

Tejet



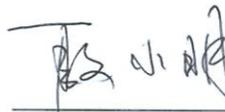
Report No. 2012SAR297

# SAR TEST REPORT

Report No. 2012SAR297

FCC ID: Q78-V791  
Applicant: ZTE Corporation  
Product: WCDMA/GSM ( GPRS ) Dual-Mode Digital  
Mobile Phone  
Model: ZTE V791  
HW Version: WMAK  
SW Version: CLA-UNI-QB25S-P175A40V1.0.0  
Issue Date: 2012-08-10

Prepared by:

  
Yin Xiaoming

Reviewed by:

  
Xue Jianguo

Approved by:



Wang Jianrong

**Remark:** This report details the results of the testing carried out on the samples specified in this report, the results contained in this test report do not relate to other samples of the same product. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report. The report shall not be reproduced except in full, without written approval of the Company.

## Standards

<p>Applicable Limit Regulations</p>	<p><b>ANSI/IEEE C95.1-2005</b> Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields. 3 kHz to 300 GHz</p>
	<p><b>ANSI/IEEE C95.3-2002</b> Recommended Practice For Measurements and Computations of Radio Frequency Electromagnetic Fields with Respect to Human Exposure to such Fields. 100 kHz-300 GHz</p>
<p>Applicable Standards</p>	<p><b>IEEE Std 1528™-2003:</b> IEEE Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques</p>
	<p><b>OET Bulletin 65-(Edition 97-01) Supplement C (edition01-01)</b> Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields---Additional Supplement C (Edition 01-01)Information for Evaluating Compliance of Mobile and Portable Devices with FCC Limits for Human Exposure to Radiofrequency Emissions</p>

## Conclusion

Localized Specific Absorption Rate (SAR) of this equipment has been measured in all cases requested by the relevant standards above. Maximum localized SAR is below exposure limits as well.

### Change History

Version	Change Contents	Author	Date
V1.0	First edition	Yinxiaoming	2012-08-10

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## 1. Administrative Information

### 1.1 Project Information

Date of start test            2012-07-26  
Date of end test:            2012-08-09

### 1.2 Test Laboratory Information

Company:                    Shanghai Tejet Communications Technology Co., Ltd Testing Center  
Address:                    Room 6205-6208, Building 6, No.399 Cailun Rd. Zhangjiang Hi-Tech  
                                  Park, Shanghai, China  
Post Code:                 210203  
Tel:                            +86-21-61650880  
Fax:                            +86-21-61650881  
Website:                    www.tejet.cn

### 1.3 Test Environment

Temperature:                20°C~25 °C  
Relative Humidity:        20%~70%

## 2. Client Information

### 2.1 Applicant information

Company Name: ZTE Corporation  
Address: ZTE Plaza, Keji Road South, Hi-Tech Industrial Park, Nanshan District, Shenzhen, Guangdong, 518057, P.R.China  
City: Shenzhen  
Postal Code: 518057  
Country: China  
Telephone: +86-21-68895196  
Fax: +86-21-61460600

### 2.2 Manufacturer Information

Company Name: ZTE Corporation  
Address: ZTE Plaza, Keji Road South, Hi-Tech Industrial Park, Nanshan District, Shenzhen, Guangdong, 518057, P.R.China  
City: Shenzhen  
Postal Code: 518057  
Country: China  
Telephone: +86-21-68895196  
Fax: +86-21-61460600

### 3. Equipment Under Test (EUT) and Accessory Equipment (AE)

#### 3.1 Information of EUT

Device Type	Portable device	
Product	WCDMA/GSM (GPRS) Dual-Mode Digital Mobile Phone	
Model	ZTE V791	
Exposure Category	Uncontrolled environment / general population	
Device operation configuration:		
Operating Mode(s):	GSM850	
	PCS1900	
	WCDMA BAND II/V	
Test Modulation	(GSM)GMSK, (WCDMA) QPSK	
GPRS Operation Class	B	
GPRS Multislot Class	12	
EDGE Class	12	
DTM Support	/	
AP Support	Yes	
Rated Output Power	GSM 850:33dBm	
	PCS1900: 30dBm	
	WCDMA BAND II/V: 24dBm	
Antenna Type:	Internal antenna	
Operating Frequency Range(s):	Band	Tx(MHz)
	GSM850	824.2~848.8
	PCS1900	1850.2~1909.8
	WCDMA BAND II	1852.4~1907.6
	WCDMA BAND V	826.4~846.6
Power Class	GSM850: 4, test with power level 5	
	PCS1900: 1, test with power level 0	
	WCDMA BAND II/V: 3, test with maximum output power	

### 3.2 Identification of EUT

EUT ID	SN or IMEI	HW Version	SW Version	Received Date
TN01	867525010001301	WMAK	CLA-UNI-QB25S-P175A40V1.0.0	2012-07-25

\*EUT ID: identify the test sample in the lab internally.

### 3.3 Identification of AE

AE ID*	Description
AE1	Battery
AE2	Travel Adaptor
AE3	Earphone

#### AE1

Model	Li3712T42P3h654246h
Manufacturer	ZTE CORPORATION
Capacitance	1200mAh
Nominal Voltage	3.7V

#### AE2

Model	STC-A22O50I700USBA-Z
Manufacturer	RUIDE
Length of DC line	0cm with USB

#### AE3

Model	HTZX-354
Manufacturer	ZTE CORPORATION
Length of line	165cm

\*AE ID: identify the test sample in the lab internally.

## **4. Operational Conditions during Test**

### **4.1 General description of test procedures**

A communication link is set up with a system simulator by air link, and a call is established. The absolute radio frequency channel is allocated to low, middle and high respectively in the case of each band. The EUT is commanded to operate at maximum transmitting power.

Connection to the EUT is established via air interface with CMU200, and the EUT is set to maximum output power by CMU200. The antenna connected to the output of the base station simulator shall be placed at least 50 cm away from the EUT. The signal transmitted by the simulator to the antenna feeding point shall be lower than the output power level of the EUT by at least 30dB.

### **4.2 GSM Test Configuration**

SAR test for GSM 850/1900, a communication link is set up with a system simulator by air link. Using CMU200 the power level is set to “5” in SAR of GSM850, set to “0” in SAR of GSM 1900, The tests in the band of GSM850/1900 are performed in the mode of data transfer function.

### **4.3 WCDMA Test Configuration**

SAR test for WCDMA BANDII/ V, a communication link is set up with a system simulator by air link. Using CMU200 the power level is set to “3” in SAR of WCDMA BAND II/ V,. The tests in the band of WCDMA BAND II/ V, are performed in the mode of RMC 12.2kbps transfer function.

SAR for body exposure configurations in voice and data modes is measured using 12.2kbps RMC with TPC bits configured to all “1’s”. SAR for other spreading codes and multiple DPDCHn , when supported by the DYT, are not required when the maximum average output of each RF channel, for each spreading code and DPDCHn configuration, are less than 1/4 dB higher than those measured in 12.2 kbps RMC. Otherwise , SAR is measured on the maximum output channel with an applicable RMC configuration for the corresponding spreading code or DPDCHn using the exposure configuration that results in the highest SAR with 12.2 kbps RMC. When more than 2 DPDCHn are supported by the DUT, it may be necessary to configure additional DPDCHn for a DUT using FTM(Factory Test Mode) or other chipset based test approaches with parameters similar to those used in 384kbps and 968 kbps RMC.

### HSDPA Test Configuration

Body SAR is also measured for HSDPA when the maximum average output of each RF channel with HSDPA active is at least 1/4 dB higher than that measured without HSDPA using 12.2 kbps RMC or the maximum SAR 12.2 kbps RMC is above 75% of the SAR limit. Body SAR is measured using an FRC with H-Set 1 in Sub-test 1 and a 12.2 kbps RMC configured in Test Loop Mode 1, using the highest body SAR configuration in 12.2 kbps RMC without HSDPA.

HSDPA should be configured according to the UE category of a test device. The number of HS-DSCH/HS-PDSCHs, HARQ processes, minimum inter-TTI interval, transport block sizes and RV coding sequence are defined by the H-set. To maintain a consistent test configuration and stable transmission condition, QPSK is used in the H-set for SAR testing. HS-DPCCH should be configured with a CQI feedback cycle of 4 ms with a CQI repetition factor of 2 to maintain a constant rate of active CQI slots. DPCCH and DODCH gain factors ( $\beta_c, \beta_d$ ), and HS\_DPCCH power offset parameters ( $\Delta_{ACK}, \Delta_{NACK}, \Delta_{CQI}$ ) should be set according to values indicated in the Table below. The CQI value is determined by the UE category, transport block size, number of HS\_PDSCHs and modulation used in the H-set.

**Table 1: Subtest for UMTS Release 5 HSDPA**

Sub-set	$\beta_c$	$\beta_d$	B <sub>d</sub> (SF)	B <sub>c</sub> / $\beta_d$	$\beta_{hs}$	CM (dB)
1	2/15	15/15	64	2/15	4/15	0.0
2	12/15	15/15	64	12/15	24/15	1.0
3	15/15	8/15	64	15/8	30/15	1.5
4	15/15	4/15	64	15/4	30/15	1.5

Note 1:  $\Delta_{ACK}, \Delta_{NACK}, \Delta_{CQI}=8 \Leftrightarrow A_{hs}=\beta_{hs}/\beta_c=30/15 \Leftrightarrow \beta_{hs}=30/15c$   
 Note 2: CM=1 for  $\beta_c/\beta_d=12/15, \beta_{hs}/\beta_c=24/15$   
 Note 3: For subset 2 the  $\beta_c/\beta_d$  ratio of 12/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signaled gain factor for the reference TFC (TFC1, TF1) to  $\beta_c=11/15$  and  $\beta_d=15/15$ .

**Table 2: Settings of required H-set 1 QPSK in HSDPA mode**

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

**Table 3: HSDPA UE category**

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

**HSUPA Test Configuration**

Sub-test	$\beta_c$	$\beta_d$	$\beta_d$ (SF)	$\beta_c/\beta_d$	$\beta_{hr}^{(1)}$	$\beta_{ec}$	$\beta_{ed}$	$\beta_{ed}$ (SF)	$\beta_{ed}$ (codes)	CM <sup>(2)</sup> (dB)	MPR (dB)	AG <sup>(4)</sup> Index	E-TFCI
1	11/15 <sup>(3)</sup>	15/15 <sup>(3)</sup>	64	11/15 <sup>(3)</sup>	22/15	209/225	1039/225	4	1	1.0	0.0	20	75
2	6/15	15/15	64	6/15	12/15	12/15	94/75	4	1	3.0	2.0	12	67
3	15/15	9/15	64	15/9	30/15	30/15	$\beta_{ed} = 47/15$ $\beta_{ed} = 47/15$	4	2	2.0	1.0	15	92
4	2/15	15/15	64	2/15	4/15	2/15	56/75	4	1	3.0	2.0	17	71
5	15/15 <sup>(4)</sup>	15/15 <sup>(4)</sup>	64	15/15 <sup>(4)</sup>	30/15	24/15	134/15	4	1	1.0	0.0	21	81

Note 1:  $\Delta_{ACK}$ ,  $\Delta_{NACK}$  and  $\Delta_{CQI} = 8 \Leftrightarrow A_{hr} = \beta_{hr}/\beta_c = 30/15 \Leftrightarrow \beta_{hr} = 30/15 * \beta_c$ .

Note 2: CM = 1 for  $\beta_c/\beta_d = 12/15$ ,  $\beta_{hr}/\beta_c = 24/15$ . For all other combinations of DPDCH, DPCCH, HS-DPCCH, E-DPDCH and E-DPCCH the MPR is based on the relative CM difference.

Note 3: For subtest 1 the  $\beta_c/\beta_d$  ratio of 11/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signaled gain factors for the reference TFC (TF1, TF1) to  $\beta_c = 10/15$  and  $\beta_d = 15/15$ .

Note 4: For subtest 5 the  $\beta_c/\beta_d$  ratio of 15/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signaled gain factors for the reference TFC (TF1, TF1) to  $\beta_c = 14/15$  and  $\beta_d = 15/15$ .

Note 5: Testing UE using E-DPDCH Physical Layer category 1 Sub-test 3 is not required according to TS 25.306 Table 5.1g.

Note 6:  $\beta_{ed}$  can not be set directly; it is set by Absolute Grant Value.

applicable only if Maximum Power Reduction (MPR) is implemented according to Cubic Metric (CM) requirements.<sup>37</sup>

#### 4.4 Bluetooth Test Configuration

The Bluetooth transmitter of the device under test can be excluded from stand-alone and simultaneous SAR evaluation, per the requirements from FCC KDB 648474, as follows:

1. The separation between the Bluetooth antenna and the main antenna is  $7.9\text{ cm} > 5\text{ cm}$
2. The maximum conducted output power of Bluetooth is  $2.69\text{ mW} < 2 \cdot P(\text{Ref}) = 24\text{ mW}$ .
3. The maximum conducted output power of Bluetooth is  $2.69\text{ mW} < 60/f = 24.49\text{ mW}$

According to FCC KDB648474, stand along SAR and Simultaneous Transmission SAR are not required.

#### 4.5 Wi-Fi Test Configuration

The Wi-Fi is set to different data rate and channels by the software.

According to KDB648474:

1. The separation between the Wi-Fi antenna and the main antenna is  $7.9\text{ cm} \geq 5\text{ cm}$
2. The maximum conducted output power of Wi-Fi is  $24.8\text{ mW} > 2 \cdot P(\text{Ref}) = 24\text{ mW}$ .

So stand along SAR is needed.

According to KDB248227

SAR is not required for 802.11g channels when the maximum average output power is less than 0.25dB higher than that measured on the corresponding 802.11b channels.

The AP is supported,

According to KDB941225 D06,

1. The device size is  $11.6\text{ cm} \times 6\text{ cm} > 9\text{ cm} \times 5\text{ cm}$ , so test separation distance was 10mm.
2. SAR must be tested for all surfaces and edges with a transmit antenna within 2.5cm, at a test separation distance of 10mm. And also the worst position of head are tested with Wi-Fi keep transmitting.



Picture of antennas

#### 4.6 Definition of Test Positions



POSITION OF LEFT HEAD TOUCH



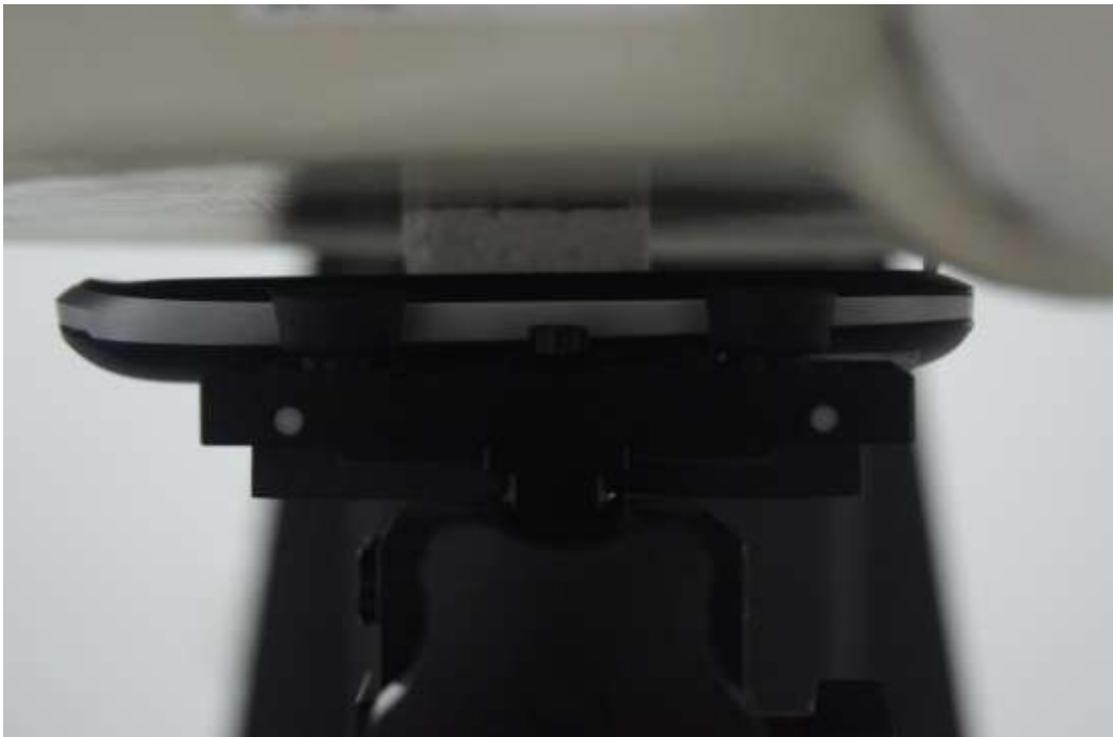
POSITION OF LEFT HEAD TILT



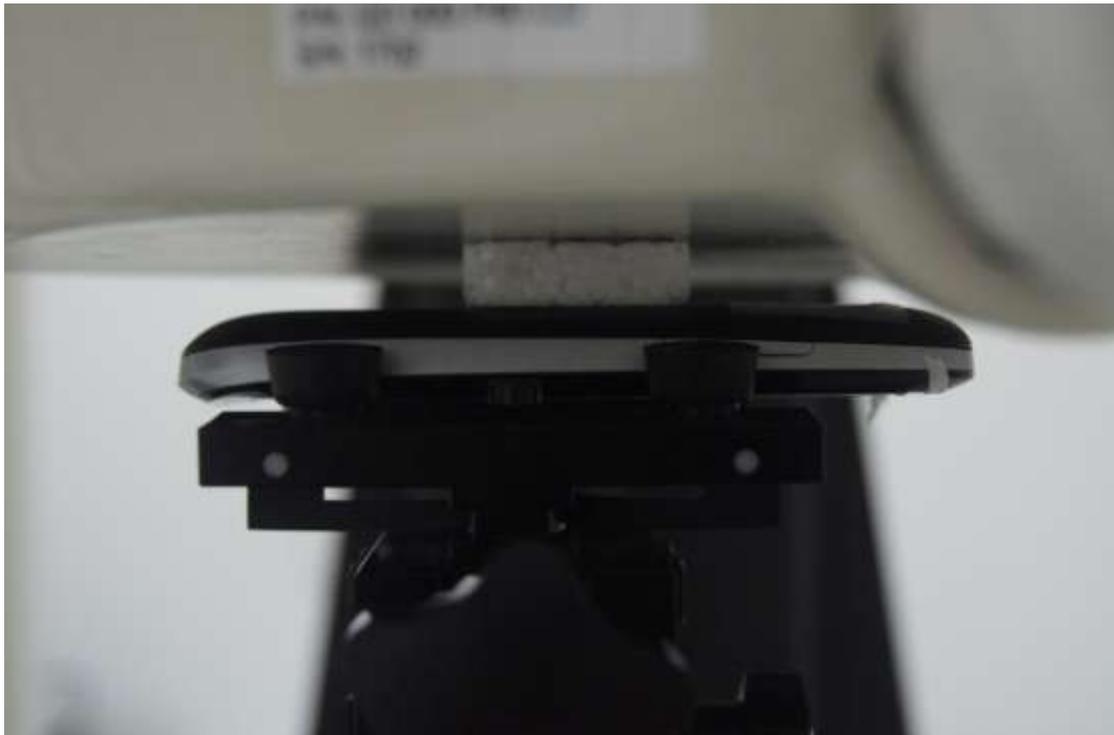
POSITION OF RIGHT HEAD TOUCH



POSITION OF RIGHT HEAD TILT



POSITION OF BODY TOWARDS PHANTOM WITH 10mm DISTANCE



POSITION OF BODY TOWARDS GROUND WITH 10mm DISTANCE



POSITION OF BODY BACK WITH 10mm DISTANCE



POSITION OF BODY FRONT 10mm DISTANCE



POSITION OF BODY left side WITH 10mm DISTANCE



POSITION OF BODY right side WITH 10mm DISTANCE



POSITION OF BODY TOWARDS GROUND WITH 10mm DISTANCE (WITH EARPHONE)

## 5. SAR Measurements system configuration

### 5.1 SAR Measurement set-up

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

- A standard high precision 6-axis robot (Staubli TX=RX family) with controller, teach pendant and software. An arm extension for accommodating the data acquisition electronics (DAE).
- An isotropic \_field probe optimized and calibrated for the targeted measurement.
- A data acquisition electronics (DAE) which performs the signal amplification, signal multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection, etc. The unit is battery powered with standard or rechargeable batteries. The signal is optically transmitted to the EOC.
- The Electro-optical converter (EOC) performs the conversion from optical to electrical signals for the digital communication to the DAE. To use optical surface detection, a special version of the EOC is required. The EOC signal is transmitted to the measurement server.
- The function of the measurement server is to perform the time critical tasks such as signal filtering, control of the robot operation and fast movement interrupts.
- The Light Beam used is for probe alignment. This improves the (absolute) accuracy of the probe positioning.
- A computer running WinXP and the DASY5 software.
- Remote control and teach pendant as well as additional circuitry for robot safety such as warning lamps, etc.
- The generic twin phantom enabling the testing of left-hand and right-hand usage.
- The device holder for handheld mobile phones.
- Tissue simulating liquid mixed according to the given recipes.
- System validation dipoles allowing to validate the proper functioning of the system.

