FCC SAR TEST REPORT

Report No: STS1512140H01

Issued for

Global Distribution FZE

508/509, The Business Centre Building, Al Hamriya – Bur Dubai, Po Box 126963,U.A.E.

Product Name:	GSM Mobile Phone
Brand Name:	i.onik
Model No.:	i122
Series Model:	N/A
FCC ID:	2ADPL-I122
Test Standard:	ANSI/IEEE Std. C95.1: 1999
	FCC 47 CFR Part 2 (2.1093)
	IEEE 1528: 2013
Max. Reported SAR (1g):	Head:1.197 W/kg
	Body:0.966 W/kg

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

Test Report Certification

Applicant's name	:	Global Distribution FZE
Address	:	508/509, The Business Centre Building, Al Hamriya – Bur Dubai, Po Box 126963,U.A.E.
Manufacture's Name	:	Hong Kong Umedia Limited
Address	:	Room402, Bld.7, F518 idea land, Baoyuan Road, Bao'an District, Shenzhen, Guangdong, P.R.C

Product description

Product name	:	GSM Mobile Phone
Trademark	:	i.onik
Model and/or type reference	:	i122
Series Model	:	N/A
Standards	:	ANSI/IEEE Std. C95.1: 1999 FCC 47 CFR Part 2 (2.1093) IEEE 1528: 2013

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

Date of Test	:	
Date (s) of performance of tests	:	29 Dec. 2015
Date of Issue	:	30 Dec. 2015
Test Result	:	**Pass**

Testing Engineer **:** Allen Chen

(Allen Chen)

Technical Manager **:** John Zou

(John Zou)

Authorized Signatory **:** Bovey Yang

(Bovey Yang)

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1. General Information

1.1 EUT Description

Equipment	GSM Mobile Phone	
Brand Name	i.onik	
Model No.	i122	
Series Model	N/A	
FCC ID	2ADPL-I122	
Model Difference	N/A	
Adapter	Input: AC100-240V, 0.35A, 50/60 Hz Output: DC 5V, 500mA	
Battery	Rated Voltage: 3.7V Charge Limit: 4.2V Capacity: 1000mAh	
Hardware Version	N/A	
Software Version	N/A	
Frequency Range	GSM 850: 824.2 ~ 848.8 MHz PCS1900: 1850.2 ~ 1909.8 MHz Bluetooth：2402~2480MHz	
Transmit Power(MAX):	GSM 850: 32.16dBm GSM 1900: 29.92dBm	Bluetooth: 3.343dBm
Max. Reported SAR(1g):	Head: GSM 850: 1.197 W/kg GSM 1900: 0.454 W/kg	Body: GSM 850: 0.966 W/kg GSM 1900: 0.589 W/kg
Operating Mode:	GSM: GSM Voice; Bluetooth: V2.1 + EDR (GFSK +π/4DQPSK+8DPSK)	
Antenna Specification:	GSM: PIFA Antenna BT: Dipole Antenna	
SIM Card	Support dual-SIM, dual standby, the multiple SIM card with two lines can not transmitting at the same time	
Hotspot Mode:	Not Support	
DTM Mode:	Not Support	

1.2 Test Environment

Ambient conditions in the SAR laboratory:

Items	Required	Actual
Temperature (℃)	18-25	22~23
Humidity (%RH)	30-70	55~65

1.3 Test Factory

Shenzhen STS Test Services Co., Ltd.
Add. : 1/F, Building B, Zhuoke Science Park,No.190, Chongqing Road, Fuyong, Baoan District, Shenzhen, Guangdong, China
CNAS Registration No.: L7649
FCC Registration No.: 842334;
IC Registration No.: 12108A-1

2. Test Standards And Limits

No.	Identity	Document Title
1	47 CFR Part 2	Frequency Allocations and Radio Treaty Matters; General Rules and Regulations
2	ANSI/IEEE Std. C95.1-1999	IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz
3	IEEE Std. 1528-2013	Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques
4	FCC KDB 447498 D01 v06	Mobile and Portable Device RF Exposure Procedures and Equipment Authorization Policies
5	FCC KDB 865664 D01 v01r04	SAR Measurement 100 MHz to 6 GHz

This device belongs to portable device category because its radiating structure is allowed to be used within 20 centimeters of the body of the user. According to EN 50360 and 1999/519/EC the limit for General Population/Uncontrolled exposure should be applied for this device, it is 2.0 W/kg as averaged over any 10 gram of tissue.

(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 10 gram of tissue defined as a tissue volume in the shape of a cube. SAR for hands, wrists, feet and ankles is averaged over any 10 grams of tissue defined as a tissue volume in the shape of a cube.

Population/Uncontrolled Environments:
are defined as locations where there is the exposure of individuals who have no knowledge or control of their exposure.

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

NOTE

GENERAL POPULATION/UNCONTROLLED EXPOSURE

PARTIAL BODY LIMIT

1.6 W/kg

3. SAR Measurement System

3.1 Definition Of Specific Absorption Rate (SAR)

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

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

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

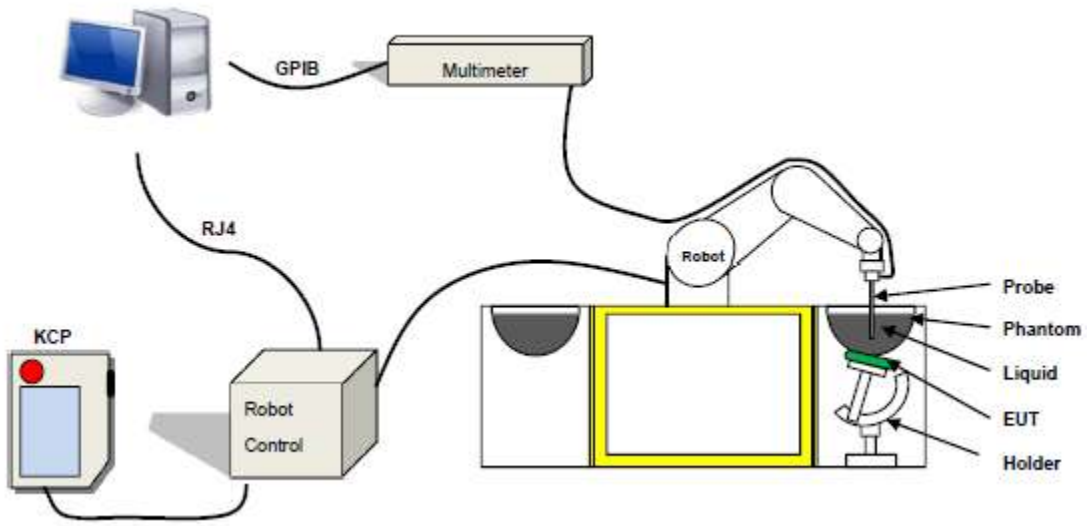
SAR is expressed in units of Watts per kilogram (W/kg) SAR measurement can be related to the electrical field in the tissue by

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

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

3.2 SAR System

SATIMO SAR System Diagram:



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

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

The following figure shows the system.

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

3.2.1 Probe

For the measurements the Specific Dosimetric E-Field Probe SN 17/14 EP221 with following specifications is used

- Dynamic range: 0.01-100 W/kg
- Tip Diameter :5 mm
- Distance between probe tip and sensor center: 2.7mm
- Distance between sensor center and the inner phantom surface: 4 mm (repeatability better than +/- 1mm)
- Probe linearity: < 0.25 dB
- Axial Isotropy: < 0.25 dB
- Spherical Isotropy: < 0.25 dB
- Calibration range: 450MHz to 2600MHz for head & body simulating liquid.

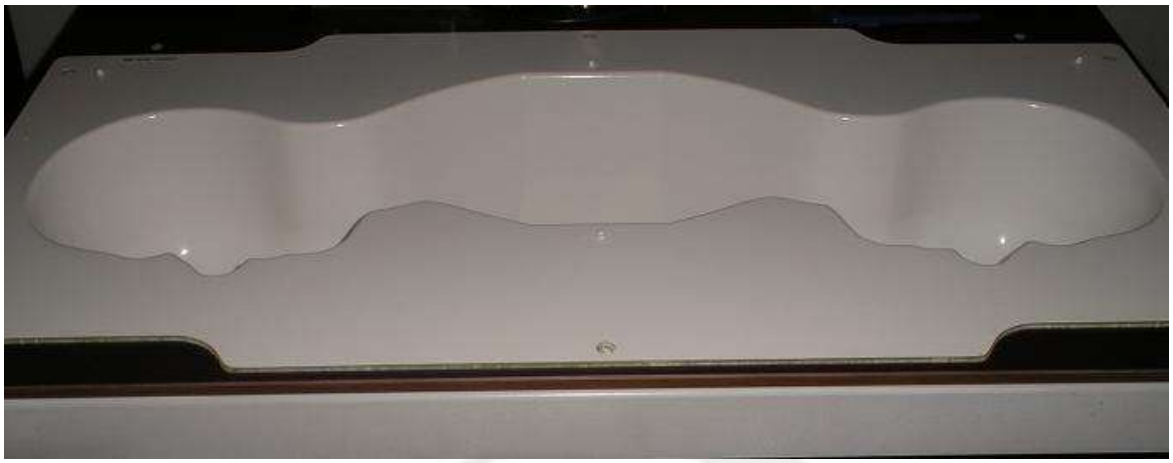
Angle between probe axis (evaluation axis) and suface normal line:less than 30°

