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# SAR TEST REPORT

**REPORT NO.:** SA110811C11A

**MODEL NO.:** F-09D

**FCC ID:** VQK-F09D

**RECEIVED:** Aug. 11, 2011

**TESTED:** Sep. 20 ~ Sep. 21, 2011

**ISSUED:** Mar. 28, 2012

**APPLICANT:** FUJITSU LIMITED

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## RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
SA110811C11A	Original release	Mar. 28, 2012



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## 1. CERTIFICATION

**PRODUCT:** Mobile Phone  
**MODEL NO.:** F-09D  
**FCC ID:** VQK-F09D  
**BRAND:** FOMA  
**APPLICANT:** FUJITSU LIMITED  
**TESTED:** Sep. 20 ~ Sep. 21, 2011  
**STANDARDS:** **FCC Part 2 (Section 2.1093)**  
**FCC OET Bulletin 65, Supplement C (01-01)**  
**IEEE 1528:2003**

The above equipment have been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's SAR characteristics under the conditions specified in this report.

PREPARED BY : , DATE : Mar. 28, 2012  
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## 2. GENERAL INFORMATION

### 2.1 GENERAL DESCRIPTION OF EUT

<b>EUT</b>	Mobile Phone
<b>MODEL NO.</b>	F-09D
<b>FCC ID</b>	VQK-F09D
<b>CLASSIFICATION</b>	Engineering Sample
<b>IMEI CODE</b>	358202040005084
<b>UPLINK MODULATION TYPE</b>	GSM: GMSK WCDMA: QPSK
<b>TX FREQUENCY RANGE</b>	GSM850: 824.2 MHz ~ 848.8 MHz GSM1900: 1850.2 MHz ~ 1909.8 MHz WCDMA Band V: 826.4 MHz ~ 846.6 MHz
<b>ANTENNA TYPE</b>	Fixed Internal antenna
<b>ACCESSORY DEVICES</b>	Battery

#### NOTE:

1. This report is issued as a duplicate report to the original BV ADT report No.: SA110811C11. The differences are changing the model name and FCC ID.
2. The EUT use the following internal Li-ion battery:

<b>BRAND</b>	Fujitsu Limited
<b>MODEL</b>	F23
<b>RATING</b>	3.7Vdc, 1460mAh, 5.4Wh

3. The above EUT information is declared by manufacturer and for more detailed features description, please refers to the manufacturer's specifications or User's Manual.

### 2.2 SUMMARY OF PEAK SAR RESULTS

Band	Position	SAR <sub>1g</sub> (W/kg)
GSM850	Head	0.183
	Body (Body Worn)	0.342
	Body (Hotspot)	0.342
GSM1900	Head	0.41
	Body (Body Worn)	1.03
	Body (Hotspot)	1.03
WCDMA Band V	Head	0.42
	Body (Body Worn)	0.476
	Body (Hotspot)	0.476

## 2.3 TEST CONFIGURATION

The device was controlled by using a base station emulator. Communication between the device and the emulator was established by air link. The distance between the DUT and the antenna of the emulator is larger than 50 cm and the output power radiated from the emulator antenna is at least 30 dB smaller than the output power of DUT. The DUT was set from the emulator to radiate maximum output power during all tests.

In general, the crest factor is 8.3 for GSM and GPRS multi-slot class 8, 4 for GPRS multi-slot class 10, 2 for GPRS multi-slot class 12, and 1 for WCDMA.

For GSM/GPRS body SAR testing, the DUT was set in GPRS multi-slot class 10 with 2 uplink slots for GSM850, and 12 with 4 uplink slots for GSM1900 due to maximum source-based time-averaged output power as following table:

Source-Based Time-Averaged Power						
Band	GSM850			GSM1900		
Channel	128	190	251	512	661	810
GSM (1 Uplink)	23.48	23.73	23.77	20.82	21.15	20.86
GPRS 8 (1 Uplink)	23.49	23.46	23.81	20.76	21.11	20.81
GPRS 10 (2 Uplink)	25.00	25.02	<b>25.03</b>	22.48	22.39	22.48
GPRS 12 (4 Uplink)	23.81	23.59	23.75	22.95	<b>22.96</b>	22.35

**Note:**  
 The source-based time-averaged power is linearly scaled the maximum burst averaged power based on time slots. The calculated method are shown as below:  
 Source based time averaged power = Maximum burst averaged power (1 Uplink) - 9 dB  
 Source based time averaged power = Maximum burst averaged power (2 Uplink) - 6 dB  
 The maximum burst averaged power can be referred to section 11.1 of this report.

This device supports WiFi hotspot function, so body SAR was tested under 1 cm for the surfaces/slide edges where a transmitting antenna is within 2.5 cm from the edge.

The WWAN antenna is located on bottom edge of the phone. Top edge is not tested since the distance between WWAN antenna and top edge is > 2.5 cm.

## **2.4 GENERAL DESCRIPTION OF APPLIED STANDARDS**

According to the specifications of the manufacturer, this product must comply with the requirements of the following standards:

**FCC 47 CFR Part 2 (2.1093)**

**FCC OET Bulletin 65, Supplement C (01- 01)**

**IEEE 1528-2003**

All test items have been performed and recorded as per the above standards.



## 2.5 GENERAL INFORMATION OF THE SAR SYSTEM

DASY4 consists of high precision robot, probe alignment sensor, phantom, robot controller, controlled measurement server and near-field probe. The robot includes six axes that can move to the precision position of the DASY4 software defined. The DASY4 software can define the area that is detected by the probe. The robot is connected to controlled box. Controlled measurement server is connected to the controlled robot box. The DAE includes amplifier, signal multiplexing, AD converter, offset measurement and surface detection. It is connected to the Electro-optical coupler (ECO). The ECO performs the conversion from the optical into digital electric signal of the DAE and transfers data to the PC.

### EX3DV4 ISOTROPIC E-FIELD PROBE

<b>CONSTRUCTION</b>	Symmetrical design with triangular core Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., DGBE)
<b>FREQUENCY</b>	10 MHz to > 6 GHz Linearity: $\pm 0.2$ Db (30 MHz to 6 GHz)
<b>DIRECTIVITY</b>	$\pm 0.3$ Db in HSL (rotation around probe axis) $\pm 0.5$ Db in tissue material (rotation normal to probe axis)
<b>DYNAMIC RANGE</b>	10 Mw/g to > 100 Mw/g Linearity: $\pm 0.2$ Db (noise: typically < 1 Mw/g)
<b>DIMENSIONS</b>	Overall length: 330 mm (Tip: 20 mm) Tip diameter: 2.5 mm (Body: 12 mm) Typical distance from probe tip to dipole centers: 1 mm
<b>APPLICATION</b>	High precision dosimetric measurements in any exposure scenario (e.g., very strong gradient fields). Only probe which enables compliance testing for frequencies up to 6 GHz with precision of better 30%.

#### NOTE

1. The Probe parameters have been calibrated by the SPEAG. Please reference "APPENDIX D" for the Calibration Certification Report.





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## TWIN SAM V4.0

**CONSTRUCTION** The shell corresponds to the specifications of the Specific Anthropomorphic Mannequin (SAM) phantom defined in IEEE 1528-2003, CENELEC 50361 and IEC 62209. 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 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 with the robot.

**SHELL THICKNESS**  $2 \pm 0.2$  mm

**FILLING VOLUME** Approx. 25 liters

**DIMENSIONS** Height: 810 mm; Length: 1000 mm; Width: 500 mm

### SYSTEM VALIDATION KITS:

**CONSTRUCTION** Symmetrical dipole with 1/4 balun  
Enables measurement of feedpoint impedance with NWA  
Matched for use near flat phantoms filled with brain simulating solutions  
Includes distance holder and tripod adaptor

**CALIBRATION** Calibrated SAR value for specified position and input power at the flat phantom in brain simulating solutions

**FREQUENCY** 835, 1900

**RETURN LOSS** > 20 Db at specified validation position

**POWER CAPABILITY** > 100 W (f < 1GHz); > 40 W (f > 1GHz)

**OPTIONS** Dipoles for other frequencies or solutions and other calibration conditions upon request



## DEVICE HOLDER FOR SAM TWIN PHANTOM

**CONSTRUCTION** The device holder for the GSM900/DCS1800/PCS1900 GSM/GPRS/CDMA Mobile Phone device is designed to cope with different positions given in the standard. It has two scales for the device rotation (with respect to the body axis) and the device inclination (with respect to the line between the ear reference points). The rotation centers for both scales is the ear reference point (ERP). Thus the device needs no repositioning when changing the angles. The holder has been made out of low-loss POM material having the following dielectric parameters: relative permittivity  $\varepsilon = 3$  and loss tangent  $\delta = 0.02$ . The amount of dielectric material has been reduced in the closest vicinity of the device, since measurements have suggested that the influence of the clamp on the test results could thus be lowered. The device holder for the portable device makes up of the polyethylene foam. The dielectric parameters of material close to the dielectric parameters of the air.

## DATA ACQUISITION ELECTRONICS

**CONSTRUCTION** The data acquisition electronics (DAE4) consists of a highly sensitive electrometer grade preamplifier with auto-zeroing, a channel and gain-switching multiplex, a fast 16 bit AD converter and a command decoder and control logic unit. Transmission to the measurement server is accomplished through an optical downlink for data and status information as well as an optical uplink for commands and the clock. The mechanical probe is mounting device includes two different sensor systems for frontal and sideways probe contacts. They are used for mechanical surface detection and probe collision detection. The input impedance of the DAE3 box is 200Mohm; the inputs are symmetrical and floating. Common mode rejection is above 80 Db.



## 2.6 TEST EQUIPMENT

### FOR SAR MEASUREMENT

ITEM	NAME	BRAND	TYPE	SERIES NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
1	SAM Phantom	S & P	QD000 P40 CA	TP-1652	NA	NA
2	SAM Phantom	S & P	QD000 P40 CA	TP-1654	NA	NA
3	Signal Generator	Agilent	E8257C	MY43320668	Dec. 27, 2010	Dec. 26, 2011
4	E-Field Probe	S & P	EX3DV4	3800	Aug. 05, 2011	Aug. 04, 2012
5	DAE	S & P	DAE4	1277	Jul. 29, 2011	Jul. 28, 2012
6	Robot Positioner	Staubli Unimation	NA	NA	NA	NA
7	Validation Dipole	S & P	D835V2	4d021	Mar. 23, 2011	Mar. 22, 2012
			D1900V2	5d022	Jan. 26, 2011	Jan. 25, 2012

**NOTE:** Before starting the measurement, all test equipment shall be warmed up for 30min.

### FOR TISSUE PROPERTY

ITEM	NAME	BRAND	TYPE	SERIES NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
1	Network Analyzer	Agilent	E8358A	US41480538	Dec. 30, 2010	Dec. 29, 2011
2	Dielectric Probe	Agilent	85070D	US01440176	NA	NA

**NOTE:**

1. Before starting, all test equipment shall be warmed up for 30min.
2. The tolerance (k=1) specified by Agilent for general dielectric measurements, deriving from inaccuracies in the calibration data, analyzer drift, and random errors, are usually  $\pm 2.5\%$  and  $\pm 5\%$  for measured permittivity and conductivity, respectively. However, the tolerances for the conductivity is smaller for material with large loss tangents, i.e., less than  $\pm 2.5\%$  (k=1). It can be substantially smaller if more accurate methods are applied.



## 2.7 GENERAL DESCRIPTION OF THE SPATIAL PEAK SAR EVALUATION

The DASY4/DASY5 post-processing software (SEMCAD) automatically executes the following procedures to calculate the field units from the micro-volt readings at the probe connector. The parameters used in the evaluation are stored in the configuration modules of the software:

Probe parameters:	- Sensitivity	Norm <sub>i</sub> , a <sub>i0</sub> , a <sub>i1</sub> , a <sub>i2</sub>
	- Conversion factor	ConvF <sub>i</sub>
	- Diode compression point	dcp <sub>i</sub>
Device parameters:	- Frequency	F
	- Crest factor	Cf
Media parameters:	- Conductivity	σ
	- Density	ρ

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. 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:

$$V_i = U_i + U_i^2 \cdot \frac{cf}{dcp_i}$$

V <sub>i</sub>	=compensated signal of channel i	(i = x, y, z)
U <sub>i</sub>	=input signal of channel i	(i = x, y, z)
Cf	=crest factor of exciting field	(DASY parameter)
dcp <sub>i</sub>	=diode compression point	(DASY parameter)

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

$$\text{E-field probes: } E_i = \sqrt{\frac{V_i}{\text{Norm}_i \cdot \text{ConvF}}}$$

$$\text{H-field probes: } H_i = \sqrt{V_i} \cdot \frac{a_{i0} + a_{i1}f + a_{i2}f^2}{f}$$

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

$\text{Norm}_i$  = sensor sensitivity of channel  $i$   $\mu\text{V}/(\text{V/m})^2$  for ( $i = x, y, z$ )  
E-field Probes

$\text{ConvF}$  = 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):

$$E_{tot} = \sqrt{E_x^2 + E_y^2 + E_z^2}$$

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

$$\text{SAR} = E_{tot}^2 \cdot \frac{\sigma}{\rho \cdot 1'000}$$

$\text{SAR}$  = local specific absorption rate in mW/g

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

$\sigma$  = conductivity in [mho/m] or [Siemens/m]

$\rho$  = equivalent tissue density in g/cm<sup>3</sup>

Note that the density is set to 1, to account for actual head tissue density rather than the density of the tissue simulating liquid. The entire evaluation of the spatial peak values is performed within the Post-processing engine (SEMCAD). The system always gives the maximum values for the 1 g and 10 g cubes. The algorithm to find the cube with highest averaged SAR is divided into the following stages:

1. The extraction of the measured data (grid and values) from the Zoom Scan
2. The calculation of the SAR value at every measurement point based on all stored data (A/D values and measurement parameters)
3. The generation of a high-resolution mesh within the measured volume
4. The interpolation of all measured values from the measurement grid to the high-resolution grid
5. The extrapolation of the entire 3-D field distribution to the phantom surface over the distance from sensor to surface
6. The calculation of the averaged SAR within masses of 1 g and 10 g.

The probe is calibrated at the center of the dipole sensors that is located 1 to 2.7mm away from the probe tip. During measurements, the probe stops shortly above the phantom surface, depending on the probe and the surface detecting system. Both distances are included as parameters in the probe configuration file. The software always knows exactly how far away the measured point is from the surface. As the probe cannot directly measure at the surface, the values between the deepest measured point and the surface must be extrapolated. The angle between the probe axis and the surface normal line is less than 30 degree.

In the Area Scan, the gradient of the interpolation function is evaluated to find all the extreme of the SAR distribution. The uncertainty on the locations of the extreme is less than 1/20 of the grid size. Only local maximum within -2 dB of the global maximum are searched and passed for the Cube Scan measurement. In the Cube Scan, the interpolation function is used to extrapolate the Peak SAR from the lowest measurement points to the inner phantom surface (the extrapolation distance). The uncertainty increases with the extrapolation distance. To keep the uncertainty within 1% for the 1 g and 10 g cubes, the extrapolation distance should not be larger than 5mm.

The maximum search is automatically performed after each area scan measurement. It is based on splines in two or three dimensions. The procedure can find the maximum for most SAR distributions even with relatively large grid spacing. After the area scanning measurement, the probe is automatically moved to a position at the interpolated maximum. The following scan can directly use this position for reference, e.g., for a finer resolution grid or the cube evaluations. The 1g and 10g peak evaluations are only available for the predefined cube 5 x 5 x 7 scans. The routines are verified and optimized for the grid dimensions used in these cube measurements. The measured volume of 32 x 32 x 30mm contains about 30g of tissue. The first procedure is an extrapolation (incl. boundary correction) to get the points between the lowest measured plane and the surface. The next step uses 3D interpolation to get all points within the measured volume in a 1mm grid (42875 points). In the last step, a 1g cube is placed numerically into the volume and its averaged SAR is calculated. This cube is the moved around until the highest averaged SAR is found. If the highest SAR is found at the edge of the measured volume, the system will issue a warning: higher SAR values might be found outside of the measured volume. In that case the cube measurement can be repeated, using the new interpolated maximum as the center.

## 2.8 DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.
1	Universal Radio Communication Tester	R&S	CMU200	101372

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	NA

**NOTE:** All power cords of the above support units are non shielded (1.8m).

### 3. DESCRIPTION OF TEST POSITION

#### 3.1 DESCRIPTION OF TEST POSITION

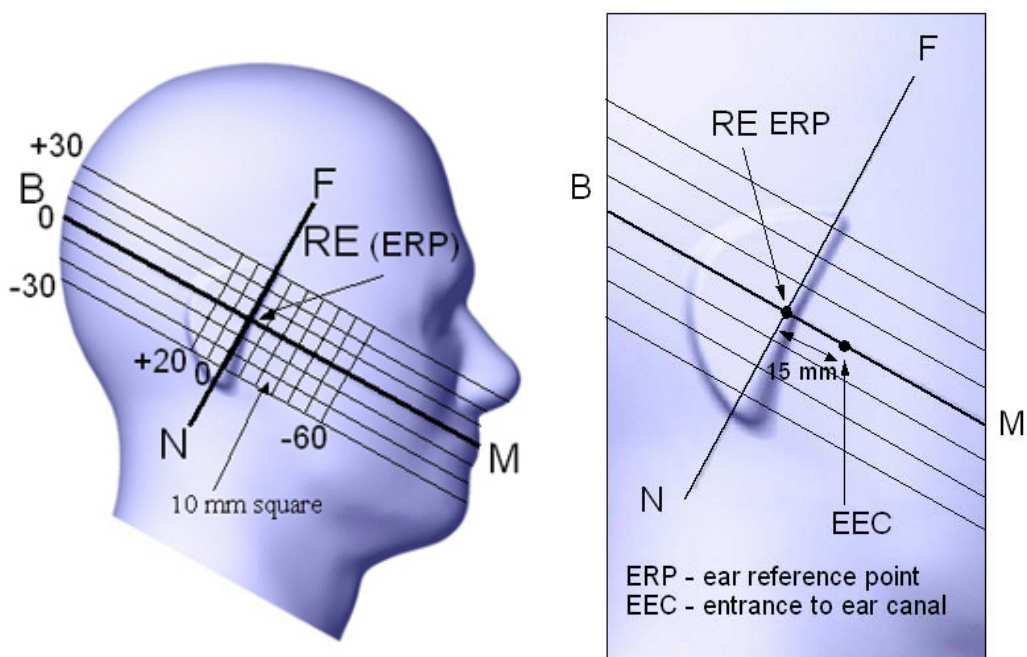


FIGURE 3.1

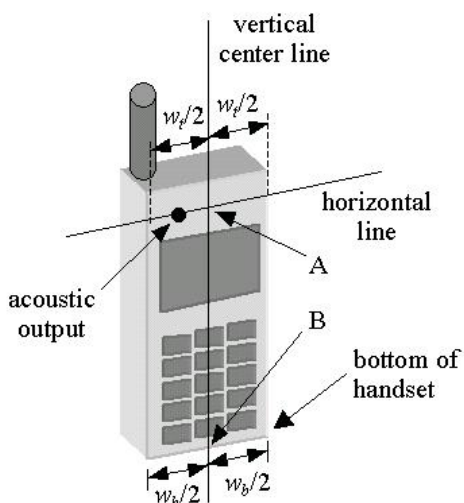


FIGURE 3.1a

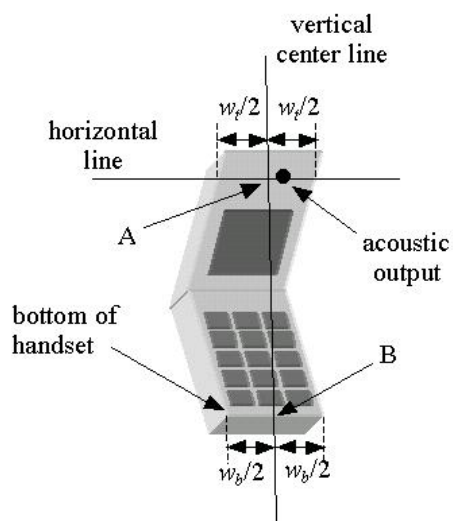
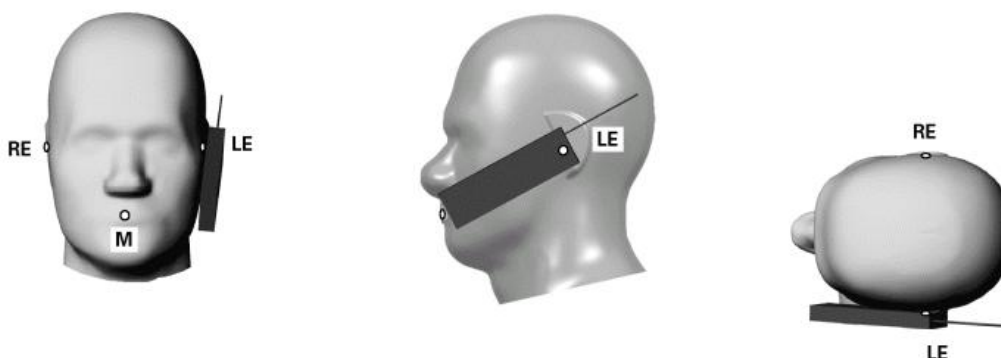


FIGURE 3.1b



### 3.1.1 TOUCH/CHEEK TEST POSITION

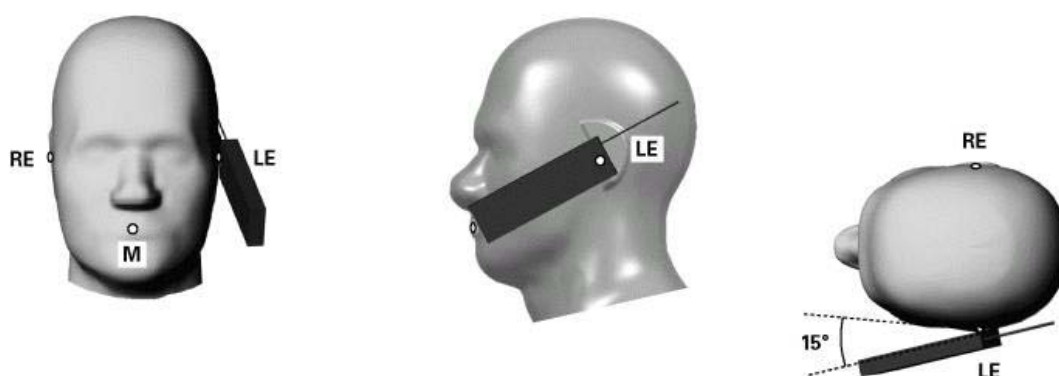
The head position in Figure 3.1, the ear reference points ERP are 15mm above entrance to ear canal along the B-M line. The line N-F (Neck-Front) is perpendicular to the B-M (Back Mouth) line. The handset device in Figure 3.1a and 3.1b, The vertical centerline pass through two points on the front side of handset: the midpoint of the width  $w_t$  of the handset at the level of the acoustic output (point A) and the midpoint of the width  $w_b$  of the bottom of the handset (point B). The vertical centerline is perpendicular to the horizontal line and pass through the center of the acoustic output. The point A touches the ERP and the vertical centerline of the handset is parallel to the B-M line. While maintaining the point A contact with the ear(ERP), rotate the handset about the line NF until any point on handset is in contact with the cheek of the phantom



**TOUCH/CHEEK POSITION FIGURE**

### 3.1.2 TILT TEST POSITION

Adjust the device in the cheek position. While maintaining a point of the handset contact in the ear, move the bottom of the handset away from the mouth by an angle of 15 degrees.



**TILT POSITION FIGURE**

### 3.1.3 BODY-WORN CONFIGURATION

The handset device attached the belt clip or the holster. The keypad face of the handset is against with the bottom of the flat phantom face and the bottom of the keypad face contact to the bottom of the flat phantom.

When multiple accessories that do not contain metallic components are supplied with the device, the device may be tested with only the accessory that dictates the closest spacing to the body. When multiple accessories that contain metallic components are supplied with the device, the device must be tested with each accessory that contains a unique metallic component. If multiple accessories share an identical metallic component (e.g., the same metallic belt-clip used with different holsters with no other metallic components), only accessory that dictates the closest spacing to the body must be tested.

If the device supports WiFi hotspot function, the body SAR will test under 1 cm for the surfaces/slide edges where a transmitting antenna is within 2.5 cm from the edge.

#### 4. RECIPES FOR TISSUE SIMULATING LIQUIDS

For the measurement of the field distribution inside the SAM phantom, the phantom must be filled with 25 liters of tissue simulation liquid.

The following ingredients are used :

- **WATER-** Deionized water (pure H<sub>2</sub>O), resistivity  $\approx 16$  M - as basis for the liquid
- **SUGAR-** Refined sugar in crystals, as available in food shops - to reduce relative permittivity
- **SALT-** Pure NaCl - to increase conductivity
- **CELLULOSE-** Hydroxyethyl-cellulose, medium viscosity (75-125 mPa.s, 2% in water, 20\_C),  
CAS # 54290 - to increase viscosity and to keep sugar in solution
- **PRESERVATIVE-** Preventol D-7 Bayer AG, D-51368 Leverkusen, CAS # 55965-84-9 - to prevent the spread of bacteria and molds
- **DGMBE-** Diethylenglycol-monobuthyl ether (DGMBE), Fluka Chemie GmbH, CAS # 112-34-5 - to reduce relative permittivity

**THE RECIPES FOR 835MHz SIMULATING LIQUID TABLE**

INGREDIENT	HEAD SIMULATING LIQUID 835MHz (HSL-835)	MUSCLE SIMULATING LIQUID 835MHz (MSL-835)
Water	40.28%	50.07%
Cellulose	2.41%	NA
Salt	1.38%	0.94%
Preventtol D-7	0.18%	0.09%
Sugar	57.97%	48.2%
Dielectric Parameters at 22°C	f = 835MHz $\epsilon = 41.5 \pm 5\%$ $\sigma = 0.9 \pm 5\%$ S/m	f = 835MHz $\epsilon = 55.2 \pm 5\%$ $\sigma = 0.97 \pm 5\%$ S/m

### THE RECIPES FOR 1900MHz SIMULATING LIQUID TABLE

INGREDIENT	HEAD SIMULATING LIQUID 1900MHz (HSL-1900)	MUSCLE SIMULATING LIQUID 1900MHz (MSL-1900)
Water	55.24%	70.16%
DGMBE	44.45%	29.44%
Salt	0.306%	00.39%
Dielectric Parameters at 22°C	f= 1900MHz $\epsilon = 40.0 \pm 5\%$ $\sigma = 1.40 \pm 5\%$ S/m	f= 1900MHz $\epsilon = 53.3 \pm 5\%$ $\sigma = 1.52 \pm 5\%$ S/m

Testing the liquids using the Agilent Network Analyzer E8358A and Agilent Dielectric Probe Kit 85070D. The testing procedure is following as

1. Turn Network Analyzer on and allow at least 30 min. warm up.
2. Mount dielectric probe kit so that interconnecting cable to Network Analyzer will not be moved during measurements or calibration.
3. Pour de-ionized water and measure water temperature ( $\pm 1^\circ$ ).
4. Set water temperature in Agilent-Software (Calibration Setup).
5. Perform calibration.
6. Validate calibration with dielectric material of known properties (e.g. polished ceramic slab with >8mm thickness  $\epsilon' = 10.0$ ,  $\epsilon'' = 0.0$ ). If measured parameters do not fit within tolerance, repeat calibration ( $\pm 0.2$  for  $\epsilon'$ ;  $\pm 0.1$  for  $\epsilon''$ ).
7. Conductivity can be calculated from  $\epsilon''$  by  $\sigma = \omega \epsilon_0 \epsilon'' = \epsilon'' f$  [GHz] / 18.
8. Measure liquid shortly after calibration. Repeat calibration every hour.
9. Stir the liquid to be measured. Take a sample (~50ml) with a syringe from the center of the liquid container.
10. Pour the liquid into a small glass flask. Hold the syringe at the bottom of the flask to avoid air bubbles.
11. Put the dielectric probe in the glass flask. Check that there are no air bubbles in front of the opening in the dielectric probe kit.
12. Perform measurements.
13. Adjust medium parameters in DASY4/5 for the frequencies necessary for the measurements ('Setup Config', select medium (e.g. Brain 900 MHz) and press 'Option'-button.

