In accordance with the requirements of
FCC 47 CFR Part 2(2.1093), ANSI/IEEE C95.1-1992 and
IEEE Std 1528-2013

FCC SAR EVALUATION REPORT

Product Name： Smartphone

Trademark： OWN

Model Name： One Glass

Serial Model： n/a

Report No.： NTEK-2016NT08198384HF

FCC ID： 2AELAONEGLASS

Prepared for

Ingram Micro Chile S.A

EI Rosal,4765,Huechuraba,Santiago,CL

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TEST RESULT CERTIFICATION

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Manufacture's Name .... Haier International (HK) Limited

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Product description

Product name..... Smartphone

Trademark ..... OWN

Model and/or type reference ..... One Glass

Serial Model ..... n/a

Standards..... FCC 47 CFR Part 2(2.1093)
ANSI/IEEE C95.1-1992
IEEE Std 1528-2013
Published RF exposure KDB procedures

This device described above has been tested by Shenzhen NTEK. In accordance with the measurement methods and procedures specified in IEEE Std 1528-2013 and KDB 865664 D01. Testing has shown that this device is capable of compliance with localized specific absorption rate (SAR) specified in FCC 47 CFR Part 2(2.1093) and ANSI/IEEE C95.1-1992. The test results in this report apply only to the tested sample of the stated device/equipment. Other similar device/equipment will not necessarily produce the same results due to production tolerance and measurement uncertainties.

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Date of Test

Date (s) of performance of tests..... Aug. 23, 2016 ~ Sep. 20, 2016

Date of Issue ..... Sep. 28, 2016

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

Prepared By (Test Engineer) : Cheng Jiawen
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※ ※ Revision History ※ ※

REV.	DESCRIPTION	ISSUED DATE	REMARK
Rev.1.0	Initial Test Report Release	Sep. 28, 2016	Cheng Jiawen

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1. General Information

1.1. RF exposure limits

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

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

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

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

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

Occupational/Controlled Environments:

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

General Population/Uncontrolled Environments:

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

NOTE HEAD AND TRUNK LIMIT 1.6 W/kg APPLIED TO THIS EUT

1.2. Statement of Compliance

The maximum results of Specific Absorption Rate (SAR) found during testing for One Glass are as follows.

Band	Max Reported SAR(W/kg)			
	1-g Head	1-g Body-Worn (Separation distance of 10mm)	1-g Hotspot (Separation distance of 10mm)	Max. SAR Summation
GSM 850	0.239	0.502	0.502	1.146
GSM 1900	0.170	0.726	0.758	
UMTS Band V	0.169	0.350	0.350	
UMTS Band II	0.149	0.703	0.768	
LTE Band XVII	0.258	0.762	0.762	
LTE Band IV	0.354	0.701	1.146	
LTE Band II	0.247	0.657	0.762	
LTE Band VII	0.077	0.413	0.787	
WiFi 2.4G	0.088	0.036	0.036	

NOTE: The Max. SAR Summation is calculated based on the same configuration and test position.
This device is in compliance with Specific Absorption Rate (SAR) for general population/uncontrolled exposure limits (1.6 W/kg) specified in FCC 47 CFR Part 2(2.1093) and ANSI/IEEE C95.1-1992, and had been tested in accordance with the measurement methods and procedures specified in IEEE Std 1528-2013 & KDB 865664 D01.

1.3. EUT Description

Device Information			
Product Name	Smartphone		
Trade Name	OWN		
Model Name	One Glass		
Serial Model	n/a		
FCC ID	2AELAONEGLASS		
Device Phase	Identical Prototype		
Exposure Category	General population / Uncontrolled environment		
Antenna	FPCB Antenna		
Battery Information	3.8V, 2050mAh		
Device Operating Configurations			
Supporting Mode(s)	GSM 850/1900, UMTS Band V/II, LTE Band XVII/IV/II/VII, WiFi 2.4G, BT		
Test Modulation	GSM(GMSK/8PSK), UMTS(QPSK), LTE(QPSK/16QAM), WiFi(DSSS/OFDM)		
Device Class	B		
Operating Frequency Range(s)	Band	Tx (MHz)	Rx (MHz)
	GSM 850	824-849	869-894
	GSM 1900	1850-1910	1930-1990
	UMTS Band V	824-849	869-894
	UMTS Band II	1850-1910	1930-1990
	LTE Band XVII	704-716	734-746
	LTE Band IV	1710-1755	2110-2155
	LTE Band II	1850-1910	1930-1990
	LTE Band VII	2500-2570	2620-2690
	WiFi 2.4G	2412-2462	
	BT	2402-2480	
GPRS Multislot Class(12)	Max Number of Timeslots in Uplink		4
	Max Number of Timeslots in Downlink		4
	Max Total Timeslot		5
EDGE Multislot Class(12)	Max Number of Timeslots in Uplink		4
	Max Number of Timeslots in Downlink		4
	Max Total Timeslot		5
HSDPA UE Category	14		
HSUPA UE Category	6		
Power Class	4, tested with power level 5(GSM 850)		
	1, tested with power level 0(GSM 1900)		
	3, tested with power control “all 1”(UMTS Band V)		
	3, tested with power control “all 1”(UMTS Band II)		

	3, tested with power control all Max.(LTE Band XVII)
	3, tested with power control all Max.(LTE Band IV)
	3, tested with power control all Max.(LTE Band II)
	3, tested with power control all Max.(LTE Band VII)
Test Channels (low-mid-high)	128-189-251(GSM 850)
	512-661-810(GSM 1900)
	4132-4182-4233(UMTS Band V)
	9262-9400-9538(UMTS Band II)
	23755-23790-23825(LTE Band XVII BW=5MHz)
	23780-23790-23800(LTE Band XVII BW=10MHz)
	19957-20175-20393(LTE Band IV BW=1.4MHz)
	19965-20175-20385(LTE Band IV BW=3MHz)
	19975-20175-20375(LTE Band IV BW=5MHz)
	20000-20175-20350(LTE Band IV BW=10MHz)
	20025-20175-20325(LTE Band IV BW=15MHz)
	20050-20175-20300(LTE Band IV BW=20MHz)
	18607-18900-19193(LTE Band II BW=1.4MHz)
	18615-18900-19185(LTE Band II BW=3MHz)
	18625-18900-19175(LTE Band II BW=5MHz)
	18650-18900-19150(LTE Band II BW=10MHz)
	18675-18900-19125(LTE Band II BW=15MHz)
	18700-18900-19100(LTE Band II BW=20MHz)
	20775-21100-21425(LTE Band VII BW=5MHz)
	20800-21100-21400(LTE Band VII BW=10MHz)
	20825-21100-21375(LTE Band VII BW=15MHz)
	20850-21100-21350(LTE Band VII BW=20MHz)
	802.11 b/g/n:1-6-11(WiFi 2.4G)

1.4. Test specification(s)

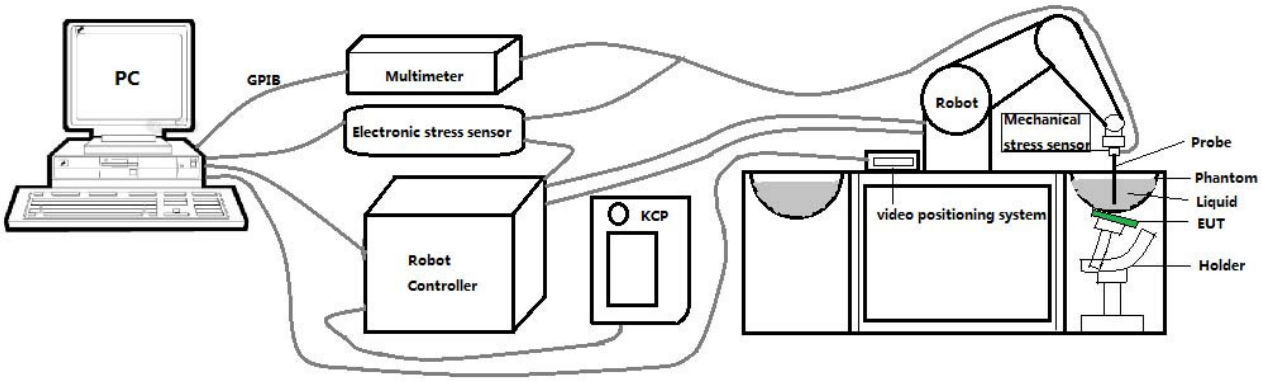
FCC 47 CFR Part 2(2.1093)
ANSI/IEEE C95.1-1992
IEEE Std 1528-2013
KDB 865664 D01 SAR measurement 100 MHz to 6 GHz
KDB 865664 D02 RF Exposure Reporting
KDB 447498 D01 General RF Exposure Guidance
KDB 248227 D01 802.11 Wi-Fi SAR
KDB 941225 D01 3G SAR Procedures
KDB 941225 D05 SAR for LTE Devices
KDB 941225 D06 Hotspot SAR
KDB 648474 D04 Handset SAR

1.5. Ambient Condition

Ambient temperature	20°C – 24°C
Relative Humidity	30% – 70%

2. SAR Measurement System

2.1. SATIMO SAR Measurement Set-up Diagram



These measurements were performed with the automated near-field scanning system OPENSAR from SATIMO. The system is based on a high precision robot (working range: 901 mm), which positions the probes with a positional repeatability of better than ±0.03 mm. The SAR measurements were conducted with dosimetric probe (manufactured by SATIMO), designed in the classical triangular configuration and optimized for dosimetric evaluation.

The first step of the field measurement is the evaluation of the voltages induced on the probe by the device under test. Probe diode detectors are nonlinear. Below the diode compression point, the output voltage is proportional to the square of the applied E-field; above the diode compression point, it is linear to the applied E-field. The compression point depends on the diode, and a calibration procedure is necessary for each sensor of the probe.

The Keithley multimeter reads the voltage of each sensor and send these three values to the PC. The corresponding E field value is calculated using the probe calibration factors, which are stored in the working directory. This evaluation includes linearization of the diode characteristics. The field calculation is done separately for each sensor. Each component of the E field is displayed on the "Dipole Area Scan Interface" and the total E field is displayed on the "3D Interface"

2.2. Robot

The SATIMO SAR system uses the high precision robots from KUKA. For the 6-axis controller system, the robot controller version (KUKA) from KUKA is used. The KUKA robot series have many features that are important for our application:

- High precision (repeatability ±0.03 mm)
- High reliability (industrial design)
- Jerk-free straight movements
- Low ELF interference (the closed metallic construction shields against motor control fields)

2.3. E-Field Probe

This E-field detection probe is composed of three orthogonal dipoles linked to special Schottky diodes with low detection thresholds. The probe allows the measurement of electric fields in liquids such as the one defined in the IEEE and CENELEC standards.

For the measurements the Specific Dosimetric E-Field Probe SN 14/16 EPGO 306 with following specifications is used

- Dynamic range: 0.01-100 W/kg
- Tip Diameter : 2.5 mm
- Distance between probe tip and sensor center: 1 mm
- Distance between sensor center and the inner phantom surface: 4 mm (repeatability better than ±1 mm).
- Probe linearity: ±0.07 dB
- Axial isotropy: <0.25 dB
- Hemispherical Isotropy: <0.50 dB
- Calibration range: 450MHz to 6000MHz for head & body simulating liquid.
- Lower detection limit: 9mW/kg

Angle between probe axis (evaluation axis) and surface normal line: less than 30°.

For the measurements the Specific Dosimetric E-Field Probe SN 27/15 EPGO 262 with following specifications is used

- Dynamic range: 0.01-100 W/kg
- Tip Diameter : 2.5 mm
- Distance between probe tip and sensor center: 1 mm
- Distance between sensor center and the inner phantom surface: 4 mm (repeatability better than ±1 mm).
- Probe linearity: ±0.08 dB
- Axial isotropy: <0.25 dB
- Hemispherical Isotropy: <0.50 dB
- Calibration range: 450MHz to 6000MHz for head & body simulating liquid.
- Lower detection limit: 8mW/kg

Angle between probe axis (evaluation axis) and surface normal line: less than 30°.

2.3.1. E-Field Probe Calibration

Each probe needs to be calibrated according to a dosimetric assessment procedure with accuracy better than ±10%. The spherical isotropy shall be evaluated and within ±0.25dB. The sensitivity parameters (Norm X, Norm Y, and Norm Z), the diode compression parameter (DCP) and the conversion factor (Conv F) of the probe are tested. The calibration data can be referred to appendix D of this report.

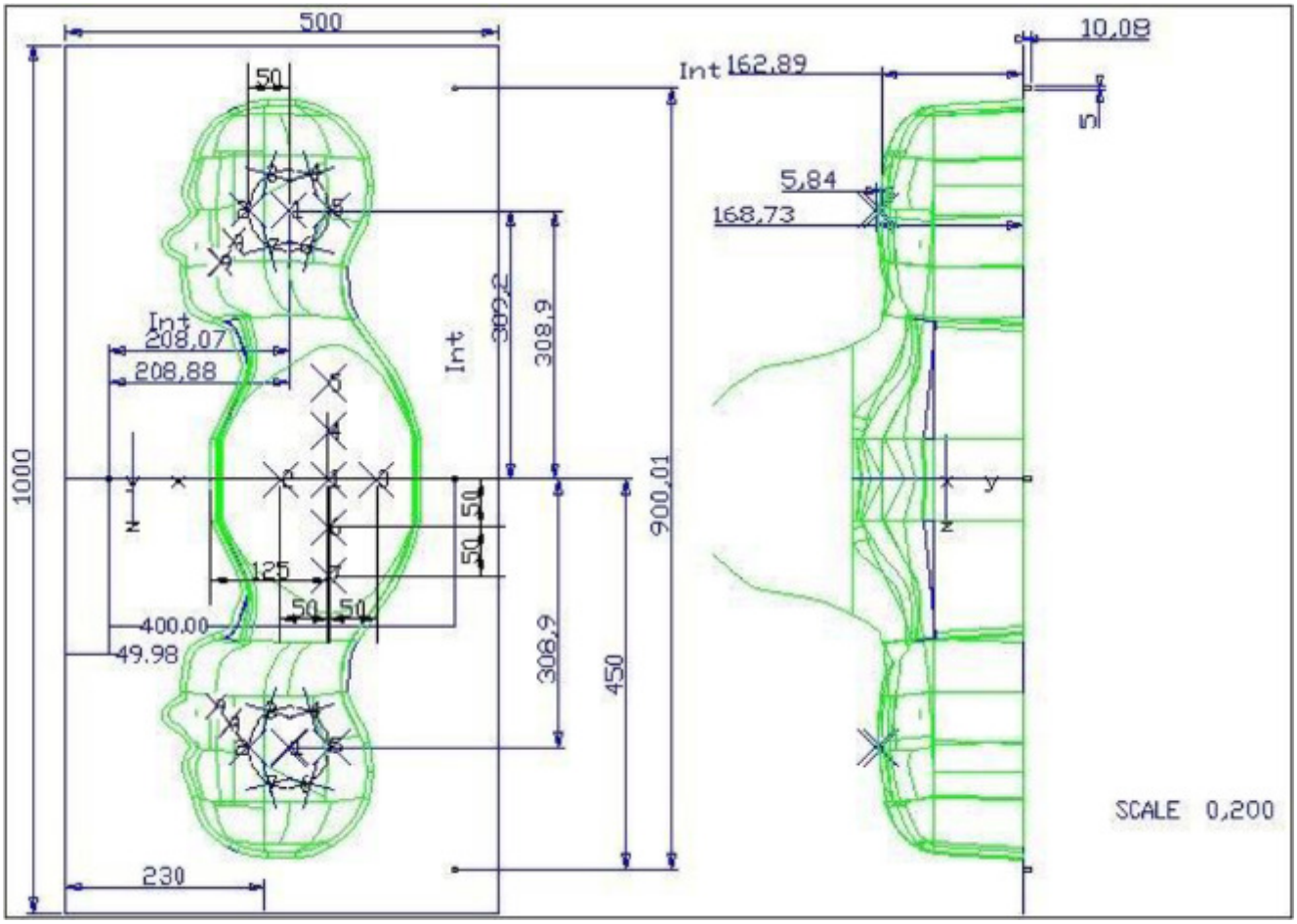
2.4. SAM phantoms

Photo of SAM phantom SN 16/15 SAM119

The SAM phantom is used to measure the SAR relative to people exposed to electro-magnetic field radiated by mobile phones.

2.4.1. Technical Data

Serial Number	Shell thickness	Filling volume	Dimensions	Positionner Material	Permittivity	Loss Tangent
SN 16/15 SAM119	2 mm ±0.2 mm	27 liters	Length:1000 mm Width:500 mm Height:200 mm	Gelcoat with fiberglass	3.4	0.02

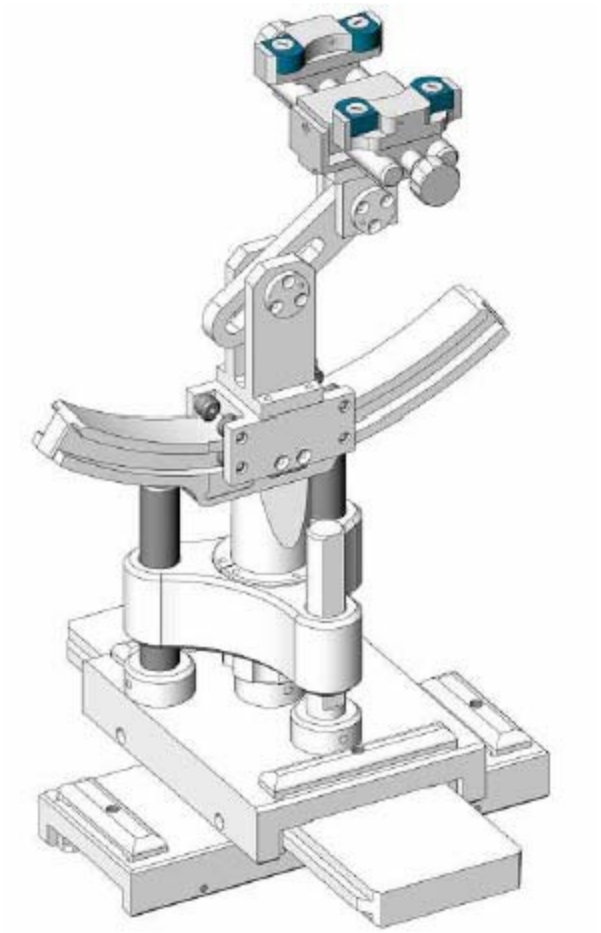


Serial Number	Left Head		Right Head		Flat Part	
SN 16/15 SAM119	2	2.02	2	2.08	1	2.09
	3	2.05	3	2.06	2	2.06
	4	2.07	4	2.07	3	2.08
	5	2.08	5	2.08	4	2.10
	6	2.05	6	2.07	5	2.10
	7	2.05	7	2.05	6	2.07
	8	2.07	8	2.06	7	2.07
	9	2.08	9	2.06	-	-

The test, based on ultrasonic system, allows measuring the thickness with an accuracy of 10 µm.

2.5. Device Holder

The positioning system allows obtaining cheek and tilting position with a very good accuracy. In compliance with CENELEC, the tilt angle uncertainty is lower than 1 degree.



Serial Number	Holder Material	Permittivity	Loss Tangent
SN 16/15 MSH100	Delrin	3.7	0.005

2.6. Test Equipment List

This table gives a complete overview of the SAR measurement equipment.
Devices used during the test described are marked ☒

	Manufacturer	Name of Equipment	Type/Model	Serial Number	Calibration	
					Last Cal.	Due Date
☒	MVG	E FIELD PROBE	SSE2	SN 14/16 EPGO306	Aug. 08, 2016	Aug. 07, 2017
☒	MVG	E FIELD PROBE	SSE2	SN 27/15 EPGO262	Apr. 25, 2016	Apr. 24, 2017
☐	MVG	450 MHz Dipole	SID450	SN 03/15 DIP 0G450-345	Apr. 06, 2015	Apr. 05, 2018
☒	MVG	750 MHz Dipole	SID750	SN 03/15 DIP 0G750-355	Apr. 06, 2015	Apr. 05, 2018
☒	MVG	835 MHz Dipole	SID835	SN 03/15 DIP 0G835-347	Apr. 06, 2015	Apr. 05, 2018
☐	MVG	900 MHz Dipole	SID900	SN 03/15 DIP 0G900-348	Apr. 06, 2015	Apr. 05, 2018
☒	MVG	1750 MHz Dipole	SID1750	SN 03/15 DIP 1G750-357	Dec. 09, 2015	Dec. 08, 2018
☐	MVG	1800 MHz Dipole	SID1800	SN 03/15 DIP 1G800-349	Apr. 06, 2015	Apr. 05, 2018
☒	MVG	1900 MHz Dipole	SID1900	SN 03/15 DIP 1G900-350	Apr. 06, 2015	Apr. 05, 2018
☐	MVG	2000 MHz Dipole	SID2000	SN 03/15 DIP 2G000-351	Apr. 06, 2015	Apr. 05, 2018
☒	MVG	2450 MHz Dipole	SID2450	SN 03/15 DIP 2G450-352	Apr. 06, 2015	Apr. 05, 2018
☒	MVG	2600 MHz Dipole	SID2600	SN 03/15 DIP 2G600-356	Apr. 06, 2015	Apr. 05, 2018
☐	MVG	5000 MHz Dipole	SWG5500	SN 13/14 WGA 33	Apr. 06, 2015	Apr. 05, 2018
☒	MVG	Liquid measurement Kit	SCLMP	SN 21/15 OCPG 72	NCR	NCR
☒	MVG	Power Amplifier	N.A	AMPLISAR_28/14_003	NCR	NCR
☒	KEITHLEY	Millivoltmeter	2000	4072790	NCR	NCR
☒	R&S	Universal radio communication tester	CMU200	117858	Aug. 09, 2016	Aug. 08, 2017

☒	R&S	Wideband radio communication tester	CMW500	148500	Jun. 26, 2016	Jun. 25, 2017
☒	HP	Network Analyzer	8753D	3410J01136	Aug. 09, 2016	Aug. 08, 2017
☒	Agilent	PSG Analog Signal Generator	E8257D	MY51110112	Aug. 09, 2016	Aug. 08, 2017
☒	Agilent	Power meter	E4419B	MY45102538	Aug. 09, 2016	Aug. 08, 2017
☒	Agilent	Power sensor	E9301A	MY41495644	Aug. 09, 2016	Aug. 08, 2017
☒	Agilent	Power sensor	E9301A	US39212148	Aug. 09, 2016	Aug. 08, 2017
☒	MCLI/USA	Directional Coupler	CB11-20	0D2L51502	Aug. 09, 2016	Aug. 08, 2017

3. SAR Measurement Procedures

The measurement procedures are as follows:

<Conducted power measurement>

(a) 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.

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

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

(d) Connect EUT RF port through RF cable to the power meter, and measure WiFi/BT output power.

<SAR measurement>

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

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

(c) Set scan area, grid size and other setting on the OPENSAR software.

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

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

(f) Measure SAR results for other channels in worst SAR testing position if the reported SAR of highest power channel is larger than 0.8 W/kg.

According to the test standard, the recommended procedure for assessing the peak spatial-average SAR value consists of the following steps:

(a) Power reference measurement

(b) Area scan

(c) Zoom scan

(d) Power drift measurement

3.1. Power Reference

The Power Reference Measurement and Power Drift Measurements are for monitoring the power drift of the device under test in the batch process. The minimum distance of probe sensors to surface determines the closest measurement point to phantom surface. This distance cannot be smaller than the distance of sensor calibration points to probe tip as defined in the probe properties.

3.2. Area scan & Zoom scan

The area scan is a 2D scan to find the hot spot location on the DUT. The zoom scan is a 3D scan above the hot spot to calculate the 1g and 10g SAR value.

Measurement of the SAR distribution with a grid of 8 to 16 mm * 8 to 16 mm and a constant distance to

the inner surface of the phantom. Since the sensors cannot directly measure at the inner phantom surface, the values between the sensors and the inner phantom surface are extrapolated. With these values the area of the maximum SAR is calculated by an interpolation scheme. Around this point, a cube of 30 * 30 *30 mm or 32 * 32 * 32 mm is assessed by measuring 5 or 8 * 5 or 8 * 4 or 5 mm. With these data, the peak spatial-average SAR value can be calculated.

From the scanned SAR distribution, identify the position of the maximum SAR value, in addition identify the positions of any local maxima with SAR values within 2 dB of the maximum value that will not be within the zoom scan of other peaks; additional peaks shall be measured only when the primary peak is within 2 dB of the SAR compliance limit (e.g., 1 W/kg for 1,6 W/kg 1 g limit, or 1,26 W/kg for 2 W/kg, 10 g limit).

Area scan & Zoom scan scan parameters extracted from FCC KDB 865664 D01 SAR measurement 100 MHz to 6 GHz.

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

Note: δ is the penetration depth of a plane-wave at normal incidence to the tissue medium; see draft standard IEEE P1528-2011 for details.

* When zoom scan is required and the *reported* SAR from the *area scan based 1-g SAR estimation* procedures of KDB 447498 is ≤ 1.4 W/kg, ≤ 8 mm, ≤ 7 mm and ≤ 5 mm zoom scan resolution may be applied, respectively, for 2 GHz to 3 GHz, 3 GHz to 4 GHz and 4 GHz to 6 GHz.

3.3. Description of interpolation/extrapolation scheme

The local SAR inside the phantom is measured using small dipole sensing elements inside a probe body. The probe tip must not be in contact with the phantom surface in order to minimise measurements errors, but the highest local SAR will occur at the surface of the phantom.
An extrapolation is using to determinate this highest local SAR values. The extrapolation is based on a fourth-order least-square polynomial fit of measured data. The local SAR value is then extrapolated from the liquid surface with a 1 mm step.
The measurements have to be performed over a limited time (due to the duration of the battery) so the step of measurement is high. It could vary between 5 and 8 mm. To obtain an accurate assessment of the maximum SAR averaged over 10 grams and 1 gram requires a very fine resolution in the three dimensional scanned data array.

3.4. Volumetric Scan

The volumetric scan consists to a full 3D scan over a specific area. This 3D scan is useful form multi Tx SAR measurement. Indeed, it is possible with OpenSAR to add, point by point, several volumetric scan to calculate the SAR value of the combined measurement as it is define in the standard IEEE1528 and IEC62209.

3.5. Power Drift

All SAR testing is under the EUT install full charged battery and transmit maximum output power. In OpenSAR measurement software, the power reference measurement and power drift measurement procedures are used for monitoring the power drift of EUT during SAR test. Both these procedures measure the field at a specified reference position before and after the SAR testing. The software will calculate the field difference in V/m. If the power drifts more than ±5%, the SAR will be retested.

4. System Verification Procedure

4.1. Tissue Verification

The following tissue formulations are provided for reference only as some of the parameters have not been thoroughly verified. The composition of ingredients may be modified accordingly to achieve the desired target tissue parameters required for routine SAR evaluation.

Ingredients (% of weight)	Head Tissue							
Frequency Band (MHz)	750	835	900	1800	1900	2000	2450	2600
Water	34.40	34.40	34.40	55.36	55.36	57.87	57.87	57.87
NaCl	0.79	0.79	0.79	0.35	0.35	0.16	0.16	0.16
1,2-Propanediol	64.81	64.81	64.81	0.00	0.00	0.00	0.00	0.00
Triton X-100	0.00	0.00	0.00	30.45	30.45	19.97	19.97	19.97
DGBE	0.00	0.00	0.00	13.84	13.84	22.00	22.00	22.00
Ingredients (% of weight)	Body Tissue							
Frequency Band (MHz)	750	835	900	1800	1900	2000	2450	2600
Water	50.30	50.30	50.30	69.91	69.91	71.88	71.88	71.88
NaCl	0.60	0.60	0.60	0.13	0.13	0.16	0.16	0.16
1,2-Propanediol	49.10	49.10	49.10	0.00	0.00	0.00	0.00	0.00
Triton X-100	0.00	0.00	0.00	9.99	9.99	19.97	19.97	19.97
DGBE	0.00	0.00	0.00	19.97	19.97	7.99	7.99	7.99

4.1.1. Tissue Dielectric Parameter Check Results

The simulating liquids should be checked at the beginning of a series of SAR measurements to determine of the dielectric parameter are within the tolerances of the specified target values. The measured conductivity and relative permittivity should be within ±5% of the target values.

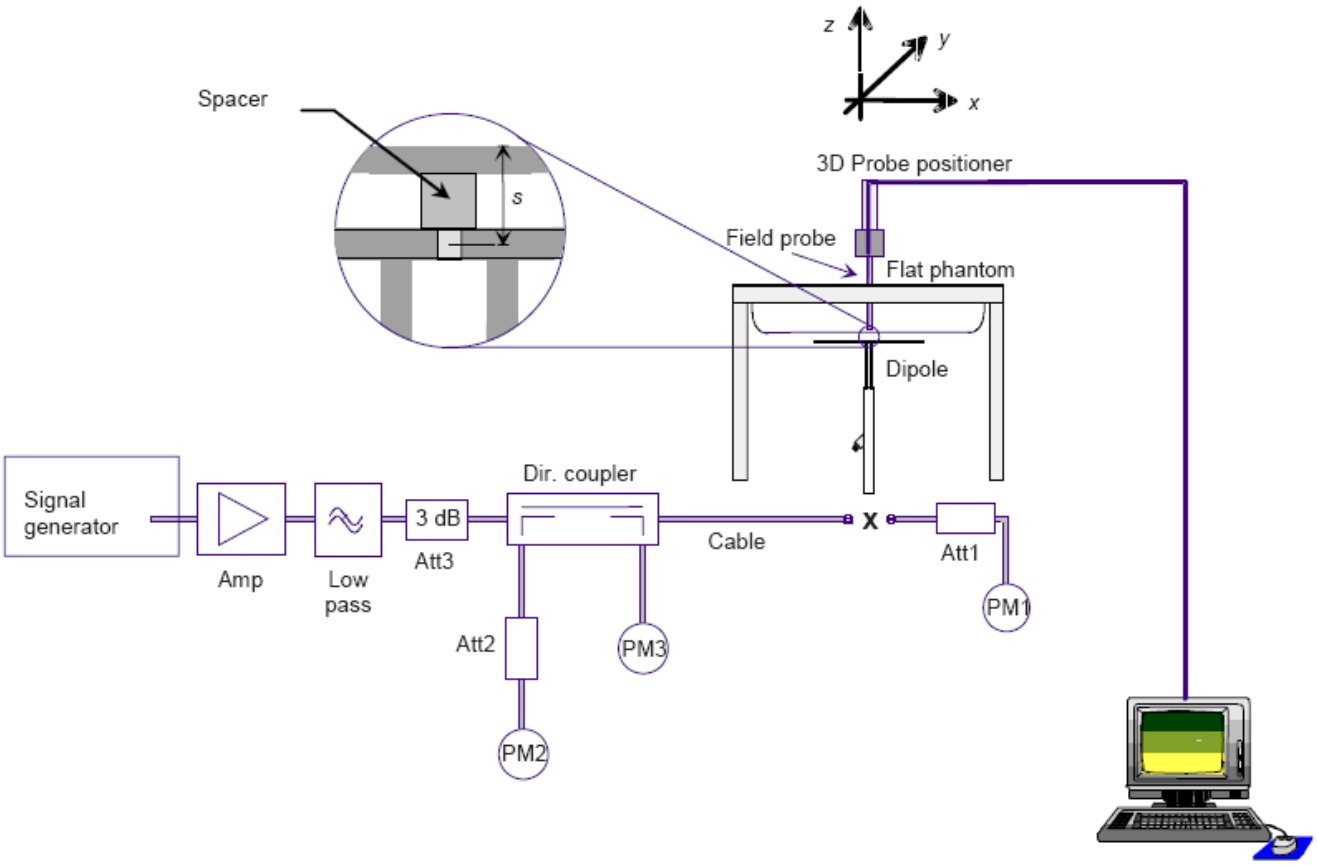
Tissue Type	Measured Frequency (MHz)	Target Tissue		Measured Tissue		Liquid Temp.	Test Date
		εr (±5%)	σ (S/m) (±5%)	εr	σ (S/m)		
Head 750	750	41.90 (39.81~43.99)	0.89 (0.85~0.93)	42.38	0.92	21.4 °C	Sep. 20, 2016
Body 750	750	55.50 (52.73~58.27)	0.96 (0.91~1.01)	55.40	0.98	21.3 °C	Sep. 20, 2016
Head 850	835	41.50 (39.43~43.57)	0.90 (0.86~0.94)	41.68	0.90	21.3 °C	Aug. 23, 2016
Body 850	835	55.20 (52.44~57.96)	0.97 (0.92~1.01)	55.36	0.99	21.3 °C	Aug. 23, 2016
Head 1750	1750	40.10 (38.10~42.11)	1.37 (1.30~1.44)	39.83	1.38	21.4 °C	Sep. 05, 2016
Body 1750	1750	53.40 (50.73~56.07)	1.49 (1.42~1.56)	54.59	1.45	21.3 °C	Sep. 05, 2016
Head 1900	1900	40.00 (38.00~42.00)	1.40 (1.33~1.47)	38.17	1.41	21.5 °C	Aug. 24, 2016
Body 1900	1900	53.30 (50.64~55.96)	1.52 (1.44~1.59)	53.69	1.56	21.4 °C	Aug. 24, 2016
Head 2450	2450	39.20 (37.24~41.16)	1.80 (1.71~1.89)	40.69	1.87	21.4 °C	Aug. 25, 2016
Body 2450	2450	52.70 (50.07~55.33)	1.95 (1.85~2.04)	54.40	1.89	21.6 °C	Aug. 25, 2016
Head 2600	2600	39.00 (37.05~40.95)	1.96 (1.86~2.05)	39.34	1.95	21.5 °C	Aug. 29, 2016
Body 2600	2600	52.50 (49.88~55.13)	2.16 (2.05~2.27)	54.02	2.13	21.6 °C	Aug. 29, 2016

NOTE: The dielectric parameters of the tissue-equivalent liquid should be measured under similar ambient conditions and within 2 °C of the conditions expected during the SAR evaluation to satisfy protocol requirements.

4.2. System Verification Procedure

The system verification is performed for verifying the accuracy of the complete measurement system and performance of the software. The dipole is connected to the signal source consisting of signal generator and amplifier via a directional coupler, N-connector cable and adaption to SMA. It is fed with a power of 100mW (below 5GHz) or 100mW (above 5GHz). To adjust this power a power meter is used. The power sensor is connected to the cable before the system verification to measure the power at this point and do adjustments at the signal generator. At the outputs of the directional coupler both return loss as well as forward power are controlled during the system verification to make sure that emitted power at the dipole is kept constant. This can also be checked by the power drift measurement after the test (result on plot).

The system verification is shown as below picture:



4.2.1. System Verification Results

Comparing to the original SAR value provided by SATIMO, the verification data should be within its specification of ±10%. Below table shows the target SAR and measured SAR after normalized to 1W input power. The table below indicates the system performance verification can meet the variation criterion and the plots can be referred to Appendix B of this report.