Figure 1 – *Satimo COMOSAR Dosimetric E field Dipole*

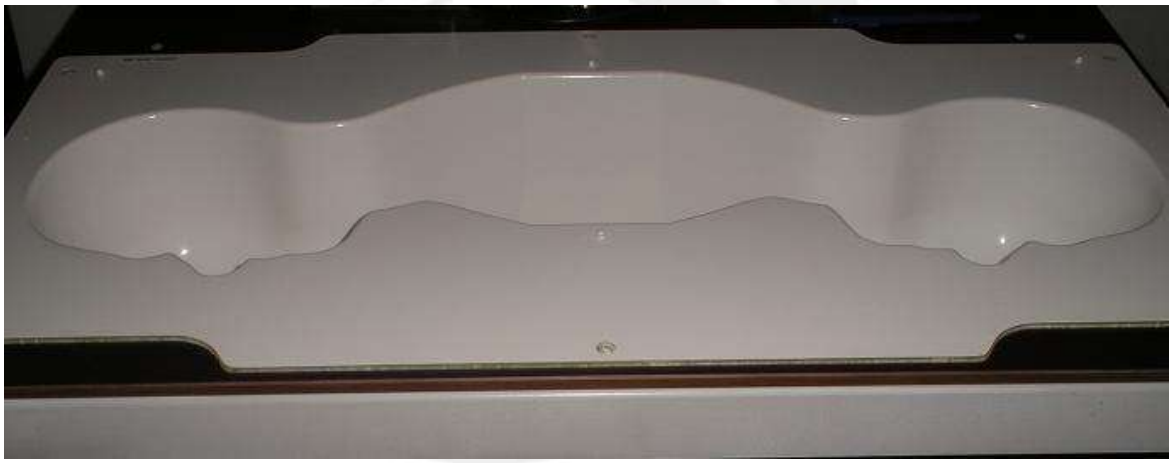
3.2.2 Phantom

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

SN 32/14 SAM115



SN 32/14 SAM116



3.2.3 Device Holder

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

4. Tissue Simulating Liquids

4.1 Simulating Liquids Parameter Check

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

LIQUID MEASUREMENT RESULTS

Date: December 29, 2015 **Ambient condition:** Temperature 22.7°C **Relative humidity:** 49%

Head Simulating Liquid		Parameters	Target	Measured	Deviation[%]	Limited[%]
Frequency	Temp. [°C]					
835 MHz	22.30	Permitivity:	41.5	41.35	-0.36	±5
		Conductivity:	0.90	0.87	-3.33	± 5
1900 MHz	22.30	Permitivity:	40.0	39.87	-0.33	± 5
		Conductivity:	1.40	1.402	0.14	± 5

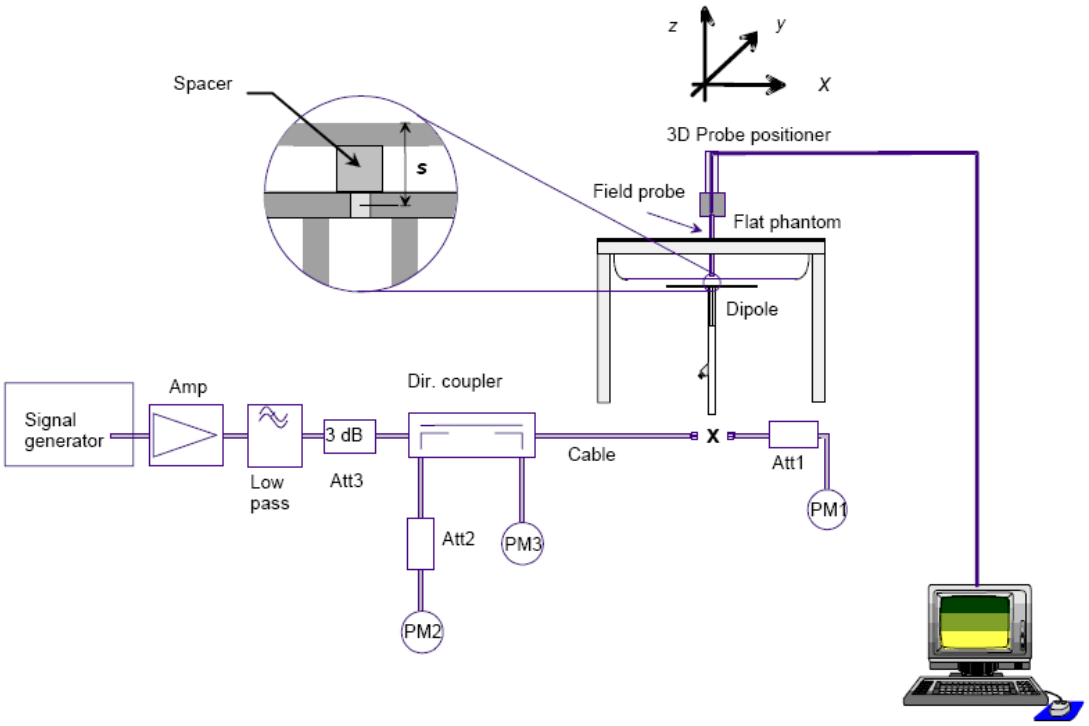
Body Simulating Liquid		Parameters	Target	Measured	Deviation[%]	Limited[%]
Frequency	Temp. [°C]					
835 MHz	22.30	Permitivity:	55.2	54.7	-0.91	± 5
		Conductivity:	0.97	0.98	1.03	± 5
1900 MHz	22.30	Permitivity:	53.3	52.31	-1.86	± 5
		Conductivity:	1.52	1.5	-1.32	± 5

5. SAR System Validation

5.1 Validation System

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

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



5.2 Validation Result

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

Ambient condition: Temperature 22.7°C **Relative humidity:** 49%

Freq.(MHz)	Power(mW)	Tested Value (W/Kg)	Normalized SAR (W/kg)	Target(W/Kg)	Tolerance(%)	Date
835 Head	100	0.937	9.37	9.56	-1.99	2015-12-29
835 Body	100	0.947	9.47	9.56	3.87	2015-12-29
1900 Head	100	5.593	55.93	52.4	2.71	2015-12-29
1900 Body	100	4.864	48.64	52.4	-2.23	2015-12-29

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

6. SAR Evaluation Procedures

The procedure for assessing the average SAR value consists of the following steps:
The following steps are used for each test position

- Establish a call with the maximum output power with a base station simulator. The connection between the mobile and the base station simulator is established via air interface
- Measurement of the local E-field value at a fixed location. This value serves as a reference value for calculating a possible power drift.
- Measurement of the SAR distribution with a grid of 8 to 16mm * 8 to16 mm and a constant distance to the inner surface of the phantom. Since the sensors cannot directly measure at the inner phantom surface, the values between the sensors and the inner phantom surface are extrapolated. With these values the area of the maximum SAR is calculated by an interpolation scheme.
- Around this point, a cube of 30 * 30 * 30 mm or 32 * 32 * 32 mm is assessed by measuring 5 or 8 * 5 or 8*4 or 5 mm. With these data, the peak spatial-average SAR value can be calculated.

➢ Area Scan& Zoom Scan

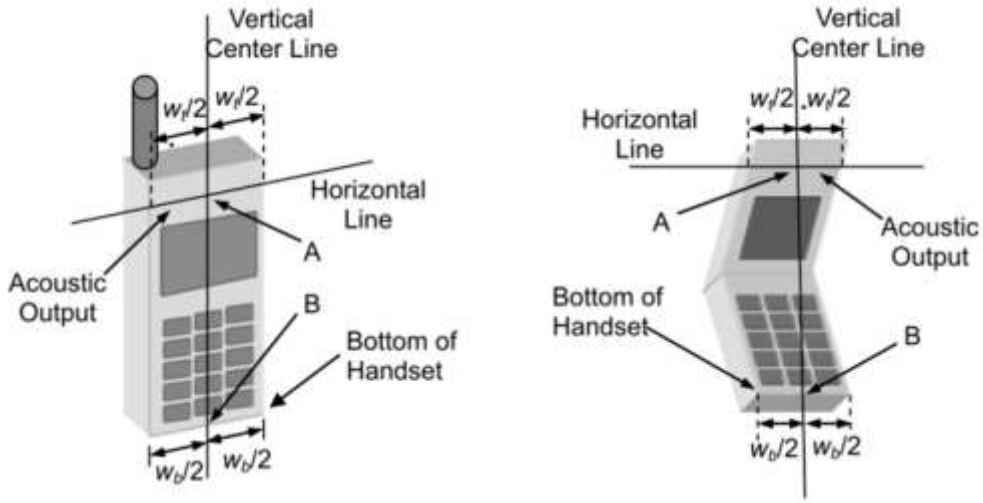
First Area Scan is used to locate the approximate location(s) of the local peak SAR value(s). The measurement grid within an Area Scan is defined by the grid extent, grid step size and grid offset. Next, in order to determine the EM field distribution in a three-dimensional spatial extension, Zoom Scan is required. The Zoom Scan is performed around the highest E-field value to determine the averaged SAR-distribution over 10 g. Area scan and zoom scan resolution setting follows KDB 865664 D01 quoted below.
When the 1-g SAR of the highest peak is within 2 dB of the SAR limit, additional zoom scans are required for other peaks within 2 dB of the highest peak that have not been included in any zoom scan to ensure there is no increase in SAR.

