SAR TEST REPORT

Report No.:	SET2014-10275
Product:	Loop MST Charge Case(Black) new
Model No.:	LOOPMST0002
Brand Name:	Loop
FCC ID:	2AB3L-LOOPMST0002
Applicant:	BBPOS Limited
Address:	Suite 1602,16/F,Tower 2,Nina Tower,No.8 Yeung UK Road, Tsuen Wan, N.T., Hong Kong
Issued by:	CCIC-SET
Lab Location:	Electronic Testing Building, Shahe Road，Xili, Nanshan District, Shenzhen, 518055, P. R. China
Tel:	86 755 26627338 Fax：86 755 26627238
Mail:	manager@ccic-set.com Website：http://www.ccic-set.com

This test report consists of **212** pages in total. It may be duplicated completely for legal use with the approval of the applicant. It should not be reproduced except in full, without the written approval of our laboratory. The client should not use it to claim product endorsement by CCIC-SET. The test results in the report only apply to the tested sample. The test report shall be invalid without all the signatures of testing engineers, reviewer and approver. Any objections must be raised to CCIC-SET within 15 days since the date when the report is received. It will not be taken into consideration beyond this limit.

Test Report

Product.....:	Loop MST Charge Case(Black) new
Model No. .....:	LOOPMST0002
Brand Name.....:	Loop
FCC ID.....:	LOOPMST0002
Applicant.....:	BBPOS Limited
Applicant Address.....:	Suite 1602,16/F,Tower 2,Nina Tower,No.8 Yeung UK Road, Tsuen Wan, N.T., Hong Kong
Manufacturer.....:	BBPOS Limited
Manufacturer Address.....:	Suite 1602,16/F,Tower 2,Nina Tower,No.8 Yeung UK Road, Tsuen Wan, N.T., Hong Kong
Rating.....:	5V 1400mAh
Test Standards.....:	**47CFR § 2.1093-** Radiofrequency Radiation Exposure Evaluation: Portable Devices; **ANSI C95.1–1999:** IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz; **IEEE 1528–2003, IEEE 1528a-2005:** Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Body Due to Wireless Communications Devices: Experimental Techniques;
Test Result.....:	Pass

Tested by .....: Mei Chun 2014-10-08

Chun Mei, Test Engineer

Reviewed by.....: Shuangwen Zhang 2014-10-08

Shuangwen Zhang,Senior Egineer

Approved by.....: Wu Lian 2014-10-08

Wu Li'an , Manager

Contents

14. MEASUREMENT UNCERTAINTY

15. MAIN TEST INSTRUMENTS

This Test Report consists of the following Annexes:

Annex A: Test Layout
Annex B: Sample Photographs
Annex C: System Performance Check Data
Annex D: Calibration Certificate of Probe and Dipoles

1. GENERAL CONDITIONS

1.1 This report only refers to the item that has undergone the test.

1.2 This report standalone does not constitute or imply by its own an approval of the product by the certification Bodies or competent Authorities.

1.3 This document is only valid if complete; no partial reproduction can be made without written approval of CCIC-SET

1.4 This report cannot be used partially or in full for publicity and/or promotional purposes without previous written approval of CCIC-SET and the Accreditation Bodies, if it applies.

2. ADMINISTRATIVE DATA

2.1. Identification of the Responsible Testing Laboratory

Company Name:	CCIC-SET
Department:	EMC & RF Department
Address:	Electronic Testing Building, Shahe Road, Nanshan District, ShenZhen, P. R. China
Telephone:	+86-755-26629676
Fax:	+86-755-26627238
Responsible Test Lab Managers:	Mr. Wu Li'an

2.2. Identification of the Responsible Testing Location(s)

Company Name:	CCIC-SET
Address:	Electronic Testing Building, Shahe Road, Nanshan District, Shenzhen, P. R. China

2.3. Organization Item

CCIC-SET Report No.:	SET2014-10275
CCIC-SET Project Leader:	Mr. Li Sixiong
CCIC-SET Responsible for accreditation scope:	Mr. Wu Li'an
Start of Testing:	2014-09-22
End of Testing:	2014-09-29

2.4. Identification of Applicant

Company Name:	BBPOS Limited
Address:	Suite 1602,16/F,Tower 2,Nina Tower,No.8 Yeung UK Road, Tsuen Wan, N.T., Hong Kong

2.5. Identification of Manufacture

Company Name:	BBPOS Limited
Address:	Suite 1602,16/F,Tower 2,Nina Tower,No.8 Yeung UK Road, Tsuen Wan, N.T., Hong Kong

Notes: This data is based on the information by the applicant.

3. General Information

3.1. Description Of Equipment Under Test (EUT)

Sample Name:	LOOP MST CHARGE CASE(BLACK) NEW	
Brand Name:	Loop	
FCC ID:	LOOPMST0002	
HW Version	/	
SW Version	/	
General description:	Frequency Range	Bluetooth: 2402MHz-2480MHz
	Development Stage	Identical Prototype
	Accessories	Power Supply
	Battery type	/
	Battery specification	1400mAh, 5V
	Antenna type	Chip Antenna
	Modulation mode	GFSK , π /4-DQPSK, 8-DPSK

NOTE:

a. The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.

b. It is indicated that this BT charger case only support for the Model A1530

c. The BT iPhone case cannot operate standalone by itself without the iPhone: therefore, standalone SAR evaluation is not required for the BT iPhone case. SAR is only considered with the BT iPhone case attached to the iPhone (Model A1530 FCC ID: BCG-E2643A)

d. The iPhone model A1530 supports GSM/GPRS/EDGE 850/1900, WCDMA /HSDPA /HSUPA /DC-HSP /HSPA+ 850/1900, LTE (QPSK/16QAM) Band 2 / 5, WiFi 2.4GHz (802.11b/g/n), WiFi 5GHz (802.11a/n 20/40 MHz), Bluetooth and Simultaneous transmission function.

4 SAR SUMMARY

Highest Measured Standalone SAR Summary For iphone Without BT iphone Case

The result of testing for Model A1530

Exposure Position	Frequency Band	Measured 1g-SAR(W/kg)	Scaled 1g-SAR(W/kg)	Highest Scaled 1g-SAR(W/kg)
Head	GSM850	0.714	0.714	1.142
	GSM1900	1.075	1.075	
	WCDMA Band Ⅱ	1.142	1.142	
	WCDMA Band Ⅴ	0.547	0.547	
	LTE FDD2	1.082	1.082	
	LTE FDD5	0.519	0.519	
	WIFI	0.573	0.573	
Body-Worn (5mm Gap)	GSM850	0.728	0.728	1.024
	GSM1900	0.904	0.925	
	WCDMA Band Ⅱ	0.723	0.723	
	WCDMA Band Ⅴ	0.837	0.837	
	LTE FDD2	1.024	1.024	
	LTE FDD5	0.831	0.831	
	WIFI	0.569	0.569	
	BT	0.016	0.017	
Hotspot Mode Exposure Conditions (5mm Gap)	GSM850	0.875	0.875	1.089
	GSM1900	1.089	1.089	
	WCDMA Band Ⅱ	0.653	0.653	
	WCDMA Band Ⅴ	0.687	0.687	
	LTE FDD2	0.746	0.746	
	LTE FDD5	0.745	0.745	
	WIFI	0.249	0.249	

Highest Measured Standalone SAR Summary For iphone With BT iphone case

The result of testing with Model A1530

Exposure Position	Frequency Band	Measured 1g-SAR(W/kg)	Scaled 1g-SAR(W/kg)	Highest Scaled 1g-SAR(W/kg)
Head	GSM850	0.538	0.563	0.563
	GSM1900	0.254	0.254	
	WCDMA Band Ⅴ	0.285	0.285	
	WCDMA Band Ⅱ	0.531	0.531	
	LTE FDD2	0.272	0.272	
	LTE FDD5	0.392	0.392	
	WIFI	0.527	0.527	

Body-Worn (5mm Gap)	GSM850	0.816	0.816	0.903
	GSM1900	0.418	0.418	
	WCDMA Band Ⅴ	0.592	0.592	
	WCDMA Band Ⅱ	0.903	0.903	
	LTE FDD2	0.517	0.517	
	LTE FDD5	0.627	0.627	
	WIFI	0.512	0.512	
	BT	0.013	0.014	
Hotspot Mode Exposure Conditions (5mm Gap)	GSM850	0.694	0.694	0.967
	GSM1900	0.430	0.430	
	WCDMA Band Ⅴ	0.713	0.713	
	WCDMA Band Ⅱ	0.967	0.967	
	LTE FDD2	0.578	0.578	
	LTE FDD5	0.708	0.708	
	WIFI	0.238	0.238	

5 SPECIFIC ABSORPTION RATE (SAR)

5.1 Introduction

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.

5.2 SAR Definition

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 (). The equation description is as below:

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

SAR is expressed in units of Watts per kilogram (W/kg)

SAR measurement can be either related to the temperature elevation in tissue by

$$\mathbf{SAR} = C\frac{\delta T}{\delta t}$$

where C is the specific head capacity, δT is the temperature rise and δt the exposure duration, or related to the electrical field in the tissue by

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

where σ is the conductivity of the tissue, ρ is the mass density of the tissue and E is the rms electrical field strength.

However for evaluating SAR of low power transmitter, electrical field measurement is typically applied.

5.3 Phantoms

The phantom used for all tests i.e. for both system checks and device testing, was the twin-headed "SAM Phantom", manufactured by SATIMO. The SAM twin phantom is a fiberglass shell phantom with 2mm shell thickness (except the ear region, where shell thickness increases to 6mm).

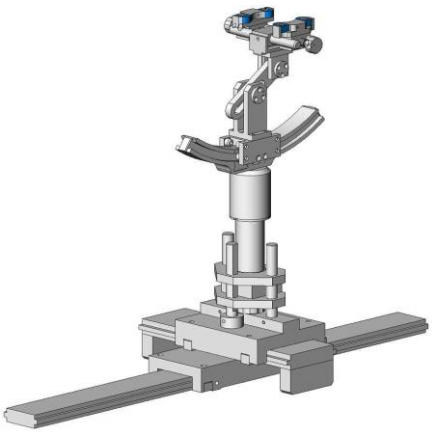
System checking was performed using the flat section, whilst Head SAR tests used the left and right head profile sections. Body SAR testing also used the flat section between the head profiles.

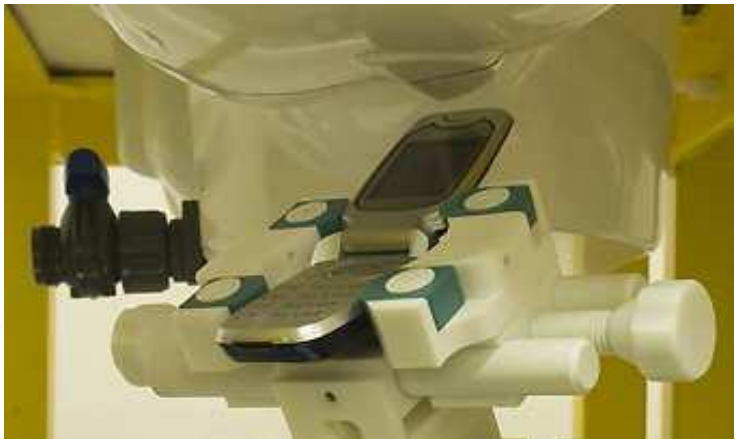
SAM Phantom

5.4 Device Holder

The device was placed in the device holder (illustrated below) that is supplied by SATIMO as an integral part of the COMOSAR test system.

The device holder is designed to cope with the different positions given in the standard. It has two scales for device rotation (with respect to the body axis) and device inclination (with respect to the line between the ear reference points). The rotation centers for both scales is the ear reference point (ERP). Thus the device needs no repositioning when changing the angles.





Device holder

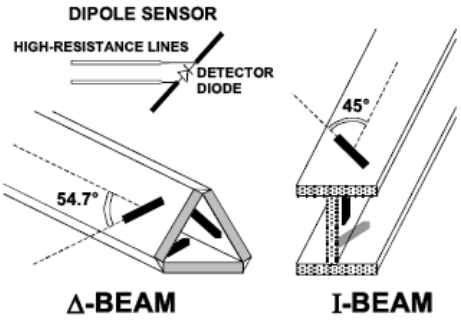
5.5 Probe Specification

Construction	Symmetrical design with triangular core Interleaved sensors Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., DGBE)
Calibration	ISO/IEC 17025 calibration service available.
Frequency	700 MHz to 3 GHz; Linearity: ± 0.5 dB (700 MHz to 3 GHz)
Directivity	± 0.25 dB in HSL (rotation around probe axis) ± 0.5 dB in tissue material (rotation normal to probe axis)
Dynamic Range	1.5 µW/g to 100 mW/g; Linearity: ± 0.5 dB
Dimensions	Overall length: 330 mm (Tip: 20 mm) Tip diameter: 5 mm (Body: 8 mm) Distance from probe tip to dipole centers: <2.7 mm
Application	General dosimetry up to 3 GHz Dosimetry in strong gradient fields Compliance tests of mobile phones
Frequency	700 MHz to 6 GHz; Linearity: ± 0.5 dB (700 MHz to 6 GHz)
Dimensions	Overall length: 330 mm Tip diameter: 2.5 mm (Body: 8 mm) Distance from probe tip to dipole centers: 1 mm
Compatibility	COMOSAR

Isotropic E-Field Probe

The isotropic E-Field probe has been fully calibrated and assessed for isotropicity, and boundary effect within a controlled environment. Depending on the frequency for which the probe is calibrated the method utilized for calibration will change.

The E-Field probe utilizes a triangular sensor arrangement as detailed in the diagram below:



6 OPERATIONAL CONDITIONS DURING TEST

6.1 Schematic Test Configuration

During SAR test, EUT was operating in Traffic Mode (Channel Allocated) at Normal Voltage Condition. A communication link is set up with a System Simulator (SS) by air link, and a call is established.

The Absolute Radio Frequency Channel Number (ARFCN) was allocated to 128, 189 and 251 respectively in the case of GSM 850MHz, or to 512, 661 and 809 respectively in the case of PCS 1900MHz, or to 4357, 4400 and 4458 respectively in the case of WCDMA 850MHz, or to 9262, 9400 and 9538 respectively in the case of WCDMA 1900MHz, or the LTE Band2 ,LTE Band5, and WIFI 2.4G and 5G . The EUT was commanded to operate at maximum transmitting power with Model A1530.

The maximum transmit power of the BLE(CC2541) is 0dBm, the distance of the DUT used is more than 20 cm from the body when use it as a money packet in general. So there's no evaluation about the BT charger case.

The EUT should use its internal transmitter. The antenna(s), battery and accessories shall be those specified by the manufacturer. The EUT battery must be fully charged and checked periodically during the test to ascertain uniform power output. If a wireless link was used, the antenna connected to the output of the base station simulator shall be placed at least 50 cm away from the handset.

The signal transmitted by the simulator to the antenna feeding point should be lower than the output power level of the handset by at least 35 dB

6.2 SAR Measurement System

The SAR measurement system being used is the SATIMO system, the system is controlled remotely from a PC, which contains the software to control the robot and data acquisition equipment. The software also displays the data obtained from test scans.

In operation, the system first does an area (2D) scan at a fixed depth within the liquid from the inside wall of the phantom. When the maximum SAR point has been found, the system will then carry out a 3D scan centred at that point to determine volume averaged SAR level.

6.2.1 Tissue Dielectric Parameters for Head and Body Phantoms

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 Power drifts 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.

IEEE Std 1528-2003 Table 2

Target Frequency (MHz)	Head	
	ε_r	σ (S/m)
300	45.3	0.87
450	43.5	0.87
835	41.5	0.90
900	41.5	0.97
1450	40.5	1.20
1800 – 2000	40.0	1.40
2450	39.2	1.80
2600	39.0	1.96
3000	38.5	2.40

FCC KDB 865664 D01 SAR Measurement 100 MHz to 6 GHz v01r01

Target Frequency (MHz)	Head		Body	
	ε_r	σ (S/m)	ε_r	σ (S/m)
150	52.3	0.76	61.9	0.80
300	45.3	0.87	58.2	0.92
450	43.5	0.87	56.7	0.94
835	41.5	0.90	55.2	0.97
900	41.5	0.97	55.0	1.05
915	41.5	0.98	55.0	1.06
1450	40.5	1.20	54.0	1.30
1610	40.3	1.29	53.8	1.40
1800 – 2000	40.0	1.40	53.3	1.52
2450	39.2	1.80	52.7	1.95
3000	38.5	2.40	52.0	2.73
5000	36.2	4.45	49.3	5.07
5100	36.1	4.55	49.1	5.18
5200	36.0	4.66	49.0	5.30
5300	35.9	4.76	48.9	5.42
5400	35.8	4.86	48.7	5.53
5500	35.6	4.96	48.6	5.65
5600	35.5	5.07	48.5	5.77
5700	35.4	5.17	48.3	5.88
5800	35.3	5.27	48.2	6.00

6.2.2 Simulant liquids

For measurements against the phantom head, the “cheek” and “tilt” position on both the left hand and the right hand sides of the phantom. For body-worn measurements, the EUT was tested against flat phantom representing the user body. The EUT was put on in the belt holder. Simulant liquids that are used for testing at frequencies of GSM 850MHz, GSM 1900MHz, WCDMA 850MHz, WCDMA 1900MHz, LTE Band2 and LTE Band5, WIFI 2.4G and 5G, which are made mainly of sugar, salt and water solutions may be left in the phantoms.

Table 3: Dielectric Performance of Head Tissue Simulating Liquid

Temperature: 23.2°C; Humidity: 64%;					
/	Frequency	Permittivity ε	Conductivity σ (S/m)	Deviation (%)	
Target value	835MHz	41.5	0.90	ε	σ
Validation value (September 22th, 2014)	835MHz	41.45	0.91	-0.1	1.1
Target value	1900MHz	40.0	1.40	--	--
Validation value (September 23th, 2014)	1900MHz	39.89	1.4	-0.3	0.0
Target value	835MHz	41.5	0.90	ε	σ
Validation value (September 24th, 2014)	835MHz	41.43	0.91	-0.2	1.1
Target value	1900MHz	40.0	1.40	ε	σ
Validation value (September 25th, 2014)	1900MHz	39.94	1.4	-0.2	0.0
Target value	835MHz	41.5	0.90	ε	σ
Validation value (September 26th, 2014)	835MHz	41.47	0.91	-0.1	1.1
Target value	1900MHz	40.0	1.40	ε	σ
Validation value (September 27th, 2014)	1900MHz	39.88	1.4	-0.3	0.0
Target value	2450MHz	39.2	1.80	ε	σ
Validation value (September 28th, 2014)	2450MHz	38.99	1.81	-0.5	0.6
Target value	5800MHz	35.3	5.27	ε	σ
Validation value (September 28th, 2014)	5800MHz	35.9	5.01	1.7	-4.9
Target value	5200MHz	36	4.66	ε	σ
Validation value (September 29th, 2014)	5200MHz	36.8	4.78	2.2	2.6
Target value	5600MHz	35.5	4.86	ε	σ
Validation value (September 29th, 2014)	5600MHz	36.1	4.90	1.7	0.8

Table 4: Dielectric Performance of Body Tissue Simulating Liquid

Temperature: 23.2°C; Humidity: 64%;					
/	Frequency	Permittivity ε	Conductivity σ (S/m)	Deviation (%)	
Target value	835MHz	55.2	0.97	ε	σ
Validation value (September 22th, 2014)	835MHz	55.18	0.97	0.0	0.0
Target value	1900MHz	53.3	1.52	--	--
Validation value (September 23th, 2014)	1900MHz	53.32	1.53	0.0	0.7
Target value	835MHz	55.2	0.97	ε	σ
Validation value (September 24th, 2014)	835MHz	55.15	0.97	-0.1	0.0
Target value	1900MHz	53.3	1.52	--	--
Validation value (September 25th, 2014)	1900MHz	53.25	1.53	-0.1	0.7
Target value	835MHz	55.2	0.97	ε	σ
Validation value (September 26th, 2014)	835MHz	55.16	0.97	-0.1	0.0
Target value	1900MHz	53.3	1.52	ε	σ
Validation value (September 27th, 2014)	1900MHz	53.31	1.53	0.0	0.7
Target value	2450MHz	52.7	1.95	ε	σ
Validation value (September 28th, 2014)	2450MHz	52.65	1.96	-0.1	0.5
Target value	5800MHz	47.18	6.32	ε	σ
Validation value (September 28th, 2014)	5800MHz	47.00	6.21	-0.4	-1.7
Target value	5200MHz	51.18	4.84	ε	σ
Validation value (September 29th, 2014)	5200MHz	50.01	4.89	-2.3	1.0
Target value	5600MHz	49.03	6.17	ε	σ
Validation value (September 29th, 2014)	5600MHz	48.77	6.21	-0.5	0.6

Composition of Ingredients for the Tissue Material Used in the SAR Tests:

Ingredients (% by weight)	Frequency (MHz)									
	450		835		915		1900		2450	
Tissue Type	Head	Body	Head	Body	Head	Body	Head	Body	Head	Body
Water	38.56	51.16	41.45	52.4	41.05	56.0	54.9	40.4	62.7	73.2
Salt (Nacl)	3.95	1.49	1.45	1.4	1.35	0.76	0.18	0.5	0.5	0.04
Sugar	56.32	46.78	56.0	45.0	56.5	41.76	0.0	58.0	0.0	0.0
HEC	0.98	0.52	1.0	1.0	1.0	1.21	0.0	1.0	0.0	0.0
Bactericide	0.19	0.05	0.1	0.1	0.1	0.27	0.0	0.1	0.0	0.0
Triton x-100	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	36.8	0.0
DGBE	0.0	0.0	0.0	0.0	0.0	0.0	44.92	0.0	0.0	26.7
Dielectric Constant	43.42	58.0	42.54	56.1	42.0	56.8	39.9	54.0	39.8	52.5
Conductivity (s/m)	0.85	0.83	0.91	0.95	1.0	1.07	1.42	1.45	1.88	1.78

Frequency:5200/5400/5600/5800MHz	
Ingredients	(% by weight)
Water	78
Mineral oil	11
Emulsifiers	9
Additives and Salt	2

Composition of Ingredients for the Tissue Material Used in the SAR Tests：

Fig. 1 Configuration of body tissue

6.3 Equipments and results of validation testing

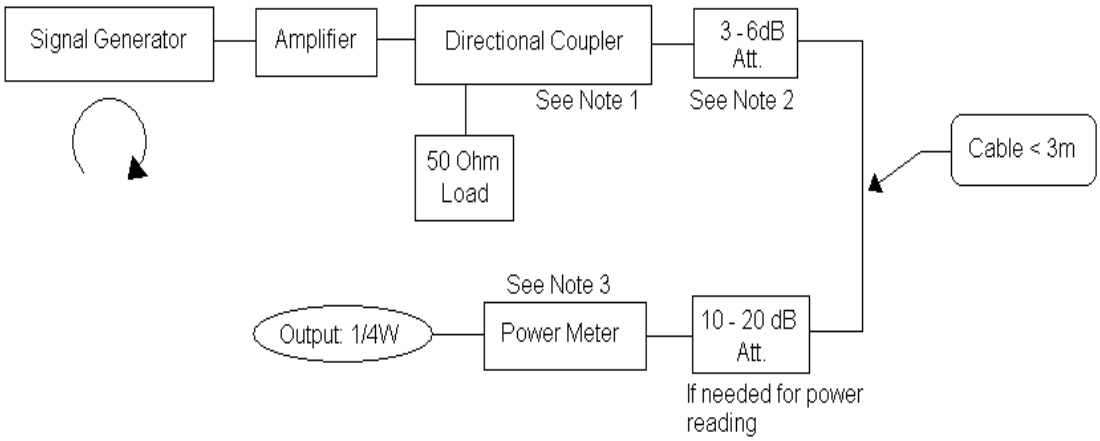
Important equipments :

Equipment description	Manufacturer/Model	Identification No.
SAR Probe	SATIMO	SN_0913_EP169
SAR Probe	SATIMO	SN 07/14 EPG211
Phantom	SATIMO	SN_0913_SAM97
Dipole	SATIMO	SN_0913_DIP0G835-217
Dipole	SATIMO	SN_0913_DIP1G900-218
Dipole	SATIMO	SN 09/13 DIP 2G450-220
Dipole	SATIMO	SN 24/11 WGA16
Vector Network Analyzer	ZVB8	A0802530
Signal Generator	SMR27	A0304219
Amplifier	Nucletudes	143060
Power Meter	NRVS	A0802531
Power Sensor	NRV-Z4	100069
Multimeter	Keithley-2000	4014020
Device Holder	MSH80	SN 09/13 MSH80
SAM Phantom	SAM97	SN 09/13 SAM97

Prior to the assessment, the system validation kit was used to test whether the system

was operating within its specifications of ±10%. The validation results are tabulated below. And also the corresponding SAR plot is attached as well in the SAR plots files.

The following procedure, recommended for performing validation tests using box phantoms is based on the procedures described in the draft IEEE standard P1528. Setup according to the setup diagram below :



With the SG and Amp and with directional coupler in place, set up the source signal at the relevant frequency and use a power meter to measure the power at the end of the SMA cable that you intend to connect to the balanced dipole. Adjust the SG to make this, say, 0.25W (24 dBm). If this level is too high to read directly with the power meter sensor, insert a calibrated attenuator (e.g. 10 or 20 dB) and make a suitable correction to the power meter reading.

Note 1: In this method, the directional coupler is used for monitoring rather than setting the exact feed power level. If, however, the directional coupler is used for power measurement, you should check the frequency range and power rating of the coupler and measure the coupling factor (referred to output) at the test frequency using a VNA.

Note 2: Remember that the use of a 3dB attenuator (as shown in Figure 8.1 of P1528) means that you need an RF amplifier of 2 times greater power for the same feed power. The other issue is the cable length. You might get up to 1dB of loss per meter of cable, so the cable length after the coupler needs to be quite short.

Note 3: For the validation testing done using CW signals, most power meters are suitable. However, if you are measuring the output of a modulated signal from either a signal generator or a handset, you must ensure that the power meter correctly reads the modulated signals.

The measured 1-gram averaged SAR values of the device against the phantom are provided in Tables 5 and Table 6. The humidity and ambient temperature of test facility were 64% and 23.2°C respectively. The body phantom were full of the body tissue simulating liquid. The EUT was supplied with full-charged battery for each measurement.

The distance between the back of the EUT and the bottom of the flat phantom is 10 mm (taking into account of the IEEE 1528 and the place of the antenna).

Table 7: Head System Check Verification Results (1g)

Frequency	Duty cycle	Target value （W/kg）	Test value (W/kg)	
			250 mW	1W
835MHz (September 22th, 2014)	1:1	9.56	2.44	9.76
1900MHz (September 23th, 2014)	1:1	39.7	9.79	39.16
835MHz (September 24th, 2014)	1:1	9.56	2.45	9.80
1900MHz (September 25th, 2014)	1:1	39.7	9.82	39.28
835MHz (September 26th, 2014)	1:1	9.56	2.42	9.68
1900MHz (September 27th, 2014)	1:1	39.7	9.84	39.36
2450MHz (September 28th, 2014)	1:1	53.33	13.17	52.68
5200MHz (September 28th, 2014)	1:1	16.33	4.07	16.28
5600MHz (September 29th, 2014)	1:1	17.69	4.38	17.52
5800MHz (September 29th, 2014)	1:1	18.27	4.32	17.28

Note: Target value was referring to the required value in the calibration certificate of reference dipole.