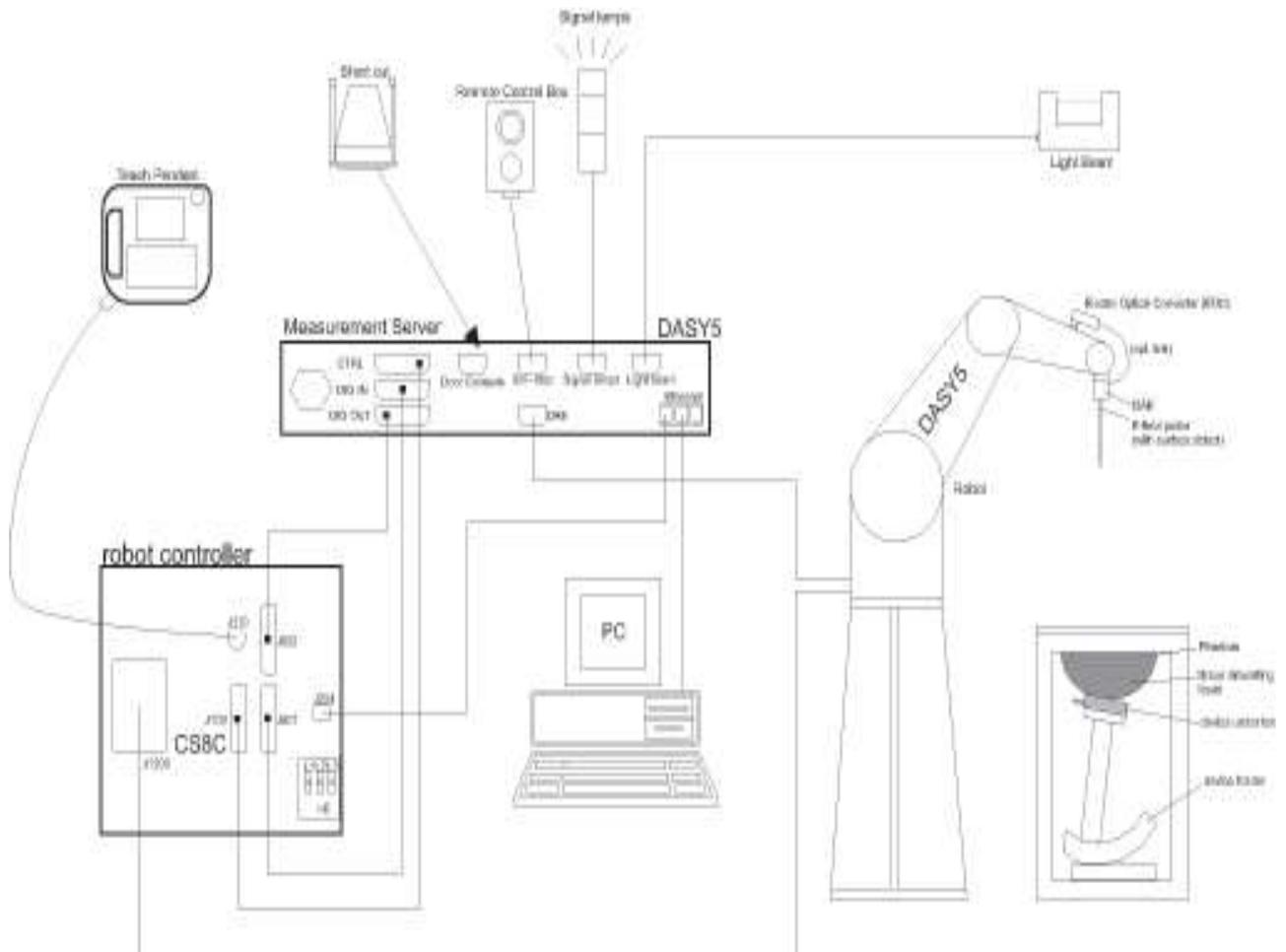


Figure 5-1 SAR Lab Test Measurement Set-up

## 5.2 DASY5 E-field Probe System

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

### 5.2.1 Es3DV3 Probe Specification

Construction	Symmetrical design with triangular core Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., DGBE)
Calibration	Basic Broad Band Calibration in air Conversion Factors (CF) for HSL 850 and HSL 1750 Additional CF for other liquids and frequencies upon request
Frequency	10 MHz to > 6 GHz Linearity: $\pm 0.2$ dB (30 MHz to 6 GHz)
Directivity	$\pm 0.3$ dB in HSL (rotation around probe axis) $\pm 0.5$ dB in tissue material (rotation normal to probe axis)

Dynamic Range	10 μW/g to > 100 mW/g Linearity: ± 0.2dB (noise: typically < 1 μW/g)
Dimensions	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
Application	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%.



Figure 5-2.ES3DV3 E-field Probe



Figure 5-3. ES3DV3 E-field probe

### 5.2.2 E-field Probe Calibration

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

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

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

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

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

Or

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

Where:

$\sigma$  = Simulated tissue conductivity,

$\rho$  = Tissue density (kg/m<sup>3</sup>).

### 5.3 Other Test Equipment

#### 5.3.1 Device Holder for Transmitters

The DASY5 device holder is designed to cope with the die rent positions given in the standard. It has two scales for device rotation (with respect to the body axis) and device inclination (with respect to the line between the ear reference points). The rotation centers for both scales are the ear reference point (ERP). Thus the device needs no repositioning when changing the angles. The amount of dielectric material has been reduced in the closest vicinity of the device, since measurements have suggested that the inference of the clamp on the test results could thus be lowered.



Figure 5-4. Device Holder

#### 5.3.2 Phantom

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

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



Figure 5-5. Generic Twin Phantom

#### 5.4 Scanning procedure

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

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

- Area Scan

The Area Scan is used as a fast scan in two dimensions to find the area of high field values before running a detailed measurement around the hot spot. Before starting the area scan a grid spacing of 15 mm x 15 mm is set. During the scan the distance of the probe to the phantom remains unchanged.

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

- Zoom Scan

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

- Spatial Peak Detection

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

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

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

Extrapolation routines are used to obtain SAR values between the lowest measurement points and the inner phantom surface. The extrapolation distance is determined by the surface detection distance and the probe sensor offset. Several measurements at different distances are necessary for the extrapolation. Extrapolation routines require at least 10 measurement points in 3-D space.

They are used in the Zoom Scan to obtain SAR values between the lowest measurement points and the inner phantom surface. The routine uses the modified Quadratic Shepard's method for extrapolation. For a grid using 7x7x7 measurement points with 5mm resolution amounting to 343 measurement points, the uncertainty of the extrapolation routines is less than 1% for 1g and 10g cubes.

- A Z-axis scan measures the total SAR value at the x-and y-position of the maximum SAR value found during the cube 7x7x7 scan. The probe is moved away in z-direction from the bottom of the SAM phantom in 5mm steps.

## 5.5 Data Storage and Evaluation

### 5.5.1 Data Storage

The DASY5 software stores the acquired data from the data acquisition electronics as raw data (in microvolt readings from the probe sensors), together with all necessary software parameters for the data evaluation (probe calibration data, liquid parameters and device frequency and modulation data) in measurement files with the extension “.DA4”. The software evaluates the desired unit and format for output each time the data is visualized or exported. This allows verification of the complete software setup even after the measurement and allows correction of incorrect parameter settings. For example, if a measurement has been performed with a wrong crest factor parameter in the device setup, the parameter can be corrected afterwards and the data can be re-evaluated. The measured data can be visualized or exported in different units or formats, depending on the selected probe type ([V/m], [A/m], [°C], [mW/g], [mW/cm<sup>2</sup>], [dBrel], etc.). Some of these units are not available in certain situations or show meaningless results, e.g., a SAR output in a lossless media will always be zero. Raw data can also be exported to perform the evaluation with other software packages.

### 5.5.2 Data Evaluation by SEMCAD

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

Probe parameters:	- Sensitivity	Normi, ai0, ai1, ai2
	- Conversion factor	ConvFi
	- Diode compression point	Dcpi
Device parameters:	- Frequency	f
	- Crest factor	cf
Media parameters:	- Conductivity	
	- Density	

These parameters must be set correctly in the software. They can be found in the component documents or they can be imported into the software from the configuration files issued for the DASY5 components. In the direct measuring mode of the multimeter option, the parameters of the actual system setup are used. In the scan visualization and export modes, the parameters stored in the corresponding document files are used. The first step of the evaluation is a linearization of the filtered input signal to account for the compression characteristics of the detector diode. The compensation depends on the input signal, the diode type and the DC-transmission factor from the diode to the evaluation electronics.

If the exciting field is pulsed, the crest factor of the signal must be known to correctly

compensate for peak power. The formula for each channel can be given as:

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

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

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

$cf$  = crest factor of exciting field (DASY parameter)

$dcp_i$  = diode compression point (DASY parameter)

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

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

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

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

$Norm_i$  = sensor sensitivity of channel i (i = x, y, z)

[mV/(V/m)<sup>2</sup>] for E-field Probes

$ConvF$  = sensitivity enhancement in solution

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

$f$  = carrier frequency [GHz]

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

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

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

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

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

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

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

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

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

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

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

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

with  $P_{pwe}$  = equivalent power density of a plane wave in mW/cm<sup>2</sup>

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

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

## 5.6 System check

The manufacturer calibrates the probes annually. Dielectric parameters of the tissue simulates were measured every day using the dielectric probe kit and the network analyzer. A system check measurement was made following the determination of the dielectric parameters of the simulates, using the dipole validation kit. A power level of 250 mW was supplied to the dipole antenna, which was placed under the flat section of the twin SAM phantom. The system check results (dielectric parameters and SAR values) are given in the 6.2.1 and 6.2.2

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

System check is performed regularly on all frequency bands where tests are performed with the DASY 5 system.

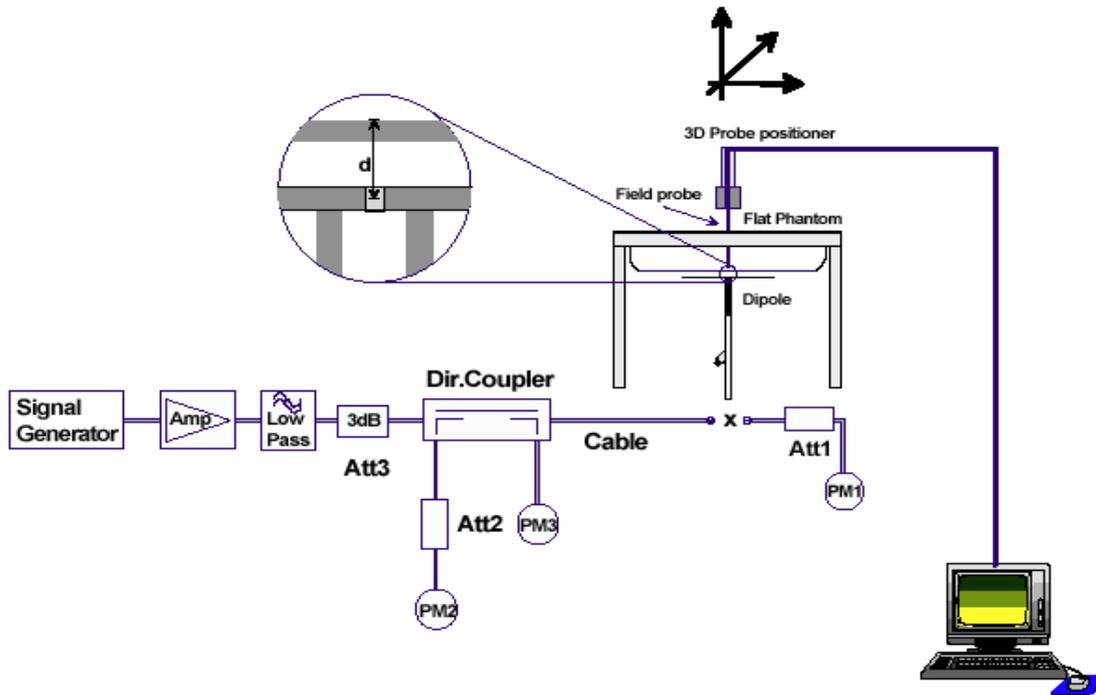


Figure 5-6. System Check Set-up

### 5.7 Equivalent Tissues

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

MIXTURE%	FREQUENCY(head) 835MHz
Water	40.4
Sugar	56
Salt	2.5
Preventol	0.1
Cellulose	1.0
Dielectric Parameters Target Value	f=835MHz $\epsilon=41.5$ $\sigma=0.90$
MIXTURE%	FREQUENCY(head)1900MHz
Water	55.242
Glycol monobutyl	44.452
Salt	0.306
Dielectric Parameters Target Value	f=1900MHz $\epsilon=40.0$ $\sigma=1.40$

MIXTURE%	FREQUENCY(body) 835MHz
Water	52.5
Sugar	45
Salt	1.4
Preventol	0.1
Cellulose	1.0
Dielectric Parameters Target Value	f=835MHz $\epsilon=55.2$ $\sigma=0.97$
MIXTURE%	FREQUENCY(body)1900MHz
Water	69.91
Glycol monobutyl	29.96
Salt	0.13
Dielectric Parameters Target Value	f=1900MHz $\epsilon=53.3$ $\sigma=1.52$

MIXTURE%	FREQUENCY(head)2450MHz
Water	56
Glycol monobutyl	44
Salt	0.00
Dielectric Parameters Target Value	f=2450MHz $\epsilon=39.2$ $\sigma=1.8$
MIXTURE%	FREQUENCY(body)2450MHz
Water	70
Glycol monobutyl	30
Salt	0
Dielectric Parameters Target Value	f=2450MHz $\epsilon=52.7$ $\sigma=1.95$

## 6. Summary of Test Results

### 6.1 Conducted Output Power Measurement

#### 6.1.1 Summary

The DUT is tested using a CMU200 communications tester as controller unit to set test channels and maximum output power to the DUT, as well as for measuring the conducted power.

Conducted output power was measured using an integrated RF connector and attached RF cable.

This result contains conducted output power for the EUT.

#### 6.1.2 Conducted Power Results

GSM850		Conducted output power (dBm)						
		low	middle	high				
		CH128	CH189	CH251				
		824.2MHz	836.6MHz	848.6MHz				
GSM		32.3	32.2	32.1	(dB)	CH128	CH189	CH251
GPRS	1 TX-slot result	32.4	32.2	32.0	-9.03	23.37	23.17	22.97
	2 TX-slot result	32.0	31.7	31.4	-6.02	25.98	25.68	25.38
	3 TX-slot result	30.2	29.9	29.6	-4.26	25.94	25.64	25.34
	4 TX-slot result	29.6	29.1	28.7	-3.01	<b>26.59</b>	<b>26.09</b>	<b>25.69</b>
EDGE (GMSK)	1 TX-slot result	32.5	32.4	32.2	-9.03	23.47	23.37	23.17
	2 TX-slot result	32.1	31.7	31.4	-6.02	26.08	25.68	25.38
	3 TX-slot result	30.4	29.9	29.6	-4.26	26.14	25.64	25.34
	4 TX-slot result	29.6	29.1	28.7	-3.01	<b>26.59</b>	<b>26.09</b>	<b>25.69</b>

GSM1900		Conducted output power (dBm)						
		low	middle	high				
		CH512	CH661	CH810				
		1850.2MHz	1880MHz	1909.8MHz				
GSM		29.6	29.3	28.4	(dB)	CH512	CH661	CH810
GPRS	1 TX-slot result	29.6	29.3	28.4	-9.03	20.57	20.27	19.37
	2 TX-slot result	28.9	28.6	27.6	-6.02	22.88	22.58	21.58
	3 TX-slot result	27.3	26.9	26.9	-4.26	23.04	22.64	22.64
	4 TX-slot result	26.5	26.1	26.0	-3.01	<b>23.49</b>	<b>23.09</b>	<b>22.99</b>
EDGE (GMSK)	1 TX-slot result	29.6	29.3	28.4	-9.03	20.57	20.27	19.37
	2 TX-slot result	28.9	28.6	27.6	-6.02	22.88	22.58	21.58
	3 TX-slot result	27.3	26.9	26.9	-4.26	23.04	22.64	22.64
	4 TX-slot result	26.5	26.1	26.0	-3.01	<b>23.49</b>	<b>23.09</b>	<b>22.99</b>

**Note:**

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

1 TX-slot =1 transmit time slot of 8 time slots

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

2 TX-slot =2 transmit time slot of 8 time slots

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

3 TX-slot =3 transmit time slot of 8 time slots

=>conducted power divided by (8/3) =>-4.26dB

4 TX-slot =4 transmit time slot of 8 time slots

=>conducted power divided by (8/4) =>-3.01dB

WCDMA BAND II		Conducted Output power (dBm)		
		low	middle	high
		CH9262	CH9400	CH9538
		1852.4MHz	1880MHz	1907.6MHz
12.2kbps RMC		22.54	22.13	21.90
HSDPA	SUB-TEST 1	22.01	22.38	22.18
	SUB-TEST 2	21.14	20.64	20.44
	SUB-TEST 3	21.08	20.62	20.41
	SUB-TEST 4	21.09	20.57	20.37
HSUPA	SUB-TEST 1	22.24	22.01	21.69
	SUB-TEST 2	21.19	21.04	20.71
	SUB-TEST 3	20.32	20.15	19.76
	SUB-TEST 4	21.24	21.05	20.72
	SUB-TEST 5	22.36	22.00	21.73

WCDMA BAND V		Conducted Output power (dBm)		
		low	middle	high
		CH4132	CH4183	CH4233
		826.4 MHz	836.6MHz	846.6MHz
12.2kbps RMC		22.90	23.01	22.74
HSDPA	SUB-TEST 1	21.79	21.91	22.66
	SUB-TEST 2	21.04	21.14	20.08
	SUB-TEST 3	20.97	21.15	20.84
	SUB-TEST 4	20.96	21.06	20.81
HSUPA	SUB-TEST 1	22.47	22.56	22.34
	SUB-TEST 2	21.33	21.32	21.22
	SUB-TEST 3	20.79	20.91	20.87
	SUB-TEST 4	21.39	21.67	20.49
	SUB-TEST 5	22.64	22.74	22.26

### Wi-Fi Average Output Power

802.11b (dBm)

Channel\data rate			1Mbps	2Mbps	5.5Mbps	11Mbps
low	2412MHz	1	13.83	13.69	13.61	13.44
middle	2437MHz	6	13.94	13.87	13.85	13.66
high	2462MHz	11	13.85	13.77	13.72	13.58

802.11g (dBm)

Channel\data rate			6Mbps	9Mbps	12Mbps	18Mbps	24Mbps	36Mbps	48Mbps	54Mbps
low	2412MHz	1	11.74	11.63	11.41	11.52	11.27	10.74	10.45	10.31
middle	2437MHz	6	12.01	11.84	11.75	11.56	11.33	10.98	10.66	10.55
high	2462MHz	11	11.79	11.62	11.50	11.18	10.89	10.54	10.20	10.09

802.11n(20M) (dBm)

Channel\data rate			MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
low	2412MHz	1	11.95	11.70	11.53	11.38	11.02	10.68	10.54	10.43
middle	2437MHz	6	11.85	11.64	11.36	11.15	10.85	10.62	10.50	10.33
high	2462MHz	11	11.81	11.62	11.42	11.22	10.80	10.53	10.40	10.28

802.11n(40M) (dBm)

Channel\data rate			MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
low	2412MHz	1	10.01	9.59	9.21	8.80	8.48	8.06	7.88	7.81
middle	2437MHz	6	10.38	9.96	9.18	8.85	8.42	8.13	7.94	7.86
high	2462MHz	11	10.24	9.67	9.31	9.08	8.58	8.27	8.04	7.94

## 6.2 Test Results

### 6.2.1. Dielectric Performance

#### Dielectric Performance of Tissue Simulating Liquid

Frequency	Description	Dielectric Parameters $\epsilon_r$	$\sigma$ (s/m)	temp °C
<b>835MHz (head)</b>	Target value 5% window	41.5 39.43-43.58	0.90 0.89- 0.99	/
	Measurement value 2012-07-27	43.1	0.91	21.7
	Measurement value 2012-08-02	42.8	0.91	21.8
<b>835MHz (body)</b>	Target value 5% window	55.2 52.44-57.96	0.97 0.92-1.02	/
	Measurement value 2012-08-03	54.2	0.97	21.9
	Measurement value 2012-08-06	54.2	0.96	22.1
	Measurement value 2012-08-07	54.2	0.96	22.0
<b>1900MHz (head)</b>	Target value 5% window	40.0 38-42	1.40 1.33 -1.47	/
	Measurement value 2012-07-26	39.0	1.38	22.0
<b>1900MHz (body)</b>	Target value 5% window	53.3 50.63-55.96	1.52 1.44 — 1.60	/
	Measurement value 2012-08-07	52.4	1.49	21.9
	Measurement value 2012-08-08	52.4	1.49	22.1
	Measurement value 2012-08-09	52.5	1.48	22.0
<b>2450MHz (head)</b>	Target value 5% window	39.2 37.24-41.16	1.8 1.71-1.89	/
	Measurement value 2012-07-27	37.86	1.78	21.8
<b>2450MHz (body)</b>	Target value 5% window	52.7 50.06-55.33	1.95 1.85 — 2.05	/
	Measurement value 2012-07-30	52.1	1.94	21.9

### 6.2.2. System Check Results

#### System Check for tissue simulation liquid

Frequency	Description	SAR(W/kg)		Dielectric Parameters $\epsilon_r$	$\sigma$ (s/m)	Temp °C
		10g	1g			
<b>835 MHz (head)</b>	Recommended result $\pm 10\%$ window	1.53 1.38-1.68	2.34 2.11-2.57	41.5	0.90	/
	Measurement value 2012-07-27	1.52	2.34	43.1	0.91	21.7
	Measurement value 2012-08-02	1.45	2.23	42.8	0.91	21.8
<b>835MHz (body)</b>	Recommended result $\pm 10\%$ window	1.64 1.48-1.80	2.5 2.25-2.75	55.2	0.97	/
	Measurement value 2012-08-03	1.69	2.6	54.2	0.97	21.9
	Measurement value 2012-08-06	1.55	2.39	54.2	0.96	22.1
	Measurement value 2012-08-07	1.6	2.46	54.2	0.96	22.0
<b>1900MHz (head)</b>	Recommended result $\pm 10\%$ window	5.09 4.58-5.60	9.65 8.75-10.60	40.0	1.40	/
	Measurement value 2012-07-26	5.13	9.97	39.0	1.38	22.0
<b>1900MHz (body)</b>	Recommended result $\pm 10\%$ window	5.3 4.77-5.83	10. 9.00-11.00	53.3	1.52	/
	Measurement value 2012-08-07	5.33	10.4	52.4	1.49	21.9
	Measurement value 2012-08-08	5.21	10.2	52.4	1.49	22.1
	Measurement value 2012-08-09	5.21	10.2	52.5	1.48	22.0
<b>2450MHz (head)</b>	Recommended result $\pm 10\%$ window	6.41 5.77-7.05	13.8 12.42-15.18	39.2	1.8	/
	Measurement value 2012-07-27	6.32	14.2	37.86	1.78	21.7
<b>2450MHz (body)</b>	Recommended result $\pm 10\%$ window	6.06 5.45-6.67	13 11.7-14.3	52.7	1.95	/
	Measurement value 2012-07-30	5.99	13.3	52.1	1.94	21.9

Note: 1. the graph results see ANNEX B.1.

2 .Recommended Values used derive from the calibration certificate and 250 mW is

used as feeding power to the calibrated dipole.