7. EUT Test Position

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

7.1 Define Two Imaginary Lines On The Handset

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



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

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

Body-worn Position Conditions
(1) To position the EUT parallel to the phantom surface.
(2) To adjust the EUT parallel to the flat phantom.
(3) To adjust the distance between the EUT surface and the flat phantom to 5mm.

8. Uncertainty

8.1 Measurement Uncertainty

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

NO	Source	Tol(%)	Prob. Dist.	Div. k	ci (1g)	ci (10g)	1gUi	10gUi	Veff
Measurement System									
1	Probe calibration	5.8	N	1	1	1	5.8	5.8	∞
2	Axial isotropy	3.5	R	√3	$(1\text{-cp})^{1/2}$	$(1\text{-cp})^{1/2}$	1.43	1.43	∞
3	Hemispherical isotropy	5.9	R	√3	$\sqrt{C_p}$	$\sqrt{C_p}$	2.41	2.41	∞
4	Boundary effect	1.0	R	√3	1	1	0.58	0.58	∞
5	Linearity	4.7	R	√3	1	1	2.71	2.71	∞
6	System Detection limits	1.0	R	√3	1	1	0.58	0.58	∞
7	Readout electronics	0.5	N	1	1	1	0.50	0.50	∞
8	Response time	0	R	√3	1	1	0	0	∞
9	Integration time	1.4	R	√3	1	1	0.81	0.81	∞
10	Ambient noise	3.0	R	√3	1	1	1.73	1.73	∞
11	Ambient reflections	3.0	R	√3	1	1	1.73	1.73	∞
12	Probe positioner mech. restrictions	1.4	R	√3	1	1	0.81	0.81	∞
13	Probe positioning with respect to phantom shell	1.4	R	√3	1	1	0.81	0.81	∞
14	Max.SAR evaluation	1.0	R	√3	1	1	0.6	0.6	∞
Test sample related									
15	Device positioning	2.6	N	1	1	1	2.6	2.6	11
16	Device holder	3	N	1	1	1	3.0	3.0	7

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

8.2 System validation Uncertainty

NO	Source	Tol(%)	Prob. Dist.	Div. k	ci (1g)	ci (10g)	1gUi	10gUi	Veff
Measurement System									
1	Probe calibration	5.8	N	1	1	1	5.8	5.8	∞
2	Axial isotropy	3.5	R	√3	$(1\text{-cp})^{1/2}$	$(1\text{-cp})^{1/2}$	1.43	1.43	∞
3	Hemispherical isotropy	5.9	R	√3	$\sqrt{C_p}$	$\sqrt{C_p}$	2.41	2.41	∞
4	Boundary effect	1.0	R	√3	1	1	0.58	0.58	∞
5	Linearity	4.7	R	√3	1	1	2.71	2.71	∞
6	System Detection limits	1.0	R	√3	1	1	0.58	0.58	∞
7	Modulation response	0	N	1	1	1	0	0	∞
8	Readout electronics	0.5	N	1	1	1	0.50	0.50	∞
9	Response time	0	R	√3	1	1	0	0	∞
10	Integration time	1.4	R	√3	1	1	0.81	0.81	∞
11	Ambient noise	3.0	R	√3	1	1	1.73	1.73	∞
12	Ambient reflections	3.0	R	√3	1	1	1.73	1.73	∞
13	Probe positioner mech. restrictions	1.4	R	√3	1	1	0.81	0.81	∞
14	Probe positioning with respect to phantom shell	1.4	R	√3	1	1	0.81	0.81	∞
15	Max.SAR evaluation	1.0	R	√3	1	1	0.6	0.6	∞
Dipole									
16	Deviation of experimental source from	4	N	1	1	1	4.00	4.00	∞
17	Input power and SAR drit measurement	5	R	√3	1	1	2.89	2.89	∞

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

9. Conducted Power Measurement

Test Result:

RF Output Power (dBm)						
Band	GSM 850			PCS 1900		
Channel	128	190	251	512	661	810
Frequency (MHz)	824.2	836.6	848.8	1850.2	1880.0	1909.8
GSM(GMSK, 1-Slot)	32.01	32.15	32.16	29.92	29.10	29.17
GPRS (GMSK, 1-Slot)	/	/	/	/	/	/
GPRS (GMSK, 2-Slot)	/	/	/	/	/	/
GPRS (GMSK, 3-Slot)	/	/	/	/	/	/
GPRS (GMSK, 4-Slot)	/	/	/	/	/	/
EGPRS(8PSK, 1-Slot)	/	/	/	/	/	/
EGPRS(8PSK, 2-Slot)	/	/	/	/	/	/
EGPRS(8PSK, 3-Slot)	/	/	/	/	/	/
EGPRS(8PSK, 4-Slot)	/	/	/	/	/	/
Remark: GPRS, CS4 coding scheme. EGPRS, MCS9 coding scheme. Multi-Slot Class 8 , Support Max 4 downlink, 1 uplink , 5 working link Multi-Slot Class 10 , Support Max 4 downlink, 2 uplink , 5 working link Multi-Slot Class 12 , Support Max 4 downlink, 4 uplink , 5 working link						

Fram- RF Output Power(dBm)						
Band	GSM 850			PCS 1900		
Channel	128	190	251	512	661	810
Frequency (MHz)	824.2	836.6	848.8	1850.2	1880.0	1909.8
GSM(GMSK, 1-Slot)	22.98	23.12	23.13	20.89	20.07	20.14
GPRS (GMSK, 1-Slot)	/	/	/	/	/	/
GPRS (GMSK, 2-Slot)	/	/	/	/	/	/
GPRS (GMSK, 3-Slot)	/	/	/	/	/	/
GPRS (GMSK, 4-Slot)	/	/	/	/	/	/
EGPRS(8PSK, 1-Slot)	/	/	/	/	/	/
EGPRS(8PSK, 2-Slot)	/	/	/	/	/	/
EGPRS(8PSK, 3-Slot)	/	/	/	/	/	/
EGPRS(8PSK, 4-Slot)	/	/	/	/	/	/
Remark : 1. SAR testing was performed on the maximum frame-averaged power mode. 2. The frame-averaged power is linearly proportion to the slot number configured and it is linearly scaled the maximum burst-averaged power based on time slots. The calculated method is shown as below: Frame-averaged power = Burst averaged power (1 Tx Slot) – 9.03 dB Frame-averaged power = Burst averaged power (2 Tx Slots) – 6.02 dB Frame-averaged power = Burst averaged power (3 Tx Slots) - 4.26 dB Frame-averaged power = Burst averaged power (4 Tx Slots) – 3.01 dB						

Bluetooth

Mode	Channel Number	Frequency (MHz)	PEAK Power (dBm)
GFSK(1Mbps)	0	2402	3.182
	39	2441	2.634
	78	2480	3.343
π/4-DQPSK(2Mbps)	0	2402	2.343
	39	2441	1.293
	78	2480	2.414
8-DPSK(3Mbps)	0	2402	2.353
	39	2441	1.823
	78	2480	2.532