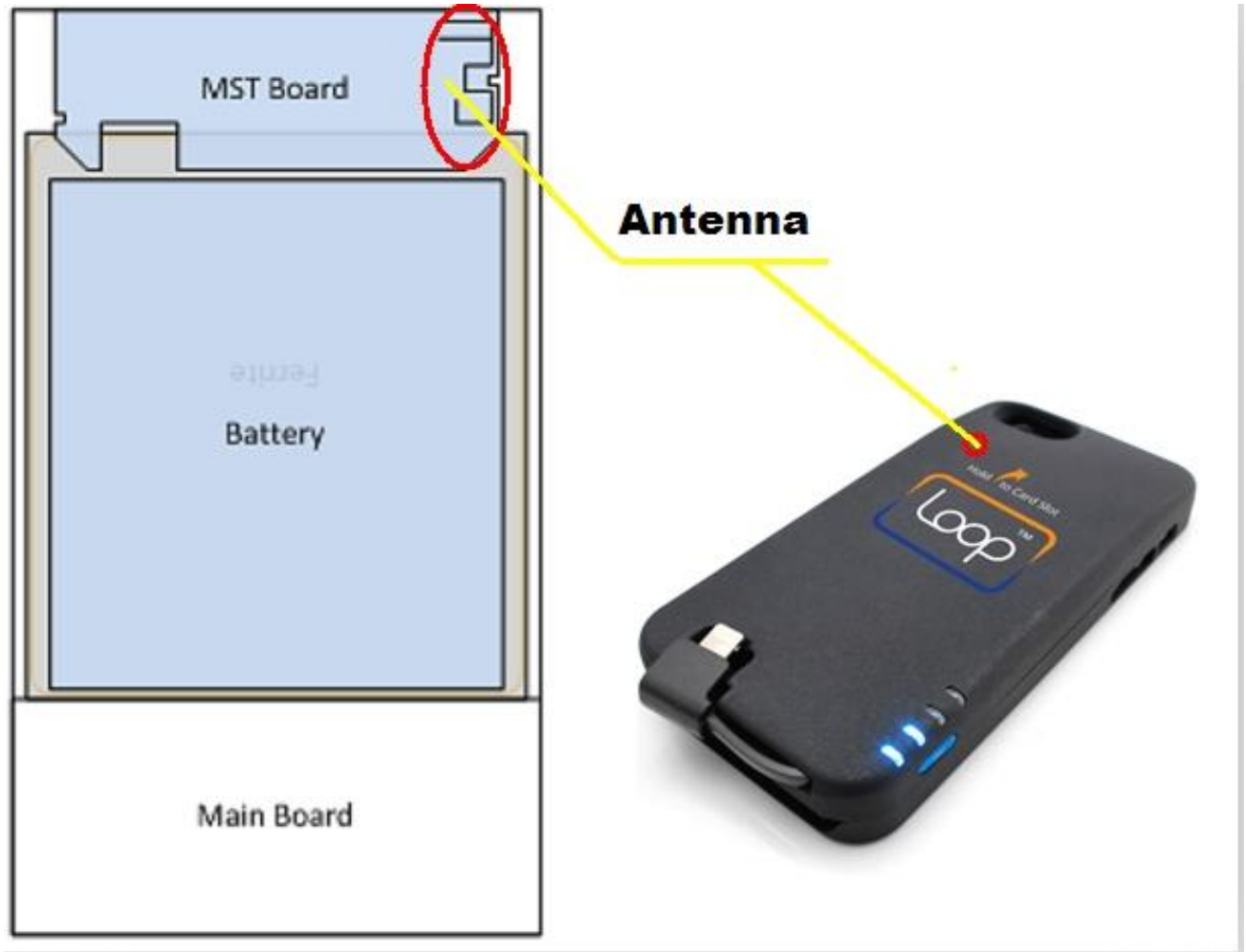
Note: All SAR values are normalized to 1W forward power.

Table 8: Body System Check Verification Results (1g)

Frequency	Duty cycle	Target value （W/kg）	Test value (W/kg)	
			250 mW	1W
835MHz (September 22th, 2014)	1:1	9.92	2.43	9.76
1900MHz (September 23th, 2014)	1:1	40.29	9.99	39.96
835MHz (September 24th, 2014)	1:1	9.92	2.44	9.76
1900MHz (September 25th, 2014)	1:1	40.29	9.97	39.88
835MHz (September 26th, 2014)	1:1	9.92	2.43	9.72
1900MHz (September 27th, 2014)	1:1	40.29	9.98	39.92

2450MHz (September 28th, 2014)	1:1	51.99	13.08	52.32
5200MHz (September 28th, 2014)	1:1	15.89	3.94	15.76
5600MHz (September 29th, 2014)	1:1	17.13	4.23	16.92
5800MHz (September 29th, 2014)	1:1	17.69	4.39	17.56

7 ANTENNA LOCATION

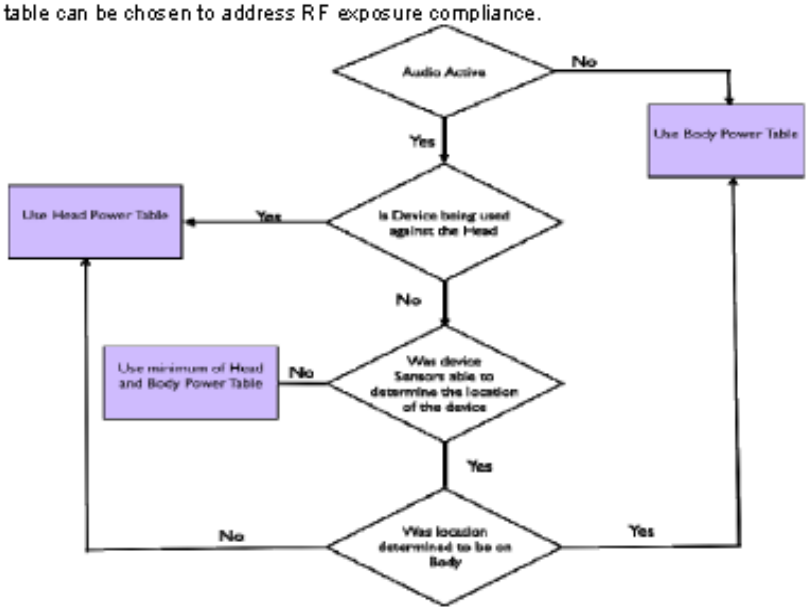


Antenna location for charger case

8 CHARACTERISTICS OF THE TEST

8.1 General Information

iPhone
Model: A1530 The FCC ID: BCG-E2643A device uses sensors present in it to determine if the device is against the user's body so that the correct power table can be chosen to address RF exposure compliance.



Device uses 2 different power tables to meet RF exposure compliance:
- Head Power Table: Head Power Table is used when device is used against the head.
- Body Power Table: Body Power Table is used when device is used against the body. Device uses sensors to determine if the device is against the user's body or not.

The sensors used for this detection are a part of the device. The measurements from the sensors are processed to produce a metric. The device is declared to be on the body if the computed metric exceeds a priori specified threshold. When the device is identified to be on the body, the "body power table" is used. When the device is identified as not on the body, the "head power table" is used.

Operating Configuration(s)	Held to head and Body-worn (Voice call)
Mobile Hotspot	WiFi Hotspot mode permits the device to share its cellular data connection with other WiFi-enabled devices. ☒ Mobile Hotspot (WiFi 2.4 GHz) ☐ Mobile Hotspot (WiFi 5 GHz)
SVLTE & SVDO	Not Supported
AirPlay	AirPlay mode enabled devices transfer data directly between each other ☒ AirPlay (WiFi 2.4 GHz) ☒ AirPlay (WiFi 5 GHz)
RF Exposure Condition(s)	Head, Body-worn Accessory, Hotspot (wireless router)
Device dimension	Overall (Length x Width): 124.0 mm x 58.5 mm Overall Diagonal: 130.4 mm Display Diagonal: 103.0 mm
Accessory	Headset
Battery Options	☒ Standard – Lithium-ion battery, Rating 3.8 Vdc, 5.96 Wh ☐ Extended (large capacity)

8.2 Applicable Measurement Standards

The tests documented in this report were performed in accordance with FCC 47 CFR Parts 1 & 2, IEEE STD 1528-2003, IEEE Std 1528a-2005, the following FCC Published RF exposure KDB procedures, and TCB workshop updates:

447498 D01 General RF Exposure Guidance v05r02

648474 D04 Handsets SAR v01r02

941225 D01 SAR test for 3G devices v02

941225 D02 HSPA and 1x Advanced v02r02

941225 D03 SAR Test Reduction GSM GPRS EDGE v01

941225 D04 SAR for GSM E GPRS Dual Xfer Mode v01

941225 D05 SAR for LTE Devices v02r03

941225 D06 Hot Spot SAR v01r01

248227 D01 SAR Meas for 802 11abg v01r02

865664 D01 SAR Measurement 100 MHz to 6 GHz v01r03

865664 D02 SAR Reporting v01r01

690783 D01 SAR Listings on Grants v01r03

9 LABORATORY ENVIRONMENT

9.1 The Ambient Conditions during SAR Test

Temperature	Min. = 15 ° C, Max. = 30 ° C
Relative humidity	Min. = 30%, Max. = 70%
Ground system resistance	< 0.5 Ω
Ambient noise is checked and found very low and in compliance with requirement of standards. Reflection of surrounding objects is minimized and in compliance with requirement of standards.	

10. EUT TESTING POSITION

This EUT was tested in three different positions. They are left cheek for Head, Front/Back of the EUT with phantom 1cm gap, as illustrated below, please refer to Appendix A for the test setup photos.

11. MEASUREMENT PROCEDURES

11.1 Conducted power measurement

(1) For WWAN power measurement, use base station simulator to configure EUT WWAN transmission in conducted connection with RF cable, at maximum power in each supported wireless interface and frequency band.

(2) Read the WWAN RF power level from the base station simulator.

(3) For WLAN/BT power measurement, use engineering software to configure EUT WLAN/BT continuously transmission, at maximum RF power in each supported wireless interface and frequency band

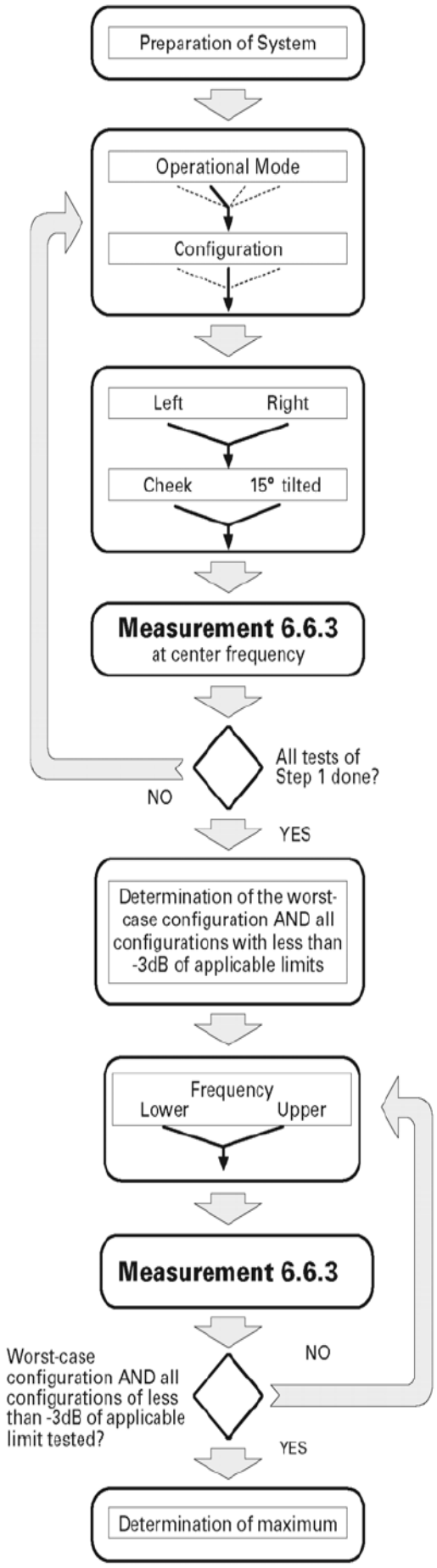
(4) Connect EUT RF port through RF cable to the power meter, and measure WLAN/BT output power

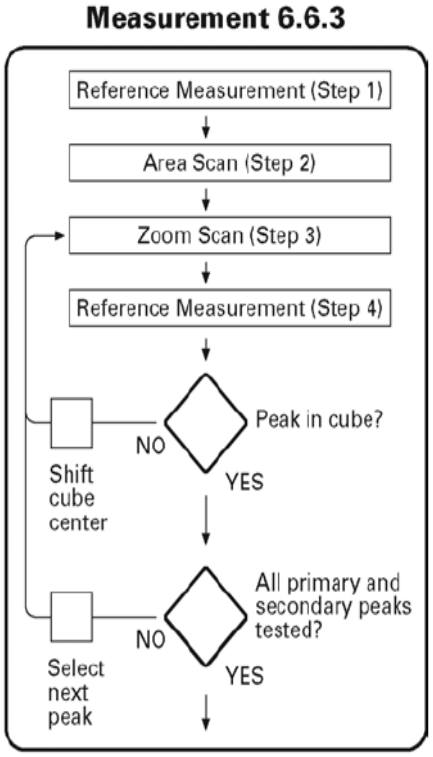
11.2 SAR measurement

(1) Use base station simulator to configure EUT WWAN transmission in radiated connection, and engineering software to configure EUT WLAN/BT continuously transmission, at maximum RF power, in the highest power channel.

(2) Place the EUT in the positions as Appendix A demonstrates.

(3) The SAR test against the head phantom was carried out as follow:


Preparation of System
Operational Mode
Configuration
Left
Right
Cheek
15° tilted
Measurement 6.6.3
at center frequency
All tests of Step 1 done?
NO
YES
Determination of the worst-case configuration AND all configurations with less than -3dB of applicable limits
Frequency
Lower
Upper
Measurement 6.6.3
Worst-case configuration AND all configurations of less than -3dB of applicable limit tested?
NO
YES
Determination of maximum


Measurement 6.6.3
Reference Measurement (Step 1)
Area Scan (Step 2)
Zoom Scan (Step 3)
Reference Measurement (Step 4)
Peak in cube?
NO
YES
Shift cube center
All primary and secondary peaks tested?
NO
YES
Select next peak

After an area scan has been done at a fixed distance of 8mm from the surface of the phantom on the source side, a 3D scan is set up around the location of the maximum spot SAR. First, a point within the scan area is visited by the probe and a SAR reading taken at the start of testing. At the end of testing, the probe is returned to the same point and a second reading is taken. Comparison between these start and end readings enables the power drift during measurement to be assessed. Above is the scanning procedure flow chart and table from the IEEEp1528 standard. This is the procedure for which all compliant testing should be carried out to ensure that all variations of the device position and transmission behaviour are tested. For body-worn measurement, the EUT was tested under two position: face upward and back upward.

(4) Measure SAR results for the highest power channel on each testing position.

(5) Find out the largest SAR result on these testing positions of each band.

(6) Measure SAR results for other channels in worst SAR testing position if the reported SAR testing position if the reported SAR of highest power channel is larger than 1.2 W/Kg

12. CONDUCTED RF OUTPUTPOWER

12.1 Conducted RF Output Power for Model A1530

GSM/(E)GPRS Burst Average Power

Band		Head Average Power (dBm)			Body Average Power (dBm)		
GSM850	TX Channel	128	190	251	128	190	251
	Frequency(MHz)	824.2	836.6	848.8	824.2	836.6	848.8
	GSM (GMSK, 1 Tx slot) CS1	33.5	33.3	33.5	33.5	33.5	33.5
	GPRS (GMSK, 1 Tx slot) CS1	33.5	33.3	33.5	33.5	33.5	33.5
	GPRS (GMSK, 2 Tx slot) CS1	32.5	32.5	32.3	31.0	31.0	31.0
	EGPRS (GMSK, 1 Tx slot) CS1	29.0	29.0	28.9	29.0	29.0	28.9
	EGPRS (GMSK, 2 Tx slot) CS1	28.6	28.9	28.9	28.6	28.9	28.9
GSM1900	TX Channel	512	661	810	512	661	810
	Frequency(MHz)	1850.2	1880	1909.8	1850.2	1880	1909.8
	GSM (GMSK, 1 Tx slot) CS1	30.5	30.5	30.5	28.9	29.0	28.9
	GPRS (GMSK, 1 Tx slot) CS1	30.5	30.5	30.5	28.9	29.0	28.9
	GPRS (GMSK, 2 Tx slot) CS1	28.0	28.0	28.0	26.0	26.0	26.0
	EGPRS (GMSK, 1 Tx slot) CS1	28.0	27.9	28.0	28.0	27.9	28.0
	EGPRS (GMSK, 2 Tx slot) CS1	27.7	27.7	27.8	27.0	27.0	27.0

GPRS/EGPRS Frame Average Power

Band		Head Average Power (dBm)			Body Average Power (dBm)		
GSM850	TX Channel	128	190	251	128	190	251
	Frequency(MHz)	824.2	836.6	848.8	824.2	836.6	848.8
	GPRS (GMSK, 1 Tx slot) CS1	24.5	24.3	24.5	27.5	27.5	27.5
	GPRS (GMSK, 2 Tx slot) CS1	23.5	23.5	23.3	25	25	25
	EGPRS (GMSK, 1 Tx slot) CS1	20	20	19.9	23	23	22.9
	EGPRS (GMSK, 2 Tx slot) CS1	19.6	19.9	19.9	22.6	22.9	22.9
GSM1900	TX Channel	512	661	810	512	661	810
	Frequency(MHz)	1850.2	1880	1909.8	1850.2	1880	1909.8
	GPRS (GMSK, 1 Tx slot) CS1	21.5	21.5	21.5	22.9	23	22.9
	GPRS (GMSK, 2 Tx slot) CS1	19	19	19	20	20	20
	EGPRS (GMSK, 1 Tx slot) CS1	19	18.9	19	22	21.9	22
	EGPRS (GMSK, 2 Tx slot) CS1	18.7	18.7	18.8	21	21	21

WCDMA

Band	Channel	Frequency (MHz)	Head Average Power (dBm)	Body Average Power (dBm)
			12.2 kbps RMC	
WCDMA Band II	9262	1852.4	22.8	20.0
	9400	1880	23.0	20.0
	9538	1907.6	23.0	20.0
WCDMA Band V	4132	826.4	24.5	24.25
	4175	835	24.5	24.25
	4233	846.6	24.3	24.10

Band	Channel	Frequency (MHZ)	Head Average Power (dBm)			
			Sub-test 1	Sub-test 2	Sub-test 3	Sub-test 4
WCDMA Band II	9262	1852.4	22.0	22.0	21.9	22.0
	9400	1880	22.2	22.1	22.0	22.1
	9538	1907.6	22.1	22.1	22.0	22.1
WCDMA Band V	4132	826.4	23.4	23.6	23.1	23.0
	4175	835	23.6	23.7	23.1	23.0
	4233	846.6	23.3	23.2	23.1	22.9
Band	Channel	Frequency (MHZ)	Body Average Power (dBm)			
			Sub-test 1	Sub-test 2	Sub-test 3	Sub-test 4
WCDMA Band II	9262	1852.4	19.9	19.1	18.5	18.6
	9400	1880	20.0	19.0	18.4	18.4
	9538	1907.6	19.9	19.0	18.6	18.4
WCDMA Band V	4132	826.4	24.2	23.2	22.6	22.6
	4175	835	24.2	23.1	22.7	22.6

	4233	846.6	24.1	23.1	22.6	22.7

HSPA(HSDPA&HSUPA)

Band	Channel	Frequency (MHZ)	Head Average Power (dBm)				
			Sub-test 1	Sub-test 2	Sub-test 3	Sub-test 4	Sub-test 5
WCDMA Band II	9262	1852.4	22.2	21.0	20.5	21.8	22.1
	9400	1880	22.0	21.2	20.8	22.0	22.0
	9538	1907.6	21.9	21.5	21.0	22.0	22.1
WCDMA Band V	4132	826.4	23.2	22.4	22.3	22.9	23.1
	4175	835	23.0	22.5	22.1	22.9	22.8
	4233	846.6	23.3	22.2	22.5	22.5	22.9
Band	Channel	Frequency (MHZ)	Body Average Power (dBm)				
			Sub-test 1	Sub-test 2	Sub-test 3	Sub-test 4	Sub-test 5
WCDMA Band II	9262	1852.4	19.9	18.1	19.0	18.1	19.9
	9400	1880	19.8	18.1	19.1	18.0	19.9
	9538	1907.6	19.8	18.0	19.0	18.0	19.8
WCDMA Band V	4132	826.4	24.2	22.2	23.00	22.10	24.2
	4175	835	24.1	22.2	23.10	22.10	24.25
	4233	846.6	24.1	22.1	23.20	22.00	24.2

DC-HSDPA

Band	Channel	Frequency (MHZ)	Head Average Power (dBm)			
			Sub-test 1	Sub-test 2	Sub-test 3	Sub-test 4
WCDMA Band II	9262	1852.4	22.0	22.0	21.4	21.4
	9400	1880	22.0	22.0	21.6	21.6
	9538	1907.6	22.0	22.1	21.5	21.5
WCDMA Band V	4132	826.4	23.5	23.5	23.0	23.1
	4175	835	23.3	23.3	22.8	22.8
	4233	846.6	23.4	23.4	22.9	22.9
Band	Channel	Frequency (MHZ)	Body Average Power (dBm)			
			Sub-test 1	Sub-test 2	Sub-test 3	Sub-test 4
WCDMA Band II	9262	1852.4	19.9	19.9	19.4	19.5
	9400	1880	20.0	20.0	19.6	19.4
	9538	1907.6	20.0	20.0	19.5	19.4
WCDMA Band V	4132	826.4	24.2	24.1	23.7	23.6
	4175	835	24.2	24.1	23.8	23.7
	4233	846.6	24.2	24.2	23.8	23.8

HSPA+

Since 16QAM is not used for uplink, the uplink Category and release is same as HSUPA, i.e., CAT 6 Rel 6. Therefore, the RF conducted power is not measured.

LTE

LTE Band 2

BW (MHz)	Ch.	Freq. (MHz)	Mode	UL RB Allocation	UL RB Start	MPR	Head Avg Pwr (dBm)	Body Avg Pwr (dBm)
20	18700	1860.0	QPSK	1	0	0	23.0	19.3
				1	49	0	23.0	19.3
				1	99	0	23.0	19.3
				50	0	1	22.3	18.3
				50	24	1	22.3	18.3
				50	49	1	22.3	18.2
				100	0	1	22.3	18.2
			16QAM	1	0	1	22.1	18.2
				1	49	1	22.1	18.3
				1	99	1	22.0	18.1
				50	0	2	21.2	17.3
				50	24	2	21.3	17.3
				50	49	2	21.4	17.2
				100	0	2	21.3	17.2
	18900	1880.0	QPSK	1	0	0	23.0	19.3
				1	49	0	23.0	19.3
				1	99	0	23.0	19.2
				50	0	1	22.4	18.2
				50	24	1	22.2	18.2
				50	49	1	22.1	18.2
				100	0	1	22.1	18.2
			16QAM	1	0	1	22.0	18.1
				1	49	1	22.0	18.3
				1	99	1	22.0	18.2
				50	0	2	21.5	17.3
				50	24	2	21.5	17.3
				50	49	2	21.3	17.2
				100	0	2	21.3	17.2
	19100	1900.0	QPSK	1	0	0	23.0	19.3
				1	49	0	23.0	19.3
				1	99	0	23.0	19.3
				50	0	1	22.4	18.3
				50	24	1	22.9	18.3
				50	49	1	22.6	18.3

				100	0	1	22.7	18.3
20	19100	1900.0	16QAM	1	0	1	22.2	18.1
				1	49	1	22.1	18.2
				1	99	1	22.0	18.2
				50	0	2	21.5	17.2
				50	24	2	21.9	17.2
				50	49	2	21.2	17.2
				100	0	2	21.6	17.1

LTE Band 2

BW (MHz)	Ch.	Freq. (MHz)	Mode	UL RB Allocation	UL RB Start	MPR	Head Avg Pwr (dBm)	Body Avg Pwr (dBm)
15	18675	1857.5	QPSK	1	0	0	23.0	19.2
				1	37	0	23.0	19.1
				1	74	0	23.0	19.2
				36	0	1	22.2	18.2
				36	16	1	22.2	18.2
				36	35	1	22.3	18.1
				75	0	1	22.2	18.1
			16QAM	1	0	1	22.1	18.2
				1	37	1	22.1	18.1
				1	74	1	22.0	18.1
				36	0	2	21.6	17.1
				36	16	2	21.3	17.2
				36	35	2	21.3	17.1
				75	0	2	21.3	17.2
	18900	1880.0	QPSK	1	0	0	23.0	19.2
				1	37	0	22.9	19.1
				1	74	0	22.9	19.1
				36	0	1	22.3	18.1
				36	16	1	22.3	18.2
				36	35	1	22.1	18.2
				75	0	1	22.1	18.2
			16QAM	1	0	1	22.2	18.1
				1	37	1	22.1	18.1
				1	74	1	22.1	18.1
				36	0	2	22.5	17.0
				36	16	2	22.7	17.1
				36	35	2	22.4	17.0

				75	0	2	22.5	17.0
15	19125	1902.5	QPSK	1	0	0	23.0	19.1
				1	37	0	23.0	19.1
				1	74	0	23.0	19.1
				36	0	1	22.5	18.2
				36	16	1	22.7	18.1
				36	35	1	22.4	18.1
				75	0	1	22.5	18.1
			16QAM	1	0	1	22.2	18.1
				1	37	1	22.2	18.2
				1	74	1	22.1	18.2
				36	0	2	21.6	17.1
				36	16	2	21.8	17.3
				36	35	2	21.5	17.3
				75	0	2	21.6	17.3

LTE Band 2

BW (MHz)	Ch.	Freq. (MHz)	Mode	UL RB Allocation	UL RB Start	MPR	Head Avg Pwr dBm)	Body Avg Pwr (dBm)
10	18650	1855.0	QPSK	1	0	0	23.0	19.2
				1	24	0	23.0	19.1
				1	49	0	23.0	19.2
				25	0	1	22.2	18.2
				25	12	1	22.2	18.2
				25	24	1	22.2	18.2
				50	0	1	22.2	18.1
			16QAM	1	0	1	22.2	18.3
				1	24	1	22.1	18.2
				1	49	1	22.1	18.2
				25	0	2	21.2	17.2
				25	12	2	21.3	17.2
				25	24	2	21.2	17.1
				50	0	2	21.1	17.2
	18900	1880.0	QPSK	1	0	0	23.0	19.1
				1	24	0	23.0	19.3
				1	49	0	22.9	19.2
				25	0	1	22.5	18.2
				25	12	1	22.2	18.2
				25	24	1	22.2	18.2
				50	0	1	22.3	18.1
			16QAM	1	0	1	21.4	18.2
				1	24	1	21.5	18.2
				1	49	1	21.3	18.1

				25	0	2	20.9	17.1
10	18900	1880.0		25	12	2	20.9	17.2
				25	24	2	20.8	17.1
				50	0	2	20.7	17.1
	19150	1905.0	QPSK	1	0	0	22.4	19.1
				1	24	0	22.5	19.2
				1	49	0	22.5	19.1
				25	0	1	21.8	18.1
				25	12	1	21.8	18.2
				25	24	1	21.7	18.2
				50	0	1	21.9	18.1
			16QAM	1	0	1	21.5	18.2
				1	24	1	21.5	18.1
				1	49	1	21.6	18.3
				25	0	2	20.9	17.2
				25	12	2	21.0	17.2
				25	24	2	20.9	17.3
				50	0	2	20.9	17.1

LTE Band 2

BW (MHz)	Ch.	Freq. (MHz)	Mode	UL RB Allocation	UL RB Start	MPR	Head Avg Pwr dBm)	Body Avg Pwr(dBm)
5	18625	1855.0	QPSK	1	0	0	23.0	19.2
				1	12	0	23.0	19.1
				1	24	0	22.9	19.2
				12	0	1	22.1	18.2
				12	6	1	22.3	18.2
				12	11	1	22.2	18.2
				25	0	1	22.2	18.1
			16QAM	1	0	1	21.9	18.3
				1	12	1	22.0	18.2
				1	24	1	22.0	18.2
				12	0	2	21.2	17.2
				12	6	2	21.3	17.2
				12	11	2	21.3	17.1
				25	0	2	21.2	17.2
	18900	1880.0	QPSK	1	0	0	23.0	19.1
				1	12	0	23.0	19.3
				1	24	0	22.9	19.2
				12	0	1	22.5	18.2
				12	6	1	22.4	18.2
				12	11	1	22.4	18.2

				25	0	1	22.3	18.1
5	18900	1880.0	16QAM	1	0	1	22.4	18.2
				1	12	1	22.2	18.2
				1	24	1	21.9	18.1
				12	0	2	21.5	17.1
				12	6	2	21.6	17.2
				12	11	2	21.4	17.1
				25	0	2	21.4	17.1
	19175	1907.5	QPSK	1	0	0	23.0	19.1
				1	12	0	23.0	19.2
				1	24	0	22.9	19.1
				12	0	1	22.9	18.1
				12	6	1	22.6	18.2
				12	11	1	22.4	18.2
				25	0	1	22.6	18.1
			16QAM	1	0	1	22.4	18.2
				1	12	1	22.1	18.1
				1	24	1	22.0	18.3
				12	0	2	22.0	17.2
				12	6	2	21.8	17.2
				12	11	2	21.6	17.3
				25	0	2	21.6	17.1

