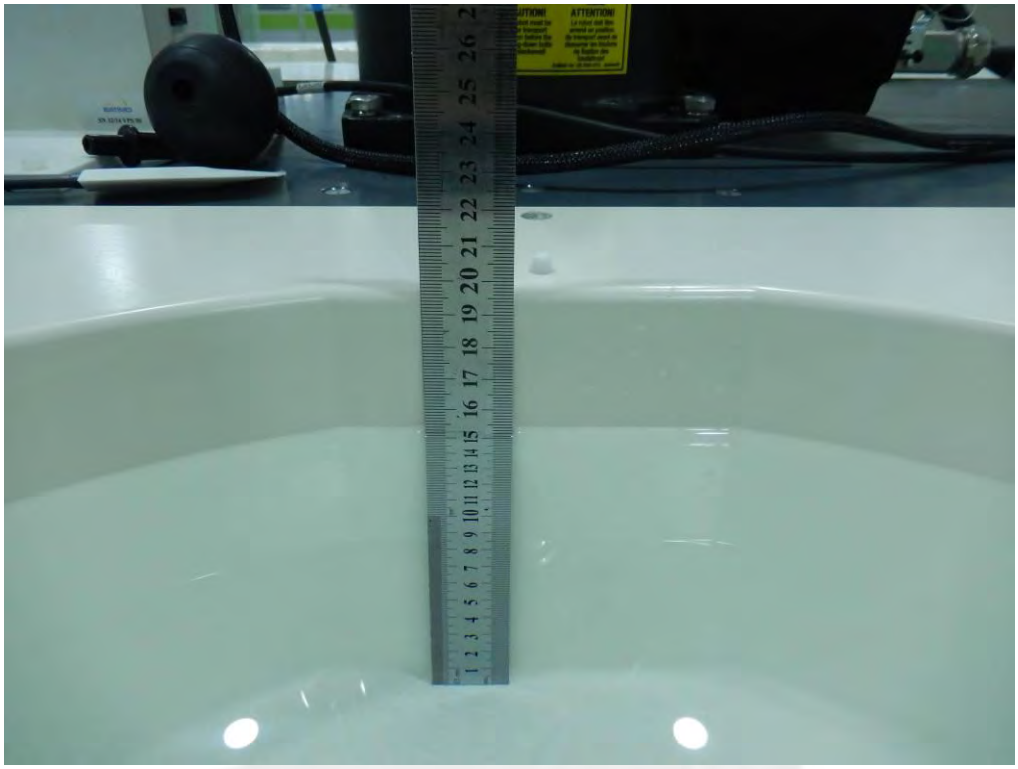
Body top side(separation distance is 5mm)



Body Bottom side(separation distance is 5mm)



Liquid depth (15 cm)



12. SAR Result Summary

12.1 Head 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	Voice	Right Cheek	128	0.481	0.50	33	32.28	0.568	/
		Right Tilt	128	0.297	2.72	33	32.28	0.351	/
		Left Cheek	128	0.692	-2.72	33	32.28	**0.817**	1
		Left Cheek	190	0.610	2.01	33	32.20	0.733	/
		Left Cheek	251	0.575	-1.29	33	32.10	0.707	/
		Left Tilt	128	0.328	0.38	33	32.28	0.387	/
GSM1900	Voice	Right Cheek	512	0.715	0.36	30	29.05	0.890	/
		Right Cheek	661	0.802	-1.27	30	29.06	**0.996**	3
		Right Cheek	810	0.722	1.85	30	28.68	0.978	/
		Right Tilt	661	0.381	2.97	30	29.06	0.473	/
		Left Cheek	661	0.723	0.65	30	29.06	0.898	/
		Left Tilt	661	0.320	2.87	30	29.06	0.397	/
WCDMA II	RMC	Right Cheek	9262	0.613	2.30	23	22.40	**0.704**	5
		Right Tilt	9262	0.296	-1.68	23	22.40	0.340	/
		Left Cheek	9262	0.204	-0.65	23	22.40	0.234	/
		Left Tilt	9262	0.104	-1.32	23	22.40	0.119	/
WCDMA IV	RMC	Right Cheek	1513	0.798	3.06	23	22.1	**0.982**	7
		Right Tilt	1513	0.387	3.74	23	22.1	0.476	/
		Left Cheek	1513	0.728	2.33	23	22.1	0.896	/
		Left Tilt	1513	0.331	3.23	23	22.1	0.407	/
WCDMA V	RMC	Right Cheek	4233	0.495	0.80	23	22.80	0.518	/
		Right Tilt	4233	0.237	-3.11	23	22.80	0.248	/
		Left Cheek	4233	0.536	3.25	23	22.80	**0.561**	9
		Left Tilt	4233	0.274	-0.80	23	22.80	0.287	/

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	Right Cheek	11	0.064	-1.12	10	9.91	100%	**0.065**	11
		Right Tilt	11	0.045	2.35	10	9.91	100%	0.046	/
		Left Cheek	11	0.020	-2.95	10	9.91	100%	0.020	/
		Left Tilt	11	0.012	3.95	10	9.91	100%	0.012	/

Note:

1. 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
2. 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 **0.035** W/Kg for Head)
3. Per KDB865664 D01, Repeated measurement is not required when the original highest measured

SAR is <0.80 W/kg

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 2	20M	QPSK	1	0	Right Cheek	18700	0.733	-2.74	22	21.53	**0.817**	13
			1	0	Right Cheek	18900	0.627	2.01	22	21.51	0.702	/
			1	0	Right Cheek	19100	0.663	-1.87	22	21.45	0.753	/
			50	0	Right Cheek	19100	0.704	3.18	21	20.53	0.784	/
			1	0	Right Tilt	18700	0.314	-0.14	22	21.53	0.350	/
			50	0	Right Tilt	19100	0.271	2.57	21	20.53	0.302	/
			1	0	Left Cheek	18700	0.499	-2.55	22	21.53	0.556	/
			50	0	Left Cheek	19100	0.422	1.35	21	20.53	0.470	/
			1	0	Left Tilt	18700	0.249	-2.99	22	21.53	0.277	/
			50	0	Left Tilt	19100	0.214	-0.31	21	20.53	0.238	/
LTE Band 4	20M	QPSK	1	0	Right Cheek	20050	1.206	3.15	22	21.61	1.319	/
			50	0	Right Cheek	20050	1.055	-3.01	21	20.86	1.090	/
			1	0	Right Tilt	20050	0.557	1.79	22	21.61	0.609	/
			50	0	Right Tilt	20050	0.531	2.24	21	20.86	0.548	/
			1	0	Left Cheek	20050	1.209	3.26	22	21.61	**1.323**	15
			1	0	Left Cheek	20175	1.104	2.11	21	21.56	0.970	/
			1	0	Left Cheek	20300	1.010	3.69	21	21.54	0.892	/
			50	0	Left Cheek	20050	1.129	0.46	21	20.86	1.166	/
			100	0	Left Cheek	20300	1.127	0.88	21	20.14	1.234	/
			1	0	Left Tilt	20050	0.562	2.11	22	21.61	0.615	/
			50	0	Left Tilt	20050	0.527	3.32	21	20.86	0.544	/
LTE Band 5	10M	QPSK	1	0	Right Cheek	20525	0.439	-3.33	23	22.05	0.546	/
			25	0	Right Cheek	20525	0.411	0.02	22	21.28	0.485	/
			1	0	Right Tilt	20525	0.141	3.81	23	22.05	0.175	/
			25	0	Right Tilt	20525	0.127	-3.31	22	21.28	0.150	/
			1	0	Left Cheek	20525	0.557	-1.28	23	22.05	**0.693**	17
			25	0	Left Cheek	20525	0.529	1.49	22	21.28	0.624	/
			1	0	Left Tilt	20525	0.168	-3.36	23	22.05	0.209	/
			25	0	Left Tilt	20525	0.141	-1.98	22	21.28	0.166	/
LTE Band 7	20M	QPSK	1	0	Right Cheek	20850	0.611	2.41	22	21.18	0.738	/
			1	0	Right Cheek	21100	0.672	-1.02	22	21.15	0.817	/
			1	0	Right Cheek	21350	0.736	0.09	22	21.19	**0.887**	19
			50	0	Right Cheek	20850	0.672	1.61	21	20.48	0.757	/
			1	0	Right Tilt	21350	0.267	-3.94	22	21.19	0.322	/
			50	0	Right Tilt	20850	0.236	1.58	21	20.48	0.266	/
			1	0	Left Cheek	21350	0.496	-3.40	22	21.19	0.598	/
			50	0	Left Cheek	20850	0.461	1.86	21	20.48	0.520	/
			1	0	Left Tilt	21350	0.195	-1.65	22	21.19	0.235	/
			50	0	Left Tilt	20850	0.172	3.44	21	20.48	0.194	/
LTE Band 12	10M	QPSK	1	0	Right Cheek	23095	0.274	3.11	23	22.05	0.341	/
			25	0	Right Cheek	23095	0.242	-2.65	22	21.28	0.286	/
			1	0	Right Tilt	23095	0.089	1.32	23	22.05	0.111	/
			25	0	Right Tilt	23095	0.068	2.62	22	21.28	0.080	/
			1	0	Left Cheek	23095	0.318	-3.18	23	22.05	**0.396**	21
			25	0	Left Cheek	23095	0.251	-1.90	22	21.28	0.296	/
			1	0	Left Tilt	23095	0.125	-1.46	23	22.05	0.156	/
			25	0	Left Tilt	23095	0.101	2.77	22	21.28	0.119	/

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 13	10M	QPSK	1	24	Right Cheek	23230	0.433	-0.19	23	22.12	0.530	/
			25	12	Right Cheek	23230	0.383	2.68	21	20.89	0.393	/
			1	24	Right Tilt	23230	0.146	1.93	23	22.12	0.179	/
			25	12	Right Tilt	23230	0.131	-2.67	21	20.89	0.134	/
			1	24	Left Cheek	23230	0.537	2.58	23	22.12	**0.658**	23
			25	12	Left Cheek	23230	0.501	1.58	21	20.89	0.514	/
			1	24	Left Tilt	23230	0.168	0.23	23	22.12	0.206	/
			25	12	Left Tilt	23230	0.134	-0.12	21	20.89	0.137	/
LTE Band 17	10M	QPSK	1	24	Right Cheek	23780	0.294	1.60	23	22.13	**0.359**	25
			25	0	Right Cheek	23800	0.253	-0.56	21	20.93	0.257	/
			1	24	Right Tilt	23780	0.091	3.39	23	22.13	0.111	/
			25	0	Right Tilt	23800	0.073	-1.73	21	20.93	0.074	/
			1	24	Left Cheek	23780	0.239	-0.66	23	22.13	0.292	/
			25	0	Left Cheek	23800	0.206	3.68	21	20.93	0.209	/
			1	24	Left Tilt	23780	0.135	-1.60	23	22.13	0.165	/
			25	0	Left Tilt	23800	0.111	0.12	21	20.93	0.113	/
LTE Band 25	20M	QPSK	1	0	Right Cheek	26140	0.596	-0.31	22	21.44	**0.678**	27
			50	0	Right Cheek	26140	0.562	3.20	21	20.74	0.597	/
			1	0	Right Tilt	26140	0.211	-3.87	22	21.44	0.240	/
			50	0	Right Tilt	26140	0.193	-2.96	21	20.74	0.205	/
			1	0	Left Cheek	26140	0.554	1.22	22	21.44	0.630	/
			50	0	Left Cheek	26140	0.512	-0.96	21	20.74	0.544	/
			1	0	Left Tilt	26140	0.183	-0.68	22	21.44	0.208	/
			50	0	Left Tilt	26140	0.155	-2.04	21	20.74	0.165	/
LTE Band 26	15M	QPSK	1	0	Right Cheek	26775	0.373	2.62	22	21.90	0.382	/
			36	0	Right Cheek	26990	0.302	2.61	22	21.13	0.369	/
			1	0	Right Tilt	26775	0.129	-3.35	22	21.90	0.132	/
			36	0	Right Tilt	26990	0.097	1.74	22	21.13	0.119	/
			1	0	Left Cheek	26775	0.502	-0.93	22	21.90	**0.514**	29
			36	0	Left Cheek	26990	0.327	-1.48	22	21.13	0.400	/
			1	0	Left Tilt	26775	0.186	3.26	22	21.90	0.190	/
			36	0	Left Tilt	26990	0.115	0.44	22	21.13	0.141	/
LTE Band 41	20M	QPSK	1	0	Right Cheek	41490	0.138	-3.20	21	20.58	0.152	/
			50	0	Right Cheek	41490	0.112	-3.27	20	19.81	0.117	/
			1	0	Right Tilt	41490	0.055	1.67	21	20.58	0.061	/
			50	0	Right Tilt	41490	0.039	0.10	20	19.81	0.041	/
			1	0	Left Cheek	41490	0.255	0.42	21	20.58	**0.281**	31
			50	0	Left Cheek	41490	0.214	-0.11	20	19.81	0.224	/
			1	0	Left Tilt	41490	0.111	1.20	21	20.58	0.122	/
			50	0	Left Tilt	41490	0.095	-2.99	20	19.81	0.099	/

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 5.2 G	802.11a	Right Cheek	40	0.068	-1.97	10	9.02	100	0.085	/
		Right Tilt	40	0.021	-2.02	10	9.02	100	0.026	/
		Left Cheek	40	0.117	3.75	10	9.02	100	**0.147**	33
		Left Tilt	40	0.049	3.98	10	9.02	100	0.061	/
WLAN 5.3 G	802.11n	Right Cheek	52	0.035	-1.39	10	9.78	100	0.037	/
		Right Tilt	52	0.012	3.21	10	9.78	100	0.013	/
		Left Cheek	52	0.070	-1.88	10	9.78	100	**0.074**	35
		Left Tilt	52	0.027	3.65	10	9.78	100	0.028	/
WLAN 5.6 G	802.11a	Right Cheek	100	0.024	1.79	9	8.93	100	0.024	/
		Right Tilt	100	0.011	-0.72	9	8.93	100	0.011	/
		Left Cheek	100	0.041	1.56	9	8.93	100	**0.042**	37
		Left Tilt	100	0.027	0.02	9	8.93	100	0.027	/
WLAN 5.8 G	802.11n	Right Cheek	149	0.021	0.85	8	7.46	100	0.024	/
		Right Tilt	149	0.013	3.83	8	7.46	100	0.015	/
		Left Cheek	149	0.034	-1.12	8	7.46	100	**0.039**	39
		Left Tilt	149	0.017	-0.38	8	7.46	100	0.019	/

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.
CDMA BC0	CDMA	Right Cheek	384	0.684	-2.99	24	23.35	**0.794**	41
		Right Tilt	384	0.285	3.54	24	23.35	0.331	/
		Left Cheek	384	0.523	1.50	24	23.35	0.607	/
		Left Tilt	384	0.231	-2.81	24	23.35	0.268	/
CDMA BC1	CDMA	Right Cheek	25	0.821	1.25	21	20.23	0.980	
		Right Cheek	600	1.031	3.81	21	20.31	**1.209**	43
		Right Cheek	1175	0.759	-3.01	21	19.63	1.040	
		Right Tilt	600	0.484	0.63	21	20.31	0.567	/
		Left Cheek	600	0.810	1.42	21	20.31	0.949	/
		Left Tilt	600	0.359	-3.18	21	20.31	0.421	/

12.2 Body-worn and Hotspot 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	GPRS Data-4 Slot	Front side	128	0.599	-2.40	31	30.90	0.613	/
		Back side	128	0.846	0.25	31	30.90	**0.866**	2
		Back side	190	0.806	-1.01	31	30.86	0.832	/
		Back side	251	0.761	2.48	31	30.71	0.814	
		Left side	128	0.526	-0.22	31	30.90	0.538	/
		Right side	128	0.438	2.99	31	30.90	0.448	/
		Bottom side	128	0.202	2.77	31	30.90	0.207	/
GSM1900	GPRS Data-4 Slot	Front side	512	0.218	0.28	28	27.75	0.231	/
		Back side	512	0.491	-0.74	28	27.75	0.520	/
		Left side	512	0.227	-3.48	28	27.75	0.240	/
		Right side	512	0.261	2.76	28	27.75	0.276	/
		Bottom side	512	0.795	-2.32	28	27.75	**0.842**	4
		Bottom side	661	0.741	1.00	28	27.69	0.796	
		Bottom side	810	0.719	3.57	28	27.34	0.837	
WCDMA II	RMC	Front side	9262	0.158	2.81	23	22.40	0.181	/
		Back side	9262	0.357	-2.74	23	22.40	**0.410**	6
		Left side	9262	0.161	1.45	23	22.40	0.185	/
		Right side	9262	0.152	0.38	23	22.40	0.175	/
		Bottom side	9262	0.304	-1.79	23	22.40	0.349	/
WCDMA IV	RMC	Front side	1513	0.054	-3.89	23	22.1	0.066	/
		Back side	1513	0.140	-2.31	23	22.1	**0.172**	8
		Left side	1513	0.054	-3.93	23	22.1	0.066	/
		Right side	1513	0.035	-1.08	23	22.1	0.043	/
		Bottom side	1513	0.041	-3.53	23	22.1	0.050	/
WCDMA V	RMC	Front side	4233	0.409	2.30	23	22.80	0.428	/
		Back side	4233	0.412	1.18	23	22.80	**0.431**	10
		Left side	4233	0.340	-1.48	23	22.80	0.356	/
		Right side	4233	0.277	1.24	23	22.80	0.290	/
		Bottom side	4233	0.142	-2.58	23	22.80	0.149	/

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 side	11	0.021	-0.47	10	9.91	100	0.021	/
		Back side	11	0.091	-3.33	10	9.91	100	**0.093**	12
		Left side	11	0.051	-1.65	10	9.91	100	0.052	/
		Top side	11	0.022	0.85	10	9.91	100	0.022	/

Note:

1. The test separation of all above table is 5mm.
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 **0.049** 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 2	20M	QPSK	1	0	Front side	18700	0.248	-2.78	22	21.53	0.276	/
			50	49	Front side	19100	0.217	1.20	21	20.53	0.242	/
			1	0	Back Side	18700	0.256	0.79	22	21.53	0.285	/
			50	49	Back Side	19100	0.226	-1.46	21	20.53	0.252	/
			1	0	Left Side	18700	0.128	0.91	22	21.53	0.143	/
			50	49	Left Side	19100	0.103	3.20	21	20.53	0.115	/
			1	0	Right Side	18700	0.132	-1.51	22	21.53	0.147	/
			50	49	Right Side	19100	0.115	-1.28	21	20.53	0.128	/
			1	0	Bottom Side	18700	0.389	-1.15	22	21.53	**0.433**	14
			50	49	Bottom Side	19100	0.341	0.82	21	20.53	0.380	/
LTE Band 4	20M	QPSK	1	0	Front side	20050	0.445	2.71	22	21.61	0.487	/
			50	0	Front side	20050	0.408	0.31	21	20.86	0.421	/
			1	0	Back Side	20050	0.511	-4.00	22	21.61	0.559	/
			50	0	Back Side	20050	0.485	-2.00	21	20.86	0.501	/
			1	0	Left Side	20050	0.340	2.47	22	21.61	0.372	/
			50	0	Left Side	20050	0.322	-0.56	21	20.86	0.333	/
			1	0	Right Side	20050	0.478	-3.53	22	21.61	0.523	/
			50	0	Right Side	20050	0.467	-2.81	21	20.86	0.482	/
			1	0	Bottom Side	20050	0.530	1.82	22	21.61	**0.580**	16
			50	0	Bottom Side	20050	0.506	0.59	21	20.86	0.523	/
LTE Band 5	10M	QPSK	1	0	Front side	20525	0.394	-1.70	23	22.05	0.490	/
			25	0	Front side	20525	0.341	3.08	22	21.28	0.402	/
			1	0	Back Side	20525	0.492	-0.42	23	22.05	**0.612**	18
			25	0	Back Side	20525	0.462	-0.29	22	21.28	0.545	/
			1	0	Left Side	20525	0.336	-0.84	23	22.05	0.418	/
			25	0	Left Side	20525	0.263	3.34	22	21.28	0.310	/
			1	0	Right Side	20525	0.285	0.95	23	22.05	0.355	/
			25	0	Right Side	20525	0.235	-2.23	22	21.28	0.277	/
			1	0	Bottom Side	20525	0.125	0.30	23	22.05	0.156	/
			25	0	Bottom Side	20525	0.104	1.90	22	21.28	0.123	/
LTE Band 7	20M	QPSK	1	0	Front side	21350	0.300	-2.18	22	21.19	0.287	/
			50	0	Front side	20850	0.274	-0.34	21	20.48	0.309	/
			1	0	Back Side	20850	0.914	2.03	22	21.18	1.104	/
			1	0	Back Side	21100	0.862	1.57	22	21.15	1.048	/
			1	0	Back Side	21350	1.046	3.11	22	21.19	**1.260**	20
			50	0	Back Side	20850	0.844	-2.58	21	20.48	0.951	/
			100	0	Back Side	20850	0.817	-4.20	20	19.67	0.881	/
			1	0	Left Side	21350	0.423	-0.42	22	21.19	0.405	/
			50	0	Left Side	20850	0.373	-3.00	21	20.48	0.420	/
			1	0	Right Side	21350	0.395	3.46	22	21.19	0.378	/
			50	0	Right Side	20850	0.366	-1.05	21	20.48	0.413	/
			1	0	Bottom Side	21350	0.738	0.06	22	21.19	0.706	/
			50	0	Bottom Side	20850	0.702	-0.17	21	20.48	0.791	/

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 12	10M	QPSK	1	0	Front side	23095	0.190	-1.13	23	22.05	0.236	/
			25	0	Front side	23095	0.165	1.34	22	21.28	0.195	/
			1	0	Back Side	23095	0.362	2.04	23	22.05	**0.451**	22
			25	0	Back Side	23095	0.341	-2.96	22	21.28	0.402	/
			1	0	Left Side	23095	0.143	-1.15	23	22.05	0.178	/
			25	0	Left Side	23095	0.119	1.62	22	21.28	0.140	/
			1	0	Right Side	23095	0.103	0.43	23	22.05	0.128	/
			25	0	Right Side	23095	0.082	-3.77	22	21.28	0.097	/
			1	0	Bottom Side	23095	0.182	2.75	23	22.05	0.227	/
			25	0	Bottom Side	23095	0.165	3.91	22	21.28	0.195	/
LTE Band 13	20M	QPSK	1	24	Front side	23230	0.290	-0.12	23	22.12	0.355	/
			25	12	Front side	23230	0.271	-0.61	21	20.89	0.278	/
			1	24	Back Side	23230	0.210	2.73	23	22.12	0.257	/
			25	12	Back Side	23230	0.168	3.03	21	20.89	0.172	/
			1	24	Left Side	23230	0.310	1.69	23	22.12	**0.380**	24
			25	12	Left Side	23230	0.288	-1.10	21	20.89	0.295	/
			1	24	Right Side	23230	0.215	3.62	23	22.12	0.263	/
			25	12	Right Side	23230	0.175	-3.55	21	20.89	0.179	/
			1	24	Bottom Side	23230	0.162	1.79	23	22.12	0.198	/
			25	12	Bottom Side	23230	0.137	-2.93	21	20.89	0.141	/
LTE Band 17	10M	QPSK	1	24	Front side	23780	0.195	2.58	23	22.13	0.238	/
			25	0	Front side	23800	0.172	-1.66	21	20.93	0.175	/
			1	49	Back Side	23780	0.385	-1.84	23	22.13	**0.470**	26
			25	24	Back Side	23800	0.326	-2.61	21	20.93	0.331	/
			1	49	Left Side	23780	0.170	3.10	23	22.13	0.208	/
			25	24	Left Side	23800	0.148	-3.65	21	20.93	0.150	/
			1	49	Right Side	23780	0.115	1.71	23	22.13	0.141	/
			25	24	Right Side	23800	0.103	-2.99	21	20.93	0.105	/
			1	49	Bottom Side	23780	0.179	2.14	23	22.13	0.219	/
			25	24	Bottom Side	23800	0.157	0.97	21	20.93	0.160	/
LTE Band 25	10M	QPSK	1	0	Front side	26140	0.277	0.45	22	21.44	0.315	/
			50	0	Front side	26140	0.231	0.00	21	20.74	0.245	/
			1	0	Back Side	26140	0.223	1.62	22	21.44	0.254	/
			50	0	Back Side	26140	0.184	2.11	21	20.74	0.195	/
			1	0	Left Side	26140	0.133	3.34	22	21.44	0.151	/
			50	0	Left Side	26140	0.111	1.83	21	20.74	0.118	/
			1	0	Right Side	26140	0.150	3.62	22	21.44	0.171	/
			50	0	Right Side	26140	0.127	-3.16	21	20.74	0.135	/
			1	0	Bottom Side	26140	0.325	1.70	22	21.44	**0.370**	28
			50	0	Bottom Side	26140	0.293	3.87	21	20.74	0.311	/

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 26	20M	QPSK	1	0	Front side	26775	0.486	0.34	22	21.90	**0.497**	30
			36	0	Front side	26990	0.384	1.77	22	21.13	0.469	/
			1	0	Back Side	26775	0.471	0.72	22	21.90	0.482	/
			36	0	Back Side	26990	0.375	-0.29	22	21.13	0.458	/
			1	0	Left Side	26775	0.193	1.13	22	21.90	0.197	/
			36	0	Left Side	26990	0.130	-0.77	22	21.13	0.159	/
			1	0	Right Side	26775	0.167	-3.93	22	21.90	0.171	/
			36	0	Right Side	26990	0.104	-3.01	22	21.13	0.127	/
			1	0	Bottom Side	26775	0.271	0.42	22	21.90	0.277	/
			36	0	Bottom Side	26990	0.218	0.30	22	21.13	0.266	/
LTE Band 41	20M	QPSK	1	0	Front side	41490	0.274	3.28	21	20.58	0.302	/
			50	0	Front side	41490	0.249	2.86	20	19.81	0.260	/
			1	0	Back Side	41490	0.359	-3.35	21	20.58	**0.395**	32
			50	0	Back Side	41490	0.307	2.66	20	19.81	0.321	/
			1	0	Left Side	41490	0.314	1.08	21	20.58	0.346	/
			50	0	Left Side	41490	0.269	-3.22	20	19.81	0.281	/
			1	0	Right Side	41490	0.261	-0.57	21	20.58	0.288	/
			50	0	Right Side	41490	0.217	-1.96	20	19.81	0.227	/
			1	0	Bottom Side	41490	0.126	3.12	21	20.58	0.139	/
			50	0	Bottom Side	41490	0.093	2.81	20	19.81	0.097	/

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 5.2 G	802.11a	Front side	40	0.038	3.93	10	9.02	100	0.048	/
		Back side	40	0.057	2.55	10	9.02	100	**0.071**	34
		Left side	40	0.025	-0.05	10	9.02	100	0.031	/
		Top side	40	0.012	-0.96	10	9.02	100	0.015	/
WLAN 5.3 G	802.11a	Front side	52	0.074	1.53	10	9.78	100	0.078	/
		Back side	52	0.096	0.52	10	9.78	100	**0.101**	36
		Left side	52	0.055	-2.47	10	9.78	100	0.058	/
		Top side	52	0.026	-1.89	10	9.78	100	0.027	/
WLAN 5.6 G	802.11a	Front side	100	0.031	2.78	9	8.93	100	0.032	/
		Back side	100	0.045	-3.59	9	8.93	100	**0.046**	38
		Left side	100	0.027	2.82	9	8.93	100	0.027	/
		Top side	100	0.015	-2.96	9	8.93	100	0.015	/
WLAN 5.8 G	802.11a	Front side	149	0.029	3.88	8	7.46	100	0.033	/
		Back side	149	0.040	2.82	8	7.46	100	**0.045**	40
		Left side	149	0.024	0.10	8	7.46	100	0.027	/
		Top side	149	0.014	0.83	8	7.46	100	0.016	/

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.
CDMA BC0	CDMA	Front side	384	0.510	0.49	24	23.35	0.592	/
		Back side	384	0.623	-3.65	24	23.35	**0.724**	42
		Left side	384	0.521	1.92	24	23.35	0.605	/
		Right side	384	0.423	2.83	24	23.35	0.491	/
		Bottom side	384	0.357	0.45	24	23.35	0.415	/
CDMA BC1	CDMA	Front side	600	0.547	-2.27	21	20.31	0.641	/
		Back side	600	0.623	3.43	21	20.31	**0.730**	44
		Left side	600	0.538	-0.81	21	20.31	0.631	/
		Right side	600	0.472	-3.97	21	20.31	0.553	/
		Bottom side	600	0.398	-1.51	21	20.31	0.467	4

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	Vioce	Left cheek	128	0.687	-2.87	33	32.28	0.811	/
GSM 850	GPRS Data-4 Slot	Back side	128	0.839	-3.20	31	30.90	0.859	/
GSM 1900	Vioce	Right cheek	661	0.794	1.06	30	29.06	0.986	/
GSM 1900	GPRS Data-4 Slot	Bottom side	512	0.791	2.09	28	27.75	0.838	/
LTE Band 2	QPSK	Right cheek	18700	0.715	-2.69	22	21.53	0.797	/
LTE Band 4	QPSK	Left cheek	20050	1.187	0.83	22	21.61	1.299	/
LTE Band 7	QPSK	Right cheek	21350	0.718	1.51	22	21.9	0.735	/
LTE Band 7	QPSK	Back side	21350	1.042	1.86	22	21.9	1.066	/
CDMA BC1	CDMA	Right cheek	600	1.024	2.08	21	20.31	1.200	/

12.3 repeated SAR measurement

Band	BW (MHz)	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 850	Vioce	Left cheek	128	0.692	0.687	1.01	-	-	-
GSM 850	GPRS Data-4 Slot	Back side	128	0.846	0.839	1.01	-	-	-
GSM 1900	Vioce	Right cheek	661	0.802	0.794	1.01	-	-	-
GSM 1900	GPRS Data-4 Slot	Bottom side	512	0.795	0.791	1.01	-	-	-
LTE Band 2	QPSK	Right cheek	18700	0.736	0.715	1.03	-	-	-
LTE Band 4	QPSK	Left cheek	20050	1.209	1.187	1.02	-	-	-
LTE Band 7	QPSK	Right cheek	21350	0.736	0.718	1.03	-	-	-
LTE Band 7	QPSK	Back side	21350	1.046	1.042	1.00	-	-	-
CDMA BC1	CDMA	Right cheek	600	1.031	1.024	1.01	-	-	-

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≤1.2and 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
Head	1. GSM + WLAN
	2. GSM + 5G WLAN
	3. GSM + Bluetooth
	4. WCDMA + WLAN
	5. WCDMA +5G WLAN
	6. WCDMA + Bluetooth
	7. LTE + WLAN
	8. LTE + 5G WLAN
	9. LTE + Bluetooth
	10. CDMA + WLAN
	11. CDMA + 5G WLAN
	12. CDMA + Bluetooth
Body	1. GSM + WLAN
	2. GSM + 5G WLAN
	3. GSM + Bluetooth
	4. WCDMA + WLAN
	5. WCDMA +5G WLAN
	6. WCDMA + Bluetooth
	7. LTE + WLAN
	8. LTE + 5G WLAN
	9. LTE + Bluetooth
	10. CDMA + WLAN
	11. CDMA + 5G WLAN
	12. CDMA + 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(1g) [W/kg]
		dBm	mW			
BT	Head	3	1.995	5	2.480	0.084
	Body			5	2.480	0.084

Simultaneous Mode	Position	Mode	Max. 10-g SAR (W/kg)	10-g Sum SAR (W/kg)
GSM + 2.4GHz WLAN	Head	GSM Voice	0.996	1.061
		2.4GHz WLAN	0.065	
	Body	GSM DATA	0.866	0.959
		2.4GHz WLAN	0.093	
WCDMA RMC+ 2.4GHz WLAN	Head	WCDMA RMC	0.982	1.047
		2.4GHz WLAN	0.065	
	Body	WCDMA RMC	0.431	0.524
		2.4GHz WLAN	0.093	
LTE + 2.4GHz WLAN	Head	LTE	1.323	1.388
		2.4GHz WLAN	0.065	
	Body	LTE	1.260	1.353
		2.4GHz WLAN	0.093	
CDMA + 2.4GHz WLAN	Head	CDMA	1.209	1.388
		2.4GHz WLAN	0.065	
	Body	CDMA	0.536	1.353
		2.4GHz WLAN	0.093	
GSM + 5.2GHz WLAN	Head	GSM Voice	0.996	1.143
		5.2GHz WLAN	0.147	
	Body	GSM DATA	0.866	0.937
		5.2GHz WLAN	0.071	
WCDMA RMC+ 5.2GHz WLAN	Head	WCDMA RMC	0.982	1.129
		5.2GHz WLAN	0.147	
	Body	WCDMA RMC	0.431	0.502
		5.2GHz WLAN	0.071	
LTE + 5.2GHz WLAN	Head	LTE	1.323	**1.470**
		5.2GHz WLAN	0.147	
	Body	LTE	1.260	1.331
		5.2GHz WLAN	0.071	
CDMA + 5.2GHz WLAN	Head	CDMA	1.209	1.356
		5.2GHz WLAN	0.147	
	Body	CDMA	0.536	0.607
		5.2GHz WLAN	0.071	
GSM + 5.3GHz WLAN	Head	GSM Voice	0.996	1.070
		5.3GHz WLAN	0.074	
	Body	GSM DATA	0.866	0.967
		5.3GHz WLAN	0.101	
WCDMA RMC+ 5.3GHz WLAN	Head	WCDMA RMC	0.982	1.056
		5.3GHz WLAN	0.074	
	Body	WCDMA RMC	0.431	0.532
		5.3GHz WLAN	0.101	
LTE + 5.3GHz WLAN	Head	LTE	1.323	1.397
		5.3GHz WLAN	0.074	
	Body	LTE	1.260	**1.361**
		5.3GHz WLAN	0.101	
CDMA + 5.3GHz WLAN	Head	CDMA	1.209	1.283
		5.3GHz WLAN	0.074	
	Body	CDMA	0.536	0.637
		5.3GHz WLAN	0.101	

Simultaneous Mode	Position	Mode	Max. 10-g SAR (W/kg)	10-g Sum SAR (W/kg)
GSM + 5.6GHz WLAN	Head	GSM Voice	0.996	1.038
		5.6GHz WLAN	0.042	
	Body	GSM DATA	0.866	0.912
		5.6GHz WLAN	0.046	
WCDMA RMC+ 5.6GHz WLAN	Head	WCDMA RMC	0.982	1.024
		5.6GHz WLAN	0.042	
	Body	WCDMA RMC	0.431	0.477
		5.6GHz WLAN	0.046	
LTE + 5.6GHz WLAN	Head	LTE	1.323	1.365
		5.6GHz WLAN	0.042	
	Body	LTE	1.260	1.306
		5.6GHz WLAN	0.046	
CDMA + 5.6GHz WLAN	Head	CDMA	1.209	1.251
		5.6GHz WLAN	0.042	
	Body	CDMA	0.536	0.582
		5.6GHz WLAN	0.046	
GSM + 5.8GHz WLAN	Head	GSM Voice	0.996	1.038
		5.8GHz WLAN	0.039	
	Body	GSM DATA	0.866	0.912
		5.8GHz WLAN	0.045	
WCDMA RMC+ 5.8GHz WLAN	Head	WCDMA RMC	0.982	1.024
		5.8GHz WLAN	0.039	
	Body	WCDMA RMC	0.431	0.477
		5.8GHz WLAN	0.045	
LTE + 5.8GHz WLAN	Head	LTE	1.323	1.365
		5.8GHz WLAN	0.039	
	Body	LTE	1.260	1.306
		5.8GHz WLAN	0.045	
CDMA + 5.8GHz WLAN	Head	CDMA	1.209	1.248
		5.8GHz WLAN	0.039	
	Body	CDMA	0.536	0.581
		5.8GHz WLAN	0.045	