Select the current medium for the frequency of the validation (e.g. Setup Medium Brain



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900 MHz).

### FOR SIMULATING LIQUID

Frequency (MHz)	Liquid Type	Liquid Temp. (°C)	Conductivity ( $\sigma$ )	Permittivity ( $\epsilon_r$ )	Date
835	Head	21.5	0.907	40.7	Sep. 20, 2011
835	Body	21.2	0.997	56	Sep. 20, 2011
1900	Head	21.5	1.43	41	Sep. 21, 2011
1900	Body	21.3	1.53	52.9	Sep. 21, 2011

## 5. SYSTEM VALIDATION

The system validation was performed in the flat phantom with equipment listed in the following table. Since the SAR value is calculated from the measured electric field, dielectric constant and conductivity of the body tissue and the SAR is proportional to the square of the electric field. So, the SAR value will be also proportional to the RF power input to the system validation dipole under the same test environment. In our system validation test, 250mW RF input power was used.

### 5.1 TEST PROCEDURE

Before you start the system performance check, need only to tell the system with which components (probe, medium, and device) are performing the system performance check; the system will take care of all parameters. The dipole must be placed beneath the flat phantom section of the SAM Twin Phantom with the correct distance holder in place. The distance holder should touch the phantom surface with a light pressure at the reference marking (little cross) and be oriented parallel to the long side of the phantom. Accurate positioning is not necessary, since the system will search for the peak SAR location, except that the dipole arms should be parallel to the surface. The device holder for the EUT can be left in place but should be rotated away from the dipole.

1.The "Power Reference Measurement" and "Power Drift Measurement" jobs 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 amplifier output power. If it is too high (above  $\pm 0.1$  dB), the system performance check should be repeated; some amplifiers have very high drift during warm-up. A stable amplifier gives drift results in the DASY system below  $\pm 0.02$  dB.

2.The "Surface Check" job tests the optical surface detection system of the DASY 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  $\pm 0.1$  mm). In that case it is better to abort the system performance check and stir the liquid.

3. The "Area Scan" job measures the SAR above the dipole on a plane parallel to the surface. It is used to locate the approximate location of the peak SAR. The proposed scan uses large grid spacing for faster measurement; due to the symmetric field, the peak detection is reliable. If a finer graphic is desired, the grid spacing can be reduced. Grid spacing and orientation have no influence on the SAR result.

4. The "Zoom Scan" job measures the field in a volume around the peak SAR value assessed in the previous "Area Scan" job (for more information see the application note on SAR evaluation).

About the validation dipole positioning uncertainty, the constant and low loss dielectric spacer is used to establish the correct distance between the top surface of the dipole and the bottom surface of the phantom, the error component introduced by the uncertainty of the distance between the liquid (i.e., phantom shell) and the validation dipole in the DASY4/DASY5 system is less than  $\pm 0.1$ mm.

$$SAR_{tolerance} [\%] = 100 \times \left( \frac{(a + d)^2}{a^2} - 1 \right)$$

As the closest distance is 10mm, the resulting tolerance SAR<sub>tolerance</sub>[%] is <2%.

## 5.2 VALIDATION RESULTS

Date	Frequency (MHz)	Targeted SAR (W/kg)	Measured SAR (W/kg)	Normalized SAR (W/kg)	Deviation (%)
Sep. 20, 2011	835	9.650	2.600	10.40	7.77
Sep. 20, 2011	835	10.100	2.540	10.16	0.59
Sep. 21, 2011	1900	40.900	10.700	42.80	4.65
Sep. 21, 2011	1900	40.900	11.200	44.80	9.54

### NOTE:

1. The target SAR is derived from validation dipole certificate report and it is calculated with nominal tissue parameter and normalized to 1W.
2. Comparing to the original SAR value provided by SPEAG, the validation data should be within its specification of 10 %. Above table shows the target SAR and measured SAR after normalized to 1W input power.
3. Please see Appendix for the photo of system validation test.

### 5.3 SYSTEM VALIDATION UNCERTAINTIES

In the table below, the system validation uncertainty with respect to the analytically assessed SAR value of a dipole source as given in the IEEE 1528 standard is given. This uncertainty is smaller than the expected uncertainty for mobile phone measurements due to the simplified setup and the symmetric field distribution.

Error Description	Tolerance (±%)	Probability Distribution	Divisor	(C <sub>i</sub> )		Standard Uncertainty (±%)		(v <sub>i</sub> )
				(1g)	(10g)	(1g)	(10g)	
<b>Measurement System</b>								
Probe Calibration	5.50	Normal	1	1	1	5.50	5.50	∞
Axial Isotropy	0.25	Rectangular	√3	0.7	0.7	0.10	0.10	∞
Hemispherical Isotropy	1.30	Rectangular	√3	0.7	0.7	0.53	0.53	∞
Boundary effects	1.00	Rectangular	√3	1	1	0.58	0.58	∞
Linearity	0.30	Rectangular	√3	1	1	0.17	0.17	∞
System Detection Limits	1.00	Rectangular	√3	1	1	0.58	0.58	∞
Readout Electronics	0.30	Normal	1	1	1	0.30	0.30	∞
Response Time	0.80	Rectangular	√3	1	1	0.46	0.46	∞
Integration Time	2.60	Rectangular	√3	1	1	1.50	1.50	∞
RF Ambient Noise	3.00	Rectangular	√3	1	1	1.73	1.73	9
RF Ambient Reflections	3.00	Rectangular	√3	1	1	1.73	1.73	9
Probe Positioner	0.40	Rectangular	√3	1	1	0.23	0.23	∞
Probe Positioning	2.90	Rectangular	√3	1	1	1.67	1.67	∞
Max. SAR Eval.	1.00	Rectangular	√3	1	1	0.58	0.58	∞
<b>Test sample related</b>								
Sample positioning	1.90	Normal	1	1	1	1.90	1.90	4
Device holder uncertainty	2.80	Normal	1	1	1	2.80	2.80	4
Output power variation-SAR drift measurement	4.50	Rectangular	√3	1	1	2.60	2.60	1
<b>Dipole Related</b>								
Dipole Axis to Liquid Distance	1.60	Rectangular	√3	1	1	0.92	0.92	4
Input Power Drift	4.30	Rectangular	√3	1	1	2.48	2.48	1
<b>Phantom and Tissue parameters</b>								
Phantom Uncertainty	4.00	Rectangular	√3	1	1	2.31	2.31	∞
Liquid Conductivity (target)	5.00	Rectangular	√3	0.64	0.43	1.85	1.24	∞
Liquid Conductivity (measurement)	4.12	Normal	1	0.64	0.43	2.64	1.77	9
Liquid Permittivity (target)	5.00	Rectangular	√3	0.6	0.49	1.73	1.41	∞
Liquid Permittivity (measurement)	4.32	Normal	1	0.6	0.49	2.59	2.12	9
<b>Combined Standard Uncertainty</b>						<b>9.68</b>	<b>9.20</b>	
<b>Coverage Factor for 95%</b>						<b>Kp=2</b>		
<b>Expanded Uncertainty (K=2)</b>						<b>19.35</b>	<b>18.41</b>	



## 6. TEST RESULTS

### 6.1 TEST PROCEDURES

The EUT makes a phone call to the communication simulator station. Establish the simulation communication configuration rather the actual communication. Then the EUT could continuous the transmission mode. Adjust the PCL of the base station could controlled the EUT to transmitted the maximum output power. The base station also could control the transmission channel. The SAR value was calculated via the 3D spline interpolation algorithm that has been implemented in the software of DASY4/5 SAR measurement system manufactured and calibrated by SPEAG. According to the IEEE 1528, the recommended procedure for assessing the peak spatial-average SAR value consists of the following steps:

- Power reference measurement
- Verification of the power reference measurement
- Area scan
- Zoom scan
- Power reference measurement



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In the zoom scan, the distance between the measurement point at the probe sensor location (geometric center behind the probe tip) and the phantom surface is 2.0 mm and maintained at a constant distance of  $\pm 1.0$  mm during a zoom scan to determine peak SAR locations. The distance is 2mm between the first measurement point and the bottom surface of the phantom.

The measurement time is 0.5 s at each point of the zoom scan. The probe boundary effect compensation shall be applied during the SAR test. Because of the tip of the probe to the Phantom surface separated distances are longer than half a tip probe diameter.

In the area scan, the separation distance is 2mm between the each measurement point and the phantom surface. The scan size shall be included the transmission portion of the EUT. The measurement time is the same as the zoom scan. At last the reference power drift shall be less than  $\pm 5\%$ .

## 6.2 MEASURED CONDUCTED POWER OF DUT

Band	GSM850			GSM1900		
	128	190	251	512	661	810
Channel	128	190	251	512	661	810
Frequency (MHz)	824.2	836.6	848.8	1850.2	1880	1909.8
GSM	32.48	32.73	32.77	29.82	30.15	29.86
GPRS 8	32.49	32.46	32.81	29.76	30.11	29.81
GPRS 10	31.00	31.02	31.03	28.48	28.39	28.48
GPRS 12	26.81	26.59	26.75	25.95	25.96	25.35

Band	WCDMA Band V		
	4132	4182	4233
Channel	4132	4182	4233
Frequency (MHz)	826.4	836.4	846.6
RMC 12.2K	23.85	23.98	23.79
HSDPA Subtest-1	23.40	23.48	23.30
HSDPA Subtest-2	23.30	23.44	23.25
HSDPA Subtest-3	22.97	23.04	22.97
HSDPA Subtest-4	23.04	23.11	23.04
HSUPA Subtest-1	23.27	23.46	23.20
HSUPA Subtest-2	22.08	22.15	22.11
HSUPA Subtest-3	22.22	22.51	22.18
HSUPA Subtest-4	22.16	22.35	22.25
HSUPA Subtest-5	23.33	23.38	23.29

Band	802.11b			802.11g		
	1	6	11	1	6	11
Channel	1	6	11	1	6	11
Frequency (MHz)	2412	2437	2462	2412	2437	2462
Average Power (dBm)	11.80	11.30	11.00	11.80	11.30	10.90

Band	802.11n (BW 20MHz)			-		
	1	6	11	-	-	-
Channel	1	6	11	-	-	-
Frequency (MHz)	2412	2437	2462	-	-	-
Average Power (dBm)	11.70	11.20	10.70	-	-	-



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### 6.3 MEASURED SAR RESULTS

#### <Head SAR>

Plot No.	Band	Test Position	Channel	SAR <sub>1g</sub> (W/kg)
1	GSM850	Right Cheek	251	<b>0.183</b>
2	GSM850	Right Tilted	251	0.114
3	GSM850	Left Cheek	251	0.148
4	GSM850	Left Tilted	251	0.114
21	GSM1900	Right Cheek	661	0.262
22	GSM1900	Right Tilted	661	0.111
23	GSM1900	Left Cheek	661	<b>0.41</b>
24	GSM1900	Left Tilted	661	0.13
10	WCDMA V	Right Cheek	4182	<b>0.42</b>
11	WCDMA V	Right Tilted	4182	0.275
12	WCDMA V	Left Cheek	4182	0.245
13	WCDMA V	Left Tilted	4182	0.163

#### <Body SAR: Body Worn Mode>

Plot No.	Band	Mode	Test Position	Separation Distance (cm)	Ch.	Earphone	SAR <sub>1g</sub> (W/kg)
5	GSM850	GPRS10	Front Face	1	251	w/o	0.231
6	GSM850	GPRS10	Rear Face	1	251	w/o	<b>0.342</b>
20	GSM850	GPRS10	Rear Face	1	251	1	0.334
25	GSM1900	GPRS12	Front Face	1	661	w/o	<b>1.03</b>
26	GSM1900	GPRS12	Rear Face	1	661	w/o	0.764
32	GSM1900	GPRS12	Front Face	1	661	1	0.814
30	GSM1900	GPRS12	Front Face	1	512	w/o	0.923
31	GSM1900	GPRS12	Front Face	1	810	w/o	0.665
33	GSM1900	GPRS12	Front Face	1	512	1	0.896
34	GSM1900	GPRS12	Front Face	1	810	1	0.653
14	WCDMA V	RMC12.2K	Front Face	1	4182	w/o	<b>0.476</b>
15	WCDMA V	RMC12.2K	Rear Face	1	4182	w/o	0.242
19	WCDMA V	RMC12.2K	Front Face	1	4182	1	0.27

### <Body SAR: Hotspot Mode>

Plot No.	Band	Mode	Test Position	Separation Distance (cm)	Ch.	Earphone	SAR <sub>1g</sub> (W/kg)
5	GSM850	GPRS10	Front Face	1	251	w/o	0.231
6	GSM850	GPRS10	Rear Face	1	251	w/o	<b>0.342</b>
7	GSM850	GPRS10	Left Side	1	251	w/o	0.087
8	GSM850	GPRS10	Right Side	1	251	w/o	0.269
9	GSM850	GPRS10	Down Side	1	251	w/o	0.048
20	GSM850	GPRS10	Rear Face	1	251	1	0.334
25	GSM1900	GPRS12	Front Face	1	661	w/o	<b>1.03</b>
26	GSM1900	GPRS12	Rear Face	1	661	w/o	0.764
27	GSM1900	GPRS12	Left Side	1	661	w/o	0.141
28	GSM1900	GPRS12	Right Side	1	661	w/o	0.138
29	GSM1900	GPRS12	Down Side	1	661	w/o	0.667
32	GSM1900	GPRS12	Front Face	1	661	1	0.814
30	GSM1900	GPRS12	Front Face	1	512	w/o	0.923
31	GSM1900	GPRS12	Front Face	1	810	w/o	0.665
33	GSM1900	GPRS12	Front Face	1	512	1	0.896
34	GSM1900	GPRS12	Front Face	1	810	1	0.653
14	WCDMA V	RMC12.2K	Front Face	1	4182	w/o	<b>0.476</b>
15	WCDMA V	RMC12.2K	Rear Face	1	4182	w/o	0.242
16	WCDMA V	RMC12.2K	Left Side	1	4182	w/o	0.298
17	WCDMA V	RMC12.2K	Right Side	1	4182	w/o	0.406
18	WCDMA V	RMC12.2K	Down Side	1	4182	w/o	0.071
19	WCDMA V	RMC12.2K	Front Face	1	4182	1	0.27

## 6.4 SIMULTANEOUS TRANSMISSION EVALUATION

According to KDB 648474, the WLAN/BT standalone SAR and simultaneous transmission SAR for WWAN and WLAN/BT were not required, because the closest separation distance (9.2 cm) between WWAN and WLAN/BT antennas are larger than 5 cm and WLAN/BT power is less than  $2P_{Ref}$ . The WLAN and BT cannot transmit simultaneously, so there is no co-location test requirement for WLAN and BT.



## 6.5 SAR LIMITS

HUMAN EXPOSURE	SAR (W/kg)	
	(General Population / Uncontrolled Exposure Environment)	(Occupational / controlled Exposure Environment)
Spatial Average (whole body)	0.08	0.4
Spatial Peak (averaged over 1 g)	1.6	8.0
Spatial Peak (hands/wrists/feet/ankles averaged over 10 g)	4.0	20.0

**NOTE:** This limits accord to 47 CFR 2.1093 – Safety Limit.



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## 7. INFORMATION ON THE TESTING LABORATORIES

We, Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch, were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are accredited and approved according to ISO/IEC 17025.

Copies of accreditation certificates of our laboratories obtained from approval agencies can be downloaded from our web site: [www.adt.com.tw/index.5.phtml](http://www.adt.com.tw/index.5.phtml). If you have any comments, please feel free to contact us at the following:

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**Hsin Chu EMC/RF Lab:**

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Fax: 886-3-5935342

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**Web Site:** [www.adt.com.tw](http://www.adt.com.tw)

The address and road map of all our labs can be found in our web site also.

## SystemCheck\_HSL835\_110920

### DUT: Dipole 835 MHz

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

Medium: HSL835\_0920 Medium parameters used:  $f = 835 \text{ MHz}$ ;  $\sigma = 0.907 \text{ mho/m}$ ;  $\epsilon_r = 40.7$ ;  $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature :  $22.5 \text{ }^\circ\text{C}$ ; Liquid Temperature :  $21.2 \text{ }^\circ\text{C}$

#### DASY4 Configuration:

- Probe: EX3DV4 - SN3800; ConvF(8.7, 8.7, 8.7); Calibrated: 2011/8/5
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1277; Calibrated: 2011/7/29
- Phantom: SAM Phantom\_Left; Type: SAM V4.0; Serial: TP 1652
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**Pin=250mW/Area Scan (61x81x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$

Maximum value of SAR (interpolated) =  $3.33 \text{ mW/g}$

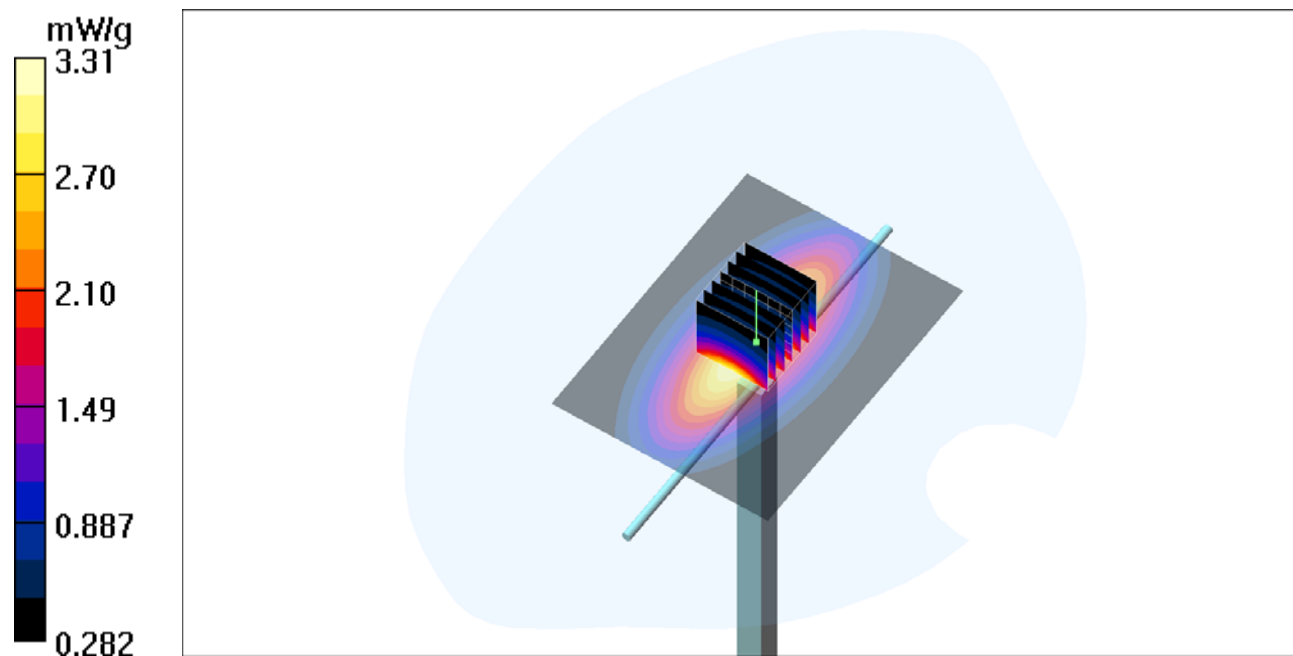
**Pin=250mW/Zoom Scan (7x7x7)/Cube 0:** Measurement grid:  $dx=5\text{mm}$ ,  $dy=5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value =  $66.3 \text{ V/m}$ ; Power Drift =  $-0.102 \text{ dB}$

Peak SAR (extrapolated) =  $3.92 \text{ W/kg}$

**SAR(1 g) =  $2.6 \text{ mW/g}$ ; SAR(10 g) =  $1.69 \text{ mW/g}$**

Maximum value of SAR (measured) =  $3.31 \text{ mW/g}$





## SystemCheck\_MSL835\_110920

### DUT: Dipole 835 MHz

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

Medium: MSL835\_0920 Medium parameters used:  $f = 835 \text{ MHz}$ ;  $\sigma = 0.997 \text{ mho/m}$ ;  $\epsilon_r = 56$ ;  $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature : 22.5 °C; Liquid Temperature : 21.2 °C

#### DASY4 Configuration:

- Probe: EX3DV4 - SN3800; ConvF(8.94, 8.94, 8.94); Calibrated: 2011/8/5
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1277; Calibrated: 2011/7/29
- Phantom: SAM Phantom\_Front; Type: SAM V4.0; Serial: TP 1654
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**Pin=250mW/Area Scan (61x81x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 3.27 mW/g

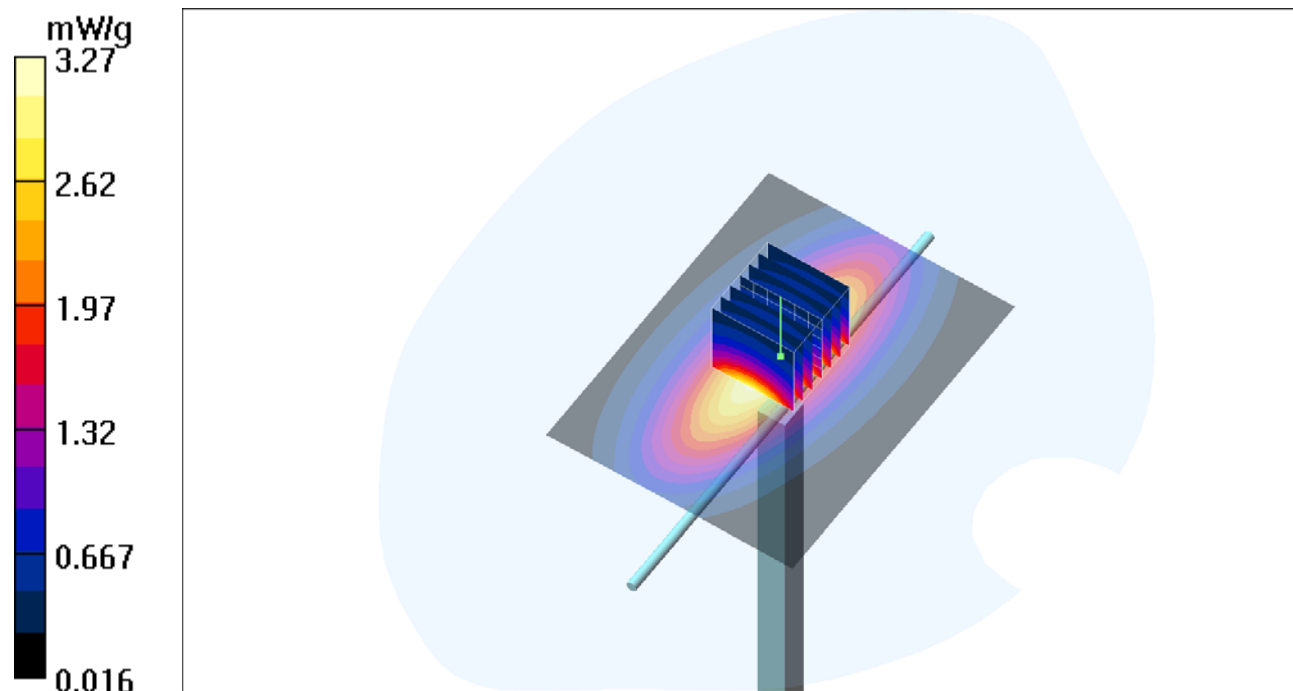
**dPin=250mW/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 58.0 V/m; Power Drift = -0.074 dB

Peak SAR (extrapolated) = 3.75 W/kg

**SAR(1 g) = 2.54 mW/g; SAR(10 g) = 1.66 mW/g**

Maximum value of SAR (measured) = 3.21 mW/g



## SystemCheck\_HSL1900\_110921

### DUT: Dipole 1900 MHz

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

Medium: HSL1900\_0921 Medium parameters used:  $f = 1900$  MHz;  $\sigma = 1.43$  mho/m;  $\epsilon_r = 41$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature : 22.8 °C; Liquid Temperature : 21.5 °C

#### DASY4 Configuration:

- Probe: EX3DV4 - SN3800; ConvF(7.46, 7.46, 7.46); Calibrated: 2011/8/5
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1277; Calibrated: 2011/7/29
- Phantom: SAM Phantom\_Left; Type: SAM V4.0; Serial: TP 1652
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**d=10mm, Pin=250mW/Area Scan (61x61x1):** Measurement grid: dx=15mm, dy=15mm  
Maximum value of SAR (interpolated) = 16.9 mW/g