LTE Band 2

BW (MHz)	Ch.	Freq. (MHz)	Mode	UL RB Allocation	UL RB Start	MPR	Head Avg Pwr dBm)	Body Avg Pwr(dBm)
3	18615	1851.5	QPSK	1	0	0	23.0	19.2
				1	7	0	22.9	19.2
				1	14	0	23.0	19.2
				8	0	1	22.2	18.1
				8	4	1	22.2	18.2
				8	7	1	22.3	18.0
				15	0	1	22.2	18.1
			16QAM	1	0	1	22.0	18.1
				1	7	1	22.0	18.1
				1	14	1	22.0	18.2
				8	0	2	21.2	17.1
				8	4	2	21.4	17.2
				8	7	2	21.5	17.1

				15	0	2	21.2	17.1
3	18900	1880.0	QPSK	1	0	0	23.0	19.1
				1	7	0	22.9	19.2
				1	14	0	22.9	19.2
				8	0	1	22.3	18.1
				8	4	1	22.4	18.1
				8	7	1	22.4	18.2
				15	0	1	22.4	18.2
			16QAM	1	0	1	22.1	18.1
				1	7	1	22.0	18.1
				1	14	1	22.0	18.2
				8	0	2	21.3	17.2
				8	4	2	21.5	17.1
				8	7	2	21.3	17.1
				15	0	2	21.5	17.1
	19185	1908.5	QPSK	1	0	0	23.0	19.2
				1	7	0	23.0	19.1
				1	14	0	22.9	19.2
				8	0	1	22.4	18.3
				8	4	1	22.4	18.1
				8	7	1	22.4	18.2
				15	0	1	22.4	18.1
			16QAM	1	0	1	22.1	18.0
				1	7	1	22.1	18.2
				1	14	1	22.1	18.2
				8	0	2	21.4	17.1
				8	4	2	21.4	17.2
				8	7	2	21.4	17.1
				15	0	2	21.5	17.1

LTE Band 2

BW (MHz)	Ch.	Freq. (MHz)	Mode	UL RB Allocation	UL RB Start	MPR	Head Avg Pwr dBm)	Body Avg Pwr(dBm)
1.4	18607	1850.7	QPSK	1	0	0	23.0	19.2
				1	2	0	23.0	19.2
				1	5	0	23.0	19.2
				3	0	0	23.0	19.1
				3	1	0	22.9	19.2
				3	2	0	22.0	19.2

				6	0	1	21.7	19.2
1.4	18607	1880.0	16QAM	1	0	1	22.0	18.1
				1	2	1	22.0	18.2
				1	5	1	22.0	18.2
				3	0	1	22.1	18.1
				3	1	1	21.1	18.1
				3	2	1	21.0	18.0
				6	0	2	21.2	17.0
	18900	1880.0	QPSK	1	0	0	23.0	19.1
				1	2	0	23.0	19.2
				1	5	0	23.0	19.2
				3	0	0	23.0	19.1
				3	1	0	22.0	19.0
				3	2	0	22.0	19.1
				6	0	1	22.1	18.2
			16QAM	1	0	1	22.0	18.1
				1	2	1	22.0	18.1
				1	5	1	22.0	18.2
				3	0	1	21.6	18.1
				3	1	1	21.5	18.0
				3	2	1	21.0	18.0
				6	0	2	21.1	17.1
	19193	1909.3	QPSK	1	0	0	23.0	19.2
				1	2	0	22.9	19.1
				1	5	0	22.9	19.2
				3	0	0	23.0	19.1
				3	1	0	23.0	19.0
				3	2	0	23.0	19.0
				6	0	1	22.1	18.1
			16QAM	1	0	1	22.0	18.1
				1	2	1	22.0	18.1
				1	5	1	22.0	18.2
				3	0	1	21.6	18.0
				3	1	1	21.2	18.0
				3	2	1	21.2	18.1
				6	0	2	21.0	17.0

LTE Band 5

BW (MHz)	Ch.	Freq. (MHz)	Mode	UL RB Allocation	UL RB Start	MPR	Head Avg Pwr(dBm)	Body Avg Pwr(dBm)
10	20450	829.0	QPSK	1	0	0	24.0	24.0
				1	24	0	24.0	24.0
				1	49	0	24.0	23.9
				25	0	1	22.9	22.9
				25	12	1	23.0	22.9
				25	24	1	23.0	22.9
				50	0	1	22.9	22.8
			16QAM	1	0	1	23.2	23.1
				1	24	1	23.3	23.0
				1	49	1	23.2	23.2
				25	0	2	22.1	22.1
				25	12	2	22.1	22.2
				25	24	2	22.0	22.0
				50	0	2	21.9	22.0
	20525	836.5	QPSK	1	0	0	24.0	24.0
				1	24	0	24.0	24.0
				1	49	0	24.0	24.0
				25	0	1	22.8	22.9
				25	12	1	22.9	23.0
				25	24	1	22.9	23.0
				50	0	1	22.8	23.0
			16QAM	1	0	1	23.0	23.1
				1	24	1	23.2	23.1
				1	49	1	23.0	23.0
				25	0	2	21.9	22.1
				25	12	2	21.9	22.0
				25	24	2	21.9	22.1
				50	0	2	21.9	22.1
	20600	844.0	QPSK	1	0	0	22.8	24.0
				1	24	0	22.9	24.0
				1	49	0	23.2	24.0
				25	0	1	22.9	23.0
				25	12	1	23.3	23.0
				25	24	1	23.2	23.0

				50	0	1	22.9	23.0
10	20600	844.0	16QAM	1	0	1	23.3	23.1
				1	24	1	23.2	23.1
				1	49	1	23.0	23.0
				25	0	2	21.9	22.2
				25	12	2	22.0	22.1
				25	24	2	22.3	22.0
				50	0	2	21.9	22.0

LTE Band 5

BW (MHz)	Ch.	Freq. (MHz)	Mode	UL RB Allocation	UL RB Start	MPR	Head Avg Pwr(dBm)	Body Avg Pwr(dBm)
5	20425	826.5	QPSK	1	0	0	24.0	23.9
				1	12	0	24.0	23.8
				1	24	0	24.0	23.9
				12	0	1	23.2	22.8
				12	6	1	22.3	22.7
				12	11	1	23.0	22.7
				25	0	1	23.2	22.8
			16QAM	1	0	1	23.3	22.9
				1	12	1	23.3	23.0
				1	24	1	23.0	23.1
				12	0	2	22.3	22.1
				12	6	2	22.5	22.1
				12	11	2	22.5	22.0
				25	0	2	22.3	22.1
	20525	836.5	QPSK	1	0	0	24.0	23.9
				1	12	0	23.9	23.8
				1	24	0	23.9	22.9
				12	0	1	23.1	22.9
				12	6	1	23.1	23.0
				12	11	1	23.1	23.1
				25	0	1	23.0	23.0
			16QAM	1	0	1	23.0	23.0
				1	12	1	23.2	23.0
				1	24	1	23.1	23.0
				12	0	2	22.2	22.0
				12	6	2	22.3	22.1
				12	11	2	22.2	22.0

				25	0	2	22.0	22.1
5	206255	846.5	QPSK	1	0	0	24.0	23.8
				1	12	0	23.9	23.8
				1	24	0	23.9	23.8
				12	0	1	23.2	22.9
				12	6	1	23.0	22.8
				12	11	1	23.3	22.7
				25	0	1	23.0	22.7
			16QAM	1	0	1	23.2	23.0
				1	12	1	23.3	23.2
				1	24	1	22.4	23.0
				12	0	2	22.3	22.1
				12	6	2	22.2	22.1
				12	11	2	22.5	22.0
				25	0	2	22.0	22.1

LTE Band 5

BW (MHz)	Ch.	Freq. (MHz)	Mode	UL RB Allocation	UL RB Start	MPR	Head Avg Pwr(dBm)	Body Avg Pwr(dBm)
3	20415	825.5	QPSK	1	0	0	24.0	23.8
				1	7	0	24.0	23.8
				1	14	0	24.0	23.7
				8	0	1	23.2	22.7
				8	4	1	23.2	22.7
				8	7	1	23.3	22.7
				15	0	1	23.2	22.8
			16QAM	1	0	1	23.1	23.0
				1	7	1	23.3	23.0
				1	14	1	23.4	23.0
				8	0	2	22.2	22.0
				8	4	2	22.5	22.1
				8	7	2	22.4	22.0
				15	0	2	22.3	22.0
	20525	836.5	QPSK	1	0	0	24.0	23.8
				1	7	0	24.0	23.8
				1	14	0	24.0	23.8
				8	0	1	23.2	22.8
				8	4	1	23.2	22.9
				8	7	1	23.2	22.9

				15	0	1	23.0	23.0
3	20525	836.5	16QAM	1	0	1	23.1	23.0
				1	7	1	23.1	23.1
				1	14	1	23.1	23.0
				8	0	2	22.4	22.0
				8	4	2	22.1	22.1
				8	7	2	22.0	22.1
				15	0	2	22.3	22.1
	20635	847.5	QPSK	1	0	0	24.0	23.7
				1	7	0	23.9	23.7
				1	14	0	23.8	23.8
				8	0	1	23.4	22.8
				8	4	1	23.3	22.8
				8	7	1	23.1	22.7
				15	0	1	23.4	22.6
			16QAM	1	0	1	23.1	23.1
				1	7	1	23.0	23.2
				1	14	1	23.0	23.0
				8	0	2	22.1	22.1
				8	4	2	22.3	22.2
				8	7	2	22.3	22.0
				15	0	2	22.5	22.1

LTE Band 5

BW (MHz)	Ch.	Freq. (MHz)	Mode	UL RB Allocation	UL RB Start	MPR	Head Avg Pwr(dBm)	Body Avg Pwr(dBm)
1.4	20407	824.7	QPSK	1	0	0	24.0	23.8
				1	2	0	24.0	23.8
				1	5	0	23.9	23.7
				3	0	0	24.0	23.7
				3	1	0	24.0	23.7
				3	2	0	23.9	23.6
				6	0	1	23.1	22.9
			16QAM	1	0	1	23.1	22.9
				1	2	1	23.1	22.8
				1	5	1	23.0	22.7
				3	0	1	23.0	22.7
				3	1	1	22.8	22.7
				3	2	1	22.9	22.7

				6	0	2	22.1	21.8
1.4	2052	836.5	QPSK	1	0	0	24.0	23.8
				1	2	0	23.8	23.8
				1	5	0	24.0	23.7
				3	0	0	23.8	23.7
				3	1	0	24.0	23.8
				3	2	0	23.8	23.7
				6	0	1	23.8	22.9
			16QAM	1	0	1	23.9	22.9
				1	2	1	23.1	22.8
				1	5	1	23.1	22.8
				3	0	1	22.8	22.7
				3	1	1	22.9	22.8
				3	2	1	23.0	22.7
				6	0	2	22.1	21.8
	20643	848.3	QPSK	1	0	0	24.0	23.8
				1	2	0	24.0	23.8
				1	5	0	23.9	23.7
				3	0	0	23.9	23.7
				3	1	0	23.9	23.7
				3	2	0	23.9	23.8
				6	0	1	23.4	22.8
			16QAM	1	0	1	23.3	22.8
				1	2	1	23.1	22.8
				1	5	1	23.1	22.7
				3	0	1	23.0	22.7
				3	1	1	23.0	22.7
				3	2	1	22.9	22.8
				6	0	2	22.1	22.7

Bluetooth Conducted Power for Model A1530

Bluetooth Avage Power(dBm)				
Channel	Frequency（MHz）	Data Rate		
		DH5	2DH5	3DH5
CH0	2402	11.3	10.3	7.5
CH39	2441	12.8	12.2	7.9
CH78	2480	11.8	10.3	7.5

13 SIMULTANEOUS TRANSMISSION ANALYSIS

Model A1530 with charger case

Sum of the SAR for GSM850 (LAT) + WiFi DTS & UNII Band & BT

RF Exposure conditions	Test Position	Simultaneous Transmission Scenario				∑ 1-g SAR (mW/g)	SPLSR (Yes/ No)
		GSM 850	WiFi DTS Band	WiFi UNII Band	Bluetooth		
Head	Left Touch	0.559	0.305			0.864	No
		0.559		0.351		0.864	No
	Left Tilt	0.302	0.241			0.543	No
		0.302		0.318		0.620	No
	Right Touch	0.563	0.324			0.887	No
		0.563		0.527		1.090	No
	Right Tilt	0.393	0.207			0.600	No
		0.393		0.425		0.818	No
Body-worn Accessory & Hotspot	Rear	0.816	0.512			1.328	No
		0.816		0.468		1.284	No
		0.816			0.014	0.830	No
	Front	0.749	0.215			0.964	No
		0.749		0.323		1.072	No
		0.749			0.010	0.759	No
Hotspot	Edge 1	0	0.089			0.089	No
	Edge 2	0.483	0.019			0.502	No
	Edge 3	0.177	0			0.177	No
	Edge 4	0.694	0.238			0.932	No

SAR to Peak Location Separation Ratio (SPLSR)

As the Sum of the SAR is not greater than 1.6 W/kg SPLSR assessment is not required

Sum of the SAR for GSM1900 (LAT) + WiFi DTS & UNII Band & BT

RF Exposure conditions	Test Position	Simultaneous Transmission Scenario				∑ 1-g SAR (mW/g)	SPLSR (Yes/ No)
		GSM 1900	WiFi DTS Band	WiFi UNII Band	Bluetooth		
Head	Left Touch	0.103	0.305			0.408	No
		0.103		0.351		0.454	No
	Left Tilt	0.066	0.241			0.307	No
		0.066		0.318		0.384	No
	Right Touch	0.254	0.324			0.578	No
		0.254		0.527		0.781	No
	Right Tilt	0.067	0.207			0.274	No
		0.067		0.425		0.492	No
Body-worn Accessory & Hotspot	Rear	0.272	0.512			0.784	No
		0.272		0.468		0.740	No
		0.272			0.014	0.286	No
	Front	0.418	0.215			0.633	No
		0.418		0.323		0.741	No
		0.418			0.010	0.428	No
Hotspot	Edge 1	0	0.089			0.089	No
	Edge 2	0.058	0.019			0.077	No
	Edge 3	0.430	0			0.430	No
	Edge 4	0.056	0.238			0.294	No

SAR to Peak Location Separation Ratio (SPLSR)

As the Sum of the SAR is not greater than 1.6 W/kg SPLSR assessment is not required

Sum of the SAR for W-CDMA Band 2 (LAT) + WiFi DTS & UNII Band & BT

RF Exposure conditions	Test Position	Simultaneous Transmission Scenario				∑ 1-g SAR (mW/g)	SPLSR (Yes/ No)
		W-CDMA Band 2	WiFi DTS Band	WiFi UNII Band	Bluetooth		
Head	Left Touch	0.129	0.305			0.434	No
		0.129		0.351		0.480	No
	Left Tilt	0.074	0.241			0.315	No
		0.074		0.318		0.392	No
	Right Touch	0.285	0.324			0.609	No
		0.285		0.527		0.812	No
	Right Tilt	0.064	0.207			0.271	No
		0.064		0.425		0.489	No
Body-worn Accessory & Hotspot	Rear	0.231	0.512			0.743	No
		0.231		0.468		0.699	No
		0.231			0.014	0.245	No
	Front	0.592	0.215			0.807	No
		0.592		0.323		0.915	No
		0.592			0.010	0.602	No
Hotspot	Edge 1	0	0.089			0.089	No
	Edge 2	0.713	0.019			0.732	No
	Edge 3	0.588	0			0.588	No
	Edge 4	0.083	0.238			0.321	No

SAR to Peak Location Separation Ratio (SPLSR)

As the Sum of the SAR is not greater than 1.6 W/kg SPLSR assessment is not required

Sum of the SAR for W-CDMA Band 5 (LAT) + WiFi DTS & UNII Band & BT

RF Exposure conditions	Test Position	Simultaneous Transmission Scenario				∑ 1-g SAR (mW/g)	SPLSR (Yes/ No)
		W-CDMA Band 5	WiFi DTS Band	WiFi UNII Band	Bluetooth		
Head	Left Touch	0.531	0.305			0.836	No
		0.531		0.351		0.882	No
	Left Tilt	0.280	0.241			0.521	No
		0.280		0.318		1.023	No
	Right Touch	0.496	0.324			0.820	No
		0.496		0.527		1.023	No
	Right Tilt	0.281	0.207			0.488	No
		0.281		0.425		0.706	No
Body-worn Accessory & Hotspot	Rear	0.872	0.512			1.384	No
		0.872		0.468		1.340	No
		0.872			0.014	0.886	No
	Front	0.903	0.215			1.118	No
		0.903		0.323		1.226	No
		0.903			0.010	0.913	No
Hotspot	Edge 1	0	0.089			0.089	No
	Edge 2	0.683	0.019			0.702	No
	Edge 3	0.322	0			0.322	No
	Edge 4	0.967	0.238			1.205	No

SAR to Peak Location Separation Ratio (SPLSR)

As the Sum of the SAR is not greater than 1.6 W/kg SPLSR assessment is not required

Sum of the SAR for LTE Band 2 (LAT) + WiFi DTS & UNII Band & BT

RF Exposure conditions	Test Position	Simultaneous Transmission Scenario				∑ 1-g SAR (mW/g)	SPLSR (Yes/ No)
		LTE Band	WiFi DTS Band	WiFi UNII Band	Bluetooth		
Head	Left Touch	0.074	0.305			0.379	No
		0.074		0.351		0.425	No
	Left Tilt	0.061	0.241			0.302	No
		0.061		0.318		0.379	No
	Right Touch	0.272	0.324			0.596	No
		0.272		0.527		0.799	No
	Right Tilt	0.045	0.207			0.252	No
		0.045		0.425		0.470	No
Body-worn Accessory & Hotspot	Rear	0.187	0.512			0.699	No
		0.187		0.468		0.655	No
		0.187			0.014	0.201	No
	Front	0.517	0.215			0.732	No
		0.517		0.323		0.840	No
		0.517			0.010	0.527	No
Hotspot	Edge 1	0	0.089			0.089	No
	Edge 2	0.578	0.019			0.597	No
	Edge 3	0.496	0			0.496	No
	Edge 4	0.057	0.238			0.295	No

SAR to Peak Location Separation Ratio (SPLSR)

As the Sum of the SAR is not greater than 1.6 W/kg SPLSR assessment is not required

Sum of the SAR for LTE Band 5 (LAT) + WiFi DTS & UNII Band & BT

RF Exposure conditions	Test Position	Simultaneous Transmission Scenario				∑ 1-g SAR (mW/g)	SPLSR (Yes/ No)
		LTE Band	WiFi DTS Band	WiFi UNII Band	Bluetooth		
Head	Left	0.392	0.305			0.697	No
	Touch	0.392		0.351		0.743	No
	Left	0.227	0.241			0.468	No
	Tilt	0.227		0.318		0.545	No
	Right	0.384	0.324			0.708	No
	Touch	0.384		0.527		0.911	No
	Right	0.227	0.207			0.434	No
	Tilt	0.227		0.425		0.652	No
Body-worn Accessory & Hotspot	Rear	0.627	0.512			1.139	No
		0.627		0.468		1.095	No
		0.627			0.014	0.641	No
	Front	0.626	0.215			0.841	No
		0.626		0.323		0.949	No
		0.626			0.010	0.636	No
Hotspot	Edge 1	0	0.089			0.089	No
	Edge 2	0.562	0.019			0.581	No
	Edge 3	0.189	0			0.189	No
	Edge 4	0.708	0.238			0.946	No

SAR to Peak Location Separation Ratio (SPLSR)

As the Sum of the SAR is not greater than 1.6 W/kg SPLSR assessment is not required

13. SAR TEST RESULTS

General Note:

1.The Model A1530 must be tested according to all required SAR test procedures, without the BT iPhone case, to demonstrate compliance. The SAR results you can get from the chapter 13.1, and all SAR results are within 15% of those reported in the original SAR report for BCG-E2643A.

2. When the BT iPhone case is not transmitting, with BT iPhone case attached Model A1530 separately, test SAR according to the highest SAR reported for each combination of wireless mode, frequency band and exposure configuration (head, body-worn accessory and hotspot mode etc. where all positions in each exposure configuration are considered as one exposure configuration). In addition, for test cases where the measured SAR for a handset without the accessory is greater than 1.2 W/Kg, these tests should be repeated with the BT iPhone case.

13.1 SAR data For iphone without BT iPhone case

13.1.1 The results for Model A1530

GSM850

Band	Mode	Test Position	Ch.	Freq. (MHz)	Measured 1g SAR(W/kg)	Scaled 1g SAR(W/kg)
GSM850	Voice	Left Cheek	190	836.6	0.412	0.431
	Voice	Left Tilted	190	836.6	0.217	0.227
	Voice	Right Cheek	190	836.6	0.415	0.435
	Voice	Right Tilted	190	836.6	0.241	0.252
	GPRS 2 slots	Left Cheek	190	836.6	0.711	0.711
	GPRS 2 slots	Left Tilted	190	836.6	0.413	0.413
	GPRS 2 slots	Right Cheek	190	836.6	0.714	0.714
	GPRS 2 slots	Right Tilted	190	836.6	0.427	0.427
	Voice	Rear	190	836.6	0.728	0.728
	Voice	Face	190	836.6	0.647	0.647
	GPRS 2 slots	Rear	128	824.2	0.788	0.788
			190	836.6	0.832	0.832
			251	848.8	0.875	0.875
			Repeat measurement		0.856	0.856
	GPRS 2 slots	Face	190	836.6	0.729	0.729
	GPRS 2 slots	Edge 2	190	836.6	0.737	0.737
	GPRS 2 slots	Edge 3	190	836.6	0.224	0.224
	GPRS 2 slots	Edge 4	190	836.6	0.486	0.486

GSM1900

Band	Mode	Test Position	Ch.	Freq. (MHz)	Measured 1g SAR(W/kg)	Scaled 1g SAR(W/kg)
GSM1900	Voice	Left Cheek	661	1880.0	0.362	0.362
	Voice	Left Tilted	661	1880.0	0.279	0.279
	Voice	Right Cheek	661	1880.0	0.758	0.758
	Voice	Right Tilted	661	1880.0	0.234	0.234
	GPRS 2 slots	Left Cheek	661	1880.0	0.592	0.592
	GPRS 2 slots	Left Tilted	661	1880.0	0.347	0.347
	GPRS 2 slots	Right Cheek	512	1850.2	1.075	1.075
			Repeat measurement		1.068	1.068
			661	1880.0	1.057	1.057
			810	1909.8	1.048	1.048
	GPRS 2 slots	Right Tilted	661	1880.0	0.345	0.345
	Voice	Rear	512	1850.2	0.904	0.925
			Repeat measurement		0.902	0.923
			661	1880.0	0.879	0.879
			810	1909.8	0.867	0.887
	Voice	Face	661	1880.0	0.638	0.638
	GPRS 2 slots	Rear	512	1850.2	1.012	1.012
			661	1880.0	1.008	1.008
			810	1909.8	1.007	1.007
	GPRS 2 slots	Front	661	1880.0	0.714	0.714
	GPRS 2 slots	Edge 2	661	1880.0	0.428	0.428
	GPRS 2 slots	Edge 3	661	1880.0	0.792	0.792
	GPRS 2 slots	Edge 4	661	1880.0	0.079	0.079
	EGPRS 2slots	Rear	512	1850.2	1.021	1.021
			661	1880.0	0.987	0.987
			810	1909.8	1.089	1.089
			Repeat measurement		1.087	1.087
	EGPRS 2slots	Face	661	1880.0	0.658	0.658
	EGPRS 2slots	Edge 2	661	1880.0	0.786	0.786
	EGPRS 2slots	Edge 3	512	1850.2	0.814	0.814
			661	1880.0	0.803	0.803
			810	1909.8	0.807	0.807
			Repeat measurement		0.804	0.804
	EGPRS 2slots	Edge 4	661	1880.0	0.061	0.061

WCDMA 1900

Band	Mode	Test Position	Ch.	Freq. (MHz)	Measured 1g SAR (W/kg)	Scaled 1g SAR (W/kg)
WCDMA 1900	Rel.99 RMC	Left Cheek	9400	1880.0	0.654	0.654
		Left Tilted	9400	1880.0	0.413	0.413
		Right Cheek	9262	1852.4	1.024	1.072
			9400	1880.0	1.142	1.142
			Repeat measurement		1.124	1.124
			9538	1907.6	1.087	1.087
		Right Tilted	9400	1880.0	0.415	0.415
		Rear	9400	1880.0	0.723	0.723
		Face	9400	1880.0	0.625	0.625
		Edge 2	9400	1880.0	0.567	0.567
		Edge 3	9400	1880.0	0.653	0.653
		Edge 4	9400	1880.0	0.248	0.248

WCDMA 850

Band	Mode	Test Position	Ch.	Freq. (MHz)	Measured 1g SAR (W/kg)	Scaled 1g SAR (W/kg)
WCDMA 850	Rel.99 RMC	Left Cheek	4183	836.6	0.547	0.547
		Left Tilted	4183	836.6	0.258	0.258
		Right Cheek	4183	836.6	0.545	0.545
		Right Tilted	4183	836.6	0.247	0.247
		Rear	4132	826.4	0.836	0.836
			Repeat measurement		0.837	0.837
			4183	836.6	0.803	0.803
			4233	846.6	0.831	0.831
		Face	4183	836.6	0.719	0.719
		Edge 2	4183	836.6	0.478	0.478
		Edge 3	4183	836.6	0.212	0.212
		Edge 4	4183	836.6	0.687	0.687

LTE Band2 (20MHz Bandwidth)

Test Position	Mode	UL CH.	Freq. (MHz)	UL RB Allocation	UL RB Start	Measured 1g SAR (W/kg)	Scaled 1g SAR (W/kg)
Left Cheek	QPSK	18700	1860.0	1	49	0.647	0.647
		18900	1880.0	1	49	0.792	0.792
				50	24	0.638	0.638
				100	0	0.635	0.635
		19100	1900.0	1	49	0.764	0.764
Left Tilted	QPSK	18900	1880.0	1	49	0.528	0.528
				50	24	0.396	0.396
Right Cheek	QPSK	18700	1860.0	1	49	1.021	1.021
				50	24	0.788	0.788
		18900	1880.0	1	49	1.082	1.082
				Repeat measurement		1.078	1.078
				50	24	0.831	0.831
				100	0	0.828	0.828
		19100	1900.0	1	49	0.942	0.942
				50	24	0.872	0.872
Right Tilt	QPSK	18700	1860.0	1	49	0.431	0.431
		19100	1900.0	50	24	0.327	0.327
Rear	QPSK	18700	1860.0	1	49	0.987	0.987
				50	24	0.789	0.789
		18900	1880.0	1	49	1.021	1.021
				50	24	0.831	0.831
				100	0	0.829	0.829
		19100	1900.0	1	49	1.024	1.024
				Repeat measurement		1.021	1.021
				50	24	0.868	0.868
Front	QPSK	18900	1880.0	1	49	0.775	0.775
				50	24	0.592	0.592
EDGE 2	QPSK	18900	1880.0	1	49	0.508	0.508
				50	24	0.392	0.392
EDGE 3	QPSK	18900	1880.0	1	49	0.746	0.746
				50	24	0.578	0.578
EDGE 4	QPSK	18900	1880.0	1	49	0.079	0.079
				50	24	0.062	0.062

LTE Band5 (10MHz Bandwidth)

Test Position	Mode	UL CH.	Freq. (MHz)	UL RB Allocation	UL RB Start	Measured 1g SAR (W/kg)	Scaled 1g SAR (W/kg)
Left Cheek	QPSK	20525	836.6	1	24	0.519	0.519
				25	12	0.396	0.396
Left Tilted	QPSK	20525	836.6	1	24	0.238	0.238
				25	12	0.202	0.202
Right Cheek	QPSK	20525	836.6	1	24	0.502	0.502
				25	12	0.384	0.384
Right Tilt	QPSK	20525	836.6	1	24	0.263	0.263
				25	12	0.192	0.192
Rear	QPSK	20450	829.0	1	24	0.689	0.689
		20525	836.6	1	24	0.831	0.831
				Repeat measurement		0.827	0.827
				25	12	0.742	0.742
				50	0	0.744	0.744
		20600	844.0	1	24	0.813	0.813
Front	QPSK	20525	836.6	1	24	0.769	0.769
				25	12	0.653	0.653
EDGE 2	QPSK	20525	836.6	1	24	0.467	0.467
				25	12	0.392	0.392
EDGE 3	QPSK	20525	836.6	1	24	0.203	0.203
				25	12	0.187	0.187
EDGE 4	QPSK	20525	836.6	1	24	0.745	0.745
				25	12	0.623	0.623

