



OET 65

TEST REPORT

Product Name	HUAWEI Ascend Y 201 Pro; Skyline mini; HSDPA/UMTS/GPRS/GSM/EDGE Mobile Phone with Bluetooth;
Model	HUAWEI U8666E-51, U8666E-51
FCC ID	QISU8666E-51
Client	Huawei Technologies Co., Ltd.

TA Technology (Shanghai) Co., Ltd.

TA Technology (Shanghai) Co., Ltd.
Test Report

Report No.: RHA1207-0058SAR01

Page 2 of 146

GENERAL SUMMARY

Product Name	HUAWEI Ascend Y 201 Pro; Skyline mini; HSDPA/UMTS/GPRS/GSM/EDGE Mobile Phone with Bluetooth;	Model	HUAWEI U8666E-51, U8666E-51
Report No.	RHA1207-0058SAR01	FCC ID	QISU8666E-51
Client	Huawei Technologies Co., Ltd.		
Manufacturer	Huawei Technologies Co., Ltd.		
Reference Standard(s)	<p>IEEE Std C95.1, 1999: IEEE Standard for Safety Levels with Respect to Human Exposure to Radiofrequency Electromagnetic Fields, 3 kHz to 300 GHz.</p> <p>IEEE Std 1528™-2003: IEEE Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques.</p> <p>SUPPLEMENT C Edition 01-01 to OET BULLETIN 65 Edition 97-01 June 2001 including DA 02-1438, published June 2002: Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields Additional Information for Evaluation Compliance of Mobile and Portable Devices with FCC Limits for Human Exposure to Radiofrequency Emissions.</p> <p>RSS-102 Issue 4 March 2010: Radio Frequency (RF) Exposure Compliance of Radiocommunication Apparatus (All Frequency Bands)</p> <p>KDB 648474 D01 SAR Handsets Multi Xmitter and Ant, v01r05: SAR Evaluation Considerations for Handsets with Multiple Transmitters and Antennas.</p> <p>KDB 941225 D06 Hot Spot SAR v01 SAR Evaluation Procedures for Portable Devices with Wireless Router Capabilities</p> <p>KDB 941225 D01 SAR test for 3G devices v02: SAR Measurement Procedures CDMA 20001x RTT, 1x Ev-Do, WCDMA, HSDPA/HSPA</p>		
Conclusion	<p>This portable wireless equipment has been measured in all cases requested by the relevant standards. Test results in Chapter 7 of this test report are below limits specified in the relevant standards.</p> <p>General Judgment: Pass</p> <p style="text-align: right;">(Stamp) Date of issue: August 7th, 2012</p>		
Comment	The test result only responds to the measured sample.		

Approved by 杨伟中
Director

Revised by 凌敏宝
SAR Manager

Performed by 沈辰
SAR Engineer

TABLE OF CONTENT

1.	General Information	5
1.1.	Notes of the Test Report.....	5
1.2.	Testing Laboratory	5
1.3.	Applicant Information	6
1.4.	Manufacturer Information.....	6
1.5.	Information of EUT.....	7
1.6.	The Maximum SAR _{1g} Values	9
1.7.	Maximum Conducted Power of each tested Mode.....	11
1.8.	Test Date	11
2.	SAR Measurements System Configuration.....	12
2.1.	SAR Measurement Set-up	12
2.2.	DASY5 E-field Probe System	13
2.2.1.	ES3DV3 Probe Specification	13
2.2.2.	E-field Probe Calibration.....	14
2.3.	Other Test Equipment	14
2.3.1.	Device Holder for Transmitters	14
2.3.2.	Phantom	15
2.4.	Scanning Procedure	15
2.5.	Data Storage and Evaluation	17
2.5.1.	Data Storage.....	17
2.5.2.	Data Evaluation by SEMCAD	17
3.	Laboratory Environment.....	19
4.	Tissue-equivalent Liquid	20
4.1.	Tissue-equivalent Liquid Ingredients.....	20
4.2.	Tissue-equivalent Liquid Properties	21
5.	System Check.....	22
5.1.	Description of System Check.....	22
5.2.	System Check Results.....	23
6.	Operational Conditions during Test.....	24
6.1.	General Description of Test Procedures	24
6.2.	Test Positions.....	24
6.2.1.	Against Phantom Head.....	24
6.2.2.	Body Worn Configuration.....	24
6.3.	Test Configuration	25
6.3.1.	GSM Test Configuration.....	25
6.3.2.	WCDMA Test Configuration.....	26
6.3.3.	HSDPA Test Configuration	26
6.3.4.	WIFI Test Configuration	29
7.	Test Results	30
7.1.	Conducted Power Results	30

TA Technology (Shanghai) Co., Ltd.
Test Report

Report No.: RHA1207-0058SAR01

Page 4 of 146

7.2. SAR Test Results	31
7.2.1. GSM 850 (GPRS/EGPRS).....	31
7.2.2. WCDMA Band V (WCDMA/HSDPA).....	33
7.2.3. Bluetooth/WiFi Function.....	35
8. 300MHz to 3GHz Measurement Uncertainty.....	41
9. Main Test Instruments	43
ANNEX A: Test Layout	44
ANNEX B: System Check Results	47
ANNEX C: Graph Results	51
ANNEX D: Probe Calibration Certificate	107
ANNEX E: D835V2 Dipole Calibration Certificate	118
ANNEX F: D2450V2 Dipole Calibration Certificate	126
ANNEX G: DAE4 Calibration Certificate.....	134
ANNEX H: The EUT Appearances and Test Configuration.....	139

1. General Information

1.1. Notes of the Test Report

TA Technology (Shanghai) Co., Ltd. guarantees the reliability of the data presented in this test report, which is the results of measurements and tests performed for the items under test on the date and under the conditions stated in this test report and is based on the knowledge and technical facilities available at TA Technology (Shanghai) Co., Ltd. at the time of execution of the test.

TA Technology (Shanghai) Co., Ltd. is liable to the client for the maintenance by its personnel of the confidentiality of all information related to the items under test and the results of the test. This report only refers to the item that has undergone the test.

This report standalone dose not constitute or imply by its own an approval of the product by the certification Bodies or competent Authorities. This report cannot be used partially or in full for publicity and/or promotional purposes without previous written approval of **TA Technology (Shanghai) Co., Ltd.** and the Accreditation Bodies, if it applies.

If the electrical report is inconsistent with the printed one, it should be subject to the latter.

1.2. Testing Laboratory

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TA Technology (Shanghai) Co., Ltd.

Test Report

Report No.: RHA1207-0058SAR01

Page 6 of 146

1.3. Applicant Information

Company: Huawei Technologies Co., Ltd.
Address: Bantian, Longgang District
City: Shenzhen
Postal Code: 518129
Country: P.R. China

1.4. Manufacturer Information

Company: Huawei Technologies Co., Ltd.
Address: Bantian, Longgang District
City: Shenzhen
Postal Code: 518129
Country: P.R.China

TA Technology (Shanghai) Co., Ltd.

Test Report

Report No.: RHA1207-0058SAR01

Page 7 of 146

1.5. Information of EUT

General Information

Device Type:	Portable Device		
Exposure Category:	Uncontrolled Environment / General Population		
State of Sample:	Prototype Unit		
Product Name:	HUAWEI Ascend Y 201 Pro; Skyline mini; HSDPA/UMTS/GPRS/GSM/EDGE Mobile Phone with Bluetooth;		
IMEI:	864450010004267		
Hardware Version:	HD2U8655M		
Software Version:	U8666E-51V100R001C451B927		
Antenna Type:	Internal Antenna		
Device Operating Configurations :			
Supporting Mode(s):	GSM 850/WCDMA Band V; (tested) WiFi (802.11b/g/n HT20); (tested) GSM 900/WCDMA Band I; (untested) Bluetooth; (untested)		
Test Modulation:	(GSM)GMSK; (WCDMA)QPSK		
Device Class:	B		
HSDPA UE Category:	10		
GPRS Multislot Class(10):	Max Number of Timeslots in Uplink	2	
	Max Number of Timeslots in Downlink	4	
	Max Total Timeslot	5	
EGPRS Multislot Class(10):	Max Number of Timeslots in Uplink	2	
	Max Number of Timeslots in Downlink	4	
	Max Total Timeslot	5	
Operating Frequency Range(s):	Mode	Tx (MHz)	Rx (MHz)
	GSM 850	824.2 ~ 848.8	869.2 ~ 893.8
	WCDMA Band V	826.4 ~ 846.6	871.4 ~ 891.6
Power Class:	GSM 850: 4		
	WCDMA Band V: 3		
Power Level	GSM 850: tested with power level 5		
	WCDMA Band V: tested with power control all up bits		
Test Channel: (Low - Middle - High)	128 - 190 - 251	(GSM 850)	(tested)
	4132 - 4183 - 4233	(WCDMA Band V)	(tested)
	1 - 6 - 11	(802.11b)	(tested)

TA Technology (Shanghai) Co., Ltd.

Test Report

Report No.: RHA1207-0058SAR01

Page 8 of 146

Auxiliary Equipment Details

Name	Model	Manufacturer	S/N
Battery 1	HB5K1H	Huawei Technologies Co., Ltd.	WHCC1286910M1781
Battery 2	HB5K1H	Huawei Technologies Co., Ltd.	UAIC308X03022447
Battery 3	HB5K1H	Huawei Technologies Co., Ltd.	UNDC418X03001305
Battery 4	HB5K1H	Huawei Technologies Co., Ltd.	MHCBA086I39V1128

Equipment Under Test (EUT) is a HUAWEI Ascend Y 201 Pro; Skyline mini;HSDPA/UMTS/GPRS/GSM/EDGE Mobile Phone with Bluetooth;. The EUT has a GSM/WCDMA antenna that is used for Tx/Rx, the other is BT/WIFI antenna that can be used for Tx/Rx. It has Personal Wireless Routers (hot spots) function, WIFI calling and Proximity Sensor function. The detail about EUT and Lithium Battery is in chapter 1.5 in this report. SAR are tested for GSM 850, WCDMA Band V and WiFi.

The sample under test was selected by the Client.

Components list please refer to documents of the manufacturer.

TA Technology (Shanghai) Co., Ltd.
Test Report

Report No.: RHA1207-0058SAR01

Page 9 of 146

1.6. The Maximum SAR_{1g} Values

Head SAR Configuration

Mode	Channel	Position	SAR _{1g} (W/kg)
GSM 850	Middle/190	Right, Cheek	0.193
WCDMA Band V	Middle/4183	Right, Cheek	0.201
WiFi(802.11b)	High/11	Right, Cheek	0.228

Body Worn Configuration

Mode	Channel	Position	Separation distance	SAR _{1g} (W/kg)
2Txslots EGPRS 850	High/251	Back Side	10mm	1.120
WCDMA Band V	Middle/4183	Back Side	10mm	0.758
WiFi(802.11b)	High/11	Back Side	10mm	0.077

Hotspot SAR Configuration

Mode	Channel	Position	Separation distance	SAR _{1g} (W/kg)
2Txslots EGPRS 850	High/251	Back Side	10mm	1.120
WCDMA Band V	Middle/4183	Back Side	10mm	0.758
WiFi(802.11b)	High/11	Back Side	10mm	0.077

Simultaneous SAR

SAR _{1g} (W/kg)	GSM850	WIFI (802.11b)	MAX. ΣSAR _{1g}
Test Position			
Body, Back Side	1.120	0.077	1.197

TA Technology (Shanghai) Co., Ltd.
Test Report

Report No.: RHA1207-0058SAR01

Page 10 of 146

Extrapolated SAR Values of the highest measured SAR

Mode	Test Position	Channel	Measurement Result		Tune-up procedures MAX Average Power(dBm)	1g Average Limit 1.6 W/kg
			Average Conducted Power(dBm)	1g Average (W/kg)		Extrapolated Result (W/kg)
GSM850	Right, Cheek	Middle/190	23.18	0.193	24.47	0.260
GSM850	Back Side	Middle/190	23.30	0.798	24.47	1.045
2Txslots GPRS850	Back Side	High/251	23.82	1.060	24.98	1.385
2Txslots EGPRS850	Back Side	High/251	23.71	1.120	24.98	1.500
WCDMA Band V	Right, Cheek	Middle/4183	22.96	0.201	25.00	0.322
WCDMA Band V	Back Side	Middle/4183	22.96	0.758	25.00	1.212

TA Technology (Shanghai) Co., Ltd.
Test Report

Report No.: RHA1207-0058SAR01

Page 11 of 146

1.7. Maximum Conducted Power of each tested Mode

Mode		Max Burst Conducted Power (dBm)	Max Average Power (dBm)
GSM 850	GSM	32.33	23.30
	GPRS, 2Txslots	29.84	23.82
	EGPRS, 2Txslots	29.73	23.71

Mode	Maximum Conducted Power (dBm)
WCDMA Band V	22.96
WiFi(802.11b)	14.99

Note: The detail Power refer to Table 13 (Power Measurement Results).

1.8. Test Date

The test performed from July 26, 2012 to July 30, 2012.

2. SAR Measurements System Configuration

2.1. SAR Measurement Set-up

The DASY5 system for performing compliance tests consists of the following items:

- A standard high precision 6-axis robot (Stäubli RX family) with controller 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 electronic (DAE) which performs the signal amplification, signal multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection, etc. The unit is battery powered with standard or rechargeable batteries. The signal is optically transmitted to the EOC.
- A unit to operate the optical surface detector which is connected to the EOC.
- The Electro-Optical Coupler (EOC) performs the conversion from the optical into a digital electric signal of the DAE. The EOC is connected to the DASY5 measurement server.
- The DASY5 measurement server, which performs all real-time data evaluation for field measurements and surface detection, controls robot movements and handles safety operation. A computer operating Windows 2003
- DASY5 software and SEMCAD data evaluation software.
- Remote control with teach panel and additional circuitry for robot safety such as warning lamps, etc.
- The generic twin phantom enabling the testing of left-hand and right-hand usage.
- The device holder for handheld mobile phones.
- Tissue simulating liquid mixed according to the given recipes.
- System validation dipoles allowing to validate the proper functioning of the system.

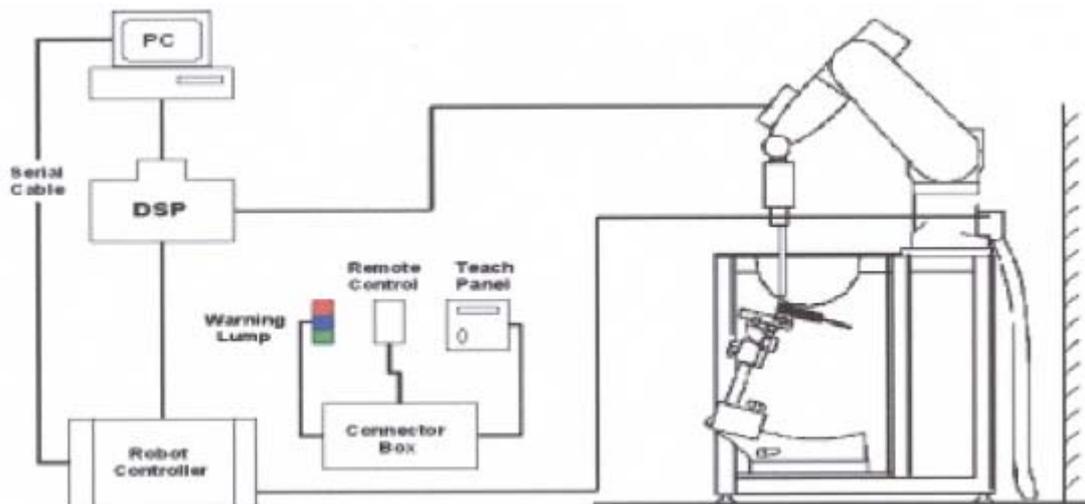


Figure 1 SAR Lab Test Measurement Set-up

2.2. DASY5 E-field Probe System

The SAR measurements were conducted with the dosimetric probe ES3DV3 (manufactured by SPEAG), designed in the classical triangular configuration and optimized for dosimetric evaluation.

2.2.1. ES3DV3 Probe Specification

Construction	Symmetrical design with triangular core Interleaved sensors Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., DGBE)
Calibration	ISO/IEC 17025 calibration service available
Frequency	10 MHz to 4 GHz Linearity: ± 0.2 dB (30 MHz to 4 GHz)
Directivity	± 0.2 dB in HSL (rotation around probe axis) ± 0.3 dB in tissue material (rotation normal to probe axis)
Dynamic Range	5 μ W/g to > 100 mW/g Linearity: ± 0.2 dB
Dimensions	Overall length: 330 mm (Tip: 20 mm) Tip diameter: 3.9 mm (Body: 12 mm) Distance from probe tip to dipole centers: 2.0 mm
Application	General dosimetry up to 4 GHz Dosimetry in strong gradient fields Compliance tests of mobile phones



Figure 2. ES3DV3 E-field Probe



Figure 3. ES3DV3 E-field probe

2.2.2. E-field Probe Calibration

Each probe is calibrated according to a dosimetric assessment procedure with accuracy better than $\pm 10\%$. The spherical isotropy was evaluated and found to be better than $\pm 0.25\text{dB}$. The sensitivity parameters (NormX, NormY, NormZ), the diode compression parameter (DCP) and the conversion factor (ConvF) of the probe are tested.

The free space E-field from amplified probe outputs is determined in a test chamber. This is performed in a TEM cell for frequencies below 1 GHz, and in a wave guide above 1 GHz for free space. For the free space calibration, the probe is placed in the volumetric center of the cavity and at the proper orientation with the field. The probe is then rotated 360 degrees.

E-field temperature correlation calibration is performed in a flat phantom filled with the appropriate simulated brain tissue. The measured free space E-field in the medium correlates to temperature rise in a dielectric medium. For temperature correlation calibration a RF transparent thermistor-based temperature probe is used in conjunction with the E-field probe.

$$\text{SAR} = C \frac{\Delta T}{\Delta t}$$

Where: Δt = Exposure time (30 seconds),
C = Heat capacity of tissue (brain or muscle),
 ΔT = Temperature increase due to RF exposure.
Or

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

Where:
 σ = Simulated tissue conductivity,
 ρ = Tissue density (kg/m³).

2.3. Other Test Equipment

2.3.1. Device Holder for Transmitters

The DASY device holder is designed to cope with the different positions given in the standard.

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

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.



Figure 4 Device Holder

2.3.2. Phantom

The Generic Twin Phantom is constructed of a fiberglass shell integrated in a wooden Figure. The shape of the shell is based on data from an anatomical study designed to determine the maximum exposure in at least 90% of all users. It enables the dosimetric evaluation of left and right hand phone usage as well as body mounted usage at the flat phantom region. A cover prevents the evaporation of the liquid. Reference markings on the Phantom allow the complete setup of all predefined phantom positions and measurement grids by manually teaching three points in the robot.

Shell Thickness	2±0.1 mm
Filling Volume	Approx. 20 liters
Dimensions	810 x 1000 x 500 mm (H x L x W)
Available	Special



Figure 5 Generic Twin Phantom

2.4. Scanning Procedure

The DASY5 installation includes predefined files with recommended procedures for measurements and validation. They are read-only document files and destined as fully defined but unmeasured masks. All test positions (head or body-worn) are tested with the same configuration of test steps differing only in the grid definition for the different test positions.

- The “reference” and “drift” measurements are located at the beginning and end of the batch process. They measure the field drift at one single point in the liquid over the complete procedure. The indicated drift is mainly the variation of the DUT’s output power and should vary max. ± 5 %.
- The “surface check” measurement tests the optical surface detection system of the DASY5 system by repeatedly detecting the surface with the optical and mechanical surface detector and comparing the results. The output gives the detecting heights of both systems, the difference between the two systems and the standard deviation of the detection repeatability. Air bubbles or refraction in the liquid due to separation of the sugar-water mixture gives poor repeatability (above ± 0.1mm). To prevent wrong results tests are only executed when the liquid is free of air bubbles. The difference between the optical surface detection and the actual surface depends on the probe and is specified with each probe. (It does not depend on the surface reflectivity or the probe angle to the surface within ± 30°.)
- Area Scan
The Area Scan is used as a fast scan in two dimensions to find the area of high field values before running a detailed measurement around the hot spot. Before starting the area scan a grid

TA Technology (Shanghai) Co., Ltd.

Test Report

Report No.: RHA1207-0058SAR01

Page 16 of 146

spacing of 15 mm x 15 mm(<2G)/12 mm x 12 mm(2GHz ~ 3GHz) is set. During the scan the distance of the probe to the phantom remains unchanged.

After finishing area scan, the field maxima within a range of 2 dB will be ascertained.

- Zoom Scan

Zoom Scans are used to estimate the peak spatial SAR values within a cubic averaging volume containing 1 g and 10 g of simulated tissue. The default Zoom Scan is done by 5x5x7(<2G) /7x7x7 (2GHz ~ 3GHz) points within a cube whose base is centered around the maxima found in the preceding area scan.

- Spatial Peak Detection

The procedure for spatial peak SAR evaluation has been implemented and can determine values of masses of 1g and 10g, as well as for user-specific masses. The DASY5 system allows evaluations that combine measured data and robot positions, such as:

- maximum search
- extrapolation
- boundary correction
- peak search for averaged SAR

During a maximum search, global and local maxima searches are automatically performed in 2-D after each Area Scan measurement with at least 6 measurement points. It is based on the evaluation of the local SAR gradient calculated by the Quadratic Shepard's method. The algorithm will find the global maximum and all local maxima within -2 dB of the global maxima for all SAR distributions.

Extrapolation routines are used to obtain SAR values between the lowest measurement points and the inner phantom surface. The extrapolation distance is determined by the surface detection distance and the probe sensor offset. Several measurements at different distances are necessary for the extrapolation. Extrapolation routines require at least 10 measurement points in 3-D space. They are used in the Zoom Scan to obtain SAR values between the lowest measurement points and the inner phantom surface. The routine uses the modified Quadratic Shepard's method for extrapolation. For a grid using 5x5x7 measurement points with 8mm resolution amounting to 175 measurement points, For a grid using 7x7x7 measurement points with 5mm resolution amounting to 343 measurement points, the uncertainty of the extrapolation routines is less than 1% for 1g and 10g cubes.

- A Z-axis scan measures the total SAR value at the x-and y-position of the maximum SAR value found during the cube 5x5x7(<2G)/7x7x7(2GHz ~ 3GHz) scan. The probe is moved away in z-direction from the bottom of the SAM phantom in 5mm steps.

2.5. Data Storage and Evaluation

2.5.1. Data Storage

The DASY5 software stores the acquired data from the data acquisition electronics as raw data (in microvolt readings from the probe sensors), together with all necessary software parameters for the data evaluation (probe calibration data, liquid parameters and device frequency and modulation data) in measurement files with the extension “.DAE4”. The software evaluates the desired unit and format for output each time the data is visualized or exported. This allows verification of the complete software setup even after the measurement and allows correction of incorrect parameter settings. For example, if a measurement has been performed with a wrong crest factor parameter in the device setup, the parameter can be corrected afterwards and the data can be re-evaluated.

The measured data can be visualized or exported in different units or formats, depending on the selected probe type ([V/m], [A/m], [°C], [mW/g], [mW/cm²], [dBrel], etc.). Some of these units are not available in certain situations or show meaningless results, e.g., a SAR output in a lossless media will always be zero. Raw data can also be exported to perform the evaluation with other software packages.

2.5.2. Data Evaluation by SEMCAD

The SEMCAD software automatically executes the following procedures to calculate the field units from the microvolt readings at the probe connector. The parameters used in the evaluation are stored in the configuration modules of the software:

Probe parameters:	- Sensitivity	Normi, a _{i0} , a _{i1} , a _{i2}
	- Conversion factor	ConvF _i
	- Diode compression point	Dcp _i
Device parameters:	- Frequency	f
	- Crest factor	cf
Media parameters:	- Conductivity	
	- Density	

These parameters must be set correctly in the software. They can be found in the component documents or they can be imported into the software from the configuration files issued for the DASY5 components. In the direct measuring mode of the multimeter option, the parameters of the actual system setup are used. In the scan visualization and export modes, the parameters stored in the corresponding document files are used.

The first step of the evaluation is a linearization of the filtered input signal to account for the compression characteristics of the detector diode. The compensation depends on the input signal, the diode type and the DC-transmission factor from the diode to the evaluation electronics.

TA Technology (Shanghai) Co., Ltd.
Test Report

Report No.: RHA1207-0058SAR01

Page 18 of 146

If the exciting field is pulsed, the crest factor of the signal must be known to correctly compensate for peak power. The formula for each channel can be given as:

$$V_i = U_i + U_i^2 \cdot c f / d c p_i$$

With V_i = compensated signal of channel i (i = x, y, z)

U_i = input signal of channel i (i = x, y, z)

cf = crest factor of exciting field (DASY parameter)

dcp_i = diode compression point (DASY parameter)

From the compensated input signals the primary field data for each channel can be evaluated:

E-field probes: $E_i = (V_i / Norm_i \cdot ConvF)^{1/2}$

H-field probes: $H_i = (V_i)^{1/2} \cdot (a_{i0} + a_{i1} f + a_{i2} f^2) / f$

With V_i = compensated signal of channel i (i = x, y, z)

$Norm_i$ = sensor sensitivity of channel i (i = x, y, z)
[mV/(V/m)²] for E-field Probes

$ConvF$ = sensitivity enhancement in solution

a_{ij} = sensor sensitivity factors for H-field probes

f = carrier frequency [GHz]

E_i = electric field strength of channel i in V/m

H_i = magnetic field strength of channel i in A/m

The RSS value of the field components gives the total field strength (Hermitian magnitude):

$$E_{tot} = (E_x^2 + E_y^2 + E_z^2)^{1/2}$$

The primary field data are used to calculate the derived field units.

$$SAR = (E_{tot})^2 \cdot \sigma / (\rho \cdot 1000)$$

with **SAR** = local specific absorption rate in mW/g

E_{tot} = total field strength in V/m

σ = conductivity in [mho/m] or [Siemens/m]

ρ = equivalent tissue density in g/cm³

Note that the density is normally set to 1 (or 1.06), to account for actual brain density rather than the density of the simulation liquid. The power flow density is calculated assuming the excitation field to be a free space field.

$$P_{pwe} = E_{tot}^2 / 3770 \quad \text{or} \quad P_{pwe} = H_{tot}^2 \cdot 37.7$$

with **P_{pwe}** = equivalent power density of a plane wave in mW/cm²

E_{tot} = total electric field strength in V/m

H_{tot} = total magnetic field strength in A/m

3. Laboratory Environment

Table 1: The Requirements of the Ambient Conditions

Temperature	Min. = 18°C, Max. = 25 °C
Relative humidity	Min. = 30%, Max. = 70%
Ground system resistance	< 0.5 Ω
Ambient noise is checked and found very low and in compliance with requirement of standards.	
Reflection of surrounding objects is minimized and in compliance with requirement of standards.	

4. Tissue-equivalent Liquid

4.1. Tissue-equivalent Liquid Ingredients

The liquid is consisted of water, salt, Glycol, Sugar, Preventol and Cellulose. The liquid has previously been proven to be suited for worst-case. The table 2 and table 3 show the detail solution. It's satisfying the latest tissue dielectric parameters requirements proposed by the OET 65.

Table 2: Composition of the Head Tissue Equivalent Matter

MIXTURE%	FREQUENCY(Brain) 835MHz
Water	41.45
Sugar	56
Salt	1.45
Preventol	0.1
Cellulose	1.0
Dielectric Parameters Target Value	f=835MHz $\epsilon=41.5$ $\sigma=0.9$

MIXTURE%	FREQUENCY(Brain) 2450MHz
Water	62.7
Glycol	36.8
Salt	0.5
Dielectric Parameters Target Value	f=2450MHz $\epsilon=39.20$ $\sigma=1.80$

Table 3: Composition of the Body Tissue Equivalent Matter

MIXTURE%	FREQUENCY(Body) 835MHz
Water	52.5
Sugar	45
Salt	1.4
Preventol	0.1
Cellulose	1.0
Dielectric Parameters Target Value	f=835MHz $\epsilon=55.2$ $\sigma=0.97$

MIXTURE%	FREQUENCY(Body) 2450MHz
Water	73.2
Glycol	26.7
Salt	0.1
Dielectric Parameters Target Value	f=2450MHz $\epsilon=52.70$ $\sigma=1.95$

TA Technology (Shanghai) Co., Ltd.
Test Report

Report No.: RHA1207-0058SAR01

Page 21 of 146

4.2. Tissue-equivalent Liquid Properties

Table 4: Dielectric Performance of Head Tissue Simulating Liquid

Frequency	Description	Dielectric Parameters		Temp °C
		ϵ_r	σ (s/m)	
835MHz (head)	Target value ± 5% window	41.50 39.43 — 43.58	0.90 0.86 — 0.95	22.0
	Measurement value 2012-7-26	42.1	0.894	21.5
2450MHz (head)	Target value ±5% window	39.20 37.24 — 41.16	1.80 1.71 — 1.89	22.0
	Measurement value 2012-7-30	38.3	1.88	21.5

Table 5: Dielectric Performance of Body Tissue Simulating Liquid

Frequency	Description	Dielectric Parameters		Temp °C
		ϵ_r	σ (s/m)	
835MHz (body)	Target value ±5% window	55.20 52.44 — 57.96	0.97 0.92 — 1.02	22.0
	Measurement value 2012-7-27	54.5	0.968	21.5
2450MHz (body)	Target value ±5% window	52.70 50.07 — 55.34	1.95 1.85 — 2.05	22.0
	Measurement value 2012-7-30	51.7	1.9	21.5

5. System Check

5.1. Description of System Check

The manufacturer calibrates the probes annually. Dielectric parameters of the tissue simulates were measured every day using the dielectric probe kit and the network analyzer. A system check measurement was made following the determination of the dielectric parameters of the simulates, using the dipole validation kit. A power level of 250 mW was supplied to the dipole antenna, which was placed under the flat section of the twin SAM phantom. The system check results (dielectric parameters and SAR values) are given in the table 6 and table 7.

System check results have to be equal or near the values determined during dipole calibration with the relevant liquids and test system ($\pm 10\%$).

System check is performed regularly on all frequency bands where tests are performed with the DASY5 system.

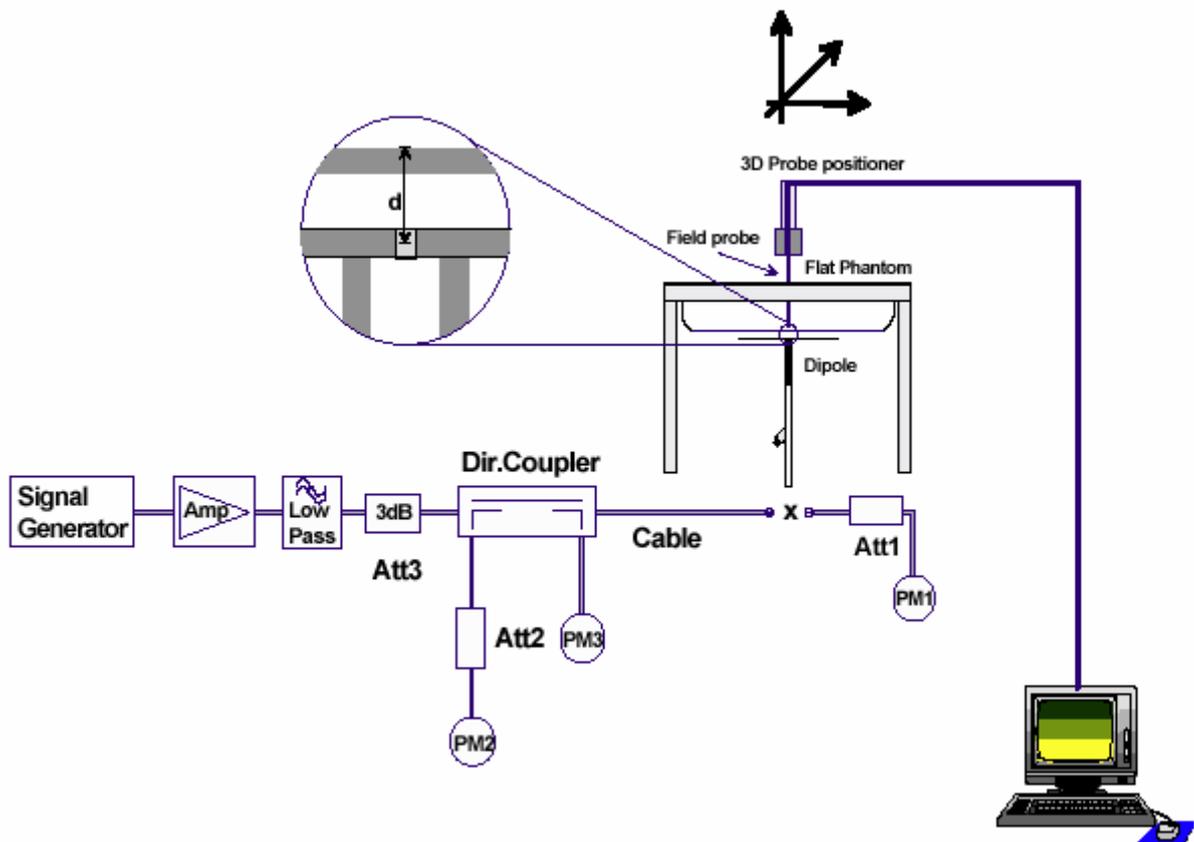


Figure 6 System Check Set-up

TA Technology (Shanghai) Co., Ltd.
Test Report

Report No.: RHA1207-0058SAR01

Page 23 of 146

5.2. System Check Results

Table 6: System Check in Head Tissue Simulating Liquid

Frequency	Test Date	Dielectric Parameters		Temp (°C)	250mW Measured SAR _{1g}	1W Normalized SAR _{1g}	1W Target SAR _{1g} (±10% Deviation)
		ϵ_r	σ (s/m)				
835MHz	2012-7-26	42.1	0.894	21.5	2.45	9.80	9.34 (8.41~10.27)
2450MHz	2012-7-30	38.3	1.88	21.5	14.50	58.00	53.80 (48.42~ 59.18)

Note: 1. The graph results see ANNEX B.
2. Target Values used derive from the calibration certificate

Table 7: System Check in Body Tissue Simulating Liquid

Frequency	Test Date	Dielectric Parameters		Temp (°C)	250mW Measured SAR _{1g}	1W Normalized SAR _{1g}	1W Target SAR _{1g} (±10% Deviation)
		ϵ_r	σ (s/m)				
835MHz	2012-7-27	54.5	0.968	21.5	2.50	10.00	9.46 (8.51~10.41)
2450MHz	2012-7-30	51.7	1.90	21.5	14.10	56.40	51.70 (46.53~56.87)

Note: 1. The graph results see ANNEX B.
2. Target Values used derive from the calibration certificate

6. Operational Conditions during Test

6.1. General Description of Test Procedures

A communication link is set up with a System Simulator (SS) by air link, and a call is established. The Absolute Radiofrequency Channel Number (ARFCN) is allocated to 128, 190 and 251 in the case of GSM 850, to 4132, 4183 and 4233 in the case of WCDMA Band V. The EUT is commanded to operate at maximum transmitting power.

Connection to the EUT is established via air interface with E5515C, and the EUT is set to maximum output power by E5515C. The EUT battery must be fully charged and checked periodically during the test to ascertain uniform power output. The antenna connected to the output of the base station simulator shall be placed at least 50 cm away from the EUT. The signal transmitted by the simulator to the antenna feeding point shall be lower than the output power level of the EUT by at least 30 dB.

6.2. Test Positions

6.2.1. Against Phantom Head

Measurements were made in "cheek" and "tilt" positions on both the left hand and right hand sides of the phantom.

The positions used in the measurements were according to IEEE 1528 - 2003 "IEEE Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate(SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques".

6.2.2. Body Worn Configuration

Body-worn operating configurations should be tested with the belt-clips and holsters attached to the device and positioned against a flat phantom in normal use configurations. Devices with a headset output should be tested with a headset connected to the device.

Based upon KDB941225 D06 V01, when the antenna-to-edge distance is greater than 2.5cm, such position does not need to be tested. The distance between the device and the phantom was kept 10mm of wireless routers.

6.3. Test Configuration

6.3.1. GSM Test Configuration

SAR tests for GSM 850, a communication link is set up with a System Simulator (SS) by air link. Using E5515C the power lever is set to “5” for GSM 850. Since the GPRS class is 10 for this EUT, it has at most 2 timeslots in uplink and at most 4 timeslots in downlink, the maximum total timeslots is 5; the EGPRS class is 10 for this EUT, it has at most 2 timeslots in uplink and at most 4 timeslots in downlink, the maximum total timeslots is 5.

When SAR tests for EGPRS mode is necessary, GMSK modulation should be used to minimize SAR measurement error due to higher peak-to-average power (PAR) ratios inherent in 8-PSK.

According to specification 3GPP TS 51.010, the maximum power of the GSM can do the power reduction for the multi-slot. The allowed power reduction in the multi-slot configuration is as following:

Output power of reductions:

GSM 850

GPRS (GMSK):

Number of timeslots in uplink assignment	reduction of maximum output power, (dB)
1	0
2	2.5

EGPRS (8PSK):

Number of timeslots in uplink assignment	reduction of maximum output power, (dB)
1	0
2	0

EGPRS (GMSK):

Number of timeslots in uplink assignment	reduction of maximum output power, (dB)
1	0
2	2.5

6.3.2. WCDMA Test Configuration

6.3.2.1. Output power Verification

Maximum output power is verified on the High, Middle and Low channel according to the procedures described in section 5.2 of 3GPP TS 34. 121, using the appropriate RMC or AMR with TPC(transmit power control) set to all up bits for WCDMA/HSDPA or applying the required inner loop power control procedures to the maximum output power while HSUPA is active. Results for all applicable physical channel configuration (DPCCH, DPDCH_n and spreading codes, HSDPA, HSPA) should be tabulated in the SAR report. All configuration that are not supported by the DUT or can not be measured due to technical or equipment limitations should be clearly identified

6.3.2.2. Head SAR Measurements

SAR for head exposure configurations in voice mode is measured using a 12.2kbps RMC with TPC bits configured to all up bits. SAR in AMR configurations is not required when the maximum average output of each RF channel for 12.2kbps AMR is less than 1/4 dB higher than that measured in 12.2 kbps RMC. Otherwise, SAR is measured on the maximum output channel in 12.2kbps AMR with a 3.4 kbps SRB(Signaling radio bearer) using the exposure configuration that results in the highest SAR in 12.2kbps RMC for that RF channel.

6.3.2.3. Body SAR Measurements

SAR for body exposure configurations in voice and data modes is measured using 12.2kbps RMC with TPC bits configured to all up bits. SAR for other spreading codes and multiple DPDCH_n, when supported by the DUT, are not required when the maximum average output of each RF channel, for each spreading code and DPDCH_n configuration, are less than 1/4 dB higher than those measured in 12.2kbps RMC. Otherwise, SAR is measured on the maximum output channel with an applicable RMC configuration for the corresponding spreading code or DPDCH_n using the exposure configuration that results in the highest SAR with 12.2 kbps RMC. When more than 2 DPDCH_n are supported by the DUT, it may be necessary to configure additional DPDCH_n for a DUT using FTM (Factory Test Mode) or other chipset based test approaches with parameters similar to those used in 384 kbps and 768 kbps RMC.

6.3.3. HSDPA Test Configuration

SAR for body exposure configurations is measured according to the 'Body SAR Measurements' procedures of that section. In addition, body SAR is also measured for HSDPA when the maximum average output of each RF channel with HSDPA active is at least ¼ dB higher than that measured without HSDPA using 12.2 kbps RMC or the maximum SAR for 12.2 kbps RMC is above 75% of the SAR limit. Body SAR for HSDPA is measured using an FRC with H-Set 1 in Sub-test 1 and a 12.2 kbps RMC configured in Test Loop Mode 1, using the highest body SAR configuration in 12.2 kbps RMC without HSDPA.

HSDPA should be configured according to the UE category of a test device. The number of HSDSCH/ HS-PDSCHs, HARQ processes, minimum inter-TTI interval, transport block sizes and RV coding

TA Technology (Shanghai) Co., Ltd.

Test Report

sequence are defined by the H-set. To maintain a consistent test configuration and stable transmission conditions, QPSK is used in the H-set for SAR testing. HS-DPCCH should be configured with a CQI feedback cycle of 4 ms with a CQI repetition factor of 2 to maintain a constant rate of active CQI slots. DPCCH and DPDCH gain factors(β_c , β_d), and HS-DPCCH power offset parameters (Δ_{ACK} , Δ_{NACK} , Δ_{CQI}) should be set according to values indicated in the Table below.32 The CQI value is determined by the UE category, transport block size, number of HS-PDSCHs and modulation used in the H-set.

Table 8: Subtests for UMTS Release 5 HSDPA

Sub-set	β_c	β_d	β_d (SF)	β_c/β_d	β_{hs} (note 1, note 2)	CM(dB) (note 3)	MPR(dB)
1	2/15	15/15	64	2/15	4/15	0.0	0.0
2	12/15 (note 4)	15/15 (note 4)	64	12/15 (note 4)	24/15	1.0	0.0
3	15/15	8/15	64	15/8	30/15	1.5	0.5
4	15/15	4/15	64	15/4	30/15	1.5	0.5

Note1: Δ_{ACK} , Δ_{NACK} and $\Delta_{CQI} = 8 \Leftrightarrow A_{hs} = \beta_{hs}/\beta_c = 30/15 \Leftrightarrow \beta_{hs} = 30/15 * \beta_c$

Note2: For the HS-DPCCH power mask requirement test in clause 5.2C, 5.7A, and the Error Vector Magnitude (EVM) with HS-DPCCH test in clause 5.13.1.A, and HSDPA EVM with phase discontinuity in clause 5.13.1AA, Δ_{ACK} and $\Delta_{NACK} = 8$ ($A_{hs} = 30/15$) with $\beta_{hs} = 30/15 * \beta_c$, and $\Delta_{CQI} = 7$ ($A_{hs} = 24/15$) with $\beta_{hs} = 24/15 * \beta_c$.