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
750MHz Dipole	MVG	SID750	SN 30/14 DIP0G750-331	2017.08.15	2020.08.14
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
Waveguide	SATIMO	SWG5500	SN 13/14 WGA32	2017.08.15	2020.08.14
E-Field Probe	MVG	SSE2	SN 45/15 EPGO281	2018.04.10	2019.04.09
Dielectric Probe Kit	MVG	SCLMP	SN 32/14 OCPG67	2017.12.03	2018.12.02
Antenna	MVG	ANTA3	SN 07/13 ZNTA52	N/A	N/A
Phantom1	MVG	SAM	SN 32/14 SAM115	2014.09.01	N/A
Phantom2	MVG	SAM	SN 32/14 SAM116	2014.09.01	N/A
Phone holder	MVG	N/A	SN 32/14 MSH97	2014.09.01	N/A
Laptop holder	MVG	N/A	SN 32/14 LSH29	2014.09.01	N/A
Network Analyzer	Agilent	8753ES	US38432810	2018.03.08	2019.03.07
Multi Meter	Keithley	Multi Meter 2000	4050073	2017.10.15	2018.10.14
Signal Generator	Agilent	N5182A	MY50140530	2017.10.15	2018.10.14
Wireless Communication Test Set	Agilent	8960-E5515C	MY48360751	2017.10.15	2018.10.14
Wireless Communication Test Set	R&S	CMW500	117239	2017.10.15	2018.10.14
Power Amplifier	DESAY	ZHL-42W	9638	2017.10.15	2018.10.14
Power Meter	R&S	NRP	100510	2017.10.15	2018.10.14
Power Meter	Agilent	E4418B	GB43312526	2017.10.15	2018.10.14
Power Sensor	R&S	NRP-Z11	101919	2017.10.15	2018.10.14
Power Sensor	Agilent	E9301A	MY41497725	2017.10.15	2018.10.14
9dB Attenuator	Agilent	99899	DC-18GHz	2018.05.09	2019.05.08
11dB Attenuator	Agilent	8494B	DC-18GHz	2018.05.09	2019.05.08
110dB Attenuator	Agilent	8494B	DC-18GHz	2018.05.09	2019.05.08
Directional coupler	Narda	4226-20	3305	2017.10.15	2018.10.14
hygrothermograph	MiEO	HH660	N/A	2017.10.18	2018.10.17
Thermograph	Elitech	RC-4	S/N EF7176501537	2017.11.10	2018.11.09

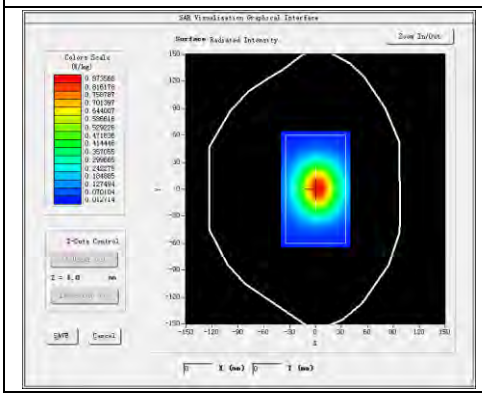
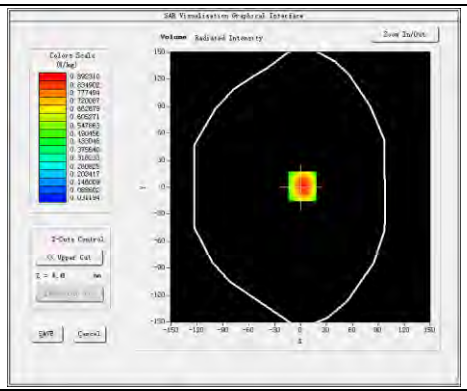
Appendix A. System Validation Plots

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: 2018-08-06
Measurement duration: 13 minutes 25 seconds

Experimental conditions

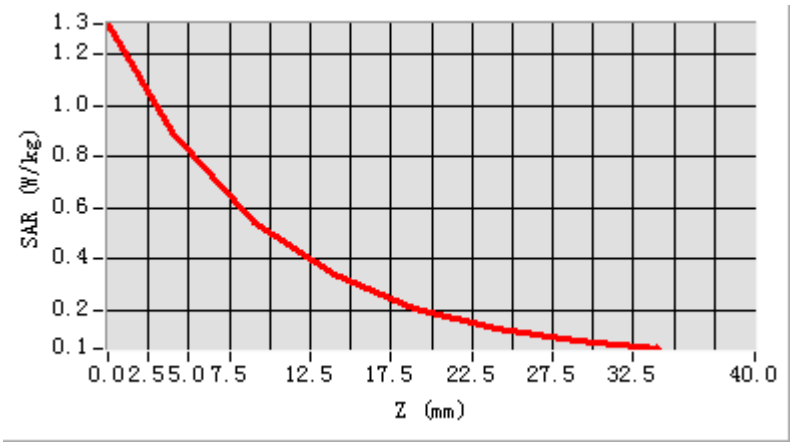
Phantom	Validation plane
Device Position	-
Band	750MHz
Channels	-
Signal	CW
Frequency (MHz)	750MHz
Relative permittivity	42.20
Conductivity (S/m)	0.88
Power drift (%)	-0.20
Probe	SN 45/15 EPGO281
ConvF:	1.53
Crest factor:	1:1

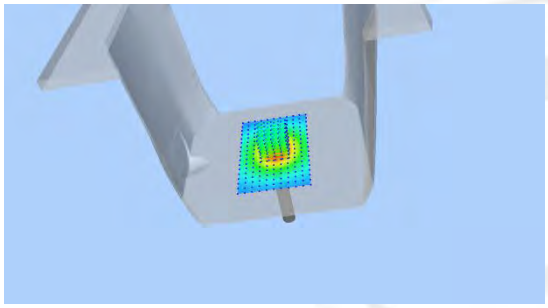
SURFACE SAR	VOLUME SAR
	

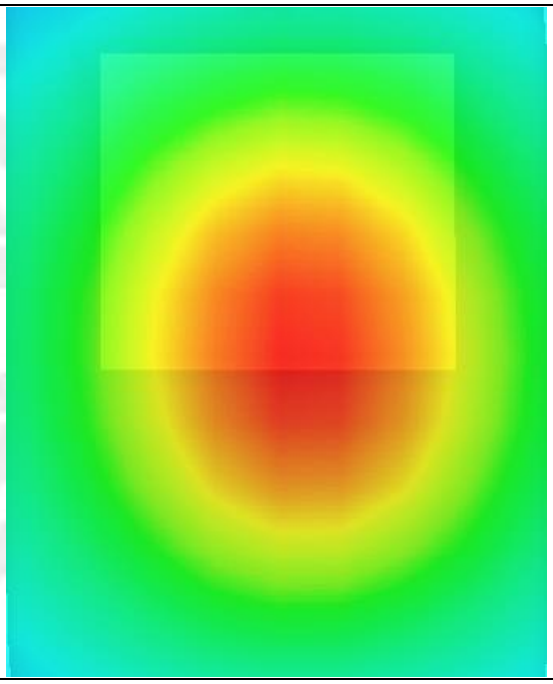
Maximum location: X=2.00, Y=1.00

SAR 10g (W/Kg)	0.571205
SAR 1g (W/Kg)	0.796504

Z Axis Scan


1.3
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)



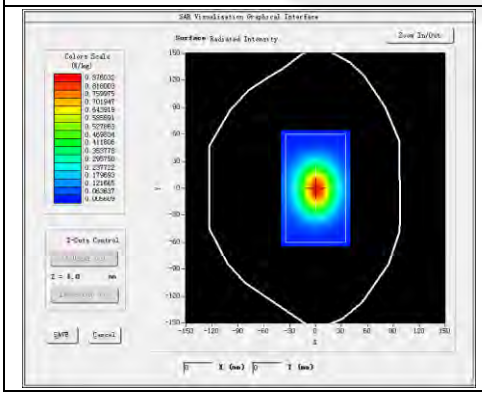
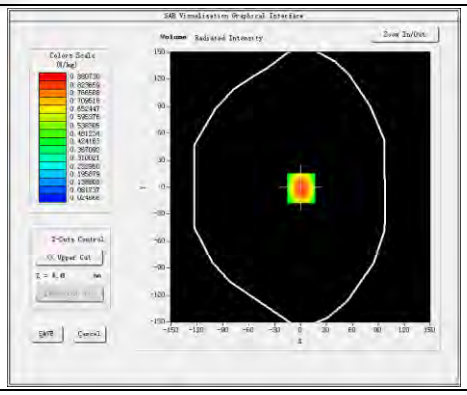


System Performance Check Data (750MHz Body)

Type: Phone measurement (Complete)
Area scan resolution: dx=8mm,dy=8mm
Zoom scan resolution: dx=8mm, dy=8mm, dz=5mm
Date of measurement: 2018-08-06
Measurement duration: 14 minutes 12 seconds

Experimental conditions.

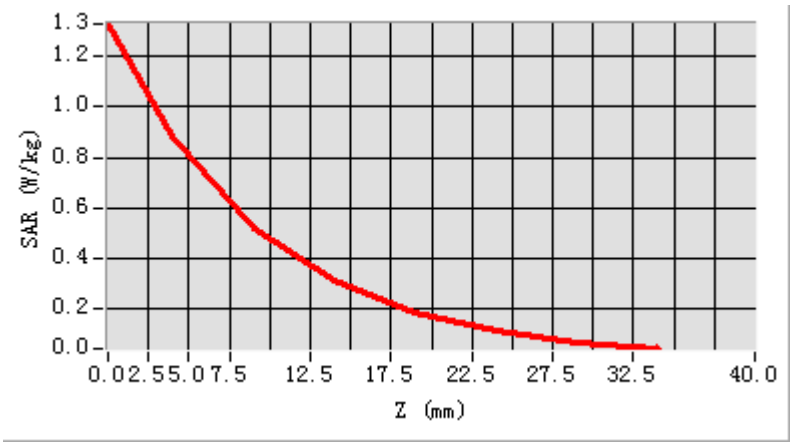
Probe	
Phantom	Validation plane
Device Position	-
Band	750MHz
Channels	-
Signal	CW
Frequency (MHz)	750MHz
Relative permittivity	55.47
Conductivity (S/m)	0.99
Power drift (%)	1.44
Probe	SN 45/15 EPGO281
ConvF:	1.59
Crest factor:	1:1

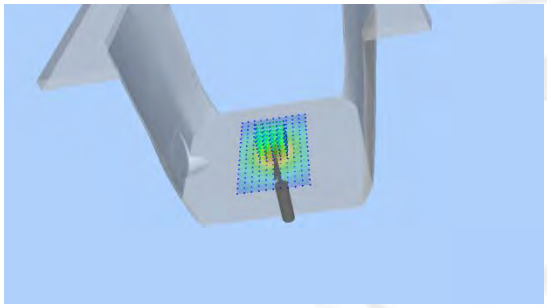
SURFACE SAR	VOLUME SAR
	

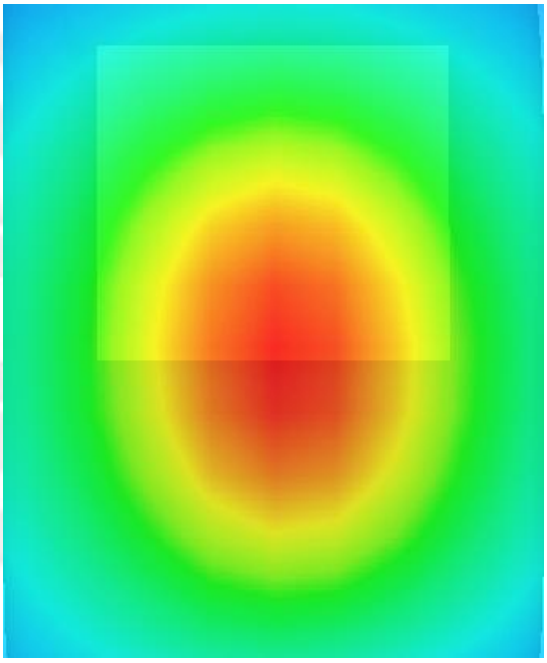
Maximum location: X=1.00, Y=-1.00

SAR 10g (W/Kg)	0.582014
SAR 1g (W/Kg)	0.834207

Z Axis Scan


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





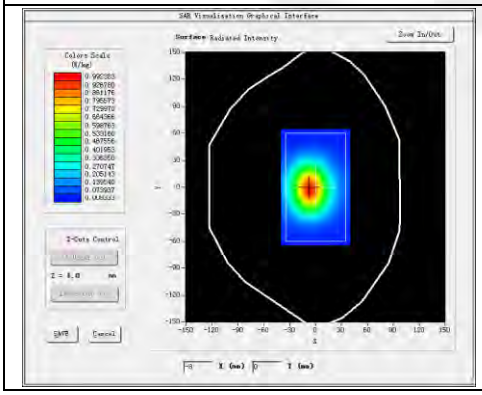
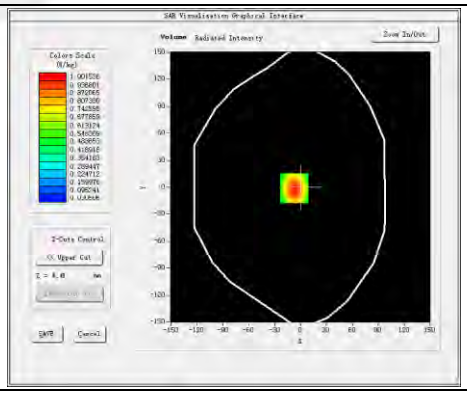
System Performance Check Data (835MHz Head)

Type: Phone measurement (Complete)

Area scan resolution: dx=8mm,dy=8mm
Zoom scan resolution: dx=8mm, dy=8mm, dz=5mm
Date of measurement: 2018-08-07
Measurement duration: 13 minutes 27 seconds

Experimental conditions

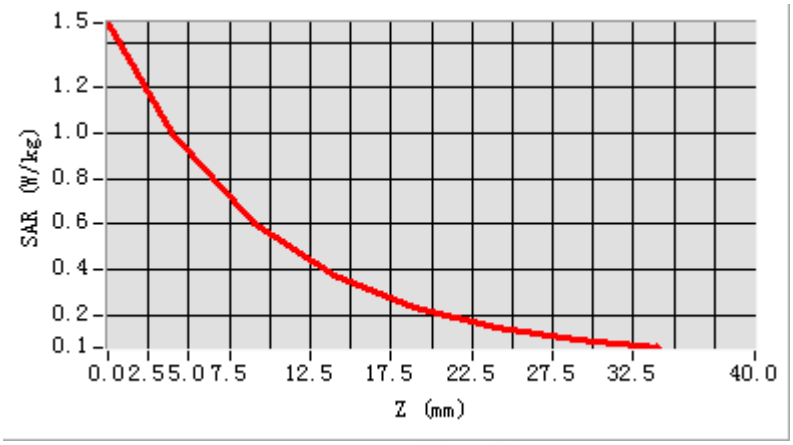
Phantom	Validation plane
Device Position	-
Band	835MHz
Channels	-
Signal	CW
Frequency (MHz)	835MHz
Relative permittivity	41.37
Conductivity (S/m)	0.91
Power drift (%)	0.07
Probe	SN 45/15 EPGO281
ConvF:	1.78
Crest factor:	1:1

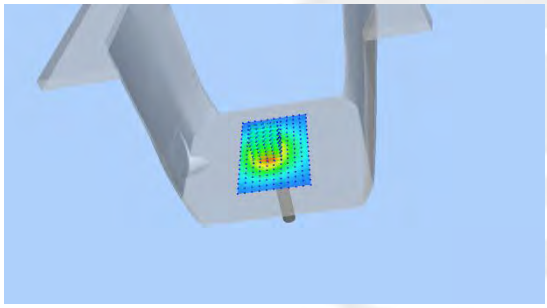
SURFACE SAR	VOLUME SAR
	

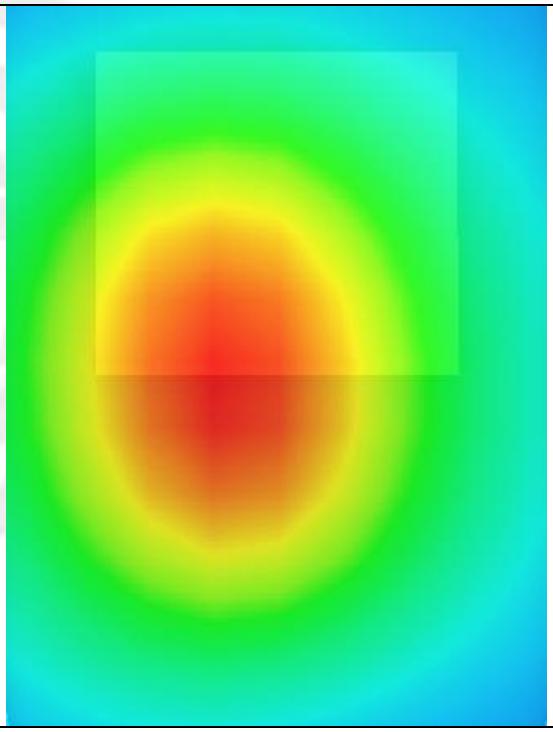
Maximum location: X=-7.00, Y=-1.00

SAR 10g (W/Kg)	0.632014
SAR 1g (W/Kg)	0.989014

Z Axis Scan


SAR (W/kg)
1.5
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)



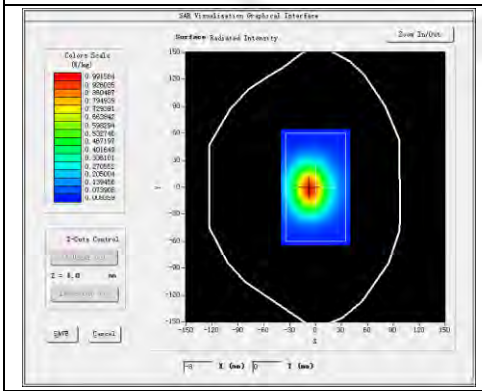
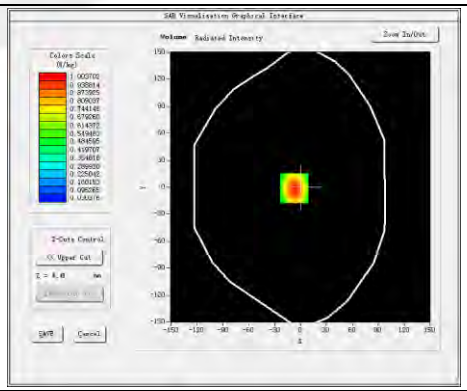


System Performance Check Data (835MHz Body)

Type: Phone measurement (Complete)
Area scan resolution: dx=8mm,dy=8mm
Zoom scan resolution: dx=8mm, dy=8mm, dz=5mm
Date of measurement: 2018-08-07
Measurement duration: 14 minutes 13 seconds

Experimental conditions.

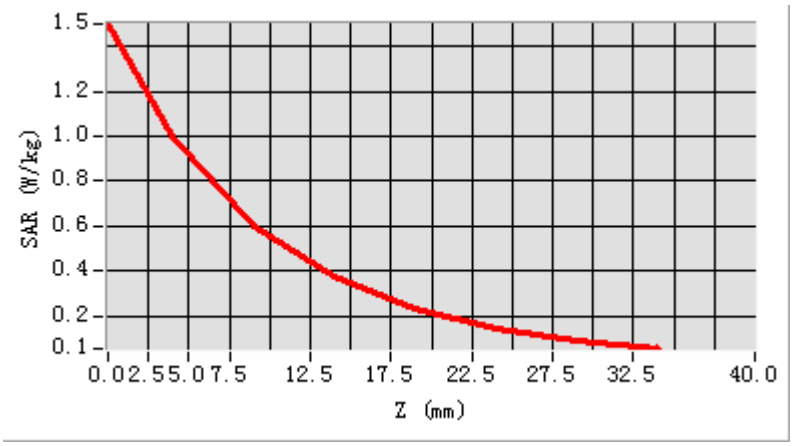
Probe	
Phantom	Validation plane
Device Position	-
Band	835MHz
Channels	-
Signal	CW
Frequency (MHz)	835MHz
Relative permittivity	55.58
Conductivity (S/m)	0.99
Power drift (%)	-0.37
Probe	SN 45/15 EPGO281
ConvF:	1.85
Crest factor:	1:1

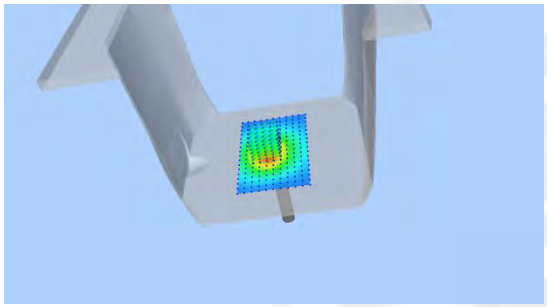
SURFACE SAR	VOLUME SAR
	

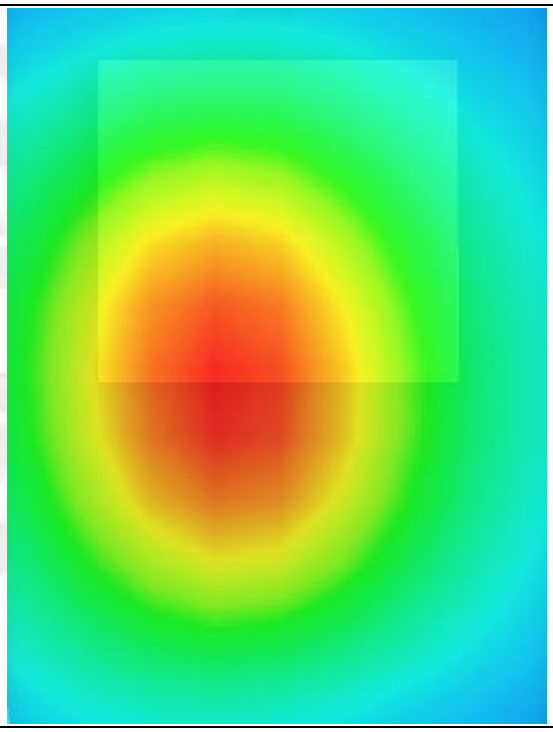
Maximum location: X=-7.00, Y=-1.00

SAR 10g (W/Kg)	0.652317
SAR 1g (W/Kg)	0.925638

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)



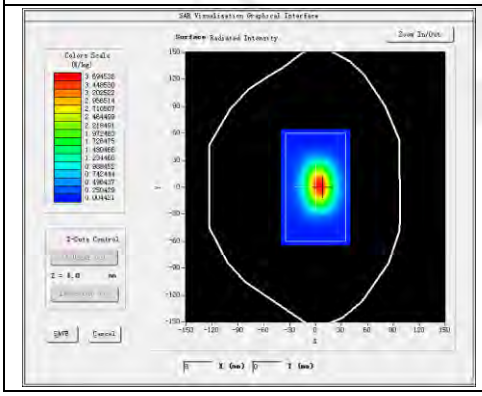
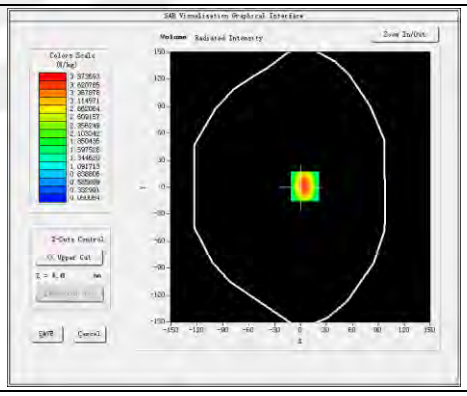


System Performance Check Data(1800MHz Head)

Type: Phone measurement (Complete)
Area scan resolution: dx=8mm,dy=8mm
Zoom scan resolution: dx=8mm, dy=8mm, dz=5mm
Date of measurement: 2018-08-08

Experimental conditions.

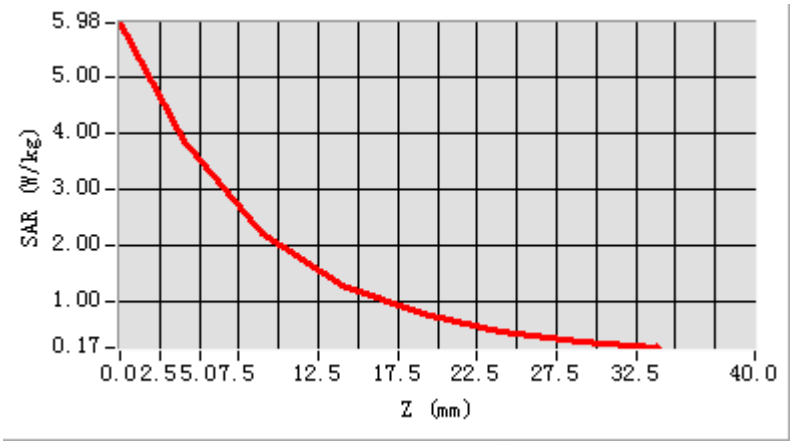
Phantom	Validation plane
Device Position	-
Band	1800MHz
Channels	-
Signal	CW
Frequency (MHz)	1800MHz
Relative permittivity	41.32
Conductivity (S/m)	1.42
Power drift (%)	0.23
Probe	SN 45/15 EPGO281
ConvF	1.83
Crest factor:	1:1

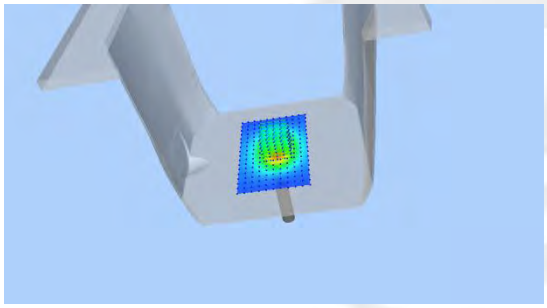
SURFACE SAR	VOLUME SAR
	

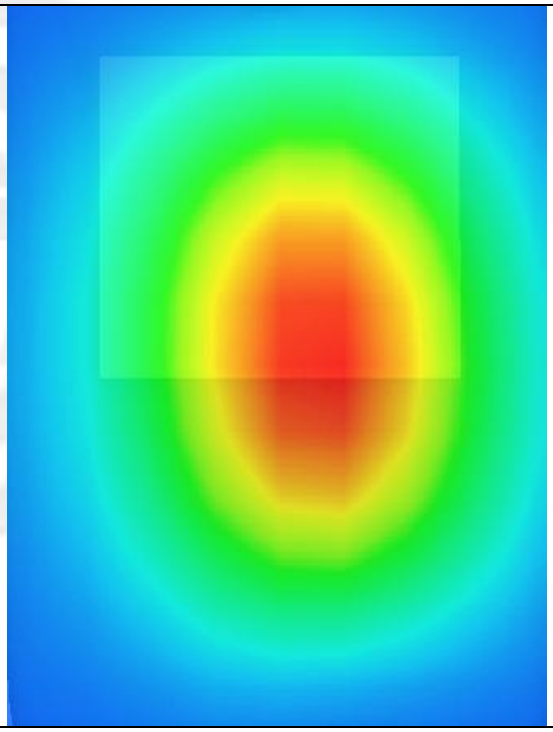
Maximum location: X=5.00, Y=1.00

SAR 10g (W/Kg)	2.023697
SAR 1g (W/Kg)	3.880247

Z Axis Scan


5.98
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)



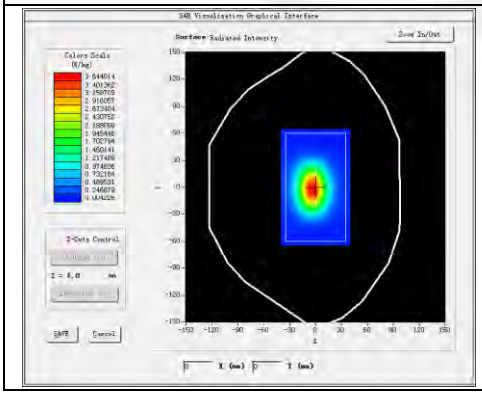
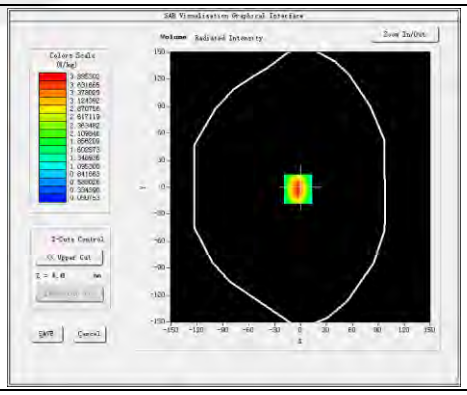


System Performance Check Data(1800MHz Body)

Type: Phone measurement (Complete)
Area scan resolution: dx=8mm,dy=8mm
Zoom scan resolution: dx=8mm, dy=8mm, dz=5mm
Date of measurement: 2018-08-08

Experimental conditions.

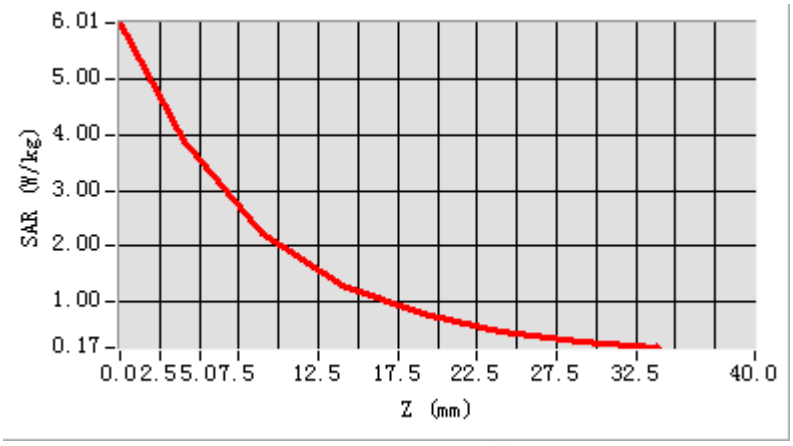
Phantom	Validation plane
Device Position	-
Band	1800MHz
Channels	-
Signal	CW
Frequency (MHz)	1800MHz
Relative permittivity	53.63
Conductivity (S/m)	1.52
Power drift (%)	-0.28
Probe	SN 45/15 EPGO281
ConvF	1.87
Crest factor:	1:1

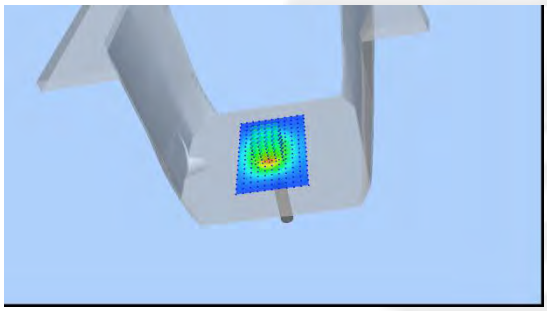
SURFACE SAR	VOLUME SAR
	

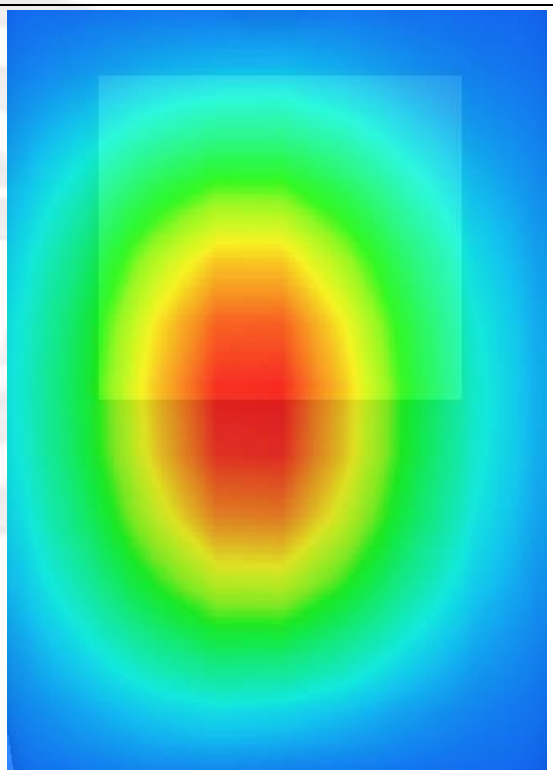
Maximum location: X=-3.00, Y=-2.00

SAR 10g (W/Kg)	2.096322
SAR 1g (W/Kg)	4.083055

Z Axis Scan


6.01
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)



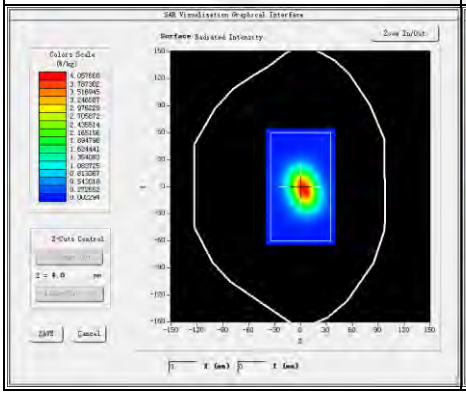
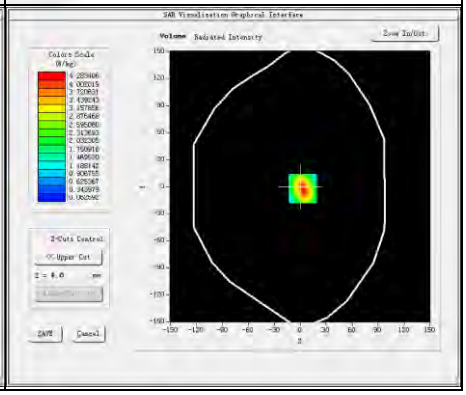


System Performance Check Data (1900MHz Head)

Type: Phone measurement (Complete)
Area scan resolution: dx=8mm,dy=8mm
Zoom scan resolution: dx=8mm, dy=8mm, dz=5mm
Date of measurement: 2018-08-09
Measurement duration: 14 minutes 12 seconds

Experimental conditions.