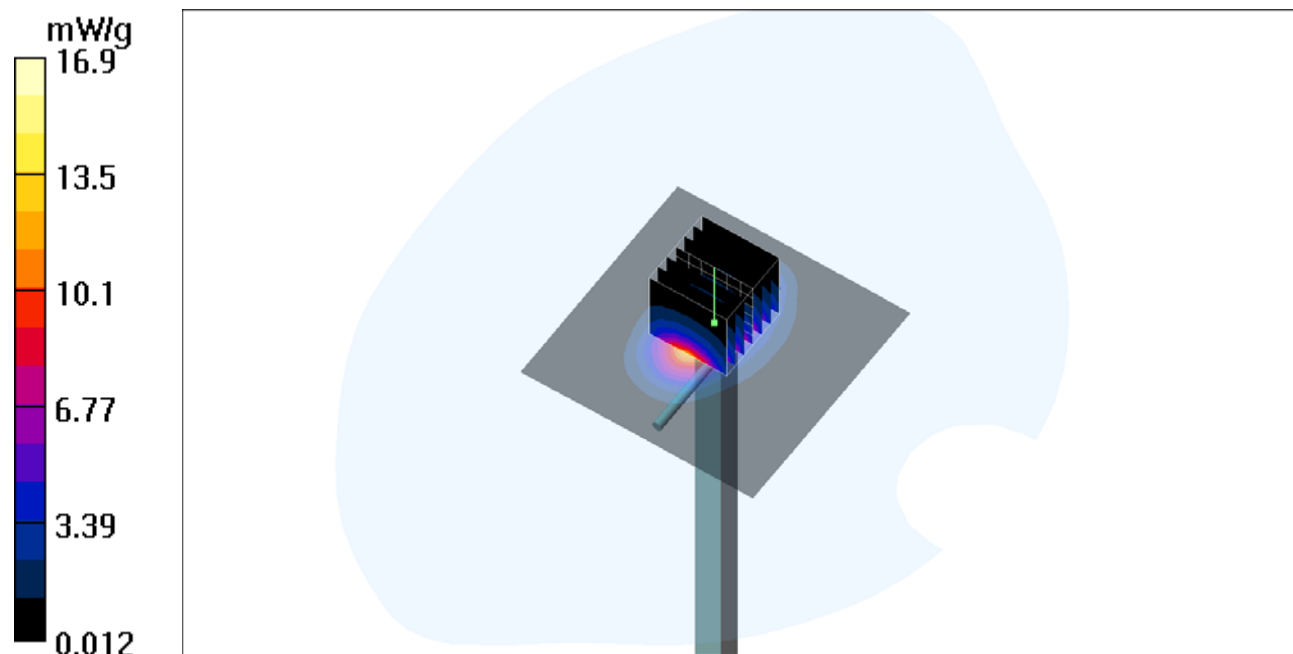
**d=10mm, Pin=250mW/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 97.5 V/m; Power Drift = 0.072 dB

Peak SAR (extrapolated) = 19.9 W/kg

**SAR(1 g) = 10.7 mW/g; SAR(10 g) = 5.56 mW/g**

Maximum value of SAR (measured) = 15.4 mW/g



## SystemCheck\_MSL1900\_110921

### DUT: Dipole 1900 MHz

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

Medium: MSL1900\_0921 Medium parameters used:  $f = 1900$  MHz;  $\sigma = 1.53$  mho/m;  $\epsilon_r = 52.9$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature : 22.2 °C; Liquid Temperature : 21.3 °C

#### DASY4 Configuration:

- Probe: EX3DV4 - SN3800; ConvF(6.97, 6.97, 6.97); Calibrated: 2011/8/5
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1277; Calibrated: 2011/7/29
- Phantom: SAM Phantom\_Front; Type: SAM V4.0; Serial: TP 1654
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**d=10mm, Pin=250mW/Area Scan (61x61x1):** Measurement grid: dx=15mm, dy=15mm  
Maximum value of SAR (interpolated) = 16.6 mW/g

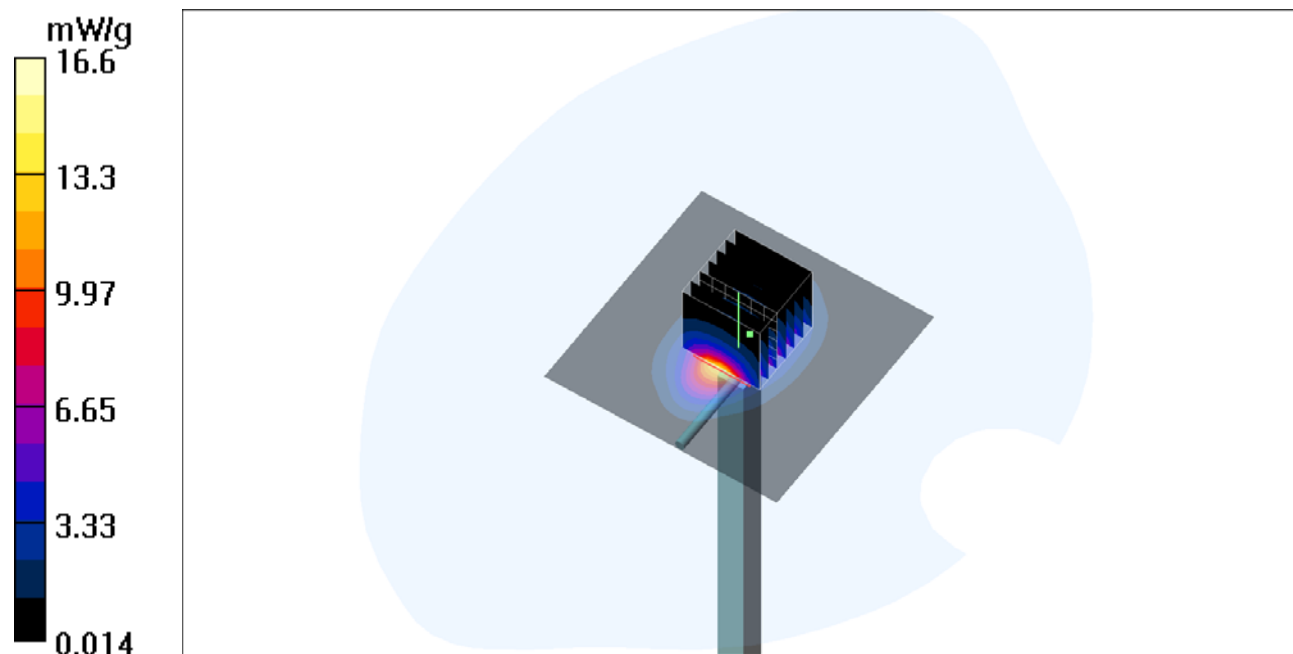
**d=10mm, Pin=250mW/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 104.5 V/m; Power Drift = 0.011 dB

Peak SAR (extrapolated) = 21.0 W/kg

**SAR(1 g) = 11.2 mW/g; SAR(10 g) = 5.66 mW/g**

Maximum value of SAR (measured) = 16.5 mW/g



### P01 GSM850\_Right Cheek\_Ch251

**DUT: 110811C11**

Communication System: GSM850; Frequency: 848.8 MHz; Duty Cycle: 1:8.3

Medium: HSL835\_0920 Medium parameters used:  $f = 849 \text{ MHz}$ ;  $\sigma = 0.92 \text{ mho/m}$ ;  $\epsilon_r = 40.5$ ;  $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature : 22.5 °C ; Liquid Temperature : 21.2 °C

DASY4 Configuration:

- Probe: EX3DV4 - SN3800; ConvF(8.7, 8.7, 8.7); Calibrated: 2011/8/5
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1277; Calibrated: 2011/7/29
- Phantom: SAM Phantom\_Left; Type: SAM V4.0; Serial: TP 1652
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**Ch251/Area Scan (51x81x1):** Measurement grid: dx=20mm, dy=20mm

Maximum value of SAR (interpolated) = 0.228 mW/g

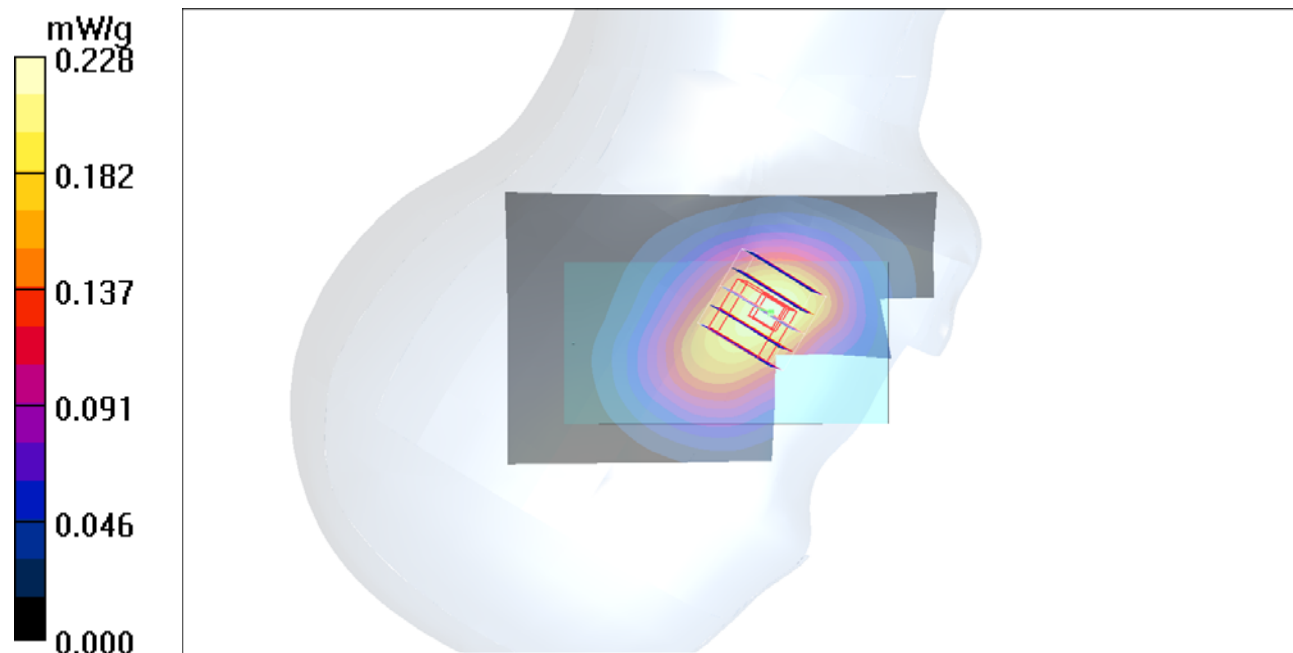
**Ch251/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 3.60 V/m; Power Drift = -0.12 dB

Peak SAR (extrapolated) = 0.246 W/kg

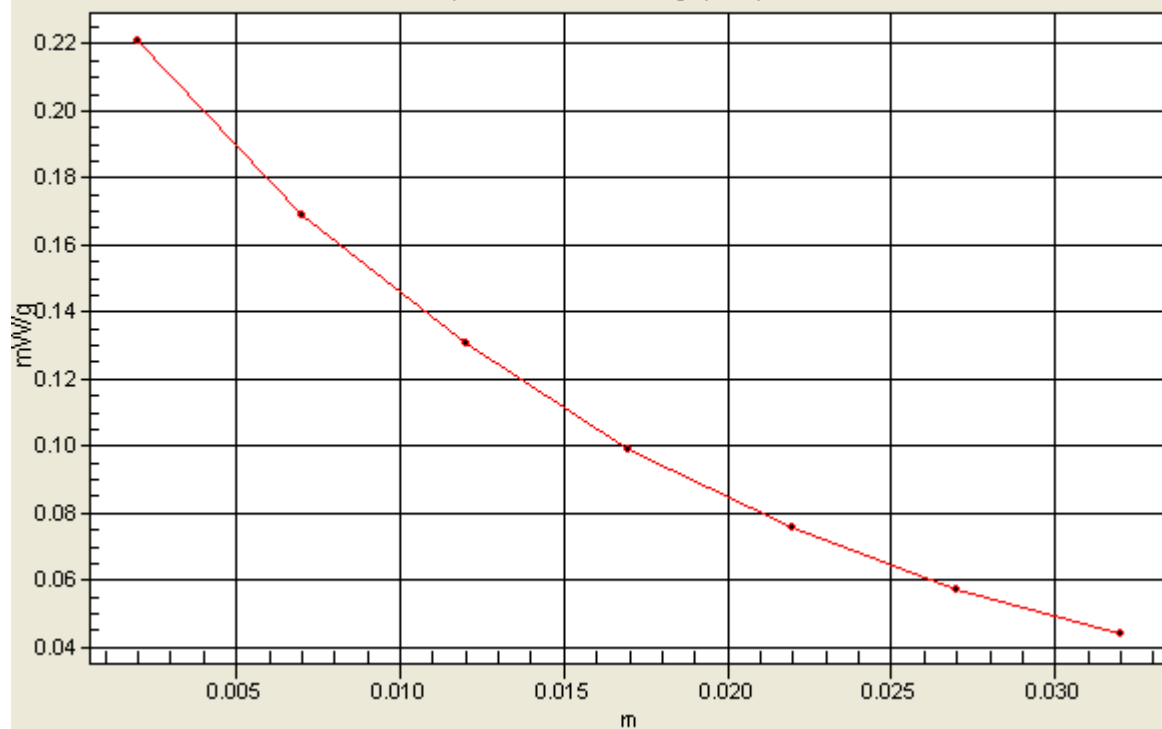
**SAR(1 g) = 0.183 mW/g; SAR(10 g) = 0.132 mW/g**

Maximum value of SAR (measured) = 0.221 mW/g



# 1g/10g Averaged SAR

SAR; Zoom Scan: Value Along Z, X=2, Y=2



## P02 GSM850\_Right Tilted\_Ch251

### DUT: 110811C11

Communication System: GSM850; Frequency: 848.8 MHz; Duty Cycle: 1:8.3

Medium: HSL835\_0920 Medium parameters used:  $f = 849 \text{ MHz}$ ;  $\sigma = 0.92 \text{ mho/m}$ ;  $\epsilon_r = 40.5$ ;  $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature :  $22.5 \text{ }^\circ\text{C}$ ; Liquid Temperature :  $21.2 \text{ }^\circ\text{C}$

#### DASY4 Configuration:

- Probe: EX3DV4 - SN3800; ConvF(8.7, 8.7, 8.7); Calibrated: 2011/8/5
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1277; Calibrated: 2011/7/29
- Phantom: SAM Phantom\_Left; Type: SAM V4.0; Serial: TP 1652
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**Ch251/Area Scan (51x81x1):** Measurement grid:  $dx=20\text{mm}$ ,  $dy=20\text{mm}$

Maximum value of SAR (interpolated) =  $0.131 \text{ mW/g}$

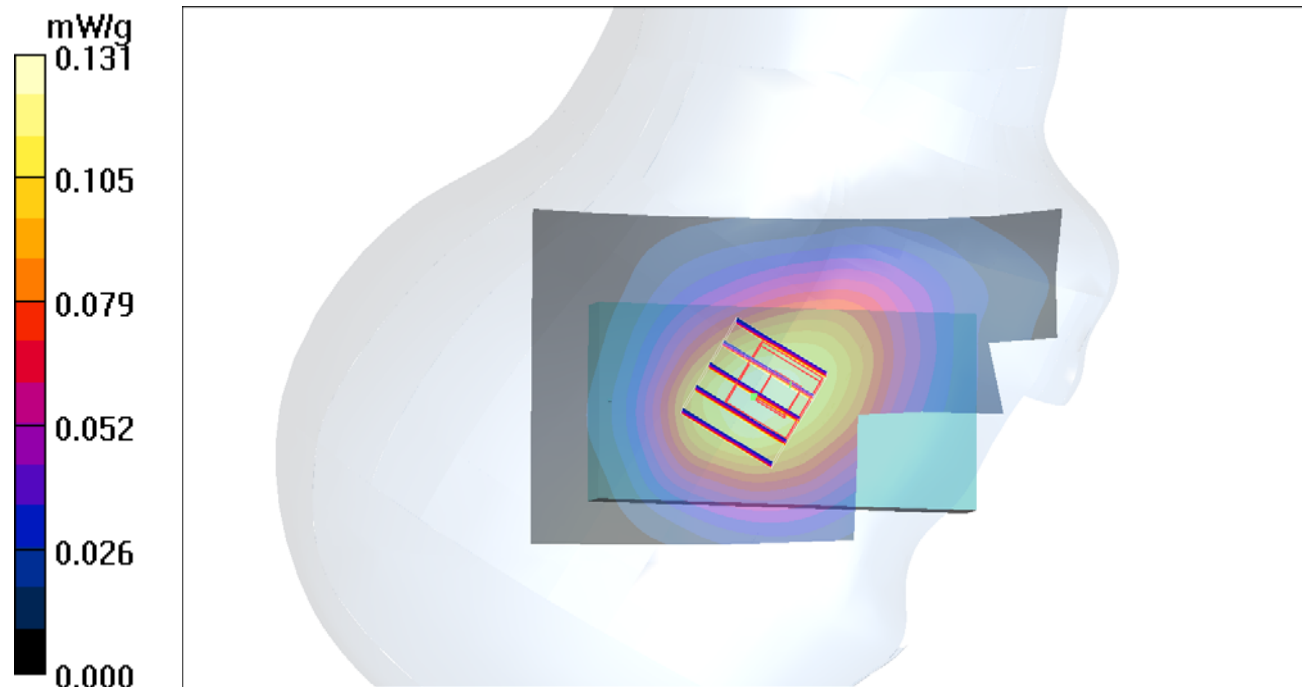
**Ch251/Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$

Reference Value =  $5.70 \text{ V/m}$ ; Power Drift =  $-0.165 \text{ dB}$

Peak SAR (extrapolated) =  $0.141 \text{ W/kg}$

**SAR(1 g) =  $0.114 \text{ mW/g}$ ; SAR(10 g) =  $0.086 \text{ mW/g}$**

Maximum value of SAR (measured) =  $0.129 \text{ mW/g}$



### P03 GSM850\_Left Cheek\_Ch251

**DUT: 110811C11**

Communication System: GSM850; Frequency: 848.8 MHz; Duty Cycle: 1:8.3

Medium: HSL835\_0920 Medium parameters used:  $f = 849 \text{ MHz}$ ;  $\sigma = 0.92 \text{ mho/m}$ ;  $\epsilon_r = 40.5$ ;  $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature :  $22.5 \text{ }^\circ\text{C}$ ; Liquid Temperature :  $21.2 \text{ }^\circ\text{C}$

DASY4 Configuration:

- Probe: EX3DV4 - SN3800; ConvF(8.7, 8.7, 8.7); Calibrated: 2011/8/5
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1277; Calibrated: 2011/7/29
- Phantom: SAM Phantom\_Left; Type: SAM V4.0; Serial: TP 1652
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**Ch251/Area Scan (51x81x1):** Measurement grid:  $dx=20\text{mm}$ ,  $dy=20\text{mm}$

Maximum value of SAR (interpolated) =  $0.169 \text{ mW/g}$

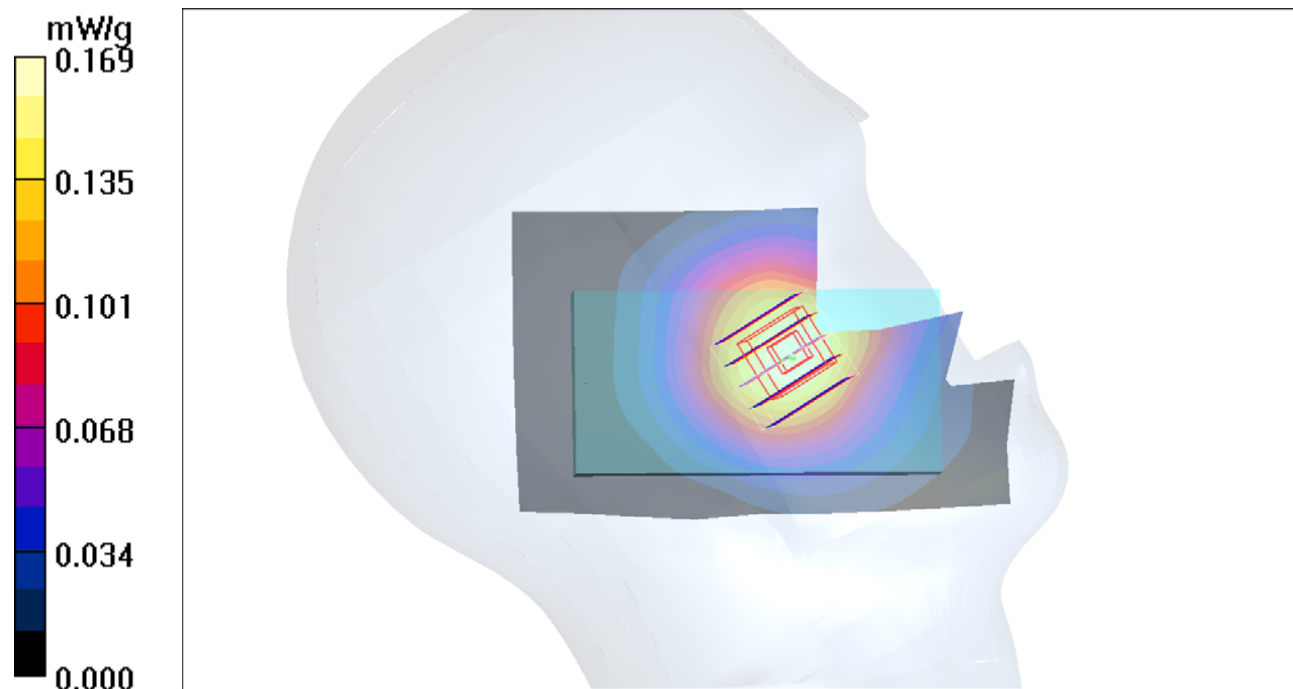
**Ch251/Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$

Reference Value =  $2.60 \text{ V/m}$ ; Power Drift =  $-0.04 \text{ dB}$

Peak SAR (extrapolated) =  $0.184 \text{ W/kg}$

**SAR(1 g) =  $0.148 \text{ mW/g}$ ; SAR(10 g) =  $0.112 \text{ mW/g}$**

Maximum value of SAR (measured) =  $0.170 \text{ mW/g}$



### P04 GSM850\_Left Tilted\_Ch251

#### DUT: 110811C11

Communication System: GSM850; Frequency: 848.8 MHz; Duty Cycle: 1:8.3

Medium: HSL835\_0920 Medium parameters used:  $f = 849 \text{ MHz}$ ;  $\sigma = 0.92 \text{ mho/m}$ ;  $\epsilon_r = 40.5$ ;  $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature :  $22.5 \text{ }^\circ\text{C}$ ; Liquid Temperature :  $21.3 \text{ }^\circ\text{C}$

#### DASY4 Configuration:

- Probe: EX3DV4 - SN3800; ConvF(8.7, 8.7, 8.7); Calibrated: 2011/8/5
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1277; Calibrated: 2011/7/29
- Phantom: SAM Phantom\_Left; Type: SAM V4.0; Serial: TP 1652
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**Ch251/Area Scan (51x81x1):** Measurement grid:  $dx=20\text{mm}$ ,  $dy=20\text{mm}$

Maximum value of SAR (interpolated) =  $0.134 \text{ mW/g}$

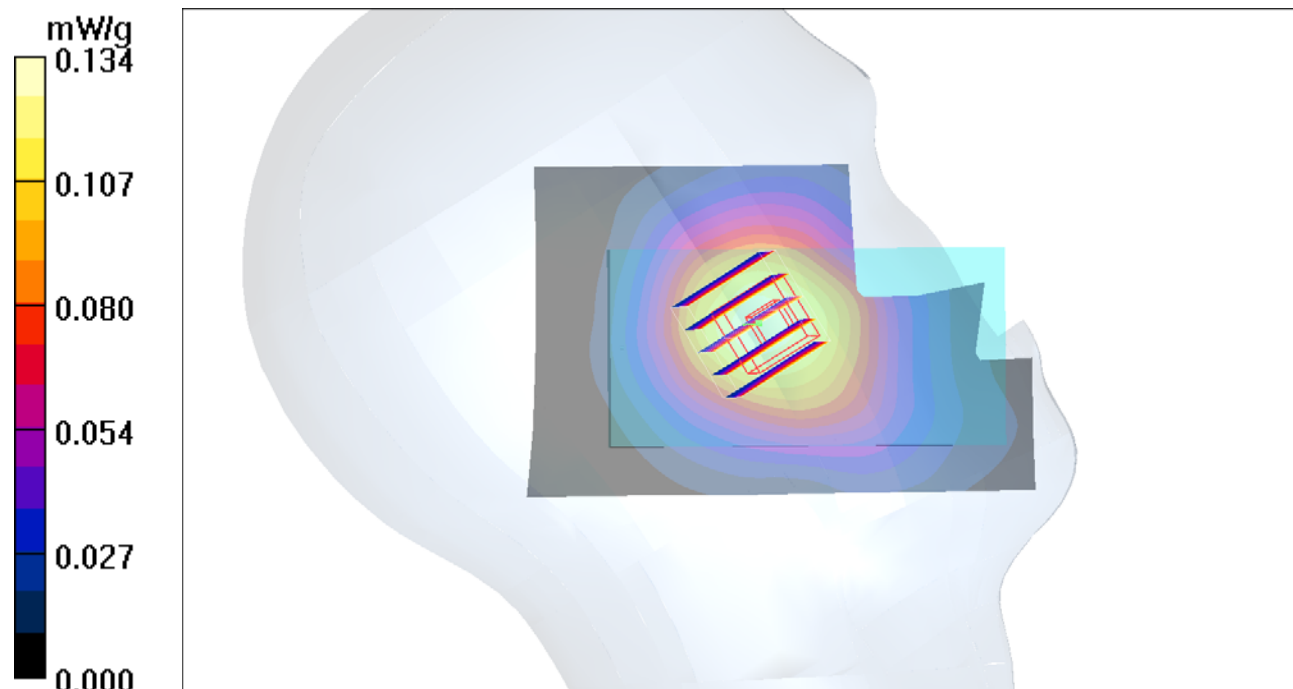
**Ch251/Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$

Reference Value =  $5.79 \text{ V/m}$ ; Power Drift =  $-0.007 \text{ dB}$

Peak SAR (extrapolated) =  $0.140 \text{ W/kg}$

**SAR(1 g) =  $0.114 \text{ mW/g}$ ; SAR(10 g) =  $0.087 \text{ mW/g}$**

Maximum value of SAR (measured) =  $0.128 \text{ mW/g}$





## P21 GSM1900\_Right Cheek\_Ch661

### DUT: 110811C11

Communication System: GSM1900; Frequency: 1880 MHz; Duty Cycle: 1:8.3

Medium: HSL1900\_0921 Medium parameters used:  $f = 1880$  MHz;  $\sigma = 1.41$  mho/m;  $\epsilon_r = 41$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature : 22.8 °C; Liquid Temperature : 21.5 °C