Note3: CM=1 for $\beta_c/\beta_d = 12/15$, $\beta_{hs}/\beta_c = 24/15$. For all other combinations of DPDCH, DPCCH and HS-DPCCH the MPR is based on the relative CM difference. This is applicable for only UEs that support HSDPA in release 6 and later releases.

Note 4: For subtest 2 the β_c/β_d ratio of 12/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signaled gain factors for the reference TFC (TFC1, TF1) to $\beta_c = 11/15$ and $\beta_d = 15/15$.

Table 9: Settings of required H-Set 1 QPSK in HSDPA mode

Parameter	Unit	Value
Nominal Avg. Inf. Bit Rate	kbps	534
Inter-TTI Distance	TTI's	3
Number of HARQ Processes	Processes	2
Information Bit Payload (N_{INF})	Bits	3202
Number Code Blocks	Blocks	1
Binary Channel Bits Per TTI	Bits	4800
Total Available SML's in UE	SML's	19200
Number of SML's per HARQ Proc.	SML's	9600
Coding Rate	/	0.67
Number of Physical Channel Codes	Codes	5
Modulation	/	QPSK

TA Technology (Shanghai) Co., Ltd.
Test Report

Report No.: RHA1207-0058SAR01

Page 28 of 146

Table 10: HSDPA UE category

HS-DSCH Category	Maximum HS-DSCH Codes Received	Minimum Inter-TTI Interval	Maximum Transport Bits/HS-DSCH	Total Channel
1	5	3	7298	19200
2	5	3	7298	28800
3	5	2	7298	28800
4	5	2	7298	38400
5	5	1	7298	57600
6	5	1	7298	67200
7	10	1	14411	115200
8	10	1	14411	134400
9	15	1	25251	172800
10	15	1	27952	172800
11	5	2	3630	14400
12	5	1	3630	28800
13	15	1	34800	259200
14	15	1	42196	259200
15	15	1	23370	345600
16	15	1	27952	345600

Table 11: UE maximum output powers with HS-DPCCH (Release 5 Only)

Ratio of β_c to β_d for all values of β_{hs}	Power Class 3		Power Class 4	
	Power (dBm)	Tolerance (dB)	Power (dBm)	Tolerance (dB)
$1/15 \leq \beta_c/\beta_d \leq 12/15$	+24	+1/-3	+21	+2/-2
$13/15 \leq \beta_c/\beta_d \leq 15/8$	+23	+2/-3	+20	+3/-2
$15/7 \leq \beta_c/\beta_d \leq 15/0$	+22	+3/-3	+19	+4/-2

6.3.4. WIFI Test Configuration

For WLAN SAR testing, WLAN engineering testing software installed on the DUT can provide continuous transmitting RF signal. This RF signal utilized in SAR measurement has almost 100% duty cycle and its crest factor is 1.

For the 802.11b/g SAR tests, a communication link is set up with the test mode software for WIFI mode test. The Absolute Radio Frequency Channel Number (ARFCN) is allocated to 1, 6 and 11 respectively in the case of 2450 MHz. During the test, at the each test frequency channel, the EUT is operated at the RF continuous emission mode. Each channel should be tested at the lowest data rate. Testing at higher data rates is not required when the maximum average output power is less than 0.25dB higher than those measured at the lowest data rate.

802.11b/g operating modes are tested independently according to the service requirements in each frequency band. 802.11b/g modes are tested on channels 1, 6, 11; however, if output power reduction is necessary for channels 1 and /or 11 to meet restricted band requirements the highest output channels closest to each of these channels must be tested instead.

SAR is not required for 802.11g channels when the maximum average output power is less than 0.25dB higher than that measured on the corresponding 802.11b channels. When the maximum average output channel in each frequency band is not included in the “default test channels”, the maximum channel should be tested instead of an adjacent “default test channels”, these are referred to as the “required test channels” and are illustrated in table 12.

Table 12: “Default Test Channels”

Mode	GHz	Channel	Turbo Channel	“Default Test Channels”			
				15.247		UNII	
				802.11b	802.11g		
802.11b/g	2.412	1 [#]		√	*		
	2.437	6	6	√	*		
	2.462	11 [#]		√	*		

Note: [#]= when output power is reduced for channel 1 and /or 11 to meet restricted band requirements the highest out put channels closet to each of these channels should be tested.
 √= “default test channels”
 *= possible 802.11g channels with maximum average output 0.25dB>=the “default test channels”

TA Technology (Shanghai) Co., Ltd.

Test Report

7. Test Results

7.1. Conducted Power Results

Table 13: Conducted Power Measurement Results

GSM 850		Burst Conducted Power(dBm)				Average power(dBm)		
		Channel 128	Channel 190	Channel 251		Channel 128	Channel 190	Channel 251
GSM		32.07	32.21	32.33	-9.03dB	23.04	23.18	23.3
GPRS (GMSK)	1Txslot	32.08	32.20	32.32	-9.03dB	23.05	23.17	23.29
	2Txslots	29.52	29.69	29.84	-6.02dB	23.50	23.67	23.82
EGPRS (GMSK)	1Txslot	32.06	32.16	32.27	-9.03dB	23.03	23.13	23.24
	2Txslots	29.47	29.60	29.73	-6.02dB	23.45	23.58	23.71
EGPRS (8PSK)	1Txslot	26.64	26.84	26.78	-9.03dB	17.61	17.81	17.75
	2Txslots	26.62	26.83	26.97	-6.02dB	20.60	20.81	20.95

Note:

1) Division Factors

To average the power, the division factor is as follows:

1Txslot = 1 transmit time slot out of 8 time slots

=> conducted power divided by (8/1) => -9.03 dB

2Txslots = 2 transmit time slots out of 8 time slots

=> conducted power divided by (8/2) => -6.02 dB

2) Average power numbers

The maximum power numbers are marks in bold.

WCDMA Band V		Conducted Power (dBm)		
		Channel 4132	Channel 4183	Channel 4233
RMC	12.2kbps RMC	22.49	22.96	22.83
	64kbps RMC	22.44	22.92	22.79
	144kbps RMC	22.39	22.89	22.75
	384kbps RMC	22.37	22.87	22.71
HSDPA	Sub - Test 1	22.44	22.96	22.77
	Sub - Test 2	22.40	22.70	22.67
	Sub - Test 3	21.46	21.92	21.76
	Sub - Test 4	21.43	21.90	21.75

TA Technology (Shanghai) Co., Ltd.
Test Report

Report No.: RHA1207-0058SAR01

Page 31 of 146

7.2. SAR Test Results

7.2.1. GSM 850 (GPRS/EGPRS)

Table 14: SAR Values [GSM 850 (GPRS/EGPRS)]

Limit of SAR		10 g Average	1 g Average	Power Drift	Graph Results
		2.0 W/kg	1.6 W/kg	± 0.21 dB	
Different Test Position	Channel	Measurement Result(W/kg)		Power Drift (dB)	
		10 g Average	1 g Average		
Test Position of Head with Battery 1					
Left hand, Touch Cheek	Middle/190	0.102	0.134	-0.081	Figure 11
Left hand, Tilt 15 Degree	Middle/190	0.088	0.116	0.010	Figure 12
Right hand, Touch Cheek	Middle/190	0.122	0.159	-0.187	Figure 13
Right hand, Tilt 15 Degree	Middle/190	0.098	0.130	0.015	Figure 14
Worst Case Position of Head with Battery 2					
Right hand, Touch Cheek	Middle/190	0.134	0.173	0.026	Figure 15
Worst Case Position of Head with Battery 3					
Right hand, Touch Cheek	Middle/190	0.150	0.193	0.095	Figure 16
Worst Case Position of Head with Battery 4					
Right hand, Touch Cheek	Middle/190	0.134	0.173	0.068	Figure 17
Test position of Body with Battery 1 (Distance 10mm)					
Back Side (GSM/1Txslot)	Middle/190	0.472(max.cube)	0.651(max.cube)	0.075	Figure 18
Back Side (2Txslots)	High/251	0.769(max.cube)	1.060(max.cube)	-0.027	Figure 19
	Middle/190	0.614(max.cube)	0.847(max.cube)	-0.073	Figure 20
	Low/128	0.404(max.cube)	0.559(max.cube)	-0.048	Figure 21
Front Side(2Txslots)	Middle/190	0.154	0.203	0.009	Figure 22
Left Edge(2Txslots)	Middle/190	0.107	0.155	-0.016	Figure 23
Right Edge(2Txslots)	Middle/190	0.173	0.248	-0.039	Figure 24
Top Edge(2Txslots)	N/A	N/A	N/A	N/A	N/A
Bottom Edge(2Txslots)	Middle/190	0.034	0.056	0.089	Figure 25

TA Technology (Shanghai) Co., Ltd.
Test Report

Report No.: RHA1207-0058SAR01

Page 32 of 146

Worst Case Position of Body with Earphone (Battery 1, Distance 10mm)					
Back Side (GSM)	High/251	0.572(max.cube)	0.798(max.cube)	-0.157	Figure 26
Worst Case Position of Body with EGPRS (Battery 1,GMSK, Distance 10mm)					
Back Side (2Txslots)	High/251	0.808(max.cube)	1.120(max.cube)	-0.071	Figure 27
Worst Case Position of Body with Battery 2 (Distance 10mm)					
Back Side (2Txslots)	High/251	0.788(max.cube)	1.090(max.cube)	-0.190	Figure 28
Worst Case Position of Body with Battery 3 (Distance 10mm)					
Back Side (2Txslots)	High/251	0.802(max.cube)	1.100(max.cube)	-0.195	Figure 29
Worst Case Position of Body with Battery 4 (Distance 10mm)					
Back Side (2Txslots)	High/251	0.774(max.cube)	1.080(max.cube)	-0.028	Figure 30

Note: 1. The value with blue color is the maximum SAR Value of each test band.

2. The SAR test shall be performed at the middle frequency channels of each operating mode. If the SAR measured at mid-band channel for each test configuration is at least 3.0 dB lower than the SAR limit ($< 0.8W/kg$), testing at the high and low channels is optional.
3. WWAN antenna is located at bottom edge; antenna-to-top edge distance is more than 2.5 cm (see ANNEX H). Based upon KDB941225 D06, when the antenna-to-edge distance is greater than 2.5cm, such position does not need to be tested.
4. When SAR tests for EGPRS mode is necessary, GMSK modulation should be used to minimize SAR measurement error due to higher peak-to-average power (PAR) ratios inherent in 8-PSK.
5. The (max.cube) labeling indicates that during the grid scanning an additional peak was found which was within 2.0dB of the highest peak. The value of the highest cube is given in the table above; the value from the second assessed cube is given in the SAR distribution plots (See ANNEX C).

TA Technology (Shanghai) Co., Ltd.

Test Report

Report No.: RHA1207-0058SAR01

Page 33 of 146

7.2.2. WCDMA Band V (WCDMA/HSDPA)

Table 15: SAR Values [WCDMA Band V (WCDMA/HSDPA)]

Limit of SAR		10 g Average	1 g Average	Power Drift	Graph Results
		2.0 W/kg	1.6 W/kg	± 0.21 dB	
Different Test Position	Channel	Measurement Result(W/kg)		Power Drift (dB)	
		10 g Average	1 g Average		
Test Position of Head with Battery 1					
Left Hand, Touch Cheek	Middle/4183	0.120	0.156	-0.018	Figure 31
Left Hand, Tilt 15 Degree	Middle/4183	0.107	0.142	0.023	Figure 32
Right Hand, Touch Cheek	Middle/4183	0.154	0.197	-0.013	Figure 33
Right Hand, Tilt 15 Degree	Middle/4183	0.110	0.144	0.045	Figure 34
Worst Case Position of Head with Battery 2					
Right Hand, Touch Cheek	Middle/4183	0.156	0.201	0.088	Figure 35
Worst Case Position of Head with Battery 3					
Right Hand, Touch Cheek	Middle/4183	0.149	0.191	0.134	Figure 36
Worst Case Position of Head with Battery 4					
Right Hand, Touch Cheek	Middle/4183	0.140	0.180	-0.091	Figure 37
Test position of Body with Battery 1 (Distance 10mm)					
Back Side	Middle/4183	0.509(max.cube)	0.701(max.cube)	-0.069	Figure 38
Front Side	Middle/4183	0.153	0.202	-0.048	Figure 39
Left Edge	Middle/4183	0.116	0.170	-0.038	Figure 40
Right Edge	Middle/4183	0.165	0.238	0.037	Figure 41
Top Edge	N/A	N/A	N/A	N/A	N/A
Bottom Edge	Middle/4183	0.035	0.058	0.069	Figure 42
Worst Case Position of Body with Earphone (Battery 1, Distance 10mm)					
Back Side	Middle/4183	0.307(max.cube)	0.544(max.cube)	0.109	Figure 43
Worst Case Position of Body with Battery 2 (Distance 10mm)					
Back Side	Middle/4183	0.552(max.cube)	0.758(max.cube)	-0.117	Figure 44
Worst Case Position of Body with Battery 3 (Distance 10mm)					
Back Side	Middle/4183	0.525(max.cube)	0.722(max.cube)	-0.011	Figure 45

TA Technology (Shanghai) Co., Ltd.

Test Report

Report No.: RHA1207-0058SAR01

Page 34 of 146

Worst Case Position of Body with Battery 4 (Distance 10mm)

Back Side	Middle/4183	0.510(max.cube)	0.700(max.cube)	-0.088	Figure 46
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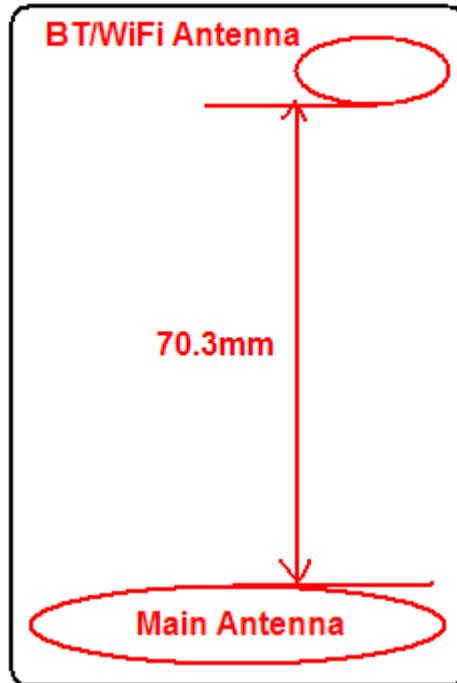
Note: 1. The value with blue color is the maximum SAR Value of each test band.

2. The SAR test shall be performed at the middle frequency channels of each operating mode. If the SAR measured at mid-band channel for each test configuration is at least 3.0 dB lower than the SAR limit (< 0.8W/kg), testing at the high and low channels is optional.
3. WWAN antenna is located at bottom edge; antenna-to-top edge distance is more than 2.5 cm (see ANNEX H). Based upon KDB941225 D06, when the antenna-to-edge distance is greater than 2.5cm, such position does not need to be tested.
4. WCDMA mode were tested under RMC 12.2kbps with HSPA (HSDPA) inactive per KDB Publication 941225 D01. HSPA (HSDPA) SAR for body was not required since the average output power of the HSPA (HSDPA) subtests was not more than 0.25 dB higher than the RMC level and the maximum SAR for 12.2kbps RMC was less than 75% SAR limit.
5. The (max.cube) labeling indicates that during the grid scanning an additional peak was found which was within 2.0dB of the highest peak. The value of the highest cube is given in the table above; the value from the second assessed cube is given in the SAR distribution plots (See ANNEX C).

TA Technology (Shanghai) Co., Ltd. Test Report

7.2.3. Bluetooth/WiFi Function

The distance between BT/WIFI antenna and GSM/WCDMA antenna is >5cm. The location of the antennas inside mobile phone is shown in Annex H:



The output power of BT antenna is as following:

Channel	Ch 0 2402 MHz	Ch 39 2441 MHz	Ch 78 2480 MHz
Average Conducted Output Power(dBm)	3.75	4.52	5.19

The output power of WIFI antenna is as following:

Mode	Channel	Data rate (Mbps)	AV Power (dBm)
11b	1	1	14.53
		2	14.62
		5.5	14.55
		11	14.50
	6	1	14.67
		2	14.88
		5.5	14.88
		11	14.86

TA Technology (Shanghai) Co., Ltd.
Test Report

Report No.: RHA1207-0058SAR01

Page 36 of 146

	11	1	14.91
		2	14.86
		5.5	14.99
		11	14.91
11g	1	6	11.22
		9	11.30
		12	11.26
		18	11.30
		24	11.29
		36	11.22
		48	11.41
		54	11.47
	6	6	11.45
		9	11.36
		12	11.34
		18	11.46
		24	11.43
		36	11.33
		48	11.41
		54	11.47
	11	6	11.22
		9	11.09
		12	11.16
		18	11.03
		24	11.2
		36	11.19
		48	11.2
		54	11.57
11n HT20	1	6.5	11.64
		13	11.63
		19.5	11.05
		26	11.71
		39	11.62
		52	11.74

TA Technology (Shanghai) Co., Ltd. Test Report

Report No.: RHA1207-0058SAR01

Page 37 of 146

		58.5	11.31
		65	11.13
	6	6.5	11.95
		13	11.89
		19.5	11.65
		26	11.98
		39	11.82
		52	11.95
		58.5	11.78
		65	12.02
	11	6.5	12.26
		13	12.01
		19.5	11.86
		26	11.82
		39	11.93
		52	12.1
		58.5	12.16
	65	11.91	

Note: 1. KDB 248227-SAR is not required for 802.11g/n channels when the maximum average output power is less than ¼ dB higher than measured on the corresponding 802.11b channels.

Output Power Thresholds for Unlicensed Transmitters

	2.45	5.15 - 5.35	5.47 - 5.85	GHz
P_{Ref}	12	6	5	mW
Device output power should be rounded to the nearest mW to compare with values specified in this table.				

Stand-alone SAR

According to the output power measurement result and the distance between BT/WIFI antenna and GSM/WCDMA antenna we can draw the conclusion that:

Stand-alone SAR are required for WIFI, because WIFI antenna is $>5\text{cm}$ from other antennas and the output power of WIFI transmitter is $>2P_{Ref}=13.8\text{dBm}$

TA Technology (Shanghai) Co., Ltd.

Test Report

Report No.: RHA1207-0058SAR01

Page 38 of 146

Table 16: SAR Values (802.11b)

Limit of SAR		10 g Average	1g Average	Power Drift (dB)	Graph Results
		2.0 W/kg	1.6 W/kg	± 0.21	
Different Test Position	Channel	Measurement Result(W/kg)		Power Drift (dB)	
		10 g Average	1g Average		
Test Position of Head with Battery 1					
Left hand, Touch cheek	High/11	0.076	0.138	-0.043	Figure 47
Left hand, Tilt 15 Degree	High/11	0.063	0.123	0.152	Figure 48
Right hand, Touch cheek	High/11	0.103	0.220	-0.086	Figure 49
Right hand, Tilt 15 Degree	High/11	0.064	0.140	0.032	Figure 50
Worst Case Position of Head with Battery 2					
Right hand, Touch cheek	High/11	0.104	0.225	0.052	Figure 51
Worst Case Position of Head with Battery 3					
Right hand, Touch cheek	High/11	0.106	0.228	0.084	Figure 52
Worst Case Position of Head with Battery 4					
Right hand, Touch cheek	High/11	0.106	0.227	-0.011	Figure 53
Test position of Body with Battery 1 (Distance 10mm)					
Back Side	High/11	0.035	0.077	-0.010	Figure 54
Front Side	High/11	0.026	0.045	0.069	Figure 55
Left Edge	High/11	0.025	0.047	0.167	Figure 56
Right Edge	N/A	N/A	N/A	N/A	N/A
Top Edge	High/11	0.017	0.029	-0.039	Figure 57
Bottom Edge	N/A	N/A	N/A	N/A	N/A
Worst Case Position of Body with Battery 2 (Distance 10mm)					
Back Side	High/11	0.041	0.068	0.109	Figure 58
Worst Case Position of Body with Battery 3 (Distance 10mm)					
Back Side	High/11	0.039	0.066	0.048	Figure 59
Worst Case Position of Body with Battery 4 (Distance 10mm)					
Back Side	High/11	0.040	0.067	-0.054	Figure 60
<p>Note: 1. The value with blue color is the maximum SAR Value of each test band.</p> <p>2. SAR test at the channel with the maximum averaged output power channel.</p> <p>3. WLAN antenna is located at Left edge; antenna-to- Right/Bottom edge distance is more than 2.5 cm (see ANNEX H). Based upon KDB941225 D06, when the antenna-to-edge distance is greater than 2.5cm, such position does not need to be tested.</p> <p>4. KDB 248227-SAR is not required for 802.11g/n channels when the maximum average output power is less than ¼ dB higher than measured on the corresponding 802.11b channels.</p>					

BT antenna is >5cm from GSM/WCDMA antenna, stand-alone SAR are not required for BT, because the output power of BT transmitter is $\leq 2P_{Ref} = 13.8\text{dBm}$.

BT antenna is <2.5cm from WIFI antenna, stand-alone SAR are not required for BT, because $SAR_{MAX.WIFI} \leq 1.2\text{W/Kg}$.

TA Technology (Shanghai) Co., Ltd.

Test Report

Report No.: RHA1207-0058SAR01

Page 39 of 146

Simultaneous SAR

About WIFI and GSM/WCDMA Antenna,

SAR _{1g} (W/kg) Test Position	GSM850	WCDMA Band V	WIFI (802.11b)	MAX. Σ SAR _{1g}
Left hand, Touch cheek	0.134	0.156	0.138	0.294
Left hand, Tilt 15 Degree	0.116	0.142	0.123	0.265
Right hand, Touch cheek	0.193	0.201	0.228	0.429
Right hand, Tilt 15 Degree	0.130	0.144	0.140	0.284
Body, Back Side	1.120	0.758	0.077	1.197
Body, Front Side	0.203	0.202	0.045	0.248
Body, Left Edge	0.155	0.170	0.047	0.217
Body, Right Edge	0.248	0.238	N/A	0.248
Body, Top Edge	N/A	N/A	0.029	0.029
Body, Bottom Edge	0.056	0.058	N/A	0.058
<p>Note: 1. The value with blue color is the maximum ΣSAR_{1g} Value.</p> <p>2. MAX. ΣSAR_{1g} =Unlicensed SAR_{MAX} +Licensed SAR_{MAX}</p>				

WIFI antenna is >5cm from GSM/WCDMA Antenna. (GSM/WCDMA Antenna SAR_{MAX})1.120 +(WIFI Antenna SAR_{MAX}) 0.077 =1.197 <1.6, So the Simultaneous SAR are not required for WIFI and GSM/WCDMA antenna.

TA Technology (Shanghai) Co., Ltd.
Test Report

Report No.: RHA1207-0058SAR01

Page 40 of 146

About BT and GSM/WCDMA Antenna,

SAR _{1g} (W/kg) Test Position	GSM850	WCDMA Band V	BT	MAX. ΣSAR _{1g}
Left hand, Touch cheek	0.134	0.156	0	0.156
Left hand, Tilt 15 Degree	0.116	0.142	0	0.142
Right hand, Touch cheek	0.193	0.201	0	0.201
Right hand, Tilt 15 Degree	0.130	0.144	0	0.144
Body, Back Side	1.120	0.758	0	1.120
Body, Front Side	0.203	0.202	0	0.203
Body, Left Edge	0.155	0.170	0	0.170
Body, Right Edge	0.248	0.238	0	0.248
Body, Top Edge	N/A	N/A	0	0
Body, Bottom Edge	0.056	0.058	0	0.058

Note: 1. The value with blue color is the maximum ΣSAR_{1g} Value.
 2. MAX. ΣSAR_{1g} =Unlicensed SAR_{MAX} +Licensed SAR_{MAX}
 3. Stand alone SAR for BT is not required. Its SAR is considered 0 in the 1-g SAR summing process to determine simultaneous transmission SAR evaluation requirements.

BT antenna is >5cm from GSM/WCDMA Antenna. (GSM/WCDMA Antenna SAR_{MAX})1.120 +(BT Antenna SAR_{MAX})0 =1.120 < 1.6, So the Simultaneous SAR are not required for BT and GSM/WCDMA antenna.

About BT and WIFI Antenna, BT antenna is <2.5cm from WIFI Antenna. (WIFI Antenna SAR_{MAX}) 0.228+(BT Antenna SAR_{MAX})0 =0.228<1.6, So the Simultaneous SAR are not required for BT and WIFI antenna.

TA Technology (Shanghai) Co., Ltd.
Test Report

Report No.: RHA1207-0058SAR01

Page 41 of 146

8. 300MHz to 3GHz Measurement Uncertainty

No.	source	Type	Uncertainty Value (%)	Probability Distribution	k	c _i	Standard uncertainty u _i (%)	Degree of freedom V _{eff} or V _i
1	System repetivity	A	0.5	N	1	1	0.5	9
Measurement system								
2	-probe calibration	B	6.0	N	1	1	6.0	∞
3	-axial isotropy of the probe	B	4.7	R	$\sqrt{3}$	$\sqrt{0.5}$	1.9	∞
4	- Hemispherical isotropy of the probe	B	9.4	R	$\sqrt{3}$	$\sqrt{0.5}$	3.9	∞
6	-boundary effect	B	1.9	R	$\sqrt{3}$	1	1.1	∞
7	-probe linearity	B	4.7	R	$\sqrt{3}$	1	2.7	∞
8	- System detection limits	B	1.0	R	$\sqrt{3}$	1	0.6	∞
9	-readout Electronics	B	1.0	N	1	1	1.0	∞
10	-response time	B	0	R	$\sqrt{3}$	1	0	∞
11	-integration time	B	4.32	R	$\sqrt{3}$	1	2.5	∞
12	-noise	B	0	R	$\sqrt{3}$	1	0	∞
13	-RF Ambient Conditions	B	3	R	$\sqrt{3}$	1	1.73	∞
14	-Probe Positioner Mechanical Tolerance	B	0.4	R	$\sqrt{3}$	1	0.2	∞
15	-Probe Positioning with respect to Phantom Shell	B	2.9	R	$\sqrt{3}$	1	1.7	∞
16	-Extrapolation, interpolation and Integration Algorithms for Max. SAR Evaluation	B	3.9	R	$\sqrt{3}$	1	2.3	∞
Test sample Related								
17	-Test Sample Positioning	A	2.9	N	1	1	2.9	71
18	-Device Holder Uncertainty	A	4.1	N	1	1	4.1	5
19	-Output Power Variation - SAR drift measurement	B	5.0	R	$\sqrt{3}$	1	2.9	∞
Physical parameter								
20	-phantom	B	4.0	R	$\sqrt{3}$	1	2.3	∞

TA Technology (Shanghai) Co., Ltd.
Test Report

Report No.: RHA1207-0058SAR01

Page 42 of 146

21	-liquid conductivity (deviation from target)	B	5.0	R	$\sqrt{3}$	0.64	1.8	∞
22	-liquid conductivity (measurement uncertainty)	B	2.5	N	1	0.64	1.6	9
23	-liquid permittivity (deviation from target)	B	5.0	R	$\sqrt{3}$	0.6	1.7	∞
24	-liquid permittivity (measurement uncertainty)	B	2.5	N	1	0.6	1.5	9
Combined standard uncertainty		$u_c = \sqrt{\sum_{i=1}^{24} c_i^2 u_i^2}$					11.50	
Expanded uncertainty (confidence interval of 95 %)		$u_e = 2u_c$		N	k=2	23.00		

TA Technology (Shanghai) Co., Ltd.
Test Report

Report No.: RHA1207-0058SAR01

Page 43 of 146

9. Main Test Instruments

Table 17: List of Main Instruments

No.	Name	Type	Serial Number	Calibration Date	Valid Period
01	Network analyzer	Agilent 8753E	US37390326	September 12, 2011	One year
02	Dielectric Probe Kit	Agilent 85070E	US44020115	No Calibration Requested	
03	Power meter	Agilent E4417A	GB41291714	March 11, 2012	One year
04	Power sensor	Agilent N8481H	MY50350004	September 25, 2011	One year
05	Power sensor	E9327A	US40441622	September 24, 2011	One year
06	Signal Generator	HP 8341B	2730A00804	September 12, 2011	One year
07	Dual directional coupler	778D-012	50519	March 26, 2012	One year
08	Dual directional coupler	777D	50146	March 26, 2012	One year
09	Amplifier	IXA-020	0401	No Calibration Requested	
10	BTS	E5515C	MY48360988	December 2, 2011	One year
11	E-field Probe	ES3DV3	3189	June 22, 2012	One year
12	DAE	DAE4	1317	January 23, 2012	One year
13	Validation Kit 835MHz	D835V2	4d020	August 26, 2011	One year
14	Validation Kit 2450MHz	D2450V2	786	August 29, 2011	One year
15	Temperature Probe	JM222	AA1009129	March 15, 2012	One year
16	Hygrothermograph	WS-1	64591	September 28, 2011	One year

*****END OF REPORT *****

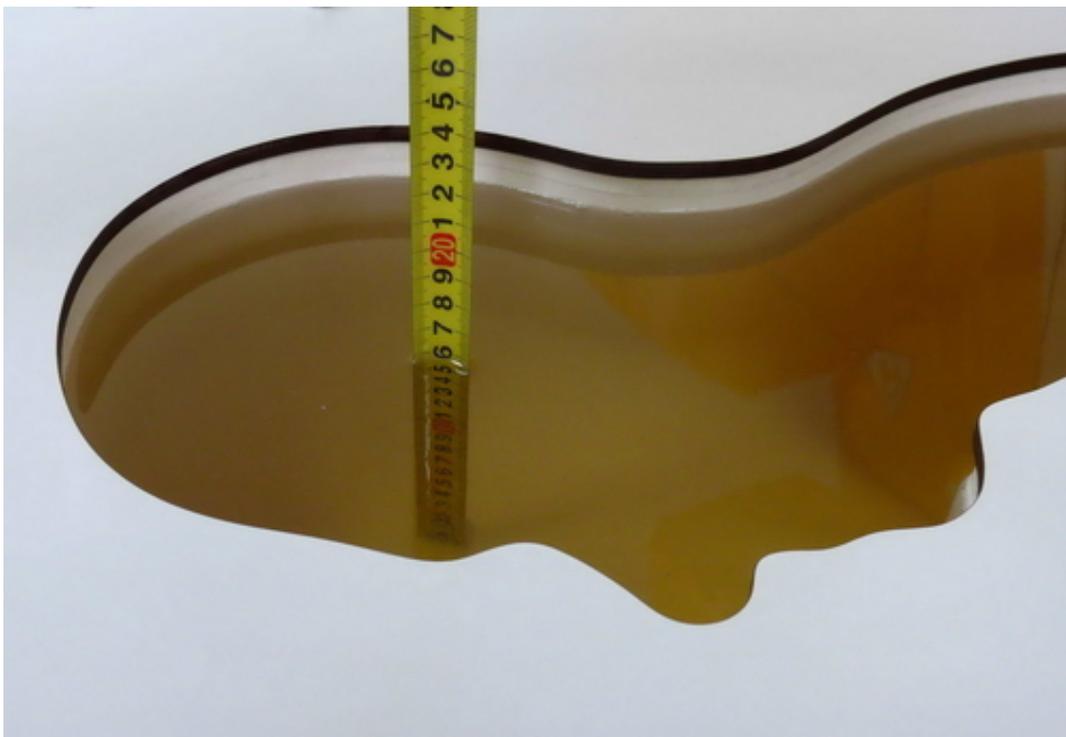
ANNEX A: Test Layout



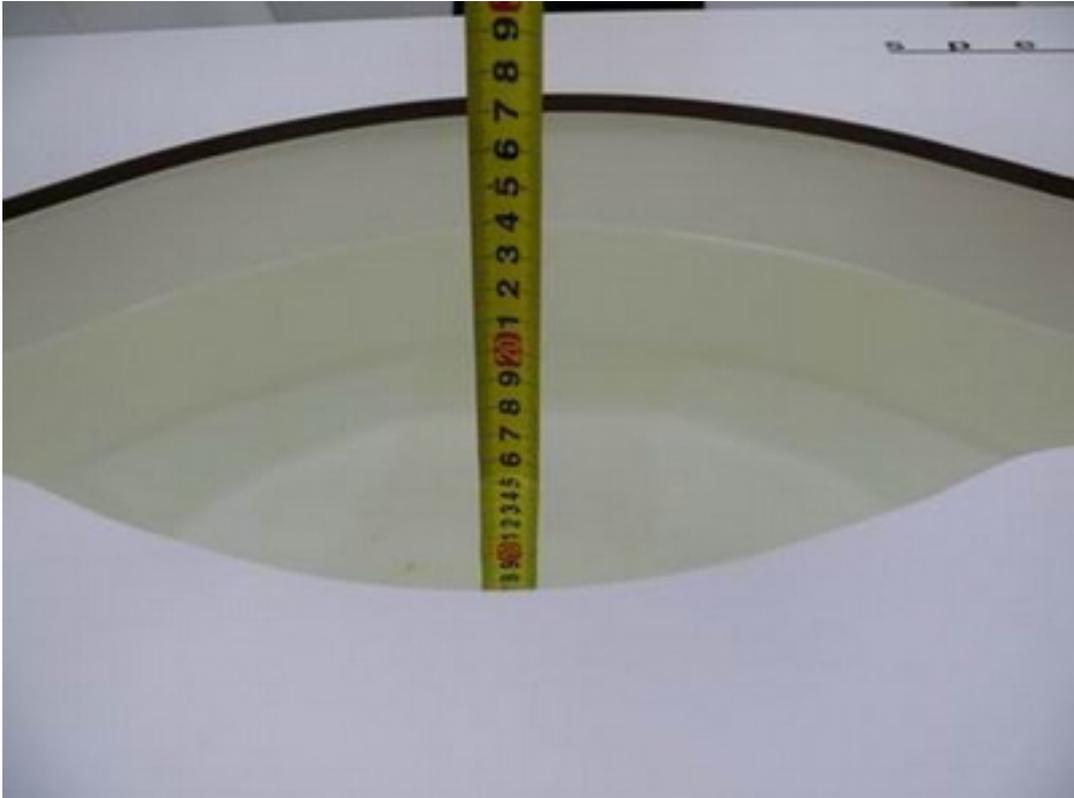
Picture 1: Specific Absorption Rate Test Layout



Picture 2: Liquid depth in the flat Phantom (835MHz, 15.4cm depth)



Picture 3: Liquid depth in the head Phantom (835MHz, 15.3cm depth)



Picture 4: Liquid depth in the flat Phantom (2450 MHz, 15.3cm depth)



Picture 5: Liquid depth in the head Phantom (2450 MHz, 15.4cm depth)

ANNEX B: System Check Results

System Performance Check at 835 MHz Head TSL

DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN: 4d020

Date/Time: 7/26/2012 12:19:55 PM

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

Medium parameters used: $f = 835$ MHz; $\sigma = 0.894$ mho/m; $\epsilon_r = 42.1$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5°C

Phantom section: Flat Section

DASY5 Configuration:

Probe: ES3DV3 - SN3189; ConvF(5.81, 5.81, 5.81); Calibrated: 6/22/2012

Electronics: DAE4 Sn1317; Calibrated: 1/23/2012

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

d=15mm, Pin=250mW/Area Scan (41x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 2.65 mW/g

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

Reference Value = 55.1 V/m; Power Drift = -0.010 dB

Peak SAR (extrapolated) = 3.64 W/kg

SAR(1 g) = 2.45 mW/g; SAR(10 g) = 1.61 mW/g

Maximum value of SAR (measured) = 2.64 mW/g

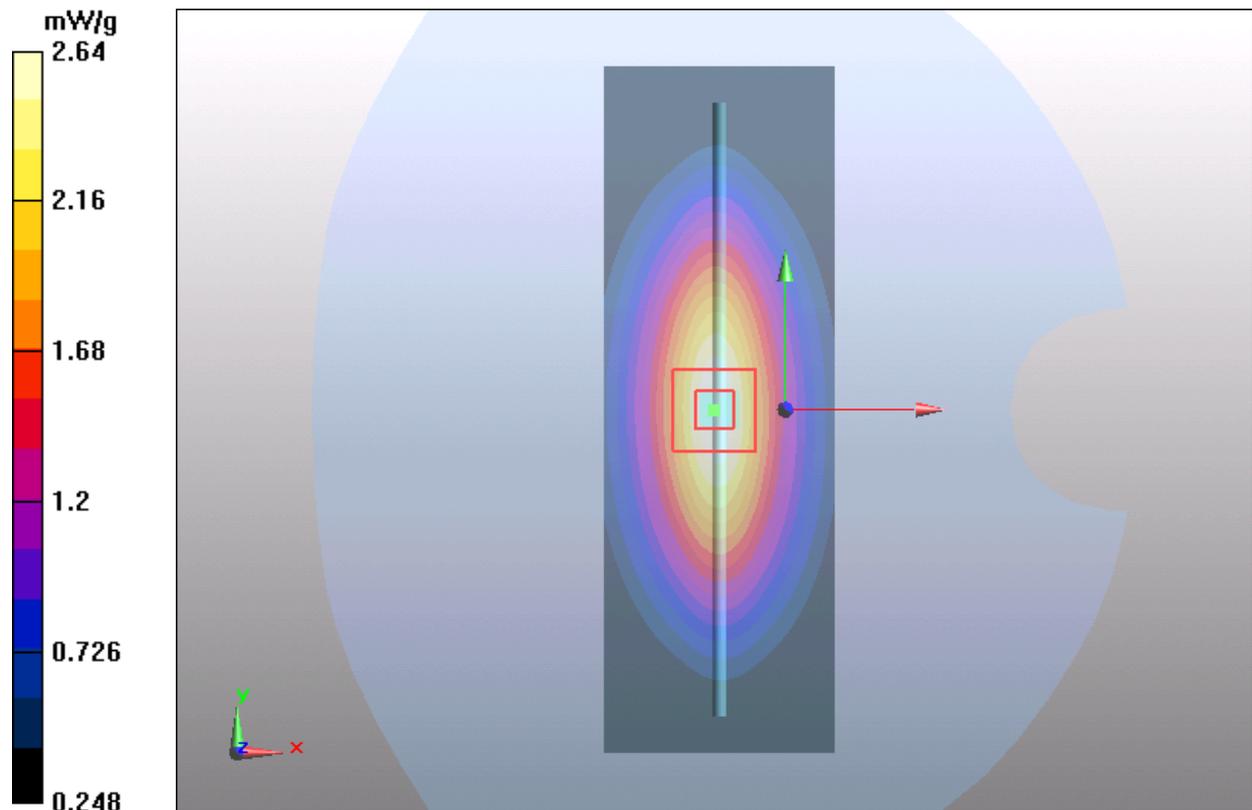


Figure 7 System Performance Check 835MHz 250mW

System Performance Check at 835 MHz Body TSL

DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN: 4d020

Date/Time: 7/27/2012 4:25:56 PM

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

Medium parameters used: $f = 835 \text{ MHz}$; $\sigma = 0.968 \text{ mho/m}$; $\epsilon_r = 54.5$; $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature: $22.3 \text{ }^\circ\text{C}$ Liquid Temperature: $21.5 \text{ }^\circ\text{C}$

Phantom section: Flat Section

DASY5 Configuration:

Probe: ES3DV3 - SN3189; ConvF(5.81, 5.81, 5.81); Calibrated: 6/22/2012

Electronics: DAE4 Sn1317; Calibrated: 1/23/2012

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

835 MHz Dipole/Area Scan (41x121x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 2.73 mW/g

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

Reference Value = 53.7 V/m ; Power Drift = 0.019 dB

Peak SAR (extrapolated) = 3.68 W/kg

SAR(1 g) = 2.5 mW/g ; SAR(10 g) = 1.65 mW/g

Maximum value of SAR (measured) = 2.72 mW/g

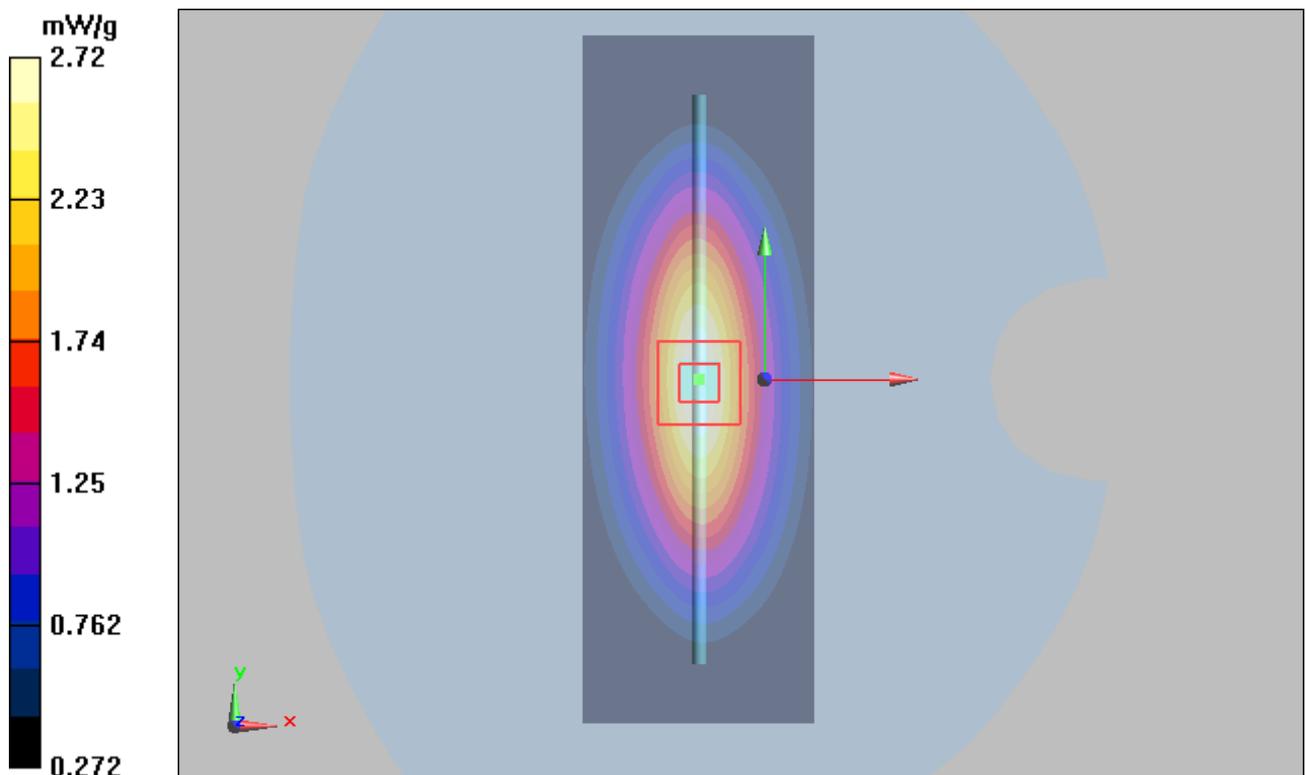


Figure 8 System Performance Check 835MHz 250mW

System Performance Check at 2450 MHz Head TSL

DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN: 786

Date/Time: 7/30/2012 12:27:56 PM

Communication System: CW; Frequency: 2450 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 2450$ MHz; $\sigma = 1.88$ mho/m; $\epsilon_r = 38.3$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5 °C