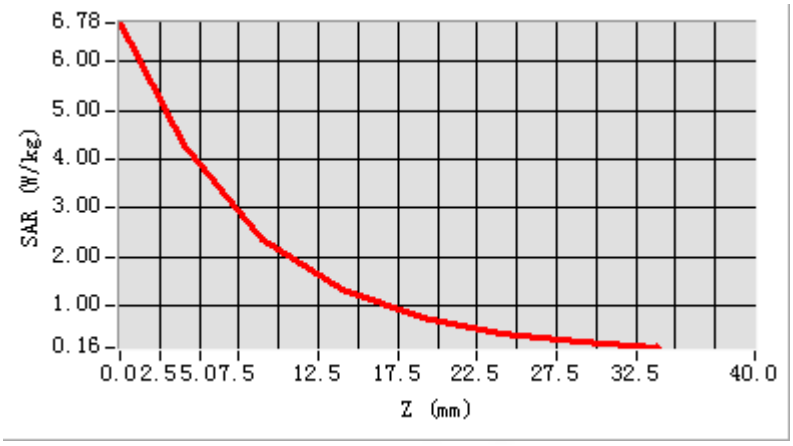
Phantom	Validation plane
Device Position	-
Band	1900MHz
Channels	-
Signal	CW
Frequency (MHz)	1900MHz
Relative permittivity	39.84
Conductivity (S/m)	1.40
Power drift (%)	0.46
Probe	SN 45/15 EPGO281
ConvF:	2.10
Crest factor:	1:1

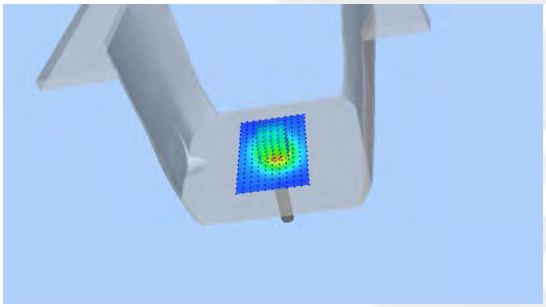
SURFACE SAR	VOLUME SAR
	

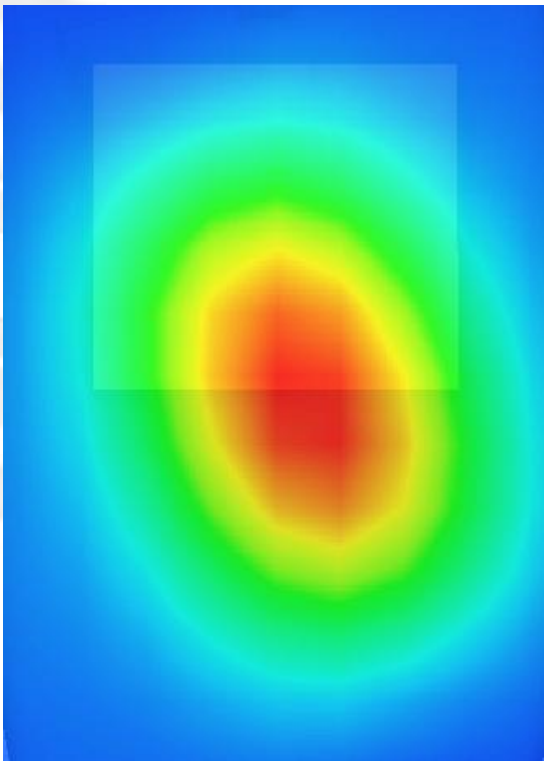
Maximum location: X=3.00, Y=-2.00

SAR 10g (W/Kg)	2.120158
SAR 1g (W/Kg)	4.112384

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)



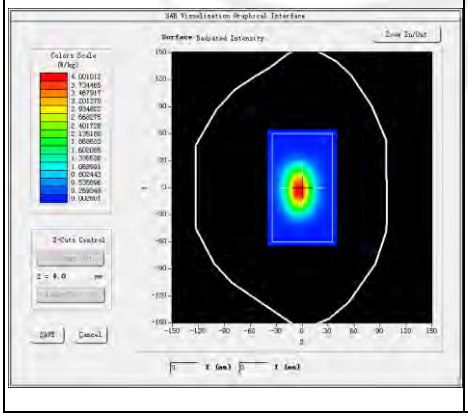
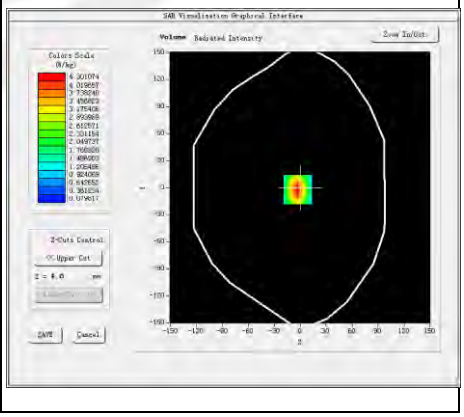


System Performance Check Data (1900MHz Body)

Type: Phone measurement (Complete)
Area scan resolution: dx=8mm,dy=8mm
Zoom scan resolution: dx=8mm, dy=8mm, dz=5mm
Date of measurement: 2018-08-09
Measurement duration: 14 minutes 46 seconds

Experimental conditions.

Device Position	-
Band	1900MHz
Channels	-
Signal	CW
Frequency (MHz)	1900
Relative permittivity	52.30
Conductivity (S/m)	1.53
Power drift (%)	-0.31
Probe	SN 45/15 EPGO281
ConvF:	2.16
Crest factor:	1:1

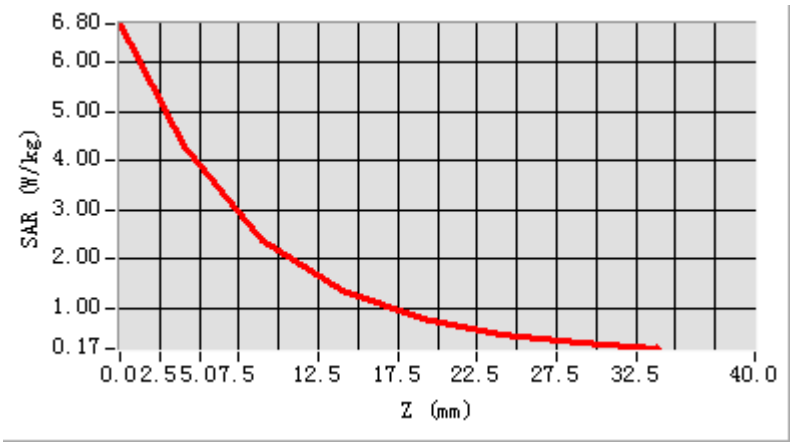
SURFACE SAR	VOLUME SAR
	

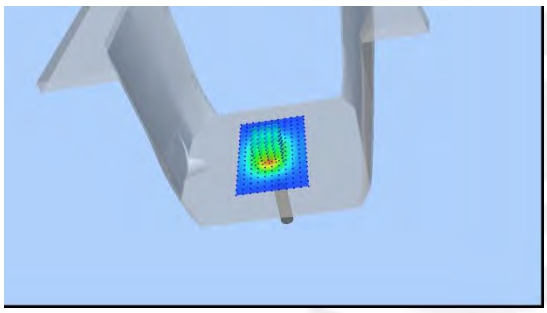
Maximum location: X=-3.00, Y=-2.00

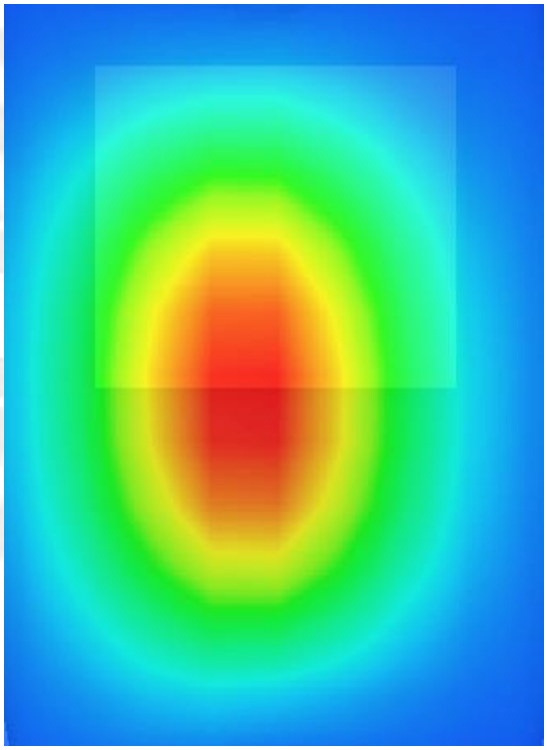
SAR Peak: 5.27 W/kg

SAR 10g (W/Kg)	2.163580
SAR 1g (W/Kg)	3.957601

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)



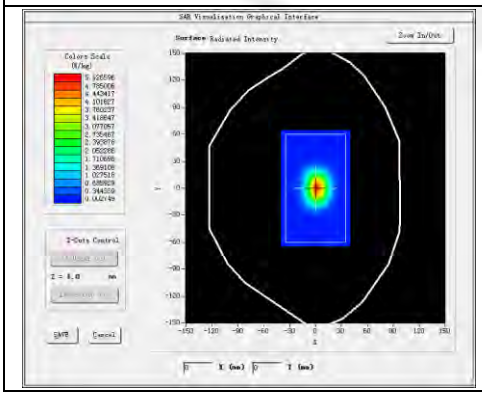
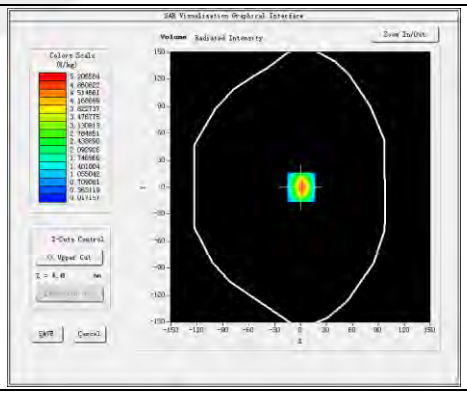


System Performance Check Data (2450MHz Head)

Type: Phone measurement (Complete)
Area scan resolution: dx=8mm,dy=8mm
Zoom scan resolution: dx=8mm, dy=8mm, dz=5mm
Date of measurement: 2018-08-10
Measurement duration: 13 minutes 51seconds

Experimental conditions.

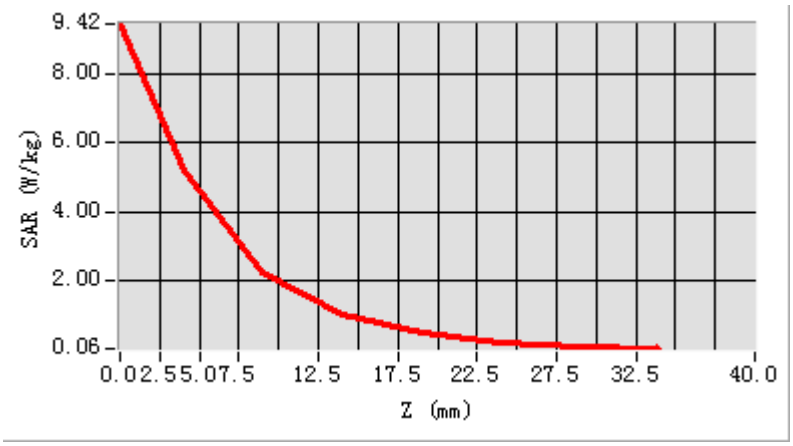
Device Position	Validation plane
Band	2450 MHz
Channels	-
Signal	CW
Frequency (MHz)	2450
Relative permittivity	40.16
Conductivity (S/m)	2.21
Power drift (%)	-0.38
Probe	SN 45/15 EPGO281
ConvF	5.09
Crest factor:	1:1

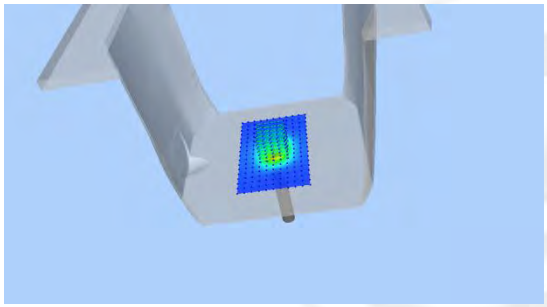
SURFACE SAR	VOLUME SAR
	

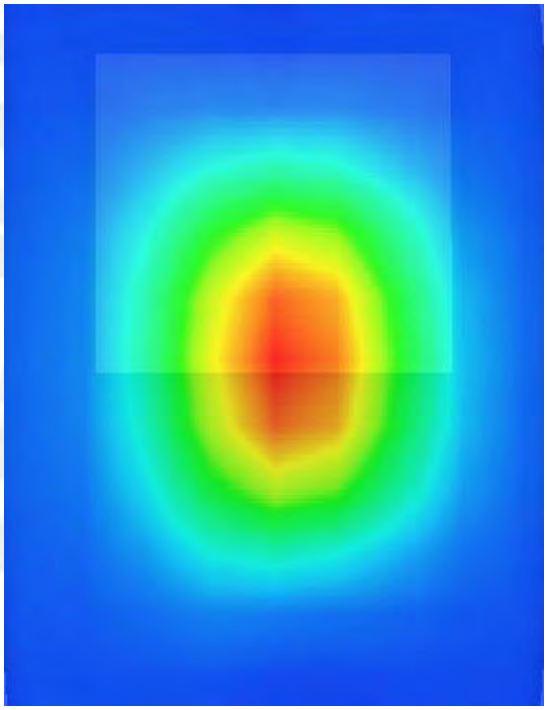
Maximum location: X=1.00, Y=0.00

SAR 10g (W/Kg)	2.425890
SAR 1g (W/Kg)	5.384058

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)



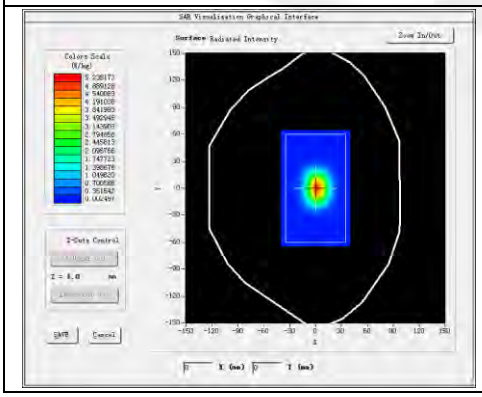
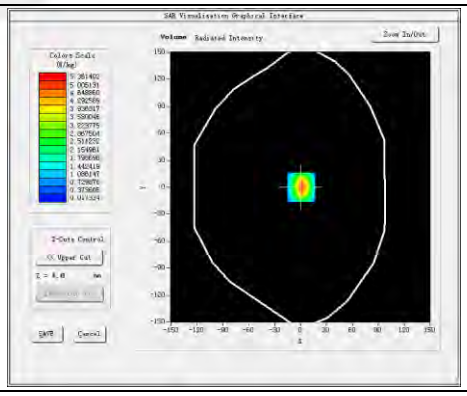


System Performance Check Data (2450MHz Body)

Type: Phone measurement (Complete)
Area scan resolution: dx=8mm,dy=8mm
Zoom scan resolution: dx=8mm, dy=8mm, dz=5mm
Date of measurement: 2018-08-10
Measurement duration: 14 minutes 23 seconds

Experimental conditions.

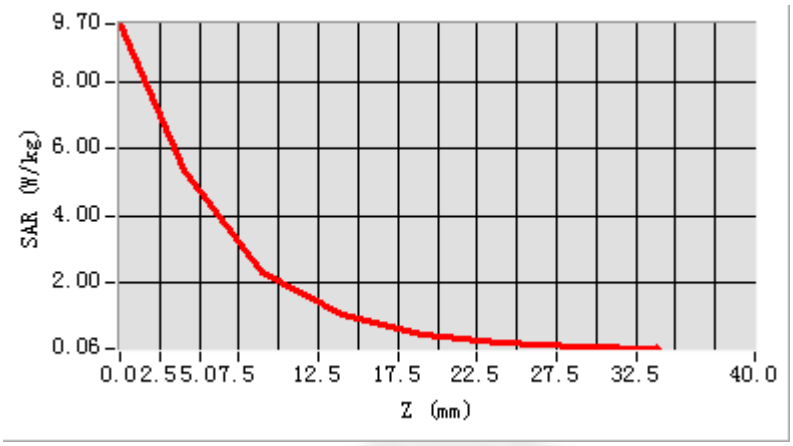
Device Position	Validation plane
Band	2450 MHz
Channels	-
Signal	CW
Frequency (MHz)	2450
Relative permittivity	51.85
Conductivity (S/m)	2.28
Power drift (%)	-0.30
Probe	SN 45/15 EPGO281
ConvF	5.24
Crest factor:	1:1

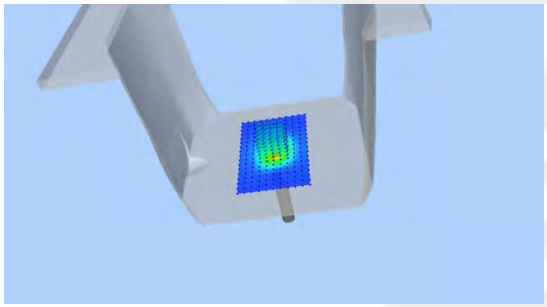
SURFACE SAR	VOLUME SAR
	

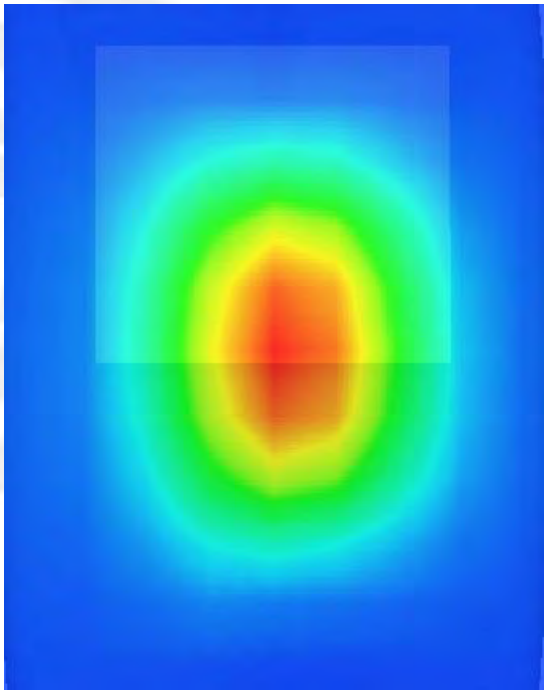
Maximum location: X=1.00, Y=0.00

SAR 10g (W/Kg)	2.432147
SAR 1g (W/Kg)	5.113472

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)



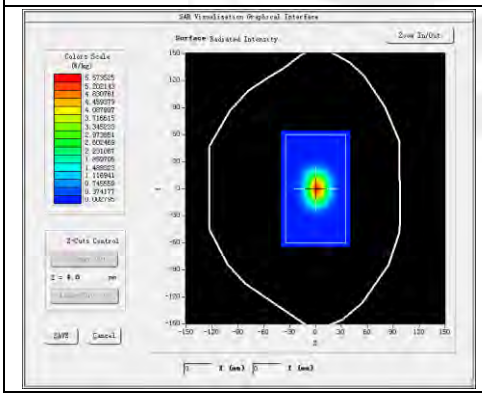
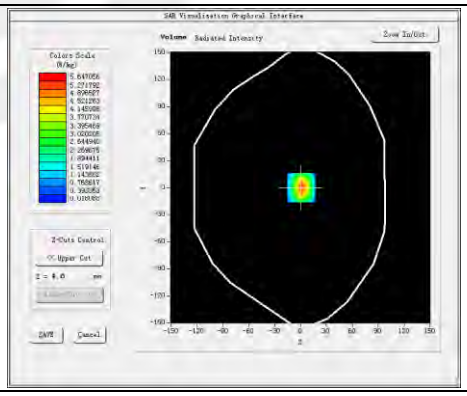


System Performance Check Data(2600MHz Head)

Type: Phone measurement (Complete)
Area scan resolution: dx=8mm,dy=8mm
Zoom scan resolution: dx=8mm, dy=8mm, dz=5mm
Date of measurement: 2018-08-11

Experimental conditions.

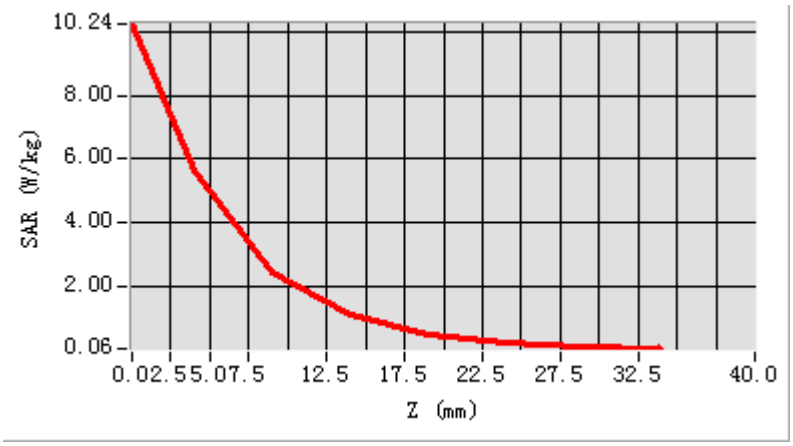
Device Position	Validation plane
Band	2600 MHz
Channels	-
Signal	CW
Frequency (MHz)	2600
Relative permittivity	37.81
Conductivity (S/m)	2.00
Power drift (%)	0.63
Probe	SN 45/15 EPGO281
ConvF	2.32
Crest factor:	1:1

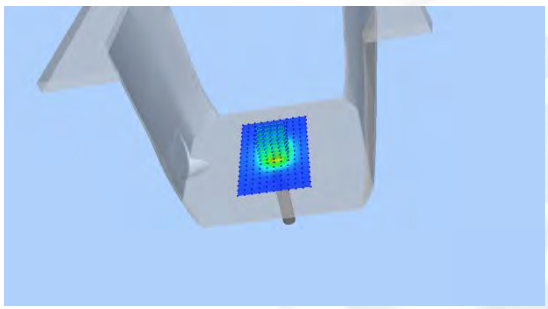
SURFACE SAR	VOLUME SAR
	

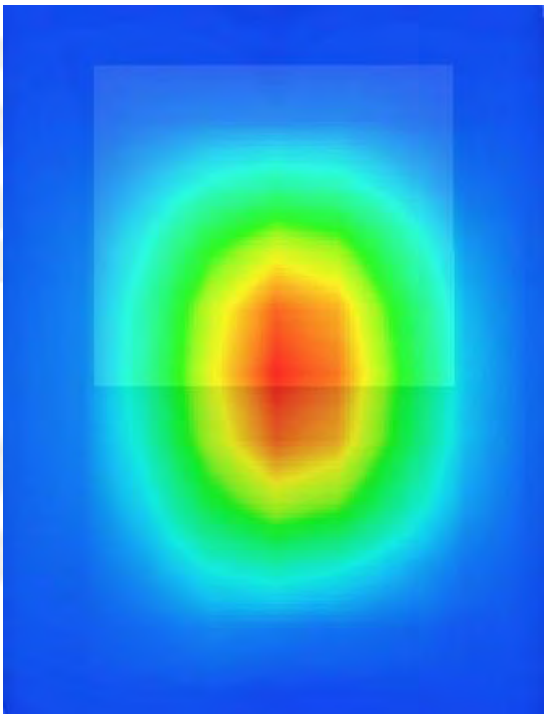
Maximum location: X=1.00, Y=0.00

SAR 10g (W/Kg)	2.421369
SAR 1g (W/Kg)	5.697502

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)



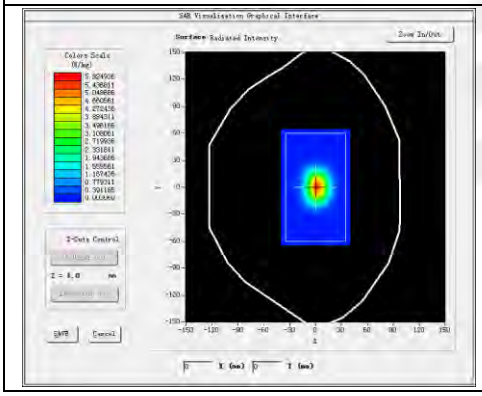
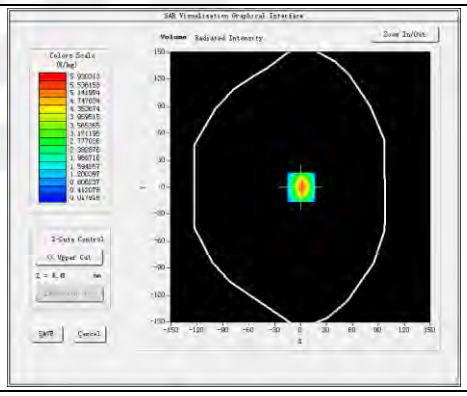


System Performance Check Data(2600MHz Body)

Type: Phone measurement (Complete)
Area scan resolution: dx=8mm,dy=8mm
Zoom scan resolution: dx=8mm, dy=8mm, dz=5mm
Date of measurement: 2018-08-11

Experimental conditions.

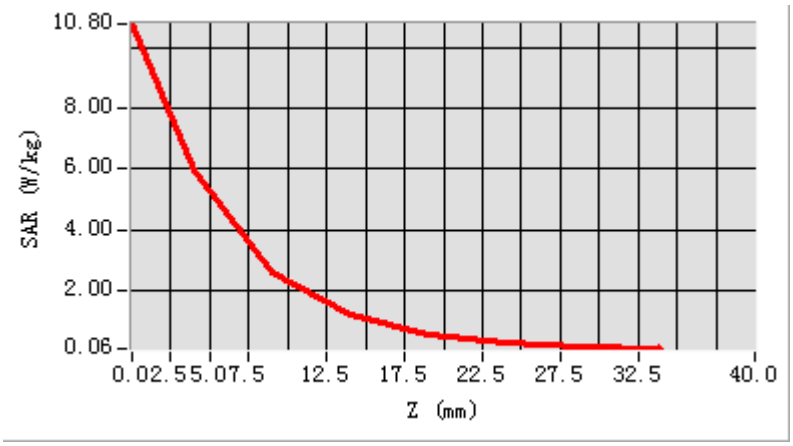
Device Position	Validation plane
Band	2600 MHz
Channels	-
Signal	CW
Frequency (MHz)	2600
Relative permittivity	52.09
Conductivity (S/m)	2.18
Power drift (%)	-0.30
Probe	SN 45/15 EPGO281
ConvF	2.38
Crest factor:	1:1

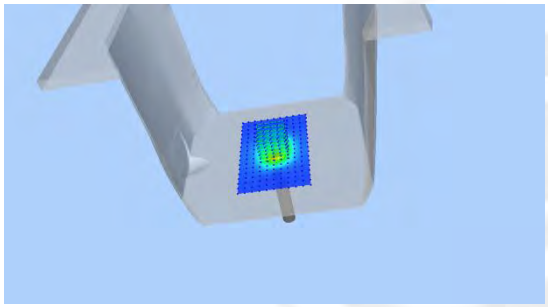
SURFACE SAR	VOLUME SAR
	

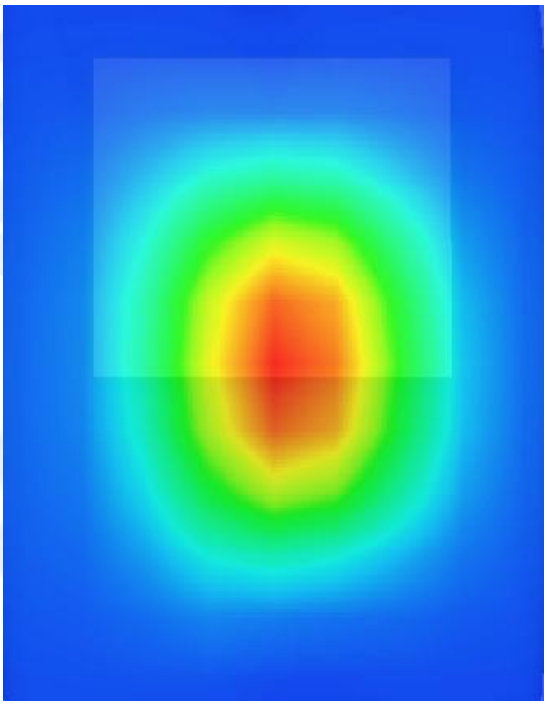
Maximum location: X=3.00, Y=1.00

SAR 10g (W/Kg)	2.485012
SAR 1g (W/Kg)	5.382209

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)



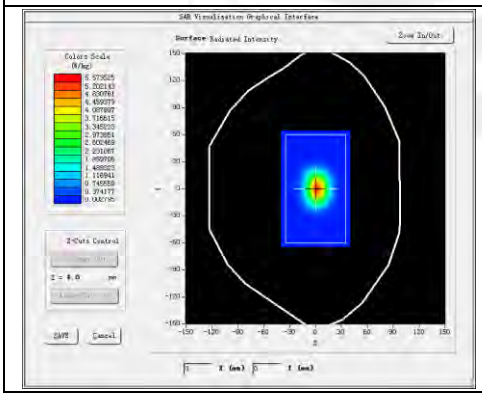
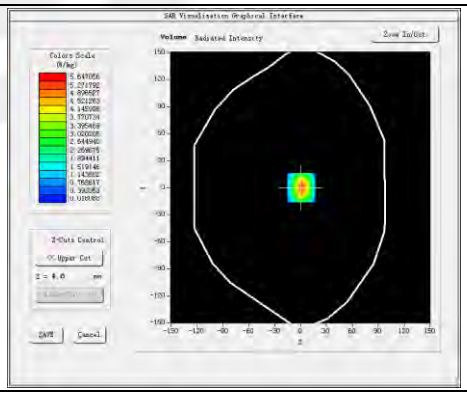


System Performance Check Data(5200MHz Head)

Type: Phone measurement (Complete)
Area scan resolution: dx=8mm,dy=8mm
Zoom scan resolution: dx=4mm, dy=4mm, dz=2mm
Date of measurement: 2018-08-12

Experimental conditions.

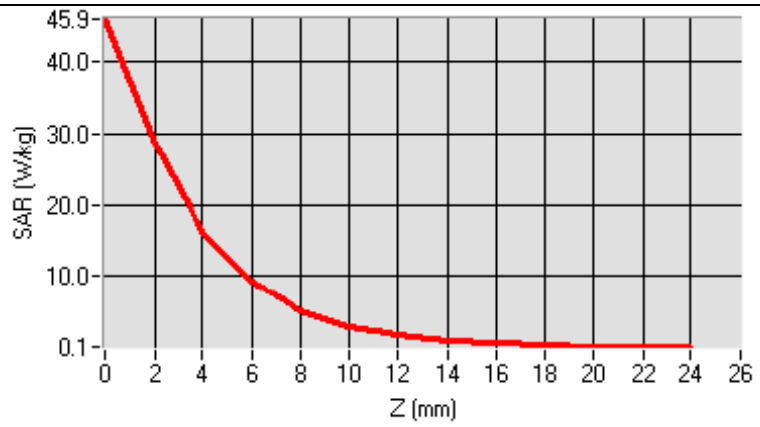
Device Position	Validation plane
Band	5200 MHz
Channels	-
Signal	CW
Frequency (MHz)	5200
Relative permittivity	36.35
Conductivity (S/m)	4.57
Power drift (%)	2.52
Probe	SN 45/15 EPGO281
ConvF	2.46
Crest factor:	1:1

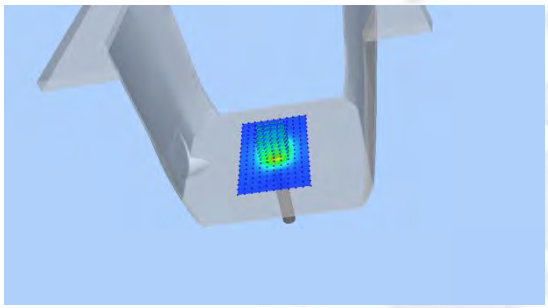
SURFACE SAR	VOLUME SAR
	

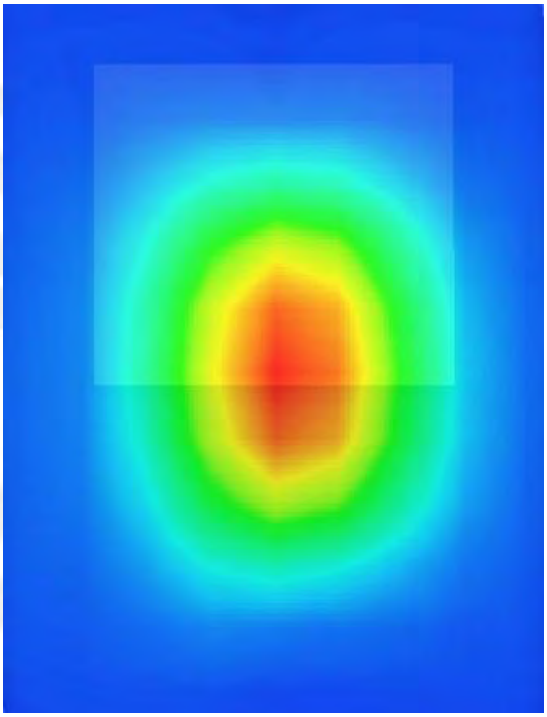
Maximum location: X=7.00, Y=2.00

SAR 10g (W/Kg)	5.812024
SAR 1g (W/Kg)	15.610558

Z Axis Scan





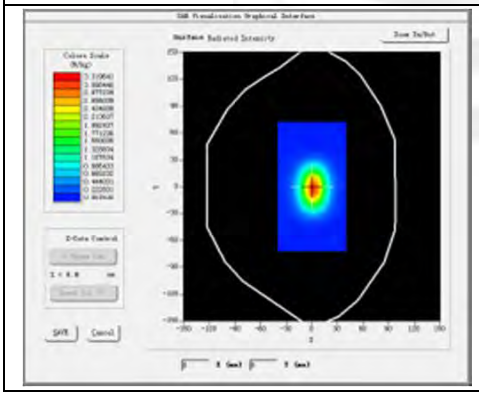
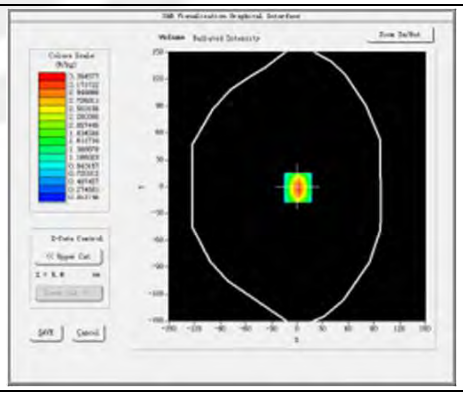


System Performance Check Data(5200MHz Body)

Type: Dipole measurement (Complete)
Area scan resolution: dx=8mm,dy=8mm
Zoom scan resolution: dx=8mm, dy=8mm, dz=5mm
Date of measurement: 2018-08-12

Experimental conditions.