#### DASY4 Configuration:

- Probe: EX3DV4 - SN3800; ConvF(7.46, 7.46, 7.46); Calibrated: 2011/8/5
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1277; Calibrated: 2011/7/29
- Phantom: SAM Phantom\_Left; Type: SAM V4.0; Serial: TP 1652
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**Ch661/Area Scan (51x81x1):** Measurement grid: dx=20mm, dy=20mm

Maximum value of SAR (interpolated) = 0.355 mW/g

**Ch661/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 4.42 V/m; Power Drift = 0.187 dB

Peak SAR (extrapolated) = 0.401 W/kg

**SAR(1 g) = 0.262 mW/g; SAR(10 g) = 0.157 mW/g**

Maximum value of SAR (measured) = 0.334 mW/g

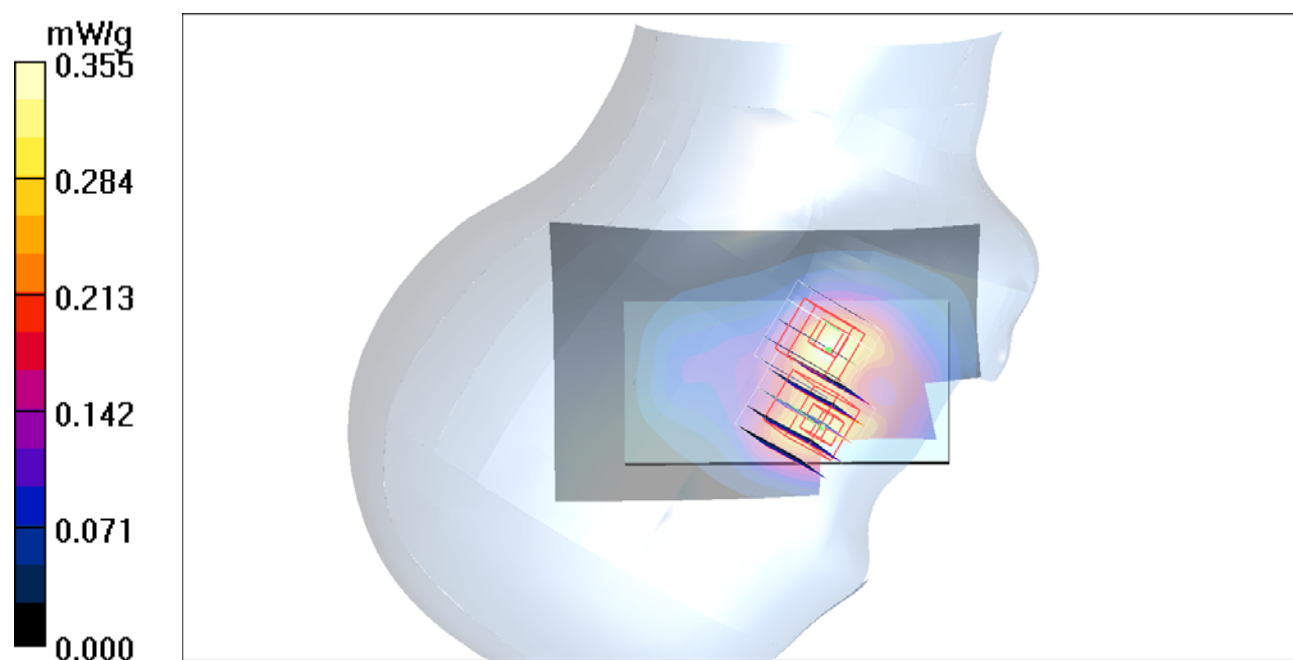
**Ch661/Zoom Scan (5x5x7)/Cube 1:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 4.42 V/m; Power Drift = 0.187 dB

Peak SAR (extrapolated) = 0.351 W/kg

**SAR(1 g) = 0.243 mW/g; SAR(10 g) = 0.157 mW/g**

Maximum value of SAR (measured) = 0.301 mW/g



## P22 GSM1900\_Right Tilted\_Ch661

### DUT: 110811C11

Communication System: GSM1900; Frequency: 1880 MHz; Duty Cycle: 1:8.3

Medium: HSL1900\_0921 Medium parameters used:  $f = 1880$  MHz;  $\sigma = 1.41$  mho/m;  $\epsilon_r = 41$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature : 22.8 °C; Liquid Temperature : 21.5 °C

#### DASY4 Configuration:

- Probe: EX3DV4 - SN3800; ConvF(7.46, 7.46, 7.46); Calibrated: 2011/8/5
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1277; Calibrated: 2011/7/29
- Phantom: SAM Phantom\_Left; Type: SAM V4.0; Serial: TP 1652
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**Ch661/Area Scan (51x81x1):** Measurement grid: dx=20mm, dy=20mm

Maximum value of SAR (interpolated) = 0.178 mW/g

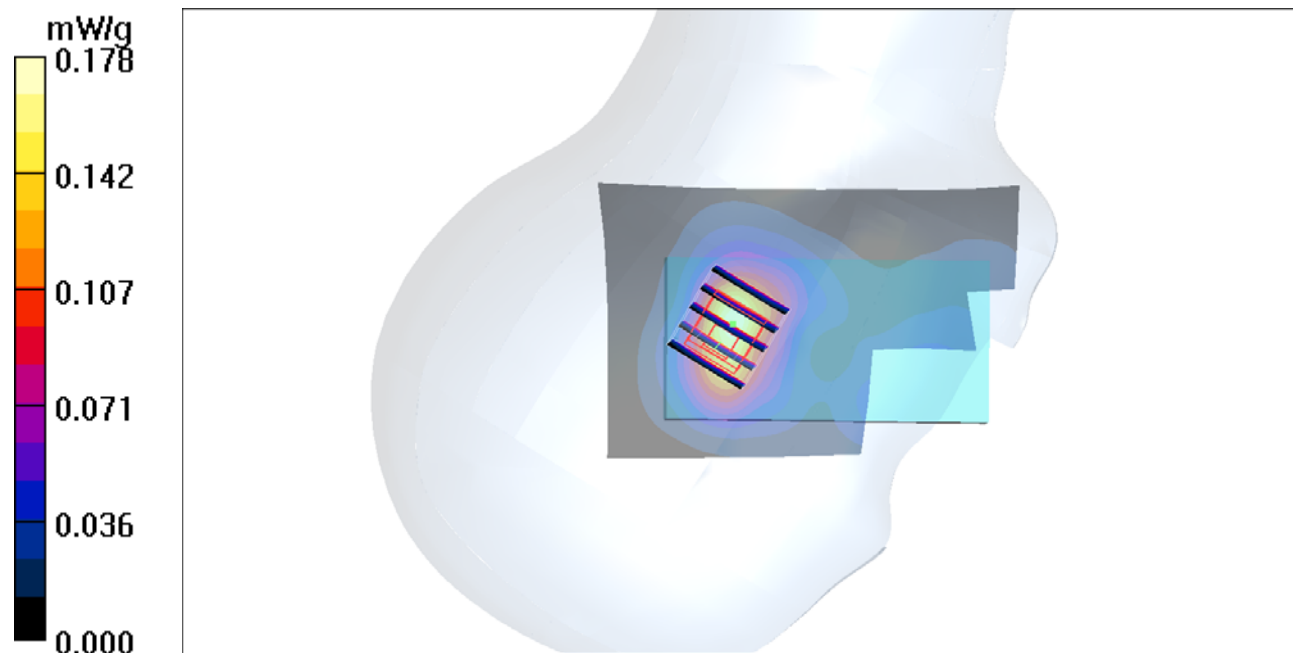
**Ch661/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 6.57 V/m; Power Drift = -0.192 dB

Peak SAR (extrapolated) = 0.163 W/kg

**SAR(1 g) = 0.111 mW/g; SAR(10 g) = 0.072 mW/g**

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



### P23 GSM1900\_Left Cheek\_Ch661

#### DUT: 110811C11

Communication System: GSM1900; Frequency: 1880 MHz; Duty Cycle: 1:8.3

Medium: HSL1900\_0921 Medium parameters used:  $f = 1880$  MHz;  $\sigma = 1.41$  mho/m;  $\epsilon_r = 41$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature : 22.8 °C; Liquid Temperature : 21.5 °C

#### DASY4 Configuration:

- Probe: EX3DV4 - SN3800; ConvF(7.46, 7.46, 7.46); Calibrated: 2011/8/5
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1277; Calibrated: 2011/7/29
- Phantom: SAM Phantom\_Left; Type: SAM V4.0; Serial: TP 1652
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**Ch661/Area Scan (51x81x1):** Measurement grid: dx=20mm, dy=20mm

Maximum value of SAR (interpolated) = 0.482 mW/g

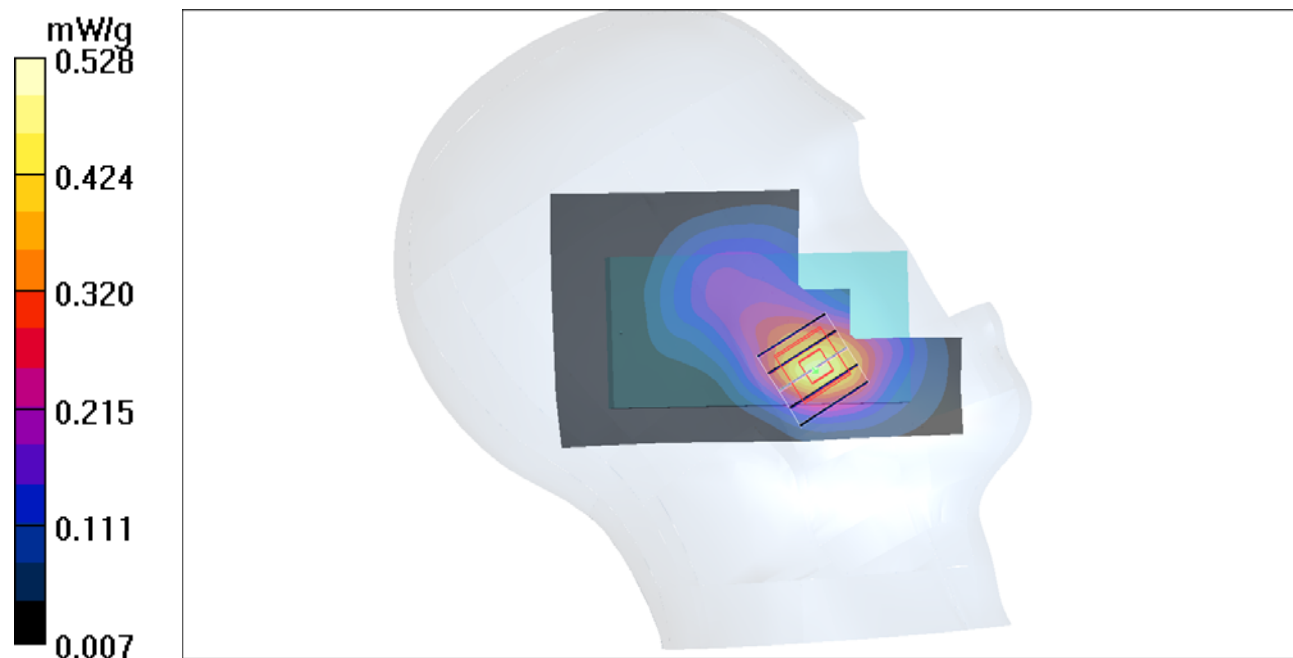
**Ch661/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 3.34 V/m; Power Drift = -0.046 dB

Peak SAR (extrapolated) = 0.624 W/kg

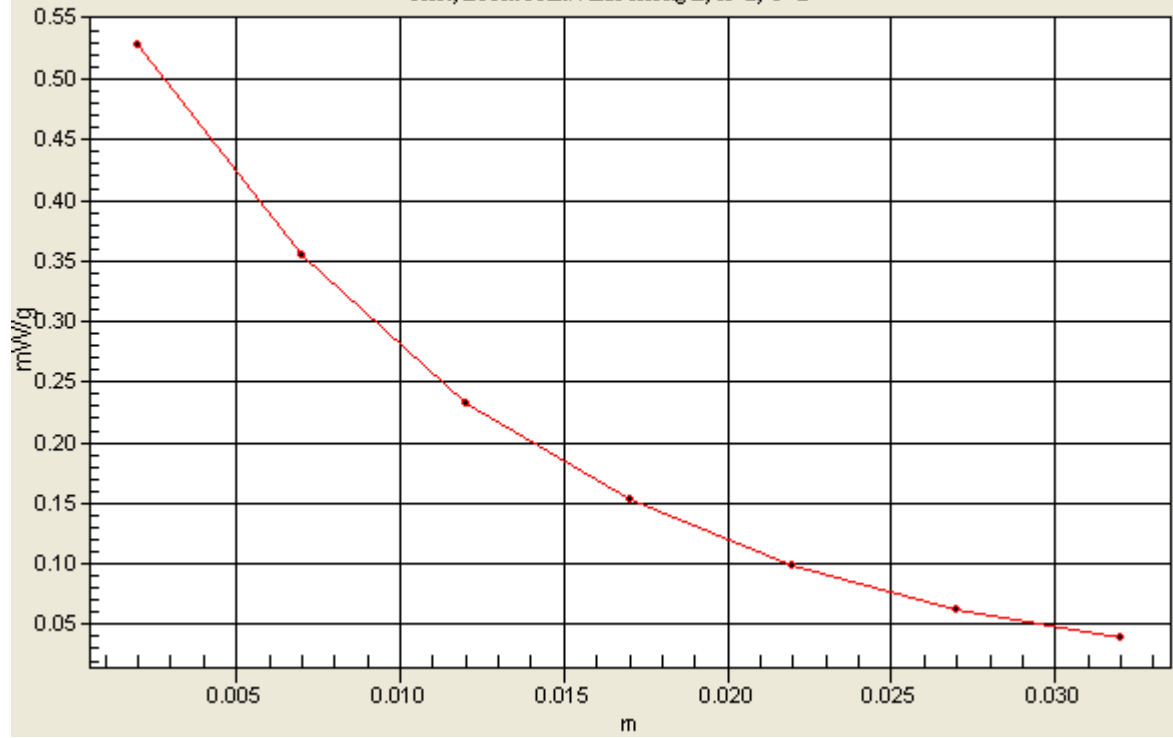
**SAR(1 g) = 0.410 mW/g; SAR(10 g) = 0.244 mW/g**

Maximum value of SAR (measured) = 0.528 mW/g



# 1g/10g Averaged SAR

SAR; Zoom Scan: Value Along Z, X=2, Y=2



## P24 GSM1900\_Left Tilted\_Ch661

### DUT: 110811C11

Communication System: GSM1900; Frequency: 1880 MHz; Duty Cycle: 1:8.3

Medium: HSL1900\_0921 Medium parameters used:  $f = 1880$  MHz;  $\sigma = 1.41$  mho/m;  $\epsilon_r = 41$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature : 22.8 °C; Liquid Temperature : 21.5 °C

#### DASY4 Configuration:

- Probe: EX3DV4 - SN3800; ConvF(7.46, 7.46, 7.46); Calibrated: 2011/8/5
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1277; Calibrated: 2011/7/29
- Phantom: SAM Phantom\_Left; Type: SAM V4.0; Serial: TP 1652
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**Ch661/Area Scan (51x81x1):** Measurement grid: dx=20mm, dy=20mm

Maximum value of SAR (interpolated) = 0.194 mW/g

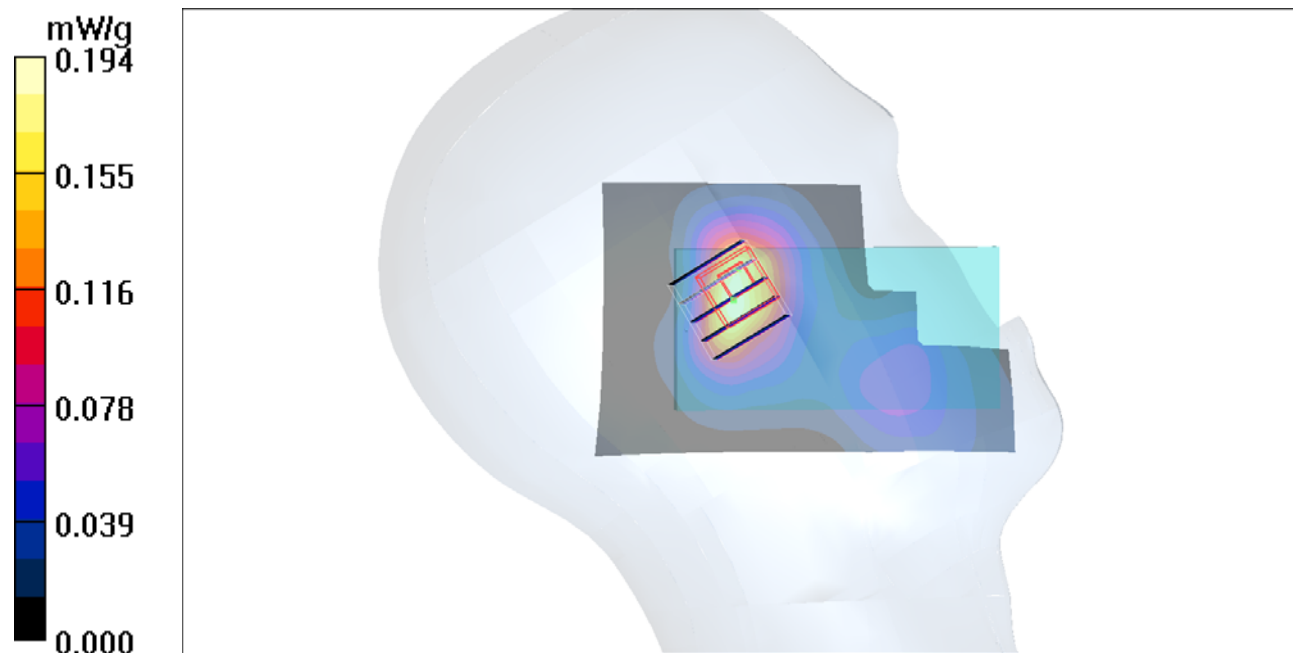
**Ch661/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 6.68 V/m; Power Drift = -0.067 dB

Peak SAR (extrapolated) = 0.194 W/kg

**SAR(1 g) = 0.130 mW/g; SAR(10 g) = 0.082 mW/g**

Maximum value of SAR (measured) = 0.163 mW/g



## P10 WCDMA V\_Right Cheek\_Ch4182

### DUT: 110811C11

Communication System: WCDMA850; Frequency: 836.4 MHz; Duty Cycle: 1:1

Medium: HSL835\_0920 Medium parameters used :  $f = 836.4$  MHz;  $\sigma = 0.908$  mho/m;  $\epsilon_r = 40.7$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature : 22.5 °C; Liquid Temperature : 21.2 °C

#### DASY4 Configuration:

- Probe: EX3DV4 - SN3800; ConvF(8.7, 8.7, 8.7); Calibrated: 2011/8/5
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1277; Calibrated: 2011/7/29
- Phantom: SAM Phantom\_Left; Type: SAM V4.0; Serial: TP 1652
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**Ch4182/Area Scan (51x81x1):** Measurement grid: dx=20mm, dy=20mm

Maximum value of SAR (interpolated) = 0.508 mW/g

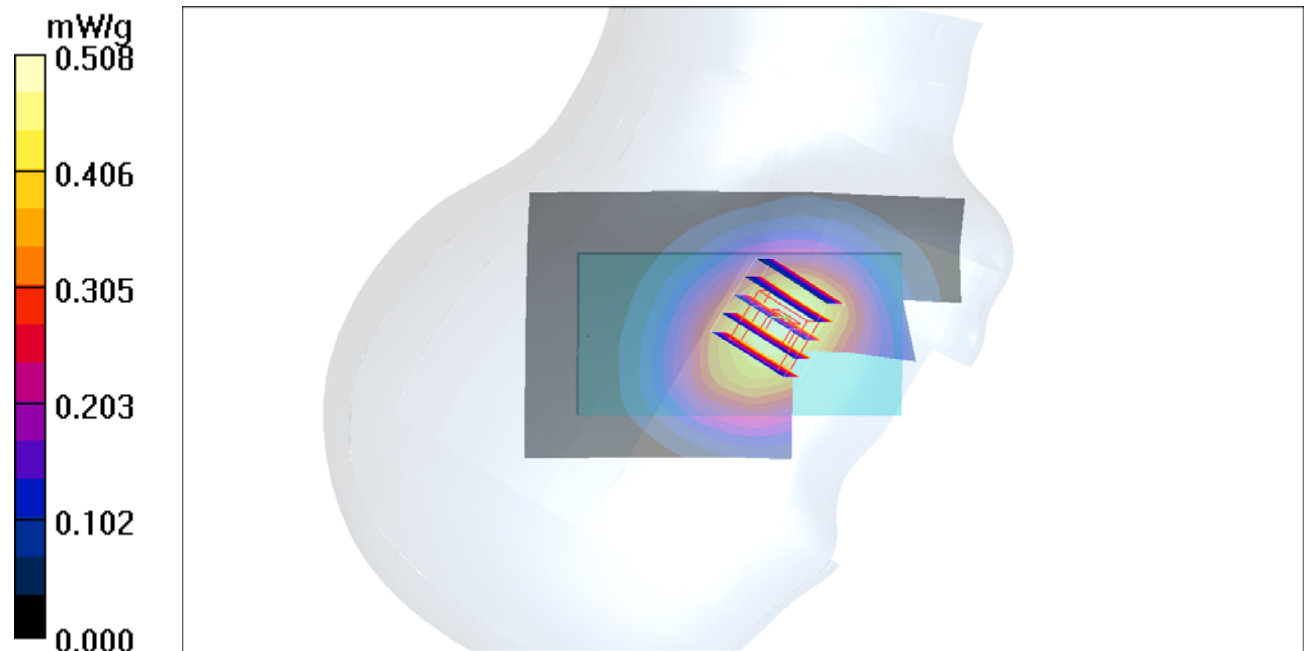
**Ch4182/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 4.19 V/m; Power Drift = 0.188 dB

Peak SAR (extrapolated) = 0.532 W/kg

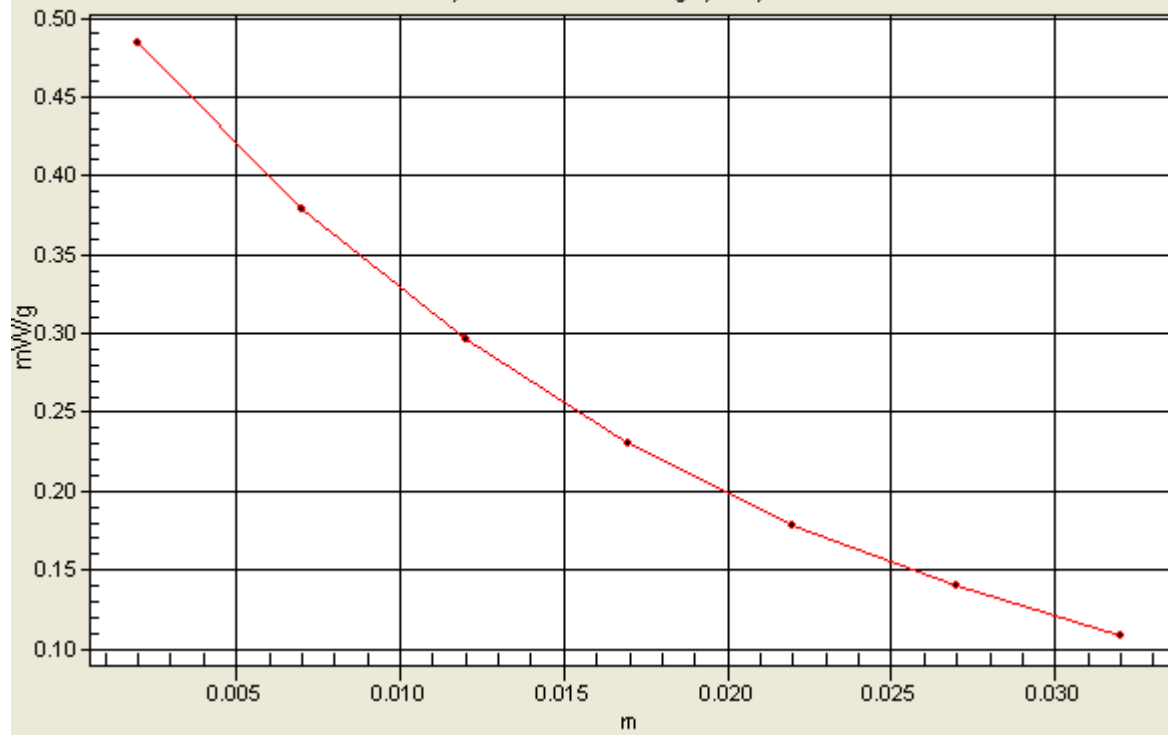
**SAR(1 g) = 0.420 mW/g; SAR(10 g) = 0.314 mW/g**

Maximum value of SAR (measured) = 0.482 mW/g



# 1g/10g Averaged SAR

SAR; Zoom Scan: Value Along Z, X=2, Y=2



## P11 WCDMA V\_Right Tilt\_Ch4182

### DUT: 110811C11

Communication System: WCDMA850; Frequency: 836.4 MHz; Duty Cycle: 1:1

Medium: HSL835\_0920 Medium parameters used :  $f = 836.4$  MHz;  $\sigma = 0.908$  mho/m;  $\epsilon_r = 40.7$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature : 22.8 °C; Liquid Temperature : 21. °C

#### DASY4 Configuration:

- Probe: EX3DV4 - SN3800; ConvF(8.7, 8.7, 8.7); Calibrated: 2011/8/5
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1277; Calibrated: 2011/7/29
- Phantom: SAM Phantom\_Left; Type: SAM V4.0; Serial: TP 1652
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**Ch4182/Area Scan (51x81x1):** Measurement grid: dx=20mm, dy=20mm