Phantom section: Flat Section

DASY5 Configuration:

Probe: ES3DV3 - SN3189; ConvF(4.14, 4.14, 4.14); Calibrated: 6/22/2012

Electronics: DAE4 Sn1317; Calibrated: 1/23/2012

Phantom: SAM2; Type: SAM; Serial: TP-1524

Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

d=10mm, Pin=250mW/Area Scan (41x71x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 19.5 mW/g

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

Reference Value = 95.3 V/m; Power Drift = -0.011 dB

Peak SAR (extrapolated) = 30.9 W/kg

SAR(1 g) = 14.5 mW/g; SAR(10 g) = 6.67 mW/g

Maximum value of SAR (measured) = 16.4 mW/g

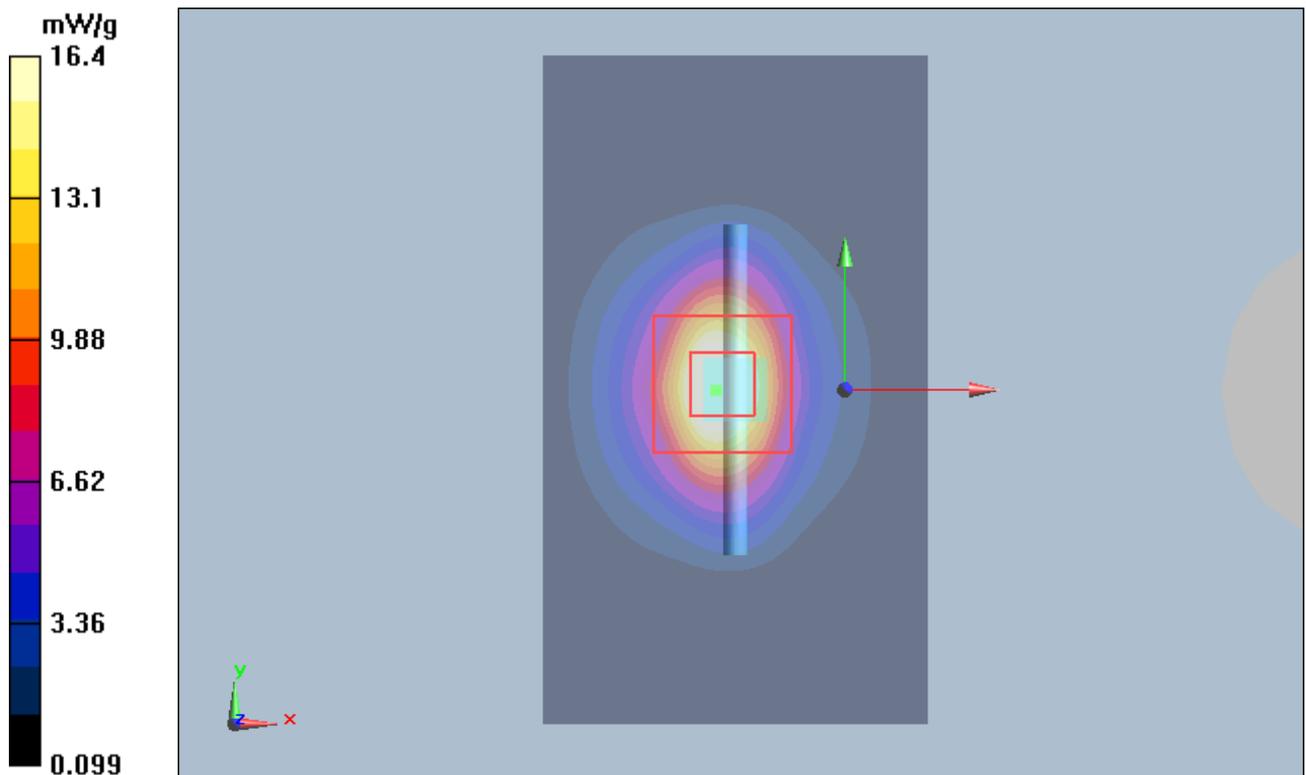


Figure 9 System Performance Check 2450MHz 250mW

System Performance Check at 2450 MHz Body TSL

DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN: 786

Date/Time: 7/30/2012 3:27:23 PM

Communication System: CW; Frequency: 2450 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 2450$ MHz; $\sigma = 1.9$ mho/m; $\epsilon_r = 51.7$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5 °C

Phantom section: Flat Section

DASY5 Configuration:

Probe: ES3DV3 - SN3189; ConvF(3.96, 3.96, 3.96); Calibrated: 6/22/2012

Electronics: DAE4 Sn1317; Calibrated: 1/23/2012

Phantom: SAM2; Type: SAM; Serial: TP-1524

Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

d=10mm, Pin=250mW/Area Scan (41x71x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 18.2 mW/g

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

Reference Value = 93.5 V/m; Power Drift = -0.116 dB

Peak SAR (extrapolated) = 29.3 W/kg

SAR(1 g) = 14.1 mW/g; SAR(10 g) = 6.62 mW/g

Maximum value of SAR (measured) = 16.2 mW/g

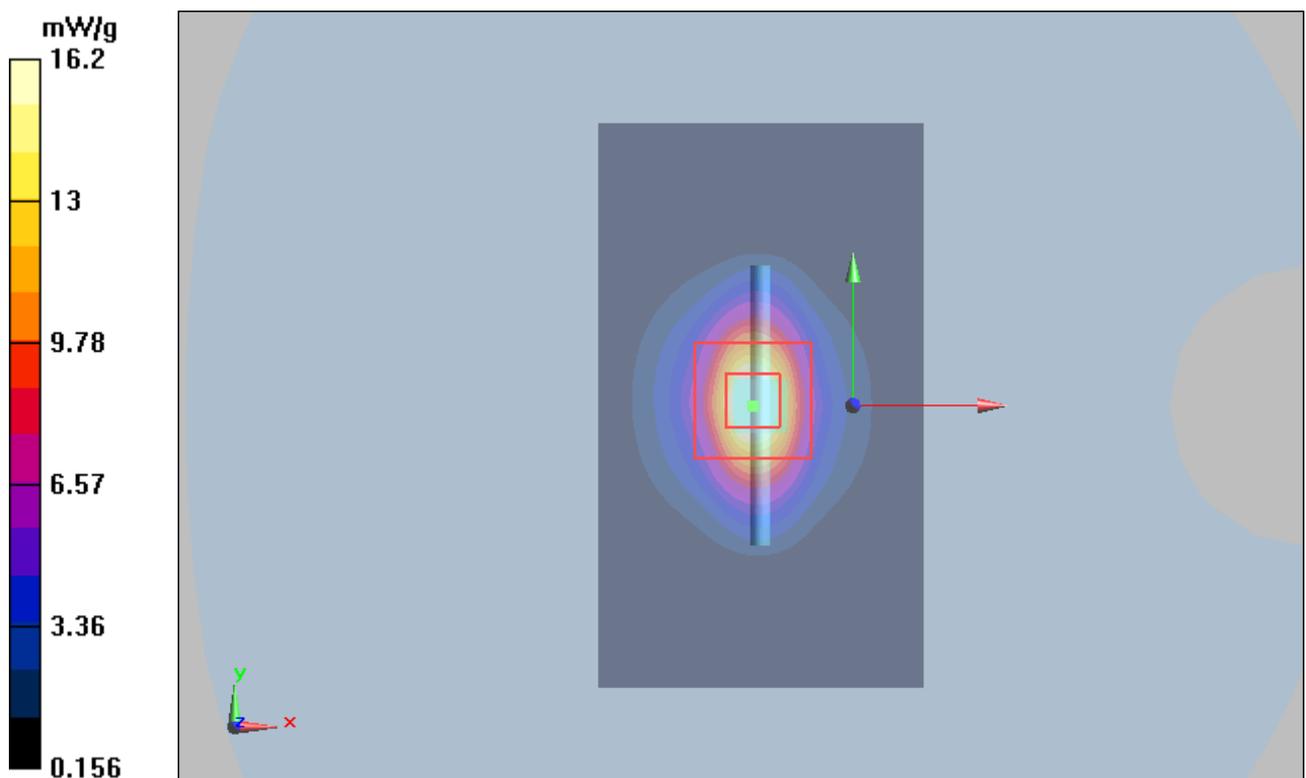


Figure 10 System Performance Check 2450MHz 250mW

ANNEX C: Graph Results

GSM 850 Left Cheek Middle (Battery 1)

Date/Time: 7/27/2012 10:34:10 AM

Communication System: GSM; Frequency: 836.6 MHz; Duty Cycle: 1:8.30042

Medium parameters used: $f = 837$ MHz; $\sigma = 0.896$ mho/m; $\epsilon_r = 42$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5°C

Phantom section: Left Section

DASY5 Configuration:

Probe: ES3DV3 - SN3189; ConvF(5.81, 5.81, 5.81); Calibrated: 6/22/2012

Electronics: DAE4 Sn1317; Calibrated: 1/23/2012

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

Cheek Middle/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.139 mW/g

Cheek Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 4.45 V/m; Power Drift = -0.081 dB

Peak SAR (extrapolated) = 0.166 W/kg

SAR(1 g) = 0.134 mW/g; SAR(10 g) = 0.102 mW/g

Maximum value of SAR (measured) = 0.140 mW/g

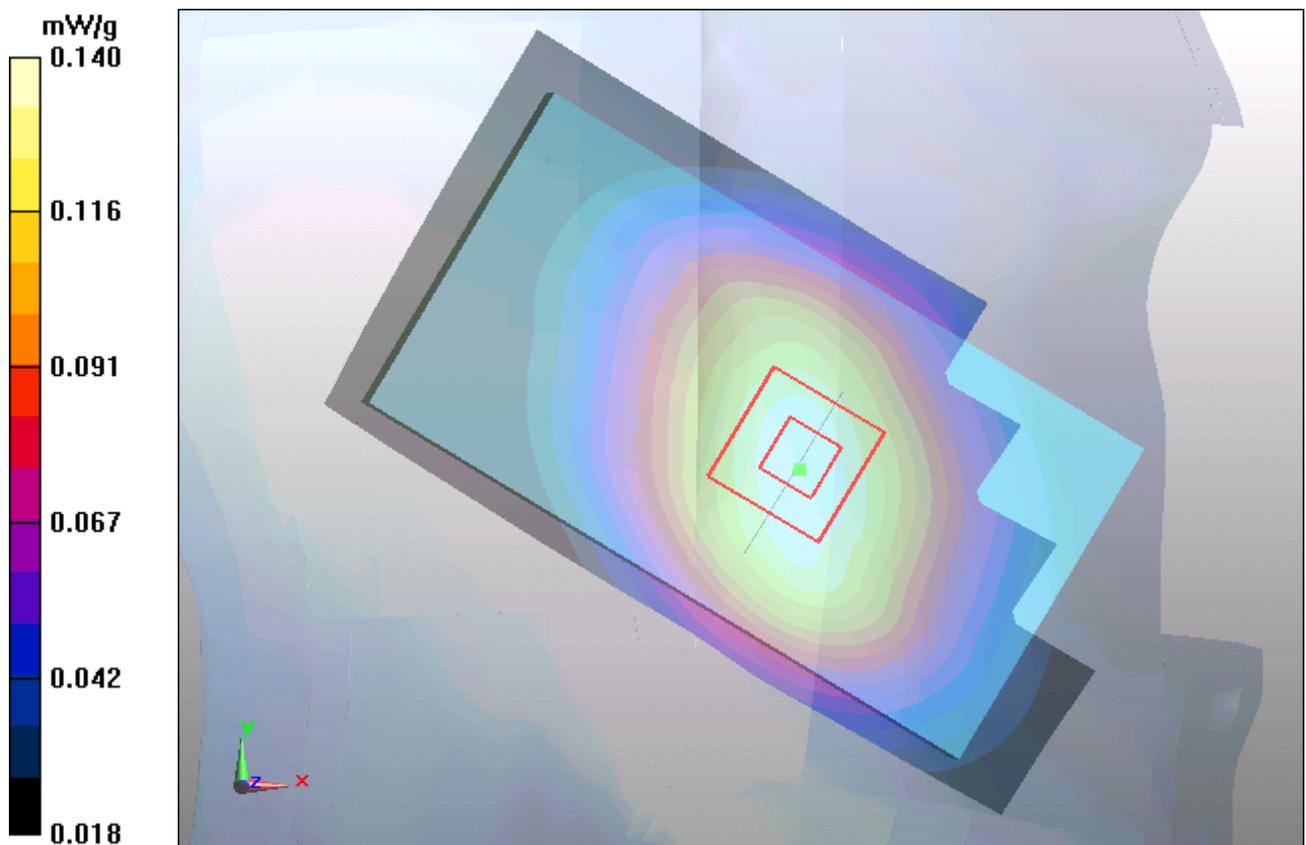


Figure 11 Left Hand Touch Cheek GSM 850 Channel 190

GSM 850 Left Tilt Middle (Battery 1)

Date/Time: 7/27/2012 10:48:54 AM

Communication System: GSM; Frequency: 836.6 MHz; Duty Cycle: 1:8.30042

Medium parameters used: $f = 837$ MHz; $\sigma = 0.896$ mho/m; $\epsilon_r = 42$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5°C

Phantom section: Left Section

DASY5 Configuration:

Probe: ES3DV3 - SN3189; ConvF(5.81, 5.81, 5.81); Calibrated: 6/22/2012

Electronics: DAE4 Sn1317; Calibrated: 1/23/2012

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

Tilt Middle/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.120 mW/g

Tilt Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 8.05 V/m; Power Drift = 0.010 dB

Peak SAR (extrapolated) = 0.145 W/kg

SAR(1 g) = 0.116 mW/g; SAR(10 g) = 0.088 mW/g

Maximum value of SAR (measured) = 0.122 mW/g

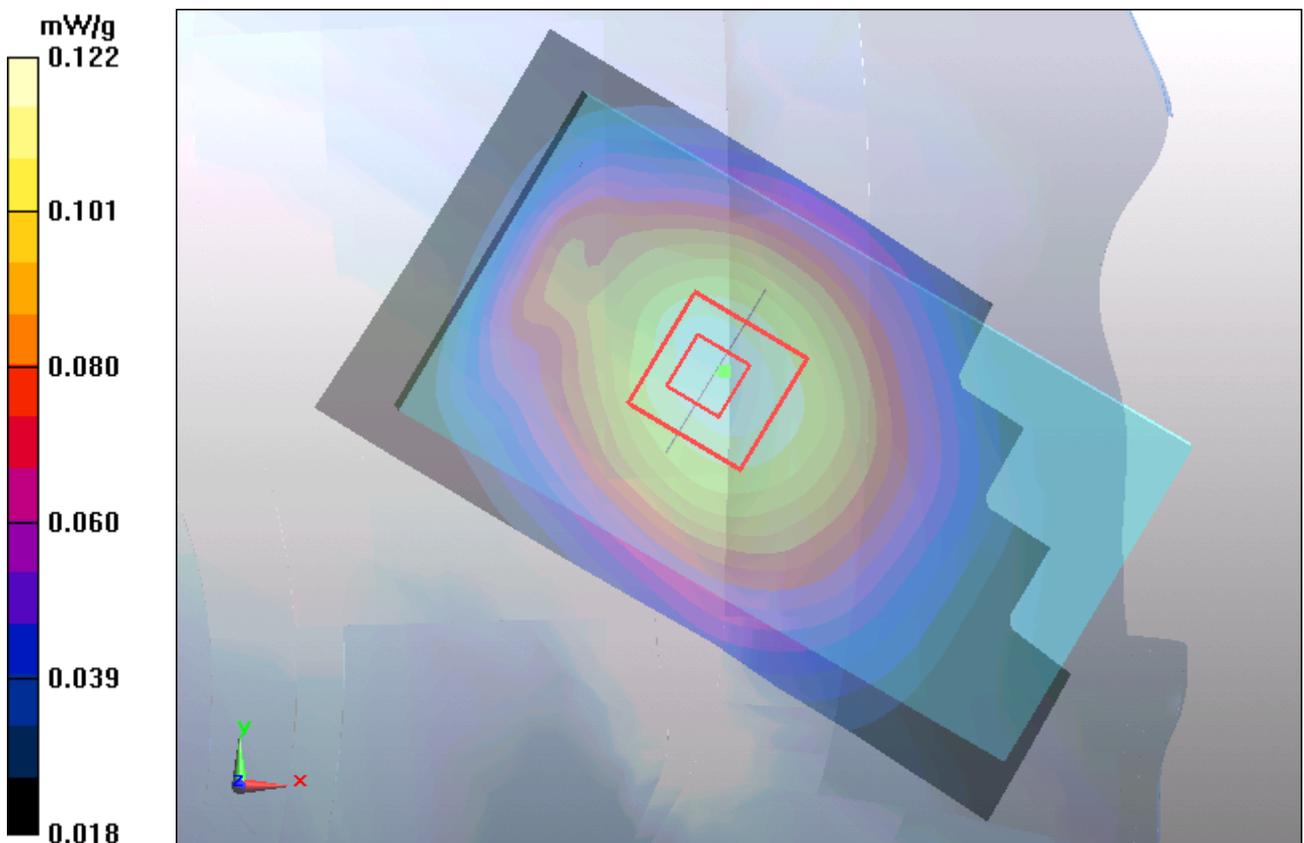


Figure 12 Left Hand Tilt 15° GSM 850 Channel 190

GSM 850 Right Cheek Middle (Battery 1)

Date/Time: 7/27/2012 9:59:00 AM

Communication System: GSM; Frequency: 836.6 MHz; Duty Cycle: 1:8.30042

Medium parameters used: $f = 837$ MHz; $\sigma = 0.896$ mho/m; $\epsilon_r = 42$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5°C

Phantom section: Right Section

DASY5 Configuration:

Probe: ES3DV3 - SN3189; ConvF(5.81, 5.81, 5.81); Calibrated: 6/22/2012

Electronics: DAE4 Sn1317; Calibrated: 1/23/2012

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

Cheek Middle/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.167 mW/g

Cheek Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 5.42 V/m; Power Drift = -0.187 dB

Peak SAR (extrapolated) = 0.191 W/kg

SAR(1 g) = 0.159 mW/g; SAR(10 g) = 0.122 mW/g

Maximum value of SAR (measured) = 0.167 mW/g

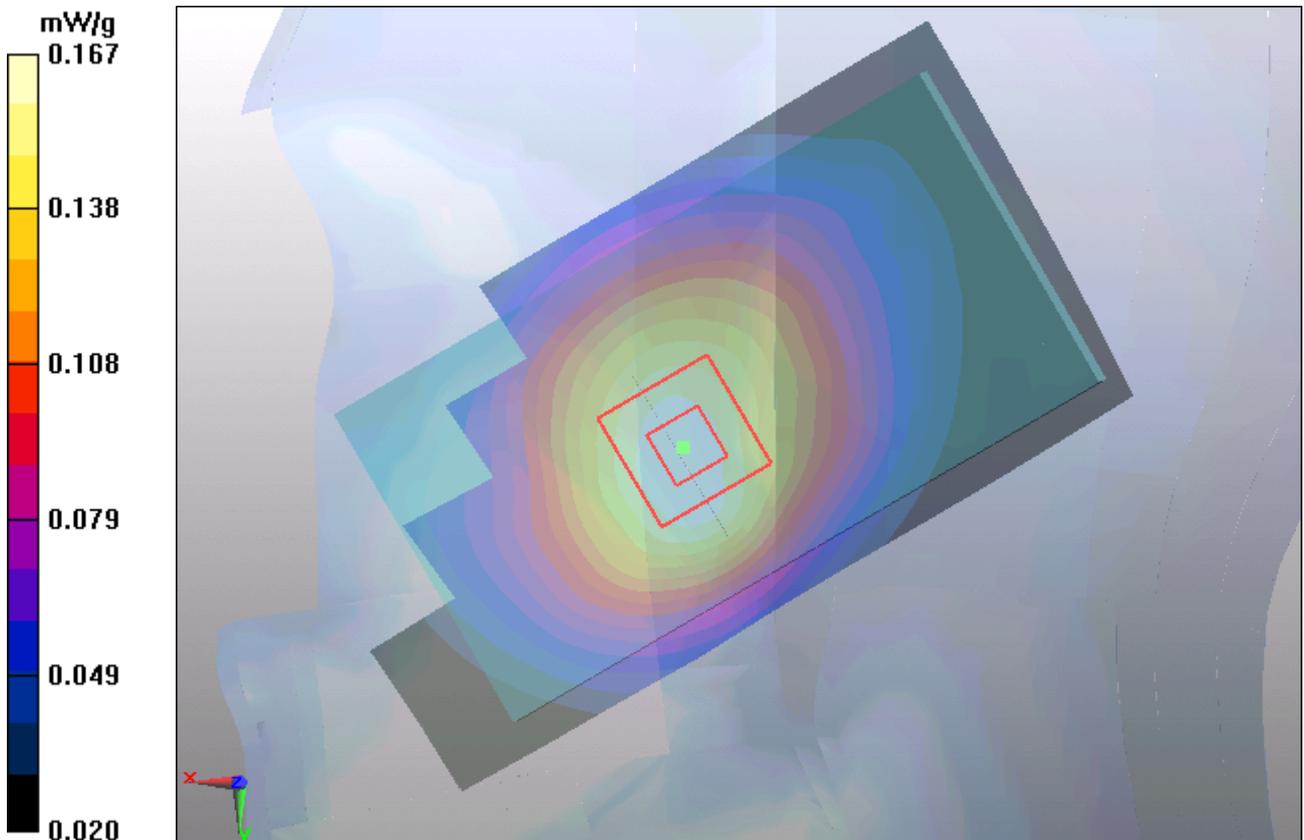


Figure 13 Right Hand Touch Cheek GSM 850 Channel 190

GSM 850 Right Tilt Middle (Battery 1)

Date/Time: 7/27/2012 10:14:46 AM

Communication System: GSM; Frequency: 836.6 MHz; Duty Cycle: 1:8.30042

Medium parameters used: $f = 837$ MHz; $\sigma = 0.896$ mho/m; $\epsilon_r = 42$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5°C

Phantom section: Right Section

DASY5 Configuration:

Probe: ES3DV3 - SN3189; ConvF(5.81, 5.81, 5.81); Calibrated: 6/22/2012

Electronics: DAE4 Sn1317; Calibrated: 1/23/2012

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

Tilt Middle/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.133 mW/g

Tilt Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 9.01 V/m; Power Drift = 0.015 dB

Peak SAR (extrapolated) = 0.162 W/kg

SAR(1 g) = 0.130 mW/g; SAR(10 g) = 0.098 mW/g

Maximum value of SAR (measured) = 0.137 mW/g

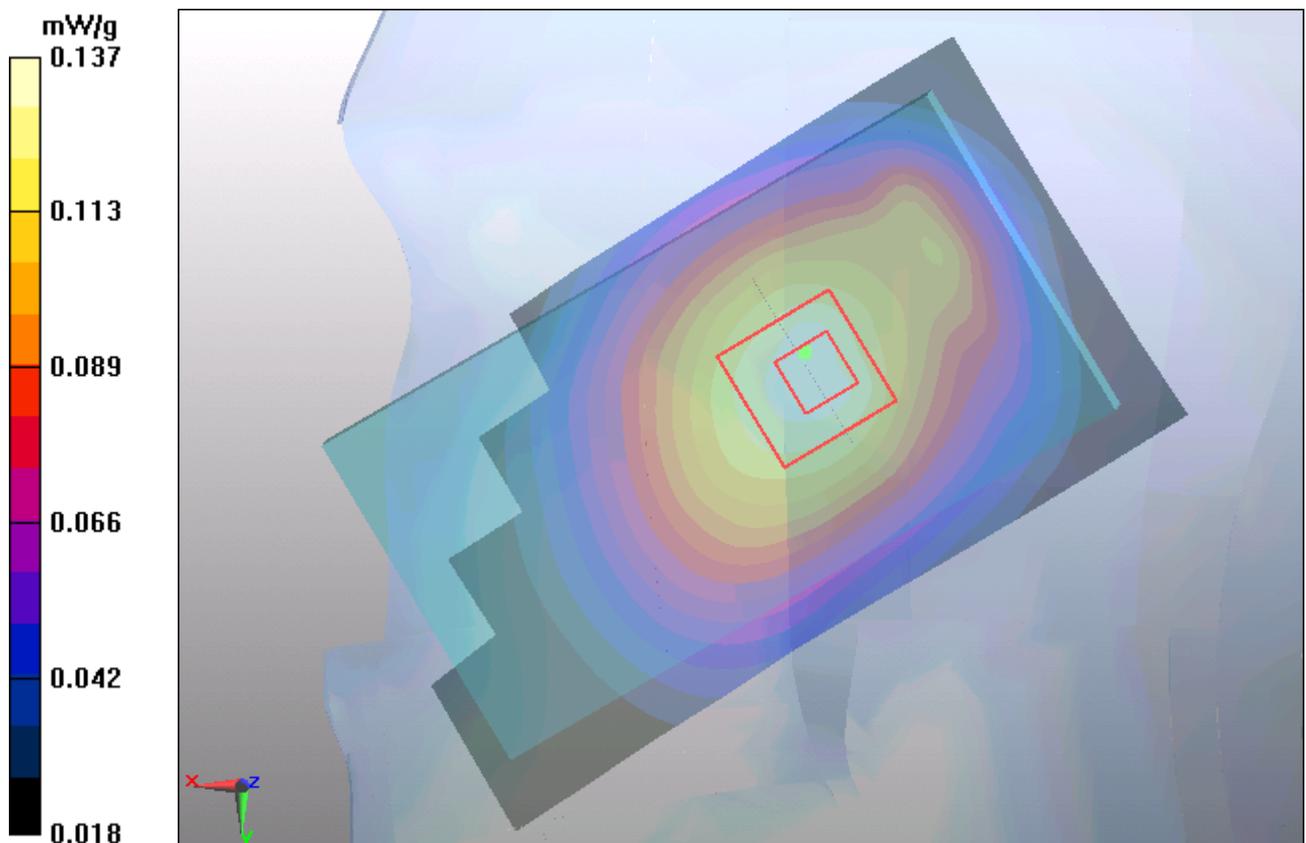


Figure 14 Right Hand Tilt 15° GSM 850 Channel 190

GSM 850 Right Cheek Middle (Battery 2)

Date/Time: 7/27/2012 11:08:36 AM

Communication System: GSM; Frequency: 836.6 MHz; Duty Cycle: 1:8.30042

Medium parameters used: $f = 837$ MHz; $\sigma = 0.896$ mho/m; $\epsilon_r = 42$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5°C

Phantom section: Right Section

DASY5 Configuration:

Probe: ES3DV3 - SN3189; ConvF(5.81, 5.81, 5.81); Calibrated: 6/22/2012

Electronics: DAE4 Sn1317; Calibrated: 1/23/2012

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

Cheek Middle/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.180 mW/g

Cheek Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 4.58 V/m; Power Drift = 0.026 dB

Peak SAR (extrapolated) = 0.210 W/kg

SAR(1 g) = 0.173 mW/g; SAR(10 g) = 0.134 mW/g

Maximum value of SAR (measured) = 0.182 mW/g

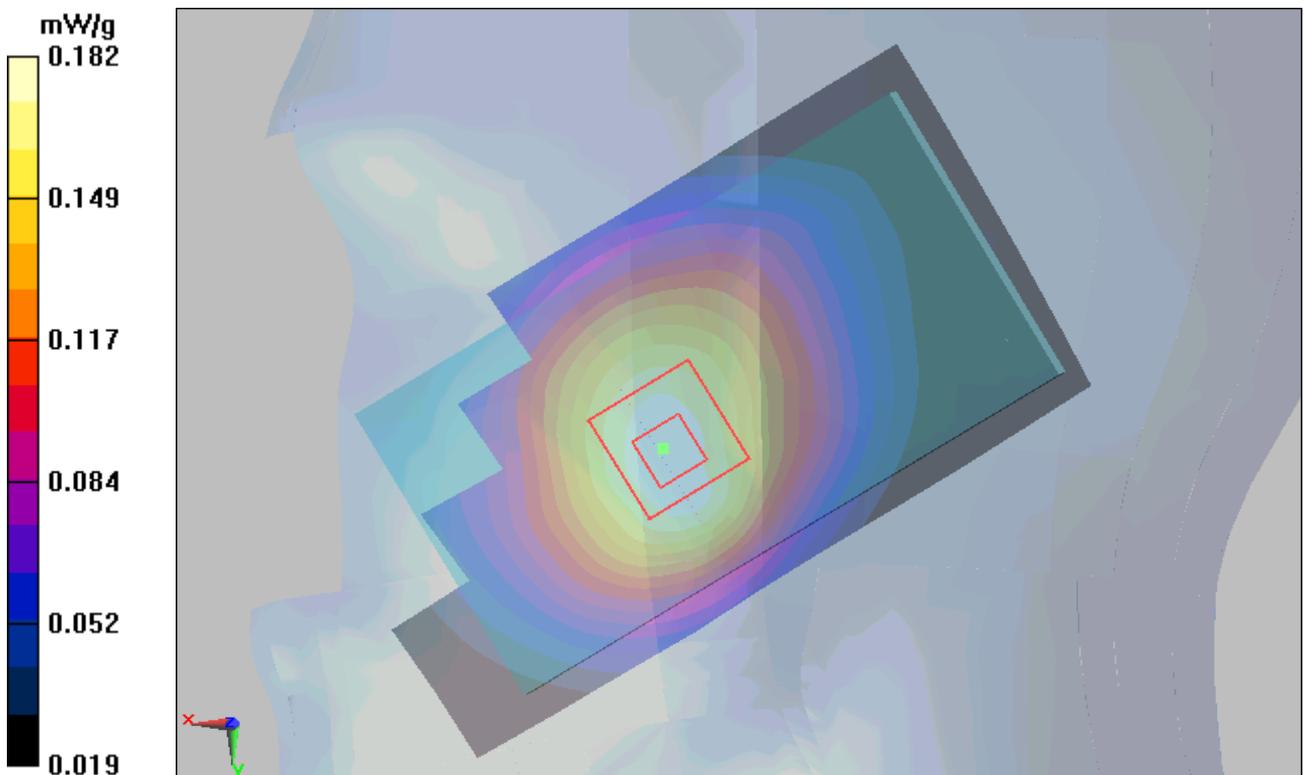


Figure 15 Right Hand Touch Cheek GSM 850 Channel 190

GSM 850 Right Cheek Middle (Battery 3)

Date/Time: 7/27/2012 11:43:01 AM

Communication System: GSM; Frequency: 836.6 MHz; Duty Cycle: 1:8.30042

Medium parameters used: $f = 837$ MHz; $\sigma = 0.896$ mho/m; $\epsilon_r = 42$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5°C

Phantom section: Right Section

DASY5 Configuration:

Probe: ES3DV3 - SN3189; ConvF(5.81, 5.81, 5.81); Calibrated: 6/22/2012

Electronics: DAE4 Sn1317; Calibrated: 1/23/2012

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

Cheek Middle/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.204 mW/g

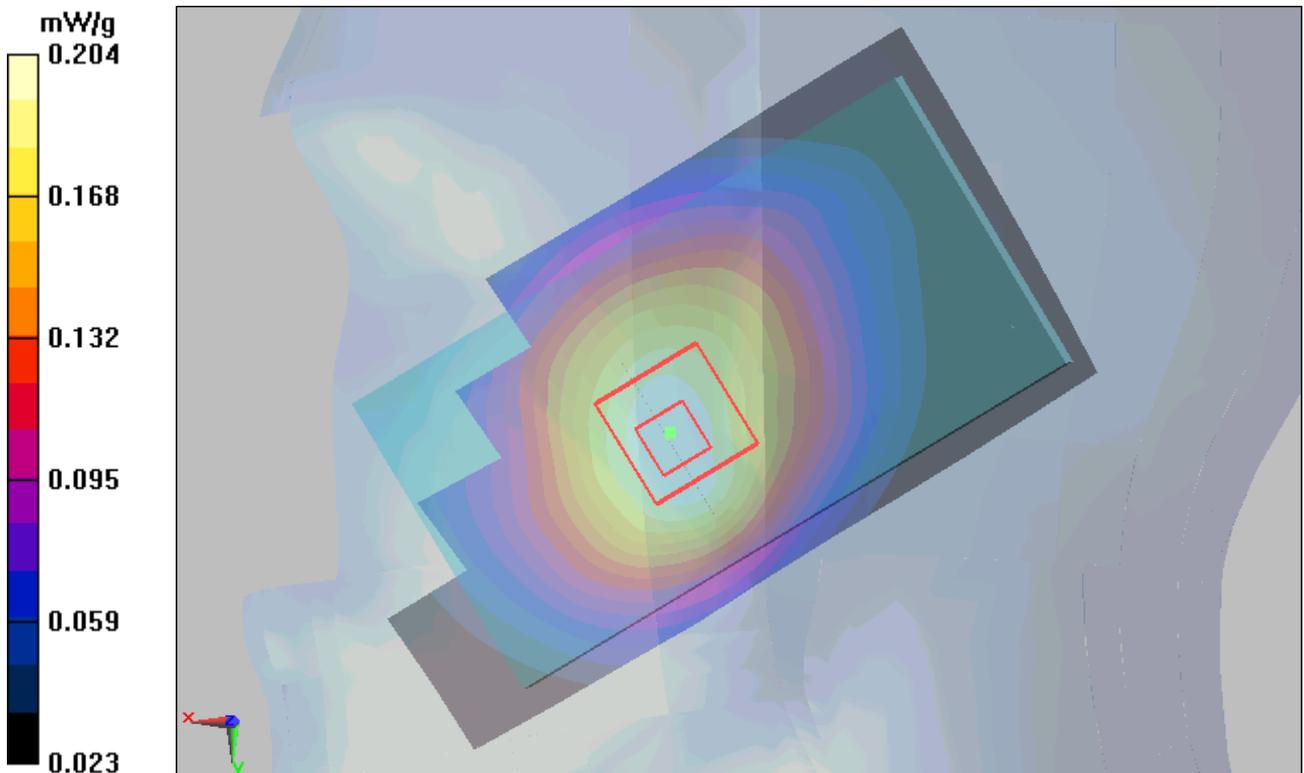
Cheek Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 5.1 V/m; Power Drift = 0.095 dB

Peak SAR (extrapolated) = 0.235 W/kg

SAR(1 g) = 0.193 mW/g; SAR(10 g) = 0.150 mW/g

Maximum value of SAR (measured) = 0.204 mW/g



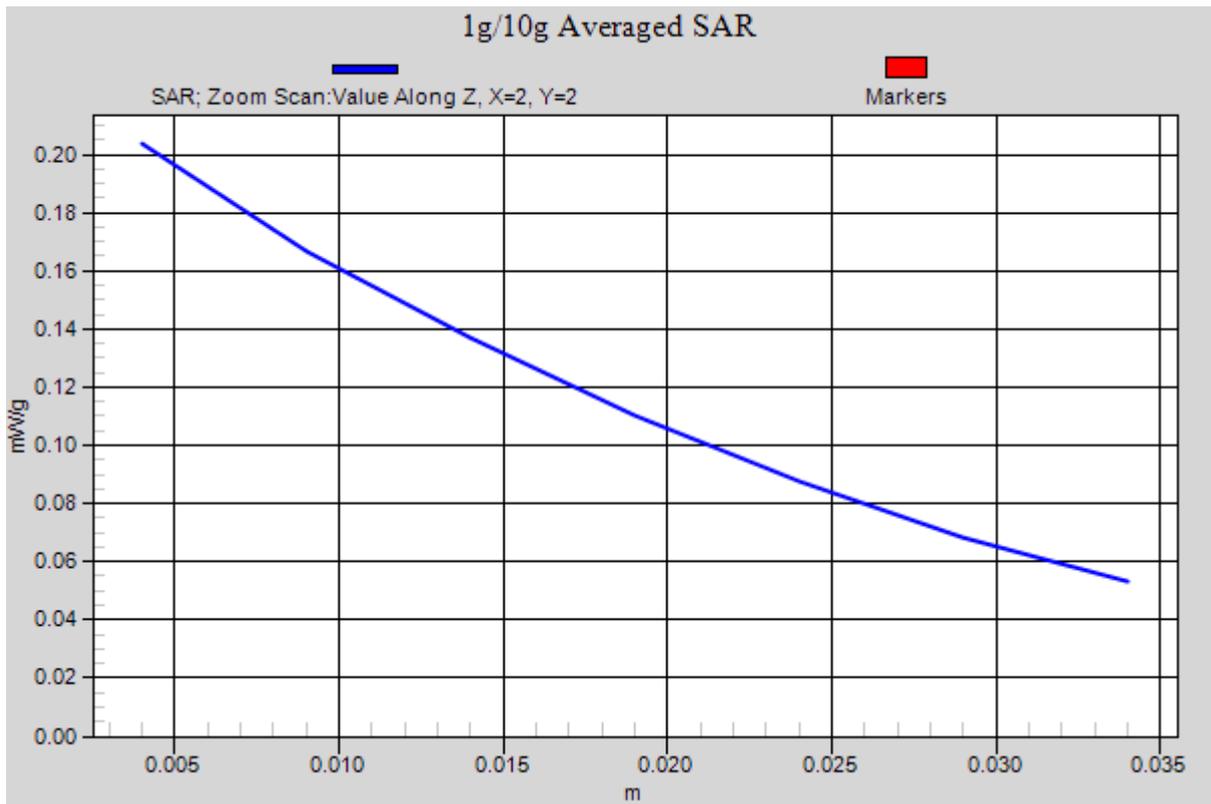


Figure 16 Right Hand Touch Cheek GSM 850 Channel 190

GSM 850 Right Cheek Middle (Battery 4)

Date/Time: 7/27/2012 11:26:28 AM

Communication System: GSM; Frequency: 836.6 MHz; Duty Cycle: 1:8.30042

Medium parameters used: $f = 837$ MHz; $\sigma = 0.896$ mho/m; $\epsilon_r = 42$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5°C

Phantom section: Right Section

DASY5 Configuration:

Probe: ES3DV3 - SN3189; ConvF(5.81, 5.81, 5.81); Calibrated: 6/22/2012

Electronics: DAE4 Sn1317; Calibrated: 1/23/2012

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

Cheek Middle/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.182 mW/g

Cheek Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 4.63 V/m; Power Drift = 0.068 dB

Peak SAR (extrapolated) = 0.213 W/kg

SAR(1 g) = 0.173 mW/g; SAR(10 g) = 0.134 mW/g

Maximum value of SAR (measured) = 0.181 mW/g

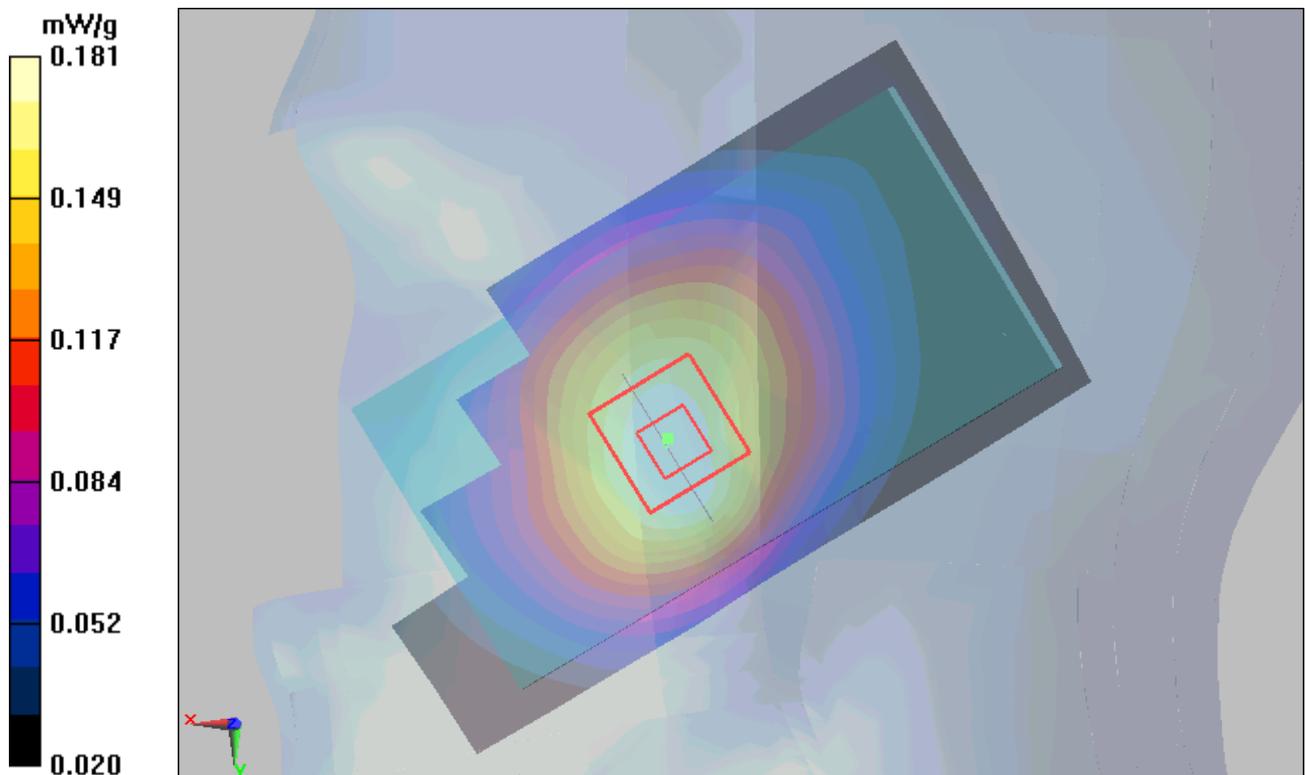


Figure 17 Right Hand Touch Cheek GSM 850 Channel 190

TA Technology (Shanghai) Co., Ltd. Test Report

Report No.: RHA1207-0058SAR01

Page 59 of 146

GSM 850 GPRS (1Txslot) Back Side Middle (Battery 1, 10mm)