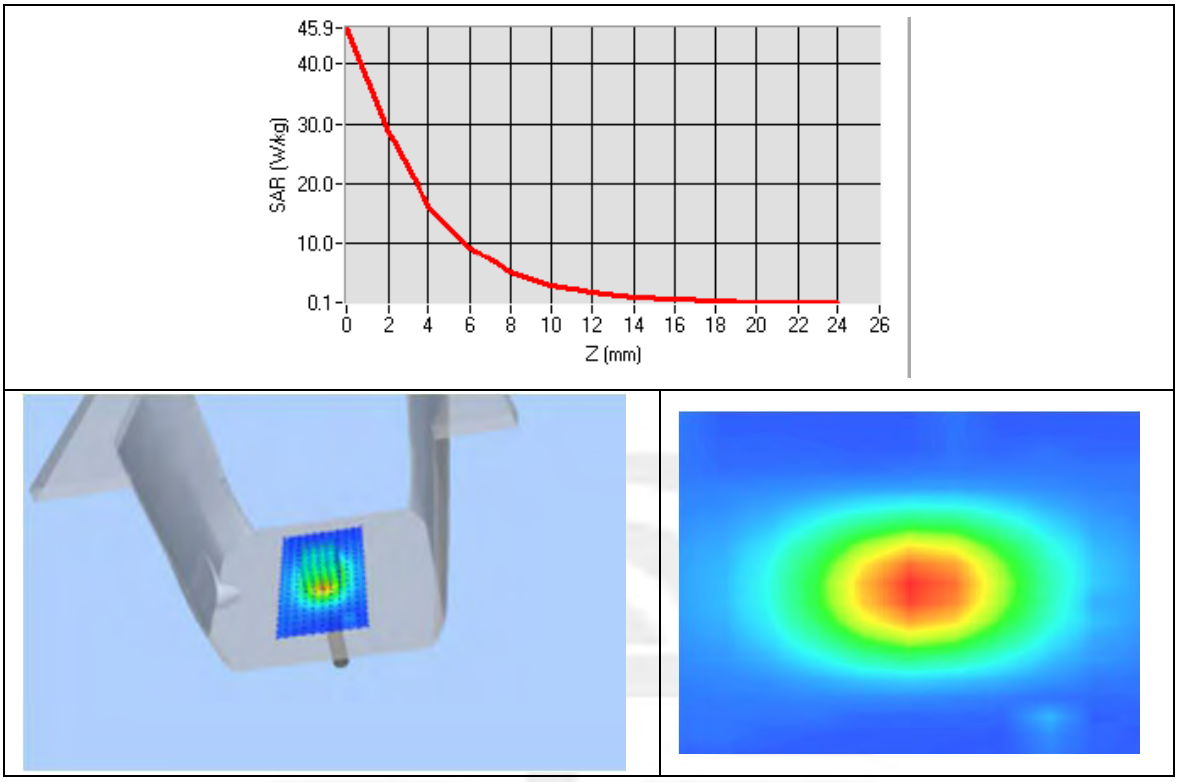
Device Position	Validation plane
Band	5200 MHz
Channels	-
Signal	CW
Frequency (MHz)	5200
Relative permittivity	46.91
Conductivity (S/m)	5.15
Power drift (%)	4.14
Probe	SN 45/15 EPGO281
ConvF	2.52
Crest factor:	1:1

SURFACE SAR	VOLUME SAR
	

Maximum location: X=7.00, Y=2.00

SAR 10g (W/Kg)	5.754176
SAR 1g (W/Kg)	15.653396

Z Axis Scan

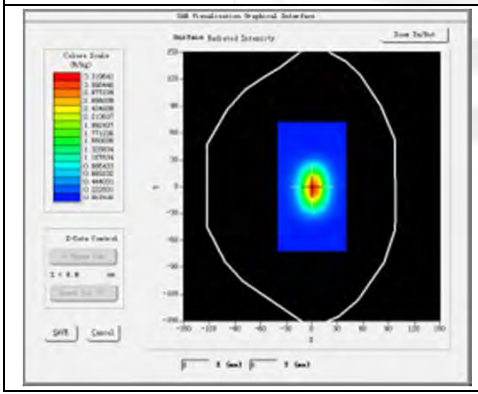
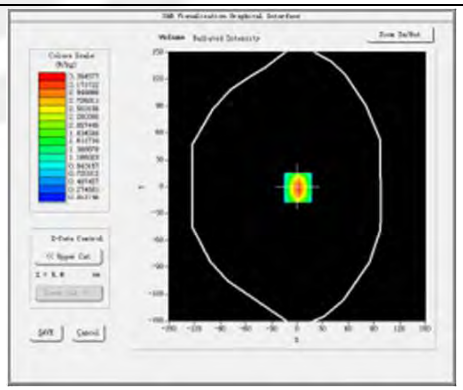


System Performance Check Data(5300MHz Head)

Type: Dipole measurement (Complete)
Area scan resolution: dx=8mm,dy=8mm
Zoom scan resolution: dx=8mm, dy=8mm, dz=5mm
Date of measurement: 2018-08-12

Experimental conditions.

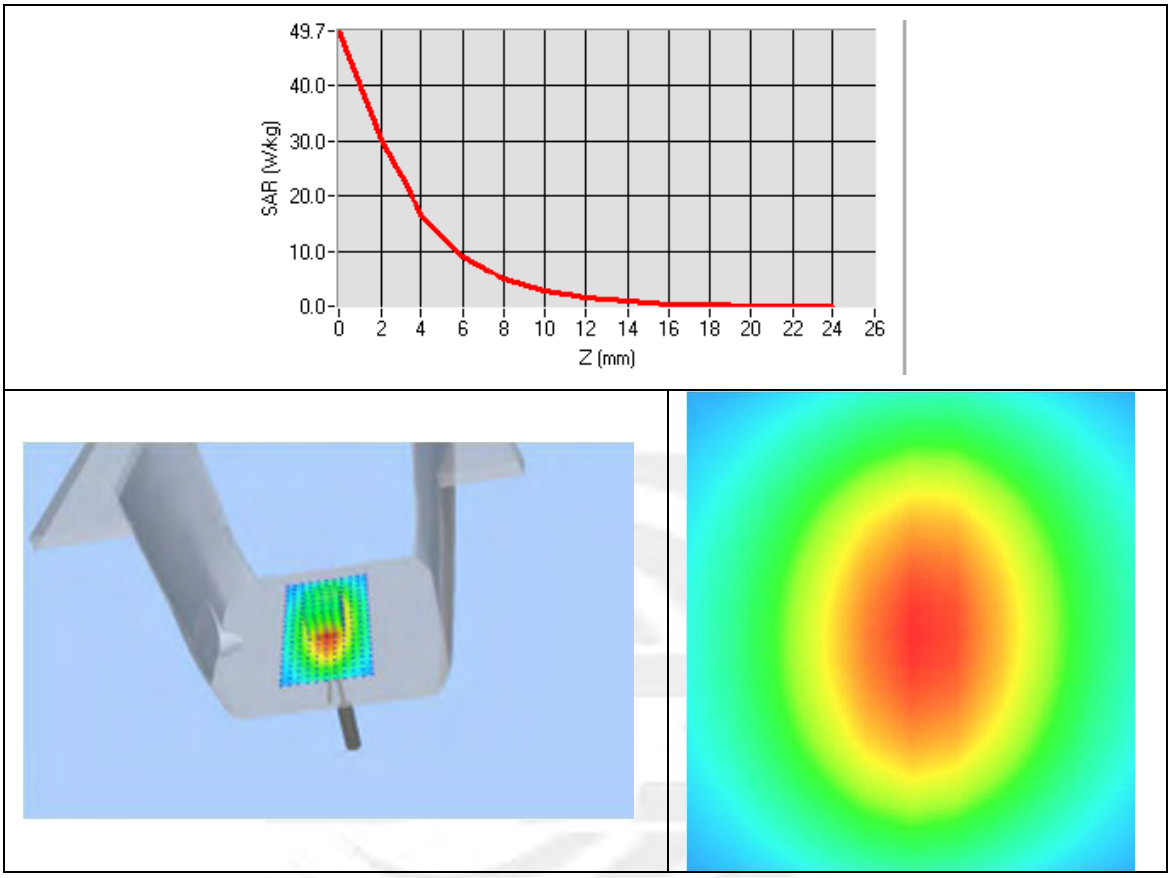
Device Position	Validation plane
Band	5300 MHz
Channels	-
Signal	CW
Frequency (MHz)	5300
Relative permittivity	35.53
Conductivity (S/m)	4.70
Power drift (%)	-1.77
Probe	SN 45/15 EPGO281
ConvF	2.70
Crest factor:	1:1

SURFACE SAR	VOLUME SAR
	

Maximum location: X=7.00, Y=2.00

SAR 10g (W/Kg)	5.948014
SAR 1g (W/Kg)	16.462017

Z Axis Scan

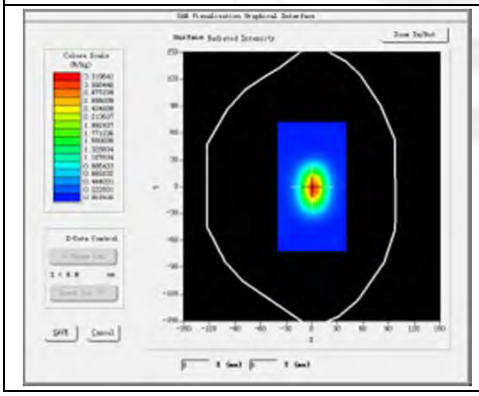
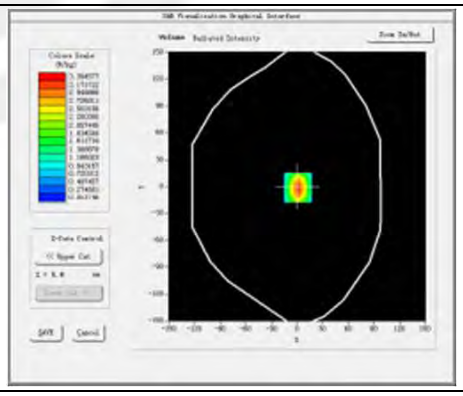


System Performance Check Data(5300MHz Body)

Type: Dipole measurement (Complete)
Area scan resolution: dx=8mm,dy=8mm
Zoom scan resolution: dx=8mm, dy=8mm, dz=5mm
Date of measurement: 2018-08-12

Experimental conditions.

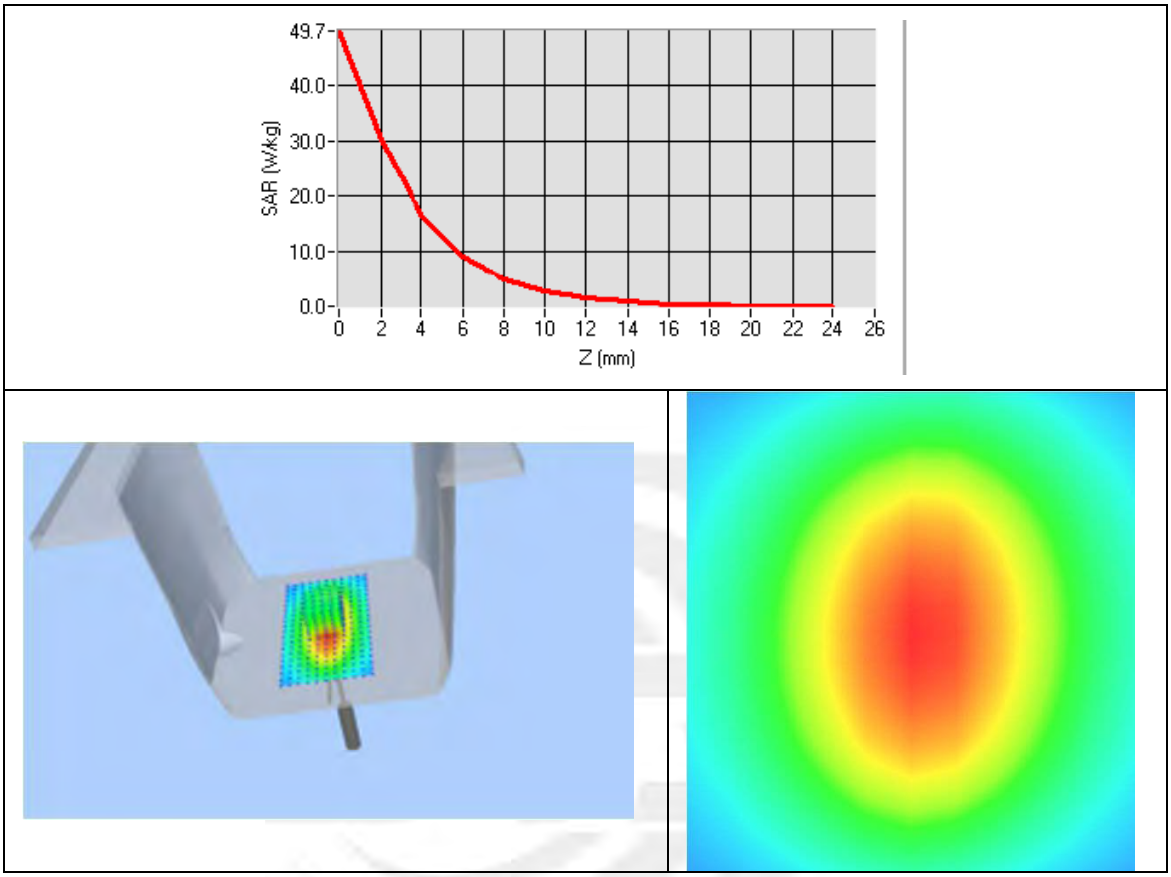
Device Position	Validation plane
Band	5300 MHz
Channels	-
Signal	CW
Frequency (MHz)	5300
Relative permittivity	49.20
Conductivity (S/m)	5.39
Power drift (%)	-1.77
Probe	SN 45/15 EPGO281
ConvF	2.79
Crest factor:	1:1

SURFACE SAR	VOLUME SAR
	

Maximum location: X=7.00, Y=2.00

SAR 10g (W/Kg)	5.975031
SAR 1g (W/Kg)	16.786210

Z Axis Scan

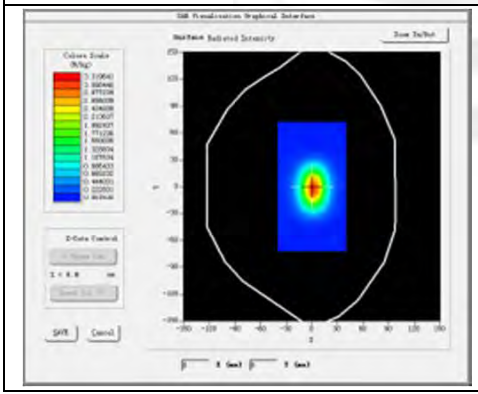
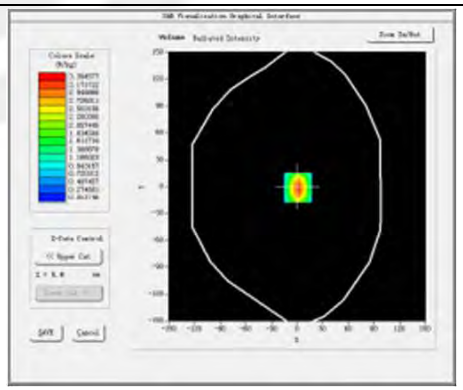


System Performance Check Data(5600MHz Head)

Type: Dipole measurement (Complete)
Area scan resolution: dx=8mm,dy=8mm
Zoom scan resolution: dx=8mm, dy=8mm, dz=5mm
Date of measurement: 2018-08-13

Experimental conditions.

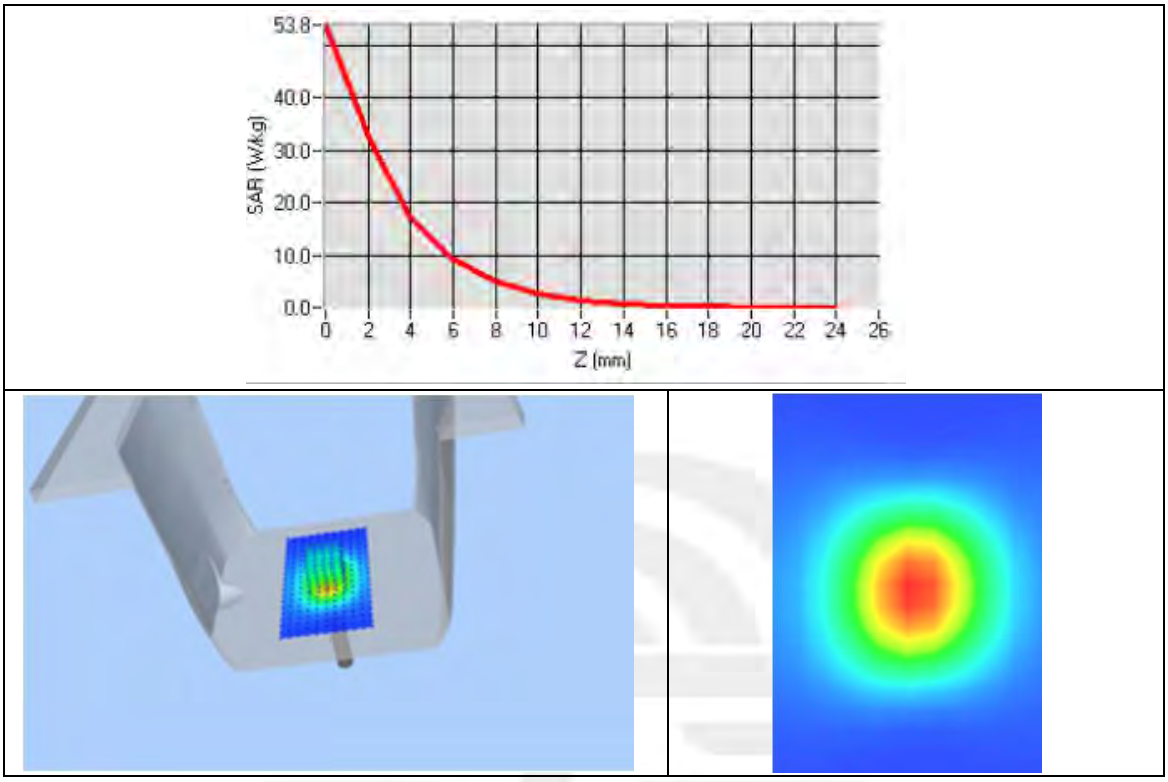
Device Position	Validation plane
Band	5600 MHz
Channels	-
Signal	CW
Frequency (MHz)	5600
Relative permittivity	35.78
Conductivity (S/m)	5.13
Power drift (%)	1.86
Probe	SN 45/15 EPGO281
ConvF	2.74
Crest factor:	1:1

SURFACE SAR	VOLUME SAR
	

Maximum location: X=7.00, Y=2.00

SAR 10g (W/Kg)	6.245301
SAR 1g (W/Kg)	17.15069

Z Axis Scan

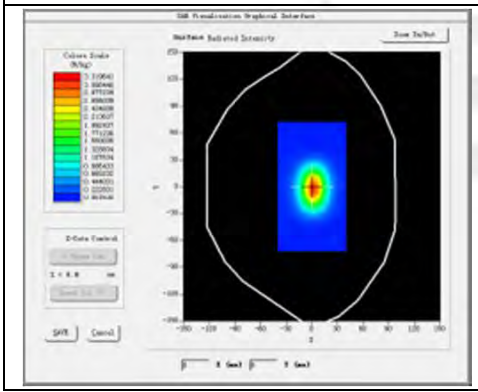
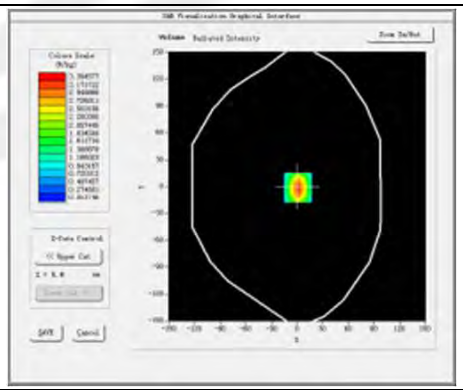


System Performance Check Data(5600MHz Body)

Type: Dipole measurement (Complete)
Area scan resolution: dx=8mm,dy=8mm
Zoom scan resolution: dx=8mm, dy=8mm, dz=5mm
Date of measurement: 2018-08-13

Experimental conditions.

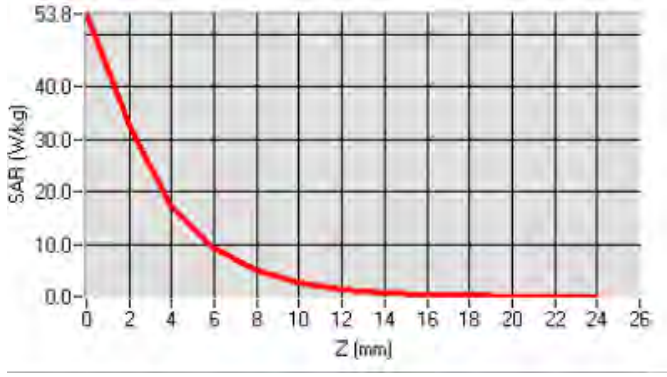
Device Position	Validation plane
Band	5600 MHz
Channels	-
Signal	CW
Frequency (MHz)	5600
Relative permittivity	50.37
Conductivity (S/m)	5.90
Power drift (%)	1.86
Probe	SN 45/15 EPGO281
ConvF	2.83
Crest factor:	1:1

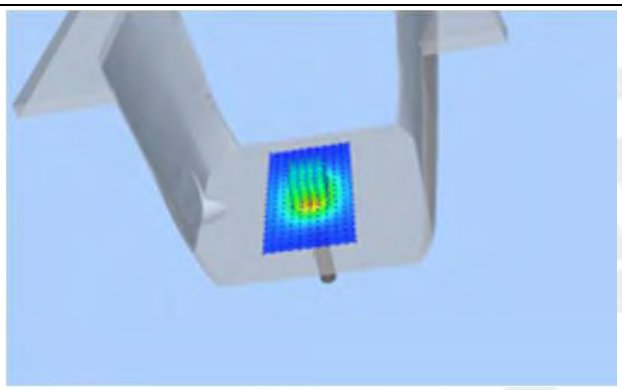
SURFACE SAR	VOLUME SAR
	

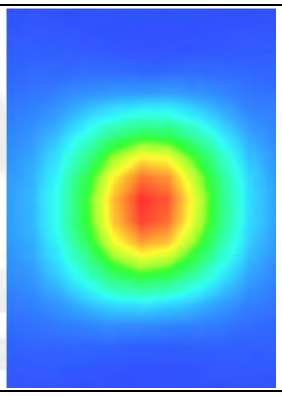
Maximum location: X=7.00, Y=2.00

SAR 10g (W/Kg)	6.140128
SAR 1g (W/Kg)	17.232581

Z Axis Scan





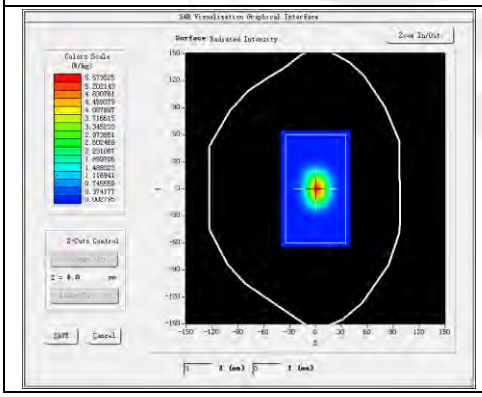
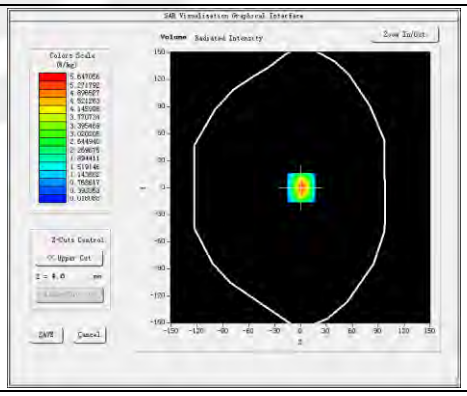


System Performance Check Data(5800MHz Head)

Type: Phone measurement (Complete)
Area scan resolution: dx=8mm,dy=8mm
Zoom scan resolution: dx=4mm, dy=4mm, dz=2mm
Date of measurement: 2018-08-13

Experimental conditions.

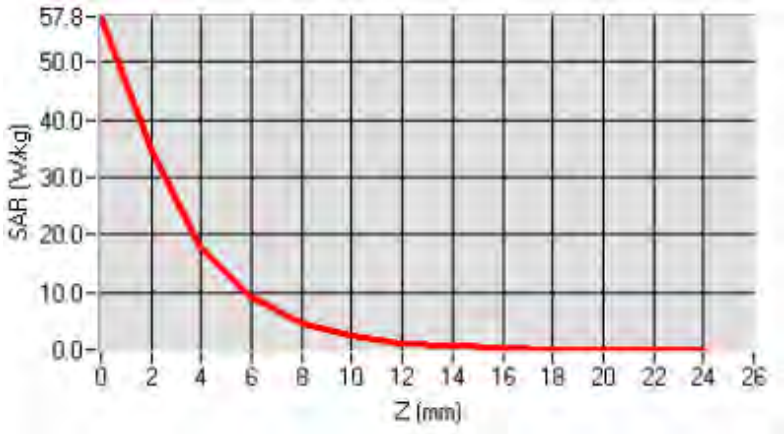
Device Position	Validation plane
Band	5800 MHz
Channels	-
Signal	CW
Frequency (MHz)	5800
Relative permittivity	35.20
Conductivity (S/m)	5.19
Power drift (%)	2.74
Probe	SN 45/15 EPGO281
ConvF	2.53
Crest factor:	1:1

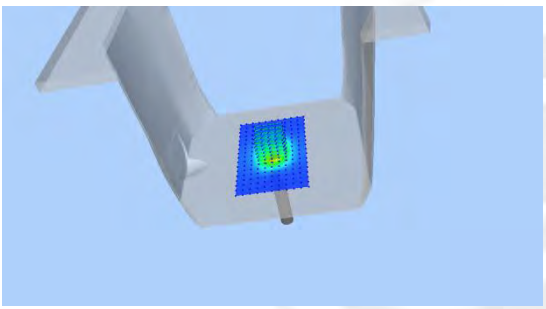
SURFACE SAR	VOLUME SAR
	

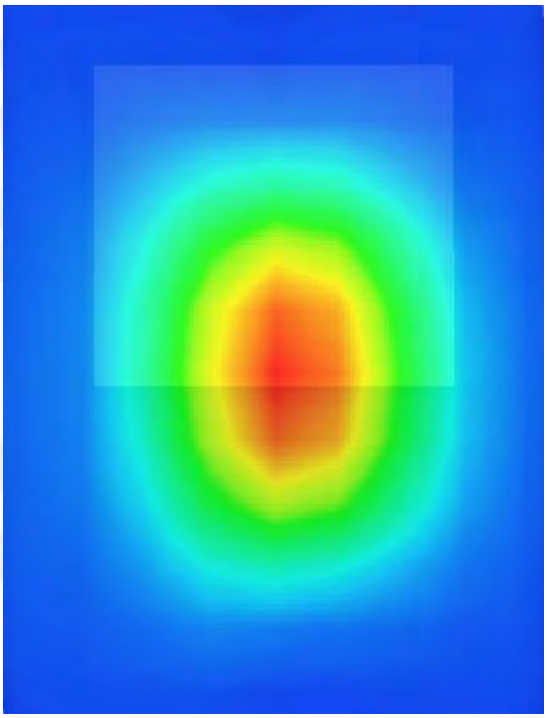
Maximum location: X=7.00, Y=2.00

SAR 10g (W/Kg)	5.384101
SAR 1g (W/Kg)	17.800470

Z Axis Scan


57.8
50.0
40.0
30.0
20.0
10.0
0.0
SAR (W/kg)
0 2 4 6 8 10 12 14 16 18 20 22 24 26
Z (mm)



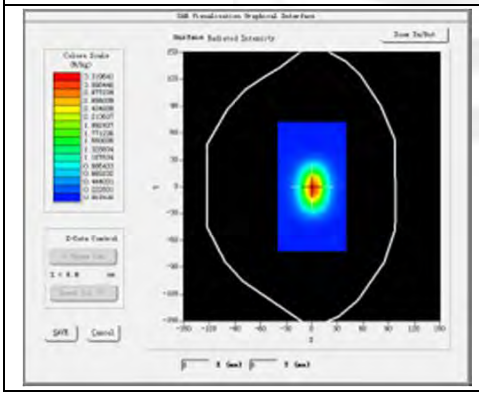
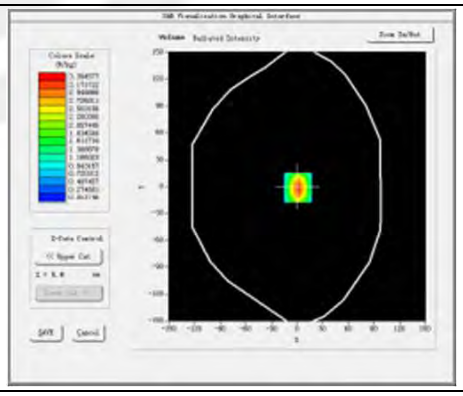


System Performance Check Data(5800MHz Body)

Type: Dipole measurement (Complete)
Area scan resolution: dx=8mm,dy=8mm
Zoom scan resolution: dx=8mm, dy=8mm, dz=5mm
Date of measurement: 2018-08-13

Experimental conditions.

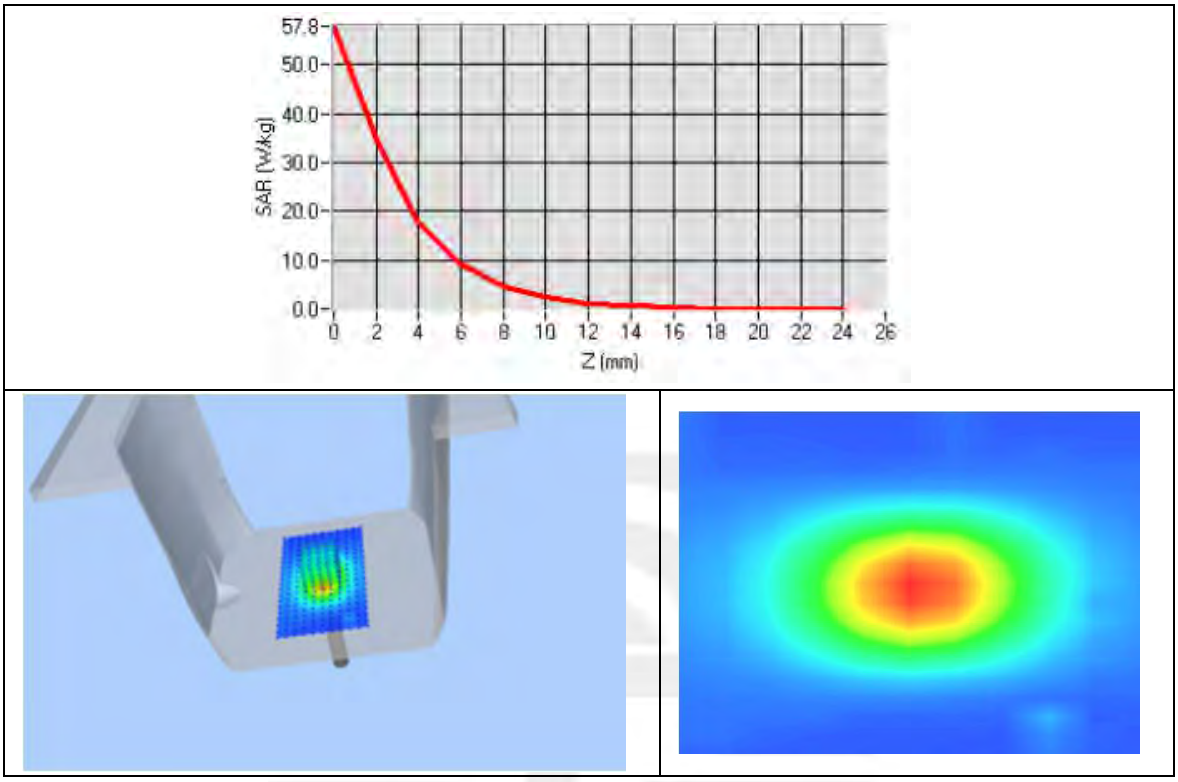
Device Position	Validation plane
Band	5800 MHz
Channels	-
Signal	CW
Frequency (MHz)	5800
Relative permittivity	47.86
Conductivity (S/m)	6.05
Power drift (%)	-1.00
Probe	SN 45/15 EPGO281
ConvF	2.60
Crest factor:	1:1

SURFACE SAR	VOLUME SAR
	

Maximum location: X=7.00, Y=2.00

SAR 10g (W/Kg)	5.412017
SAR 1g (W/Kg)	18.751005

Z Axis Scan


57.8
50.0
40.0
30.0
20.0
10.0
0.0
SAR (W/kg)
0 2 4 6 8 10 12 14 16 18 20 22 24 26
Z (mm)

Appendix B. SAR Test Plots

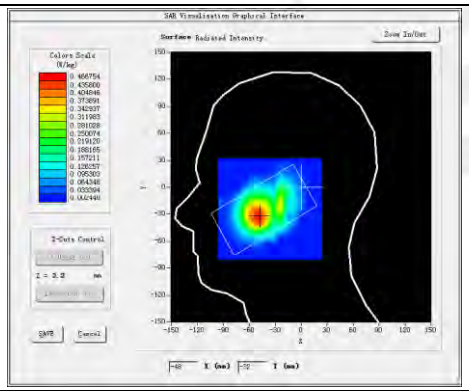
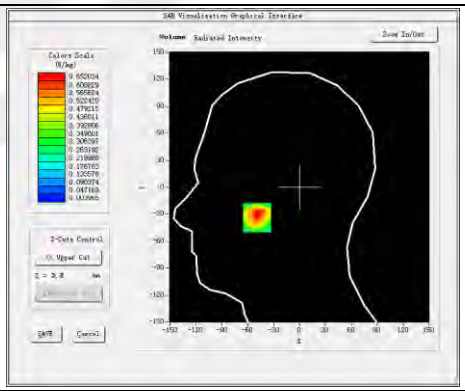
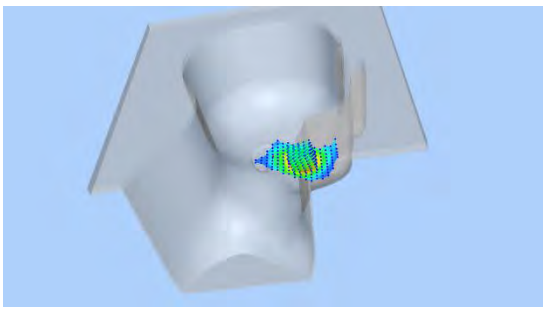
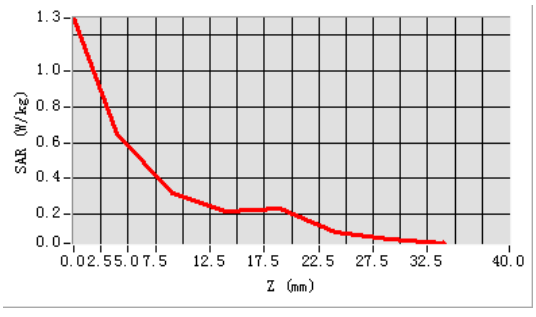
Plot 1: DUT: Smart phone; EUT Model: Atom