Maximum value of SAR (interpolated) = 0.326 mW/g

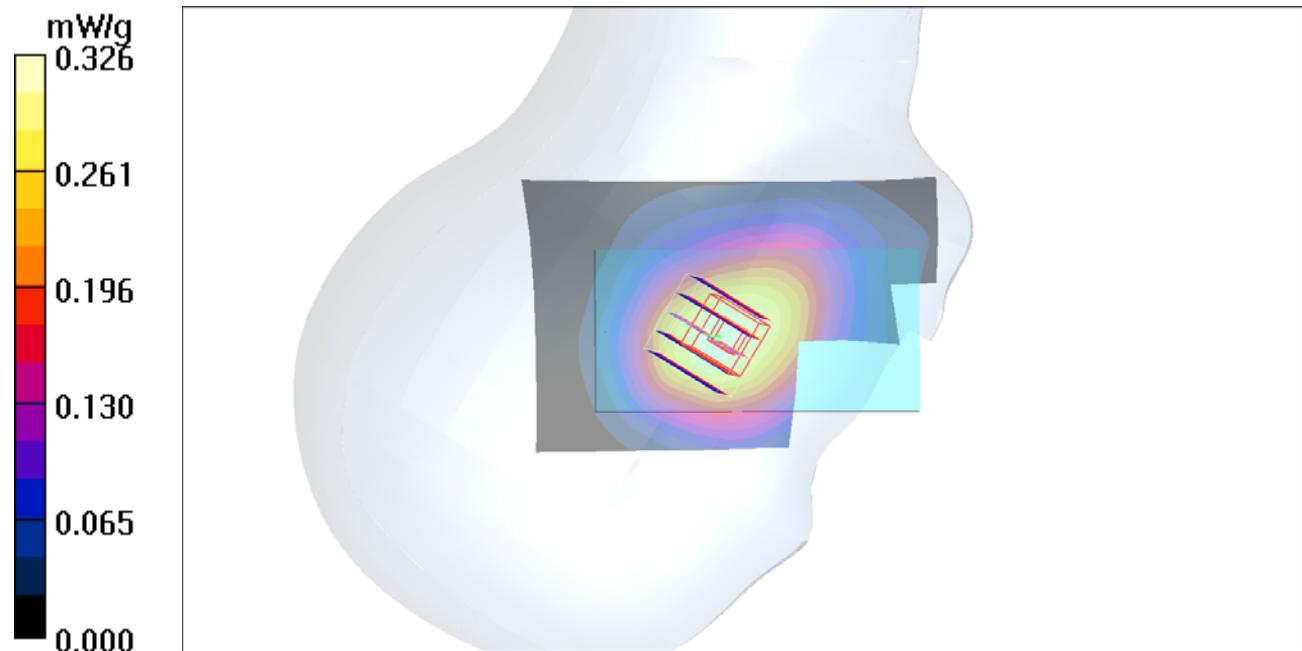
**Ch4182/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 9.29 V/m; Power Drift = -0.104 dB

Peak SAR (extrapolated) = 0.339 W/kg

**SAR(1 g) = 0.275 mW/g; SAR(10 g) = 0.210 mW/g**

Maximum value of SAR (measured) = 0.309 mW/g





## P12 WCDMA V\_Left Cheek\_Ch4182

**DUT: 110811C11**

Communication System: WCDMA850; Frequency: 836.4 MHz; Duty Cycle: 1:1

Medium: HSL835\_0920 Medium parameters used :  $f = 836.4$  MHz;  $\sigma = 0.908$  mho/m;  $\epsilon_r = 40.7$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature : 22.8 °C; Liquid Temperature : 21. °C

DASY4 Configuration:

- Probe: EX3DV4 - SN3800; ConvF(8.7, 8.7, 8.7); Calibrated: 2011/8/5
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1277; Calibrated: 2011/7/29
- Phantom: SAM Phantom\_Left; Type: SAM V4.0; Serial: TP 1652
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**Ch4182/Area Scan (51x81x1):** Measurement grid: dx=20mm, dy=20mm

Maximum value of SAR (interpolated) = 0.285 mW/g

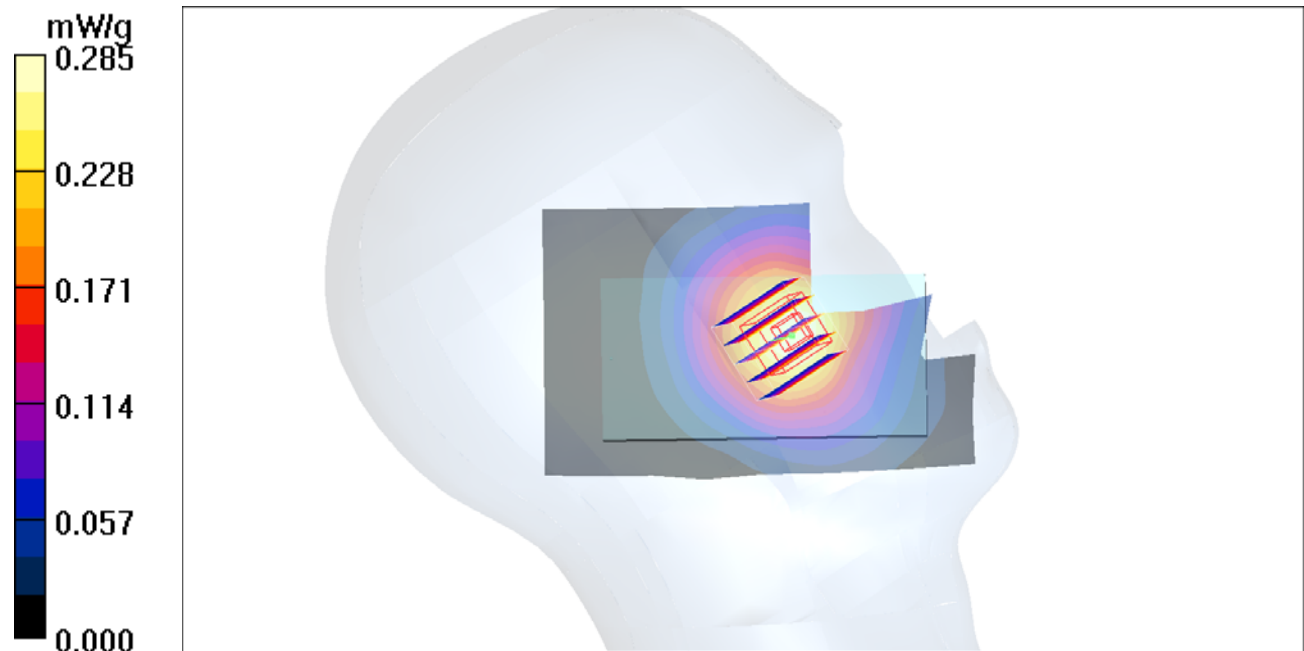
**Ch4182/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 3.16 V/m; Power Drift = -0.101 dB

Peak SAR (extrapolated) = 0.304 W/kg

**SAR(1 g) = 0.245 mW/g; SAR(10 g) = 0.185 mW/g**

Maximum value of SAR (measured) = 0.280 mW/g



### P13 WCDMA V\_Left Tilted\_Ch4182

#### DUT: 110811C11

Communication System: WCDMA850; Frequency: 836.4 MHz; Duty Cycle: 1:1

Medium: HSL835\_0920 Medium parameters used :  $f = 836.4$  MHz;  $\sigma = 0.908$  mho/m;  $\epsilon_r = 40.7$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature : 22.8 °C; Liquid Temperature : 21.2 °C

#### DASY4 Configuration:

- Probe: EX3DV4 - SN3800; ConvF(8.7, 8.7, 8.7); Calibrated: 2011/8/5
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1277; Calibrated: 2011/7/29
- Phantom: SAM Phantom\_Left; Type: SAM V4.0; Serial: TP 1652
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**Ch4182/Area Scan (51x81x1):** Measurement grid: dx=20mm, dy=20mm

Maximum value of SAR (interpolated) = 0.190 mW/g

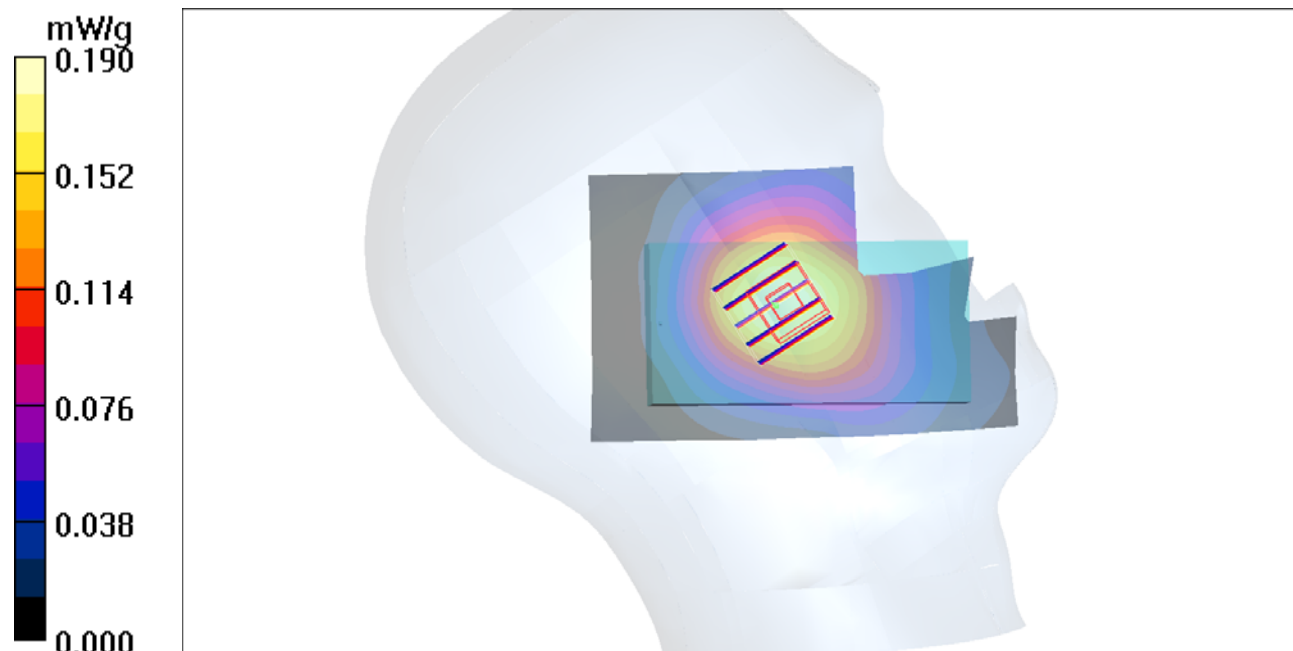
**Ch4182/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 6.73 V/m; Power Drift = -0.179 dB

Peak SAR (extrapolated) = 0.201 W/kg

**SAR(1 g) = 0.163 mW/g; SAR(10 g) = 0.125 mW/g**

Maximum value of SAR (measured) = 0.185 mW/g



### P05 GSM850\_Front Face\_1cm\_Ch251

#### DUT: 110811C11

Communication System: GSM850; Frequency: 848.8 MHz; Duty Cycle: 1:8.3

Medium: MSL835\_0920 Medium parameters used:  $f = 849$  MHz;  $\sigma = 1.01$  mho/m;  $\epsilon_r = 55.9$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature : 22.5 °C; Liquid Temperature : 21.2 °C

#### DASY4 Configuration:

- Probe: EX3DV4 - SN3800; ConvF(8.94, 8.94, 8.94); Calibrated: 2011/8/5
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1277; Calibrated: 2011/7/29
- Phantom: SAM Phantom\_Front; Type: SAM V4.0; Serial: TP 1654
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**Ch251/Area Scan (51x81x1):** Measurement grid: dx=20mm, dy=20mm

Maximum value of SAR (interpolated) = 0.270 mW/g

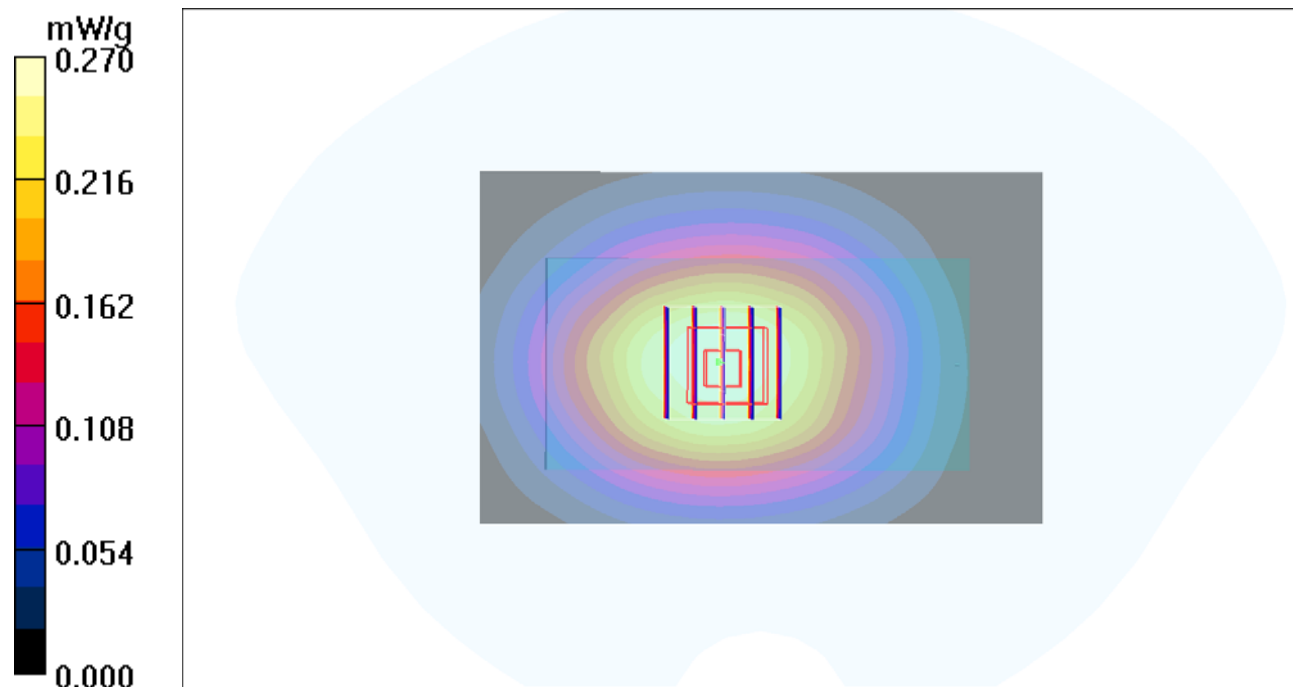
**Ch251/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 16.3 V/m; Power Drift = -0.096 dB

Peak SAR (extrapolated) = 0.292 W/kg

**SAR(1 g) = 0.231 mW/g; SAR(10 g) = 0.174 mW/g**

Maximum value of SAR (measured) = 0.266 mW/g



### P06 GSM850\_Rear Face\_1cm\_Ch251

**DUT: 110811C11**

Communication System: GSM850; Frequency: 848.8 MHz; Duty Cycle: 1:8.3

Medium: MSL835\_0920 Medium parameters used:  $f = 849$  MHz;  $\sigma = 1.01$  mho/m;  $\epsilon_r = 55.9$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature : 22.5 °C ; Liquid Temperature : 21.2 °C

DASY4 Configuration:

- Probe: EX3DV4 - SN3800; ConvF(8.94, 8.94, 8.94); Calibrated: 2011/8/5
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1277; Calibrated: 2011/7/29
- Phantom: SAM Phantom\_Front; Type: SAM V4.0; Serial: TP 1654
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**Ch251/Area Scan (51x81x1):** Measurement grid: dx=20mm, dy=20mm

Maximum value of SAR (interpolated) = 0.475 mW/g

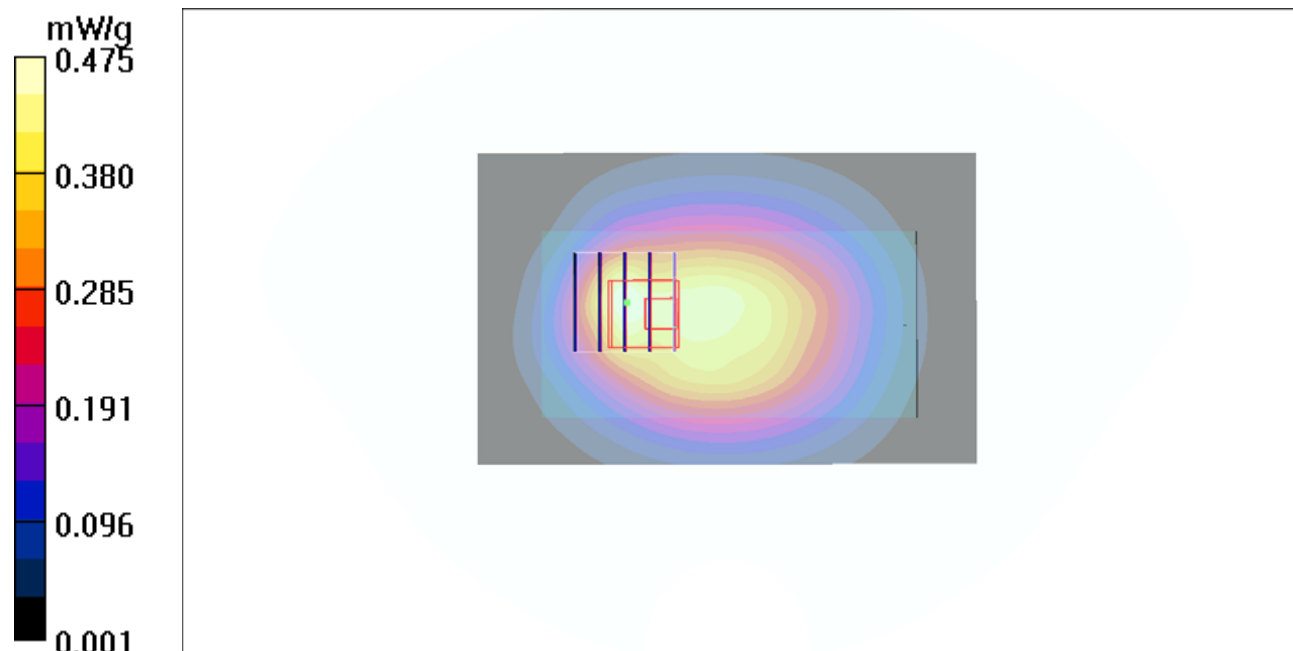
**Ch251/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 20.7 V/m; Power Drift = -0.077 dB

Peak SAR (extrapolated) = 0.450 W/kg

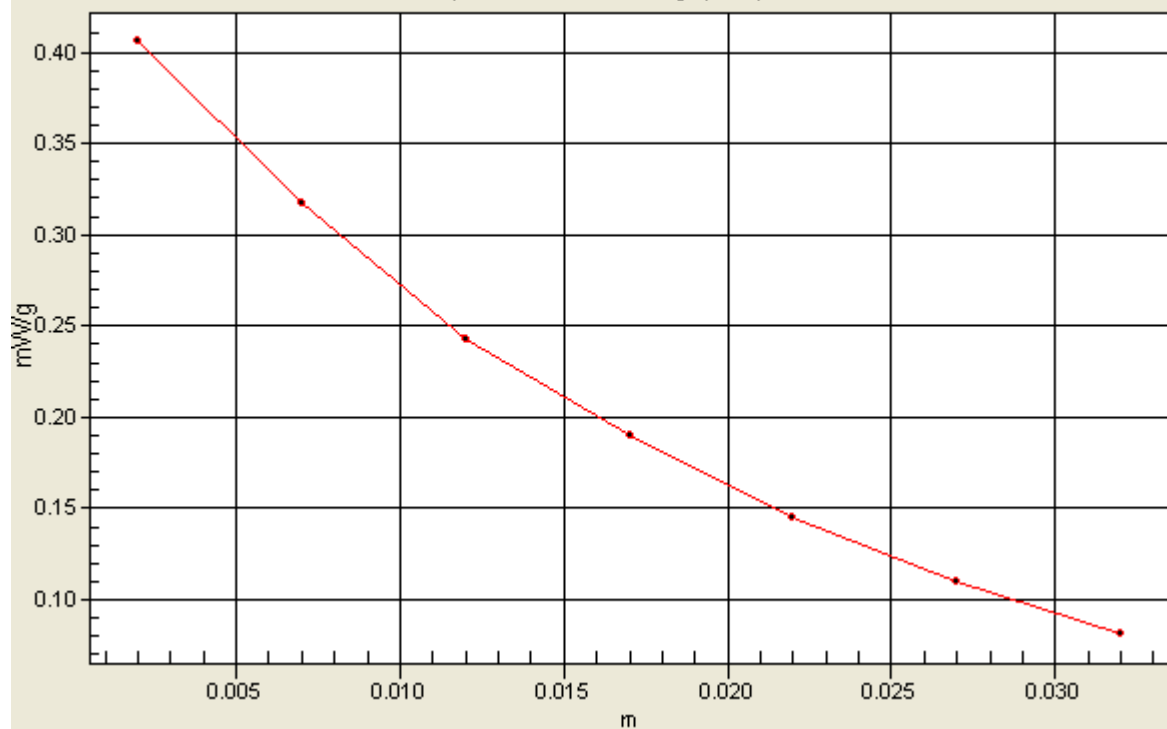
**SAR(1 g) = 0.342 mW/g; SAR(10 g) = 0.244 mW/g**

Maximum value of SAR (measured) = 0.406 mW/g



# 1g/10g Averaged SAR

SAR; Zoom Scan: Value Along Z, X=1, Y=4



### P07 GSM850\_Left Side\_1cm\_Ch251

**DUT: 110811C11**

Communication System: GSM850; Frequency: 848.8 MHz; Duty Cycle: 1:8.3

Medium: MSL835\_0920 Medium parameters used:  $f = 849$  MHz;  $\sigma = 1.01$  mho/m;  $\epsilon_r = 55.9$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature : 22.5 °C ; Liquid Temperature : 21.3 °C

DASY4 Configuration:

- Probe: EX3DV4 - SN3800; ConvF(8.94, 8.94, 8.94); Calibrated: 2011/8/5
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1277; Calibrated: 2011/7/29
- Phantom: SAM Phantom\_Front; Type: SAM V4.0; Serial: TP 1654
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**Ch251/Area Scan (41x81x1):** Measurement grid: dx=20mm, dy=20mm

Maximum value of SAR (interpolated) = 0.105 mW/g

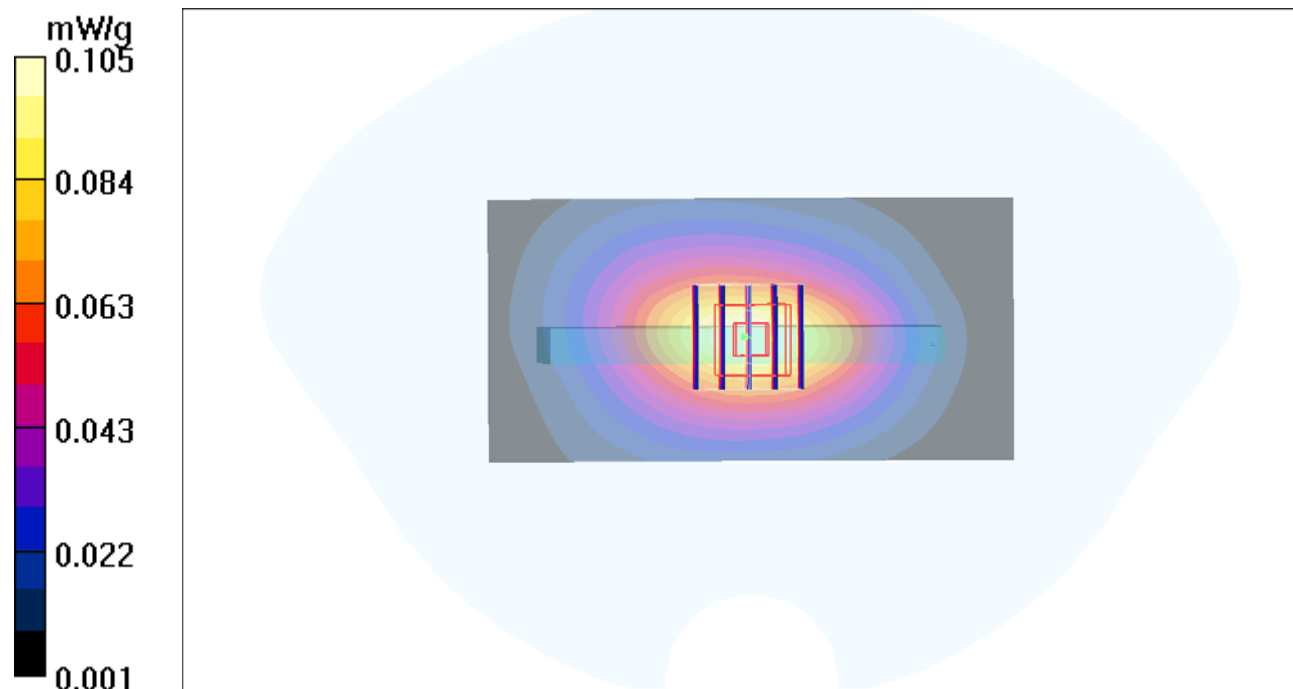
**Ch251/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 10.5 V/m; Power Drift = -0.032 dB

Peak SAR (extrapolated) = 0.125 W/kg

**SAR(1 g) = 0.087 mW/g; SAR(10 g) = 0.059 mW/g**

Maximum value of SAR (measured) = 0.108 mW/g



### P08 GSM850\_Right Side\_1cm\_Ch251

#### DUT: 110811C11

Communication System: GSM850; Frequency: 848.8 MHz; Duty Cycle: 1:8.3

Medium: MSL835\_0920 Medium parameters used:  $f = 849 \text{ MHz}$ ;  $\sigma = 1.01 \text{ mho/m}$ ;  $\epsilon_r = 55.9$ ;  $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature :  $22.5 \text{ }^\circ\text{C}$ ; Liquid Temperature :  $21.2 \text{ }^\circ\text{C}$

#### DASY4 Configuration:

- Probe: EX3DV4 - SN3800; ConvF(8.94, 8.94, 8.94); Calibrated: 2011/8/5
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1277; Calibrated: 2011/7/29
- Phantom: SAM Phantom\_Front; Type: SAM V4.0; Serial: TP 1654
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**Ch251/Area Scan (41x81x1):** Measurement grid:  $dx=20\text{mm}$ ,  $dy=20\text{mm}$