Turn Power

Mode	GSM850(AVG)	GSM1900(AVG)
GSM/PCS	31.2±1dBm	29±1dBm

Mode	BT2.1(PEAK)
GFSK	3±1dBm
π/4-DQPSK	2±1dBm
8DPSK	2±1dBm

10. EUT And Test Setup Photo

10.1 EUT Photo

Front side

Back side

Top side

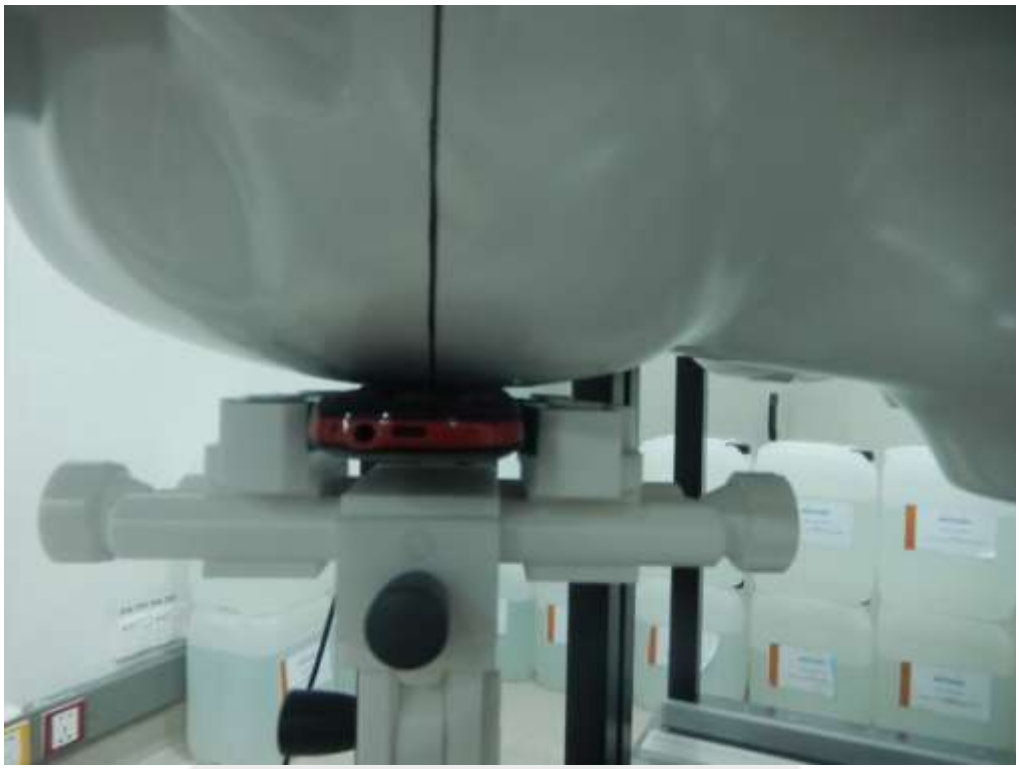
Bottom side

Left side

Right side

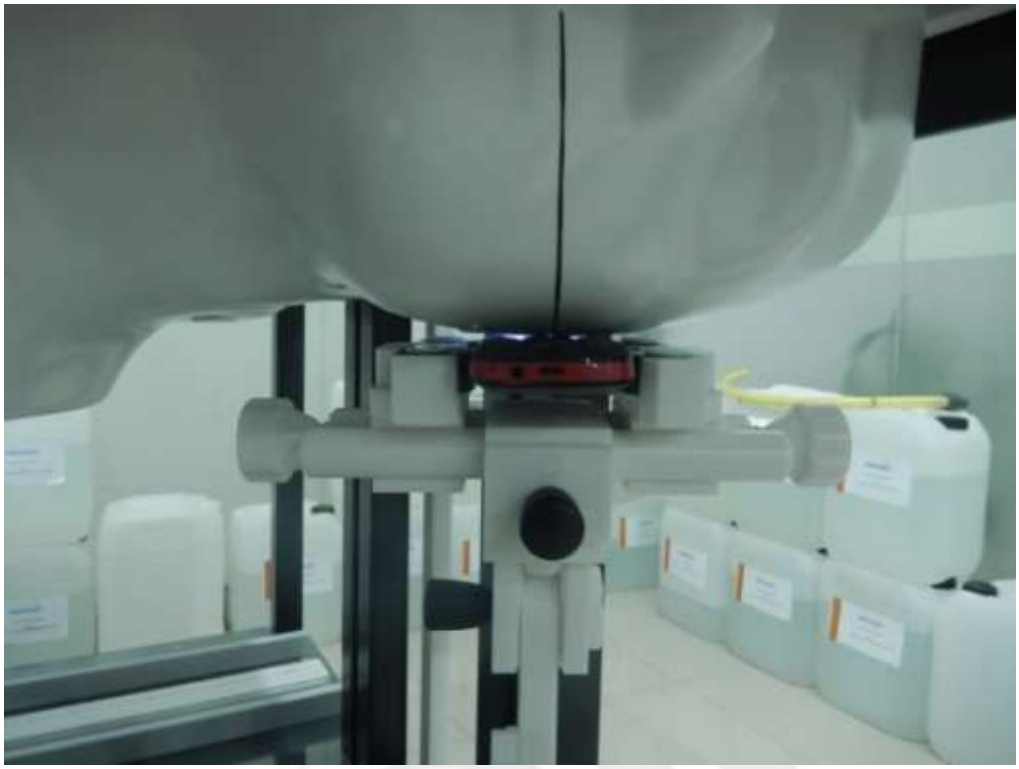
10.2 Setup Photo

Right Touch



Right Tilt

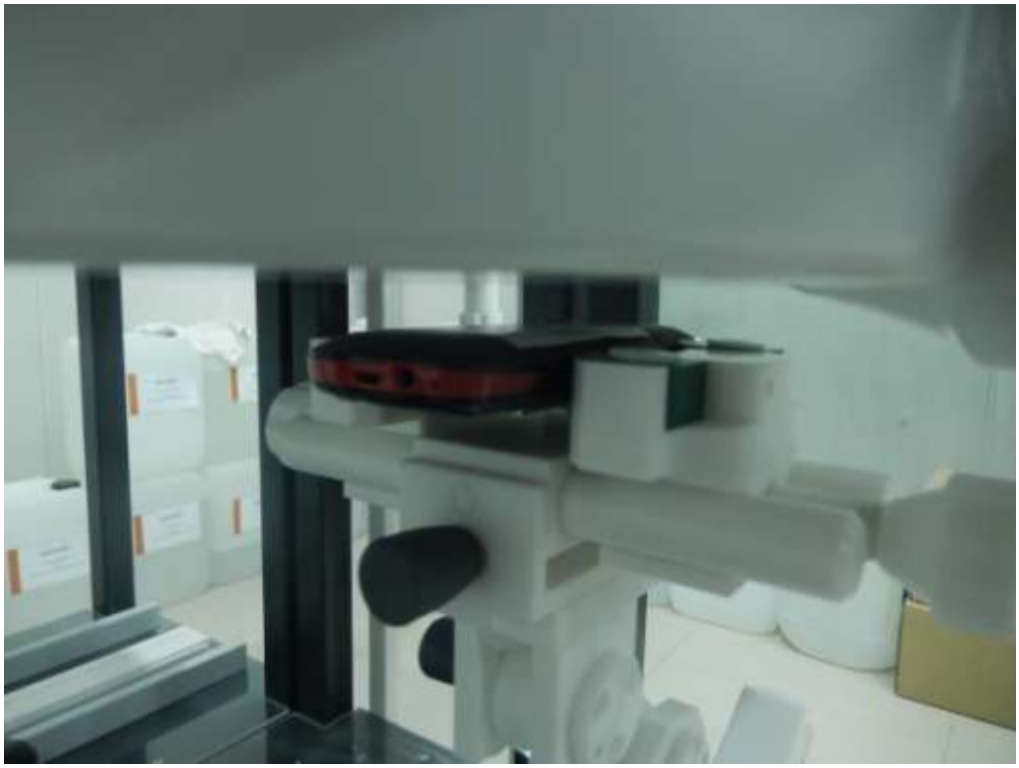
Left Touch



Left Tilt

Body Front side

Body Back side



Liquid depth (15 cm)

11. SAR Result Summary

11.1 Head SAR

Band	Mode	Test Position	Channel	Result 1g (W/Kg)	Power Drift(%)	Max.Turn-up Power(dBm)	Meas.Output Power(dBm)	Scaled SAR (W/Kg)	Meas. No.
GSM 850	Voice	Right Cheek	CH 128	0.889	-2.81	32.2	32.01	0.929	/
		Right Cheek	CH 190	1.098	-4.17	32.2	32.15	1.111	/
		Right Cheek	CH 251	0.930	-4.07	32.2	32.16	0.939	/
		Right Tilt	CH 251	0.431	-4.74	32.2	32.16	0.435	/
		Left Cheek	CH 128	0.975	0.30	32.2	32.01	1.019	/
		Left Cheek	CH 190	1.159	-2.13	32.2	32.15	**1.172**	/
		Left Cheek	CH 251	1.061	-4.31	32.2	32.16	1.071	/
		Left Tilt	CH 251	0.387	-3.41	32.2	32.16	0.391	/
GSM1900	Voice	Right Cheek	CH 512	0.446	-0.76	30	29.92	**0.454**	3
		Right Tilt	CH 512	0.130	-4.65	30	29.92	0.132	/
		Left Cheek	CH 512	0.385	-2.45	30	29.92	0.392	/
		Left Tilt	CH 512	0.150	2.34	30	29.92	0.153	/

12.2 Body SAR

Band	Mode	Test Position	Channel	Result 1g (W/Kg)	Power Drift(%)	Max.Turn-up Power(dBm)	Meas.Output Power(dBm)	Scaled SAR (W/Kg)	Meas. No.
GSM 850	Voice	Front side	CH 251	0.680	-1.22	32.2	32.16	0.686	/
		Back side	CH 128	0.925	0.56	32.2	32.01	**0.966**	2
		Back side	CH 190	0.796	-0.69	32.2	32.15	0.805	/
		Back side	CH 251	0.637	-2.00	32.2	32.16	0.643	/
GSM 1900	Voice	Front side	CH 512	0.175	-2.18	30	29.92	0.178	/
		Back side	CH 512	0.578	-1.88	30	29.92	**0.589**	4

Note:
1. Two card slot can't work at the same time.
2. The test separation of all above table is 10mm.
3. Per KDB865664 D01, Repeated measurement is not required when the original highest measured SAR is < 0.80 W/kg.

Repeated SAR

Band	Mode	Test Position	Channel	Result 1g (W/Kg)	Power Drift(%)	Max.Turn-up Power(dBm)	Meas.Output Power(dBm)	Scaled SAR (W/Kg)	Meas. No.
GSM850	Voice	Right Cheek	CH 128	0.872	0.62	32.2	32.01	0.911	/
			CH 190	1.091	4.25	32.2	32.15	**1.104**	/
			CH 251	0.925	0.44	32.2	32.16	0.934	/
		Left Cheek	CH 128	0.968	-1.16	32.2	32.01	1.011	/
			CH 190	1.183	-2.93	32.2	32.15	**1.197**	1
			CH 251	1.025	0.05	32.2	32.16	1.034	/
		Back side	CH 128	0.908	-1.84	32.2	32.01	**0.949**	/
			CH 190	0.759	-0.24	32.2	32.15	0.768	/

12.3 repeated SAR measurement

Band	Mode	Test Position	Channel	Original Measured SAR 1g(mW/g)	1 st Repeated SAR 1g	Ratio	Original Measured SAR 1g(mW/g)	2nd Repeated SAR 1g	Ratio
GSM850	Voice	Right Cheek	CH 128	0.889	0.872	1.02	-	-	-
			CH 190	1.098	1.091	1.01	-	-	-
			CH 251	0.930	0.925	1.01	-	-	-
		Left Cheek	CH 128	0.975	0.968	1.01	-	-	-
			CH 190	1.159	1.183	1.02	-	-	-
			CH 251	1.061	1.025	1.04	-	-	-
		Back side	CH 128	0.925	0.908	1.02	-	-	-
			CH 190	0.796	0.759	1.05	-	-	-

Note:

1. Per KDB 865664 D01,for each frequency band ,repeated SAR measurement is required only when the measured SAR is≥0.8W/Kg.
2. Per KDB 865664 D01,if the ratio of largest to smallest SAR for the original and first repeated measurement is≤1.2and the measured SAR＜1.45W/Kg, only one repeated measurement is required.
3. Perform a second repeated measurement only if the ratio of largest to smallest SAR for the original and first repeated measurements is＞1.20 or when the original or repeated measurement is ≥ 1.45W/Kg
4. The ratio is the difference in percentage between original and repeated measured SAR.

