



## **FCC SAR EVALUATION REPORT**

For

**MC MOBILE E.U.**

CRA 112F# 72C-03 TO1 APT 301

**Product Name:** GSM Mobile Phone

**Model No. :** 700

**FCC ID:** 2AACK700

**Date of Receipt:** 19<sup>th</sup> Mar. 2014

**Date of Test:** 21<sup>st</sup> ~24<sup>th</sup> Mar. 2014

**Issued Date:** 25<sup>th</sup> Mar. 2014

**Report No.:** TS201403250001

**Report Version:** V1.0

### **Issue By**

Shenzhen Sunway Communication CO.,LTD Testing Center  
1/F, Building A, SDG Info Port, KefengRoad, Hi-Tech Park, Nanshan District,  
Shenzhen , Guangdong, China 518104,

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**Note:** The test results relate only to the samples tested. This report shall not be reproduced in full, without the written approval of SUNWAY Testing Center.



## SAR Evaluation compliance

Product Name:	GSM Mobile Phone
Brand Name:	MC MOBILE
Model Name:	700
Applicant:	MC MOBILE E.U.
Address:	CRA 112F# 72C-03 TO1 APT 301
Manufacturer:	Shenzhen Leed Electronic Co.,LTD
Address:	Room 29A1,Block A, Zhonghangbeiyuan Building, Zhenhua Road, Futian District Shenzhen China
Applicable Standard:	IEEE Std. 1528-2013, FCC 47CFR § 2.1093 KDB 865664 D01 SAR measurement 100 MHz to 6 GHz v01r03 KDB 447498 D01 General RF Exposure Guidance v05r02
Test Result:	Max. SAR Report: Body (1g): 0.443W/kg Head(1g): 1.574W/kg
Performed Date:	21 <sup>st</sup> ~24 <sup>th</sup> Mar. 2014
Test Engineer:	<u>Li.zhao</u> 28 <sup>th</sup> Mar. 2014
Reviewed By	<u>Tomy.Liu</u> 28 <sup>th</sup> Mar. 2014
Performed Location:	Shenzhen Sunway Communication CO.,LTD Testing Center 1/F, BuildingA, SDG Info Port, KefengRoad, Hi-Tech Park, Nanshan District, Shenzhen , Guangdong, China 518104 Tel: +86-755- 36615880 Fax: +86-755- 86525532



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**1. General Information:****1.1 EUT Description:**

<b>EUT Information</b>	
Product Name	GSM Mobile Phone
Brand Name	MC MOBILE
Model Name	700
Device Category	MobilePhone
Antenna Type	Integral Antenna
Headset	700
Battery	Type: Rechargeable lithium-ion battery 3.7V
Dimensions (L*W*H):	Flip On:180mm (L)× 50mm (W)×10mm (H) Flip off:100mm (L)× 50mm (W)×19mm (H)
Weight:	100g
Power Source:	Rechargeable lithium-ion battery 3.7V
Normal Operation:	Head and Body-worn EUT support call operation both flip on and flip off status.



<b>GSM-2G</b>	
Support Band	GSM850/PCS1900
GPRS Type	Type B
GPRS Class	12
Frequency Bands:	GSM 850: UL: 824-850 MHz DL: 869-894 MHz PCS 1900: UL: 1710-1785 MHz DL: 1805-1880 MHz
Release Version	R99
Type of modulation	GMSK for GSM/GPRS
Antenna Gain	1.2dBi for GSM 850 1.2dBi for DCS 1900

<b>Max. Output Power (Conducted)</b>	
GSM850:	32.33dBm
PCS1900:	30.51dBm

## 1.2 Test Environment:

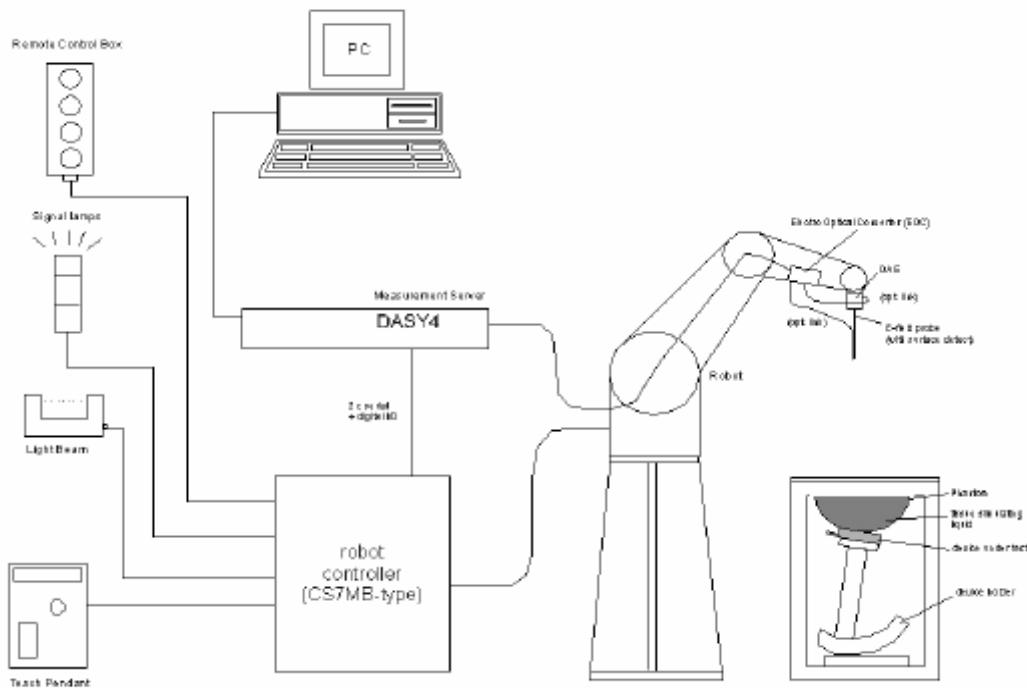
Ambient conditions in the SAR laboratory:

Items	Required	Actual
Temperature (°C)	18-25	21~23
Humidity (%RH)	30-70	50~65



## 2. SAR Measurement System:

### 2.1 Dasy4 System Description:



The DASY4 system for performing compliance tests consists of the following items:

- A standard high precision 6-axis robot with controller, teach pendant and software. An arm extension for accommodating the data acquisition electronics (DAE).
- A dosimetric probe, i.e., an isotropic E-field probe optimized and calibrated for usage in tissue simulating liquid. The probe is equipped with an optical surface detector system.
- A data acquisition electronics (DAE) which performs the signal amplification, signal multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection, etc.
- The Electro-optical converter (EOC) performs the conversion between optical and electrical of the signals for the digital communication to the DAE and for the analog signal from the optical surface detection.
- A probe alignment unit which improves the (absolute) accuracy of the probe positioning.
- A computer operating Windows 2000 or Windows XP.
- DASY4 software.
- Remote control with teach pendant and additional circuitry for robot safety such as warning lamps, etc.
- The SAM twin phantom enabling testing left-hand and right-hand usage.
- The device holder for handheld mobile phones.
- Tissue simulating liquid mixed according to the given recipes.
- Validation dipole kits allowing to validate the proper functioning of the system.



### 3. System Components:

- DAsY4 Measurement Server:



Calibration: No calibration required.

The DASY4 measurement server is based on a PC/104 CPU board with a 166MHz low-power pentium, 32MB chipdisk and 64MB RAM. The necessary circuits for communication with either the DAE4 (or DAE3) electronic box as well as the 16-bit AD-converter system for optical detection and digital I/O interface are contained on the DASY4 I/O-board, which is directly connected to the PC/104 bus of the CPU board.

- DATA Acquisition Electronics (DAE):



Calibration: Recommended once a year

The data acquisition electronics consists of a highly sensitive electrometer grade preamplifier with auto-zeroing, a channel and gain-switching multiplexer, a fast 16 bit AD converter and a command decoder and control logic unit. Transmission to the measurement server is accomplished through an optical downlink for data and status information as well as an optical uplink for commands and the clock.

- Dosimetric Probes:



Model: ES3DV3,

Frequency: 10MHz to 3G, Linearity:  $\pm 0.2\text{dB}$ ,

Dynamic Range:  $10 \mu\text{W/g}$  to  $100 \text{mW/g}$

Directivity:

$\pm 0.3 \text{ dB}$  in HSL (rotation around probe axis)

$\pm 0.5 \text{ dB}$  in tissue material (rotation normal to probe axis)

These probes are specially designed and calibrated for use in liquids with high permittivities. They should not be used in air, since the spherical isotropy in air is poor ( $\pm 2 \text{ dB}$ ). The dosimetric probes have special calibrations in various liquids at different frequencies.

Calibration: Recommended once a year



➤ Light Beam unit:



Calibration: No calibration required.

The light beam switch allows automatic "tooling" of the probe. During the process, the actual position of the probe tip with respect to the robot arm is measured, as well as the probe length and the horizontal probe offset. The software then corrects all movements, such that the robot coordinates are valid for the probe tip. The repeatability of this process is better than 0.1 mm.

➤ SAM Twin Phantom:



The SAM twin phantom is a fiberglass shell phantom with 2mm shell thickness (except the ear region where shell thickness increases to 6mm). It has three measurement areas:

- Left hand
- Right hand
- Flat phantom

The bottom plate contains three pair of bolts for locking the device holder. The device holder positions are adjusted to the standard measurement positions in the three sections. A white cover is provided to tap the phantom during off-periods to prevent water evaporation and changes in the liquid parameters. On the phantom top, three reference markers are provided to identify the phantom position with respect to the robot.

➤ Device Holder for SAM Twin Phantom:



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

The DASY device holder has been made out of low-loss POM material having the following dielectric parameters: relative permittivity " $\epsilon_r = 3$ " and loss tangent " $\delta = 0.02$ ". The amount of dielectric material has been reduced in the closest vicinity of the device, since measurements have suggested that the influence of the clamp on the test results could thus be lowered.



#### 4. Tissue Simulating Liquid

4.1 The composition of the tissue simulating liquid:

INGREDIENT (% Weight)	835MHz Head	835MHz Body	1900MHz Head	1900MHz Body
<b>Water</b>	40.45	52.4	54.9	40.4
<b>Salt</b>	1.45	1.4	0.18	0.5
<b>Sugar</b>	57.6	45.0	0.00	58.0
<b>HEC</b>	0.40	1.0	0.00	1.0
<b>Preventol</b>	0.10	0.1	0.00	0.1
<b>DGBE</b>	0.00	0	44.92	0

4.2 Tissue Calibration Result:

Dielectric Probe Kit: Speag DAK 3.5mm probe -S/N:1038					
Head Tissue Simulate Measurement:					
Frequency (MHz)	Description	Dielectric Parameters		Tissue Temp. (°C)	Date
		$\epsilon_r$	$\sigma$ [s/m]		
835MHz	Reference	41.50±5% (39.425~43.574)	0.90±5% (0.9215~1.0185)	N/A	2014.03.22
	Measurement	42.27	0.91	22.1	
1900MHz	Reference	40±5% (38~42)	1.40±5% (1.33~1.47)	N/A	2014.03.21
	Measurement	39.27	1.42	21.8	
Body Tissue Simulate Measurement:					
Frequency (MHz)	Description	Dielectric Parameters		Tissue Temp. (°C)	Date
		$\epsilon_r$	$\sigma$ [s/m]		
835MHz	Reference	55.2±5% (52.45~57.96)	0.97±5% (0.93~1.01)	N/A	2014.03.23
	Measurement	54.73	0.98	22.5	
1900MHz	Reference	53.3±5% (50.64~55.96)	1.52±5% (1.45~1.59)	N/A	2014.03.22
	Measurement	52.45	1.54	22.5	



## 4.3 Tissue Dielectric Parameters for Head and Body Phantoms:

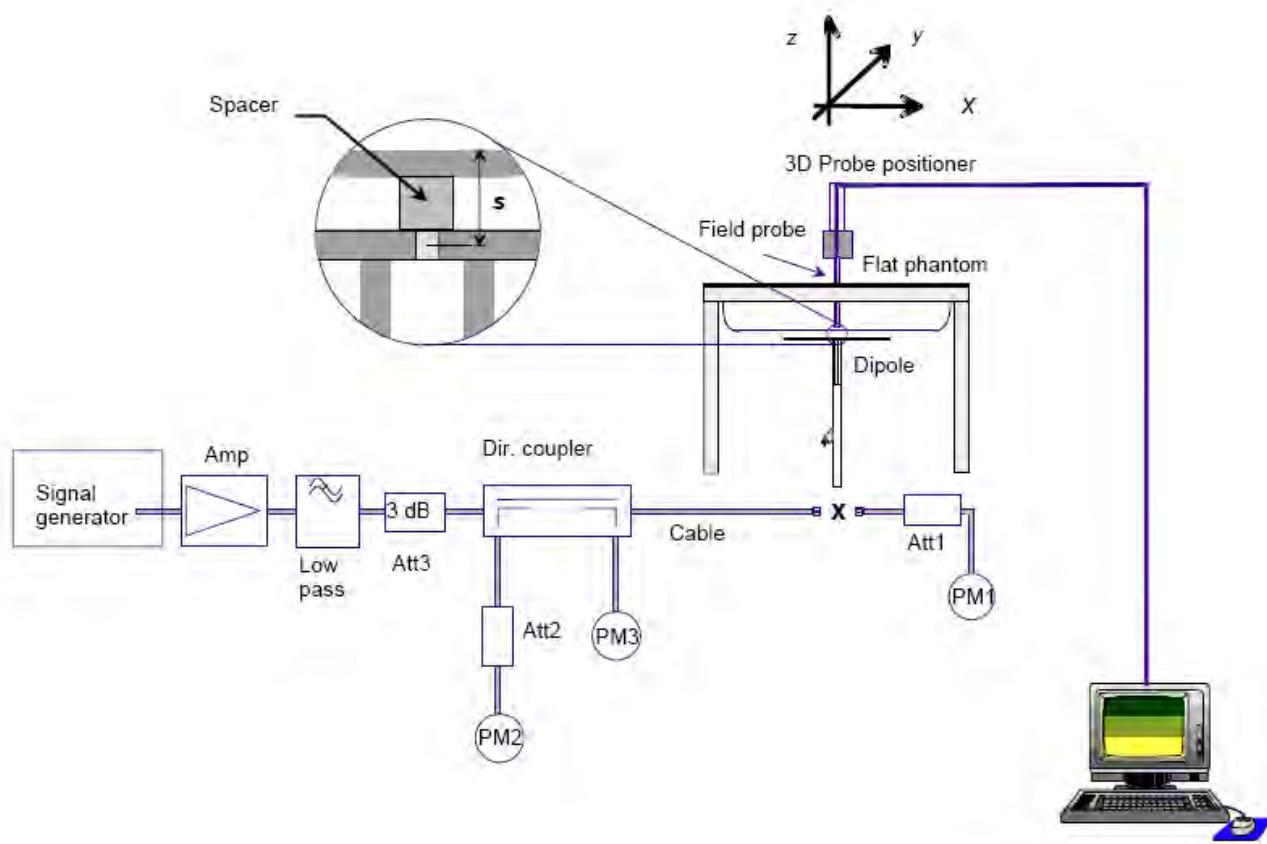
The head tissue dielectric parameters recommended by the IEEE SCC-34/SC-2 in P1528 have been incorporated in the following table

Target Frequency (MHz)	Head		Body	
	$\epsilon_r$	$\sigma$ [s/m]	$\epsilon_r$	$\sigma$ [s/m]
150	52.3	0.76	61.9	0.80
300	45.3	0.87	58.2	0.92
450	43.5	0.87	56.7	0.94
835	41.5	0.90	55.2	0.97
900	41.5	0.97	55.0	1.05
915	41.5	0.98	55.0	1.06
1450	40.5	1.20	54.0	1.30
1610	40.3	1.29	53.8	1.40
1800-2000	40.0	1.40	53.3	1.52
2450	39.2	1.80	52.7	1.95
3000	38.5	2.40	52.0	2.73
5800	35.3	5.27	48.2	6.00



## 5. SAR System Validation

### 5.1 Validation System:



### 5.2 Validation Dipoles:

The dipoles used is based on the IEEE-1528/EN62209-1 standard, and is complied with mechanical and electrical specifications in line with the requirements of both IEEE-1528/EN62209-1 and FCC Supplement C. the table below provides details for the mechanical and electrical specifications for the dipoles

Frequency	L(mm)	H(mm)	D(mm)
835MHz	161	89.8	3.6
1900MHz	68	39.5	3.6



## 5.3 Validation Result:

System performance check for Head at 835MHz,1900MHz						
Validation Dipole: D835V2-SN:4d154						
Frequency (MHz)	Description	SAR(1g) W/Kg	SAR(10g) W/Kg	Tissue Temp. (°C)	Date	
835MHz	Reference	9.51±10% (8.56~10.46)	6.17±10% (5.56~6.78)	N/A	2014.03.22	
	Validation	10.04	6.56	22.5		
Validation Dipole: D1900V2-SN:						
1900MHz	Reference	40.2±10% (36.18~44.22)	21±10% (18.9~23.1)	N/A	2014.03.21	
	Validation	42.0	21.44	22.5		
System performance check for Body at 835MHz,1900MHz						
Validation Dipole: D835V2-SN:4d154						
Frequency (MHz)	Description	SAR(1g) W/Kg	SAR(10g) W/Kg	Tissue Temp. (°C)	Date	
835MHz	Reference	9.51±10% (8.56~10.46)	6.23±10% (5.61~6.85)	N/A	2014.03.23	
	Validation	9.68	6.24	22.5		
Validation Dipole: D1900V2-SN:5d142						
1900MHz	Reference	40.8±10% (36.72~44.88)	21.8±10% (19.62~23.98)	N/A	2014.03.22	
	Validation	42.40	21.60	22.5		
Note: All system validation SAR values are measured at 24dBm and normalized to 1W forward power.						



## 6. SAR Evaluation Procedures:

The procedure for assessing the average SAR value consists of the following steps:

➤ Power Reference Measurement

The Power Reference Measurement and Power Drift Measurement jobs are useful jobs for monitoring the power drift of the device under test in the batch process. Both jobs measure the field at a specified reference position, at a selectable distance from the phantom surface. The reference position can be either the selected section's grid reference point or a user point in this section. The reference job projects the selected point onto the phantom surface, orients the probe perpendicularly to the surface, and approaches the surface using the selected detection method.

➤ Area Scan

The Area Scan is used as a fast scan in two dimensions to find the area of high field values, before doing a finer measurement around the hot spot. The sophisticated interpolation routines implemented in DASY4 software can find the maximum locations even in relatively coarse grids. The scanning area is defined by an editable grid. This grid is anchored at the grid reference point of the selected section in the phantom. When the Area Scan's property sheet is brought-up, grid settings can be edited by a user.

➤ Zoom Scan

Zoom Scans are used to assess the peak spatial SAR values within a cubic averaging volume containing 1 g and 10 g of simulated tissue. The default Zoom Scan measures 7 x 7 x 7 points (5mmx5mmx5mm) within a cube whose base faces are centered on the maxima found in a preceding area scan job within the same procedure.

➤ Power Drift Measurement

The Power Drift Measurement job measures the field at the same location as the most recent power reference measurement job within the same procedure, and with the same settings. The Power Drift Measurement gives the field difference in dB from the reading conducted within the last Power Reference Measurement.



## 7. SAR Exposure Limits

SAR assessments have been made in line with the requirements of IEEE-15288,FCC Supplement C ,and comply with ANSI/IEEE C95.1-1992"Uncontrolled Environments" limits.

**Limits for General Population/Uncontrolled Exposure (W/kg)**

Type Exposure	Uncontrolled Environment Limit
Spatial Peak SAR (1g cube tissue for brain or body)	1.60W/kg
Spatial Peak SAR (whole body)	0.08W/kg
Spatial Peak SAR (10g for hands,feet,ankles and wrist)	4.00W/kg

Note: Occupational/Uncontrolled 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)

**8. Measurement Uncertainty:**

Measurement uncertainty for 300 MHz to 3 GHz averaged over 1 gram / 10 gram.

NO	Source	Uncert. ai (%)	Prob. Dist.	Div. k	ci (1g)	ci (10g)	Stand. Uncert. ui (1g)	Stand. Uncert. ui (10g)	V <sub>eff</sub>
1	Repeat	0.04	N	1	1	1	0.04	0.04	9
Instrument									
2	Probe calibration	7	N	2	1	1	3.5	3.5	$\infty$
3	Axial isotropy	4.7	R	$\sqrt{3}$	0.7	0.7	1.9	1.9	$\infty$
4	Hemispherical isotropy	9.6	R	$\sqrt{3}$	0.7	0.7	3.9	3.9	$\infty$
5	Boundary effect	1.0	R	$\sqrt{3}$	1	1	0.6	0.6	$\infty$
6	Linearity	4.7	R	$\sqrt{3}$	1	1	2.7	2.7	$\infty$
7	Detection limits	1.0	R	$\sqrt{3}$	1	1	0.6	0.6	$\infty$
8	Readout electronics	0.3	N	1	1	1	0.3	0.3	$\infty$
9	Response time	0.8	R	$\sqrt{3}$	1	1	0.5	0.5	$\infty$
10	Integration time	2.6	R	$\sqrt{3}$	1	1	1.5	1.5	$\infty$
11	Ambient noise	3.0	R	$\sqrt{3}$	1	1	1.7	1.7	$\infty$
12	Ambient reflections	3.0	R	$\sqrt{3}$	1	1	1.7	1.7	$\infty$
13	Probe positioner mech. restrictions	0.4	R	$\sqrt{3}$	1	1	0.2	0.2	$\infty$
14	Probe positioning with respect to phantom shell	2.9	R	$\sqrt{3}$	1	1	1.7	1.7	$\infty$
15	Max.SAR evaluation	1.0	R	$\sqrt{3}$	1	1	0.6	0.6	$\infty$



Test sample related									
16	Device positioning	3.8	N	1	1	1	3.8	3.8	99
17	Device holder	5.1	N	1	1	1	5.1	5.1	5
18	Drift of output power	5.0	R	✓ <sup>b</sup>	1	1	2.9	2.9	∞
Phantom and set-up									
19	Phantom uncertainty	4.0	R	✓ <sup>b</sup>	1	1	2.3	2.3	∞
20	Liquid conductivity (target)	5.0	R	✓ <sup>b</sup>	0.64	0.43	1.8	1.2	∞
21	Liquid conductivity (meas)	2.5	N	1	0.64	0.43	1.6	1.2	∞
22	Liquid Permittivity (target)	5.0	R	✓ <sup>b</sup>	0.6	0.49	1.7	1.5	∞
23	Liquid Permittivity (meas)	2.5	N	1	0.6	0.49	1.5	1.2	∞
Combined standard		RSS		$U_c = \sqrt{\sum_{i=1}^n C_i^2 U_i^2}$			12.2%	11.9%	236
Expanded uncertainty (P=95%)		$U = k U_c, k=2$				24.4%	23.8%		

**9. Conducted Power Measurement:**

Band	Channel	Frequency (MHz)	Avg.Burst Power(dBm)	Duty Cycle Factor(dB)	Frame Power (dBm)
Maximum Power <SIM 1>					
GSM850	CH128	824.20	32.21	-9.03	23.18
	CH190	836.60	32.32	-9.03	23.29
	CH251	848.80	32.26	-9.03	23.23
PCS1900	Ch512	1850.20	30.31	-9.03	21.28
	CH661	1880.00	30.25	-9.03	21.22
	CH810	1909.80	30.28	-9.03	21.25
Maximum Power <SIM 2>					
GSM850	CH128	824.20	32.21	-9.03	23.18
	CH190	836.60	32.32	-9.03	23.29
	CH251	848.80	32.26	-9.03	23.23
PCS1900	Ch512	1850.20	30.31	-9.03	21.28
	CH661	1880.00	30.25	-9.03	21.22
	CH810	1909.80	30.28	-9.03	21.25



Band	Channel	Frequency (MHz)	Avg.Burst Power(dBm)	Duty Cycle Factor(dB)	Frame Power (dBm)
Maximum Power <SIM 1>					
GPRS850 1slot	CH128	824.20	32.08	-9.03	23.05
	CH190	836.60	32.17	-9.03	23.14
	CH251	848.80	32.33	-9.03	23.30
GPRS850 2slots	CH128	824.20	32.11	-6.02	26.09
	CH190	836.60	32.33	-6.02	26.31
	CH251	848.80	32.24	-6.02	26.22
GPRS850 3slots	CH128	824.20	32.21	-4.26	27.95
	CH190	836.60	32.09	-4.26	27.83
	CH251	848.80	32.15	-4.26	27.89
GPRS850 4slots	CH128	824.20	32.14	-3.01	39.13
	CH190	836.60	32.16	-3.01	29.15
	CH251	848.80	32.61	-3.01	29.60
GPRS1900 1slot	Ch512	1850.20	30.18	-9.03	21.15
	CH661	1880.00	30.36	-9.03	21.33
	CH810	1909.80	30.15	-9.03	21.12
GPRS1900 2slots	Ch512	1850.20	30.24	-6.02	24.22
	CH661	1880.00	30.29	-6.02	24.27
	CH810	1909.80	30.22	-6.02	24.20
GPRS1900 3slots	Ch512	1850.20	30.09	-4.26	25.83
	CH661	1880.00	30.31	-4.26	26.05
	CH810	1909.80	30.14	-4.26	25.88
GPRS1900 4slots	Ch512	1850.20	30.17	-3.01	27.16
	CH661	1880.00	30.18	-3.01	27.17
	CH810	1909.80	30.51	-3.01	27.50



## 10. Test photos and results:

### 10.1 DUT photos:



Front side (Flip on)



Back side (Flip on)



Front side (Flip off)



Back side (Flip off)



10.2 Setup photos:

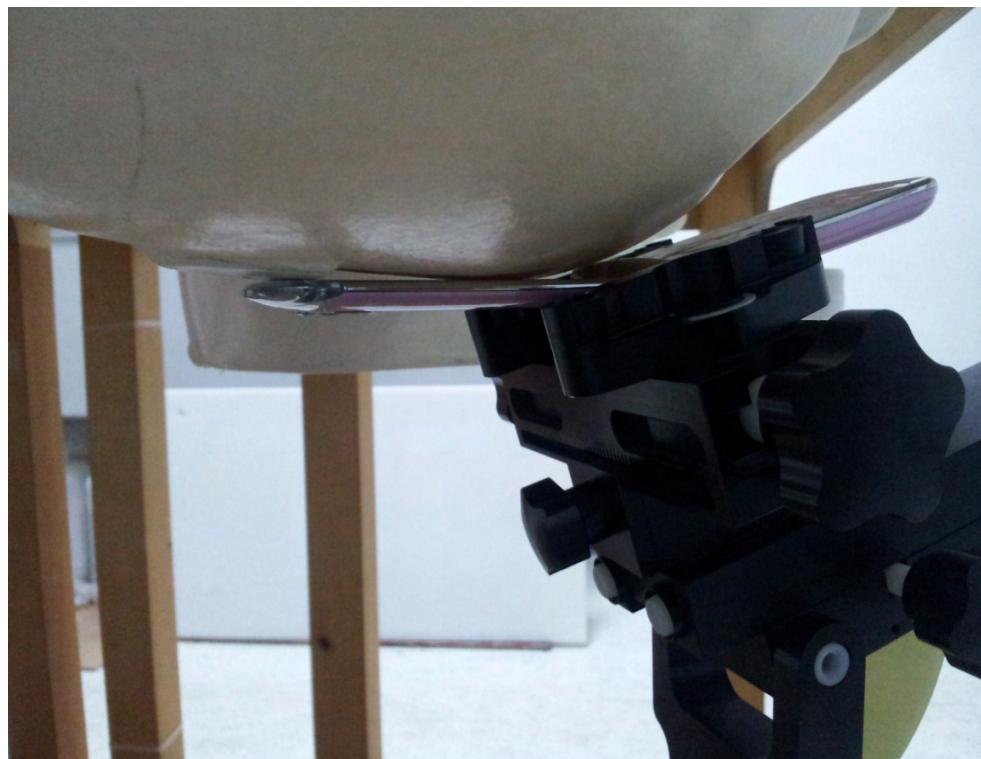
Flip On:



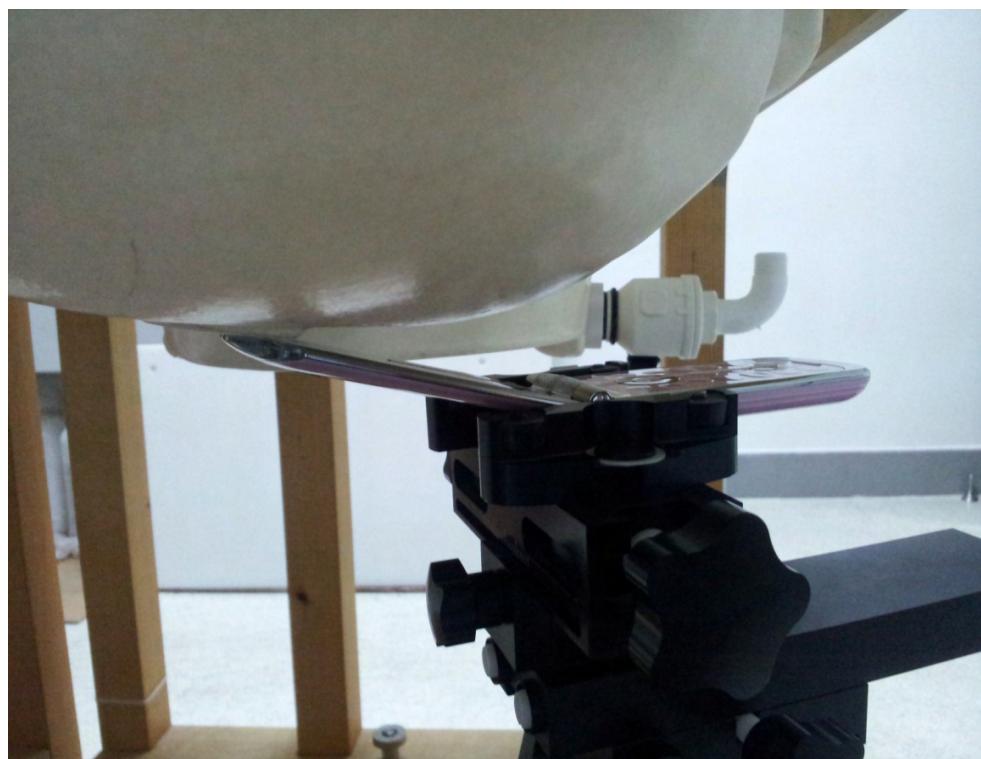
Left Touch Cheek



Left Tilt( $15^\circ$ )



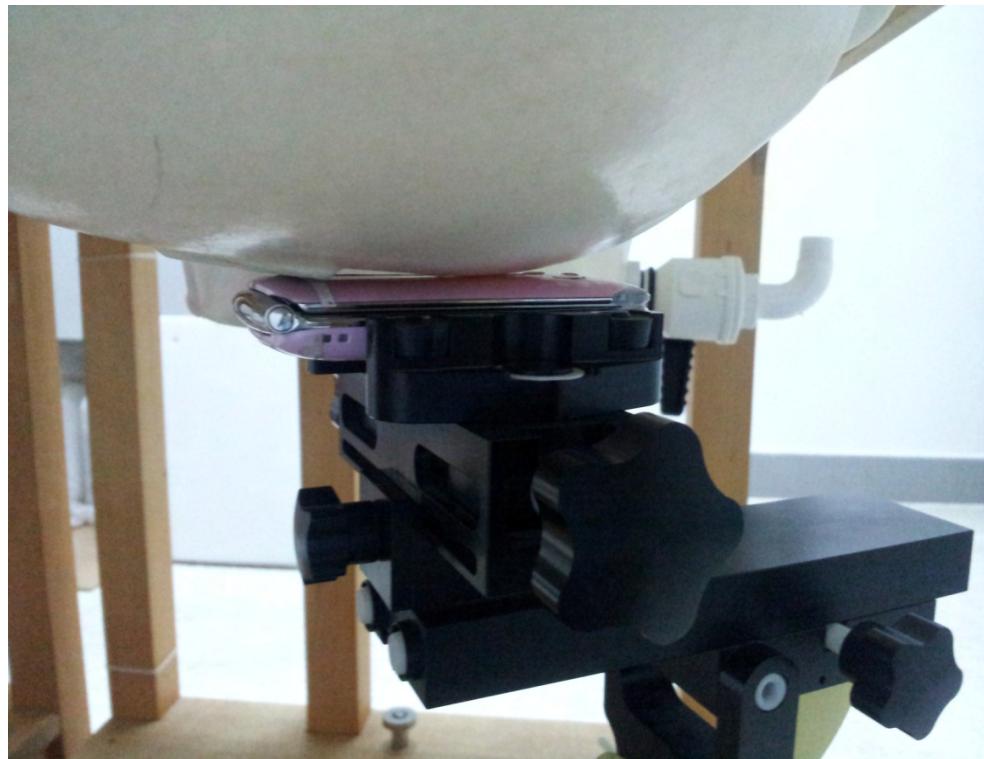
Right Touch Cheek



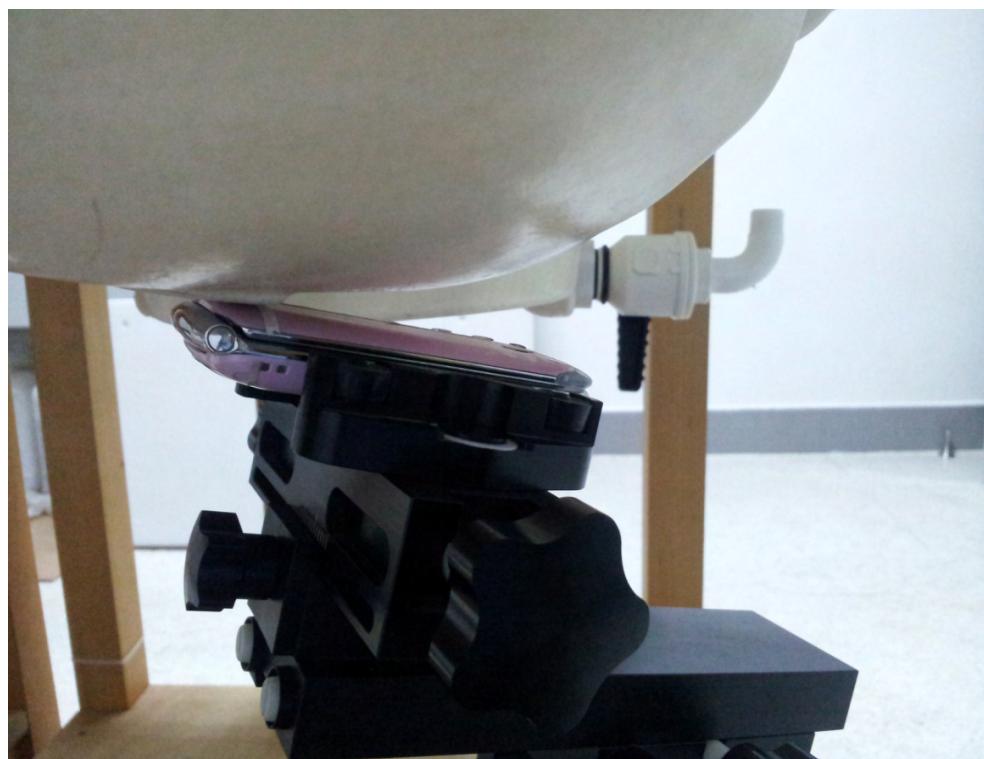
Right Tilt( $15^\circ$  )



Flip off:



Left Touch Cheek



Left Tilt(15° )



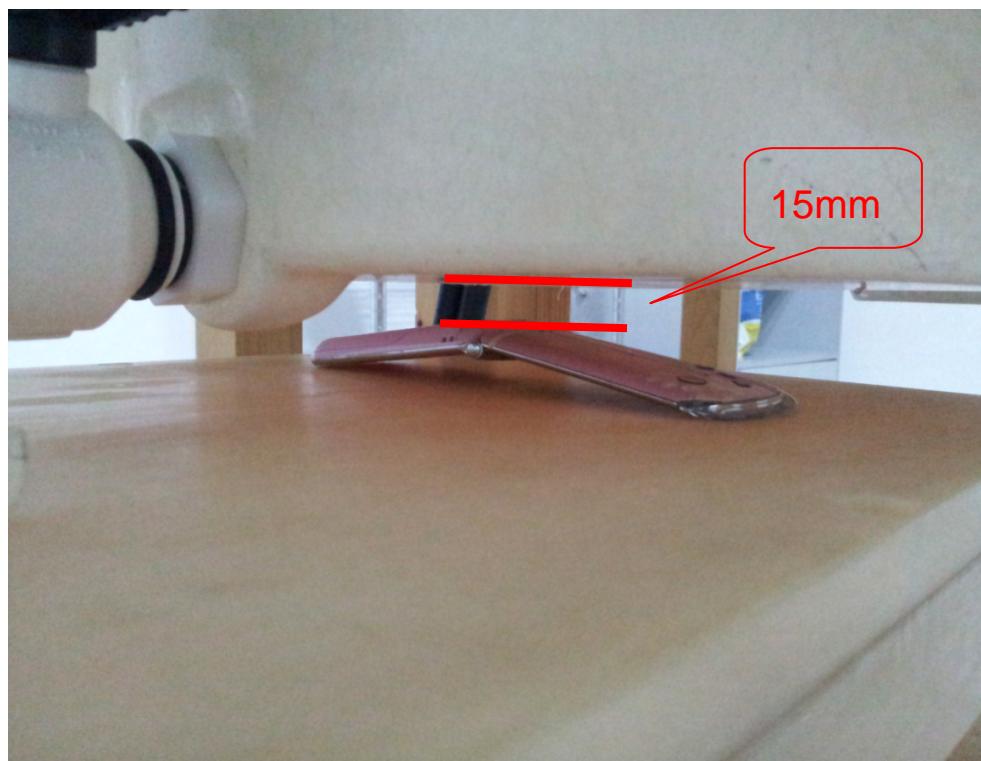
Right Touch Cheek



Right Tilt( $15^\circ$  )



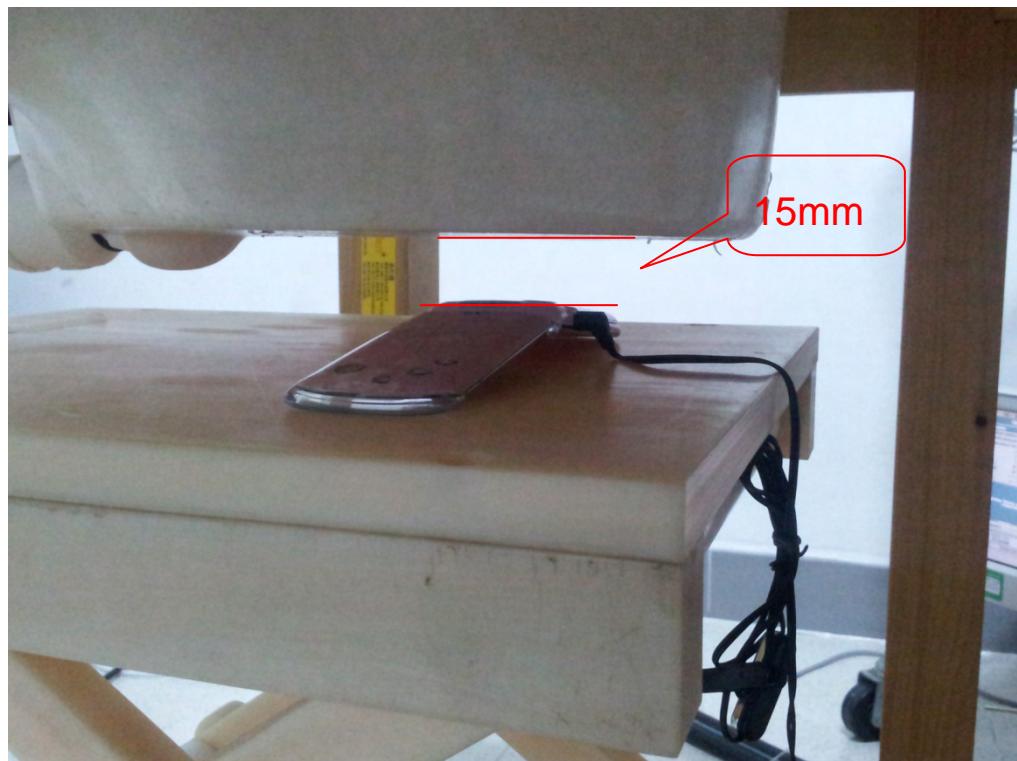
Body:



Body Worn



Body Front



Body Worn with Headset



Liquid depth (15cm)



## 10.3 SAR result summary:

The device's power specific is  $32.5 \pm 1 \text{ dBm}$  for GSM/GPRS 850,  $30 \pm 1 \text{ dBm}$  for GSM/GPRS 1900, so the target power is 33.5dBm for GSM/GPRS 850, 31dBm for GSM/GPRS 1900.

Scale Factor=Target Power/Measurement Power

Scale SAR=Measurement SAR\*Scale Factor

**Head (Flip On)**

Test Case of Head			Meas. Power (dBm)	Target Power (dBm)	Fact or	Meas. SAR (W/kg) 1g Avg.	Scale SAR (W/kg)	Power Drift < $\pm 0.2$ dB	Data Slot
Band	Test Position	CH							

**SIM1,Liquid: Head**

GSM 850	Right Cheek	CH190	32.32	33.5	1.43	0.505	0.722	0.118	Plot 1
	Right Tilt	CH190	32.32	33.5	1.43	0.189	0.270	-0.023	Plot 2
	Left Tilt	CH190	32.32	33.5	1.43	0.186	0.266	-0.019	Plot 3
	Left Cheek	CH190	32.32	33.5	1.43	0.637	0.911	0.157	Plot 4

**SIM2,Liquid: Head**

GSM 850	Left Cheek	CH190	32.32	33.5	1.43	0.404	0.578	0.087	Plot 5
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# SHENZHEN SUNWAY COMMUNICATION CO.,LTD

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Test Case of Head			Meas. Power (dBm)	Target Power (dBm)	Fact or	Meas. SAR (W/kg) 1g Avg.	Scale SAR (W/kg)	Power Drift $<\pm 0.2$ dB	Data Slot
Band	Test Position	CH							
<b>SIM1,Liquid: Head</b>									
GSM 1900	Right Cheek	CH661	30.39	31	1.22	0.752	0.917	0.053	Plot 6
	Right Tilt	CH661	30.39	31	1.22	0.284	0.346	-0.114	Plot 7
	Left Tilt	CH661	30.39	31	1.22	0.079	0.096	-0.188	Plot 8
	Left Cheek	CH661	30.39	31	1.22	1.26	1.537	0.148	Plot 9
	Left Cheek Repeat-1	CH661	30.39	31	1.22	1.25	1.525	0.184	Plot 10
	<b>Left Cheek Repeat-2</b>	<b>CH661</b>	<b>30.39</b>	<b>31</b>	<b>1.22</b>	<b>1.29</b>	<b>1.574</b>	<b>0.192</b>	<b>Plot 11</b>
	Left Cheek	CH512	30.49	31	1.18	1.28	1.510	0.151	Plot 12
	Left Cheek Repeat-1	CH512	30.49	31	1.18	1.3	1.534	0.046	Plot 13
	Left Cheek Repeat-2	CH512	30.49	31	1.18	1.28	1.510	0.190	Plot 14
	Left Cheek	CH810	30.36	31	1.23	1.15	1.415	-0.046	Plot 15
	Left Cheek Repeat-1	CH810	30.36	31	1.23	1.15	1.415	-0.113	Plot 16
	Left Cheek Repeat-2	CH810	30.36	31	1.23	1.12	1.378	-0.028	Plot 17



Test Case of Head			Meas. Power (dBm)	Target Power (dBm)	Fact or	Meas. SAR (W/kg) 1g Avg.	Scale SAR (W/kg)	Power Drift $<\pm 0.2$ dB	Data Slot
Band	Test Position	CH							
<b>SIM2,Liquid: Head</b>									
GSM 1900	Left Cheek	CH661	30.39	31	1.22	1.12	1.366	0.173	Plot 18
	Left Cheek Repeat-1	CH661	30.39	31	1.22	1.13	1.379	-0.014	Plot 19
	Left Cheek Repeat-2	CH661	30.39	31	1.22	1.13	1.379	-0.017	Plot 20
	Left Cheek	CH512	30.49	31	1.18	1.15	1.357	0.131	Plot 21
	Left Cheek Repeat-1	CH512	30.49	31	1.18	1.24	1.463	-0.008	Plot 22
	Left Cheek Repeat-2	CH512	30.49	31	1.18	1.23	1.451	0.095	Plot 23
	Left Cheek	CH810	30.36	31	1.23	0.933	1.148	0.013	Plot 24
	Left Cheek Repeat-1	CH810	30.36	31	1.23	0.914	1.124	-0.070	Plot 25
	Left Cheek Repeat-2	CH810	30.36	31	1.23	0.887	1.091	-0.132	Plot 26



## Head (Flip Off)

Test Case of Head			Meas. Power (dBm)	Target Power (dBm)	Fact or	Meas. SAR (W/kg) 1g Avg.	Scale SAR (W/kg)	Power Drift <± 0.2 dB	Data Slot
Band	Test Position	CH							

**SIM1,Liquid: Head**

GSM 850	Right Cheek	CH190	32.32	33.5	1.43	0.023	0.033	0.127	Plot 27
	Right Tilt	CH190	32.32	33.5	1.43	0.021	0.030	0.138	Plot 28
	Left Tilt	CH190	32.32	33.5	1.43	0.031	0.044	-0.097	Plot 29
	Left Cheek	CH190	32.32	33.5	1.43	0.034	0.049	-0.018	Plot 30

**SIM2,Liquid: Head**

GSM 850	Left Cheek	CH190	32.32	33.5	1.43	0.037	0.053	-0.083	Plot 31
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**SIM1,Liquid: Head**

GSM 1900	Right Cheek	CH661	30.39	31	1.22	0.417	0.509	-0.137	Plot 32
	Right Tilt	CH661	30.39	31	1.22	0.212	0.259	0.032	Plot 33
	Left Tilt	CH661	30.39	31	1.22	0.170	0.207	0.033	Plot 34
	Left Cheek	CH661	30.39	31	1.22	0.369	0.450	0.093	Plot 35

**SIM2,Liquid: Head**

GSM 1900	Left Cheek	CH661	30.39	31	1.22	0.231	0.231	-0.166	Plot 36
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Note: When the 1g SAR is  $\leq 0.8$  W/kg, testing for low and high channel is optional.



Body (15mm between DUT and Flat Phantom)

Test Case of Head			Meas. Power (dBm)	Target Power (dBm)	Fact or	Meas. SAR (W/kg) 1g Avg.	Scale SAR (W/kg)	Power Drift <± 0.2 dB	Data Slot
Band	Test Position	CH							

**Liquid: Body, Separator: 15mm**

GPRS 850	Worn-1Slot	CH190	32.32	33.5	1.43	0.123	0.176	-0.066	Plot 37
	Worn-2Slot	CH190	32.32	33.5	1.43	0.192	0.275	-0.104	Plot 38
	Worn-3Slot	CH190	32.32	33.5	1.43	0.128	0.183	-0.167	Plot 39
	Worn-4Slot	CH190	32.32	33.5	1.43	0.207	0.296	-0.121	Plot 36
	Front-4Slot	CH190	32.32	33.5	1.43	0.133	0.190	-0.012	Plot 40
GSM 850	Worn With Headset	CH190	32.32	33.5	1.43	0.139	0.199	-0.116	Plot 41
GPRS 1900	Worn-1Slot	CH661	30.39	31	1.22	0.167	0.204	-0.010	Plot 42
	Worn-2Slot	CH661	30.39	31	1.22	0.271	0.331	-0.016	Plot 43
	Worn-3Slot	CH661	30.39	31	1.22	0.333	0.406	0.075	Plot 44
	<b>Worn-4Slot</b>	<b>CH661</b>	<b>30.39</b>	<b>31</b>	<b>1.22</b>	<b>0.363</b>	<b>0.443</b>	<b>-0.194</b>	<b>Plot 45</b>
	Front-4Slot	CH661	30.39	31	1.22	0.156	0.190	0.504	Plot 46
GSM 1900	Worn With Headset	CH661	30.39	31	1.22	0.166	0.203	-0.007	Plot 47

Note: When the 1g SAR is  $\leq 0.8$  W/kg, testing for low and high channel is optional.  
 Above all, the max SAR value is 1.574 W/kg in Head, 0.443 W/kg in Body

**11. Equipment List:**

NO.	Instrument	Manufacture	Model	S/N	Cal. Date	Cal. Due Date
1	Communication Tester	Agilent	E5515C	MY50267264	Dec 27 <sup>th</sup> 2013	Dec 27 <sup>th</sup> 2014
2	E-field Probe	Speag	ES3DV3	3028	August 5 <sup>th</sup> 2013	August 4 <sup>th</sup> 2014
3	Dielectric Probe Kit	Speag	DAK 3.5mm Probe	1038	N/A	N/A
4	DAE	Speag	DAE4	689	July 20 <sup>th</sup> 2013	July 19 <sup>th</sup> 2014
5	SAM TWIN phantom	Speag	SAM	1360/1432	N/A	N/A
6	Robot	Stabuli	TX60L	N/A	N/A	N/A
7	Device Holder	Speag	SD000H01HA	N/A	N/A	N/A
8	Vector Network	Agilent	E5071C	MY46107615	Jan 6 <sup>th</sup> 2014	Jan 7 <sup>th</sup> 2015
9	Signal Generator	Agilent	E4438C	MY49072279	Nov 27 <sup>th</sup> 2013	Nov 27 <sup>th</sup> 2014
10	Amplifier	Mini-circuit	ZHL-42W	QA098002	N/A	N/A
11	Power Meter	Agilent	N1419A	MY50001563	Nov 27 <sup>th</sup> 2013	Nov 27 <sup>th</sup> 2014
12	Power Sensor	Agilent	N8481H	MY51020010	Nov 27 <sup>th</sup> 2013	Nov 27 <sup>th</sup> 2014
13	Directional Coupler	Agilent	772D	MY46151275	Nov 27 <sup>th</sup> 2013	Nov 27 <sup>th</sup> 2014
14	Directional Coupler	Agilent	778D	MY48220607	Nov 27 <sup>th</sup> 2013	Nov 27 <sup>th</sup> 2014
15	Dipole 835MHz	Speag	D835V2	4d154	Jun 6 <sup>th</sup> 2013	Jun 6 <sup>th</sup> 2015
16	Dipole 1900MHz	Speag	D1900V2	5d142	Jun 10 <sup>th</sup> 2013	Jun 10 <sup>th</sup> 2015

**Appendix A. System validation plots:****DUT: Dipole 835MHz; Type: D835V2; Serial: D835V2 - SN:4d154****Program Name: System Performance Check Head at 835 MHz**

Communication System: CW; Frequency: 835 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 835 \text{ MHz}$ ;  $\sigma = 0.91 \text{ mho/m}$ ;  $\epsilon_r = 42.27$ ;  $\rho = 1000 \text{ kg/m}^3$ 

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3028; ConvF(4.08, 4.08, 4.08); Calibrated: 8/5/2013
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn689; Calibrated: 7/20/2013
- Phantom: SAM with TP1432; Type: SAM; Serial: Not Specified
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

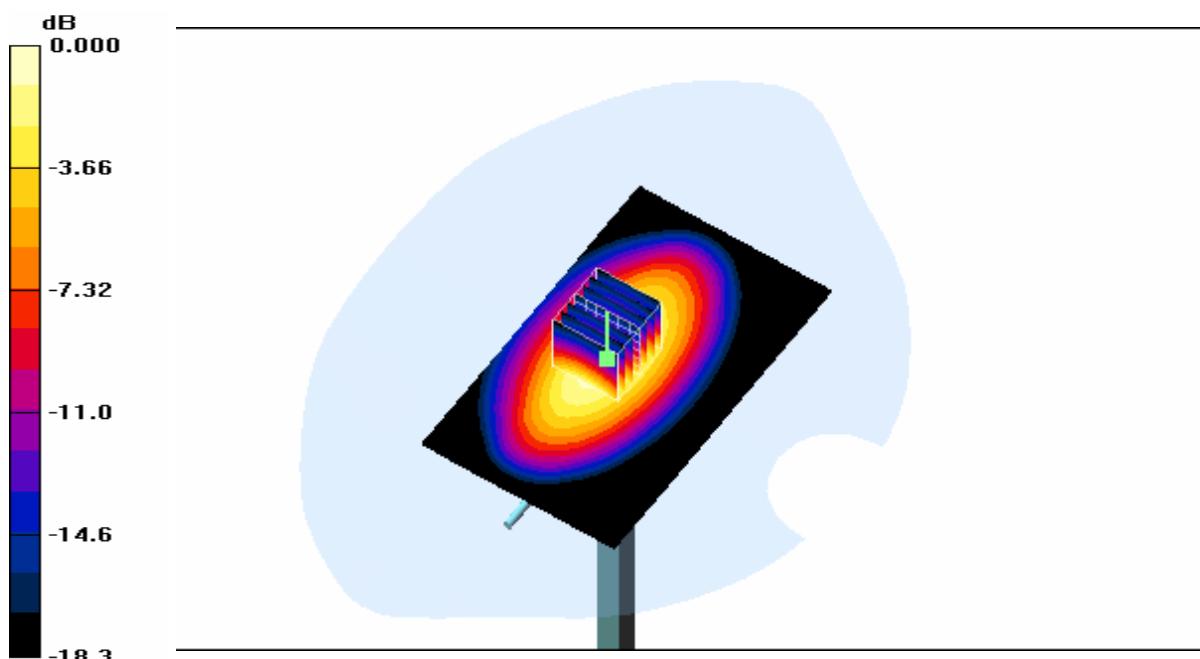
**d=10mm, Pin=250mW/Area Scan (61x61x1):** Measurement grid: dx=15mm, dy=15mm  
Maximum value of SAR (interpolated) = 2.59 W/kg**d=10mm, Pin=250mW/Zoom Scan (7x7x7) (7x7x7)/Cube 0:** Measurement grid:  
dx=5mm, dy=5mm, dz=5mm

Reference Value = 55.7 V/m; Power Drift = -0.078dB

Peak SAR (extrapolated) = 3.8 W/kg

**SAR(1 g) = 2.51 W/kg; SAR(10 g) = 1.64 W/kg**

Maximum value of SAR (measured) = 2.71 W/kg





0 dB = 2.71W/kg

**DUT: Dipole 835MHz; Type: D835V2; Serial: D835V2 - SN:4d154**

**Program Name: System Performance Check Body at 835 MHz**

Communication System: CW; Frequency: 835 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 835 \text{ MHz}$ ;  $\sigma = 0.98 \text{ mho/m}$ ;  $\epsilon_r = 54.73$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3028; ConvF(4.08, 4.08, 4.08); Calibrated: 8/5/2013
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn689; Calibrated: 7/20/2013
- Phantom: SAM with TP1432; Type: SAM; Serial: Not Specified
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

**d=10mm, Pin=250mW/Area Scan (61x61x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$   
Maximum value of SAR (interpolated) = 2.49 W/kg