System Verification	Target SAR (1W) (±10%)		Measured SAR (Normalized to 1W)		Liquid Temp.	Test Date
	1-g (W/Kg)	10-g (W/Kg)	1-g (W/Kg)	10-g (W/Kg)		
750MHz Head	8.49 (7.64~9.34)	5.55 (4.99~6.11)	8.96	5.97	21.4 °C	Sep. 20, 2016
750MHz Body	8.55 (7.69~9.41)	5.75 (5.17~6.33)	8.79	5.85	21.3 °C	Sep. 20, 2016
835MHz Head	9.56 (8.60~10.51)	6.22 (5.60~6.84)	9.70	6.50	21.3 °C	Aug. 23, 2016
835MHz Body	9.48 (8.53~10.42)	6.29 (5.66~6.91)	10.10	6.74	21.3 °C	Aug. 23, 2016
1750MHz Head	36.40 (32.76~40.04)	19.30 (17.37~21.23)	38.96	20.70	21.4 °C	Sep. 05, 2016
1750MHz Body	36.91 (33.22~40.60)	20.18 (18.16~22.20)	38.67	20.30	21.3 °C	Sep. 05, 2016
1900MHz Head	39.70 (35.73~43.67)	20.50 (18.45~22.55)	40.99	21.02	21.5 °C	Aug. 24, 2016
1900MHz Body	38.43 (34.59~42.27)	20.34 (18.31~22.37)	39.66	19.40	21.4 °C	Aug. 24, 2016
2450MHz Head	52.40 (47.16~57.64)	24.00 (21.60~26.40)	53.06	24.38	21.4 °C	Aug. 25, 2016
2450MHz Body	49.32 (44.39~54.25)	22.89 (20.60~25.17)	49.41	23.57	21.6 °C	Aug. 25, 2016
2600MHz Head	55.30 (49.77~60.83)	24.60 (22.14~27.06)	56.90	25.25	21.5 °C	Aug. 29, 2016
2600MHz Body	52.95 (47.66~58.25)	23.64 (21.28~26.00)	55.17	24.88	21.6 °C	Aug. 29, 2016

5. SAR Measurement variability and uncertainty

5.1. SAR measurement variability

Per KDB865664 D01 SAR measurement 100 MHz to 6 GHz, SAR measurement variability must be assessed for each frequency band, which is determined by the SAR probe calibration point and tissue-equivalent medium used for the device measurements. The additional measurements are repeated after the completion of all measurements requiring the same head or body tissue-equivalent medium in a frequency band. The test device should be returned to ambient conditions (normal room temperature) with the battery fully charged before it is re-mounted on the device holder for the repeated measurement(s) to minimize any unexpected variations in the repeated results.

1) Repeated measurement is not required when the original highest measured SAR is < 0.80 W/kg; steps 2) through 4) do not apply.
2) When the original highest measured SAR is ≥ 0.80 W/kg, repeat that measurement once.
3) Perform a second repeated measurement only if the ratio of largest to smallest SAR for the original and first repeated measurements is > 1.20 or when the original or repeated measurement is ≥ 1.45 W/kg (~ 10% from the 1-g SAR limit).
4) Perform a third repeated measurement only if the original, first or second repeated measurement is ≥1.5 W/kg and the ratio of largest to smallest SAR for the original, first and second repeated measurements is > 1.20.

5.2. SAR measurement uncertainty

Per KDB865664 D01 SAR Measurement 100 MHz to 6 GHz, when the highest measured 1-g SAR within a frequency band is < 1.5 W/kg, the extensive SAR measurement uncertainty analysis described in IEEE Std 1528-2013 is not required in SAR reports submitted for equipment approval. The equivalent ratio (1.5/1.6) is applied to extremity and occupational exposure conditions.

6. RF Exposure Positions

6.1. Ear and handset reference point

Figure 6.1.1 shows the front, back, and side views of the SAM phantom. The center-of-mouth reference point is labeled “M”, the left ear reference point (ERP) is marked “LE”, and the right ERP is marked “RE”.

Fig 6.1.1 Front, back, and side views of SAM phantom

6.2. Definition of the cheek position

1. Define two imaginary lines on the handset, the vertical centerline and the horizontal line. The vertical centerline passes through two points on the front side of the handset: the midpoint of the width w_t of the handset at the level of the acoustic output (point A in Figure 6.2.1 and Figure 6.2.2), and the midpoint of the width w_b of the bottom of the handset (point B). The horizontal line is perpendicular to the vertical centerline and passes through the center of the acoustic output (see Figure 6.2.1). The two lines intersect at point A. Note that for many handsets, point A coincides with the center of the acoustic output; however, the acoustic output may be located elsewhere on the horizontal line. Also note that the vertical centerline is not necessarily parallel to the front face of the handset (see Figure 6.2.2), especially for clamshell handsets, handsets with flip covers, and other irregularly-shaped handsets.
2. Position the handset close to the surface of the phantom such that point A is on the (virtual) extension of the line passing through points RE and LE on the phantom (see Figure 6.2.3), such that the plane defined by the vertical centerline and the horizontal line of the handset is approximately parallel to the sagittal plane of the phantom.
3. Translate the handset towards the phantom along the line passing through RE and LE until handset point A touches the pinna at the ERP
4. While maintaining the handset in this plane, rotate it around the LE-RE line until the vertical centerline is in the plane normal to the plane containing B-M and N-F lines, i.e., the Reference Plane.
5. Rotate the handset around the vertical centerline until the handset (horizontal line) is parallel to the N-F line.

6. While maintaining the vertical centerline in the Reference Plane, keeping point A on the line passing through RE and LE, and maintaining the handset contact with the pinna, rotate the handset about the N-F line until any point on the handset is in contact with a phantom point below the pinna on the cheek. See Figure 6.2.3. The actual rotation angles should be documented in the test report.

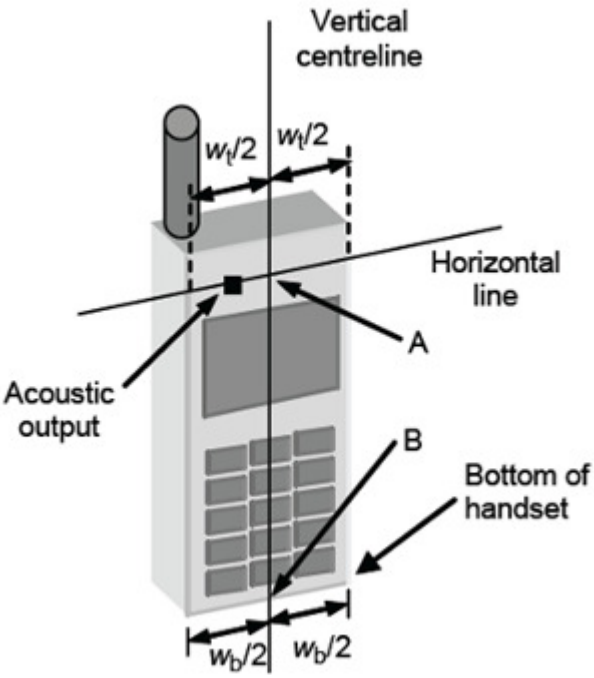


Fig 6.2.1 Handset vertical and horizontal reference lines—“fixed case

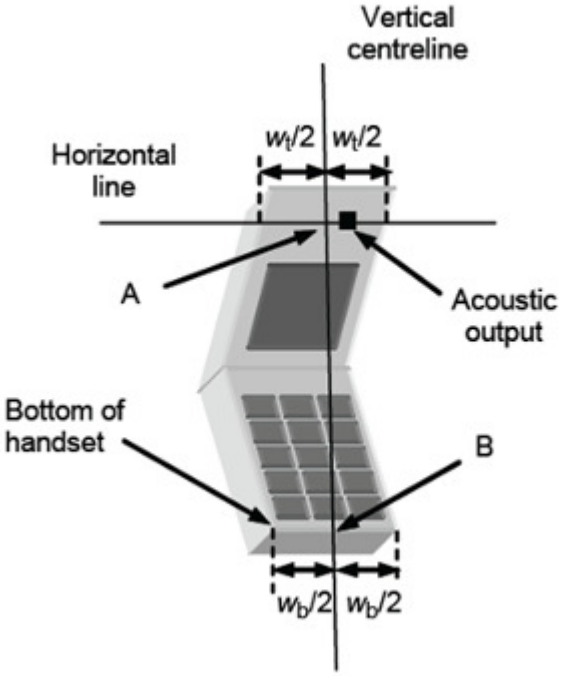


Fig 6.2.2 Handset vertical and horizontal reference lines—“clam-shell case”

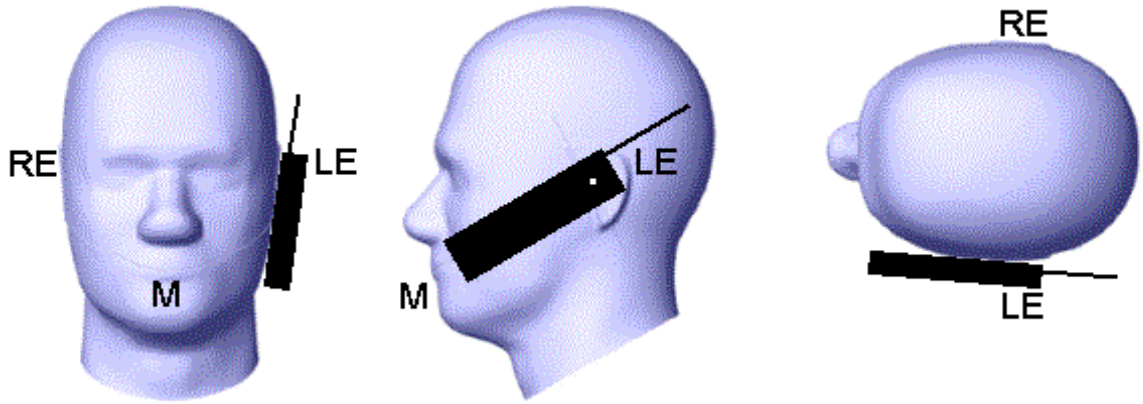


Fig 6.2.3 cheek or touch position. The reference points for the right ear (RE), left ear (LE), and mouth (M), which establish the Reference Plane for handset positioning, are indicated.

6.3. Definition of the tilt position

1. While maintaining the orientation of the handset, retract the handset parallel to the reference plane far enough away from the phantom to enable a rotation of the device by 15 degree.
2. Rotate the Handset around the horizontal line by 15 degree (see Figure 6.3.1).
3. While maintaining the orientation of the handset, move the handset towards the phantom on a line passing through RE and LE until any part of the handset touches the ear. The tilt position is obtained when the contact is on the pinna. If the contact is at any location other than the pinna, e.g., the antenna with the back of the phantom head, the angle of the handset shall be reduced. In this case, the tilt position is obtained if any part of the handset is in contact with the pinna as well as a second part of the handset is in contact with the phantom, e.g., the antenna with the back of the head.

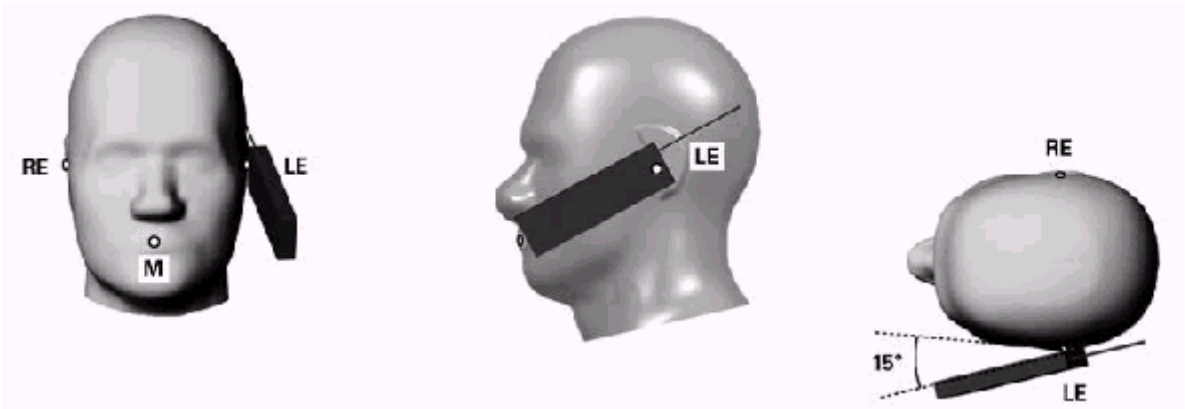


Figure 6.3.1 – Tilt position of the wireless device on the left side of SAM

6.4. Body Worn Accessory

1. Body-worn operating configurations are tested with the belt-clips and holsters attached to the device and positioned against a flat phantom in a normal use configuration (see Figure 6.4.1). Per KDB 648474 D04, body-worn accessory exposure is typically related to voice mode operations when handsets are carried in body-worn accessories. The body-worn accessory procedures in FCC KDB 447498 D01 should be used to test for body-worn accessory SAR compliance, without a headset connected to it. This enables the test results for such configuration to be compatible with that required for hotspot mode when the body-worn accessory test separation distance is greater than or equal to that required for hotspot mode, when applicable. 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 handset attached to the handset.
2. Accessories for body-worn operation configurations are divided into two categories: those that do not contain metallic components and those that do contain metallic components and those that do contain metallic components. When multiple accessories that do not contain metallic components are supplied with the device, the device is tested with only the accessory that dictates the closest

spacing to the body. Then multiple accessories that contain metallic components are test with the device with each accessory. If multiple accessories share an identical metallic component (i.e. the same metallic belt-chip used with different holsters with no other metallic components) only the accessory that dictates the closest spacing to the body is tested.

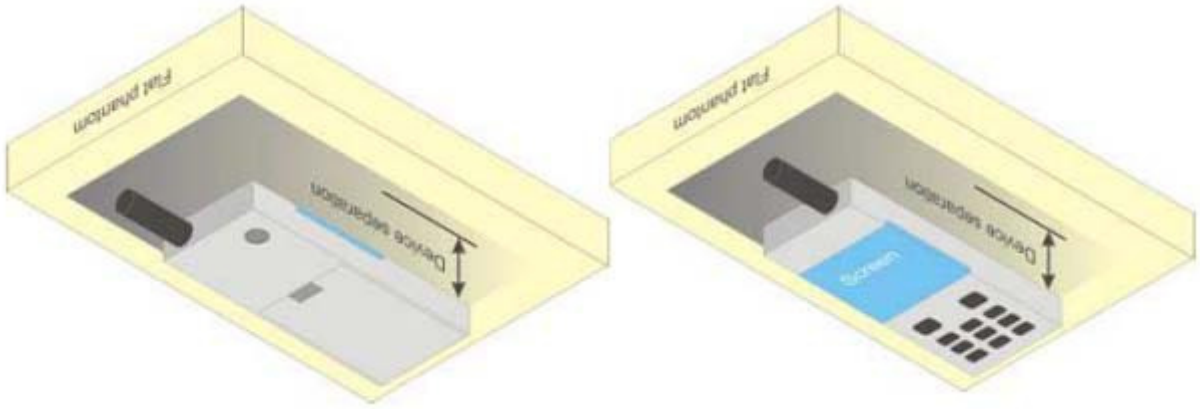


Figure 6.4.1 – Test positions for body-worn devices

6.5. Wireless Router Devices

Some battery-operated handsets have the capability to transmit and receive user through simultaneous transmission of WIFI simultaneously with a separate licensed transmitter. The FCC has provided guidance in FCC HDB Publication 941225 D06 where SAR test considerations for handsets (L x W ≥ 9 cm x 5 cm) are based on a composite test separation distance of 10mm from the front, back and edges of the device containing transmitting antennas within 2.5cm of their edges, determined form general mixed use conditions for this type of devices. Since the hotspot SAR results may overlap with the body-worn accessory SAR requirements, the more conservative configurations can be considered, thus excluding some body-worn accessory SAR tests.

When the user enables the personal wireless router functions for the handset, actual operations include simultaneous transmission of both the WIFI transmitter and another licensed transmitter. Both transmitters often do not transmit at the same transmitting frequency and thus cannot be evaluated for SAR under actual use conditions due to the limitations of the SAR assessment probes. Therefore, SAR must be evaluated for each frequency transmission and mode separately and spatially summed with the WIFI transmitter according to FCC KDB Publication 447498 D01 publication procedures. The “Portable Hotspot” feature on the handset was NOT activated during SAR assessments, to ensure the SAR measurements were evaluated for a single transmission frequency RF signal at a time.

7. RF Output Power

7.1. Maximum Tune-up Limit

Band	Mode	The Tune-up Maximum Power (Customer Declared)(dBm)	Range	Measured Maximum Output Power(dBm)
GSM 850	GSM (GMSK)	33±1	32~34	33.50
	GPRS(GMSK, 1 Tx slot)	33±1	32~34	33.49
	GPRS(GMSK, 2 Tx slot)	32.5±1	31.5~33.5	32.81
	GPRS(GMSK, 3 Tx slot)	30.5±1	29.5~31.5	31.01
	GPRS(GMSK, 4 Tx slot)	29.5±1	28.5~30.5	29.82
	EDGE(8PSK, 1 Tx slot)	28.5±1	27.5~29.5	28.85
	EDGE(8PSK, 2 Tx slot)	27.5±1	26.5~28.5	27.87
	EDGE(8PSK, 3 Tx slot)	25.5±1	24.5~26.5	26.12
	EDGE(8PSK, 4 Tx slot)	24.5±1	23.5~25.5	25.18
GSM 1900	GSM (GMSK)	29.5±1	28.5~30.5	30.11
	GPRS(GMSK, 1 Tx slot)	29.5±1	28.5~30.5	30.11
	GPRS(GMSK, 2 Tx slot)	29±1	28~30	29.52
	GPRS(GMSK, 3 Tx slot)	27.5±1	26.5~28.5	27.97
	GPRS(GMSK, 4 Tx slot)	26±1	25~27	26.86
	EDGE(8PSK, 1 Tx slot)	27±1	26~28	27.89
	EDGE(8PSK, 2 Tx slot)	26±1	25~27	26.81
	EDGE(8PSK, 3 Tx slot)	24.5±1	23.5~25.5	25.09
	EDGE(8PSK, 4 Tx slot)	23±1	22~24	23.89
UMTS Band V	RMC 12.2Kbps	23±1	22~24	23.52
	HSDPA Subtest-1	22±1	21~23	22.49
	HSDPA Subtest-2	22±1	21~23	22.01
	HSDPA Subtest-3	22±1	21~23	22.04
	HSDPA Subtest-4	22±1	21~23	22.03
	HSUPA Subtest-1	22±1	21~23	22.40
	HSUPA Subtest-2	22±1	21~23	22.05
	HSUPA Subtest-3	22±1	21~23	21.55
	HSUPA Subtest-4	22±1	21~23	21.42
	HSUPA Subtest-5	22±1	21~23	22.56
UMTS Band II	RMC 12.2Kbps	23±1	22~24	23.88
	HSDPA Subtest-1	22±1	21~23	22.39
	HSDPA Subtest-2	22±1	21~23	21.87
	HSDPA Subtest-3	22±1	21~23	21.90
	HSDPA Subtest-4	22±1	21~23	21.85

	HSUPA Subtest-1	22±1	21~23	22.87
	HSUPA Subtest-2	22±1	21~23	22.49
	HSUPA Subtest-3	22±1	21~23	22.22
	HSUPA Subtest-4	22±1	21~23	22.08
	HSUPA Subtest-5	22.5±1	21.5~23.5	23.11
LTE Band XVII	5M QPSK 1RB	24±1	23~25	24.63
	5M QPSK 12RB	23±1	22~24	23.66
	5M QPSK 25RB	23±1	22~24	23.59
	5M 16QAM 1RB	24±1	23~25	24.63
	5M 16QAM 12RB	23±1	22~24	23.68
	5M 16QAM 25RB	23±1	22~24	23.58
	10M QPSK 1RB	24±1	23~25	24.63
	10M QPSK 25RB	23±1	22~24	23.65
	10M QPSK 50RB	23±1	22~24	23.65
	10M 16QAM 1RB	24±1	23~25	24.63
	10M 16QAM 25RB	23±1	22~24	23.62
	10M 16QAM 50RB	23±1	22~24	23.64
LTE Band IV	1.4M QPSK 1RB	23.5±1	22.5~24.5	24.27
	1.4M QPSK 3RB	23.5±1	22.5~24.5	24.30
	1.4M QPSK 6RB	22.5±1	21.5~23.5	23.28
	1.4M 16QAM 1RB	23.5±1	22.5~24.5	24.27
	1.4M 16QAM 3RB	23.5±1	22.5~24.5	24.33
	1.4M 16QAM 6RB	22.5±1	21.5~23.5	23.29
	3M QPSK 1RB	23.5±1	22.5~24.5	24.26
	3M QPSK 8RB	23.5±1	22.5~24.5	24.22
	3M QPSK 15RB	22.5±1	21.5~23.5	23.32
	3M 16QAM 1RB	23.5±1	22.5~24.5	24.24
	3M 16QAM 8RB	23.5±1	22.5~24.5	24.22
	3M 16QAM 15RB	22.5±1	21.5~23.5	23.33
	5M QPSK 1RB	23.5±1	22.5~24.5	24.33
	5M QPSK 12RB	22.5±1	21.5~23.5	23.31
	5M QPSK 25RB	22.5±1	21.5~23.5	23.25
	5M 16QAM 1RB	23.5±1	22.5~24.5	24.32
	5M 16QAM 12RB	22.5±1	21.5~23.5	23.31
	5M 16QAM 25RB	22.5±1	21.5~23.5	23.25
	10M QPSK 1RB	23.5±1	22.5~24.5	24.23
	10M QPSK 25RB	22.5±1	21.5~23.5	23.25
	10M QPSK 50RB	22.5±1	21.5~23.5	23.24
	10M 16QAM 1RB	23.5±1	22.5~24.5	24.21
	10M 16QAM 25RB	22.5±1	21.5~23.5	23.24

	10M 16QAM 50RB	22.5±1	21.5~23.5	23.24
	15M QPSK 1RB	23.5±1	22.5~24.5	24.24
	15M QPSK 36RB	22.5±1	21.5~23.5	23.28
	15M QPSK 75RB	22.5±1	21.5~23.5	23.28
	15M 16QAM 1RB	23.5±1	22.5~24.5	24.24
	15M 16QAM 36RB	22.5±1	21.5~23.5	23.28
	15M 16QAM 75RB	22.5±1	21.5~23.5	23.28
	20M QPSK 1RB	23.5±1	22.5~24.5	24.35
	20M QPSK 50RB	23.5±1	22.5~24.5	24.28
	20M QPSK 100RB	22.5±1	21.5~23.5	23.26
	20M 16QAM 1RB	23.5±1	22.5~24.5	24.36
	20M 16QAM 50RB	22.5±1	21.5~23.5	23.28
	20M 16QAM 100RB	22.5±1	21.5~23.5	23.27
LTE Band II	1.4M QPSK 1RB	23.5±1	22.5~24.5	24.25
	1.4M QPSK 3RB	23.5±1	22.5~24.5	24.17
	1.4M QPSK 6RB	22.5±1	21.5~23.5	23.09
	1.4M 16QAM 1RB	23.5±1	22.5~24.5	24.28
	1.4M 16QAM 3RB	23.5±1	22.5~24.5	24.19
	1.4M 16QAM 6RB	22.5±1	21.5~23.5	23.10
	3M QPSK 1RB	23.5±1	22.5~24.5	24.22
	3M QPSK 8RB	23.5±1	22.5~24.5	24.20
	3M QPSK 15RB	22.5±1	21.5~23.5	23.18
	3M 16QAM 1RB	23.5±1	22.5~24.5	24.22
	3M 16QAM 8RB	23.5±1	22.5~24.5	24.19
	3M 16QAM 15RB	22.5±1	21.5~23.5	23.17
	5M QPSK 1RB	23.5±1	22.5~24.5	24.25
	5M QPSK 12RB	22.5±1	21.5~23.5	23.24
	5M QPSK 25RB	22.5±1	21.5~23.5	23.15
	5M 16QAM 1RB	23.5±1	22.5~24.5	24.28
	5M 16QAM 12RB	22.5±1	21.5~23.5	23.26
	5M 16QAM 25RB	22.5±1	21.5~23.5	23.15
	10M QPSK 1RB	23.5±1	22.5~24.5	24.21
	10M QPSK 25RB	22.5±1	21.5~23.5	23.15
	10M QPSK 50RB	22.5±1	21.5~23.5	23.19
	10M 16QAM 1RB	23.5±1	22.5~24.5	24.16
	10M 16QAM 25RB	22.5±1	21.5~23.5	23.17
	10M 16QAM 50RB	22.5±1	21.5~23.5	23.19
	15M QPSK 1RB	23.5±1	22.5~24.5	24.28
	15M QPSK 36RB	22.5±1	21.5~23.5	23.26
	15M QPSK 75RB	22.5±1	21.5~23.5	23.23

	15M 16QAM 1RB	23.5±1	22.5~24.5	24.28
	15M 16QAM 36RB	22.5±1	21.5~23.5	23.27
	15M 16QAM 75RB	22.5±1	21.5~23.5	23.24
	20M QPSK 1RB	23.5±1	22.5~24.5	24.28
	20M QPSK 50RB	23.5±1	22.5~24.5	24.26
	20M QPSK 100RB	22.5±1	21.5~23.5	23.21
	20M 16QAM 1RB	23.5±1	22.5~24.5	24.29
	20M 16QAM 50RB	22.5±1	21.5~23.5	23.26
	20M 16QAM 100RB	22.5±1	21.5~23.5	23.21

LTE Band VII	5M QPSK 1RB		23.5±1	22.5~24.5	24.06
	5M QPSK 12RB		22.5±1	21.5~23.5	23.00
	5M QPSK 25RB		22.5±1	21.5~23.5	22.92
	5M 16QAM 1RB		23.5±1	22.5~24.5	24.04
	5M 16QAM 12RB		22.5±1	21.5~23.5	22.90
	5M 16QAM 25RB		22.5±1	21.5~23.5	22.84
	10M QPSK 1RB		23±1	22~24	23.63
	10M QPSK 25RB		22.5±1	21.5~23.5	22.78
	10M QPSK 50RB		22.5±1	21.5~23.5	22.76
	10M 16QAM 1RB		23±1	22~24	23.51
	10M 16QAM 25RB		22.5±1	21.5~23.5	22.78
	10M 16QAM 50RB		22.5±1	21.5~23.5	22.78
	15M QPSK 1RB		23±1	22~24	23.78
	15M QPSK 36RB		22±1	21~23	22.74
	15M QPSK 75RB		22±1	21~23	22.64
	15M 16QAM 1RB		23±1	22~24	23.67
	15M 16QAM 36RB		22±1	21~23	22.75
	15M 16QAM 75RB		22±1	21~23	22.65
	20M QPSK 1RB		23.5±1	22.5~24.5	24.17
	20M QPSK 50RB		22.5±1	21.5~23.5	23.13
	20M QPSK 100RB		22.5±1	21.5~23.5	22.54
	20M 16QAM 1RB		23±1	22~24	23.71
	20M 16QAM 50RB		22±1	21~23	22.74
	20M 16QAM 100RB		22±1	21~23	22.53
WiFi 2.4G	802.11b		14±1	13~15	14.40
	802.11g		10±1	9~11	10.73
	802.11n-HT20		9±1	8~10	9.44
	802.11n-HT40		7±1	6~8	7.21
BT	3.0	0	2±1	1~3	2.17
		39	3±1	2~4	3.13
		78	1±1	0~2	1.64
	4.0	0	-4±1	-5~-3	-4.20
		19	-4±1	-5~-3	-3.93
		39	-6±1	-7~-5	-5.90

7.2. GSM Conducted Power

Per KDB 447498 D01, the maximum output power channel is used for SAR testing and for further SAR test reduction. Therefore, the EUT was set in GPRS (4Tx slots) for GSM850/GSM1900.

Band GSM850	Burst-Averaged output Power (dBm)				Frame-Averaged output Power (dBm)			
Tx Channel	Tune-up	128	189	251	Tune-up	128	189	251
Frequency (MHz)	(dBm)	824.2	836.4	848.8	(dBm)	824.2	836.4	848.8
GSM (GMSK)	34.00	33.50	33.49	33.48	24.97	24.47	24.46	24.45
GPRS(GMSK, 1 TS)	34.00	33.49	33.48	33.49	24.97	24.46	24.45	24.46
GPRS(GMSK, 2 TS)	33.50	32.81	32.81	32.75	27.48	26.79	26.79	26.73
GPRS(GMSK, 3 TS)	31.50	31.01	30.96	30.84	27.24	26.75	26.70	26.58
GPRS(GMSK, 4 TS)	30.50	29.82	29.75	29.70	27.49	26.81	26.74	26.69
EDGE(8PSK, 1 TS)	29.50	28.85	28.60	28.47	20.47	19.82	19.57	19.44
EDGE(8PSK, 2 TS)	28.50	27.87	27.58	27.41	22.48	21.85	21.56	21.39
EDGE(8PSK, 3 TS)	26.50	26.12	25.78	25.64	22.24	21.86	21.52	21.38
EDGE(8PSK, 4 TS)	25.50	25.18	24.91	24.68	22.49	22.17	21.90	21.67
Band GSM1900	Burst-Averaged output Power (dBm)				Frame-Averaged output Power (dBm)			
Tx Channel	Tune-up	512	661	810	Tune-up	512	661	810
Frequency (MHz)	(dBm)	1850.2	1880.0	1909.8	(dBm)	1850.2	1880.0	1909.8
GSM (GMSK)	30.50	30.10	30.07	30.11	21.47	21.07	21.04	21.08
GPRS(GMSK, 1 TS)	30.50	29.79	29.94	30.11	21.47	20.76	20.91	21.08
GPRS(GMSK, 2 TS)	30.00	29.51	29.52	29.51	23.98	23.49	23.50	23.49
GPRS(GMSK, 3 TS)	28.50	27.81	27.92	27.97	24.24	23.55	23.66	23.71
GPRS(GMSK, 4 TS)	27.00	26.72	26.81	26.86	23.99	23.71	23.80	23.85
EDGE(8PSK, 1 TS)	28.00	27.59	27.74	27.89	18.97	18.56	18.71	18.86
EDGE(8PSK, 2 TS)	27.00	26.46	26.59	26.81	20.98	20.44	20.57	20.79
EDGE(8PSK, 3 TS)	25.50	24.35	24.59	25.09	21.24	20.09	20.33	20.83
EDGE(8PSK, 4 TS)	24.00	22.16	23.51	23.89	20.99	19.15	20.50	20.88

Note: The frame-averaged power is linearly scaled the maximum burst averaged power over 8 time slots. The calculated method are shown as below:

Frame-averaged power = Maximum burst averaged power (1 TS) – 9.03 dB

Frame-averaged power = Maximum burst averaged power (2 TS) – 6.02 dB

Frame-averaged power = Maximum burst averaged power (3 TS) - 4.26 dB

Frame-averaged power = Maximum burst averaged power (4 TS) – 3.01 dB

7.3. UMTS Conducted Power

The following tests were conducted according to the test requirements outlines in 3GPP TS 34.121 specification. A summary of these settings are illustrated below:

1. Release99 Setup Configuration

Mode	Subtest	Rel99
UMTS General Settings	Loopback Mode	Test Mode 1
	Rel99 RMC	12.2kbps RMC
	Power Control Algorithm	Algorithm2
	βc/βd	8/15

2. HSDPA Setup Configuration

	Mode	HSDPA	HSDPA	HSDPA	HSDPA
	Subtest	1	2	3	4
UMTS General Settings	Loopback Mode	Test Mode 1			
	Rel99 RMC	12.2kbps RMC			
	HSDPA FRC	H-Set1			
	Power Control Algorithm	Algorithm 2			
	βc	2/15	12/15	15/15	15/15
	βd	15/15	15/15	8/15	4/15
	Bd (SF)	64			
	βc/βd	2/15	12/15	15/8	15/4
	βhs	4/15	24/15	30/15	30/15
HSDPA Specific Settings	D_{ACK}	8			
	D_{NAK}	8			
	DCQI	8			
	Ack-Nack repetition factor	3			
	CQI Feedback (Table 5.2B.4)	4ms			
	CQI Repetition Factor (Table 5.2B.4)	2			
	Ahs =βhs/βc	30/15			

3. HSUPA Setup Configuration

	Mode	HSUPA	HSUPA	HSUPA	HSUPA	HSUPA
	Subtest	1	2	3	4	5
UMTS General Settings	Loopback Mode	Test Mode 1				
	Rel99 RMC	12.2kbps RMC				
	HSDPA FRC	H-Set1				
	HSUPA Test	HSUPA Loopback				
	Power Control Algorithm	Algorithm2				
	βc	11/15	6/15	15/15	2/15	15/15
	βd	15/15	15/15	9/15	15/15	15/15
	βec	209/225	12/15	30/15	2/15	24/15
	βc/βd	11/15	6/15	15/9	2/15	15/15
	βhs	22/15	12/15	30/15	4/15	30/15
	βed	1309/225	94/75	47/15 47/15	56/75	134/15
	CM (dB)	1.0	3.0	2.0	3.0	1.0
HSDPA Specific Settings	D_{ACK}	8				
	D_{NAK}	8				
	DCQI	8				
	Ack-Nack repetition factor	3				
	CQI Feedback (Table 5.2B.4)	4ms				

	CQI Repetition Factor (Table 5.2B.4)	2				
	Ahs = βhs/βc	30/15				
HSUPA Specific Settings	D E-DPCCH	6	8	8	5	7
	DHARQ	0	0	0	0	0
	AG Index	20	12	15	17	21
	ETFCI (from 34.121 Table C.11.1.3)	75	67	92	71	81
	Associated Max UL Data Rate kbps	242.1	174.9	482.8	205.8	308.9

4. UMTS Conducted Power Results

1) Per KDB 941225 D01, SAR for Head / Hotspot / Body-worn exposure is measured using a 12.2 kbps RMC with TPC bits configured to all “1’s”.

2) Per KDB 941225 D01, RMC 12.2kbps setting is used to evaluate SAR. If the maximum output power and tune-up tolerance specified for production units in HSDPA / HSUPA is ≤ ¼ dB higher than RMC 12.2Kbps or when the highest reported SAR of the RMC12.2Kbps is scaled by the ratio of specified maximum output power and tune-up tolerance of HSDPA / HSUPA to RMC12.2Kbps and the adjusted SAR is ≤ 1.2 W/kg, SAR measurement is not required for HSDPA / HSUPA.

Band	UMTS Band V			
Tx Channel	Tune-up	4132	4182	4233
Frequency (MHz)		826.4	836.4	846.6
RMC 12.2Kbps	24.00	23.29	23.46	23.52
HSDPA Subtest-1	23.00	22.29	22.43	22.49
HSDPA Subtest-2	23.00	21.82	21.98	22.01
HSDPA Subtest-3	23.00	21.87	22.01	22.04
HSDPA Subtest-4	23.00	21.84	21.97	22.03
HSUPA Subtest-1	23.00	22.21	22.32	22.40
HSUPA Subtest-2	23.00	21.89	21.98	22.05
HSUPA Subtest-3	23.00	21.55	21.49	21.53
HSUPA Subtest-4	23.00	21.39	21.42	21.38
HSUPA Subtest-5	23.00	22.51	22.44	22.56
Band	UMTS Band II			
Tx Channel	Tune-up	9262	9400	9538
Frequency (MHz)		1852.4	1880	1907.6
RMC 12.2Kbps	24.00	23.86	23.77	23.88
HSDPA Subtest-1	23.00	22.35	22.26	22.39
HSDPA Subtest-2	23.00	21.81	21.73	21.87
HSDPA Subtest-3	23.00	21.83	21.77	21.90
HSDPA Subtest-4	23.00	21.81	21.74	21.85
HSUPA Subtest-1	23.00	22.80	22.72	22.87

HSUPA Subtest-2	23.00	22.45	22.35	22.49
HSUPA Subtest-3	23.00	22.17	22.13	22.22
HSUPA Subtest-4	23.00	22.08	21.87	22.04
HSUPA Subtest-5	23.50	23.08	22.96	23.11

7.4. LTE Conducted Power

R&S CMW500 base station simulator was used to setup the connection with EUT; the frequency band, channel bandwidth, RB allocation configuration, modulation type are set in the base station simulator to configure EUT transmitting at maximum power and at different configurations which are requested to be reported to FCC, for conducted power measurement and SAR testing.