Test Date	2018-08-07
Probe	SN 45/15 EPGO281
ConvF	1.78
Area Scan	dx=8mm dy=8mm, h= 5.00 mm
ZoomScan	5x5x7,dx=8mm dy=8mm dz=5mm, Complete/ndx=8mm dy=8mm, h= 5.00 mm
Phantom	Left head
Device Position	Cheek
Band	GSM850
Channels	Low
Signal	TDMA (Crest factor: 8.32)
Frequency (MHz)	824.2
Relative permittivity (real part)	41.50
Conductivity (S/m)	0.90
Variation (%)	-2.72

Maximum location: X=-49.00, Y=-34.00

SAR Peak: 1.29 W/kg

SAR 10g (W/Kg)	0.350976
SAR 1g (W/Kg)	0.691729

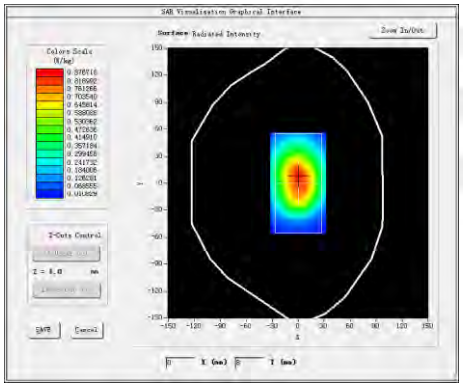
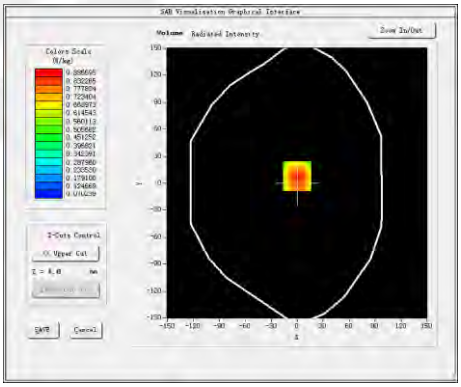
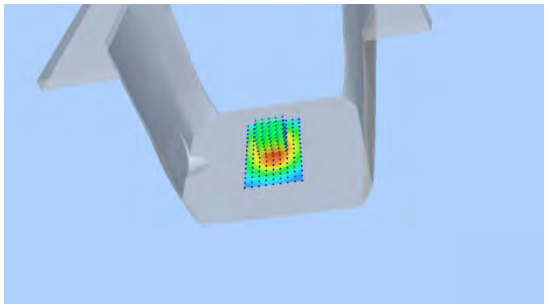
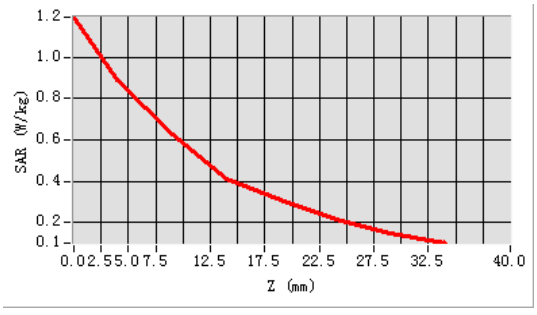
SURFACE SAR	VOLUME SAR
	
3D screen shot	**Z Axis Scan**
	

Plot 2: DUT: Smart phone; EUT Model: Atom

Test Date	2018-08-07
Probe	SN 45/15 EPGO281
ConvF	1.85
Area Scan	dx=8mm dy=8mm, h= 5.00 mm
ZoomScan	5x5x7,dx=8mm dy=8mm dz=5mm, Complete/ndx=8mm dy=8mm, h= 5.00 mm
Phantom	Validation plane
Device Position	Body back
Band	GPRS 850
Channels	Low
Signal	Duty Cycle: 2.00 (Crest factor: 2.0)
Frequency (MHz)	824.2
Relative permittivity (real part)	55.20
Conductivity (S/m)	0.97
Variation (%)	0.25

Maximum location: X=0.00, Y=8.00
SAR Peak: 1.20 W/kg

SAR 10g (W/Kg)	0.555525
SAR 1g (W/Kg)	0.846079

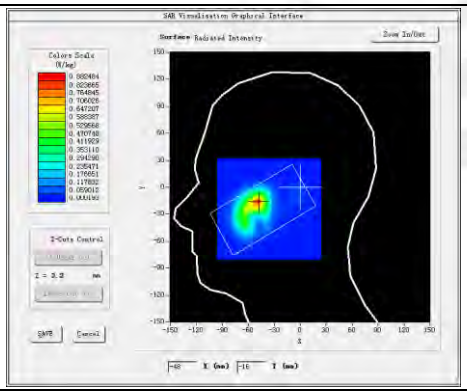
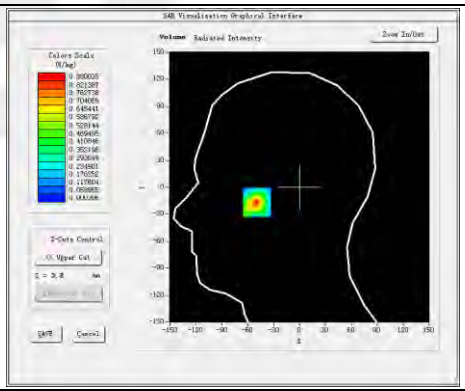
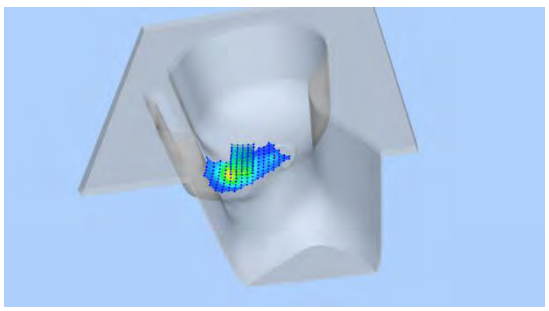
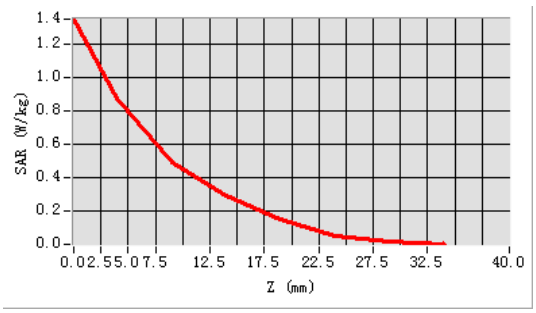
SURFACE SAR	VOLUME SAR
	
3D screen shot	**Z Axis Scan**
	

Plot 3: DUT: Smart phone; EUT Model: Atom

Test Date	2018-08-09
Probe	SN 45/15 EPGO281
ConvF	2.10
Area Scan	dx=8mm dy=8mm, h= 5.00 mm
ZoomScan	5x5x7,dx=8mm dy=8mm dz=5mm, Complete/ndx=8mm dy=8mm, h= 5.00 mm
Phantom	Left head
Device Position	Cheek
Band	GSM1900
Channels	Low
Signal	TDMA (Crest factor: 8.32)
Frequency (MHz)	1850.2
Relative permittivity (real part)	40.00
Conductivity (S/m)	1.40
Variation (%)	-2.72

Maximum location: X=-49.00, Y=-16.00
SAR Peak: 1.37 W/kg

SAR 10g (W/Kg)	0.367785
SAR 1g (W/Kg)	0.801504

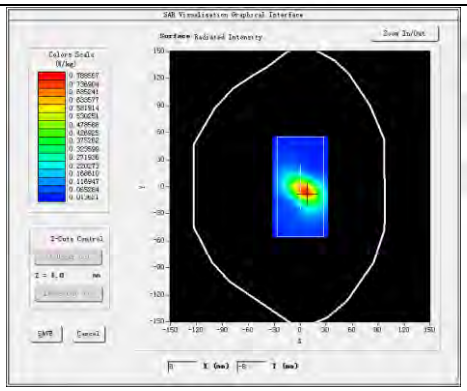
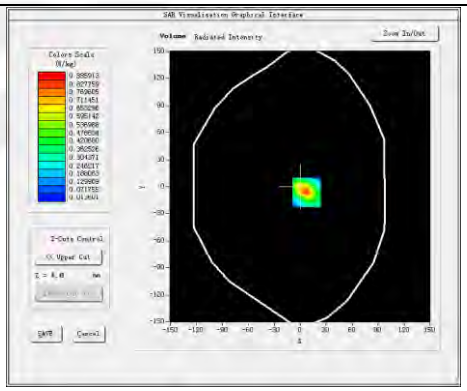
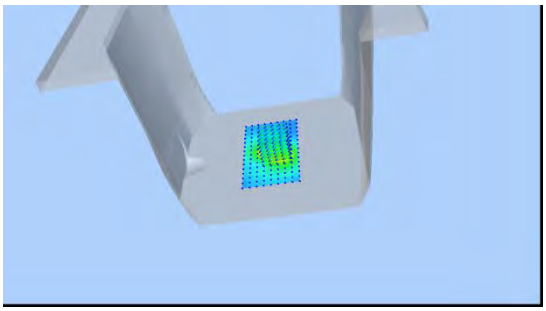
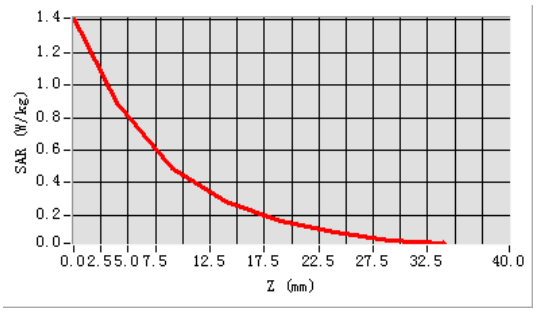
SURFACE SAR	VOLUME SAR
	
3D screen shot	**Z Axis Scan**
	

Plot 4: DUT: Smart phone; EUT Model: Atom

Test Date	2018-08-09
Probe	SN 45/15 EPGO281
ConvF	2.16
Area Scan	dx=8mm dy=8mm, h= 5.00 mm
ZoomScan	5x5x7,dx=8mm dy=8mm dz=5mm, Complete/ndx=8mm dy=8mm, h= 5.00 mm
Phantom	Validation plane
Device Position	Body Bottom side
Band	GPRS 1900
Channels	Low
Signal	Duty Cycle: 1:2.00 (Crest factor: 2.0)
Frequency (MHz)	1850.2
Relative permittivity (real part)	53.30
Conductivity (S/m)	1.52
Variation (%)	-2.32

Maximum location: X=7.00, Y=-6.00
SAR Peak: 1.40 W/kg

SAR 10g (W/Kg)	0.380011
SAR 1g (W/Kg)	0.794618

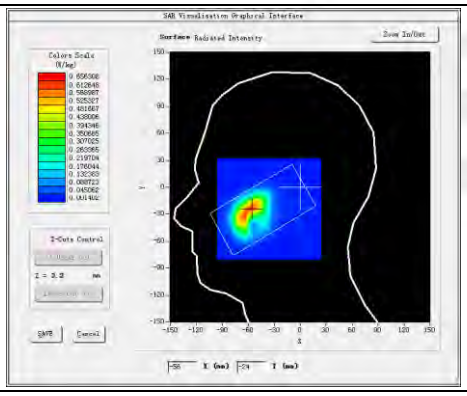
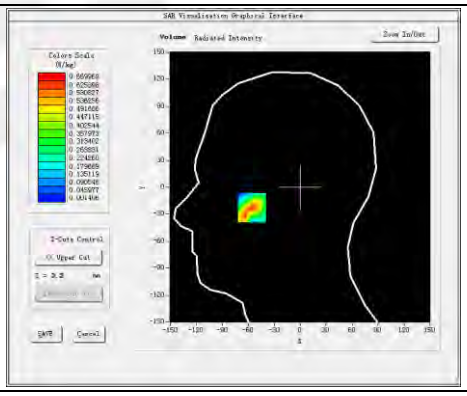
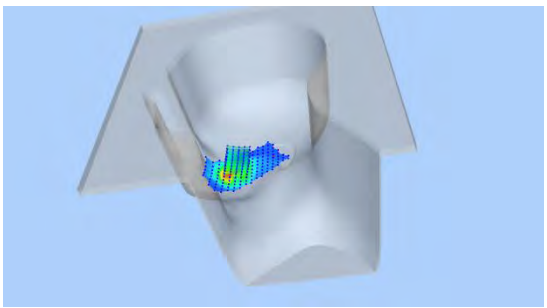
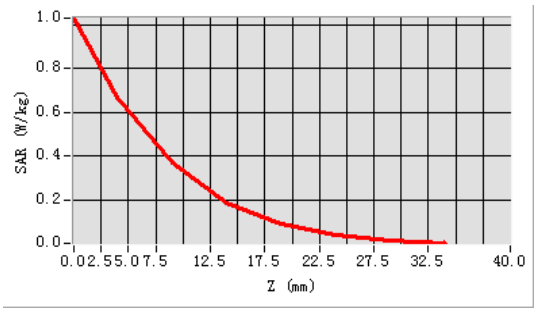
SURFACE SAR	VOLUME SAR
	
3D screen shot	**Z Axis Scan**
	

Plot 5: DUT: Smart phone; EUT Model: Atom

Test Date	2018-08-09
Probe	SN 45/15 EPGO281
ConvF	2.10
Area Scan	dx=8mm dy=8mm, h= 5.00 mm
ZoomScan	5x5x7,dx=8mm dy=8mm dz=5mm, Complete/ndx=8mm dy=8mm, h= 5.00 mm
Phantom	Right head
Device Position	Cheek
Band	WCDMA II
Channels	Low
Signal	WCDMA (Crest factor: 1.0)
Frequency (MHz)	1852.4
Relative permittivity (real part)	40.00
Conductivity (S/m)	1.40
Variation (%)	2.30

Maximum location: X=-56.00, Y=-23.00
SAR Peak: 1.03 W/kg

SAR 10g (W/Kg)	0.289194
SAR 1g (W/Kg)	0.613215

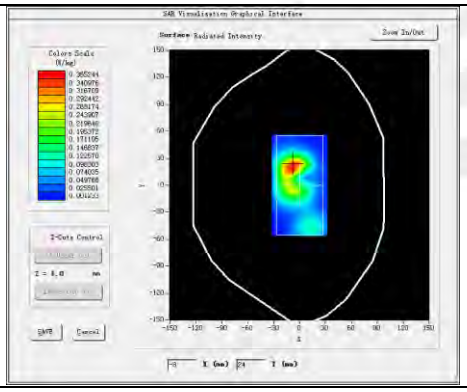
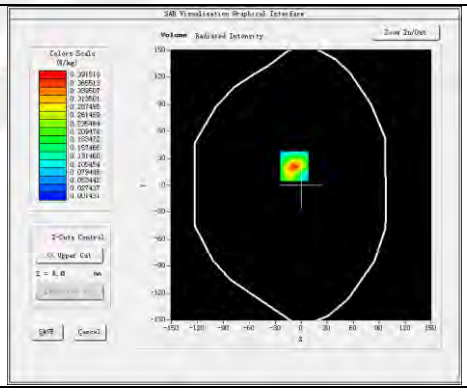
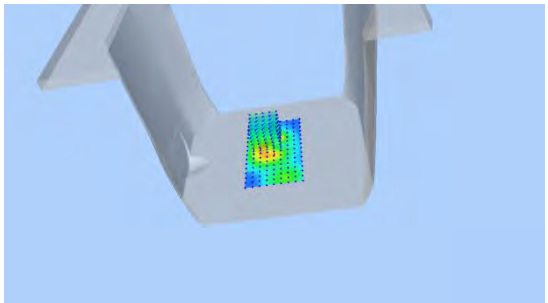
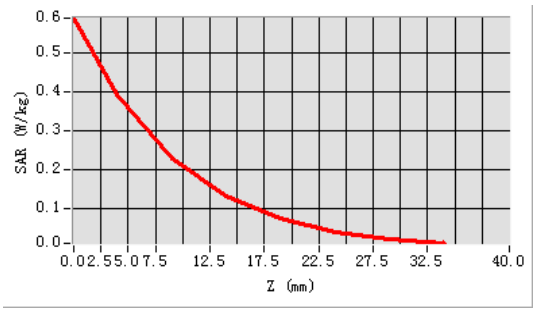
SURFACE SAR	VOLUME SAR
	
3D screen shot	**Z Axis Scan**
	

Plot 6: DUT: Smart phone; EUT Model: Atom

Test Date	2018-08-09
Probe	SN 45/15 EPGO281
ConvF	2.16
Area Scan	dx=8mm dy=8mm, h= 5.00 mm
ZoomScan	5x5x7,dx=8mm dy=8mm dz=5mm, Complete/ndx=8mm dy=8mm, h= 5.00 mm
Phantom	Validation plane
Device Position	Body back side
Band	WCDMA II
Channels	Low
Signal	WCDMA (Crest factor: 1.0)
Frequency (MHz)	1852.4
Relative permittivity (real part)	53.30
Conductivity (S/m)	1.52
Variation (%)	-2.74

Maximum location: X=-8.00, Y=21.00
SAR Peak: 0.59 W/kg

SAR 10g (W/Kg)	0.176707
SAR 1g (W/Kg)	0.356506

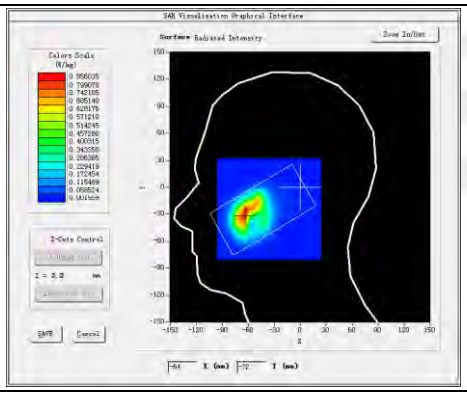
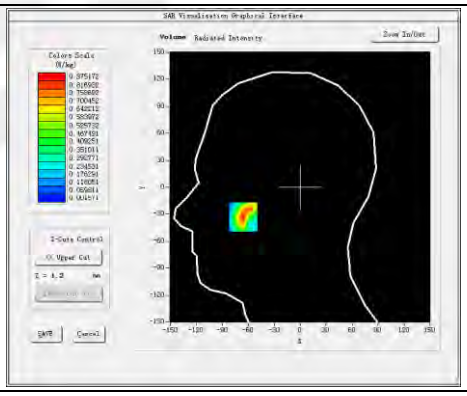
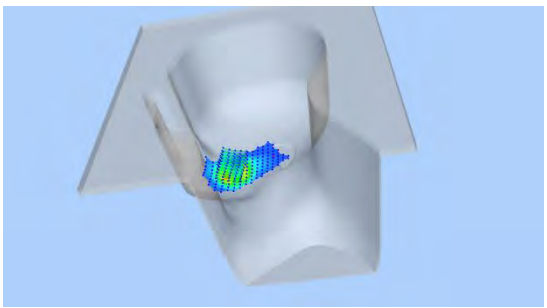
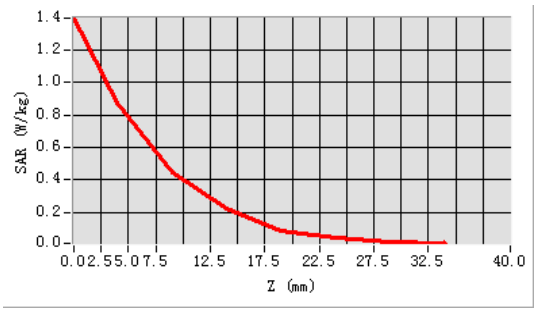
SURFACE SAR	VOLUME SAR
	
3D screen shot	**Z Axis Scan**
	

Plot 7: DUT: Smart phone; EUT Model: Atom

Test Date	2018-08-09
Probe	SN 45/15 EPGO281
ConvF	2.10
Area Scan	dx=8mm dy=8mm, h= 5.00 mm
ZoomScan	5x5x7,dx=8mm dy=8mm dz=5mm, Complete/ndx=8mm dy=8mm, h= 5.00 mm
Phantom	Right head
Device Position	Cheek
Band	WCDMA IV
Channels	High
Signal	WCDMA (Crest factor: 1.0)
Frequency (MHz)	1752.4
Relative permittivity (real part)	40.00
Conductivity (S/m)	1.40
Variation (%)	3.06

Maximum location: X=-66.00, Y=-33.00
SAR Peak: 1.40 W/kg

SAR 10g (W/Kg)	0.378766
SAR 1g (W/Kg)	0.797702

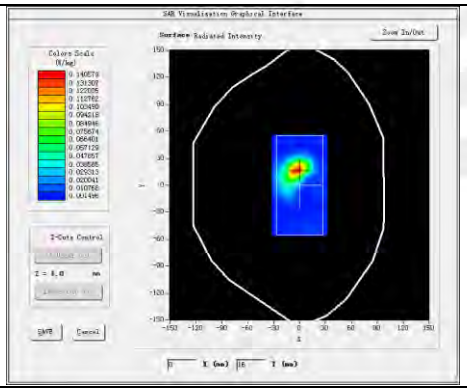
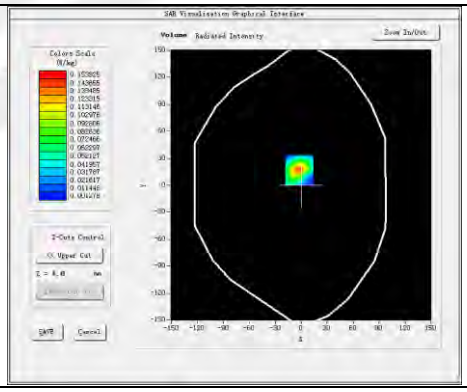
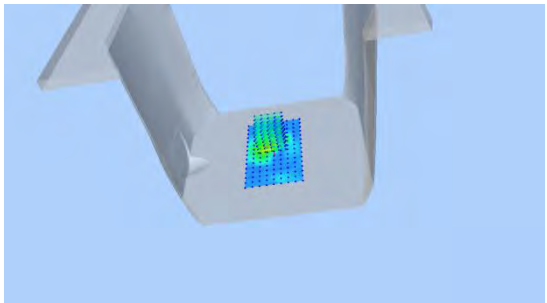
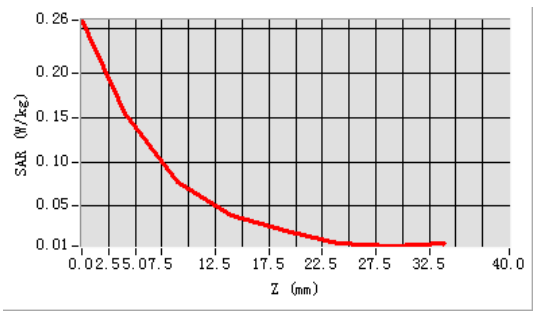
SURFACE SAR	VOLUME SAR
	
3D screen shot	**Z Axis Scan**
	

Plot 8: DUT: Smart phone; EUT Model: Atom

Test Date	2018-08-09
Probe	SN 45/15 EPGO281
ConvF	2.16
Area Scan	dx=8mm dy=8mm, h= 5.00 mm
ZoomScan	5x5x7,dx=8mm dy=8mm dz=5mm, Complete/ndx=8mm dy=8mm, h= 5.00 mm
Phantom	Validation plane
Device Position	Body bottom side
Band	WCDMA IV
Channels	High
Signal	WCDMA (Crest factor: 1.0)
Frequency (MHz)	1752.4
Relative permittivity (real part)	53.30
Conductivity (S/m)	1.52
Variation (%)	-2.31

Maximum location: X=-2.00, Y=17.00
SAR Peak: 0.26 W/kg

SAR 10g (W/Kg)	0.060636
SAR 1g (W/Kg)	0.140465

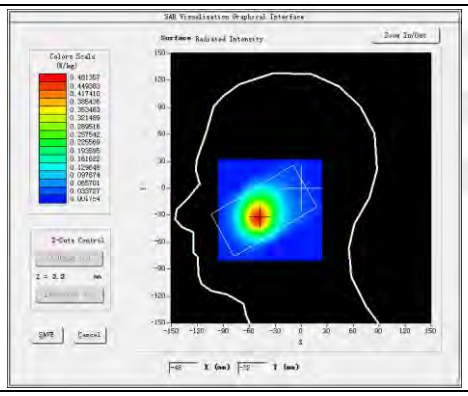
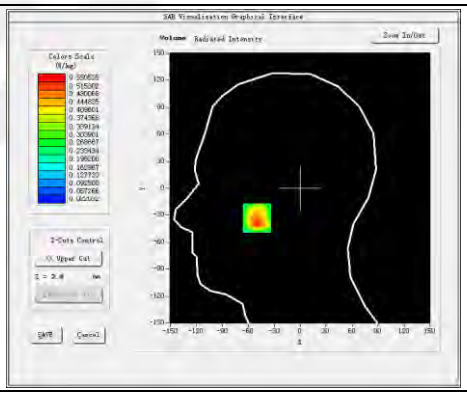
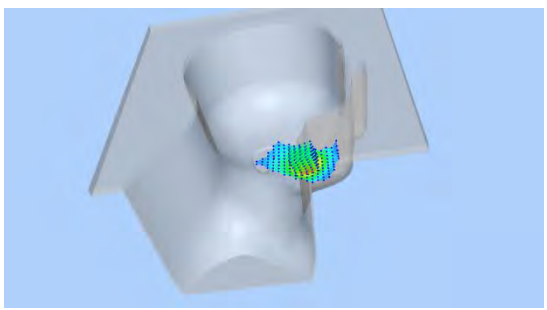
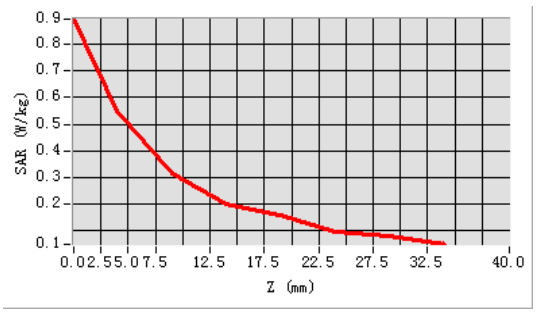
SURFACE SAR	VOLUME SAR
	
3D screen shot	**Z Axis Scan**
	

Plot 9: DUT: Smart phone; EUT Model: Atom

Test Date	2018-08-07
Probe	SN 45/15 EPGO281
ConvF	1.78
Area Scan	dx=8mm dy=8mm, h= 5.00 mm
ZoomScan	5x5x7,dx=8mm dy=8mm dz=5mm, Complete/ndx=8mm dy=8mm, h= 5.00 mm
Phantom	Right head
Device Position	Cheek
Band	WCDMA V
Channels	High
Signal	WCDMA (Crest factor: 1.0)
Frequency (MHz)	846.6
Relative permittivity (real part)	41.50
Conductivity (S/m)	0.90
Variation (%)	3.25

Maximum location: X=-50.00, Y=-33.00
SAR Peak: 0.92 W/kg

SAR 10g (W/Kg)	0.299206
SAR 1g (W/Kg)	0.535752

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

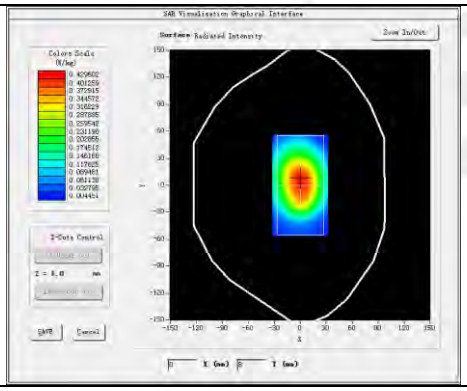
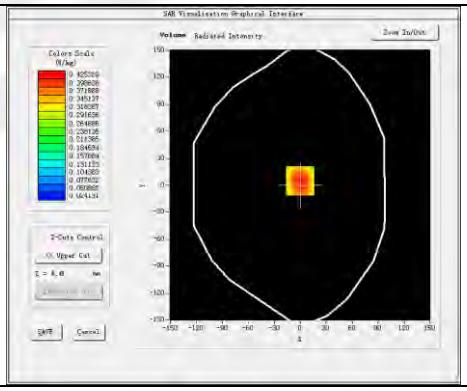
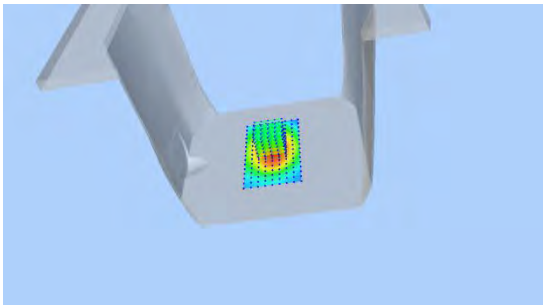
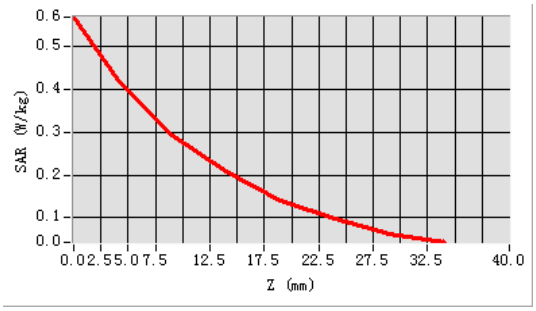
Plot 10: DUT: Smart phone; EUT Model: Atom

Test Date	2018-08-07
Probe	SN 45/15 EPGO281
ConvF	1.85
Area Scan	dx=8mm dy=8mm, h= 5.00 mm
ZoomScan	5x5x7,dx=8mm dy=8mm dz=5mm, Complete/ndx=8mm dy=8mm, h= 5.00 mm
Phantom	Validation plane
Device Position	Body back
Band	WCDMA V
Channels	High
Signal	WCDMA (Crest factor: 1.0)
Frequency (MHz)	846.6
Relative permittivity (real part)	55.20
Conductivity (S/m)	0.97
Variation (%)	1.18

Maximum location: X=0.00, Y=5.00

SAR Peak: 0.57 W/kg

SAR 10g (W/Kg)	0.271010
SAR 1g (W/Kg)	0.411563

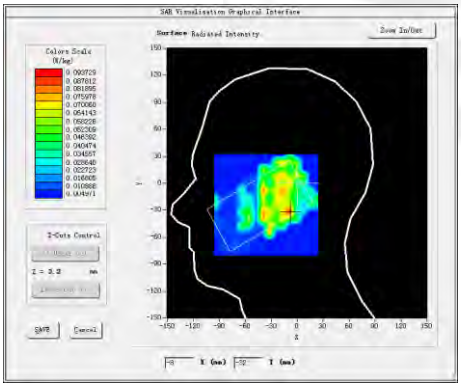
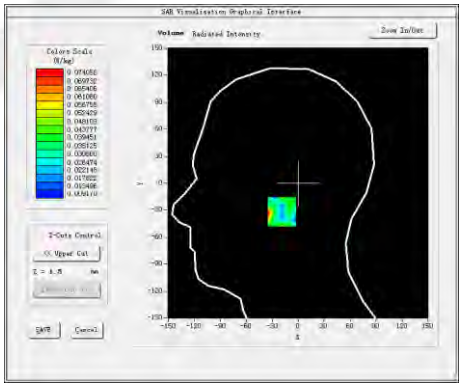
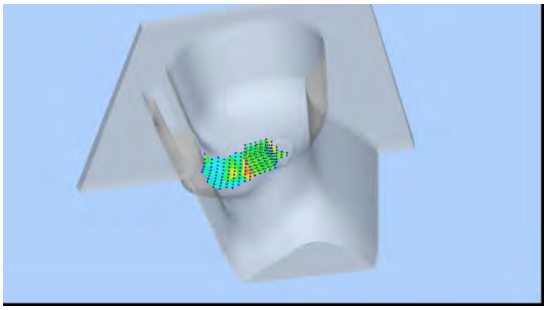
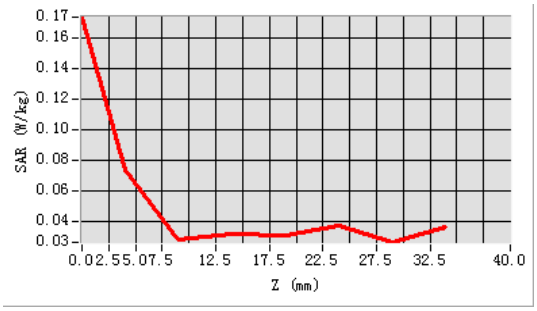
SURFACE SAR	VOLUME SAR
	
3D screen shot	**Z Axis Scan**
	

Plot 11: DUT:Smart phone; EUT Model: Atom

Test Date	2018-08-10
Probe	SN 45/15 EPGO281
ConvF	2.21
Area Scan	dx=8mm dy=8mm, h= 5.00 mm
ZoomScan	5x5x7,dx=8mm dy=8mm dz=5mm, Complete/ndx=8mm dy=8mm, h= 5.00 mm
Phantom	Right head
Device Position	Cheek
Band	IEEE 802.11b ISM
Channelsh	High
Signal	IEEE802.b (Crest factor: 1.0)
Frequency (MHz)	2462
Relative permittivity (real part)	39.20
Conductivity (S/m)	1.80
Variation (%)	-1.12

Maximum location: X=-9.00, Y=-32.00
SAR Peak: 0.15 W/kg

SAR 10g (W/Kg)	0.035512
SAR 1g (W/Kg)	0.063526

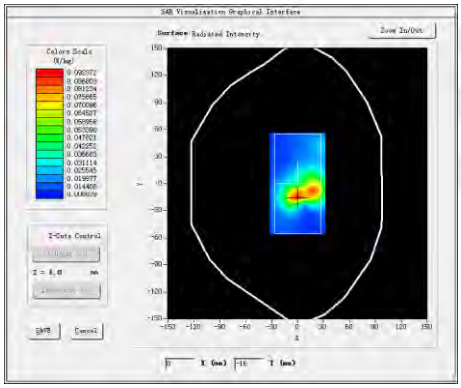
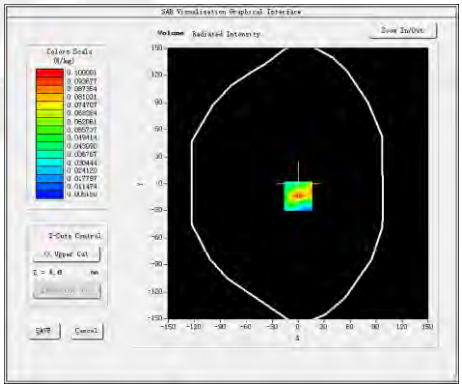
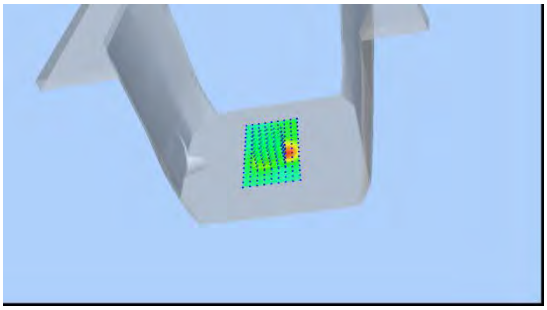
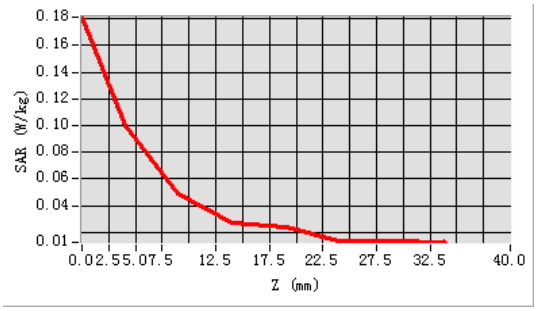
SURFACE SAR	VOLUME SAR
	