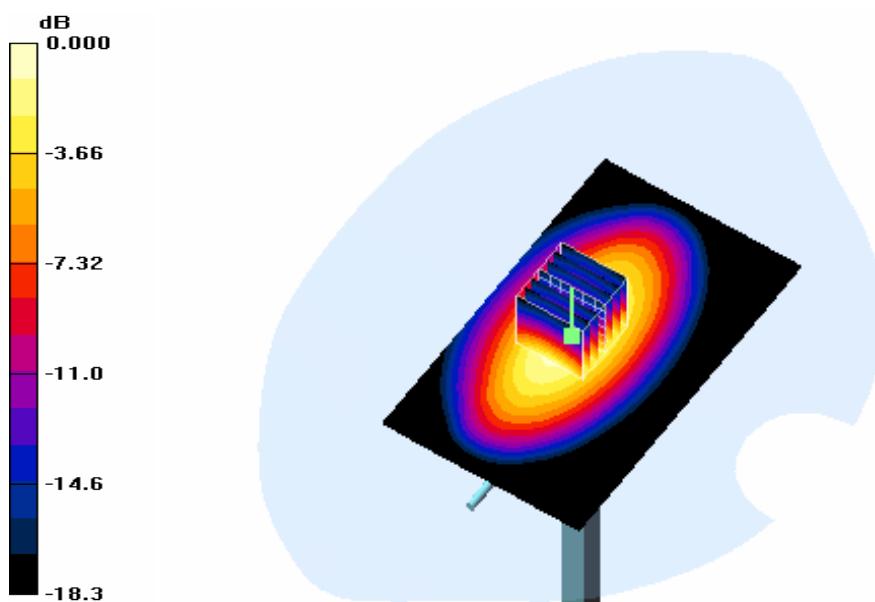
**d=10mm, Pin=250mW/Zoom Scan (7x7x7) (7x7x7)/Cube 0:** Measurement grid:  
 $dx=5\text{mm}$ ,  $dy=5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 52.1 V/m; Power Drift = -0.027dB

Peak SAR (extrapolated) = 3.68 W/kg

**SAR(1 g) = 2.42 W/kg; SAR(10 g) = 1.56 W/kg**

Maximum value of SAR (measured) = 2.61 W/kg



0 dB = 2.61W/kg



**DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN:5d142**

**Program Name: System Performance Check Head at 1900 MHz**

Communication System: CW; Frequency: 1900 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 1900 \text{ MHz}$ ;  $\sigma = 1.42 \text{ mho/m}$ ;  $\epsilon_r = 39.27$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3028; ConvF(4.08, 4.08, 4.08); Calibrated: 8/5/2013
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn689; Calibrated: 7/20/2013
- Phantom: SAM with TP1432; Type: SAM; Serial: Not Specified
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

**d=15mm, Pin=250mW/Area Scan (61x101x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 11.1 W/kg

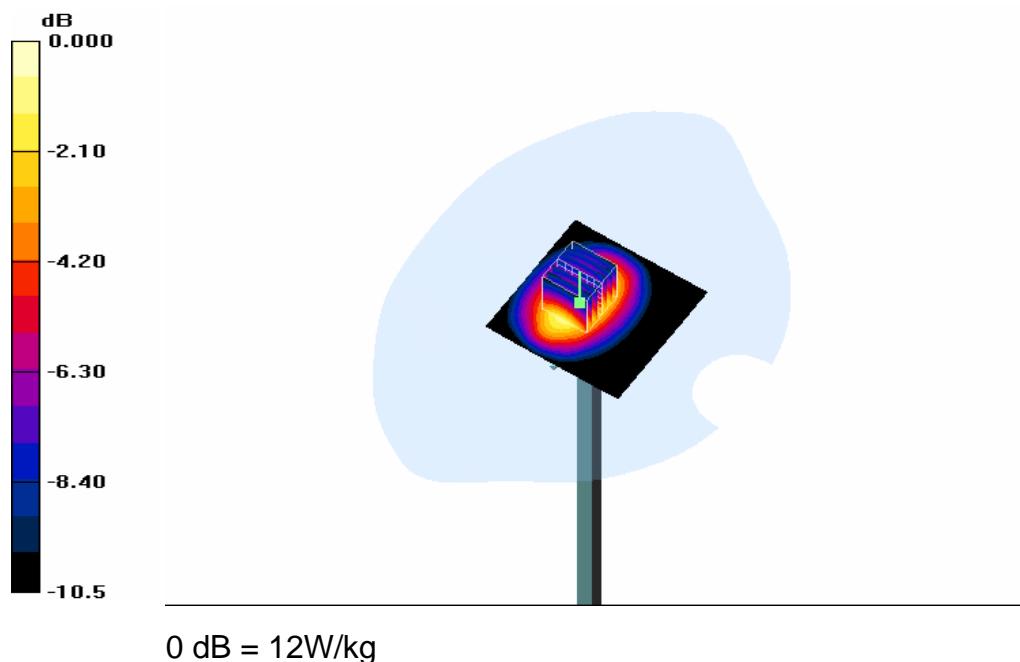
**d=15mm, Pin=250mW/Zoom Scan (7x7x7) (7x7x7)/Cube 0:** Measurement grid:  $dx=5\text{mm}$ ,  $dy=5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 90.8 V/m; Power Drift = -0.099dB

Peak SAR (extrapolated) = 20 W/kg

**SAR(1 g) = 10.5 W/kg; SAR(10 g) = 5.36 W/kg**

Maximum value of SAR (measured) = 12 W/kg





DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN:5d142

Program Name: System Performance Check Body at 1900 MHz

Communication System: CW; Frequency: 1900 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 1900 \text{ MHz}$ ;  $\sigma = 1.54 \text{ mho/m}$ ;  $\epsilon_r = 52.45$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3028; ConvF(4.08, 4.08, 4.08); Calibrated: 8/5/2013
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn689; Calibrated: 7/20/2013
- Phantom: SAM with TP1432; Type: SAM; Serial: Not Specified
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

**d=15mm, Pin=250mW/Area Scan (61x101x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 12 W/kg

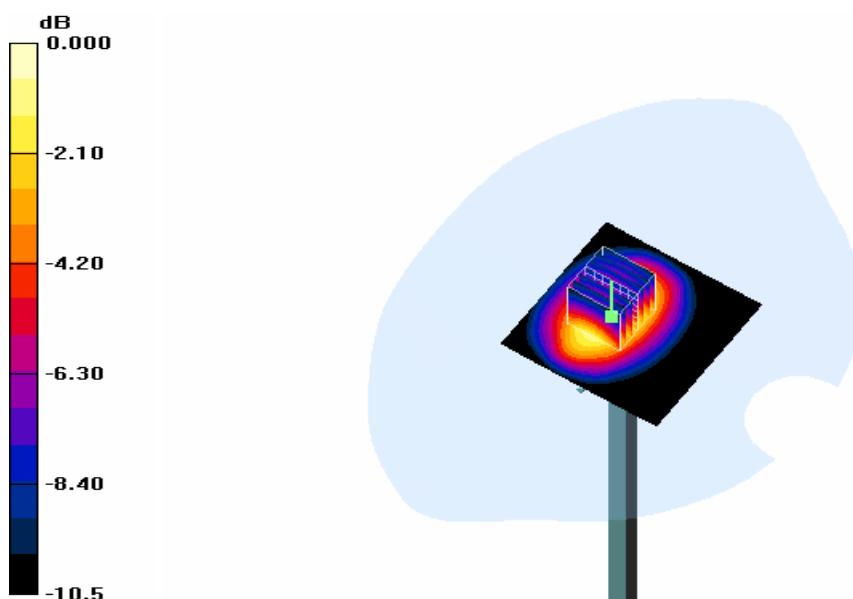
**d=15mm, Pin=250mW/Zoom Scan (7x7x7) (7x7x7)/Cube 0:** Measurement grid:  $dx=5\text{mm}$ ,  $dy=5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 88.6 V/m; Power Drift = 0.025dB

Peak SAR (extrapolated) = 19.7 W/kg

**SAR(1 g) = 10.6 W/kg; SAR(10 g) = 5.4 W/kg**

Maximum value of SAR (measured) = 12 W/kg



0 dB = 12W/kg

**Appendix B. SAR Test plots:**

Plot 1: Date/Time: 3/23/2014 1:24:18 AM

Test Laboratory: SUNWAY COMMUNICATION CO.,LTD.

**DUT: 700 ; Type: SI PIN; Serial: IMEI Number**

**Program Name: 700**

Communication System: GSM 850; Frequency: 836.6 MHz; Duty Cycle: 1:8.3

Medium parameters used:  $f = 837 \text{ MHz}$ ;  $\sigma = 0.892 \text{ mho/m}$ ;  $\epsilon_r = 41.5$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Right Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3028; ConvF(6.26, 6.26, 6.26); Calibrated: 8/1/2013
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn689; Calibrated: 7/20/2013
- Phantom: SAM with TP1432; Type: SAM; Serial: Not Specified
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

**right touch/Area Scan (61x141x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.562 W/kg

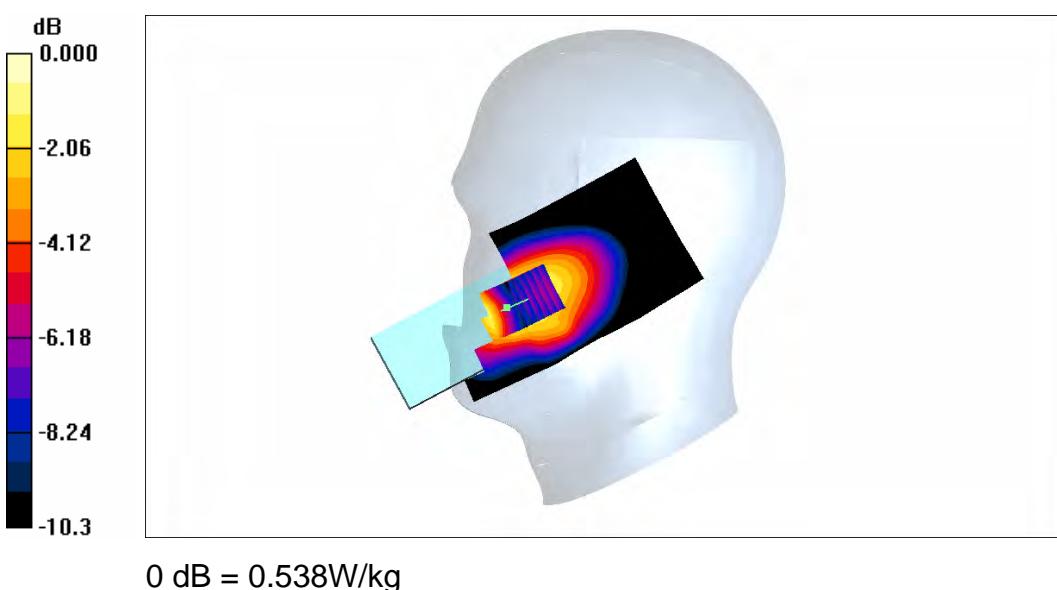
**right touch/Zoom Scan (7x7x7)/Cube 0:** Measurement grid:  $dx=5\text{mm}$ ,  $dy=5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 6.06 V/m; Power Drift = 0.118 dB

Peak SAR (extrapolated) = 0.779 W/kg

**SAR(1 g) = 0.504 W/kg; SAR(10 g) = 0.336 W/kg**

Maximum value of SAR (measured) = 0.538 W/kg





Plot 2: Date/Time: 3/23/2014 1:55:26 AM

Test Laboratory: SUNWAY COMMUNICATION CO.,LTD.

**DUT: 700 ; Type: SI PIN; Serial: IMEI Number**

**Program Name: 700**

Communication System: GSM 850; Frequency: 836.6 MHz; Duty Cycle: 1:8.3

Medium parameters used:  $f = 837 \text{ MHz}$ ;  $\sigma = 0.892 \text{ mho/m}$ ;  $\epsilon_r = 41.5$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Right Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3028; ConvF(6.26, 6.26, 6.26); Calibrated: 8/1/2013
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn689; Calibrated: 7/20/2013
- Phantom: SAM with TP1432; Type: SAM; Serial: Not Specified
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

**right tilt/Area Scan (61x151x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.203 W/kg

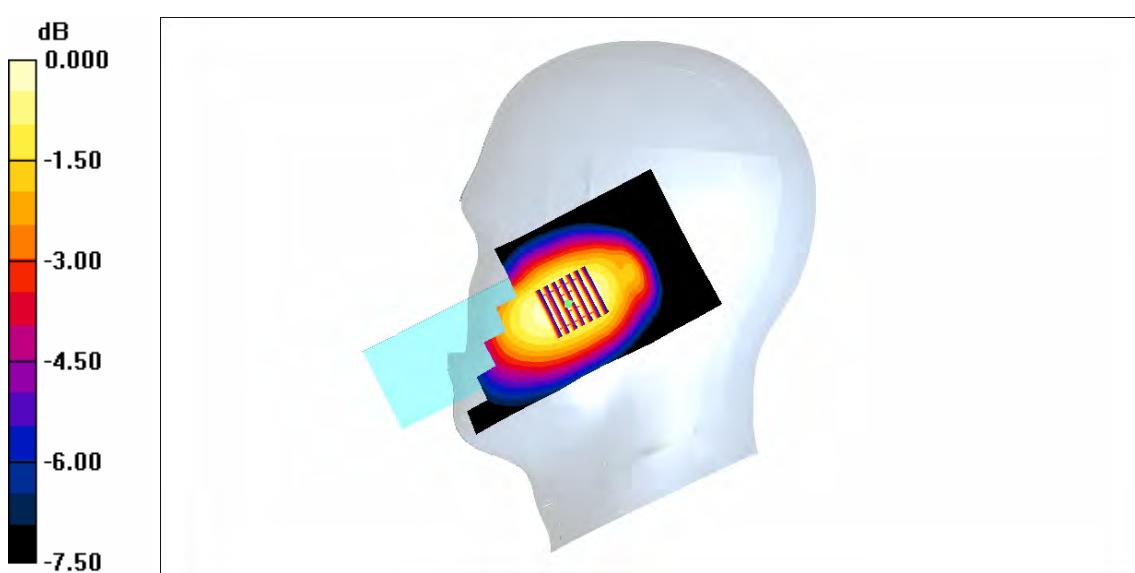
**right tilt/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 9.59 V/m; Power Drift = -0.023 dB

Peak SAR (extrapolated) = 0.229 W/kg

**SAR(1 g) = 0.189 W/kg; SAR(10 g) = 0.148 W/kg**

Maximum value of SAR (measured) = 0.200 W/kg



0 dB = 0.200W/kg



Plot 3: Date/Time: 3/23/2014 2:44:03 AM

Test Laboratory: SUNWAY COMMUNICATION CO.,LTD.

**DUT: 700 ; Type: SI PIN; Serial: IMEI Number**

**Program Name: 700**

Communication System: GSM 850; Frequency: 836.6 MHz; Duty Cycle: 1:8.3

Medium parameters used:  $f = 837 \text{ MHz}$ ;  $\sigma = 0.892 \text{ mho/m}$ ;  $\epsilon_r = 41.5$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3028; ConvF(6.26, 6.26, 6.26); Calibrated: 8/1/2013
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn689; Calibrated: 7/20/2013
- Phantom: SAM with TP1432; Type: SAM; Serial: Not Specified
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

**Left tilt/Area Scan (61x151x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.199 W/kg

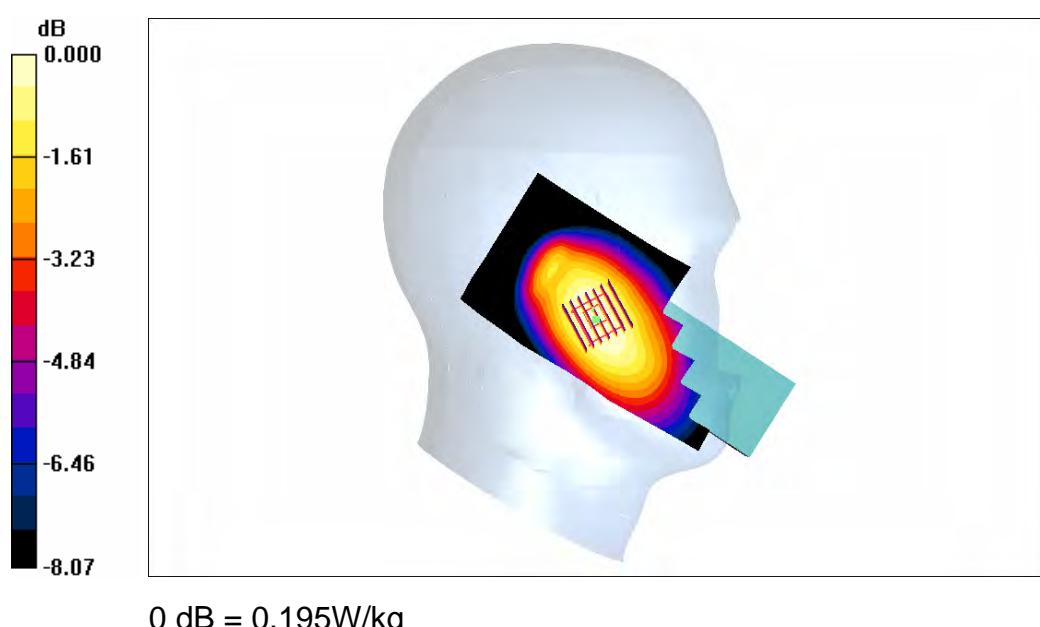
**Left tilt/Zoom Scan (7x7x7)/Cube 0:** Measurement grid:  $dx=5\text{mm}$ ,  $dy=5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 10.2 V/m; Power Drift = -0.019 dB

Peak SAR (extrapolated) = 0.234 W/kg

**SAR(1 g) = 0.186 W/kg; SAR(10 g) = 0.143 W/kg**

Maximum value of SAR (measured) = 0.195 W/kg





Plot 4: Date/Time: 3/23/2014 2:23:47 AM

Test Laboratory: SUNWAY COMMUNICATION CO.,LTD.

**DUT: 700 ; Type: SI PIN; Serial: IMEI Number**

**Program Name: 700**

Communication System: GSM 850; Frequency: 836.6 MHz; Duty Cycle: 1:8.3

Medium parameters used:  $f = 837 \text{ MHz}$ ;  $\sigma = 0.892 \text{ mho/m}$ ;  $\epsilon_r = 41.5$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3028; ConvF(6.26, 6.26, 6.26); Calibrated: 8/1/2013
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn689; Calibrated: 7/20/2013
- Phantom: SAM with TP1432; Type: SAM; Serial: Not Specified
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

**Left touch/Area Scan (61x141x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.678 W/kg

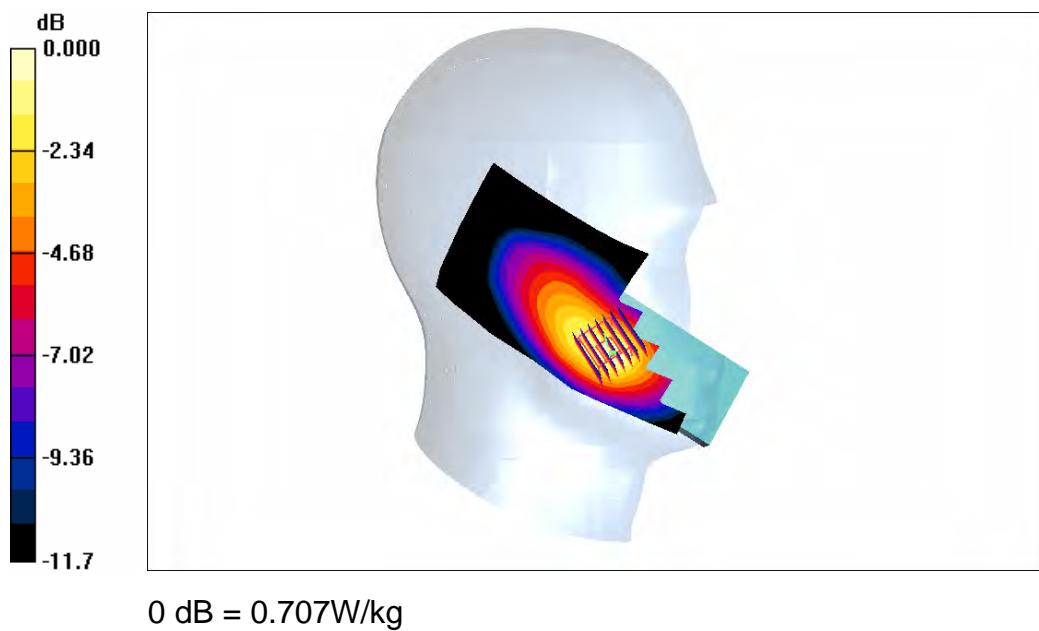
**Left touch/Zoom Scan (7x7x7)/Cube 0:** Measurement grid:  $dx=5\text{mm}$ ,  $dy=5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 9.07 V/m; Power Drift = 0.157 dB

Peak SAR (extrapolated) = 1.20 W/kg

**SAR(1 g) = 0.637 W/kg; SAR(10 g) = 0.370 W/kg**

Maximum value of SAR (measured) = 0.707 W/kg





Plot 5: Date/Time: 3/23/2014 3:03:15 AM

Test Laboratory: SUNWAY COMMUNICATION CO.,LTD.

**DUT: 700 ; Type: SI PIN; Serial: IMEI Number**

**Program Name: 700**

Communication System: GSM 850; Frequency: 836.6 MHz; Duty Cycle: 1:8.3

Medium parameters used:  $f = 837 \text{ MHz}$ ;  $\sigma = 0.892 \text{ mho/m}$ ;  $\epsilon_r = 41.5$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3028; ConvF(6.26, 6.26, 6.26); Calibrated: 8/1/2013
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn689; Calibrated: 7/20/2013
- Phantom: SAM with TP1432; Type: SAM; Serial: Not Specified
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

**Left touch SIM2/Area Scan (61x141x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.450 W/kg

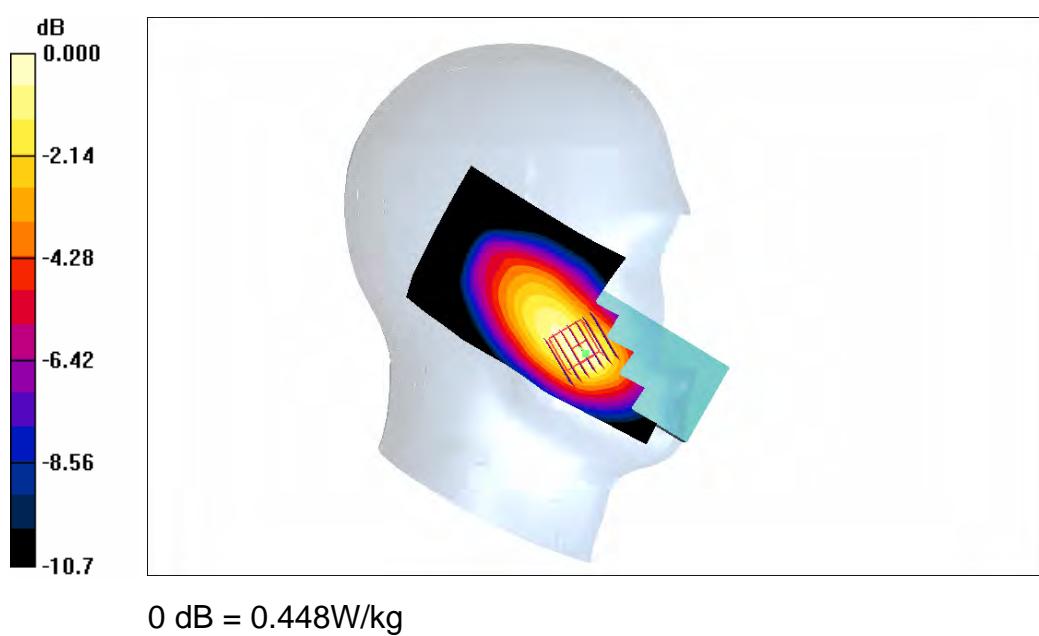
**Left touch SIM2/Zoom Scan (7x7x7)/Cube 0:** Measurement grid:  $dx=5\text{mm}$ ,  $dy=5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 8.66 V/m; Power Drift = -0.087 dB

Peak SAR (extrapolated) = 0.647 W/kg

**SAR(1 g) = 0.404 W/kg; SAR(10 g) = 0.266 W/kg**

Maximum value of SAR (measured) = 0.448 W/kg





Plot 6: Date/Time: 3/22/2014 12:08:42 PM

Test Laboratory: SUNWAY COMMUNICATION CO.,LTD.

**DUT: 700 ; Type: SI PIN; Serial: IMEI Number**

**Program Name: 700**

Communication System: GSM 1900; Frequency: 1850.2 MHz; Duty Cycle: 1:8.3

Medium parameters used (interpolated):  $f = 1850.2 \text{ MHz}$ ;  $\sigma = 1.37 \text{ mho/m}$ ;  $\epsilon_r = 40.6$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Right Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3028; ConvF(5.21, 5.21, 5.21); Calibrated: 8/1/2013
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn689; Calibrated: 7/20/2013
- Phantom: SAM with TP1360; Type: SAM; Serial: Not Specified
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

**right touch/Area Scan (61x141x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.891 W/kg

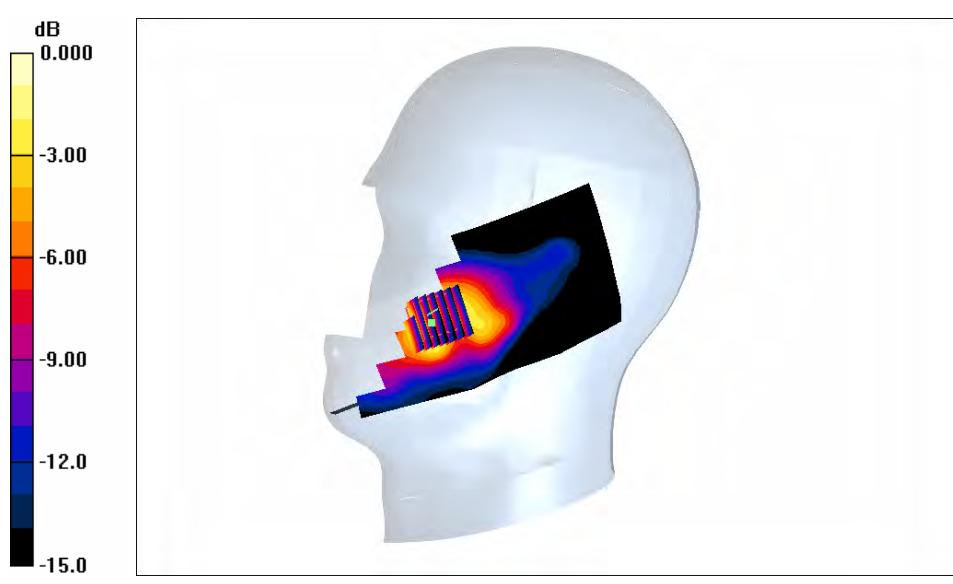
**right touch/Zoom Scan (7x7x7)/Cube 0:** Measurement grid:  $dx=5\text{mm}$ ,  $dy=5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 5.28 V/m; Power Drift = 0.053 dB

Peak SAR (extrapolated) = 1.43 W/kg

**SAR(1 g) = 0.752 W/kg; SAR(10 g) = 0.395 W/kg**

Maximum value of SAR (measured) = 0.843 W/kg



0 dB = 0.843W/kg



Plot 7: Date/Time: 3/22/2014 12:36:36 AM

Test Laboratory: SUNWAY COMMUNICATION CO.,LTD.