Date/Time: 7/27/2012 11:19:47 PM

Communication System: GPRS 1TX; Frequency: 836.6 MHz; Duty Cycle: 1:8.30042

Medium parameters used: $f = 837$ MHz; $\sigma = 0.971$ mho/m; $\epsilon_r = 54.5$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5 °C

Phantom section: Flat Section

DASY5 Configuration:

Probe: ES3DV3 - SN3189; ConvF(5.81, 5.81, 5.81); Calibrated: 6/22/2012

Electronics: DAE4 Sn1317; Calibrated: 1/23/2012

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

Back Side Middle/Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.676 mW/g

Back Side Middle/Zoom Scan (5x5x7)/Cube 1: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 25.9 V/m; Power Drift = 0.075 dB

Peak SAR (extrapolated) = 0.826 W/kg

SAR(1 g) = 0.550 mW/g; SAR(10 g) = 0.374 mW/g

Maximum value of SAR (measured) = 0.592 mW/g

Back Side Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 25.9 V/m; Power Drift = 0.075 dB

Peak SAR (extrapolated) = 0.872 W/kg

SAR(1 g) = 0.651 mW/g; SAR(10 g) = 0.472 mW/g

Maximum value of SAR (measured) = 0.684 mW/g

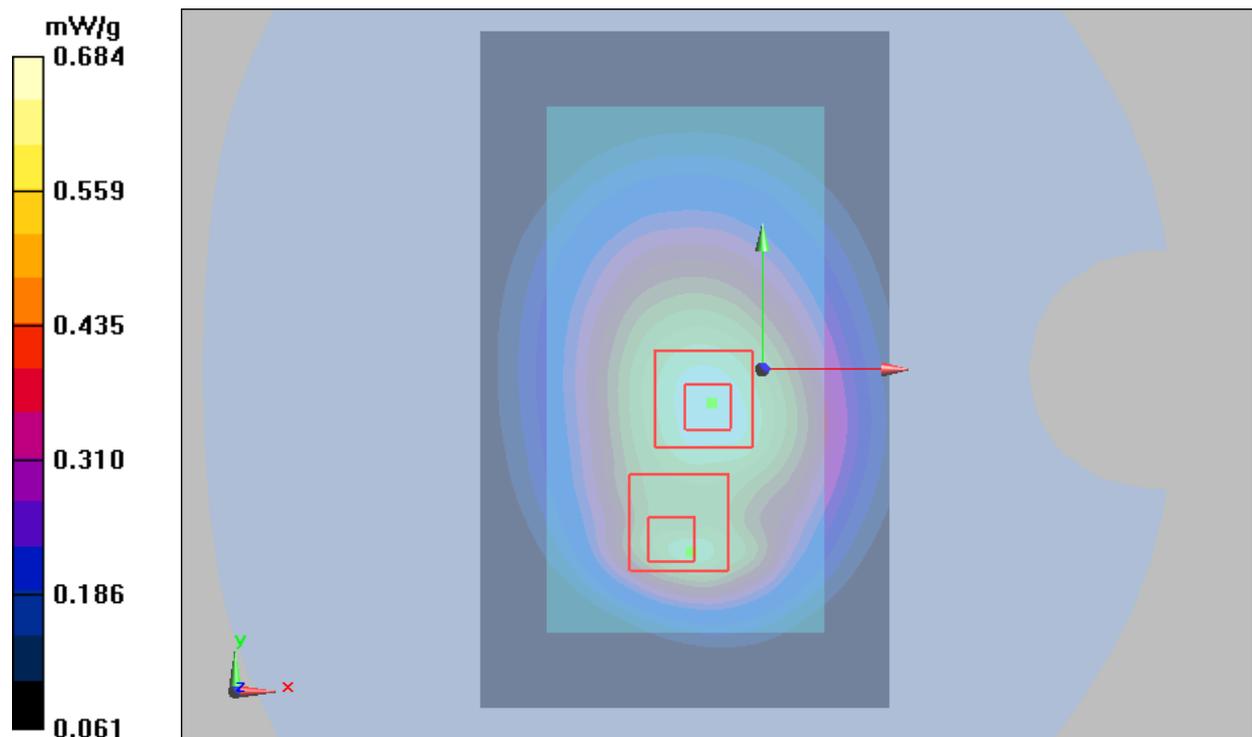


Figure 18 Body, Back Side, GSM 850 GPRS (1Txslot) Channel 190

GSM 850 GPRS (2Txslots) Back Side High (Battery 1, 10mm)

Date/Time: 7/30/2012 3:07:25 AM

Communication System: GPRS 2TX ; Frequency: 848.8 MHz; Duty Cycle: 1:4.14954

Medium parameters used: $f = 849$ MHz; $\sigma = 0.984$ mho/m; $\epsilon_r = 54.4$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5°C

Phantom section: Flat Section

DASY5 Configuration:

Probe: ES3DV3 - SN3189; ConvF(5.81, 5.81, 5.81); Calibrated: 6/22/2012

Electronics: DAE4 Sn1317; Calibrated: 1/23/2012

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

Back Side High/Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 1.11 mW/g

Back Side High/Zoom Scan (5x5x7)/Cube 1: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 33.4 V/m; Power Drift = -0.027 dB

Peak SAR (extrapolated) = 1.47 W/kg

SAR(1 g) = 0.905 mW/g; SAR(10 g) = 0.597 mW/g

Maximum value of SAR (measured) = 0.999 mW/g

Back Side High/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 33.4 V/m; Power Drift = -0.027 dB

Peak SAR (extrapolated) = 1.38 W/kg

SAR(1 g) = 1.06 mW/g; SAR(10 g) = 0.769 mW/g

Maximum value of SAR (measured) = 1.12 mW/g

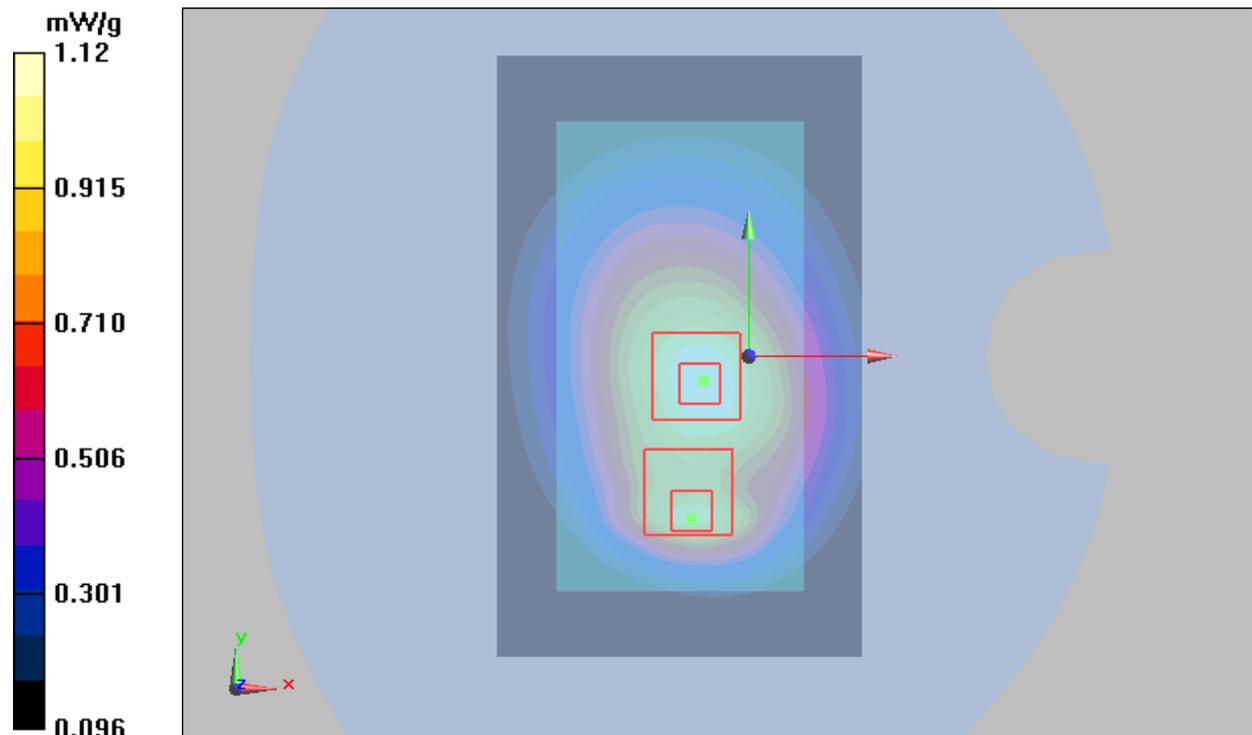


Figure 19 Body, Back Side, GSM 850 GPRS (2Txslots) Channel 251

TA Technology (Shanghai) Co., Ltd. Test Report

Report No.: RHA1207-0058SAR01

Page 61 of 146

GSM 850 GPRS (2Txslots) Back Side Middle (Battery 1, 10mm)

Date/Time: 7/30/2012 2:43:14 AM

Communication System: GPRS 2TX ; Frequency: 836.6 MHz; Duty Cycle: 1:4.14954

Medium parameters used: $f = 837$ MHz; $\sigma = 0.971$ mho/m; $\epsilon_r = 54.5$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5°C

Phantom section: Flat Section

DASY5 Configuration:

Probe: ES3DV3 - SN3189; ConvF(5.81, 5.81, 5.81); Calibrated: 6/22/2012

Electronics: DAE4 Sn1317; Calibrated: 1/23/2012

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

Back Side Middle/Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.915 mW/g

Back Side Middle/Zoom Scan (5x5x7)/Cube 1: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 30.9 V/m; Power Drift = -0.073 dB

Peak SAR (extrapolated) = 1.1 W/kg

SAR(1 g) = 0.704 mW/g; SAR(10 g) = 0.469 mW/g

Maximum value of SAR (measured) = 0.778 mW/g

Back Side Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 30.9 V/m; Power Drift = -0.073 dB

Peak SAR (extrapolated) = 1.12 W/kg

SAR(1 g) = 0.847 mW/g; SAR(10 g) = 0.614 mW/g

Maximum value of SAR (measured) = 0.894 mW/g

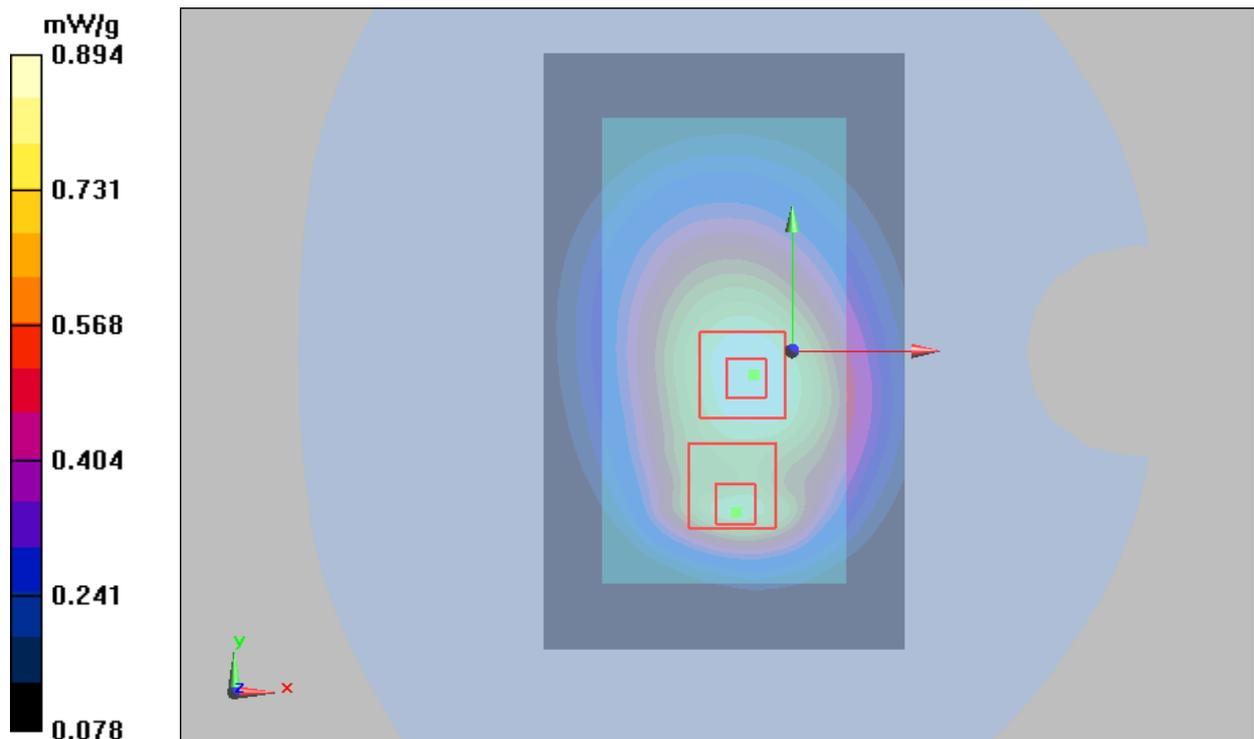


Figure 20 Body, Back Side, GSM 850 GPRS (2Txslots) Channel 190

TA Technology (Shanghai) Co., Ltd. Test Report

Report No.: RHA1207-0058SAR01

Page 62 of 146

GSM 850 GPRS (2Txslots) Back Side Low (Battery 1, 10mm)

Date/Time: 7/30/2012 3:31:20 AM

Communication System: GPRS 2TX ; Frequency: 824.2 MHz; Duty Cycle: 1:4.14954

Medium parameters used (interpolated): $f = 824.2$ MHz; $\sigma = 0.958$ mho/m; $\epsilon_r = 54.7$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5°C

Phantom section: Flat Section

DASY5 Configuration:

Probe: ES3DV3 - SN3189; ConvF(5.81, 5.81, 5.81); Calibrated: 6/22/2012

Electronics: DAE4 Sn1317; Calibrated: 1/23/2012

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

Back Side Low/Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.583 mW/g

Back Side Low/Zoom Scan (5x5x7)/Cube 1: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 24.4 V/m; Power Drift = -0.048 dB

Peak SAR (extrapolated) = 0.783 W/kg

SAR(1 g) = 0.483 mW/g; SAR(10 g) = 0.320 mW/g

Maximum value of SAR (measured) = 0.526 mW/g

Back Side Low/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 24.4 V/m; Power Drift = -0.048 dB

Peak SAR (extrapolated) = 0.763 W/kg

SAR(1 g) = 0.559 mW/g; SAR(10 g) = 0.404 mW/g

Maximum value of SAR (measured) = 0.587 mW/g

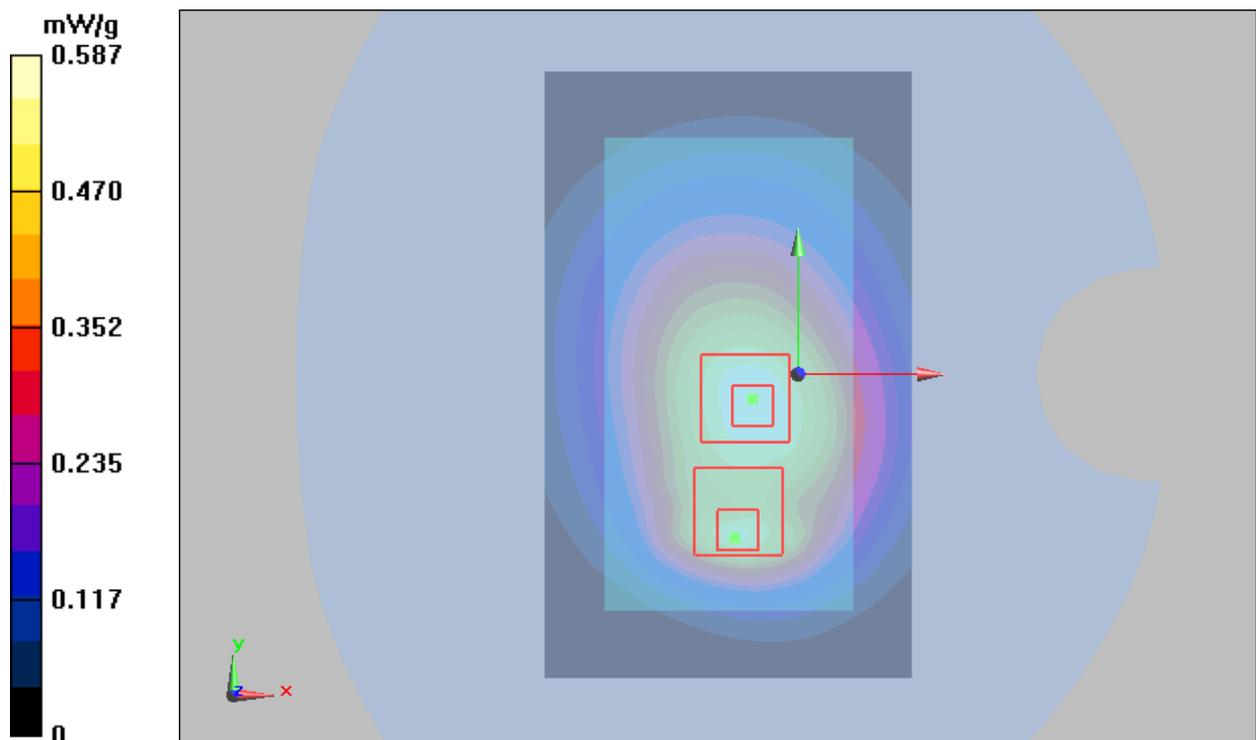


Figure 21 Body, Back Side, GSM 850 GPRS (2Txslots) Channel 128

GSM 850 GPRS (2Txslots) Left Edge Middle (Battery 1, 10mm)

Date/Time: 7/27/2012 9:44:09 PM

Communication System: GPRS 2TX ; Frequency: 836.6 MHz;Duty Cycle: 1:4.14954

Medium parameters used: $f = 837$ MHz; $\sigma = 0.971$ mho/m; $\epsilon_r = 54.5$; $\rho = 1000$ kg/m³

Ambient Temperature:22.3 °C Liquid Temperature: 21.5°C

Phantom section: Flat Section

DASY5 Configuration:

Probe: ES3DV3 - SN3189; ConvF(5.81, 5.81, 5.81); Calibrated: 6/22/2012

Electronics: DAE4 Sn1317; Calibrated: 1/23/2012

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

Left Edge Middle/Area Scan (31x101x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.170 mW/g

Left Edge Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 12.6 V/m; Power Drift = -0.016 dB

Peak SAR (extrapolated) = 0.215 W/kg

SAR(1 g) = 0.155 mW/g; SAR(10 g) = 0.107 mW/g

Maximum value of SAR (measured) = 0.165 mW/g

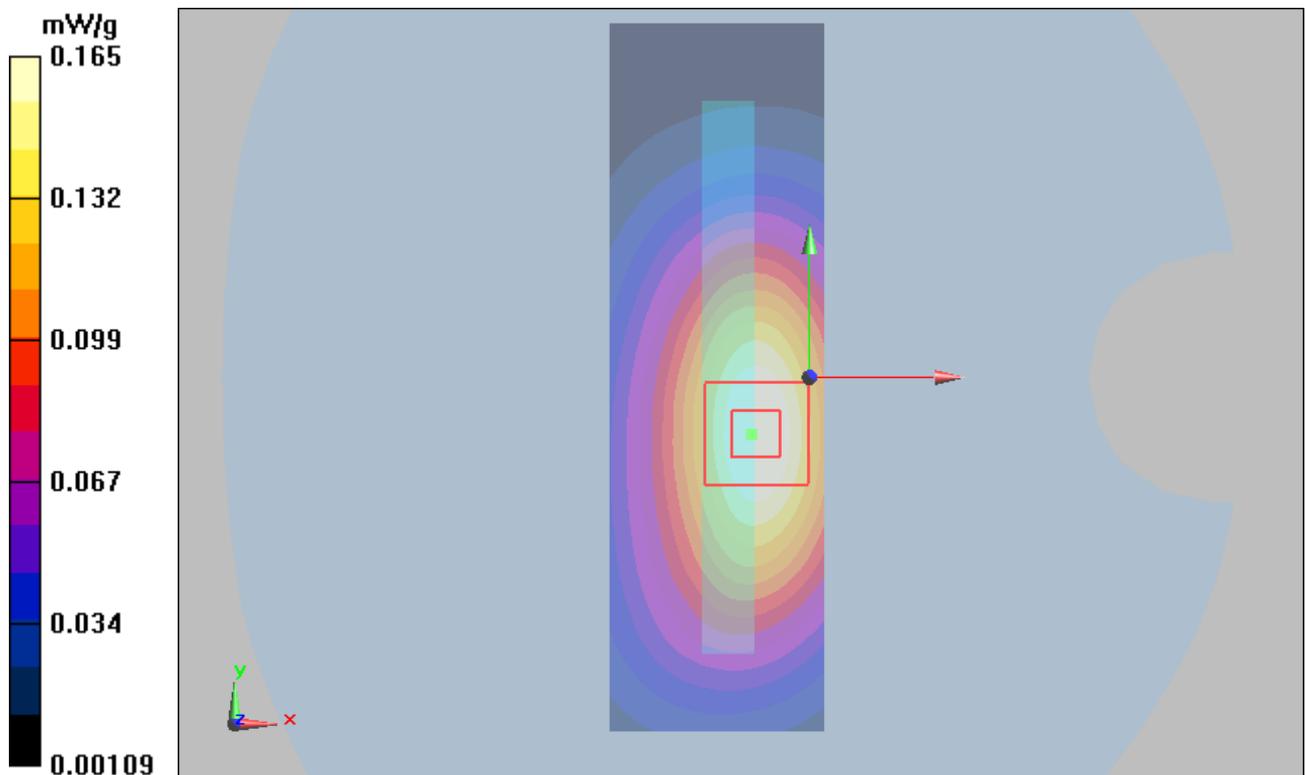


Figure 23 Body, Left Edge, GSM 850 GPRS (2Txslots) Channel 190

GSM 850 GPRS (2Txslots) Right Edge Middle (Battery 1, 10mm)

Date/Time: 7/27/2012 9:59:48 PM

Communication System: GPRS 2TX ; Frequency: 836.6 MHz; Duty Cycle: 1:4.14954

Medium parameters used: $f = 837$ MHz; $\sigma = 0.971$ mho/m; $\epsilon_r = 54.5$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5°C

Phantom section: Flat Section

DASY5 Configuration:

Probe: ES3DV3 - SN3189; ConvF(5.81, 5.81, 5.81); Calibrated: 6/22/2012

Electronics: DAE4 Sn1317; Calibrated: 1/23/2012

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

Right Edge Middle/Area Scan (31x101x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.267 mW/g

Right Edge Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 16.7 V/m; Power Drift = -0.039 dB

Peak SAR (extrapolated) = 0.341 W/kg

SAR(1 g) = 0.248 mW/g; SAR(10 g) = 0.173 mW/g

Maximum value of SAR (measured) = 0.265 mW/g

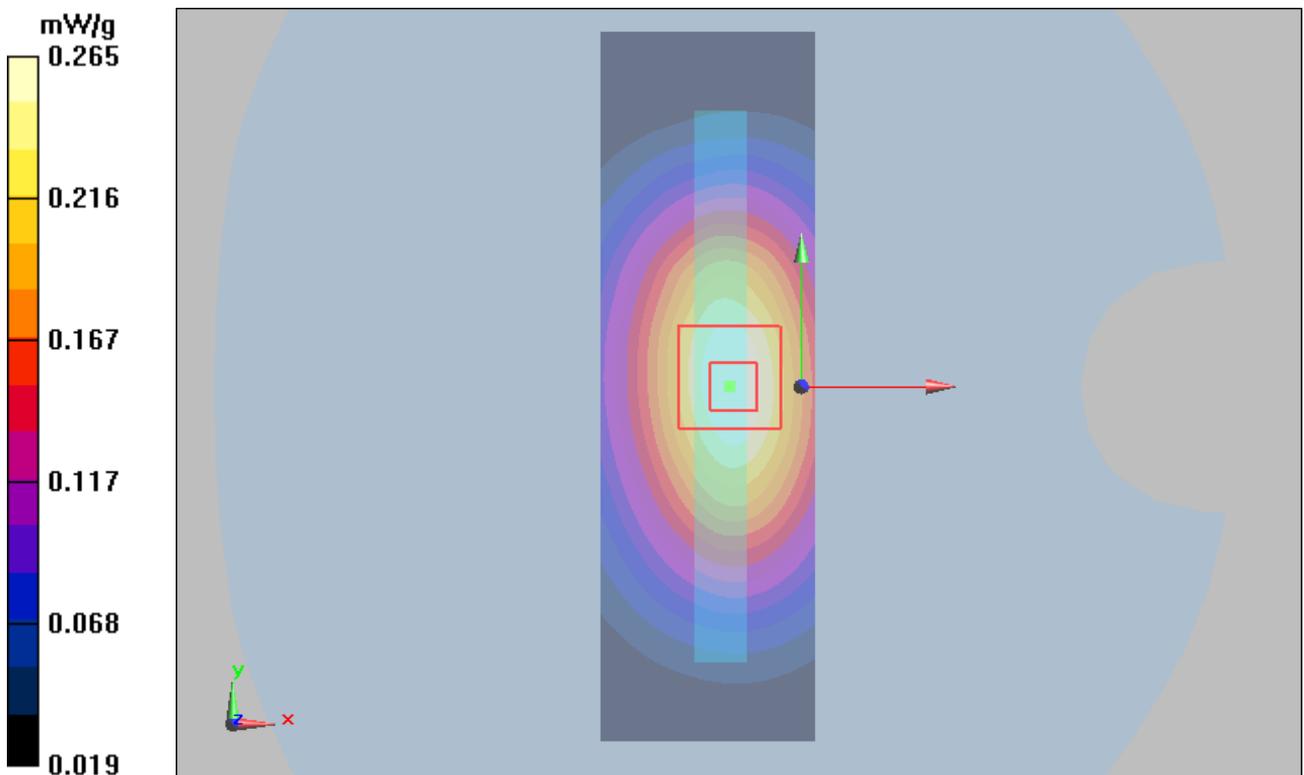


Figure 24 Body, Right Edge, GSM 850 GPRS (2Txslots) Channel 190

GSM 850 GPRS (2Txslots) Bottom Edge Middle (Battery 1, 10mm)

Date/Time: 7/27/2012 10:23:16 PM

Communication System: GPRS 2TX ; Frequency: 836.6 MHz; Duty Cycle: 1:4.14954

Medium parameters used: $f = 837$ MHz; $\sigma = 0.971$ mho/m; $\epsilon_r = 54.5$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5°C

Phantom section: Flat Section

DASY5 Configuration:

Probe: ES3DV3 - SN3189; ConvF(5.81, 5.81, 5.81); Calibrated: 6/22/2012

Electronics: DAE4 Sn1317; Calibrated: 1/23/2012

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

Bottom Edge Middle/Area Scan (31x61x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.062 mW/g

Bottom Edge Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 7.13 V/m; Power Drift = 0.089 dB

Peak SAR (extrapolated) = 0.088 W/kg

SAR(1 g) = 0.056 mW/g; SAR(10 g) = 0.034 mW/g

Maximum value of SAR (measured) = 0.060 mW/g

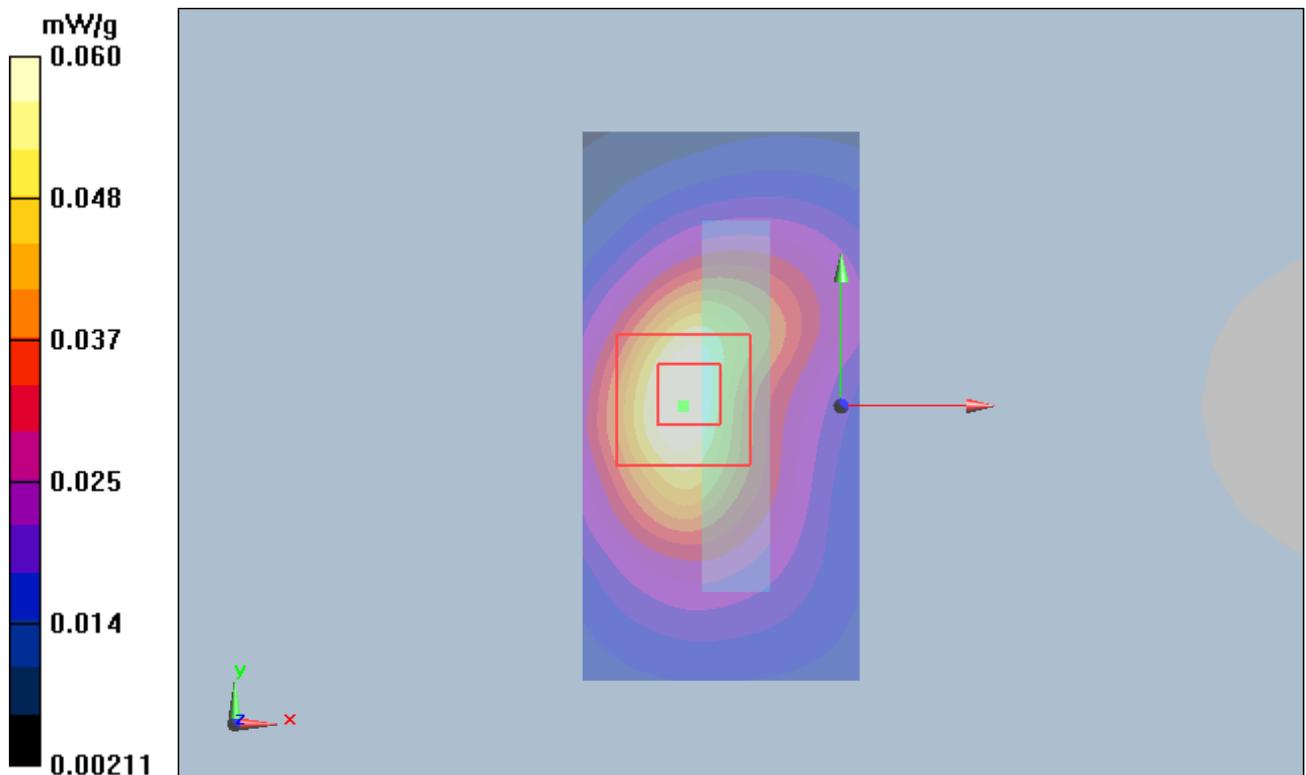


Figure 25 Body, Bottom Edge, GSM 850 GPRS (2Txslots) Channel 190

TA Technology (Shanghai) Co., Ltd. Test Report

Report No.: RHA1207-0058SAR01

Page 67 of 146

GSM 850 with Earphone Back Side High (Battery 1, 10mm)

Date/Time: 8/3/2012 9:07:49 AM

Communication System: GSM; Frequency: 848.8 MHz; Duty Cycle: 1:8.30042

Medium parameters used: $f = 849$ MHz; $\sigma = 0.984$ mho/m; $\epsilon_r = 54.4$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5°C

Phantom section: Flat Section

DASY5 Configuration:

Probe: ES3DV3 - SN3189; ConvF(5.81, 5.81, 5.81); Calibrated: 6/22/2012

Electronics: DAE4 Sn1317; Calibrated: 1/23/2012

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

Back Side High/Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.956 mW/g

Back Side High/Zoom Scan (5x5x7)/Cube 1: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 27.4 V/m; Power Drift = -0.157 dB

Peak SAR (extrapolated) = 1.06 W/kg

SAR(1 g) = 0.798 mW/g; SAR(10 g) = 0.572 mW/g

Maximum value of SAR (measured) = 0.844 mW/g

Back Side High/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 27.4 V/m; Power Drift = -0.157 dB

Peak SAR (extrapolated) = 1.32 W/kg

SAR(1 g) = 0.796 mW/g; SAR(10 g) = 0.495 mW/g

Maximum value of SAR (measured) = 0.841 mW/g

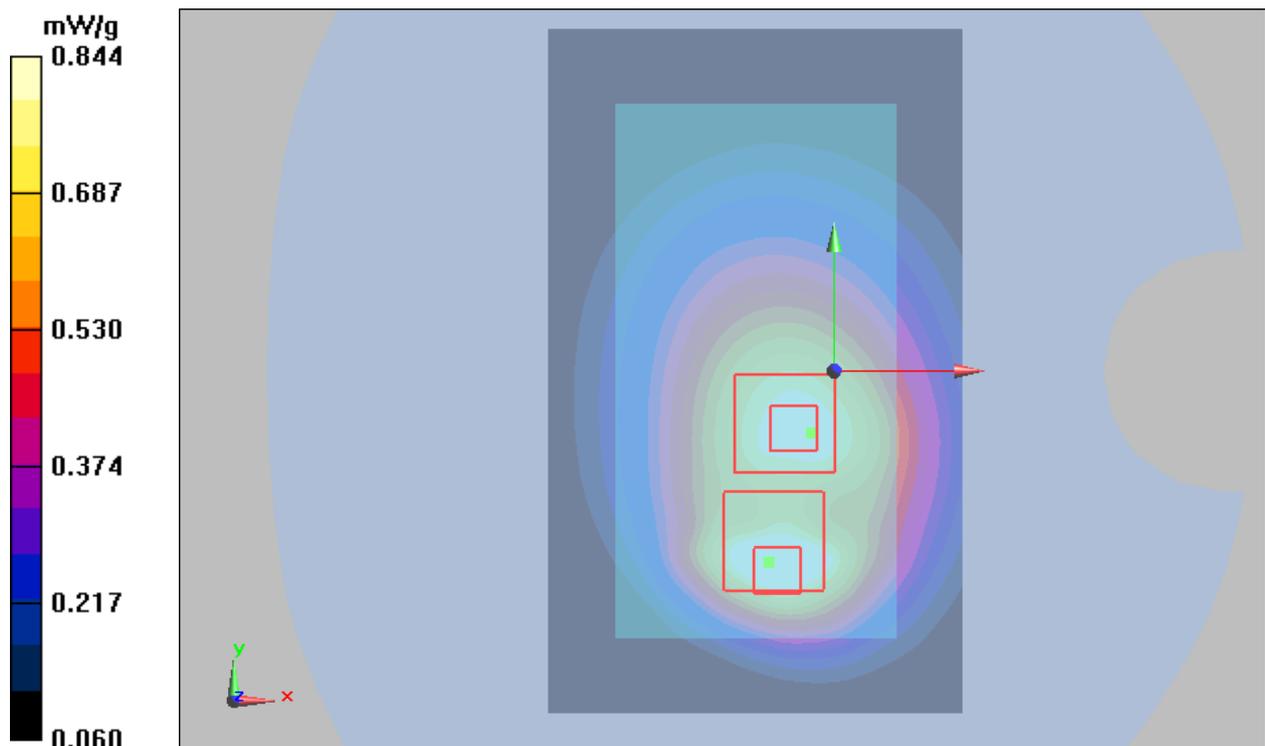


Figure 26 Body with Earphone, Back Side, GSM 850 Channel 251

TA Technology (Shanghai) Co., Ltd. Test Report

Report No.: RHA1207-0058SAR01

Page 68 of 146

GSM 850 EGPRS (2Txslots) Back Side High (Battery 1, 10mm)

Date/Time: 7/30/2012 9:28:46 AM

Communication System: EGPRS 2TX; Frequency: 848.8 MHz; Duty Cycle: 1:4.14954

Medium parameters used: $f = 849$ MHz; $\sigma = 0.984$ mho/m; $\epsilon_r = 54.4$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5 °C

Phantom section: Flat Section

DASY5 Configuration:

Probe: ES3DV3 - SN3189; ConvF(5.81, 5.81, 5.81); Calibrated: 6/22/2012

Electronics: DAE4 Sn1317; Calibrated: 1/23/2012

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

Back Side High/Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 1.19 mW/g

Back Side High/Zoom Scan (5x5x7)/Cube 1: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 33 V/m; Power Drift = -0.071 dB

Peak SAR (extrapolated) = 1.48 W/kg

SAR(1 g) = 0.943 mW/g; SAR(10 g) = 0.655 mW/g

Maximum value of SAR (measured) = 1.11 mW/g

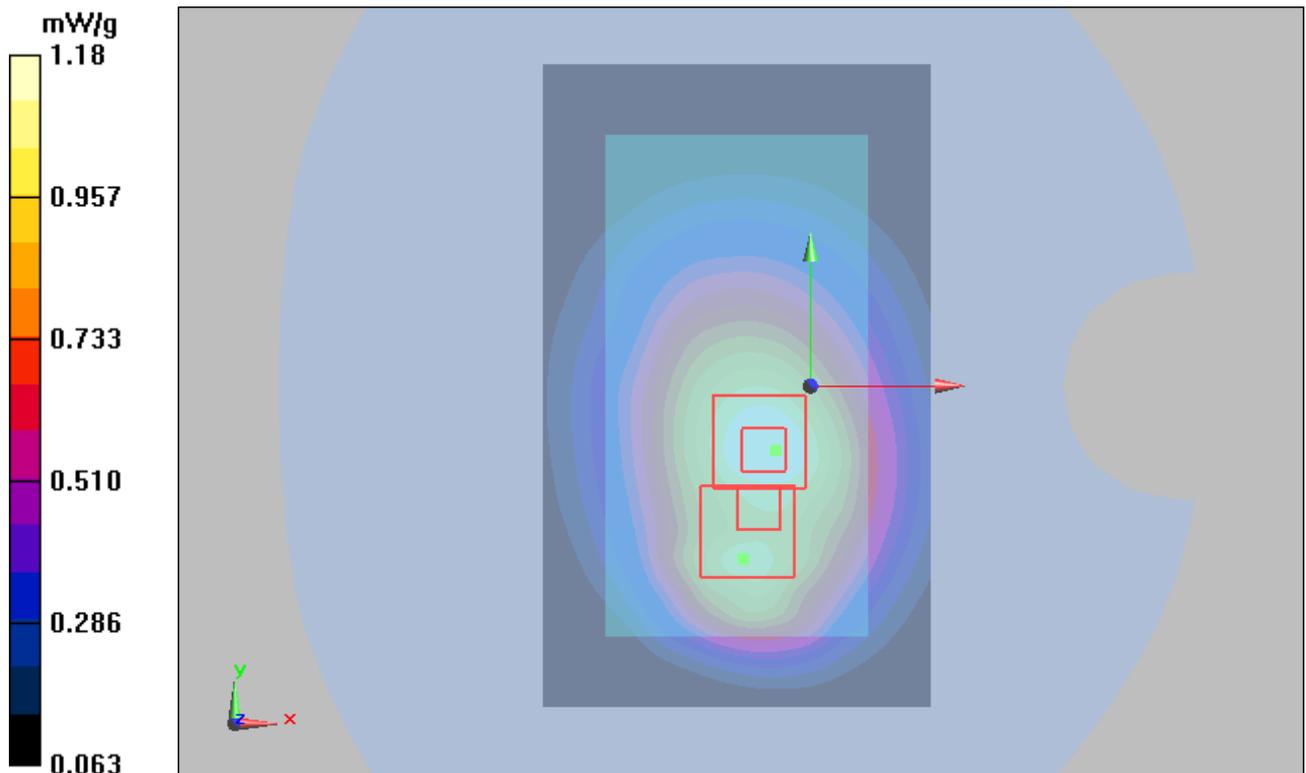
Back Side High/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 33 V/m; Power Drift = -0.071 dB