3D	**Z Axis Scan**
	

Plot 12: DUT: Smart phone; EUT Model: Atom

Test Date	2018-08-10
Probe	SN 45/15 EPGO281
ConvF	2.28
Area Scan	dx=8mm dy=8mm, h= 5.00 mm
ZoomScan	5x5x7,dx=8mm dy=8mm dz=5mm, Complete/ndx=8mm dy=8mm, h= 5.00 mm
Phantom	Validation plane
Device Position	Body back
Band	IEEE 802.11b ISM
Channels	High
Signal	IEEE802.b (Crest factor: 1.0)
Frequency (MHz)	2462
Relative permittivity (real part)	52.70
Conductivity (S/m)	1.95
Variation (%)	-3.33

Maximum location: X=0.00, Y=-14.00
SAR Peak: 0.18 W/kg

SAR 10g (W/Kg)	0.043624
SAR 1g (W/Kg)	0.091234

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

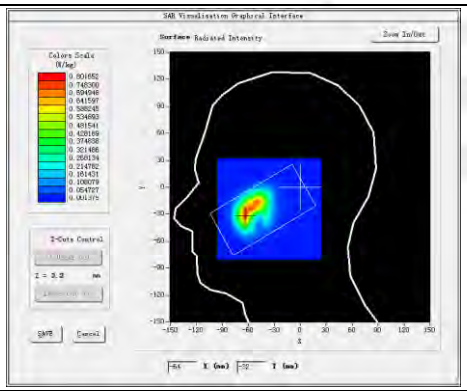
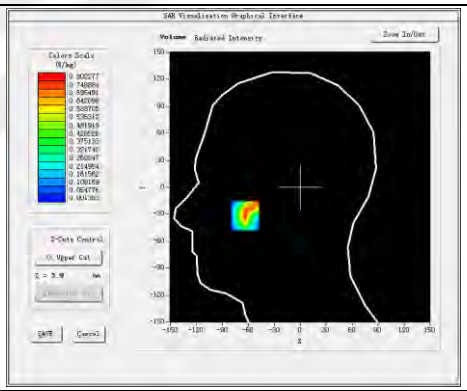
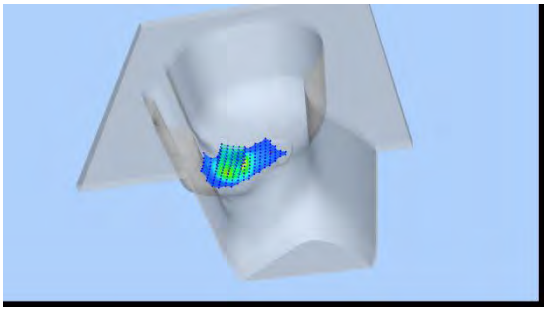
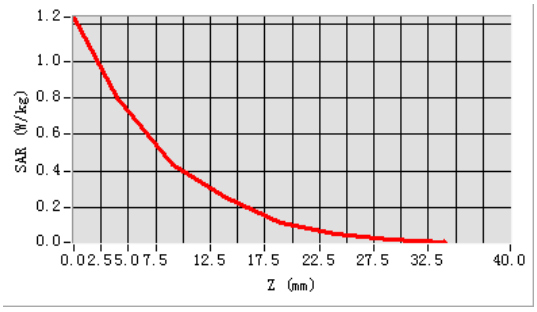
Plot 13: DUT: Smart phone; EUT Model: Atom

Test Date	2018-08-09
Probe	SN 45/15 EPGO281
ConvF	2.10
Area Scan	dx=8mm dy=8mm, h= 5.00 mm
ZoomScan	5x5x7,dx=8mm dy=8mm dz=5mm, Complete/ndx=8mm dy=8mm, h= 5.00 mm
Phantom	Right head
Device Position	Cheek
Band	LTE Band 2 (RB 1)
Channels	Low
Signal	LTE (Crest factor: 1.0)
Frequency (MHz)	1860
Relative permittivity (real part)	40.00
Conductivity (S/m)	1.40
Variation (%)	-2.74

Maximum location: X=-64.00, Y=-32.00

SAR Peak: 1.29 W/kg

SAR 10g (W/Kg)	0.343505
SAR 1g (W/Kg)	0.733293

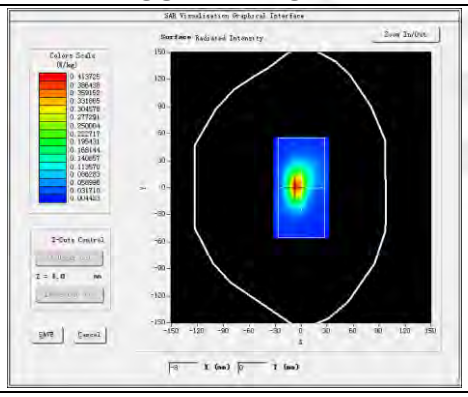
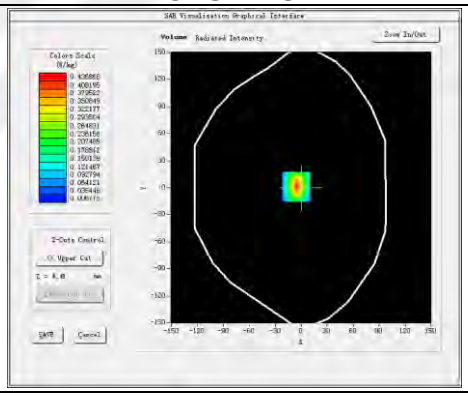
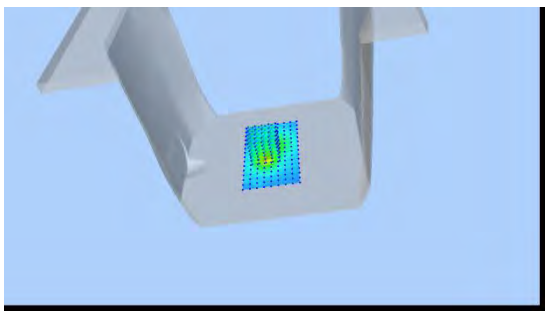
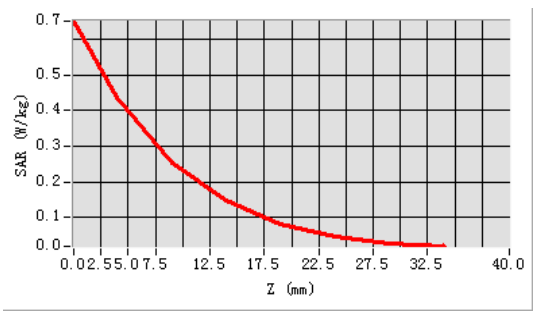
SURFACE SAR	VOLUME SAR
	
3D screen shot	**Z Axis Scan**
	

Plot 14: DUT: Smart phone; EUT Model: Atom

Test Date	2018-08-09
Probe	SN 45/15 EPGO281
ConvF	2.16
Area Scan	dx=8mm dy=8mm, h= 5.00 mm
ZoomScan	5x5x7,dx=8mm dy=8mm dz=5mm, Complete/ndx=8mm dy=8mm, h= 5.00 mm
Phantom	Validation plane
Device Position	Body bottom side
Band	LTE Band 2 (RB 1)
Channels	Low
Signal	LTE (Crest factor: 1.0)
Frequency (MHz)	1860
Relative permittivity (real part)	53.30
Conductivity (S/m)	1.52
Variation (%)	-1.15

Maximum location: X=-6.00, Y=1.00
SAR Peak: 0.65 W/kg

SAR 10g (W/Kg)	0.189531
SAR 1g (W/Kg)	0.388858

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

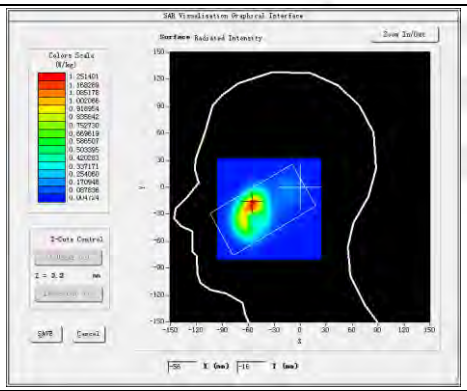
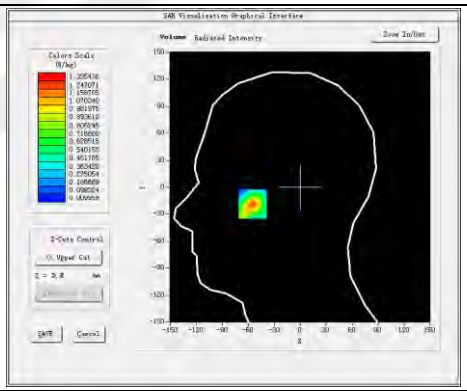
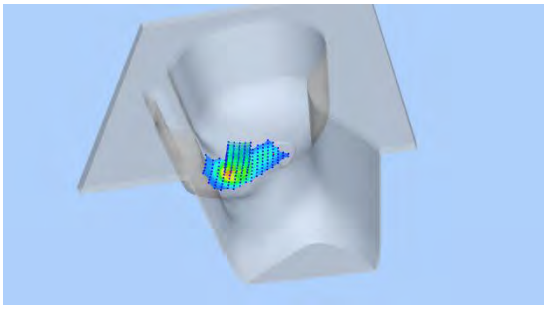
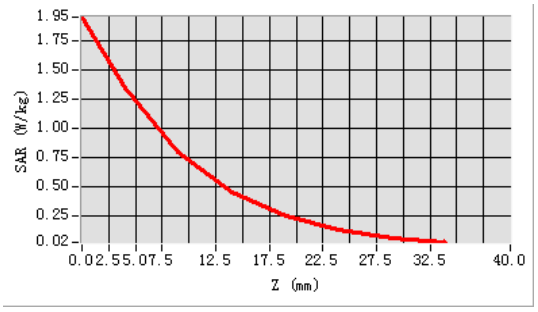
Plot 15: DUT: Smart phone; EUT Model: Atom

Test Date	2018-08-08
Probe	SN 45/15 EPGO281
ConvF	1.83
Area Scan	dx=8mm dy=8mm, h= 5.00 mm
ZoomScan	5x5x7,dx=8mm dy=8mm dz=5mm, Complete/ndx=8mm dy=8mm, h= 5.00 mm
Phantom	Left head
Device Position	Cheek
Band	LTE Band 4 (RB 1)
Channels	Low
Signal	LTE (Crest factor: 1.0)
Frequency (MHz)	1720
Relative permittivity (real part)	40.00
Conductivity (S/m)	1.40
Variation (%)	3.26

Maximum location: X=-55.00, Y=-18.00

SAR Peak: 2.03 W/kg

SAR 10g (W/Kg)	0.587949
SAR 1g (W/Kg)	1.205749

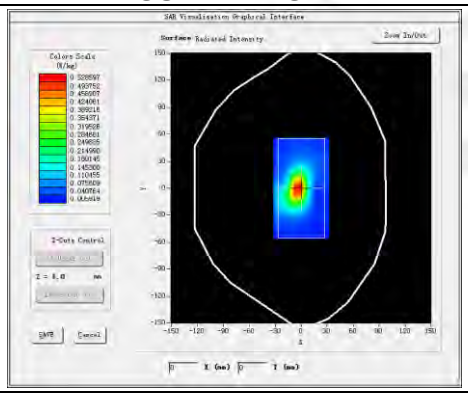
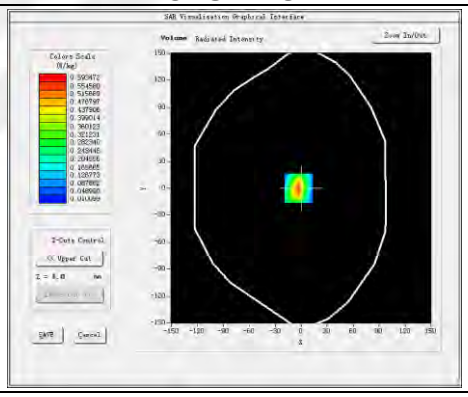
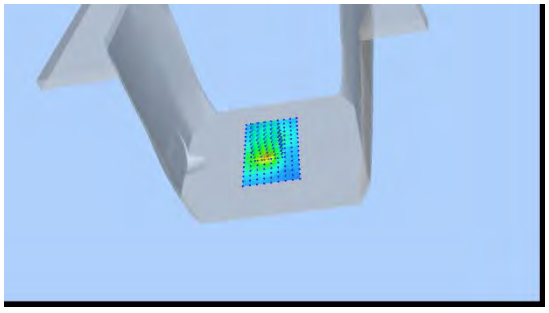
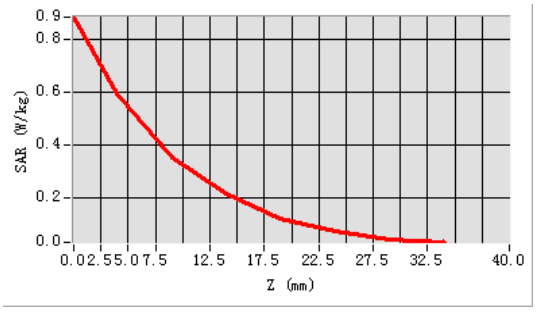
SURFACE SAR	VOLUME SAR
	
3D screen shot	**Z Axis Scan**
	

Plot 16: DUT: Smart phone; EUT Model: Atom

Test Date	2018-08-08
Probe	SN 45/15 EPGO281
ConvF	1.87
Area Scan	dx=8mm dy=8mm, h= 5.00 mm
ZoomScan	5x5x7,dx=8mm dy=8mm dz=5mm, Complete/ndx=8mm dy=8mm, h= 5.00 mm
Phantom	Validation plane
Device Position	Body bottom side
Band	LTE Band 4 (RB 1)
Channels	Low
Signal	LTE (Crest factor: 1.0)
Frequency (MHz)	1720
Relative permittivity (real part)	53.30
Conductivity (S/m)	1.52
Variation (%)	1.82

Maximum location: X=-3.00, Y=0.00
SAR Peak: 0.88 W/kg

SAR 10g (W/Kg)	0.260527
SAR 1g (W/Kg)	0.530111

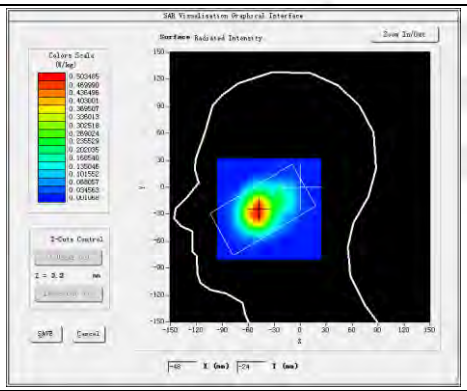
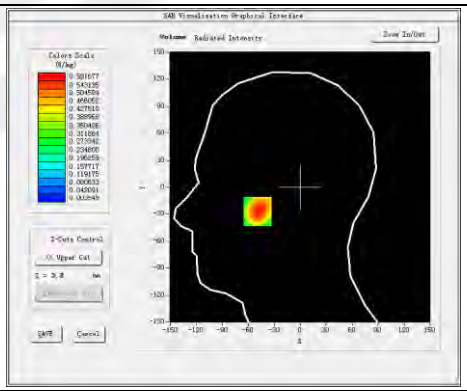
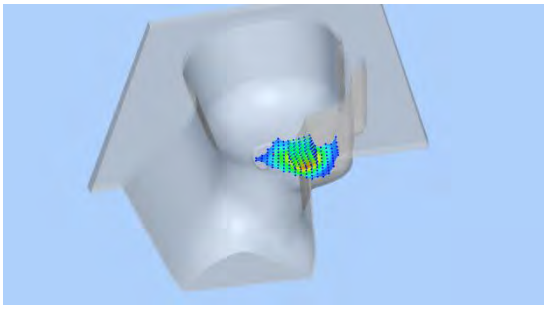
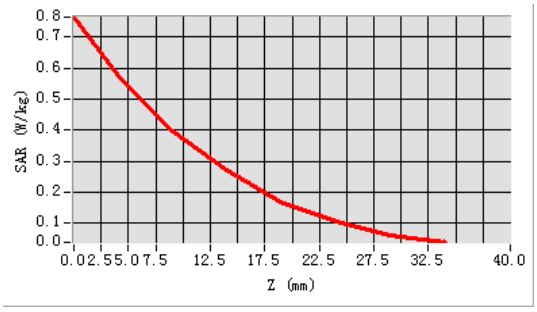
SURFACE SAR	VOLUME SAR
	
3D screen shot	**Z Axis Scan**
	

Plot 17: DUT: Smart phone; EUT Model: Atom

Test Date	2018-08-07
Probe	SN 45/15 EPGO281
ConvF	1.78
Area Scan	dx=8mm dy=8mm, h= 5.00 mm
ZoomScan	5x5x7,dx=8mm dy=8mm dz=5mm, Complete/ndx=8mm dy=8mm, h= 5.00 mm
Phantom	Left head
Device Position	Cheek
Band	LTE Band 5 (RB 1)
Channels	Middle
Signal	LTE (Crest factor: 1.0)
Frequency (MHz)	836.5
Relative permittivity (real part)	41.50
Conductivity (S/m)	0.90
Variation (%)	-1.28

Maximum location: X=-49.00, Y=-27.00
SAR Peak: 0.78 W/kg

SAR 10g (W/Kg)	0.347344
SAR 1g (W/Kg)	0.557423

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

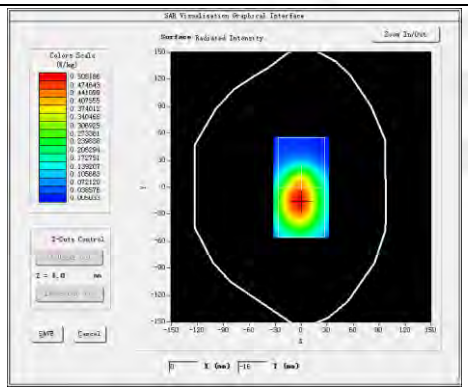
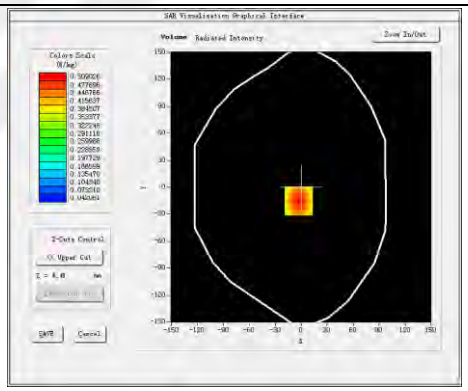
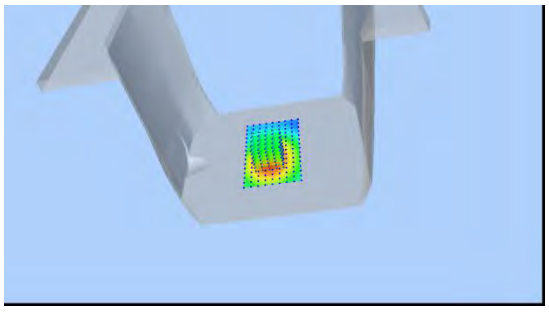
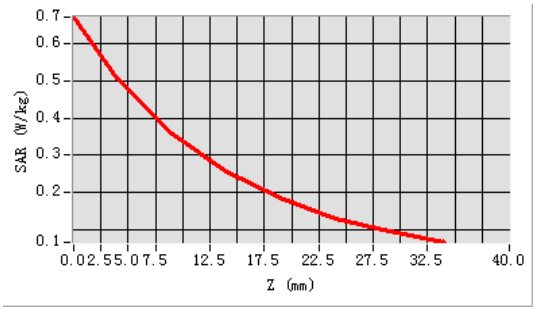
Plot 18: DUT: Smart phone; EUT Model: Atom

Test Date	2018-08-07
Probe	SN 45/15 EPGO281
ConvF	1.85
Area Scan	dx=8mm dy=8mm, h= 5.00 mm
ZoomScan	5x5x7,dx=8mm dy=8mm dz=5mm, Complete/ndx=8mm dy=8mm, h= 5.00 mm
Phantom	Validation plane
Device Position	Body back
Band	LTE Band 5 (RB 1)
Channels	Middle
Signal	LTE (Crest factor: 1.0)
Frequency (MHz)	836.5
Relative permittivity (real part)	55.20
Conductivity (S/m)	0.97
Variation (%)	-0.42

Maximum location: X=-3.00, Y=-15.00

SAR Peak: 0.67 W/kg

SAR 10g (W/Kg)	0.331383
SAR 1g (W/Kg)	0.492498

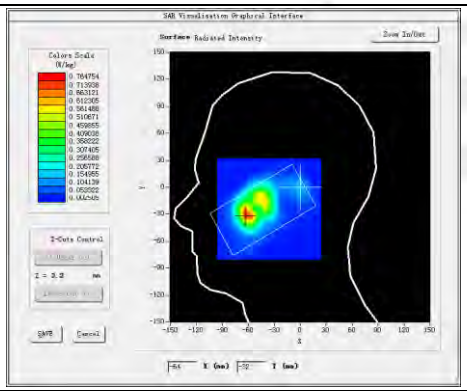
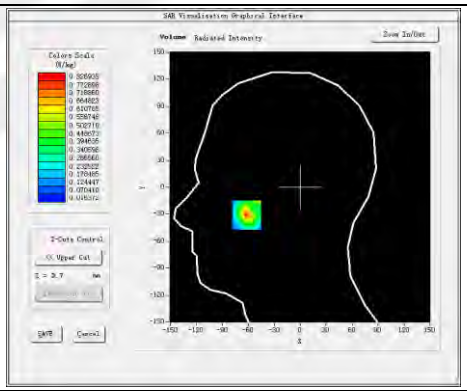
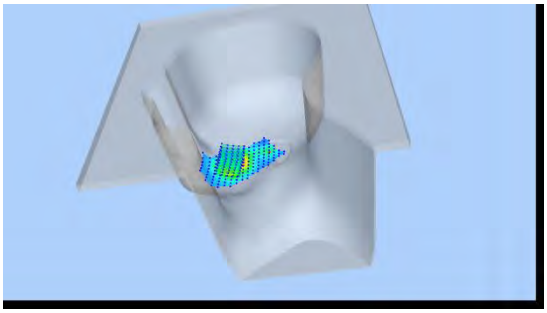
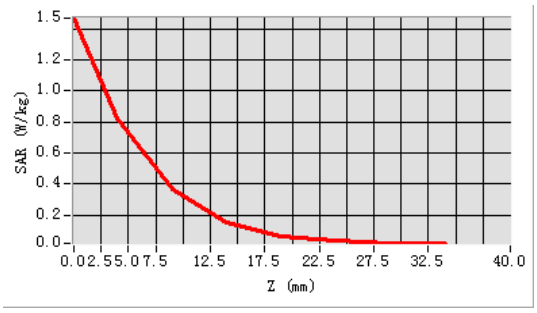
SURFACE SAR	VOLUME SAR
	
3D screen shot	**Z Axis Scan**
	

Plot 19: DUT: Smart phone; EUT Model: Atom

Test Date	2018-08-10
Probe	SN 45/15 EPGO281
ConvF	2.21
Area Scan	dx=8mm dy=8mm, h= 5.00 mm
ZoomScan	5x5x7,dx=8mm dy=8mm dz=5mm, Complete/ndx=8mm dy=8mm, h= 5.00 mm
Phantom	Right head
Device Position	Cheek
Band	LTE Band 7 (RB 1)
Channels	High
Signal	LTE (Crest factor: 1.0)
Frequency (MHz)	2560
Relative permittivity (real part)	39.0
Conductivity (S/m)	1.96
Variation (%)	0.09

Maximum location: X=-62.00, Y=-31.00
SAR Peak: 1.50 W/kg

SAR 10g (W/Kg)	0.299036
SAR 1g (W/Kg)	0.736020

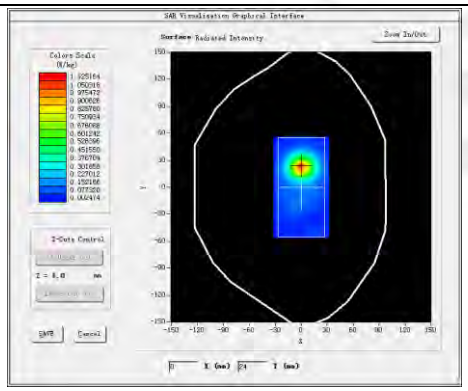
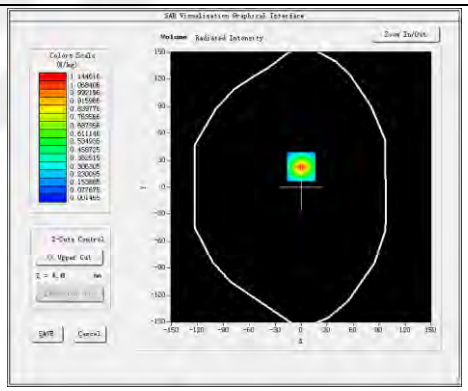
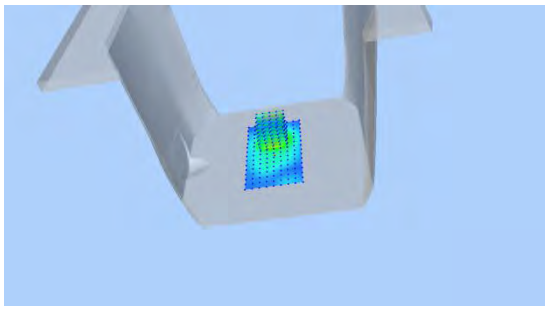
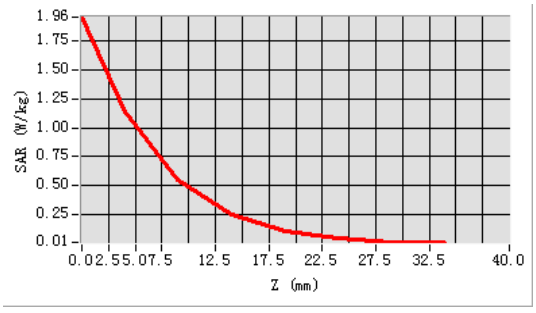
SURFACE SAR	VOLUME SAR
	
3D screen shot	**Z Axis Scan**
	

Plot 20: DUT: Smart phone; EUT Model: Atom

Test Date	2018-08-10
Probe	SN 45/15 EPGO281
ConvF	2.28
Area Scan	dx=8mm dy=8mm, h= 5.00 mm
ZoomScan	5x5x7,dx=8mm dy=8mm dz=5mm, Complete/ndx=8mm dy=8mm, h= 5.00 mm
Phantom	Validation plane
Device Position	Body back
Band	LTE Band 7 (RB 1)
Channels	High
Signal	LTE (Crest factor: 1.0)
Frequency (MHz)	2560
Relative permittivity (real part)	52.50
Conductivity (S/m)	2.16
Variation (%)	3.11

Maximum location: X=0.00, Y=23.00
SAR Peak: 1.94 W/kg

SAR 10g (W/Kg)	0.435989
SAR 1g (W/Kg)	1.046259

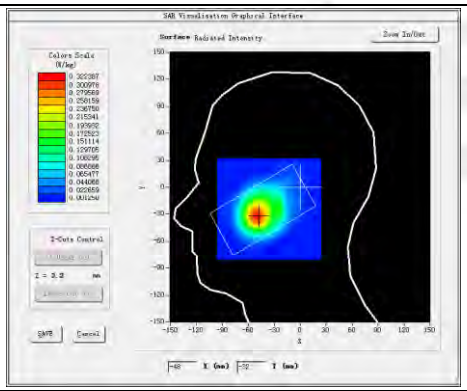
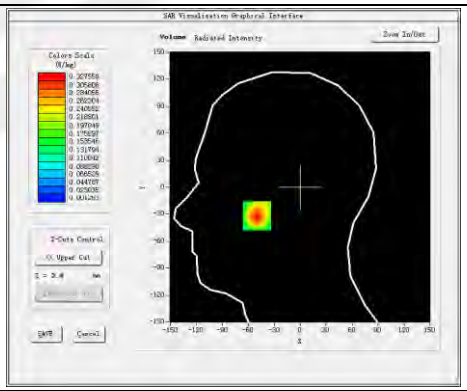
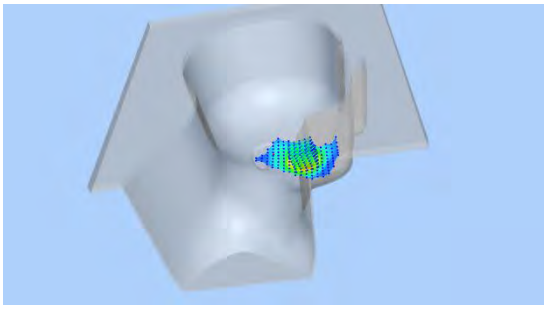
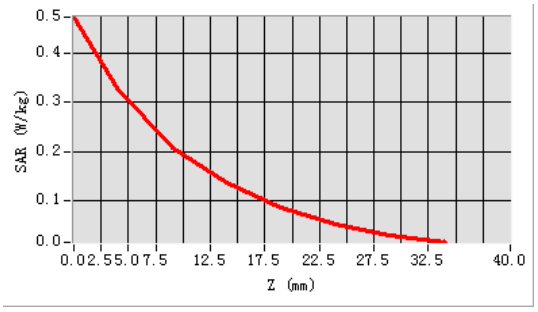
SURFACE SAR	VOLUME SAR
	
3D screen shot	**Z Axis Scan**
	

Plot 21: DUT: Smart phone; EUT Model: Atom

Test Date	2018-08-06
Probe	SN 45/15 EPGO281
ConvF	1.53
Area Scan	dx=8mm dy=8mm, h= 5.00 mm
ZoomScan	5x5x7,dx=8mm dy=8mm dz=5mm, Complete/ndx=8mm dy=8mm, h= 5.00 mm
Phantom	Left head
Device Position	Cheek
Band	LTE Band 12 (RB 1)
Channels	Middle
Signal	LTE (Crest factor: 1.0)
Frequency (MHz)	707.5
Relative permittivity (real part)	41.90
Conductivity (S/m)	0.89
Variation (%)	-3.18

Maximum location: X=-50.00, Y=-32.00
SAR Peak: 0.48 W/kg

SAR 10g (W/Kg)	0.183745
SAR 1g (W/Kg)	0.318458

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

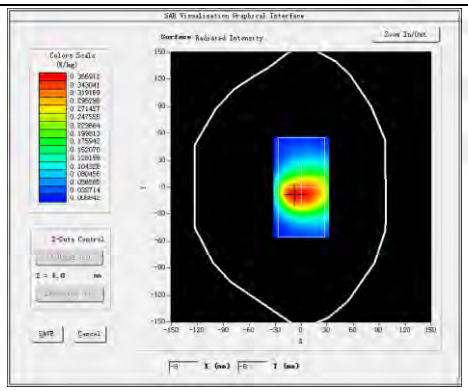
Plot 22: DUT: Smart phone; EUT Model: Atom

Test Date	2018-08-06
Probe	SN 45/15 EPGO281
ConvF	1.59
Area Scan	dx=8mm dy=8mm, h= 5.00 mm
ZoomScan	5x5x7,dx=8mm dy=8mm dz=5mm, Complete/ndx=8mm dy=8mm, h= 5.00 mm
Phantom	Validation plane
Device Position	Body back
Band	LTE Band 12 (RB 1)
Channels	Middle
Signal	LTE (Crest factor: 1.0)
Frequency (MHz)	707.5
Relative permittivity (real part)	55.50
Conductivity (S/m)	0.96
Variation (%)	2.04

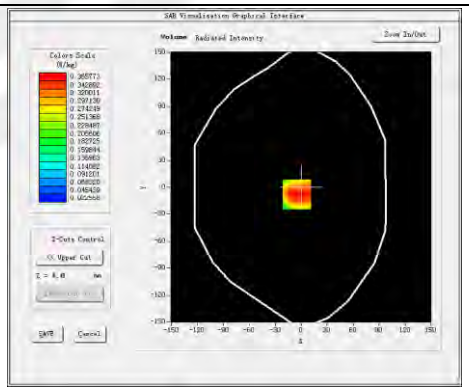
Maximum location: X=-5.00, Y=-8.00
SAR Peak: 0.52 W/kg

SAR 10g (W/Kg)	0.237610
SAR 1g (W/Kg)	0.362178

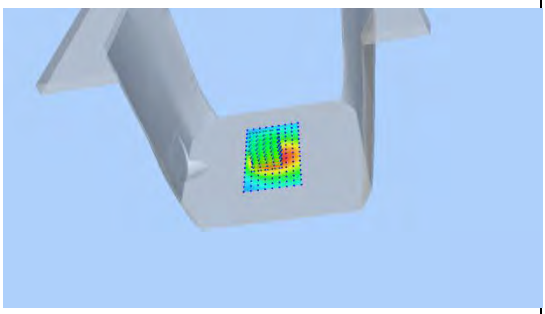
SURFACE SAR



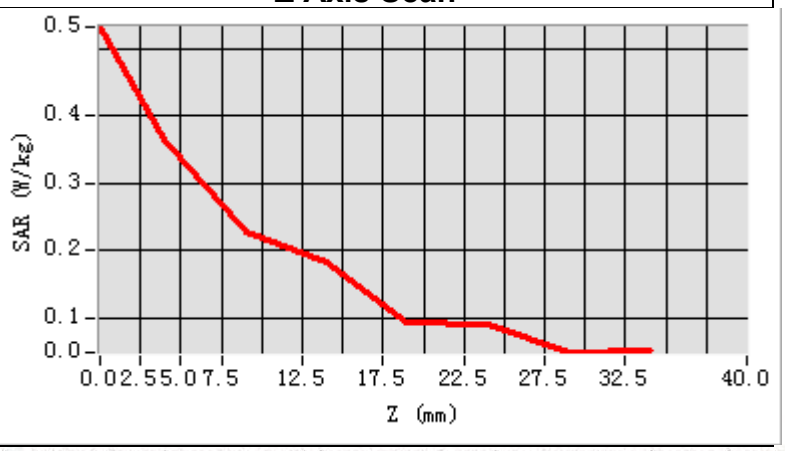
VOLUME SAR



3D screen shot



Z Axis Scan

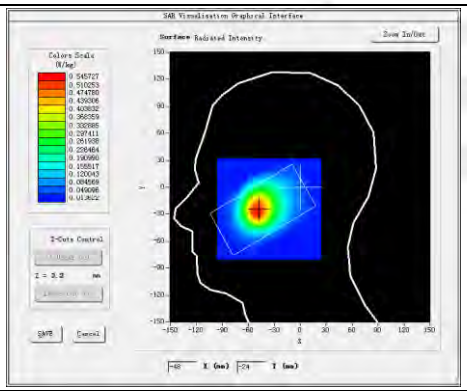
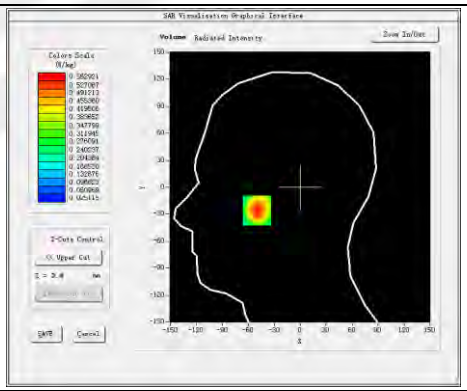
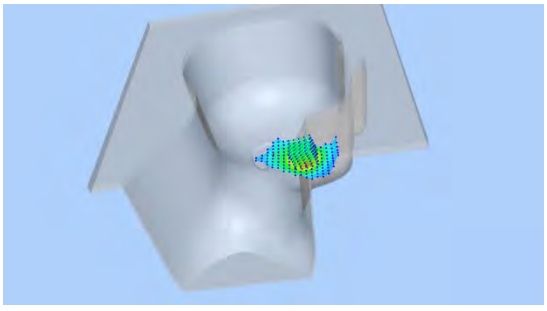
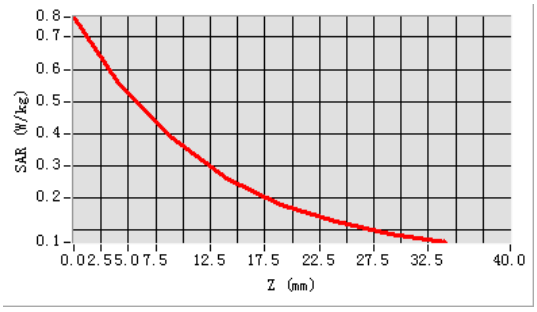