Bluetooth

Test Position	Mode	Ch.	Freq. (MHz)	Measured 1g SAR (W/kg)	Scaled 1g SAR (W/kg)
Rear	GFSK	39	2441	0.016	0.017
Face		39	2441	0.012	0.013

WIFI(DTS Band)

Band	Test Position	Mode	Ch.	Freq. (MHz)	Measured 1g SAR (W/kg)	Scaled 1g SAR (W/kg)
2.4GHz	Left Cheek	802.11b	6	2437	0.233	0.233
	Left Tilted	802.11b	6	2437	0.158	0.158
	Right Cheek	802.11b	6	2437	0.573	0.573
	Right Tilted	802.11b	6	2437	0.408	0.408
5.8GHz	Left Cheek	802.11a	157	5785	0.381	0.381
	Left Tilted	802.11a	157	5785	0.459	0.459
	Right Cheek	802.11a	157	5785	0.378	0.378
	Right Tilted	802.11a	157	5785	0.331	0.331
2.4GHz	Rear	802.11b	6	2437	0.457	0.457
	Face	802.11b	6	2437	0.221	0.221
5.8GHz	Rear	802.11a	157	5785	0.569	0.569
	Face	802.11a	157	5785	0.171	0.171
2.4GHz	Edge 1	802.11b	6	2437	0.104	0.104
	Edge 2	802.11b	6	2437	0.018	0.018
	Edge 4	802.11b	6	2437	0.249	0.249

WIFI(UNII Bands)

Band	Test Position	Mode	Ch.	Freq. (MHz)	Measured 1g SAR(W/kg)	Scaled 1g SAR(W/kg)
5.2GHz	Left Cheek	802.11a	48	5240	0.135	0.135
	Left Tilted	802.11a	48	5240	0.091	0.091
	Right Cheek	802.11a	48	5240	0.403	0.403
	Right Tilted	802.11a	48	5240	0.278	0.278
5.3GHz	Left Cheek	802.11a	52	5260	0.163	0.163
	Left Tilted	802.11a	52	5260	0.085	0.085
	Right Cheek	802.11a	52	5260	0.427	0.427
	Right Tilted	802.11a	52	5260	0.271	0.271
5.5GHz	Left Cheek	802.11a	104	5520	0.293	0.293
			116	5580	0.274	0.274
			124	5620	0.375	0.375
			136	5680	0.363	0.363
	Left Tilted	802.11a	104	5520	0.354	0.354
			116	5580	0.273	0.273
			124	5620	0.351	0.351
			136	5680	0.346	0.346
	Right Cheek	802.11a	104	5520	0.501	0.501
			116	5580	0.442	0.442
			124	5620	0.591	0.591
			136	5680	0.498	0.498
	Right Tilted	802.11a	104	5520	0.410	0.410
			116	5580	0.408	0.408
			124	5620	0.502	0.502
			136	5680	0.417	0.417
5.2GHz	Rear	802.11a	48	5240	0.367	0.367
	Front		48	5240	0.104	0.104
5.3GHz	Rear	802.11a	52	5260	0.428	0.428
	Front		52	5260	0.114	0.114
5.5GHz	Rear	802.11a	104	5520	0.507	0.507
			116	5580	0.381	0.381
			124	5620	0.425	0.425
			136	5680	0.518	0.518
	Front	802.11a	124	5620	0.314	0.314

13.2 SAR data For iphone with charger case

The result of charger case testing with Model A1530

GSM850

Band	Mode	Test Position	Ch.	Freq. (MHz)	Measured 1g SAR (W/kg)	Scaled 1g SAR (W/kg)
GSM850	Voice	Left Cheek	190	836.6	0.534	0.559
	Voice	Left Tilted	190	836.6	0.288	0.302
	Voice	Right Cheek	190	836.6	0.538	0.563
	Voice	Right Tilted	190	836.6	0.375	0.393
	GPRS 2 slots	Left Cheek	190	836.6	0.432	0.432
	GPRS 2 slots	Left Tilted	190	836.6	0.256	0.256
	GPRS 2 slots	Right Cheek	190	836.6	0.399	0.399
	GPRS 2 slots	Right Tilted	190	836.6	0.310	0.310
	Voice	Rear	128	824.2	0.813	0.813
			190	836.6	0.816	0.816
			Repeat measurement		0.814	0.814
			251	848.8	0.816	0.816
	Voice	Face	190	836.6	0.749	0.749
	GPRS 2 slots	Rear	190	836.6	0.588	0.588
	GPRS 2 slots	Face	190	836.6	0.584	0.584
	GPRS 2 slots	Edge 2	190	836.6	0.483	0.483
	GPRS 2 slots	Edge 3	190	836.6	0.177	0.177
	GPRS 2 slots	Edge 4	190	836.6	0.694	0.694

GSM1900

Band	Mode	Test Position	Ch.	Freq. (MHz)	Measured 1g SAR (W/kg)	Scaled 1g SAR (W/kg)
GSM1900	Voice	Left Cheek	661	1880.0	0.103	0.103
	Voice	Left Tilted	661	1880.0	0.066	0.066
	Voice	Right Cheek	661	1880.0	0.254	0.254
	Voice	Right Tilted	661	1880.0	0.067	0.067
	GPRS 2 slots	Left Cheek	661	1880.0	0.082	0.082
	GPRS 2 slots	Left Tilted	661	1880.0	0.063	0.063
	GPRS 2 slots	Right Cheek	661	1880.0	0.203	0.203
	GPRS 2 slots	Right Tilted	661	1880.0	0.048	0.048
	Voice	Rear	661	1880.0	0.266	0.272
	Voice	Face	661	1880.0	0.418	0.418
	GPRS 2 slots	Rear	661	1880.0	0.194	0.199
	GPRS 2 slots	Face	661	1880.0	0.292	0.292
	GPRS 2 slots	Edge 2	661	1880.0	0.054	0.054
	GPRS 2 slots	Edge 3	661	1880.0	0.430	0.430
	GPRS 2 slots	Edge 4	661	1880.0	0.051	0.051
	EGPRS 2slots	Rear	661	1880.0	0.192	0.192
	EGPRS 2slots	Face	661	1880.0	0.287	0.287
	EGPRS 2slots	Edge 2	661	1880.0	0.058	0.058
	EGPRS 2slots	Edge 3	661	1880.0	0.427	0.427
	EGPRS 2slots	Edge 4	661	1880.0	0.056	0.056

WCDMA 1900

Band	Mode	Test Position	Ch.	Freq. (MHz)	Measured 1g SAR (W/kg)	Scaled 1g SAR (W/kg)
WCDMA 1900	Rel.99 RMC	Left Cheek	9400	1880.0	0.129	0.129
		Left Tilted	9400	1880.0	0.074	0.074
		Right Cheek	9262	1852.4	0.285	0.285
		Right Tilted	9400	1880.0	0.064	0.064
		Rear	9400	1880.0	0.231	0.231
		Face	9400	1880.0	0.592	0.592
		Edge 2	9400	1880.0	0.713	0.713
		Edge 3	9400	1880.0	0.588	0.588
		Edge 4	9400	1880.0	0.083	0.083

WCDMA 850

Band	Mode	Test Position	Ch.	Freq. (MHz)	Measured 1g SAR(W/kg)	Scaled 1g SAR(W/kg)
WCDMA 850	Rel.99 RMC	Left Cheek	4183	836.6	0.531	0.531
		Left Tilted	4183	836.6	0.280	0.280
		Right Cheek	4183	836.6	0.496	0.496
		Right Tilted	4183	836.6	0.281	0.281
		Rear	4132	826.4	0.822	0.822
			4183	836.6	0.834	0.834
			4233	846.6	0.842	0.872
			Repeat measurement		0.837	0.837
		Face	4132	826.4	0.897	0.897
			4183	836.6	0.903	0.903
			Repeat measurement		0.896	0.896
			4233	846.6	0.901	0.933
		Edge 2	4183	836.6	0.683	0.683
		Edge 3	4183	836.6	0.322	0.322
		Edge 4	4132	826.4	0.927	0.927
			4183	836.6	0.965	0.965
			4233	846.6	0.967	0.967
			Repeat measurement		0.964	0.964

LTE Band2 (20MHz Bandwidth)

Test Position	Mode	UL CH.	Freq.(MHz)	UL RB Allocation	UL RB Start	Measured 1g SAR(W/kg)	Scaled 1g SAR(W/kg)
Left Cheek	QPSK	18900	1880.0	1	49	0.051	0.051
				50	24	0.074	0.074
Left Tilted	QPSK	18900	1880.0	1	49	0.051	0.051
				50	24	0.061	0.061
Right Cheek	QPSK	18900	1880.0	1	49	0.272	0.272
				50	24	0.104	0.104
Right Tilt	QPSK	18900	1880.0	1	49	0.045	0.045
				50	24	0.037	0.037
Rear	QPSK	18900	1880.0	1	49	0.160	0.160
				50	24	0.187	0.187
Front	QPSK	18900	1880.0	1	49	0.456	0.456
				50	24	0.517	0.517
EDGE 2	QPSK	18900	1880.0	1	49	0.466	0.466
				50	24	0.578	0.578
EDGE 3	QPSK	18900	1880.0	1	49	0.396	0.396
				50	24	0.496	0.496
EDGE 4	QPSK	18900	1880.0	1	49	0.057	0.057
				50	24	0.055	0.055

LTE Band5 (10MHz Bandwidth)

Test Position	Mode	UL CH.	Freq. (MHz)	UL RB Allocation	UL RB Start	Measured 1g SAR(W/kg)	Scaled 1g SAR(W/kg)
Left Cheek	QPSK	20525	836.6	1	24	0.389	0.389
				25	12	0.392	0.392
Left Tilted	QPSK	20525	836.6	1	24	0.222	0.222
				25	12	0.227	0.227
Right Cheek	QPSK	20525	836.6	1	24	0.381	0.381
				25	12	0.384	0.384
Right Tilt	QPSK	20525	836.6	1	24	0.215	0.215
				25	12	0.227	0.227
Rear	QPSK	20525	836.6	1	24	0.579	0.579
				25	12	0.627	0.627
Front	QPSK	20525	836.6	1	24	0.626	0.626
				25	12	0.620	0.620
EDGE 2	QPSK	20525	836.6	1	24	0.520	0.520
				25	12	0.562	0.562
EDGE 3	QPSK	20525	836.6	1	24	0.189	0.189
				25	12	0.169	0.169
EDGE 4	QPSK	20525	836.6	1	24	0.677	0.677
				25	12	0.708	0.708

Bluetooth

Test Position	Mode	Ch.	Freq. (MHz)	Measured 1g SAR (W/kg)	Scaled 1g SAR (W/kg)
Rear	GFSK	39	2441	0.013	0.014
Face		39	2441	0.010	0.010

WIFI(DTS Band)

Band	Test Position	Mode	Ch.	Freq. (MHz)	Measured 1g SAR (W/kg)	Scaled 1g SAR (W/kg)
2.4GHz	Left Cheek	802.11b	6	2437	0.168	0.168
	Left Tilted	802.11b	6	2437	0.101	0.101
	Right Cheek	802.11b	6	2437	0.324	0.324
	Right Tilted	802.11b	6	2437	0.207	0.207
5.8GHz	Left Cheek	802.11a	157	5785	0.305	0.305
	Left Tilted	802.11a	157	5785	0.241	0.241
	Right Cheek	802.11a	157	5785	0.298	0.298
	Right Tilted	802.11a	157	5785	0.195	0.195
2.4GHz	Rear	802.11b	6	2437	0.452	0.452
	Face	802.11b	6	2437	0.215	0.215
5.8GHz	Rear	802.11a	157	5785	0.512	0.512
	Face	802.11a	157	5785	0.153	0.153
2.4GHz	Edge 1	802.11b	6	2437	0.089	0.089
	Edge 2	802.11b	6	2437	0.019	0.019
	Edge 4	802.11b	6	2437	0.238	0.238

WIFI(UNII Bands)

Band	Test Position	Mode	Ch.	Freq. (MHz)	Measured 1g SAR(W/kg)	Scaled 1g SAR(W/kg)
5.2GHz	Left Cheek	802.11a	48	5240	0.145	0.145
	Left Tilted	802.11a	48	5240	0.092	0.092
	Right Cheek	802.11a	48	5240	0.389	0.389
	Right Tilted	802.11a	48	5240	0.245	0.245
5.3GHz	Left Cheek	802.11a	52	5260	0.158	0.158
	Left Tilted	802.11a	52	5260	0.086	0.086
	Right Cheek	802.11a	52	5260	0.387	0.387
	Right Tilted	802.11a	52	5260	0.263	0.263
5.4GHz	Left Cheek	802.11a	104	5520	0.285	0.285
			116	5580	0.276	0.276
			124	5620	0.342	0.342
			136	5680	0.351	0.351
	Left Tilted	802.11a	104	5520	0.256	0.256
			116	5580	0.273	0.273
			124	5620	0.302	0.302
			136	5680	0.318	0.318
	Right Cheek	802.11a	104	5520	0.491	0.491
			116	5580	0.453	0.453
			124	5620	0.527	0.527
			136	5680	0.486	0.486
	Right Tilted	802.11a	104	5520	0.401	0.401
			116	5580	0.403	0.403
			124	5620	0.425	0.425
			136	5680	0.417	0.417
5.2GHz	Rear	802.11a	48	5240	0.387	0.387
	Front		48	5240	0.143	0.143
5.3GHz	Rear	802.11a	52	5260	0.415	0.415
	Front		52	5260	0.134	0.134
5.5GHz	Rear	802.11a	104	5520	0.468	0.468
			116	5580	0.382	0.382
			124	5620	0.431	0.431
			136	5680	0.464	0.464
	Front	802.11a	124	5620	0.323	0.323

Note(s):

1. Testing of other required channels within the operating mode of a frequency band is not required when the reported 1-g or 10-g SAR for the mid-band or highest output power channel is:
   - ≤ 0.8 W/kg or 2.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≤ 100 MHz
   - ≤ 0.6 W/kg or 1.5 W/kg, for 1-g or 10-g respectively, when the transmission band is between 100 MHz and 200 MHz
   - ≤ 0.4 W/kg or 1.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≥ 200 MHz
2. Per KDB 941225 D05 SAR for LTE Devices, SAR test reduction is applied using the following criteria:
   - Testing for Low and High Channel is performed at the highest output power level for 1RB, and 50% RB configuration for that channel.
   - Testing for 100% RB configuration is performed at the highest output power level for 100% RB configuration across the Low, Mid and High Channel when the highest reported SAR for 1 RB and 50% RB are $\geq$ 0.8 W/kg. Testing for the remaining required channels is not needed because the reported SAR for 100% RB Allocation < 1.45 W/kg.
   - Testing for 16-QAM modulation is not required because the reported SAR for QPSK is < 1.45 W/Kg and its output power is not more than 0.5 dB higher than that of QPSK.
   - Testing for the other channel bandwidths is not required because the reported SAR for the highest channel bandwidth is < 1.45 W/Kg and its output power is not more than 0.5 dB higher than that of the highest channel bandwidth.
3. With headset attached. According to KDB 648474 Section 2.3, when the reported SAR for 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 that body-worn accessory with a headset attached to the handset.

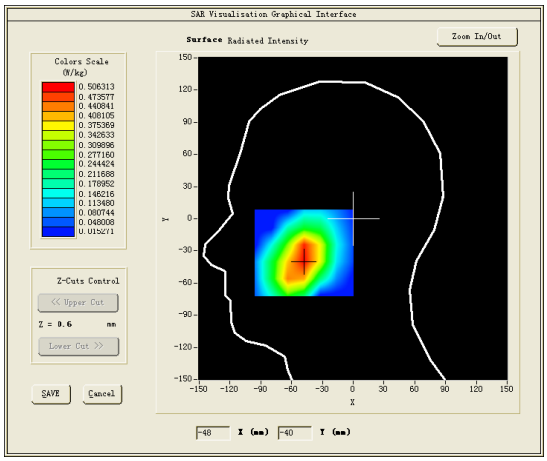
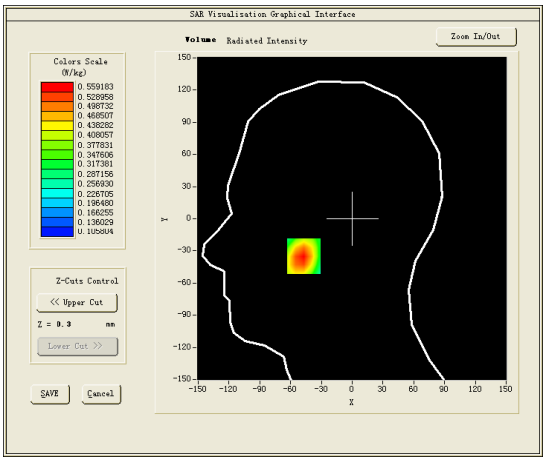
13.3 Highest SAR Plots

13.3.1 The plots for Model A1530

<Head>

GSM850_GPRS 2Tx Right Cheek_Channel190:

Frequency (MHz)	836.6
Relative permittivity (real part)	41.45
Relative permittivity (imaginary part)	15.07
Conductivity (S/m)	0.91
Variation (%)	-4.710000

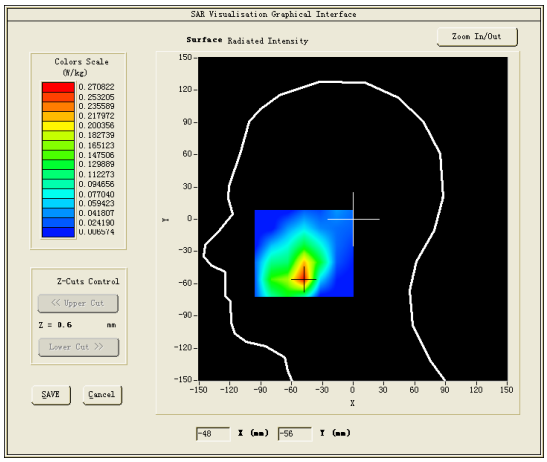
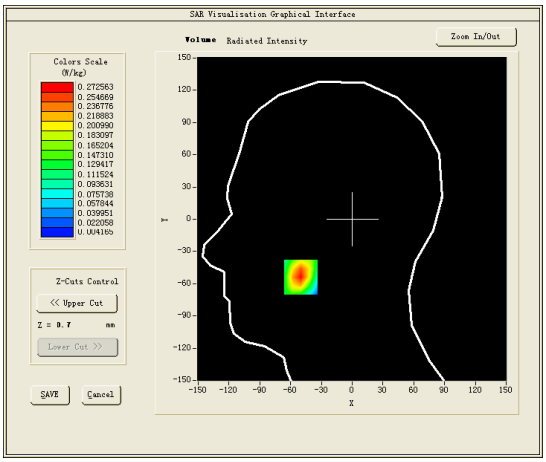
SURFACE SAR	**VOLUME SAR**
	

Maximum location: X=-47.00, Y=-35.00

SAR 10g (W/Kg)	0.421578
SAR 1g (W/Kg)	0.714357

GSM1900_GPRS 2Tx Right Cheek_Channel512:

Frequency (MHz)	1850.200000
Relative permittivity (real part)	39.89
Relative permittivity (imaginary part)	15.07
Conductivity (S/m)	1.40
Variation (%)	-2.330000

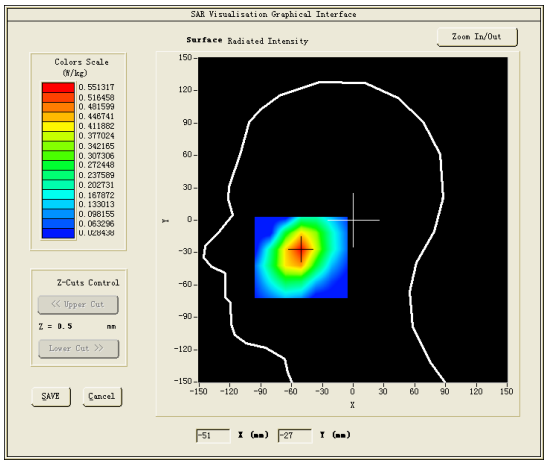
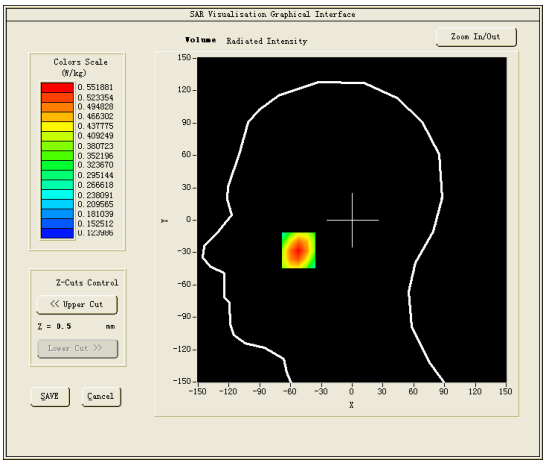
SURFACE SAR	**VOLUME SAR**
	

Maximum location: X=-50.00, Y=-54.00

SAR 10g (W/Kg)	0.646537
SAR 1g (W/Kg)	1.075324

WCDMA850_voice Left Cheek_Channel4183:

Frequency (MHz)	836.600000
Relative permittivity (real part)	41.43
Relative permittivity (imaginary part)	15.05
Conductivity (S/m)	0.91
Variation (%)	0.750000

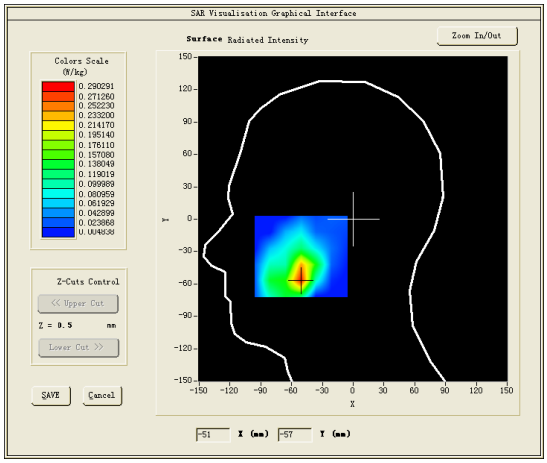
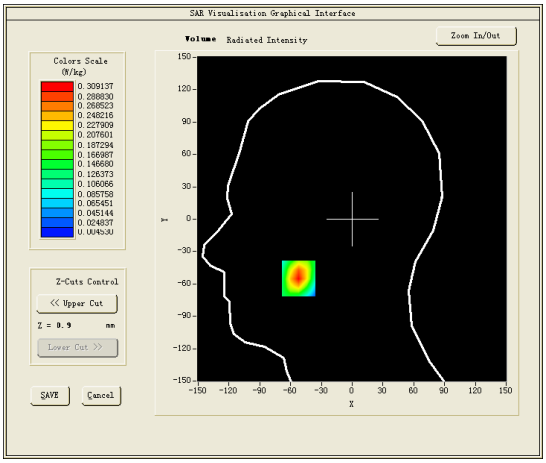
SURFACE SAR	**VOLUME SAR**
	

Maximum location: X=-52.00, Y=-28.00

SAR 10g (W/Kg)	0.401257
SAR 1g (W/Kg)	0.546758

WCDMA1900_voice Right Cheek_Channel9400:

Frequency (MHz)	1880.000000
Relative permittivity (real part)	39.94
Relative permittivity (imaginary part)	15.03
Conductivity (S/m)	1.40
Variation (%)	3.320000

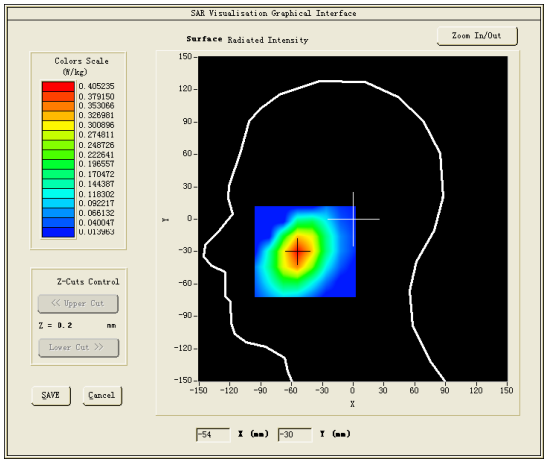
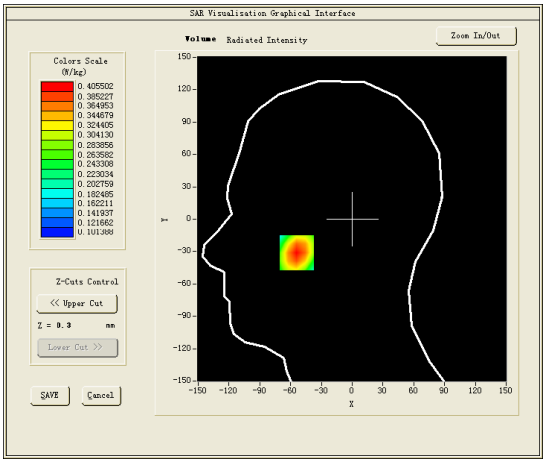
SURFACE SAR	**VOLUME SAR**
	

Maximum location: X=-52.00, Y=-55.00

SAR 10g (W/Kg)	0. 798168
SAR 1g (W/Kg)	1.142351

LTE Band5_Left Cheek_Channel20525:

Frequency (MHz)	836.6
Relative permittivity (real part)	41.47
Relative permittivity (imaginary part)	15.11
Conductivity (S/m)	0.91
Variation (%)	2.280000

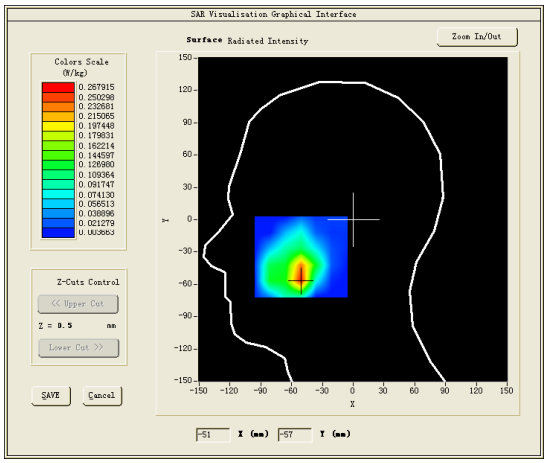
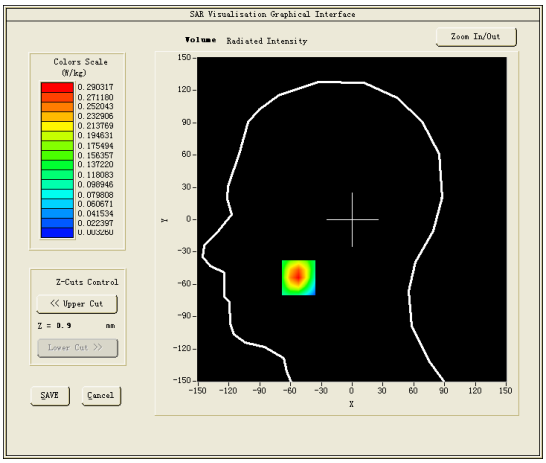
SURFACE SAR	**VOLUME SAR**
	

Maximum location: X=-54.00, Y=-31.00

SAR 10g (W/Kg)	0.302475
SAR 1g (W/Kg)	0.519680

LTE Band2_Right Cheek_Channel18900:

Frequency (MHz)	1879.500000
Relative permittivity (real part)	39.88
Relative permittivity (imaginary part)	15.03
Conductivity (S/m)	1.40
Variation (%)	4.100000