Peak SAR (extrapolated) = 1.47 W/kg

SAR(1 g) = 1.12 mW/g; SAR(10 g) = 0.808 mW/g

Maximum value of SAR (measured) = 1.18 mW/g



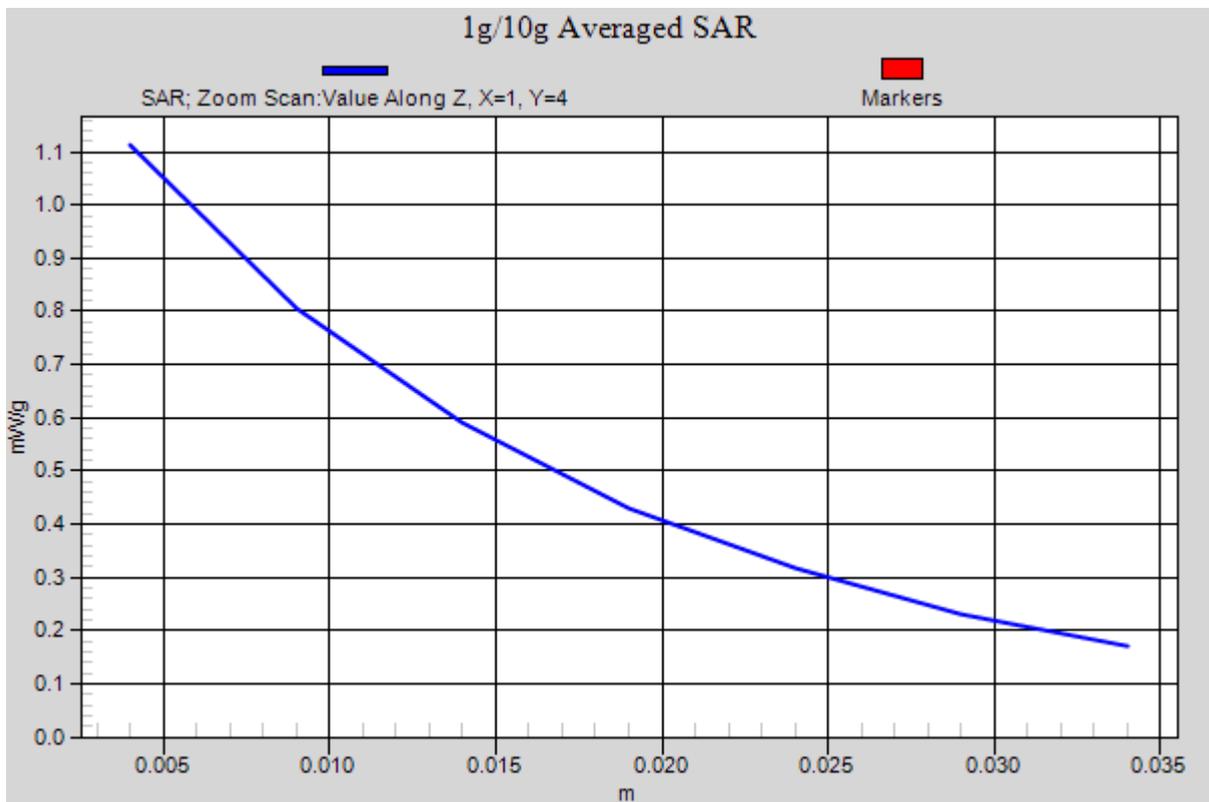
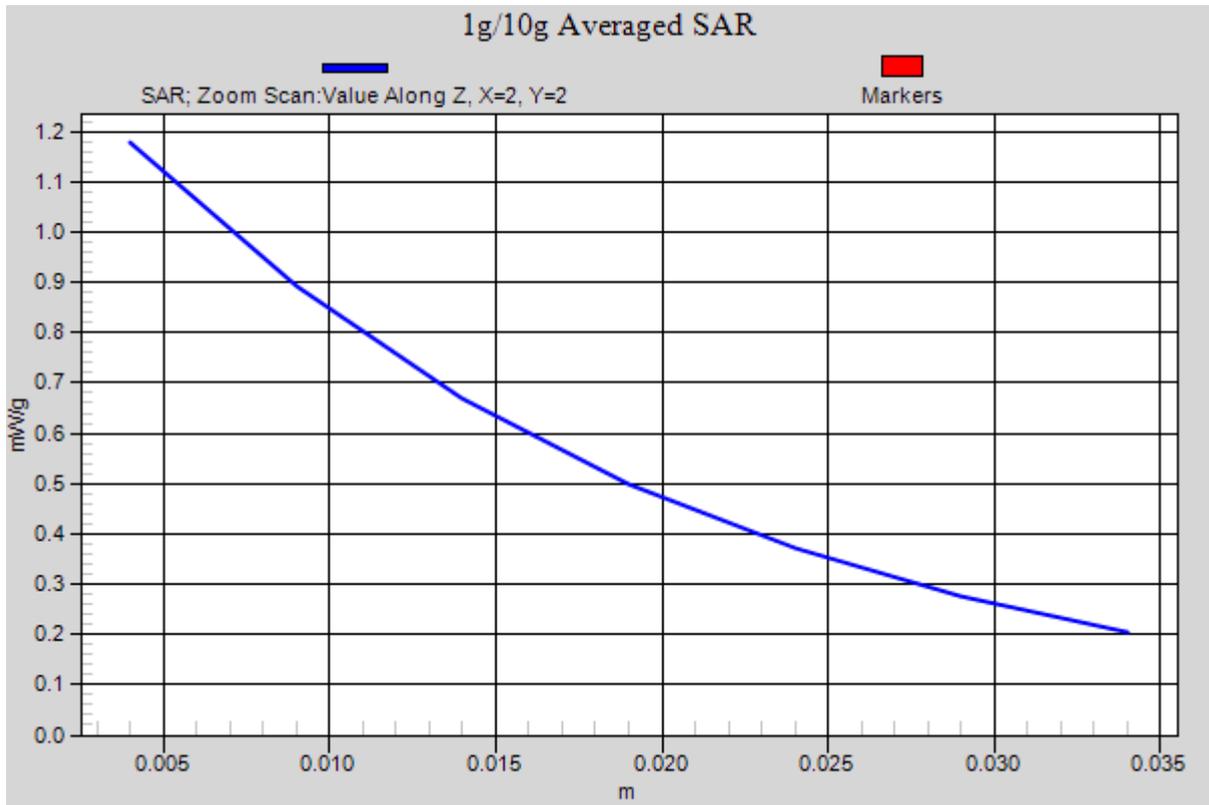


Figure 27 Body, Back Side, GSM 850 EGPRS (2Txslots) Channel 251

TA Technology (Shanghai) Co., Ltd. Test Report

Report No.: RHA1207-0058SAR01

Page 70 of 146

GSM 850 EGPRS (2Txslots) Back Side High (Battery 2, 10mm)

Date/Time: 7/30/2012 4:03:28 AM

Communication System: EGPRS 2TX ; Frequency: 848.8 MHz; Duty Cycle: 1:4.14954

Medium parameters used: $f = 849$ MHz; $\sigma = 0.984$ mho/m; $\epsilon_r = 54.4$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5°C

Phantom section: Flat Section

DASY5 Configuration:

Probe: ES3DV3 - SN3189; ConvF(5.81, 5.81, 5.81); Calibrated: 6/22/2012

Electronics: DAE4 Sn1317; Calibrated: 1/23/2012

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

Back Side High/Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 1.16 mW/g

Back Side High/Zoom Scan (5x5x7)/Cube 1: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 34.6 V/m; Power Drift = -0.190 dB

Peak SAR (extrapolated) = 1.41 W/kg

SAR(1 g) = 0.969 mW/g; SAR(10 g) = 0.664 mW/g

Maximum value of SAR (measured) = 1.11 mW/g

Back Side High/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 34.6 V/m; Power Drift = -0.190 dB

Peak SAR (extrapolated) = 1.45 W/kg

SAR(1 g) = 1.09 mW/g; SAR(10 g) = 0.788 mW/g

Maximum value of SAR (measured) = 1.14 mW/g

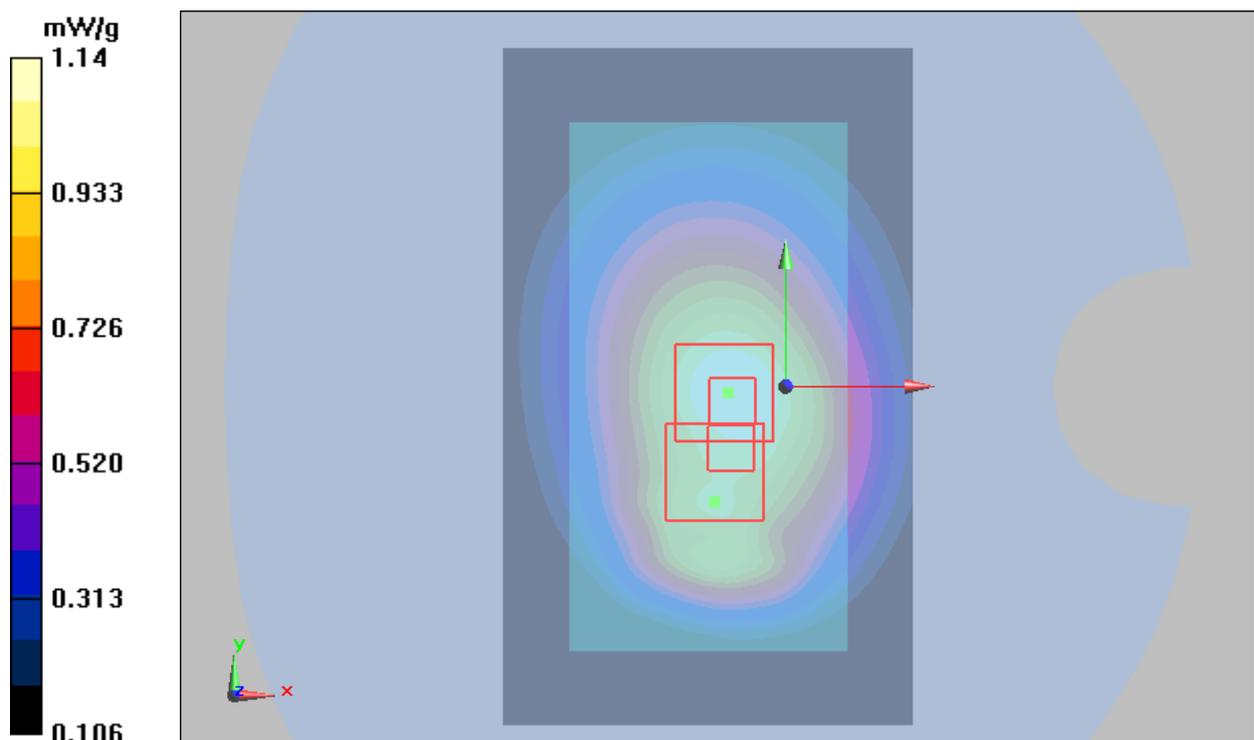


Figure 28 Body, Back Side, GSM 850 EGPRS (2Txslots) Channel 251

TA Technology (Shanghai) Co., Ltd. Test Report

Report No.: RHA1207-0058SAR01

Page 71 of 146

GSM 850 EGPRS (2Txslots) Back Side High (Battery 3, 10mm)

Date/Time: 7/30/2012 5:05:01 AM

Communication System: EGPRS 2TX ; Frequency: 848.8 MHz; Duty Cycle: 1:4.14954

Medium parameters used: $f = 849$ MHz; $\sigma = 0.984$ mho/m; $\epsilon_r = 54.4$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5°C

Phantom section: Flat Section

DASY5 Configuration:

Probe: ES3DV3 - SN3189; ConvF(5.81, 5.81, 5.81); Calibrated: 6/22/2012

Electronics: DAE4 Sn1317; Calibrated: 1/23/2012

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

Back Side High/Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 1.17 mW/g

Back Side High/Zoom Scan (5x5x7)/Cube 1: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 35 V/m; Power Drift = -0.195 dB

Peak SAR (extrapolated) = 1.85 W/kg

SAR(1 g) = 0.938 mW/g; SAR(10 g) = 0.614 mW/g

Maximum value of SAR (measured) = 1.03 mW/g

Back Side High/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 35 V/m; Power Drift = -0.195 dB

Peak SAR (extrapolated) = 1.47 W/kg

SAR(1 g) = 1.1 mW/g; SAR(10 g) = 0.802 mW/g

Maximum value of SAR (measured) = 1.16 mW/g

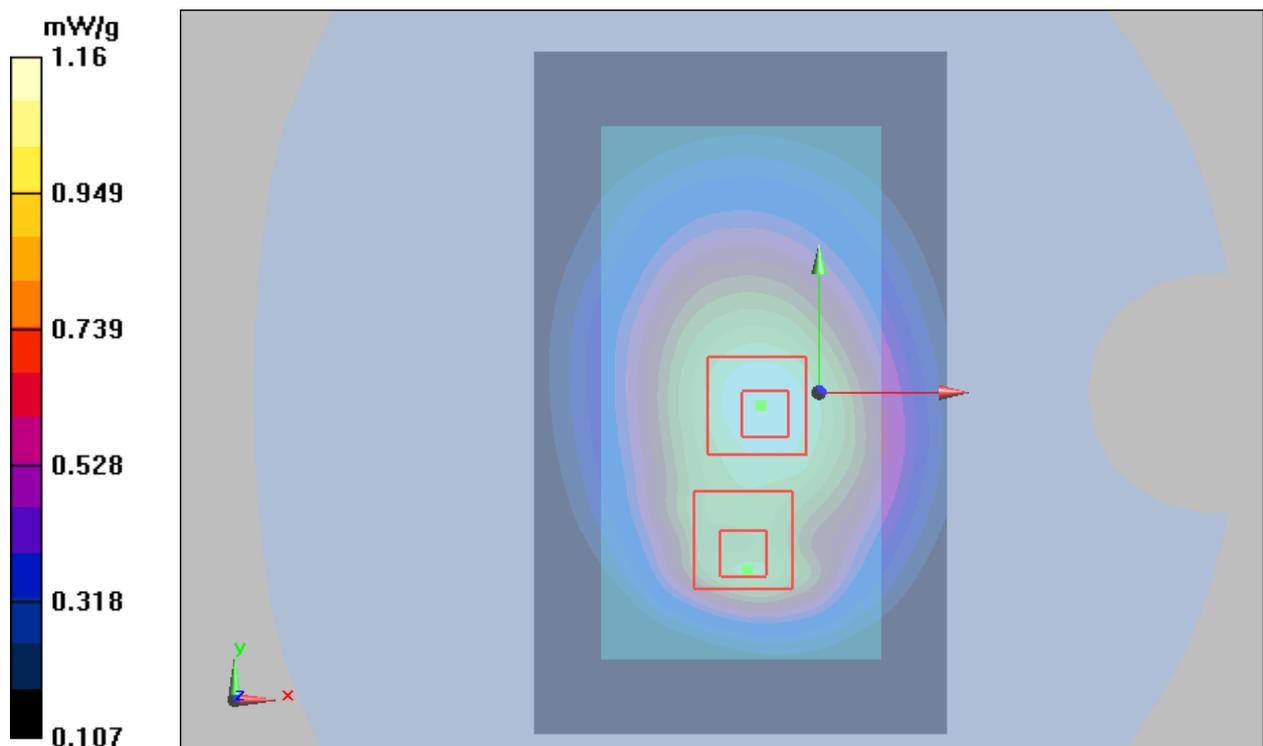


Figure 29 Body, Back Side, GSM 850 EGPRS (2Txslots) Channel 251

TA Technology (Shanghai) Co., Ltd. Test Report

Report No.: RHA1207-0058SAR01

Page 72 of 146

GSM 850 EGPRS (2Txslots) Back Side High (Battery 4, 10mm)

Date/Time: 7/30/2012 4:36:29 AM

Communication System: EGPRS 2TX ; Frequency: 848.8 MHz; Duty Cycle: 1:4.14954

Medium parameters used: $f = 849$ MHz; $\sigma = 0.984$ mho/m; $\epsilon_r = 54.4$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5 °C

Phantom section: Flat Section

DASY5 Configuration:

Probe: ES3DV3 - SN3189; ConvF(5.81, 5.81, 5.81); Calibrated: 6/22/2012

Electronics: DAE4 Sn1317; Calibrated: 1/23/2012

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

Back Side High/Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 1.21 mW/g

Back Side High/Zoom Scan (5x5x7)/Cube 1: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 35.7 V/m; Power Drift = -0.028 dB

Peak SAR (extrapolated) = 1.41 W/kg

SAR(1 g) = 0.993 mW/g; SAR(10 g) = 0.677 mW/g

Maximum value of SAR (measured) = 1.12 mW/g

Back Side High/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 35.7 V/m; Power Drift = -0.028 dB

Peak SAR (extrapolated) = 1.39 W/kg

SAR(1 g) = 1.08 mW/g; SAR(10 g) = 0.774 mW/g

Maximum value of SAR (measured) = 1.19 mW/g

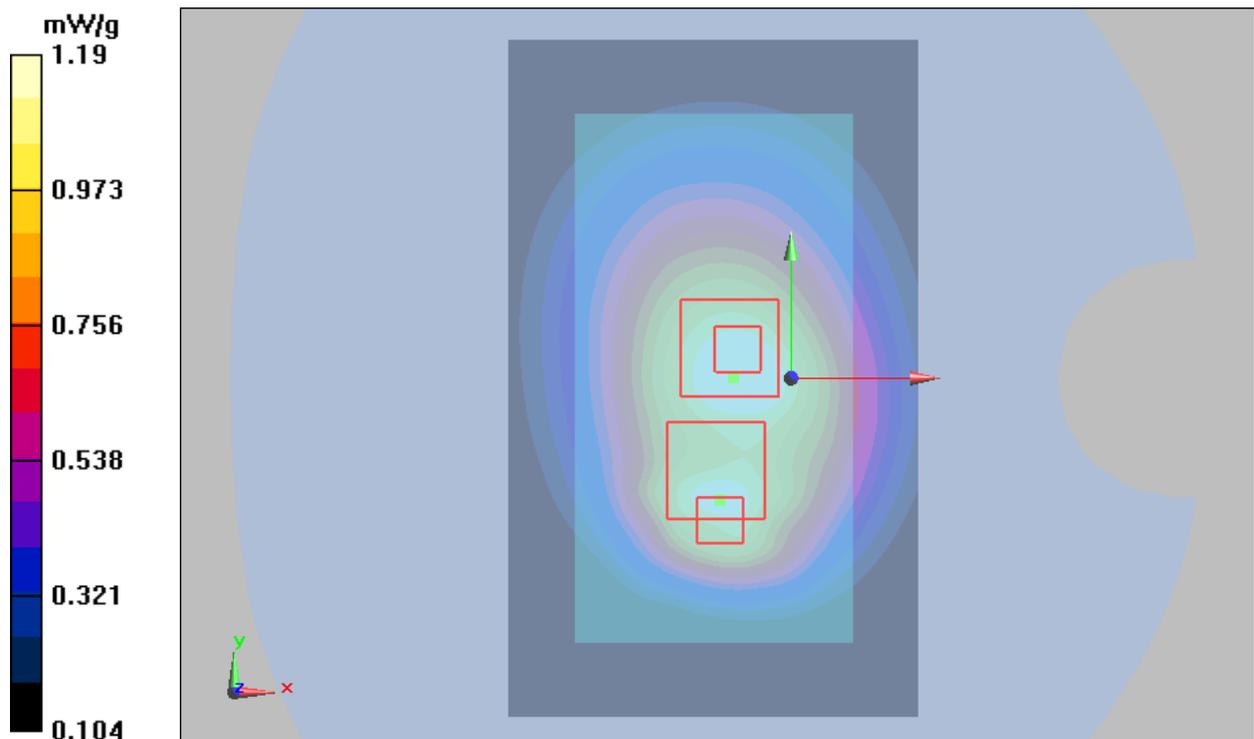


Figure 30 Body, Back Side, GSM 850 EGPRS (2Txslots) Channel 251

WCDMA Band V Left Cheek Middle (Battery 1)

Date/Time: 7/27/2012 12:07:04 PM

Communication System: WCDMA ; Frequency: 836.6 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 837$ MHz; $\sigma = 0.896$ mho/m; $\epsilon_r = 42$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5°C

Phantom section: Left Section

DASY5 Configuration:

Probe: ES3DV3 - SN3189; ConvF(5.81, 5.81, 5.81); Calibrated: 6/22/2012

Electronics: DAE4 Sn1317; Calibrated: 1/23/2012

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

Cheek Middle/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.166 mW/g

Cheek Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 4.63 V/m; Power Drift = -0.018 dB

Peak SAR (extrapolated) = 0.195 W/kg

SAR(1 g) = 0.156 mW/g; SAR(10 g) = 0.120 mW/g

Maximum value of SAR (measured) = 0.165 mW/g

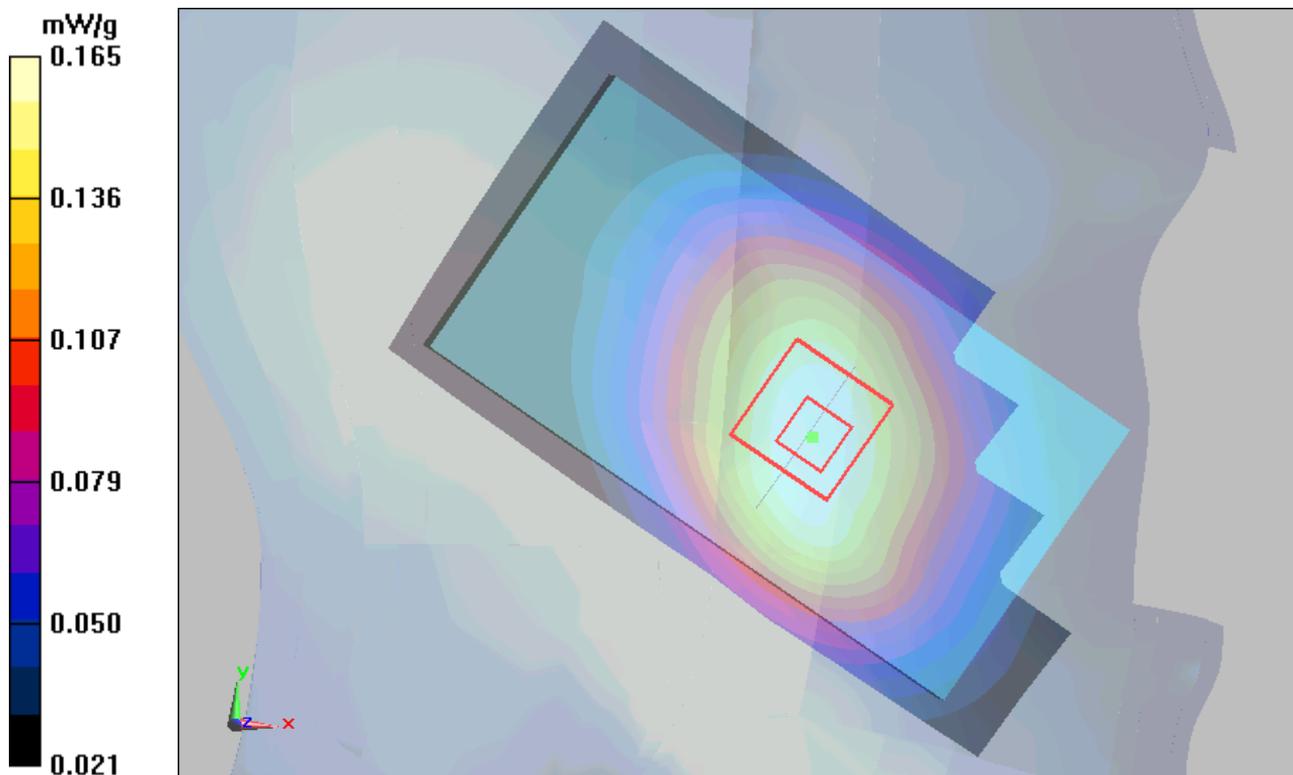


Figure 31 Left Hand Touch Cheek WCDMA Band V Channel 4183

WCDMA Band V Left Tilt Middle (Battery 1)

Date/Time: 7/27/2012 12:21:55 PM

Communication System: WCDMA ; Frequency: 836.6 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 837$ MHz; $\sigma = 0.896$ mho/m; $\epsilon_r = 42$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5°C

Phantom section: Left Section

DASY5 Configuration:

Probe: ES3DV3 - SN3189; ConvF(5.81, 5.81, 5.81); Calibrated: 6/22/2012

Electronics: DAE4 Sn1317; Calibrated: 1/23/2012

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

Tilt Middle/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.145 mW/g

Tilt Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 8.86 V/m; Power Drift = 0.023 dB

Peak SAR (extrapolated) = 0.176 W/kg

SAR(1 g) = 0.142 mW/g; SAR(10 g) = 0.107 mW/g

Maximum value of SAR (measured) = 0.149 mW/g

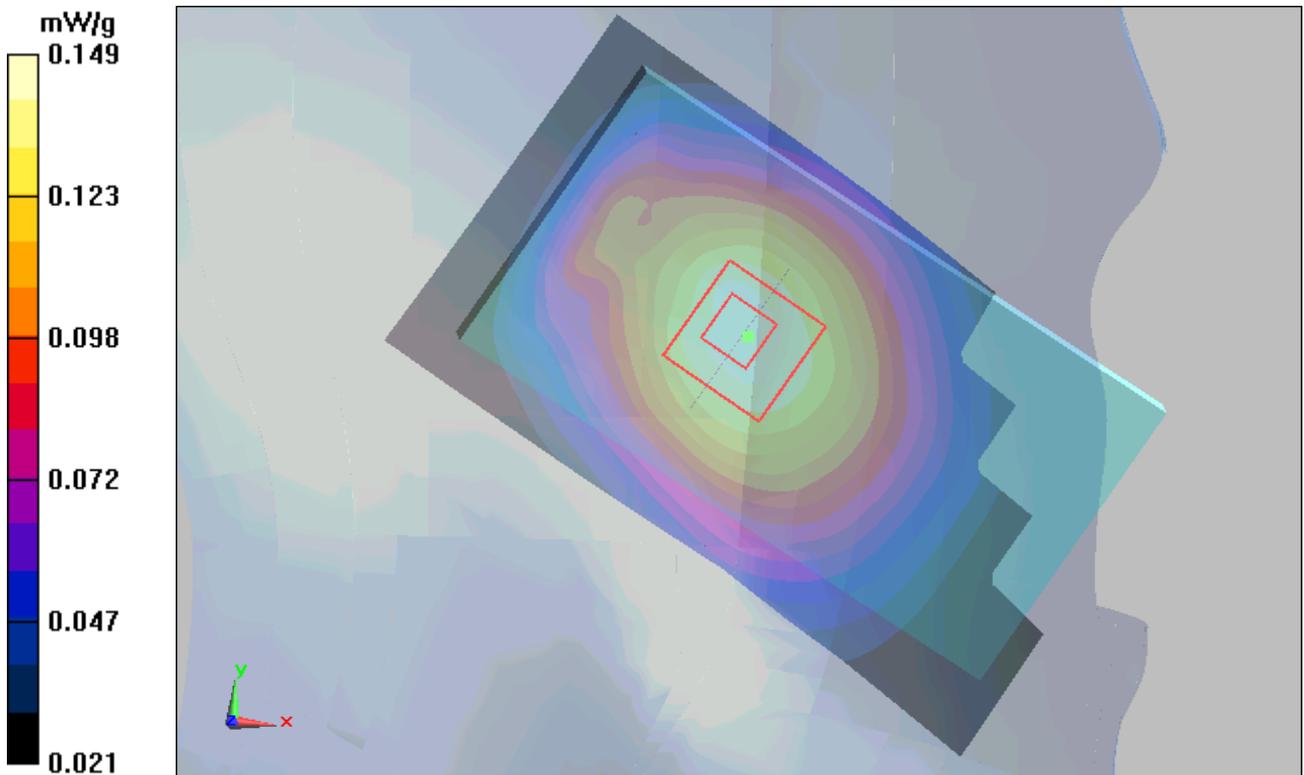


Figure 32 Left Hand Tilt 15° WCDMA Band V Channel 4183

WCDMA Band V Right Cheek Middle (Battery 1)

Date/Time: 7/27/2012 12:38:32 PM

Communication System: WCDMA ; Frequency: 836.6 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 837$ MHz; $\sigma = 0.896$ mho/m; $\epsilon_r = 42$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5°C

Phantom section: Right Section

DASY5 Configuration:

Probe: ES3DV3 - SN3189; ConvF(5.81, 5.81, 5.81); Calibrated: 6/22/2012

Electronics: DAE4 Sn1317; Calibrated: 1/23/2012

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

Cheek Middle/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.208 mW/g

Cheek Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 5.5 V/m; Power Drift = -0.013 dB

Peak SAR (extrapolated) = 0.237 W/kg

SAR(1 g) = 0.197 mW/g; SAR(10 g) = 0.154 mW/g

Maximum value of SAR (measured) = 0.206 mW/g

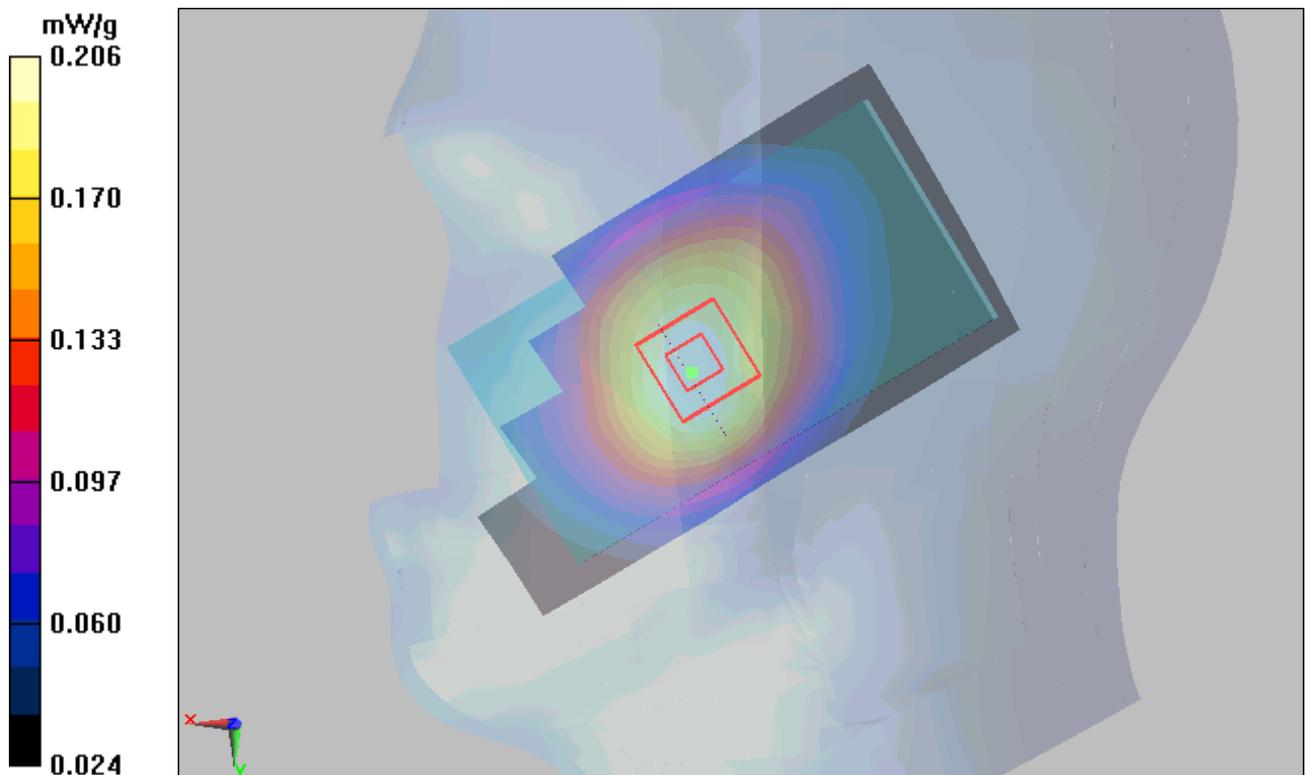


Figure 33 Right Hand Touch Cheek WCDMA Band V Channel 4183

WCDMA Band V Right Tilt Middle (Battery 1)

Date/Time: 7/27/2012 12:53:13 PM

Communication System: WCDMA ; Frequency: 836.6 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 837$ MHz; $\sigma = 0.896$ mho/m; $\epsilon_r = 42$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5°C

Phantom section: Right Section

DASY5 Configuration:

Probe: ES3DV3 - SN3189; ConvF(5.81, 5.81, 5.81); Calibrated: 6/22/2012

Electronics: DAE4 Sn1317; Calibrated: 1/23/2012

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

Tilt Middle/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.149 mW/g

Tilt Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 9.11 V/m; Power Drift = 0.045 dB

Peak SAR (extrapolated) = 0.177 W/kg

SAR(1 g) = 0.144 mW/g; SAR(10 g) = 0.110 mW/g

Maximum value of SAR (measured) = 0.150 mW/g

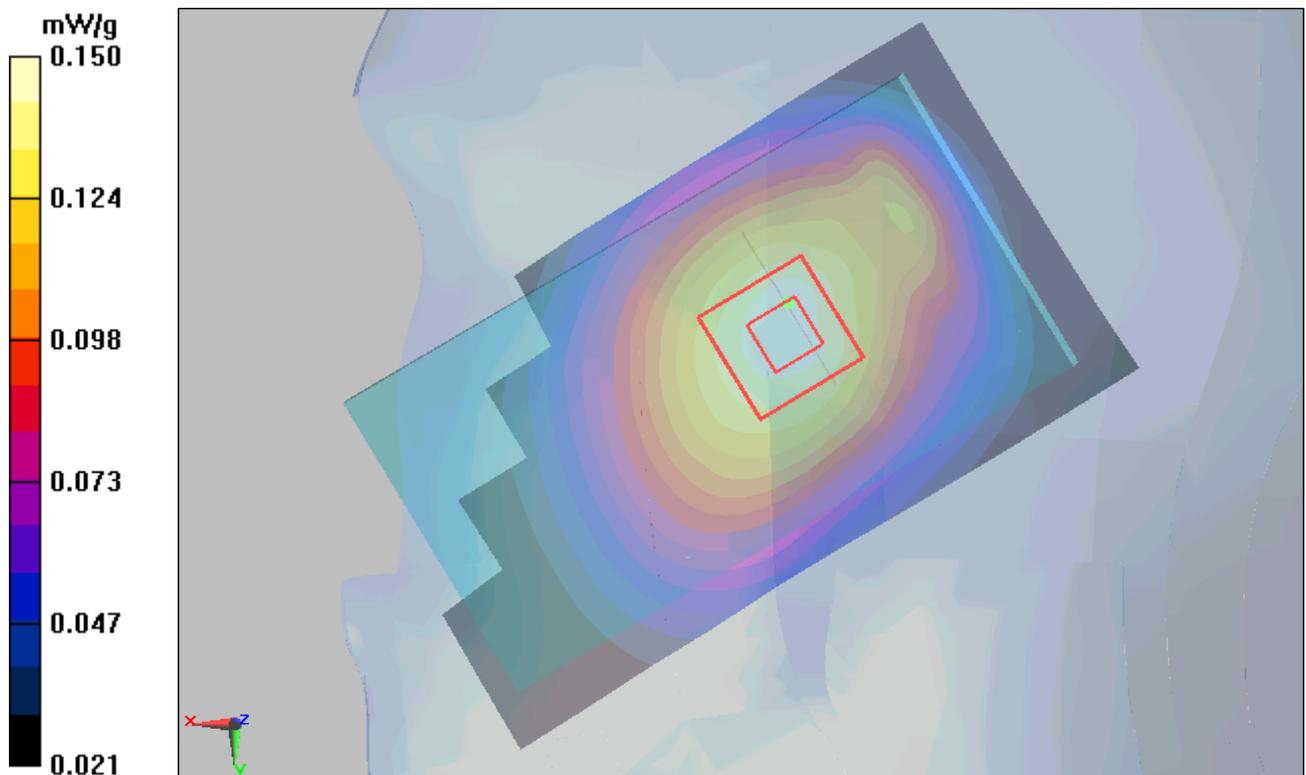


Figure 34 Right Hand Tilt 15° WCDMA Band V Channel 4183

WCDMA Band V Right Cheek Middle (Battery 2)

Date/Time: 7/27/2012 1:12:07 PM

Communication System: WCDMA ; Frequency: 836.6 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 837$ MHz; $\sigma = 0.896$ mho/m; $\epsilon_r = 42$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5°C

Phantom section: Right Section

DASY5 Configuration:

Probe: ES3DV3 - SN3189; ConvF(5.81, 5.81, 5.81); Calibrated: 6/22/2012

Electronics: DAE4 Sn1317; Calibrated: 1/23/2012

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

Cheek Middle/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.209 mW/g

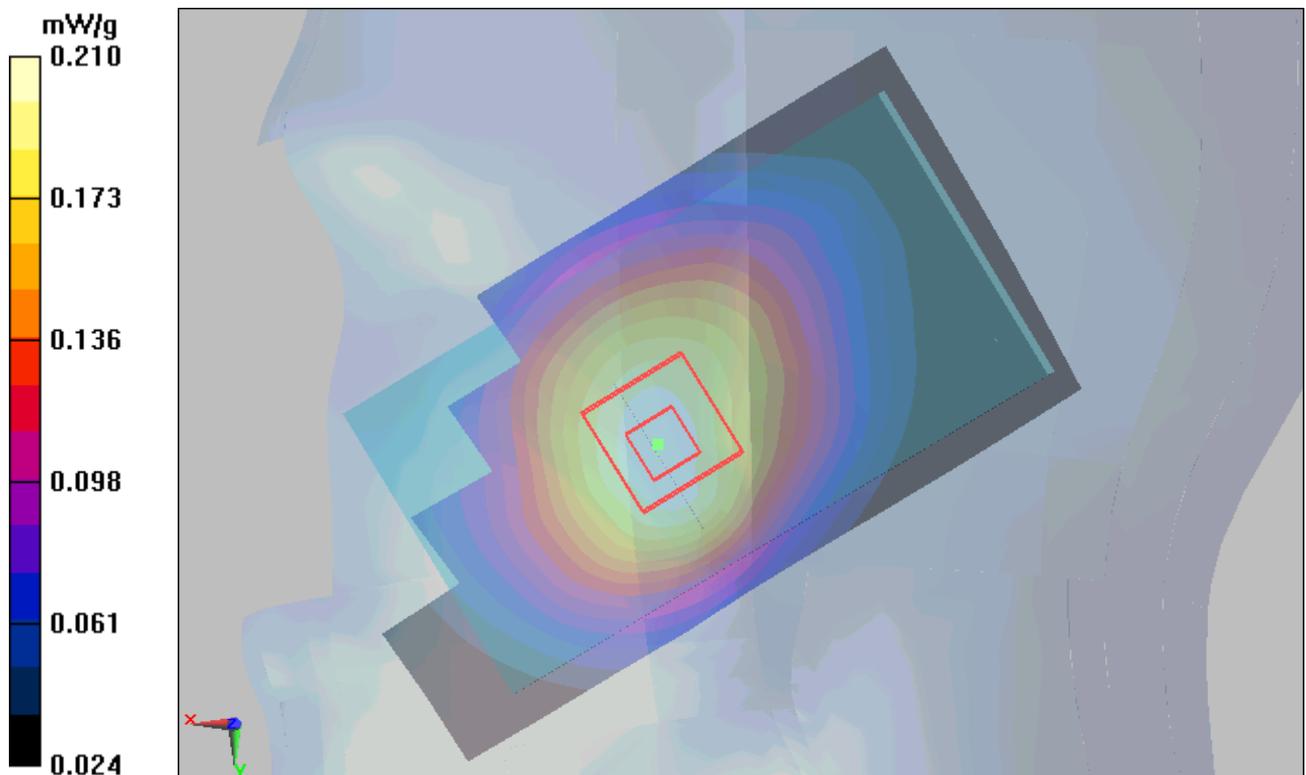
Cheek Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 5.5 V/m; Power Drift = 0.088 dB

Peak SAR (extrapolated) = 0.243 W/kg

SAR(1 g) = 0.201 mW/g; SAR(10 g) = 0.156 mW/g

Maximum value of SAR (measured) = 0.210 mW/g



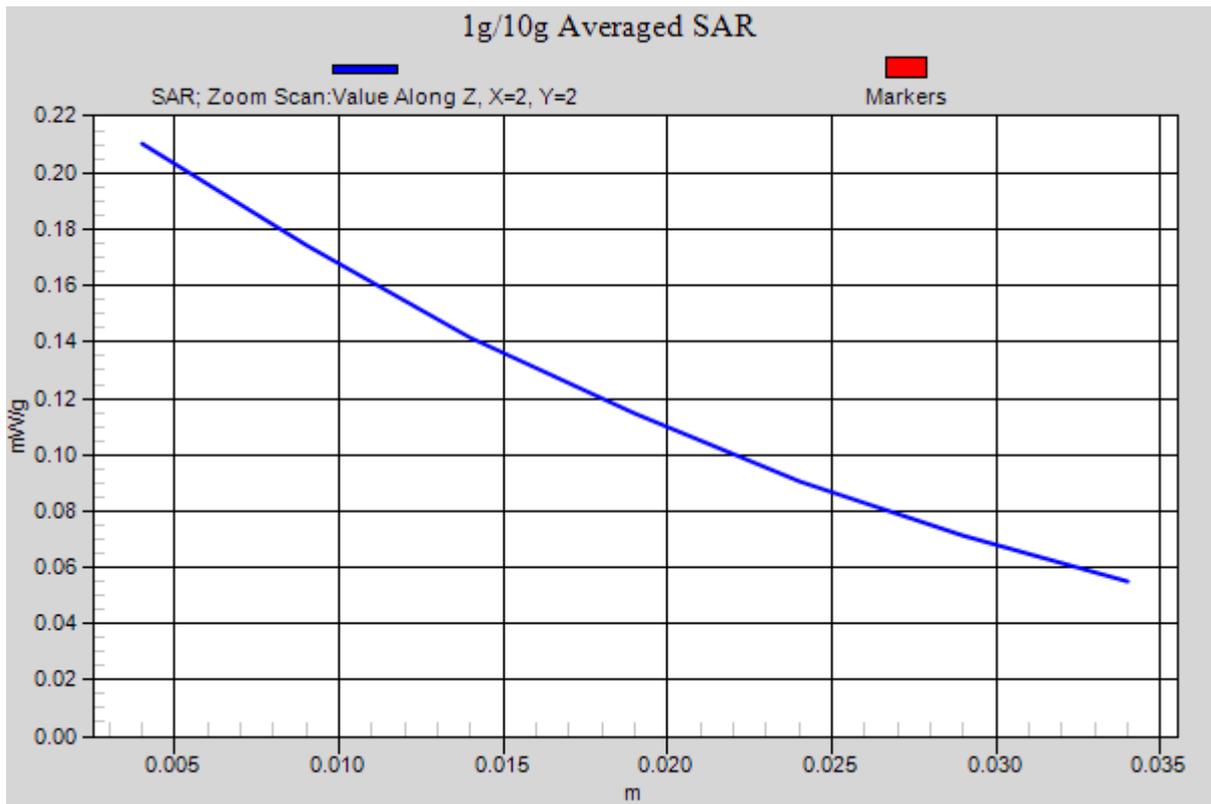


Figure 35 Right Hand Touch Cheek WCDMA Band V Channel 4183

WCDMA Band V Right Cheek Middle (Battery 3)