<LTE Band XVII>

Band	Band Width	Modulation	RB Configuration		Tune-up	Channel/Frequency(MHz)		
			RB Size	RB Offset		23755/706.5	23790/710	23825/713.5
LTE Band XVII	5MHz	QPSK	1	0	25.00	24.57	24.56	24.63
			1	12	25.00	24.61	24.56	24.63
			1	24	25.00	24.54	24.57	24.58
			12	0	24.00	23.63	23.63	23.66
			12	6	24.00	23.53	23.59	23.66
			12	11	24.00	23.63	23.64	23.64
			25	0	24.00	23.57	23.57	23.59
		16QAM	1	0	25.00	24.59	24.51	24.62
			1	12	25.00	24.62	24.56	24.63
			1	24	25.00	24.54	24.57	24.58
			12	0	24.00	23.64	23.64	23.67
			12	6	24.00	23.65	23.63	23.68
			12	11	24.00	23.64	23.63	23.64
			25	0	24.00	23.57	23.57	23.58
Band	Band Width	Modulation	RB Configuration		Tune-up	Channel/Frequency(MHz)		
			RB Size	RB Offset		23780/709	23790/710	23800/711
LTE Band XVII	10MHz	QPSK	1	0	25.00	24.52	24.58	24.60
			1	24	25.00	24.56	24.57	24.63
			1	49	25.00	24.58	24.59	24.60
			25	0	24.00	23.61	23.57	23.60
			25	12	24.00	23.65	23.62	23.58
			25	24	24.00	23.62	23.61	23.63

			50	0	24.00	23.65	23.64	23.63
		16QAM	1	0	25.00	24.55	24.56	24.63
			1	24	25.00	24.56	24.58	24.62
			1	49	25.00	24.57	24.60	24.60
			25	0	24.00	23.61	23.58	23.61
			25	12	24.00	23.61	23.59	23.57
			25	24	24.00	23.61	23.61	23.62
			50	0	24.00	23.64	23.63	23.64

<LTE Band IV>

Band	Band Width	Modulation	RB Configuration		Tune-up	Channel/Frequency(MHz)		
			RB Size	RB Offset		19957/1710.7	20175/1732.5	20393/1754.3
LTE Band IV	1.4MHz	QPSK	1	0	24.50	24.24	24.18	24.08
			1	2	24.50	24.27	24.22	24.16
			1	5	24.50	24.22	24.18	24.09
			3	0	24.50	24.30	24.25	24.19
			3	1	24.50	23.16	23.25	23.18
			3	2	24.50	24.28	24.27	24.21
			6	0	23.50	23.28	23.20	23.10
		16QAM	1	0	24.50	24.23	24.20	24.10
			1	2	24.50	24.27	24.22	24.17
			1	5	24.50	24.25	24.21	24.10
			3	0	24.50	24.33	24.28	24.19
			3	1	24.50	24.29	24.27	24.20
			3	2	24.50	24.28	24.27	24.21
			6	0	23.50	23.29	23.21	23.09
Band	Band Width	Modulation	RB Configuration		Tune-up	Channel/Frequency(MHz)		
			RB Size	RB Offset		19965/1711.5	20175/1732.5	20385/1753.5
LTE Band IV	3MHz	QPSK	1	0	24.50	24.24	24.17	24.10
			1	7	24.50	24.26	24.19	24.13
			1	14	24.50	24.23	24.14	24.05
			8	0	24.50	24.21	24.14	24.07
			8	4	24.50	24.21	24.15	24.08
			8	7	24.50	24.22	24.14	24.06
			15	0	23.50	23.32	23.27	23.18
		16QAM	1	0	24.50	24.24	24.16	24.11

			1	7	24.50	24.24	24.18	24.13
			1	14	24.50	24.23	24.14	24.06
			8	0	24.50	24.22	24.14	24.06
			8	4	24.50	24.22	24.12	24.04
			8	7	24.50	24.22	24.14	24.06
			15	0	23.50	23.33	23.25	23.19
Band	Band Width	Modulation	RB Configuration		Tune-up	Channel/Frequency(MHz)		
			RB Size	RB Offset		19975/1712.5	20175/1732.5	20375/1752.5
LTE Band IV	5MHz	QPSK	1	0	24.50	24.33	24.25	24.23
			1	12	24.50	23.69	24.26	23.78
			1	24	24.50	24.01	24.22	24.14
			12	0	23.50	23.02	23.31	22.89
			12	6	23.50	22.92	23.12	22.95
			12	11	23.50	22.85	23.29	22.92
			25	0	23.50	22.93	23.25	22.86
		16QAM	1	0	24.50	24.32	24.26	24.23
			1	12	24.50	23.68	24.24	23.70
			1	24	24.50	24.01	24.22	24.08
			12	0	23.50	23.02	23.31	22.86
			12	6	23.50	23.01	23.13	22.89
			12	11	23.50	22.85	23.29	22.89
			25	0	23.50	22.92	23.25	22.82
Band	Band Width	Modulation	RB Configuration		Tune-up	Channel/Frequency(MHz)		
			RB Size	RB Offset		20000/1715	20175/1732.5	20350/1750
LTE Band IV	10MHz	QPSK	1	0	24.50	23.87	24.22	23.80
			1	24	24.50	23.65	24.23	23.67
			1	49	24.50	23.56	24.12	23.55
			25	0	23.50	22.89	23.23	22.80
			25	12	23.50	22.91	23.21	22.99
			25	24	23.50	22.82	23.25	22.73
			50	0	23.50	22.89	23.24	22.80
		16QAM	1	0	24.50	23.77	24.19	23.70
			1	24	24.50	23.62	24.21	23.62
			1	49	24.50	23.53	24.17	23.51
			25	0	23.50	22.84	23.24	22.78
			25	12	23.50	22.92	23.16	22.75

			25	24	23.50	22.77	23.23	22.71
			50	0	23.50	22.84	23.24	22.80
Band	Band Width	Modulation	RB Configuration		Tune-up	Channel/Frequency(MHz)		
			RB Size	RB Offset		20025/1717.5	20175/1732.5	20325/1747.5
LTE Band IV	15MHz	QPSK	1	0	24.50	24.01	24.24	24.21
			1	37	24.50	23.78	24.24	23.63
			1	74	24.50	24.23	24.22	23.80
			36	0	23.50	22.90	23.27	23.01
			36	18	23.50	22.89	23.16	22.89
			36	37	23.50	23.05	23.28	22.74
			75	0	23.50	22.98	23.28	22.92
		16QAM	1	0	24.50	23.87	24.24	24.22
			1	37	24.50	23.72	24.24	23.57
			1	74	24.50	24.18	24.23	23.74
			36	0	23.50	22.87	23.28	22.97
			36	18	23.50	22.92	23.05	22.87
			36	37	23.50	23.04	23.27	22.71
			75	0	23.50	22.98	23.28	22.87
Band	Band Width	Modulation	RB Configuration		Tune-up	Channel/Frequency(MHz)		
			RB Size	RB Offset		20050/1720	20175/1732.5	20300/1745
LTE Band IV	20MHz	QPSK	1	0	24.50	24.01	24.23	24.23
			1	49	24.50	23.81	24.26	23.61
			1	99	24.50	24.35	24.07	24.19
			50	0	24.50	23.86	23.27	23.18
			50	24	24.50	23.75	23.16	23.08
			50	49	24.50	24.28	24.27	24.14
			100	0	23.50	23.11	23.26	23.01
		16QAM	1	0	24.50	23.87	24.22	24.22
			1	49	24.50	23.76	24.26	23.58
			1	99	24.50	24.36	24.07	23.67
			50	0	23.50	22.82	23.27	23.17
			50	24	23.50	23.06	23.13	22.78
			50	49	23.50	23.25	23.28	22.63
			100	0	23.50	23.08	23.27	23.00

<LTE Band II>

Band	Band Width	Modulation	RB Configuration		Tune-up	Channel/Frequency(MHz)		
			RB Size	RB Offset		18607/1850.7	18900/1880	19193/1909.3
LTE Band II	1.4MHz	QPSK	1	0	24.50	23.92	23.94	24.11
			1	2	24.50	24.02	24.03	24.25
			1	5	24.50	23.96	23.96	24.18
			3	0	24.50	24.12	24.11	24.15
			3	1	24.50	24.05	24.10	24.13
			3	2	24.50	24.12	24.11	24.17
			6	0	23.50	22.95	22.92	23.09
		16QAM	1	0	24.50	23.99	23.96	24.15
			1	2	24.50	24.08	24.01	24.28
			1	5	24.50	24.01	23.95	24.18
			3	0	24.50	24.15	24.12	24.16
			3	1	24.50	24.08	24.13	24.15
			3	2	24.50	24.15	24.11	24.19
			6	0	23.50	22.96	22.90	23.10
Band	Band Width	Modulation	RB Configuration		Tune-up	Channel/Frequency(MHz)		
			RB Size	RB Offset		18615/1851.5	18900/1880	19185/1908.5
LTE Band II	3MHz	QPSK	1	0	24.50	24.00	23.92	24.11
			1	7	24.50	24.06	24.00	24.22
			1	14	24.50	23.99	23.92	24.18
			8	0	24.50	23.99	23.93	24.19
			8	4	24.50	23.87	23.95	24.08
			8	7	24.50	23.99	23.92	24.20
			15	0	23.50	23.15	23.06	23.18
		16QAM	1	0	24.50	24.01	23.92	24.12
			1	7	24.50	24.06	24.00	24.22
			1	14	24.50	23.99	23.93	24.18
			8	0	24.50	23.99	23.93	24.19
			8	4	24.50	23.89	23.98	24.16
			8	7	24.50	24.00	23.92	24.19
			15	0	23.50	23.15	23.05	23.17
Band	Band Width	Modulation	RB Configuration		Tune-up	Channel/Frequency(MHz)		

			RB Size	RB Offset		18625/1852.5	18900/1880	19175/1907.5
LTE Band II	5MHz	QPSK	1	0	24.50	24.13	24.05	24.21
			1	12	24.50	24.14	24.04	24.24
			1	24	24.50	24.12	24.05	24.25
			12	0	23.50	23.22	23.11	23.22
			12	6	23.50	23.16	23.20	23.13
			12	11	23.50	23.21	23.13	23.24
			25	0	23.50	23.13	23.03	23.15
		16QAM	1	0	24.50	24.12	24.05	24.21
			1	12	24.50	24.15	24.04	24.25
			1	24	24.50	24.11	24.05	24.28
			12	0	23.50	23.21	23.12	23.23
			12	6	23.50	23.18	23.09	23.26
			12	11	23.50	23.21	23.13	23.24
			25	0	23.50	23.13	23.03	23.15
Band	Band Width	Modulation	RB Configuration		Tune-up	Channel/Frequency(MHz)		
			RB Size	RB Offset		18650/1855	18900/1880	19150/1905
LTE Band II	10MHz	QPSK	1	0	24.50	24.09	24.02	24.13
			1	24	24.50	24.08	24.01	24.17
			1	49	24.50	24.10	24.01	24.21
			25	0	23.50	23.14	23.09	23.14
			25	12	23.50	23.15	23.05	23.12
			25	24	23.50	23.14	23.08	23.14
			50	0	23.50	23.17	23.11	23.19
		16QAM	1	0	24.50	24.08	24.02	24.14
			1	24	24.50	24.09	24.01	24.16
			1	49	24.50	24.10	24.00	24.16
			25	0	23.50	23.14	23.10	23.14
			25	12	23.50	23.12	23.08	23.15
			25	24	23.50	23.14	23.06	23.17
			50	0	23.50	23.17	23.12	23.19
Band	Band Width	Modulation	RB Configuration		Tune-up	Channel/Frequency(MHz)		
			RB Size	RB Offset		18675/1857.5	18900/1880	19125/1902.5
LTE Band	15MHz	QPSK	1	0	24.50	24.13	24.04	24.16
			1	37	24.50	24.08	24.02	24.17

II			1	74	24.50	24.06	24.07	24.28
			36	0	23.50	23.19	23.12	23.20
			36	18	23.50	23.15	23.11	23.24
			36	37	23.50	23.19	23.13	23.26
			75	0	23.50	23.19	23.13	23.23
		16QAM	1	0	24.50	24.14	24.05	24.18
			1	37	24.50	24.09	24.03	24.17
			1	74	24.50	24.07	24.07	24.28
			36	0	23.50	23.19	23.12	23.20
			36	18	23.50	23.08	23.11	23.27
			36	37	23.50	23.18	23.14	23.26
			75	0	23.50	23.19	23.13	23.24
Band	Band Width	Modulation	RB Configuration		Tune-up	Channel/Frequency(MHz)		
			RB Size	RB Offset		18700/1860	18900/1880	19100/1900
LTE Band II	20MHz	QPSK	1	0	24.50	24.21	24.15	24.17
			1	49	24.50	24.12	24.10	24.14
			1	99	24.50	24.18	24.17	24.28
			50	0	24.50	23.22	23.18	23.20
			50	24	24.50	23.21	23.12	23.18
			50	49	24.50	24.20	24.18	24.26
			100	0	23.50	23.18	23.14	23.21
		16QAM	1	0	24.50	24.21	24.15	24.16
			1	49	24.50	24.13	24.11	24.15
			1	99	24.50	24.18	24.18	24.29
			50	0	23.50	23.22	23.18	23.20
			50	24	23.50	23.19	23.16	23.24
			50	49	23.50	23.20	23.18	23.26
			100	0	23.50	23.19	23.14	23.21

<LTE Band VII>

Band	Band Width	Modulation	RB Configuration		Tune-up	Channel/Frequency(MHz)		
			RB Size	RB Offset		20775/2502.5	21100/2535	21425/2567.5
LTE Band VII	5MHz	QPSK	1	0	24.50	24.01	23.26	23.13
			1	12	24.50	23.88	22.95	22.91
			1	24	24.50	24.06	23.40	23.50
			12	0	23.50	22.98	22.12	22.02

			12	6	23.50	22.99	22.24	22.19
			12	11	23.50	23.00	22.34	22.36
			25	0	23.50	22.92	22.22	22.14
		16QAM	1	0	24.50	24.04	23.17	23.04
			1	12	24.50	23.57	22.92	22.87
			1	24	24.50	23.97	23.38	23.49
			12	0	23.50	22.85	22.09	22.01
			12	6	23.50	22.89	22.05	22.29
			12	11	23.50	22.90	22.32	22.35
			25	0	23.50	22.84	22.20	22.14
Band	Band Width	Modulation	RB Configuration		Tune-up	Channel/Frequency(MHz)		
			RB Size	RB Offset		20800/2505	21100/2535	21400/2565
LTE Band VII	10MHz	QPSK	1	0	24.00	23.63	22.77	22.56
			1	24	24.00	23.47	23.00	22.76
			1	49	24.00	23.20	23.05	23.07
			25	0	23.50	22.78	22.04	21.89
			25	12	23.50	22.58	22.16	22.05
			25	24	23.50	22.63	22.26	22.15
			50	0	23.50	22.76	22.21	22.04
		16QAM	1	0	24.00	23.51	22.67	22.51
			1	24	24.00	23.48	22.97	22.76
			1	49	24.00	23.22	23.03	23.06
			25	0	23.50	22.78	22.02	21.88
			25	12	23.50	22.56	22.11	21.94
			25	24	23.50	22.65	22.24	22.14
			50	0	23.50	22.78	22.20	22.04
Band	Band Width	Modulation	RB Configuration		Tune-up	Channel/Frequency(MHz)		
			RB Size	RB Offset		20825/2507.5	21100/2535	21375/2562.5
LTE Band VII	15MHz	QPSK	1	0	24.00	23.78	22.95	22.70
			1	37	24.00	23.32	23.03	22.79
			1	74	24.00	22.83	23.38	23.22
			36	0	23.00	22.74	22.06	21.78
			36	18	23.00	22.59	22.18	22.02
			36	37	23.00	22.46	22.40	22.18
			75	0	23.00	22.64	22.22	21.99
		16QAM	1	0	24.00	23.67	22.81	22.69

			1	37	24.00	23.32	22.97	22.77
			1	74	24.00	22.84	23.33	23.24
			36	0	23.00	22.75	22.03	21.80
			36	18	23.00	22.05	22.13	22.04
			36	37	23.00	22.47	22.38	22.18
			75	0	23.00	22.65	22.21	22.00
Band	Band Width	Modulation	RB Configuration		Tune-up	Channel/Frequency(MHz)		
			RB Size	RB Offset		20850/2510	21100/2535	21350/2560
LTE Band VII	20MHz	QPSK	1	0	24.50	24.17	23.86	23.88
			1	49	24.50	23.29	23.04	22.69
			1	99	24.50	22.87	23.39	23.17
			50	0	23.50	23.13	22.94	22.91
			50	24	23.50	22.41	22.35	22.19
			50	49	23.50	22.24	22.42	22.17
			100	0	23.50	22.54	22.25	22.10
		16QAM	1	0	24.00	23.71	22.70	22.89
			1	49	24.00	23.28	23.03	22.73
			1	99	24.00	22.88	23.36	23.21
			50	0	23.00	22.74	22.02	21.93
			50	24	23.00	22.31	22.18	22.21
			50	49	23.00	22.23	22.41	22.19
			100	0	23.00	22.53	22.23	22.09

7.5. WiFi & BT Output Power

7.5.1. Output Power Results Of WiFi

The output power of WiFi is as following:

Mode	Channel	Frequence (MHz)	Tune-up	Output Power (dBm)
802.11b	1	2412	15.00	13.98
	6	2437	15.00	13.84
	11	2462	15.00	14.40
802.11g	1	2412	11.00	9.11
	6	2437	11.00	10.73
	11	2462	11.00	10.11
802.11n (HT20)	1	2412	10.00	9.44
	6	2437	10.00	9.39
	11	2462	10.00	8.83
802.11n (HT40)	3	2422	8.00	6.35
	6	2437	8.00	6.64
	9	2452	8.00	7.21

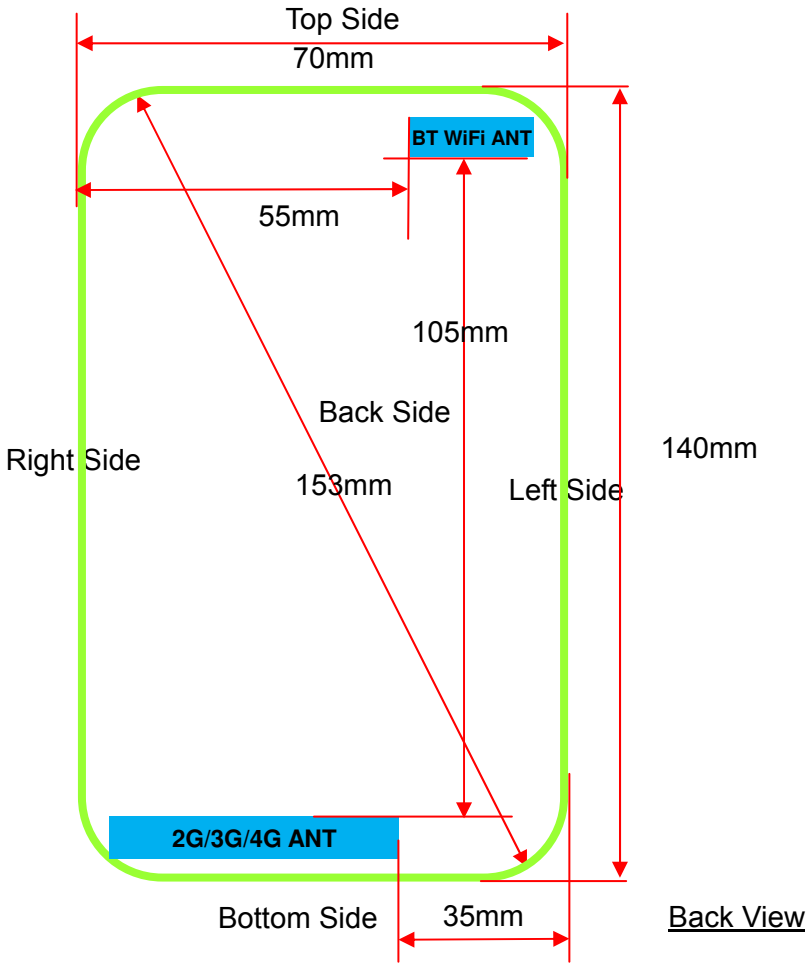
7.5.2. Output Power Results Of BT

The output power of BT is as following:

	Output Power (dBm)				
	Channel	Tune-up	Data Rates		
			1M	2M	3M
BT(3.0)	0CH	3.00	2.17	1.38	1.70
	39CH	4.00	3.13	2.37	2.67
	78CH	2.00	1.64	1.04	1.26

	Channel	Tune-up	Output Power (dBm)
BT(4.0)	0CH	-3.00	-4.20
	19CH	-3.00	-3.93
	39CH	-5.00	-5.90

8. Antenna Location



Distance of the Antenna to the EUT surface/edge						
Antennas	Front Side	Back Side	Left Side	Right Side	Top Side	Bottom Side
WWAN Main	≤ 25mm	≤ 25mm	>25mm	≤ 25mm	>25mm	≤ 25mm
WLAN & BT	≤ 25mm	≤ 25mm	≤ 25mm	>25mm	≤ 25mm	>25mm

Positions for SAR tests						
Antennas	Front Side	Back Side	Left Side	Right Side	Top Side	Bottom Side
WWAN Main	Yes	Yes	NO	Yes	NO	Yes
WLAN & BT	Yes	Yes	Yes	NO	Yes	NO

9. Stand-alone SAR test exclusion

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

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

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

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

Mode	P_{max} (dBm)	P_{max} (mW)	Distance (mm)	f (GHz)	Calculation Result	SAR Exclusion threshold	SAR test exclusion
BT	4	2.51	5	2.480	0.8	3.0	Yes

NOTE: Standalone SAR test exclusion for BT

When standalone SAR test exclusion applies to an antenna that transmits simultaneously with other antennas, the standalone SAR must be estimated according to following to determine simultaneous transmission SAR test exclusion:

[(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm)] * [$\sqrt{f_{(GHZ)}}$/x] W/kg for test separation distances ≤ 50mm, where x = 7.5 for 1-g SAR and x = 18.75 for 10-g SAR.

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

Mode	Position	P_{max} (dBm)	P_{max} (mW)	Distance (mm)	f (GHz)	x	Estimated SAR (W/Kg)
BT	Head	4	2.51	5	2.480	7.5	0.105
BT	Body	4	2.51	10	2.480	7.5	0.053

NOTE: Estimated SAR calculation for BT

10. SAR Measurement Results

10.1. SAR measurement results

General Notes:

1) Per KDB447498 D01, all measurement SAR results are scaled to the maximum tune-up tolerance limit to demonstrate compliant.

2) Per KDB447498 D01, 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. When the maximum output power variation across the required test channels is > ½ dB, instead of the middle channel, the highest output power channel must be used.

3) Per KDB865664 D01, for each frequency band, repeated SAR measurement is required only when the measured SAR is ≥0.8W/Kg; if the deviation among the repeated measurement is ≤20%,and the measured SAR <1.45W/Kg, only one repeated measurement is required.

4) Per KDB648474 D04, SAR is evaluated without a headset connected to the device. When the standalone reported Body-Worn SAR is ≤1.2 W/kg, no additional SAR evaluations using a headset are required.

5) Per KDB865664 D02, SAR plot is only required for the highest measured SAR in each exposure configuration, wireless mode and frequency band combination; Plots are also required when the measured SAR is > 1.5 W/kg, or > 7.0 W/kg for occupational exposure. The published RF exposure KDB procedures may require additional plots; for example, to support SAR to peak location separation ratio test exclusion and/or volume scan post-processing(Refer to appendix C for details).

6) Per KDB 941225 D05, start with the largest channel bandwidth and measure SAR for QPSK with 1 RB allocation, using the RB offset and required test channel combination with the highest maximum output power for RB offsets at the upper edge, middle and lower edge of each required test channel.

7) Per KDB 941225 D05, 50% RB allocation for QPSK SAR testing follows 1RB QPSK allocation procedure.

8) Per KDB 941225 D05, For QPSK with 100% RB allocation, SAR is not required when the highest maximum output power for 100 % RB allocation is less than the highest maximum output power in 50% and 1 RB allocations and the highest reported SAR for 1 RB and 50% RB allocation are ≤ 0.8 W/kg. Otherwise, SAR is measured for the highest output power channel; and if the reported SAR is > 1.45 W/kg, the remaining required test channels must also be tested.

9) Per KDB 941225 D05, 16QAM output power for each RB allocation configuration is > not ½ dB higher than the same configuration in QPSK and the reported SAR for the QPSK configuration is ≤ 1.45 W/kg; Per KDB 941225 D05, 16QAM SAR testing is not required.

10) Per KDB 941225 D05, Smaller bandwidth output power for each RB allocation configuration is > not ½ dB higher than the same configuration in the largest supported bandwidth, and the reported SAR for the largest supported bandwidth is ≤ 1.45 W/kg; Per KDB 941225 D05, smaller bandwidth SAR testing is not required.

10.1.1. SAR measurement Result of GSM850

Test Position of Head	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)
			1g	10g				
Left Cheek	128/824.2	GPRS(GMSK 4TS)	0.204	0.153	2.78	29.82	30.50	0.239
Left Tilt 15 Degree	128/824.2	GPRS(GMSK 4TS)	0.102	0.078	1.77	29.82	30.50	0.119
Right Cheek	128/824.2	GPRS(GMSK 4TS)	0.166	0.131	4.19	29.82	30.50	0.194
Right Tilt 15 Degree	128/824.2	GPRS(GMSK 4TS)	0.106	0.082	2.60	29.82	30.50	0.124

NOTE: Head SAR test results of GSM850.

Test Position of Body-Worn with 10mm	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)
			1g	10g				
Front Side	128/824.2	GPRS(GMSK 4TS)	0.402	0.287	0.15	29.82	30.50	0.470
Back Side	128/824.2	GPRS(GMSK 4TS)	0.429	0.257	1.45	29.82	30.50	0.502

NOTE: Body-Worn SAR test results of GSM850

Test Position of Hotspot with 10mm	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)
			1g	10g				
Front Side	128/824.2	GPRS(GMSK 4TS)	0.402	0.287	0.15	29.82	30.50	0.470
Back Side	128/824.2	GPRS(GMSK 4TS)	0.429	0.257	1.45	29.82	30.50	0.502
Right Side	128/824.2	GPRS(GMSK 4TS)	0.101	0.063	4.02	29.82	30.50	0.118
Bottom Side	128/824.2	GPRS(GMSK 4TS)	0.271	0.160	-1.68	29.82	30.50	0.317

NOTE: Hotspot SAR test results of GSM850

10.1.2. SAR measurement Result of GSM1900

Test Position of Head	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)
			1g	10g				
Left Cheek	810/1909.8	GPRS(GMSK 4TS)	0.165	0.092	2.00	26.86	27.00	0.170
Left Tilt 15 Degree	810/1909.8	GPRS(GMSK 4TS)	0.038	0.021	0.35	26.86	27.00	0.039
Right Cheek	810/1909.8	GPRS(GMSK 4TS)	0.066	0.041	0.32	26.86	27.00	0.068
Right Tilt 15 Degree	810/1909.8	GPRS(GMSK 4TS)	0.022	0.010	-2.17	26.86	27.00	0.023

NOTE: Head SAR test results of GSM1900

Test Position of Body-Worn with 10mm	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)
			1g	10g				
Front Side	810/1909.8	GPRS(GMSK 4TS)	0.685	0.369	1.22	26.86	27.00	0.707
Back Side	810/1909.8	GPRS(GMSK 4TS)	0.703	0.354	-2.09	26.86	27.00	0.726

NOTE: Body-Worn SAR test results of GSM1900

Test Position of Hotspot with 10mm	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)
			1g	10g				
Front Side	810/1909.8	GPRS(GMSK 4TS)	0.685	0.369	1.22	26.86	27.00	0.707
Back Side	810/1909.8	GPRS(GMSK 4TS)	0.703	0.354	-2.09	26.86	27.00	0.726
Right Side	810/1909.8	GPRS(GMSK 4TS)	0.083	0.041	0.36	26.86	27.00	0.086
Bottom Side	810/1909.8	GPRS(GMSK 4TS)	0.734	0.378	2.13	26.86	27.00	0.758

NOTE: Hotspot SAR test results of GSM1900

10.1.3. SAR measurement Result of UMTS Band V

Test Position of Head	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)
			1g	10g				
Left Cheek	4233/846.6	RMC12.2K	0.151	0.114	3.53	23.52	24.00	0.169
Left Tilt 15 Degree	4233/846.6	RMC12.2K	0.067	0.052	-1.51	23.52	24.00	0.075
Right Cheek	4233/846.6	RMC12.2K	0.111	0.087	0.93	23.52	24.00	0.124
Right Tilt 15 Degree	4233/846.6	RMC12.2K	0.074	0.058	-0.76	23.52	24.00	0.083

NOTE: Head SAR test results of UMTS Band V

Test Position of Body-Worn with 10mm	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)
			1g	10g				
Front Side	4233/846.6	RMC12.2K	0.313	0.215	-4.40	23.52	24.00	0.350
Back Side	4233/846.6	RMC12.2K	0.278	0.182	-1.74	23.52	24.00	0.310

NOTE: Body-Worn SAR test results of UMTS Band V

Test Position of Hotspot with 10mm	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)
			1g	10g				
Front Side	4233/846.6	RMC12.2K	0.313	0.215	-4.40	23.52	24.00	0.350
Back Side	4233/846.6	RMC12.2K	0.278	0.182	-1.74	23.52	24.00	0.310
Right Side	4233/846.6	RMC12.2K	0.061	0.037	-0.39	23.52	24.00	0.068
Bottom Side	4233/846.6	RMC12.2K	0.257	0.152	0.14	23.52	24.00	0.287

NOTE: Hotspot SAR test results of UMTS Band V

10.1.4. SAR measurement Result of UMTS Band II

Test Position of Head	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)
			1g	10g				
Left Cheek	9538/1907.6	RMC12.2K	0.145	0.083	-4.88	23.88	24.00	0.149
Left Tilt 15 Degree	9538/1907.6	RMC12.2K	0.053	0.029	2.75	23.88	24.00	0.054
Right Cheek	9538/1907.6	RMC12.2K	0.086	0.054	0.73	23.88	24.00	0.088
Right Tilt 15 Degree	9538/1907.6	RMC12.2K	0.029	0.014	-1.53	23.88	24.00	0.030

NOTE: Head SAR test results of UMTS Band II

Test Position of Body-Worn with 10mm	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)
			1g	10g				
Front Side	9538/1907.6	RMC12.2K	0.684	0.365	-2.01	23.88	24.00	0.703
Back Side	9538/1907.6	RMC12.2K	0.637	0.323	-0.06	23.88	24.00	0.655

NOTE: Body-Worn SAR test results of UMTS Band II

Test Position of Hotspot with 10mm	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)
			1g	10g				
Front Side	9538/1907.6	RMC12.2K	0.684	0.365	-2.01	23.88	24.00	0.703
Back Side	9538/1907.6	RMC12.2K	0.637	0.323	-0.06	23.88	24.00	0.655
Right Side	9538/1907.6	RMC12.2K	0.066	0.030	-1.71	23.88	24.00	0.068
Bottom Side	9538/1907.6	RMC12.2K	0.747	0.386	3.36	23.88	24.00	0.768

NOTE: Hotspot SAR test results of UMTS Band II

10.1.5. SAR measurement Result of LTE Band XVII

Test Position of Head	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)
			1g	10g				
1RB								
Left Cheek	23800/711	10M QPSK(1,24)	0.235	0.190	0.16	24.63	25.00	0.256
Left Tilt 15 Degree	23800/711	10M QPSK(1,24)	0.143	0.114	-1.08	24.63	25.00	0.156
Right Cheek	23800/711	10M QPSK(1,24)	0.237	0.188	-0.87	24.63	25.00	0.258
Right Tilt 15 Degree	23800/711	10M QPSK(1,24)	0.152	0.126	-0.07	24.63	25.00	0.166
50%RB								
Left Cheek	23780/709	10M QPSK(25,12)	0.188	0.153	-2.66	23.65	24.00	0.204
Left Tilt 15 Degree	23780/709	10M QPSK(25,12)	0.110	0.091	1.15	23.65	24.00	0.119
Right Cheek	23780/709	10M QPSK(25,12)	0.190	0.151	-0.28	23.65	24.00	0.206
Right Tilt 15 Degree	23780/709	10M QPSK(25,12)	0.122	0.101	0.81	23.65	24.00	0.132

NOTE: Head SAR test results of LTE Band XVII

Test Position of Body-Worn with 10mm	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)
			1g	10g				
1RB								
Front Side	23800/711	10M QPSK(1,24)	0.672	0.530	-0.19	24.63	25.00	0.732
Back Side	23800/711	10M QPSK(1,24)	0.700	0.478	-0.43	24.63	25.00	0.762
50%RB								
Front Side	23780/709	10M QPSK(25,12)	0.610	0.479	-2.06	23.65	24.00	0.661
Back Side	23780/709	10M QPSK(25,12)	0.577	0.394	0.31	23.65	24.00	0.625

NOTE: Body-Worn SAR test results of LTE Band XVII

Test Position of Hotspot with 10mm	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)
			1g	10g				
1RB								
Front Side	23800/711	10M QPSK(1,24)	0.672	0.530	-0.19	24.63	25.00	0.732
Back Side	23800/711	10M QPSK(1,24)	0.700	0.478	-0.43	24.63	25.00	0.762
Right Side	23800/711	10M QPSK(1,24)	0.282	0.210	0.91	24.63	25.00	0.307
Bottom Side	23800/711	10M QPSK(1,24)	0.250	0.158	0.25	24.63	25.00	0.272
50%RB								
Front Side	23780/709	10M QPSK(25,12)	0.610	0.479	-2.06	23.65	24.00	0.661
Back Side	23780/709	10M QPSK(25,12)	0.577	0.394	0.31	23.65	24.00	0.625
Right Side	23780/709	10M QPSK(25,12)	0.256	0.178	-2.03	23.65	24.00	0.277
Bottom Side	23780/709	10M QPSK(25,12)	0.205	0.130	-0.18	23.65	24.00	0.222

NOTE: Hotspot SAR test results of LTE Band XVII

10.1.6. SAR measurement Result of LTE Band IV

Test Position of Head	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)
			1g	10g				
1RB								
Left Cheek	20050/1720	20M QPSK(1,99)	0.291	0.183	-4.28	24.35	24.50	0.301
Left Tilt 15 Degree	20050/1720	20M QPSK(1,99)	0.110	0.069	-2.22	24.35	24.50	0.114
Right Cheek	20050/1720	20M QPSK(1,99)	0.342	0.215	0.97	24.35	24.50	0.354
Right Tilt 15	20050/1720	20M QPSK(1,99)	0.104	0.059	-0.77	24.35	24.50	0.108

Degree								
50%RB								
Left Cheek	20050/1720	20M QPSK(50,49)	0.244	0.153	-0.86	24.28	24.50	0.257
Left Tilt 15 Degree	20050/1720	20M QPSK(50,49)	0.095	0.057	-1.91	24.28	24.50	0.100
Right Cheek	20050/1720	20M QPSK(50,49)	0.305	0.189	-0.86	24.28	24.50	0.321
Right Tilt 15 Degree	20050/1720	20M QPSK(50,49)	0.089	0.046	2.97	24.28	24.50	0.094

NOTE: Head SAR test results of LTE Band IV

Test Position of Body-Worn with 10mm	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)
			1g	10g				
1RB								
Front Side	20050/1720	20M QPSK(1,99)	0.677	0.379	-3.94	24.35	24.50	0.701
Back Side	20050/1720	20M QPSK(1,99)	0.560	0.318	-2.44	24.35	24.50	0.580
50%RB								
Front Side	20050/1720	20M QPSK (50,49)	0.616	0.343	-1.03	24.28	24.50	0.648
Back Side	20050/1720	20M QPSK (50,49)	0.524	0.294	1.03	24.28	24.50	0.551

NOTE: Body-Worn SAR test results of LTE Band IV

Test Position of Hotspot with 10mm	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)
			1g	10g				
1RB								
Front Side	20050/1720	20M QPSK(1,99)	0.677	0.379	-3.94	24.35	24.50	0.701
Back Side	20050/1720	20M QPSK(1,99)	0.560	0.318	-2.44	24.35	24.50	0.580
Right Side	20050/1720	20M QPSK(1,99)	0.076	0.043	-0.94	24.35	24.50	0.079
Bottom Side	20050/1720	20M QPSK(1,99)	0.857	0.476	-0.60	24.35	24.50	0.887

Bottom Side	20175/1732.5	20M QPSK(1,99)	0.833	0.359	0.97	24.07	24.50	0.920
Bottom Side	20300/1745	20M QPSK(1,99)	1.067	0.576	-1.93	24.19	24.50	1.146
Bottom Side-Repeated	20300/1745	20M QPSK(1,99)	1.043	0.559	-2.50	24.19	24.50	1.120
50%RB								
Front Side	20050/1720	20M QPSK (50,49)	0.616	0.343	-1.03	24.28	24.50	0.648
Back Side	20050/1720	20M QPSK (50,49)	0.524	0.294	1.03	24.28	24.50	0.551
Right Side	20050/1720	20M QPSK (50,49)	0.057	0.038	-3.04	24.28	24.50	0.060
Bottom Side	20050/1720	20M QPSK (50,49)	0.816	0.446	-0.39	24.28	24.50	0.858
Bottom Side	20175/1732.5	20M QPSK (50,49)	0.774	0.421	0.14	24.27	24.50	0.816
Bottom Side	20300/1745	20M QPSK (50,49)	0.881	0.474	-1.15	24.14	24.50	0.957
100%RB								
Bottom Side	20175/1732.5	20M QPSK (100,0)	0.687	0.359	-1.18	23.26	23.50	0.726