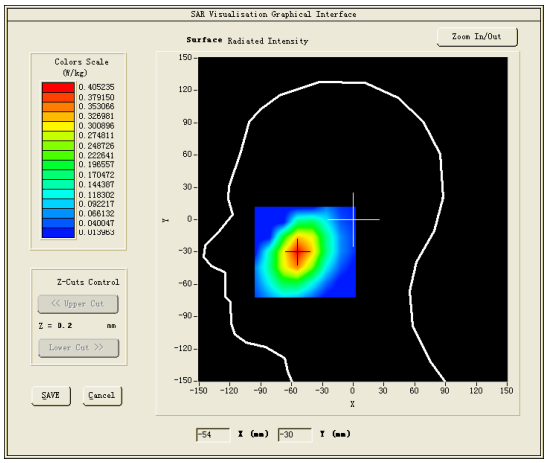
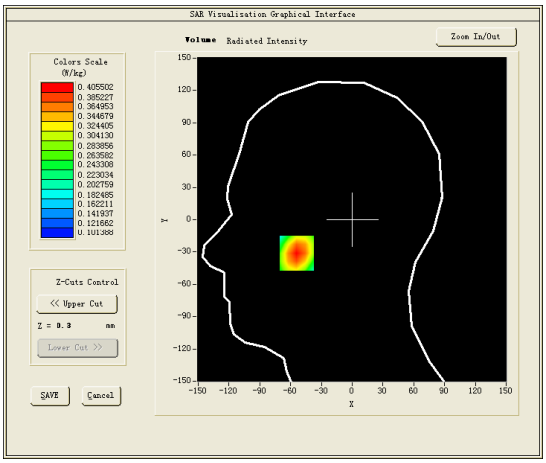
SURFACE SAR	**VOLUME SAR**
	

Maximum location: X=-52.00, Y=-54.00

SAR 10g (W/Kg)	0.644673
SAR 1g (W/Kg)	1.082157

WIFI2.4G_802.11b_Channel6:

Frequency (MHz)	2437
Relative permittivity (real part)	38.99
Relative permittivity (imaginary part)	13.19
Conductivity (S/m)	1.81
Variation (%)	2.130000

SURFACE SAR	**VOLUME SAR**
	

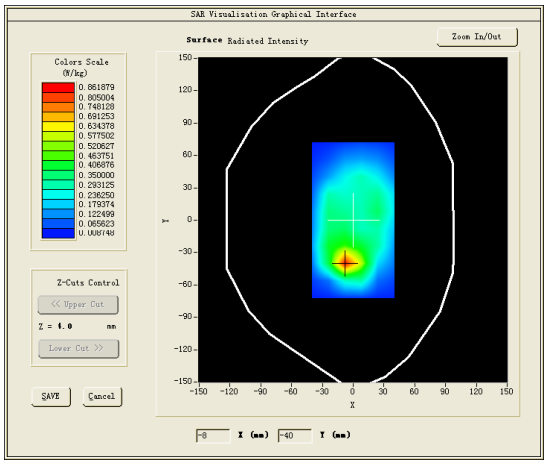
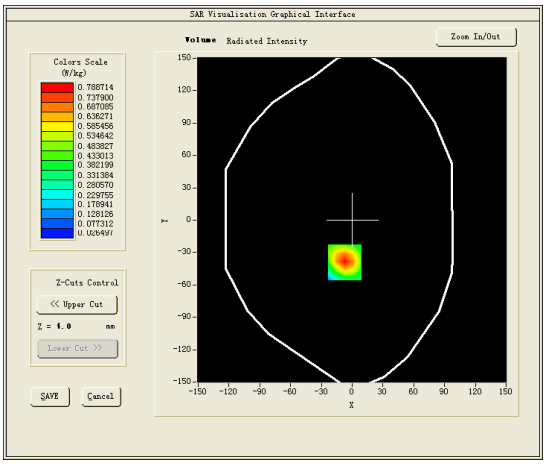
Maximum location: X=-54.00, Y=-31.00

SAR 10g (W/Kg)	0.387652
SAR 1g (W/Kg)	0.573256

Body-Worn , 5mm Gap

GPRS850_Rear_Channel190:

Frequency (MHz)	848.8
Relative permittivity (real part)	55.18
Relative permittivity (imaginary part)	21.72
Conductivity (S/m)	0.97
Variation (%)	3.270000

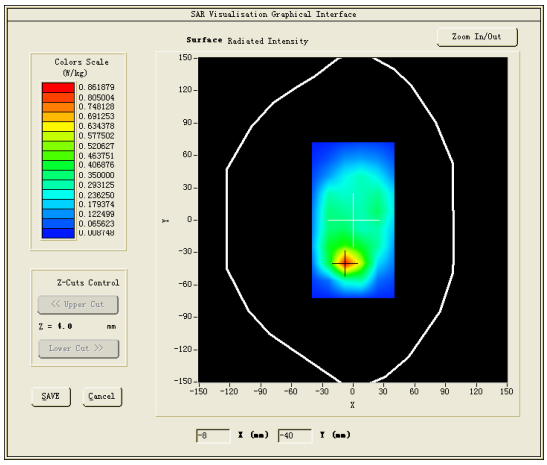
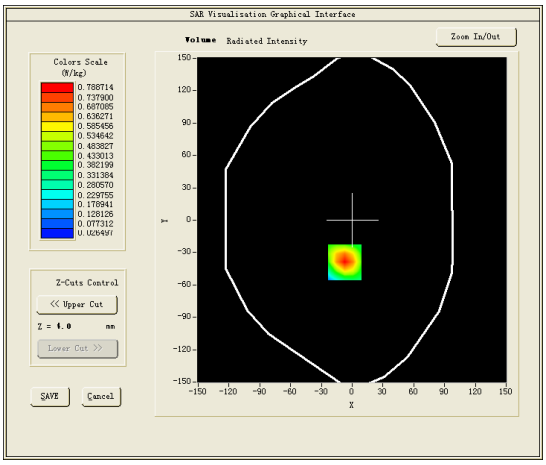
SURFACE SAR	**VOLUME SAR**
	

Maximum location: X=-7.00, Y=-39.00

SAR 10g (W/Kg)	0.435687
SAR 1g (W/Kg)	0.728154

GSM1900_Rear_Channel512:

Frequency (MHz)	1909.8
Relative permittivity (real part)	53.32
Relative permittivity (imaginary part)	13.02
Conductivity (S/m)	1.53
Variation (%)	2.050000

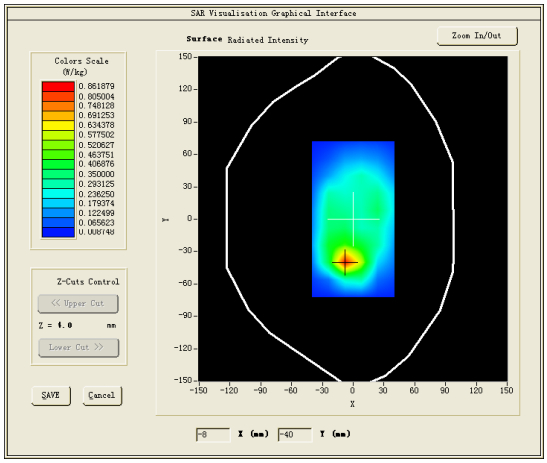
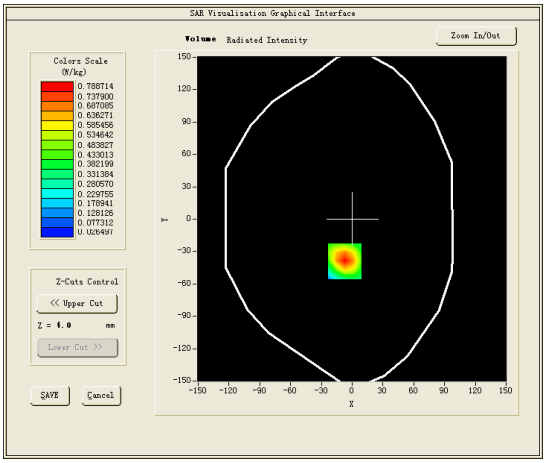
SURFACE SAR	**VOLUME SAR**
	

Maximum location: X=-7.00, Y=-38.00

SAR 10g (W/Kg)	0.521463
SAR 1g (W/Kg)	0.904354

WCDMA850_Rear_Channel4132:

Frequency (MHz)	826.4
Relative permittivity (real part)	55.15
Relative permittivity (imaginary part)	21.69
Conductivity (S/m)	0.97
Variation (%)	0.750000

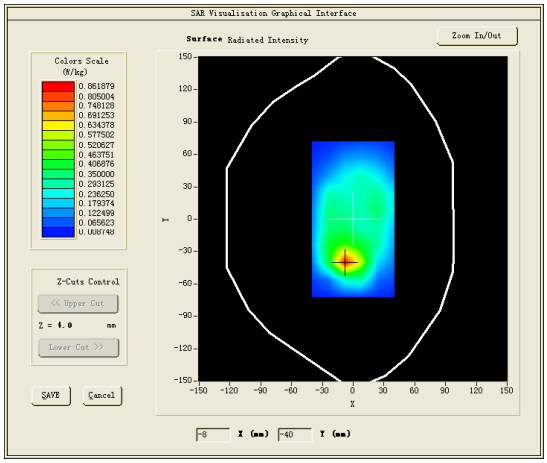
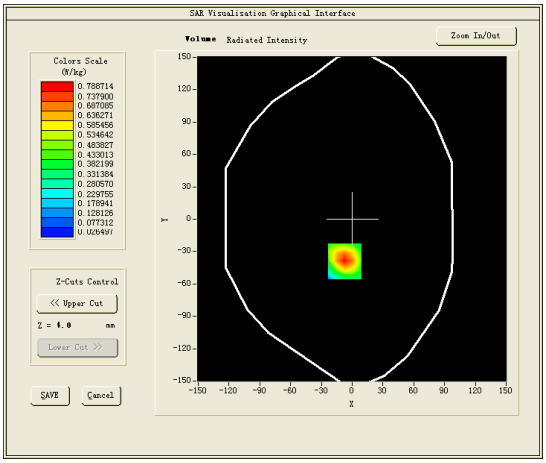
SURFACE SAR	**VOLUME SAR**
	

Maximum location: X=-7.00, Y=-39.00

SAR 10g (W/Kg)	0.515342
SAR 1g (W/Kg)	0.837120

WCDMA1900_Rear_Channel9400:

Frequency (MHz)	1880.000000
Relative permittivity (real part)	53.25
Relative permittivity (imaginary part)	13.08
Conductivity (S/m)	1.53
Variation (%)	0.210000

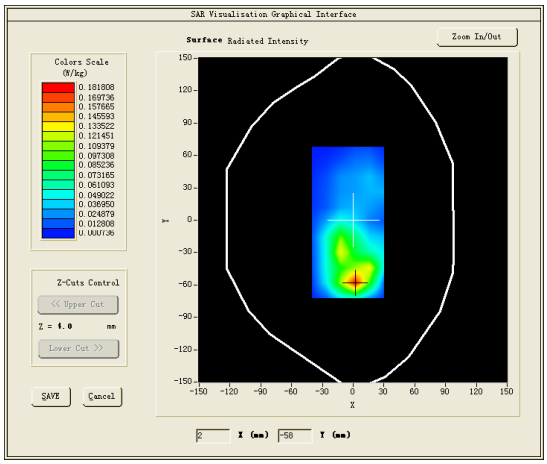
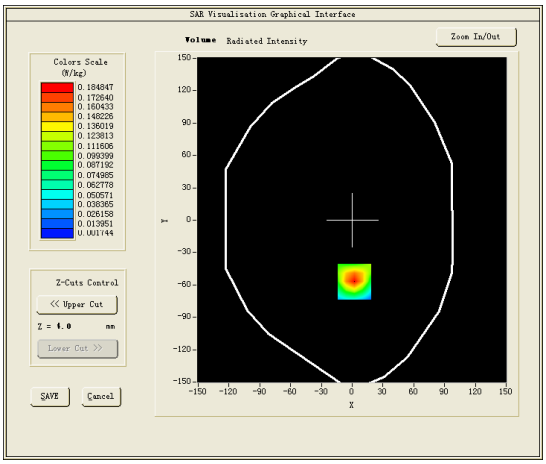
SURFACE SAR	**VOLUME SAR**
	

Maximum location: X=3.00, Y=-28.00

SAR 10g (W/Kg)	0.371257
SAR 1g (W/Kg)	0.722842

LTE Band5_Rear_Channel20525:

Frequency (MHz)	836.6
Relative permittivity (real part)	55.16
Relative permittivity (imaginary part)	21.67
Conductivity (S/m)	0.97
Variation (%)	-0.590000

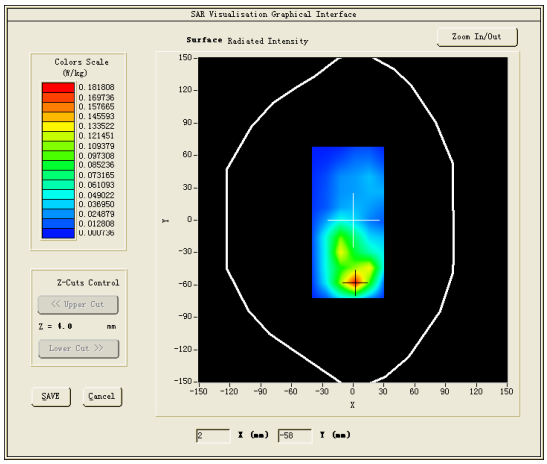
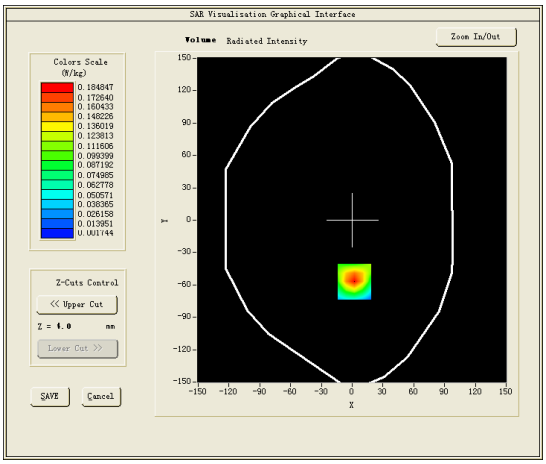
SURFACE SAR	**VOLUME SAR**
	

Maximum location: X=2.00, Y=5.00

SAR 10g (W/Kg)	0.486571
SAR 1g (W/Kg)	0.831425

LTE Band2_Rear_Channel19100:

Frequency (MHz)	1900
Relative permittivity (real part)	53.31
Relative permittivity (imaginary part)	13.03
Conductivity (S/m)	1.53
Variation (%)	3.050000

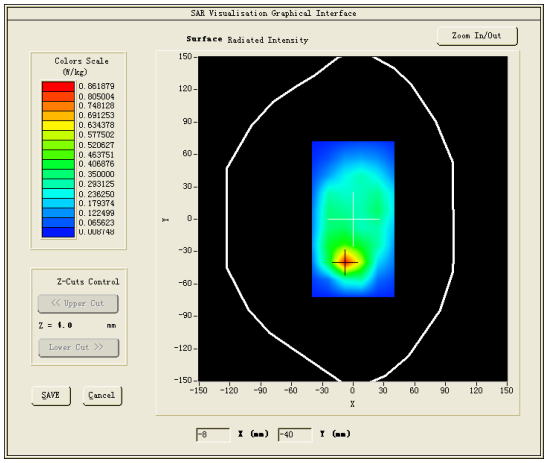
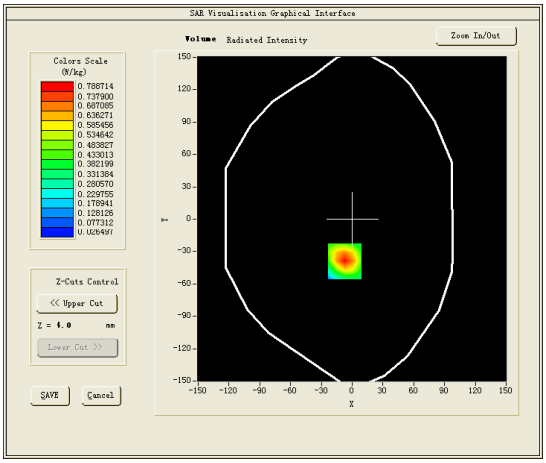
SURFACE SAR	**VOLUME SAR**
	

Maximum location: X=2.00, Y=-57.00

SAR 10g (W/Kg)	0.694673
SAR 1g (W/Kg)	1.024357

WIFI5.8G_802.11a_Channel157:

Frequency (MHz)	5785
Relative permittivity (real part)	47.00
Relative permittivity (imaginary part)	18.14
Conductivity (S/m)	6.21
Variation (%)	2.130000

SURFACE SAR	**VOLUME SAR**
	

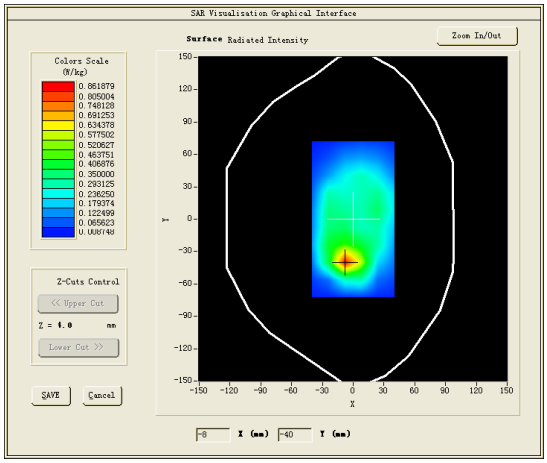
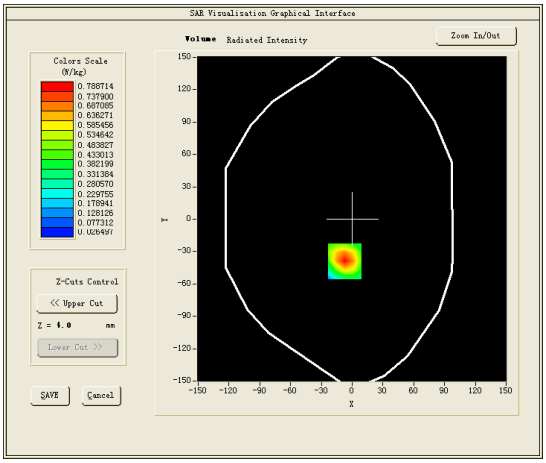
Maximum location: X=3.00, Y=-27.00

SAR 10g (W/Kg)	0.325870
SAR 1g (W/Kg)	0.569345

Hotspot Mode Exposure conditions, 5mm Gap

GPRS850_Rear_Channel251:

Frequency (MHz)	848.8
Relative permittivity (real part)	55.18
Relative permittivity (imaginary part)	21.72
Conductivity (S/m)	0.97
Variation (%)	4.150000

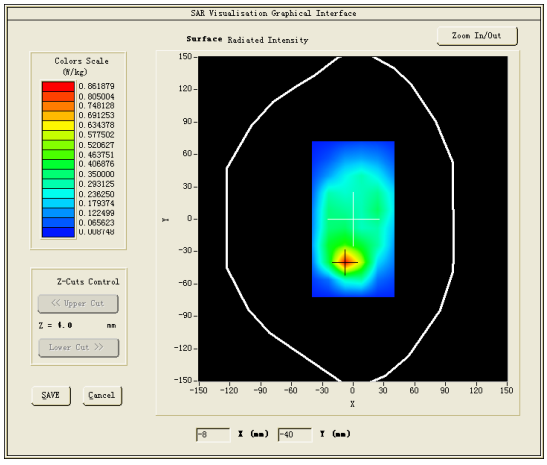
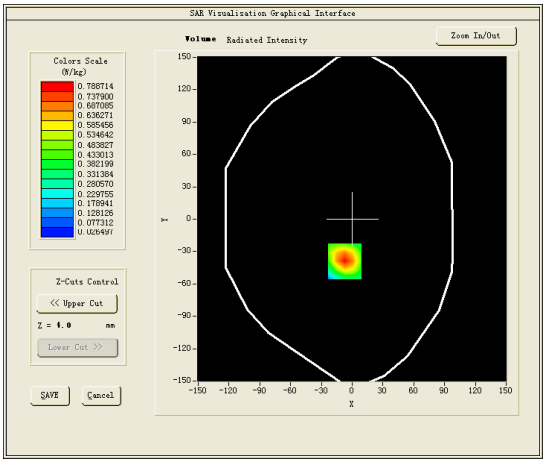
SURFACE SAR	**VOLUME SAR**
	

Maximum location: X=-7.00, Y=-39.00

SAR 10g (W/Kg)	0.498576
SAR 1g (W/Kg)	0.875128

EDGE1900_Rear_Channel810:

Frequency (MHz)	1909.8
Relative permittivity (real part)	53.32
Relative permittivity (imaginary part)	13.02
Conductivity (S/m)	1.53
Variation (%)	3.240000

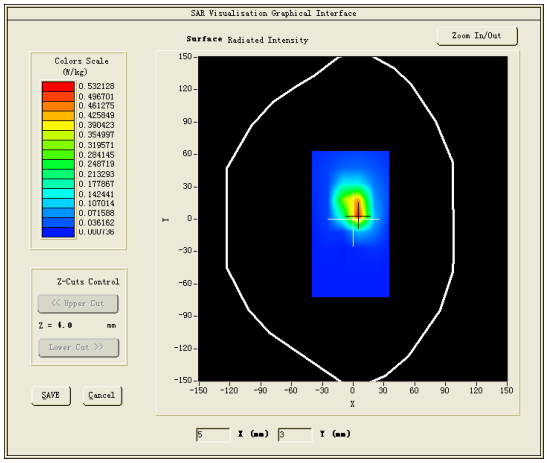
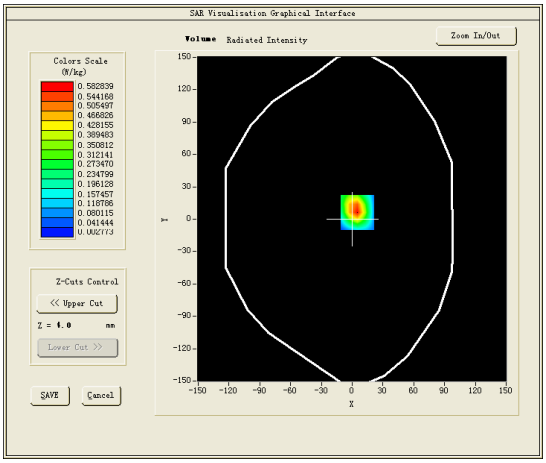
SURFACE SAR	**VOLUME SAR**
	

Maximum location: X=-7.00, Y=-38.00

SAR 10g (W/Kg)	0.627956
SAR 1g (W/Kg)	1.088751

WCDMA850_Edge4_Channel4132:

Frequency (MHz)	826.4
Relative permittivity (real part)	55.15
Relative permittivity (imaginary part)	21.69
Conductivity (S/m)	0.97
Variation (%)	0.560000

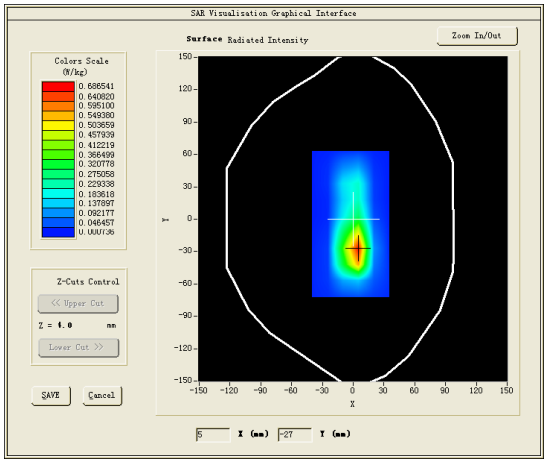
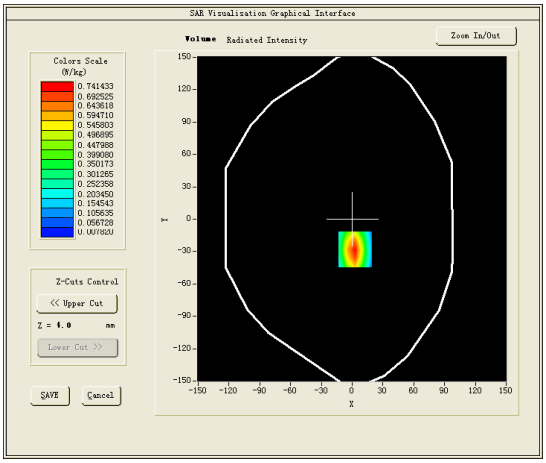
SURFACE SAR	**VOLUME SAR**
	

Maximum location: X=5.00, Y=6.00

SAR 10g (W/Kg)	0.352467
SAR 1g (W/Kg)	0.653245

WCDMA1900_Edge3_Channel9400:

Frequency (MHz)	1880.000000
Relative permittivity (real part)	53.25
Relative permittivity (imaginary part)	13.08
Conductivity (S/m)	1.53
Variation (%)	0.220000

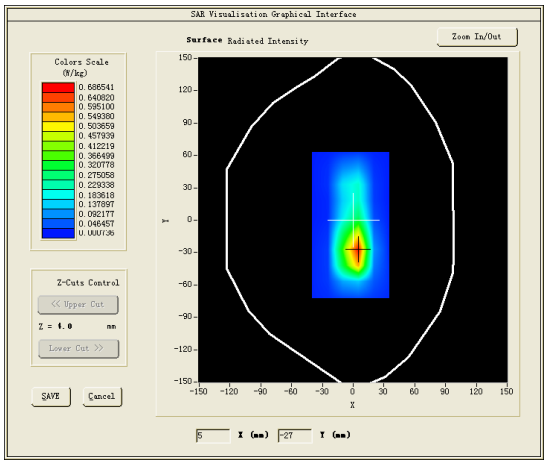
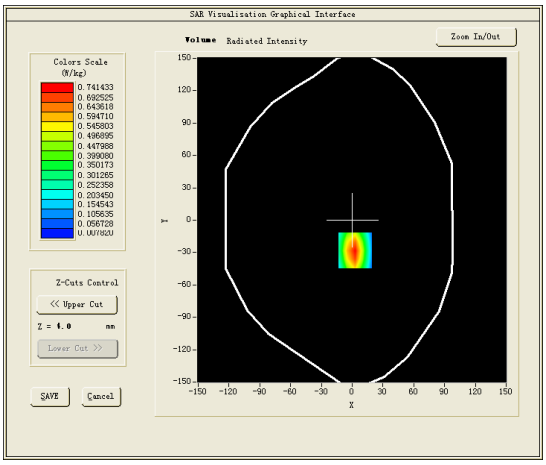
SURFACE SAR	**VOLUME SAR**
	

Maximum location: X=3.00, Y=-28.00

SAR 10g (W/Kg)	0.363587
SAR 1g (W/Kg)	0.653254

LTE Band5_Edge4_Channel20525:

Frequency (MHz)	836.6
Relative permittivity (real part)	55.16
Relative permittivity (imaginary part)	21.67
Conductivity (S/m)	0.97
Variation (%)	-0.290000

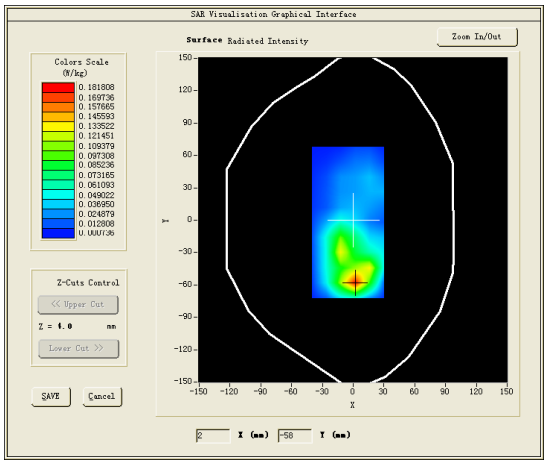
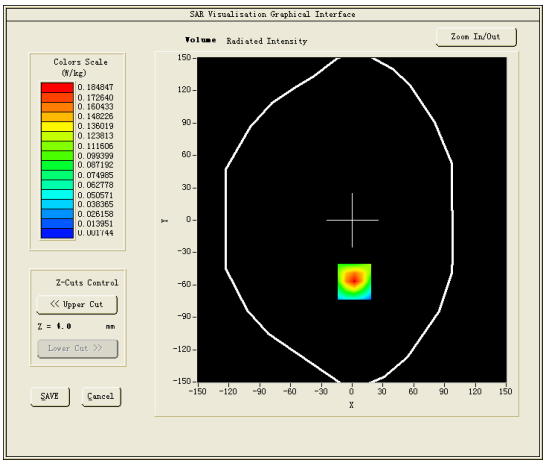
SURFACE SAR	**VOLUME SAR**
	