### 6.2.3 Test Results

#### 6.2.3.1 Summary of Measurement Results (GSM850)

##### SAR Values (GSM850)

Test Case		Measurement Result(W/kg)	Power Drift(dB)	Note
Different Test Position	Channel	1 g		
		Average		
Test position of Head				
Left head, Touch cheek	middle	0.554	0.18	
Left head, Tilt 15 Degree	middle	0.397	-0.13	
Right head, Touch cheek	middle	0.567	-0.09	
Right head, Tilt 15 Degree	middle	0.391	-0.14	
Right head, Touch cheek	low	<b>0.709</b>	-0.14	<b>max</b>
	high	0.409	-0.09	
Test position of Body with GPRS(4UP) (Distance 10mm)				
Towards phantom	middle	0.715	-0.17	
Towards Ground	middle	0.995	0.02	
Front	middle	0.214	-0.16	
Left side	middle	0.365	0.12	
Right side	middle	0.712	0.15	
Towards Ground	low	<b>1.06</b>	0.01	<b>max</b>
	high	0.849	0.00	
Worst case position of Body with (Distance 10mm)				
Towards Ground	low	0.719	-0.03	earphone
Towards Ground	low	0.988	0.13	EDGE(4up)

Note: 1.The value with blue color is the maximum SAR Value of test case of head and

body in each test band.

2. Upper and lower frequencies were measured at the worst position.
3. The SAR test shall be performed at the high, middle and low frequency channels of each operating mode. If the SAR measured at mid-band channel for each test configuration is at least 3.0 dB lower than the SAR limit ( $< 0.8W/kg$ ), testing at the high and low channels is optional.

### 6.2.3.2 Summary of Measurement Results (PCS1900)

#### SAR Values (PCS1900)

Test Case		Measurement Result(W/kg)	Power Drift(dB)	Note
Different Test Position	Channel	1 g		
		Average		
Test position of Head				
Left head, Touch cheek	middle	0.463	0.07	
Left head, Tilt 15 Degree	middle	0.085	0.02	
Right head, Touch cheek	middle	0.230	-0.13	
Right head, Tilt 15 Degree	middle	0.096	0.08	
Left head, Touch cheek	low	<b>0.547</b>	-0.08	<b>max</b>
	high	0.310	0.09	
Test position of Body with GPRS(4UP) (Distance 10mm)				
Towards phantom	middle	0.434	0.04	
Towards Ground	middle	0.569	0.16	
Front	middle	0.172	0.03	
Left side	middle	0.262	-0.12	
Right side	middle	0.131	0.11	
Towards Ground	low	0.802	-0.03	
	high	0.388	0.13	
Worst case position of Body with (Distance 10mm)				
Towards Ground	low	<b>0.833</b>	0.02	earphone <b>max</b>

Towards Ground	low	0.691	0.05	EDGE(4up)
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Note: 1. The value with blue color is the maximum SAR Value of test case of head and body in each test band.

2. Upper and lower frequencies were measured at the worst position.

3. The SAR test shall be performed at the high, middle and low frequency channels of each operating mode. If the SAR measured at mid-band channel for each test configuration is at least 3.0 dB lower than the SAR limit ( $< 0.8W/kg$ ), testing at the high and low channels is optional.

### 6.2.3.3 Summary of Measurement Results (WCDMA BAND II)

#### SAR Values (WCDMA BANDII)

Test Case		Measurement Result(W/kg)	Power Drift(dB)	Note
Different Test Position	Channel	1 g Average		
Test position of Head				
Left head, Touch cheek	middle	1.13	-0.13	
Left head, Tilt 15 Degree	middle	0.201	0.03	
Right head, Touch cheek	middle	0.471	0.07	
Right head, Tilt 15 Degree	middle	0.168	-0.16	
Left head, Touch cheek	low	1.16	0.11	max
	high	0.819	-0.12	
Test position of Body (Distance 10mm)				
Towards phantom	middle	0.656	0.08	
Towards Ground	middle	0.797	0.00	
Front	middle	0.239	0.14	
Left side	middle	0.215	-0.02	
Right side	middle	0.152	0.12	

Towards Ground	low	<b>0.908</b>	0.05	<b>max</b>
	high	0.590	-0.16	
Worst case position of Body with (Distance 10mm)				
Towards Ground	low	0.886	0.14	earphone
Towards Ground	low	0.423	-0.03	HSDPA
Towards Ground	low	0.420	0.00	HSUPA

Note: 1. The value with blue color is the maximum SAR Value of test case of head and body in each test band.

2. Upper and lower frequencies were measured at the worst position.
3. The SAR test shall be performed at the high, middle and low frequency channels of each operating mode. If the SAR measured at mid-band channel for each test configuration is at least 3.0 dB lower than the SAR limit (< 0.8W/kg), testing at the high and low channels is optional.

#### 6.2.3.4 Summary of Measurement Results (WCDMA BAND V)

##### SAR Values (WCDMA BAND V)

Test Case		Measurement Result(W/kg)	Power Drift(dB)	Note
Different Test Position	Channel	1 g		
		Average		
Test position of Head				
Left head, Touch cheek	middle	0.484	-0.08	
Left head, Tilt 15 Degree	middle	0.331	0.01	
Right head, Touch cheek	middle	<b>0.544</b>	-0.13	<b>max</b>
Right head, Tilt 15 Degree	middle	0.405	-0.03	
Right head, Touch cheek	low	0.475	0.01	
	high	0.447	0.15	
Test position of Body (Distance 10mm)				
Towards phantom	middle	0.471	-0.01	
Towards Ground	middle	0.875	0.02	

Front	middle	0.119	0.10	
Left side	middle	0.425	0.03	
Right side	middle	0.484	-0.08	
Towards Ground	low	<b>0.895</b>	-0.00	<b>max</b>
	high	0.747	0.01	
Worst case position of Body with (Distance 10mm)				
Towards Ground	low	0.715	-0.13	earphone
Towards Ground	low	0.400	0.02	HSDPA
Towards Ground	low	0.397	0.06	HSUPA

Note: 1. The value with blue color is the maximum SAR Value of test case of head and body in each test band.

2. Upper and lower frequencies were measured at the worst position.

3. The SAR test shall be performed at the high, middle and low frequency channels of each operating mode. If the SAR measured at mid-band channel for each test configuration is at least 3.0 dB lower than the SAR limit ( $< 0.8W/kg$ ), testing at the high and low channels is optional.

### 6.2.3.5 Summary of Measurement Results (802.11b/g/n)

#### SAR Values (802.11b/g/n)

Test Case		Measurement Result(W/kg)		Power Drift(dB)	Note
Different Test Position	Channel	1 g	Average		
		Test position of Head			
Left head, Touch cheek	middle	0.093	0.23		
Left head, Tilt 15 Degree	middle	0.066	0.01		
Right head, Touch cheek	middle	<b>0.164</b>	0.46		<b>max</b>
Right head, Tilt 15 Degree	middle	0.058	0.10		
Right head, Touch cheek	low	0.115	0.29		
	high	0.148	0.00		

Right head, Touch cheek	middle	0.087	0.28	802.11g
Right head, Touch cheek	middle	0.097	0.33	802.11n 20MHz
Right head, Touch cheek	middle	0.044	0.25	802.11n 40MHz
Test position of Body (Distance 10mm)				
Towards phantom	middle	0.030	0.44	
Towards Ground	middle	0.039	0.37	
Back	middle	0.019	0.32	
Left side	middle	<b>0.040</b>	0.43	<b>max</b>
Right side	middle	0.013	0.52	
Left side	low	0.024	0.68	
	high	0.039	0.56	
Left side	middle	0.018	-0.06	802.11g
Left side	middle	0.020	0.38	802.11n 20MHz
Left side	middle	0.012	0.43	802.11n 40MHz

Note: 1. The value with blue color is the maximum SAR Value of test case of head and body in each test band.

2. Upper and lower frequencies were measured at the worst position.
3. The SAR test shall be performed at the high, middle and low frequency channels of each operating mode. If the SAR measured at mid-band channel for each test configuration is at least 3.0 dB lower than the SAR limit (< 0.8W/kg), testing at the high and low channels is optional.

#### 6.2.4 Maximum SAR

TEST BAND	Worst Position		CHANNEL	Maximum SAR(1g) (W/kg)	Limit of SAR(1g)
GSM850	Head	Right head, touch cheek	low	0.709	1.6
	Body	Towards ground	low	1.06	1.6

<b>PCS1900</b>	Head	Left head, touch cheek	low	0.547	1.6
	Body	Towards ground GPRS(4up) with earphone	low	0.833	1.6
<b>WCDMA BAND II</b>	Head	Left head, touch cheek	low	1.16	1.6
	Body	Towards ground	low	0.908	1.6
<b>WCDMA BAND V</b>	Head	Right head, touch cheek	middle	0.544	1.6
	Body	Towards ground	low	0.895	1.6
<b>Wi-Fi</b>	Head	Right head, touch cheek	middle	0.164	1.6
	Body	Left side	middle	0.040	1.6

### Evaluation for Simultaneous SAR

TEST MODE	Wi-Fi		Main Mode SAR(1g) (W/kg)	Wi-Fi SAR(1g) (W/kg)	Summation SAR(1g) (W/kg)	SAR -to-peak-location Separation Ratio	Simultaneous Measurement Required?
<b>GSM850</b>	<b>802.11b</b>	Head	0.709	0.164	<1.6	/	No
		Body	1.06	0.040	<1.6	/	No
<b>GSM1900</b>	<b>802.11b</b>	Head	0.547	0.164	<1.6	/	No
		Body	0.833	0.040	<1.6	/	No
<b>WCDMA BAND II</b>	<b>802.11b</b>	Head	1.16	0.164	<1.6	/	No
		Body	0.908	0.040	<1.6	/	No
<b>WCDMA BAND V</b>	<b>802.11b</b>	Head	0.544	0.164	<1.6	/	No
		Body	0.895	0.040	<1.6	/	No

General Judgment: PASS

## 7. Test Equipments Utilized

No.	Name	Type	S/N	Calibration Date	Valid Period
01	Network analyzer	Agilent E5071E	MY46109425	Oct 14th, 2011	One year
02	Dielectric Probe Kit	Agilent 85070E	MY44300524	No Calibration Requested	
03	Power meter	Agilent E4418B	MY50000852	Oct 14th, 2011	One year
04	Power sensor	Agilent E9200B	MY50300011	Oct 14th, 2011	One year
05	Signal Generator	Agilent N5182A	MY49071248	Oct 14th, 2011	One year
06	Amplifier	ZHL-42W	QA1020005	No Calibration Requested	
07	BTS	CMU200	121464	Oct 14th, 2011	One year
08	E-field Probe	ES3DV3	3241	Sep 27th, 2011	One year
09	E-field Probe	ES3DV3	3297	Apr 10th, 2012	One year
10	DAE	DAE4	1327	Apr 11th, 2012	One year
11	Validation Kit 835MHz	D835V2	4d092	June 22th, 2012	One year
12	Validation Kit 1900MHz	D1900V2	5d155	April 03th, 2012	One year
13	Validation Kit 2450MHz	D2450V2	869	June 15th, 2012	One year

## 8. Measurement Uncertainty

No.	source	type	Uncertainty Value (%)	Probability Distribution	k	$c_i$	Standard uncertainty $u_i$ (%)	Degree of freedom $V_{eff}$ or $v_i$
1	-System repetivity	A	0.3	N	1	1	0.5	9
Measurement system								
2	—probe calibration	B	7	N	2	1	3.5	$\infty$
3	—axial isotropy of the probe	B	4.7	R	$\sqrt{3}$	0.5	4.3	$\infty$
4	— Hemispherical isotropy of the probe	B	9.4	R	$\sqrt{3}$	1	0	$\infty$
5	—probe linearity	B	4.7	R	$\sqrt{3}$	1	2.7	$\infty$
6	—System detection limits	B	1.0	R	$\sqrt{3}$	1	0.6	$\infty$
7	—boundary effect	B	11.0	R	$\sqrt{3}$	1	6.4	$\infty$
8	—response time	B	0	R	$\sqrt{3}$	1	0	$\infty$
9	—noise	B	0	N	$\sqrt{3}$	1	0	$\infty$
10	—integration time	B	5.0	R	$\sqrt{3}$	1	2.9	$\infty$
11	—readout Electronics	B	0.4	R	$\sqrt{3}$	1	0.2	$\infty$
12	—-phantom	B	2.9	R	$\sqrt{3}$	1	1.7	$\infty$
13	—Probe Positioning with respect to Phantom Shell	B	2.9	R	$\sqrt{3}$	1	1.7	$\infty$
14	—Device Holder Uncertainty	A	4.9	R	1	1	4.9	5
物理参数								
15	-liquid density	B	0	R	$\sqrt{3}$	1	0	$\infty$
16	-liquid conductivity (deviation from target)	B	5.0	R	$\sqrt{3}$	0.5	2.9	$\infty$
17	-liquid conductivity (measurement uncertainty)	A	0.23	N	1	1	0.23	9

18	-liquid permittivity (deviation from target)	B	5.0	R	$\sqrt{3}$	0.5	2.9	$\infty$
19	-liquid permittivity (measurement uncertainty)	A	0.46	N	1	1	0.46	9
20	– Probe Positioner Mechanical Tolerance	B	5.0	R	$\sqrt{3}$	1	2.9	$\infty$
21	– Environment	B	3.0	R	$\sqrt{3}$	1	1.7	$\infty$
22	– Extrapolation, interpolation and Integration Algorithms for Max. SAR Evaluation	B	3.9	R	$\sqrt{3}$	1	2.3	$\infty$
Combined standard uncertainty		$u_c = \sqrt{\sum_{i=1}^{22} c_i^2 u_i^2}$					12.2	88.7
Expanded uncertainty (confidence interval of 95 %)		$u_e = 2u_c$		N	K=2		24.4	

ANNEX A: Photograph



EUT



BATTERY





Travel Adaptor



Earphone

## ANNEX B: Detailed Test Results

### Annex B.1 System Check Results

#### System check 835head

Date/Time: 27/07/2012 08:58:52

Communication System: CW; Communication System Band: D835 (835.0 MHz);

Frequency: 835 MHz; Communication System PAR: 0 dB

Medium parameters used:  $f = 835$  MHz;  $\sigma = 0.91$  mho/m;  $\epsilon_r = 43.053$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE 1528/OET 65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(6.18, 6.18, 6.18); Calibrated: 27/09/2011;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/04/2012
- Phantom: SAM 1; Type: SAM; Serial: TP:1702
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

#### 835head/d=15mm, Pin=250 mW, dist=3.0mm (ES-Probe)-head/Area

**Scan (61x121x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 2.70 mW/g

#### 835head/d=15mm, Pin=250 mW, dist=3.0mm (ES-Probe)-head/Zoom

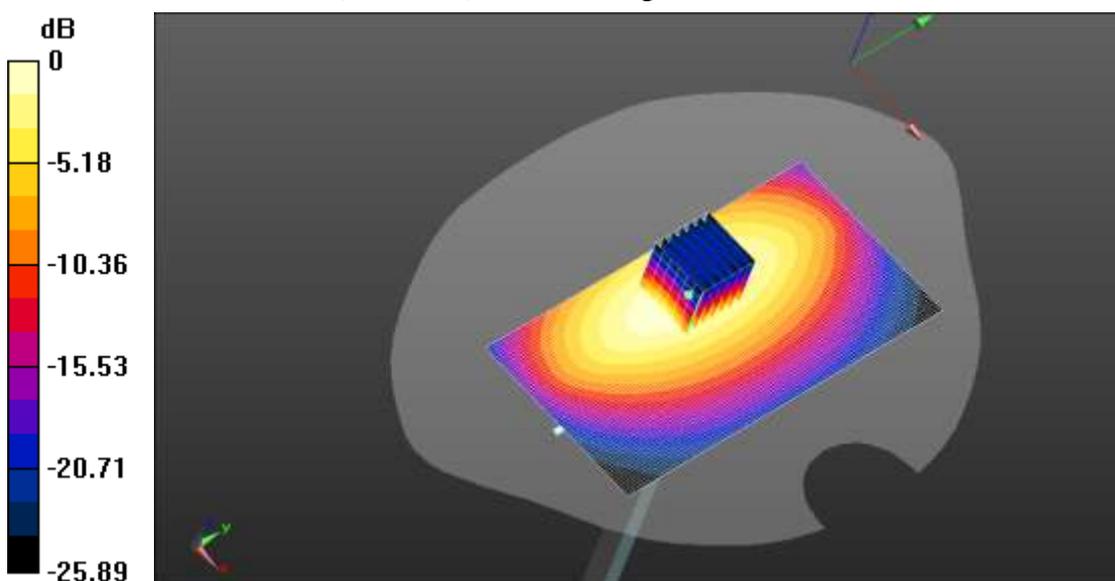
**Scan (7x7x7) (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 43.455 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 3.660 mW/g

**SAR(1 g) = 2.34 mW/g; SAR(10 g) = 1.52 mW/g**

Maximum value of SAR (measured) = 2.75 mW/g



0 dB = 2.70 mW/g = 8.61 dB mW/g

**System check 835head**

Date/Time: 02/08/2012 09:03:13

Communication System: CW; Communication System Band: D835 (835.0 MHz);

Frequency: 835 MHz; Communication System PAR: 0 dB

Medium parameters used:  $f = 835 \text{ MHz}$ ;  $\sigma = 0.91 \text{ mho/m}$ ;  $\epsilon_r = 42.823$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE 1528/OET 65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(6.18, 6.18, 6.18); Calibrated: 27/09/2011;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/04/2012
- Phantom: SAM 1; Type: SAM; Serial: TP:1702
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

**835head/d=15mm, Pin=250 mW, dist=3.0mm (ES-Probe)-head/Area Scan (61x121x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 2.57 mW/g

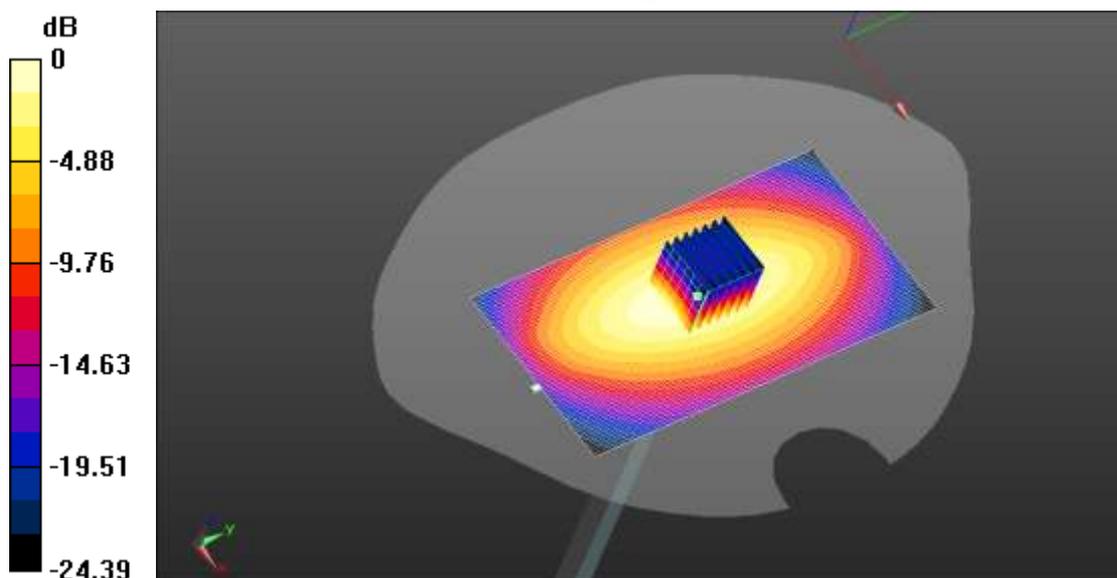
**835head/d=15mm, Pin=250 mW, dist=3.0mm (ES-Probe)-head/Zoom Scan (7x7x7) (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 54.627 V/m; Power Drift = 0.10 dB

Peak SAR (extrapolated) = 3.459 mW/g

**SAR(1 g) = 2.23 mW/g; SAR(10 g) = 1.45 mW/g**

Maximum value of SAR (measured) = 2.61 mW/g



0 dB = 2.57 mW/g = 8.18 dB mW/g

**System check 835body**

Date/Time: 03/08/2012 08:45:21

Communication System: CW; Communication System Band: D835 (835.0 MHz);

Frequency: 835 MHz; Communication System PAR: 0 dB

Medium parameters used:  $f = 835 \text{ MHz}$ ;  $\sigma = 0.968 \text{ mho/m}$ ;  $\epsilon_r = 54.255$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASYS5 (IEEE 1528/OET 65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(6.19, 6.19, 6.19); Calibrated: 27/09/2011;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/04/2012
- Phantom: ELI v4.0; Type: ELI4; Serial: TP:1086
- Measurement SW: DASYS52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

**835body/d=15mm, Pin=250 mW, dist=3.0mm (ES-Probe)-BODY/Area**

**Scan (61x121x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 2.99 mW/g

**835body/d=15mm, Pin=250 mW, dist=3.0mm (ES-Probe)-BODY/Zoom**

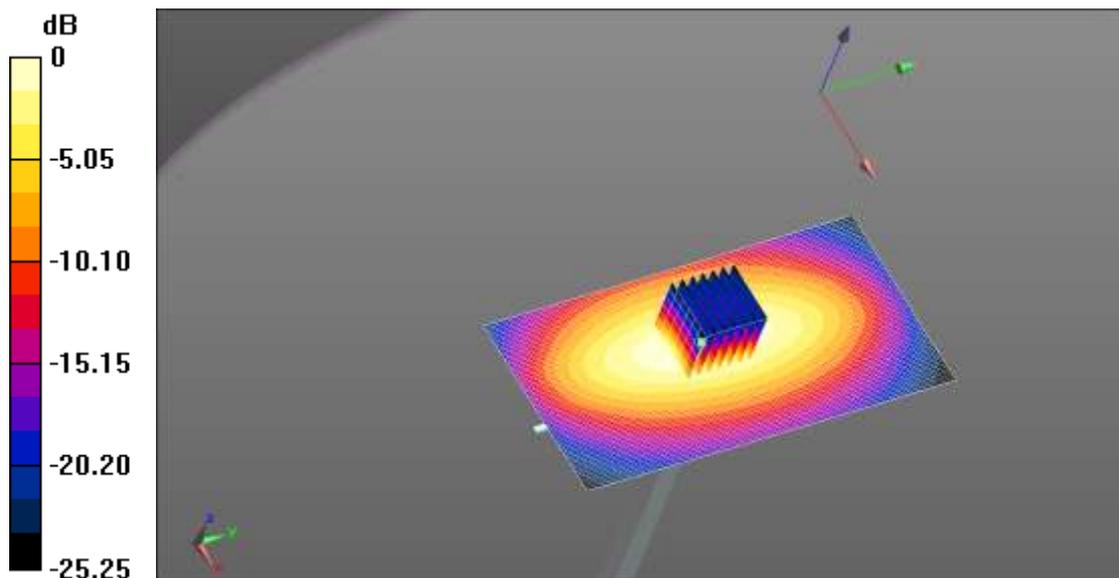
**Scan (7x7x7) (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 56.642 V/m; Power Drift = -0.13 dB