NOTE: Hotspot SAR test results of LTE Band IV

10.1.7. SAR measurement Result of LTE Band II

Test Position of Head	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)
			1g	10g				
1RB								
Left Cheek	19100/1900	20M QPSK(1,99)	0.235	0.131	2.43	24.28	24.50	0.247
Left Tilt 15 Degree	19100/1900	20M QPSK(1,99)	0.051	0.029	-1.27	24.28	24.50	0.054
Right Cheek	19100/1900	20M QPSK(1,99)	0.075	0.047	-3.35	24.28	24.50	0.079
Right Tilt 15	19100/1900	20M QPSK(1,99)	0.026	0.016	-2.01	24.28	24.50	0.027

Degree								
50%RB								
Left Cheek	19100/1900	20M QPSK(50,49)	0.200	0.111	1.28	24.26	24.50	0.211
Left Tilt 15 Degree	19100/1900	20M QPSK(50,49)	0.043	0.024	-1.02	24.26	24.50	0.045
Right Cheek	19100/1900	20M QPSK(50,49)	0.068	0.043	-0.26	24.26	24.50	0.072
Right Tilt 15 Degree	19100/1900	20M QPSK(50,49)	0.021	0.013	2.07	24.26	24.50	0.022

NOTE: Head SAR test results of LTE Band II

Test Position of Body-Worn with 10mm	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)
			1g	10g				
1RB								
Front Side	19100/1900	20M QPSK(1,99)	0.625	0.338	-4.35	24.28	24.50	0.657
Back Side	19100/1900	20M QPSK(1,99)	0.581	0.306	-1.41	24.28	24.50	0.611
50%RB								
Front Side	19100/1900	20M QPSK (50,49)	0.594	0.304	-2.03	24.26	24.50	0.628
Back Side	19100/1900	20M QPSK (50,49)	0.466	0.249	0.70	24.26	24.50	0.492

NOTE: Body-Worn SAR test results of LTE Band II

Test Position of Hotspot with 10mm	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)
			1g	10g				
1RB								
Front Side	19100/1900	20M QPSK(1,99)	0.625	0.338	-4.35	24.28	24.50	0.657
Back Side	19100/1900	20M QPSK(1,99)	0.581	0.306	-1.41	24.28	24.50	0.611
Right Side	19100/1900	20M QPSK(1,99)	0.062	0.029	-3.23	24.28	24.50	0.065
Bottom Side	19100/1900	20M QPSK(1,99)	0.724	0.376	-2.02	24.28	24.50	0.762

50%RB								
Front Side	19100/1900	20M QPSK (50,49)	0.594	0.304	-2.03	24.26	24.50	0.628
Back Side	19100/1900	20M QPSK (50,49)	0.466	0.249	0.70	24.26	24.50	0.492
Right Side	19100/1900	20M QPSK (50,49)	0.048	0.027	-2.09	24.26	24.50	0.051
Bottom Side	19100/1900	20M QPSK (50,49)	0.678	0.345	-0.67	24.26	24.50	0.717

NOTE: Hotspot SAR test results of LTE Band II

10.1.8. SAR measurement Result of LTE Band VII

Test Position of Head	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)
			1g	10g				
1RB								
Left Cheek	20850/2510	20M QPSK(1,0)	0.071	0.036	-4.36	24.17	24.50	0.077
Left Tilt 15 Degree	20850/2510	20M QPSK(1,0)	0.032	0.016	-0.37	24.17	24.50	0.035
Right Cheek	20850/2510	20M QPSK(1,0)	0.043	0.023	-4.19	24.17	24.50	0.046
Right Tilt 15 Degree	20850/2510	20M QPSK(1,0)	0.012	0.007	-1.02	24.17	24.50	0.013
50%RB								
Left Cheek	20850/2510	20M QPSK(50,0)	0.069	0.036	0.14	23.13	23.50	0.075
Left Tilt 15 Degree	20850/2510	20M QPSK(50,0)	0.030	0.017	-0.69	23.13	23.50	0.033
Right Cheek	20850/2510	20M QPSK(50,0)	0.041	0.021	0.34	23.13	23.50	0.045
Right Tilt 15 Degree	20850/2510	20M QPSK(50,0)	0.010	0.005	-3.09	23.13	23.50	0.011

NOTE: Head SAR test results of LTE Band VII

Test Position of Body-Worn with 10mm	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)
			1g	10g				
1RB								
Front Side	20850/2510	20M QPSK(1,0)	0.383	0.209	-0.93	24.17	24.50	0.413
Back Side	20850/2510	20M QPSK(1,0)	0.314	0.175	-0.80	24.17	24.50	0.339
50%RB								
Front Side	20850/2510	20M QPSK(50,0)	0.368	0.197	-2.03	23.13	23.50	0.401
Back Side	20850/2510	20M QPSK(50,0)	0.318	0.174	-0.36	23.13	23.50	0.346

NOTE: Body-Worn SAR test results of LTE Band VII

Test Position of Hotspot with 10mm	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)
			1g	10g				
1RB								
Front Side	20850/2510	20M QPSK(1,0)	0.383	0.209	-0.93	24.17	24.50	0.413
Back Side	20850/2510	20M QPSK(1,0)	0.314	0.175	-0.80	24.17	24.50	0.339
Right Side	20850/2510	20M QPSK(1,0)	0.167	0.079	-1.22	24.17	24.50	0.180
Bottom Side	20850/2510	20M QPSK(1,0)	0.708	0.365	-0.55	24.17	24.50	0.764
50%RB								
Front Side	20850/2510	20M QPSK(50,0)	0.368	0.197	-2.03	23.13	23.50	0.401
Back Side	20850/2510	20M QPSK(50,0)	0.318	0.174	-0.36	23.13	23.50	0.346
Right Side	20850/2510	20M QPSK(50,0)	0.153	0.076	1.26	23.13	23.50	0.167
Bottom Side	20850/2510	20M QPSK(50,0)	0.723	0.384	0.81	23.13	23.50	0.787

NOTE: Hotspot SAR test results of LTE Band VII

10.1.9. SAR measurement Result of WiFi 2.4G

Test Position of Head	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)
			1g	10g				
Left Cheek	11/2462	802.11 b	0.075	0.032	0.13	14.40	15.00	0.086
Left Tilt 15 Degree	11/2462	802.11 b	0.077	0.030	0.29	14.40	15.00	0.088
Right Cheek	11/2462	802.11 b	0.042	0.020	3.58	14.40	15.00	0.048
Right Tilt 15 Degree	11/2462	802.11 b	0.045	0.020	1.50	14.40	15.00	0.052

NOTE: Head SAR test results of WiFi 2.4G

Test Position of Body-Worn with 10mm	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)
			1g	10g				
Front Side	11/2462	802.11 b	0.013	0.006	0.00	14.40	15.00	0.015
Back Side	11/2462	802.11 b	0.031	0.013	-1.43	14.40	15.00	0.036

NOTE: Body-Worn SAR test results of WiFi 2.4G

Test Position of Hotspot with 10mm	Test channel /Freq.	Test Mode	SAR Value (W/kg)		Power Drift (±5%)	Conducted power (dBm)	Tune-up power (dBm)	Scaled SAR 1g (W/Kg)
			1g	10g				
Front Side	11/2462	802.11 b	0.013	0.006	0.00	14.40	15.00	0.015
Back Side	11/2462	802.11 b	0.031	0.013	-1.43	14.40	15.00	0.036
Left Side	11/2462	802.11 b	0.003	0.001	0.23	14.40	15.00	0.003
Top Side	11/2462	802.11 b	0.011	0.005	-0.76	14.40	15.00	0.013

NOTE: Hotspot SAR test results of WiFi 2.4G

10.2. Simultaneous Transmission Possibilities

The Simultaneous Transmission Possibilities of this device are as below:

No.	Configuration	Head	Body	Hotspot	Note
1	GSM(Voice) + WiFi 2.4GHz(data)	Yes	Yes	N/A	
2	UMTS(Voice) + WiFi 2.4GHz(data)	Yes	Yes	N/A	
3	GSM(Voice) + BT(data)	Yes	Yes	N/A	
4	UMTS(Voice) + BT(data)	Yes	Yes	N/A	
5	GPRS/EDGE(data) + WiFi 2.4GHz(data)	Yes	Yes	Yes	2.4GHz Hotspot
6	UMTS(data) + WiFi 2.4GHz(data)	Yes	Yes	Yes	2.4GHz Hotspot
7	LTE(data) + WiFi 2.4GHz(data)	Yes	Yes	Yes	2.4GHz Hotspot
8	GPRS/EDGE(data) + BT(data)	Yes	Yes	Yes	BT Tethering
9	UMTS(data) + BT(data)	Yes	Yes	Yes	BT Tethering
10	LTE(data) + BT(data)	Yes	Yes	Yes	BT Tethering

NOTE:

1) This device supported VoIP in GPRS/EDGE, UMTS and LTE(e.g. 3rd party VoIP).

2) This device WiFi 2.4GHz supports Hotspot operation.

3) WiFi 2.4GHz and BT share the same antenna, and cannot transmit simultaneously.

4) EUT will choose each GSM, UMTS and LTE according to the network signal condition; therefore, they will not operate simultaneously at any moment.

5) The Scaled SAR summation is calculated based on the same configuration and test position.

10.3. SAR Summation Scenario

Per KDB 447498 D01, simultaneous transmission SAR is compliant if,

1) Scalar SAR summation < 1.6W/kg.

2) SPLSR = $(SAR_1 + SAR_2)^{1.5}$ / (min. separation distance, mm), and the peak separation distance is determined from the square root of $[(x_1-x_2)^2 + (y_1-y_2)^2 + (z_1-z_2)^2]$, where (x_1, y_1, z_1) and (x_2, y_2, z_2) are the coordinates of the extrapolated peak SAR locations in the zoom scan. If SPLSR ≤ 0.04, simultaneously transmission SAR measurement is not necessary.

Test Position		Scaled SAR_{MAX}		∑1-g SAR (W/Kg)	SPLSR	Remark
		GSM 850	WiFi 2.4G			
Head	Left Cheek	0.239	0.086	0.325	N/A	N/A
	Left Tilt 15 Degree	0.119	0.088	0.208	N/A	N/A
	Right Cheek	0.194	0.048	0.242	N/A	N/A
	Right Tilt 15 Degree	0.124	0.052	0.176	N/A	N/A
Body-Worn	Front Side	0.470	0.015	0.485	N/A	N/A
	Back Side	0.502	0.036	0.537	N/A	N/A
Hotspot	Front Side	0.470	0.015	0.485	N/A	N/A
	Back Side	0.502	0.036	0.537	N/A	N/A
	Left Side	N/A	0.003	0.003	N/A	N/A
	Right Side	0.118	N/A	0.118	N/A	N/A
	Top Side	N/A	0.013	0.013	N/A	N/A
	Bottom Side	0.317	N/A	0.317	N/A	N/A

NOTE: 1-g SAR Simultaneous Tx Combination of GSM850 and WiFi 2.4G.

Test Position		Scaled SAR_{MAX}		∑1-g SAR (W/Kg)	SPLSR	Remark
		GSM 1900	WiFi 2.4G			
Head	Left Cheek	0.170	0.086	0.257	N/A	N/A
	Left Tilt 15 Degree	0.039	0.088	0.128	N/A	N/A
	Right Cheek	0.068	0.048	0.116	N/A	N/A
	Right Tilt 15 Degree	0.023	0.052	0.074	N/A	N/A
Body-Worn	Front Side	0.707	0.015	0.722	N/A	N/A
	Back Side	0.726	0.036	0.762	N/A	N/A
Hotspot	Front Side	0.707	0.015	0.722	N/A	N/A
	Back Side	0.726	0.036	0.762	N/A	N/A
	Left Side	N/A	0.003	0.003	N/A	N/A
	Right Side	0.086	N/A	0.086	N/A	N/A
	Top Side	N/A	0.013	0.013	N/A	N/A
	Bottom Side	0.758	N/A	0.758	N/A	N/A

NOTE: 1-g SAR Simultaneous Tx Combination of GSM1900 and WiFi 2.4G.

Test Position		Scaled SAR_{MAX}		∑1-g SAR (W/Kg)	SPLSR	Remark
		UMTS Band V	WiFi 2.4G			
Head	Left Cheek	0.169	0.086	0.255	N/A	N/A
	Left Tilt 15 Degree	0.075	0.088	0.163	N/A	N/A
	Right Cheek	0.124	0.048	0.172	N/A	N/A
	Right Tilt 15 Degree	0.083	0.052	0.134	N/A	N/A
Body-Worn	Front Side	0.350	0.015	0.365	N/A	N/A
	Back Side	0.310	0.036	0.346	N/A	N/A
Hotspot	Front Side	0.350	0.015	0.365	N/A	N/A
	Back Side	0.310	0.036	0.346	N/A	N/A
	Left Side	N/A	0.003	0.003	N/A	N/A
	Right Side	0.068	N/A	0.068	N/A	N/A
	Top Side	N/A	0.013	0.013	N/A	N/A
	Bottom Side	0.287	N/A	0.287	N/A	N/A

NOTE: 1-g SAR Simultaneous Tx Combination of UMTS Band V and WiFi 2.4G.

Test Position		Scaled SAR_{MAX}		∑1-g SAR (W/Kg)	SPLSR	Remark
		UMTS Band II	WiFi 2.4G			
Head	Left Cheek	0.149	0.086	0.235	N/A	N/A
	Left Tilt 15 Degree	0.054	0.088	0.143	N/A	N/A
	Right Cheek	0.088	0.048	0.137	N/A	N/A
	Right Tilt 15 Degree	0.030	0.052	0.081	N/A	N/A
Body-Worn	Front Side	0.703	0.015	0.718	N/A	N/A
	Back Side	0.655	0.036	0.690	N/A	N/A
Hotspot	Front Side	0.703	0.015	0.718	N/A	N/A
	Back Side	0.655	0.036	0.690	N/A	N/A
	Left Side	N/A	0.003	0.003	N/A	N/A
	Right Side	0.068	N/A	0.068	N/A	N/A
	Top Side	N/A	0.013	0.013	N/A	N/A
	Bottom Side	0.768	N/A	0.768	N/A	N/A

NOTE: 1-g SAR Simultaneous Tx Combination of UMTS Band II and WiFi 2.4G.

Test Position		Scaled SAR_{MAX}		∑1-g SAR (W/Kg)	SPLSR	Remark
		LTE Band XVII	WiFi 2.4G			
Head	Left Cheek	0.256	0.086	0.342	N/A	N/A
	Left Tilt 15	0.156	0.088	0.244	N/A	N/A

	Degree					
	Right Cheek	0.258	0.048	0.306	N/A	N/A
	Right Tilt 15 Degree	0.166	0.052	0.217	N/A	N/A
Body-Worn	Front Side	0.732	0.015	0.747	N/A	N/A
	Back Side	0.762	0.036	0.798	N/A	N/A
Hotspot	Front Side	0.732	0.015	0.747	N/A	N/A
	Back Side	0.762	0.036	0.798	N/A	N/A
	Left Side	N/A	0.003	0.003	N/A	N/A
	Right Side	0.307	N/A	0.307	N/A	N/A
	Top Side	N/A	0.013	0.013	N/A	N/A
	Bottom Side	0.272	N/A	0.272	N/A	N/A

NOTE: 1-g SAR Simultaneous Tx Combination of LTE Band XVII and WiFi 2.4G.

Test Position		Scaled SAR_{MAX}		∑1-g SAR (W/Kg)	SPLSR	Remark
		LTE Band IV	WiFi 2.4G			
Head	Left Cheek	0.301	0.086	0.387	N/A	N/A
	Left Tilt 15 Degree	0.114	0.088	0.202	N/A	N/A
	Right Cheek	0.354	0.048	0.402	N/A	N/A
	Right Tilt 15 Degree	0.108	0.052	0.159	N/A	N/A
Body-Worn	Front Side	0.701	0.015	0.716	N/A	N/A
	Back Side	0.580	0.036	0.615	N/A	N/A
Hotspot	Front Side	0.701	0.015	0.716	N/A	N/A
	Back Side	0.580	0.036	0.615	N/A	N/A
	Left Side	N/A	0.003	0.003	N/A	N/A
	Right Side	0.079	N/A	0.079	N/A	N/A
	Top Side	N/A	0.013	0.013	N/A	N/A
	Bottom Side	1.146	N/A	1.146	N/A	N/A

NOTE: 1-g SAR Simultaneous Tx Combination of LTE Band IV and WiFi 2.4G.

Test Position		Scaled SAR_{MAX}		∑1-g SAR (W/Kg)	SPLSR	Remark
		LTE Band II	WiFi 2.4G			
Head	Left Cheek	0.247	0.086	0.333	N/A	N/A
	Left Tilt 15 Degree	0.054	0.088	0.142	N/A	N/A
	Right Cheek	0.079	0.048	0.127	N/A	N/A
	Right Tilt 15 Degree	0.027	0.052	0.079	N/A	N/A
Body-Worn	Front Side	0.657	0.015	0.672	N/A	N/A
	Back Side	0.611	0.036	0.647	N/A	N/A
Hotspot	Front Side	0.657	0.015	0.672	N/A	N/A
	Back Side	0.611	0.036	0.647	N/A	N/A

	Left Side	N/A	0.003	0.003	N/A	N/A
	Right Side	0.065	N/A	0.065	N/A	N/A
	Top Side	N/A	0.013	0.013	N/A	N/A
	Bottom Side	0.762	N/A	0.762	N/A	N/A

NOTE: 1-g SAR Simultaneous Tx Combination of LTE Band II and WiFi 2.4G.

Test Position		Scaled SAR_{MAX}		∑1-g SAR (W/Kg)	SPLSR	Remark
		LTE Band VII	WiFi 2.4G			
Head	Left Cheek	0.077	0.086	0.163	N/A	N/A
	Left Tilt 15 Degree	0.035	0.088	0.123	N/A	N/A
	Right Cheek	0.046	0.048	0.095	N/A	N/A
	Right Tilt 15 Degree	0.013	0.052	0.065	N/A	N/A
Body-Worn	Front Side	0.413	0.015	0.428	N/A	N/A
	Back Side	0.346	0.036	0.382	N/A	N/A
Hotspot	Front Side	0.413	0.015	0.428	N/A	N/A
	Back Side	0.346	0.036	0.382	N/A	N/A
	Left Side	N/A	0.003	0.003	N/A	N/A
	Right Side	0.180	N/A	0.180	N/A	N/A
	Top Side	N/A	0.013	0.013	N/A	N/A
	Bottom Side	0.787	N/A	0.787	N/A	N/A

NOTE: 1-g SAR Simultaneous Tx Combination of LTE Band VII and WiFi 2.4G.

Test Position		Scaled SAR_{MAX}		∑1-g SAR (W/Kg)	SPLSR	Remark
		GSM 850	BT			
Head	Left Cheek	0.239	0.105	0.344	N/A	N/A
	Left Tilt 15 Degree	0.119	0.105	0.224	N/A	N/A
	Right Cheek	0.194	0.105	0.299	N/A	N/A
	Right Tilt 15 Degree	0.124	0.105	0.229	N/A	N/A
Body-Worn	Front Side	0.470	0.053	0.523	N/A	N/A
	Back Side	0.502	0.053	0.555	N/A	N/A
Hotspot	Front Side	0.470	0.053	0.523	N/A	N/A
	Back Side	0.502	0.053	0.555	N/A	N/A
	Left Side	N/A	0.053	0.053	N/A	N/A
	Right Side	0.118	N/A	0.118	N/A	N/A
	Top Side	N/A	0.053	0.053	N/A	N/A
	Bottom Side	0.317	N/A	0.317	N/A	N/A

NOTE: 1-g SAR Simultaneous Tx Combination of GSM850 and BT

Test Position		Scaled SAR_{MAX}		∑1-g SAR (W/Kg)	SPLSR	Remark
		GSM 1900	BT			
Head	Left Cheek	0.170	0.105	0.275	N/A	N/A
	Left Tilt 15 Degree	0.039	0.105	0.144	N/A	N/A
	Right Cheek	0.068	0.105	0.173	N/A	N/A
	Right Tilt 15 Degree	0.023	0.105	0.128	N/A	N/A
Body-Worn	Front Side	0.707	0.053	0.760	N/A	N/A
	Back Side	0.726	0.053	0.779	N/A	N/A
Hotspot	Front Side	0.707	0.053	0.760	N/A	N/A
	Back Side	0.726	0.053	0.779	N/A	N/A
	Left Side	N/A	0.053	0.053	N/A	N/A
	Right Side	0.086	N/A	0.086	N/A	N/A
	Top Side	N/A	0.053	0.053	N/A	N/A
	Bottom Side	0.758	N/A	0.758	N/A	N/A

NOTE: 1-g SAR Simultaneous Tx Combination of GSM1900 and BT

Test Position		Scaled SAR_{MAX}		∑1-g SAR (W/Kg)	SPLSR	Remark
		UMTS Band V	BT			
Head	Left Cheek	0.169	0.105	0.274	N/A	N/A
	Left Tilt 15 Degree	0.075	0.105	0.180	N/A	N/A
	Right Cheek	0.124	0.105	0.229	N/A	N/A
	Right Tilt 15 Degree	0.083	0.105	0.188	N/A	N/A
Body-Worn	Front Side	0.350	0.053	0.403	N/A	N/A
	Back Side	0.310	0.053	0.363	N/A	N/A
Hotspot	Front Side	0.350	0.053	0.403	N/A	N/A
	Back Side	0.310	0.053	0.363	N/A	N/A
	Left Side	N/A	0.053	0.053	N/A	N/A
	Right Side	0.068	N/A	0.068	N/A	N/A
	Top Side	N/A	0.053	0.053	N/A	N/A
	Bottom Side	0.287	N/A	0.287	N/A	N/A

NOTE: 1-g SAR Simultaneous Tx Combination of UMTS Band V and BT

Test Position		Scaled SAR_{MAX}		∑1-g SAR (W/Kg)	SPLSR	Remark
		UMTS Band II	BT			
Head	Left Cheek	0.149	0.105	0.254	N/A	N/A
	Left Tilt 15 Degree	0.054	0.105	0.159	N/A	N/A
	Right Cheek	0.088	0.105	0.193	N/A	N/A

	Right Tilt 15 Degree	0.030	0.105	0.135	N/A	N/A
Body-Worn	Front Side	0.703	0.053	0.756	N/A	N/A
	Back Side	0.655	0.053	0.708	N/A	N/A
Hotspot	Front Side	0.703	0.053	0.756	N/A	N/A
	Back Side	0.655	0.053	0.708	N/A	N/A
	Left Side	N/A	0.053	0.053	N/A	N/A
	Right Side	0.068	N/A	0.068	N/A	N/A
	Top Side	N/A	0.053	0.053	N/A	N/A
	Bottom Side	0.768	N/A	0.768	N/A	N/A

NOTE: 1-g SAR Simultaneous Tx Combination of UMTS Band II and BT

Test Position		Scaled SAR_{MAX}		∑1-g SAR (W/Kg)	SPLSR	Remark
		LTE Band XVII	BT			
Head	Left Cheek	0.256	0.105	0.361	N/A	N/A
	Left Tilt 15 Degree	0.156	0.105	0.261	N/A	N/A
	Right Cheek	0.258	0.105	0.363	N/A	N/A
	Right Tilt 15 Degree	0.166	0.105	0.271	N/A	N/A
Body-Worn	Front Side	0.732	0.053	0.785	N/A	N/A
	Back Side	0.762	0.053	0.815	N/A	N/A
Hotspot	Front Side	0.732	0.053	0.785	N/A	N/A
	Back Side	0.762	0.053	0.815	N/A	N/A
	Left Side	N/A	0.053	0.053	N/A	N/A
	Right Side	0.307	N/A	0.307	N/A	N/A
	Top Side	N/A	0.053	0.053	N/A	N/A
	Bottom Side	0.272	N/A	0.272	N/A	N/A

NOTE: 1-g SAR Simultaneous Tx Combination of LTE Band XVII and BT

Test Position		Scaled SAR_{MAX}		∑1-g SAR (W/Kg)	SPLSR	Remark
		LTE Band IV	BT			
Head	Left Cheek	0.301	0.105	0.406	N/A	N/A
	Left Tilt 15 Degree	0.114	0.105	0.219	N/A	N/A
	Right Cheek	0.354	0.105	0.459	N/A	N/A
	Right Tilt 15 Degree	0.108	0.105	0.213	N/A	N/A
Body-Worn	Front Side	0.701	0.053	0.754	N/A	N/A
	Back Side	0.580	0.053	0.633	N/A	N/A
Hotspot	Front Side	0.701	0.053	0.754	N/A	N/A
	Back Side	0.580	0.053	0.633	N/A	N/A
	Left Side	N/A	0.053	0.053	N/A	N/A

	Right Side	0.079	N/A	0.079	N/A	N/A
	Top Side	N/A	0.053	0.053	N/A	N/A
	Bottom Side	1.146	N/A	1.146	N/A	N/A

NOTE: 1-g SAR Simultaneous Tx Combination of LTE Band IV and BT

Test Position		Scaled SAR_{MAX}		∑1-g SAR (W/Kg)	SPLSR	Remark
		LTE Band II	BT			
Head	Left Cheek	0.247	0.105	0.352	N/A	N/A
	Left Tilt 15 Degree	0.054	0.105	0.159	N/A	N/A
	Right Cheek	0.079	0.105	0.184	N/A	N/A
	Right Tilt 15 Degree	0.027	0.105	0.132	N/A	N/A
Body-Worn	Front Side	0.657	0.053	0.710	N/A	N/A
	Back Side	0.611	0.053	0.664	N/A	N/A
Hotspot	Front Side	0.657	0.053	0.710	N/A	N/A
	Back Side	0.611	0.053	0.664	N/A	N/A
	Left Side	N/A	0.053	0.053	N/A	N/A
	Right Side	0.065	N/A	0.065	N/A	N/A
	Top Side	N/A	0.053	0.053	N/A	N/A
	Bottom Side	0.762	N/A	0.762	N/A	N/A

NOTE: 1-g SAR Simultaneous Tx Combination of LTE Band II and BT

Test Position		Scaled SAR_{MAX}		∑1-g SAR (W/Kg)	SPLSR	Remark
		LTE Band VII	BT			
Head	Left Cheek	0.077	0.105	0.182	N/A	N/A
	Left Tilt 15 Degree	0.035	0.105	0.140	N/A	N/A
	Right Cheek	0.046	0.105	0.151	N/A	N/A
	Right Tilt 15 Degree	0.013	0.105	0.118	N/A	N/A
Body-Worn	Front Side	0.413	0.053	0.466	N/A	N/A
	Back Side	0.346	0.053	0.399	N/A	N/A
Hotspot	Front Side	0.413	0.053	0.466	N/A	N/A
	Back Side	0.346	0.053	0.399	N/A	N/A
	Left Side	N/A	0.053	0.053	N/A	N/A
	Right Side	0.180	N/A	0.180	N/A	N/A
	Top Side	N/A	0.053	0.053	N/A	N/A
	Bottom Side	0.787	N/A	0.787	N/A	N/A

NOTE: 1-g SAR Simultaneous Tx Combination of LTE Band VII and BT

11. Appendix A. Photo documentation

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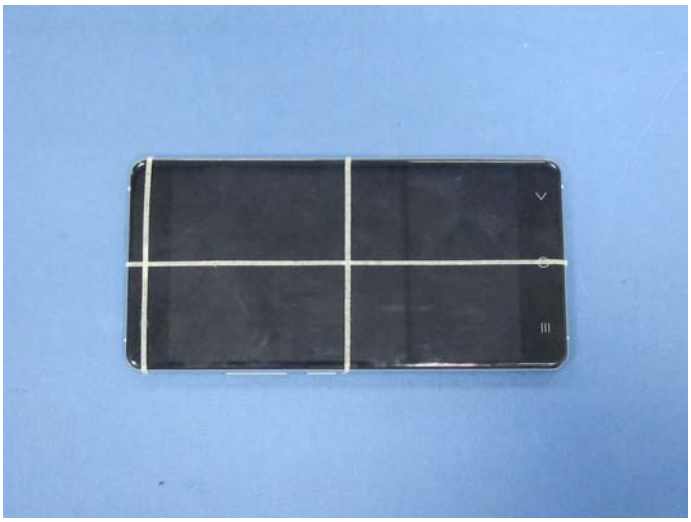
Product Photo
Test Positions
Liquid depth

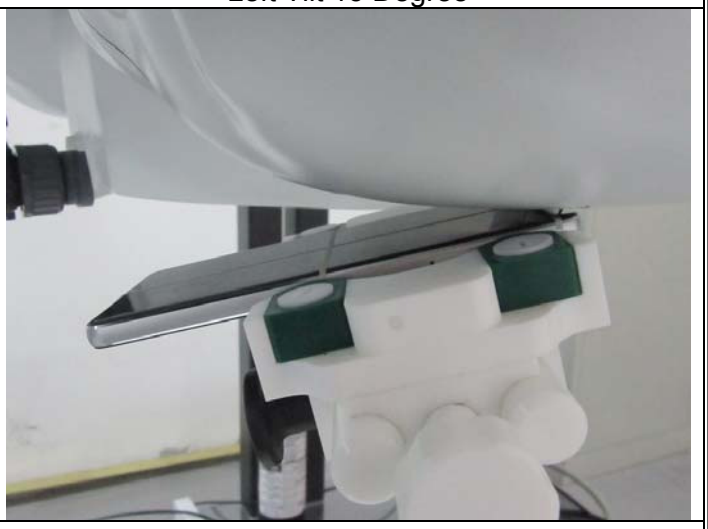
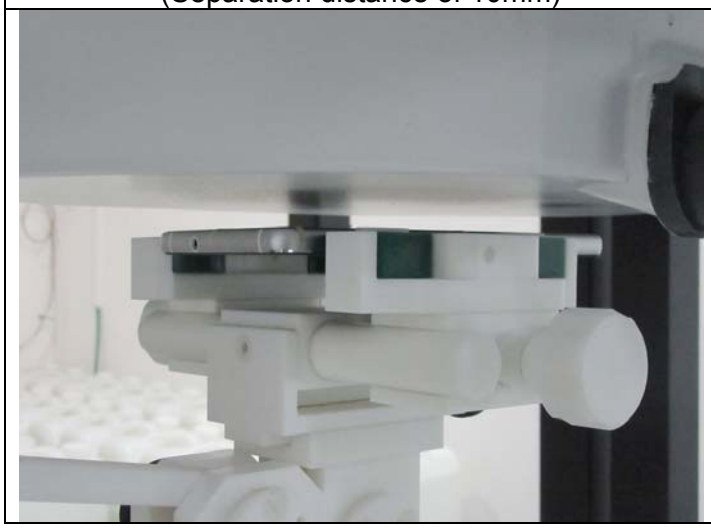
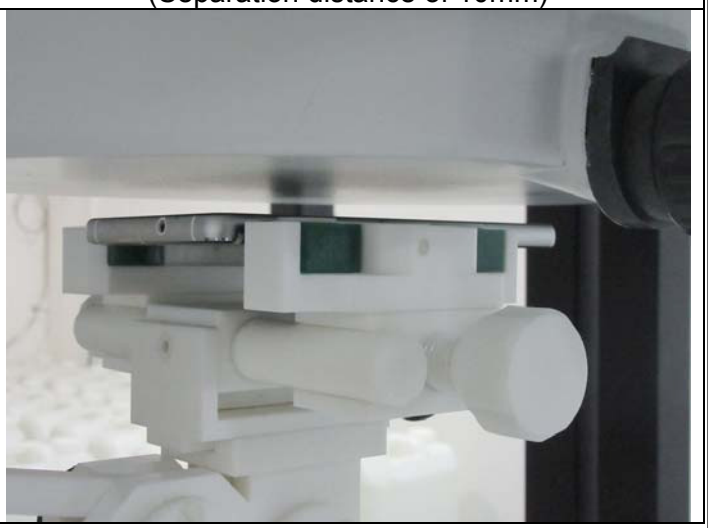
Test Facility

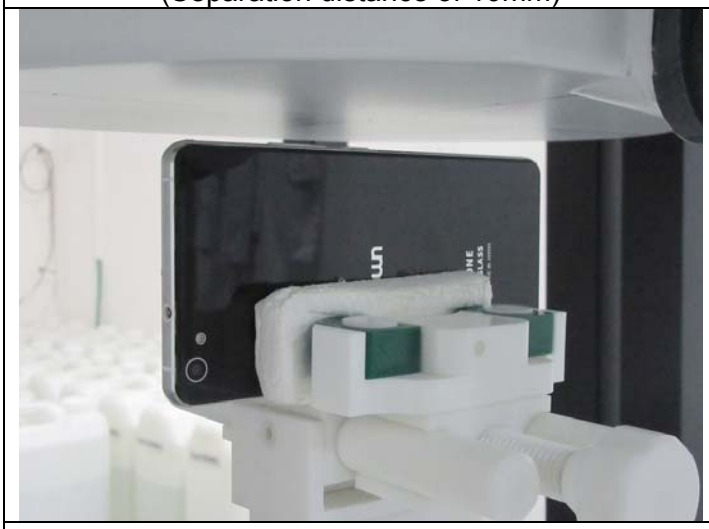
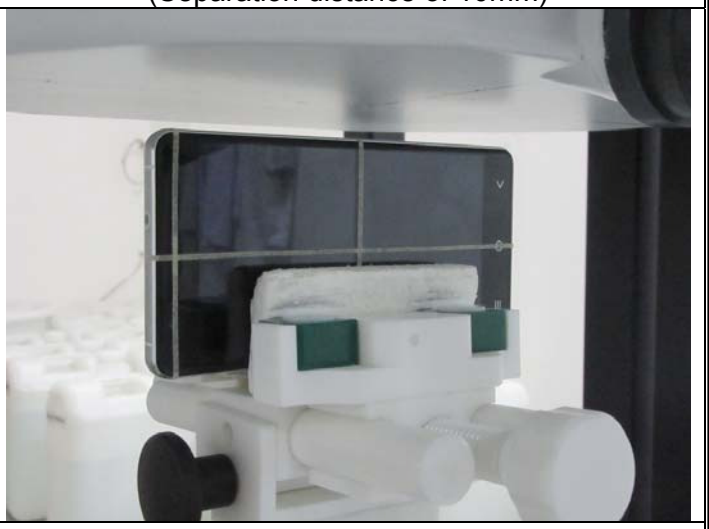
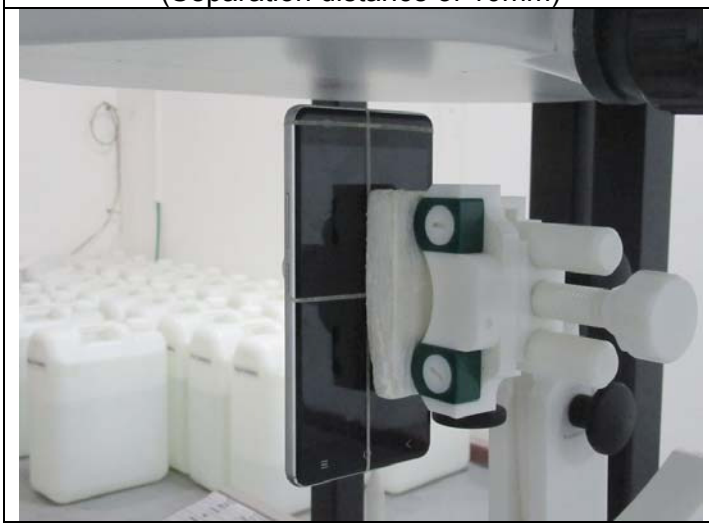
Measurement System SATIMO

Product Photo

Front View	Back View
Reference Line	N/A
	N/A

Test Positions

Left Cheek	Left Tilt 15 Degree
	
Right Cheek	Right Tilt 15 Degree
Front Side (Separation distance of 10mm)	Back Side (Separation distance of 10mm)
	