Simultaneous Multi-band Transmission Evaluation:

Application Simultaneous Transmission information:

Position	Simultaneous state
Head	GSM + Bluetooth
Body	GSM + Bluetooth

NOTE:

1. For simultaneous transmission at head and body exposure position, 2 transmitters simultaneous transmission was the worst state.
2. Based upon KDB 447498 D01, BT SAR is excluded as below table.
3. If the test separation distance is <5mm, 5mm is used for excluded SAR calculation.
4. For minimum test separation distance ≤50mm,Bluetooth standalone SAR is excluded according to [(max. power of channel, including tune-up tolerance, mW)/ (min. test separation distance, mm) ·[√f (GHz) /x] ≤3.0 for 1-g SAR and ≤7.5 for 10-g extremity SAR
5. The reported SAR summation is calculated based on the same configuration and test position.
6. KDB 447498 / 4.3.2 (2) when standalone SAR test exclusion applies to an antenna that transmits simultaneously with other antennas, the standalone SAR must be estimated according to following to determine simultaneous transmission SAR test exclusion:

a) (max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm)]·[√f (GHz) /x] W/kg for test separation distances≤ 50 mm;
Where x = 7.5 for 1-g SAR, and x = 18.75 for 10-g SAR.
b) 0.4W/Kg for 1-g SAR and 1.0W/Kg for 10-g SAR, when the separation distance is >50mm.

Estimated SAR		Maximum Average Power		Antenna to user(mm)	Frequency(GHz)	Stand alone SAR(1g) [W/kg]
		dBm	mW			
BT	Head	4	2.51	5	2.480	0.105
	Body			10	2.480	0.053

Simultaneous Mode	Position	Mode	Max. 1-g SAR (W/kg)	1-g Sum SAR (W/kg)
GSM + Bluetooth	Head	GSM Voice	1.197	1.302
		Bluetooth	0.105	
	Body	GSM Voice	0.966	1.019
		Bluetooth	0.053	

Simultaneous transmission SAR test exclusion is determined for each operating configuration and exposure condition according to the reported standalone SAR of each applicable simultaneous transmitting antenna.

When the sum of SAR 1g of all simultaneously transmitting antennas in an operating mode and exposure condition combination is within the SAR limit (SAR-1g 1.6 W/kg), the simultaneous transmission SAR is not required. When the sum of SAR 1g is greater than the SAR limit (SAR-1g 1.6 W/kg), SAR test exclusion is determined by the SPLSR.

12. Equipment List

Kind of Equipment	Manufacturer	Type No.	Serial No.	Last Calibration	Calibrated Until
835MHz Dipole	SATIMO	SID835	SN 30/14 DIP0G835-332	2014.09.01	2017.08.31
1900MHz Dipole	SATIMO	SID1900	SN 30/14 DIP1G900-333	2014.09.01	2017.08.31
E-Field Probe	SATIMO	SSE5	SN 17/14 EP221	2015.09.01	2016.08.31
Antenna	SATIMO	ANTA3	SN 07/13 ZNTA52	2014.09.01	2017.08.31
Waveguide	SATIMO	SWG5500	SN 13/14 WGA32	2014.09.01	2017.08.31
Phantom1	SATIMO	SAM	SN 32/14 SAM115	N/A	N/A
Phantom2	SATIMO	SAM	SN 32/14 SAM116	N/A	N/A
SAR TEST BENCH	SATIMO	GSM and WCDMA mobile phone POSITIONNING SYSTEM	SN 32/14 MSH97	N/A	N/A
SAR TEST BENCH	SATIMO	LAPTOP POSITIONNING SYSTEM	SN 32/14 LSH29	N/A	N/A
Dielectric Probe Kit	SATIMO	SCLMP	SN 32/14 OCPG52	2015.09.01	2016.08.31
Multi Meter	Keithley	Multi Meter 2000	4050073	2015.11.20	2016.11.19
Signal Generator	Agilent	N5182A	MY50140530	2015.11.18	2016.11.17
Power Meter	R&S	NRP	100510	2015.10.25	2016.10.24
Power Sensor	R&S	NRP-Z11	101919	2015.10.24	2016.10.23
Power Sensor	Anritsu	MA2411B	1027253	2015.10.10	2016.10.09
Power Sensor	R&S	NRP-Z21	103971	2015.12.12	2016.12.11
Network Analyzer	Agilent	5071C	EMY46103472	2015.12.12	2016.12.11
Attenuator 1	PE	PE7005-10	N/A	2015.10.25	2016.10.24
Attenuator 2	PE	PE7005-3	N/A	2015.10.24	2016.10.23
Attenuator 3	Woken	WK0602-XX	N/A	2015.12.12	2016.12.11
Dual Directional Coupler	Agilent	778D	50422	2015.11.18	2016.11.17

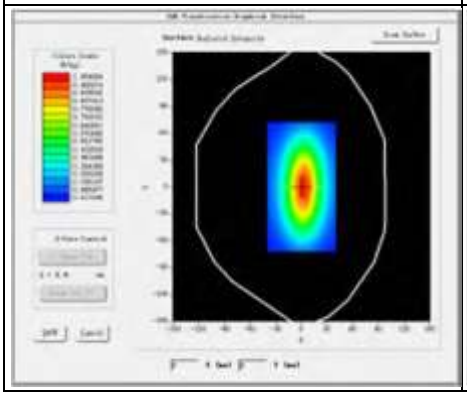
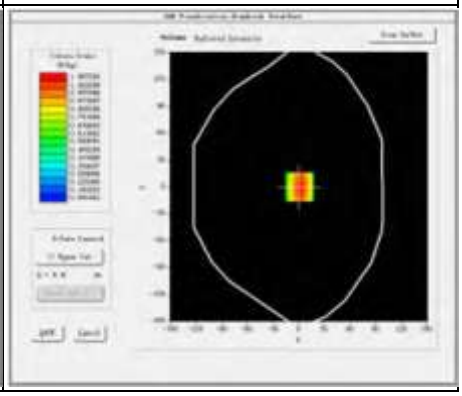
Appendix A. System Validation Plots

System Performance Check Data (835MHz Head)

Type: Phone measurement (Complete)
Area scan resolution: dx=8mm,dy=8mm
Zoom scan resolution: dx=8mm, dy=8mm, dz=5mm
Date of measurement: 2015-12-29
Measurement duration: 13 minutes 27 seconds

Experimental conditions

Phantom	Validation plane
Device Position	-
Band	835MHz
Channels	-
Signal	CW
Frequency (MHz)	835MHz
Relative permittivity (real part)	41.35
Relative permittivity	18.72
Conductivity (S/m)	0.87
Power drift (%)	0.45
Ambient Temperature:	22.7°C
Liquid Temperature:	22.3°C
ConvF:	4.83
Crest factor:	1:1

SURFACE SAR	VOLUME SAR
	

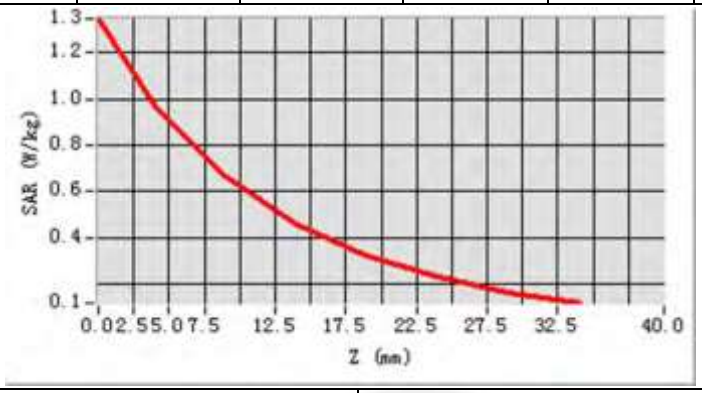
Maximum location: X=1.00, Y=0.00

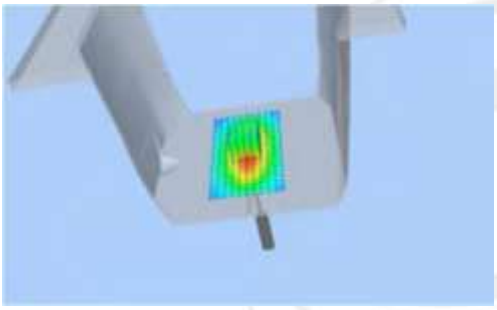
SAR Peak: 1.46 W/kg

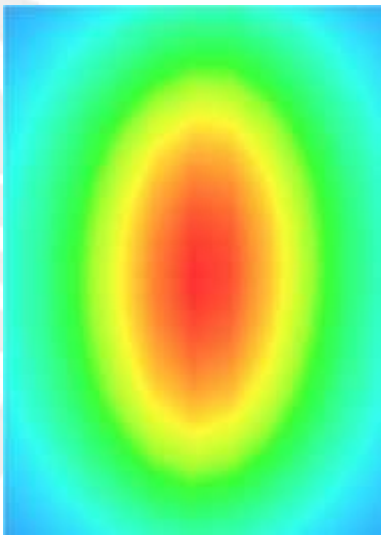
SAR 10g (W/Kg)	0.608155
SAR 1g (W/Kg)	0.937416