Peak SAR (extrapolated) = 3.988 mW/g

**SAR(1 g) = 2.6 mW/g; SAR(10 g) = 1.69 mW/g**

Maximum value of SAR (measured) = 3.06 mW/g



0 dB = 2.99 mW/g = 9.51 dB mW/g

**System check 835body**

Date/Time: 06/08/2012 08:44:56

Communication System: CW; Communication System Band: D835 (835.0 MHz);

Frequency: 835 MHz; Communication System PAR: 0 dB

Medium parameters used:  $f = 835$  MHz;  $\sigma = 0.973$  mho/m;  $\epsilon_r = 54.241$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASYS5 (IEEE 1528/OET 65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(6.19, 6.19, 6.19); Calibrated: 27/09/2011;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/04/2012
- Phantom: ELI v4.0; Type: ELI4; Serial: TP:1086
- Measurement SW: DASYS52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

**835body/d=15mm, Pin=250 mW, dist=3.0mm (ES-Probe)-BODY/Area**

**Scan (61x121x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 2.80 mW/g

**835body/d=15mm, Pin=250 mW, dist=3.0mm (ES-Probe)-BODY/Zoom**

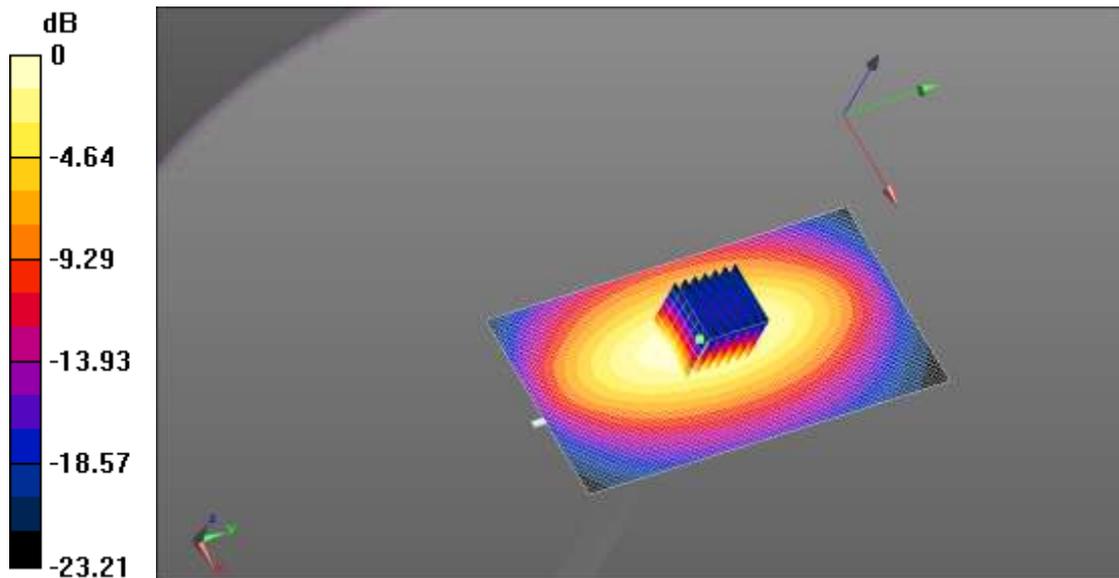
**Scan (7x7x7) (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 55.523 V/m; Power Drift = -0.10 dB

Peak SAR (extrapolated) = 3.660 mW/g

**SAR(1 g) = 2.39 mW/g; SAR(10 g) = 1.55 mW/g**

Maximum value of SAR (measured) = 2.81 mW/g



0 dB = 2.80 mW/g = 8.94 dB mW/g

**System check 835body**

Date/Time: 07/08/2012 08:58:29

Communication System: CW; Communication System Band: D835 (835.0 MHz);

Frequency: 835 MHz; Communication System PAR: 0 dB

Medium parameters used:  $f = 835 \text{ MHz}$ ;  $\sigma = 0.961 \text{ mho/m}$ ;  $\epsilon_r = 54.187$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASYS5 (IEEE 1528/OET 65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(6.19, 6.19, 6.19); Calibrated: 27/09/2011;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/04/2012
- Phantom: ELI v4.0; Type: ELI4; Serial: TP:1086
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

**835body/d=15mm, Pin=250 mW, dist=3.0mm (ES-Probe)-BODY/Area**

**Scan (61x121x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 2.85 mW/g

**835body/d=15mm, Pin=250 mW, dist=3.0mm (ES-Probe)-BODY/Zoom**

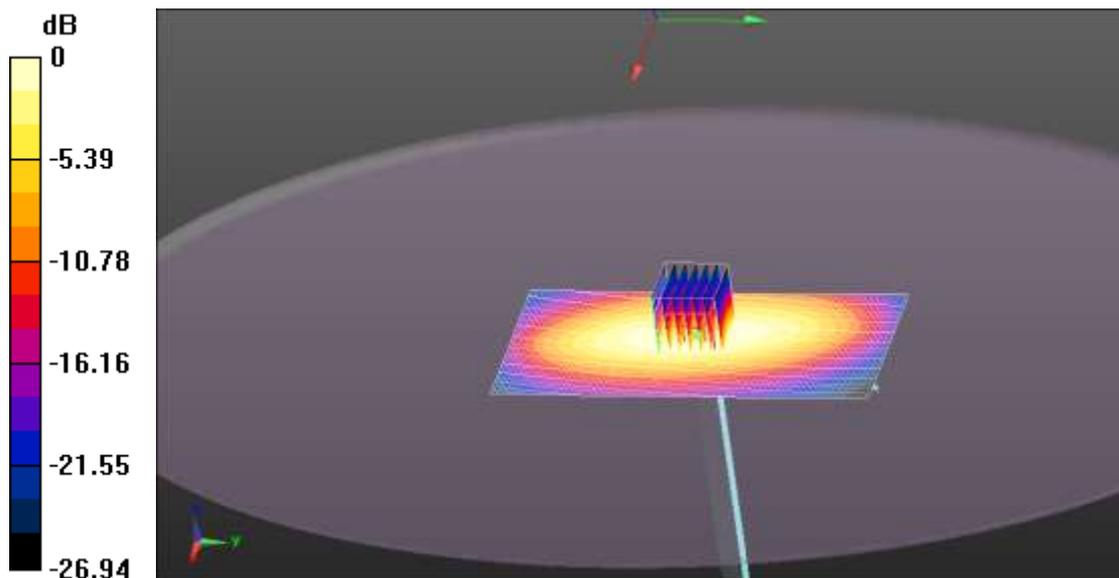
**Scan (7x7x7) (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 54.959 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 3.792 mW/g

**SAR(1 g) = 2.46 mW/g; SAR(10 g) = 1.6 mW/g**

Maximum value of SAR (measured) = 2.90 mW/g



0 dB = 2.85 mW/g = 9.10 dB mW/g

**System check 1900head**

Date/Time: 26/07/2012 08:35:13

Communication System: CW; Communication System Band: D1900 (1900.0 MHz);

Frequency: 1900 MHz; Communication System PAR: 0 dB

Medium parameters used:  $f = 1900$  MHz;  $\sigma = 1.383$  mho/m;  $\epsilon_r = 39.048$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASYS5 (IEEE 1528/OET 65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(5.09, 5.09, 5.09); Calibrated: 27/09/2011;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/04/2012
- Phantom: SAM 1; Type: SAM; Serial: TP:1702
- Measurement SW: DASYS52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

**1900head/d=10mm, Pin=250 mW, dist=3.0mm (ES-Probe)/Area Scan**

**(41x61x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 13.2 mW/g

**1900head/d=10mm, Pin=250 mW, dist=3.0mm (ES-Probe)/Zoom Scan**

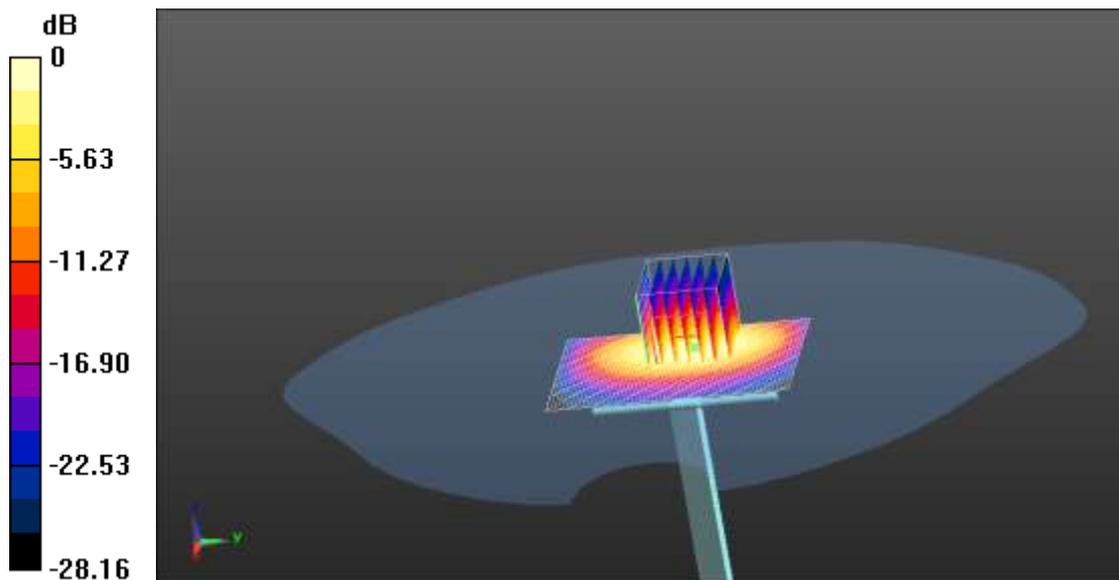
**(7x7x7) (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 60.589 V/m; Power Drift = 0.08 dB

Peak SAR (extrapolated) = 18.400 mW/g

**SAR(1 g) = 9.97 mW/g; SAR(10 g) = 5.13 mW/g**

Maximum value of SAR (measured) = 12.6 mW/g



0 dB = 13.2 mW/g = 22.39 dB mW/g

**System check 1900body**

Date/Time: 7/8/2012 14:07:47

Communication System: CW; Communication System Band: D1900 (1900.0 MHz);

Frequency: 1900 MHz; Communication System PAR: 0 dB

Medium parameters used:  $f = 1900$  MHz;  $\sigma = 1.495$  mho/m;  $\epsilon_r = 52.357$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASYS5 (IEEE 1528/OET 65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(4.67, 4.67, 4.67); Calibrated: 27/9/2011;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/4/2012
- Phantom: SAM2; Type: SAM; Serial: TP-1575
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

**1900body/d=10mm, Pin=250 mW, dist=3.0mm (ES-Probe)/Area Scan**

**(41x61x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 14.3 mW/g

**1900body/d=10mm, Pin=250 mW, dist=3.0mm (ES-Probe)/Zoom Scan**

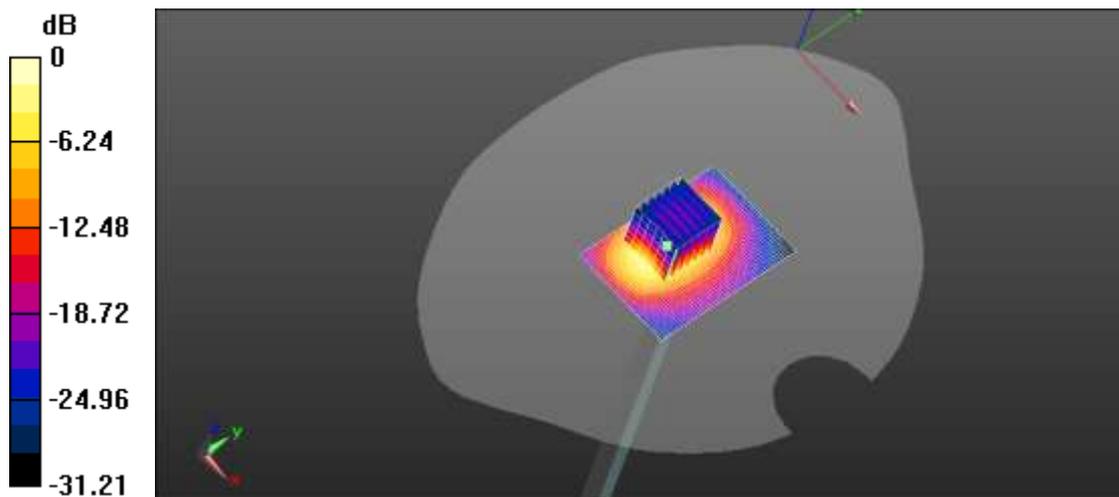
**(7x7x7) (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 73.275 V/m; Power Drift = 0.16 dB

Peak SAR (extrapolated) = 18.963 mW/g

**SAR(1 g) = 10.4 mW/g; SAR(10 g) = 5.33 mW/g**

Maximum value of SAR (measured) = 13.4 mW/g



0 dB = 14.3 mW/g = 23.08 dB mW/g

**System check 1900body**

Date/Time: 8/8/2012 9:00:39

Communication System: CW; Communication System Band: D1900 (1900.0 MHz);

Frequency: 1900 MHz; Communication System PAR: 0 dB

Medium parameters used:  $f = 1900$  MHz;  $\sigma = 1.487$  mho/m;  $\epsilon_r = 52.413$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASYS5 (IEEE 1528/OET 65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(4.67, 4.67, 4.67); Calibrated: 27/9/2011;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/4/2012
- Phantom: SAM2; Type: SAM; Serial: TP-1575
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

**1900body/d=10mm, Pin=250 mW, dist=3.0mm (ES-Probe)/Area Scan**

**(41x61x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 14.2 mW/g

**1900body/d=10mm, Pin=250 mW, dist=3.0mm (ES-Probe)/Zoom Scan**

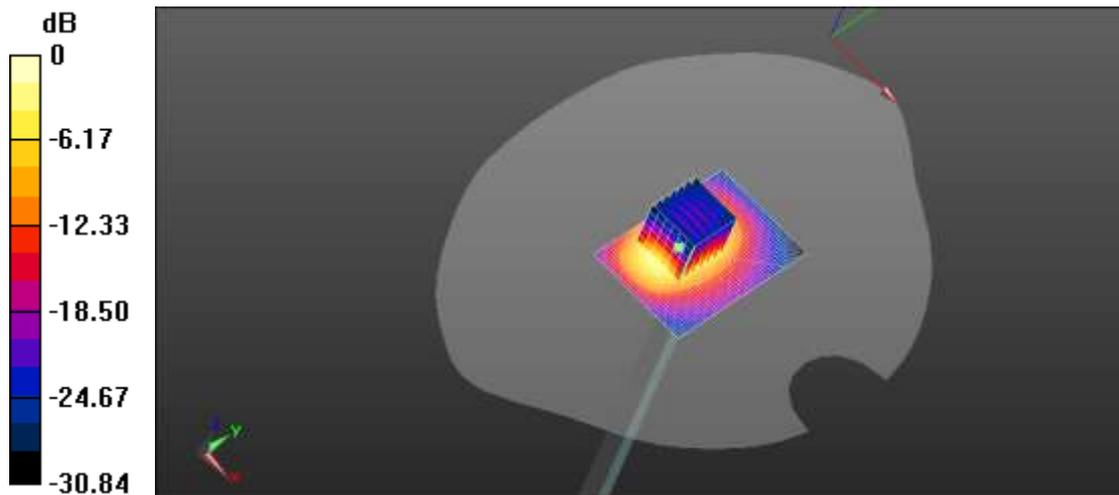
**(7x7x7) (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 74.599 V/m; Power Drift = 0.19 dB

Peak SAR (extrapolated) = 18.543 mW/g

**SAR(1 g) = 10.2 mW/g; SAR(10 g) = 5.21 mW/g**

Maximum value of SAR (measured) = 13.1 mW/g



0 dB = 14.2 mW/g = 23.07 dB mW/g

**System check 1900body**

Date/Time: 9/8/2012 8:49:47

Communication System: CW; Communication System Band: D1900 (1900.0 MHz);

Frequency: 1900 MHz; Communication System PAR: 0 dB

Medium parameters used:  $f = 1900$  MHz;  $\sigma = 1.475$  mho/m;  $\epsilon_r = 52.513$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASYS5 (IEEE 1528/OET 65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(4.67, 4.67, 4.67); Calibrated: 27/9/2011;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/4/2012
- Phantom: SAM2; Type: SAM; Serial: TP-1575
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

**1900body/d=10mm, Pin=250 mW, dist=3.0mm (ES-Probe)/Area Scan**

**(41x61x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 14.2 mW/g

**1900body/d=10mm, Pin=250 mW, dist=3.0mm (ES-Probe)/Zoom Scan**

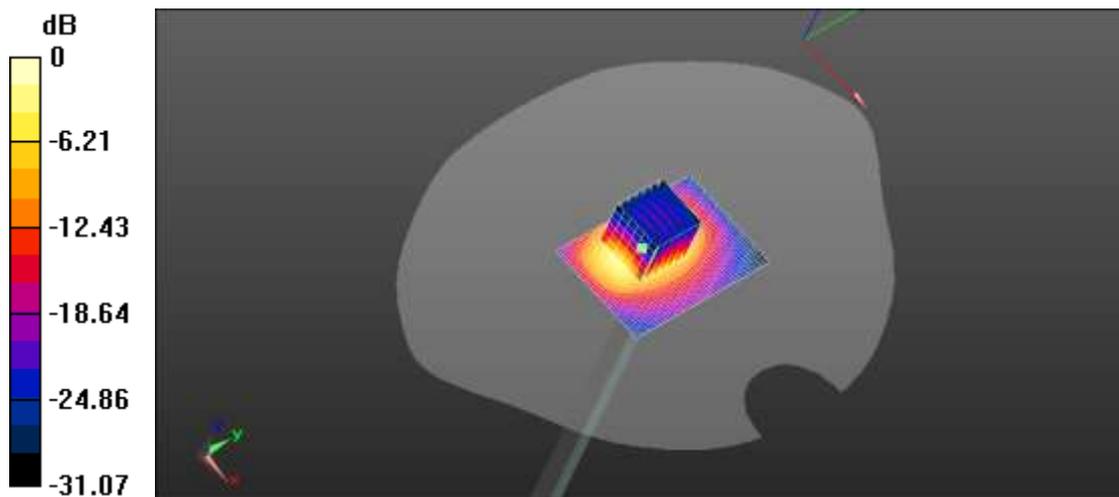
**(7x7x7) (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 73.044 V/m; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 18.760 mW/g

**SAR(1 g) = 10.2 mW/g; SAR(10 g) = 5.21 mW/g**

Maximum value of SAR (measured) = 13.1 mW/g



0 dB = 14.2 mW/g = 23.05 dB mW/g

**System check 2450head**

Date/Time: 27/7/2012 9:52:33

Communication System: CW; Communication System Band: D2450 (2450.0 MHz);

Frequency: 2450 MHz; Communication System PAR: 0 dB

Medium parameters used:  $f = 2450$  MHz;  $\sigma = 1.785$  mho/m;  $\epsilon_r = 37.861$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE 1528/OET 65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3297; ConvF(4.59, 4.59, 4.59); Calibrated: 10/4/2012;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/4/2012
- Phantom: SAM2; Type: SAM; Serial: TP-1575
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

**2450head/d=10mm, Pin=250 mW, dist=3.0mm (ES-Probe)/Area Scan**

**(41x61x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 20.7 mW/g

**2450head/d=10mm, Pin=250 mW, dist=3.0mm (ES-Probe)/Zoom Scan**

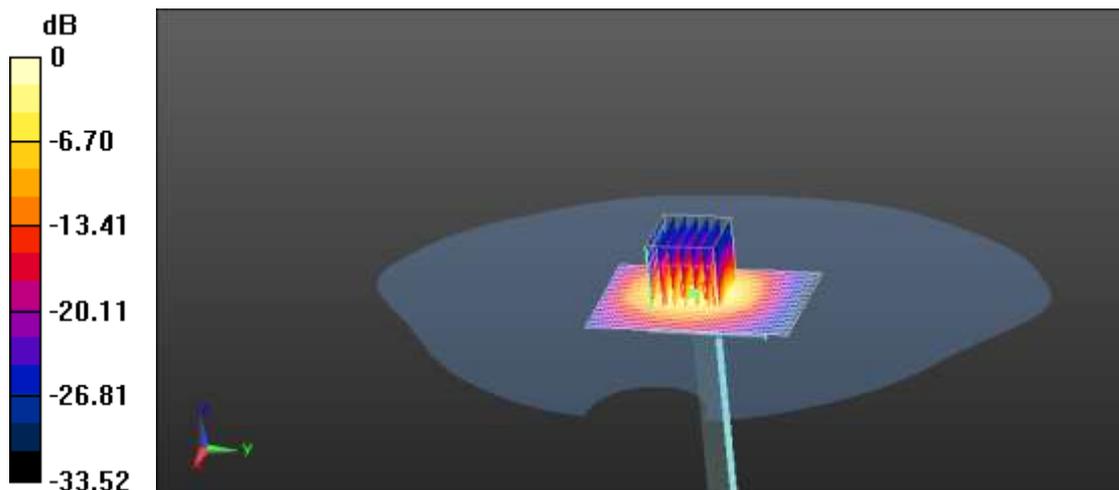
**(7x7x7) (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 86.959 V/m; Power Drift = 0.10 dB

Peak SAR (extrapolated) = 31.532 mW/g

**SAR(1 g) = 14.2 mW/g; SAR(10 g) = 6.32 mW/g**

Maximum value of SAR (measured) = 19.0 mW/g



0 dB = 20.7 mW/g = 26.32 dB mW/g

**System check 2450body**

Date/Time: 30/7/2012 9:54:29

Communication System: CW; Communication System Band: D2450 (2450.0 MHz);