Maximum location: X=3.00, Y=-28.00

SAR 10g (W/Kg)	0.425634
SAR 1g (W/Kg)	0.745358

LTE Band2_Edge3_Channel19100:

Frequency (MHz)	1900
Relative permittivity (real part)	53.31
Relative permittivity (imaginary part)	13.03
Conductivity (S/m)	1.53
Variation (%)	2.570000

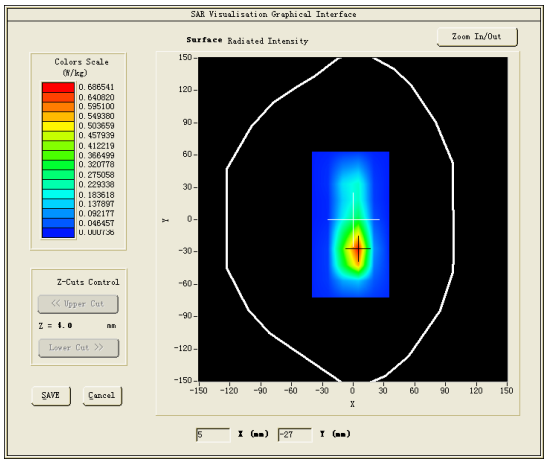
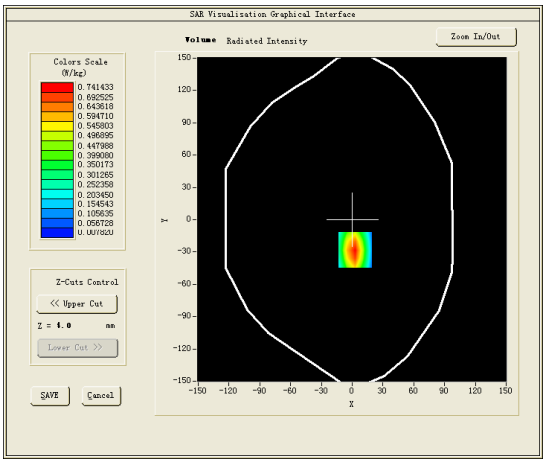
SURFACE SAR	**VOLUME SAR**
	

Maximum location: X=2.00, Y=-57.00

SAR 10g (W/Kg)	0.395368
SAR 1g (W/Kg)	0.746385

WIFI2.4G_802.11b_Edge4 Channel6:

Frequency (MHz)	2437
Relative permittivity (real part)	52.65
Relative permittivity (imaginary part)	13.02
Conductivity (S/m)	1.96
Variation (%)	1.470000

SURFACE SAR	**VOLUME SAR**
	

Maximum location: X=3.00, Y=-28.00

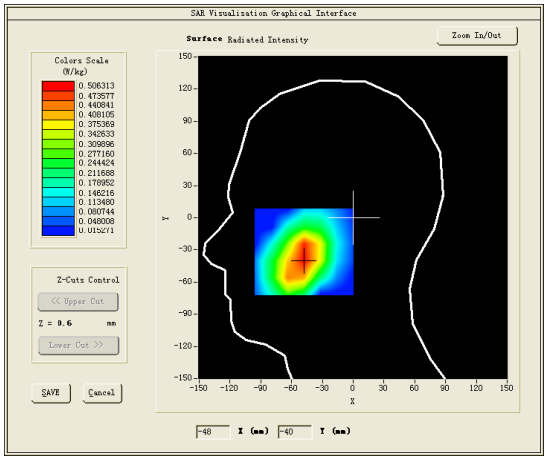
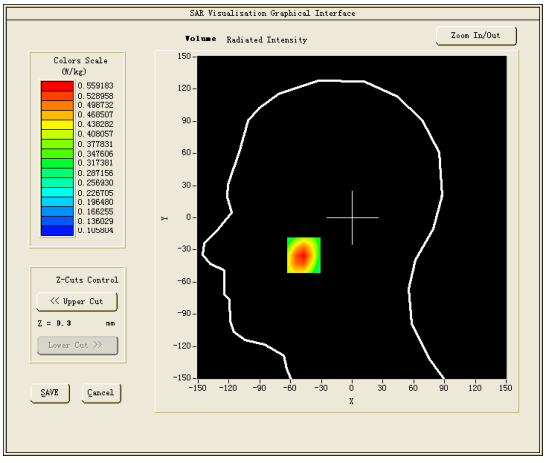
SAR 10g (W/Kg)	0.325870
SAR 1g (W/Kg)	0.569345

13.3.2 The plots for Model A1530 with charger case

<Head>

GSM850_voice Right Cheek_Channel190:

Frequency (MHz)	836.6
Relative permittivity (real part)	41.45
Relative permittivity (imaginary part)	15.07
Conductivity (S/m)	0.91
Variation (%)	-0.050000

SURFACE SAR	**VOLUME SAR**
	

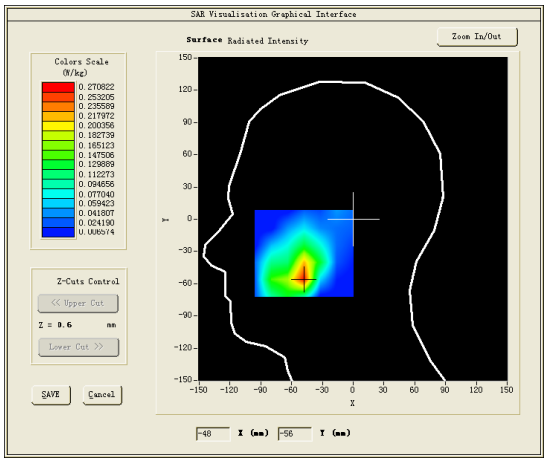
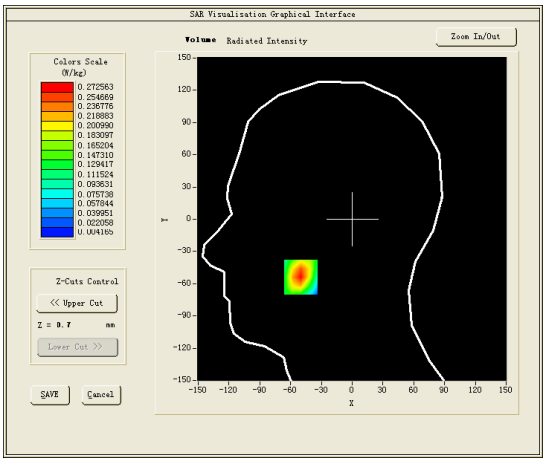
Maximum location: X=-47.00, Y=-35.00

SAR Peak: 0.63 W/kg

SAR 10g (W/Kg)	0.398133
SAR 1g (W/Kg)	0.537513

GSM1900_voice Right Cheek_Channel661:

Frequency (MHz)	1880.000000
Relative permittivity (real part)	39.89
Relative permittivity (imaginary part)	15.07
Conductivity (S/m)	1.40
Variation (%)	-0.380000

SURFACE SAR	**VOLUME SAR**
	

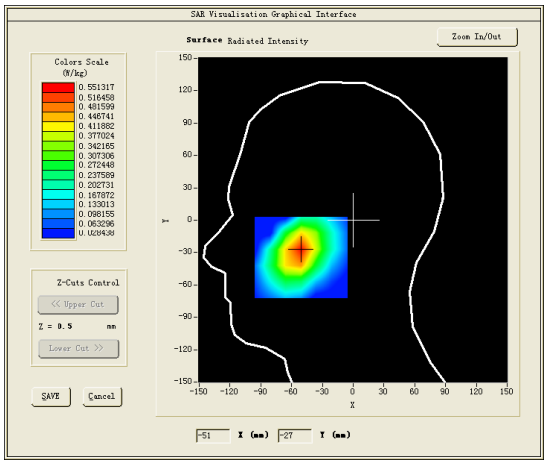
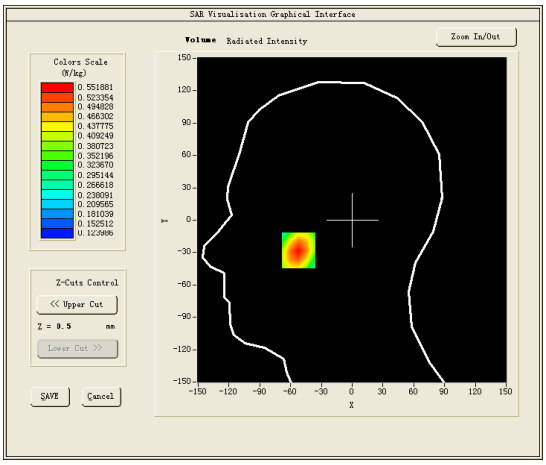
Maximum location: X=-50.00, Y=-54.00

SAR Peak: 0.37 W/kg

SAR 10g (W/Kg)	0.146973
SAR 1g (W/Kg)	0.253500

WCDMA850_voice Left Cheek_Channel4183:

Frequency (MHz)	836.600000
Relative permittivity (real part)	41.43
Relative permittivity (imaginary part)	15.05
Conductivity (S/m)	0.91
Variation (%)	-0.130000

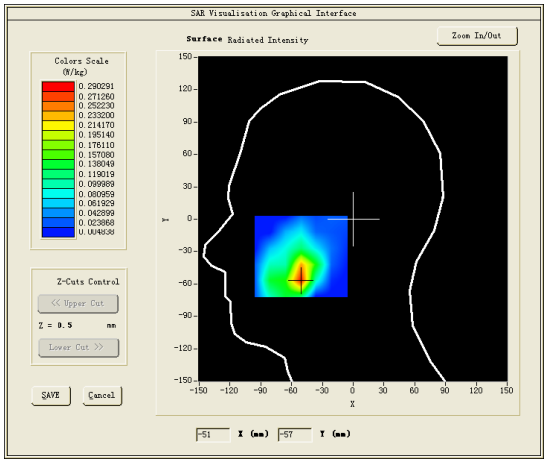
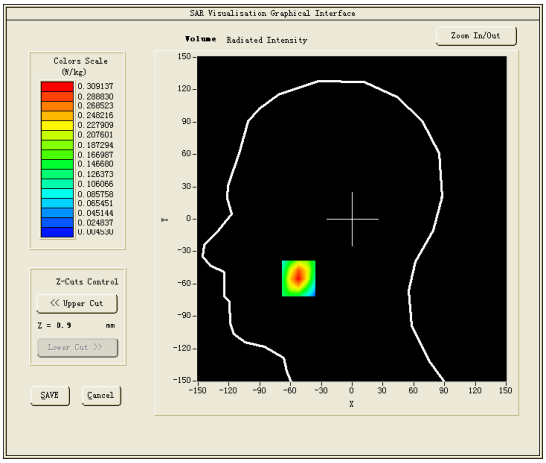
SURFACE SAR	**VOLUME SAR**
	

Maximum location: X=-52.00, Y=-28.00

SAR 10g (W/Kg)	0.408660
SAR 1g (W/Kg)	0.530907

WCDMA1900_voice Left Cheek_Channel9400:

Frequency (MHz)	1880.000000
Relative permittivity (real part)	39.94
Relative permittivity (imaginary part)	15.03
Conductivity (S/m)	1.40
Variation (%)	-0.690000

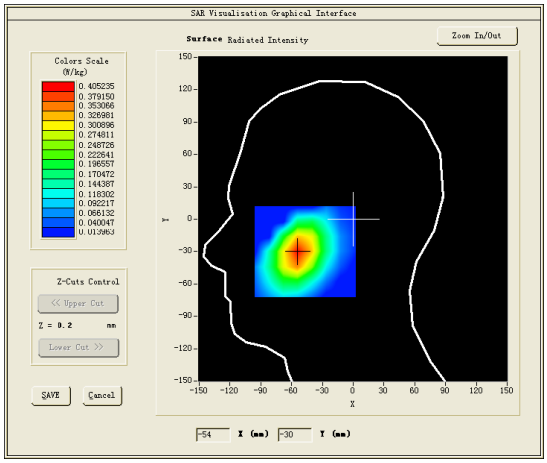
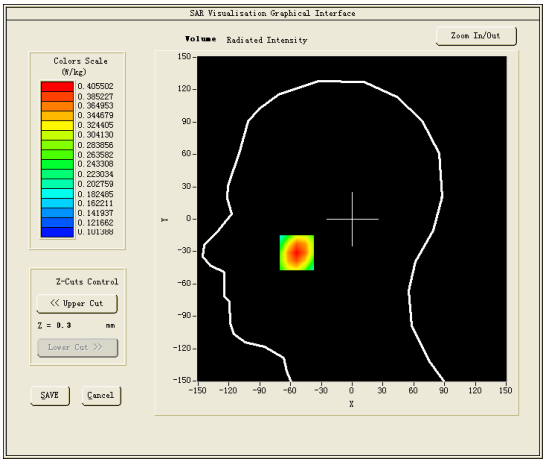
SURFACE SAR	**VOLUME SAR**
	

Maximum location: X=-52.00, Y=-55.00

SAR 10g (W/Kg)	0.159168
SAR 1g (W/Kg)	0.285407

LTE Band5_Left Cheek_Channel20525:

Frequency (MHz)	836.6
Relative permittivity (real part)	41.47
Relative permittivity (imaginary part)	15.11
Conductivity (S/m)	0.91
Variation (%)	-0.870000

SURFACE SAR	**VOLUME SAR**
	

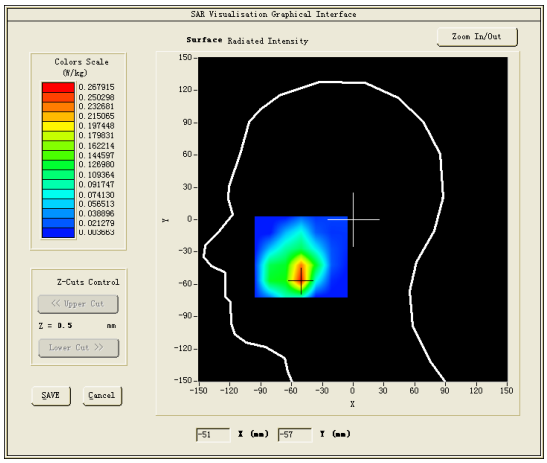
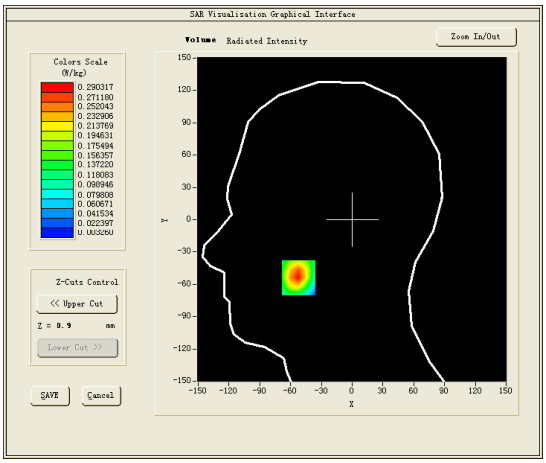
Maximum location: X=-54.00, Y=-31.00

SAR Peak: 0.43 W/kg

SAR 10g (W/Kg)	0.316350
SAR 1g (W/Kg)	0.392048

LTE Band2_Right Cheek_Channel18900:

Frequency (MHz)	1879.500000
Relative permittivity (real part)	39.88
Relative permittivity (imaginary part)	15.03
Conductivity (S/m)	1.40
Variation (%)	-0.700000

SURFACE SAR	**VOLUME SAR**
	

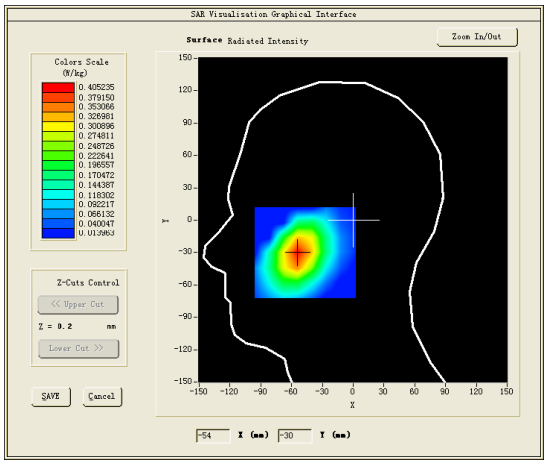
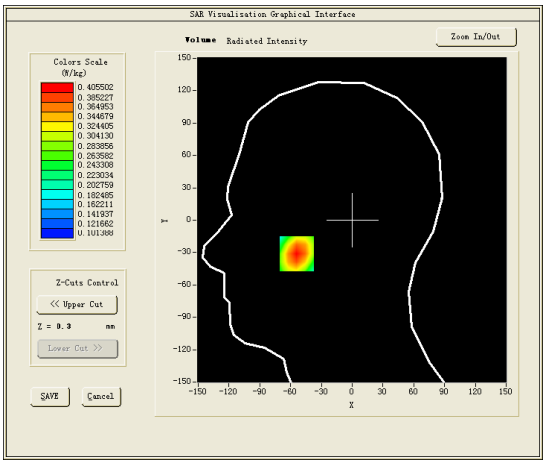
Maximum location: X=-52.00, Y=-54.00

SAR Peak: 0.42 W/kg

SAR 10g (W/Kg)	0.149940
SAR 1g (W/Kg)	0.271612

WIFI5.5G_802.11a_Channel124:

Frequency (MHz)	5620
Relative permittivity (real part)	38.99
Relative permittivity (imaginary part)	13.19
Conductivity (S/m)	1.81
Variation (%)	2.130000

SURFACE SAR	**VOLUME SAR**
	

Maximum location: X=-54.00, Y=-31.00

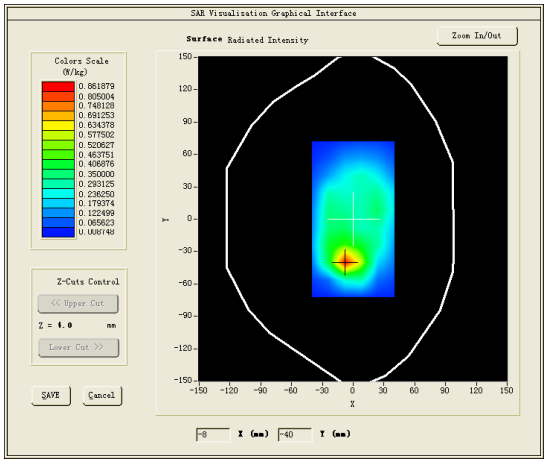
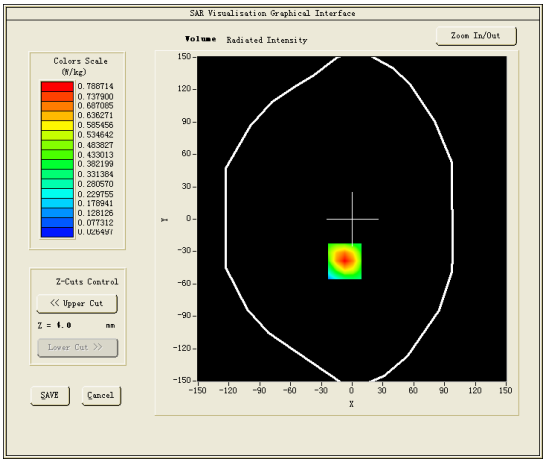
SAR 10g (W/Kg)	0.363587
SAR 1g (W/Kg)	0.527435

Body-Worn

Body-Worn, 5mm Gap

GSM850_Rear_Channel190:

Frequency (MHz)	836.400024
Relative permittivity (real part)	55.18
Relative permittivity (imaginary part)	21.72
Conductivity (S/m)	0.97
Variation (%)	-4.880000

SURFACE SAR	VOLUME SAR
	

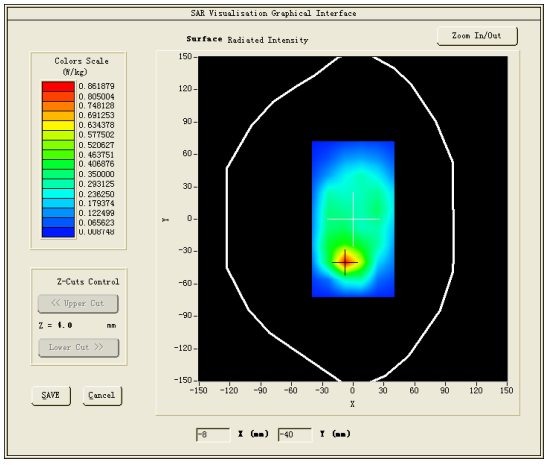
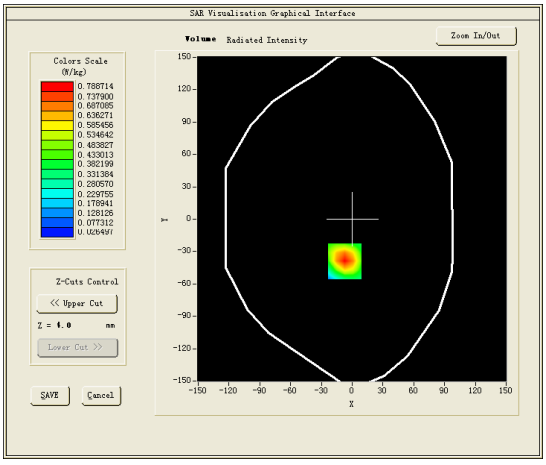
Maximum location: X=-7.00, Y=-39.00

SAR Peak: 1.10 W/kg

SAR 10g (W/Kg)	0.499295
SAR 1g (W/Kg)	0.815529

GSM1900_Face_Channel661:

Frequency (MHz)	1880.000000
Relative permittivity (real part)	53.32
Relative permittivity (imaginary part)	13.02
Conductivity (S/m)	1.53
Variation (%)	3.050000

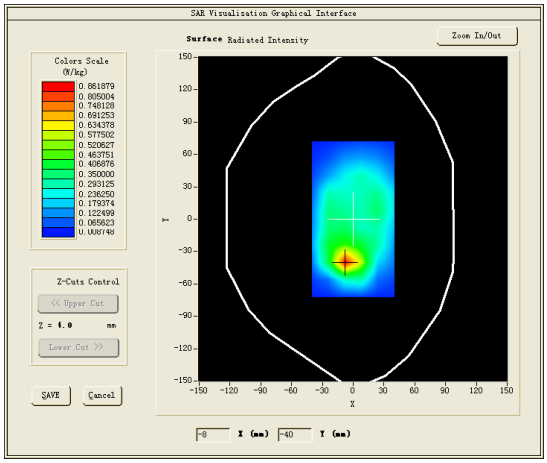
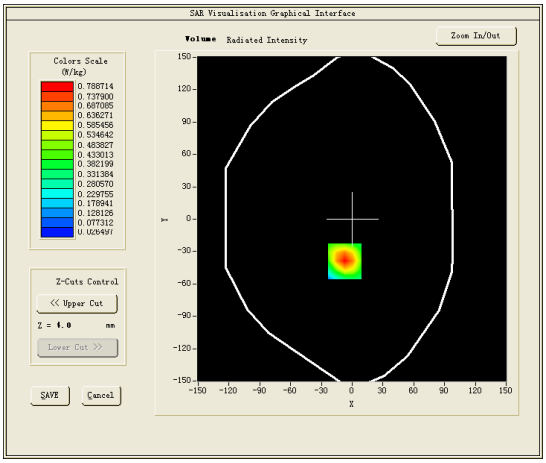
SURFACE SAR	**VOLUME SAR**
	

Maximum location: X=-7.00, Y=-39.00

SAR 10g (W/Kg)	0.210024
SAR 1g (W/Kg)	0.418357

WCDMA850_Face_Channel4183:

Frequency (MHz)	836.6
Relative permittivity (real part)	55.15
Relative permittivity (imaginary part)	21.69
Conductivity (S/m)	0.97
Variation (%)	0.520000

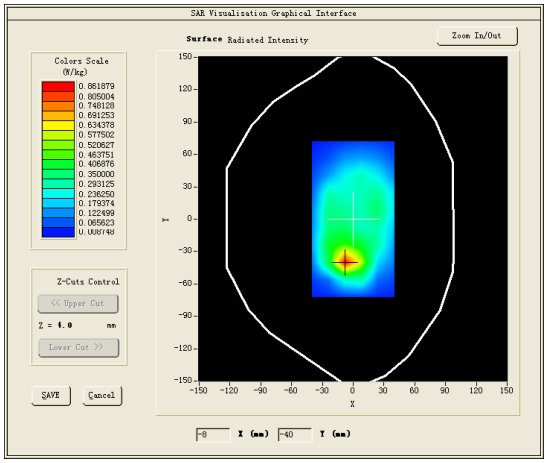
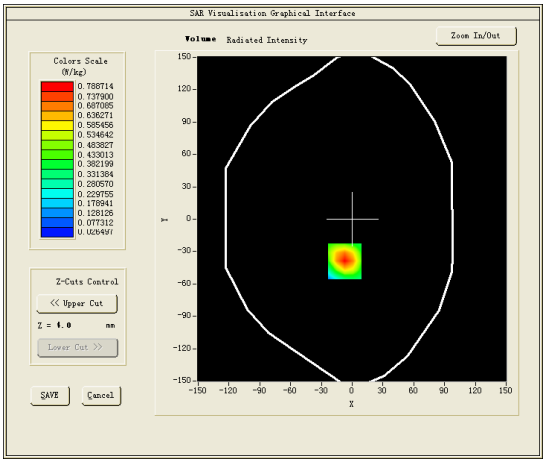
SURFACE SAR	**VOLUME SAR**
	

Maximum location: X=-7.00, Y=-39.00

SAR 10g (W/Kg)	0.532486
SAR 1g (W/Kg)	0.902872

WCDMA1900_Face_Channel9400:

Frequency (MHz)	1880.000000
Relative permittivity (real part)	53.25
Relative permittivity (imaginary part)	13.08
Conductivity (S/m)	1.53
Variation (%)	0.850000

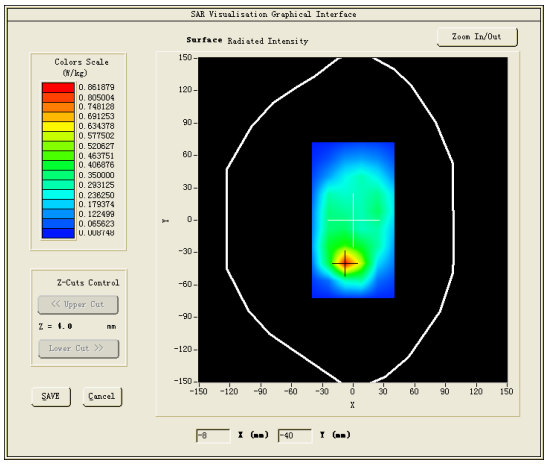
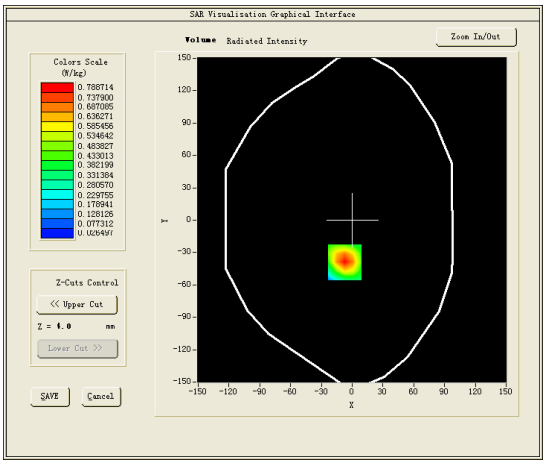
SURFACE SAR	**VOLUME SAR**
	

Maximum location: X=3.00, Y=-28.00

SAR 10g (W/Kg)	0.368521
SAR 1g (W/Kg)	0.592364

LTE Band5_Rear_Channel20525:

Frequency (MHz)	836.600000
Relative permittivity (real part)	55.16
Relative permittivity (imaginary part)	21.67
Conductivity (S/m)	0.97
Variation (%)	-0.050000