Plot 23: DUT: Smart phone; EUT Model: Atom

Test Date	2018-08-06
Probe	SN 45/15 EPGO281
ConvF	1.53
Area Scan	dx=8mm dy=8mm, h= 5.00 mm
ZoomScan	5x5x7,dx=8mm dy=8mm dz=5mm, Complete/ndx=8mm dy=8mm, h= 5.00 mm
Phantom	Left head
Device Position	Cheek
Band	LTE Band 13 (RB 1)
Channels	Middle
Signal	LTE (Crest factor: 1.0)
Frequency (MHz)	782
Relative permittivity (real part)	41.90
Conductivity (S/m)	0.89
Variation (%)	2.58

Maximum location: X=-50.00, Y=-26.00
SAR Peak: 0.79 W/kg

SAR 10g (W/Kg)	0.333631
SAR 1g (W/Kg)	0.536561

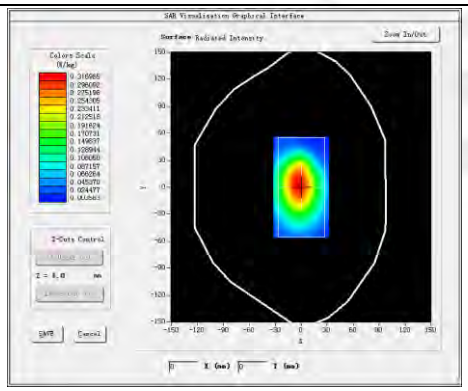
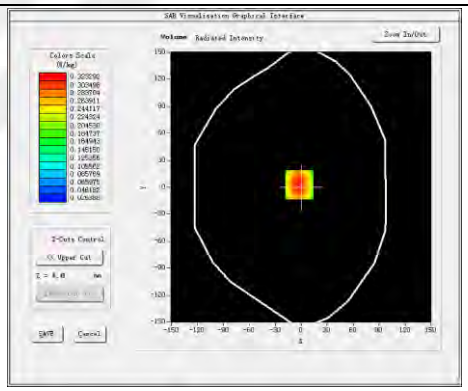
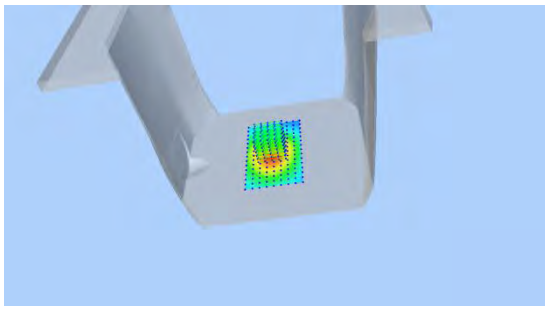
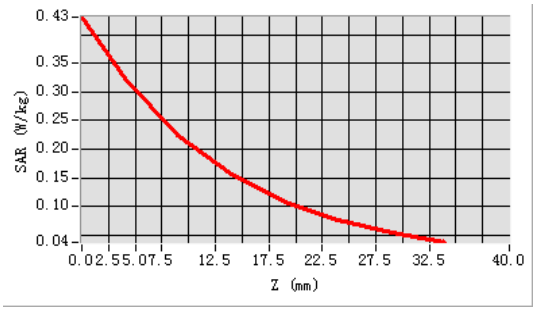
SURFACE SAR	VOLUME SAR
	
3D screen shot	**Z Axis Scan**
	

Plot 24: DUT: Smart phone; EUT Model: Atom

Test Date	2018-08-06
Probe	SN 45/15 EPGO281
ConvF	1.59
Area Scan	dx=8mm dy=8mm, h= 5.00 mm
ZoomScan	5x5x7,dx=8mm dy=8mm dz=5mm, Complete/ndx=8mm dy=8mm, h= 5.00 mm
Phantom	Validation plane
Device Position	Body Left side
Band	LTE Band 13 (RB 1)
Channels	Middle
Signal	LTE (Crest factor: 1.0)
Frequency (MHz)	782
Relative permittivity (real part)	55.50
Conductivity (S/m)	0.96
Variation (%)	1.69

Maximum location: X=-2.00, Y=3.00
SAR Peak: 0.43 W/kg

SAR 10g (W/Kg)	0.202525
SAR 1g (W/Kg)	0.309757

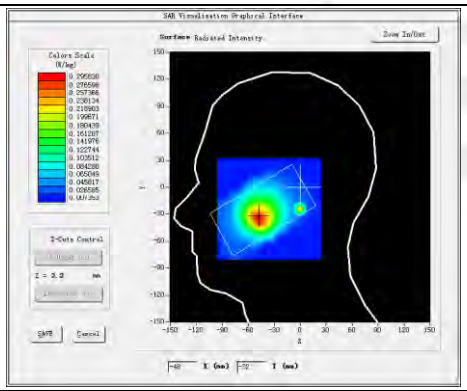
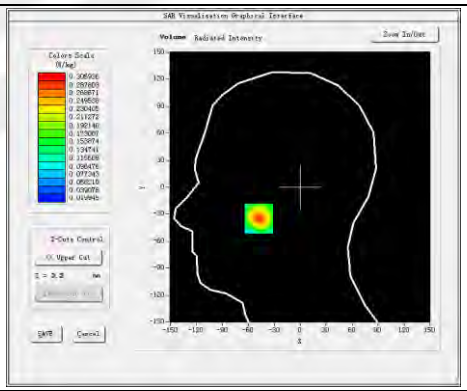
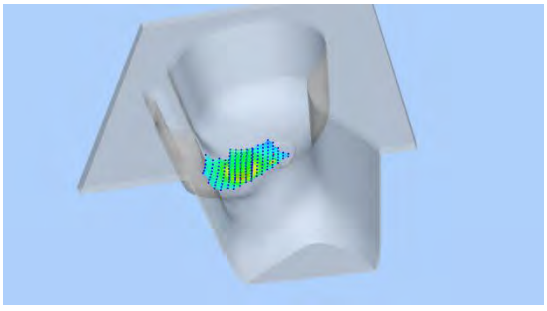
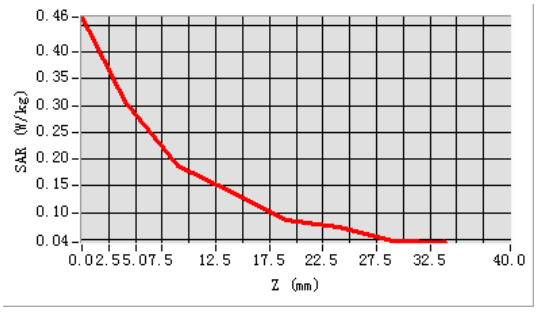
SURFACE SAR	VOLUME SAR
	
3D screen shot	**Z Axis Scan**
	

Plot 25: DUT: Smart phone; EUT Model: Atom

Test Date	2018-08-06
Probe	SN 45/15 EPGO281
ConvF	1.53
Area Scan	dx=8mm dy=8mm, h= 5.00 mm
ZoomScan	5x5x7,dx=8mm dy=8mm dz=5mm, Complete/ndx=8mm dy=8mm, h= 5.00 mm
Phantom	Right head
Device Position	Cheek
Band	LTE Band 17 (RB 1)
Channels	Low
Signal	LTE (Crest factor: 1.0)
Frequency (MHz)	709
Relative permittivity (real part)	41.90
Conductivity (S/m)	0.89
Variation (%)	1.60

Maximum location: X=-48.00, Y=-35.00
SAR Peak: 0.46 W/kg

SAR 10g (W/Kg)	0.171543
SAR 1g (W/Kg)	0.293766

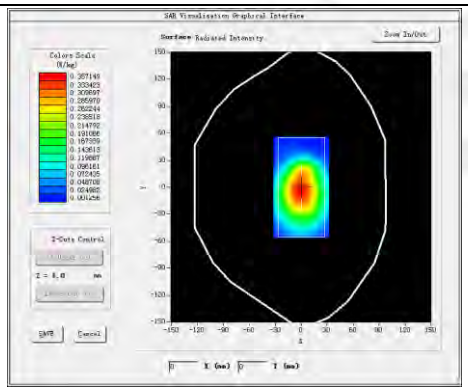
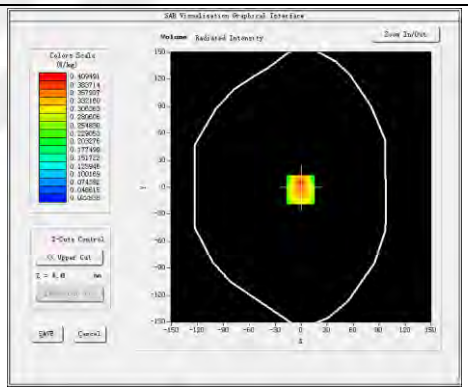
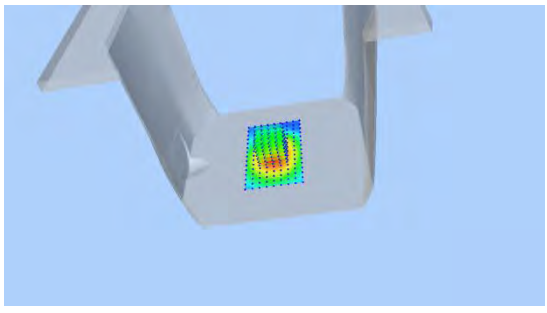
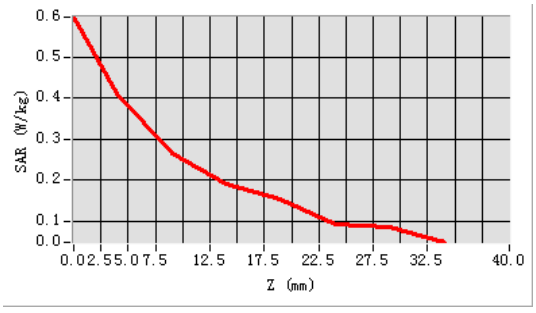
SURFACE SAR	VOLUME SAR
	
3D screen shot	**Z Axis Scan**
	

Plot 26: DUT: Smart phone; EUT Model: Atom

Test Date	2018-08-06
Probe	SN 45/15 EPGO281
ConvF	1.59
Area Scan	dx=8mm dy=8mm, h= 5.00 mm
ZoomScan	5x5x7,dx=8mm dy=8mm dz=5mm, Complete/ndx=8mm dy=8mm, h= 5.00 mm
Phantom	Validation plane
Device Position	Body back
Band	LTE Band 17 (RB 1)
Channels	Low
Signal	LTE (Crest factor: 1.0)
Frequency (MHz)	709
Relative permittivity (real part)	55.50
Conductivity (S/m)	0.96
Variation (%)	-1.84

Maximum location: X=-1.00, Y=-3.00
SAR Peak: 0.61 W/kg

SAR 10g (W/Kg)	0.245534
SAR 1g (W/Kg)	0.385260

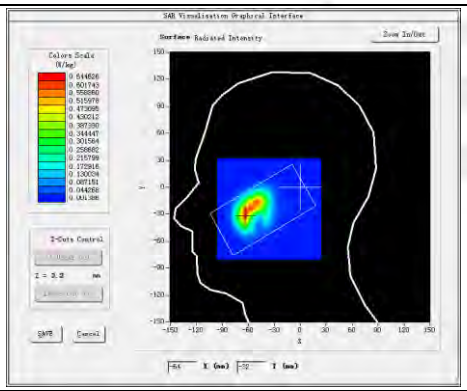
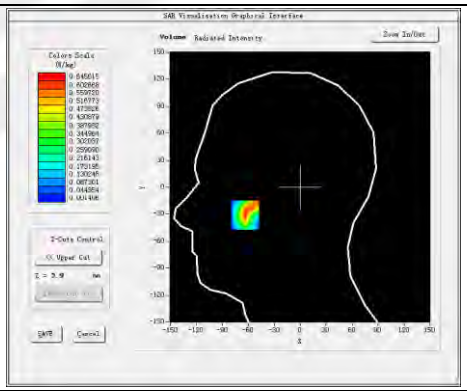
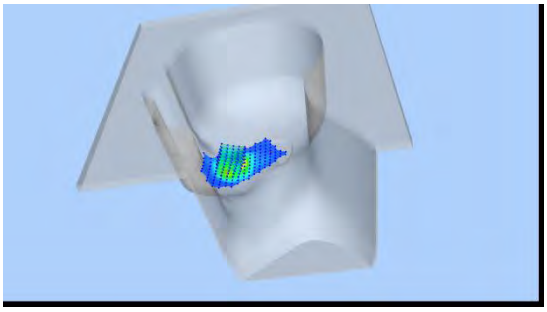
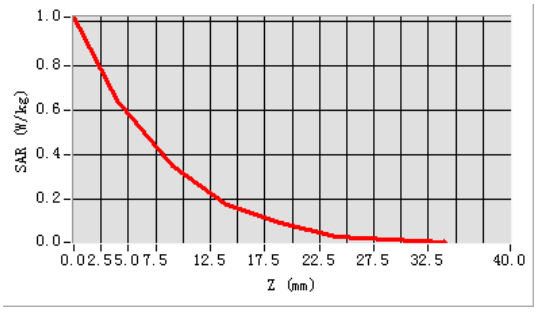
SURFACE SAR	VOLUME SAR
	
3D screen shot	**Z Axis Scan**
	

Plot 27: DUT: Smart phone; EUT Model: Atom

Test Date	2018-08-09
Probe	SN 45/15 EPGO281
ConvF	1.42
Area Scan	dx=8mm dy=8mm, h= 5.00 mm
ZoomScan	5x5x7,dx=8mm dy=8mm dz=5mm, Complete/ndx=8mm dy=8mm, h= 5.00 mm
Phantom	Right head
Device Position	Cheek
Band	LTE Band 25 (RB 1)
Channels	Low
Signal	LTE (Crest factor: 1.0)
Frequency (MHz)	1860
Relative permittivity (real part)	40
Conductivity (S/m)	1.4
Variation (%)	-0.31

Maximum location: X=-64.00, Y=-31.00
SAR Peak: 1.03 W/kg

SAR 10g (W/Kg)	0.291512
SAR 1g (W/Kg)	0.596153

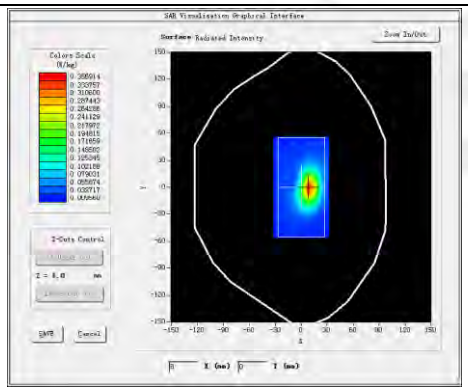
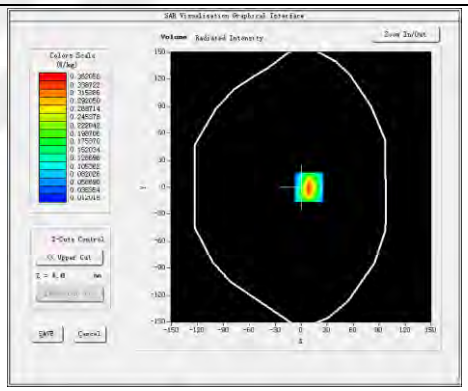
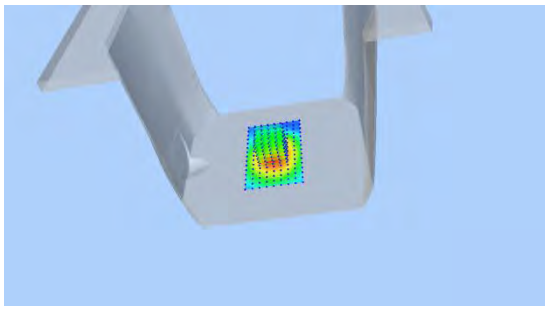
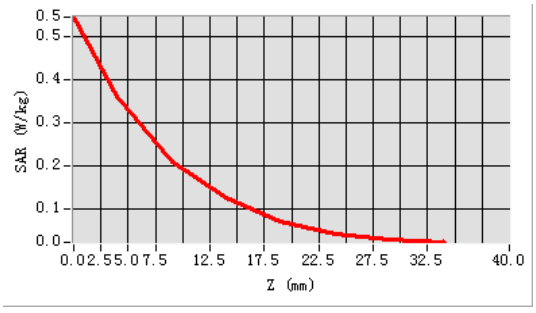
SURFACE SAR	VOLUME SAR
	
3D screen shot	**Z Axis Scan**
	

Plot 28: DUT: Smart phone; EUT Model: Atom

Test Date	2018-08-09
Probe	SN 45/15 EPGO281
ConvF	1.57
Area Scan	dx=8mm dy=8mm, h= 5.00 mm
ZoomScan	5x5x7,dx=8mm dy=8mm dz=5mm, Complete/ndx=8mm dy=8mm, h= 5.00 mm
Phantom	Validation plane
Device Position	Body bottom side
Band	LTE Band 25 (RB 1)
Channels	Low
Signal	LTE (Crest factor: 1.0)
Frequency (MHz)	1860
Relative permittivity (real part)	53.3
Conductivity (S/m)	1.52
Variation (%)	1.70

Maximum location: X=9.00, Y=0.00
SAR Peak: 0.54 W/kg

SAR 10g (W/Kg)	0.157923
SAR 1g (W/Kg)	0.324807

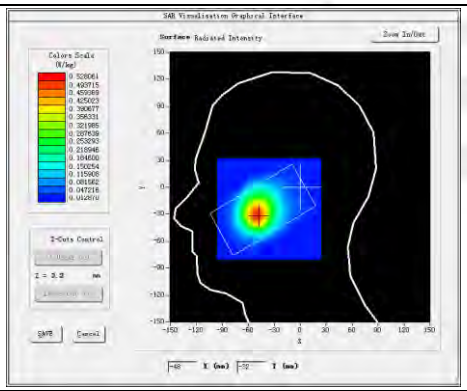
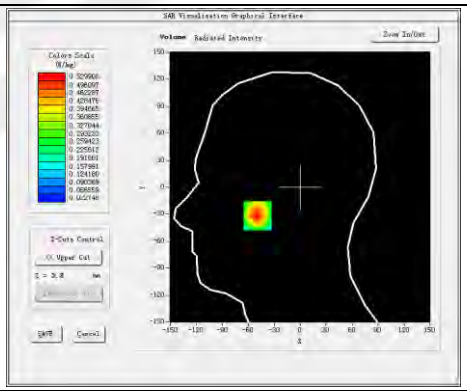
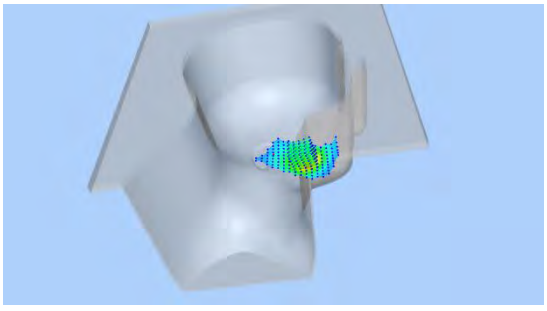
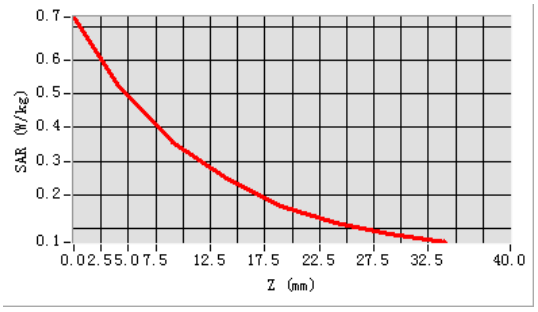
SURFACE SAR	VOLUME SAR
	
3D screen shot	**Z Axis Scan**
	

Plot 29: DUT: Smart phone; EUT Model: Atom

Test Date	2018-08-07
Probe	SN 45/15 EPGO281
ConvF	1.78
Area Scan	dx=8mm dy=8mm, h= 5.00 mm
ZoomScan	5x5x7,dx=8mm dy=8mm dz=5mm, Complete/ndx=8mm dy=8mm, h= 5.00 mm
Phantom	Left head
Device Position	Cheek
Band	LTE Band 26 (RB 1)
Channels	Low
Signal	LTE (Crest factor: 1.0)
Frequency (MHz)	822.5
Relative permittivity (real part)	41.50
Conductivity (S/m)	0.9
Variation (%)	-0.93

Maximum location: X=-49.00, Y=-32.00
SAR Peak: 0.73 W/kg

SAR 10g (W/Kg)	0.305985
SAR 1g (W/Kg)	0.501594

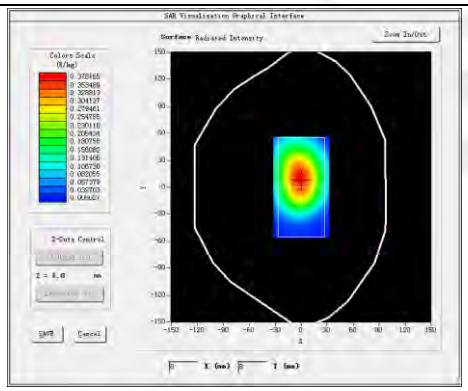
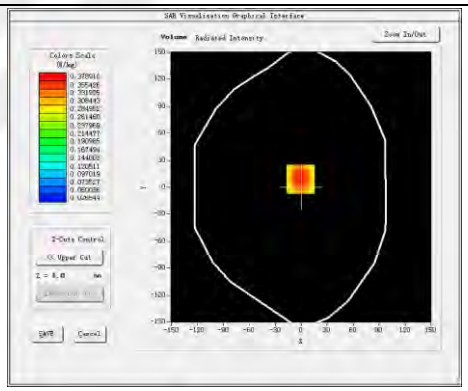
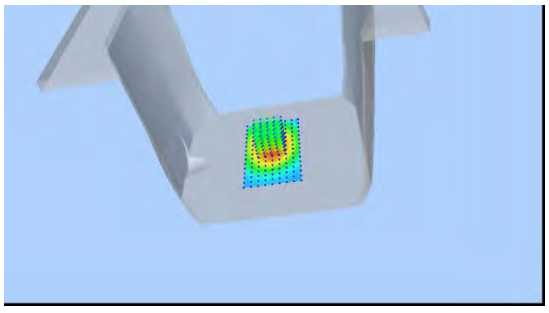
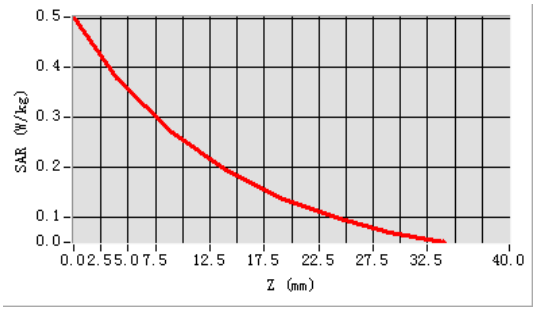
SURFACE SAR	VOLUME SAR
	
3D screen shot	**Z Axis Scan**
	

Plot 30: DUT: Smart phone; EUT Model: Atom

Test Date	2018-08-07
Probe	SN 45/15 EPGO281
ConvF	1.85
Area Scan	dx=8mm dy=8mm, h= 5.00 mm
ZoomScan	5x5x7,dx=8mm dy=8mm dz=5mm, Complete/ndx=8mm dy=8mm, h= 5.00 mm
Phantom	Validation plane
Device Position	Body front
Band	LTE Band 26 (RB 1)
Channels	Low
Signal	LTE (Crest factor: 1.0)
Frequency (MHz)	822.5
Relative permittivity (real part)	55.20
Conductivity (S/m)	0.97
Variation (%)	0.34

Maximum location: X=-1.00, Y=9.00
SAR Peak: 0.50 W/kg

SAR 10g (W/Kg)	0.246862
SAR 1g (W/Kg)	0.365567

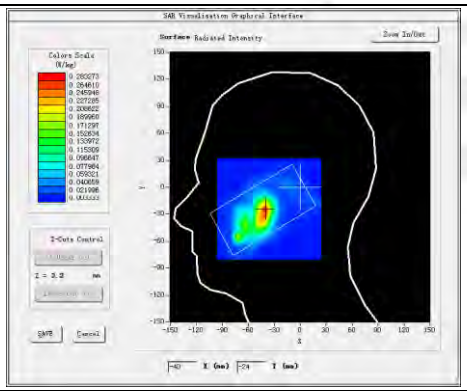
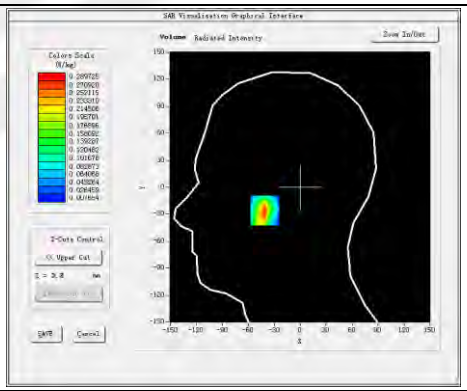
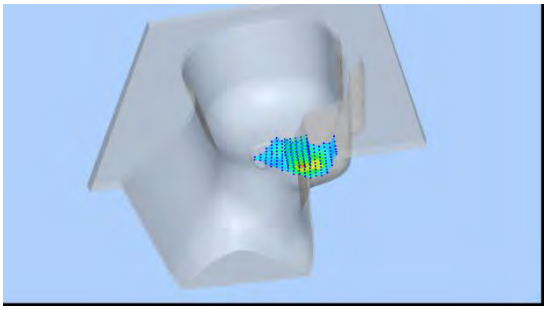
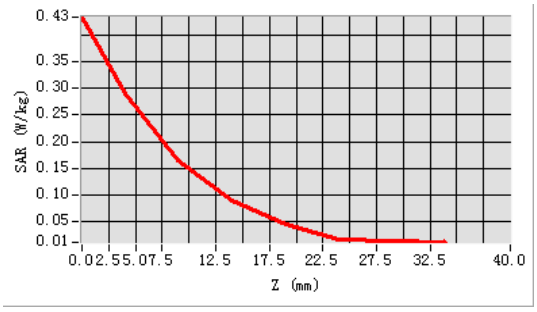
SURFACE SAR	VOLUME SAR
	
3D screen shot	**Z Axis Scan**
	

Plot 31: DUT: Smart phone; EUT Model: Atom

Test Date	2018-08-11
Probe	SN 45/15 EPGO281
ConvF	2.32
Area Scan	dx=8mm dy=8mm, h= 5.00 mm
ZoomScan	5x5x7,dx=8mm dy=8mm dz=5mm, Complete/ndx=8mm dy=8mm, h= 5.00 mm
Phantom	Left head
Device Position	Cheek
Band	LTE Band 41 (RB 1)
Channels	High
Signal	LTE (Crest factor: 1.0)
Frequency (MHz)	2680
Relative permittivity (real part)	39.0
Conductivity (S/m)	1.96
Variation (%)	0.42

Maximum location: X=-41.00, Y=-26.00
SAR Peak: 0.43 W/kg

SAR 10g (W/Kg)	0.113052
SAR 1g (W/Kg)	0.254889

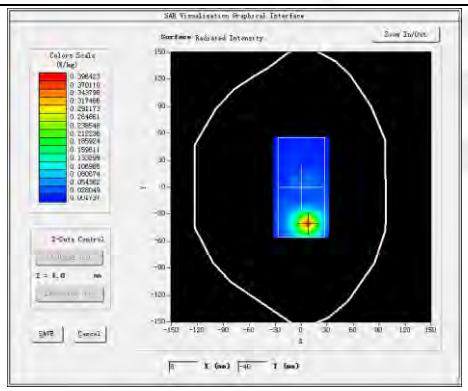
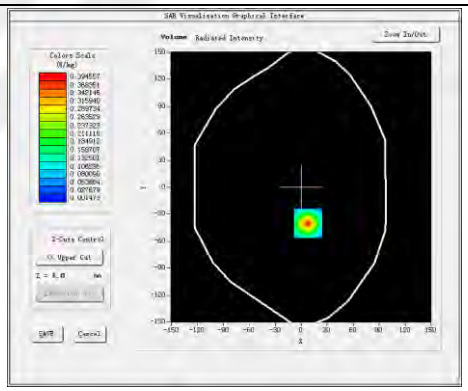
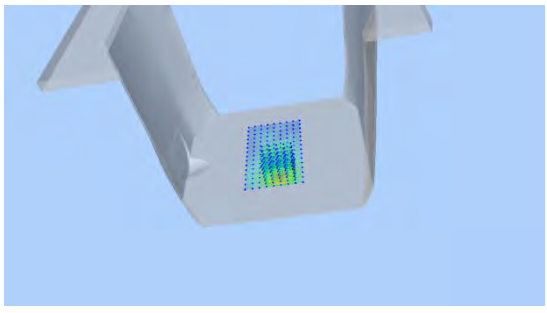
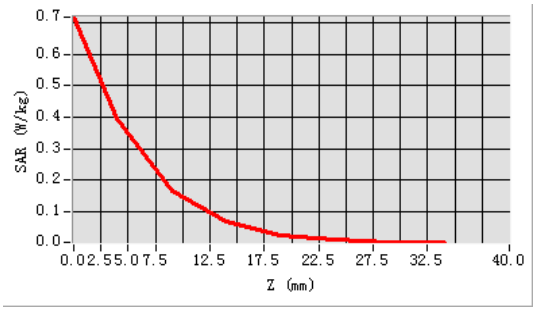
SURFACE SAR	VOLUME SAR
	
3D screen shot	**Z Axis Scan**
	

Plot 32: DUT: Smart phone; EUT Model: Atom

Test Date	2018-08-11
Probe	SN 45/15 EPGO281
ConvF	2.38
Area Scan	dx=8mm dy=8mm, h= 5.00 mm
ZoomScan	5x5x7,dx=8mm dy=8mm dz=5mm, Complete/ndx=8mm dy=8mm, h= 5.00 mm
Phantom	Validation plane
Device Position	Body back
Band	LTE Band 41 (RB 1)
Channels	High
Signal	LTE (Crest factor: 1.0)
Frequency (MHz)	2680
Relative permittivity (real part)	52.50
Conductivity (S/m)	2.16
Variation (%)	-3.35

Maximum location: X=8.00, Y=-40.00
SAR Peak: 0.71 W/kg

SAR 10g (W/Kg)	0.144252
SAR 1g (W/Kg)	0.358514

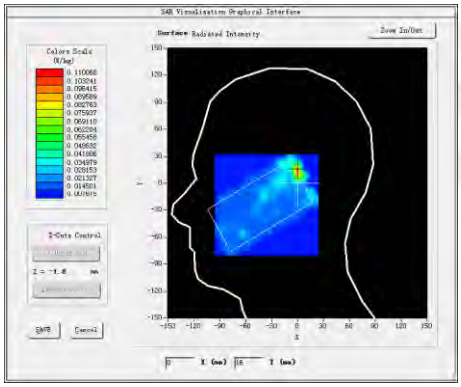
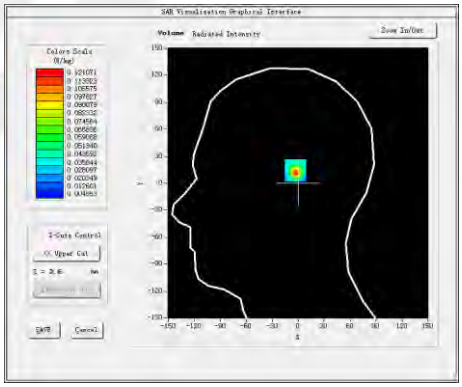
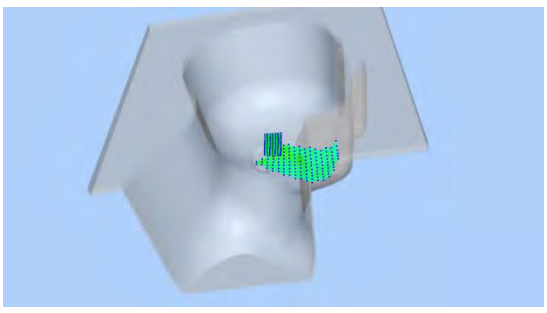
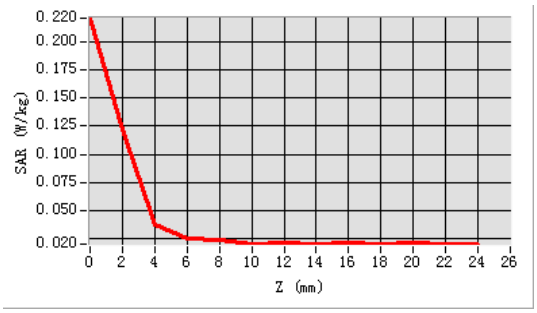
SURFACE SAR	VOLUME SAR
	
3D screen shot	**Z Axis Scan**
	

Plot 33: DUT: Smart phone; EUT Model: Atom

Test Date	2018-08-12
Probe	SN 45/15 EPGO281
ConvF	2.46
Area Scan	dx=8mm dy=8mm, h= 5.00 mm
ZoomScan	7x7x12,dx=4mm dy=4mm dz=2mm,Complete/ndx=8mm dy=8mm, h= 5.00 mm
Phantom	Left head
Device Position	Cheek
Band	IEEE 802.11a U-NII
Channels	Middle
Signal	IEEE802.a (Crest factor: 1.0)
Frequency (MHz)	5200
Relative permittivity (real part)	36.80
Conductivity (S/m)	4.84
Variation (%)	3.75