Frequency: 2450 MHz; Communication System PAR: 0 dB

Medium parameters used:  $f = 2450$  MHz;  $\sigma = 1.942$  mho/m;  $\epsilon_r = 52.121$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE 1528/OET 65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3297; ConvF(4.34, 4.34, 4.34); Calibrated: 10/4/2012;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/4/2012
- Phantom: SAM2; Type: SAM; Serial: TP-1575
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

**2450body/d=10mm, Pin=250 mW, dist=3.0mm (ES-Probe)/Area Scan**

**(41x61x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 19.8 mW/g

**2450body/d=10mm, Pin=250 mW, dist=3.0mm (ES-Probe)/Zoom Scan**

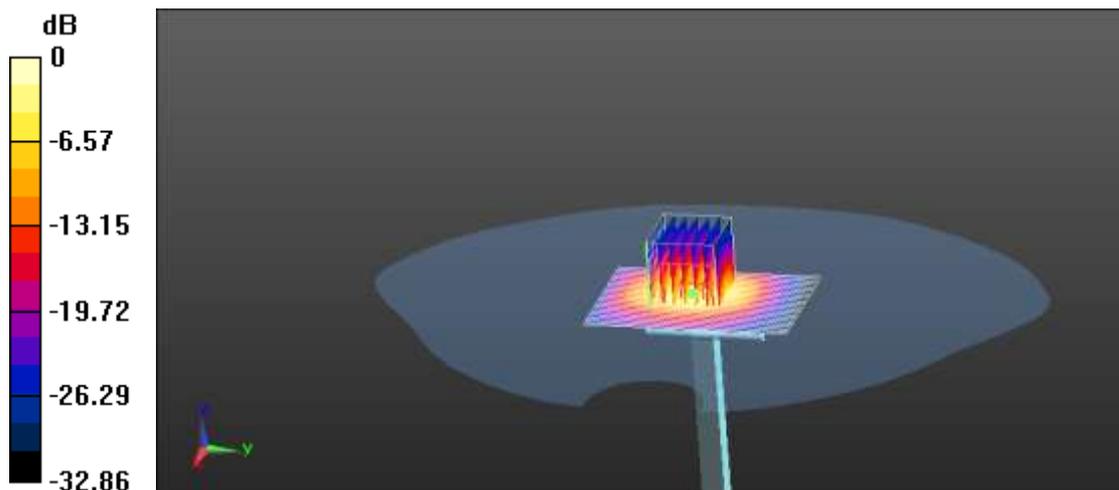
**(7x7x7) (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 77.222 V/m; Power Drift = 0.13 dB

Peak SAR (extrapolated) = 28.158 mW/g

**SAR(1 g) = 13.3 mW/g; SAR(10 g) = 5.99 mW/g**

Maximum value of SAR (measured) = 17.8 mW/g



0 dB = 19.8 mW/g = 25.92 dB mW/g

**Annex B.2 Graph Result**

**GSM850 left touch mid**

Date/Time: 02/08/2012 09:55:20

Communication System: Generic GSM; Communication System Band: GSM 850 (824.0 - 849.0 MHz); Frequency: 836.6 MHz; Communication System PAR: 9.191 dB

Medium parameters used:  $f = 837$  MHz;  $\sigma = 0.914$  mho/m;  $\epsilon_r = 43.026$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Left Section

Measurement Standard: DASYS (IEEE 1528/OET 65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(6.18, 6.18, 6.18); Calibrated: 27/09/2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/04/2012
- Phantom: SAM 1; Type: SAM; Serial: TP:1702
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

**left/touch mid/Area Scan (91x151x1):** Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.589 mW/g

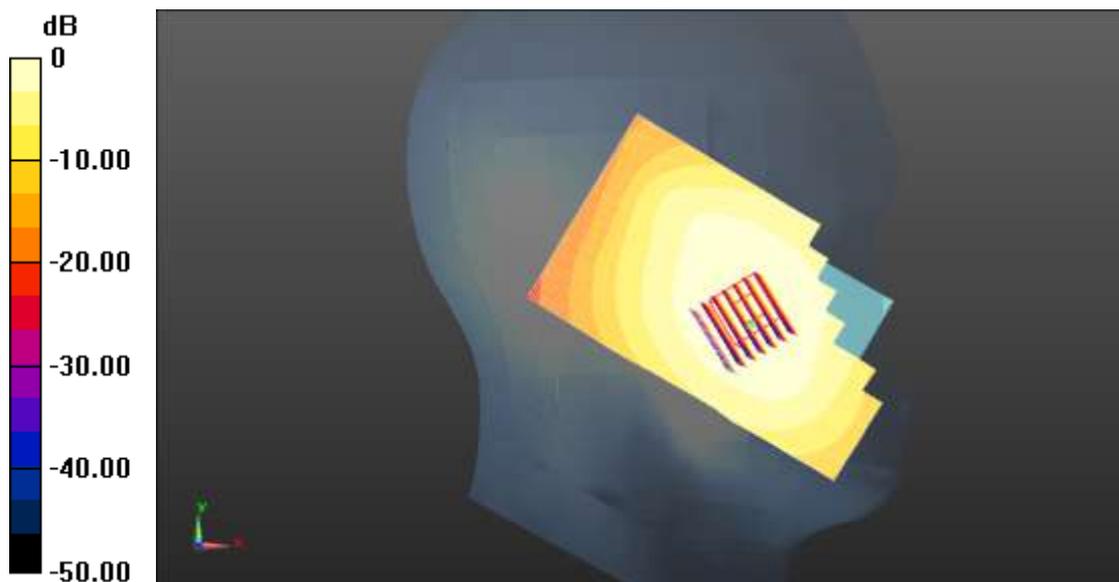
**left/touch mid/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 8.052 V/m; Power Drift = 0.18 dB

Peak SAR (extrapolated) = 0.754 mW/g

**SAR(1 g) = 0.554 mW/g; SAR(10 g) = 0.411 mW/g**

Maximum value of SAR (measured) = 0.584 mW/g



0 dB = 0.589 mW/g = -4.60 dB mW/g

**GSM850 left tilt mid**

Date/Time: 02/08/2012 10:26:54

Communication System: Generic GSM; Communication System Band: GSM 850 (824.0 - 849.0 MHz); Frequency: 836.6 MHz; Communication System PAR: 9.191 dB

Medium parameters used:  $f = 837$  MHz;  $\sigma = 0.914$  mho/m;  $\epsilon_r = 43.026$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Left Section

Measurement Standard: DASYS5 (IEEE 1528/OET 65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(6.18, 6.18, 6.18); Calibrated: 27/09/2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/04/2012
- Phantom: SAM 1; Type: SAM; Serial: TP:1702
- Measurement SW: DASYS52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

**left/tilt mid/Area Scan (91x151x1):** Measurement grid: dx=10mm, dy=10mm  
 Maximum value of SAR (interpolated) = 0.422 mW/g

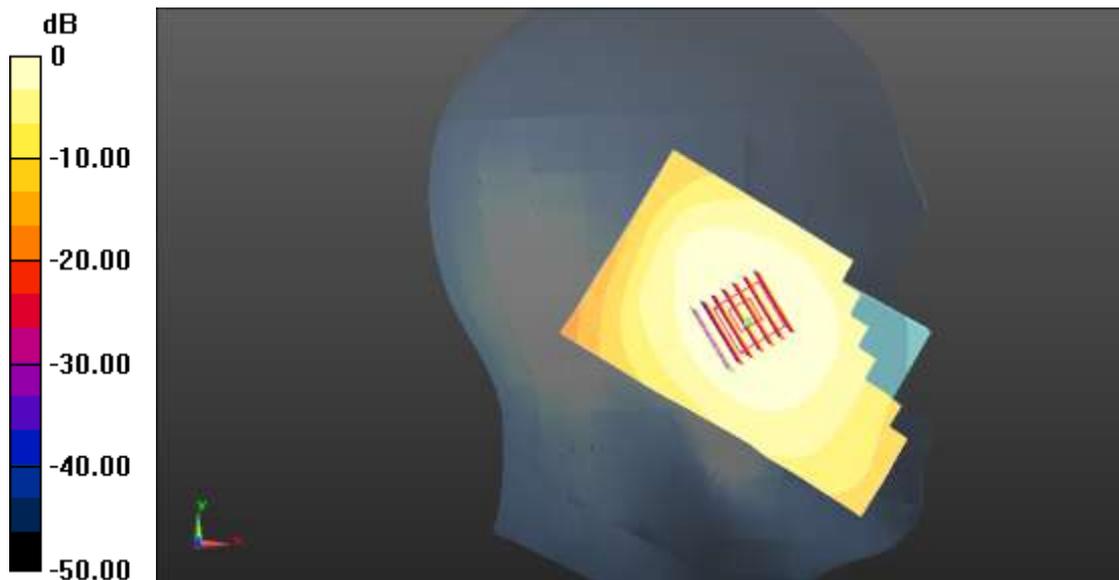
**left/tilt mid/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 12.790 V/m; Power Drift = -0.13 dB

Peak SAR (extrapolated) = 0.501 mW/g

**SAR(1 g) = 0.397 mW/g; SAR(10 g) = 0.304 mW/g**

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



0 dB = 0.422 mW/g = -7.50 dB mW/g

**GSM850 right touch mid**

Date/Time: 27/07/2012 09:44:03

Communication System: Generic GSM; Communication System Band: GSM 850 (824.0 - 849.0 MHz); Frequency: 836.6 MHz; Communication System PAR: 9.191 dB

Medium parameters used:  $f = 837$  MHz;  $\sigma = 0.914$  mho/m;  $\epsilon_r = 43.026$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Right Section

Measurement Standard: DASYS (IEEE 1528/OET 65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(6.18, 6.18, 6.18); Calibrated: 27/09/2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/04/2012
- Phantom: SAM 1; Type: SAM; Serial: TP:1702
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

**right/touch mid/Area Scan (91x151x1):** Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.615 mW/g

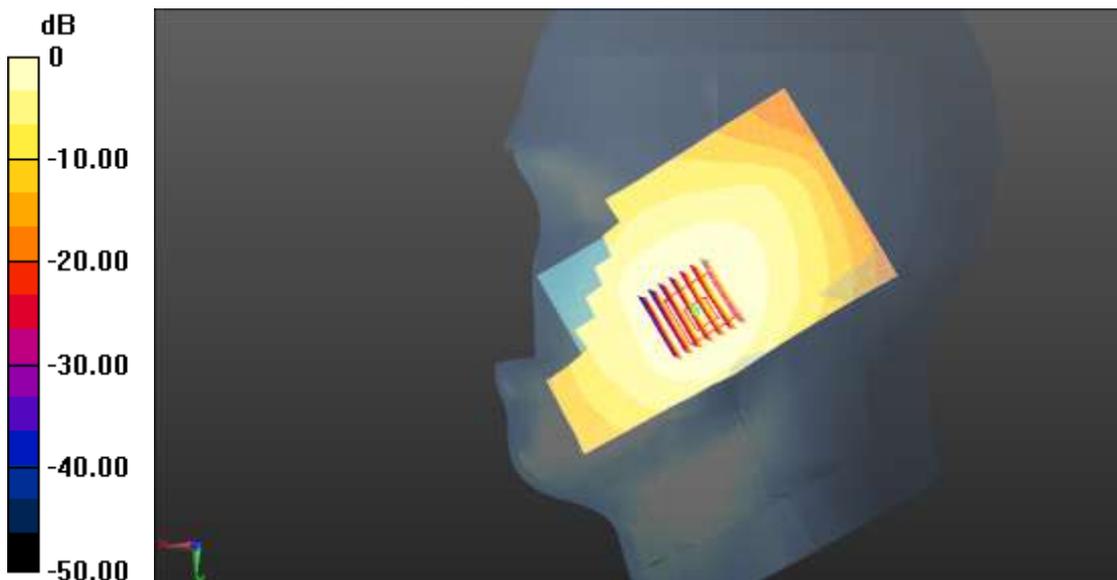
**right/touch mid/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 10.626 V/m; Power Drift = -0.09 dB

Peak SAR (extrapolated) = 0.706 mW/g

**SAR(1 g) = 0.567 mW/g; SAR(10 g) = 0.428 mW/g**

Maximum value of SAR (measured) = 0.610 mW/g



0 dB = 0.615 mW/g = -4.23 dB mW/g

**GSM850 right tilt mid**

Date/Time: 27/07/2012 10:15:20

Communication System: Generic GSM; Communication System Band: GSM 850 (824.0 - 849.0 MHz); Frequency: 836.6 MHz; Communication System PAR: 9.191 dB

Medium parameters used:  $f = 837$  MHz;  $\sigma = 0.914$  mho/m;  $\epsilon_r = 43.026$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Right Section

Measurement Standard: DASYS (IEEE 1528/OET 65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(6.18, 6.18, 6.18); Calibrated: 27/09/2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/04/2012
- Phantom: SAM 1; Type: SAM; Serial: TP:1702
- Measurement SW: DASYS2, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

**right/tilt mid/Area Scan (91x151x1):** Measurement grid: dx=10mm, dy=10mm  
Maximum value of SAR (interpolated) = 0.415 mW/g

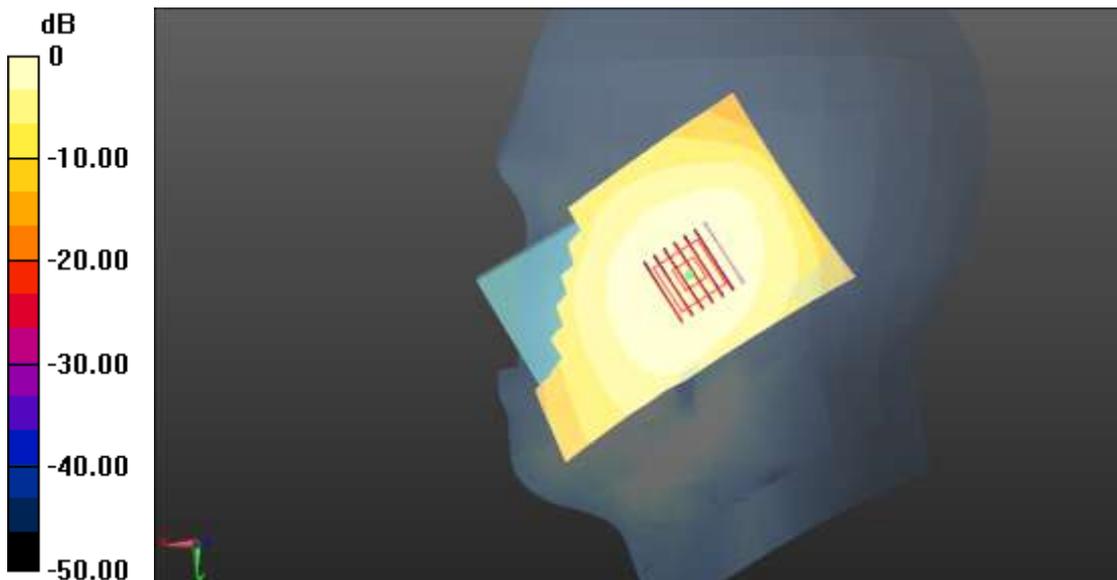
**right/tilt mid/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 15.472 V/m; Power Drift = -0.14 dB

Peak SAR (extrapolated) = 0.487 mW/g

**SAR(1 g) = 0.391 mW/g; SAR(10 g) = 0.301 mW/g**

Maximum value of SAR (measured) = 0.410 mW/g



0 dB = 0.415 mW/g = -7.63 dB mW/g

**GSM850 right touch low**

Date/Time: 02/08/2012 10:59:46

Communication System: Generic GSM; Communication System Band: GSM 850 (824.0 - 849.0 MHz); Frequency: 824.2 MHz; Communication System PAR: 9.191 dB

Medium parameters used (interpolated):  $f = 824.2$  MHz;  $\sigma = 0.899$  mho/m;  $\epsilon_r = 43.205$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Right Section

Measurement Standard: DASYS (IEEE 1528/OET 65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(6.18, 6.18, 6.18); Calibrated: 27/09/2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/04/2012
- Phantom: SAM 1; Type: SAM; Serial: TP:1702
- Measurement SW: DASYS2, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

**right/touch low/Area Scan (91x151x1):** Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.749 mW/g

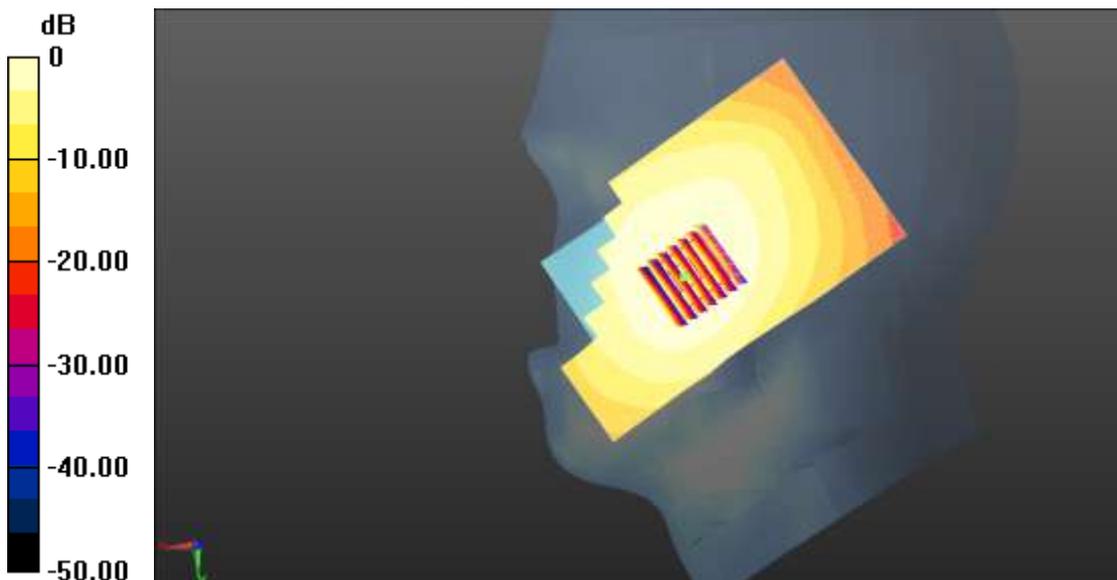
**right/touch low/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 9.258 V/m; Power Drift = -0.14 dB

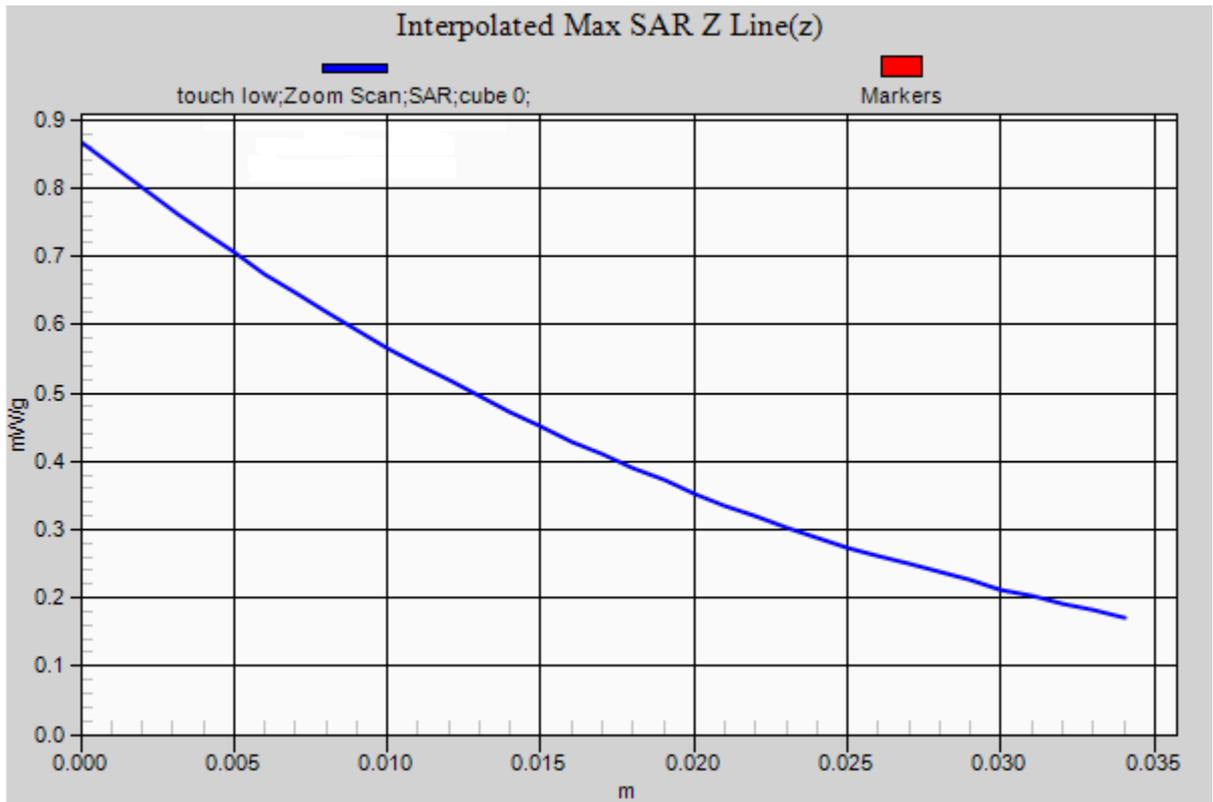
Peak SAR (extrapolated) = 0.866 mW/g

**SAR(1 g) = 0.709 mW/g; SAR(10 g) = 0.541 mW/g**

Maximum value of SAR (measured) = 0.740 mW/g



0 dB = 0.749 mW/g = -2.51 dB mW/g



**GSM850 right touch high**

Date/Time: 02/08/2012 11:36:53

Communication System: Generic GSM; Communication System Band: GSM 850 (824.0 - 849.0 MHz); Frequency: 848.6 MHz; Communication System PAR: 9.191 dB

Medium parameters used:  $f = 849$  MHz;  $\sigma = 0.924$  mho/m;  $\epsilon_r = 42.848$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Right Section

Measurement Standard: DASYS (IEEE 1528/OET 65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(6.18, 6.18, 6.18); Calibrated: 27/09/2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/04/2012
- Phantom: SAM 1; Type: SAM; Serial: TP:1702
- Measurement SW: DASYS2, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