**DUT: 700 ; Type: SI PIN; Serial: IMEI Number**

**Program Name: 700**

Communication System: GSM 1900; Frequency: 1880 MHz; Duty Cycle: 1:8.3

Medium parameters used:  $f = 1880 \text{ MHz}$ ;  $\sigma = 1.4 \text{ mho/m}$ ;  $\epsilon_r = 40.5$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Right Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3028; ConvF(5.21, 5.21, 5.21); Calibrated: 8/1/2013
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn689; Calibrated: 7/20/2013
- Phantom: SAM with TP1360; Type: SAM; Serial: Not Specified
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

**right tilt/Area Scan (61x151x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.301 W/kg

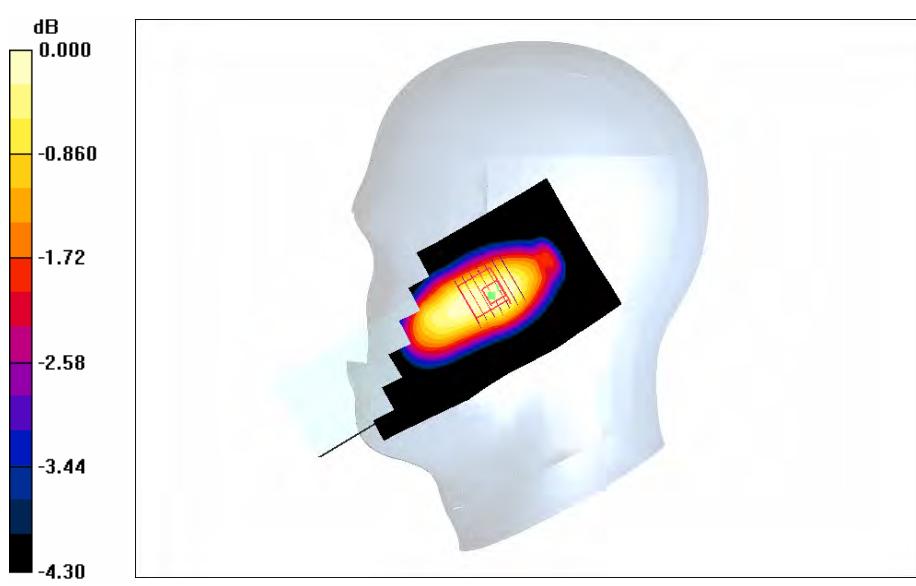
**right tilt/Zoom Scan (7x7x7)/Cube 0:** Measurement grid:  $dx=5\text{mm}$ ,  $dy=5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 11.7 V/m; Power Drift = -0.114 dB

Peak SAR (extrapolated) = 0.295 W/kg

**SAR(1 g) = 0.284 W/kg; SAR(10 g) = 0.247 W/kg**

Maximum value of SAR (measured) = 0.294 W/kg





Plot 8: Date/Time: 3/21/2014 11:26:17 PM

Test Laboratory: SUNWAY COMMUNICATION CO.,LTD.

**DUT: 700 ; Type: SI PIN; Serial: IMEI Number**

**Program Name: 700**

Communication System: GSM 1900; Frequency: 1880 MHz; Duty Cycle: 1:8.3

Medium parameters used:  $f = 1880 \text{ MHz}$ ;  $\sigma = 1.4 \text{ mho/m}$ ;  $\epsilon_r = 40.5$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3028; ConvF(5.21, 5.21, 5.21); Calibrated: 8/1/2013
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn689; Calibrated: 7/20/2013
- Phantom: SAM with TP1360; Type: SAM; Serial: Not Specified
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

**Left tilt/Area Scan (61x151x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.093 W/kg

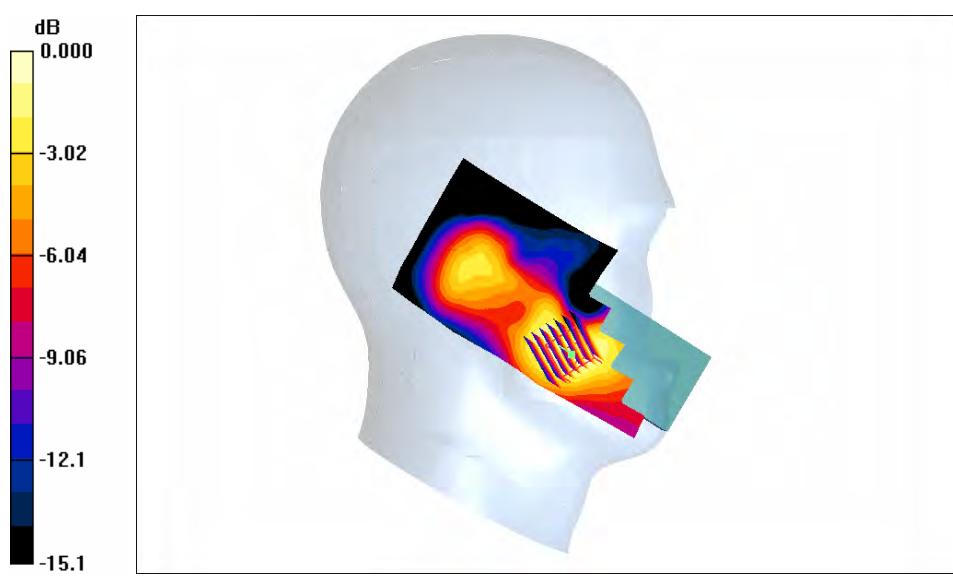
**Left tilt/Zoom Scan (7x7x7)/Cube 0:** Measurement grid:  $dx=5\text{mm}$ ,  $dy=5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 4.87 V/m; Power Drift = -0.188 dB

Peak SAR (extrapolated) = 0.116 W/kg

**SAR(1 g) = 0.078 W/kg; SAR(10 g) = 0.047 W/kg**

Maximum value of SAR (measured) = 0.086 W/kg



0 dB = 0.086W/kg



Plot 9: Date/Time: 3/21/2014 11:02:08 PM

Test Laboratory: SUNWAY COMMUNICATION CO.,LTD.

**DUT: 700 ; Type: SI PIN; Serial: IMEI Number**

**Program Name: 700**

Communication System: GSM 1900; Frequency: 1880 MHz; Duty Cycle: 1:8.3

Medium parameters used:  $f = 1880 \text{ MHz}$ ;  $\sigma = 1.4 \text{ mho/m}$ ;  $\epsilon_r = 40.5$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3028; ConvF(5.21, 5.21, 5.21); Calibrated: 8/1/2013
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn689; Calibrated: 7/20/2013
- Phantom: SAM with TP1360; Type: SAM; Serial: Not Specified
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

**Left touch /Area Scan (61x141x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 1.47 W/kg

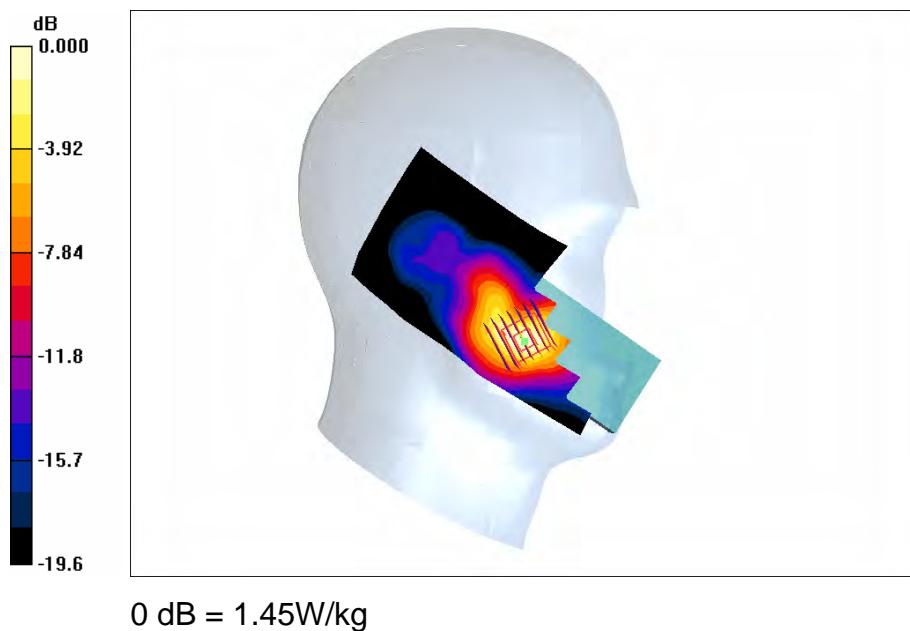
**Left touch /Zoom Scan (7x7x7)/Cube 0:** Measurement grid:  $dx=5\text{mm}$ ,  $dy=5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 5.31 V/m; Power Drift = 0.148 dB

Peak SAR (extrapolated) = 2.67 W/kg

**SAR(1 g) = 1.26 W/kg; SAR(10 g) = 0.608 W/kg**

Maximum value of SAR (measured) = 1.45 W/kg





Plot10: Date/Time: 3/22/2014 1:21:21 AM

Test Laboratory: SUNWAY COMMUNICATION CO.,LTD.

**DUT: 700 ; Type: SI PIN; Serial: IMEI Number**

**Program Name: 700**

Communication System: GSM 1900; Frequency: 1880 MHz; Duty Cycle: 1:8.3

Medium parameters used:  $f = 1880 \text{ MHz}$ ;  $\sigma = 1.4 \text{ mho/m}$ ;  $\epsilon_r = 40.5$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3028; ConvF(5.21, 5.21, 5.21); Calibrated: 8/1/2013
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn689; Calibrated: 7/20/2013
- Phantom: SAM with TP1360; Type: SAM; Serial: Not Specified
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

**Left touch REPEAT1/Area Scan (61x141x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$   
Maximum value of SAR (interpolated) = 1.40 W/kg

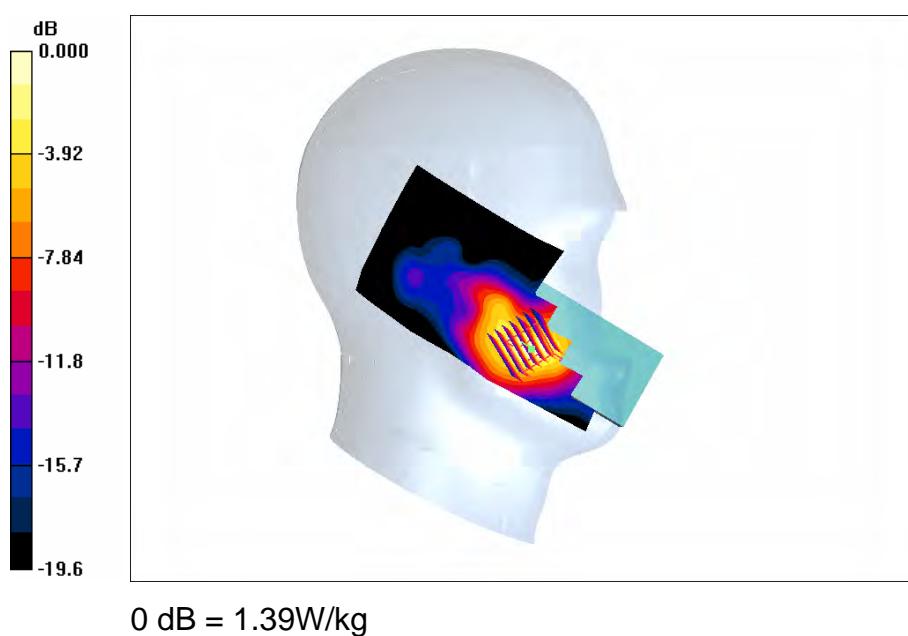
**Left touch REPEAT1/Zoom Scan (7x7x7)/Cube 0:** Measurement grid:  $dx=5\text{mm}$ ,  
 $dy=5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 4.17 V/m; Power Drift = 0.184 dB

Peak SAR (extrapolated) = 1.95 W/kg

**SAR(1 g) = 1.252 W/kg; SAR(10 g) = 0.668 W/kg**

Maximum value of SAR (measured) = 1.39 W/kg





Plot 11: Date/Time: 3/22/2014 2:14:31 AM

Test Laboratory: SUNWAY COMMUNICATION CO.,LTD.

**DUT: 700 ; Type: SI PIN; Serial: IMEI Number**

**Program Name: 700**

Communication System: GSM 1900; Frequency: 1880 MHz; Duty Cycle: 1:8.3

Medium parameters used:  $f = 1880 \text{ MHz}$ ;  $\sigma = 1.4 \text{ mho/m}$ ;  $\epsilon_r = 40.5$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3028; ConvF(5.21, 5.21, 5.21); Calibrated: 8/1/2013
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn689; Calibrated: 7/20/2013
- Phantom: SAM with TP1360; Type: SAM; Serial: Not Specified
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

**Left touch REPEAT2/Area Scan (61x141x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$   
Maximum value of SAR (interpolated) = 1.51 W/kg

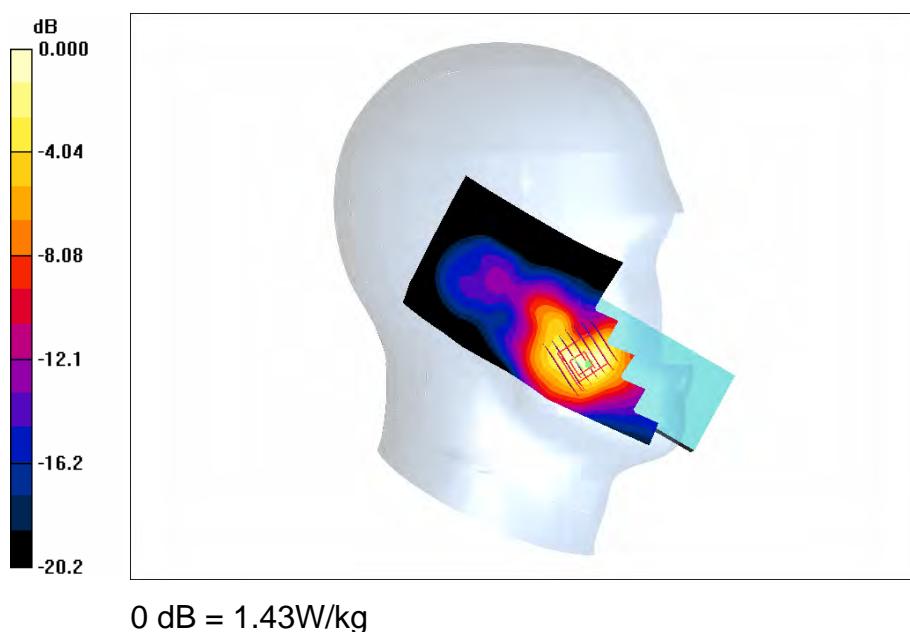
**Left touch REPEAT2/Zoom Scan (7x7x7)/Cube 0:** Measurement grid:  $dx=5\text{mm}$ ,  
 $dy=5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 5.48 V/m; Power Drift = 0.192 dB

Peak SAR (extrapolated) = 2.82 W/kg

**SAR(1 g) = 1.29 W/kg; SAR(10 g) = 0.623 W/kg**

Maximum value of SAR (measured) = 1.43 W/kg





Plot 12: Date/Time: 3/22/2014 1:42:57 AM

Test Laboratory: SUNWAY COMMUNICATION CO.,LTD.

**DUT: 700 ; Type: SI PIN; Serial: IMEI Number**

**Program Name: 700**

Communication System: GSM 1900; Frequency: 1850.2 MHz; Duty Cycle: 1:8.3

Medium parameters used (interpolated):  $f = 1850.2 \text{ MHz}$ ;  $\sigma = 1.37 \text{ mho/m}$ ;  $\epsilon_r = 40.6$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3028; ConvF(5.21, 5.21, 5.21); Calibrated: 8/1/2013
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn689; Calibrated: 7/20/2013
- Phantom: SAM with TP1360; Type: SAM; Serial: Not Specified
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

**Left touch 3/Area Scan (61x141x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 1.52 W/kg

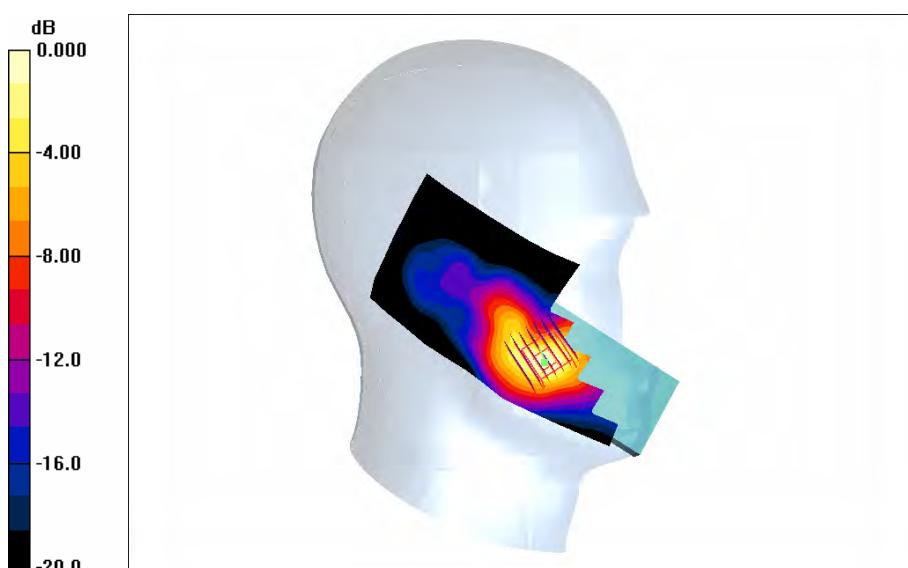
**Left touch 3/Zoom Scan (7x7x7)/Cube 0:** Measurement grid:  $dx=5\text{mm}$ ,  $dy=5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 5.30 V/m; Power Drift = 0.151 dB

Peak SAR (extrapolated) = 2.65 W/kg

**SAR(1 g) = 1.28 W/kg; SAR(10 g) = 0.626 W/kg**

Maximum value of SAR (measured) = 1.49 W/kg



0 dB = 1.49W/kg



Plot 13: Date/Time: 3/22/2014 2:53:02 AM

Test Laboratory: SUNWAY COMMUNICATION CO.,LTD.

**DUT: 700 ; Type: SI PIN; Serial: IMEI Number**

**Program Name: 700**

Communication System: GSM 1900; Frequency: 1850.2 MHz; Duty Cycle: 1:8.3

Medium parameters used (interpolated):  $f = 1850.2 \text{ MHz}$ ;  $\sigma = 1.37 \text{ mho/m}$ ;  $\epsilon_r = 40.6$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3028; ConvF(5.21, 5.21, 5.21); Calibrated: 8/1/2013
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn689; Calibrated: 7/20/2013
- Phantom: SAM with TP1360; Type: SAM; Serial: Not Specified
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

**Left touch REPEAT1/Area Scan (61x141x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$   
Maximum value of SAR (interpolated) = 1.47 W/kg

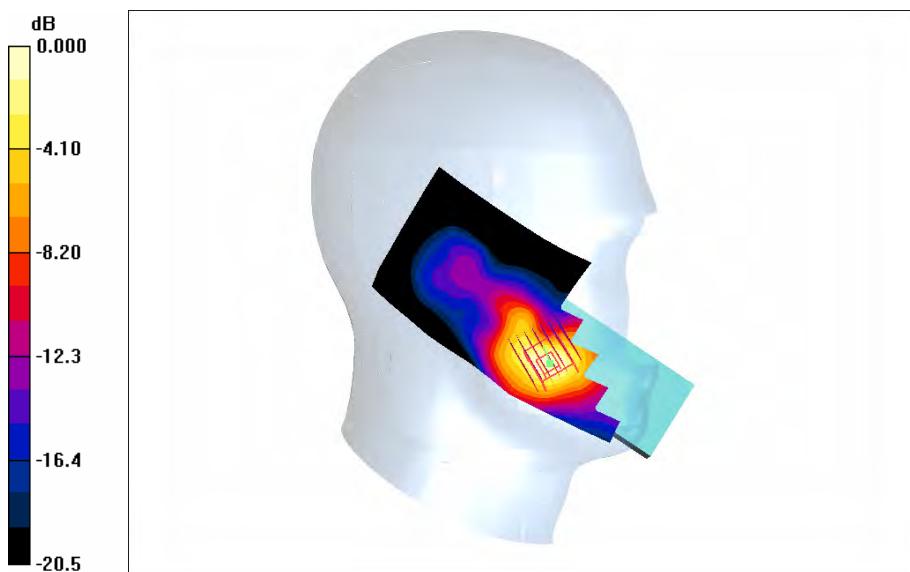
**Left touch REPEAT1 /Zoom Scan (7x7x7)/Cube 0:** Measurement grid:  $dx=5\text{mm}$ ,  
 $dy=5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 5.37 V/m; Power Drift = 0.046 dB

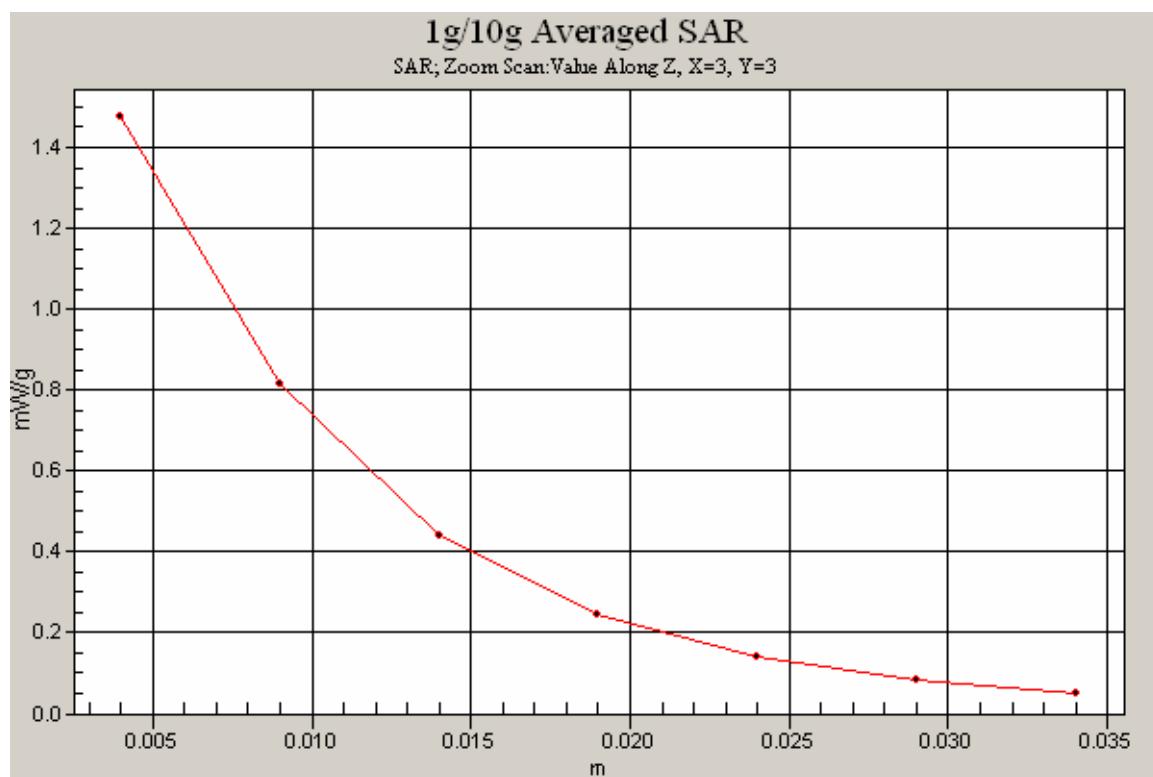
Peak SAR (extrapolated) = 2.55 W/kg

**SAR(1 g) = 1.3 W/kg; SAR(10 g) = 0.642 W/kg**

Maximum value of SAR (measured) = 1.47 W/kg



0 dB = 1.47W/kg





Plot 14: Date/Time: 3/22/2014 3:18:32 AM

Test Laboratory: SUNWAY COMMUNICATION CO.,LTD.

**DUT: 700 ; Type: SI PIN; Serial: IMEI Number**

**Program Name: 700**

Communication System: GSM 1900; Frequency: 1850.2 MHz; Duty Cycle: 1:8.3

Medium parameters used (interpolated):  $f = 1850.2 \text{ MHz}$ ;  $\sigma = 1.37 \text{ mho/m}$ ;  $\epsilon_r = 40.6$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3028; ConvF(5.21, 5.21, 5.21); Calibrated: 8/1/2013
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn689; Calibrated: 7/20/2013
- Phantom: SAM with TP1360; Type: SAM; Serial: Not Specified
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

**Left touch REPEAT2 ch512/Area Scan (61x141x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 1.47 W/kg

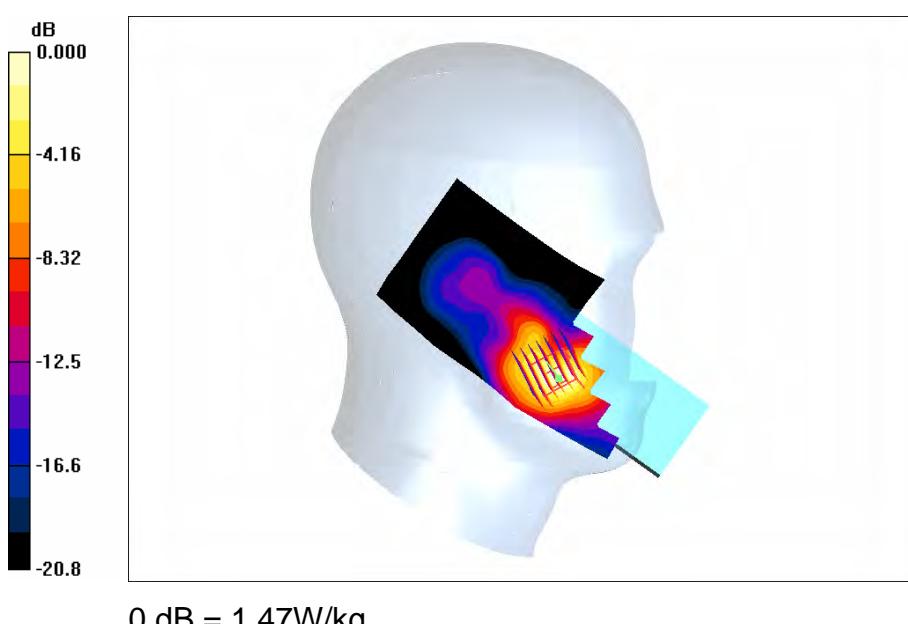
**Left touch REPEAT2 ch512/Zoom Scan (7x7x7)/Cube 0:** Measurement grid:  $dx=5\text{mm}$ ,  $dy=5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 5.35 V/m; Power Drift = 0.190 dB

Peak SAR (extrapolated) = 2.53 W/kg

**SAR(1 g) = 1.28 W/kg; SAR(10 g) = 0.630 W/kg**

Maximum value of SAR (measured) = 1.47 W/kg



0 dB = 1.47W/kg



Plot 15: Date/Time: 3/22/2014 5:03:49 AM

Test Laboratory: SUNWAY COMMUNICATION CO.,LTD.