Z Axis Scan

Z (mm)	0	4	9	14	19	24	29
SAR(W/Kg)	1.3472	0.97891	0.66265	0.5042	0.3512	0.2505	0.11794





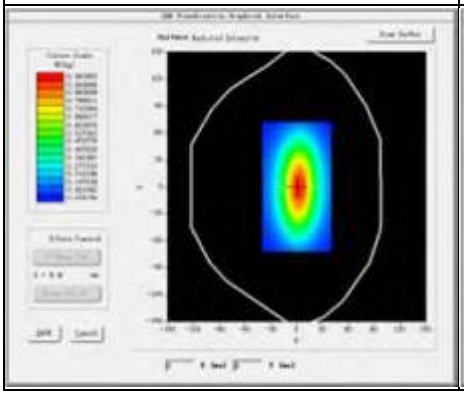
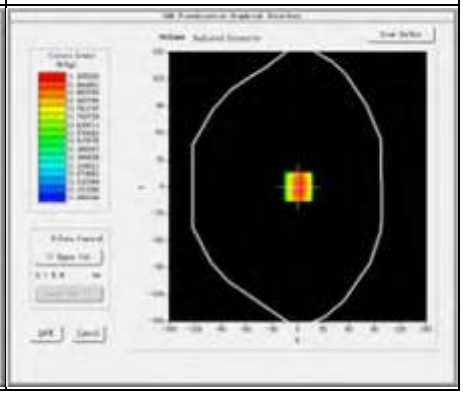


System Performance Check Data (835MHz Body)

Type: Phone measurement (Complete)
Area scan resolution: dx=8mm,dy=8mm
Zoom scan resolution: dx=8mm, dy=8mm, dz=5mm
Date of measurement: 2015-12-29
Measurement duration: 14 minutes 13 seconds

Experimental conditions.

Probe	
Phantom	Validation plane
Device Position	-
Band	835MHz
Channels	-
Signal	CW
Frequency (MHz)	835MHz
Relative permittivity (real part)	54.70
Relative permittivity	21.408187
Conductivity (S/m)	0.98
Power drift (%)	0.090000
Ambient Temperature:	22.7°C
Liquid Temperature:	22.3°C
ConvF:	5.02
Crest factor:	1:1

SURFACE SAR	VOLUME SAR
	

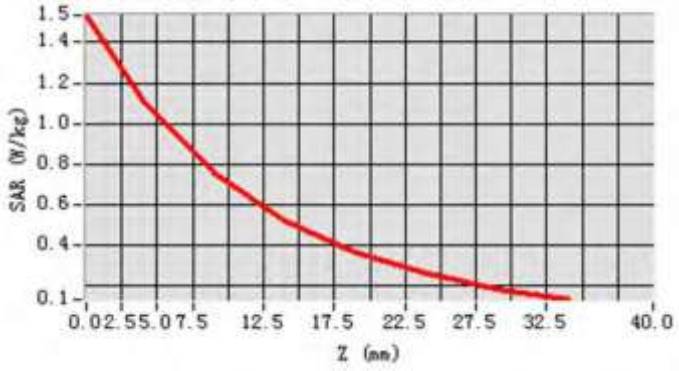
Maximum location: X=1.00, Y=0.00

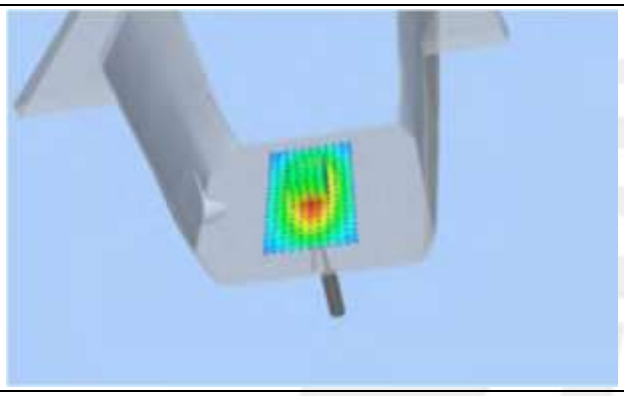
SAR Peak: 1.48 W/kg

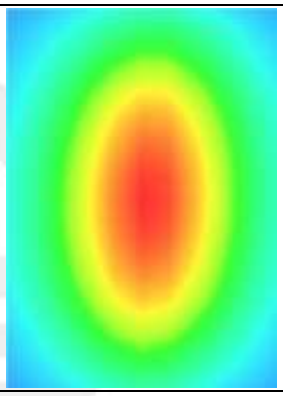
SAR 10g (W/Kg)	0.693221
SAR 1g (W/Kg)	0.946539

Z Axis Scan

Z (mm)	0	4	9	14	19	24	29
SAR(W/Kg)	1.3725	1.0058	0.6838	0.4755	0.3314	0.2365	0.1688





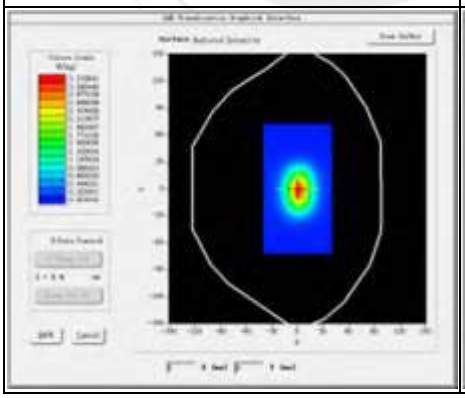
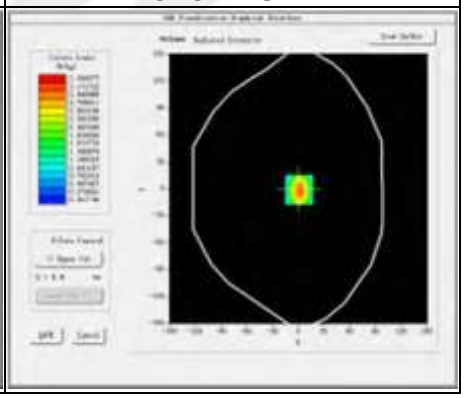


System Performance Check Data (1900MHz Head)

Type: Phone measurement (Complete)
Area scan resolution: dx=8mm,dy=8mm
Zoom scan resolution: dx=8mm, dy=8mm, dz=5mm
Date of measurement: 2015-12-29
Measurement duration: 14 minutes 12 seconds

Experimental conditions.

Phantom	Validation plane
Device Position	-
Band	1900MHz
Channels	-
Signal	CW
Frequency (MHz)	1900MHz
Relative permittivity (real part)	39.87
Relative permittivity	13.26
Conductivity (S/m)	1.402
Power drift (%)	0.47
Ambient Temperature:	22.7°C
Liquid Temperature:	22.3°C
Probe	SN 17/14 EP221
ConvF:	4.71
Crest factor:	1:1

SURFACE SAR	VOLUME SAR
	

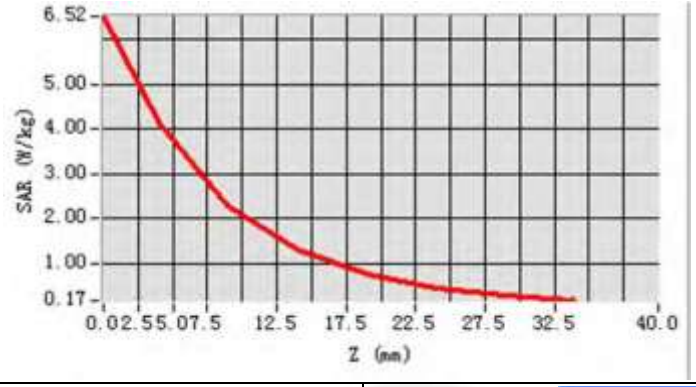
Maximum location: X=1.00, Y=0.00

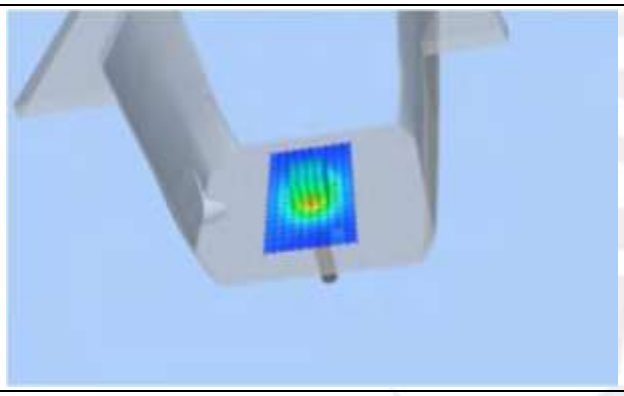
SAR Peak: 5.39 W/kg

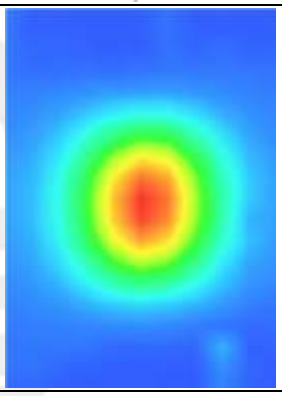
SAR 10g (W/Kg)	1.967525
SAR 1g (W/Kg)	3.860170