Maximum location: X=1.00, Y=14.00
SAR Peak: 0.37 W/kg

SAR 10g (W/Kg)	0.040598
SAR 1g (W/Kg)	0.117327

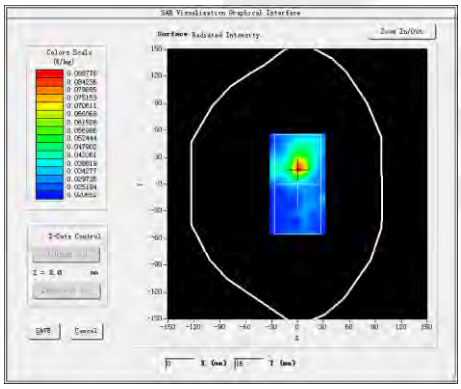
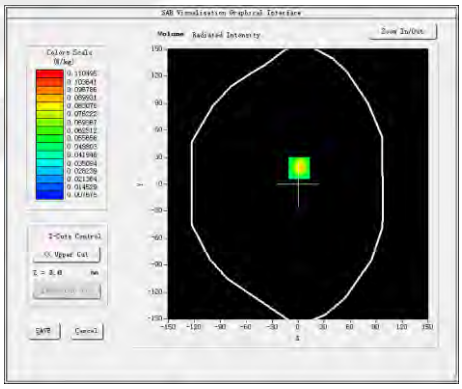
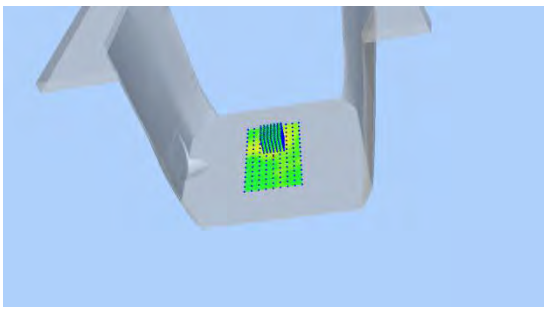
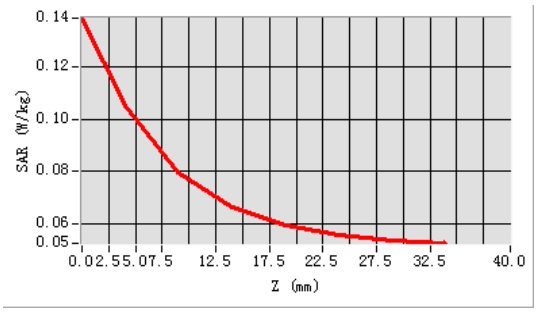
SURFACE SAR	VOLUME SAR
	
3D	**Z Axis Scan**
	

Plot 34: DUT: Smart phone; EUT Model: Atom

Test Date	2018-08-12
Probe	SN 45/15 EPGO281
ConvF	2.52
Area Scan	dx=8mm dy=8mm, h= 5.00 mm
ZoomScan	7x7x12,dx=4mm dy=4mm dz=2mm,Complete/ndx=8mm dy=8mm, h= 5.00 mm
Phantom	Validation plane
Device Position	Body back
Band	IEEE 802.11a U-NII
Channels	Middle
Signal	IEEE802.a (Crest factor: 1.0)
Frequency (MHz)	5200
Relative permittivity (real part)	51.21
Conductivity (S/m)	5.16
Variation (%)	2.55

Maximum location: X=1.00, Y=18.00
SAR Peak: 0.14 W/kg

SAR 10g (W/Kg)	0.037105
SAR 1g (W/Kg)	0.056986

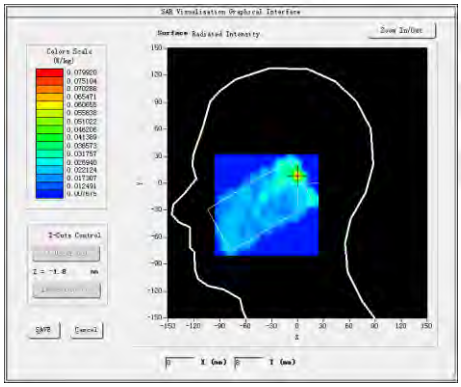
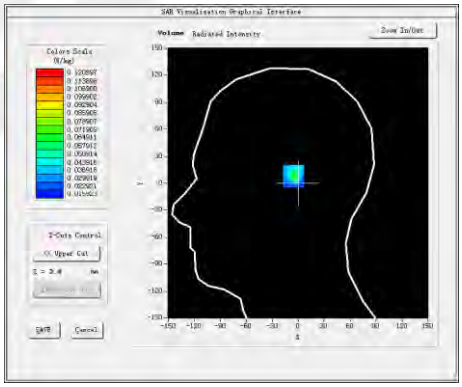
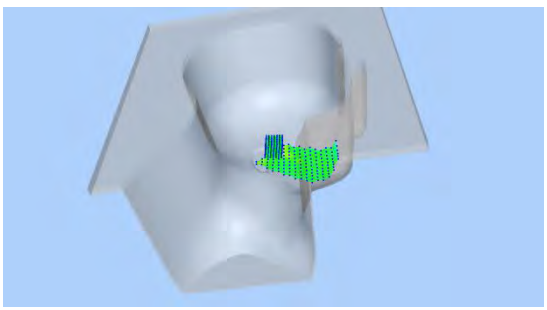
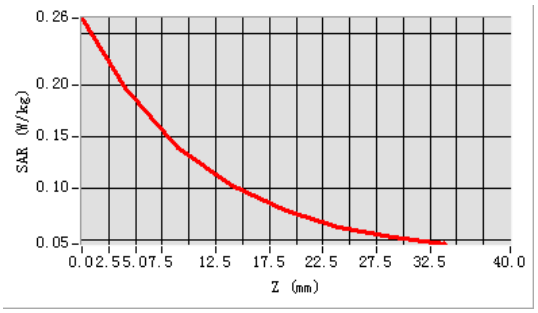
SURFACE SAR	VOLUME SAR
	
3D	**Z Axis Scan**
	

Plot 35: DUT: Smart phone; EUT Model: Atom

Test Date	2018-08-12
Probe	SN 45/15 EPGO281
ConvF	2.70
Area Scan	dx=8mm dy=8mm, h= 5.00 mm
ZoomScan	7x7x12,dx=4mm dy=4mm dz=2mm,Complete/ndx=8mm dy=8mm, h= 5.00 mm
Phantom	Left head
Device Position	Cheek
Band	IEEE 802.11n U-NII
Channels	High
Signal	IEEE802.n (Crest factor: 1.0)
Frequency (MHz)	5260
Relative permittivity (real part)	36.35
Conductivity (S/m)	4.96
Variation (%)	-1.88

Maximum location: X=0.00, Y=8.00
SAR Peak: 0.26 W/kg

SAR 10g (W/Kg)	0.031383
SAR 1g (W/Kg)	0.070377

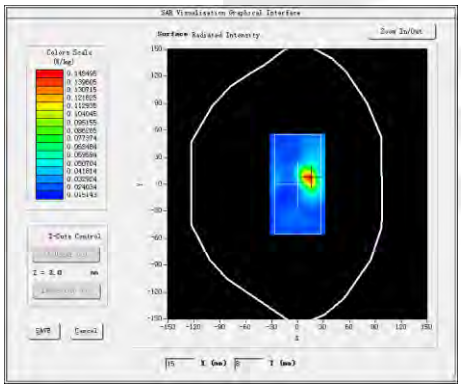
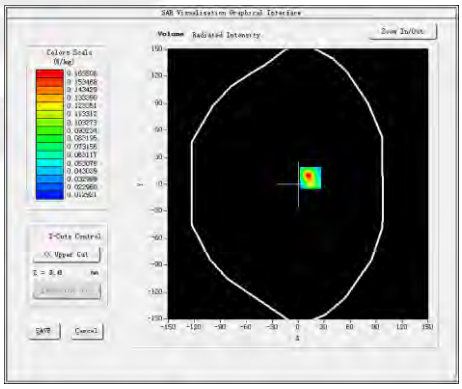
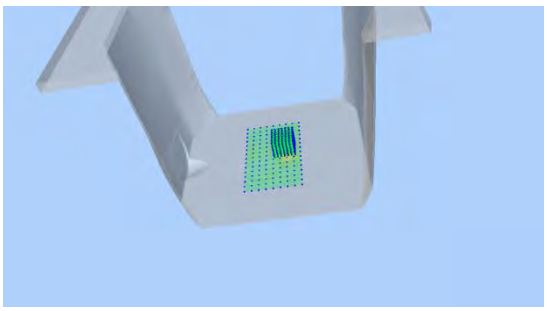
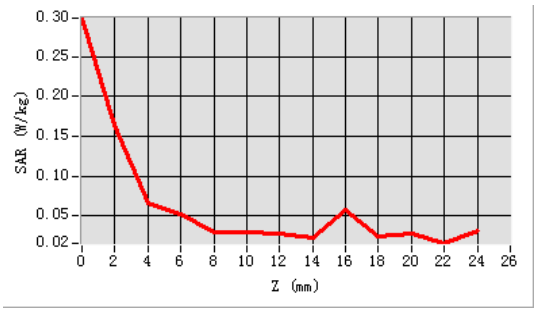
SURFACE SAR	VOLUME SAR
	
3D	**Z Axis Scan**
	

Plot 36: DUT: Smart phone; EUT Model: Atom

Test Date	2018-08-12
Probe	SN 45/15 EPGO281
ConvF	2.79
Area Scan	dx=8mm dy=8mm, h= 5.00 mm
ZoomScan	7x7x12,dx=4mm dy=4mm dz=2mm,Complete/ndx=8mm dy=8mm, h= 5.00 mm
Phantom	Validation plane
Device Position	Body back
Band	IEEE 802.11n U-NII
Channels	High
Signal	IEEE802.n (Crest factor: 1.0)
Frequency (MHz)	5260
Relative permittivity (real part)	50.51
Conductivity (S/m)	5.70
Variation (%)	0.52

Maximum location: X=14.00, Y=7.00
SAR Peak: 0.30 W/kg

SAR 10g (W/Kg)	0.044990
SAR 1g (W/Kg)	0.095955

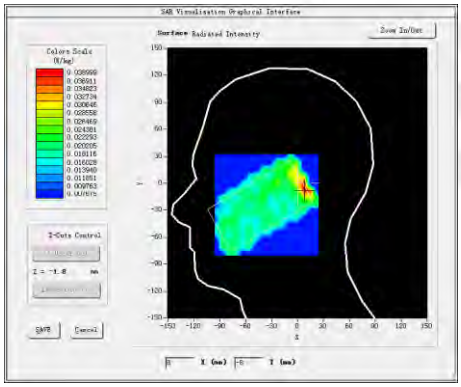
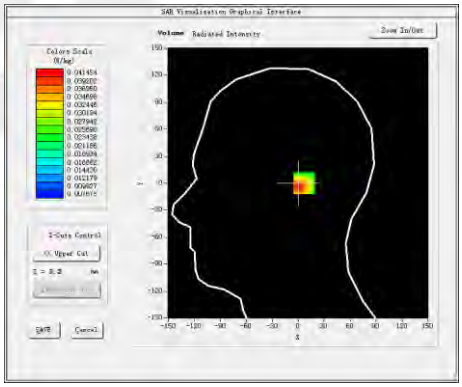
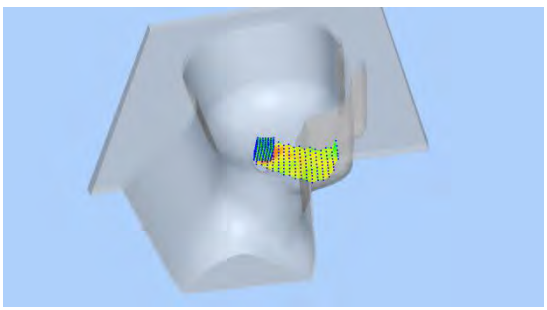
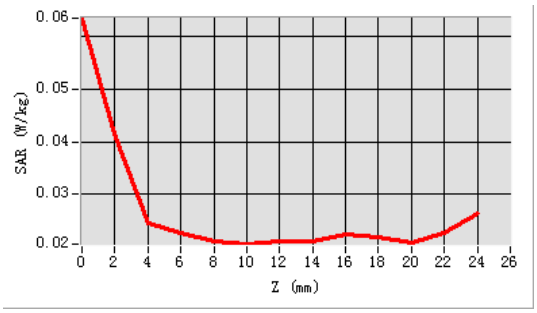
SURFACE SAR	VOLUME SAR
	
3D	**Z Axis Scan**
	

Plot 37: DUT: Smart phone; EUT Model: Atom

Test Date	2018-08-13
Probe	SN 45/15 EPGO281
ConvF	2.74
Area Scan	dx=8mm dy=8mm, h= 5.00 mm
ZoomScan	7x7x12,dx=4mm dy=4mm dz=2mm,Complete/ndx=8mm dy=8mm, h= 5.00 mm
Phantom	Left head
Device Position	Cheek
Band	IEEE 802.11a U-NII
Channels	Low
Signal	IEEE802.a (Crest factor: 1.0)
Frequency (MHz)	5500
Relative permittivity (real part)	35.57
Conductivity (S/m)	5.23
Variation (%)	1.56

Maximum location: X=16.00, Y=0.00
SAR Peak: 0.09 W/kg

SAR 10g (W/Kg)	0.028024
SAR 1g (W/Kg)	0.041043

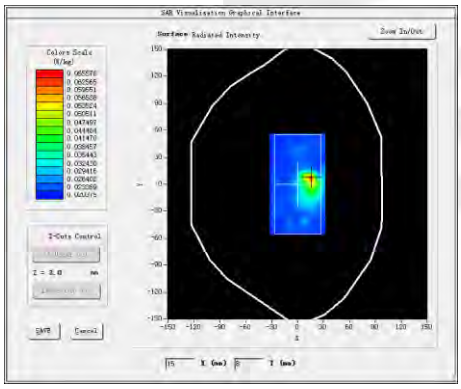
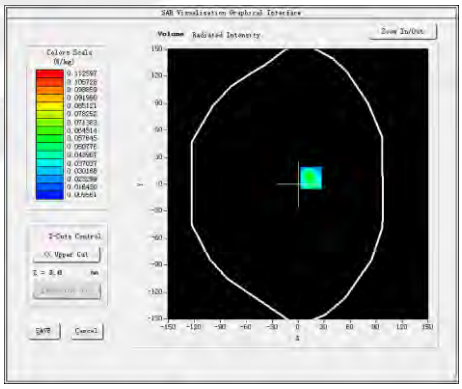
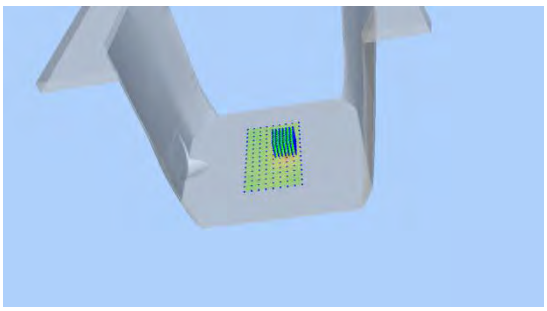
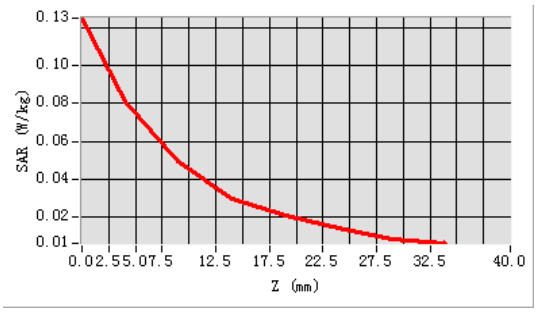
SURFACE SAR	VOLUME SAR
	
3D	**Z Axis Scan**
	

Plot 38: DUT: Smart phone; EUT Model: Atom

Test Date	2018-08-13
Probe	SN 45/15 EPGO281
ConvF	2.83
Area Scan	dx=8mm dy=8mm, h= 5.00 mm
ZoomScan	7x7x12,dx=4mm dy=4mm dz=2mm,Complete/ndx=8mm dy=8mm, h= 5.00 mm
Phantom	Validation plane
Device Position	Body back
Band	IEEE 802.11a U-NII
Channels	Low
Signal	IEEE802.a (Crest factor: 1.0)
Frequency (MHz)	5500
Relative permittivity (real part)	49.83
Conductivity (S/m)	5.91
Variation (%)	-3.59

Maximum location: X=15.00, Y=7.00
SAR Peak: 0.13 W/kg

SAR 10g (W/Kg)	0.029483
SAR 1g (W/Kg)	0.044774

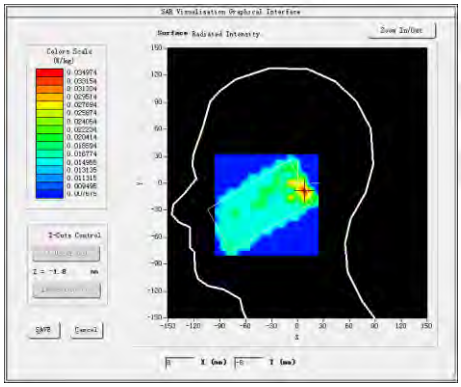
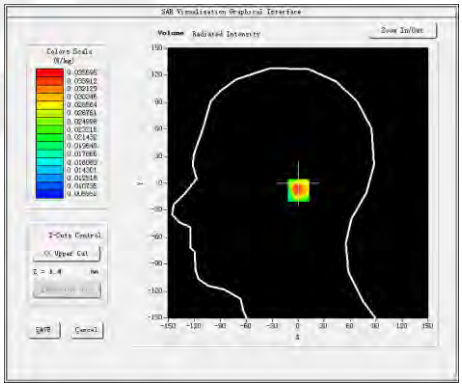
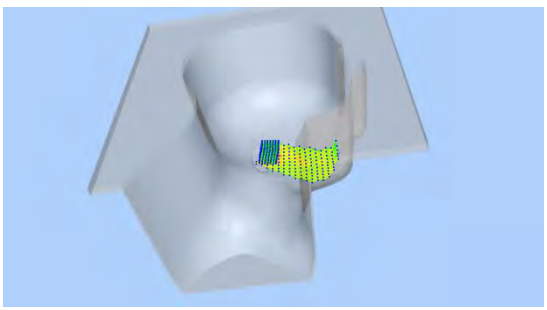
SURFACE SAR	VOLUME SAR
	
3D	**Z Axis Scan**
	

Plot 39: DUT: Smart phone; EUT Model: Atom

Test Date	2018-08-13
Probe	SN 45/15 EPGO281
ConvF	2.53
Area Scan	dx=8mm dy=8mm, h= 5.00 mm
ZoomScan	7x7x12,dx=4mm dy=4mm dz=2mm,Complete/ndx=8mm dy=8mm, h= 5.00 mm
Phantom	Left head
Device Position	Cheek
Band	IEEE 802.11n U-NII
Channels	Low
Signal	IEEE802.n (Crest factor: 1.0)
Frequency (MHz)	5745
Relative permittivity (real part)	35.30
Conductivity (S/m)	5.47
Variation (%)	-1.12

Maximum location: X=8.00, Y=-8.00
SAR Peak: 0.08 W/kg

SAR 10g (W/Kg)	0.022507
SAR 1g (W/Kg)	0.034229

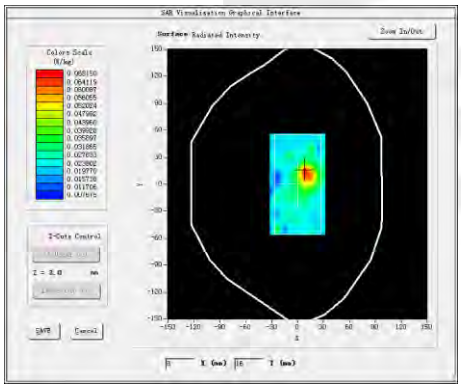
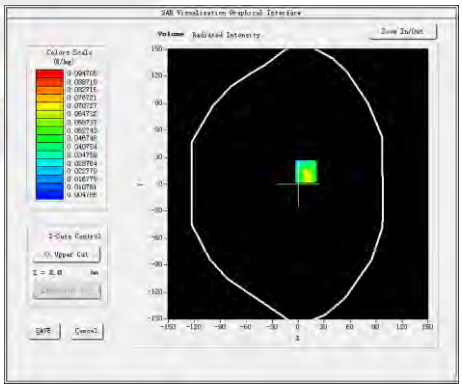
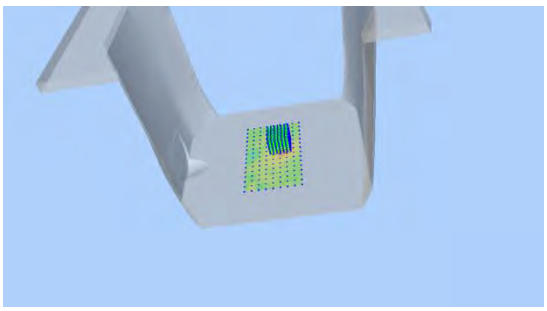
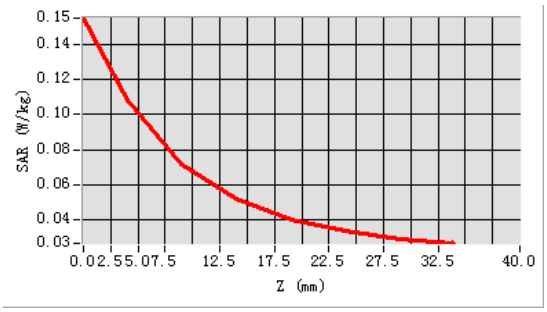
SURFACE SAR	VOLUME SAR
	
3D	**Z Axis Scan**
	

Plot 40: DUT: Smart phone; EUT Model: Atom

Test Date	2018-08-13
Probe	SN 45/15 EPGO281
ConvF	2.60
Area Scan	dx=8mm dy=8mm, h= 5.00 mm
ZoomScan	7x7x12,dx=4mm dy=4mm dz=2mm,Complete/ndx=8mm dy=8mm, h= 5.00 mm
Phantom	Validation plane
Device Position	Body back
Band	IEEE 802.11n U-NII
Channels	Low
Signal	IEEE802.n (Crest factor: 1.0)
Frequency (MHz)	5745
Relative permittivity (real part)	49.03
Conductivity (S/m)	6.28
Variation (%)	2.82

Maximum location: X=9.00, Y=14.00
SAR Peak: 0.15 W/kg

SAR 10g (W/Kg)	0.031963
SAR 1g (W/Kg)	0.040289

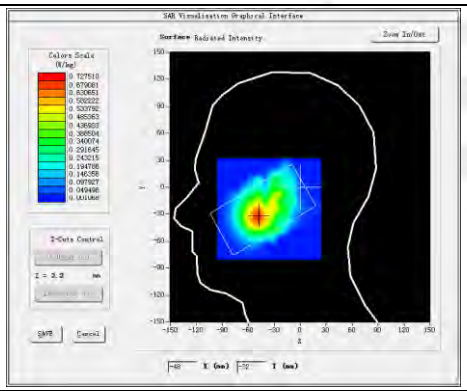
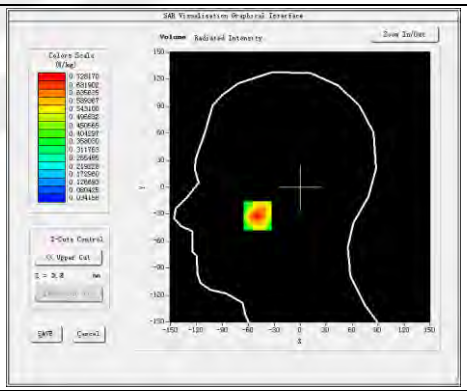
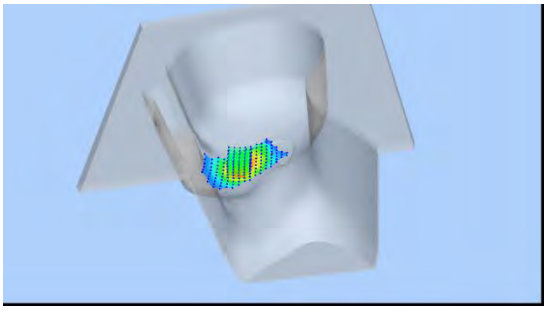
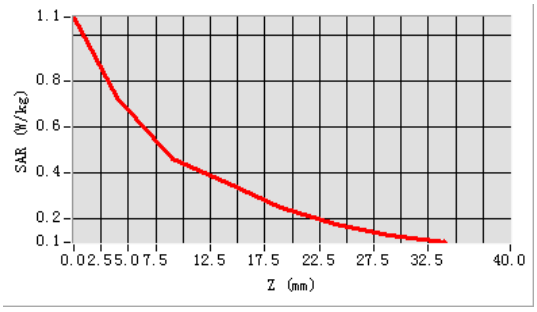
SURFACE SAR	VOLUME SAR
	
3D	**Z Axis Scan**
	

Plot 41: DUT: Smart phone; EUT Model: Atom

Test Date	2018-08-07
Probe	SN 45/15 EPGO281
ConvF	1.78
Area Scan	dx=8mm dy=8mm, h= 5.00 mm
ZoomScan	5x5x7,dx=8mm dy=8mm dz=5mm, Complete/ndx=8mm dy=8mm, h= 5.00 mm
Phantom	Right head
Device Position	Cheek
Band	BC0
Channels	Middle
Signal	CDMA (Crest factor: 1.0)
Frequency (MHz)	836.52
Relative permittivity (real part)	41.5
Conductivity (S/m)	0.90
Variation (%)	-2.99

Maximum location: X=-49.00, Y=-32.00
SAR Peak: 1.08 W/kg

SAR 10g (W/Kg)	0.419455
SAR 1g (W/Kg)	0.684293

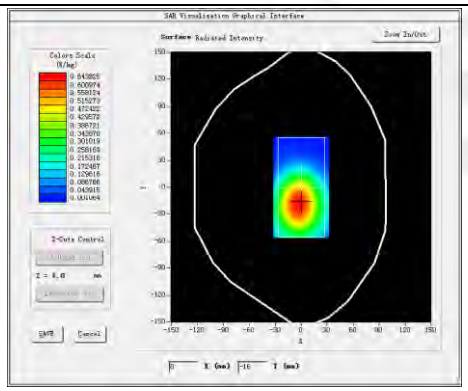
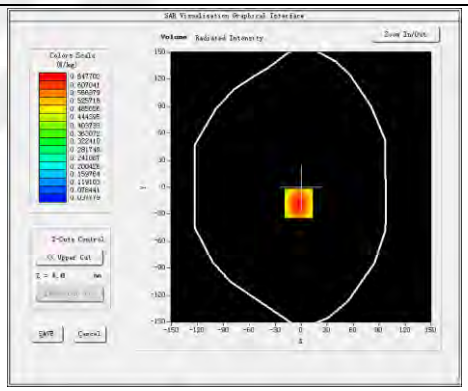
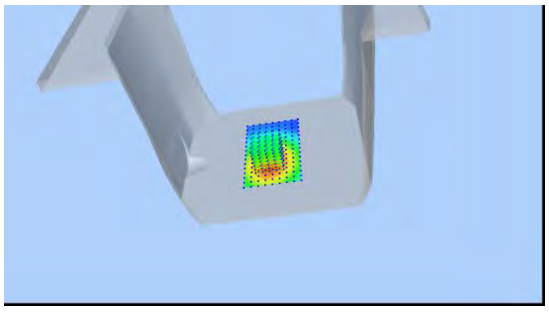
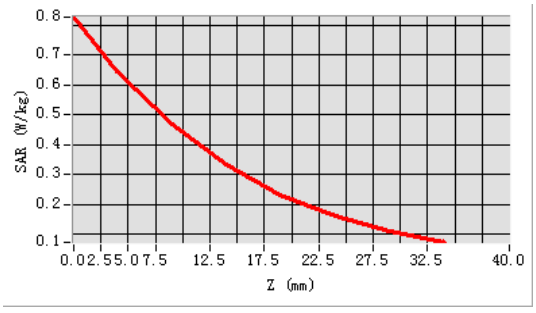
SURFACE SAR	VOLUME SAR
	
3D screen shot	**Z Axis Scan**
	

Plot 42: DUT: Smart phone; EUT Model: Atom

Test Date	2018-08-07
Probe	SN 45/15 EPGO281
ConvF	1.81
Area Scan	dx=8mm dy=8mm, h= 5.00 mm
ZoomScan	5x5x7,dx=8mm dy=8mm dz=5mm, Complete/ndx=8mm dy=8mm, h= 5.00 mm
Phantom	Validation plane
Device Position	Body back
Band	BC0
Channels	Middle
Signal	CDMA (Crest factor: 1.0)
Frequency (MHz)	836.52
Relative permittivity (real part)	55.20
Conductivity (S/m)	0.9
Variation (%)	-3.65

Maximum location: X=-3.00, Y=-18.00
SAR Peak: 0.84 W/kg

SAR 10g (W/Kg)	0.420483
SAR 1g (W/Kg)	0.623181

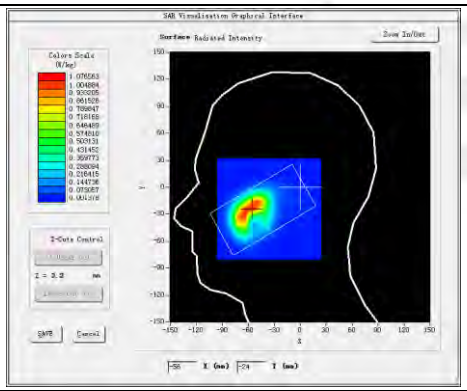
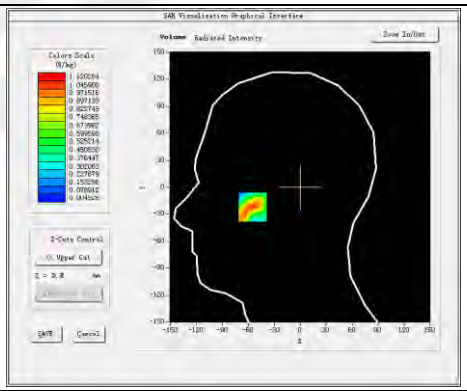
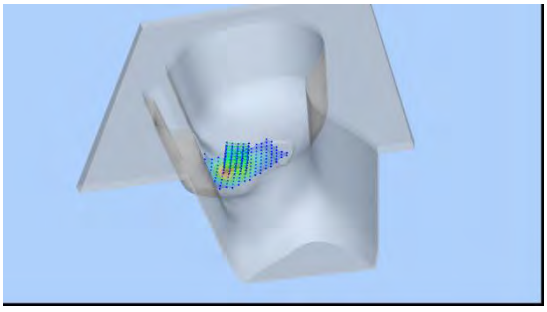
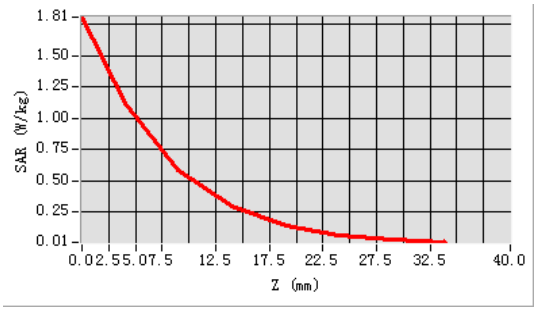
SURFACE SAR	VOLUME SAR
	
3D screen shot	**Z Axis Scan**
	

Plot 43: DUT: Smart phone; EUT Model: Atom

Test Date	2018-08-09
Probe	SN 45/15 EPGO281
ConvF	2.10
Area Scan	dx=8mm dy=8mm, h= 5.00 mm
ZoomScan	5x5x7,dx=8mm dy=8mm dz=5mm, Complete/ndx=8mm dy=8mm, h= 5.00 mm
Phantom	Right head
Device Position	Cheek
Band	BC1
Channels	Middle
Signal	CDMA (Crest factor: 1.0)
Frequency (MHz)	1880
Relative permittivity (real part)	41.5
Conductivity (S/m)	0.90
Variation (%)	3.81

Maximum location: X=-55.00, Y=-22.00
SAR Peak: 1.81 W/kg

SAR 10g (W/Kg)	0.481571
SAR 1g (W/Kg)	1.030931

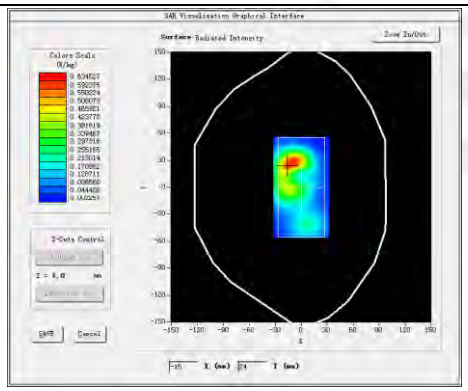
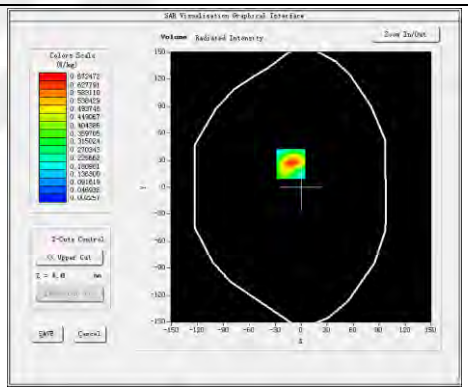
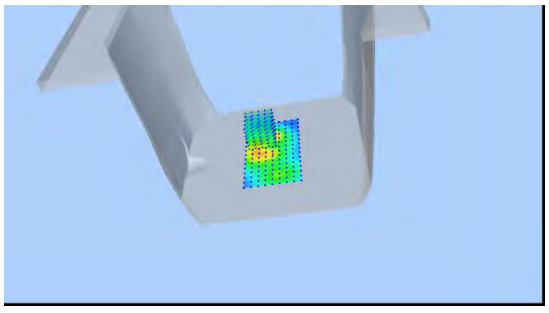
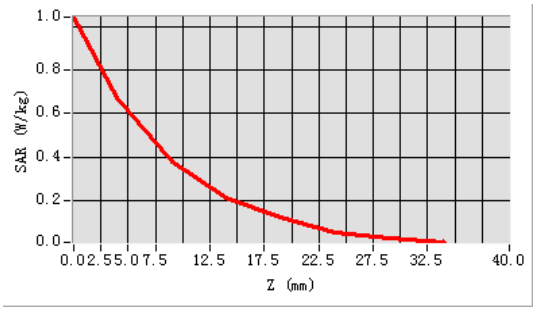
SURFACE SAR	VOLUME SAR
	
3D screen shot	**Z Axis Scan**
	

Plot 44: DUT: Smart phone; EUT Model: Atom

Test Date	2018-08-09
Probe	SN 45/15 EPGO281
ConvF	2.16
Area Scan	dx=8mm dy=8mm, h= 5.00 mm
ZoomScan	5x5x7,dx=8mm dy=8mm dz=5mm, Complete/ndx=8mm dy=8mm, h= 5.00 mm
Phantom	Validation plane
Device Position	Body back
Band	BC1
Channels	Middle
Signal	CDMA (Crest factor: 1.0)
Frequency (MHz)	1880
Relative permittivity (real part)	53.30
Conductivity (S/m)	1.52
Variation (%)	3.43

Maximum location: X=-12.00, Y=26.00
SAR Peak: 1.06 W/kg

SAR 10g (W/Kg)	0.307345
SAR 1g (W/Kg)	0.622958

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※※※※※