Maximum value of SAR (interpolated) =  $0.355 \text{ mW/g}$

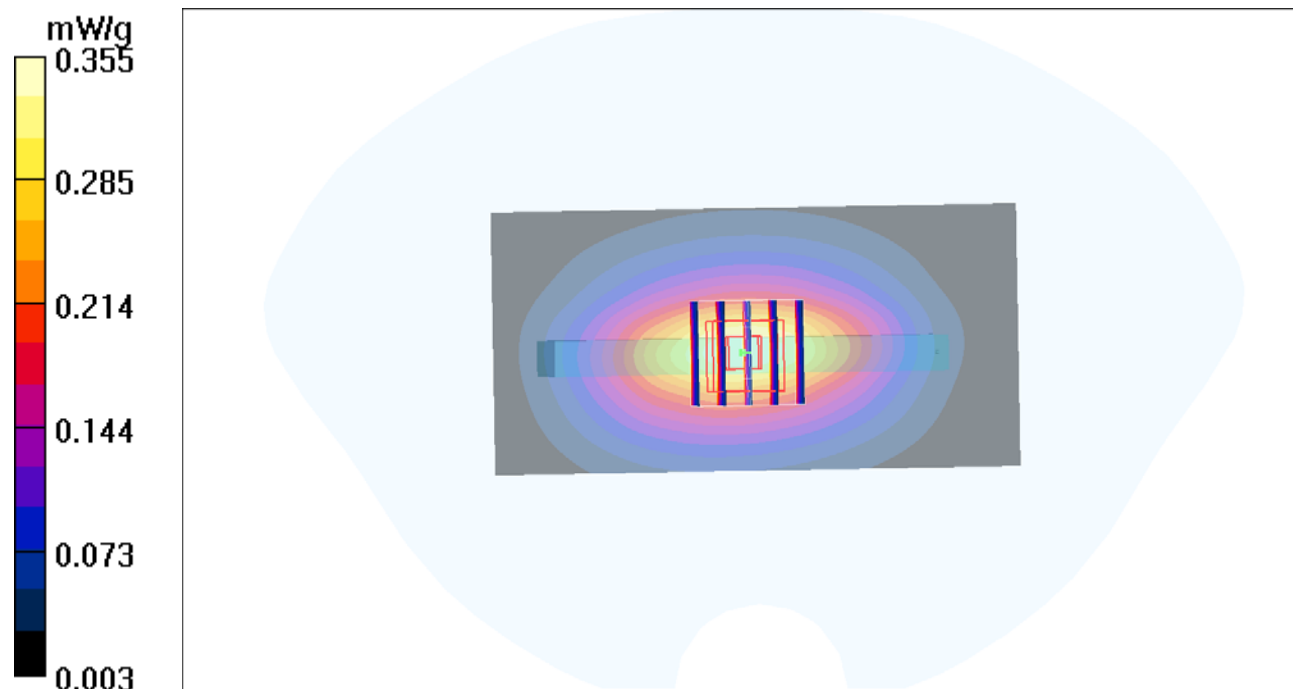
**Ch251/Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$

Reference Value =  $18.6 \text{ V/m}$ ; Power Drift =  $-0.18 \text{ dB}$

Peak SAR (extrapolated) =  $0.386 \text{ W/kg}$

**SAR(1 g) =  $0.269 \text{ mW/g}$ ; SAR(10 g) =  $0.184 \text{ mW/g}$**

Maximum value of SAR (measured) =  $0.335 \text{ mW/g}$



### P09 GSM850\_Down Side\_1cm\_Ch251

#### DUT: 110811C11

Communication System: GSM850; Frequency: 848.8 MHz; Duty Cycle: 1:8.3

Medium: MSL835\_0920 Medium parameters used:  $f = 849$  MHz;  $\sigma = 1.01$  mho/m;  $\epsilon_r = 55.9$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature : 22.5 °C ; Liquid Temperature : 21.2 °C

#### DASY4 Configuration:

- Probe: EX3DV4 - SN3800; ConvF(8.94, 8.94, 8.94); Calibrated: 2011/8/5
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1277; Calibrated: 2011/7/29
- Phantom: SAM Phantom\_Front; Type: SAM V4.0; Serial: TP 1654
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**Ch251/Area Scan (41x61x1):** Measurement grid: dx=20mm, dy=20mm

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

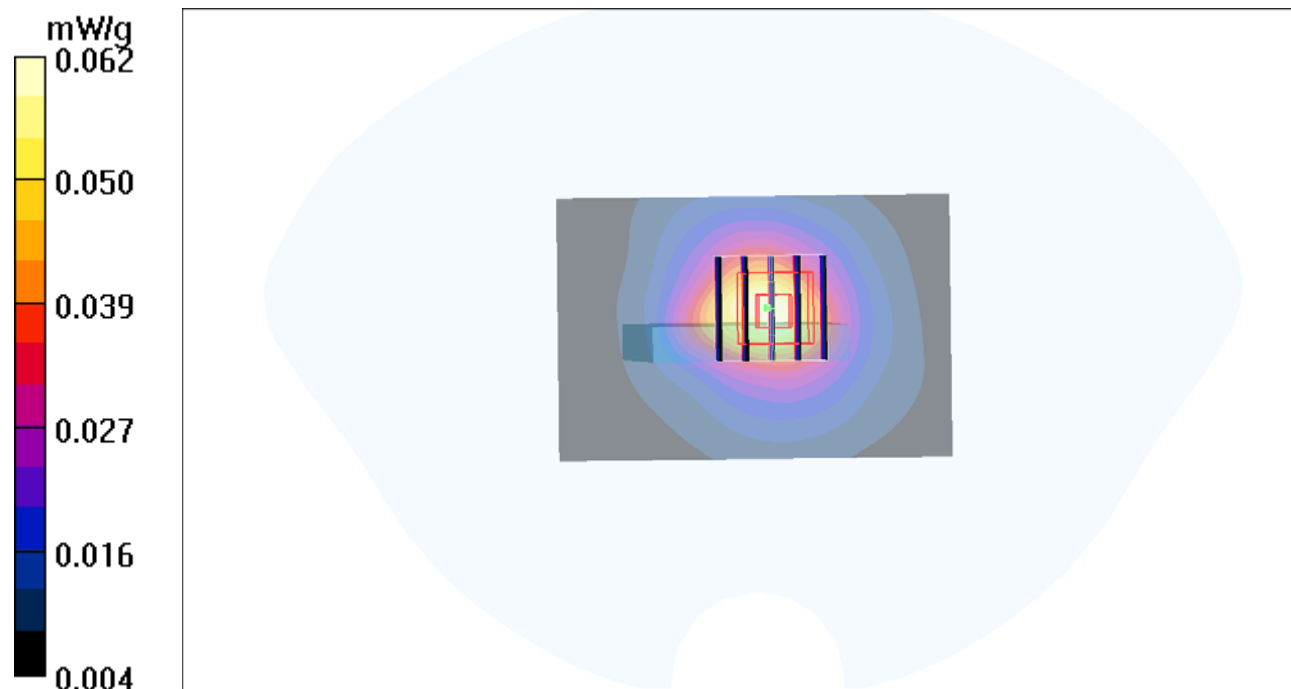
**Ch251/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 6.73 V/m; Power Drift = 0.109 dB

Peak SAR (extrapolated) = 0.077 W/kg

**SAR(1 g) = 0.048 mW/g; SAR(10 g) = 0.029 mW/g**

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





## P20 GSM850\_GPRS10\_Front Face \_1cm\_Ch251\_Earphone

**DUT: 110811C11**

Communication System: GSM850; Frequency: 848.8 MHz; Duty Cycle: 1:4

Medium: MSL835\_0920 Medium parameters used:  $f = 849$  MHz;  $\sigma = 1.01$  mho/m;  $\epsilon_r = 55.9$ ;  $\rho =$

$1000$  kg/m<sup>3</sup>

Ambient Temperature : 22.4 °C; Liquid Temperature : 21.2 °C

DASY4 Configuration:

- Probe: EX3DV4 - SN3800; ConvF(8.94, 8.94, 8.94); Calibrated: 2011/8/5
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1277; Calibrated: 2011/7/29
- Phantom: SAM Phantom\_Front; Type: SAM V4.0; Serial: TP 1654
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**Area Scan (51x71x1):** Measurement grid: dx=20mm, dy=20mm

Maximum value of SAR (interpolated) = 0.509 mW/g

**Ch251/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 18.5 V/m; Power Drift = 0.058 dB

Peak SAR (extrapolated) = 0.511 W/kg

**SAR(1 g) = 0.334 mW/g; SAR(10 g) = 0.231 mW/g**

Maximum value of SAR (measured) = 0.419 mW/g

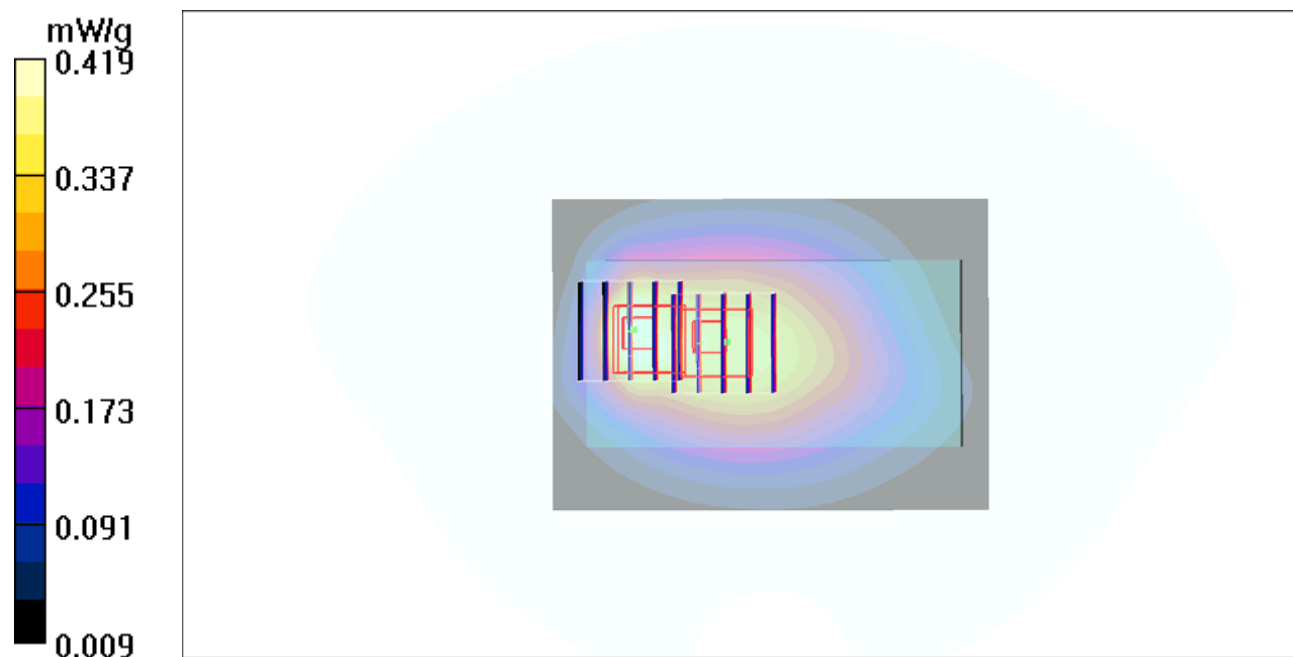
**Ch251/Zoom Scan (5x5x7)/Cube 1:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 18.5 V/m; Power Drift = 0.058 dB

Peak SAR (extrapolated) = 0.404 W/kg

**SAR(1 g) = 0.313 mW/g; SAR(10 g) = 0.237 mW/g**

Maximum value of SAR (measured) = 0.363 mW/g



**P25 GSM1900\_GPRS12\_Front Face\_1cm\_Ch661**

**DUT: 110811C11**

Communication System: GSM1900; Frequency: 1880 MHz; Duty Cycle: 1:2

Medium: MSL1900\_0921 Medium parameters used:  $f = 1880$  MHz;  $\sigma = 1.51$  mho/m;  $\epsilon_r = 53$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature : 22.2 °C ; Liquid Temperature : 21.3 °C

DASY4 Configuration:

- Probe: EX3DV4 - SN3800; ConvF(6.97, 6.97, 6.97); Calibrated: 2011/8/5
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1277; Calibrated: 2011/7/29
- Phantom: SAM Phantom\_Front; Type: SAM V4.0; Serial: TP 1654
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**Ch661/Area Scan (51x81x1):** Measurement grid: dx=20mm, dy=20mm

Maximum value of SAR (interpolated) = 1.48 mW/g

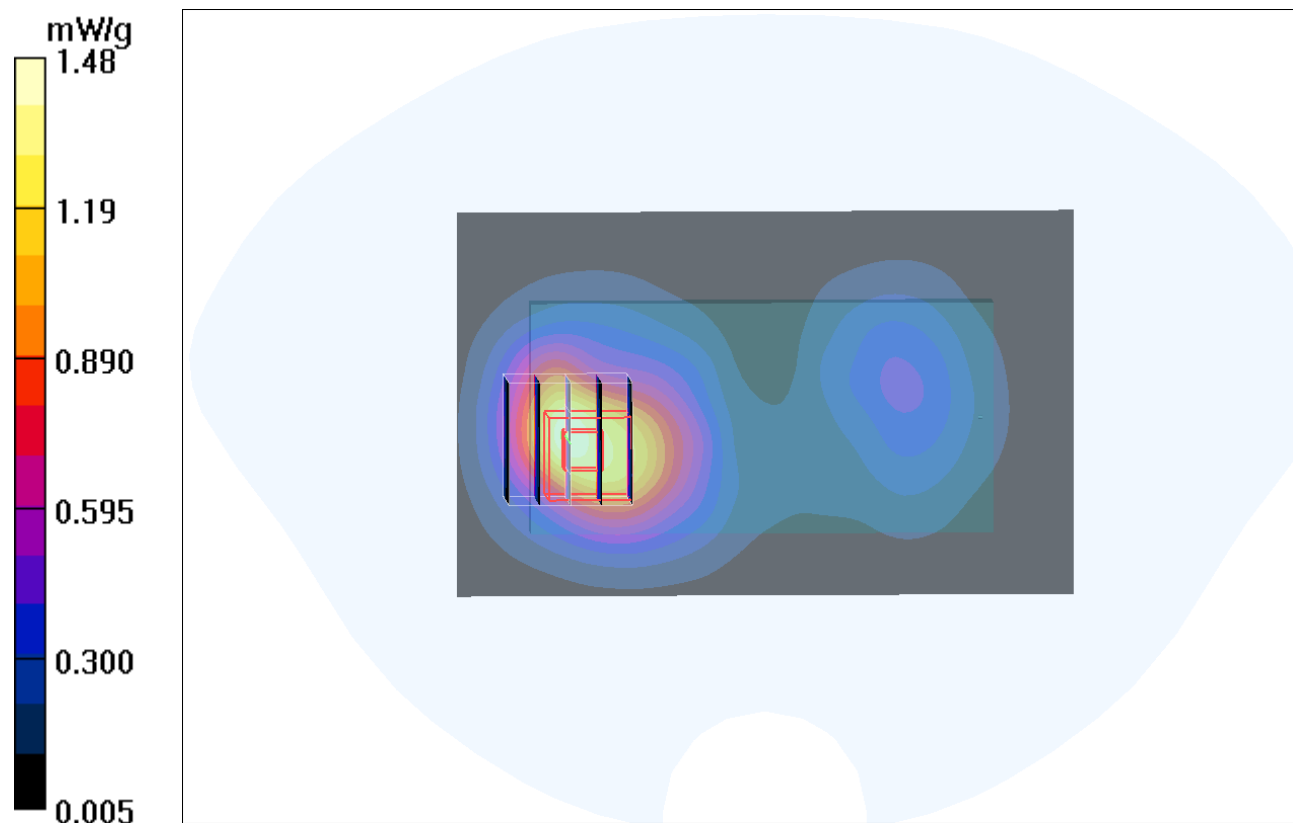
**Ch661/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 7.61 V/m; Power Drift = 0.042 dB

Peak SAR (extrapolated) = 1.71 W/kg

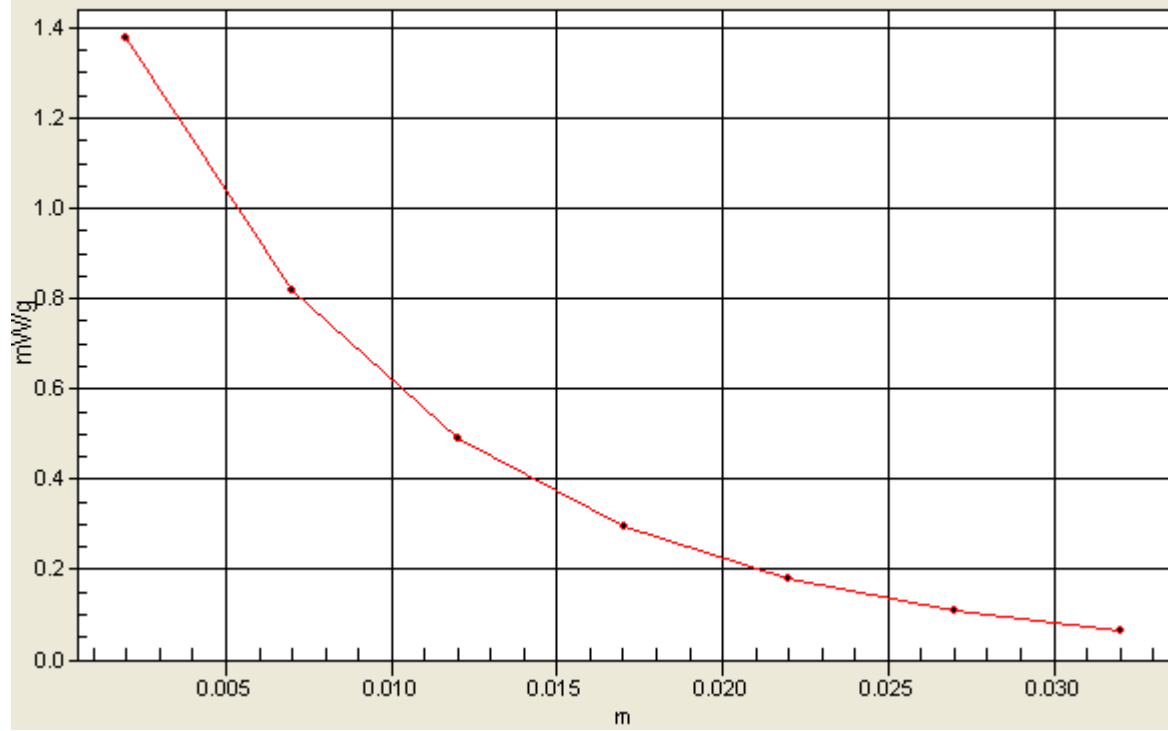
**SAR(1 g) = 1.03 mW/g; SAR(10 g) = 0.609 mW/g**

Maximum value of SAR (measured) = 1.38 mW/g



# 1g/10g Averaged SAR

SAR; Zoom Scan: Value Along Z, X=2, Y=2



### P26 GSM1900\_GPRS12\_Rear Face\_1cm\_Ch661

#### DUT: 110811C11

Communication System: GSM1900; Frequency: 1880 MHz; Duty Cycle: 1:2

Medium: MSL1900\_0921 Medium parameters used:  $f = 1880$  MHz;  $\sigma = 1.51$  mho/m;  $\epsilon_r = 53$ ;  $\rho =$

$1000$  kg/m<sup>3</sup>

Ambient Temperature : 22.2 °C; Liquid Temperature : 21.3 °C

#### DASY4 Configuration:

- Probe: EX3DV4 - SN3800; ConvF(6.97, 6.97, 6.97); Calibrated: 2011/8/5
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1277; Calibrated: 2011/7/29
- Phantom: SAM Phantom\_Front; Type: SAM V4.0; Serial: TP 1654
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**Ch661/Area Scan (51x81x1):** Measurement grid: dx=20mm, dy=20mm

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

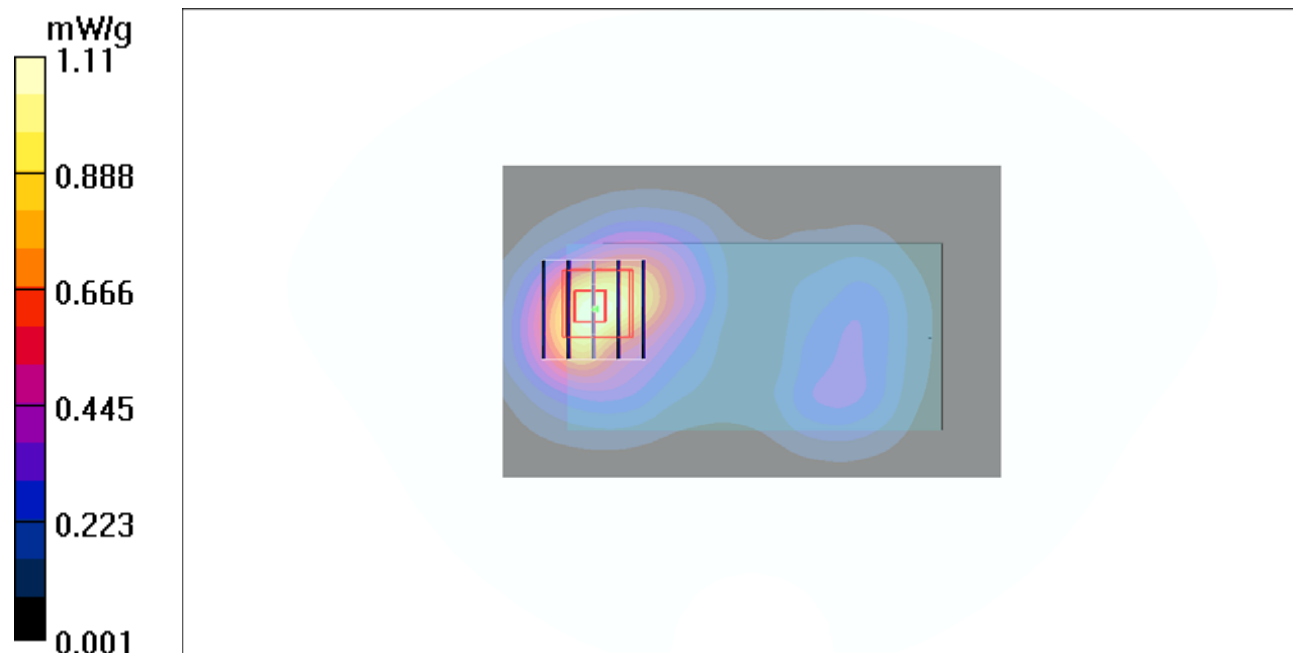
**Ch661/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 8.20 V/m; Power Drift = -0.127 dB

Peak SAR (extrapolated) = 1.28 W/kg

**SAR(1 g) = 0.764 mW/g; SAR(10 g) = 0.448 mW/g**

Maximum value of SAR (measured) = 1.01 mW/g



### P27 GSM1900\_GPRS12\_Left Side\_1cm\_Ch661

#### DUT: 110811C11

Communication System: GSM1900; Frequency: 1880 MHz; Duty Cycle: 1:2

Medium: MSL1900\_0921 Medium parameters used:  $f = 1880$  MHz;  $\sigma = 1.51$  mho/m;  $\epsilon_r = 53$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature : 22.2 °C ; Liquid Temperature : 21.3 °C

#### DASY4 Configuration:

- Probe: EX3DV4 - SN3800; ConvF(6.97, 6.97, 6.97); Calibrated: 2011/8/5
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1277; Calibrated: 2011/7/29
- Phantom: SAM Phantom\_Front; Type: SAM V4.0; Serial: TP 1654
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**Ch661/Area Scan (41x81x1):** Measurement grid: dx=20mm, dy=20mm

Maximum value of SAR (interpolated) = 0.193 mW/g

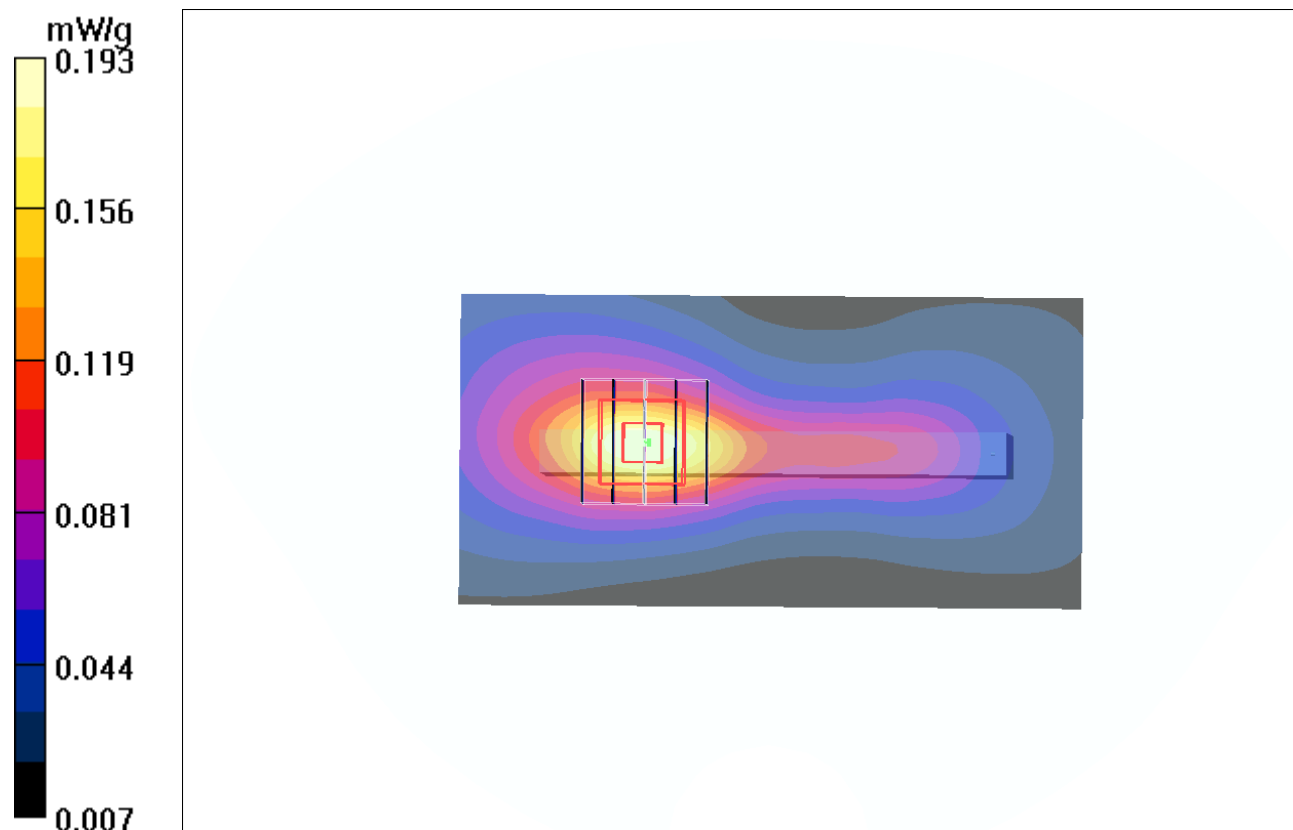
**Ch661/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 7.53 V/m; Power Drift = 0.109 dB