Date/Time: 7/27/2012 2:13:18 PM

Communication System: WCDMA ; Frequency: 836.6 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 837$ MHz; $\sigma = 0.896$ mho/m; $\epsilon_r = 42$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5°C

Phantom section: Right Section

DASY5 Configuration:

Probe: ES3DV3 - SN3189; ConvF(5.81, 5.81, 5.81); Calibrated: 6/22/2012

Electronics: DAE4 Sn1317; Calibrated: 1/23/2012

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

Cheek Middle/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.203 mW/g

Cheek Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 5.23 V/m; Power Drift = 0.134 dB

Peak SAR (extrapolated) = 0.230 W/kg

SAR(1 g) = 0.191 mW/g; SAR(10 g) = 0.149 mW/g

Maximum value of SAR (measured) = 0.200 mW/g

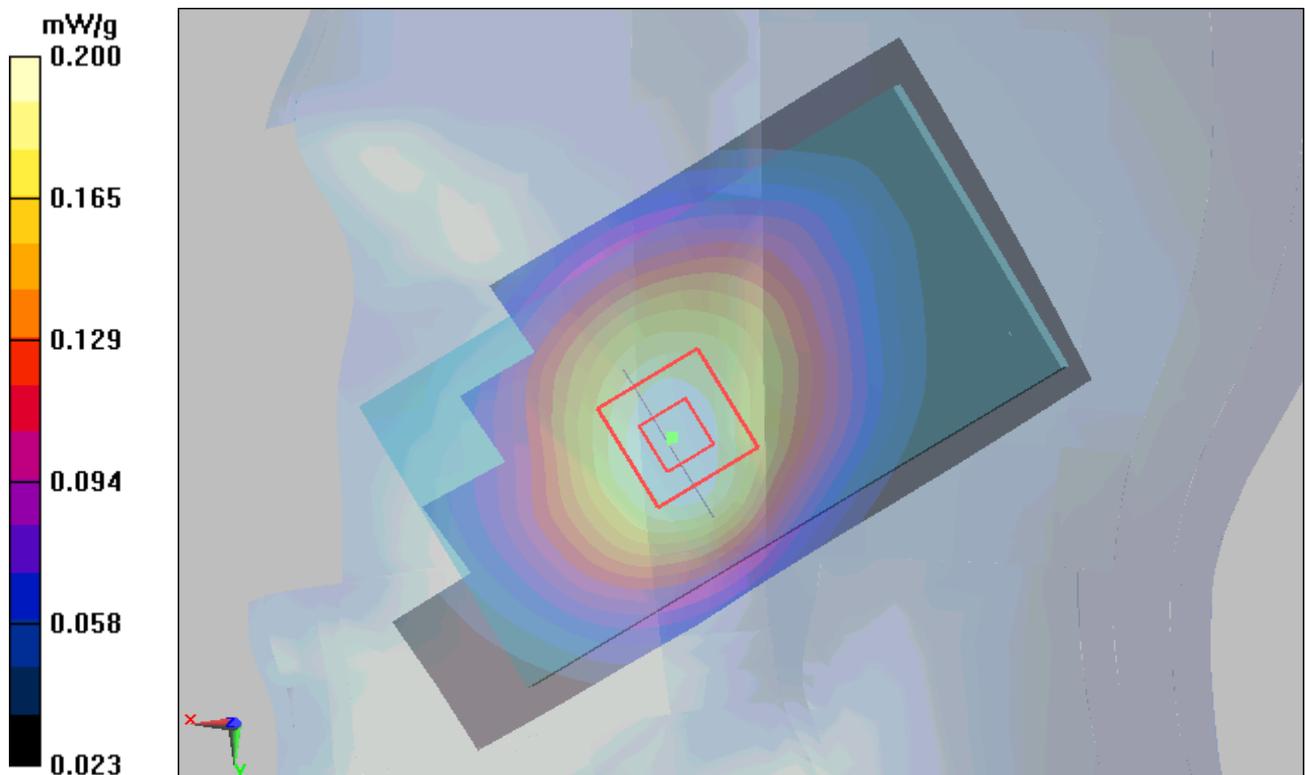


Figure 36 Right Hand Touch Cheek WCDMA Band V Channel 4183

WCDMA Band V Right Cheek Middle (Battery 4)

Date/Time: 7/27/2012 1:56:12 PM

Communication System: WCDMA ; Frequency: 836.6 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 837$ MHz; $\sigma = 0.896$ mho/m; $\epsilon_r = 42$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5°C

Phantom section: Right Section

DASY5 Configuration:

Probe: ES3DV3 - SN3189; ConvF(5.81, 5.81, 5.81); Calibrated: 6/22/2012

Electronics: DAE4 Sn1317; Calibrated: 1/23/2012

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

Cheek Middle/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.189 mW/g

Cheek Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 5.51 V/m; Power Drift = -0.091 dB

Peak SAR (extrapolated) = 0.214 W/kg

SAR(1 g) = 0.180 mW/g; SAR(10 g) = 0.140 mW/g

Maximum value of SAR (measured) = 0.188 mW/g

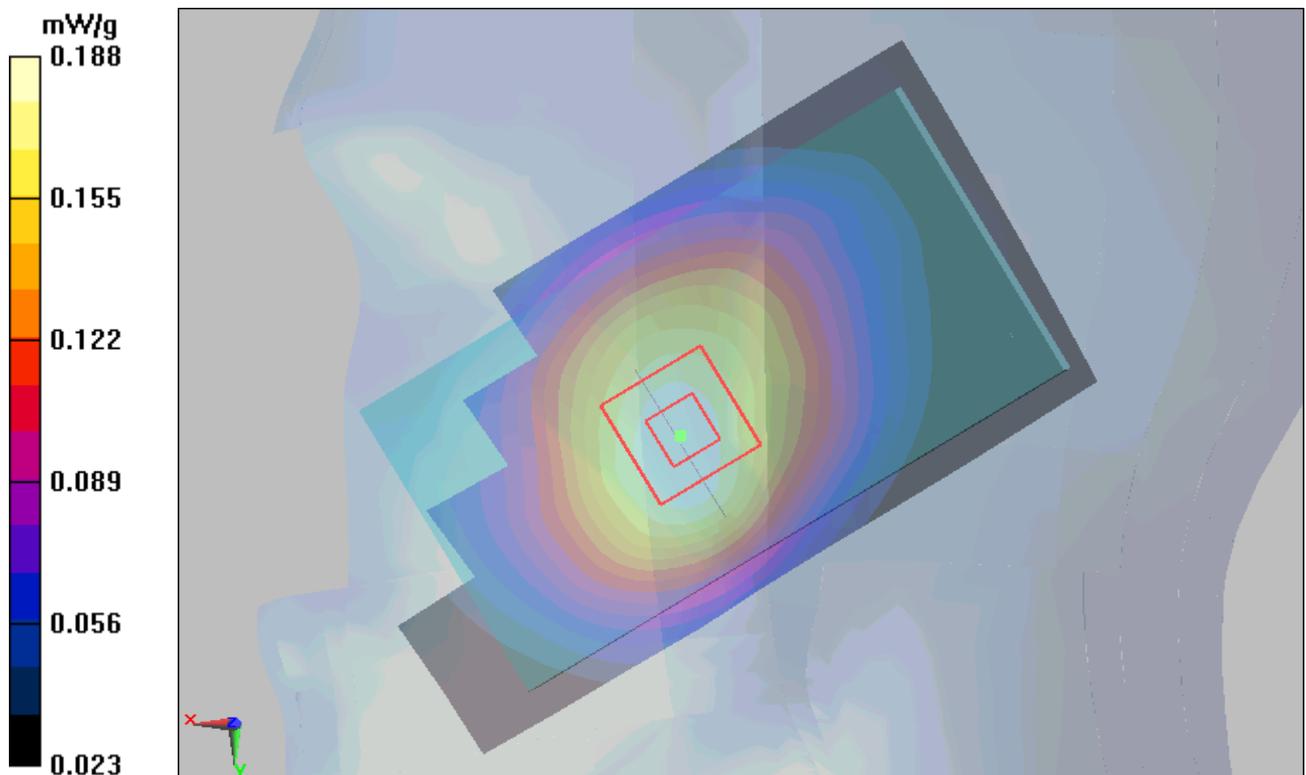


Figure 37 Right Hand Touch Cheek WCDMA Band V Channel 4183

TA Technology (Shanghai) Co., Ltd. Test Report

Report No.: RHA1207-0058SAR01

Page 81 of 146

WCDMA Band V Back Side Middle (Battery 1, 10mm)

Date/Time: 7/28/2012 3:52:28 AM

Communication System: WCDMA ; Frequency: 836.6 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 837$ MHz; $\sigma = 0.971$ mho/m; $\epsilon_r = 54.5$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5°C

Phantom section: Flat Section

DASY5 Configuration:

Probe: ES3DV3 - SN3189; ConvF(5.81, 5.81, 5.81); Calibrated: 6/22/2012

Electronics: DAE4 Sn1317; Calibrated: 1/23/2012

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

Back Side Middle/Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.743 mW/g

Back Side Middle/Zoom Scan (5x5x7)/Cube 1: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 27.7 V/m; Power Drift = -0.069 dB

Peak SAR (extrapolated) = 0.912 W/kg

SAR(1 g) = 0.609 mW/g; SAR(10 g) = 0.425 mW/g

Maximum value of SAR (measured) = 0.704 mW/g

Back Side Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 27.7 V/m; Power Drift = -0.069 dB

Peak SAR (extrapolated) = 0.921 W/kg

SAR(1 g) = 0.701 mW/g; SAR(10 g) = 0.509 mW/g

Maximum value of SAR (measured) = 0.737 mW/g

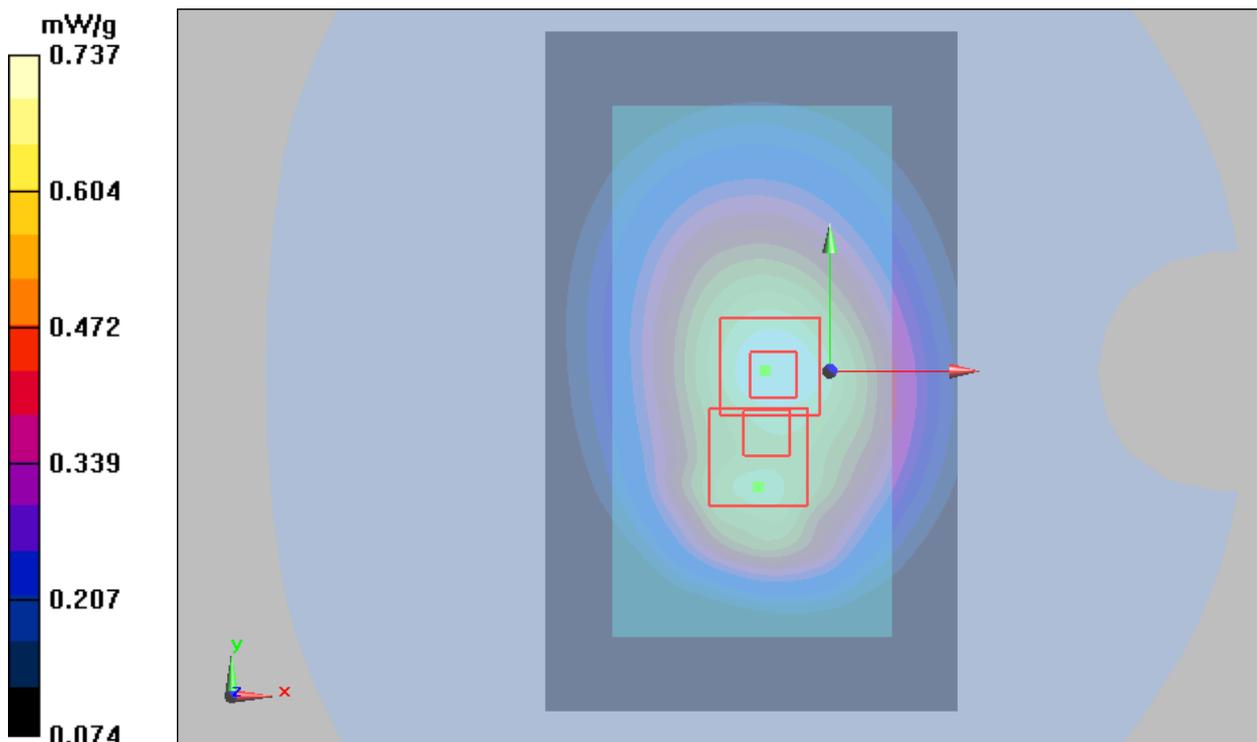


Figure 38 Body, Back Side, WCDMA Band V Channel 4183

WCDMA Band V Front Side Middle (Battery 1, 10mm)

Date/Time: 7/28/2012 4:17:56 AM

Communication System: WCDMA ; Frequency: 836.6 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 837$ MHz; $\sigma = 0.971$ mho/m; $\epsilon_r = 54.5$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5°C

Phantom section: Flat Section

DASY5 Configuration:

Probe: ES3DV3 - SN3189; ConvF(5.81, 5.81, 5.81); Calibrated: 6/22/2012

Electronics: DAE4 Sn1317; Calibrated: 1/23/2012

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

Front Side Middle/Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.215 mW/g

Front Side Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 14.8 V/m; Power Drift = -0.048 dB

Peak SAR (extrapolated) = 0.256 W/kg

SAR(1 g) = 0.202 mW/g; SAR(10 g) = 0.153 mW/g

Maximum value of SAR (measured) = 0.211 mW/g

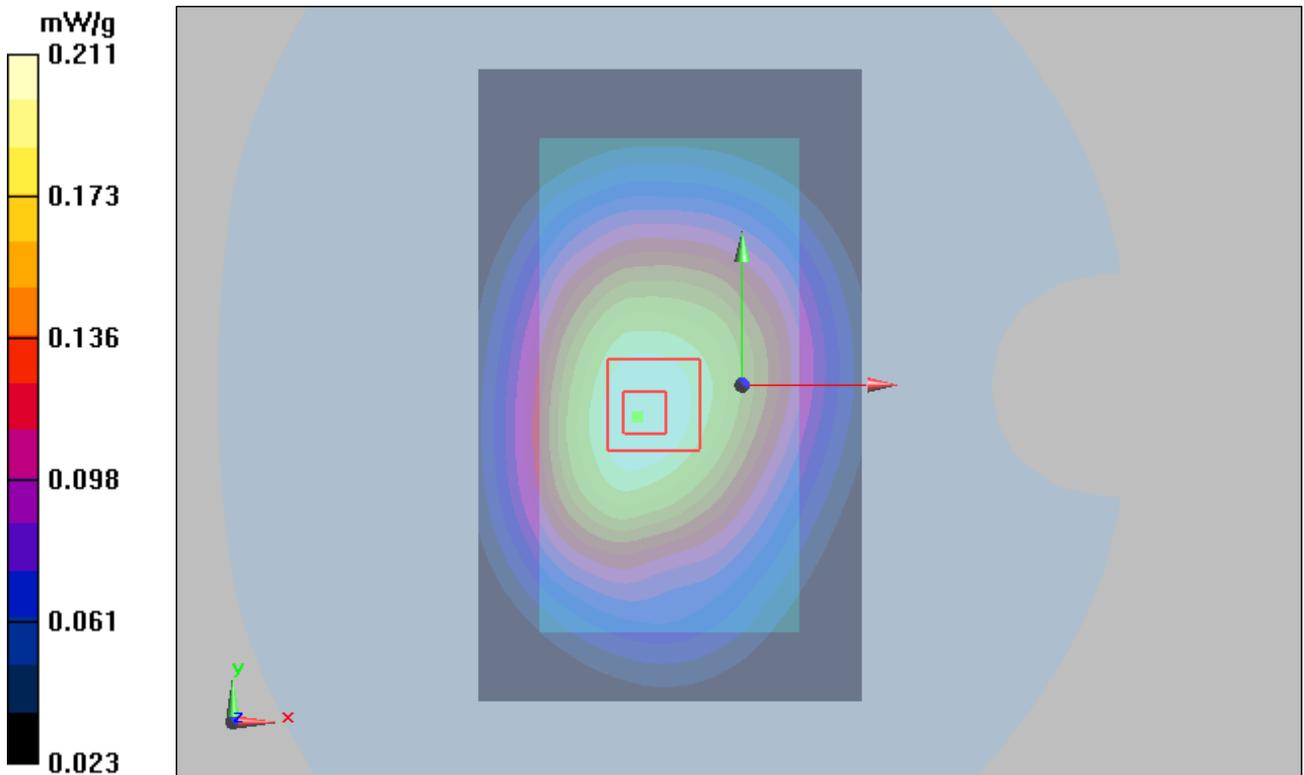


Figure 39 Body, Front Side, WCDMA Band V Channel 4183

WCDMA Band V Left Edge Middle (Battery 1, 10mm)

Date/Time: 7/28/2012 7:30:13 AM

Communication System: WCDMA ; Frequency: 836.6 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 837$ MHz; $\sigma = 0.971$ mho/m; $\epsilon_r = 54.5$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5°C

Phantom section: Flat Section

DASY5 Configuration:

Probe: ES3DV3 - SN3189; ConvF(5.81, 5.81, 5.81); Calibrated: 6/22/2012

Electronics: DAE4 Sn1317; Calibrated: 1/23/2012

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

Left Edge Middle/Area Scan (31x101x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.181 mW/g

Left Edge Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 13.8 V/m; Power Drift = -0.038 dB

Peak SAR (extrapolated) = 0.241 W/kg

SAR(1 g) = 0.170 mW/g; SAR(10 g) = 0.116 mW/g

Maximum value of SAR (measured) = 0.181 mW/g

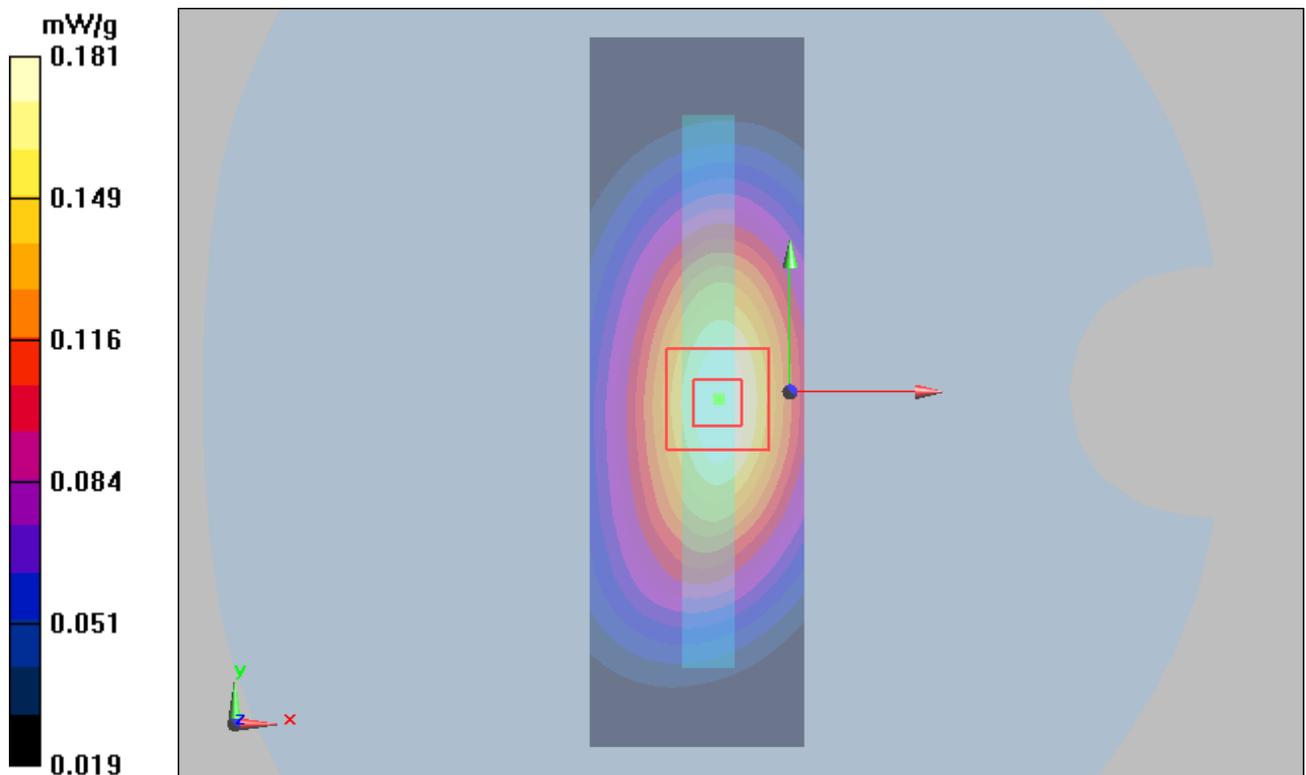


Figure 40 Body, Left Edge, WCDMA Band V Channel 4183

WCDMA Band V Right Edge Middle (Battery 1, 10mm)

Date/Time: 7/28/2012 7:44:26 AM

Communication System: WCDMA ; Frequency: 836.6 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 837$ MHz; $\sigma = 0.971$ mho/m; $\epsilon_r = 54.5$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5°C

Phantom section: Flat Section

DASY5 Configuration:

Probe: ES3DV3 - SN3189; ConvF(5.81, 5.81, 5.81); Calibrated: 6/22/2012

Electronics: DAE4 Sn1317; Calibrated: 1/23/2012

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

Right Edge Middle/Area Scan (31x101x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.250 mW/g

Right Edge Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 16.3 V/m; Power Drift = 0.037 dB

Peak SAR (extrapolated) = 0.330 W/kg

SAR(1 g) = 0.238 mW/g; SAR(10 g) = 0.165 mW/g

Maximum value of SAR (measured) = 0.254 mW/g

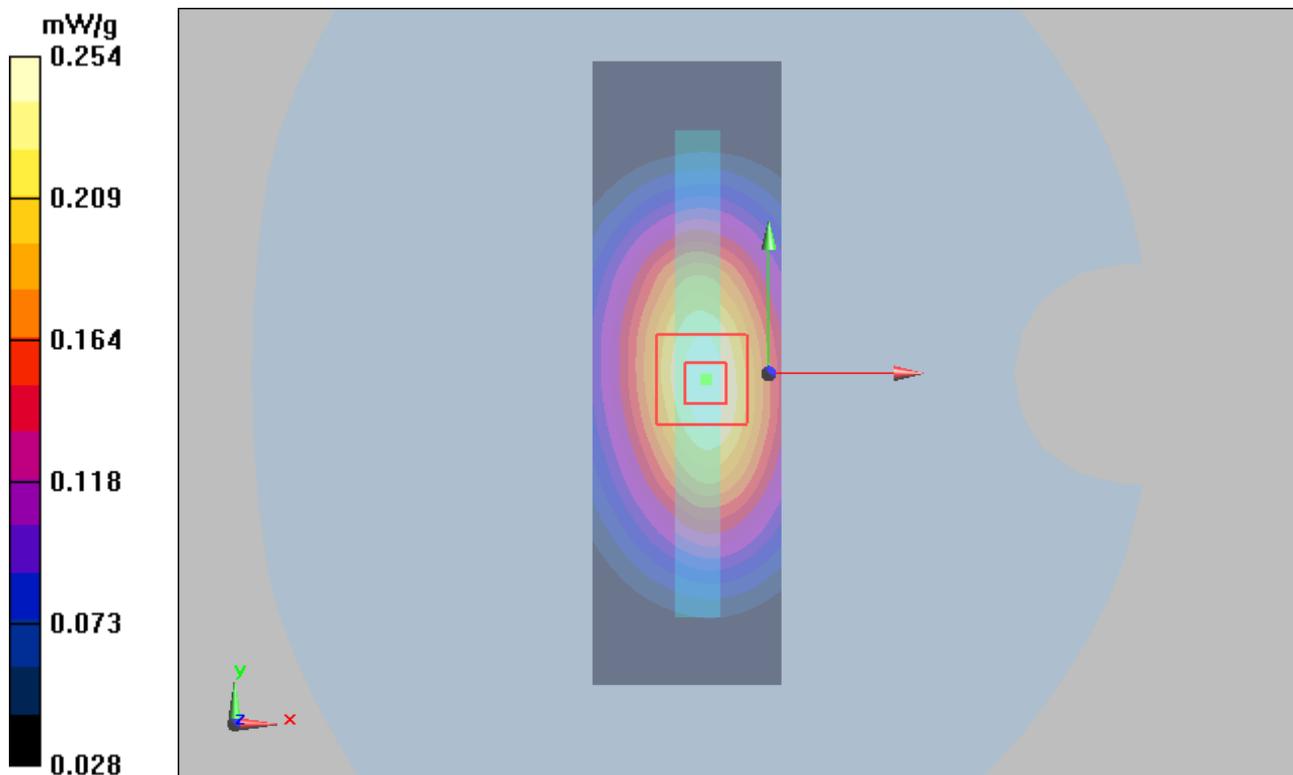


Figure 41 Body, Right Edge, WCDMA Band V Channel 4183

WCDMA Band V Bottom Edge Middle (Battery 1, 10mm)

Date/Time: 7/28/2012 7:59:19 AM

Communication System: WCDMA ; Frequency: 836.6 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 837$ MHz; $\sigma = 0.971$ mho/m; $\epsilon_r = 54.5$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5°C

Phantom section: Flat Section

DASY5 Configuration:

Probe: ES3DV3 - SN3189; ConvF(5.81, 5.81, 5.81); Calibrated: 6/22/2012

Electronics: DAE4 Sn1317; Calibrated: 1/23/2012

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

Bottom Edge Middle/Area Scan (31x61x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.064 mW/g

Bottom Edge Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 6.42 V/m; Power Drift = 0.069 dB

Peak SAR (extrapolated) = 0.092 W/kg

SAR(1 g) = 0.058 mW/g; SAR(10 g) = 0.035 mW/g

Maximum value of SAR (measured) = 0.063 mW/g

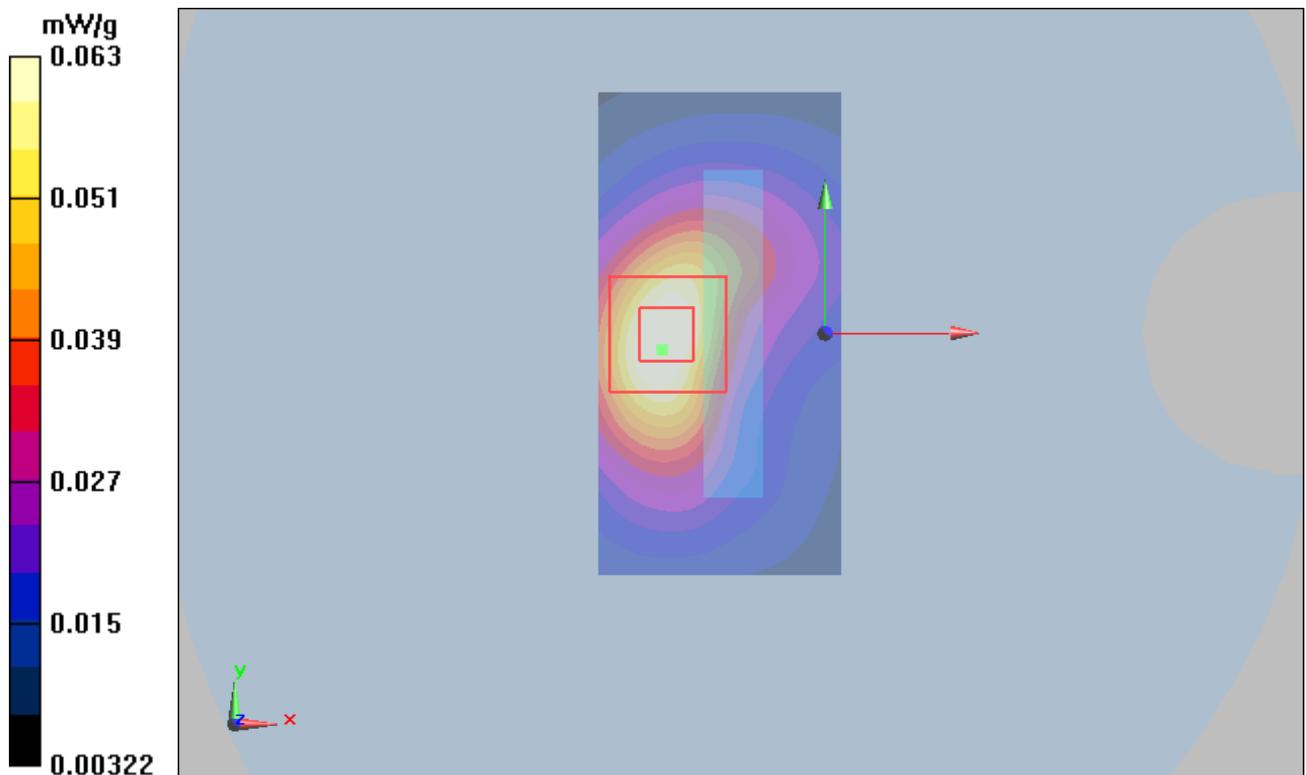


Figure 42 Body, Bottom Edge, WCDMA Band V Channel 4183

TA Technology (Shanghai) Co., Ltd.

Test Report

Report No.: RHA1207-0058SAR01

Page 86 of 146

WCDMA Band V with Earphone Back Side Middle (Battery 1, 10mm)

Date/Time: 8/3/2012 9:46:21 AM

Communication System: WCDMA ; Frequency: 836.6 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 837$ MHz; $\sigma = 0.971$ mho/m; $\epsilon_r = 54.5$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5°C

Phantom section: Flat Section

DASY5 Configuration:

Probe: ES3DV3 - SN3189; ConvF(5.81, 5.81, 5.81); Calibrated: 6/22/2012

Electronics: DAE4 Sn1317; Calibrated: 1/23/2012

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

Back Side Middle/Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.670 mW/g

Back Side Middle/Zoom Scan (5x5x7)/Cube 1: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 25 V/m; Power Drift = 0.109 dB

Peak SAR (extrapolated) = 0.549 W/kg

SAR(1 g) = 0.415 mW/g; SAR(10 g) = 0.298 mW/g

Maximum value of SAR (measured) = 0.436 mW/g

Back Side Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 25 V/m; Power Drift = 0.109 dB

Peak SAR (extrapolated) = 0.959 W/kg

SAR(1 g) = 0.544 mW/g; SAR(10 g) = 0.307 mW/g

Maximum value of SAR (measured) = 0.601 mW/g

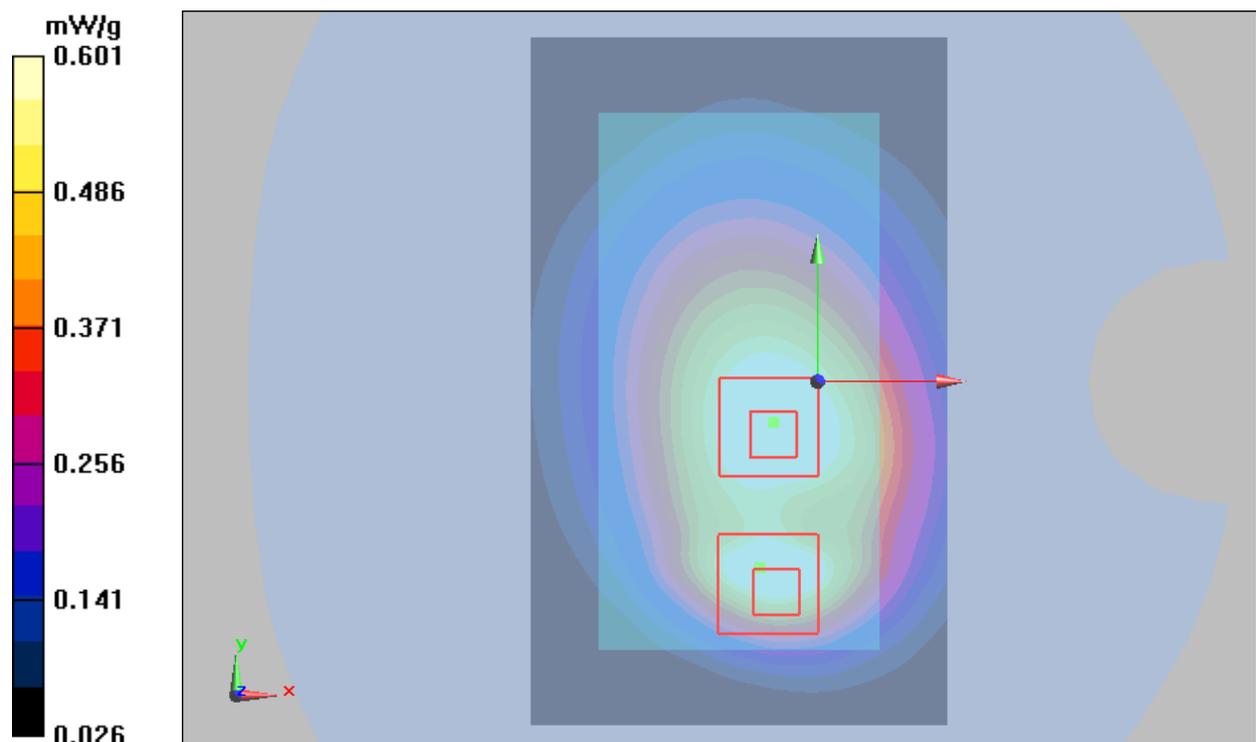


Figure 43 Body with Earphone, Back Side, WCDMA Band V Channel 4183

TA Technology (Shanghai) Co., Ltd. Test Report

Report No.: RHA1207-0058SAR01

Page 87 of 146

WCDMA Band V Back Side Middle (Battery 2, 10mm)

Date/Time: 7/28/2012 6:07:48 AM

Communication System: WCDMA ; Frequency: 836.6 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 837$ MHz; $\sigma = 0.971$ mho/m; $\epsilon_r = 54.5$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5°C

Phantom section: Flat Section

DASY5 Configuration:

Probe: ES3DV3 - SN3189; ConvF(5.81, 5.81, 5.81); Calibrated: 6/22/2012

Electronics: DAE4 Sn1317; Calibrated: 1/23/2012

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

Back Side Middle/Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.803 mW/g

Back Side Middle/Zoom Scan (5x5x7)/Cube 1: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 29.2 V/m; Power Drift = -0.117 dB

Peak SAR (extrapolated) = 1.05 W/kg

SAR(1 g) = 0.661 mW/g; SAR(10 g) = 0.466 mW/g

Maximum value of SAR (measured) = 0.758 mW/g

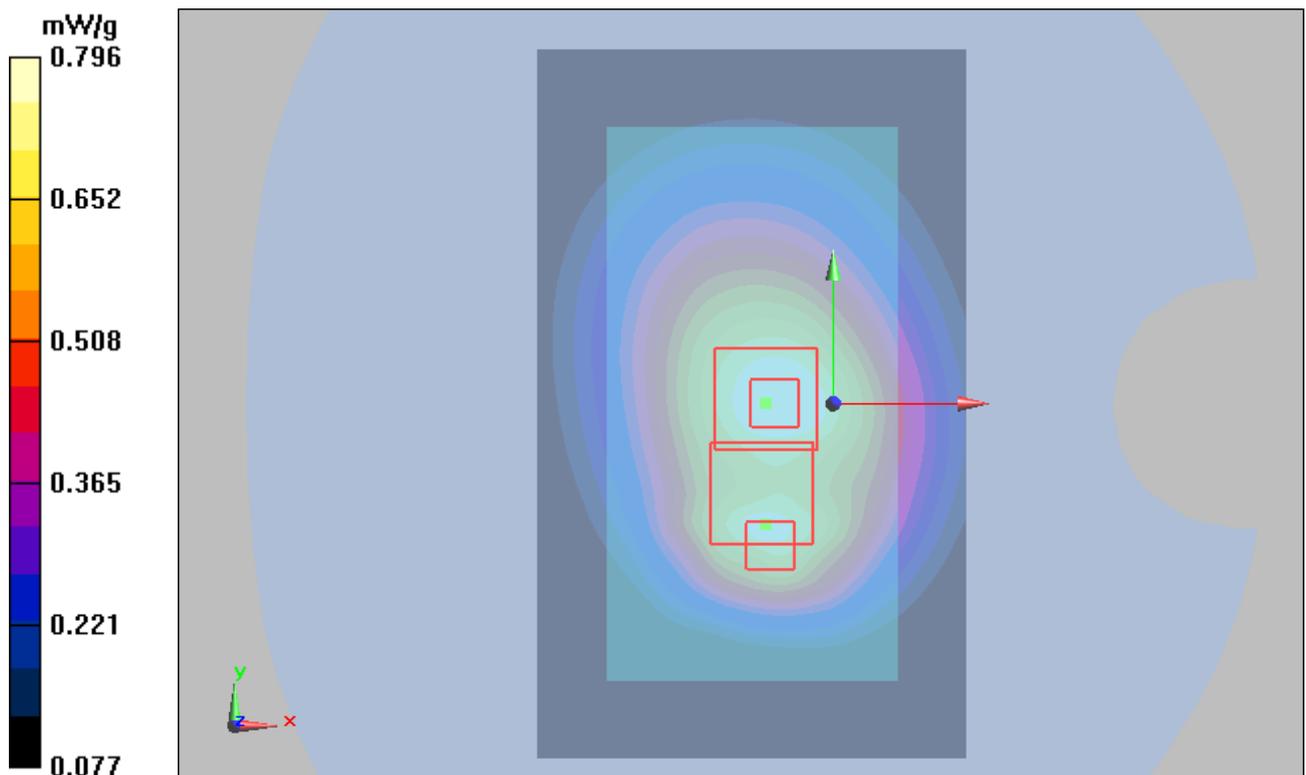
Back Side Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 29.2 V/m; Power Drift = -0.117 dB

Peak SAR (extrapolated) = 0.994 W/kg

SAR(1 g) = 0.758 mW/g; SAR(10 g) = 0.552 mW/g

Maximum value of SAR (measured) = 0.796 mW/g



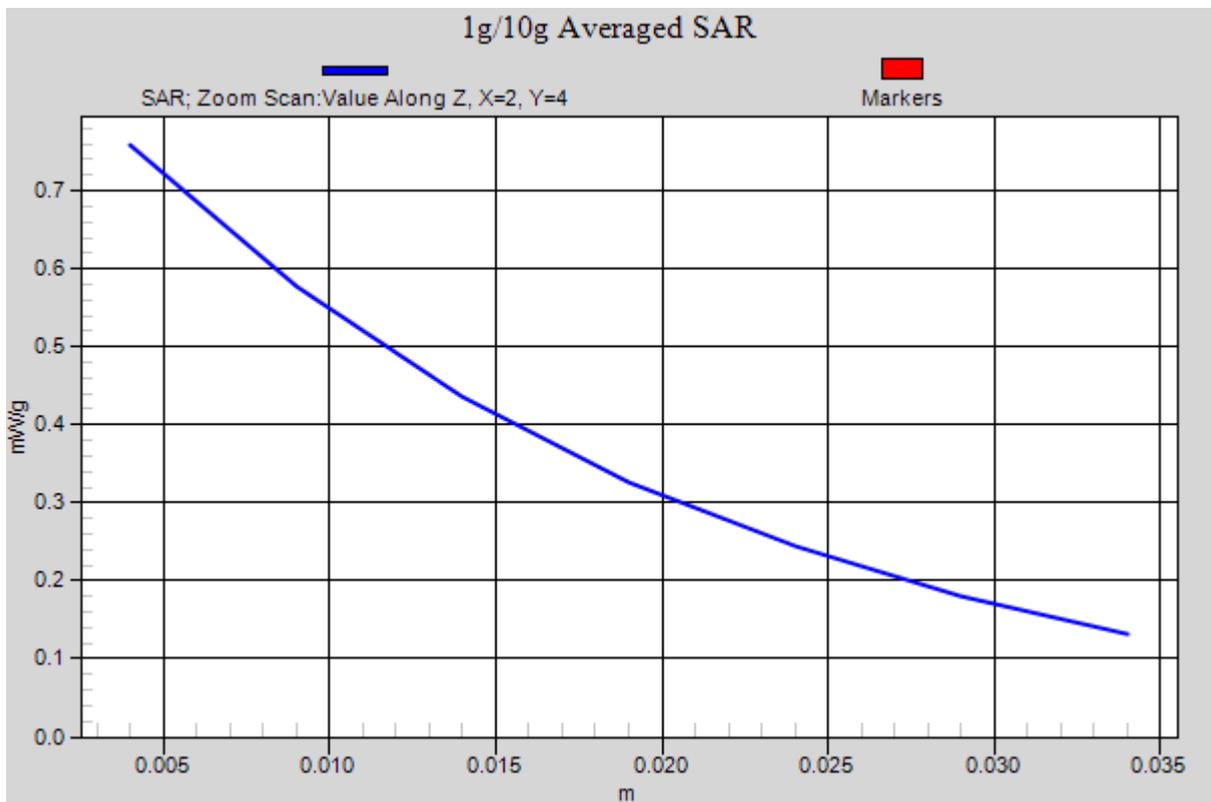
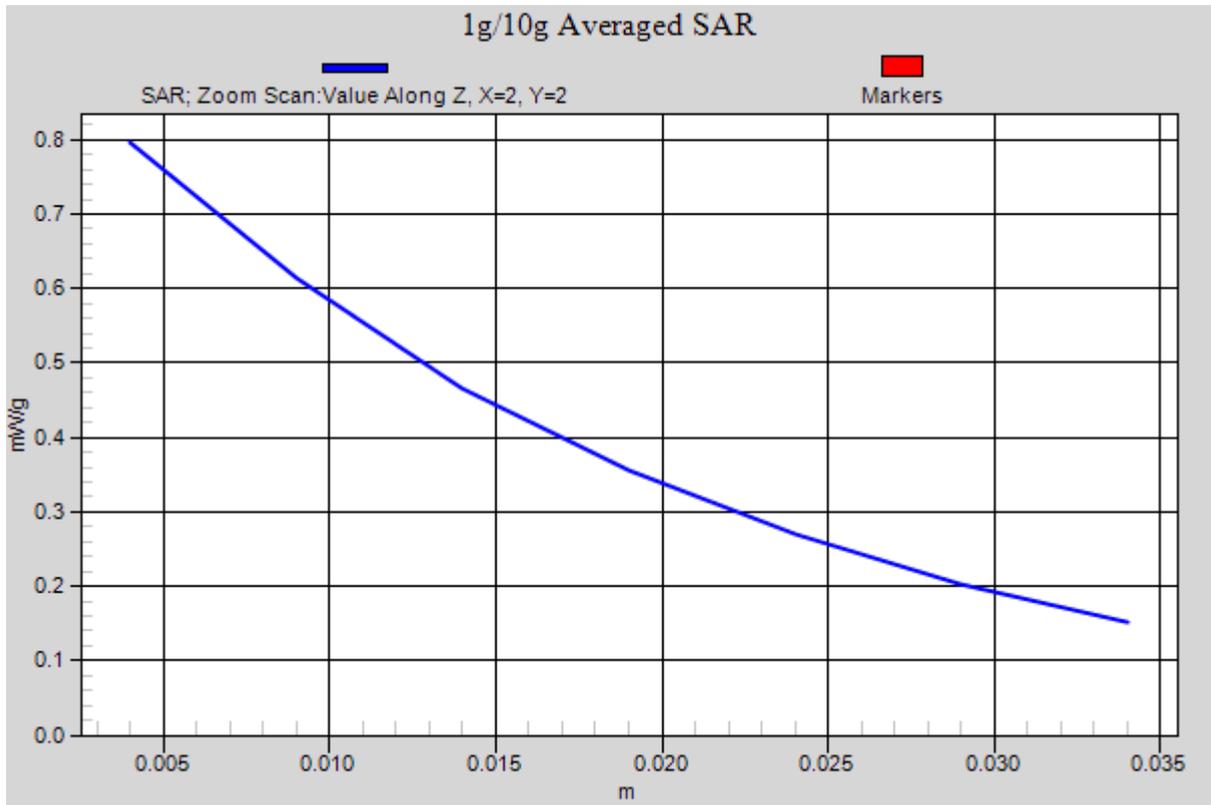


Figure 44 Body, Back Side, WCDMA Band V Channel 4183

TA Technology (Shanghai) Co., Ltd.