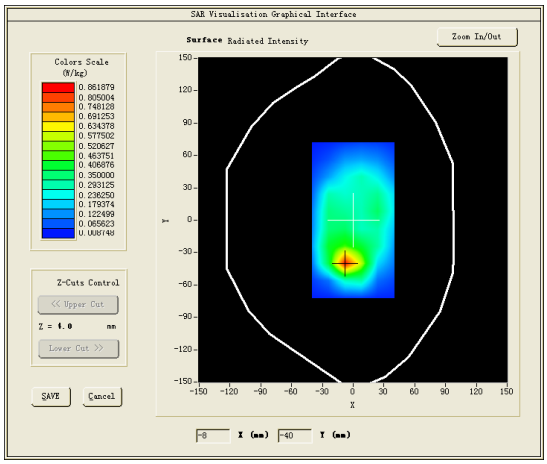
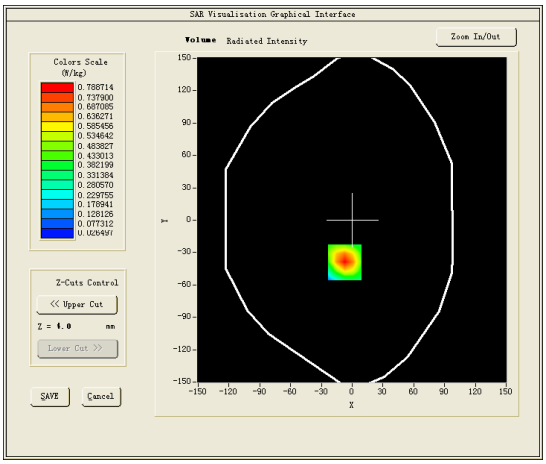
SURFACE SAR	**VOLUME SAR**
	

Maximum location: X=3.00, Y=27.00

SAR 10g (W/Kg)	0.425472
SAR 1g (W/Kg)	0.627423

LTE Band2_Face_Channel18900:

Frequency (MHz)	1879.500000
Relative permittivity (real part)	53.31
Relative permittivity (imaginary part)	13.03
Conductivity (S/m)	1.53
Variation (%)	0.430000

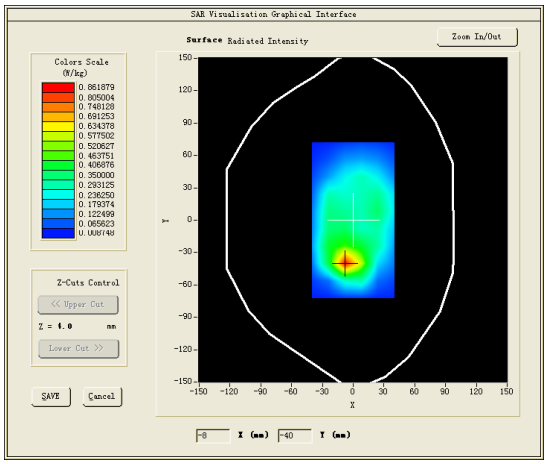
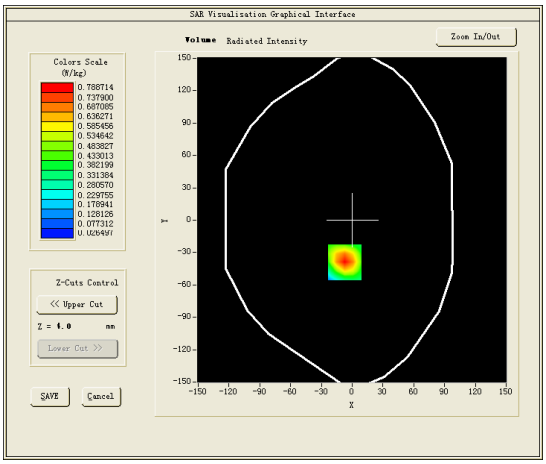
SURFACE SAR	**VOLUME SAR**
	

Maximum location: X=2.00, Y=-30.00

SAR 10g (W/Kg)	0.290235
SAR 1g (W/Kg)	0.517354

WIFI5.8G_802.11a_Rear Channel5785:

Frequency (MHz)	5260
Relative permittivity (real part)	47.00
Relative permittivity (imaginary part)	18.14
Conductivity (S/m)	6.21
Variation (%)	1.350000

SURFACE SAR	**VOLUME SAR**
	

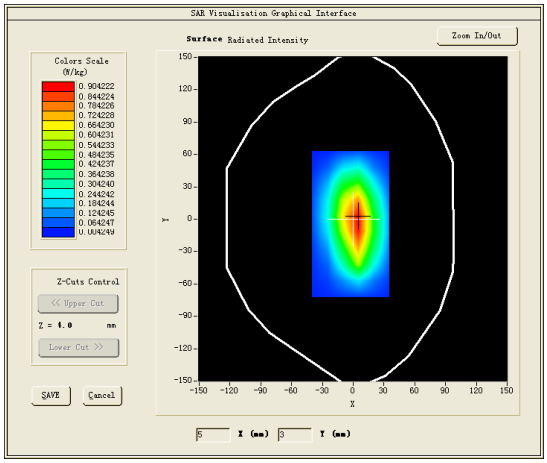
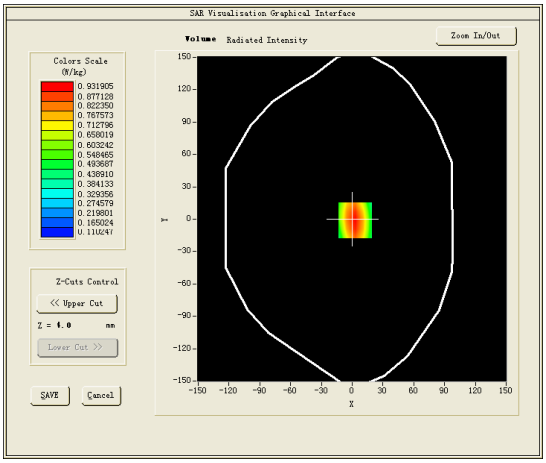
Maximum location: X=3.00, Y=-27.00

SAR 10g (W/Kg)	0.305786
SAR 1g (W/Kg)	0.512358

Hotspot Mode Exposure conditions, 5mm Gap

GPRS850_Edge4_Channel190:

Frequency (MHz)	836.400024
Relative permittivity (real part)	55.18
Relative permittivity (imaginary part)	21.72
Conductivity (S/m)	0.97
Variation (%)	-3.010000

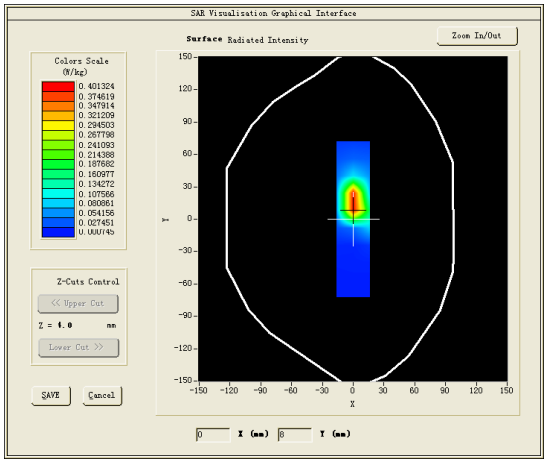
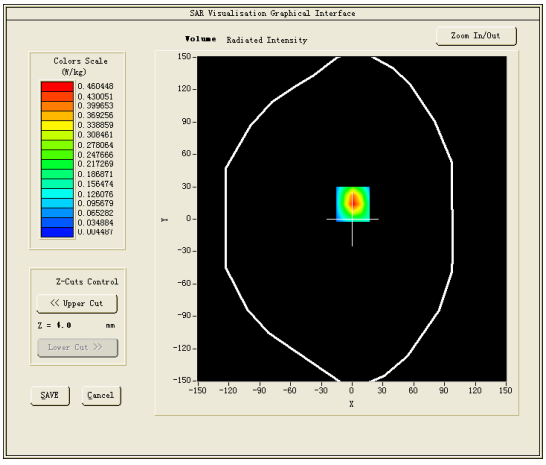
SURFACE SAR	**VOLUME SAR**
	

Maximum location: X=3.00, Y=-1.00

SAR 10g (W/Kg)	0.401240
SAR 1g (W/Kg)	0.694358

GPRS1900_Edge3_Channel661:

Frequency (MHz)	1880.000000
Relative permittivity (real part)	53.32
Relative permittivity (imaginary part)	13.02
Conductivity (S/m)	1.53
Variation (%)	-4.330000

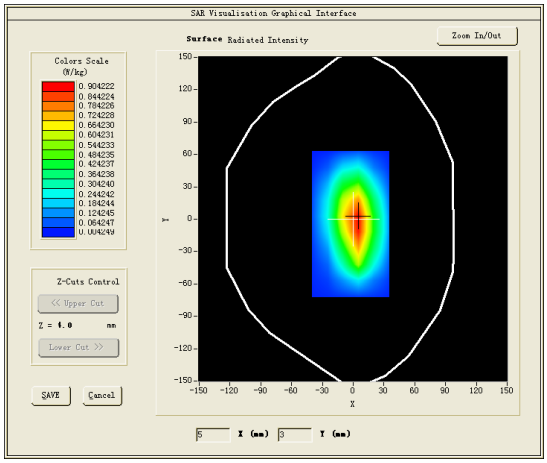
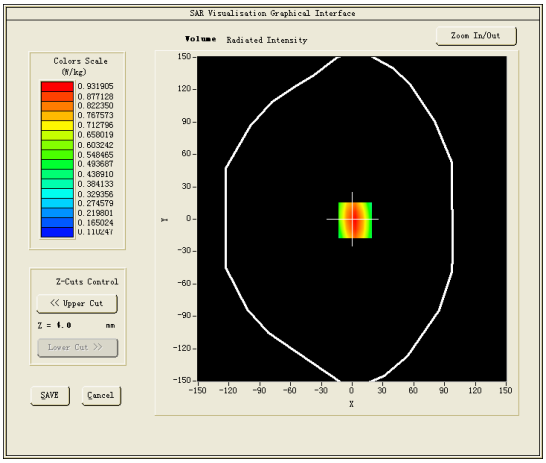
SURFACE SAR	**VOLUME SAR**
	

Maximum location: X=1.00, Y=14.00

SAR 10g (W/Kg)	0.211554
SAR 1g (W/Kg)	0.430153

WCDMA850_Edge4_Channel4233:

Frequency (MHz)	846.000000
Relative permittivity (real part)	55.15
Relative permittivity (imaginary part)	21.69
Conductivity (S/m)	0.97
Variation (%)	-0.550000

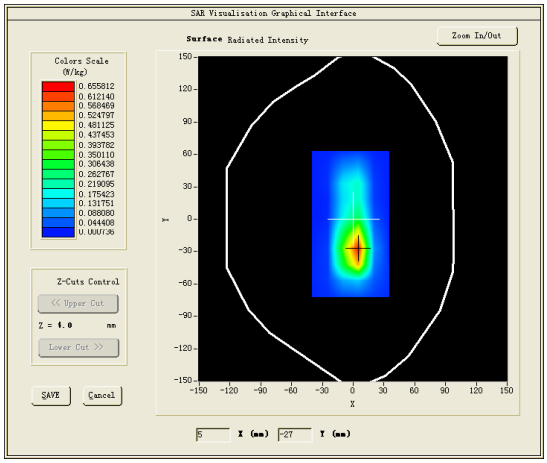
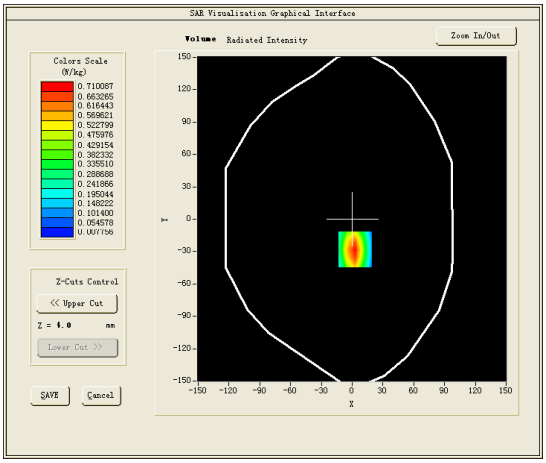
SURFACE SAR	**VOLUME SAR**
	

Maximum location: X=3.00, Y=-1.00

SAR 10g (W/Kg)	0.625586
SAR 1g (W/Kg)	0.967204

WCDMA1900_Edge2_Channel9400:

Frequency (MHz)	1880.000000
Relative permittivity (real part)	53.25
Relative permittivity (imaginary part)	13.08
Conductivity (S/m)	1.53
Variation (%)	-0.670000

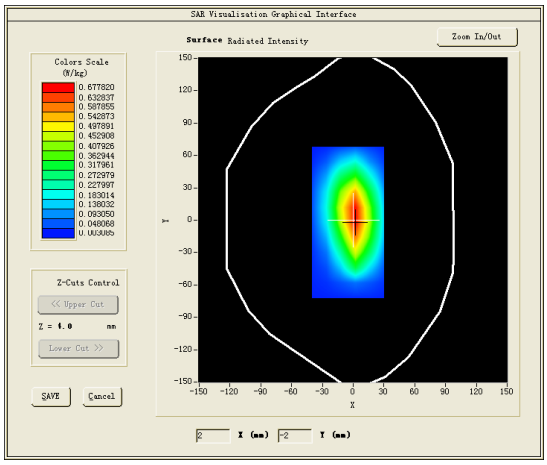
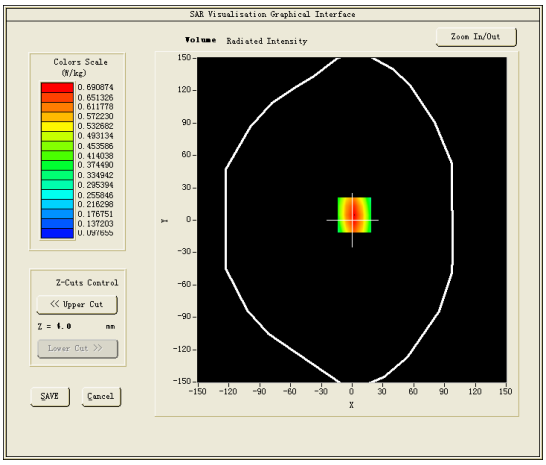
SURFACE SAR	**VOLUME SAR**
	

Maximum location: X=3.00, Y=-28.00

SAR 10g (W/Kg)	0.369901
SAR 1g (W/Kg)	0.712801

LTE Band5_Edge4_Channel20525:

Frequency (MHz)	836.600000
Relative permittivity (real part)	55.16
Relative permittivity (imaginary part)	21.67
Conductivity (S/m)	0.97
Variation (%)	-0.590000

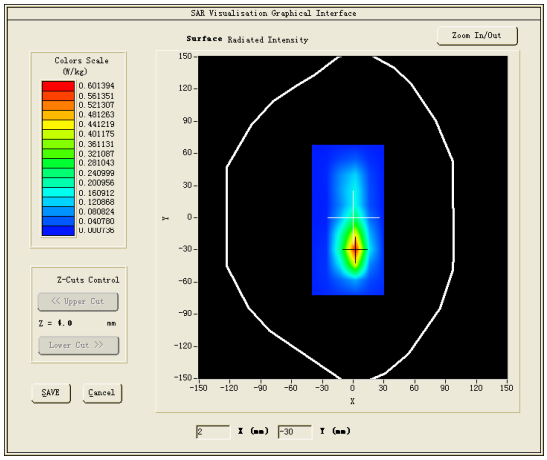
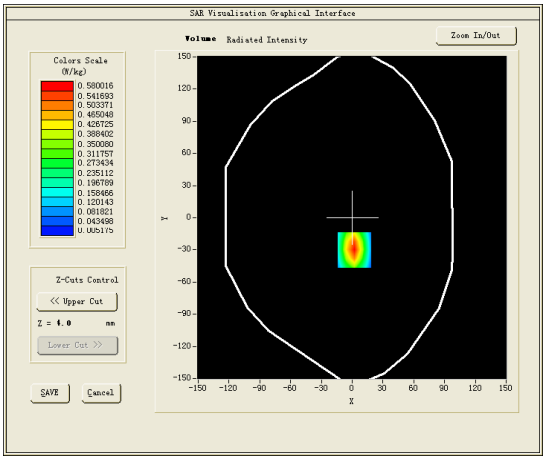
SURFACE SAR	**VOLUME SAR**
	

Maximum location: X=2.00, Y=5.00

SAR 10g (W/Kg)	0.473529
SAR 1g (W/Kg)	0.707724

LTE Band2_Edge2_Channel18900:

Frequency (MHz)	1879.500000
Relative permittivity (real part)	53.31
Relative permittivity (imaginary part)	13.03
Conductivity (S/m)	1.53
Variation (%)	-0.090000

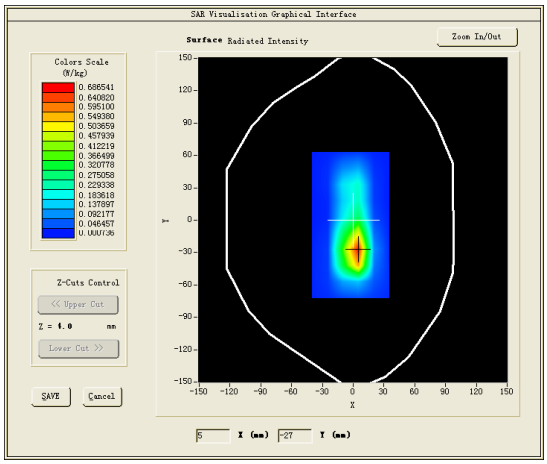
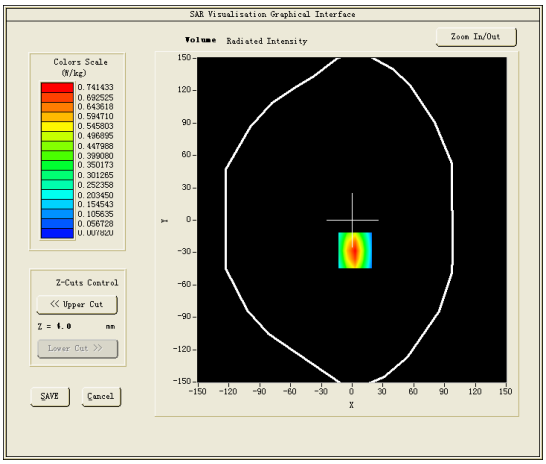
SURFACE SAR	**VOLUME SAR**
	

Maximum location: X=2.00, Y=-30.00

SAR 10g (W/Kg)	0.293065
SAR 1g (W/Kg)	0.577514

WIFI2.4G_802.11b_Edge4 Channel6:

Frequency (MHz)	2437
Relative permittivity (real part)	52.65
Relative permittivity (imaginary part)	13.02
Conductivity (S/m)	1.96
Variation (%)	0.240000

SURFACE SAR	**VOLUME SAR**
	

Maximum location: X=3.00, Y=-28.00

SAR 10g (W/Kg)	0.175864
SAR 1g (W/Kg)	0.238425

14 Measurement Uncertainty

Table 23:Measurement Uncertainty according to IEEE 1528

No.	Uncertainty Component	Type	Uncertainty Value (%)	Probability Distribution	k	ci	Standard Uncertainty (%) ui(%)	Degree of freedom Veff or vi
	Measurement System							
1	－Probe Calibration	B	6	N	1	1	3.5	∞
2	－Axial isotropy	B	4.7	R	1.732	1	2.7	∞
3	－Hemispherical Isotropy	B	9.4	R	1.732	1	5.4	∞
4	－Boundary Effect	B	11.0	R	1.732	1	6.4	∞
5	－Linearity	B	4.7	R	1.732	1	2.7	∞
6	－System Detection Limits	B	1.0	R	1.732	1	0.6	∞
7	－Readout Electronics	B	1.0	N	1	1	1.00	∞
8	－Response Time	B	0.00	R	1.732	1	0.00	∞
9	－Integration Time	B	0.00	R	1.732	1	0.00	∞
10	－RF Ambient Conditions	B	3.0	R	1.732	1	1.73	∞
11	－Probe Position Mechanical tolerance	B	0.4	R	1.732	1	0.2	∞
12	－Probe Position with respect to Phantom Shell	B	2.9	R	1.732	1	1.7	∞
13	－Extrapolation, Interpolation and Integration Algorithms for Max. SAR evaluation	B	3.9	R	1.732	1	2.3	∞

	Uncertainties of the DUT							
14	－Position of the DUT	A	4.8	N	1	1	4.8	5
15	－Holder of the DUT	A	7.1	N	1	1	7.1	5
16	－Output Power Variation –SAR drift measurement	B	5.0	R	1.732	1	2.9	∞
	Phantom and Tissue Parameters							
17	－Phantom Uncertainty(shape and thickness tolerances)	B	1.0	R	1.732	1	0.6	∞
18	－Liquid Conductivity Target –tolerance	B	5.0	R	1.732	0.6	1.7	∞
19	－Liquid Conductivity –measurement Uncertainty)	B	0.23	N	1	1	0.23	9
20	－Liquid Permittivity Target tolerance	B	5.0	R	1.732	0.6	1.7	∞
21	－Liquid Permittivity –measurement uncertainty	B	0.46	N	1	1	0.46	∞
Combined Standard Uncertainty				RSS			12.92	35.15
Expanded uncertainty (Confidence interval of 95 %)				K=2			25.84	

Table 24:Measurement Uncertainty for Body Worn Test according to IEC 62209-2

No.	Uncertainty Component	Type	Uncertainty Value (%)	Probability Distribution	k	ci	Standard Uncertainty (%) ui(%)	Degree of freedom Veff or vi
	Measurement System							
1	－Probe Calibration	B	6	N	1	1	3.5	∞
2	－Isotropy	B	14.1	R	1.732	1	4.1	∞
3	－Hemispherical Isotropy	B	9.4	R	1.732	1	5.4	∞
4	－Boundary Effect	B	11.0	R	1.732	1	6.4	∞
5	－Linearity	B	4.7	R	1.732	1	2.7	∞
6	－System Detection Limits	B	1.0	R	1.732	1	0.6	∞
7	－Readout Electronics	B	1.0	N	1	1	1.00	∞
8	－Response Time	B	0.00	R	1.732	1	0.00	∞
9	－Integration Time	B	0.00	R	1.732	1	0.00	∞
10	－RF Ambient Conditions	B	3.0	R	1.732	1	1.73	∞
11	－Probe Position Mechanical tolerance	B	0.4	R	1.732	1	0.2	∞
12	－Probe Position with respect to Phantom Shell	B	2.9	R	1.732	1	1.7	∞
13	－Post-processing	B	5.0	R	1.732	1	2.9	∞
14	－Probe modulation response	B	0.4	R	1.732	1	0.2	∞

	Uncertainties of the DUT							
15	－Position of the DUT	A	4.8	N	1	1	4.8	5
16	－Holder of the DUT	A	7.1	N	1	1	7.1	5
17	－Power Scaling	B	1.0	R	1.732	1	0.6	∞
18	－Output Power Variation –SAR drift measurement	B	5.0	R	1.732	1	2.9	∞
	Phantom and Tissue Parameters							
19	－Phantom Uncertainty(shape and thickness tolerances)	B	1.0	R	1.732	1	0.6	∞
20	－Liquid Conductivity Target –tolerance	B	5.0	R	1.732	0.6	1.7	∞
21	－Liquid Conductivity –measurement Uncertainty)	B	0.23	N	1	1	0.23	9
22	－Liquid Permittivity Target tolerance	B	5.0	R	1.732	0.6	1.7	∞
23	－Liquid Permittivity –measurement uncertainty	B	0.46	N	1	1	0.46	∞
24	－liquid temperature uncertainty	B	1	N	1	1	1	∞
Combined Standard Uncertainty				RSS			13.12	44.15
Expanded uncertainty (Confidence interval of 95 %)				K=2			26.24	

15 MAIN TEST INSTRUMENTS

No	EQUIPMENT	TYPE	Series No.	Due Date
1	System Simulator	E5515C	GB 47200710	2015/02/23
2	SAR Probe	SATIMO	SN_0913_EP169	2015/04/05
3	SAR Probe	SATIMO	SN 07/14 EPG211	2015/06/30
4	Dipole	SATIMO	SN_0913_DIP0G900-217	2015/04/05
5	Dipole	SATIMO	SN_0913_DIP1G900-218	2015/04/05
6	Dipole	SATIMO	SN 09/13 DIP 2G450-220	2015/04/05
7	Dipole	SATIMO	SN 24/11 WGA16	2015/06/17
8	Vector Network Analyzer	ZVB8	A0802530	2015/06/13
9	Signal Generator	SMR27	A0304219	2015/06/10
10	Amplifier	Nucletudes	143060	2015/04/05
11	Power Meter	NRVS	A0802531	2015/06/10
12	Power Sensor	NRV-Z4	100069	2015/06/10
13	Multimeter	Keithley-2000	4014020	2015/04/05
14	Device Holder	MSH80	SN 09/13 MSH80	2015/04/05
15	SAM Phantom	SAM97	SN 09/13 SAM97	2015/04/05