**right/touch high/Area Scan (91x151x1):** Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.437 mW/g

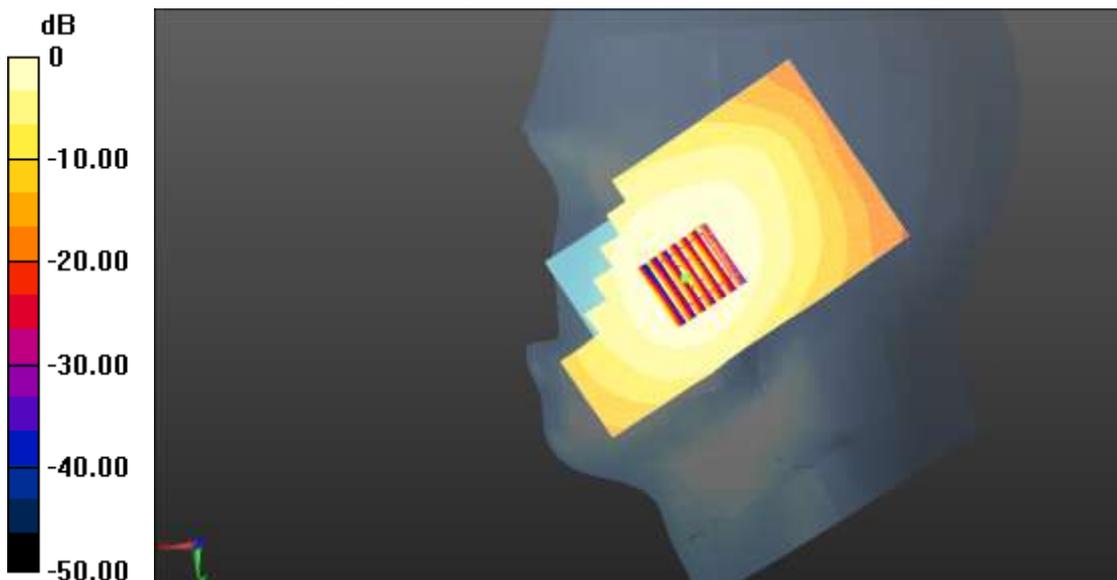
**right/touch high/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 6.753 V/m; Power Drift = -0.09 dB

Peak SAR (extrapolated) = 0.503 mW/g

**SAR(1 g) = 0.409 mW/g; SAR(10 g) = 0.311 mW/g**

Maximum value of SAR (measured) = 0.429 mW/g



0 dB = 0.437 mW/g = -7.19 dB mW/g

**GSM850 towards phantom mid with GPRS**

Date/Time: 03/08/2012 09:38:07

Communication System: GPRS/EGPRS(4UP); Communication System Band:

GSM850; Frequency: 836.6 MHz; Communication System PAR: 3.18 dB

Medium parameters used:  $f = 837$  MHz;  $\sigma = 0.951$  mho/m;  $\epsilon_r = 54.241$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASYS (IEEE 1528/OET 65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(6.19, 6.19, 6.19); Calibrated: 27/09/2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/04/2012
- Phantom: ELI v4.0; Type: ELI4; Serial: TP:1086
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

**body/Towards phantom mid with GPRS/Area Scan (91x151x1):**

Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.785 mW/g

**body/Towards phantom mid with GPRS/Zoom Scan (7x7x7)/Cube 0:**

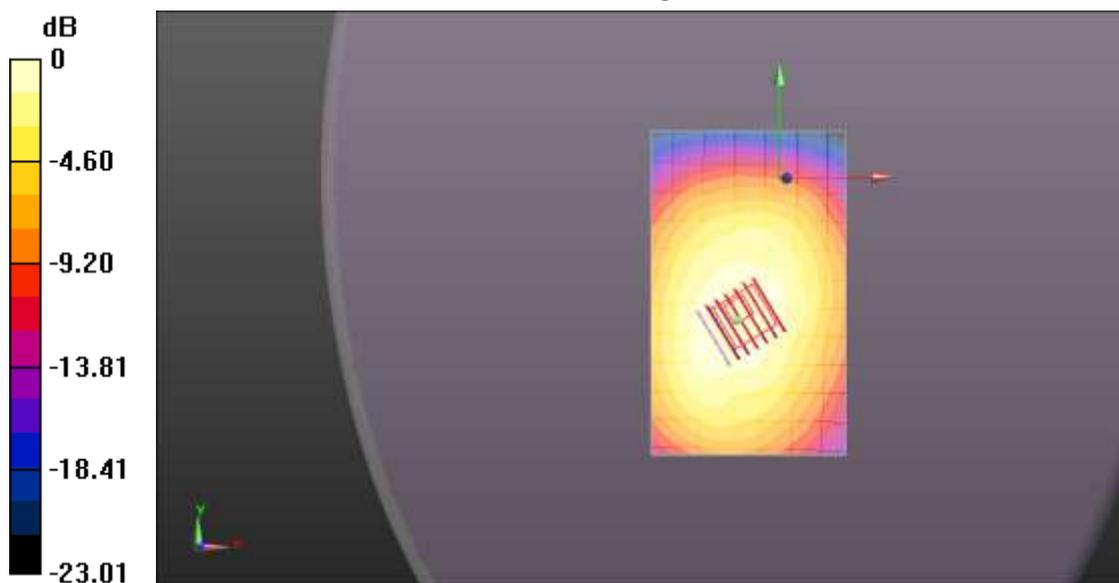
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 20.945 V/m; Power Drift = -0.17 dB

Peak SAR (extrapolated) = 0.980 mW/g

**SAR(1 g) = 0.715 mW/g; SAR(10 g) = 0.533 mW/g**

Maximum value of SAR (measured) = 0.781 mW/g



0 dB = 0.785 mW/g = -2.10 dB mW/g

**GSM850 towards ground mid with GPRS**

Date/Time: 03/08/2012 11:25:32

Communication System: GPRS/EGPRS(4UP); Communication System Band:

GSM850; Frequency: 836.6 MHz; Communication System PAR: 3.18 dB

Medium parameters used:  $f = 837$  MHz;  $\sigma = 0.951$  mho/m;  $\epsilon_r = 54.241$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE 1528/OET 65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(6.19, 6.19, 6.19); Calibrated: 27/09/2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/04/2012
- Phantom: ELI v4.0; Type: ELI4; Serial: TP:1086
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

**body/Towards ground mid with GPRS/Area Scan (91x151x1):**

Measurement grid: dx=10mm, dy=10mm

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

**body/Towards ground mid with GPRS/Zoom Scan (7x7x7)/Cube 0:**

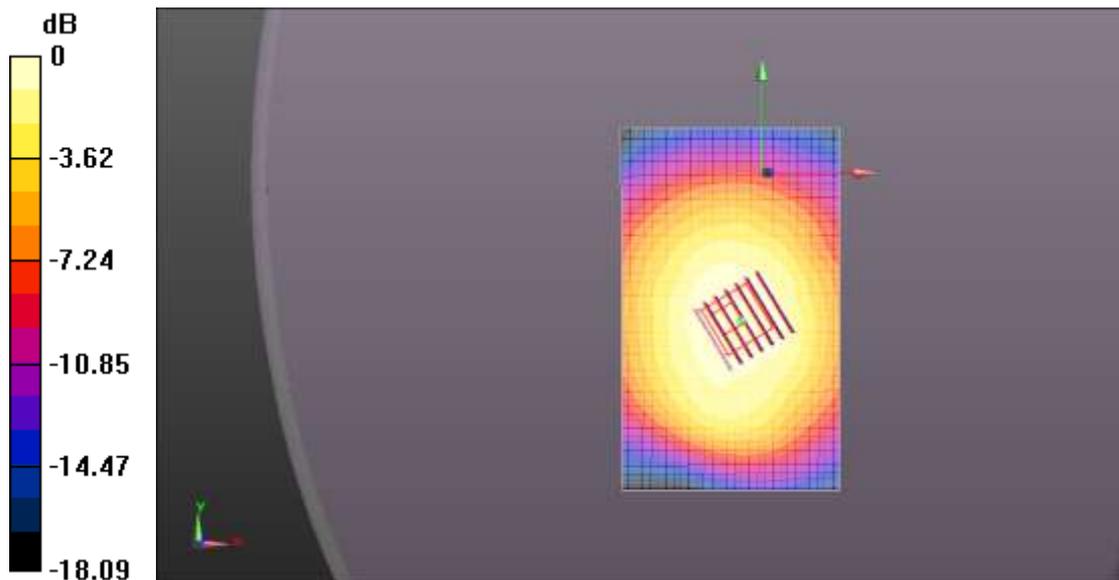
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 13.346 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 1.347 mW/g

**SAR(1 g) = 0.995 mW/g; SAR(10 g) = 0.719 mW/g**

Maximum value of SAR (measured) = 1.07 mW/g



0 dB = 1.03 mW/g = 0.26 dB mW/g

**GSM850 front mid with GPRS**

Date/Time: 06/08/2012 09:22:41

Communication System: GPRS/EGPRS(4UP); Communication System Band:

GSM850; Frequency: 836.6 MHz; Communication System PAR: 3.18 dB

Medium parameters used:  $f = 837$  MHz;  $\sigma = 0.951$  mho/m;  $\epsilon_r = 54.241$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE 1528/OET 65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(6.19, 6.19, 6.19); Calibrated: 27/09/2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/04/2012
- Phantom: ELI v4.0; Type: ELI4; Serial: TP:1086
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

**body/ front mid with GPRS/Area Scan (61x91x1):** Measurement grid:

$dx=10$ mm,  $dy=10$ mm

Maximum value of SAR (interpolated) = 0.232 mW/g

**body/ front mid with GPRS/Zoom Scan (7x7x7)/Cube 0:** Measurement grid:

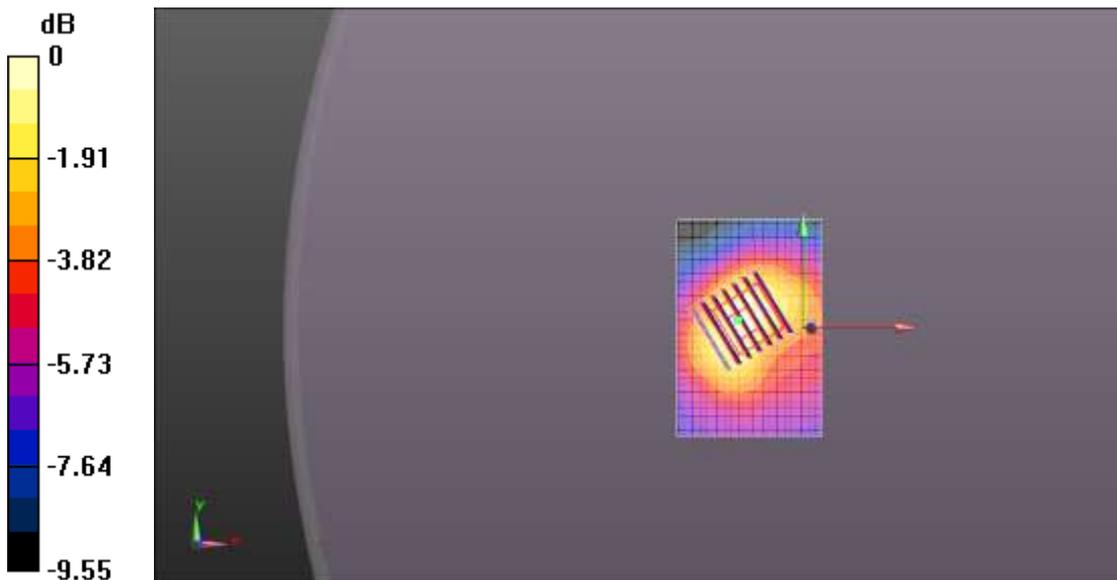
$dx=5$ mm,  $dy=5$ mm,  $dz=5$ mm

Reference Value = 14.325 V/m; Power Drift = -0.16 dB

Peak SAR (extrapolated) = 0.352 mW/g

**SAR(1 g) = 0.214 mW/g; SAR(10 g) = 0.130 mW/g**

Maximum value of SAR (measured) = 0.231 mW/g



0 dB = 0.232 mW/g = -12.71 dB mW/g

**GSM850 left side mid with GPRS**

Date/Time: 03/08/2012 14:54:07

Communication System: GPRS/EGPRS(4UP); Communication System Band:

GSM850; Frequency: 836.6 MHz; Communication System PAR: 3.18 dB

Medium parameters used:  $f = 837$  MHz;  $\sigma = 0.951$  mho/m;  $\epsilon_r = 54.241$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASYS5 (IEEE 1528/OET 65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(6.19, 6.19, 6.19); Calibrated: 27/09/2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/04/2012
- Phantom: ELI v4.0; Type: ELI4; Serial: TP:1086
- Measurement SW: DASYS52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

**body2/left side mid with GPRS/Area Scan (61x151x1):** Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.381 mW/g

**body2/left side mid with GPRS/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 8.429 V/m; Power Drift = 0.12 dB

Peak SAR (extrapolated) = 0.539 mW/g

**SAR(1 g) = 0.365 mW/g; SAR(10 g) = 0.246 mW/g**

Maximum value of SAR (measured) = 0.398 mW/g

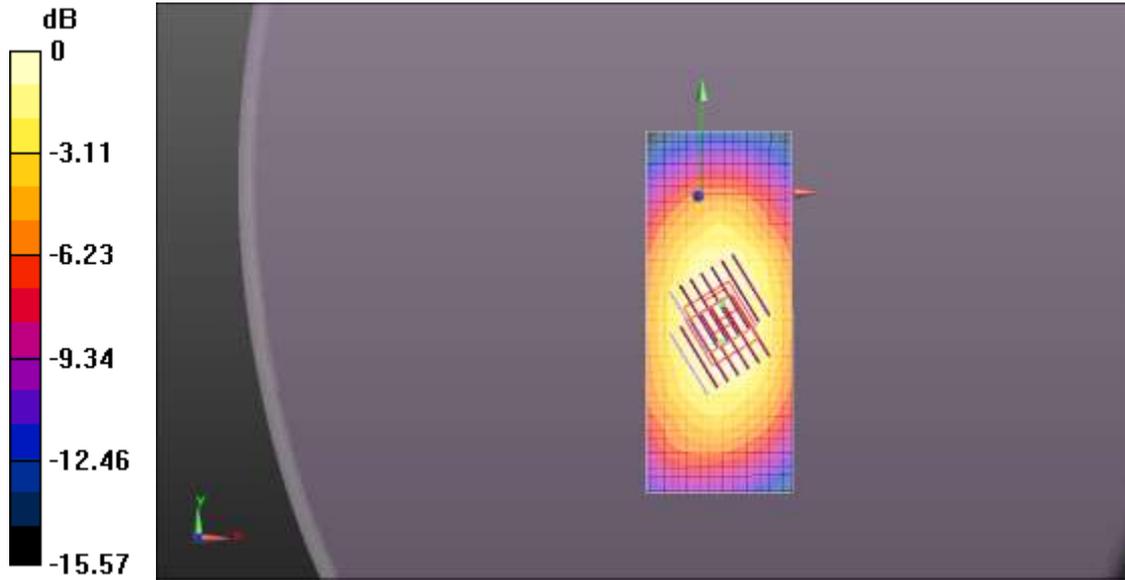
**body2/left side mid with GPRS/Zoom Scan (7x7x7)/Cube 1:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 8.429 V/m; Power Drift = 0.12 dB

Peak SAR (extrapolated) = 0.581 mW/g

**SAR(1 g) = 0.365 mW/g; SAR(10 g) = 0.248 mW/g**

Maximum value of SAR (measured) = 0.397 mW/g



0 dB = 0.381 mW/g = -8.37 dB mW/g

**GSM850 right side mid with GPRS**

Date/Time: 03/08/2012 15:35:55

Communication System: GPRS/EGPRS(4UP); Communication System Band:

GSM850; Frequency: 836.6 MHz; Communication System PAR: 3.18 dB

Medium parameters used:  $f = 837$  MHz;  $\sigma = 0.951$  mho/m;  $\epsilon_r = 54.241$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE 1528/OET 65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(6.19, 6.19, 6.19); Calibrated: 27/09/2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/04/2012
- Phantom: ELI v4.0; Type: ELI4; Serial: TP:1086
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

**body2/right side mid with GPRS /Area Scan (61x151x1):** Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.772 mW/g

**body2/right side mid with GPRS /Zoom Scan (7x7x7)/Cube 0:**

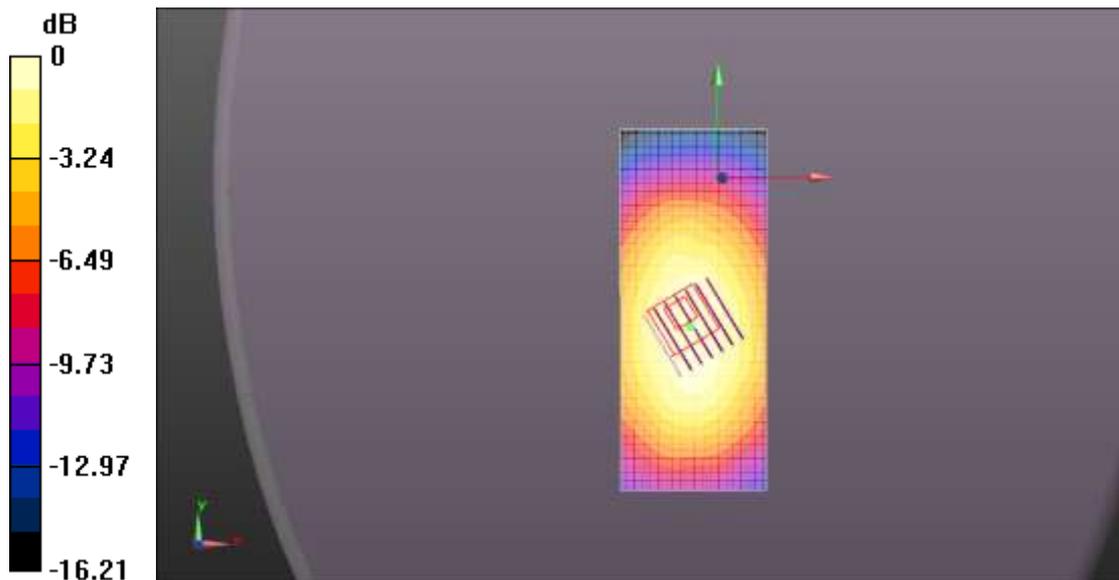
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 10.074 V/m; Power Drift = 0.15 dB

Peak SAR (extrapolated) = 1.044 mW/g

**SAR(1 g) = 0.712 mW/g; SAR(10 g) = 0.476 mW/g**

Maximum value of SAR (measured) = 0.775 mW/g



0 dB = 0.772 mW/g = -2.25 dB mW/g

**GSM850 towards ground low with GPRS**

Date/Time: 03/08/2012 13:07:27

Communication System: GPRS/EGPRS(4UP); Communication System Band:

GSM850; Frequency: 824.2 MHz; Communication System PAR: 3.18 dB

Medium parameters used (interpolated):  $f = 824.2$  MHz;  $\sigma = 0.933$  mho/m;  $\epsilon_r = 54.311$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASYS (IEEE 1528/OET 65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(6.19, 6.19, 6.19); Calibrated: 27/09/2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/04/2012
- Phantom: ELI v4.0; Type: ELI4; Serial: TP:1086
- Measurement SW: DASYS2, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

**body/Towards ground low with GPRS/Area Scan (91x151x1):**

Measurement grid: dx=10mm, dy=10mm

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

**body/Towards ground low with GPRS/Zoom Scan (7x7x7)/Cube 0:**

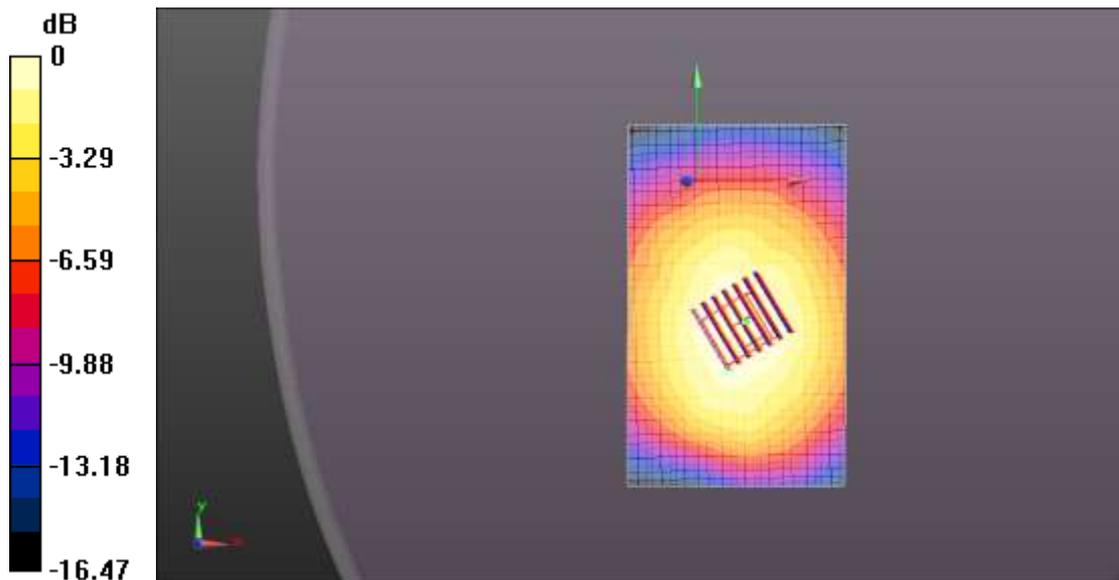
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 13.923 V/m; Power Drift = 0.01 dB