Peak SAR (extrapolated) = 0.230 W/kg

**SAR(1 g) = 0.141 mW/g; SAR(10 g) = 0.083 mW/g**

Maximum value of SAR (measured) = 0.190 mW/g



## **P28 GSM1900\_GPRS12\_Right Side\_1cm\_Ch661**

### **DUT: 110811C11**

Communication System: GSM1900; Frequency: 1880 MHz; Duty Cycle: 1:2

Medium: MSL1900\_0921 Medium parameters used:  $f = 1880$  MHz;  $\sigma = 1.51$  mho/m;  $\epsilon_r = 53$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature : 22.2 °C ; Liquid Temperature : 21.3 °C

#### **DASY4 Configuration:**

- Probe: EX3DV4 - SN3800; ConvF(6.97, 6.97, 6.97); Calibrated: 2011/8/5
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1277; Calibrated: 2011/7/29
- Phantom: SAM Phantom\_Front; Type: SAM V4.0; Serial: TP 1654
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**Ch661/Area Scan (51x81x1):** Measurement grid: dx=20mm, dy=20mm

Maximum value of SAR (interpolated) = 0.183 mW/g

**Ch661/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 7.30 V/m; Power Drift = -0.140 dB

Peak SAR (extrapolated) = 0.225 W/kg

**SAR(1 g) = 0.138 mW/g; SAR(10 g) = 0.080 mW/g**

Maximum value of SAR (measured) = 0.185 mW/g

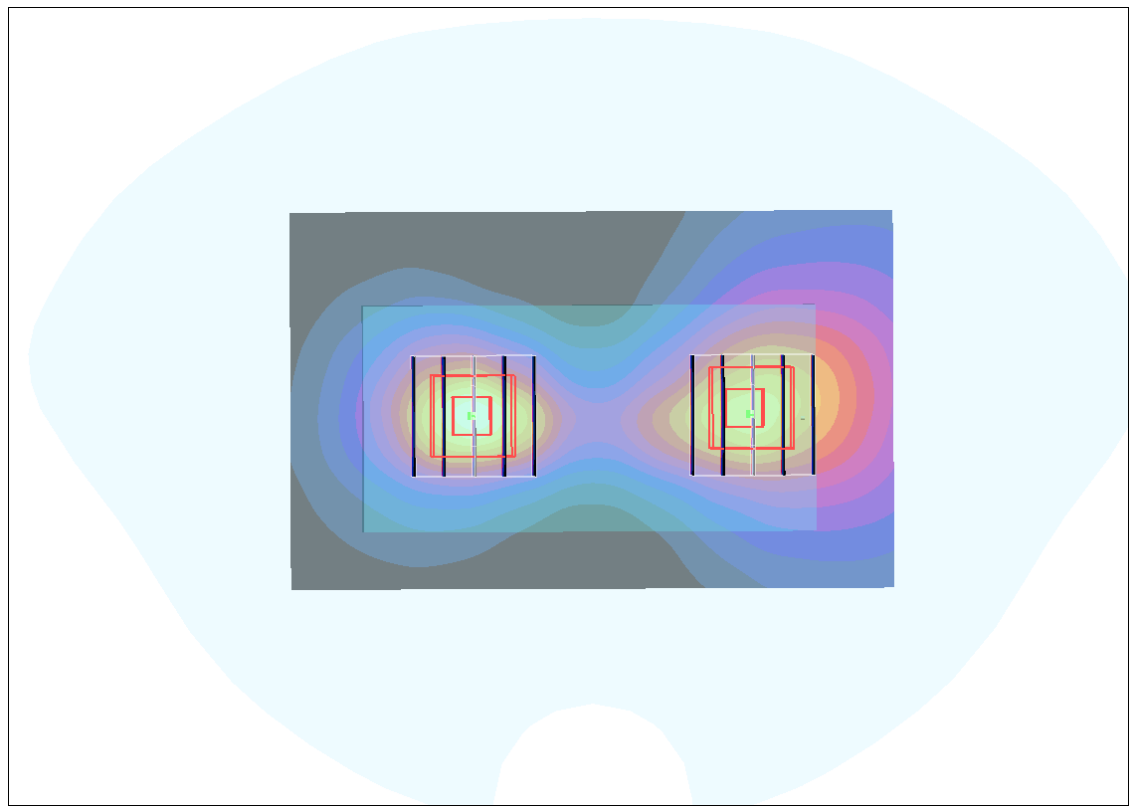
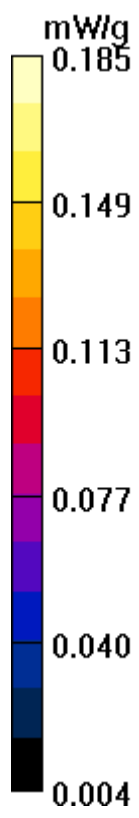
**Ch661/Zoom Scan (5x5x7)/Cube 1:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 7.30 V/m; Power Drift = -0.140 dB

Peak SAR (extrapolated) = 0.205 W/kg

**SAR(1 g) = 0.128 mW/g; SAR(10 g) = 0.078 mW/g**

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



**P29 GSM1900\_GPRS12\_Down Side\_1cm\_Ch661**

**DUT: 110811C11**

Communication System: GSM1900; Frequency: 1880 MHz; Duty Cycle: 1:2

Medium: MSL1900\_0921 Medium parameters used:  $f = 1880$  MHz;  $\sigma = 1.51$  mho/m;  $\epsilon_r = 53$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature : 22.2 °C ; Liquid Temperature : 21.3 °C

**DASY4 Configuration:**

- Probe: EX3DV4 - SN3800; ConvF(6.97, 6.97, 6.97); Calibrated: 2011/8/5
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1277; Calibrated: 2011/7/29
- Phantom: SAM Phantom\_Front; Type: SAM V4.0; Serial: TP 1654
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**Ch661/Area Scan (41x71x1):** Measurement grid: dx=20mm, dy=20mm

Maximum value of SAR (interpolated) = 0.820 mW/g

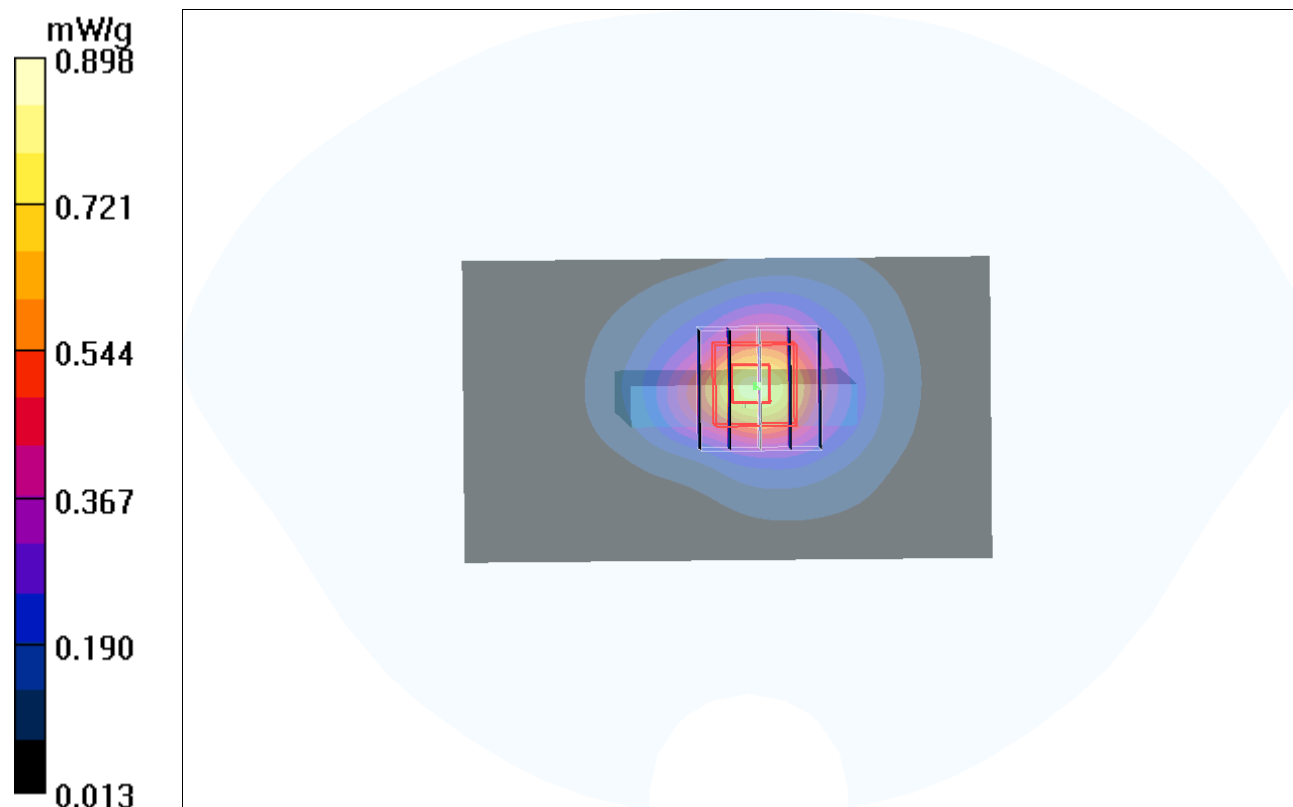
**Ch661/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 22.2 V/m; Power Drift = 0.016 dB

Peak SAR (extrapolated) = 1.11 W/kg

**SAR(1 g) = 0.667 mW/g; SAR(10 g) = 0.369 mW/g**

Maximum value of SAR (measured) = 0.898 mW/g





### P32 GSM1900\_GPRS12\_Rear Face\_1cm\_Ch661\_Earphone

**DUT: 110811C11**

Communication System: GSM1900; Frequency: 1880 MHz; Duty Cycle: 1:2

Medium: MSL1900\_0921 Medium parameters used:  $f = 1880$  MHz;  $\sigma = 1.51$  mho/m;  $\epsilon_r = 53$ ;  $\rho =$

$1000$  kg/m<sup>3</sup>

Ambient Temperature : 22.2 °C; Liquid Temperature : 21.3 °C

DASY4 Configuration:

- Probe: EX3DV4 - SN3800; ConvF(6.97, 6.97, 6.97); Calibrated: 2011/8/5
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1277; Calibrated: 2011/7/29
- Phantom: SAM Phantom\_Front; Type: SAM V4.0; Serial: TP 1654
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**Ch661/Area Scan (51x81x1):** Measurement grid: dx=20mm, dy=20mm

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

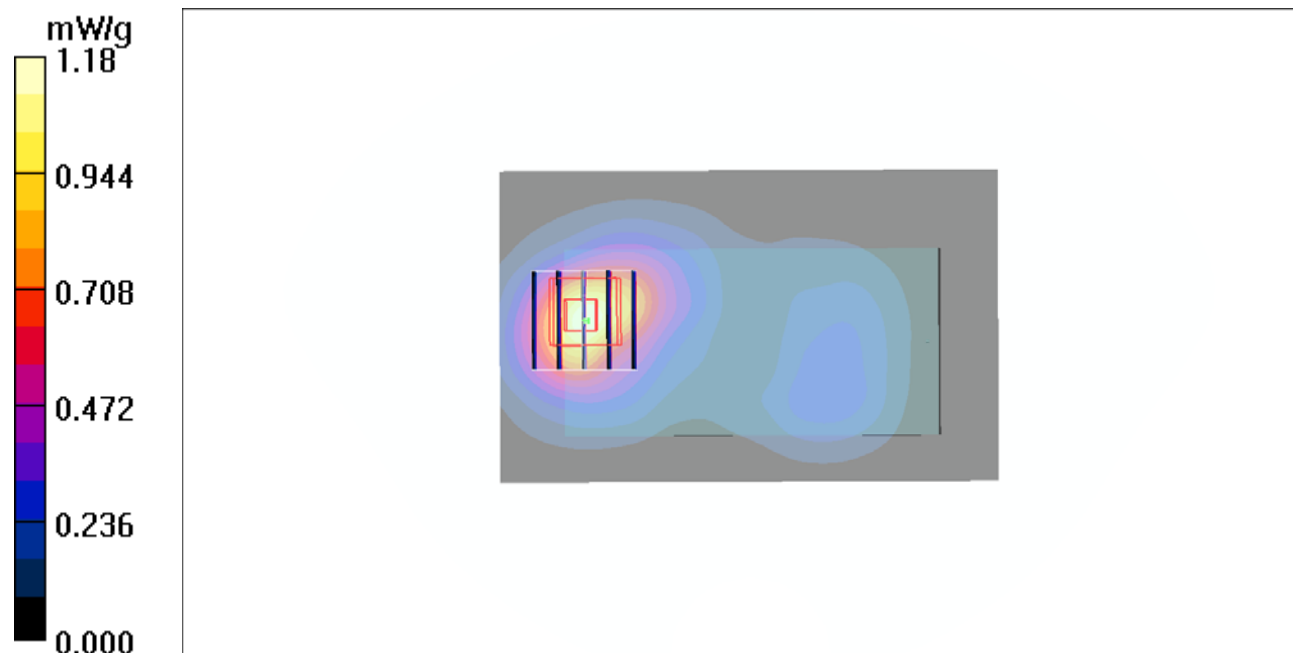
**Ch661/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 8.56 V/m; Power Drift = -0.175 dB

Peak SAR (extrapolated) = 1.37 W/kg

**SAR(1 g) = 0.814 mW/g; SAR(10 g) = 0.471 mW/g**

Maximum value of SAR (measured) = 1.08 mW/g



### P30 GSM1900\_GPRS12\_Front Face\_1cm\_Ch512

**DUT: 110811C11**

Communication System: GSM1900; Frequency: 1850.2 MHz; Duty Cycle: 1:2

Medium: MSL1900\_0921 Medium parameters used :  $f = 1850.2$  MHz;  $\sigma = 1.49$  mho/m;  $\epsilon_r = 53.1$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature : 22.2 °C; Liquid Temperature : 21.3 °C

DASY4 Configuration:

- Probe: EX3DV4 - SN3800; ConvF(6.97, 6.97, 6.97); Calibrated: 2011/8/5
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1277; Calibrated: 2011/7/29
- Phantom: SAM Phantom\_Front; Type: SAM V4.0; Serial: TP 1654
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**Ch512/Area Scan (51x81x1):** Measurement grid: dx=20mm, dy=20mm

Maximum value of SAR (interpolated) = 1.28 mW/g

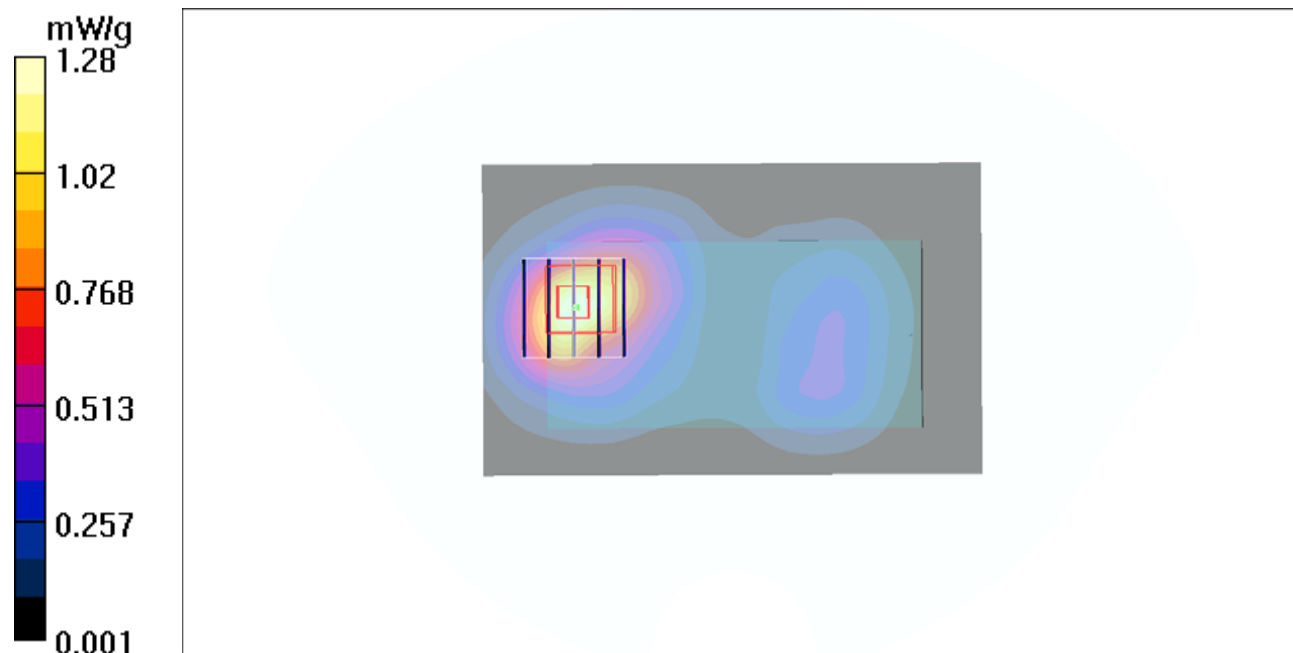
**Ch512/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 8.85 V/m; Power Drift = -0.173 dB

Peak SAR (extrapolated) = 1.53 W/kg

**SAR(1 g) = 0.923 mW/g; SAR(10 g) = 0.536 mW/g**

Maximum value of SAR (measured) = 1.23 mW/g



### P31 GSM1900\_GPRS12\_Front Face\_1cm\_Ch810

#### DUT: 110811C11

Communication System: GSM1900; Frequency: 1909.8 MHz; Duty Cycle: 1:2

Medium: MSL1900\_0921 Medium parameters used:  $f = 1910$  MHz;  $\sigma = 1.54$  mho/m;  $\epsilon_r = 52.8$ ;  $\rho =$

$1000$  kg/m<sup>3</sup>

Ambient Temperature : 22.2 °C; Liquid Temperature : 21.3 °C

#### DASY4 Configuration:

- Probe: EX3DV4 - SN3800; ConvF(6.97, 6.97, 6.97); Calibrated: 2011/8/5
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1277; Calibrated: 2011/7/29
- Phantom: SAM Phantom\_Front; Type: SAM V4.0; Serial: TP 1654
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**Ch810/Area Scan (51x81x1):** Measurement grid: dx=20mm, dy=20mm

Maximum value of SAR (interpolated) = 0.869 mW/g

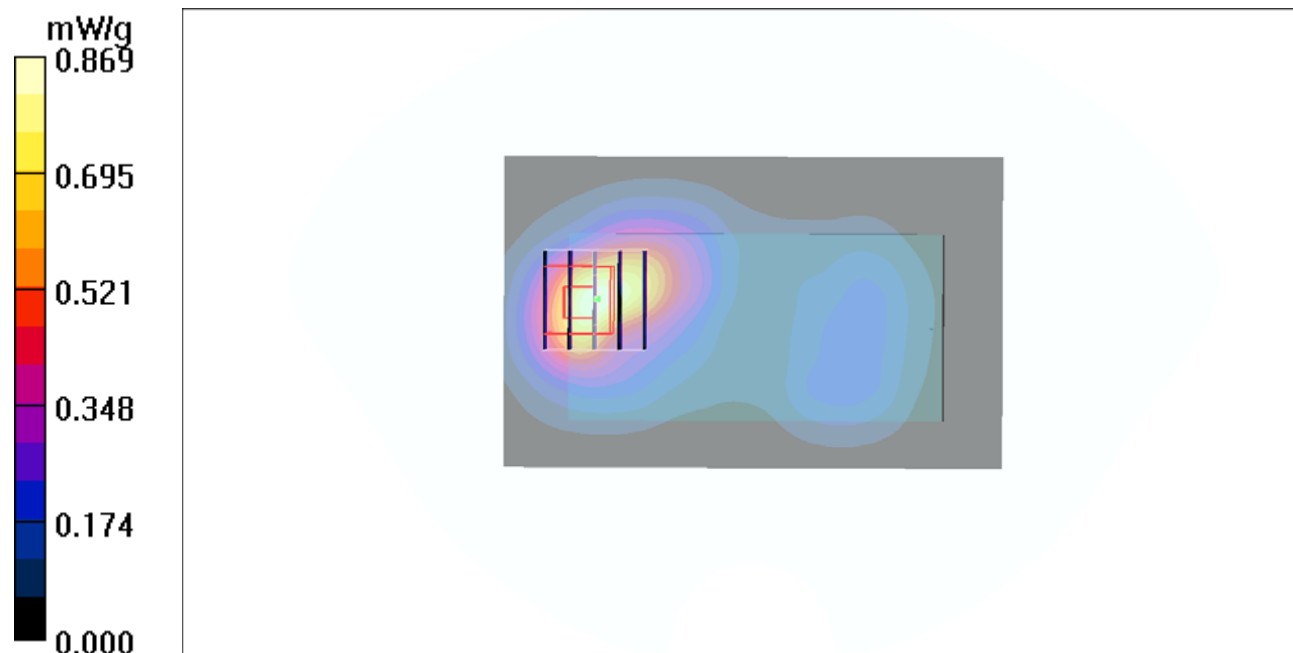
**Ch810/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 7.18 V/m; Power Drift = -0.186 dB

Peak SAR (extrapolated) = 1.26 W/kg

**SAR(1 g) = 0.665 mW/g; SAR(10 g) = 0.325 mW/g**

Maximum value of SAR (measured) = 0.848 mW/g



### P33 GSM1900\_GPRS12\_Rear Face\_1cm\_Ch512\_Earphone

**DUT: 110811C11**

Communication System: GSM1900; Frequency: 1850.2 MHz; Duty Cycle: 1:2

Medium: MSL1900\_0921 Medium parameters used :  $f = 1850.2$  MHz;  $\sigma = 1.49$  mho/m;  $\epsilon_r = 53.1$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature : 22.2 °C; Liquid Temperature : 21.3 °C

DASY4 Configuration:

- Probe: EX3DV4 - SN3800; ConvF(6.97, 6.97, 6.97); Calibrated: 2011/8/5
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1277; Calibrated: 2011/7/29
- Phantom: SAM Phantom\_Front; Type: SAM V4.0; Serial: TP 1654
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**Ch512/Area Scan (51x81x1):** Measurement grid: dx=20mm, dy=20mm

Maximum value of SAR (interpolated) = 1.24 mW/g

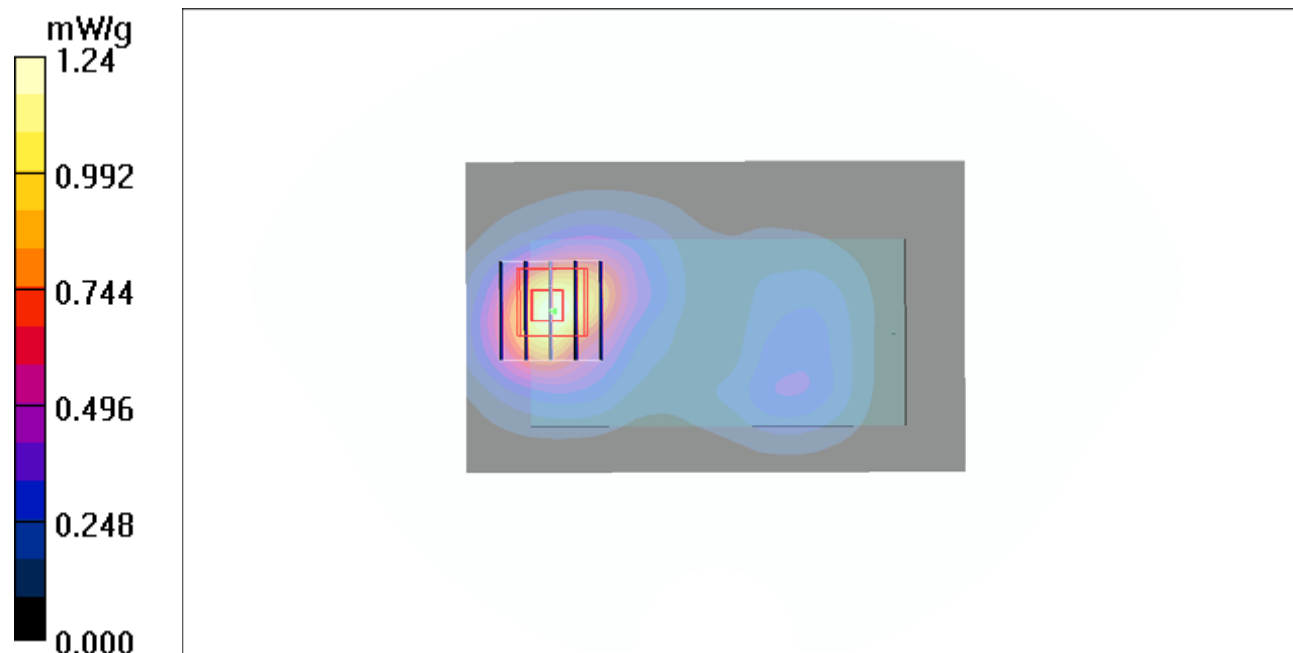
**Ch512/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 9.00 V/m; Power Drift = -0.012 dB

Peak SAR (extrapolated) = 1.50 W/kg

**SAR(1 g) = 0.896 mW/g; SAR(10 g) = 0.517 mW/g**

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



### P34 GSM1900\_GPRS12\_Rear Face\_1cm\_Ch810\_Earphone

**DUT: 110811C11**

Communication System: GSM1900; Frequency: 1909.8 MHz; Duty Cycle: 1:2

Medium: MSL1900\_0921 Medium parameters used:  $f = 1910$  MHz;  $\sigma = 1.54$  mho/m;  $\epsilon_r = 52.8$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature : 22.2 °C; Liquid Temperature : 21.3 °C

DASY4 Configuration:

- Probe: EX3DV4 - SN3800; ConvF(6.97, 6.97, 6.97); Calibrated: 2011/8/5
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1277; Calibrated: 2011/7/29
- Phantom: SAM Phantom\_Front; Type: SAM V4.0; Serial: TP 1654
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**Ch810/Area Scan (51x81x1):** Measurement grid: dx=20mm, dy=20mm