**DUT: 700 ; Type: SI PIN; Serial: IMEI Number**

**Program Name: 700**

Communication System: GSM 1900; Frequency: 1909.8 MHz; Duty Cycle: 1:8.3  
Medium parameters used:  $f = 1910 \text{ MHz}$ ;  $\sigma = 1.43 \text{ mho/m}$ ;  $\epsilon_r = 40.3$ ;  $\rho = 1000 \text{ kg/m}^3$   
Phantom section: Left Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3028; ConvF(5.21, 5.21, 5.21); Calibrated: 8/1/2013
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn689; Calibrated: 7/20/2013
- Phantom: SAM with TP1360; Type: SAM; Serial: Not Specified
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

**Left touch 810/Area Scan (61x141x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$   
Maximum value of SAR (interpolated) = 1.37 W/kg

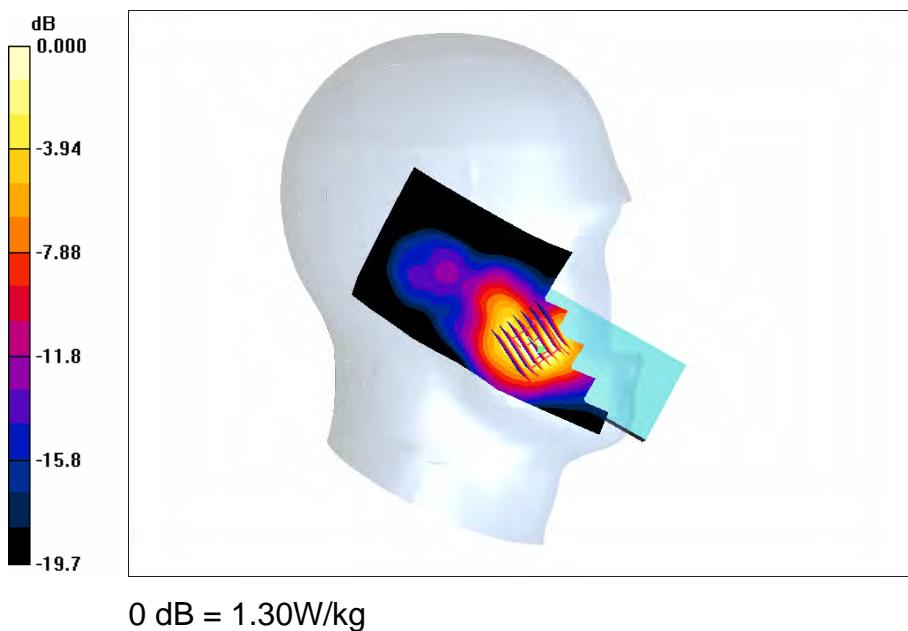
**Left touch 810/Zoom Scan (7x7x7)/Cube 0:** Measurement grid:  $dx=5\text{mm}$ ,  $dy=5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 5.68 V/m; Power Drift = -0.046 dB

Peak SAR (extrapolated) = 2.59 W/kg

**SAR(1 g) = 1.15 W/kg; SAR(10 g) = 0.554 W/kg**

Maximum value of SAR (measured) = 1.30 W/kg





Plot 16: Date/Time: 3/22/2014 5:40:10 AM

Test Laboratory: SUNWAY COMMUNICATION CO.,LTD.

**DUT: 700 ; Type: SI PIN; Serial: IMEI Number**

**Program Name: 700**

Communication System: GSM 1900; Frequency: 1909.8 MHz; Duty Cycle: 1:8.3  
Medium parameters used:  $f = 1910 \text{ MHz}$ ;  $\sigma = 1.43 \text{ mho/m}$ ;  $\epsilon_r = 40.3$ ;  $\rho = 1000 \text{ kg/m}^3$   
Phantom section: Left Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3028; ConvF(5.21, 5.21, 5.21); Calibrated: 8/1/2013
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn689; Calibrated: 7/20/2013
- Phantom: SAM with TP1360; Type: SAM; Serial: Not Specified
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

**Left touch REPEAT1 ch810/Area Scan (61x141x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 1.33 W/kg

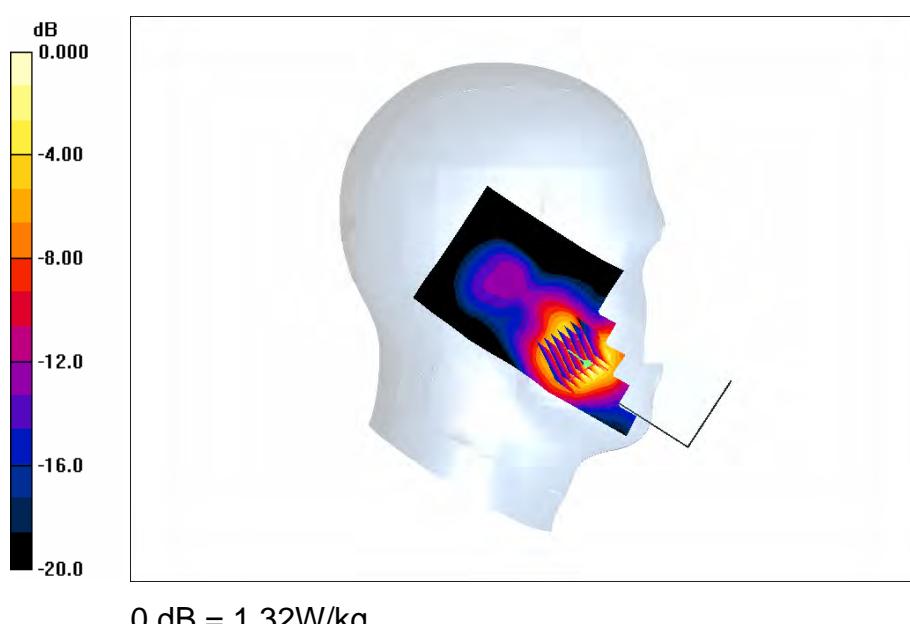
**Left touch REPEAT1 ch810/Zoom Scan (7x7x7)/Cube 0:** Measurement grid:  $dx=5\text{mm}$ ,  $dy=5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 5.99 V/m; Power Drift = -0.113 dB

Peak SAR (extrapolated) = 2.38 W/kg

**SAR(1 g) = 1.15 W/kg; SAR(10 g) = 0.558 W/kg**

Maximum value of SAR (measured) = 1.32 W/kg





Plot 17: Date/Time: 3/22/2014 6:03:01 AM

Test Laboratory: SUNWAY COMMUNICATION CO.,LTD.

**DUT: 700 ; Type: SI PIN; Serial: IMEI Number**

**Program Name: 700**

Communication System: GSM 1900; Frequency: 1909.8 MHz; Duty Cycle: 1:8.3  
Medium parameters used:  $f = 1910 \text{ MHz}$ ;  $\sigma = 1.43 \text{ mho/m}$ ;  $\epsilon_r = 40.3$ ;  $\rho = 1000 \text{ kg/m}^3$   
Phantom section: Left Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3028; ConvF(5.21, 5.21, 5.21); Calibrated: 8/1/2013
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn689; Calibrated: 7/20/2013
- Phantom: SAM with TP1360; Type: SAM; Serial: Not Specified
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

**Left touch REPEAT2 ch810/Area Scan (61x141x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 1.31 W/kg

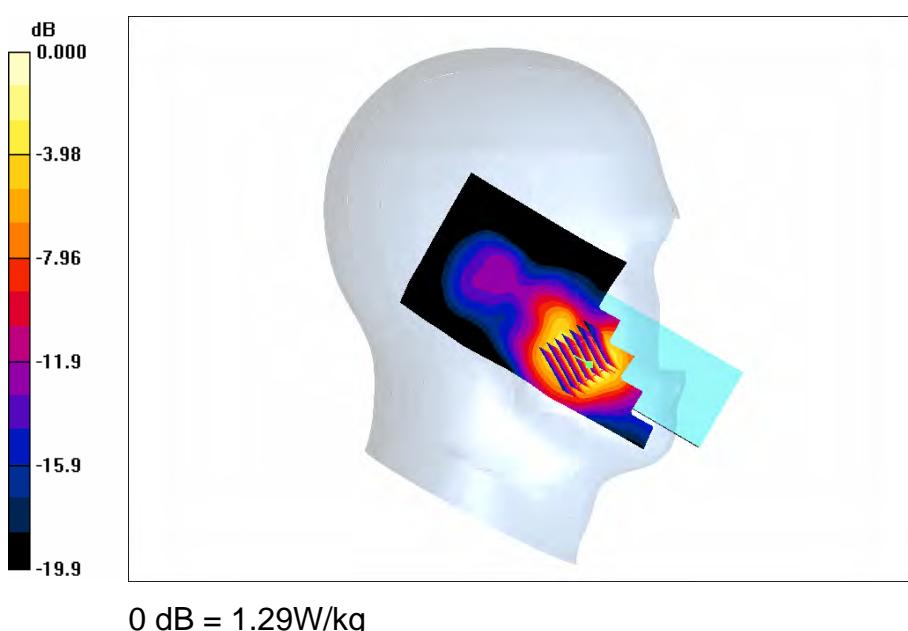
**Left touch REPEAT2 ch810/Zoom Scan (7x7x7)/Cube 0:** Measurement grid:  $dx=5\text{mm}$ ,  $dy=5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 5.91 V/m; Power Drift = -0.028 dB

Peak SAR (extrapolated) = 2.30 W/kg

**SAR(1 g) = 1.12 W/kg; SAR(10 g) = 0.544 W/kg**

Maximum value of SAR (measured) = 1.29 W/kg





Plot 18: Date/Time: 3/22/2014 6:27:21 AM

Test Laboratory: SUNWAY COMMUNICATION CO.,LTD.

**DUT: 700 ; Type: SI PIN; Serial: IMEI Number**

**Program Name: 700**

Communication System: GSM 1900; Frequency: 1880 MHz; Duty Cycle: 1:8.3

Medium parameters used:  $f = 1880 \text{ MHz}$ ;  $\sigma = 1.4 \text{ mho/m}$ ;  $\epsilon_r = 40.5$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3028; ConvF(5.21, 5.21, 5.21); Calibrated: 8/1/2013
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn689; Calibrated: 7/20/2013
- Phantom: SAM with TP1360; Type: SAM; Serial: Not Specified
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

**Left touch SIM2 ch661/Area Scan (61x141x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 1.19 W/kg

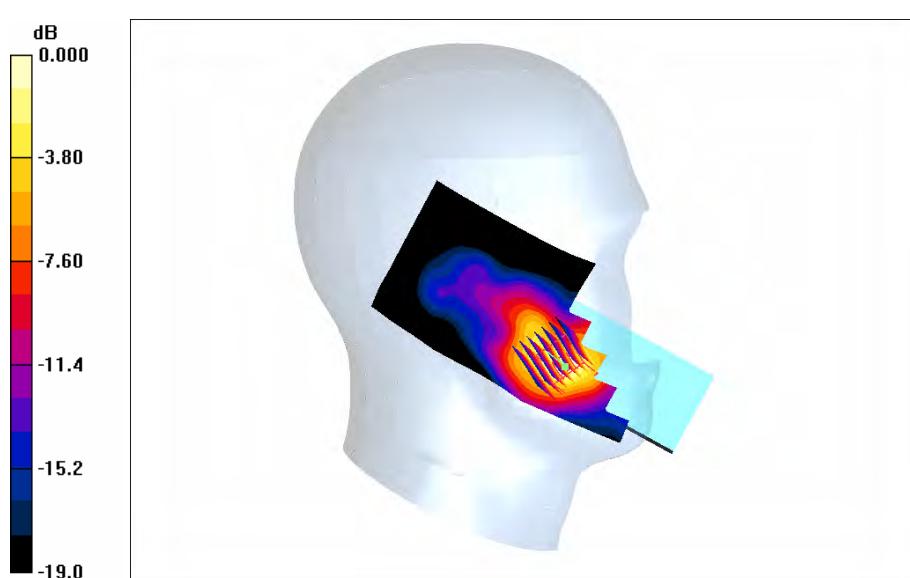
**Left touch SIM2 ch661/Zoom Scan (7x7x7)/Cube 0:** Measurement grid:  $dx=5\text{mm}$ ,  $dy=5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 5.18 V/m; Power Drift = 0.173 dB

Peak SAR (extrapolated) = 2.09 W/kg

**SAR(1 g) = 1.12 W/kg; SAR(10 g) = 0.496 W/kg**

Maximum value of SAR (measured) = 1.18 W/kg





Plot 19: Date/Time: 3/22/2014 8:29:19 AM

Test Laboratory: SUNWAY COMMUNICATION CO.,LTD.

**DUT: 700 ; Type: SI PIN; Serial: IMEI Number**

**Program Name: 700**

Communication System: GSM 1900; Frequency: 1880 MHz; Duty Cycle: 1:8.3

Medium parameters used:  $f = 1880 \text{ MHz}$ ;  $\sigma = 1.4 \text{ mho/m}$ ;  $\epsilon_r = 40.5$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3028; ConvF(5.21, 5.21, 5.21); Calibrated: 8/1/2013
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn689; Calibrated: 7/20/2013
- Phantom: SAM with TP1360; Type: SAM; Serial: Not Specified
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

**Left touch SIM2 ch661 repeat1/Area Scan (61x141x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 1.17 W/kg

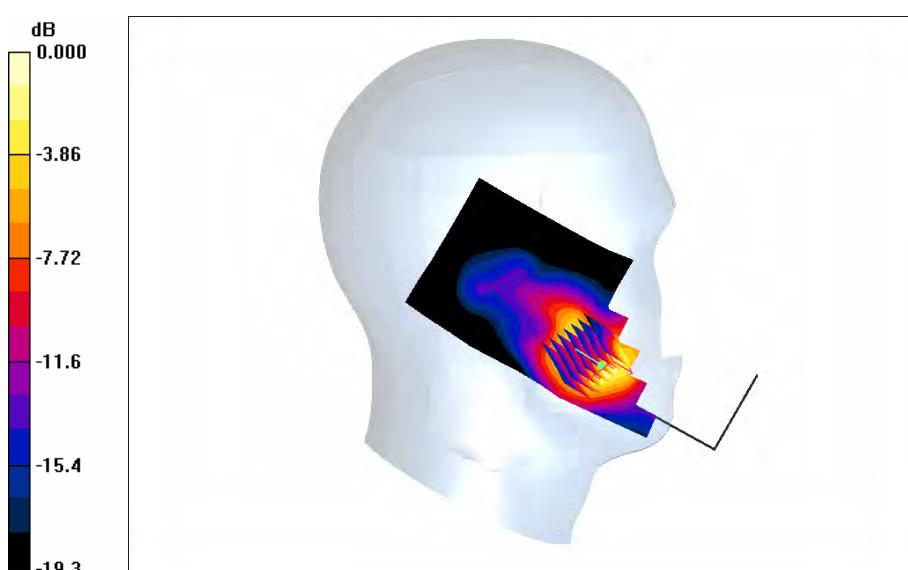
**Left touch SIM2 ch661 repeat1/Zoom Scan (7x7x7)/Cube 0:** Measurement grid:  $dx=5\text{mm}$ ,  $dy=5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 4.98 V/m; Power Drift = -0.014 dB

Peak SAR (extrapolated) = 2.21 W/kg

**SAR(1 g) = 1.13 W/kg; SAR(10 g) = 0.502 W/kg**

Maximum value of SAR (measured) = 1.17 W/kg



0 dB = 1.17W/kg



Plot 20: Date/Time: 3/22/2014 8:51:08 AM

Test Laboratory: SUNWAY COMMUNICATION CO.,LTD.

**DUT: 700 ; Type: SI PIN; Serial: IMEI Number**

**Program Name: 700**

Communication System: GSM 1900; Frequency: 1880 MHz; Duty Cycle: 1:8.3

Medium parameters used:  $f = 1880 \text{ MHz}$ ;  $\sigma = 1.4 \text{ mho/m}$ ;  $\epsilon_r = 40.5$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3028; ConvF(5.21, 5.21, 5.21); Calibrated: 8/1/2013
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn689; Calibrated: 7/20/2013
- Phantom: SAM with TP1360; Type: SAM; Serial: Not Specified
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

**Left touch SIM2 ch661 repeat2/Area Scan (61x141x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 1.31 W/kg

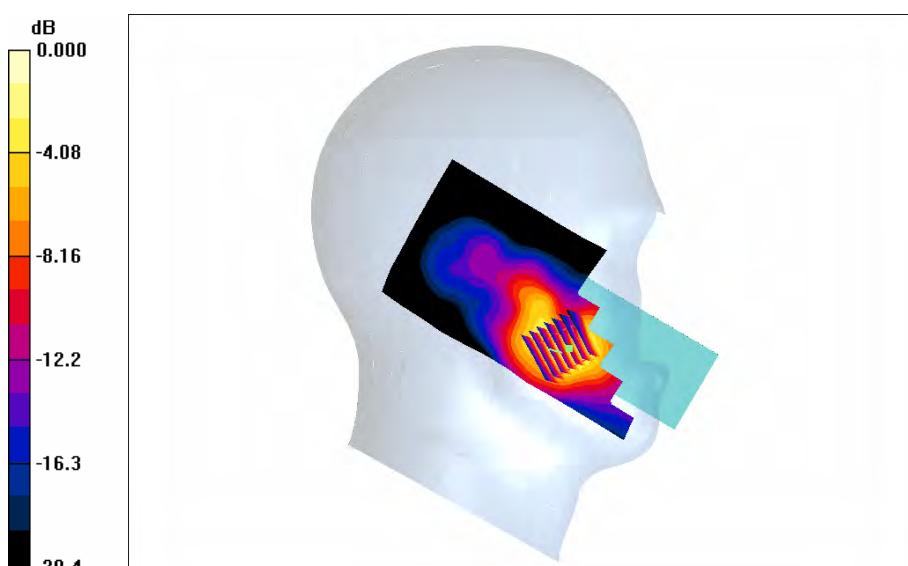
**Left touch SIM2 ch661 repeat2/Zoom Scan (7x7x7)/Cube 0:** Measurement grid:  $dx=5\text{mm}$ ,  $dy=5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 5.22 V/m; Power Drift = -0.168 dB

Peak SAR (extrapolated) = 2.43 W/kg

**SAR(1 g) = 1.13 W/kg; SAR(10 g) = 0.550 W/kg**

Maximum value of SAR (measured) = 1.28 W/kg



0 dB = 1.28W/kg



Plot 21: Date/Time: 3/22/2014 10:57:52 AM

Test Laboratory: SUNWAY COMMUNICATION CO.,LTD.

**DUT: 700 ; Type: SI PIN; Serial: IMEI Number**

**Program Name: 700**

Communication System: GSM 1900; Frequency: 1850.2 MHz; Duty Cycle: 1:8.3

Medium parameters used (interpolated):  $f = 1850.2 \text{ MHz}$ ;  $\sigma = 1.37 \text{ mho/m}$ ;  $\epsilon_r = 40.6$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3028; ConvF(5.21, 5.21, 5.21); Calibrated: 8/1/2013
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn689; Calibrated: 7/20/2013
- Phantom: SAM with TP1360; Type: SAM; Serial: Not Specified
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

**Left touch SIM2 ch512/Area Scan (61x141x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 1.24 W/kg

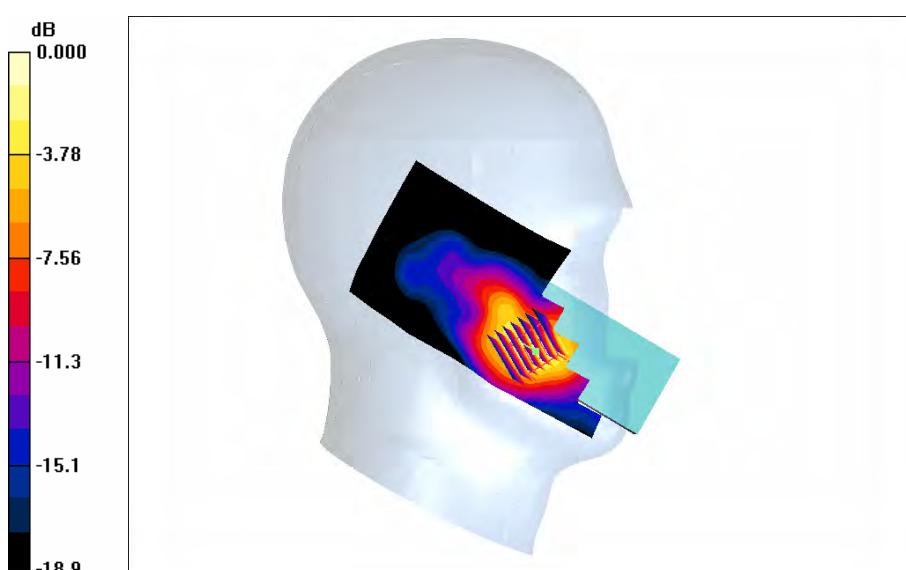
**Left touch SIM2 ch512/Zoom Scan (7x7x7)/Cube 0:** Measurement grid:  $dx=5\text{mm}$ ,  $dy=5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 4.99 V/m; Power Drift = 0.131 dB

Peak SAR (extrapolated) = 2.13 W/kg

**SAR(1 g) = 1.15 W/kg; SAR(10 g) = 0.520 W/kg**

Maximum value of SAR (measured) = 1.21 W/kg



0 dB = 1.21W/kg



Plot 22: Date/Time: 3/22/2014 11:29:57 AM

Test Laboratory: SUNWAY COMMUNICATION CO.,LTD.

**DUT: 700 ; Type: SI PIN; Serial: IMEI Number**

**Program Name: 700**

Communication System: GSM 1900; Frequency: 1850.2 MHz; Duty Cycle: 1:8.3

Medium parameters used (interpolated):  $f = 1850.2 \text{ MHz}$ ;  $\sigma = 1.37 \text{ mho/m}$ ;  $\epsilon_r = 40.6$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3028; ConvF(5.21, 5.21, 5.21); Calibrated: 8/1/2013
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn689; Calibrated: 7/20/2013
- Phantom: SAM with TP1360; Type: SAM; Serial: Not Specified
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

**Left touch SIM2 ch512 repeat1/Area Scan (61x141x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 1.42 W/kg

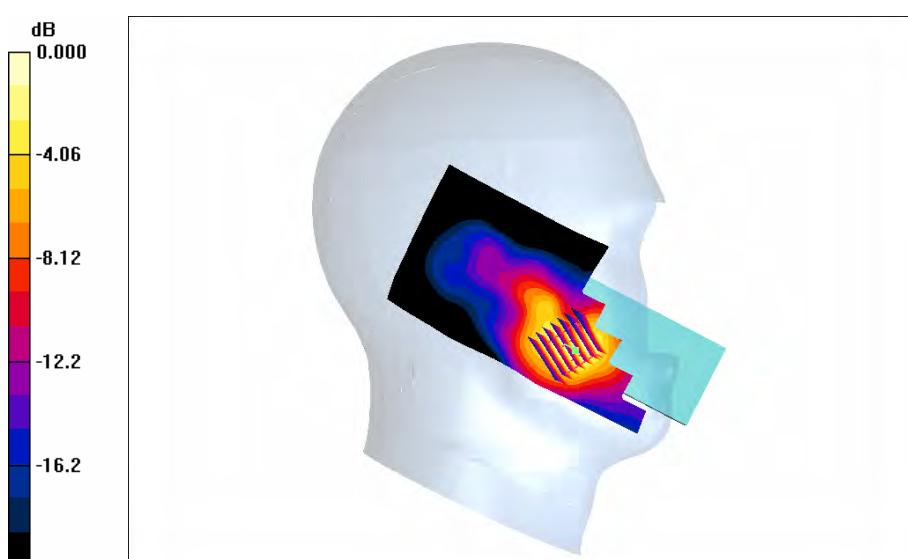
**Left touch SIM2 ch512 repeat1/Zoom Scan (7x7x7)/Cube 0:** Measurement grid:  $dx=5\text{mm}$ ,  $dy=5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 5.09 V/m; Power Drift = -0.008 dB

Peak SAR (extrapolated) = 2.46 W/kg

**SAR(1 g) = 1.24 W/kg; SAR(10 g) = 0.617 W/kg**

Maximum value of SAR (measured) = 1.42 W/kg



0 dB = 1.42W/kg



Plot 23: Date/Time: 3/22/2014 12:07:11 AM

Test Laboratory: SUNWAY COMMUNICATION CO.,LTD.

**DUT: 700 ; Type: SI PIN; Serial: IMEI Number**

**Program Name: 700**

Communication System: GSM 1900; Frequency: 1850.2 MHz; Duty Cycle: 1:8.3

Medium parameters used (interpolated):  $f = 1850.2 \text{ MHz}$ ;  $\sigma = 1.37 \text{ mho/m}$ ;  $\epsilon_r = 40.6$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3028; ConvF(5.21, 5.21, 5.21); Calibrated: 8/1/2013
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn689; Calibrated: 7/20/2013
- Phantom: SAM with TP1360; Type: SAM; Serial: Not Specified
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

**Left touch SIM2 ch512 repeat2/Area Scan (61x141x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 1.41 W/kg

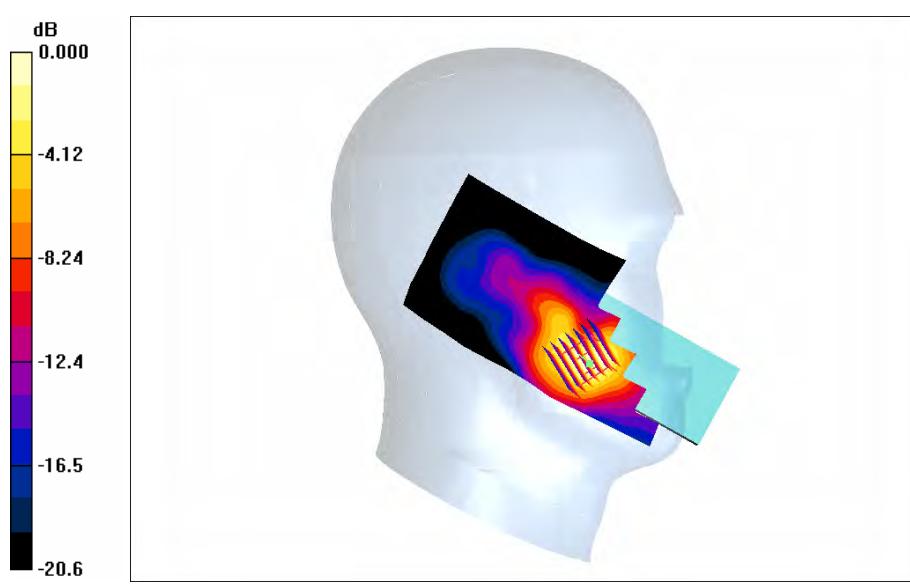
**Left touch SIM2 ch512 repeat2/Zoom Scan (7x7x7)/Cube 0:** Measurement grid:  $dx=5\text{mm}$ ,  $dy=5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 5.02 V/m; Power Drift = 0.095 dB

Peak SAR (extrapolated) = 2.45 W/kg

**SAR(1 g) = 1.23 W/kg; SAR(10 g) = 0.612 W/kg**

Maximum value of SAR (measured) = 1.40 W/kg





Plot 24: Date/Time: 3/22/2014 9:37:58 AM

Test Laboratory: SUNWAY COMMUNICATION CO.,LTD.