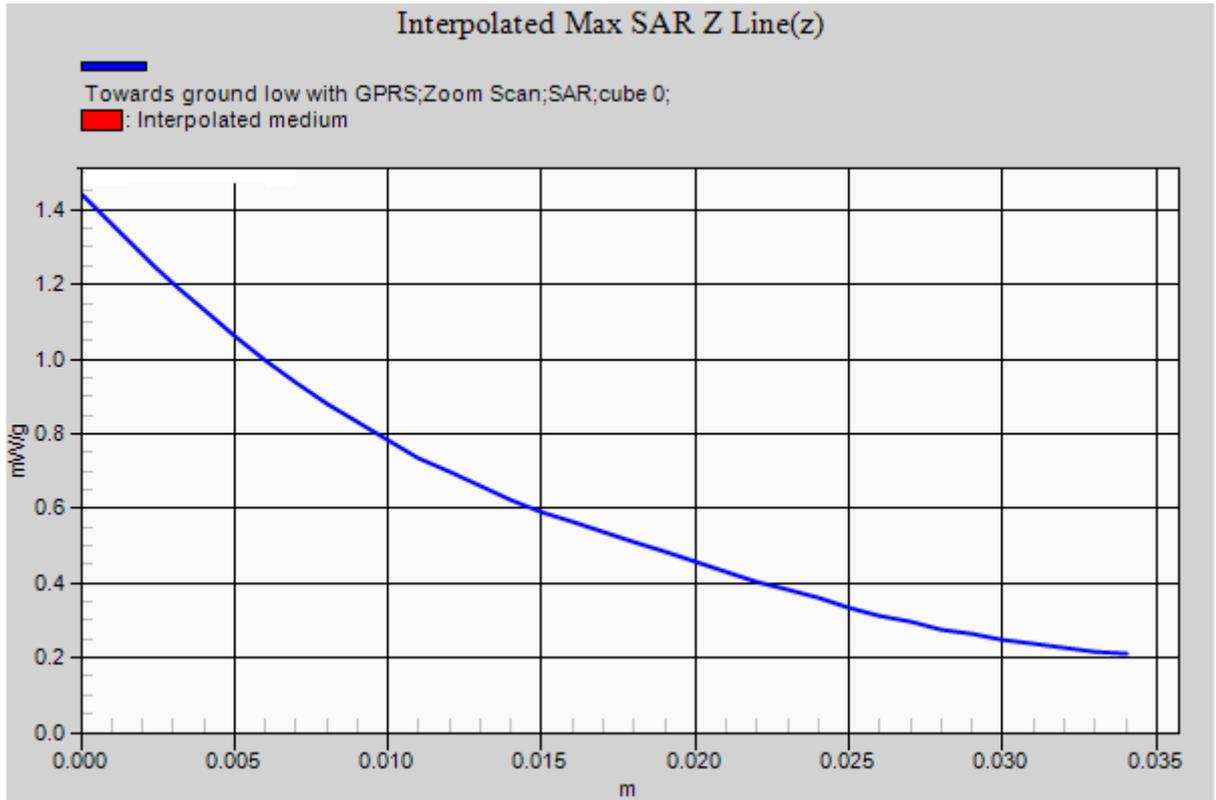
Peak SAR (extrapolated) = 1.442 mW/g

**SAR(1 g) = 1.06 mW/g; SAR(10 g) = 0.776 mW/g**

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



0 dB = 1.17 mW/g = 1.36 dB mW/g



**GSM850 towards ground high with GPRS**

Date/Time: 03/08/2012 14:03:27

Communication System: GPRS/EGPRS(4UP); Communication System Band:

GSM850; Frequency: 848.6 MHz; Communication System PAR: 3.18 dB

Medium parameters used:  $f = 849$  MHz;  $\sigma = 0.967$  mho/m;  $\epsilon_r = 54.15$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASYS (IEEE 1528/OET 65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(6.19, 6.19, 6.19); Calibrated: 27/09/2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/04/2012
- Phantom: ELI v4.0; Type: ELI4; Serial: TP:1086
- Measurement SW: DASYS2, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

**body/Towards ground high with GPRS/Area Scan (91x151x1):**

Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.888 mW/g

**body/Towards ground high with GPRS/Zoom Scan (7x7x7)/Cube 0:**

Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 10.213 V/m; Power Drift = 0.00 dB

Peak SAR (extrapolated) = 1.157 mW/g

**SAR(1 g) = 0.849 mW/g; SAR(10 g) = 0.610 mW/g**

Maximum value of SAR (measured) = 0.926 mW/g

**body/Towards ground high with GPRS/Zoom Scan (7x7x7)/Cube 1:**

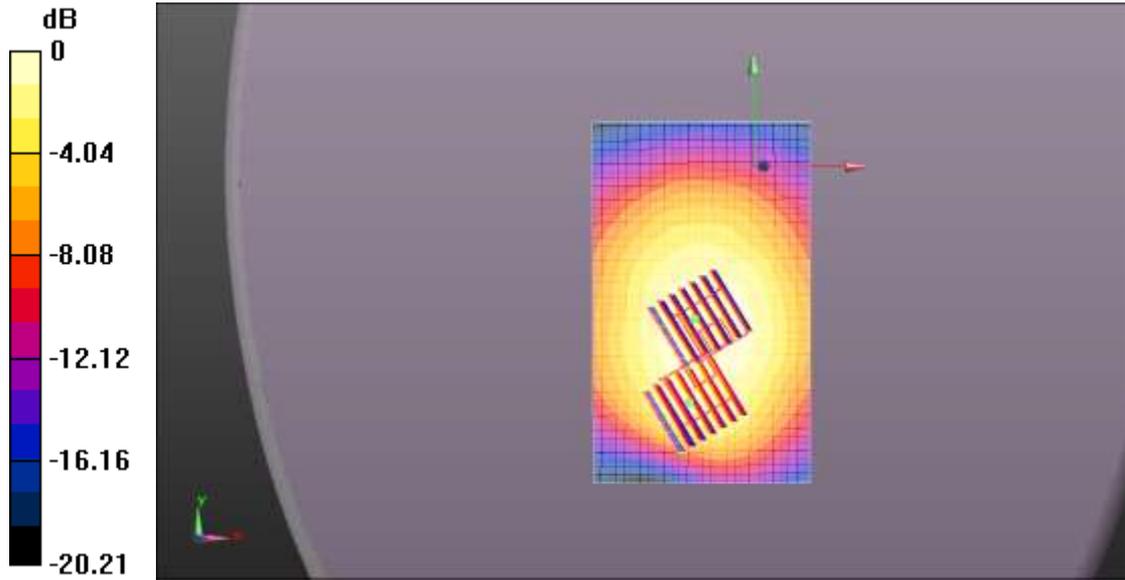
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 10.213 V/m; Power Drift = 0.00 dB

Peak SAR (extrapolated) = 1.123 mW/g

**SAR(1 g) = 0.707 mW/g; SAR(10 g) = 0.481 mW/g**

Maximum value of SAR (measured) = 0.860 mW/g



0 dB = 0.888 mW/g = -1.03 dB mW/g

**GSM850 towards low with GPRS and earphone**

Date/Time: 06/08/2012 10:47:46

Communication System: GPRS/EGPRS(4UP); Communication System Band:

GSM850; Frequency: 824.2 MHz; Communication System PAR: 3.18 dB

Medium parameters used (interpolated):  $f = 824.2$  MHz;  $\sigma = 0.933$  mho/m;  $\epsilon_r = 54.311$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASYS5 (IEEE 1528/OET 65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(6.19, 6.19, 6.19); Calibrated: 27/09/2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/04/2012
- Phantom: ELI v4.0; Type: ELI4; Serial: TP:1086
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

**body/Towards ground low with GPRS and earphone/Area Scan**

**(91x151x1):** Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.888 mW/g

**body/Towards ground low with GPRS and earphone/Zoom Scan**

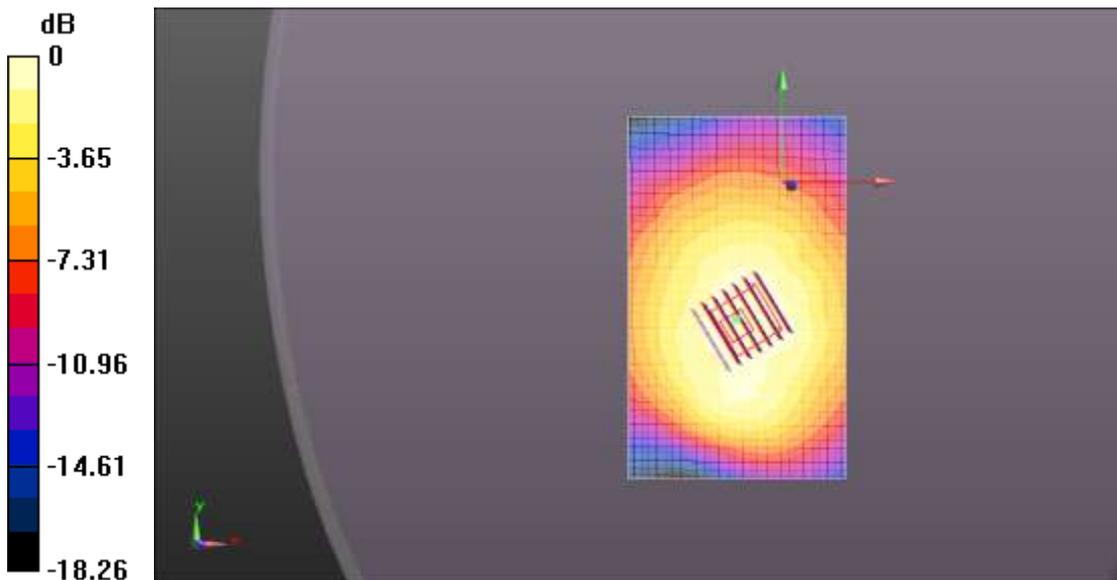
**(7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 12.526 V/m; Power Drift = -0.03 dB

Peak SAR (extrapolated) = 1.042 mW/g

**SAR(1 g) = 0.719 mW/g; SAR(10 g) = 0.529 mW/g**

Maximum value of SAR (measured) = 0.779 mW/g



0 dB = 0.888 mW/g = -1.03 dB mW/g

**GSM850 towards ground low with EDGE**

Date/Time: 06/08/2012 12:06:10

Communication System: GPRS/EGPRS(4UP); Communication System Band:

GSM850; Frequency: 824.2 MHz; Communication System PAR: 3.18 dB

Medium parameters used (interpolated):  $f = 824.2$  MHz;  $\sigma = 0.933$  mho/m;  $\epsilon_r = 54.311$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASYS5 (IEEE 1528/OET 65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(6.19, 6.19, 6.19); Calibrated: 27/09/2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/04/2012
- Phantom: ELI v4.0; Type: ELI4; Serial: TP:1086
- Measurement SW: DASYS52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

**body/Towards ground low with EDGE/Area Scan (91x151x1):**

Measurement grid: dx=10mm, dy=10mm.

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

**body/Towards ground low with EDGE/Zoom Scan (7x7x7)/Cube 0:**

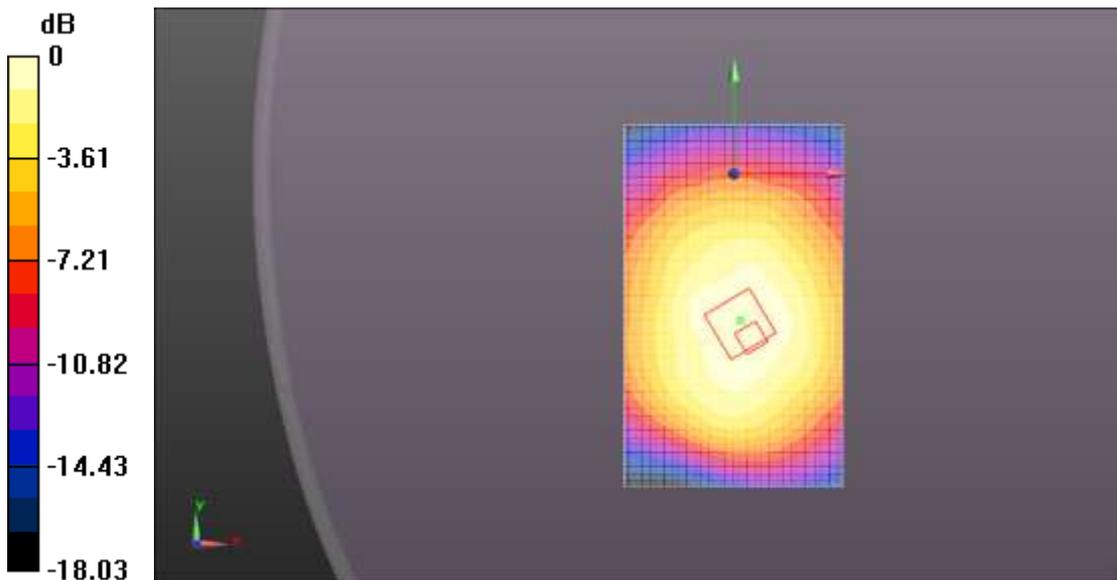
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 13.943 V/m; Power Drift = 0.13 dB

Peak SAR (extrapolated) = 1.378 mW/g

**SAR(1 g) = 0.988 mW/g; SAR(10 g) = 0.745 mW/g**

Maximum value of SAR (measured) = 1.07 mW/g



0 dB = 1.08 mW/g = 0.64 dB mW/g

**GSM1900 left touch mid**

Date/Time: 26/07/2012 09:31:39

Communication System: Generic GSM; Communication System Band: PCS 1900 (1850.0 - 1910.0 MHz); Frequency: 1880 MHz; Communication System PAR: 9.191 dB

Medium parameters used:  $f = 1880$  MHz;  $\sigma = 1.364$  mho/m;  $\epsilon_r = 39.144$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Left Section

Measurement Standard: DASYS (IEEE 1528/OET 65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(5.09, 5.09, 5.09); Calibrated: 27/09/2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/04/2012
- Phantom: SAM 1; Type: SAM; Serial: TP:1702
- Measurement SW: DASYS2, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

**left/touch mid/Area Scan (91x151x1):** Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.520 mW/g

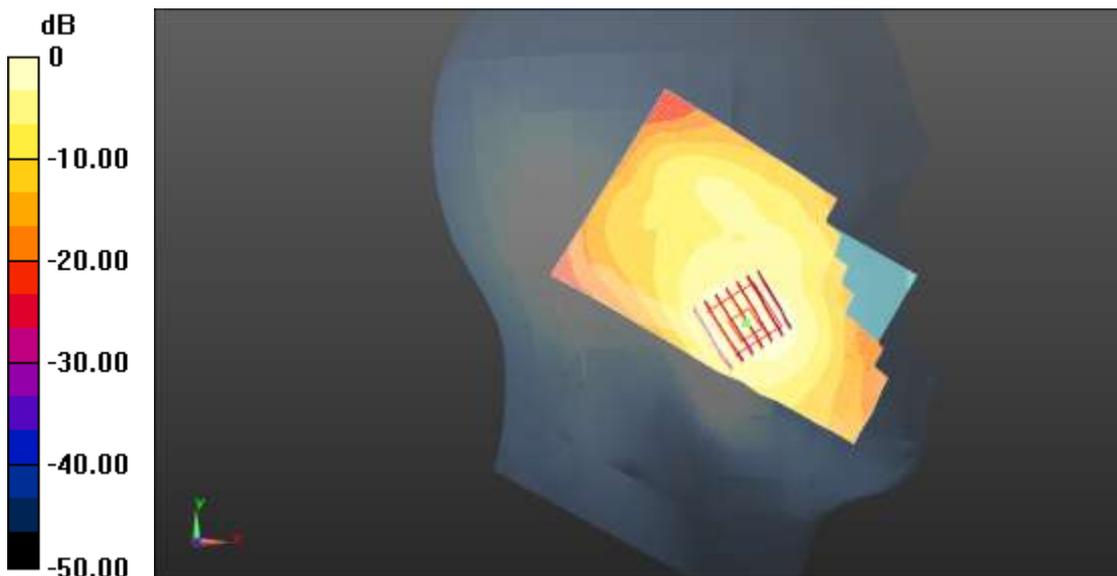
**left/touch mid/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 6.266 V/m; Power Drift = 0.07 dB

Peak SAR (extrapolated) = 0.751 mW/g

**SAR(1 g) = 0.463 mW/g; SAR(10 g) = 0.269 mW/g**

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



0 dB = 0.520 mW/g = -5.67 dB mW/g

**GSM1900 left tilt mid**

Date/Time: 26/07/2012 10:01:37

Communication System: Generic GSM; Communication System Band: PCS 1900 (1850.0 - 1910.0 MHz); Frequency: 1880 MHz; Communication System PAR: 9.191 dB

Medium parameters used:  $f = 1880$  MHz;  $\sigma = 1.364$  mho/m;  $\epsilon_r = 39.144$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Left Section

Measurement Standard: DASYS (IEEE 1528/OET 65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(5.09, 5.09, 5.09); Calibrated: 27/09/2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/04/2012
- Phantom: SAM 1; Type: SAM; Serial: TP:1702
- Measurement SW: DASYS2, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

**left/tilt mid/Area Scan (91x151x1):** Measurement grid: dx=10mm, dy=10mm  
Maximum value of SAR (interpolated) = 0.0926 mW/g

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

Reference Value = 7.573 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 0.131 mW/g

**SAR(1 g) = 0.085 mW/g; SAR(10 g) = 0.053 mW/g**

Maximum value of SAR (measured) = 0.0915 mW/g

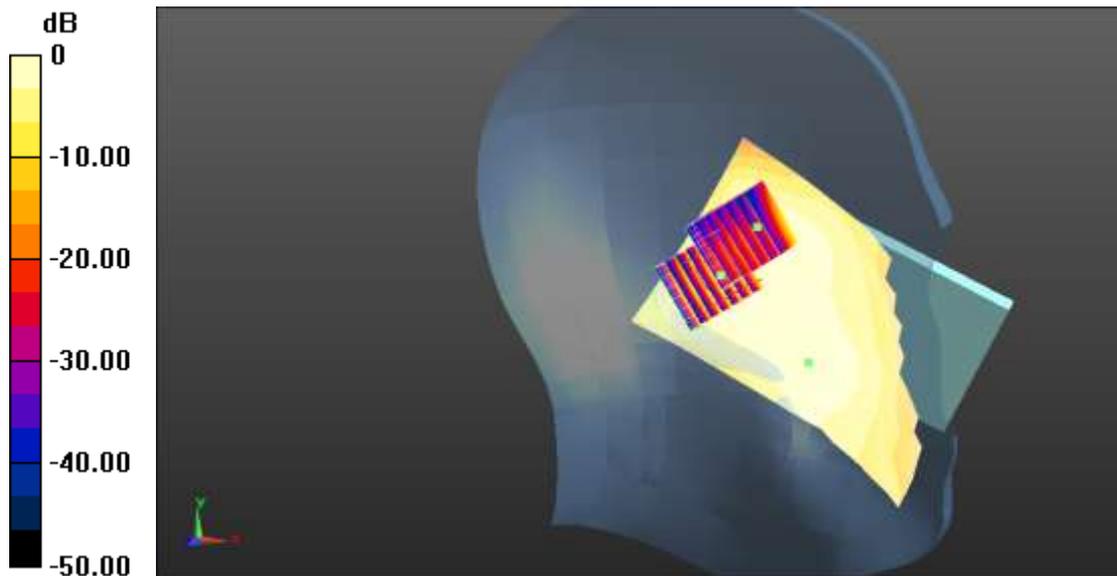
**left/tilt mid/Zoom Scan (7x7x7)/Cube 1:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 7.573 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 0.126 mW/g

**SAR(1 g) = 0.080 mW/g; SAR(10 g) = 0.050 mW/g**

Maximum value of SAR (measured) = 0.0870 mW/g



0 dB = 0.0926 mW/g = -20.67 dB mW/g

**GSM1900 right touch mid**

Date/Time: 26/07/2012 10:50:51

Communication System: Generic GSM; Communication System Band: PCS 1900 (1850.0 - 1910.0 MHz); Frequency: 1880 MHz; Communication System PAR: 9.191 dB

Medium parameters used:  $f = 1880$  MHz;  $\sigma = 1.364$  mho/m;  $\epsilon_r = 39.144$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Right Section

Measurement Standard: DASYS (IEEE 1528/OET 65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(5.09, 5.09, 5.09); Calibrated: 27/09/2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/04/2012
- Phantom: SAM 1; Type: SAM; Serial: TP:1702
- Measurement SW: DASYS2, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

**right/touch mid/Area Scan (91x151x1):** Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.248 mW/g

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

Reference Value = 5.232 V/m; Power Drift = -0.13 dB

Peak SAR (extrapolated) = 0.337 mW/g

**SAR(1 g) = 0.230 mW/g; SAR(10 g) = 0.147 mW/g**

Maximum value of SAR (measured) = 0.247 mW/g

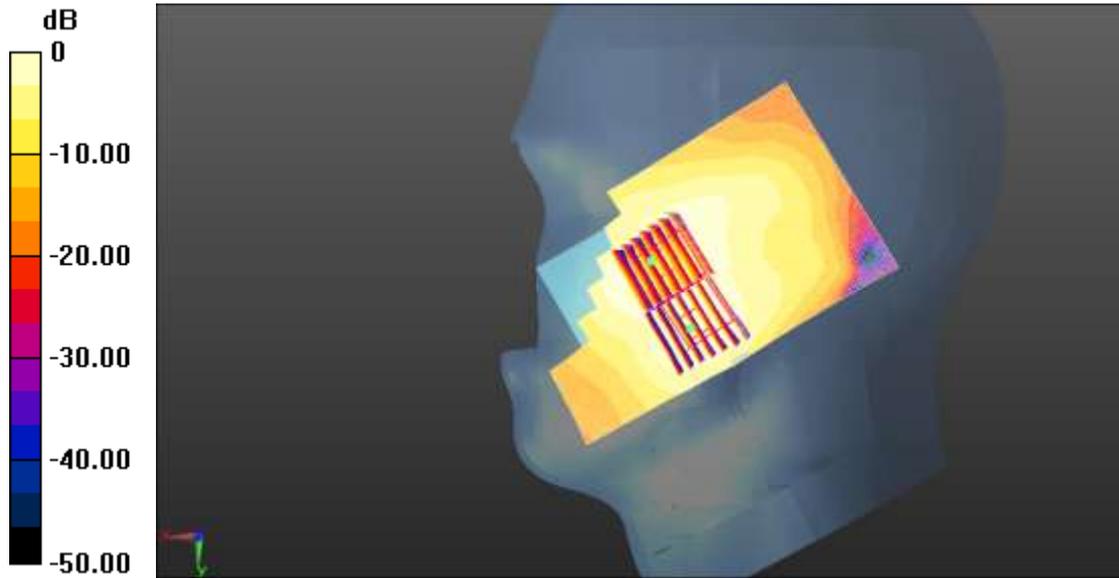
**right/touch - mid/Zoom Scan (7x7x7)/Cube 1:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 5.232 V/m; Power Drift = -0.13 dB