Z Axis Scan

Z (mm)	0	4	9	14	19	24	29
SAR(W/Kg)	6.5296	4.1946	2.3311	1.3187	0.5733	0.3288	0.1617





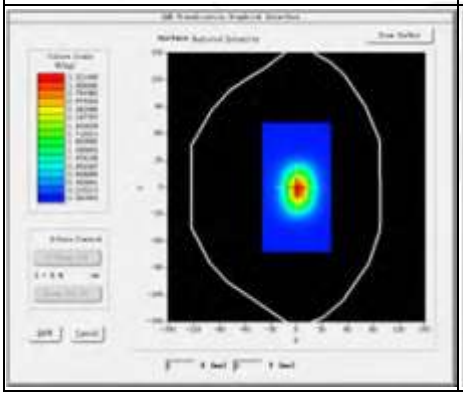
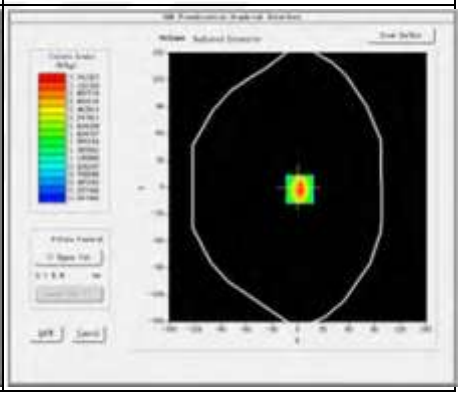


System Performance Check Data (1900MHz Body)

Type: Phone measurement (Complete)
Area scan resolution: dx=8mm,dy=8mm
Zoom scan resolution: dx=8mm, dy=8mm, dz=5mm
Date of measurement: 2015-12-29
Measurement duration: 14 minutes 46 seconds

Experimental conditions.

Device Position	-
Band	1900MHz
Channels	-
Signal	CW
Frequency (MHz)	1900
Relative permittivity (real part)	52.31
Relative permittivity	12.87531
Conductivity (S/m)	1.50
Power drift (%)	0.37
Ambient Temperature:	22.7°C
Liquid Temperature:	22.3°C
Probe	SN 17/14 EP221
ConvF:	4.85
Crest factor:	1:1

SURFACE SAR	VOLUME SAR
	

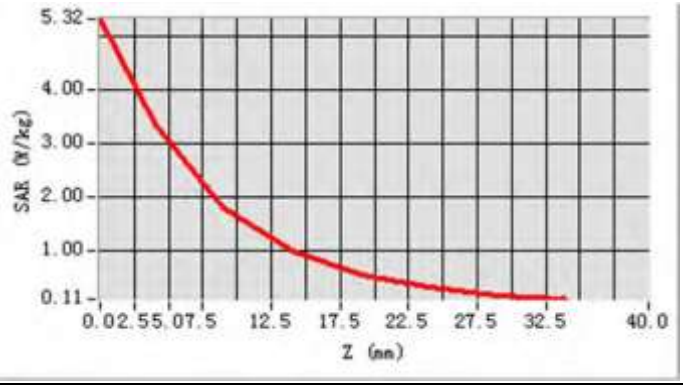
Maximum location: X=2.00, Y=2.00

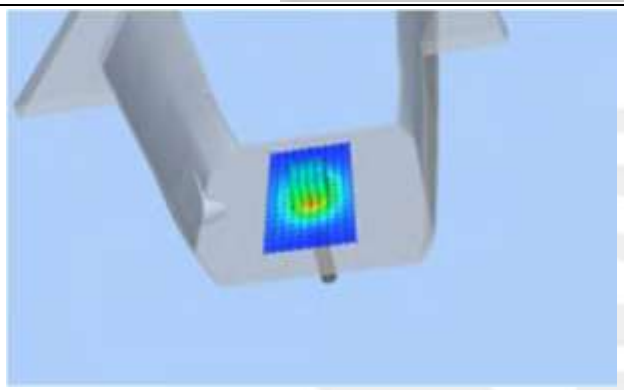
SAR Peak: 5.27 W/kg

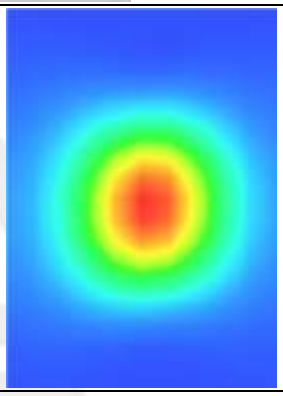
SAR 10g (W/Kg)	2.124122
SAR 1g (W/Kg)	3.986824

Z Axis Scan

Z (mm)	0	4	9	14	19	24	29
SAR(W/Kg)	5.3196	3.3419	1.8167	1.0186	0.5752	0.3285	0.1898







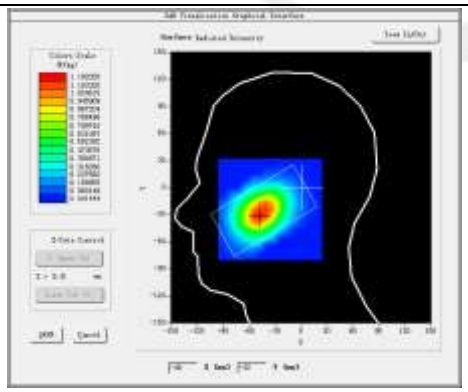
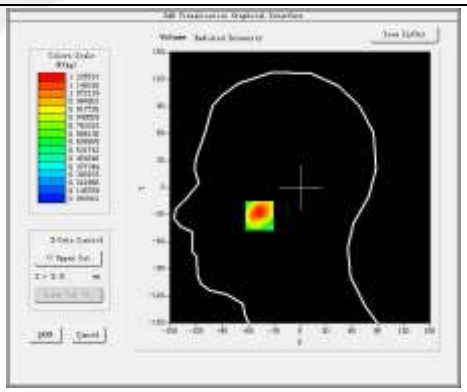
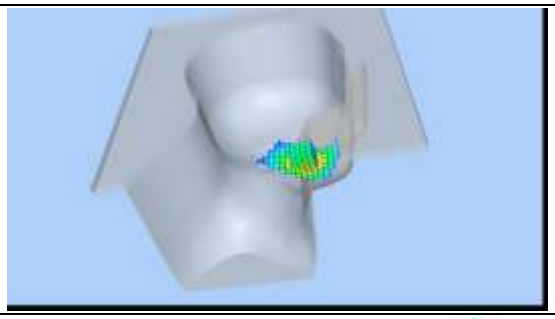
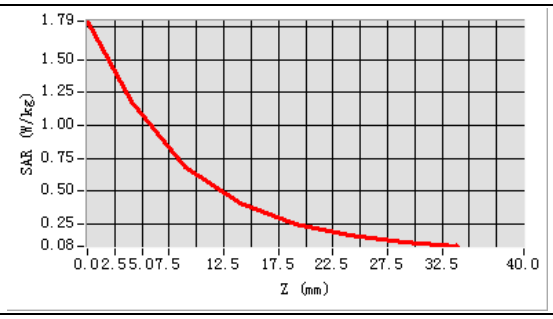
Appendix B. SAR Test Plots

Plot 1: DUT: GSM Mobile Phone; EUT Model: i122

Test Data	2015-12-29
Ambient Temperature(°C)	22.70
Liquid Temperature(°C)	22.30
Probe	SN 17/14 EP221
ConvF	4.83
Area Scan	dx=8mm dy=8mm, h= 5.00 mm
ZoomScan	5x5x7,dx=8mm dy=8mm dz=5mm, Complete/ndx=8mm dy=8mm, h= 5.00 mm
Phantom	Left head
Device Position	Cheek-Repeated
Band	GSM850
Channels	Middle
Signal	TDMA (Crest factor: 8.32)
Frequency (MHz)	836.6
Relative permittivity (real part)	42.27
Conductivity (S/m)	0.91
Variation (%)	-2.93