**DUT: 700 ; Type: SI PIN; Serial: IMEI Number**

**Program Name: 700**

Communication System: GSM 1900; Frequency: 1909.8 MHz; Duty Cycle: 1:8.3  
Medium parameters used:  $f = 1910 \text{ MHz}$ ;  $\sigma = 1.43 \text{ mho/m}$ ;  $\epsilon_r = 40.3$ ;  $\rho = 1000 \text{ kg/m}^3$   
Phantom section: Left Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3028; ConvF(5.21, 5.21, 5.21); Calibrated: 8/1/2013
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn689; Calibrated: 7/20/2013
- Phantom: SAM with TP1360; Type: SAM; Serial: Not Specified
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

**Left touch SIM2 ch810/Area Scan (61x141x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 1.08 W/kg

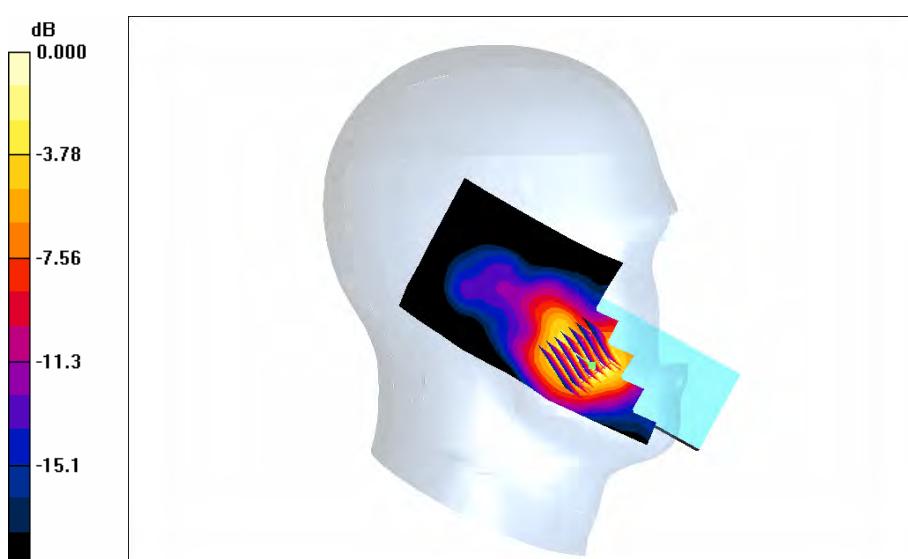
**Left touch SIM2 ch810/Zoom Scan (7x7x7)/Cube 0:** Measurement grid:  $dx=5\text{mm}$ ,  $dy=5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 5.38 V/m; Power Drift = 0.013 dB

Peak SAR (extrapolated) = 1.99 W/kg

**SAR(1 g) = 0.933 W/kg; SAR(10 g) = 0.450 W/kg**

Maximum value of SAR (measured) = 1.08 W/kg



0 dB = 1.08W/kg



Plot 25: Date/Time: 3/22/2014 9:59:32 AM

Test Laboratory: SUNWAY COMMUNICATION CO.,LTD.

**DUT: 700 ; Type: SI PIN; Serial: IMEI Number**

**Program Name: 700**

Communication System: GSM 1900; Frequency: 1909.8 MHz; Duty Cycle: 1:8.3  
Medium parameters used:  $f = 1910 \text{ MHz}$ ;  $\sigma = 1.43 \text{ mho/m}$ ;  $\epsilon_r = 40.3$ ;  $\rho = 1000 \text{ kg/m}^3$   
Phantom section: Left Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3028; ConvF(5.21, 5.21, 5.21); Calibrated: 8/1/2013
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn689; Calibrated: 7/20/2013
- Phantom: SAM with TP1360; Type: SAM; Serial: Not Specified
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

**Left touch SIM2 ch810 repeat1/Area Scan (61x141x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 1.09 W/kg

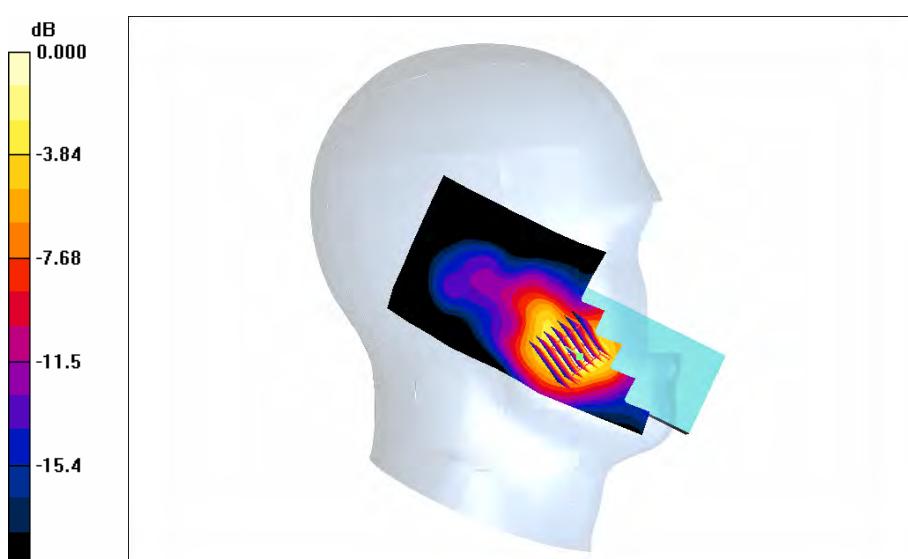
**Left touch SIM2 ch810 repeat1/Zoom Scan (7x7x7)/Cube 0:** Measurement grid:  $dx=5\text{mm}$ ,  $dy=5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 5.37 V/m; Power Drift = -0.070 dB

Peak SAR (extrapolated) = 1.96 W/kg

**SAR(1 g) = 0.914 W/kg; SAR(10 g) = 0.441 W/kg**

Maximum value of SAR (measured) = 1.05 W/kg



0 dB = 1.05W/kg



Plot 26: Date/Time: 3/22/2014 10:31:51 AM

Test Laboratory: SUNWAY COMMUNICATION CO.,LTD.

**DUT: 700 ; Type: SI PIN; Serial: IMEI Number**

**Program Name: 700**

Communication System: GSM 1900; Frequency: 1909.8 MHz; Duty Cycle: 1:8.3  
Medium parameters used:  $f = 1910 \text{ MHz}$ ;  $\sigma = 1.43 \text{ mho/m}$ ;  $\epsilon_r = 40.3$ ;  $\rho = 1000 \text{ kg/m}^3$   
Phantom section: Left Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3028; ConvF(5.21, 5.21, 5.21); Calibrated: 8/1/2013
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn689; Calibrated: 7/20/2013
- Phantom: SAM with TP1360; Type: SAM; Serial: Not Specified
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

**Left touch SIM2 ch810 repeat2/Area Scan (61x141x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 1.06 W/kg

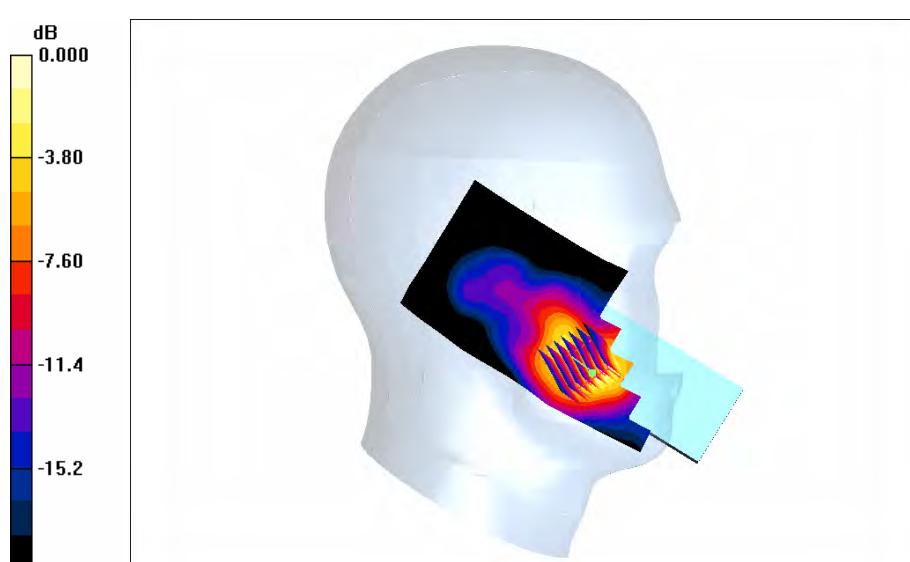
**Left touch SIM2 ch810 repeat2/Zoom Scan (7x7x7)/Cube 0:** Measurement grid:  $dx=5\text{mm}$ ,  $dy=5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 5.29 V/m; Power Drift = -0.132 dB

Peak SAR (extrapolated) = 1.88 W/kg

**SAR(1 g) = 0.887 W/kg; SAR(10 g) = 0.428 W/kg**

Maximum value of SAR (measured) = 1.02 W/kg



0 dB = 1.02W/kg



Plot 27: Date/Time: 3/23/2014 3:38:33 AM

Test Laboratory: SUNWAY COMMUNICATION CO.,LTD.

**DUT: 700 ; Type: SI PIN; Serial: IMEI Number**

**Program Name: 700**

Communication System: GSM 850; Frequency: 836.6 MHz; Duty Cycle: 1:8.3

Medium parameters used:  $f = 837 \text{ MHz}$ ;  $\sigma = 0.892 \text{ mho/m}$ ;  $\epsilon_r = 41.5$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Right Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3028; ConvF(6.26, 6.26, 6.26); Calibrated: 8/1/2013
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn689; Calibrated: 7/20/2013
- Phantom: SAM with TP1432; Type: SAM; Serial: Not Specified
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

**right touch/Area Scan (61x91x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.024 W/kg

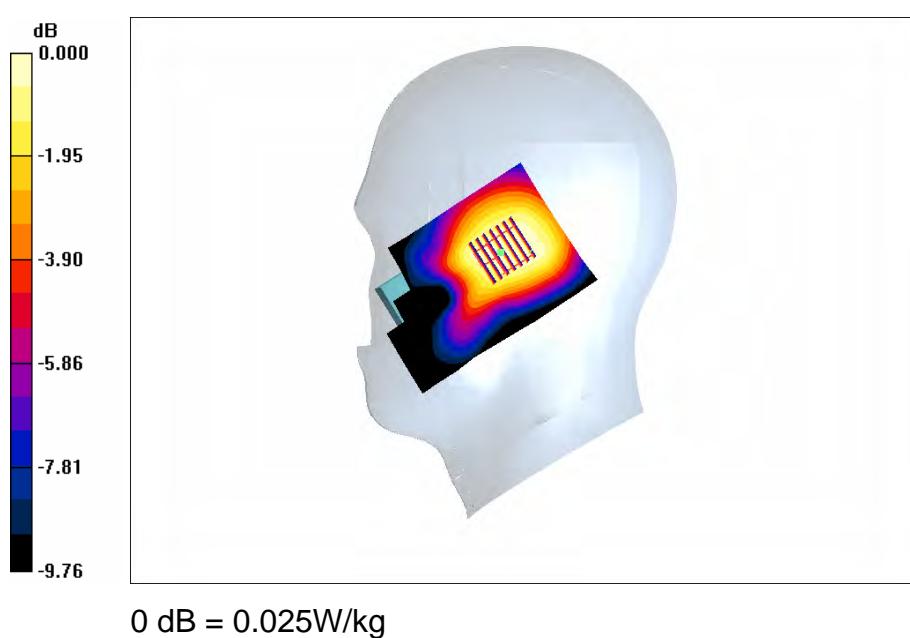
**right touch/Zoom Scan (7x7x7)/Cube 0:** Measurement grid:  $dx=5\text{mm}$ ,  $dy=5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 5.27 V/m; Power Drift = 0.127 dB

Peak SAR (extrapolated) = 0.037 W/kg

**SAR(1 g) = 0.023 W/kg; SAR(10 g) = 0.016 W/kg**

Maximum value of SAR (measured) = 0.025 W/kg





Plot 28: Date/Time: 3/23/2014 3:57:06 AM

Test Laboratory: SUNWAY COMMUNICATION CO.,LTD.

**DUT: 700 ; Type: SI PIN; Serial: IMEI Number**

**Program Name: 700**

Communication System: GSM 850; Frequency: 836.6 MHz; Duty Cycle: 1:8.3

Medium parameters used:  $f = 837 \text{ MHz}$ ;  $\sigma = 0.892 \text{ mho/m}$ ;  $\epsilon_r = 41.5$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Right Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3028; ConvF(6.26, 6.26, 6.26); Calibrated: 8/1/2013
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn689; Calibrated: 7/20/2013
- Phantom: SAM with TP1432; Type: SAM; Serial: Not Specified
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

**right tilt/Area Scan (61x91x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.021 W/kg

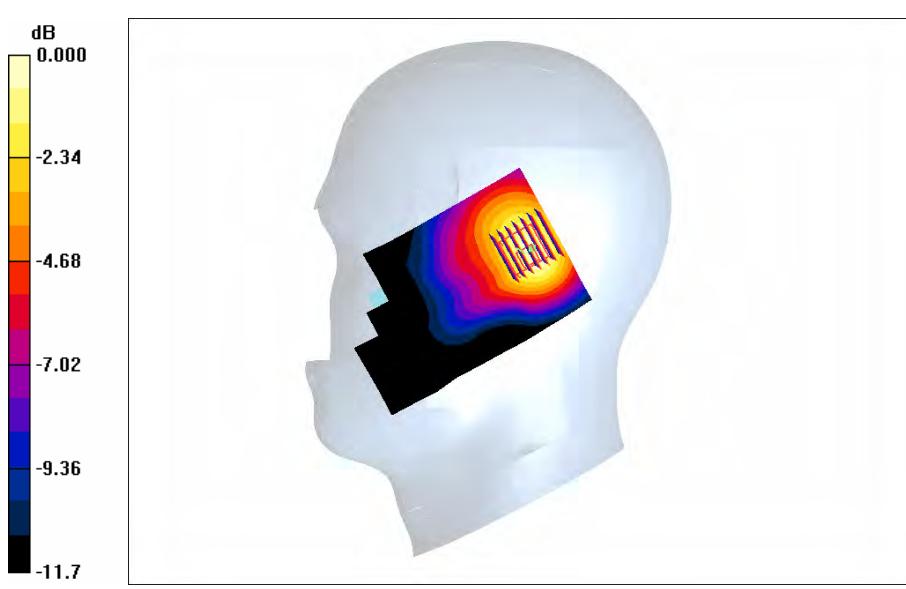
**right tilt/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 4.74 V/m; Power Drift = 0.138 dB

Peak SAR (extrapolated) = 0.035 W/kg

**SAR(1 g) = 0.021 W/kg; SAR(10 g) = 0.013 W/kg**

Maximum value of SAR (measured) = 0.023 W/kg



0 dB = 0.023W/kg



Plot 29: Date/Time: 3/23/2014 4:17:03 AM

Test Laboratory: SUNWAY COMMUNICATION CO.,LTD.

**DUT: 700 ; Type: SI PIN; Serial: IMEI Number**

**Program Name: 700**

Communication System: GSM 850; Frequency: 836.6 MHz; Duty Cycle: 1:8.3

Medium parameters used:  $f = 837 \text{ MHz}$ ;  $\sigma = 0.892 \text{ mho/m}$ ;  $\epsilon_r = 41.5$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3028; ConvF(6.26, 6.26, 6.26); Calibrated: 8/1/2013
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn689; Calibrated: 7/20/2013
- Phantom: SAM with TP1432; Type: SAM; Serial: Not Specified
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

**Left tilt/Area Scan (61x91x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.029 W/kg

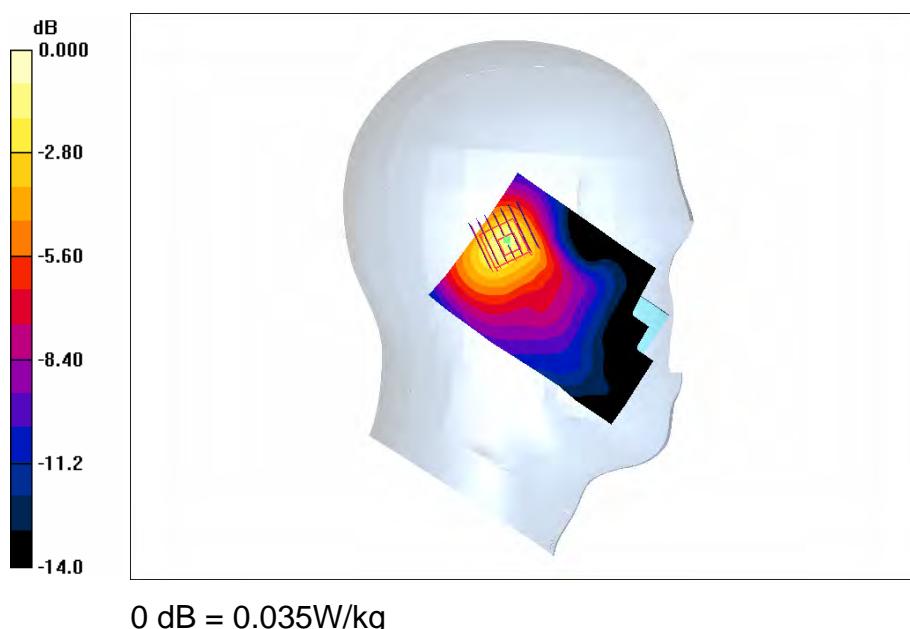
**Left tilt/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 5.17 V/m; Power Drift = -0.097 dB

Peak SAR (extrapolated) = 0.068 W/kg

**SAR(1 g) = 0.031 W/kg; SAR(10 g) = 0.016 W/kg**

Maximum value of SAR (measured) = 0.035 W/kg





Plot 30: Date/Time: 3/23/2014 4:36:02 AM

Test Laboratory: SUNWAY COMMUNICATION CO.,LTD.

**DUT: 700 ; Type: SI PIN; Serial: IMEI Number**

**Program Name: 700**

Communication System: GSM 850; Frequency: 836.6 MHz; Duty Cycle: 1:8.3

Medium parameters used:  $f = 837 \text{ MHz}$ ;  $\sigma = 0.892 \text{ mho/m}$ ;  $\epsilon_r = 41.5$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3028; ConvF(6.26, 6.26, 6.26); Calibrated: 8/1/2013
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn689; Calibrated: 7/20/2013
- Phantom: SAM with TP1432; Type: SAM; Serial: Not Specified
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

**Left touch/Area Scan (61x91x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.033 W/kg

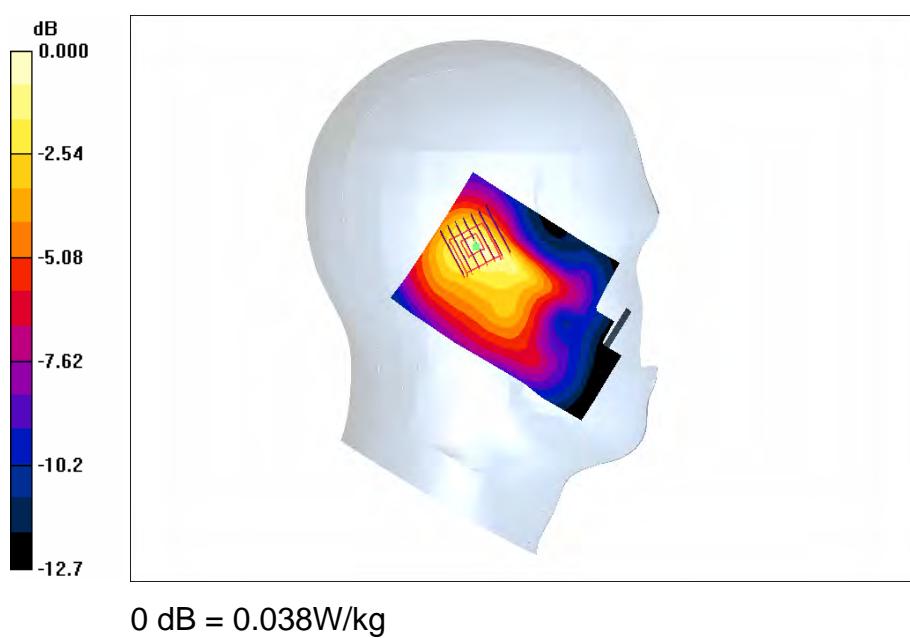
**Left touch/Zoom Scan (7x7x7)/Cube 0:** Measurement grid:  $dx=5\text{mm}$ ,  $dy=5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 5.97 V/m; Power Drift = -0.018 dB

Peak SAR (extrapolated) = 0.064 W/kg

**SAR(1 g) = 0.034 W/kg; SAR(10 g) = 0.020 W/kg**

Maximum value of SAR (measured) = 0.038 W/kg





Plot 31: Date/Time: 3/23/2014 4:56:13 AM

Test Laboratory: SUNWAY COMMUNICATION CO.,LTD.

**DUT: 700 ; Type: SI PIN; Serial: IMEI Number**

**Program Name: 700**

Communication System: GSM 850; Frequency: 836.6 MHz; Duty Cycle: 1:8.3

Medium parameters used:  $f = 837 \text{ MHz}$ ;  $\sigma = 0.892 \text{ mho/m}$ ;  $\epsilon_r = 41.5$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3028; ConvF(6.26, 6.26, 6.26); Calibrated: 8/1/2013
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn689; Calibrated: 7/20/2013
- Phantom: SAM with TP1432; Type: SAM; Serial: Not Specified
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

**Left touch SIM2/Area Scan (61x91x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.037 W/kg

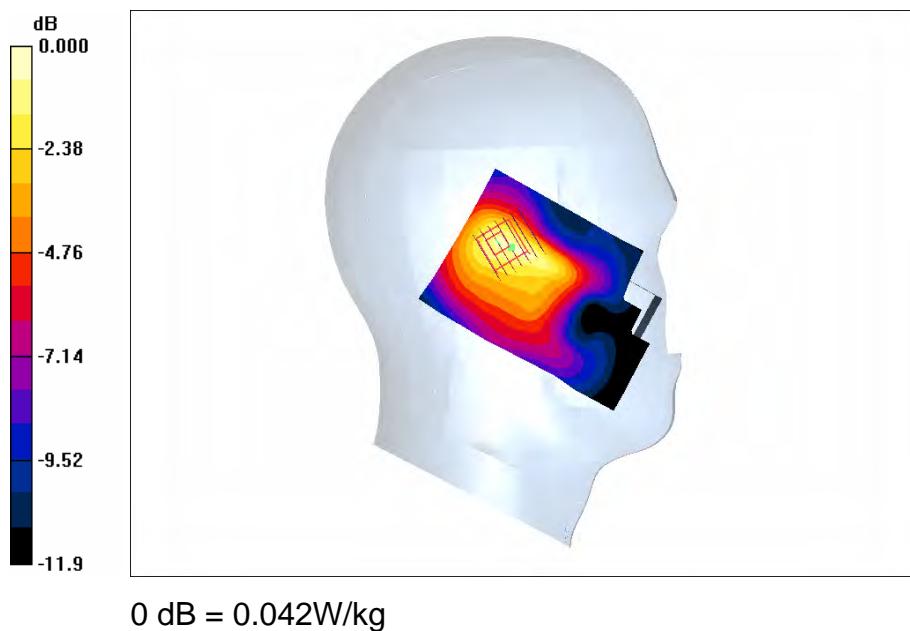
**Left touch SIM2/Zoom Scan (7x7x7)/Cube 0:** Measurement grid:  $dx=5\text{mm}$ ,  $dy=5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 6.25 V/m; Power Drift = -0.083 dB

Peak SAR (extrapolated) = 0.070 W/kg

**SAR(1 g) = 0.037 W/kg; SAR(10 g) = 0.022 W/kg**

Maximum value of SAR (measured) = 0.042 W/kg





Plot 32: Date/Time: 3/22/2014 1:26:46 PM

Test Laboratory: SUNWAY COMMUNICATION CO.,LTD.

**DUT: 700 ; Type: SI PIN; Serial: IMEI Number**

**Program Name: 700**

Communication System: GSM 1900; Frequency: 1880 MHz; Duty Cycle: 1:8.3

Medium parameters used:  $f = 1880 \text{ MHz}$ ;  $\sigma = 1.4 \text{ mho/m}$ ;  $\epsilon_r = 40.5$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Right Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3028; ConvF(5.21, 5.21, 5.21); Calibrated: 8/1/2013
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn689; Calibrated: 7/20/2013
- Phantom: SAM with TP1360; Type: SAM; Serial: Not Specified
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

**right touch/Area Scan (61x91x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.500 W/kg

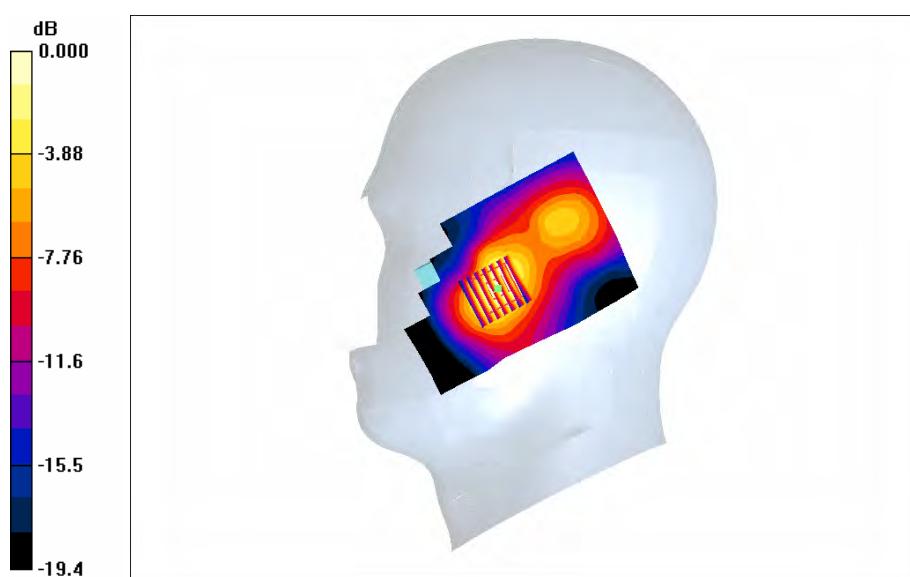
**right touch/Zoom Scan (7x7x7)/Cube 0:** Measurement grid:  $dx=5\text{mm}$ ,  $dy=5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 9.72 V/m; Power Drift = -0.137 dB

Peak SAR (extrapolated) = 0.576 W/kg

**SAR(1 g) = 0.417 W/kg; SAR(10 g) = 0.240 W/kg**

Maximum value of SAR (measured) = 0.478 W/kg



0 dB = 0.478W/kg



Plot 33: Date/Time: 3/22/2014 1:46:35 PM

Test Laboratory: SUNWAY COMMUNICATION CO.,LTD.

**DUT: 700 ; Type: SI PIN; Serial: IMEI Number**

**Program Name: 700**

Communication System: GSM 1900; Frequency: 1880 MHz; Duty Cycle: 1:8.3

Medium parameters used:  $f = 1880 \text{ MHz}$ ;  $\sigma = 1.4 \text{ mho/m}$ ;  $\epsilon_r = 40.5$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Right Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3028; ConvF(5.21, 5.21, 5.21); Calibrated: 8/1/2013
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn689; Calibrated: 7/20/2013
- Phantom: SAM with TP1360; Type: SAM; Serial: Not Specified
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

**right tilt/Area Scan (61x91x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.243 W/kg

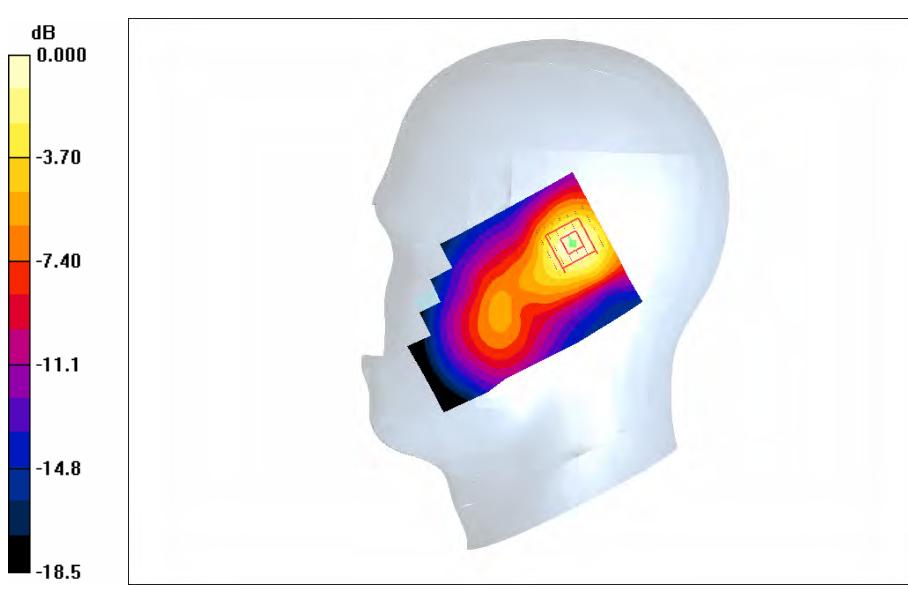
**right tilt/Zoom Scan (7x7x7)/Cube 0:** Measurement grid:  $dx=5\text{mm}$ ,  $dy=5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 11.7 V/m; Power Drift = 0.032 dB

Peak SAR (extrapolated) = 0.343 W/kg

**SAR(1 g) = 0.212 W/kg; SAR(10 g) = 0.119 W/kg**

Maximum value of SAR (measured) = 0.241 W/kg





Plot 34: Date/Time: 3/22/2014 2:41:37 PM

Test Laboratory: SUNWAY COMMUNICATION CO.,LTD.