Left Side (Separation distance of 10mm)	Right Side (Separation distance of 10mm)
	
Top Side (Separation distance of 10mm)	Bottom Side (Separation distance of 10mm)
	

Liquid depth

Head 750MHz depth (15.1cm)	Body 750MHz depth (15.1cm)
Head 850MHz depth (15.3cm)	Body 850MHz depth (15.2cm)
Head 1750MHz depth (15.3cm)	Body 1750MHz depth (15.2cm)

Head 1900MHz depth (15.2cm)	Body 1900MHz depth (15.1cm)
Head 2450MHz depth (15.2cm)	Body 2450MHz depth (15.3cm)
Head 2600MHz depth (15.1cm)	Body 2600MHz depth (15.2cm)

12. Appendix B. System Check Plots

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System Performance Check - SID1900 - Body
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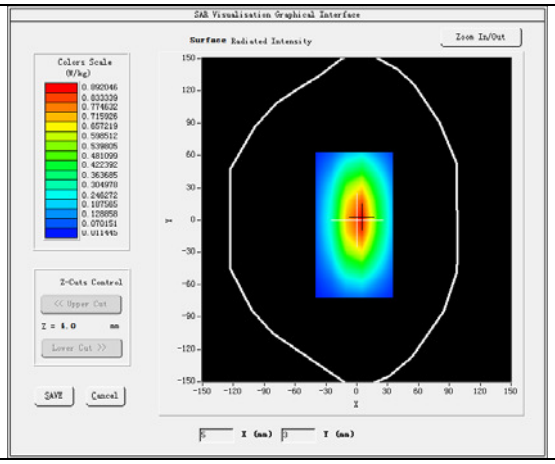
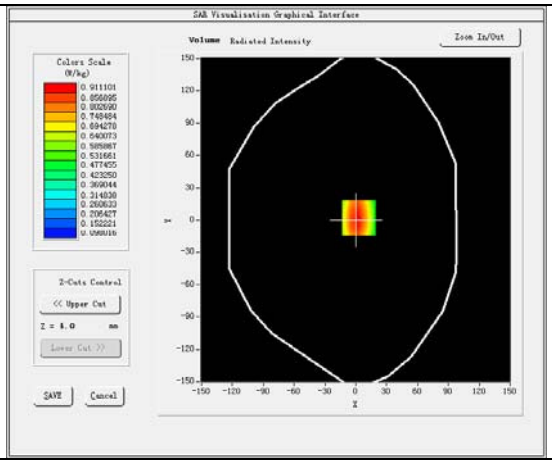
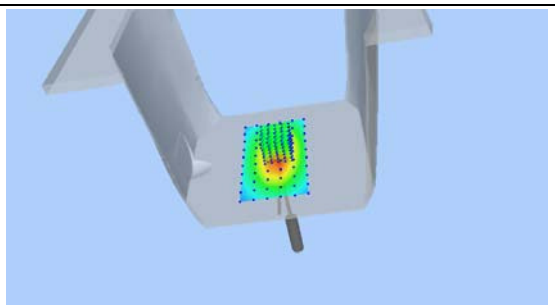
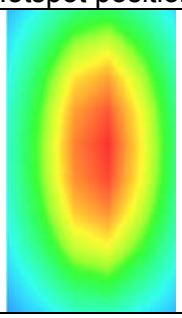
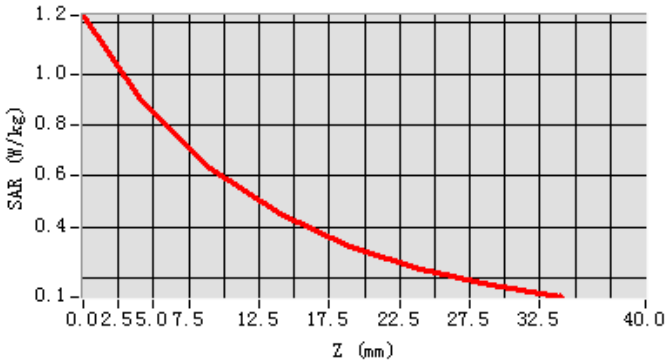
System Performance Check - SID2450 - Body
System Performance Check - SID2600 - Head
System Performance Check - SID2600 - Body

System Performance Check - SID750-Head

Date of measurement:	Sep. 20, 2016
Signal:	Communication System: CW; Frequency:750MHz; Duty Cycle: 1:1.00
ConvF:	1.53
Liquid Parameters:	Relative permittivity (real part): 42.38; Conductivity (S/m): 0.92;
Device Position:	Dipole
Area Scan:	dx=15mm dy=15mm, h=5.00mm
Zoom Scan:	5x5x7, dx=8mm dy=8mm dz=5mm, h=5.00mm

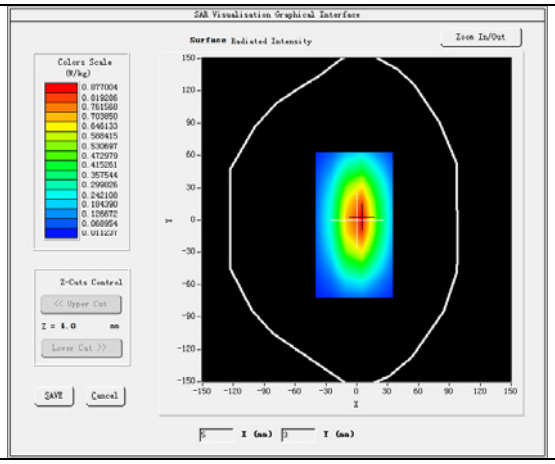
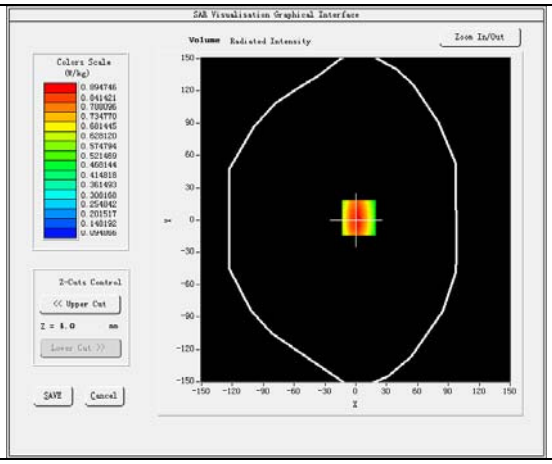
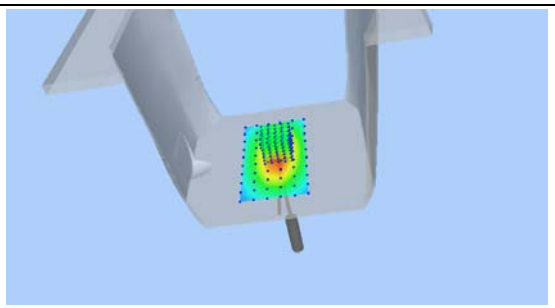
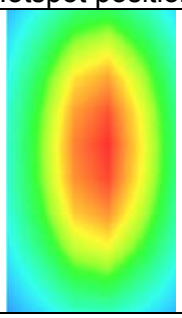
Surface SAR	Volume SAR
	
3D screen shot	Hotspot position
	

Maximum location: X=3.00, Y=2.00 SAR Peak: 1.23 W/kg							
SAR 1g (W/Kg)				0.896			
SAR 10g (W/Kg)				0.597			
Power Drift (±5%):				-0.13			
Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	1.2278	0.9111	0.6338	0.4542	0.3276	0.2390	0.1748



System Performance Check - SID750-Body

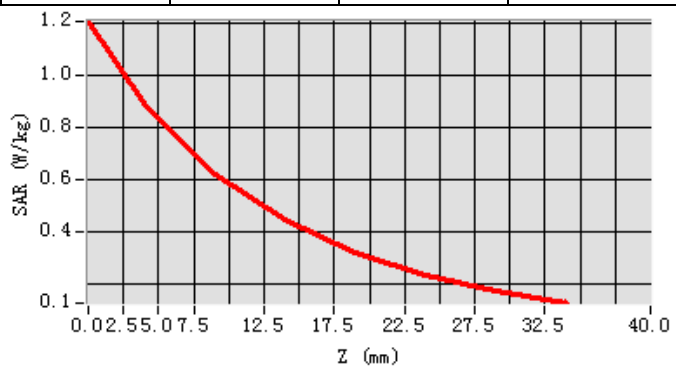
Date of measurement:	Sep. 20, 2016
Signal:	Communication System: CW; Frequency: 750MHz; Duty Cycle: 1:1.00
ConvF:	1.59
Liquid Parameters:	Relative permittivity (real part): 55.40; Conductivity (S/m): 0.98;
Device Position:	Dipole
Area Scan:	dx=15mm dy=15mm, h=5.00mm
Zoom Scan:	5x5x7, dx=8mm dy=8mm dz=5mm, h=5.00mm

Surface SAR	Volume SAR
	
3D screen shot	Hotspot position
	

Maximum location: X=3.00, Y=2.00
SAR Peak: 1.21 W/kg

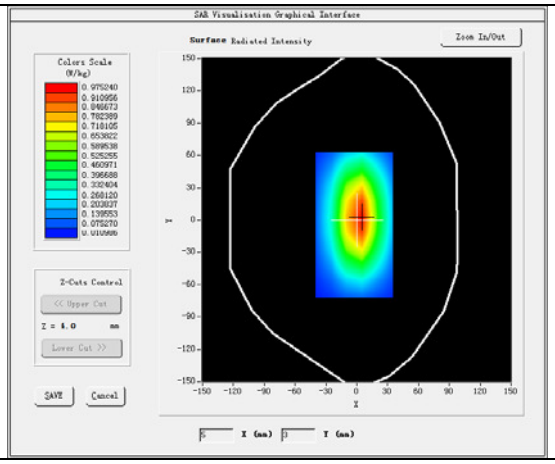
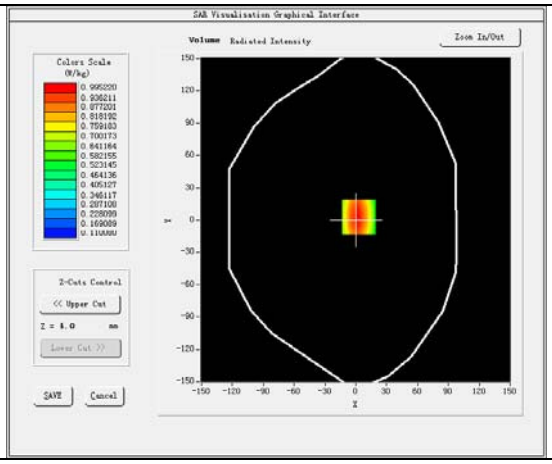
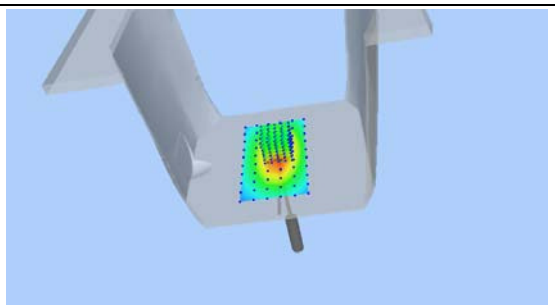
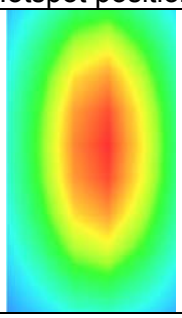
SAR 1g (W/Kg)	0.879
SAR 10g (W/Kg)	0.585
Power Drift (±5%):	-0.86

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	1.2069	0.8947	0.6213	0.4449	0.3196	0.2331	0.1698



System Performance Check - SID835-Head

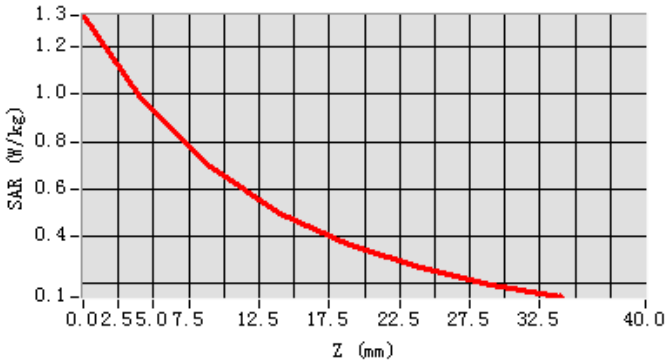
Date of measurement:	Aug. 23, 2016
Signal:	Communication System: CW; Frequency: 835MHz; Duty Cycle: 1:1.00
ConvF:	1.75
Liquid Parameters:	Relative permittivity (real part): 41.68; Conductivity (S/m): 0.90;
Device Position:	Dipole
Area Scan:	dx=15mm dy=15mm, h=5.00mm
Zoom Scan:	5x5x7, dx=8mm dy=8mm dz=5mm, h=5.00mm

Surface SAR	Volume SAR
	
3D screen shot	Hotspot position
	

Maximum location: X=3.00, Y=3.00
SAR Peak: 1.33 W/kg

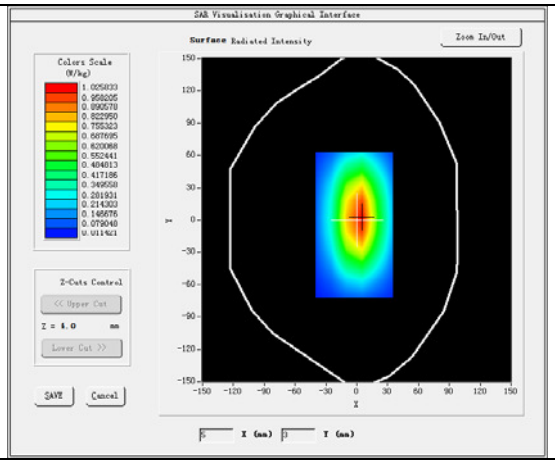
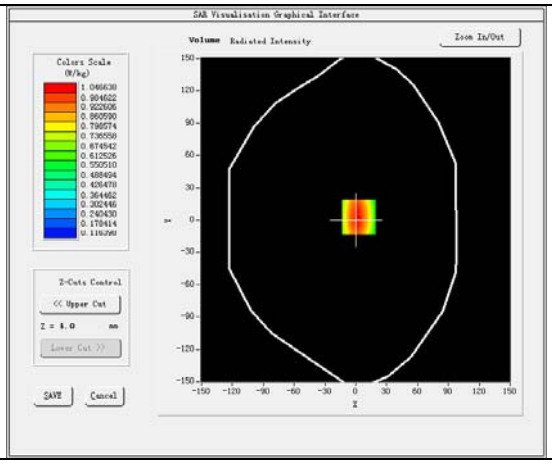
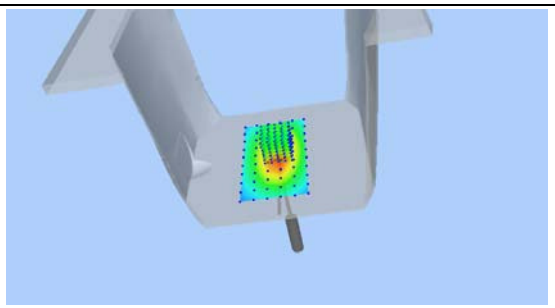
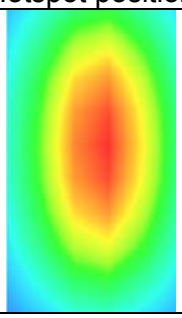
SAR 1g (W/Kg)	0.970
SAR 10g (W/Kg)	0.650
Power Drift (±5%):	-0.09

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	1.3347	0.9952	0.6965	0.4984	0.3612	0.2643	0.1932



System Performance Check - SID835-Body

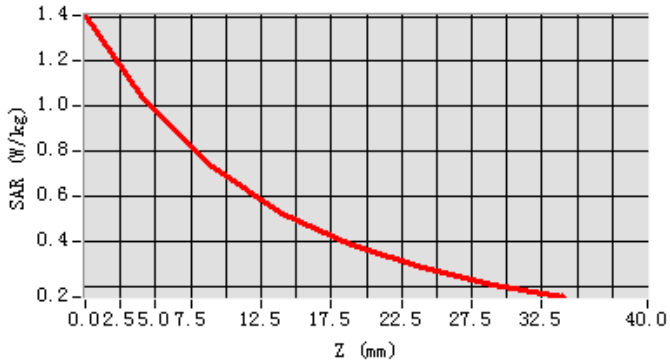
Date of measurement:	Aug. 23, 2016
Signal:	Communication System: CW; Frequency: 835MHz; Duty Cycle: 1:1.00
ConvF:	1.82
Liquid Parameters:	Relative permittivity (real part): 55.36; Conductivity (S/m): 0.99;
Device Position:	Dipole
Area Scan:	dx=15mm dy=15mm, h=5.00mm
Zoom Scan:	5x5x7, dx=8mm dy=8mm dz=5mm, h=5.00mm

Surface SAR	Volume SAR
	
3D screen shot	Hotspot position
	

Maximum location: X=3.00, Y=3.00
SAR Peak: 1.40 W/kg

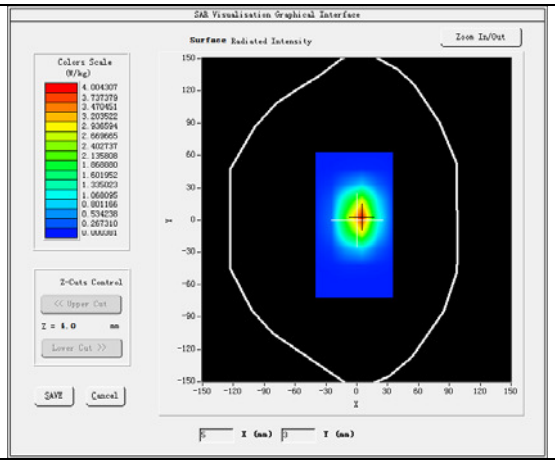
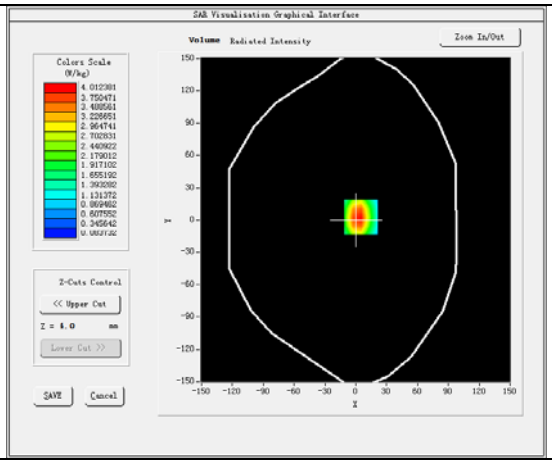
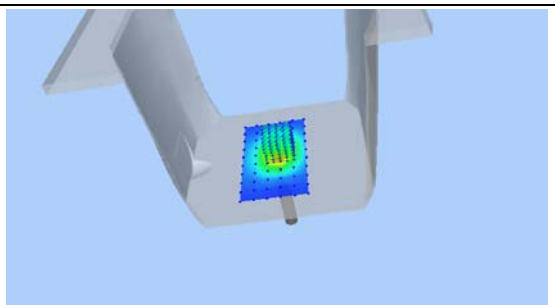
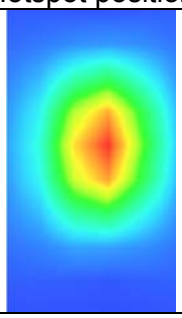
SAR 1g (W/Kg)	1.010
SAR 10g (W/Kg)	0.674
Power Drift (±5%):	-0.01

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	1.4044	1.0466	0.7319	0.5254	0.3802	0.2790	0.2040

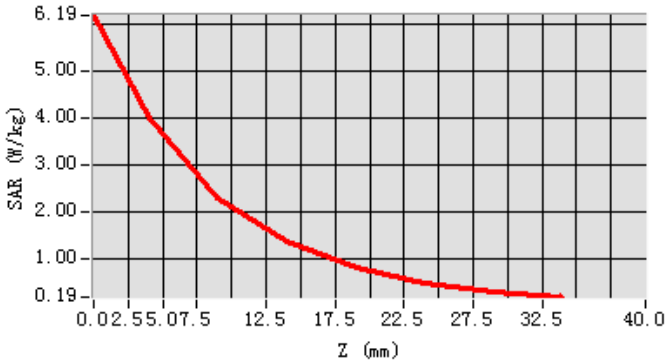


System Performance Check - SID1750-Head

Date of measurement:	Sep. 05, 2016
Signal:	Communication System: CW; Frequency: 1750MHz; Duty Cycle: 1:1.00
ConvF:	2.01
Liquid Parameters:	Relative permittivity (real part): 39.83; Conductivity (S/m): 1.38;
Device Position:	Dipole
Area Scan:	dx=15mm dy=15mm, h=5.00mm
Zoom Scan:	5x5x7, dx=8mm dy=8mm dz=5mm, h=5.00mm

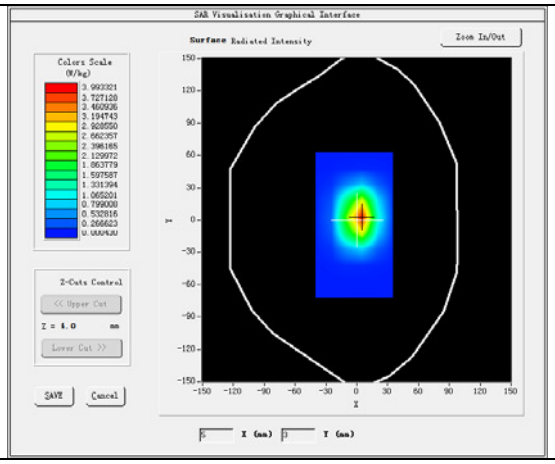
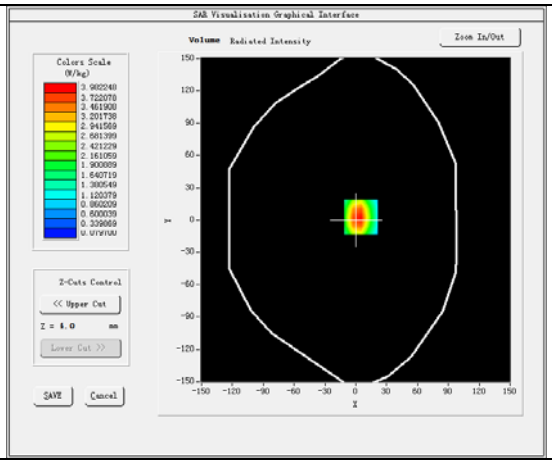
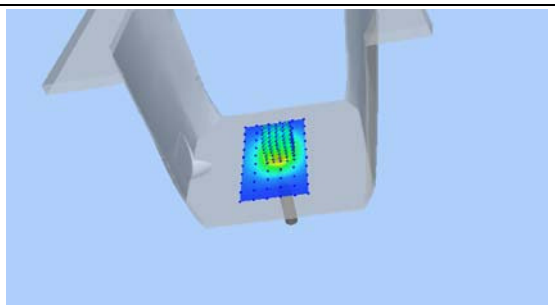
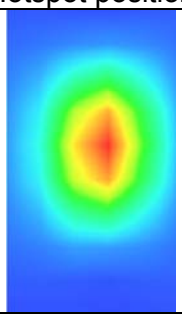
Surface SAR	Volume SAR
	
3D screen shot	Hotspot position
	

Maximum location: X=5.00, Y=3.00 SAR Peak: 6.37 W/kg							
SAR 1g (W/Kg)				3.896			
SAR 10g (W/Kg)				2.070			
Power Drift (±5%):				0.11			
Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	6.1873	4.0124	2.3022	1.3794	0.8298	0.5051	0.3092

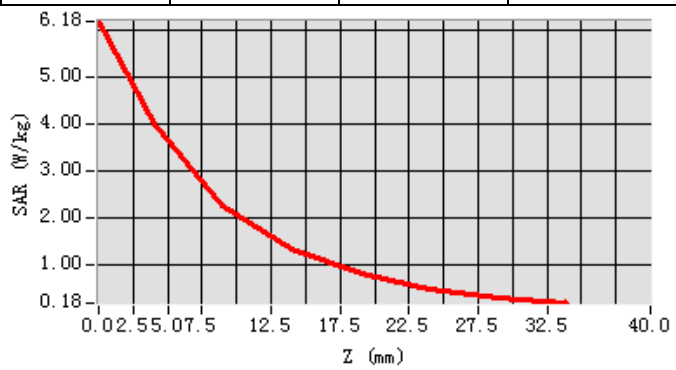


System Performance Check - SID1750-Body

Date of measurement:	Sep. 05, 2016
Signal:	Communication System: CW; Frequency: 1750MHz; Duty Cycle: 1:1.00
ConvF:	2.05
Liquid Parameters:	Relative permittivity (real part): 54.59; Conductivity (S/m): 1.45;
Device Position:	Dipole
Area Scan:	dx=15mm dy=15mm, h=5.00mm
Zoom Scan:	5x5x7, dx=8mm dy=8mm dz=5mm, h=5.00mm

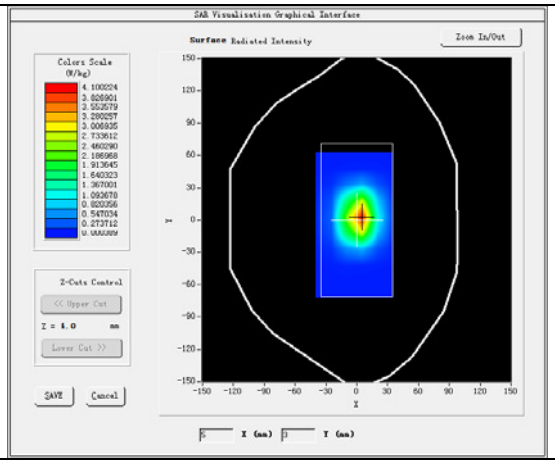
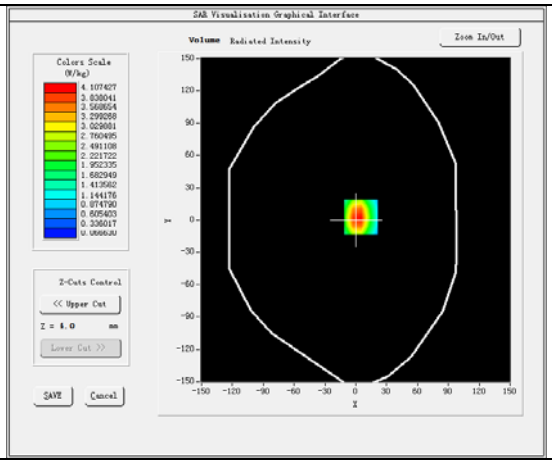
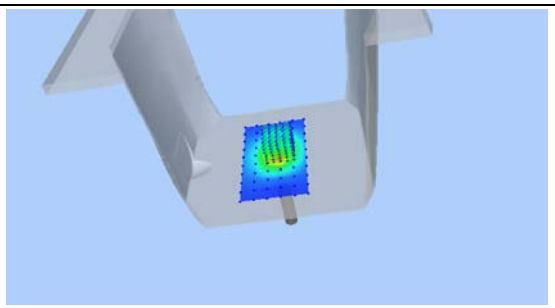
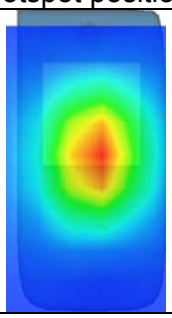
Surface SAR	Volume SAR
	
3D screen shot	Hotspot position
	

Maximum location: X=5.00, Y=3.00 SAR Peak: 6.37 W/kg							
SAR 1g (W/Kg)				3.867			
SAR 10g (W/Kg)				2.030			
Power Drift (±5%):				-0.77			
Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	6.1811	3.9822	2.2635	1.3475	0.8047	0.4876	0.2962



System Performance Check - SID1900-Head

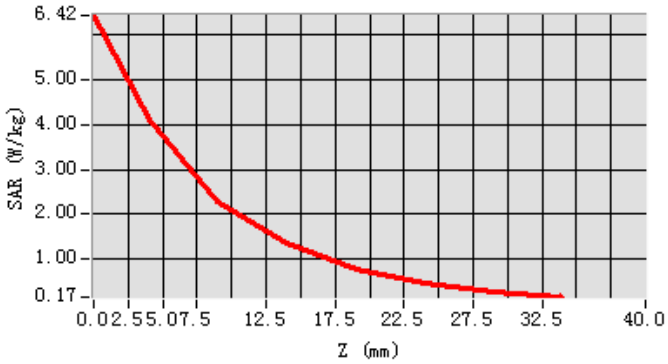
Date of measurement:	Aug. 24, 2016
Signal:	Communication System: CW; Frequency: 1900MHz; Duty Cycle: 1:1.00
ConvF:	2.13
Liquid Parameters:	Relative permittivity (real part): 38.17; Conductivity (S/m): 1.41;
Device Position:	Dipole
Area Scan:	dx=15mm dy=15mm, h=5.00mm
Zoom Scan:	5x5x7, dx=8mm dy=8mm dz=5mm, h=5.00mm

Surface SAR	Volume SAR
	
3D screen shot	Hotspot position
	

Maximum location: X=5.00, Y=3.00
SAR Peak: 6.70 W/kg

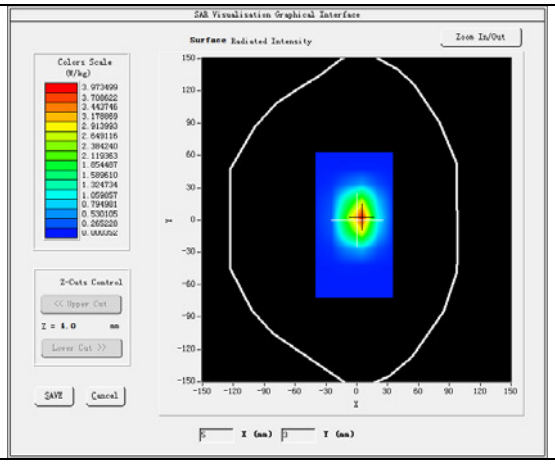
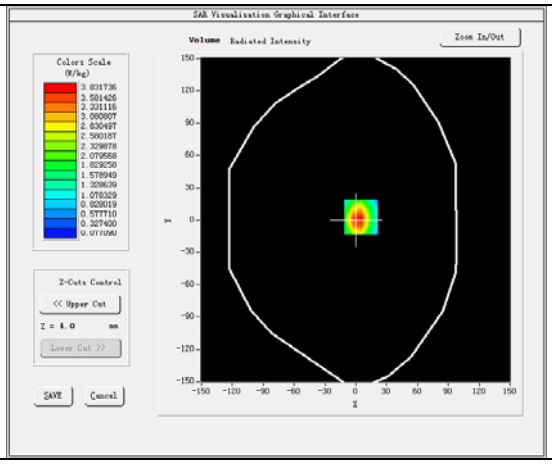
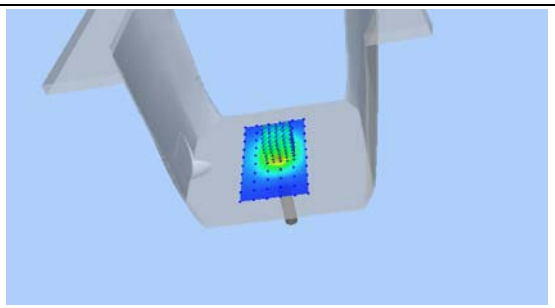
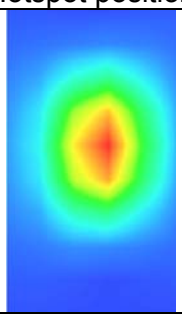
SAR 1g (W/Kg)	4.099
SAR 10g (W/Kg)	2.102
Power Drift (±5%):	0.29

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	6.4215	4.1074	2.3010	1.3448	0.7830	0.4638	0.2754

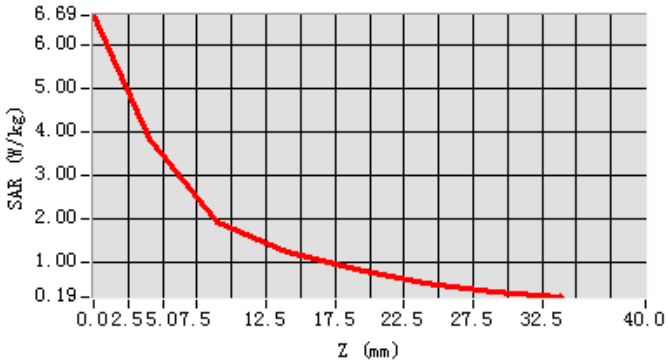


System Performance Check - SID1900-Body

Date of measurement:	Aug. 24, 2016
Signal:	Communication System: CW; Frequency: 1900MHz; Duty Cycle: 1:1.00
ConvF:	2.19
Liquid Parameters:	Relative permittivity (real part): 53.69; Conductivity (S/m): 1.56;
Device Position:	Dipole
Area Scan:	dx=15mm dy=15mm, h=5.00mm
Zoom Scan:	5x5x7, dx=8mm dy=8mm dz=5mm, h=5.00mm

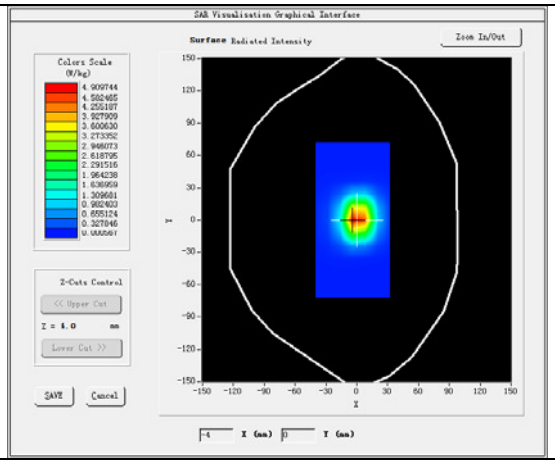
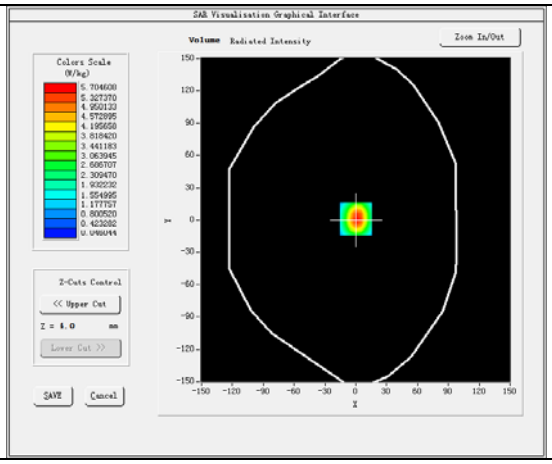
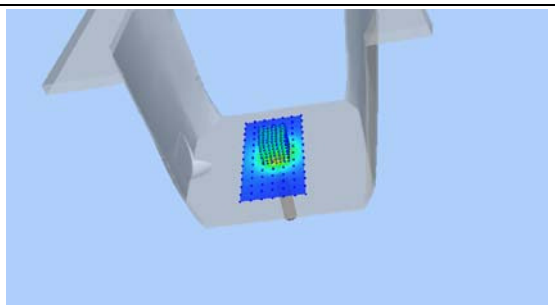
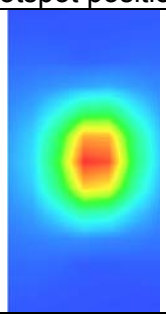
Surface SAR	Volume SAR
	
3D screen shot	Hotspot position
	

Maximum location: X=5.00, Y=3.00 SAR Peak: 7.05 W/kg							
SAR 1g (W/Kg)				3.966			
SAR 10g (W/Kg)				1.940			
Power Drift (±5%):				-0.32			
Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	6.6883	3.8317	1.9323	1.2286	0.8337	0.5115	0.3136