Maximum value of SAR (interpolated) = 0.918 mW/g

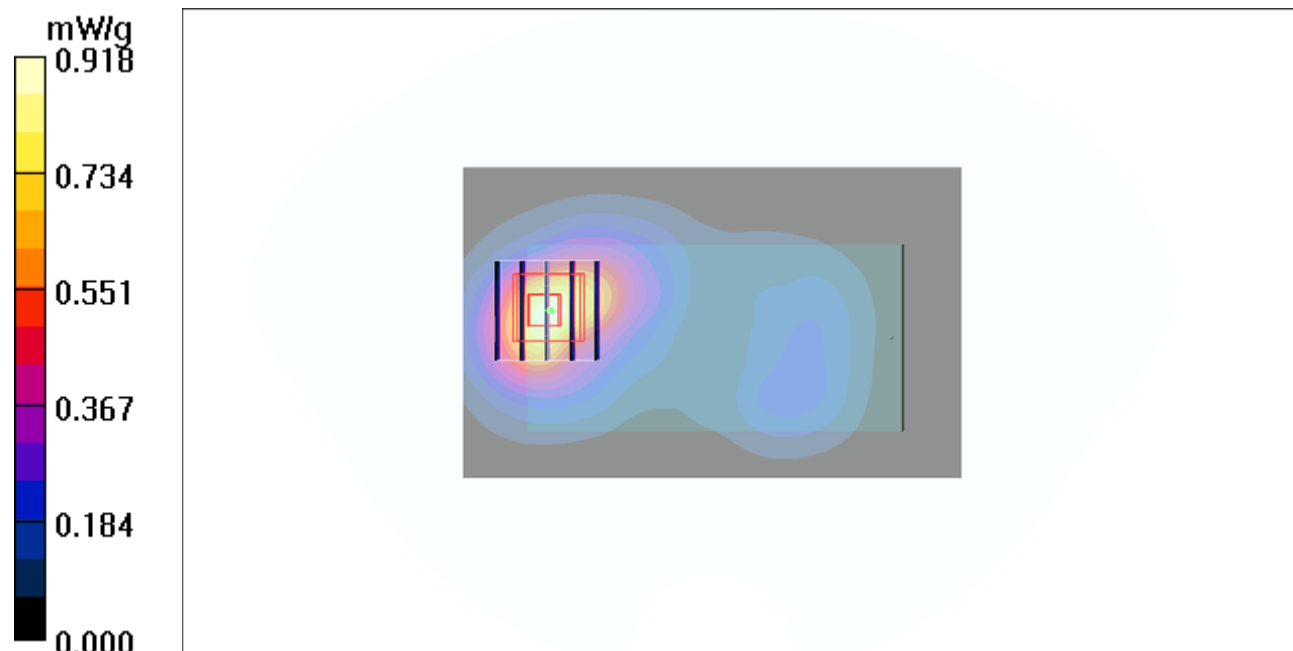
**Ch810/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 7.14 V/m; Power Drift = -0.117 dB

Peak SAR (extrapolated) = 1.11 W/kg

**SAR(1 g) = 0.653 mW/g; SAR(10 g) = 0.374 mW/g**

Maximum value of SAR (measured) = 0.875 mW/g



## P14 WCDMA V\_RMC 12.2K\_Front Face\_1cm\_Ch4182

### DUT: 110811C11

Communication System: WCDMA850; Frequency: 836.4 MHz; Duty Cycle: 1:1

Medium: MSL835\_0920 Medium parameters used (interpolated):  $f = 836.4$  MHz;  $\sigma = 0.999$  mho/m;

$\epsilon_r = 56$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature : 22.6 °C; Liquid Temperature : 21.2 °C

#### DASY4 Configuration:

- Probe: EX3DV4 - SN3800; ConvF(8.94, 8.94, 8.94); Calibrated: 2011/8/5
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1277; Calibrated: 2011/7/29
- Phantom: SAM Phantom\_Front; Type: SAM V4.0; Serial: TP 1654
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**Ch4182/Area Scan (51x81x1):** Measurement grid: dx=20mm, dy=20mm

Maximum value of SAR (interpolated) = 0.640 mW/g

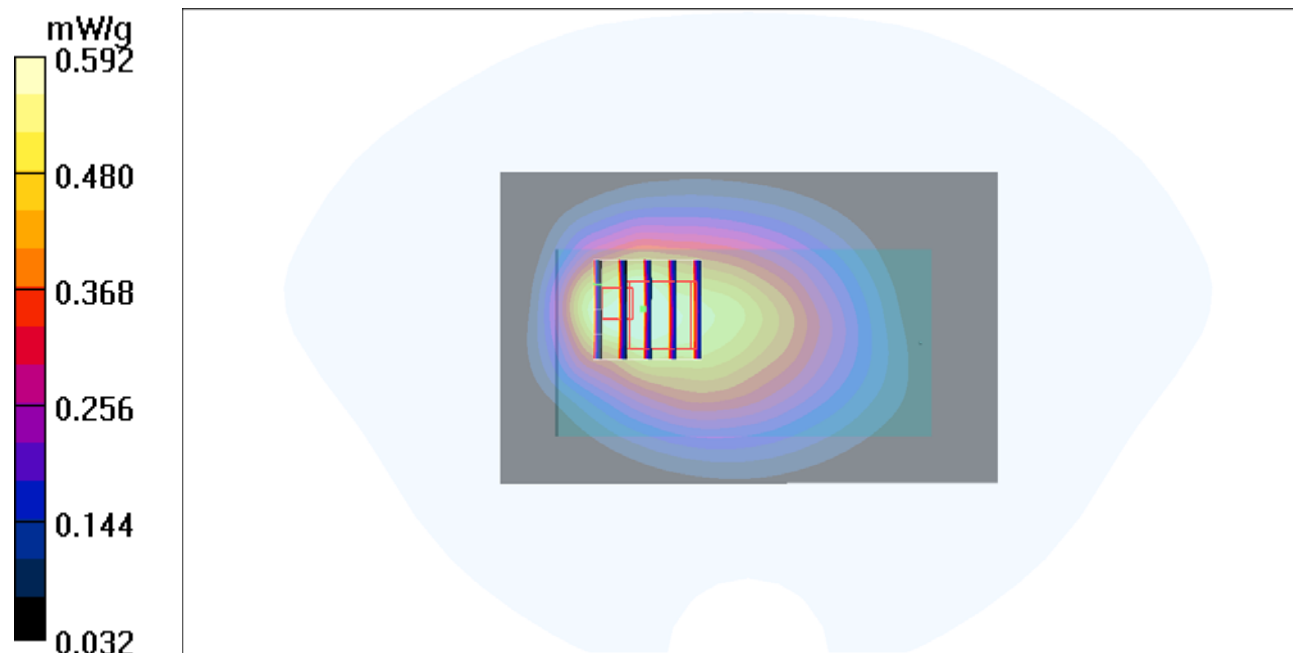
**Ch4182/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 21.6 V/m; Power Drift = -0.133 dB

Peak SAR (extrapolated) = 0.757 W/kg

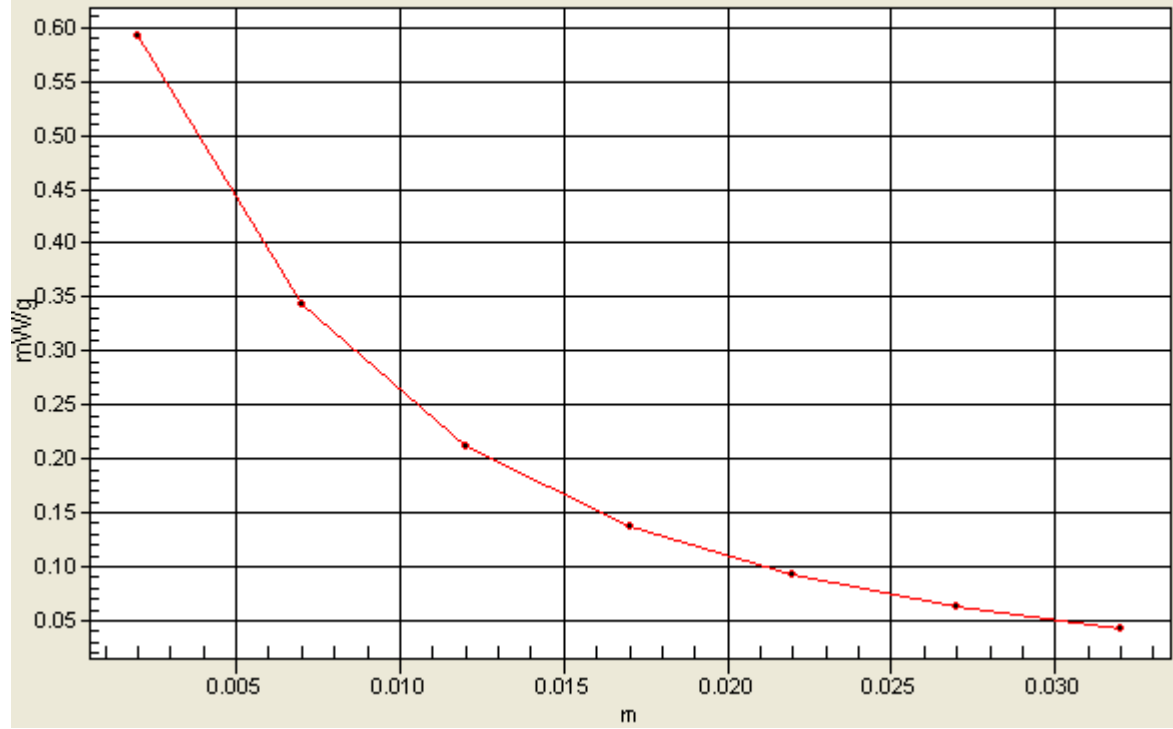
**SAR(1 g) = 0.476 mW/g; SAR(10 g) = 0.337 mW/g**

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



# 1g/10g Averaged SAR

SAR; Zoom Scan: Value Along Z, X=3, Y=0



### P15 WCDMA V\_RMC 12.2K\_Rear Face\_1cm\_Ch4182

**DUT: 110811C11**

Communication System: WCDMA850; Frequency: 836.4 MHz; Duty Cycle: 1:1

Medium: MSL835\_0920 Medium parameters used :  $f = 836.4$  MHz;  $\sigma = 0.999$  mho/m;  $\epsilon_r = 56$ ;  $\rho =$

$1000$  kg/m<sup>3</sup>

Ambient Temperature : 22.6 °C; Liquid Temperature : 21.2 °C

DASY4 Configuration:

- Probe: EX3DV4 - SN3800; ConvF(8.94, 8.94, 8.94); Calibrated: 2011/8/5
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1277; Calibrated: 2011/7/29
- Phantom: SAM Phantom\_Front; Type: SAM V4.0; Serial: TP 1654
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**Ch4182/Area Scan (51x81x1):** Measurement grid: dx=20mm, dy=20mm

Maximum value of SAR (interpolated) = 0.293 mW/g

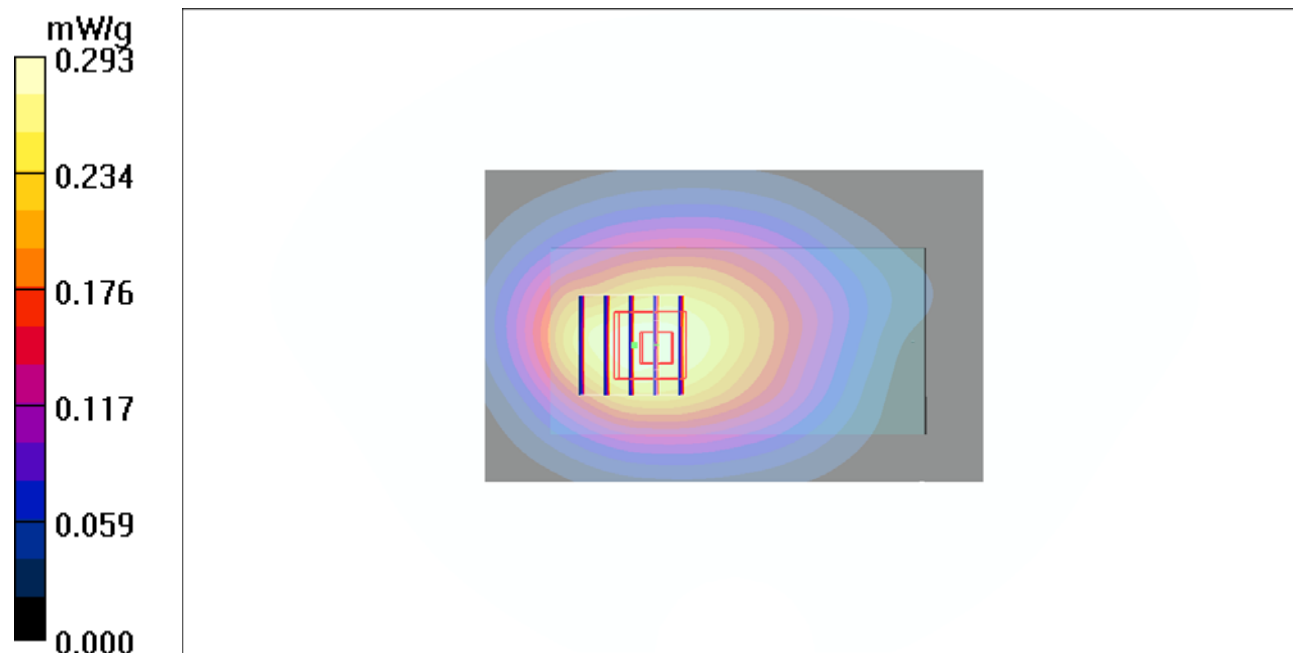
**Ch4182/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 15.4 V/m; Power Drift = -0.004 dB

Peak SAR (extrapolated) = 0.314 W/kg

**SAR(1 g) = 0.242 mW/g; SAR(10 g) = 0.179 mW/g**

Maximum value of SAR (measured) = 0.282 mW/g





### P16 WCDMA V\_RMC 12.2K\_Left Side\_1cm\_Ch4182

#### DUT: 110811C11

Communication System: WCDMA850; Frequency: 836.4 MHz; Duty Cycle: 1:1

Medium: MSL835\_0920 Medium parameters used:  $f = 836.4$  MHz;  $\sigma = 0.999$  mho/m;  $\epsilon_r = 56$ ;  $\rho =$

$1000$  kg/m<sup>3</sup>

Ambient Temperature : 22.5 °C; Liquid Temperature : 21.2 °C

#### DASY4 Configuration:

- Probe: EX3DV4 - SN3800; ConvF(8.94, 8.94, 8.94); Calibrated: 2011/8/5
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1277; Calibrated: 2011/7/29
- Phantom: SAM Phantom\_Front; Type: SAM V4.0; Serial: TP 1654
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**Ch4182/Area Scan (31x81x1):** Measurement grid: dx=20mm, dy=20mm

Maximum value of SAR (interpolated) = 0.357 mW/g

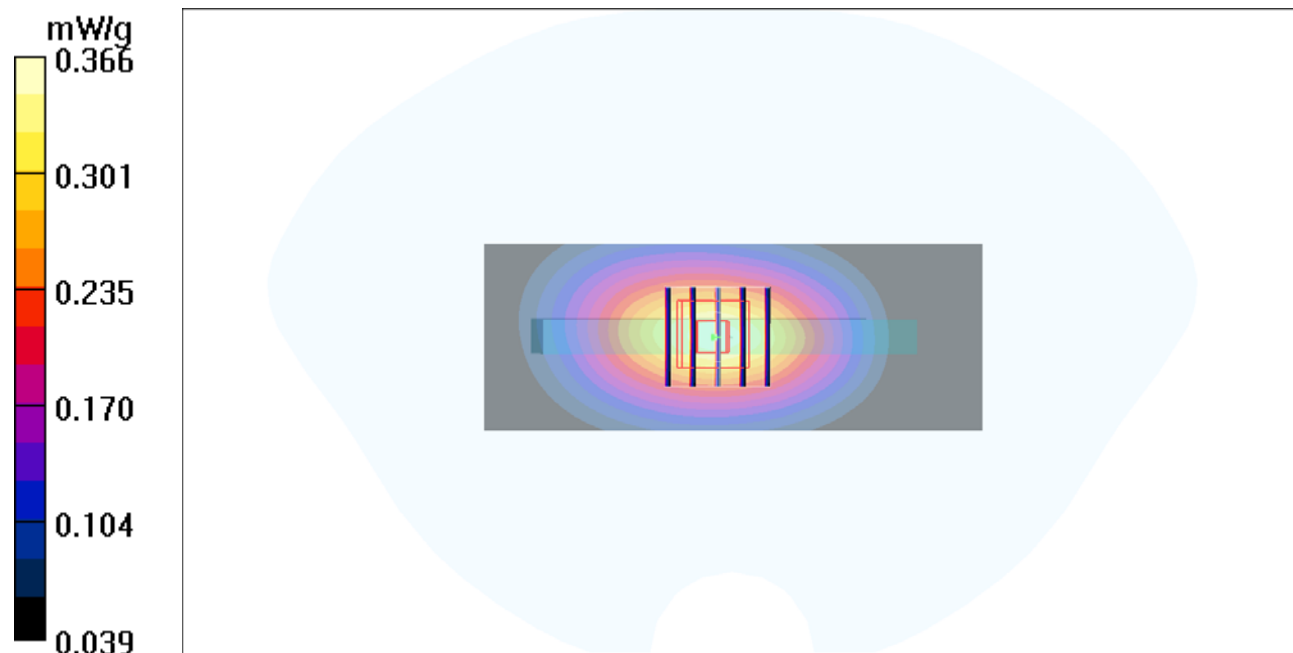
**Ch4182/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 19.3 V/m; Power Drift = 0.044 dB

Peak SAR (extrapolated) = 0.419 W/kg

**SAR(1 g) = 0.298 mW/g; SAR(10 g) = 0.205 mW/g**

Maximum value of SAR (measured) = 0.366 mW/g



### P17 WCDMA V\_RMC 12.2K\_Right Side\_1cm\_Ch4182

#### DUT: 110811C11

Communication System: WCDMA850; Frequency: 836.4 MHz; Duty Cycle: 1:1

Medium: MSL835\_0920 Medium parameters used:  $f = 836.4$  MHz;  $\sigma = 0.999$  mho/m;  $\epsilon_r = 56$ ;  $\rho =$

$1000$  kg/m<sup>3</sup>

Ambient Temperature : 22.4 °C; Liquid Temperature : 21.2 °C

#### DASY4 Configuration:

- Probe: EX3DV4 - SN3800; ConvF(8.94, 8.94, 8.94); Calibrated: 2011/8/5
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1277; Calibrated: 2011/7/29
- Phantom: SAM Phantom\_Front; Type: SAM V4.0; Serial: TP 1654
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**Ch4182/Area Scan (31x81x1):** Measurement grid: dx=20mm, dy=20mm

Maximum value of SAR (interpolated) = 0.492 mW/g

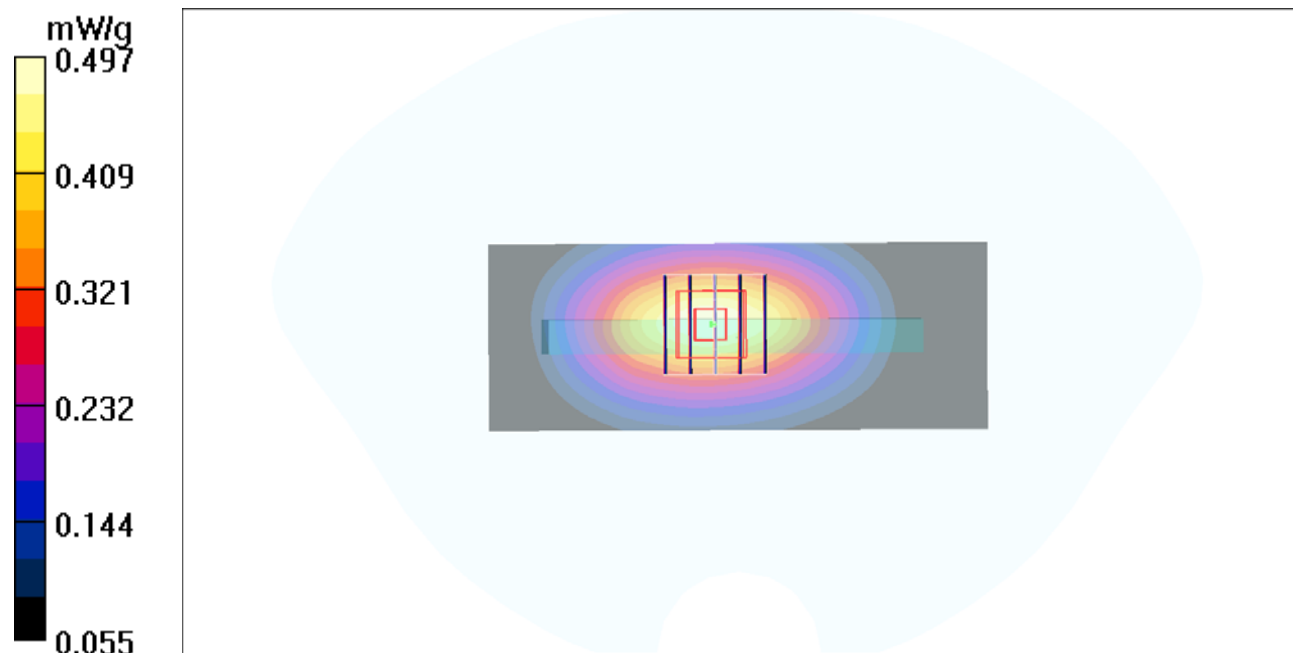
**Ch4182/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 22.3 V/m; Power Drift = -0.032 dB

Peak SAR (extrapolated) = 0.569 W/kg

**SAR(1 g) = 0.406 mW/g; SAR(10 g) = 0.282 mW/g**

Maximum value of SAR (measured) = 0.497 mW/g



### P18 WCDMA V\_RMC 12.2K\_Down Side\_1cm\_Ch4182

#### DUT: 110811C11

Communication System: WCDMA850; Frequency: 836.4 MHz; Duty Cycle: 1:1

Medium: MSL835\_0920 Medium parameters used:  $f = 836.4$  MHz;  $\sigma = 0.999$  mho/m;  $\epsilon_r = 56$ ;  $\rho =$

$1000$  kg/m<sup>3</sup>

Ambient Temperature : 22.5 °C; Liquid Temperature : 21.2 °C

#### DASY4 Configuration:

- Probe: EX3DV4 - SN3800; ConvF(8.94, 8.94, 8.94); Calibrated: 2011/8/5
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1277; Calibrated: 2011/7/29
- Phantom: SAM Phantom\_Front; Type: SAM V4.0; Serial: TP 1654
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**Ch4182/Area Scan (31x61x1):** Measurement grid: dx=20mm, dy=20mm

Maximum value of SAR (interpolated) = 0.096 mW/g

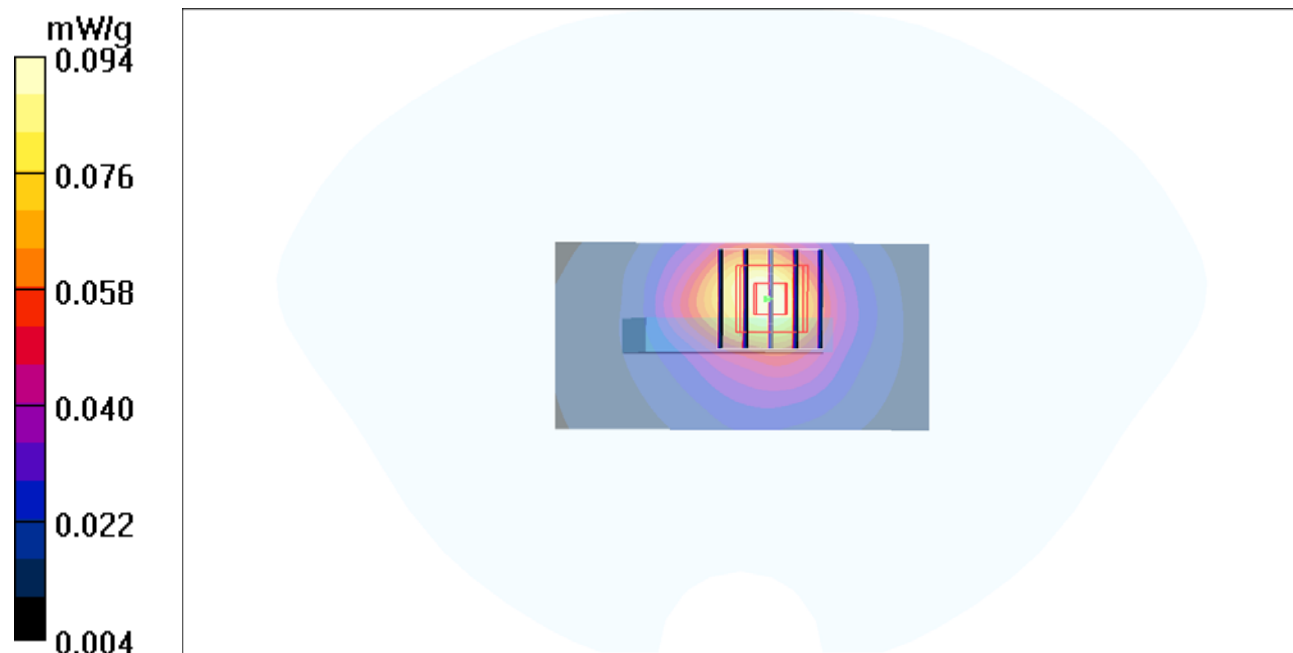
**Ch4182/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 7.85 V/m; Power Drift = -0.089 dB

Peak SAR (extrapolated) = 0.113 W/kg

**SAR(1 g) = 0.071 mW/g; SAR(10 g) = 0.044 mW/g**

Maximum value of SAR (measured) = 0.094 mW/g



### P19 WCDMA V\_RMC 12.2K\_Front Face \_1cm\_Ch4182\_Earphone

#### DUT: 110811C11

Communication System: WCDMA850; Frequency: 836.4 MHz; Duty Cycle: 1:1

Medium: MSL835\_0920 Medium parameters used:  $f = 836.4$  MHz;  $\sigma = 0.999$  mho/m;  $\epsilon_r = 56$ ;  $\rho =$

$1000$  kg/m<sup>3</sup>

Ambient Temperature : 22.6 °C; Liquid Temperature : 21.2 °C

#### DASY4 Configuration:

- Probe: EX3DV4 - SN3800; ConvF(8.94, 8.94, 8.94); Calibrated: 2011/8/5
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1277; Calibrated: 2011/7/29
- Phantom: SAM Phantom\_Front; Type: SAM V4.0; Serial: TP 1654
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**Ch4182/Area Scan (51x71x1):** Measurement grid: dx=20mm, dy=20mm

Maximum value of SAR (interpolated) = 0.317 mW/g

**Ch4182/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 15.8 V/m; Power Drift = 0.099 dB

Peak SAR (extrapolated) = 0.350 W/kg

**SAR(1 g) = 0.270 mW/g; SAR(10 g) = 0.200 mW/g**

Maximum value of SAR (measured) = 0.315 mW/g