Test Report

Report No.: RHA1207-0058SAR01

Page 89 of 146

WCDMA Band V Back Side Middle (Battery 3, 10mm)

Date/Time: 7/28/2012 5:36:04 AM

Communication System: WCDMA ; Frequency: 836.6 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 837$ MHz; $\sigma = 0.971$ mho/m; $\epsilon_r = 54.5$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5 °C

Phantom section: Flat Section

DASY5 Configuration:

Probe: ES3DV3 - SN3189; ConvF(5.81, 5.81, 5.81); Calibrated: 6/22/2012

Electronics: DAE4 Sn1317; Calibrated: 1/23/2012

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

Back Side Middle/Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.765 mW/g

Back Side Middle/Zoom Scan (5x5x7)/Cube 1: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 28.1 V/m; Power Drift = -0.011 dB

Peak SAR (extrapolated) = 0.943 W/kg

SAR(1 g) = 0.602 mW/g; SAR(10 g) = 0.427 mW/g

Maximum value of SAR (measured) = 0.701 mW/g

Back Side Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 28.1 V/m; Power Drift = -0.011 dB

Peak SAR (extrapolated) = 0.944 W/kg

SAR(1 g) = 0.722 mW/g; SAR(10 g) = 0.525 mW/g

Maximum value of SAR (measured) = 0.763 mW/g

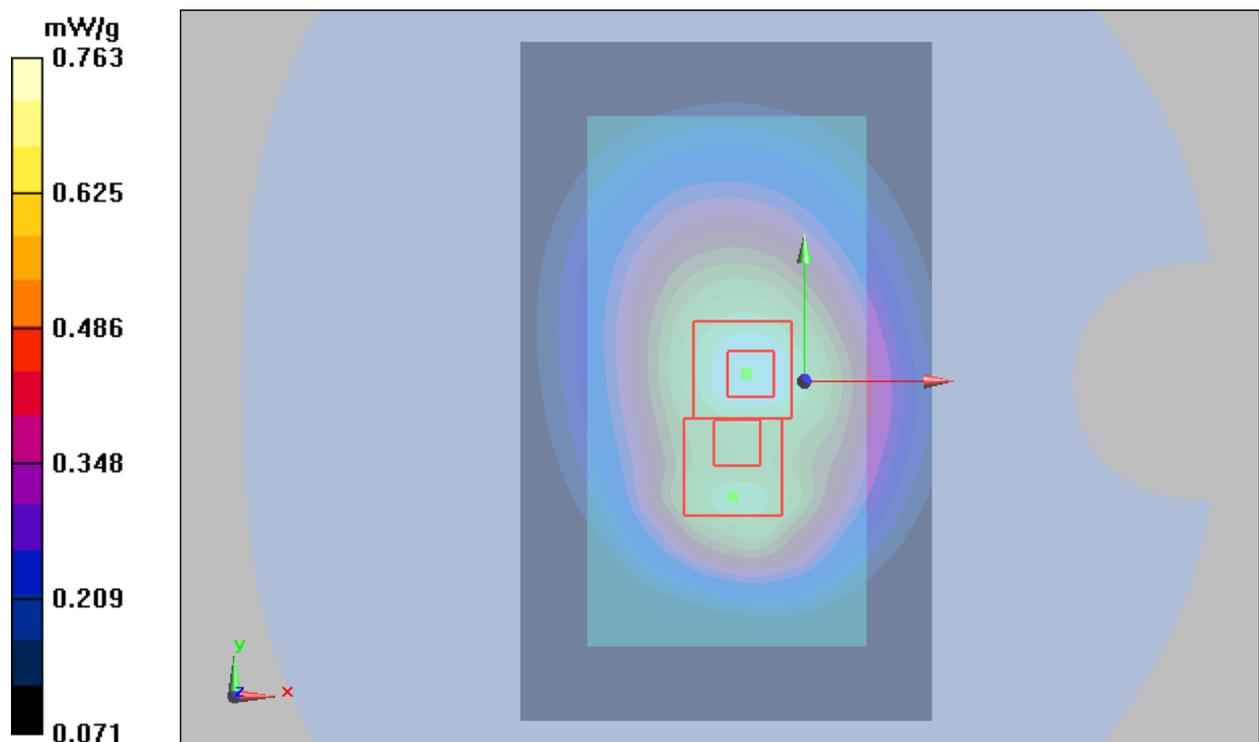


Figure 45 Body, Back Side, WCDMA Band V Channel 4183

TA Technology (Shanghai) Co., Ltd. Test Report

Report No.: RHA1207-0058SAR01

Page 90 of 146

WCDMA Band V Back Side Middle (Battery 4, 10mm)

Date/Time: 7/28/2012 5:06:10 AM

Communication System: WCDMA ; Frequency: 836.6 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 837$ MHz; $\sigma = 0.971$ mho/m; $\epsilon_r = 54.5$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5°C

Phantom section: Flat Section

DASY5 Configuration:

Probe: ES3DV3 - SN3189; ConvF(5.81, 5.81, 5.81); Calibrated: 6/22/2012

Electronics: DAE4 Sn1317; Calibrated: 1/23/2012

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

Back Side Middle/Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.744 mW/g

Back Side Middle/Zoom Scan (5x5x7)/Cube 1: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 27.8 V/m; Power Drift = -0.088 dB

Peak SAR (extrapolated) = 0.930 W/kg

SAR(1 g) = 0.588 mW/g; SAR(10 g) = 0.415 mW/g

Maximum value of SAR (measured) = 0.680 mW/g

Back Side Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 27.8 V/m; Power Drift = -0.088 dB

Peak SAR (extrapolated) = 0.923 W/kg

SAR(1 g) = 0.700 mW/g; SAR(10 g) = 0.510 mW/g

Maximum value of SAR (measured) = 0.737 mW/g

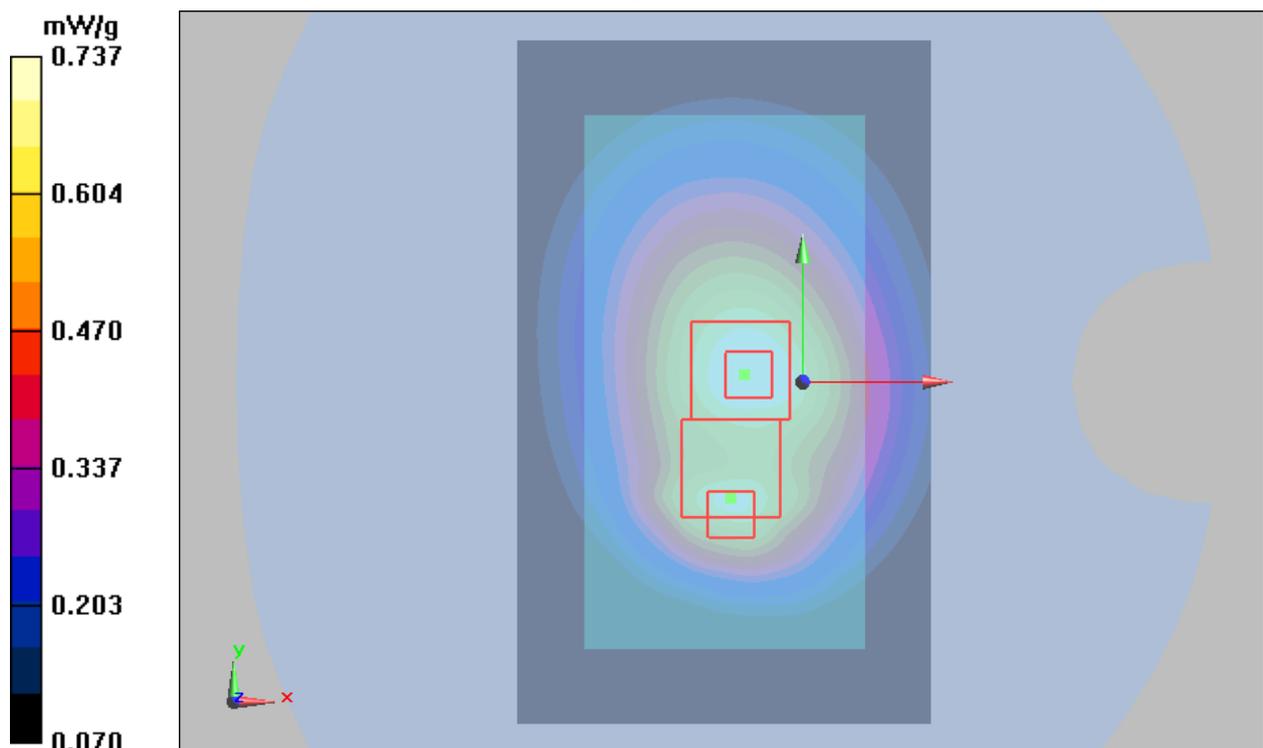


Figure 46 Body, Back Side, WCDMA Band V Channel 4183

802.11b Left Cheek High (Battery 1)

Date/Time: 7/31/2012 10:15:59 PM

Communication System: 802.11b; Frequency: 2462 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 2462$ MHz; $\sigma = 1.89$ mho/m; $\epsilon_r = 38.3$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5°C

Phantom section: Left Section

DASY5 Configuration:

Probe: ES3DV3 - SN3189; ConvF(4.14, 4.14, 4.14); Calibrated: 6/22/2012

Electronics: DAE4 Sn1317; Calibrated: 1/23/2012

Phantom: SAM2; Type: SAM; Serial: TP-1524

Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

Cheek High/Area Scan (61x111x1): Measurement grid: dx=12mm, dy=12mm

Maximum value of SAR (interpolated) = 0.156 mW/g

Cheek High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 7.77 V/m; Power Drift = -0.043 dB

Peak SAR (extrapolated) = 0.245 W/kg

SAR(1 g) = 0.138 mW/g; SAR(10 g) = 0.076 mW/g

Maximum value of SAR (measured) = 0.150 mW/g

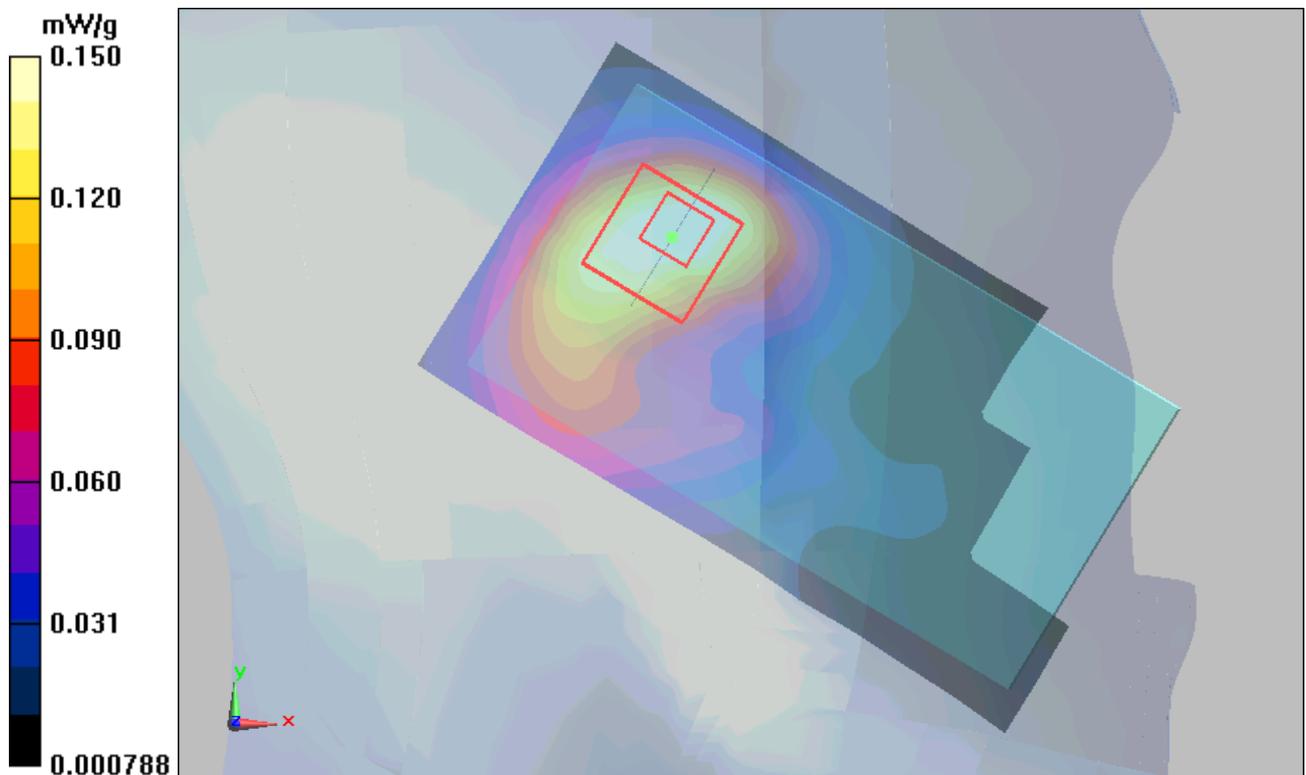


Figure 47 Left Hand Touch Cheek 802.11b Channel 11

802.11b Left Tilt High (Battery 1)

Date/Time: 7/31/2012 10:38:00 PM

Communication System: 802.11b; Frequency: 2462 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 2462$ MHz; $\sigma = 1.89$ mho/m; $\epsilon_r = 38.3$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5°C

Phantom section: Left Section

DASY5 Configuration:

Probe: ES3DV3 - SN3189; ConvF(4.14, 4.14, 4.14); Calibrated: 6/22/2012

Electronics: DAE4 Sn1317; Calibrated: 1/23/2012

Phantom: SAM2; Type: SAM; Serial: TP-1524

Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

Tilt High/Area Scan (61x111x1): Measurement grid: dx=12mm, dy=12mm

Maximum value of SAR (interpolated) = 0.135 mW/g

Tilt High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 7.34 V/m; Power Drift = 0.152 dB

Peak SAR (extrapolated) = 0.237 W/kg

SAR(1 g) = 0.123 mW/g; SAR(10 g) = 0.063 mW/g

Maximum value of SAR (measured) = 0.135 mW/g

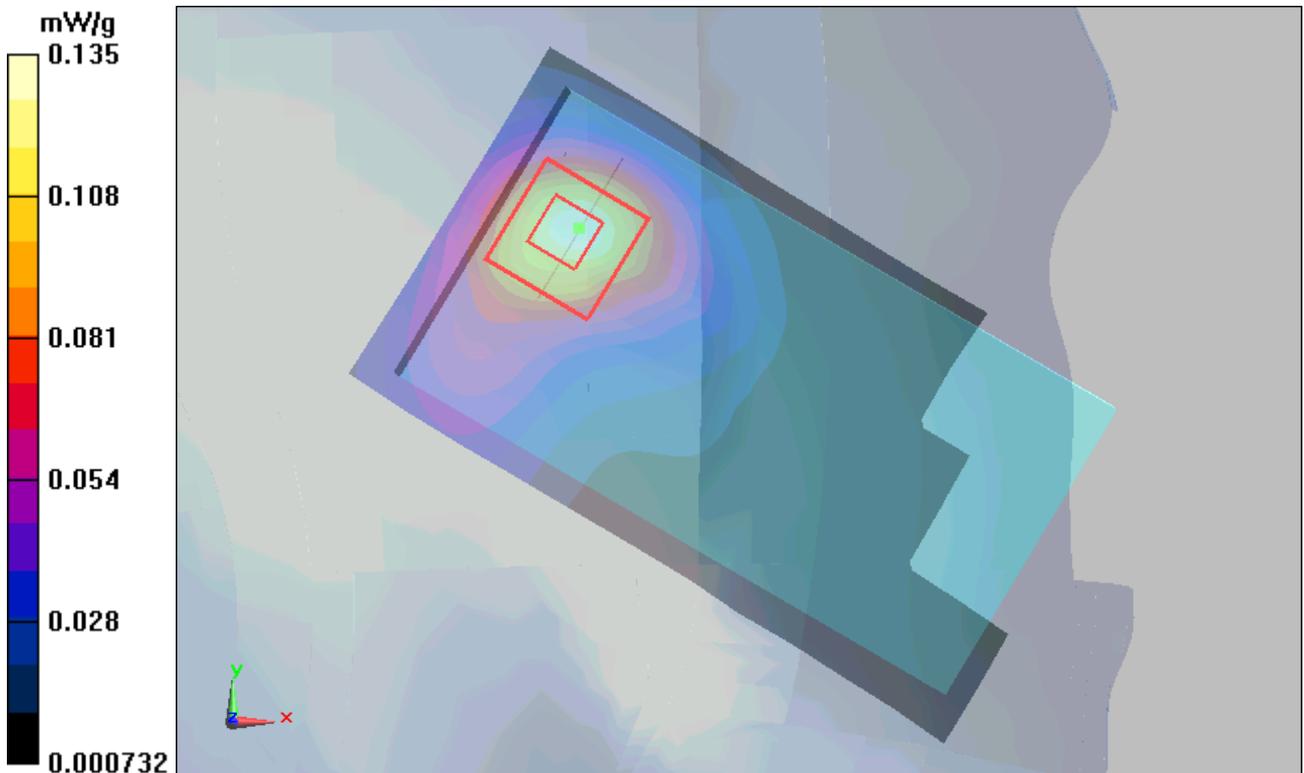


Figure 48 Left Hand Tilt 15° 802.11b Channel 11

802.11b Right Cheek High (Battery 1)

Date/Time: 7/31/2012 11:02:25 PM

Communication System: 802.11b; Frequency: 2462 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 2462 \text{ MHz}$; $\sigma = 1.89 \text{ mho/m}$; $\epsilon_r = 38.3$; $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature: $22.3 \text{ }^\circ\text{C}$ Liquid Temperature: 21.5°C

Phantom section: Right Section

DASY5 Configuration:

Probe: ES3DV3 - SN3189; ConvF(4.14, 4.14, 4.14); Calibrated: 6/22/2012

Electronics: DAE4 Sn1317; Calibrated: 1/23/2012

Phantom: SAM2; Type: SAM; Serial: TP-1524

Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

Cheek High/Area Scan (61x111x1): Measurement grid: $dx=12\text{mm}$, $dy=12\text{mm}$

Maximum value of SAR (interpolated) = 0.216 mW/g

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

Reference Value = 7.54 V/m ; Power Drift = -0.086 dB

Peak SAR (extrapolated) = 0.511 W/kg

SAR(1 g) = 0.220 mW/g ; SAR(10 g) = 0.103 mW/g

Maximum value of SAR (measured) = 0.245 mW/g

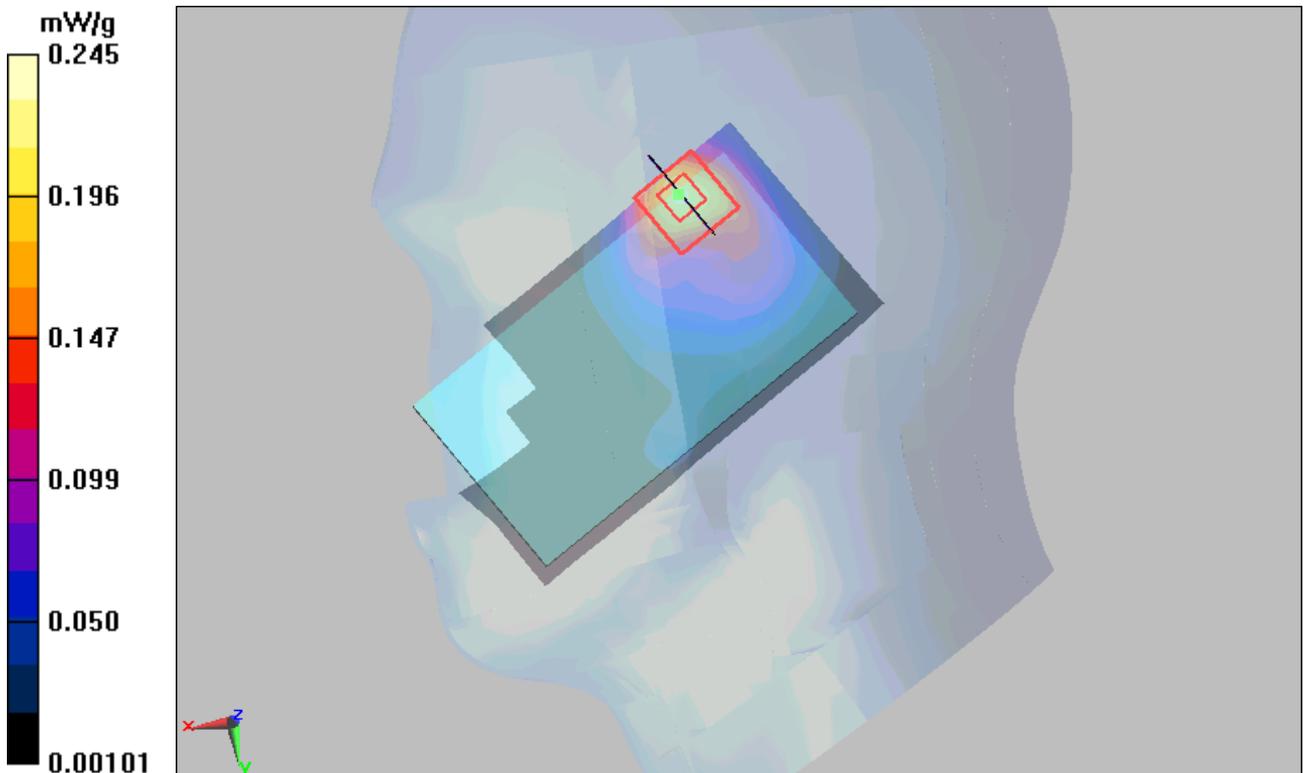


Figure 49 Right Hand Touch Cheek 802.11b Channel 11

802.11b Right Tilt High (Battery 1)

Date/Time: 7/31/2012 11:24:34 PM

Communication System: 802.11b; Frequency: 2462 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 2462$ MHz; $\sigma = 1.89$ mho/m; $\epsilon_r = 38.3$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5°C

Phantom section: Right Section

DASY5 Configuration:

Probe: ES3DV3 - SN3189; ConvF(4.14, 4.14, 4.14); Calibrated: 6/22/2012

Electronics: DAE4 Sn1317; Calibrated: 1/23/2012

Phantom: SAM2; Type: SAM; Serial: TP-1524

Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

Tilt High/Area Scan (61x111x1): Measurement grid: dx=12mm, dy=12mm

Maximum value of SAR (interpolated) = 0.150 mW/g

Tilt High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 7.57 V/m; Power Drift = 0.032 dB

Peak SAR (extrapolated) = 0.321 W/kg

SAR(1 g) = 0.140 mW/g; SAR(10 g) = 0.064 mW/g

Maximum value of SAR (measured) = 0.156 mW/g

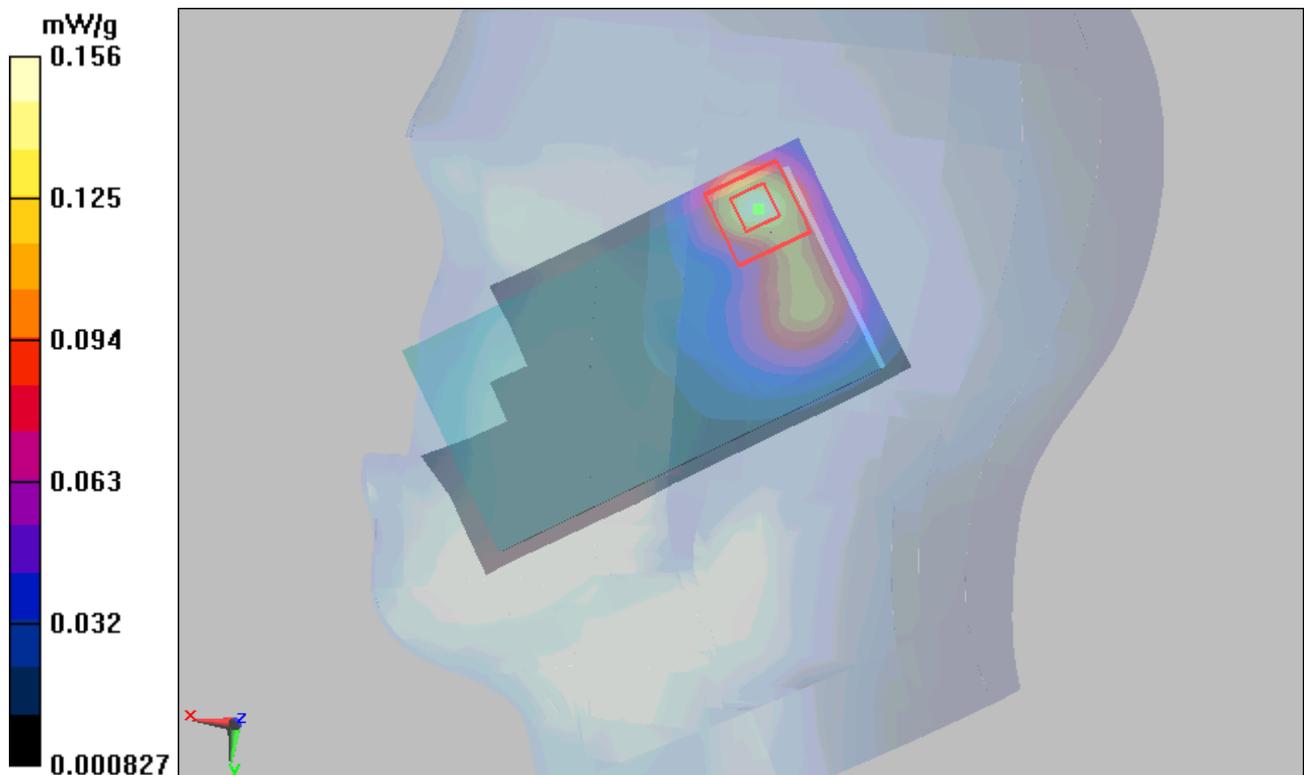


Figure 50 Right Hand Tilt 15° 802.11b Channel 11

802.11b Right Cheek High (Battery 2)

Date/Time: 7/31/2012 11:51:02 PM

Communication System: 802.11b; Frequency: 2462 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 2462$ MHz; $\sigma = 1.89$ mho/m; $\epsilon_r = 38.3$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5°C

Phantom section: Right Section

DASY5 Configuration:

Probe: ES3DV3 - SN3189; ConvF(4.14, 4.14, 4.14); Calibrated: 6/22/2012

Electronics: DAE4 Sn1317; Calibrated: 1/23/2012

Phantom: SAM2; Type: SAM; Serial: TP-1524

Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

Cheek High/Area Scan (61x111x1): Measurement grid: dx=12mm, dy=12mm

Maximum value of SAR (interpolated) = 0.240 mW/g

Cheek High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 7.2 V/m; Power Drift = 0.052 dB

Peak SAR (extrapolated) = 0.529 W/kg

SAR(1 g) = 0.225 mW/g; SAR(10 g) = 0.104 mW/g

Maximum value of SAR (measured) = 0.252 mW/g

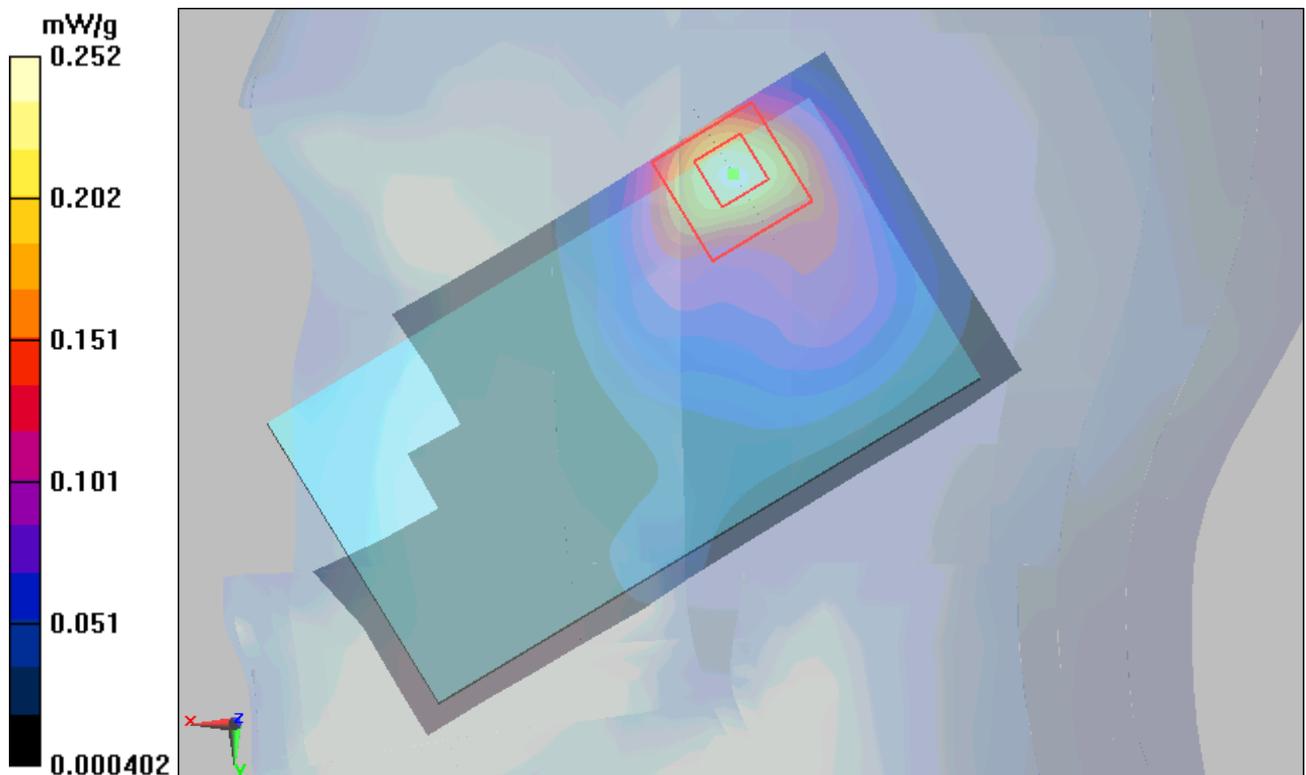


Figure 51 Right Hand Touch Cheek 802.11b Channel 11

802.11b Right Cheek High (Battery 3)

Date/Time: 8/1/2012 1:08:36 AM

Communication System: 802.11b; Frequency: 2462 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 2462$ MHz; $\sigma = 1.89$ mho/m; $\epsilon_r = 38.3$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5°C

Phantom section: Right Section

DASY5 Configuration:

Probe: ES3DV3 - SN3189; ConvF(4.14, 4.14, 4.14); Calibrated: 6/22/2012

Electronics: DAE4 Sn1317; Calibrated: 1/23/2012

Phantom: SAM2; Type: SAM; Serial: TP-1524

Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

Cheek High/Area Scan (61x111x1): Measurement grid: dx=12mm, dy=12mm

Maximum value of SAR (interpolated) = 0.238 mW/g

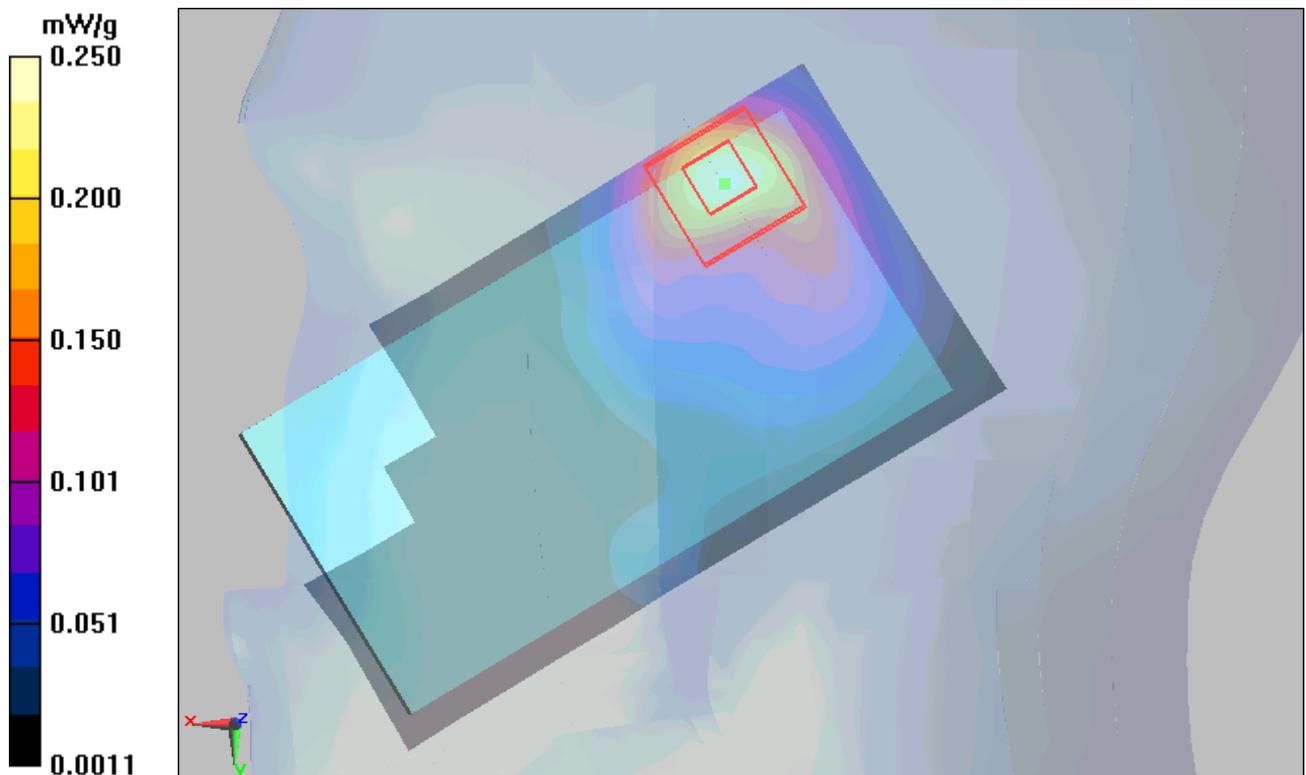
Cheek High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 7.82 V/m; Power Drift = 0.084 dB

Peak SAR (extrapolated) = 0.534 W/kg

SAR(1 g) = 0.228 mW/g; SAR(10 g) = 0.106 mW/g

Maximum value of SAR (measured) = 0.250 mW/g



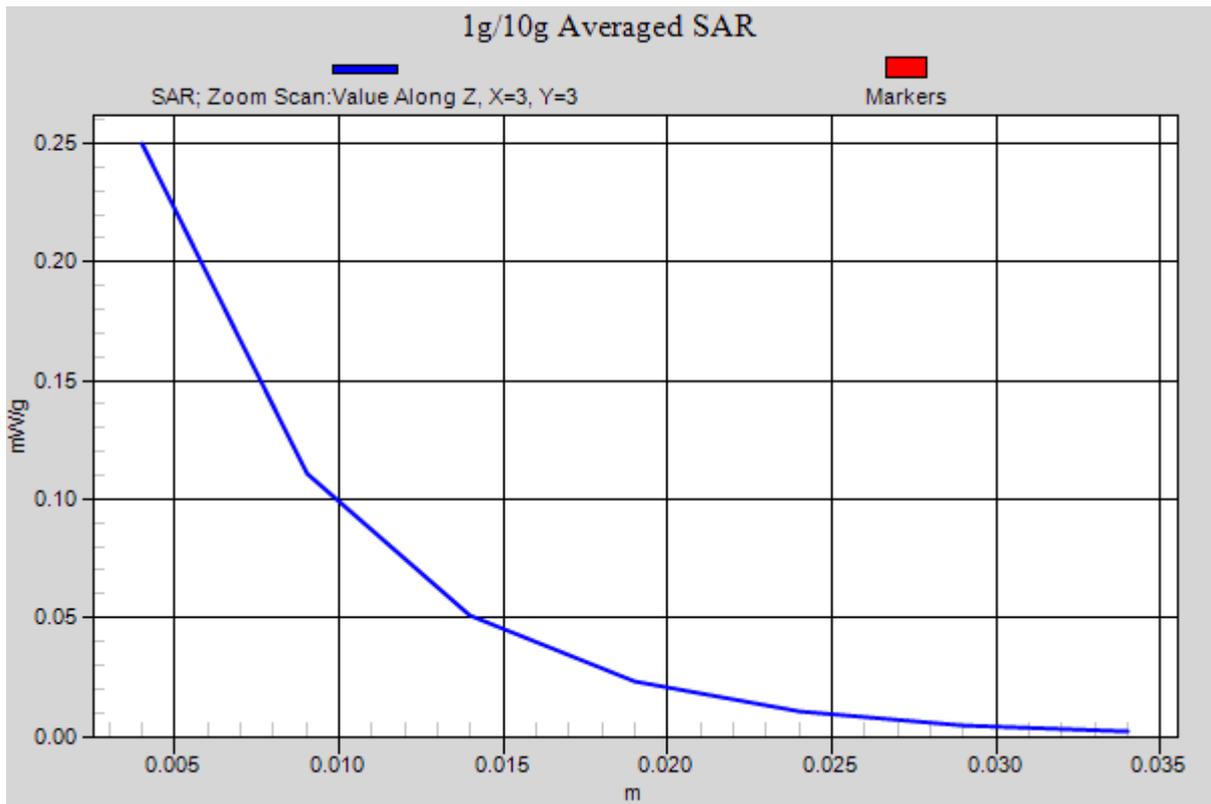


Figure 52 Right Hand Touch Cheek 802.11b Channel 11

802.11b Right Cheek High (Battery 4)

Date/Time: 8/1/2012 12:14:36 AM

Communication System: 802.11b; Frequency: 2462 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 2462$ MHz; $\sigma = 1.89$ mho/m; $\epsilon_r = 38.3$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5°C

Phantom section: Right Section

DASY5 Configuration:

Probe: ES3DV3 - SN3189; ConvF(4.14, 4.14, 4.14); Calibrated: 6/22/2012

Electronics: DAE4 Sn1317; Calibrated: 1/23/2012

Phantom: SAM2; Type: SAM; Serial: TP-1524

Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

Cheek High/Area Scan (61x111x1): Measurement grid: dx=12mm, dy=12mm

Maximum value of SAR (interpolated) = 0.240 mW/g

Cheek High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 7.17 V/m; Power Drift = -0.011 dB