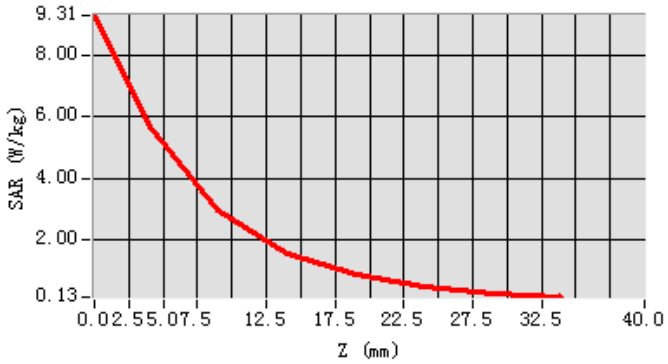


System Performance Check - SID2450-Head

Date of measurement:	Aug. 25, 2016
Signal:	Communication System: CW; Frequency: 2450MHz; Duty Cycle: 1:1.00
ConvF:	2.30
Liquid Parameters:	Relative permittivity (real part): 40.69; Conductivity (S/m): 1.87;
Device Position:	Dipole
Area Scan:	dx=12mm dy=12mm, h=5.00mm
Zoom Scan:	7x7x7, dx=5mm dy=5mm dz=5mm, h=5.00mm

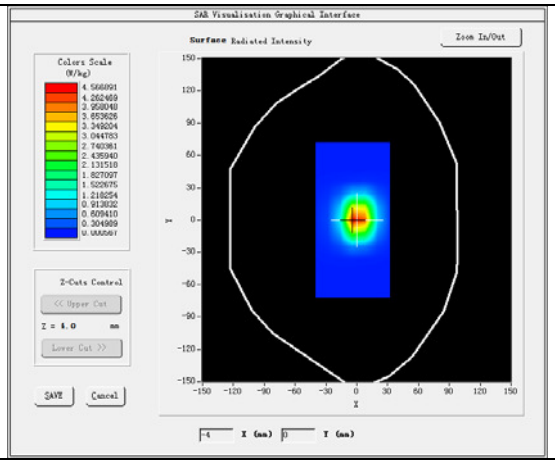
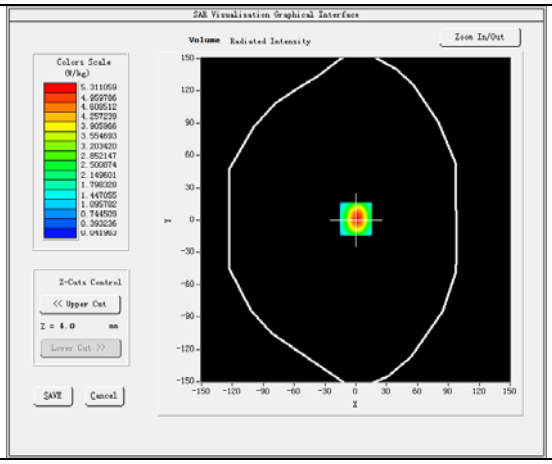
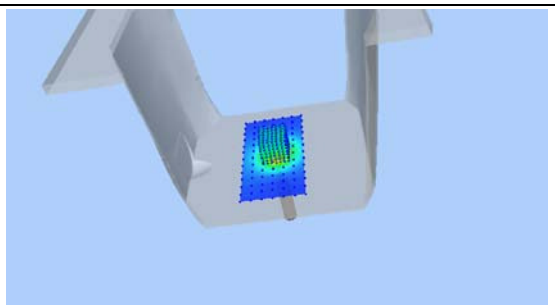
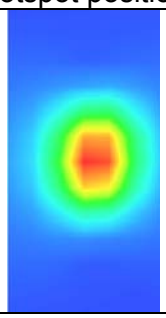
SURFACE SAR	Volume SAR
	
3D screen shot	Hotspot position
	

Maximum location: X=0.00, Y=1.00 SAR Peak: 9.31 W/kg							
SAR 1g (W/Kg)				5.306			
SAR 10g (W/Kg)				2.438			
Power Drift (±5%):				-0.12			
Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	9.3060	5.7046	2.9721	1.5698	0.8426	0.4499	0.2432

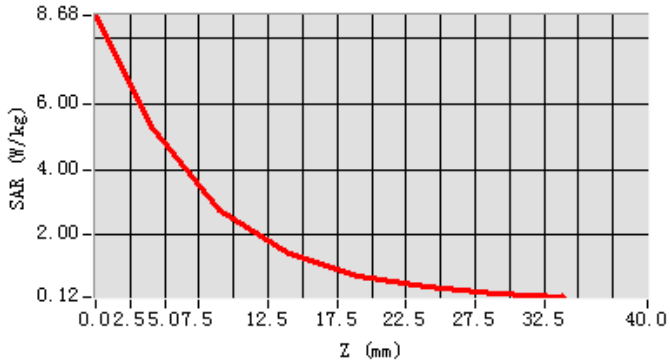


System Performance Check - SID2450-Body

Date of measurement:	Aug. 25, 2016
Signal:	Communication System: CW; Frequency: 2450MHz; Duty Cycle: 1:1.00
ConvF:	2.38
Liquid Parameters:	Relative permittivity (real part): 54.40; Conductivity (S/m): 1.89;
Device Position:	Dipole
Area Scan:	dx=12mm dy=12mm, h=5.00mm
Zoom Scan:	7x7x7, dx=5mm dy=5mm dz=5mm, h=5.00mm

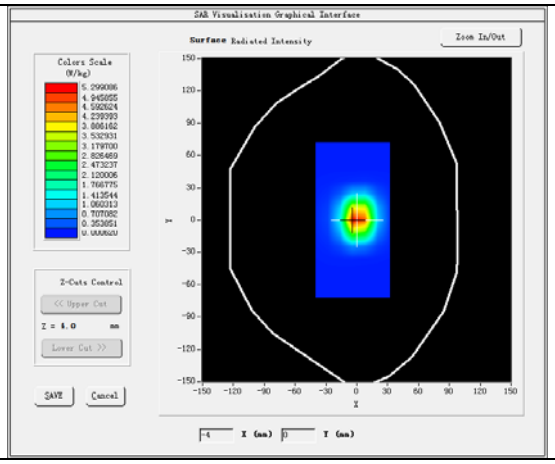
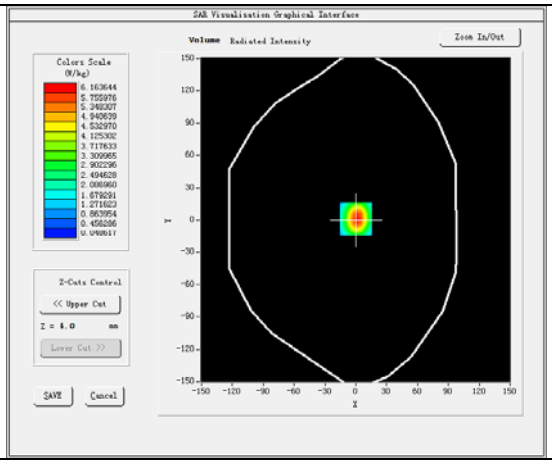
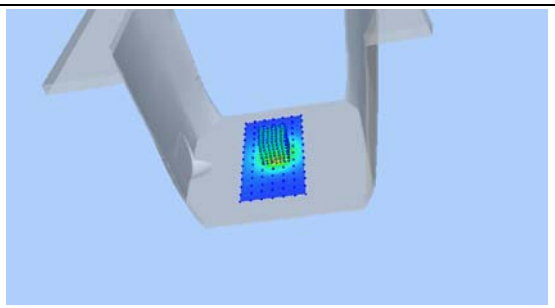
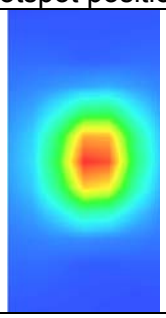
Surface SAR	Volume SAR
	
3D screen shot	Hotspot position
	

Maximum location: X=0.00, Y=1.00 SAR Peak: 8.70 W/kg							
SAR 1g (W/Kg)				4.941			
SAR 10g (W/Kg)				2.357			
Power Drift (±5%):				-0.19			
Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	8.6809	5.3111	2.7592	1.4539	0.7789	0.4153	0.2232

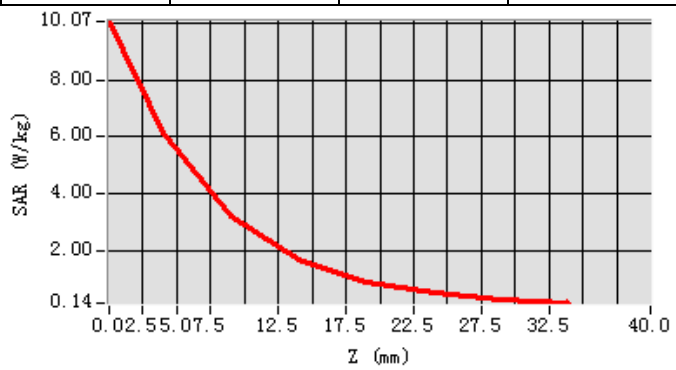


System Performance Check - SID2600-Head

Date of measurement:	Aug. 29, 2016
Signal:	Communication System: CW; Frequency: 2600MHz; Duty Cycle: 1:1.00
ConvF:	2.31
Liquid Parameters:	Relative permittivity (real part): 39.34; Conductivity (S/m): 1.95;
Device Position:	Dipole
Area Scan:	dx=12mm dy=12mm, h=5.00mm
Zoom Scan:	7x7x7, dx=5mm dy=5mm dz=5mm, h=5.00mm

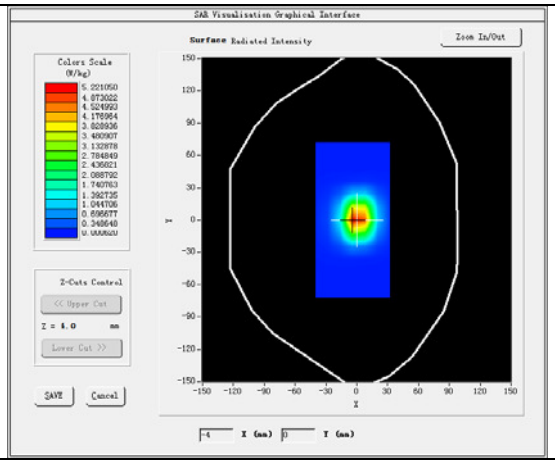
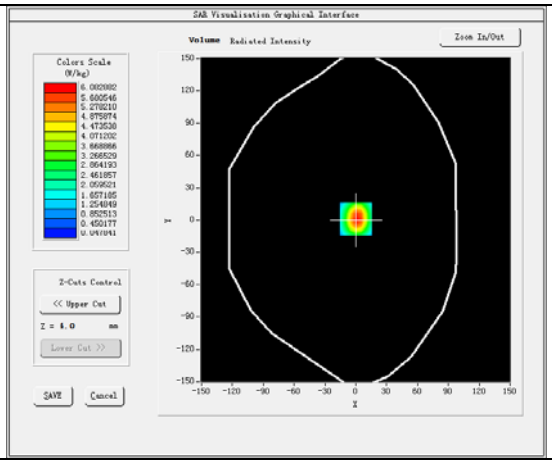
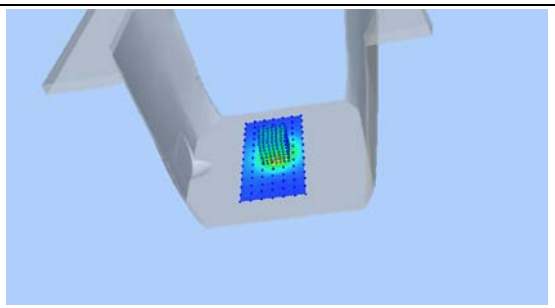
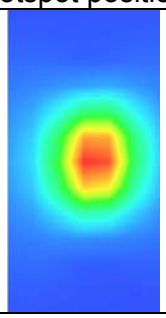
Surface SAR	Volume SAR
	
3D screen shot	Hotspot position
	

Maximum location: X=0.00, Y=1.00 SAR Peak: 10.08 W/kg							
SAR 1g (W/Kg)				5.690			
SAR 10g (W/Kg)				2.525			
Power Drift (±5%):				-0.02			
Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	10.0688	6.1636	3.2033	1.6886	0.9032	0.4806	0.2590



System Performance Check - SID2600-Body

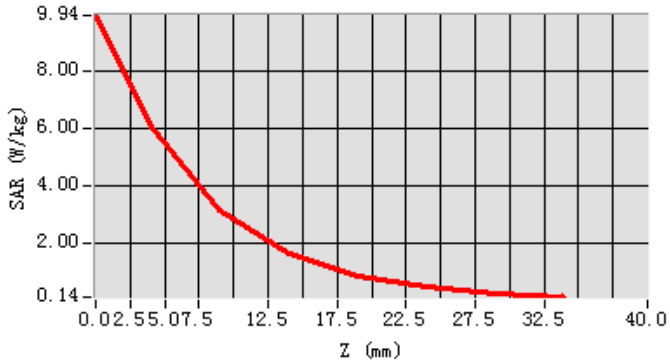
Date of measurement:	Aug. 29, 2016
Signal:	Communication System: CW; Frequency: 2600MHz; Duty Cycle: 1:1.00
ConvF:	2.37
Liquid Parameters:	Relative permittivity (real part): 54.02; Conductivity (S/m): 2.13;
Device Position:	Dipole
Area Scan:	dx=12mm dy=12mm, h=5.00mm
Zoom Scan:	7x7x7, dx=5mm dy=5mm dz=5mm, h=5.00mm

Surface SAR	Volume SAR
	
3D screen shot	Hotspot position
	

Maximum location: X=0.00, Y=1.00
SAR Peak: 9.96 W/kg

SAR 1g (W/Kg)	5.517
SAR 10g (W/Kg)	2.488
Power Drift (±5%):	-0.20

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	9.9389	6.0829	3.1611	1.6675	0.8924	0.4748	0.2555



13. Appendix C. Plots of High SAR Measurement

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GSM 850 Head
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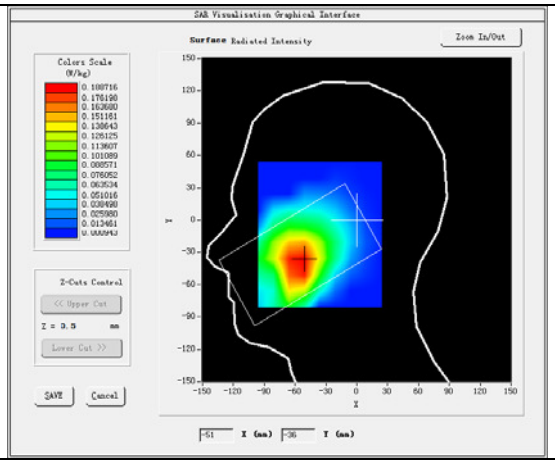
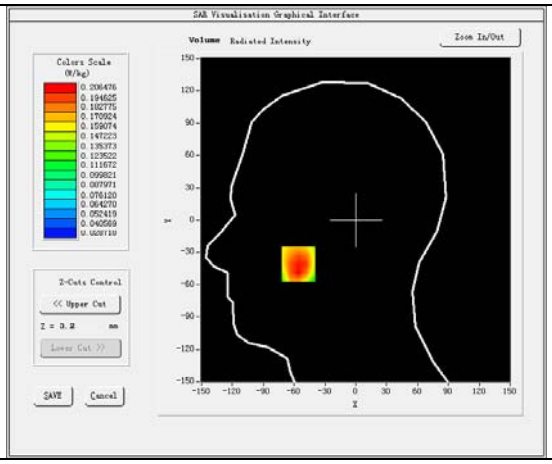
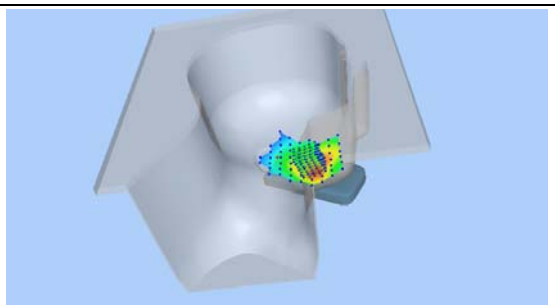
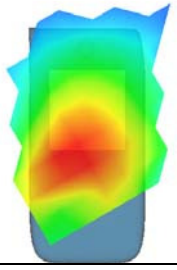
WiFi 2.4G Body

GSM850_GPRS(GMSK 4TS)_Ch128_Left Cheek

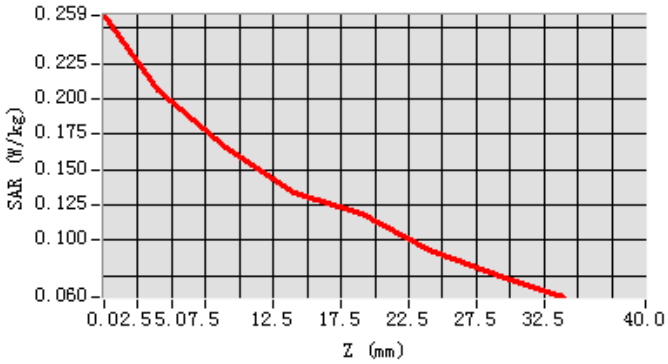
Date of measurement:	Aug. 23, 2016
Signal:	Communication System: GPRS(GMSK 4TS); Frequency: 824.2MHz; Duty Cycle: 1:2.08
ConvF:	1.75
Liquid Parameters:	Relative permittivity (real part): 41.86; Conductivity (S/m): 0.89;
Device Position:	Cheek
Area Scan:	dx=15mm dy=15mm, h=5.00mm
Zoom Scan:	5x5x7, dx=8mm dy=8mm dz=5mm, h=5.00mm

Surface SAR	Volume SAR
	
3D screen shot	Hot spot position
	

Maximum location: X=-56.00, Y=-41.00
SAR Peak: 0.27 W/kg

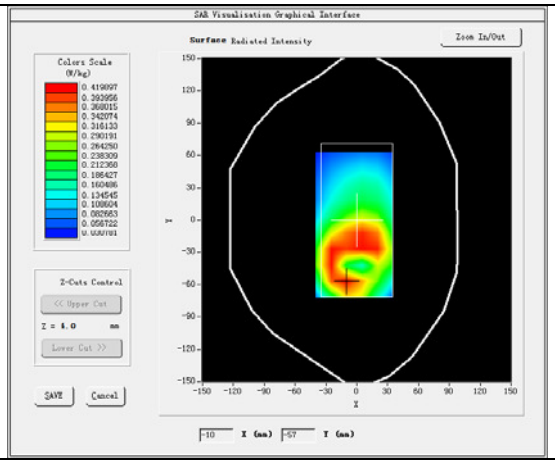
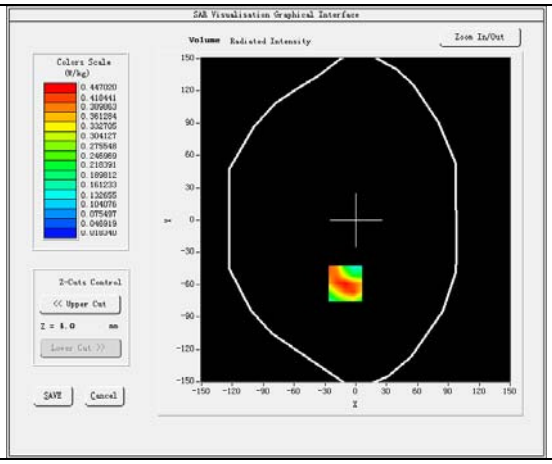
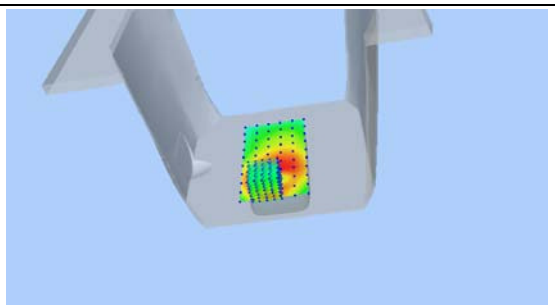
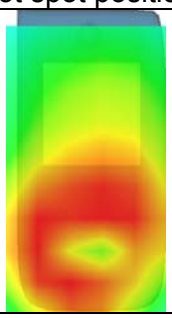
SAR 1g (W/Kg)	0.204
SAR 10g (W/Kg)	0.153
Power Drift (±5%):	2.78

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.2592	0.2065	0.1661	0.1336	0.1184	0.0930	0.0758



GSM850_GPRS(GMSK 4TS)_Ch128_Back Side_10mm

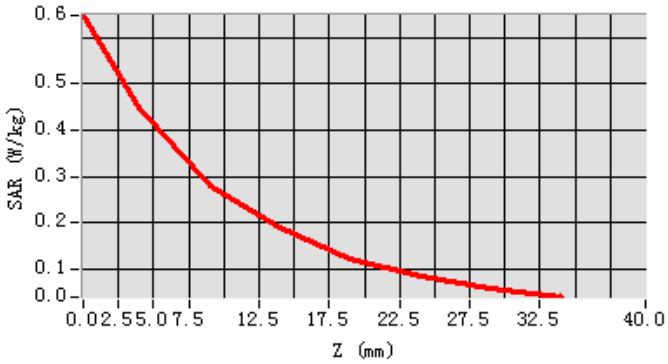
Date of measurement:	Aug. 23, 2016
Signal:	Communication System: GPRS(GMSK 4TS); Frequency: 824.2MHz; Duty Cycle: 1:2.08
ConvF:	1.82
Liquid Parameters:	Relative permittivity (real part): 55.41; Conductivity (S/m): 0.98;
Device Position:	Body
Area Scan:	dx=15mm dy=15mm, h=5.00mm
Zoom Scan:	5x5x7, dx=8mm dy=8mm dz=5mm, h=5.00mm

Surface SAR	Volume SAR
	
3D screen shot	Hot spot position
	

Maximum location: X=-10.00, Y=-59.00
SAR Peak: 0.65 W/kg

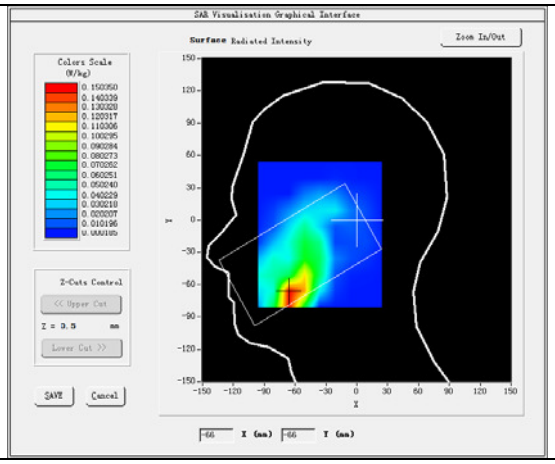
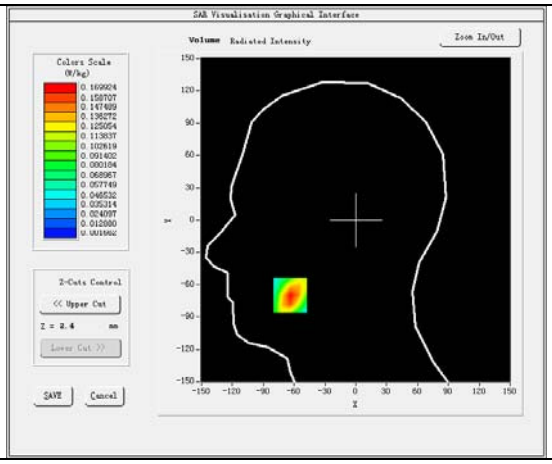
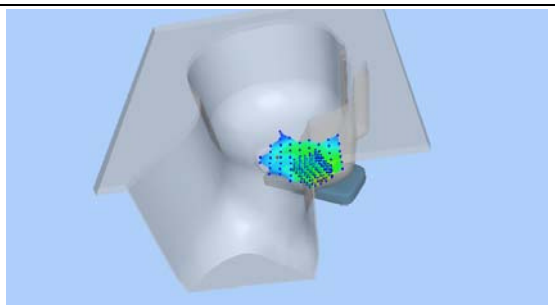
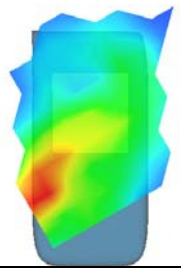
SAR 1g (W/Kg)	0.429
SAR 10g (W/Kg)	0.257
Power Drift (±5%):	1.45

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.6473	0.4470	0.2812	0.1914	0.1232	0.0867	0.0582



GSM1900_GPRS(GMSK 4TS)_Ch810_Left Cheek

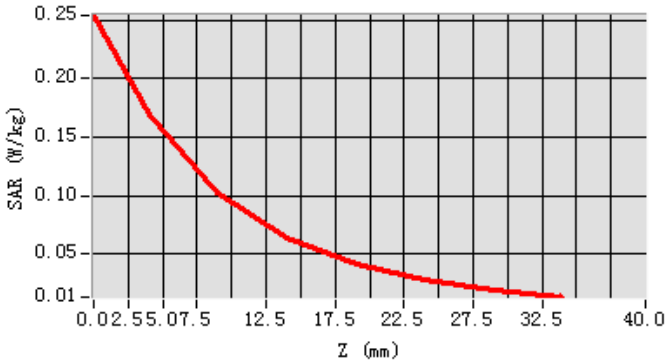
Date of measurement:	Aug. 24, 2016
Signal:	Communication System: GPRS(GMSK 4TS); Frequency: 1909.8MHz; Duty Cycle: 1:2.08
ConvF:	2.13
Liquid Parameters:	Relative permittivity (real part): 38.13; Conductivity (S/m): 1.42;
Device Position:	Cheek
Area Scan:	dx=15mm dy=15mm, h=5.00mm
Zoom Scan:	5x5x7, dx=8mm dy=8mm dz=5mm, h=5.00mm

Surface SAR	Volume SAR
	
3D screen shot	Hot spot position
	

Maximum location: X=-64.00, Y=-70.00
SAR Peak: 0.25 W/kg

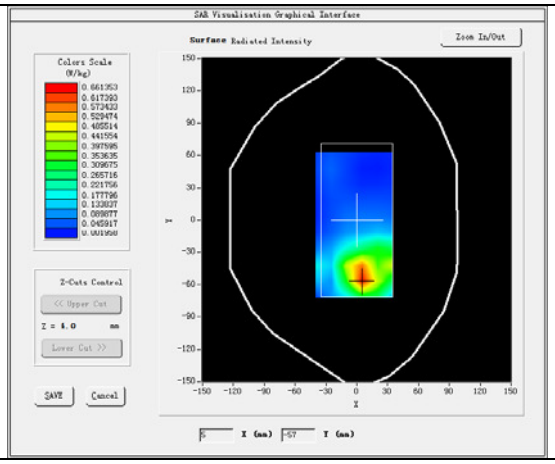
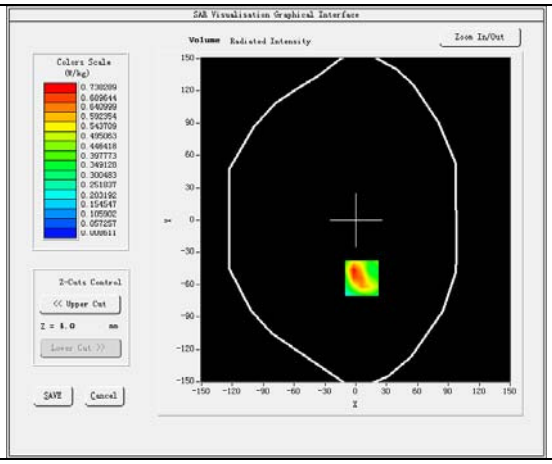
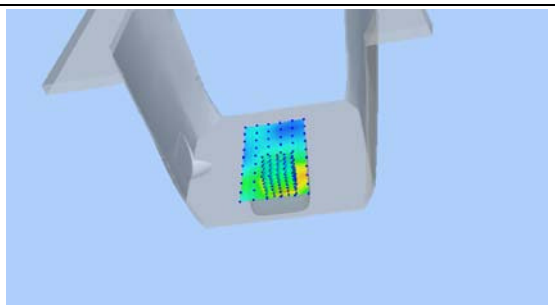
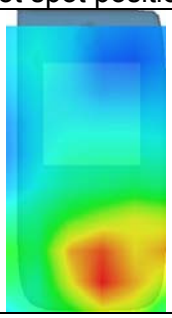
SAR 1g (W/Kg)	0.165
SAR 10g (W/Kg)	0.092
Power Drift (±5%):	2.00

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.2542	0.1699	0.1024	0.0644	0.0417	0.0287	0.0196



GSM1900_GPRS(GMSK 4TS)_Ch810_Back Side_10mm

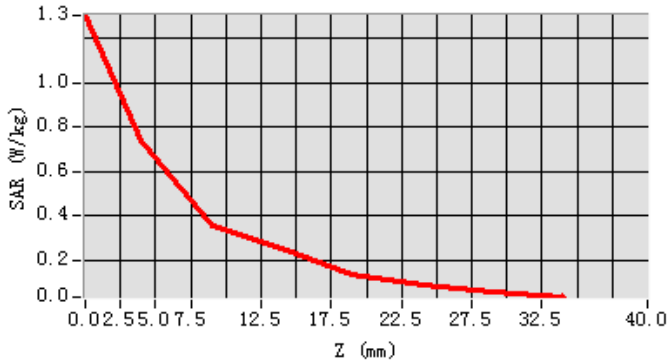
Date of measurement:	Aug. 24, 2016
Signal:	Communication System: GPRS(GMSK 4TS); Frequency: 1909.8MHz; Duty Cycle: 1:2.08
ConvF:	2.19
Liquid Parameters:	Relative permittivity (real part): 53.68; Conductivity (S/m): 1.57;
Device Position:	Body
Area Scan:	dx=15mm dy=15mm, h=5.00mm
Zoom Scan:	5x5x7, dx=8mm dy=8mm dz=5mm, h=5.00mm

Surface SAR	Volume SAR
	
3D screen shot	Hot spot position
	

Maximum location: X=6.00, Y=-54.00
SAR Peak: 1.20 W/kg

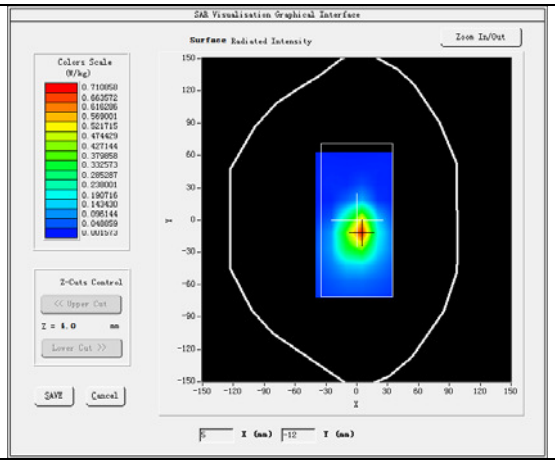
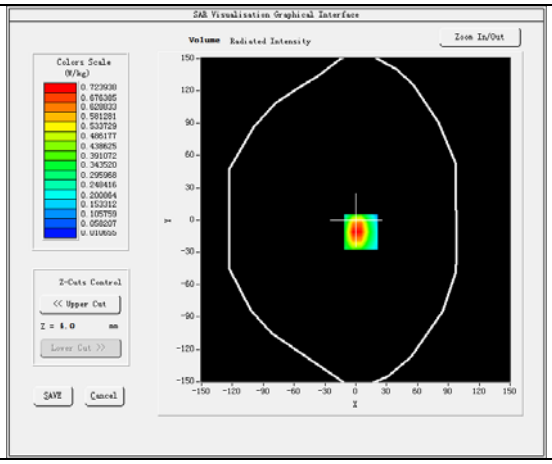
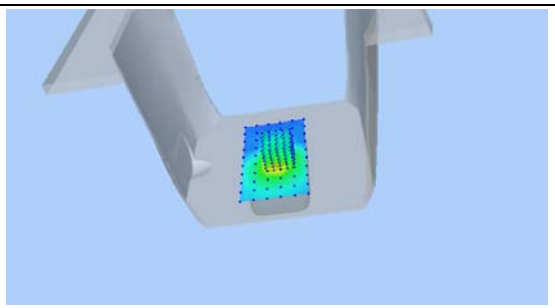
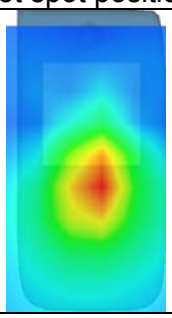
SAR 1g (W/Kg)	0.703
SAR 10g (W/Kg)	0.354
Power Drift (±5%):	-2.09

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	1.3049	0.7383	0.3506	0.2492	0.1367	0.0891	0.0507



GSM1900_GPRS(GMSK 4TS)_Ch810_Bottom Side_10mm

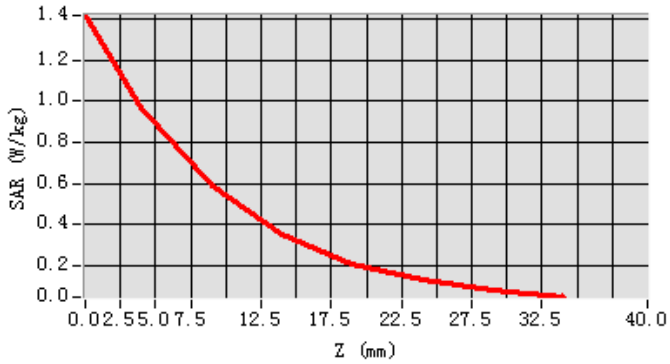
Date of measurement:	Aug. 24, 2016
Signal:	Communication System: GPRS(GMSK 4TS); Frequency: 1909.8MHz; Duty Cycle: 1:2.08
ConvF:	2.19
Liquid Parameters:	Relative permittivity (real part): 53.68; Conductivity (S/m): 1.57;
Device Position:	Body
Area Scan:	dx=15mm dy=15mm, h=5.00mm
Zoom Scan:	5x5x7, dx=8mm dy=8mm dz=5mm, h=5.00mm

Surface SAR	Volume SAR
	
3D screen shot	Hot spot position
	

Maximum location: X=5.00, Y=-11.00
SAR Peak: 1.18 W/kg

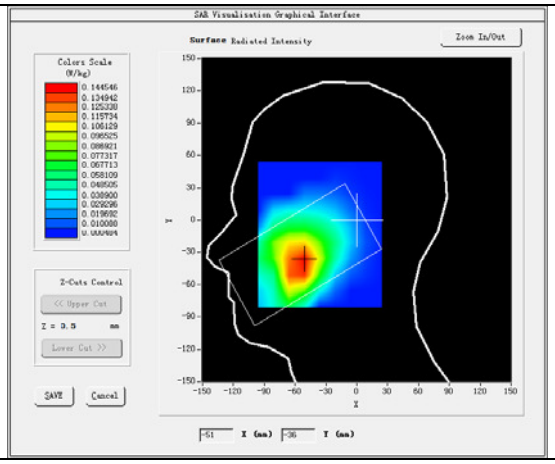
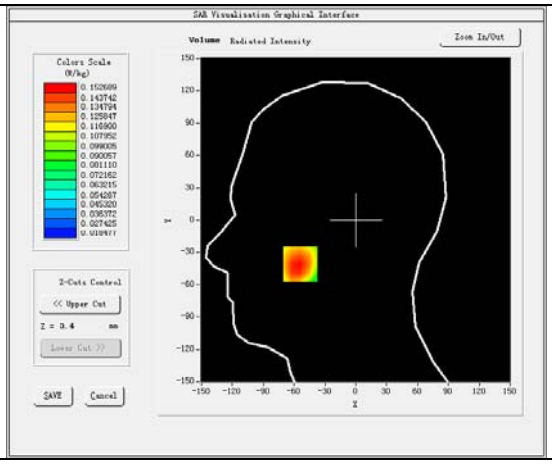
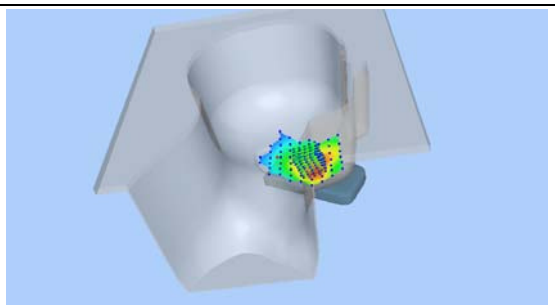
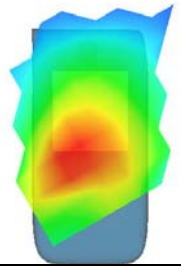
SAR 1g (W/Kg)	0.734
SAR 10g (W/Kg)	0.378
Power Drift (±5%):	2.13