ANNEX A

of

CCIC-SET

CONFORMANCE TEST REPORT FOR

HUMAN EXPOSURE TO ELECTROMAGNETIC FIELDS

SET2014-10275

Kodiak Networks

LOOP MST CHARGE CASE(BLACK) NEW

Type Name: Loop MST Charge Case(Black) new smart PTT case for iPhone

Hardware Version：

Software Version：

TEST LAYOUT

This Annex consists of 12 pages

Date of Report: 2014-10-08

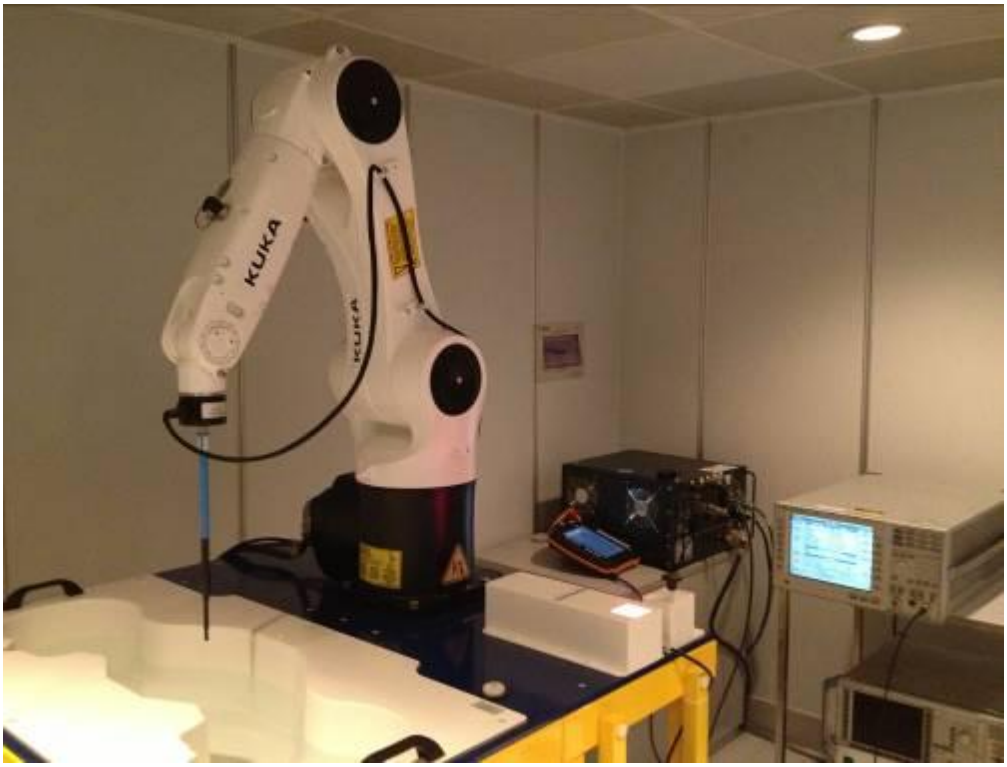


Fig.1 COMO SAR Test System

SAR Test setup For iphone A1530 with BT iPhone case

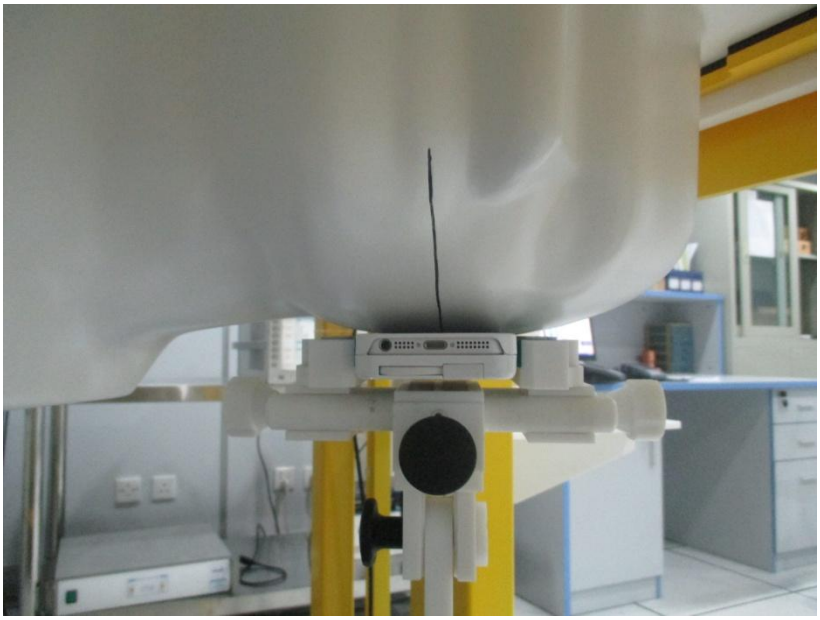


Fig.2 Left_Cheek

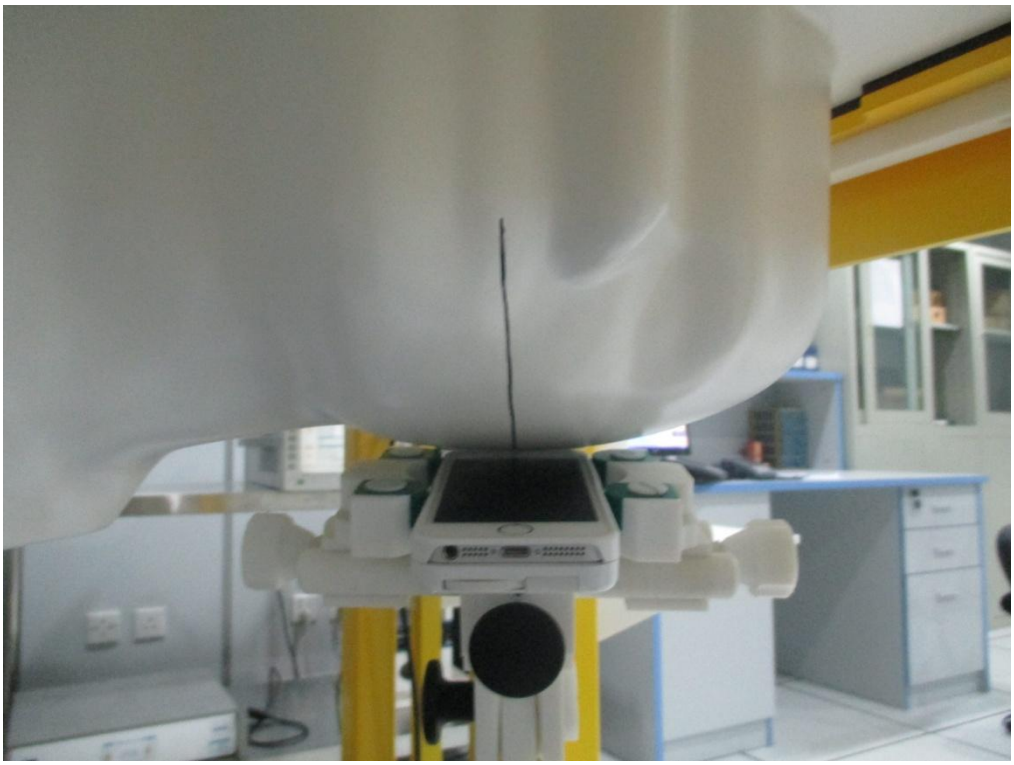


Fig.3 Left_Tilt

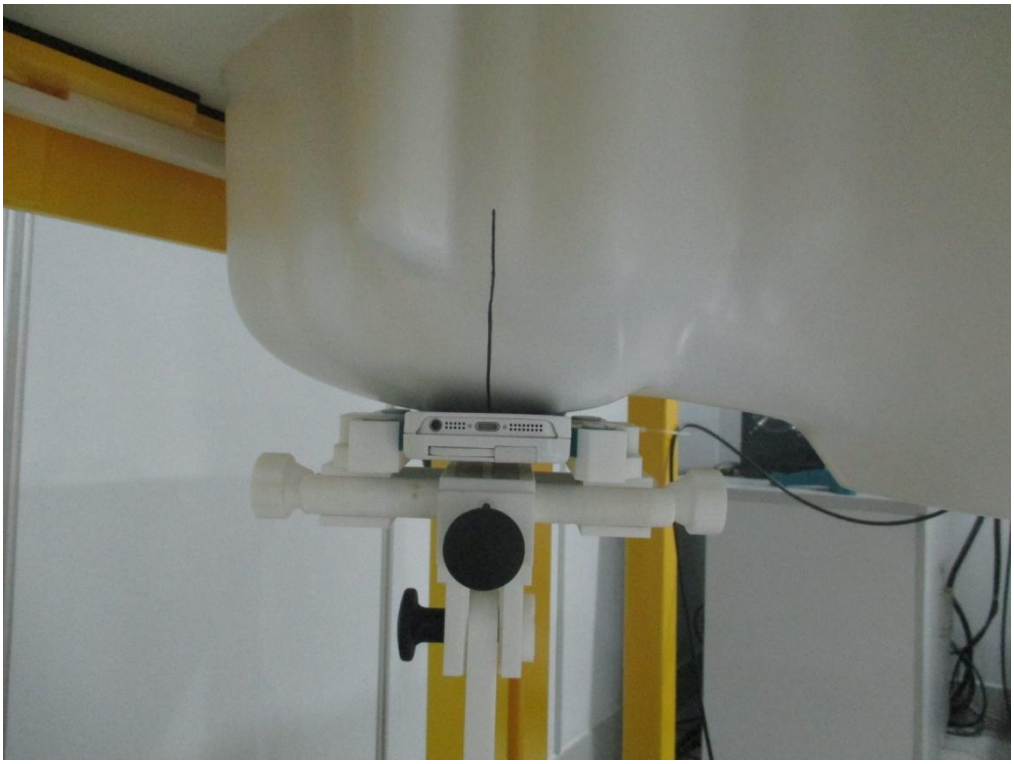


Fig.4 Right_Cheek

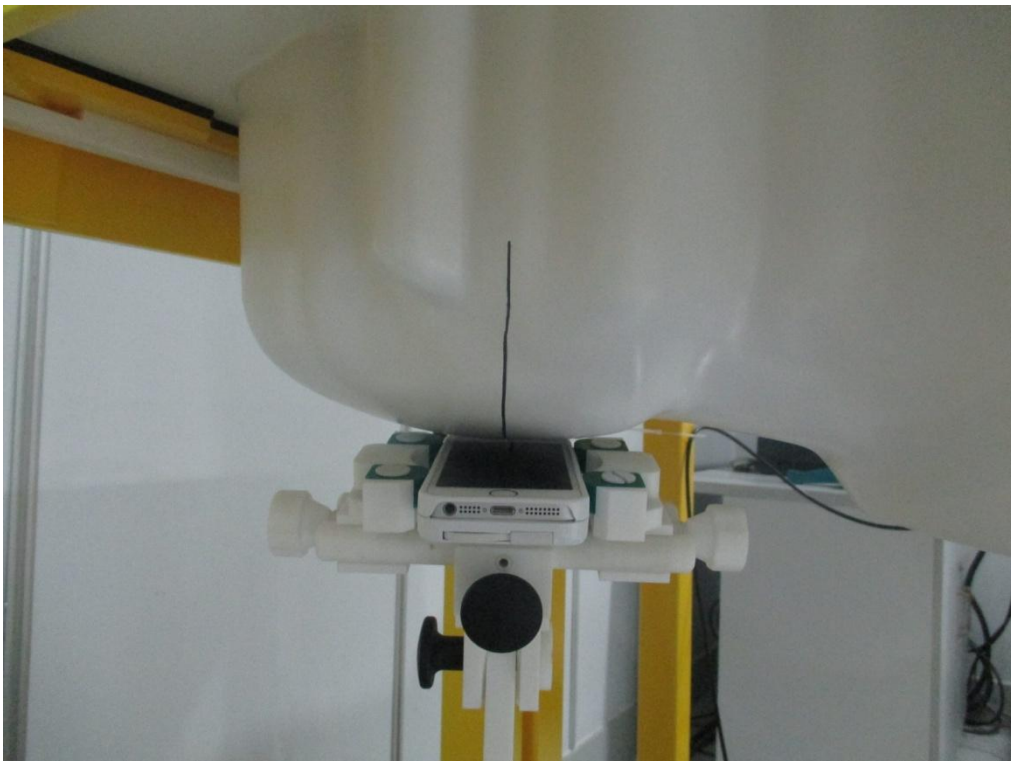


Fig.5 Right_Tilt

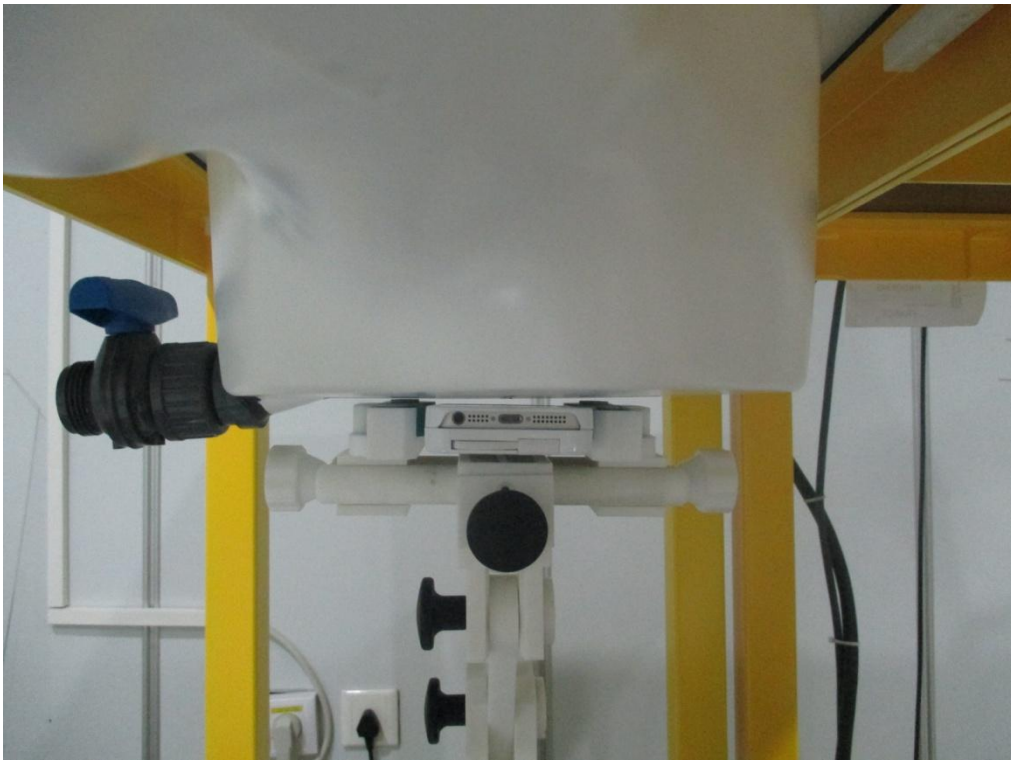


Fig.6 Face Upward distance 5mm

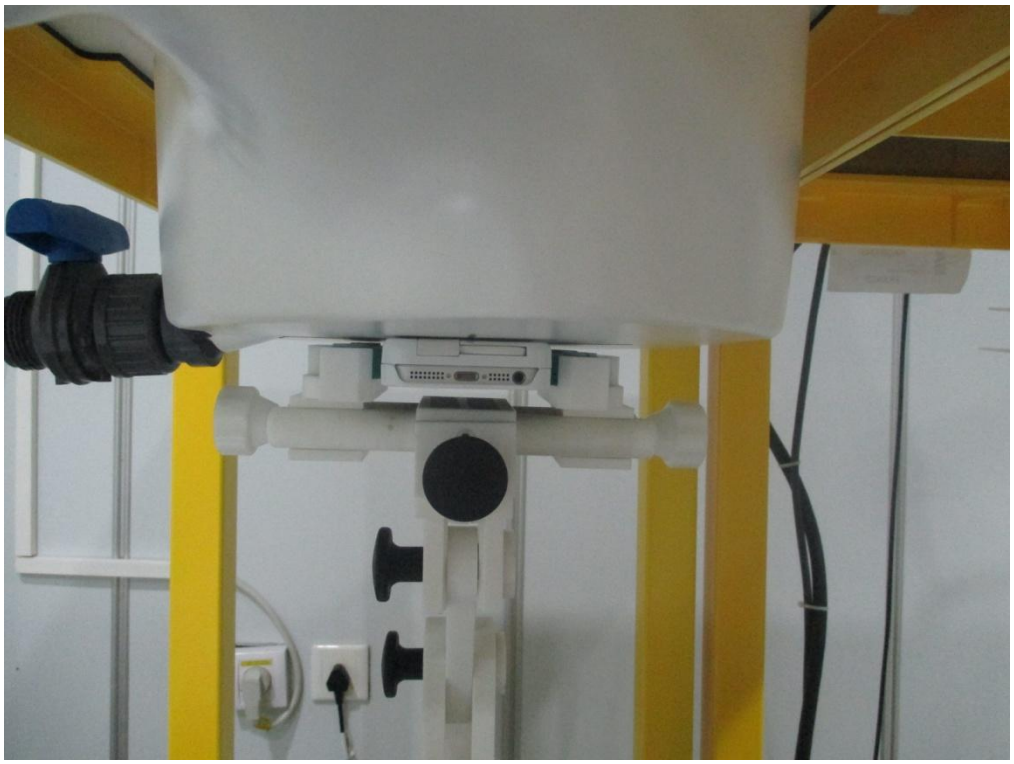


Fig.7 Back Upward distance 0mm

Fig.8 Edge 1 distance 5mm

Fig.9 Edge 2 distance 5mm

Fig.10 Edge 3 distance 5mm

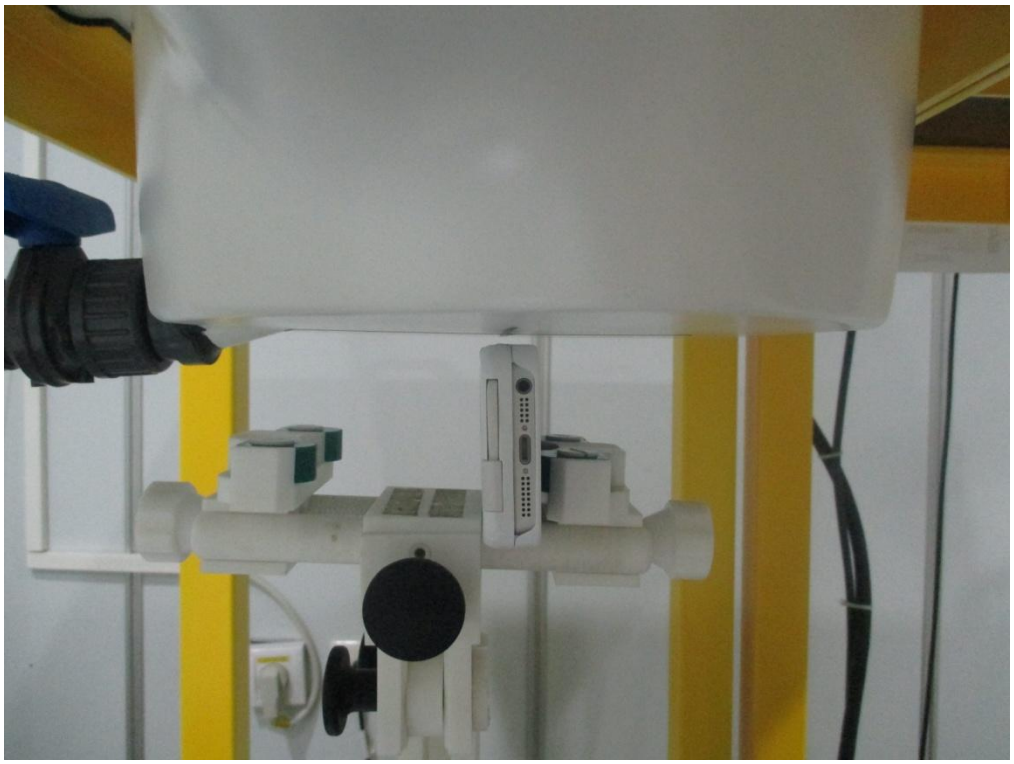


Fig.11 Edge 4 distance 5mm

SAR Test setup For Model A1530 without BT iPhone case

Fig.12 Left Check

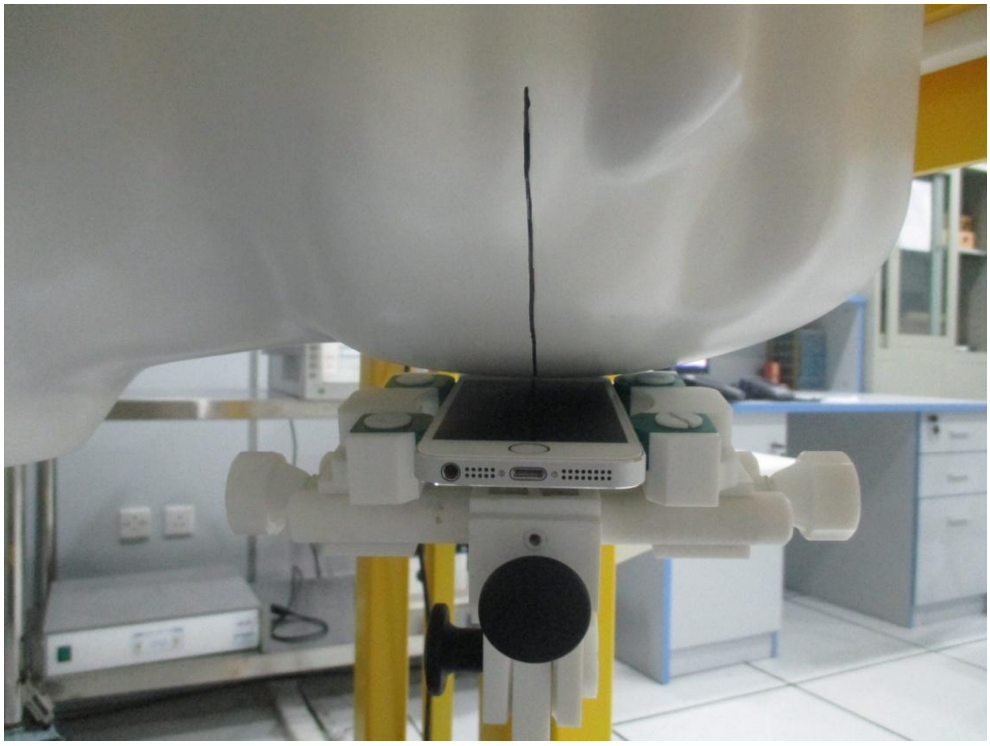


Fig.13 Left Tilt

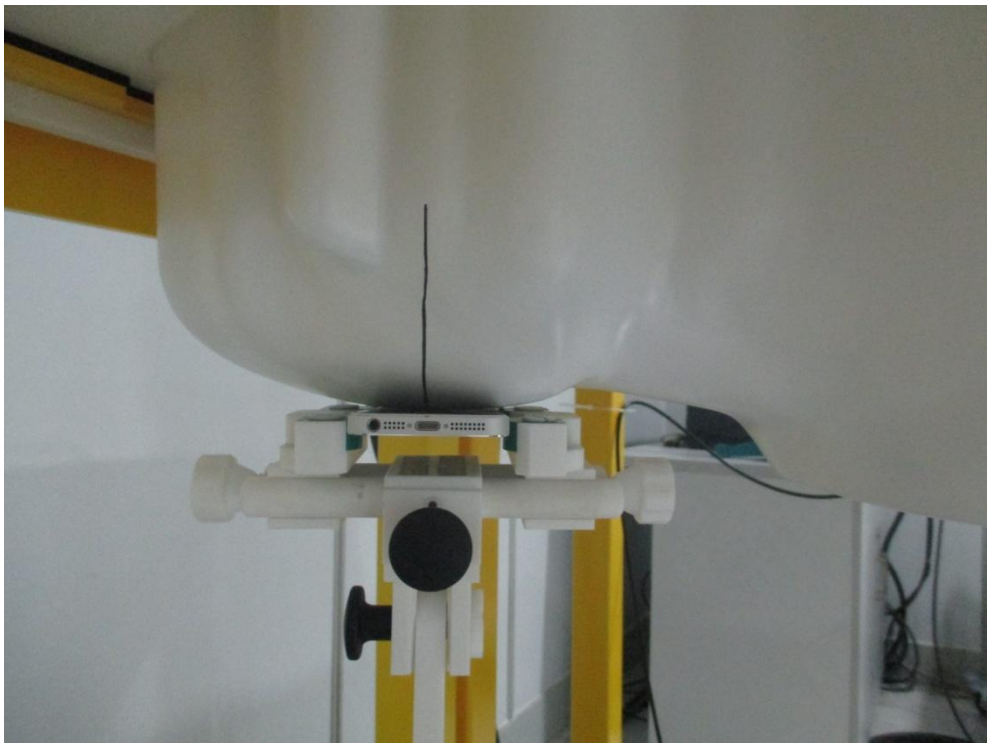


Fig.14 Right cheek

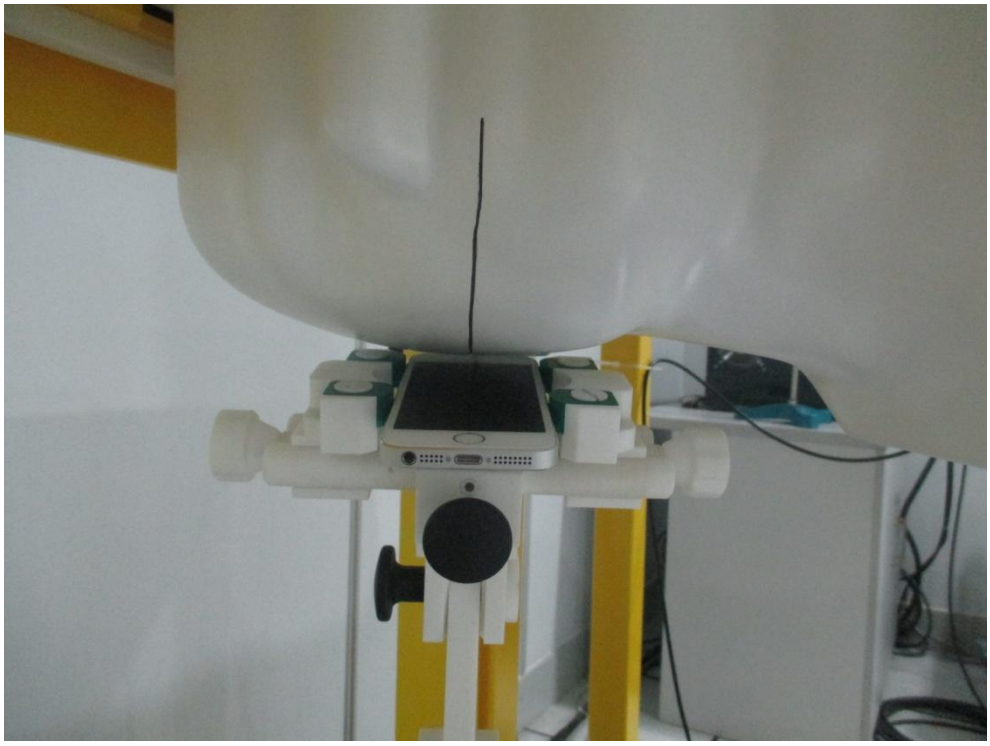


Fig.15 Right Tilt

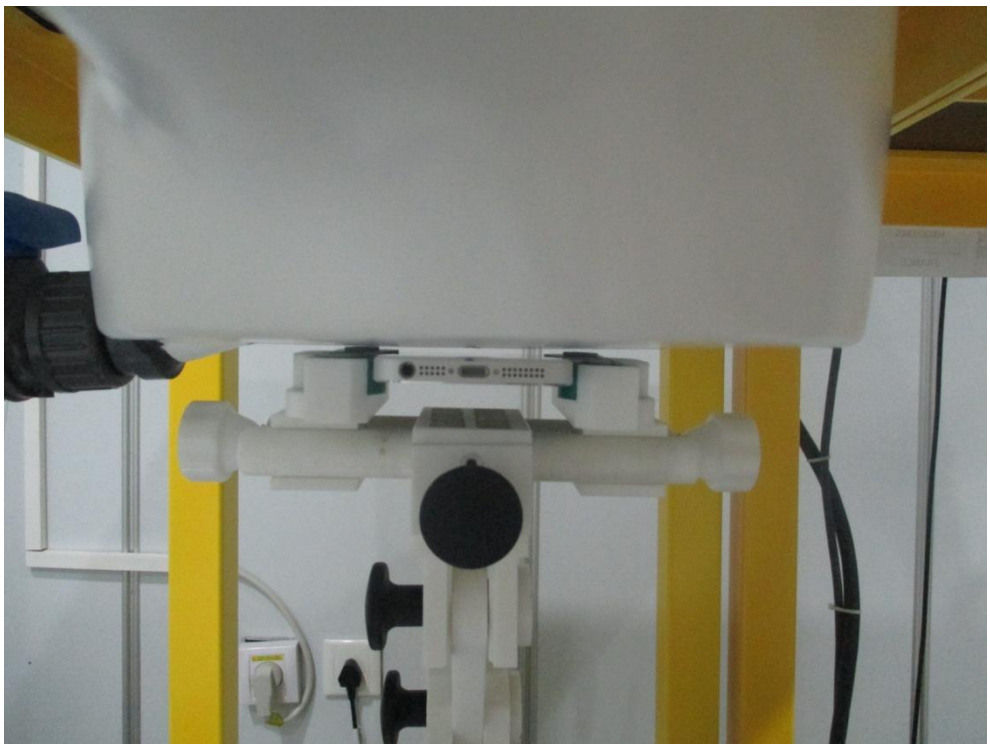


Fig.16 Face Upward distance 5mm

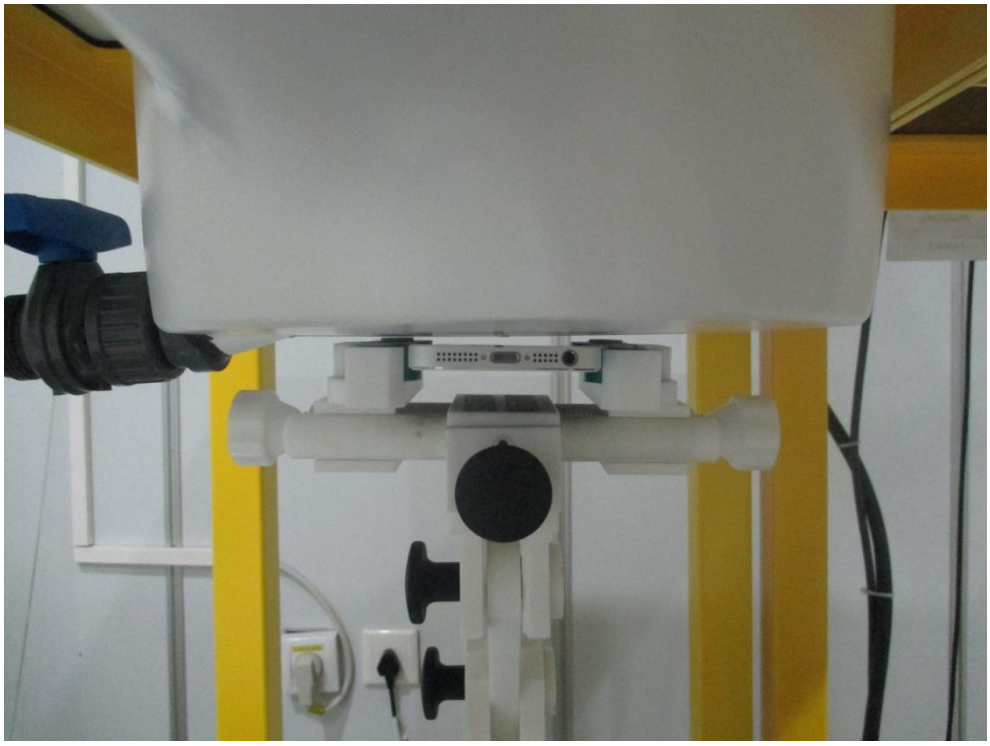


Fig.17 Face Downward distance 5mm

Fig.18 Edge 1 distance 5mm