Peak SAR (extrapolated) = 0.527 W/kg

SAR(1 g) = 0.227 mW/g; SAR(10 g) = 0.106 mW/g

Maximum value of SAR (measured) = 0.255 mW/g

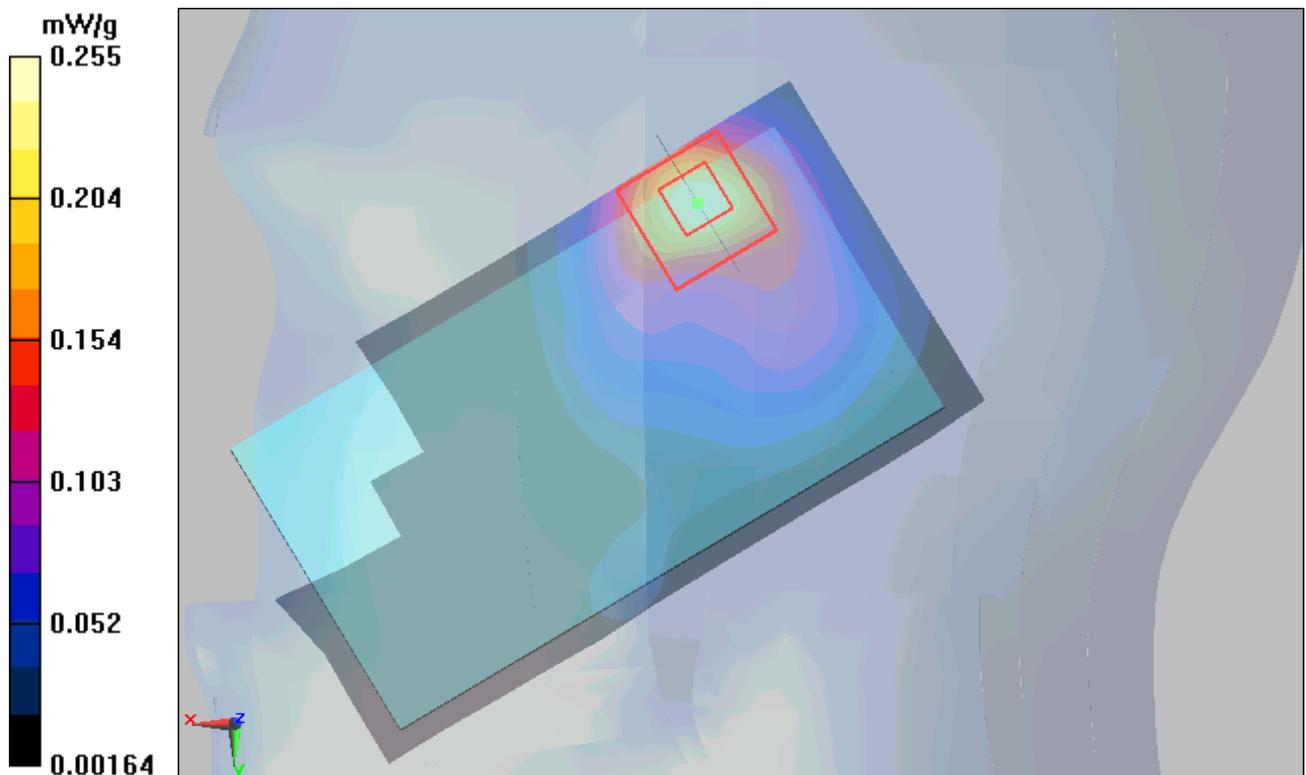


Figure 53 Right Hand Touch Cheek 802.11b Channel 11

802.11b Back Side High (Battery 1, 10mm)

Date/Time: 8/1/2012 4:04:04 PM

Communication System: 802.11b; Frequency: 2462 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 2462$ MHz; $\sigma = 1.92$ mho/m; $\epsilon_r = 51.7$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5°C

Phantom section: Flat Section

DASY5 Configuration:

Probe: ES3DV3 - SN3189; ConvF(3.96, 3.96, 3.96); Calibrated: 6/22/2012

Electronics: DAE4 Sn1317; Calibrated: 1/23/2012

Phantom: SAM2; Type: SAM; Serial: TP-1524

Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

Back Side High/Area Scan (61x111x1): Measurement grid: dx=12mm, dy=12mm

Maximum value of SAR (interpolated) = 0.073 mW/g

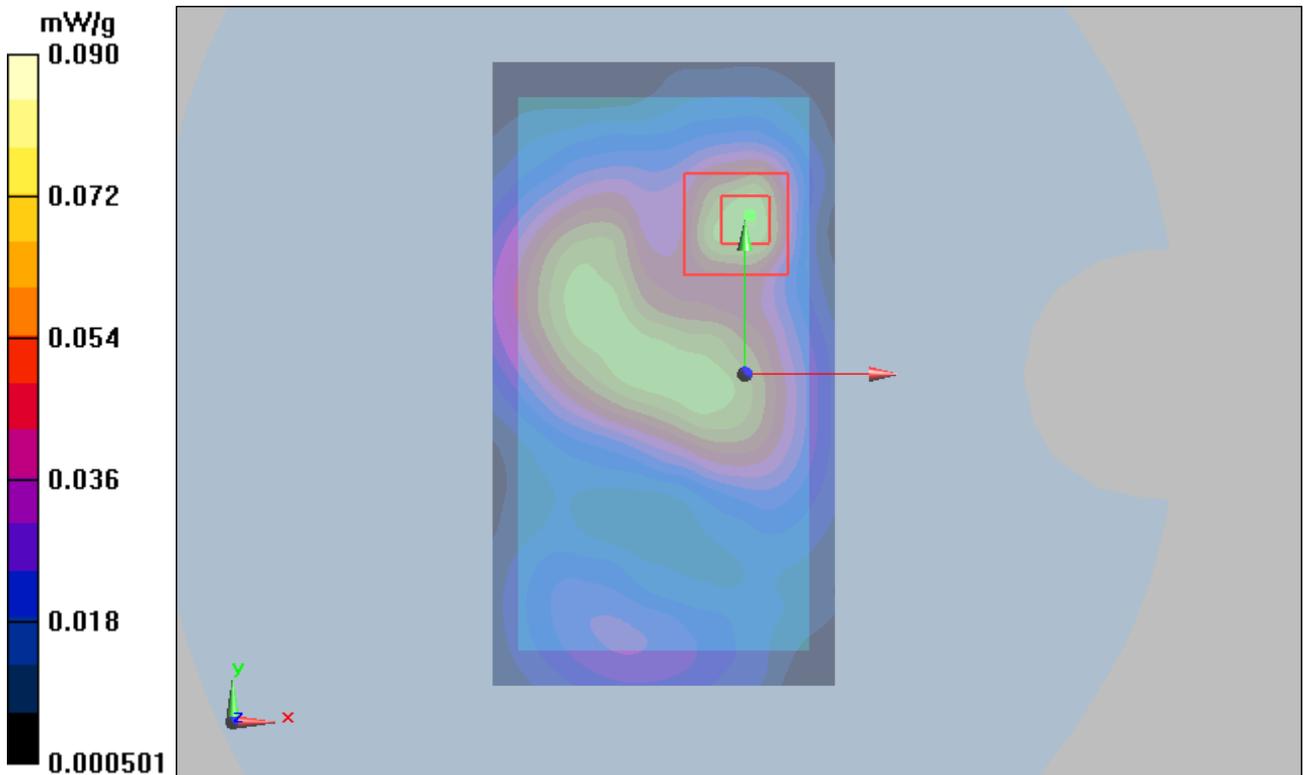
Back Side High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 6.13 V/m; Power Drift = -0.010 dB

Peak SAR (extrapolated) = 0.163 W/kg

SAR(1 g) = 0.077 mW/g; SAR(10 g) = 0.035 mW/g

Maximum value of SAR (measured) = 0.090 mW/g



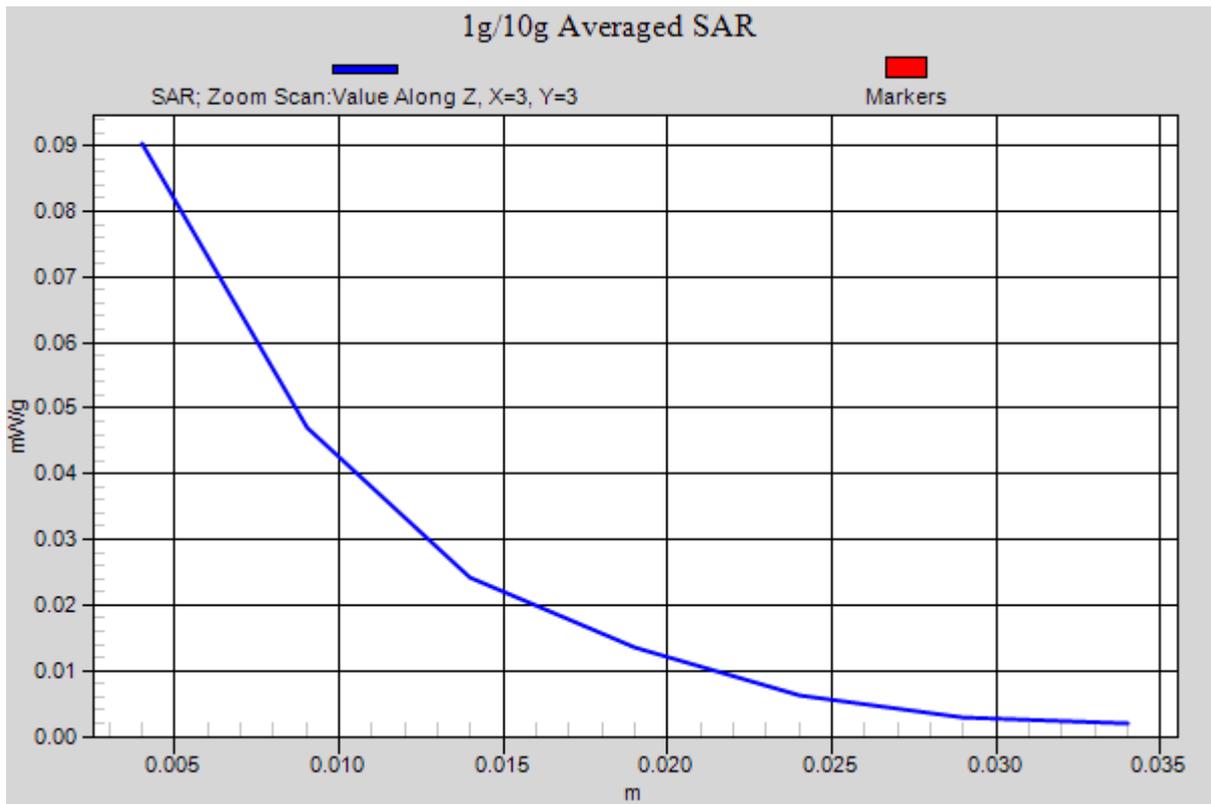


Figure 54 Body, Back Side, 802.11b Channel 11

802.11b Front Side High (Battery 1, 10mm)

Date/Time: 8/1/2012 4:59:14 PM

Communication System: 802.11b; Frequency: 2462 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 2462$ MHz; $\sigma = 1.92$ mho/m; $\epsilon_r = 51.7$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5°C

Phantom section: Flat Section

DASY5 Configuration:

Probe: ES3DV3 - SN3189; ConvF(3.96, 3.96, 3.96); Calibrated: 6/22/2012

Electronics: DAE4 Sn1317; Calibrated: 1/23/2012

Phantom: SAM2; Type: SAM; Serial: TP-1524

Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

Front Side High/Area Scan (61x111x1): Measurement grid: dx=12mm, dy=12mm

Maximum value of SAR (interpolated) = 0.049 mW/g

Front Side High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 4.07 V/m; Power Drift = 0.069 dB

Peak SAR (extrapolated) = 0.082 W/kg

SAR(1 g) = 0.045 mW/g; SAR(10 g) = 0.026 mW/g

Maximum value of SAR (measured) = 0.049 mW/g

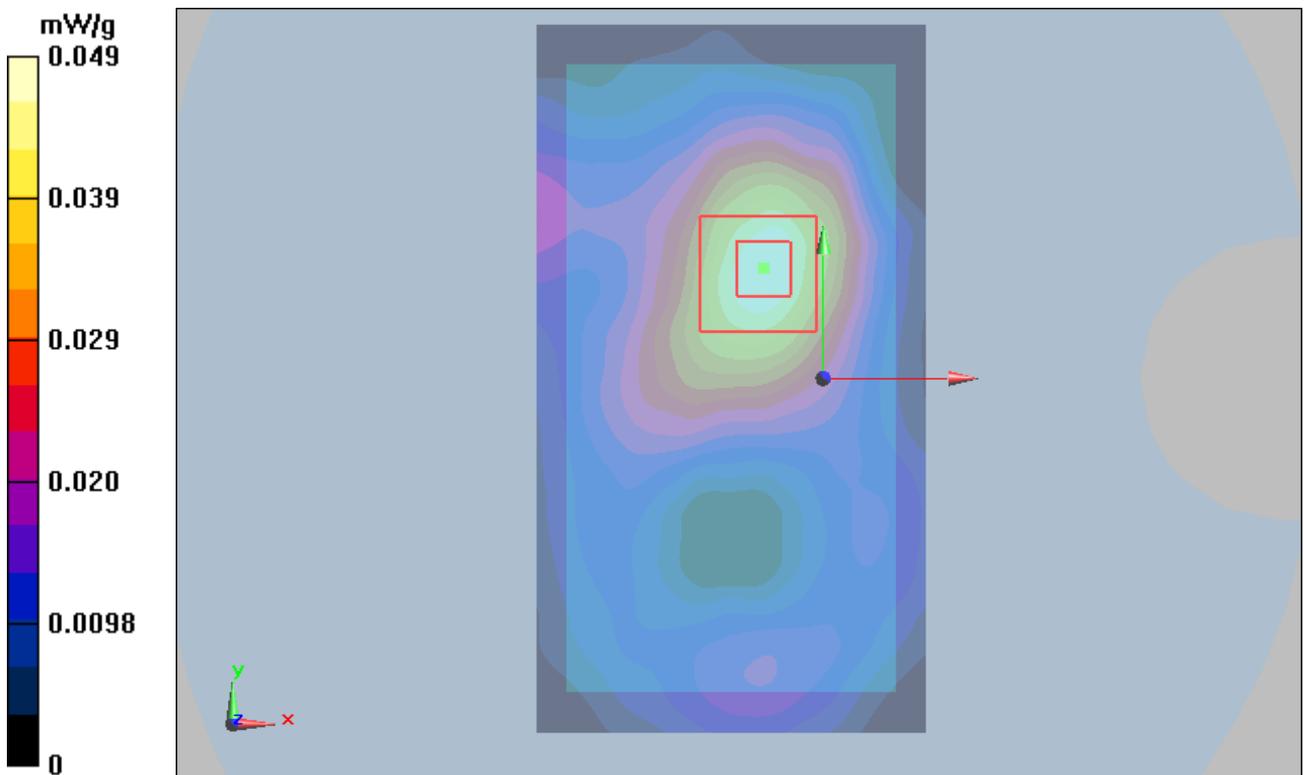


Figure 55 Body, Front Side, 802.11b Channel 11

802.11b Left Edge High (Battery 1, 10mm)

Date/Time: 8/1/2012 5:26:38 PM

Communication System: 802.11b; Frequency: 2462 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 2462 \text{ MHz}$; $\sigma = 1.92 \text{ mho/m}$; $\epsilon_r = 51.7$; $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature: $22.3 \text{ }^\circ\text{C}$ Liquid Temperature: 21.5°C

Phantom section: Flat Section

DASY5 Configuration:

Probe: ES3DV3 - SN3189; ConvF(3.96, 3.96, 3.96); Calibrated: 6/22/2012

Electronics: DAE4 Sn1317; Calibrated: 1/23/2012

Phantom: SAM2; Type: SAM; Serial: TP-1524

Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

Left Edge High/Area Scan (31x111x1): Measurement grid: $dx=12\text{mm}$, $dy=12\text{mm}$

Maximum value of SAR (interpolated) = 0.051 mW/g

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

Reference Value = 3.46 V/m ; Power Drift = 0.167 dB

Peak SAR (extrapolated) = 0.091 W/kg

SAR(1 g) = 0.047 mW/g ; SAR(10 g) = 0.025 mW/g

Maximum value of SAR (measured) = 0.053 mW/g

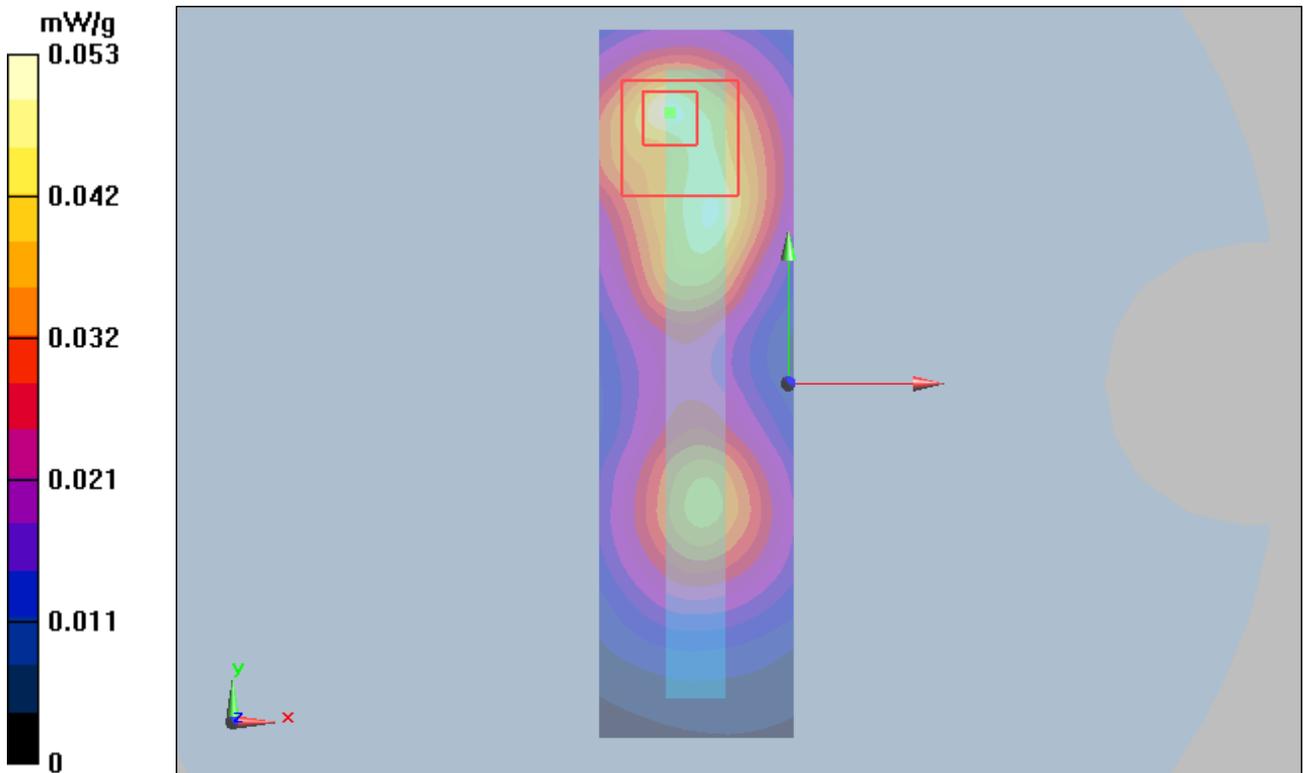


Figure 56 Body, Left Edge, 802.11b Channel 11

802.11b Top Edge High (Battery 1, 10mm)

Date/Time: 8/1/2012 5:55:51 PM

Communication System: 802.11b; Frequency: 2462 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 2462$ MHz; $\sigma = 1.92$ mho/m; $\epsilon_r = 51.7$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5°C

Phantom section: Flat Section

DASY5 Configuration:

Probe: ES3DV3 - SN3189; ConvF(3.96, 3.96, 3.96); Calibrated: 6/22/2012

Electronics: DAE4 Sn1317; Calibrated: 1/23/2012

Phantom: SAM2; Type: SAM; Serial: TP-1524

Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

Top Edge High/Area Scan (31x61x1): Measurement grid: dx=12mm, dy=12mm

Maximum value of SAR (interpolated) = 0.032 mW/g

Top Edge High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 4.07 V/m; Power Drift = -0.039 dB

Peak SAR (extrapolated) = 0.050 W/kg

SAR(1 g) = 0.029 mW/g; SAR(10 g) = 0.017 mW/g

Maximum value of SAR (measured) = 0.031 mW/g

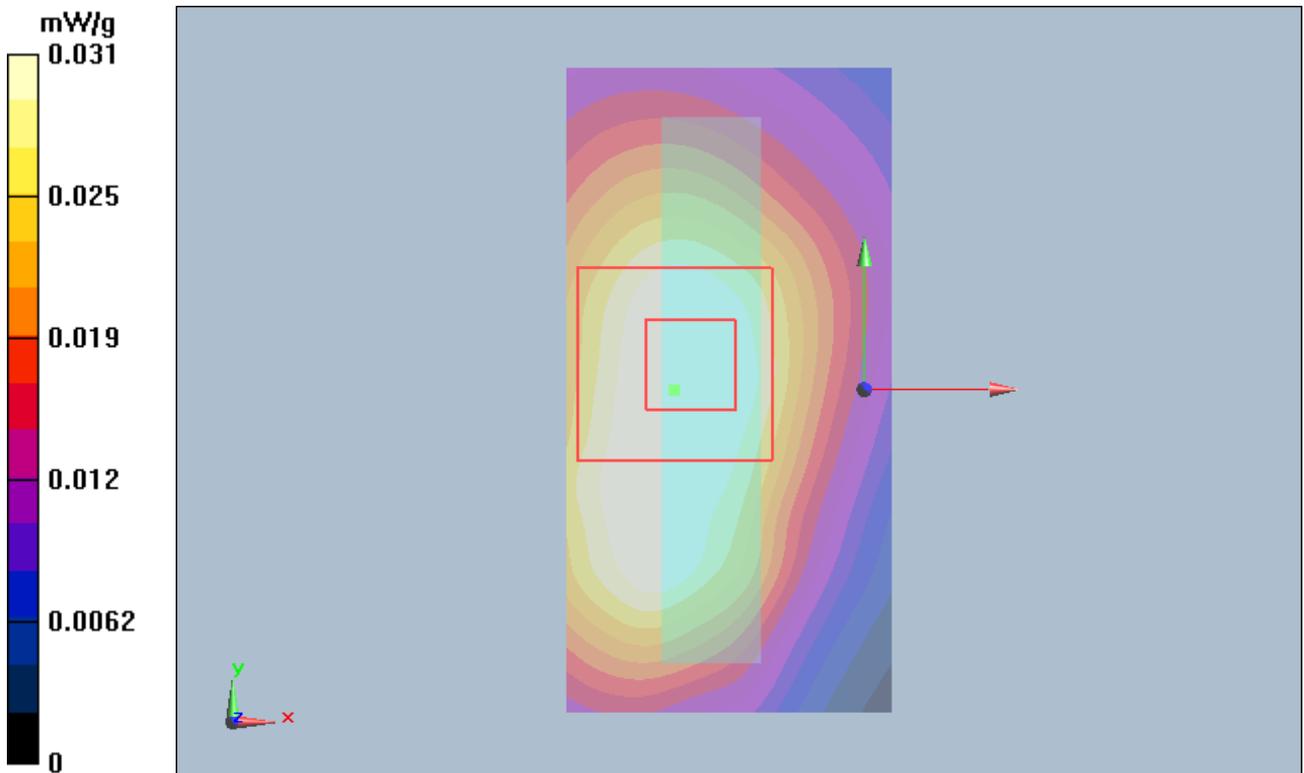


Figure 57 Body, Top Edge, 802.11b Channel 11

802.11b Back Side High (Battery 2, 10mm)

Date/Time: 8/1/2012 6:30:37 PM

Communication System: 802.11b; Frequency: 2462 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 2462$ MHz; $\sigma = 1.92$ mho/m; $\epsilon_r = 51.7$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5°C

Phantom section: Flat Section

DASY5 Configuration:

Probe: ES3DV3 - SN3189; ConvF(3.96, 3.96, 3.96); Calibrated: 6/22/2012

Electronics: DAE4 Sn1317; Calibrated: 1/23/2012

Phantom: SAM2; Type: SAM; Serial: TP-1524

Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

Back Side High/Area Scan (61x111x1): Measurement grid: dx=12mm, dy=12mm

Maximum value of SAR (interpolated) = 0.073 mW/g

Back Side High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 5.11 V/m; Power Drift = 0.109 dB

Peak SAR (extrapolated) = 0.116 W/kg

SAR(1 g) = 0.068 mW/g; SAR(10 g) = 0.041 mW/g

Maximum value of SAR (measured) = 0.072 mW/g

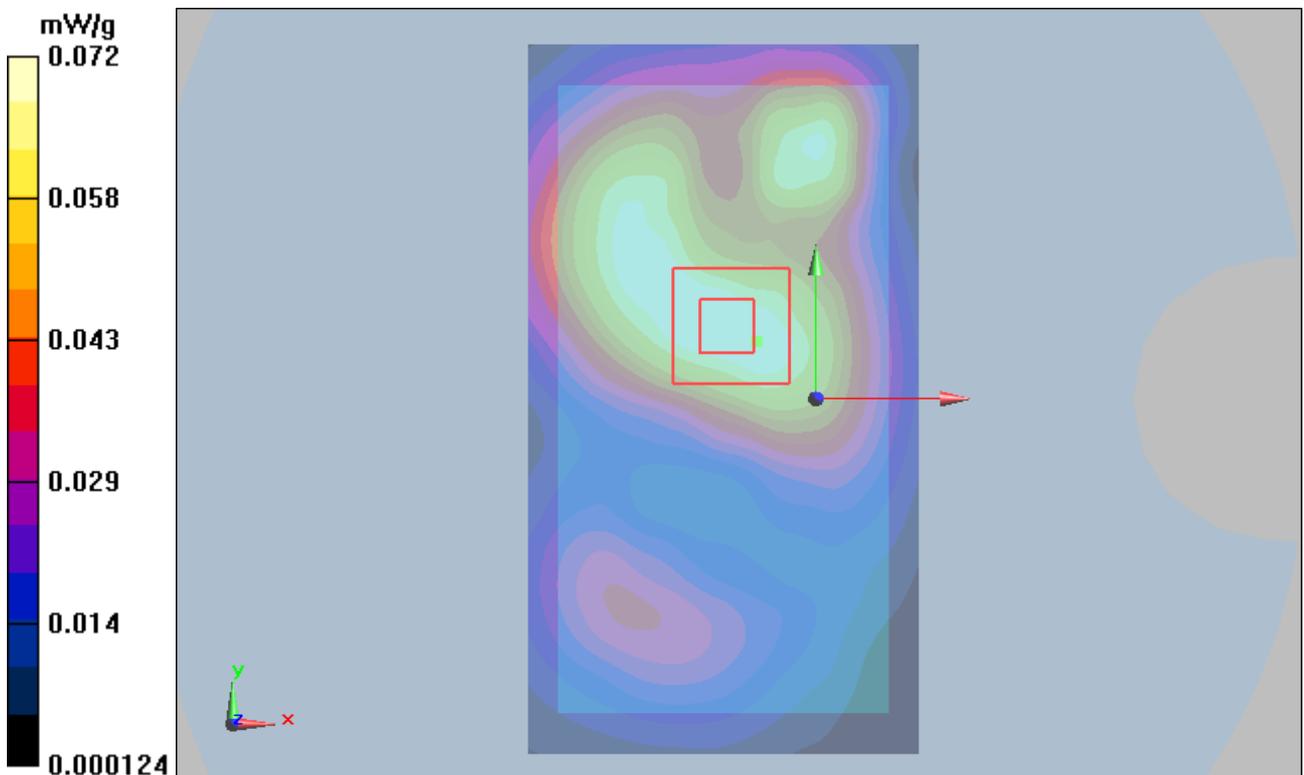


Figure 58 Body, Back Side, 802.11b Channel 11

802.11b Back Side High (Battery 3, 10mm)

Date/Time: 8/1/2012 6:53:40 PM

Communication System: 802.11b; Frequency: 2462 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 2462$ MHz; $\sigma = 1.92$ mho/m; $\epsilon_r = 51.7$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5°C

Phantom section: Flat Section

DASY5 Configuration:

Probe: ES3DV3 - SN3189; ConvF(3.96, 3.96, 3.96); Calibrated: 6/22/2012

Electronics: DAE4 Sn1317; Calibrated: 1/23/2012

Phantom: SAM2; Type: SAM; Serial: TP-1524

Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

Back Side High/Area Scan (61x111x1): Measurement grid: dx=12mm, dy=12mm

Maximum value of SAR (interpolated) = 0.072 mW/g

Back Side High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 5.06 V/m; Power Drift = 0.048 dB

Peak SAR (extrapolated) = 0.115 W/kg

SAR(1 g) = 0.066 mW/g; SAR(10 g) = 0.039 mW/g

Maximum value of SAR (measured) = 0.071 mW/g

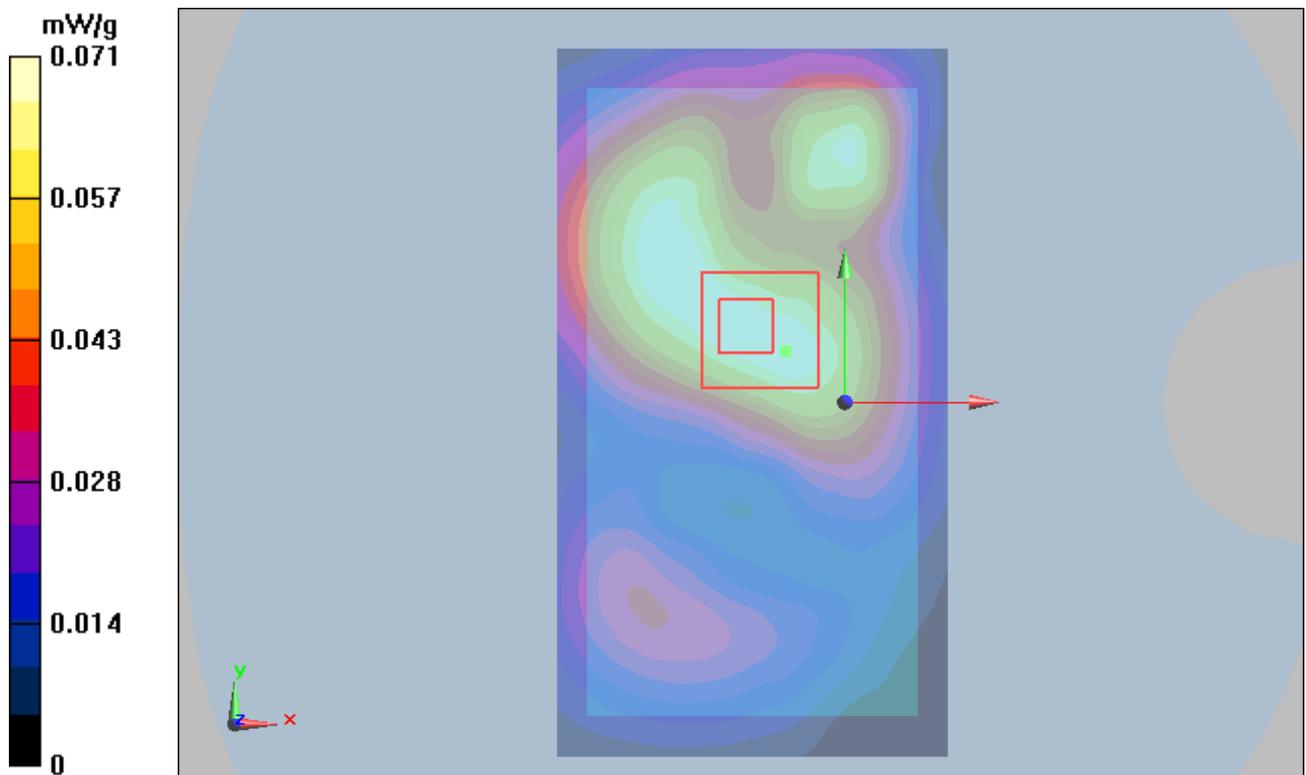


Figure 59 Body, Back Side, 802.11b Channel 11

802.11b Back Side High (Battery 4, 10mm)

Date/Time: 8/1/2012 7:17:07 PM

Communication System: 802.11b; Frequency: 2462 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 2462$ MHz; $\sigma = 1.92$ mho/m; $\epsilon_r = 51.7$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5°C

Phantom section: Flat Section

DASY5 Configuration:

Probe: ES3DV3 - SN3189; ConvF(3.96, 3.96, 3.96); Calibrated: 6/22/2012

Electronics: DAE4 Sn1317; Calibrated: 1/23/2012

Phantom: SAM2; Type: SAM; Serial: TP-1524

Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

Back Side High/Area Scan (61x111x1): Measurement grid: dx=12mm, dy=12mm

Maximum value of SAR (interpolated) = 0.072 mW/g

Back Side High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 5.12 V/m; Power Drift = -0.054 dB

Peak SAR (extrapolated) = 0.119 W/kg

SAR(1 g) = 0.067 mW/g; SAR(10 g) = 0.040 mW/g

Maximum value of SAR (measured) = 0.072 mW/g

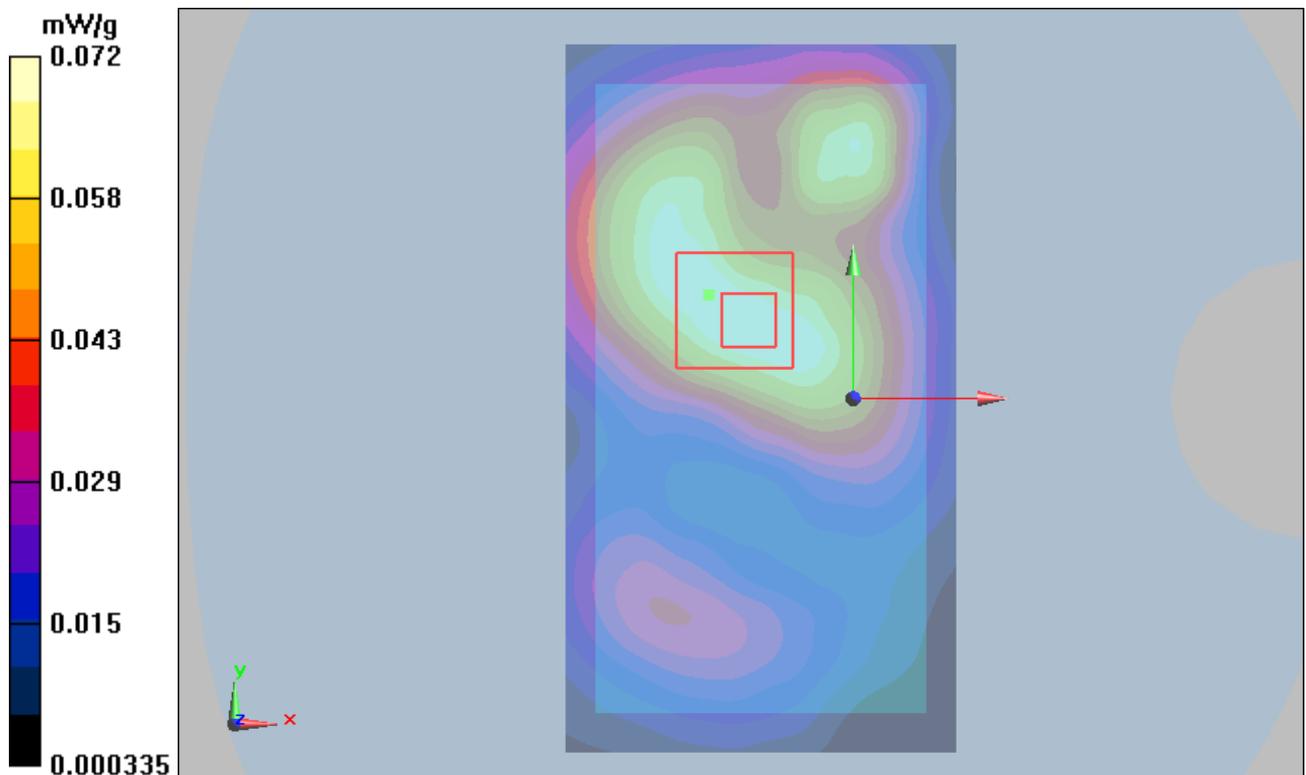


Figure 60 Body, Back Side, 802.11b Channel 11

TA Technology (Shanghai) Co., Ltd. Test Report

Report No.: RHA1207-0058SAR01

Page 107 of 146

ANNEX D: Probe Calibration Certificate

**Calibration Laboratory of
Schmid & Partner
Engineering AG**
Zeughausstrasse 43, 8004 Zurich, Switzerland



S Schweizerischer Kalibrierdienst
C Service suisse d'étalonnage
S Servizio svizzero di taratura
S Swiss Calibration Service

Accredited by the Swiss Accreditation Service (SAS)
The Swiss Accreditation Service is one of the signatories to the EA
Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 108**

Client **TA-Shanghai (Auden)**

Certificate No: **ES3-3189_Jun12**

CALIBRATION CERTIFICATE

Object: **ES3DV3 - SN:3189**

Calibration procedure(s): **QA CAL-01.v8, QA CAL-12.v7, QA CAL-23.v4, QA CAL-25.v4
Calibration procedure for dosimetric E-field probes**

Calibration date: **June 22, 2012**

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 (Certificate No.)	Scheduled Calibration
Power meter E4419B	GB41293874	29-Mar-12 (No. 217-01508)	Apr-13
Power sensor E4412A	MY41498087	29-Mar-12 (No. 217-01508)	Apr-13
Reference 3 dB Attenuator	SN: S5054 (3c)	27-Mar-12 (No. 217-01531)	Apr-13
Reference 20 dB Attenuator	SN: S5086 (20b)	27-Mar-12 (No. 217-01529)	Apr-13
Reference 30 dB Attenuator	SN: S5129 (30b)	27-Mar-12 (No. 217-01532)	Apr-13
Reference Probe ES3DV2	SN: 3013	29-Dec-11 (No. ES3-3013_Dec11)	Dec-12
DAE4	SN: 660	10-Jan-12 (No. DAE4-660_Jan12)	Jan-13
Secondary Standards			
	ID	Check Date (in house)	Scheduled Check
RF generator HP 8648C	US3642U01700	4-Aug-99 (in house check Apr-11)	In house check: Apr-13
Network Analyzer HP 8753E	US37390585	18-Oct-01 (in house check Oct-11)	In house check: Oct-12

	Name	Function	Signature
Calibrated by:	Jeton Kastrati	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: June 22, 2012

This calibration certificate shall not be reproduced except in full without written approval of the laboratory.

TA Technology (Shanghai) Co., Ltd.

Test Report

Report No.: RHA1207-0058SAR01

Page 108 of 146

**Calibration Laboratory of
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Engineering AG**
Zeughausstrasse 43, 8004 Zurich, Switzerland



S Schweizerischer Kalibrierdienst
C Service suisse d'étalonnage
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Accredited by the Swiss Accreditation Service (SAS)
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Accreditation No.: **SCS 108**

Glossary:

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

Calibration is Performed According to the Following Standards:

- 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
- 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 300 MHz to 3 GHz)", February 2005

Methods Applied and Interpretation of Parameters:

- NORM_{x,y,z}**: Assessed for E-field polarization $\theta = 0$ ($f \leq 900$ MHz in TEM-cell; $f > 1800$ MHz: R22 waveguide). NORM_{x,y,z} are only intermediate values, i.e., the uncertainties of NORM_{x,y,z} does not affect the E²-field uncertainty inside TSL (see below ConvF).
- NORM(f)_{x,y,z}** = NORM_{x,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.
- DCP_{x,y,z}**: DCP are numerical linearization parameters assessed based on the data of power sweep with CW signal (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
- A_{x,y,z}; B_{x,y,z}; C_{x,y,z}; VR_{x,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 $f \leq 800$ MHz) and inside waveguide using analytical field distributions based on power measurements for $f > 800$ MHz. The same setups are used for assessment of the parameters applied for boundary compensation (alpha, depth) of which typical uncertainty values are given. These parameters are used in DASY4 software to improve probe accuracy close to the boundary. The sensitivity in TSL corresponds to NORM_{x,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 ± 50 MHz to ± 100 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.

ES3DV3 – SN:3189

June 22, 2012

Probe ES3DV3

SN:3189

Manufactured: March 25, 2008
Calibrated: June 22, 2012

Calibrated for DASY/EASY Systems
(Note: non-compatible with DASY2 system!)

TA Technology (Shanghai) Co., Ltd.

Test Report

ES3DV3- SN:3189

June 22, 2012

DASY/EASY - Parameters of Probe: ES3DV3 - SN:3189

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm ($\mu\text{V}/(\text{V}/\text{m})^2$) ^A	1.32	1.35	1.05	$\pm 10.1\%$
DCP (mV) ^B	99.5	100.6	100.2	

Modulation Calibration Parameters

UID	Communication System Name	PAR		A dB	B dB	C dB	VR mV	Unc (k=2)
0	CW	0.00	X	0.00	0.00	1.00	160.3	$\pm 3.8\%$
			Y	0.00	0.00	1.00	164.9	
			Z	0.00	0.00	1.00	182.0	

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%.

^A The uncertainties of NormX,Y,Z do not affect the E²-field uncertainty inside TSL (see Pages 5 and 6).

^B Numerical linearization parameter: uncertainty not required.

^C Uncertainty is determined using the max. deviation from linear response applying rectangular distribution and is expressed for the square of the field value.