Maximum location: X=-470, Y=-310
SAR Peak: 1.78g

SAR 10g (W/Kg)	0.724045
SAR 1g (W/Kg)	1.182989

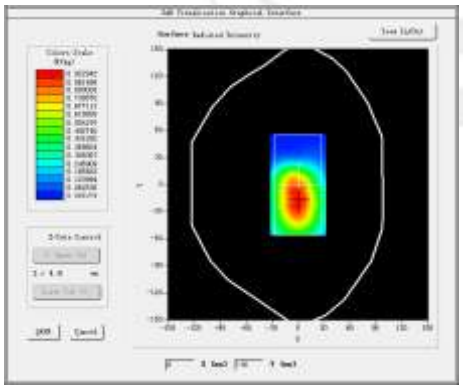
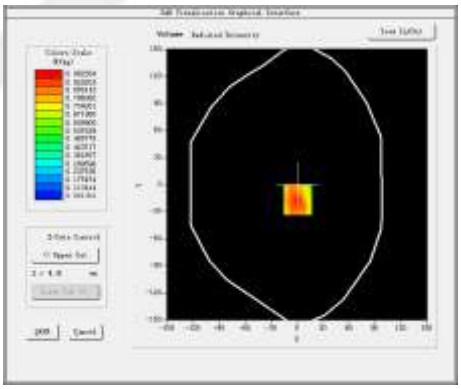
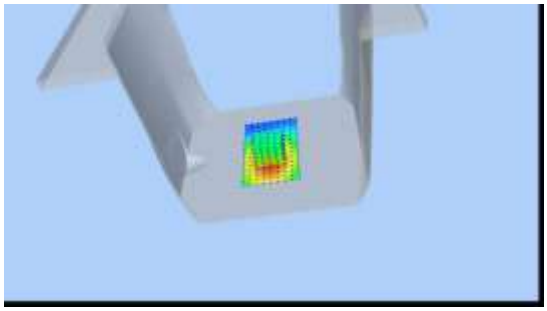
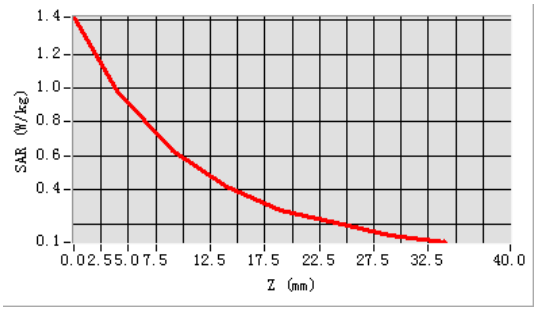
SURFACE SAR	VOLUME SAR
	
3D screen shot	**Z Axis Scan**
	

Plot 2: DUT: GSM Mobile Phone; EUT Model: i122

Test Data	2015-12-29
Ambient Temperature(°C)	22.70
Liquid Temperature(°C)	22.30
Probe	SN 17/14 EP221
ConvF	5.02
Area Scan	dx=8mm dy=8mm, h= 5.00 mm
ZoomScan	5x5x7,dx=8mm dy=8mm dz=5mm, Complete/ndx=8mm dy=8mm, h= 5.00 mm
Phantom	Validation plane
Device Position	Body Back
Band	GSM 850
Channels	Low
Signal	TDMA (Crest factor: 8.32)
Frequency (MHz)	824.2
Relative permittivity (real part)	55.5
Conductivity (S/m)	0.96
Variation (%)	0.56

Maximum location: X=1.00, Y=-17.00
SAR Peak: 1.41 W/kg

SAR 10g (W/Kg)	0.586486
SAR 1g (W/Kg)	0.924527

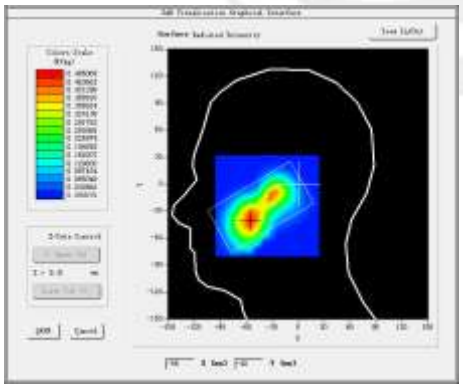
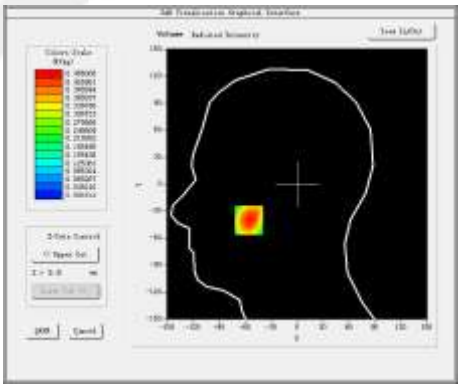
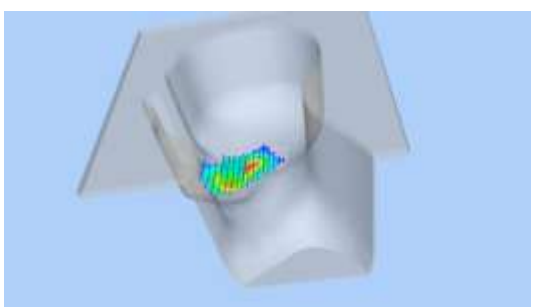
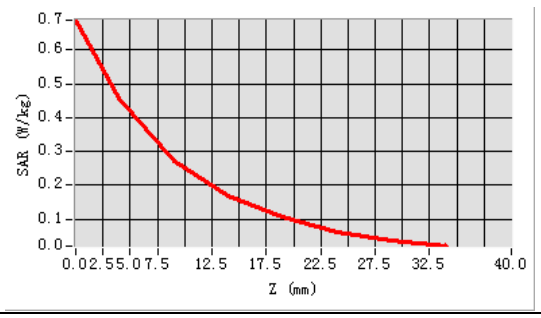
SURFACE SAR	VOLUME SAR
	
3D screen shot	**Z Axis Scan**
	

Plot 3: DUT: GSM Mobile Phone; EUT Model: i122

Test Data	2015-12-29
Ambient Temperature(°C)	22.70
Liquid Temperature(°C)	22.30
Probe	SN 17/14 EP221
ConvF	4.71
Area Scan	dx=8mm dy=8mm, h= 5.00 mm
ZoomScan	5x5x7,dx=8mm dy=8mm dz=5mm, Complete/ndx=8mm dy=8mm, h= 5.00 mm
Phantom	Right head
Device Position	Cheek
Band	GSM1900
Channels	Low
Signal	TDMA (Crest factor: 8.32)
Frequency (MHz)	1850.2
Relative permittivity (real part)	39.57
Conductivity (S/m)	1.43
Variation (%)	-0.76

Maximum location: X=-56.00, Y=-40.00
SAR Peak: 0.69 W/kg

SAR 10g (W/Kg)	0.256160
SAR 1g (W/Kg)	0.446165

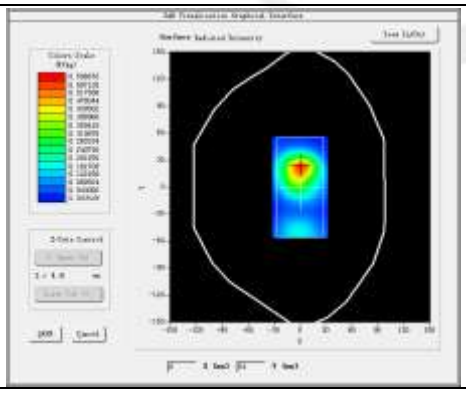
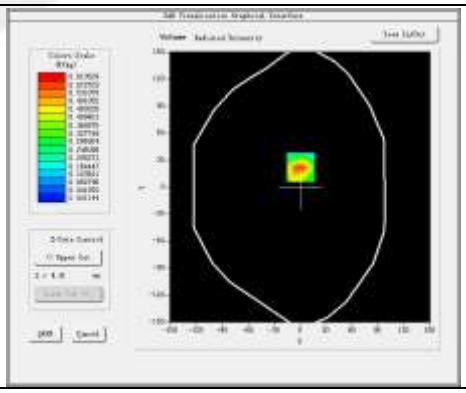
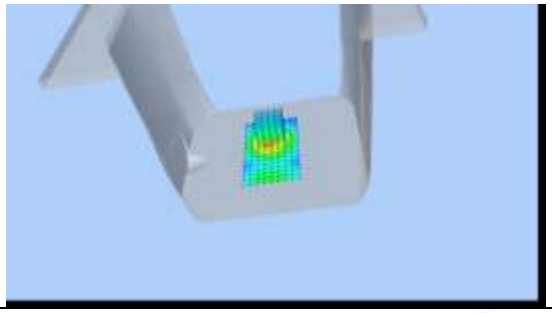
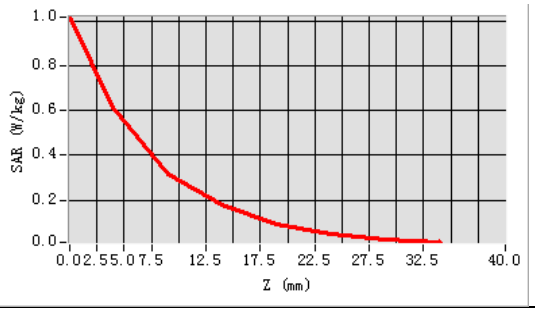
SURFACE SAR	VOLUME SAR
	
3D screen shot	**Z Axis Scan**
	

Plot 4: DUT: GSM Mobile Phone; EUT Model: i122

Test Data	2015-12-29
Ambient Temperature(°C)	22.70
Liquid Temperature(°C)	22.30
Probe	SN 17/14 EP221
ConvF	4.85
Area Scan	dx=8mm dy=8mm, h= 5.00 mm
ZoomScan	5x5x7,dx=8mm dy=8mm dz=5mm, Complete/ndx=8mm dy=8mm, h= 5.00 mm
Phantom	Validation plane
Device Position	Body Behind
Band	GSM1900
Channels	Low
Signal	TDMA (Crest factor: 8.32)
Frequency (MHz)	1850.2
Relative permittivity (real part)	51.68
Conductivity (S/m)	1.51
Variation (%)	-1.88

Maximum location: X=1.00, Y=22.00
SAR Peak: 1.00 W/kg

SAR 10g (W/Kg)	0.285408
SAR 1g (W/Kg)	0.578174

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

Appendix C. Probe Calibration And Dipole Calibration Report

Refer the appendix Calibration Report.

※※※※※END OF THE REPORT※※※※※