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	1.4374	0.7239	0.2700	0.2782	0.1151	0.1097	0.0501



UMTS Band V_RMC 12.2Kbps_Ch4233_Left Cheek

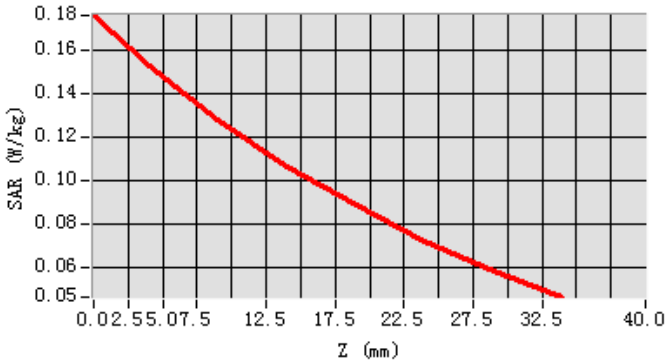
Date of measurement:	Aug. 23, 2016
Signal:	Communication System: UMTS-FDD(WCDMA); Frequency: 846.6MHz; Duty Cycle: 1:1.00
ConvF:	1.75
Liquid Parameters:	Relative permittivity (real part): 41.51; Conductivity (S/m): 0.92;
Device Position:	Cheek
Area Scan:	dx=15mm dy=15mm, h=5.00mm
Zoom Scan:	5x5x7, dx=8mm dy=8mm dz=5mm, h=5.00mm

Surface SAR	Volume SAR
	
3D screen shot	Hot spot position
	

Maximum location: X=-54.00, Y=-41.00
SAR Peak: 0.18 W/kg

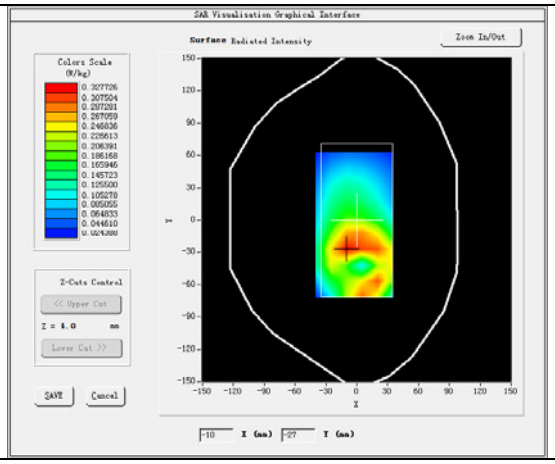
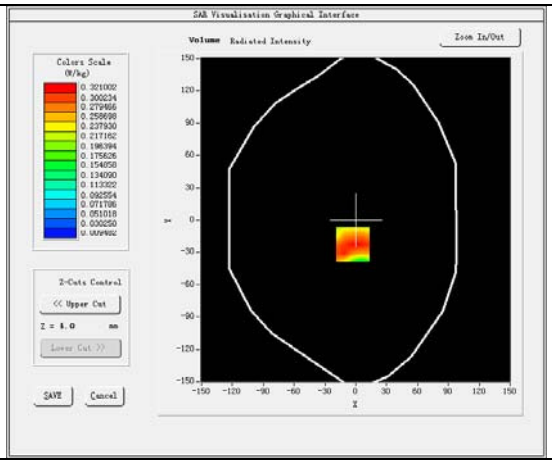
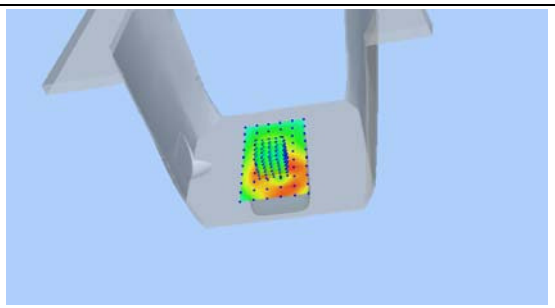
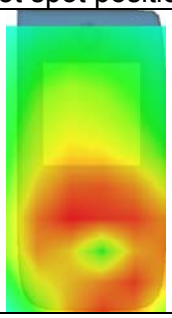
SAR 1g (W/Kg)	0.151
SAR 10g (W/Kg)	0.114
Power Drift (±5%):	3.53

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.1762	0.1527	0.1282	0.1065	0.0891	0.0724	0.0586



UMTS Band V_RMC 12.2Kbps_Ch4233_Front Side_10mm

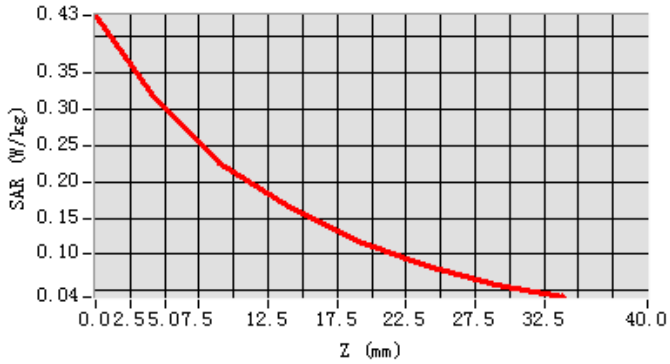
Date of measurement:	Aug. 23, 2016
Signal:	Communication System: UMTS-FDD(WCDMA); Frequency: 846.6MHz; Duty Cycle: 1:1.00
ConvF:	1.82
Liquid Parameters:	Relative permittivity (real part): 55.25; Conductivity (S/m): 1.01;
Device Position:	Body
Area Scan:	dx=15mm dy=15mm, h=5.00mm
Zoom Scan:	5x5x7, dx=8mm dy=8mm dz=5mm, h=5.00mm

Surface SAR	Volume SAR
	
3D screen shot	Hot spot position
	

Maximum location: X=-3.00, Y=-23.00
SAR Peak: 0.44 W/kg

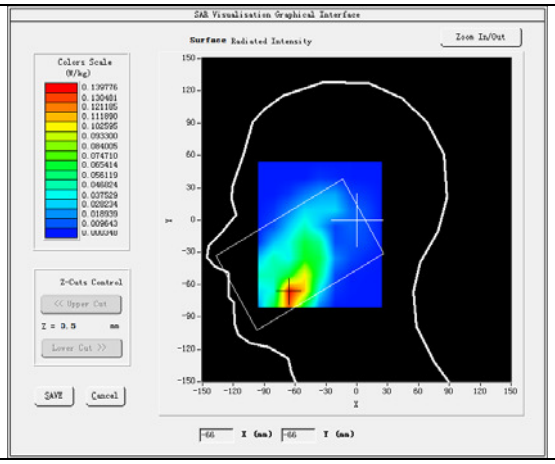
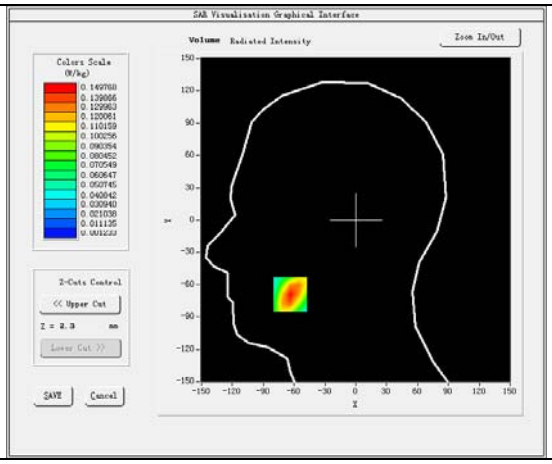
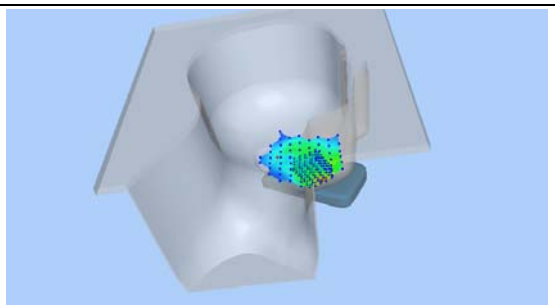
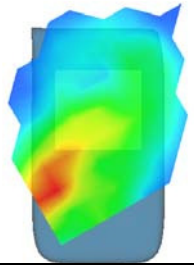
SAR 1g (W/Kg)	0.313
SAR 10g (W/Kg)	0.215
Power Drift (±5%):	-4.40

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.4289	0.3210	0.2255	0.1647	0.1170	0.0833	0.0584



UMTS Band II_RMC 12.2Kbps_Ch9538_Left Cheek

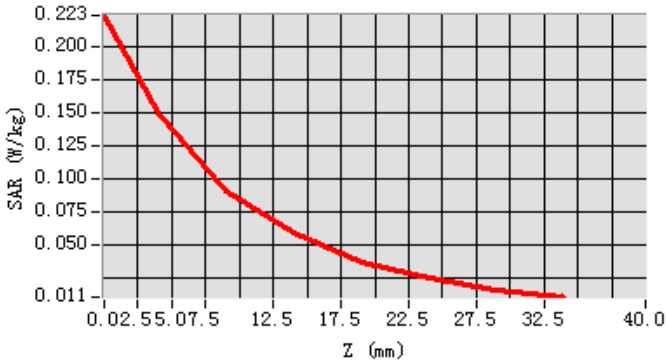
Date of measurement:	Aug. 24, 2016
Signal:	Communication System: UMTS-FDD(WCDMA); Frequency: 1907.6MHz; Duty Cycle: 1:1.00
ConvF:	2.13
Liquid Parameters:	Relative permittivity (real part): 38.13; Conductivity (S/m): 1.42;
Device Position:	Cheek
Area Scan:	dx=15mm dy=15mm, h=5.00mm
Zoom Scan:	5x5x7, dx=8mm dy=8mm dz=5mm, h=5.00mm

Surface SAR	Volume SAR
	
3D screen shot	Hot spot position
	

Maximum location: X=-64.00, Y=-69.00
SAR Peak: 0.22 W/kg

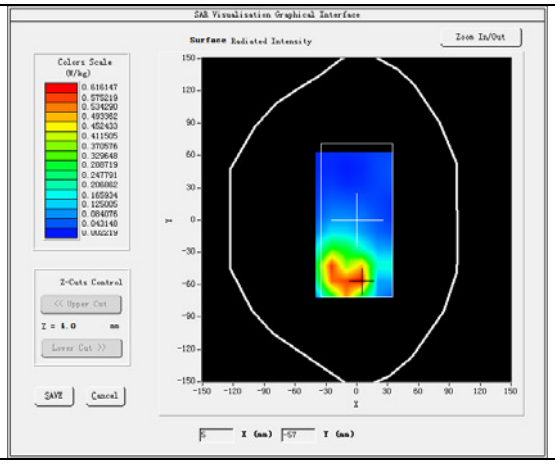
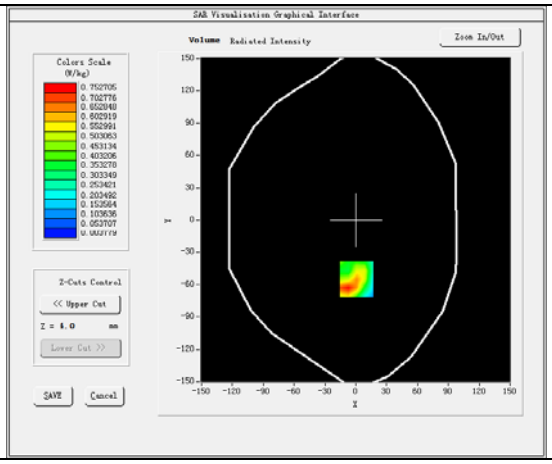
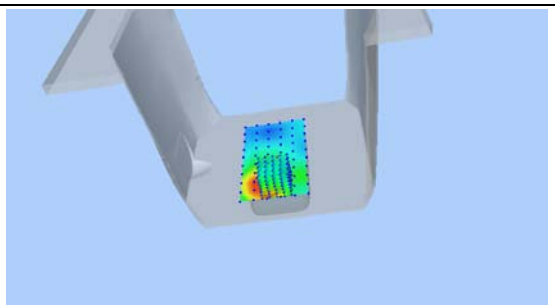
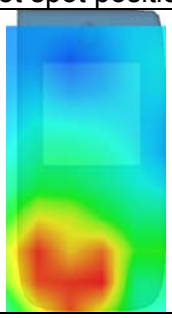
SAR 1g (W/Kg)	0.145
SAR 10g (W/Kg)	0.083
Power Drift (±5%):	-4.88

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.2229	0.1498	0.0909	0.0593	0.0377	0.0253	0.0165



UMTS Band II_RMC 12.2Kbps_Ch9538_Front Side_10mm

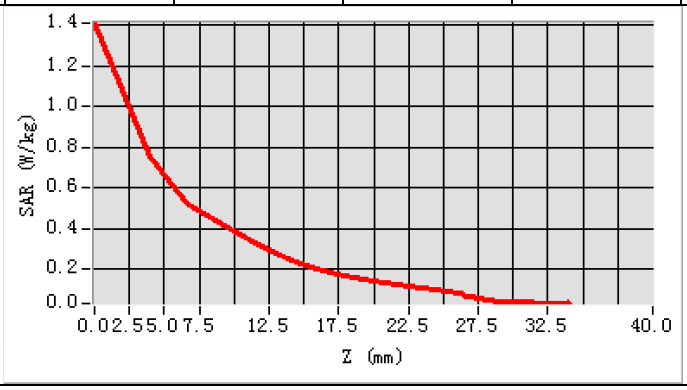
Date of measurement:	Aug. 24, 2016
Signal:	Communication System: UMTS-FDD(WCDMA); Frequency: 1907.6MHz; Duty Cycle: 1:1.00
ConvF:	2.19
Liquid Parameters:	Relative permittivity (real part): 53.68; Conductivity (S/m): 1.57;
Device Position:	Body
Area Scan:	dx=15mm dy=15mm, h=5.00mm
Zoom Scan:	5x5x7, dx=8mm dy=8mm dz=5mm, h=5.00mm

Surface SAR	Volume SAR
	
3D screen shot	Hot spot position
	

Maximum location: X=1.00, Y=-55.00
SAR Peak: 1.11 W/kg

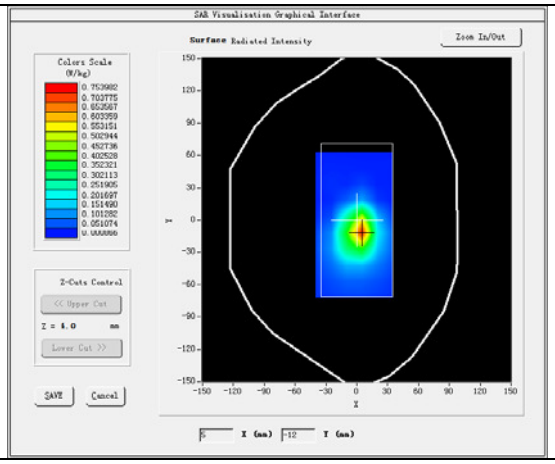
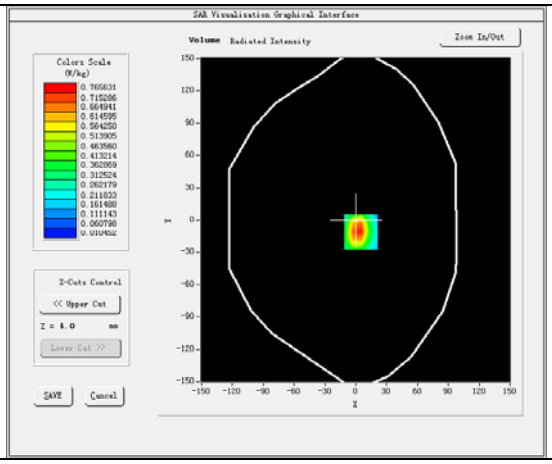
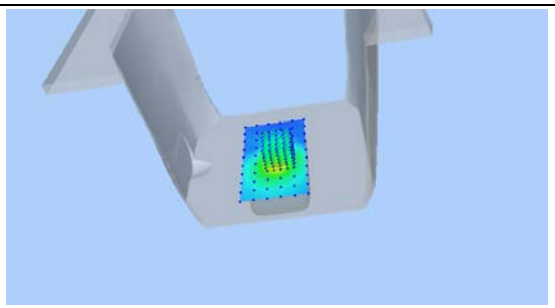
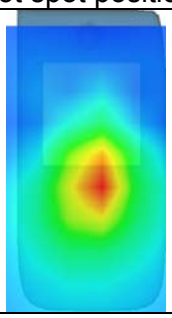
SAR 1g (W/Kg)	0.684
SAR 10g (W/Kg)	0.365
Power Drift (±5%):	-2.01

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	1.4120	0.6527	0.4454	0.2705	0.1143	0.0977	0.0406



UMTS Band II_RMC 12.2Kbps_Ch9538_Bottom Side_10mm

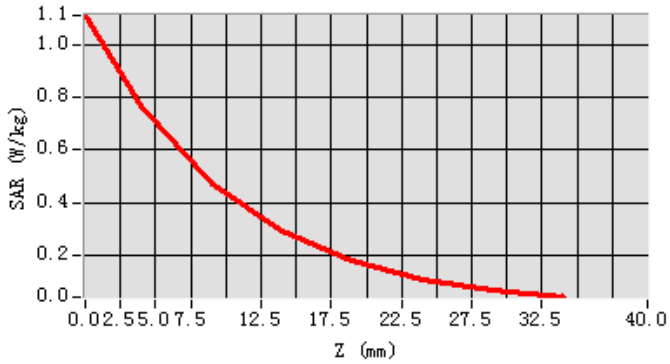
Date of measurement:	Aug. 24, 2016
Signal:	Communication System: UMTS-FDD(WCDMA); Frequency: 1907.6MHz; Duty Cycle: 1:1.00
ConvF:	2.19
Liquid Parameters:	Relative permittivity (real part): 53.68; Conductivity (S/m): 1.57;
Device Position:	Body
Area Scan:	dx=15mm dy=15mm, h=5.00mm
Zoom Scan:	5x5x7, dx=8mm dy=8mm dz=5mm, h=5.00mm

Surface SAR	Volume SAR
	
3D screen shot	Hot spot position
	

Maximum location: X=5.00, Y=-11.00
SAR Peak: 1.16 W/kg

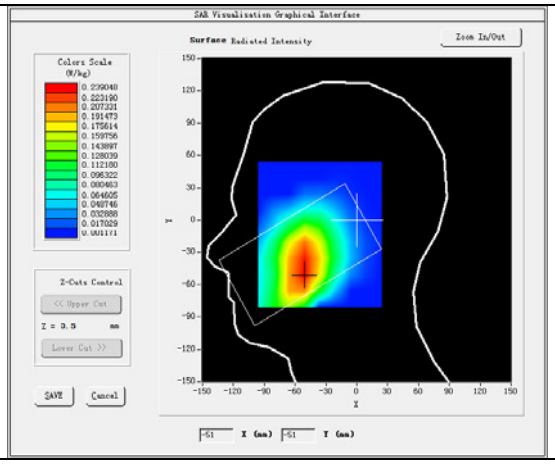
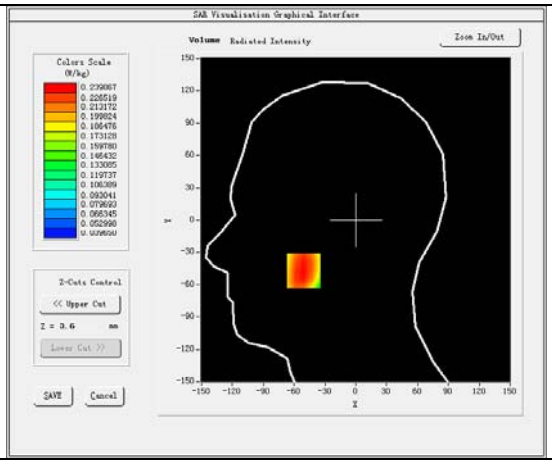
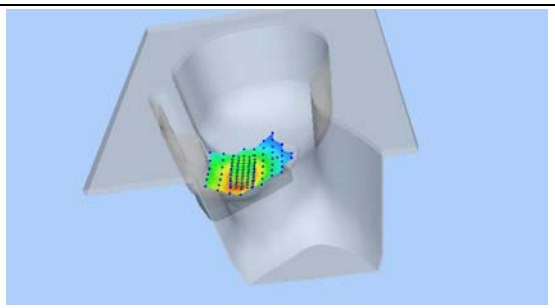
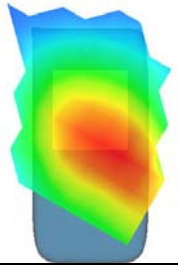
SAR 1g (W/Kg)	0.747
SAR 10g (W/Kg)	0.386
Power Drift (±5%):	3.36

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	1.1122	0.7656	0.4713	0.2937	0.1779	0.1096	0.0666



LTE Band XVII_10M QPSK(1,24)_Ch23800_Right Cheek

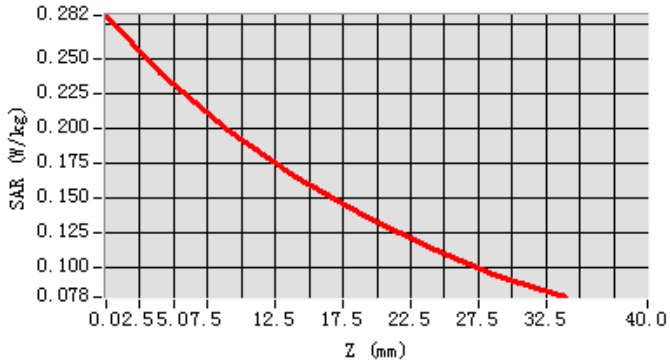
Date of measurement:	Sep. 20, 2016
Signal:	Communication System: LTE-FDD(SC-FDMA QPSK/16-QAM); Frequency: 711MHz; Duty Cycle: 1:1.00
ConvF:	1.53
Liquid Parameters:	Relative permittivity (real part): 42.79; Conductivity (S/m): 0.87;
Device Position:	Cheek
Area Scan:	dx=15mm dy=15mm, h=5.00mm
Zoom Scan:	5x5x7, dx=8mm dy=8mm dz=5mm, h=5.00mm

Surface SAR	Volume SAR
	
3D screen shot	Hot spot position
	

Maximum location: X=-51.00, Y=-47.00
SAR Peak: 0.29 W/kg

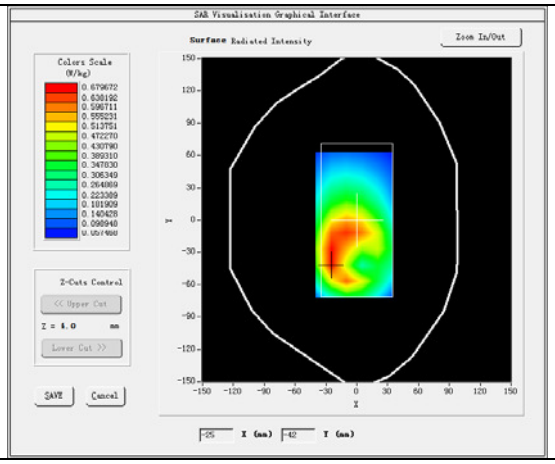
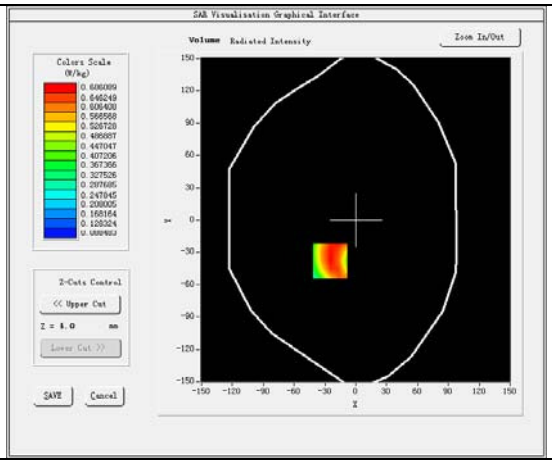
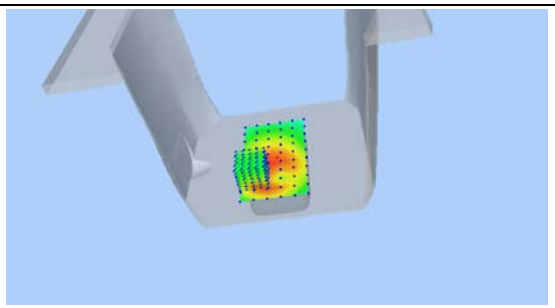
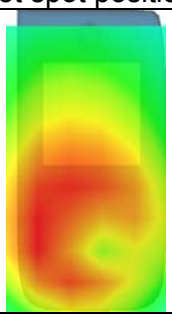
SAR 1g (W/Kg)	0.237
SAR 10g (W/Kg)	0.188
Power Drift (±5%):	-0.87

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.2816	0.2399	0.1984	0.1650	0.1373	0.1130	0.0932



LTE Band XVII_10M QPSK(1,24)_Ch23800_Back Side_10mm

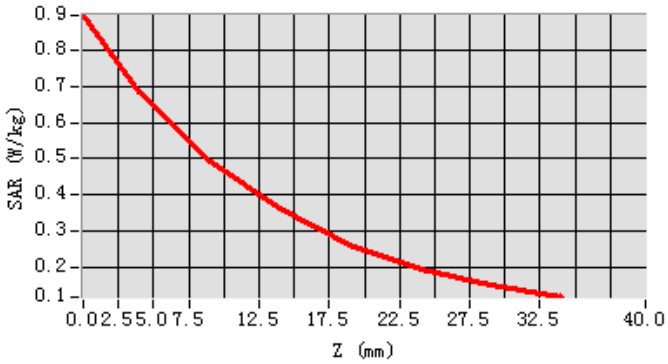
Date of measurement:	Sep. 20, 2016
Signal:	Communication System: LTE-FDD(SC-FDMA QPSK/16-QAM); Frequency: 711MHz; Duty Cycle: 1:1.00
ConvF:	1.59
Liquid Parameters:	Relative permittivity (real part): 55.54; Conductivity (S/m): 0.93;
Device Position:	Body
Area Scan:	dx=15mm dy=15mm, h=5.00mm
Zoom Scan:	5x5x7, dx=8mm dy=8mm dz=5mm, h=5.00mm

Surface SAR	Volume SAR
	
3D screen shot	Hot spot position
	

Maximum location: X=-25.00, Y=-38.00
SAR Peak: 0.92 W/kg

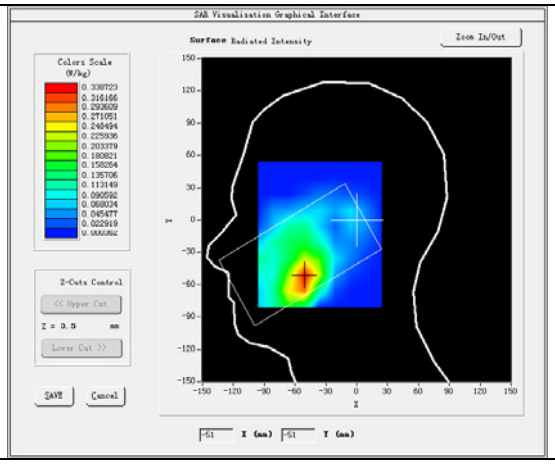
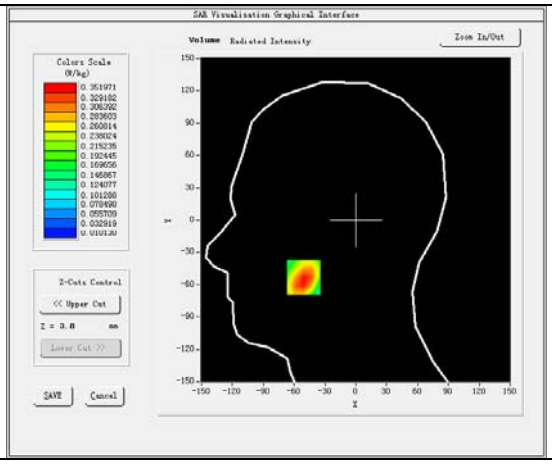
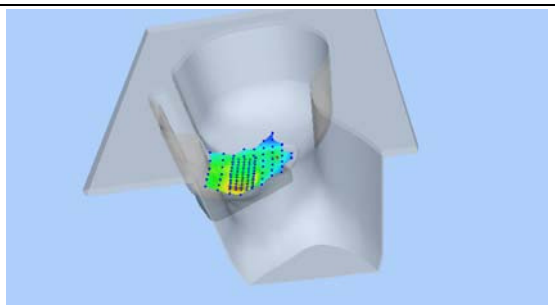
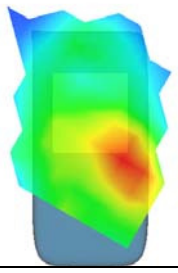
SAR 1g (W/Kg)	0.700
SAR 10g (W/Kg)	0.478
Power Drift (±5%):	-0.43

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.8963	0.6861	0.4922	0.3597	0.2623	0.1945	0.1477



LTE Band IV_20M QPSK(1,99)_Ch20050_Right Cheek

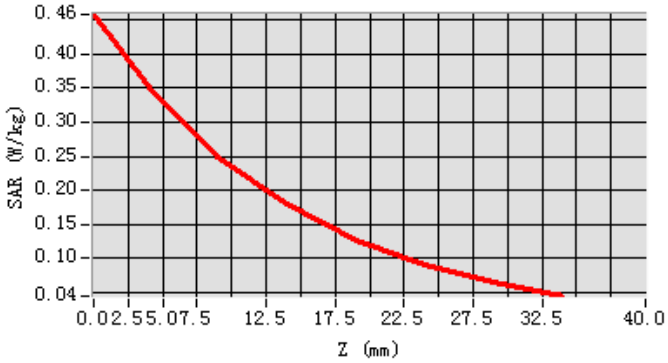
Date of measurement:	Sep. 05, 2016
Signal:	Communication System: LTE-FDD(SC-FDMA QPSK/16-QAM); Frequency: 1720MHz; Duty Cycle: 1:1.00
ConvF:	2.01
Liquid Parameters:	Relative permittivity (real part): 40.00; Conductivity (S/m): 1.35;
Device Position:	Cheek
Area Scan:	dx=15mm dy=15mm, h=5.00mm
Zoom Scan:	5x5x7, dx=8mm dy=8mm dz=5mm, h=5.00mm

Surface SAR	Volume SAR
	
3D screen shot	Hot spot position
	

Maximum location: X=-51.00, Y=-53.00
SAR Peak: 0.49 W/kg

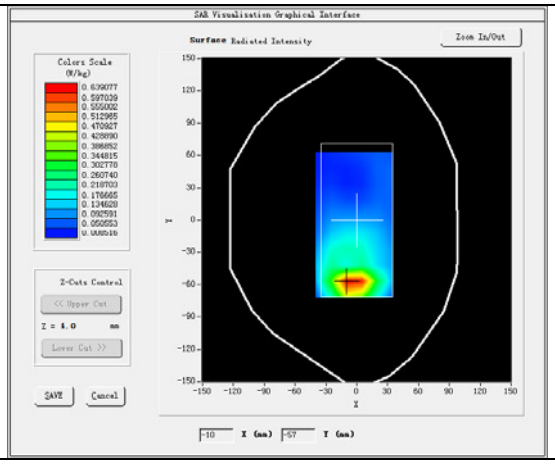
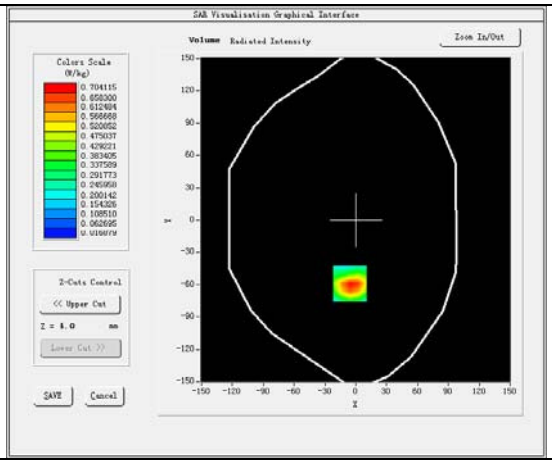
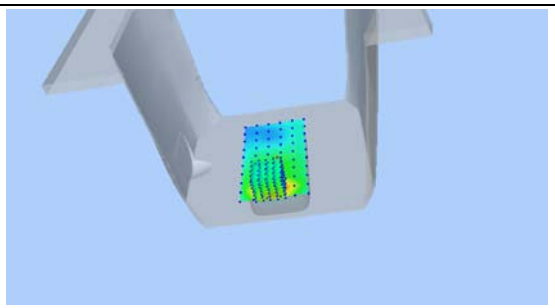
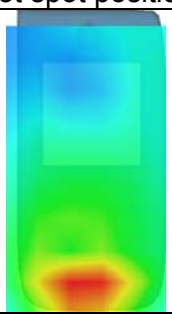
SAR 1g (W/Kg)	0.342
SAR 10g (W/Kg)	0.215
Power Drift (±5%):	0.97

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.4583	0.3520	0.2497	0.1812	0.1266	0.0907	0.0656



LTE Band IV_20M QPSK(1,99)_Ch20050_Front Side_10mm

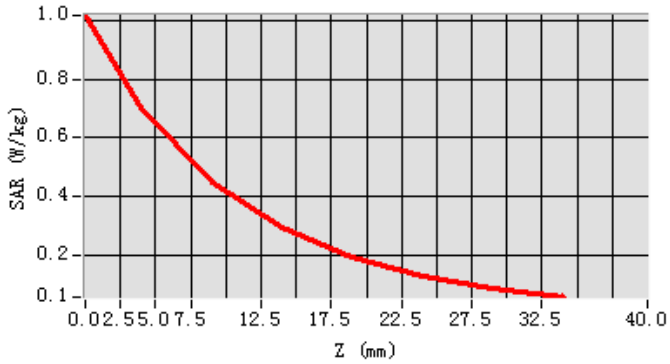
Date of measurement:	Sep. 05, 2016
Signal:	Communication System: LTE-FDD(SC-FDMA QPSK/16-QAM); Frequency: 1720MHz; Duty Cycle: 1:1.00
ConvF:	2.05
Liquid Parameters:	Relative permittivity (real part): 54.82; Conductivity (S/m): 1.42;
Device Position:	Body
Area Scan:	dx=15mm dy=15mm, h=5.00mm
Zoom Scan:	5x5x7, dx=8mm dy=8mm dz=5mm, h=5.00mm

Surface SAR	Volume SAR
	
3D screen shot	Hot spot position
	

Maximum location: X=-6.00, Y=-59.00
SAR Peak: 1.04 W/kg

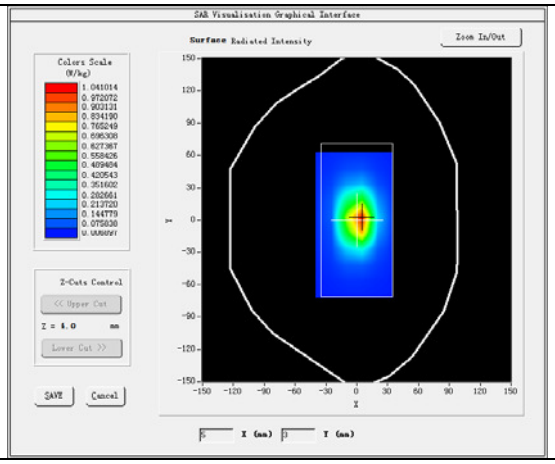
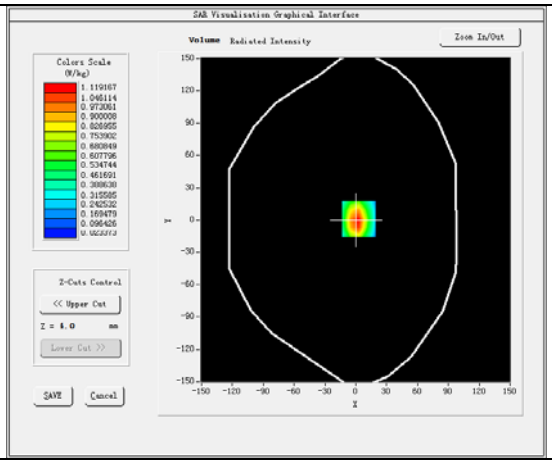
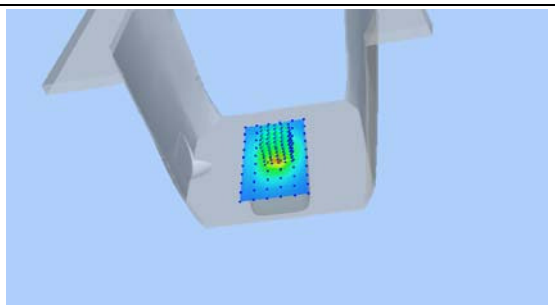
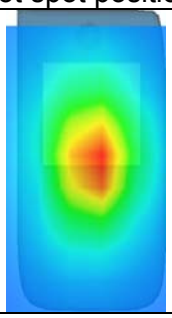
SAR 1g (W/Kg)	0.677
SAR 10g (W/Kg)	0.379
Power Drift (±5%):	-3.94