**DUT: 700 ; Type: SI PIN; Serial: IMEI Number**

**Program Name: 700**

Communication System: GSM 1900; Frequency: 1880 MHz; Duty Cycle: 1:8.3

Medium parameters used:  $f = 1880 \text{ MHz}$ ;  $\sigma = 1.4 \text{ mho/m}$ ;  $\epsilon_r = 40.5$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3028; ConvF(5.21, 5.21, 5.21); Calibrated: 8/1/2013
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn689; Calibrated: 7/20/2013
- Phantom: SAM with TP1360; Type: SAM; Serial: Not Specified
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

**Left tilt/Area Scan (61x91x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.187 W/kg

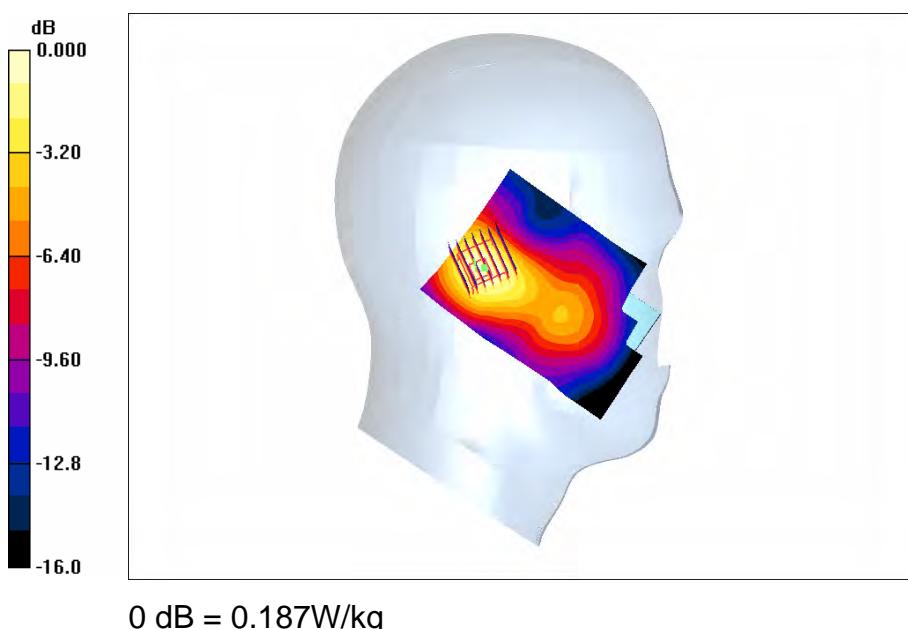
**Left tilt/Zoom Scan (7x7x7)/Cube 0:** Measurement grid:  $dx=5\text{mm}$ ,  $dy=5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 9.80 V/m; Power Drift = 0.033 dB

Peak SAR (extrapolated) = 0.273 W/kg

**SAR(1 g) = 0.170 W/kg; SAR(10 g) = 0.098 W/kg**

Maximum value of SAR (measured) = 0.187 W/kg





Plot 35: Date/Time: 3/23/2014 2:11:01 PM

Test Laboratory: SUNWAY COMMUNICATION CO.,LTD.

**DUT: 700 ; Type: SI PIN; Serial: IMEI Number**

**Program Name: 700**

Communication System: GSM 1900; Frequency: 1880 MHz; Duty Cycle: 1:8.3

Medium parameters used:  $f = 1880 \text{ MHz}$ ;  $\sigma = 1.4 \text{ mho/m}$ ;  $\epsilon_r = 40.5$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3028; ConvF(5.21, 5.21, 5.21); Calibrated: 8/1/2013
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn689; Calibrated: 7/20/2013
- Phantom: SAM with TP1360; Type: SAM; Serial: Not Specified
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

**Left touch/Area Scan (61x91x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.459 W/kg

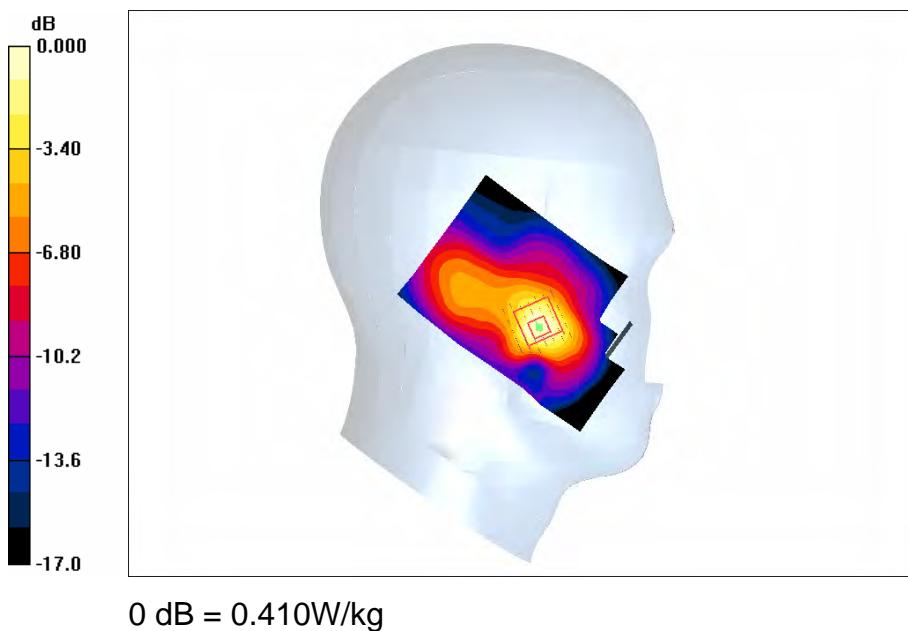
**Left touch/Zoom Scan (7x7x7)/Cube 0:** Measurement grid:  $dx=5\text{mm}$ ,  $dy=5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 8.29 V/m; Power Drift = 0.093 dB

Peak SAR (extrapolated) = 0.531 W/kg

**SAR(1 g) = 0.369 W/kg; SAR(10 g) = 0.215 W/kg**

Maximum value of SAR (measured) = 0.410 W/kg





Plot 36: Date/Time: 3/23/2014 6:36:10 AM

Test Laboratory: SUNWAY COMMUNICATION CO.,LTD.

**DUT: 700 ; Type: SI PIN; Serial: IMEI Number**

**Program Name: 700**

Communication System: GPRS850; Frequency: 836.6 MHz; Duty Cycle: 1:8

Medium parameters used:  $f = 837 \text{ MHz}$ ;  $\sigma = 0.992 \text{ mho/m}$ ;  $\epsilon_r = 55.5$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3028; ConvF(6.28, 6.28, 6.28); Calibrated: 8/1/2013
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn689; Calibrated: 7/20/2013
- Phantom: SAM with TP1432; Type: SAM; Serial: Not Specified
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

**Worn-1SLOT/Area Scan (61x141x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.129 W/kg

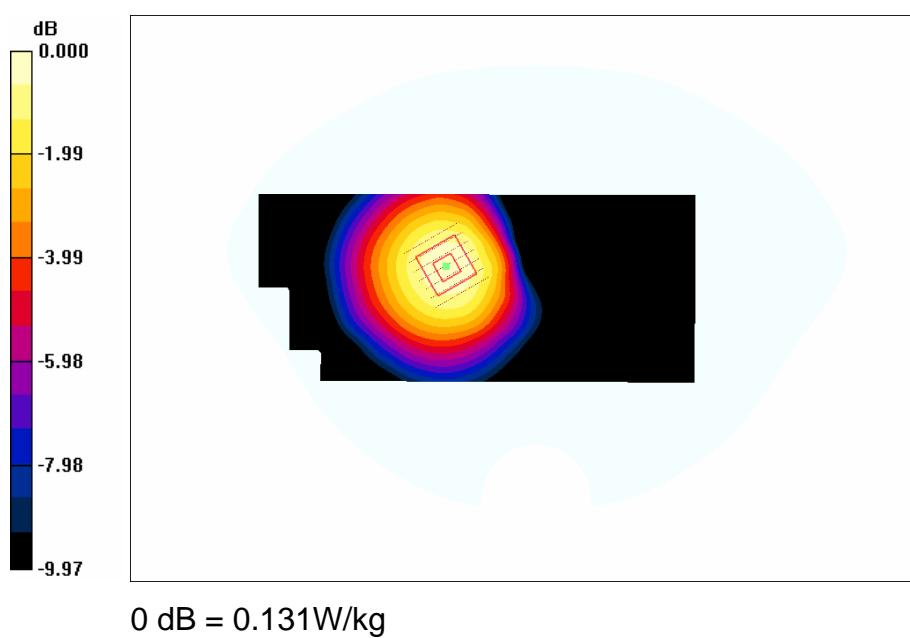
**Worn-1SLOT/Zoom Scan (7x7x7)/Cube 0:** Measurement grid:  $dx=5\text{mm}$ ,  $dy=5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 3.79 V/m; Power Drift = -0.066 dB

Peak SAR (extrapolated) = 0.159 W/kg

**SAR(1 g) = 0.123 W/kg; SAR(10 g) = 0.089 W/kg**

Maximum value of SAR (measured) = 0.131 W/kg





Plot 37: Date/Time: 3/23/2014 6:59:09 AM

Test Laboratory: SUNWAY COMMUNICATION CO.,LTD.

**DUT: 700 ; Type: SI PIN; Serial: IMEI Number**

**Program Name: 700**

Communication System: GPRS850; Frequency: 836.6 MHz; Duty Cycle: 1:4

Medium parameters used:  $f = 837 \text{ MHz}$ ;  $\sigma = 0.992 \text{ mho/m}$ ;  $\epsilon_r = 55.5$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3028; ConvF(6.28, 6.28, 6.28); Calibrated: 8/1/2013
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn689; Calibrated: 7/20/2013
- Phantom: SAM with TP1432; Type: SAM; Serial: Not Specified
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

**Worn-2SLOT/Area Scan (61x141x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.202 W/kg

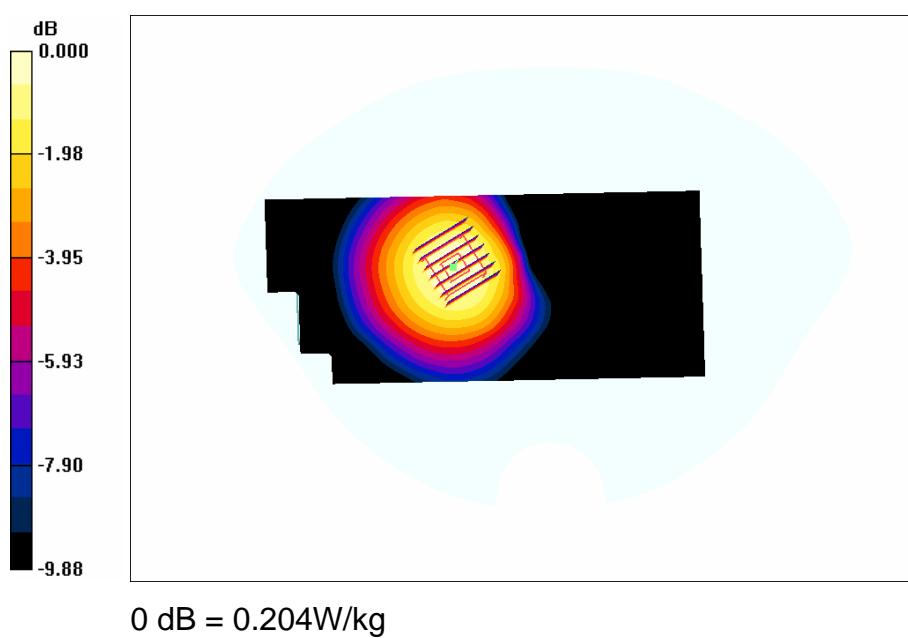
**Worn-2SLOT/Zoom Scan (7x7x7)/Cube 0:** Measurement grid:  $dx=5\text{mm}$ ,  $dy=5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 4.83 V/m; Power Drift = -0.104 dB

Peak SAR (extrapolated) = 0.250 W/kg

**SAR(1 g) = 0.192 W/kg; SAR(10 g) = 0.138 W/kg**

Maximum value of SAR (measured) = 0.204 W/kg





Plot 38: Date/Time: 3/23/2014 9:04:08 AM

Test Laboratory: SUNWAY COMMUNICATION CO.,LTD.

**DUT: 700 ; Type: SI PIN; Serial: IMEI Number**

**Program Name: 700**

Communication System: GPRS850; Frequency: 836.6 MHz; Duty Cycle: 1:3.75

Medium parameters used:  $f = 837 \text{ MHz}$ ;  $\sigma = 0.992 \text{ mho/m}$ ;  $\epsilon_r = 55.5$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3028; ConvF(6.28, 6.28, 6.28); Calibrated: 8/1/2013
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn689; Calibrated: 7/20/2013
- Phantom: SAM with TP1432; Type: SAM; Serial: Not Specified
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

**Worn-3SLOT/Area Scan (61x141x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.131 W/kg

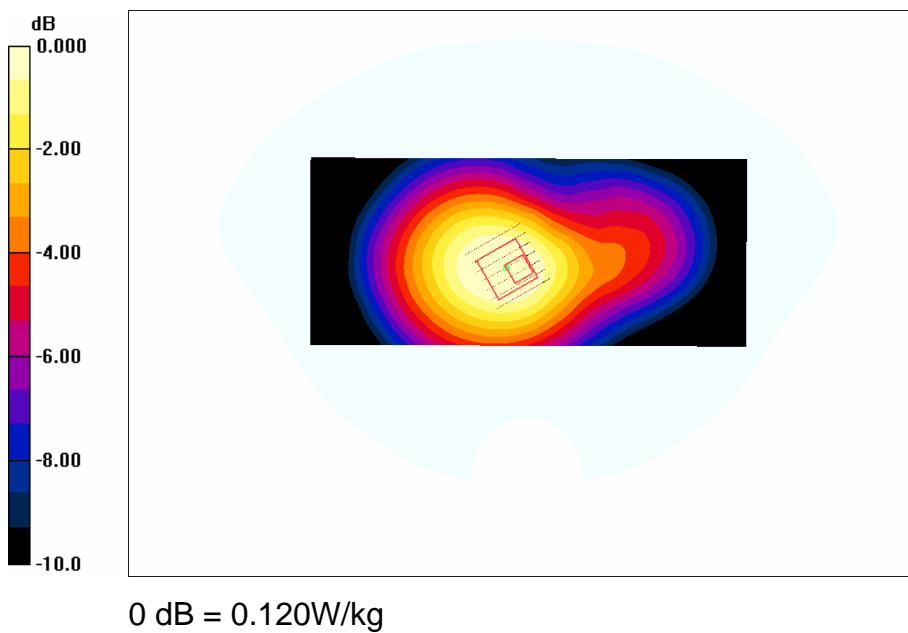
**Worn-3SLOT/Zoom Scan (7x7x7)/Cube 0:** Measurement grid:  $dx=5\text{mm}$ ,  $dy=5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 11.3 V/m; Power Drift = -0.167 dB

Peak SAR (extrapolated) = 0.264 W/kg

**SAR(1 g) = 0.128 W/kg; SAR(10 g) = 0.087 W/kg**

Maximum value of SAR (measured) = 0.120 W/kg





Plot 39: Date/Time: 3/23/2014 9:38:39 AM

Test Laboratory: SUNWAY COMMUNICATION CO.,LTD.

**DUT: 700 ; Type: SI PIN; Serial: IMEI Number**

**Program Name: 700**

Communication System: GPRS850; Frequency: 836.6 MHz; Duty Cycle: 1:2

Medium parameters used:  $f = 837 \text{ MHz}$ ;  $\sigma = 0.992 \text{ mho/m}$ ;  $\epsilon_r = 55.5$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3028; ConvF(6.28, 6.28, 6.28); Calibrated: 8/1/2013
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn689; Calibrated: 7/20/2013
- Phantom: SAM with TP1432; Type: SAM; Serial: Not Specified
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

**Worn-4SLOT/Area Scan (61x141x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.223 W/kg

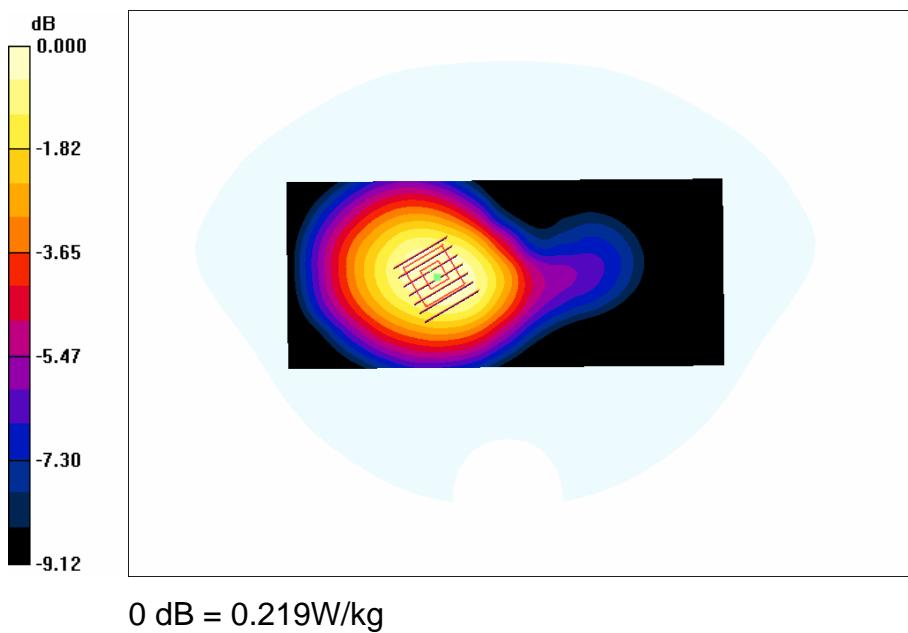
**Worn-4SLOT/Zoom Scan (7x7x7)/Cube 0:** Measurement grid:  $dx=5\text{mm}$ ,  $dy=5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 11.2 V/m; Power Drift = -0.121 dB

Peak SAR (extrapolated) = 0.273 W/kg

**SAR(1 g) = 0.207 W/kg; SAR(10 g) = 0.149 W/kg**

Maximum value of SAR (measured) = 0.219 W/kg





Plot 40: Date/Time: 3/23/2014 10:46:14 AM

Test Laboratory: SUNWAY COMMUNICATION CO.,LTD.

**DUT: 700 ; Type: SI PIN; Serial: IMEI Number**

**Program Name: 700**

Communication System: GPRS850; Frequency: 836.6 MHz; Duty Cycle: 1:2

Medium parameters used:  $f = 837 \text{ MHz}$ ;  $\sigma = 0.992 \text{ mho/m}$ ;  $\epsilon_r = 55.5$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3028; ConvF(6.28, 6.28, 6.28); Calibrated: 8/1/2013
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn689; Calibrated: 7/20/2013
- Phantom: SAM with TP1432; Type: SAM; Serial: Not Specified
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

**Front-4SLOT/Area Scan (61x141x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.152 W/kg

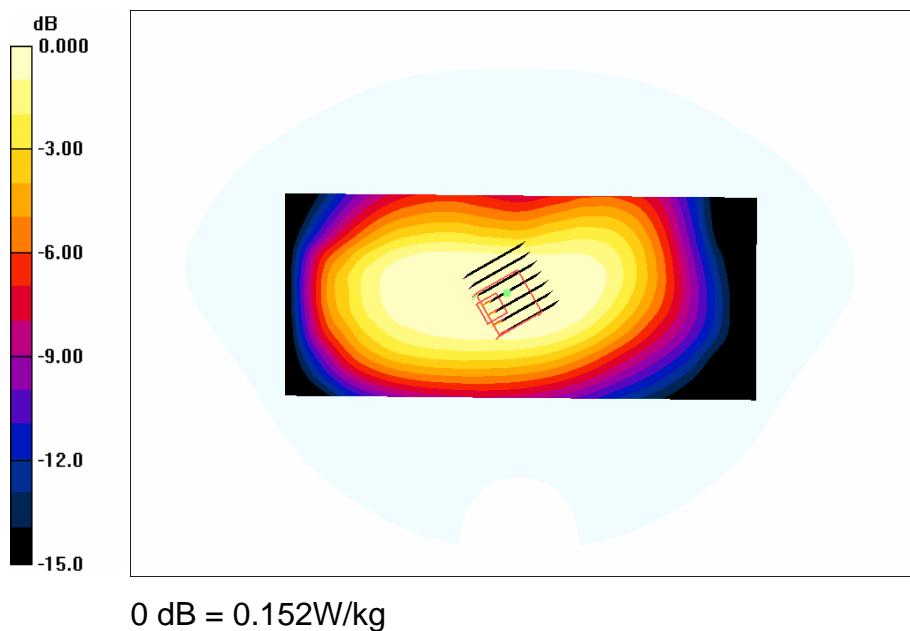
**Front-4SLOT/Zoom Scan (7x7x7)/Cube 0:** Measurement grid:  $dx=5\text{mm}$ ,  $dy=5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 6.9 V/m; Power Drift = -0.012 dB

Peak SAR (extrapolated) = 0.494 W/kg

**SAR(1 g) = 0.133 W/kg; SAR(10 g) = 0.061 W/kg**

Maximum value of SAR (measured) = 0.152 W/kg





Plot 41: Date/Time: 3/23/2014 11:17:35 AM

Test Laboratory: SUNWAY COMMUNICATION CO.,LTD.

**DUT: 700 ; Type: SI PIN; Serial: IMEI Number**

**Program Name: 700**

Communication System: GSM 850; Frequency: 836.6 MHz; Duty Cycle: 1:8.3

Medium parameters used:  $f = 837 \text{ MHz}$ ;  $\sigma = 0.992 \text{ mho/m}$ ;  $\epsilon_r = 55.5$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3028; ConvF(6.28, 6.28, 6.28); Calibrated: 8/1/2013
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn689; Calibrated: 7/20/2013
- Phantom: SAM with TP1432; Type: SAM; Serial: Not Specified
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

**Worn-HS/Area Scan (61x141x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.152 W/kg

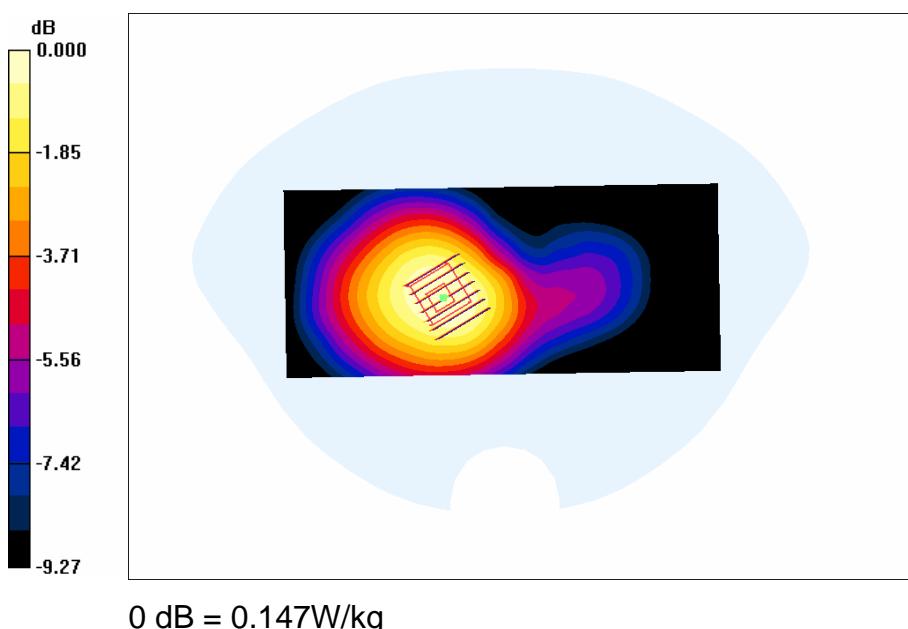
**Worn-HS/Zoom Scan (7x7x7)/Cube 0:** Measurement grid:  $dx=5\text{mm}$ ,  $dy=5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 9.34 V/m; Power Drift = -0.116 dB

Peak SAR (extrapolated) = 0.185 W/kg

**SAR(1 g) = 0.139 W/kg; SAR(10 g) = 0.101 W/kg**

Maximum value of SAR (measured) = 0.147 W/kg





Plot 42: Date/Time: 3/22/2014 5:40:47 PM

Test Laboratory: SUNWAY COMMUNICATION CO.,LTD.

**DUT: 700 ; Type: SI PIN; Serial: IMEI Number**

**Program Name: 700**

Communication System: GPRS1900; Frequency: 1880 MHz; Duty Cycle: 1:8

Medium parameters used:  $f = 1880 \text{ MHz}$ ;  $\sigma = 1.54 \text{ mho/m}$ ;  $\epsilon_r = 53.7$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3028; ConvF(4.96, 4.96, 4.96); Calibrated: 8/1/2013
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn689; Calibrated: 7/20/2013
- Phantom: SAM with TP1360; Type: SAM; Serial: Not Specified
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

**Worn-1SLOT/Area Scan (61x141x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.184 W/kg

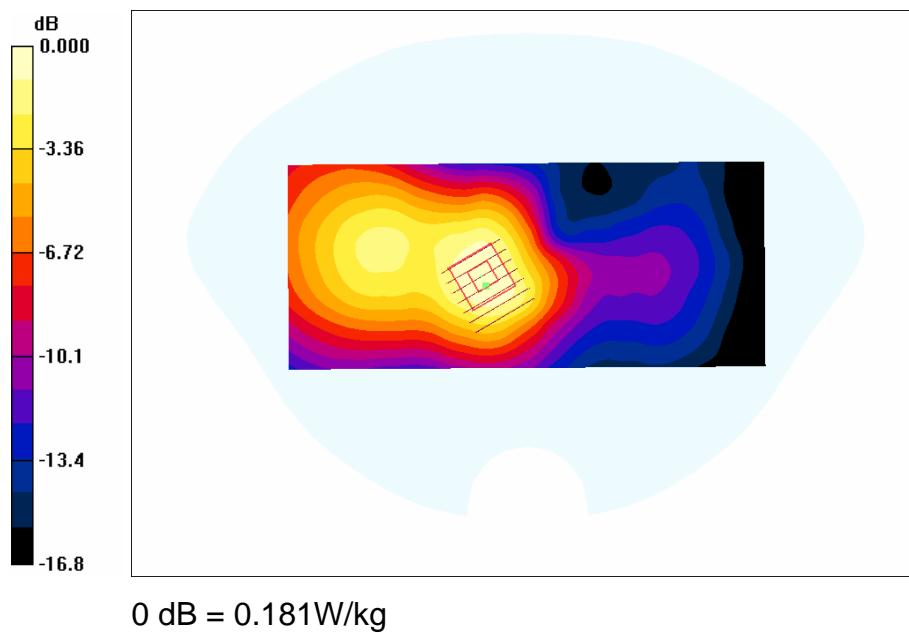
**Worn-1SLOT/Zoom Scan (7x7x7)/Cube 0:** Measurement grid:  $dx=5\text{mm}$ ,  $dy=5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 8.25 V/m; Power Drift = -0.010 dB

Peak SAR (extrapolated) = 0.260 W/kg

**SAR(1 g) = 0.167 W/kg; SAR(10 g) = 0.099 W/kg**

Maximum value of SAR (measured) = 0.181 W/kg



0 dB = 0.181W/kg



Plot 43: Date/Time: 3/22/2014 6:27:45 PM

Test Laboratory: SUNWAY COMMUNICATION CO.,LTD.