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	1.0181	0.7041	0.4448	0.2942	0.1927	0.1273	0.0837



LTE Band IV_20M QPSK(1,99)_Ch20300_Bottom Side_10mm

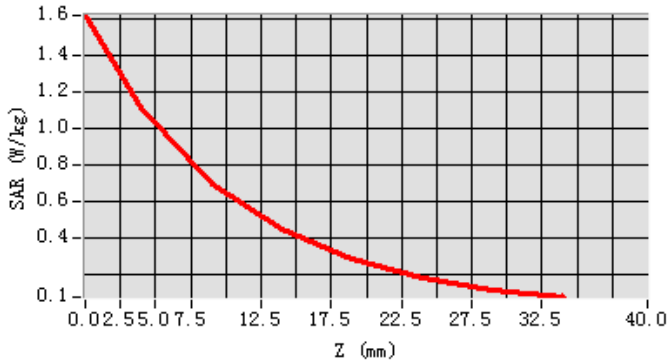
Date of measurement:	Sep. 05, 2016
Signal:	Communication System: LTE-FDD(SC-FDMA QPSK/16-QAM); Frequency: 1745MHz; Duty Cycle: 1:1.00
ConvF:	2.05
Liquid Parameters:	Relative permittivity (real part): 54.64; Conductivity (S/m): 1.44;
Device Position:	Body
Area Scan:	dx=15mm dy=15mm, h=5.00mm
Zoom Scan:	5x5x7, dx=8mm dy=8mm dz=5mm, h=5.00mm

Surface SAR	Volume SAR
	
3D screen shot	Hot spot position
	

Maximum location: X=3.00, Y=1.00
SAR Peak: 1.68 W/kg

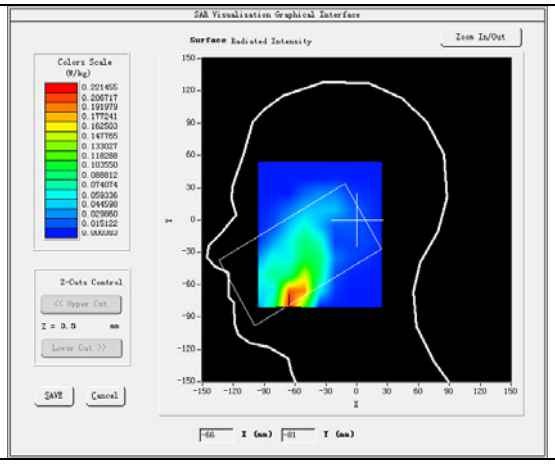
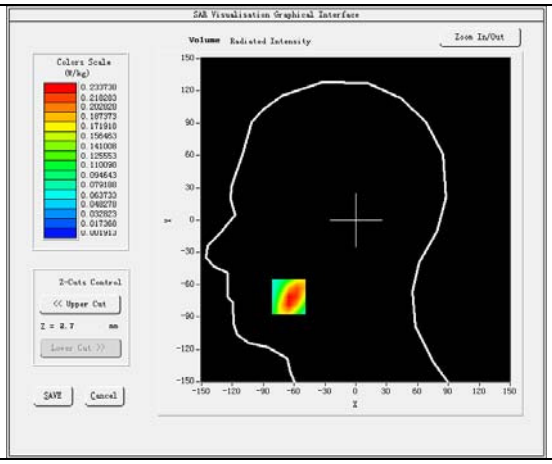
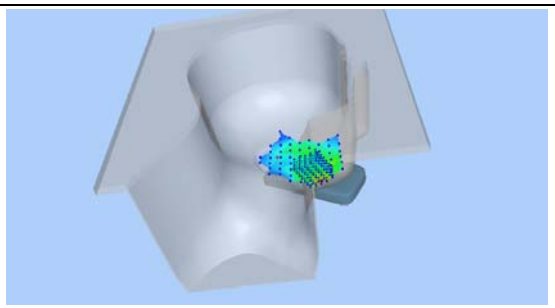
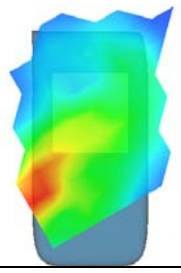
SAR 1g (W/Kg)	1.067
SAR 10g (W/Kg)	0.576
Power Drift (±5%):	-1.93

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	1.6222	1.1192	0.6973	0.4442	0.2800	0.1765	0.1116



LTE Band II_20M QPSK(1,99)_Ch19100_Left Cheek

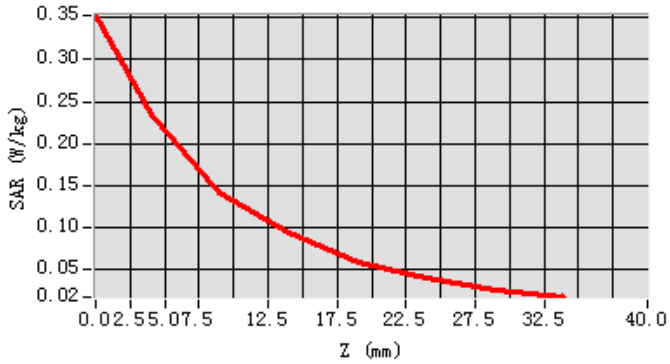
Date of measurement:	Aug. 24, 2016
Signal:	Communication System: LTE-FDD(SC-FDMA QPSK/16-QAM); Frequency: 1900MHz; Duty Cycle: 1:1.00
ConvF:	2.13
Liquid Parameters:	Relative permittivity (real part): 38.17; Conductivity (S/m): 1.41;
Device Position:	Cheek
Area Scan:	dx=15mm dy=15mm, h=5.00mm
Zoom Scan:	5x5x7, dx=8mm dy=8mm dz=5mm, h=5.00mm

Surface SAR	Volume SAR
	
3D screen shot	Hot spot position
	

Maximum location: X=-65.00, Y=-71.00
SAR Peak: 0.36 W/kg

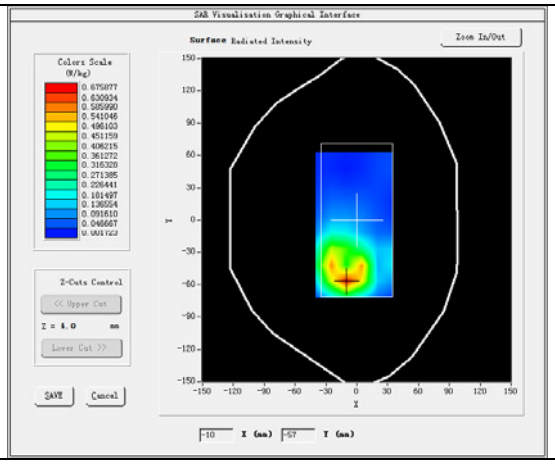
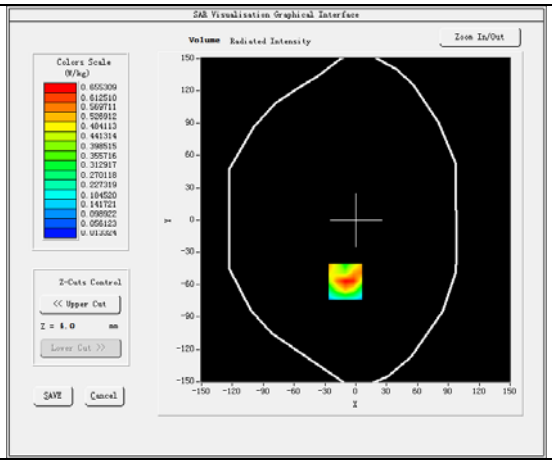
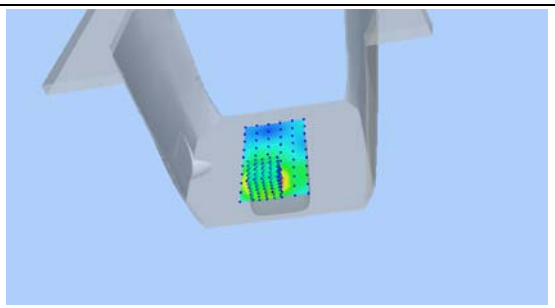
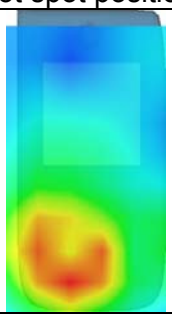
SAR 1g (W/Kg)	0.235
SAR 10g (W/Kg)	0.131
Power Drift (±5%):	2.43

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.3529	0.2337	0.1402	0.0924	0.0588	0.0397	0.0254



LTE Band II_20M QPSK(1,99)_Ch19100_Front Side_10mm

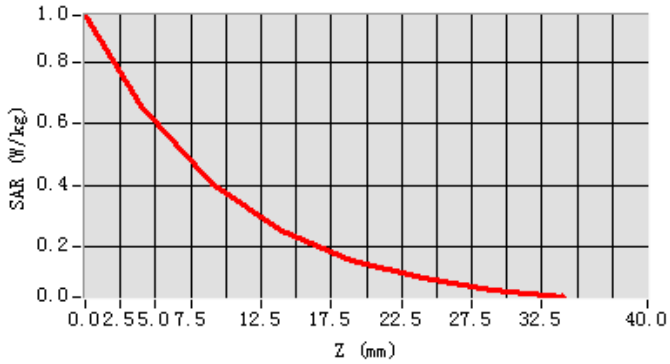
Date of measurement:	Aug. 24, 2016
Signal:	Communication System: LTE-FDD(SC-FDMA QPSK/16-QAM); Frequency:1900MHz; Duty Cycle: 1:1.00
ConvF:	2.19
Liquid Parameters:	Relative permittivity (real part): 53.69; Conductivity (S/m): 1.56;
Device Position:	Body
Area Scan:	dx=15mm dy=15mm, h=5.00mm
Zoom Scan:	5x5x7, dx=8mm dy=8mm dz=5mm, h=5.00mm

Surface SAR	Volume SAR
	
3D screen shot	Hot spot position
	

Maximum location: X=-10.00, Y=-57.00
SAR Peak: 0.97 W/kg

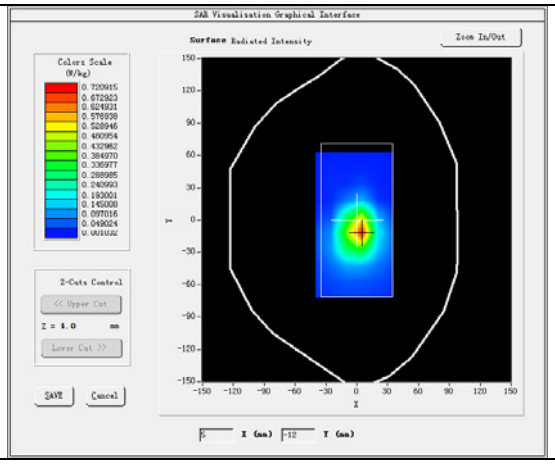
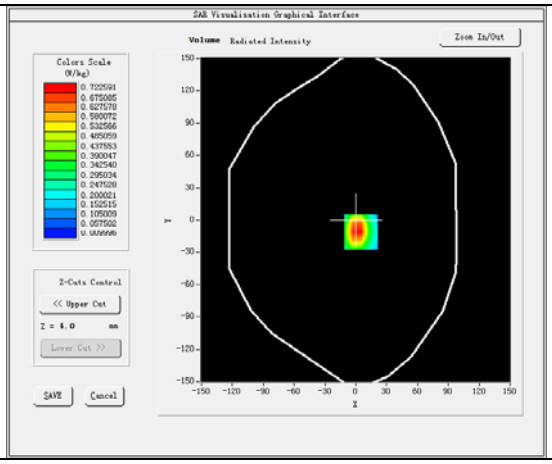
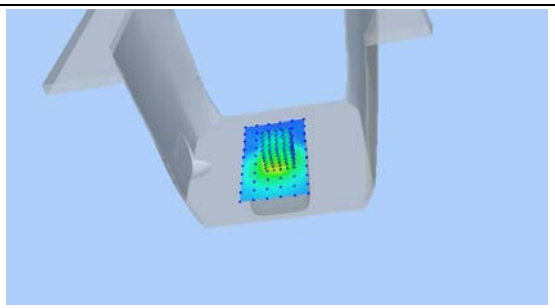
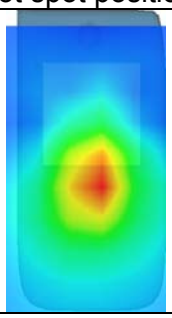
SAR 1g (W/Kg)	0.625
SAR 10g (W/Kg)	0.338
Power Drift (±5%):	-4.35

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.9512	0.6553	0.4044	0.2533	0.1547	0.0956	0.0587



LTE Band II_20M QPSK(1,99)_Ch19100_Bottom Side_10mm

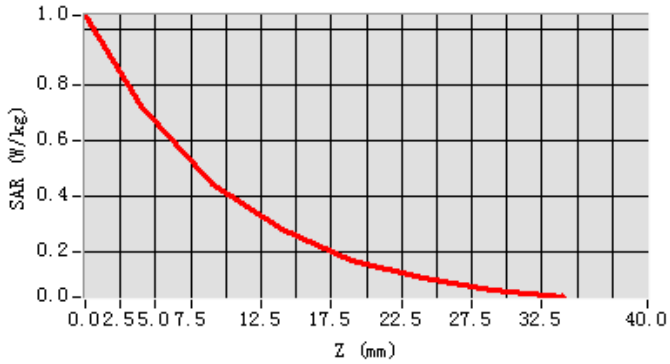
Date of measurement:	Aug. 24, 2016
Signal:	Communication System: LTE-FDD(SC-FDMA QPSK/16-QAM); Frequency:1900MHz; Duty Cycle: 1:1.00
ConvF:	2.19
Liquid Parameters:	Relative permittivity (real part): 53.69; Conductivity (S/m): 1.56;
Device Position:	Body
Area Scan:	dx=15mm dy=15mm, h=5.00mm
Zoom Scan:	5x5x7, dx=8mm dy=8mm dz=5mm, h=5.00mm

Surface SAR	Volume SAR
	
3D screen shot	Hot spot position
	

Maximum location: X=5.00, Y=-11.00
SAR Peak: 1.13 W/kg

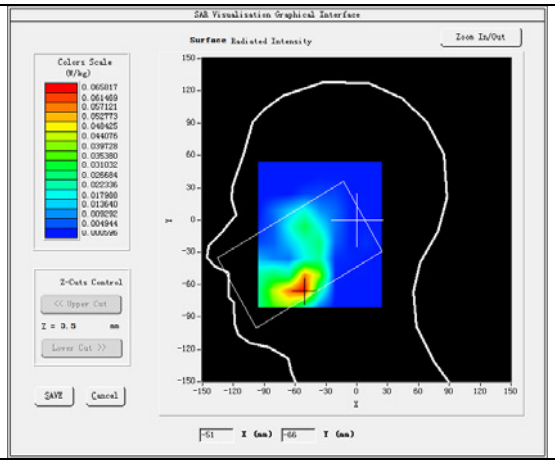
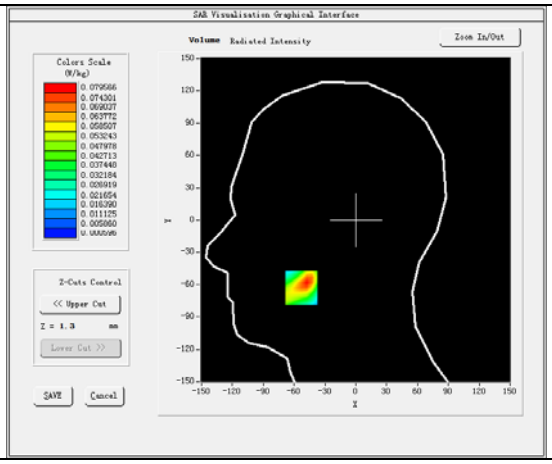
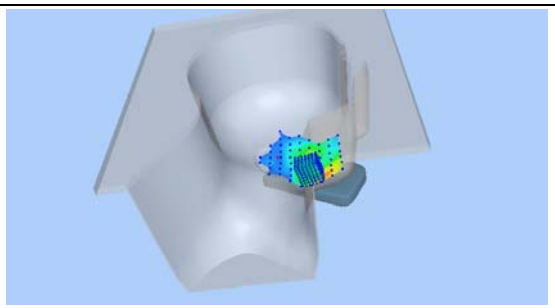
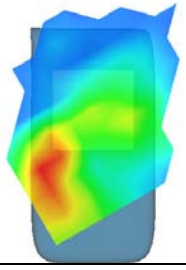
SAR 1g (W/Kg)	0.724
SAR 10g (W/Kg)	0.376
Power Drift (±5%):	-2.02

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	1.0491	0.7226	0.4462	0.2808	0.1710	0.1051	0.0636



LTE Band VII_20M QPSK(1,0)_Ch20850_Left Cheek

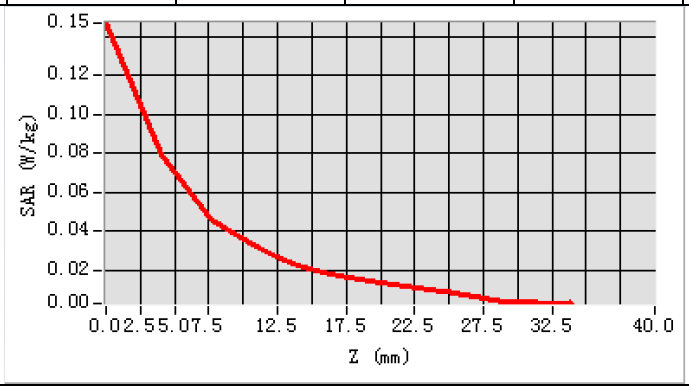
Date of measurement:	Aug. 29, 2016
Signal:	Communication System: LTE-FDD(SC-FDMA QPSK/16-QAM); Frequency: 2510MHz; Duty Cycle: 1:1.00
ConvF:	2.31
Liquid Parameters:	Relative permittivity (real part): 39.79; Conductivity (S/m): 1.86;
Device Position:	Cheek
Area Scan:	dx=12mm dy=12mm, h=5.00mm
Zoom Scan:	7x7x7, dx=5mm dy=5mm dz=5mm, h=5.00mm

Surface SAR	Volume SAR
	
3D screen shot	Hot spot position
	

Maximum location: X=-53.00, Y=-63.00
SAR Peak: 0.12 W/kg

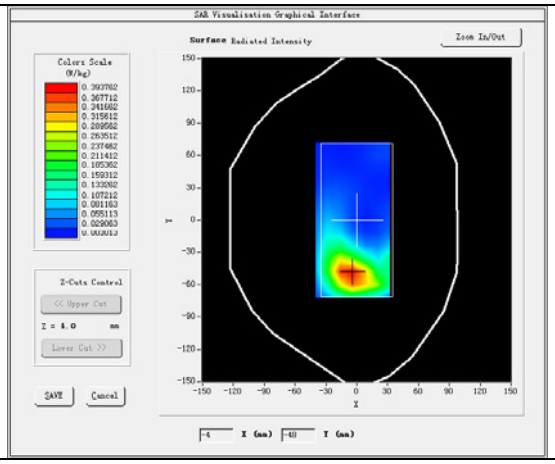
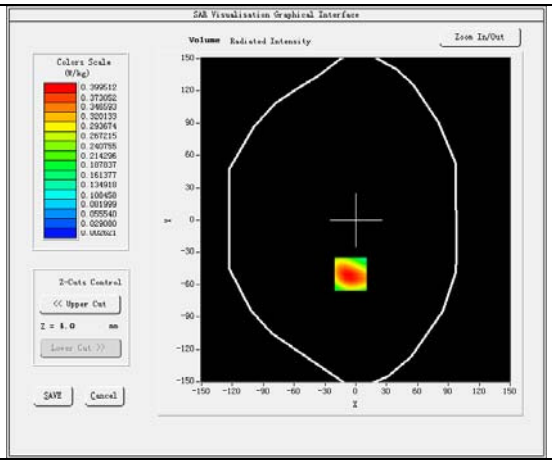
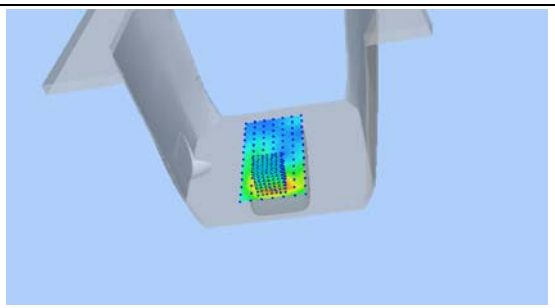
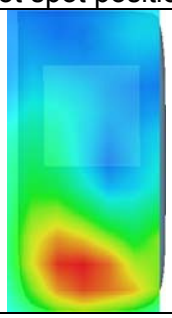
SAR 1g (W/Kg)	0.071
SAR 10g (W/Kg)	0.036
Power Drift (±5%):	-4.36

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.1469	0.0796	0.0388	0.0252	0.0124	0.0100	0.0043



LTE Band VII_20M QPSK(1,0)_Ch20850_Front Side_10mm

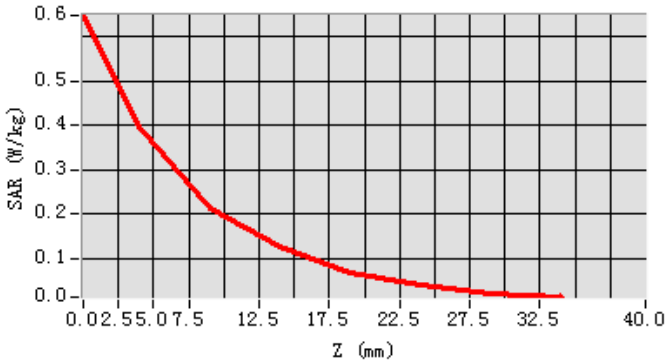
Date of measurement:	Aug. 29, 2016
Signal:	Communication System: LTE-FDD(SC-FDMA QPSK/16-QAM); Frequency: 2510MHz; Duty Cycle: 1:1.00
ConvF:	2.37
Liquid Parameters:	Relative permittivity (real part): 54.47; Conductivity (S/m): 2.03;
Device Position:	Body
Area Scan:	dx=12mm dy=12mm, h=5.00mm
Zoom Scan:	7x7x7, dx=5mm dy=5mm dz=5mm, h=5.00mm

Surface SAR	Volume SAR
	
3D screen shot	Hot spot position
	

Maximum location: X=-5.00, Y=-50.00
SAR Peak: 0.63 W/kg

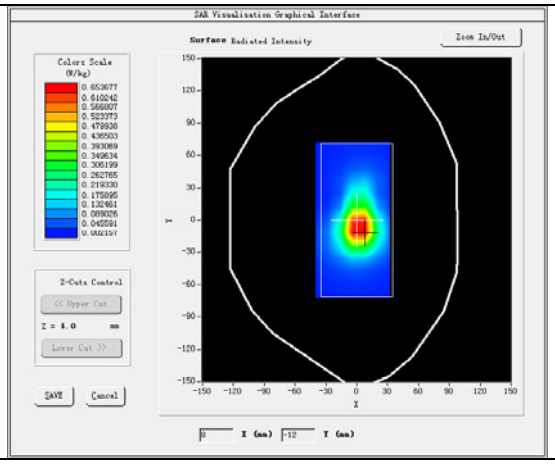
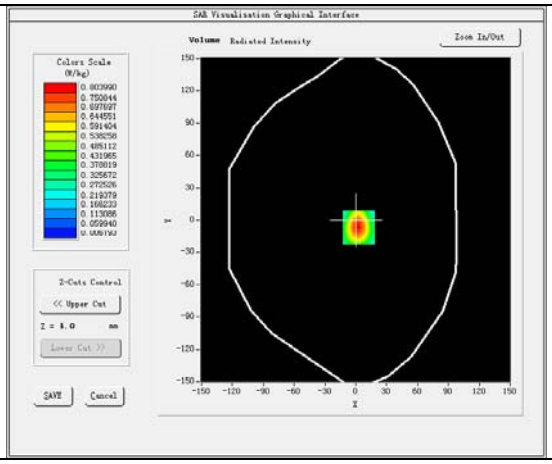
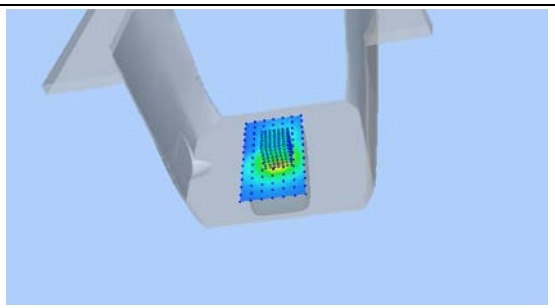
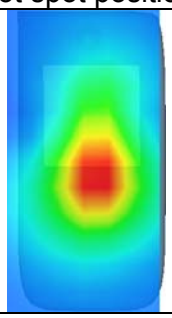
SAR 1g (W/Kg)	0.383
SAR 10g (W/Kg)	0.209
Power Drift (±5%):	-0.93

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.6491	0.3995	0.2112	0.1271	0.0666	0.0406	0.0202



LTE Band VII_20M QPSK(50,0)_Ch20850_Bottom Side_10mm

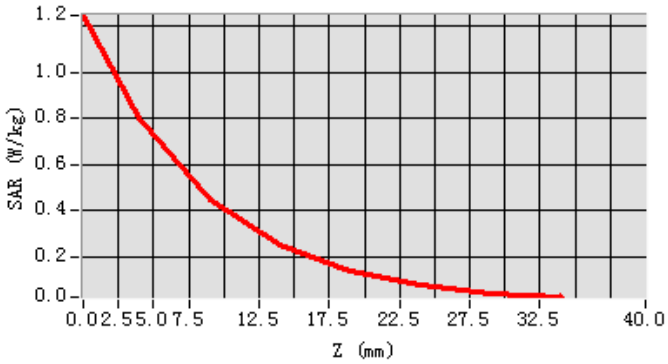
Date of measurement:	Aug. 29, 2016
Signal:	Communication System: LTE-FDD(SC-FDMA QPSK/16-QAM); Frequency: 2510MHz; Duty Cycle: 1:1.00
ConvF:	2.37
Liquid Parameters:	Relative permittivity (real part): 54.47; Conductivity (S/m): 2.03;
Device Position:	Body
Area Scan:	dx=12mm dy=12mm, h=5.00mm
Zoom Scan:	7x7x7, dx=5mm dy=5mm dz=5mm, h=5.00mm

Surface SAR	Volume SAR
	
3D screen shot	Hot spot position
	

Maximum location: X=3.00, Y=-7.00
SAR Peak: 1.25 W/kg

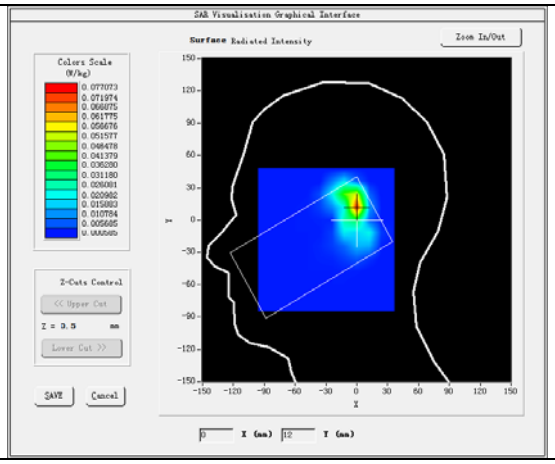
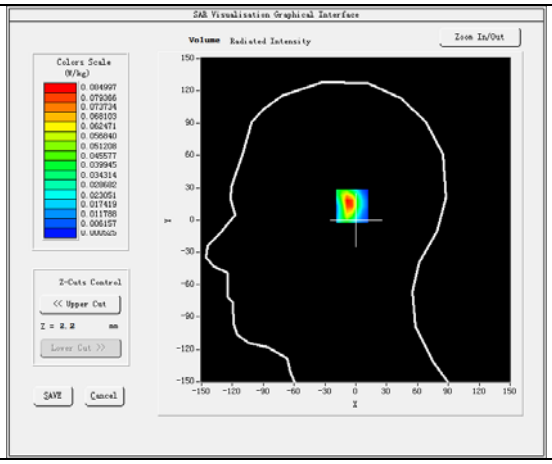
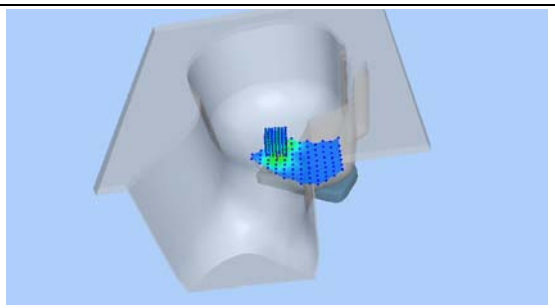
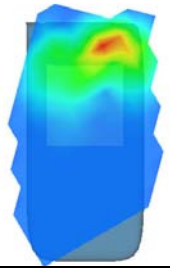
SAR 1g (W/Kg)	0.723
SAR 10g (W/Kg)	0.384
Power Drift (±5%):	0.81

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	1.2489	0.8040	0.4495	0.2467	0.1380	0.0760	0.0418



WiFi 2.4G_802.11b_Ch11_Left Tilt 15 Degree

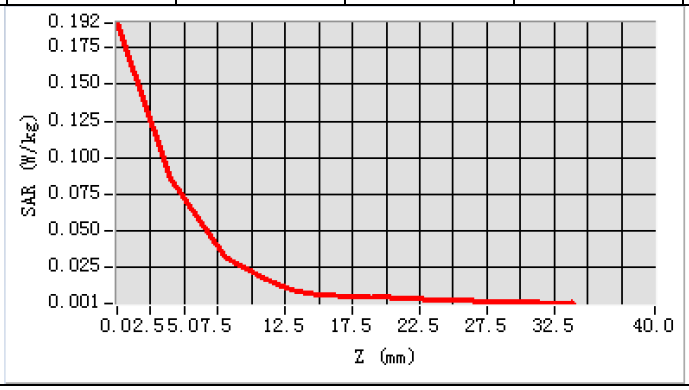
Date of measurement:	Aug. 25, 2016
Signal:	Communication System: WiFi 802.11a/b/g/n/ac; Frequency: 2462MHz; Duty Cycle: 1:1.00
ConvF:	2.30
Liquid Parameters:	Relative permittivity (real part): 40.64; Conductivity (S/m): 1.88;
Device Position:	Tilt
Area Scan:	dx=12mm dy=12mm, h=5.00mm
Zoom Scan:	7x7x7, dx=5mm dy=5mm dz=5mm, h=5.00mm

Surface SAR	Volume SAR
	
3D screen shot	Hot spot position
	

Maximum location: X=0.00, Y=13.00
SAR Peak: 0.15 W/kg

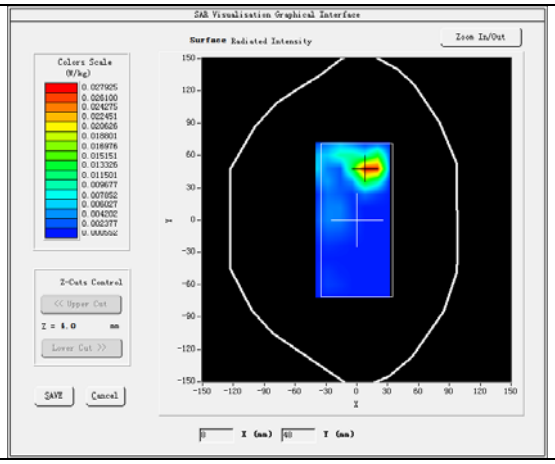
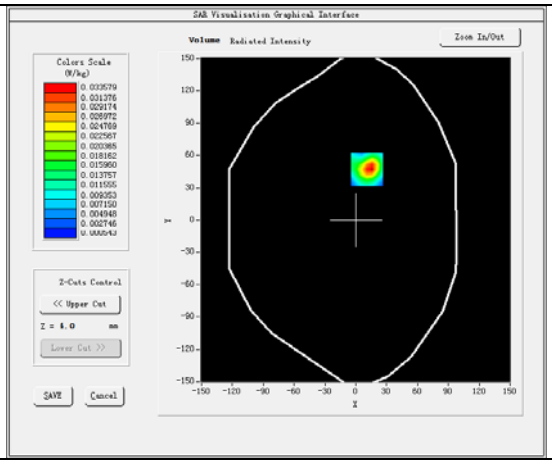
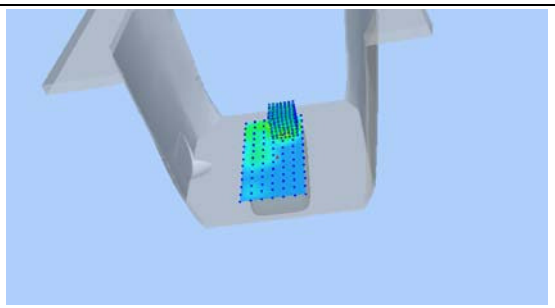
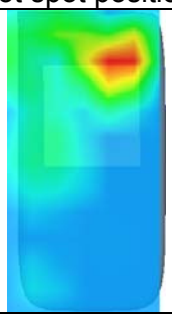
SAR 1g (W/Kg)	0.077
SAR 10g (W/Kg)	0.030
Power Drift (±5%):	0.29

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.1917	0.0850	0.0200	0.0188	0.0052	0.0036	0.0013

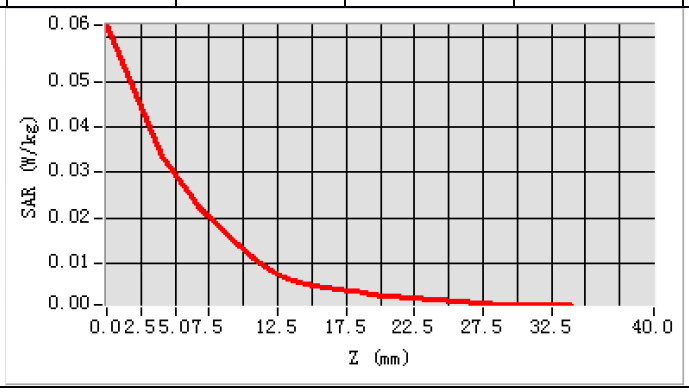


WiFi 2.4G_802.11b_Ch11_Back Side_10mm

Date of measurement:	Aug. 25, 2016
Signal:	Communication System: WiFi 802.11a/b/g/n/ac; Frequency: 2462MHz; Duty Cycle: 1:1.00
ConvF:	2.38
Liquid Parameters:	Relative permittivity (real part): 54.35; Conductivity (S/m): 1.91;
Device Position:	Body
Area Scan:	dx=12mm dy=12mm, h=5.00mm
Zoom Scan:	7x7x7, dx=5mm dy=5mm dz=5mm, h=5.00mm

Surface SAR	Volume SAR
	
3D screen shot	Hot spot position
	

Maximum location: X=11.00, Y=47.00
SAR Peak: 0.06 W/kg

SAR 1g (W/Kg)	0.031
SAR 10g (W/Kg)	0.013
Power Drift (±5%):	-1.43

Z (mm)	0.00	4.00	9.00	14.00	19.00	24.00	29.00
SAR (W/Kg)	0.0628	0.0336	0.0134	0.0090	0.0029	0.0019	0.0007