**DUT: 700 ; Type: SI PIN; Serial: IMEI Number**

**Program Name: 700**

Communication System: GPRS1900; Frequency: 1880 MHz; Duty Cycle: 1:4

Medium parameters used:  $f = 1880 \text{ MHz}$ ;  $\sigma = 1.54 \text{ mho/m}$ ;  $\epsilon_r = 53.7$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3028; ConvF(4.96, 4.96, 4.96); Calibrated: 8/1/2013
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn689; Calibrated: 7/20/2013
- Phantom: SAM with TP1360; Type: SAM; Serial: Not Specified
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

**Worn-2SLOT 2/Area Scan (61x141x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.299 W/kg

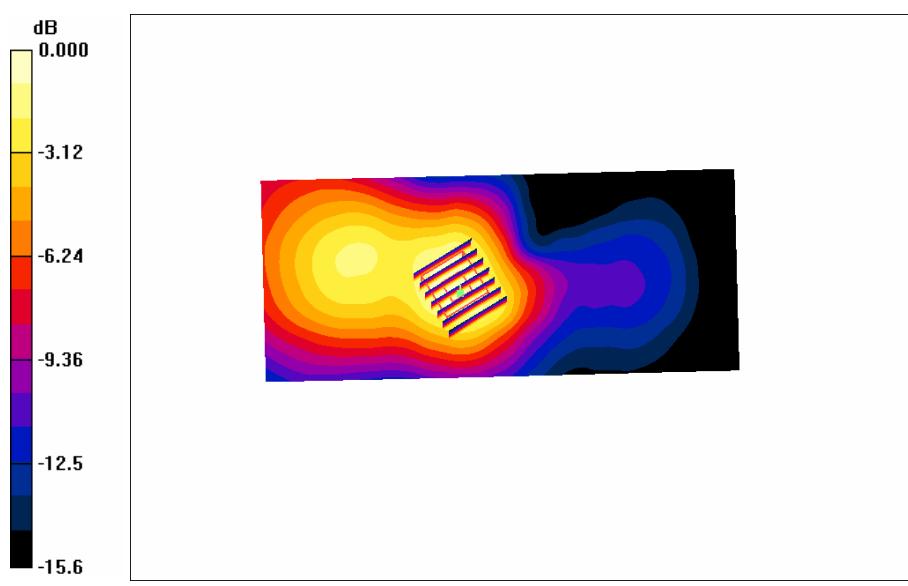
**Worn-2SLOT 2/Zoom Scan (7x7x7)/Cube 0:** Measurement grid:  $dx=5\text{mm}$ ,  $dy=5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 10.5 V/m; Power Drift = -0.016 dB

Peak SAR (extrapolated) = 0.421 W/kg

**SAR(1 g) = 0.271 W/kg; SAR(10 g) = 0.160 W/kg**

Maximum value of SAR (measured) = 0.297 W/kg





Plot 44: Date/Time: 3/22/2014 6:05:26 PM

Test Laboratory: SUNWAY COMMUNICATION CO.,LTD.

**DUT: 700 ; Type: SI PIN; Serial: IMEI Number**

**Program Name: 700**

Communication System: GPRS1900; Frequency: 1880 MHz; Duty Cycle: 1:3.75  
Medium parameters used:  $f = 1880 \text{ MHz}$ ;  $\sigma = 1.54 \text{ mho/m}$ ;  $\epsilon_r = 53.7$ ;  $\rho = 1000 \text{ kg/m}^3$   
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3028; ConvF(4.96, 4.96, 4.96); Calibrated: 8/1/2013
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn689; Calibrated: 7/20/2013
- Phantom: SAM with TP1360; Type: SAM; Serial: Not Specified
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

**Worn-3SLOT 2/Area Scan (61x141x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$   
Maximum value of SAR (interpolated) = 0.367 W/kg

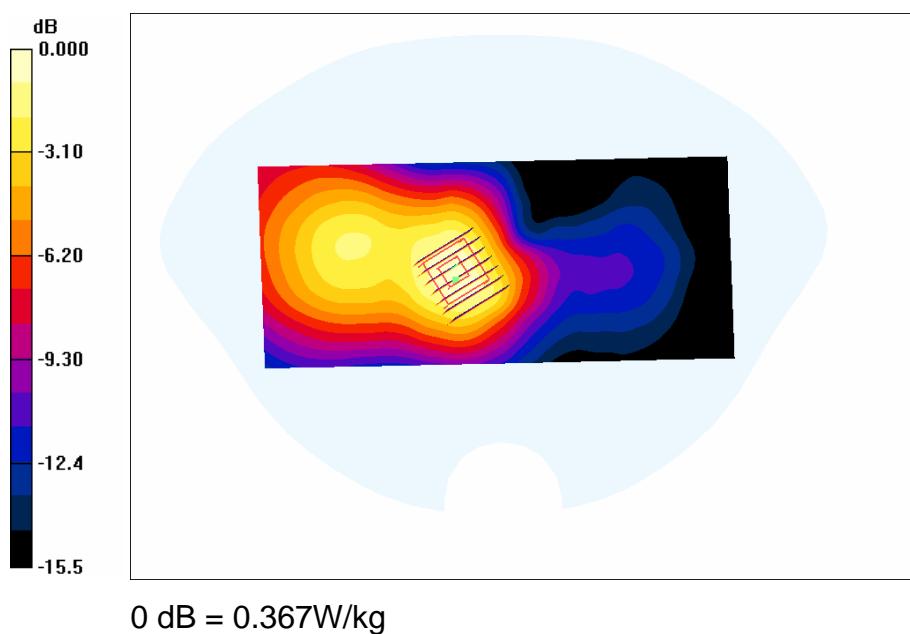
**Worn-3SLOT 2/Zoom Scan (7x7x7)/Cube 0:** Measurement grid:  $dx=5\text{mm}$ ,  $dy=5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 11.5 V/m; Power Drift = 0.075 dB

Peak SAR (extrapolated) = 0.520 W/kg

**SAR(1 g) = 0.333 W/kg; SAR(10 g) = 0.197 W/kg**

Maximum value of SAR (measured) = 0.367 W/kg





Plot 45: Date/Time: 3/22/2014 6:51:54 PM

Test Laboratory: SUNWAY COMMUNICATION CO.,LTD.

**DUT: 700 ; Type: SI PIN; Serial: IMEI Number**

**Program Name: 700**

Communication System: GPRS1900; Frequency: 1880 MHz; Duty Cycle: 1:2

Medium parameters used:  $f = 1880 \text{ MHz}$ ;  $\sigma = 1.54 \text{ mho/m}$ ;  $\epsilon_r = 53.7$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3028; ConvF(4.96, 4.96, 4.96); Calibrated: 8/1/2013
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn689; Calibrated: 7/20/2013
- Phantom: SAM with TP1360; Type: SAM; Serial: Not Specified
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

**Worn-4SLOT/Area Scan (61x141x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.397 W/kg

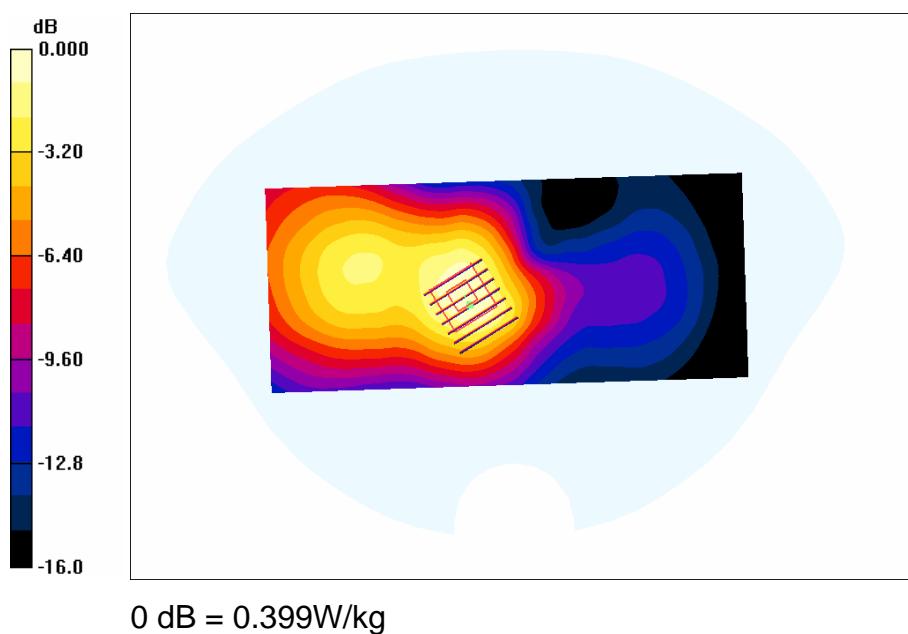
**Worn-4SLOT/Zoom Scan (7x7x7)/Cube 0:** Measurement grid:  $dx=5\text{mm}$ ,  $dy=5\text{mm}$ ,  $dz=5\text{mm}$

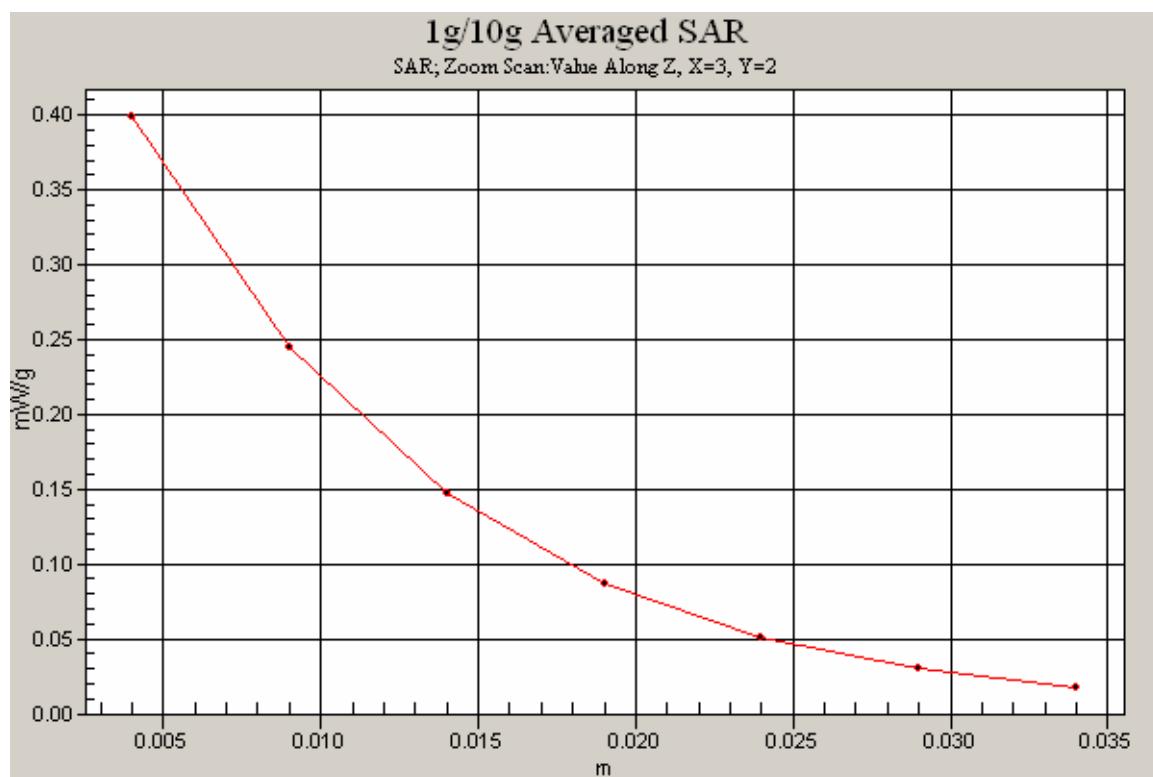
Reference Value = 12.4 V/m; Power Drift = -0.194 dB

Peak SAR (extrapolated) = 0.570 W/kg

**SAR(1 g) = 0.363 W/kg; SAR(10 g) = 0.214 W/kg**

Maximum value of SAR (measured) = 0.399 W/kg







Plot 46: Date/Time: 3/22/2014 7:22:42 PM

Test Laboratory: SUNWAY COMMUNICATION CO.,LTD.

**DUT: 700 ; Type: SI PIN; Serial: IMEI Number**

**Program Name: 700**

Communication System: GPRS1900; Frequency: 1880 MHz; Duty Cycle: 1:2

Medium parameters used:  $f = 1880 \text{ MHz}$ ;  $\sigma = 1.54 \text{ mho/m}$ ;  $\epsilon_r = 53.7$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3028; ConvF(4.96, 4.96, 4.96); Calibrated: 8/1/2013
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn689; Calibrated: 7/20/2013
- Phantom: SAM with TP1360; Type: SAM; Serial: Not Specified
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

**Front-4SLOT/Area Scan (61x141x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.186 W/kg

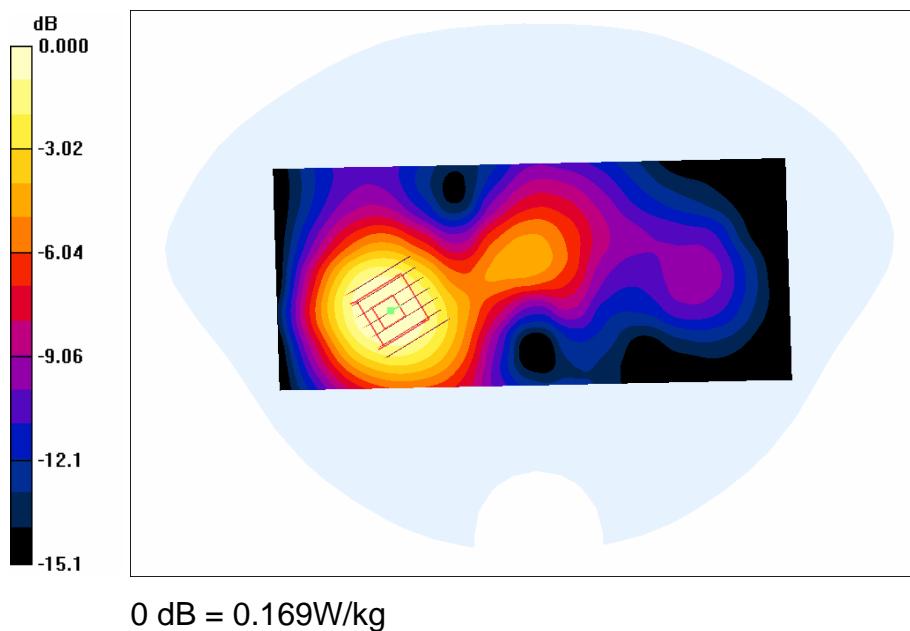
**Front-4SLOT/Zoom Scan (7x7x7)/Cube 0:** Measurement grid:  $dx=5\text{mm}$ ,  $dy=5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 5.37 V/m; Power Drift = 0.104 dB

Peak SAR (extrapolated) = 0.230 W/kg

**SAR(1 g) = 0.156 W/kg; SAR(10 g) = 0.097 W/kg**

Maximum value of SAR (measured) = 0.169 W/kg





Plot 47: Date/Time: 3/22/2014 7:47:39 PM

Test Laboratory: SUNWAY COMMUNICATION CO.,LTD.

**DUT: 700 ; Type: SI PIN; Serial: IMEI Number**

**Program Name: 700**

Communication System: GSM 1900; Frequency: 1880 MHz; Duty Cycle: 1:8.3

Medium parameters used:  $f = 1880 \text{ MHz}$ ;  $\sigma = 1.54 \text{ mho/m}$ ;  $\epsilon_r = 53.7$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3028; ConvF(4.96, 4.96, 4.96); Calibrated: 8/1/2013
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn689; Calibrated: 7/20/2013
- Phantom: SAM with TP1360; Type: SAM; Serial: Not Specified
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

**Worn-HS/Area Scan (61x141x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.180 W/kg

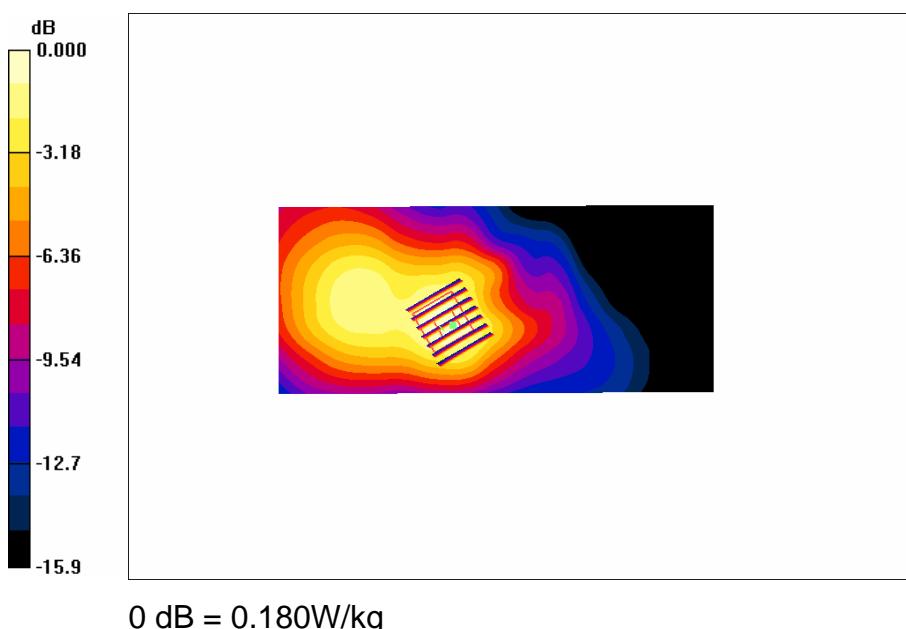
**Worn-HS/Zoom Scan (7x7x7)/Cube 0:** Measurement grid:  $dx=5\text{mm}$ ,  $dy=5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 6.18 V/m; Power Drift = -0.007 dB

Peak SAR (extrapolated) = 0.265 W/kg

**SAR(1 g) = 0.166 W/kg; SAR(10 g) = 0.097 W/kg**

Maximum value of SAR (measured) = 0.180 W/kg





## Appendix C. Probe Calibration Data:



In Collaboration with  
**s p e a g**  
CALIBRATION LABORATORY

Add: No.52 Huayuanbei Road, Haidian District, Beijing, 100191, China  
Tel: +86-10-62304633-2079 Fax: +86-10-62304633-2504  
E-mail: Info@emcite.com Http://www.emcite.com

Client      Sunway

Certificate No: J13-2-2186

<b>CALIBRATION CERTIFICATE</b>			
Object	ES3DV3 - SN:3028		
Calibration Procedure(s)	TMC-OS-E-02-195 Calibration Procedures for Dosimetric E-field Probes		
Calibration date:	August 5, 2013		
This calibration Certificate documents the traceability to national standards, which realize the physical units of measurements(SI). The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.			
All calibrations have been conducted in the closed laboratory facility: environment temperature(22±3)°C and humidity<70%.			
Calibration Equipment used (M&TE critical for calibration)			
Primary Standards	ID #	Cal Date(Calibrated by, Certificate No.)	Scheduled Calibration
Power Meter NRP2	101919	01-Jul-13 (TMC, No.JW13-044)	Jun-14
Power sensor NRP-Z91	101547	01-Jul-13 (TMC, No.JW13-044)	Jun-14
Power sensor NRP-Z91	101548	01-Jul-13 (TMC, No.JW13-044)	Jun-14
Reference10dBAttenuator	BT0520	12-Dec-12(TMC, No.JZ12-867)	Dec-14
Reference20dBAttenuator	BT0267	12-Dec-12(TMC, No.JZ12-866)	Dec-14
Reference Probe EX3DV4	SN 3846	20-Dec-12(SPEAG, No.EX3-3846_Dec12)	Dec-13
DAE4	SN 777	22-Feb-13 (SPEAG, DAE4-777_Feb13)	Feb-14
Secondary Standards	ID #	Cal Date(Calibrated by, Certificate No.)	Scheduled Calibration
SignalGeneratorMG3700A	6201052605	01-Jul-13 (TMC, No.JW13-045)	Jun-14
Network Analyzer E5071C	MY46110673	15-Feb-13 (TMC, No.JZ13-781)	Feb-14
Calibrated by:	Name	Function	Signature
Calibrated by:	Zhao Jing	SAR Test Engineer	
Reviewed by:	Qi Dianyuan	SAR Project Leader	
Approved by:	Xiao Li	Deputy Director of the laboratory	
Issued: August 7, 2013			
This calibration certificate shall not be reproduced except in full without written approval of the laboratory.			



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E-mail: Info@emeite.com Http://www.emeite.com

## Glossary:

TSL	tissue simulating liquid
NORMx,y,z	sensitivity in free space
ConvF	sensitivity in TSL / NORMx,y,z
DCP	diode compression point
CF	crest factor (1/duty_cycle) of the RF signal
A,B,C,D	, modulation dependent linearization parameters
Polarization $\Phi$	$\Phi$ rotation around probe axis
Polarization $\theta$	$\theta$ rotation around an axis that is in the plane normal to probe axis (at measurement center), i $\theta=0$ is normal to probe axis

## Calibration is Performed According to the Following Standards:

- a) IEEE Std 1528-2003, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", December 2003
- b) IEC 62209-1, "Procedure to measure the Specific Absorption Rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300MHz to 3GHz)", February 2005

## Methods Applied and Interpretation of Parameters:

- *NORMx,y,z*: Assessed for E-field polarization  $\theta=0$  ( $f \leq 900\text{MHz}$  in TEM-cell;  $f > 1800\text{MHz}$ : waveguide). *NORMx,y,z* are only intermediate values, i.e., the uncertainties of *NORMx,y,z* does not effect the  $E^2$ -field uncertainty inside TSL (see below ConvF).
- *NORM(f)x,y,z = NORMx,y,z \* frequency\_response* (see Frequency Response Chart). This linearization is implemented in DASY4 software versions later than 4.2. The uncertainty of the frequency response is included in the stated uncertainty of ConvF.
- *DCPx,y,z*: DCP are numerical linearization parameters assessed based on the data of power sweep (no uncertainty required). DCP does not depend on frequency nor media.
- PAR: PAR is the Peak to Average Ratio that is not calibrated but determined based on the signal characteristics.
- *Ax,y,z; Bx,y,z; Cx,y,z; VRx,y,z; A,B,C* are numerical linearization parameters assessed based on the data of power sweep for specific modulation signal. The parameters do not depend on frequency nor media. VR is the maximum calibration range expressed in RMS voltage across the diode.
- *ConvF and Boundary Effect Parameters*: Assessed in flat phantom using E-field (or Temperature Transfer Standard for  $f \leq 800\text{MHz}$ ) and inside waveguide using analytical field distributions based on power measurements for  $f > 800\text{MHz}$ . The same setups are used for assessment of the parameters applied for boundary compensation (alpha, depth) of which typical uncertainty valued are given. These parameters are used in DASY4 software to improve probe accuracy close to the boundary. The sensitivity in TSL corresponds to *NORMx,y,z \* ConvF* whereby the uncertainty corresponds to that given for ConvF. A frequency dependent ConvF is used in DASY version 4.4 and higher which allows extending the validity from  $\pm 50\text{MHz}$  to  $\pm 100\text{MHz}$ .
- *Spherical isotropy (3D deviation from isotropy)*: in a field of low gradients realized using a flat phantom exposed by a patch antenna.
- *Sensor Offset*: The sensor offset corresponds to the offset of virtual measurement center from the probe tip (on probe axis). No tolerance required.
- *Connector Angle*: The angle is assessed using the information gained by determining the *NORMx* (no uncertainty required).



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# Probe ES3DV3

**SN: 3028**

Calibrated: August 5, 2013

Calibrated for DASY/EASY Systems

(Note: non-compatible with DASY2 system!)



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## DASY – Parameters of Probe: ES3DV3 - SN: 3028

### Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm( $\mu\text{V}/(\text{V}/\text{m})^2$ ) <sup>A</sup>	1.06	1.17	1.14	±10.8%
DCP(mV) <sup>B</sup>	105.6	104.6	98.9	

### Modulation Calibration Parameters

UID	Communication System Name	A dB	B dB/ $\mu\text{V}$	C	D dB	VR mV	Unc <sup>E</sup> (k=2)
0	CW	X	0.0	0.0	1.0	0.00	193.3
		Y	0.0	0.0	1.0		205.8
		Z	0.0	0.0	1.0		198.3

The reported uncertainty of measurement is stated as the standard uncertainty of Measurement multiplied by the coverage factor k=2, which for a normal distribution Corresponds to a coverage probability of approximately 95%.

<sup>A</sup> The uncertainties of Norm X, Y, Z do not affect the E<sup>2</sup>-field uncertainty inside TSL (see Page 5 and Page 6).

<sup>B</sup> Numerical linearization parameter: uncertainty not required.

<sup>E</sup> Uncertainty is determined using the max. deviation from linear response applying rectangular distribution and is expressed for the square of the field value.



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## DASY – Parameters of Probe: ES3DV3 - SN: 3028

### Calibration Parameter Determined in Head Tissue Simulating Media

f [MHz] <sup>C</sup>	Relative Permittivity <sup>F</sup>	Conductivity (S/m) <sup>F</sup>	ConvF X	ConvF Y	ConvF Z	Alpha	Depth (mm)	Unct. (k=2)
850	41.5	0.92	6.26	6.26	6.26	0.27	1.90	± 12%
900	41.5	0.97	6.28	6.28	6.28	0.26	1.88	± 12%
1750	40.1	1.37	5.62	5.62	5.62	0.27	3.08	± 12%
1900	40.0	1.40	5.21	5.21	5.21	0.28	3.03	± 12%
2000	40.0	1.40	5.14	5.14	5.14	0.27	2.99	± 12%
2450	39.2	1.80	4.84	4.84	4.84	0.46	1.72	± 12%

<sup>C</sup> Frequency validity of ±100MHz only applies for DASY v4.4 and higher (Page 2), else it is restricted to ±50MHz. The uncertainty is the RSS of ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.

<sup>F</sup> At frequency below 3 GHz, the validity of tissue parameters ( $\epsilon$  and  $\sigma$ ) can be relaxed to ±10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters ( $\epsilon$  and  $\sigma$ ) is restricted to ±5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.



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## DASY – Parameters of Probe: ES3DV3 - SN: 3028

### Calibration Parameter Determined in Body Tissue Simulating Media

f [MHz] <sup>C</sup>	Relative Permittivity <sup>F</sup>	Conductivity (S/m) <sup>F</sup>	ConvF X	ConvF Y	ConvF Z	Alpha	Depth (mm)	Unct. (k=2)
850	55.2	0.99	6.28	6.28	6.28	0.30	1.91	±12%
900	55.0	1.05	6.29	6.29	6.29	0.37	1.61	±12%
1750	53.4	1.49	5.15	5.15	5.15	0.30	2.92	±12%
1900	53.3	1.52	4.96	4.96	4.96	0.29	2.93	±12%
2000	53.3	1.52	4.99	4.99	4.99	0.29	2.86	±12%
2450	52.7	1.95	4.36	4.36	4.36	0.52	1.71	±12%

<sup>C</sup> Frequency validity of ±100MHz only applies for DASY v4.4 and higher (Page 2), else it is restricted to ±50MHz. The uncertainty is the RSS of ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.

<sup>F</sup> At frequency below 3 GHz, the validity of tissue parameters ( $\epsilon$  and  $\sigma$ ) can be relaxed to ±10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters ( $\epsilon$  and  $\sigma$ ) is restricted to ±5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.