Peak SAR (extrapolated) = 0.285 mW/g

**SAR(1 g) = 0.200 mW/g; SAR(10 g) = 0.130 mW/g**

Maximum value of SAR (measured) = 0.218 mW/g



0 dB = 0.248 mW/g = -12.11 dB mW/g

**GSM1900 right tilt mid**

Date/Time: 26/07/2012 11:41:29

Communication System: Generic GSM; Communication System Band: PCS 1900 (1850.0 - 1910.0 MHz); Frequency: 1880 MHz; Communication System PAR: 9.191 dB

Medium parameters used:  $f = 1880$  MHz;  $\sigma = 1.364$  mho/m;  $\epsilon_r = 39.144$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Right Section

Measurement Standard: DASYS (IEEE 1528/OET 65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(5.09, 5.09, 5.09); Calibrated: 27/09/2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/04/2012
- Phantom: SAM 1; Type: SAM; Serial: TP:1702
- Measurement SW: DASYS2, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

**right/tilt mid/Area Scan (91x151x1):** Measurement grid: dx=10mm, dy=10mm  
Maximum value of SAR (interpolated) = 0.105 mW/g

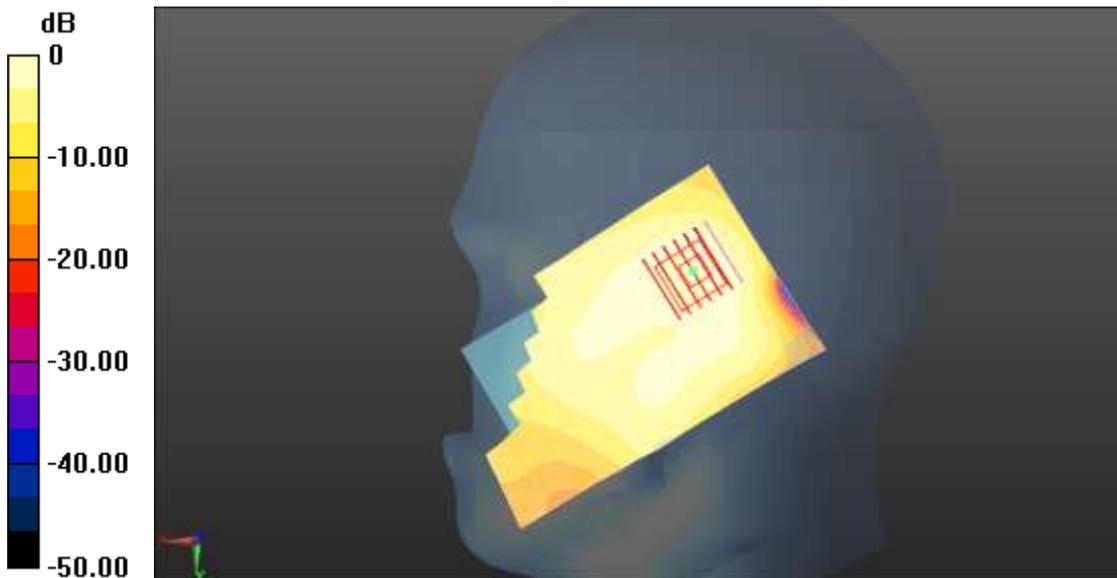
**right/tilt mid/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 7.858 V/m; Power Drift = 0.08 dB

Peak SAR (extrapolated) = 0.153 mW/g

**SAR(1 g) = 0.096 mW/g; SAR(10 g) = 0.057 mW/g**

Maximum value of SAR (measured) = 0.106 mW/g



0 dB = 0.105 mW/g = -19.57 dB mW/g

**GSM1900 left touch low**

Date/Time: 26/07/2012 12:19:08

Communication System: Generic GSM; Communication System Band: PCS 1900 (1850.0 - 1910.0 MHz); Frequency: 1850.2 MHz; Communication System PAR: 9.191 dB

Medium parameters used (interpolated):  $f = 1850.2$  MHz;  $\sigma = 1.339$  mho/m;  $\epsilon_r = 39.255$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Left Section

Measurement Standard: DASYS (IEEE 1528/OET 65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(5.09, 5.09, 5.09); Calibrated: 27/09/2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/04/2012
- Phantom: SAM 1; Type: SAM; Serial: TP:1702
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

**left/touch low/Area Scan (91x151x1):** Measurement grid: dx=10mm, dy=10mm  
Maximum value of SAR (interpolated) = 0.616 mW/g

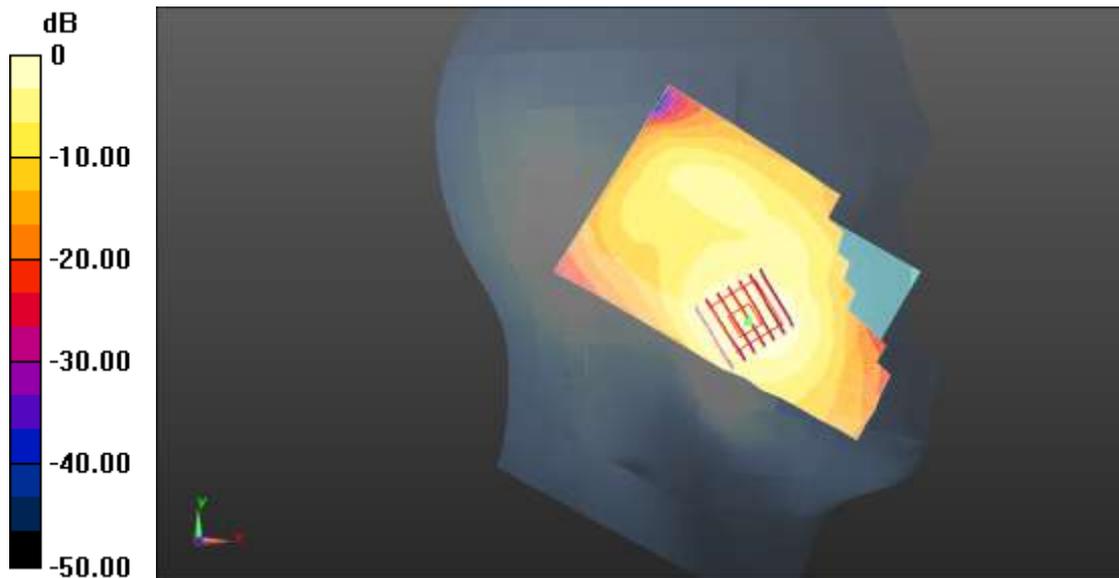
**left/touch low/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 8.911 V/m; Power Drift = -0.08 dB

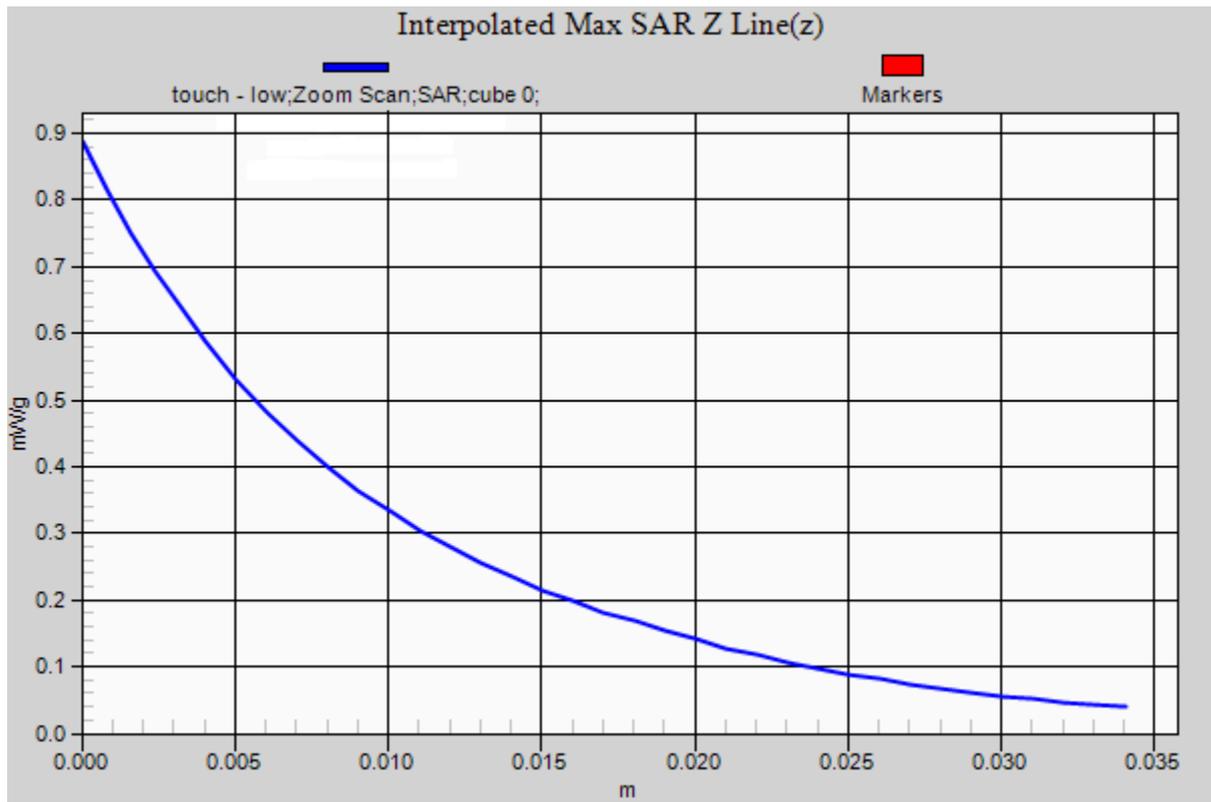
Peak SAR (extrapolated) = 0.887 mW/g

**SAR(1 g) = 0.547 mW/g; SAR(10 g) = 0.323 mW/g**

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



0 dB = 0.616 mW/g = -4.21 dB mW/g



**GSM1900 left touch high**

Date/Time: 26/07/2012 12:51:01

Communication System: Generic GSM; Communication System Band: PCS 1900 (1850.0 - 1910.0 MHz); Frequency: 1909.8 MHz; Communication System PAR: 9.191 dB

Medium parameters used:  $f = 1910$  MHz;  $\sigma = 1.393$  mho/m;  $\epsilon_r = 39.011$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Left Section

Measurement Standard: DASYS (IEEE 1528/OET 65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(5.09, 5.09, 5.09); Calibrated: 27/09/2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/04/2012
- Phantom: SAM 1; Type: SAM; Serial: TP:1702
- Measurement SW: DASYS2, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

**left/touch high/Area Scan (91x151x1):** Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.346 mW/g

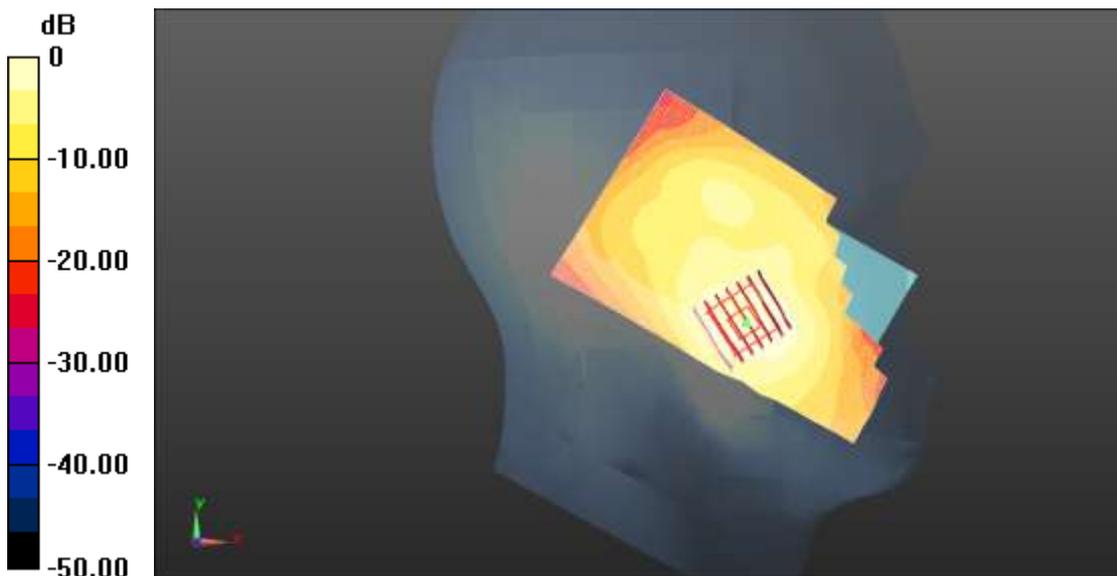
**left/touch high/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 5.151 V/m; Power Drift = 0.09 dB

Peak SAR (extrapolated) = 0.502 mW/g

**SAR(1 g) = 0.310 mW/g; SAR(10 g) = 0.179 mW/g**

Maximum value of SAR (measured) = 0.339 mW/g



0 dB = 0.346 mW/g = -9.22 dB mW/g

**GSM1900 towards phantom mid with GPRS**

Date/Time: 7/8/2012 14:54:11

Communication System: GPRS/EGPRS(4UP); Communication System Band:

PCS1900; Frequency: 1880 MHz; Communication System PAR: 3.18 dB

Medium parameters used:  $f = 1880$  MHz;  $\sigma = 1.477$  mho/m;  $\epsilon_r = 52.425$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE 1528/OET 65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(4.67, 4.67, 4.67); Calibrated: 27/9/2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/4/2012
- Phantom: SAM2; Type: SAM; Serial: TP-1575
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

**body/towards phantom mid with GPRS/Area Scan (91x151x1):**

Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.469 mW/g

**body/towards phantom mid with GPRS/Zoom Scan (7x7x7)/Cube 0:**

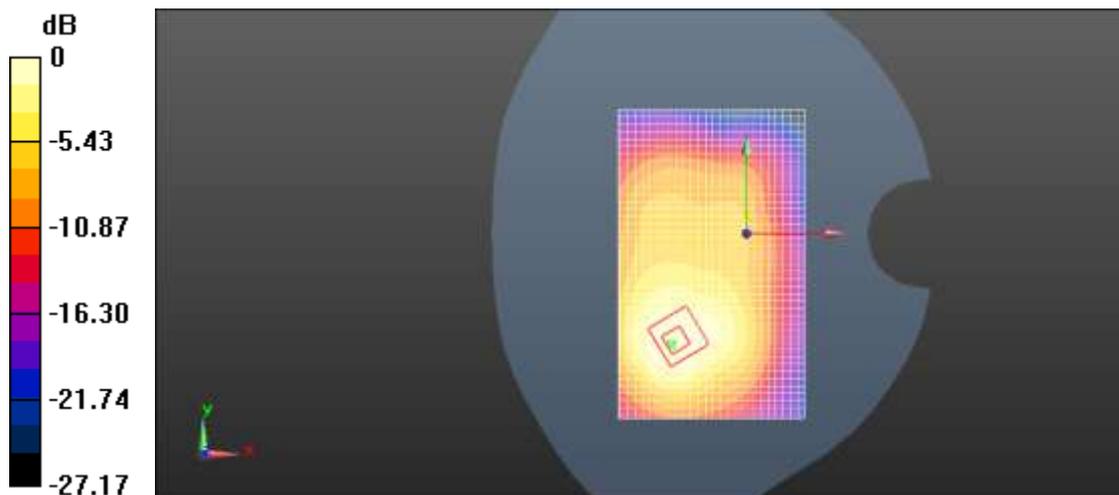
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 8.766 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 0.700 mW/g

**SAR(1 g) = 0.434 mW/g; SAR(10 g) = 0.263 mW/g**

Maximum value of SAR (measured) = 0.470 mW/g



0 dB = 0.469 mW/g = -6.59 dB mW/g

**GSM1900 towards ground mid with GPRS**

Date/Time: 7/8/2012 15:33:54

Communication System: GPRS/EGPRS(4UP); Communication System Band:

PCS1900; Frequency: 1880 MHz; Communication System PAR: 3.18 dB

Medium parameters used:  $f = 1880$  MHz;  $\sigma = 1.477$  mho/m;  $\epsilon_r = 52.425$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASYS5 (IEEE 1528/OET 65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(4.67, 4.67, 4.67); Calibrated: 27/9/2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/4/2012
- Phantom: SAM2; Type: SAM; Serial: TP-1575
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

**body/towards ground mid with GPRS/Area Scan (91x151x1):**

Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.658 mW/g

**body/towards ground mid with GPRS/Zoom Scan (7x7x7)/Cube 0:**

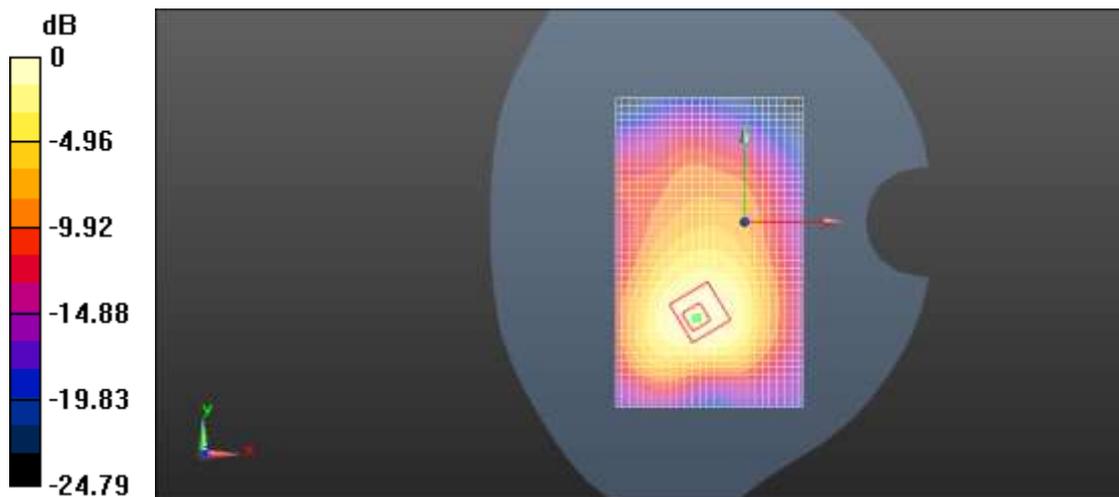
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 9.531 V/m; Power Drift = 0.16 dB

Peak SAR (extrapolated) = 0.946 mW/g

**SAR(1 g) = 0.569 mW/g; SAR(10 g) = 0.333 mW/g**

Maximum value of SAR (measured) = 0.620 mW/g



0 dB = 0.658 mW/g = -3.64 dB mW/g

**GSM1900 towards front with GPRS**

Date/Time: 8/8/2012 9:30:13

Communication System: GPRS/EGPRS(4UP); Communication System Band:

PCS1900; Frequency: 1880 MHz; Communication System PAR: 3.18 dB

Medium parameters used:  $f = 1880$  MHz;  $\sigma = 1.477$  mho/m;  $\epsilon_r = 52.425$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE 1528/OET 65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(4.67, 4.67, 4.67); Calibrated: 27/9/2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/4/2012
- Phantom: SAM2; Type: SAM; Serial: TP-1575
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

**body/front mid with GPRS/Area Scan (61x91x1):** Measurement grid:

$dx=10$ mm,  $dy=10$ mm

Maximum value of SAR (interpolated) = 0.186 mW/g

**body/front mid with GPRS/Zoom Scan (7x7x7)/Cube 0:** Measurement grid:

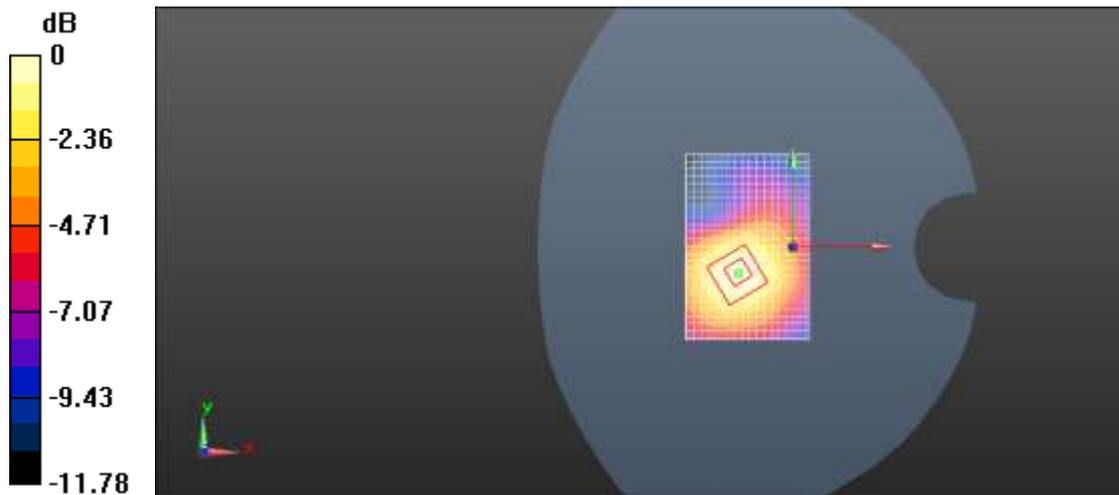
$dx=5$ mm,  $dy=5$ mm,  $dz=5$ mm

Reference Value = 9.205 V/m; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 0.276 mW/g

**SAR(1 g) = 0.172 mW/g; SAR(10 g) = 0.102 mW/g**

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



0 dB = 0.186 mW/g = -14.60 dB mW/g

**GSM1900 left side with GPRS**

Date/Time: 7/8/2012 16:08:42

Communication System: GPRS/EGPRS(4UP); Communication System Band:

PCS1900; Frequency: 1880 MHz; Communication System PAR: 3.18 dB

Medium parameters used:  $f = 1880$  MHz;  $\sigma = 1.477$  mho/m;  $\epsilon_r = 52.425$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE 1528/OET 65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(4.67, 4.67, 4.67); Calibrated: 27/9/2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/4/2012
- Phantom: SAM2; Type: SAM; Serial: TP-1575
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

**body2/left side mid with GPRS/Area Scan (61x151x1):** Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.291 mW/g

**body2/left side mid with GPRS/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 13.039 V/m; Power Drift = -0.12 dB

Peak SAR (extrapolated) = 0.441 mW/g

**SAR(1 g) = 0.262 mW/g; SAR(10 g) = 0.149 mW/g**

Maximum value of SAR (measured) = 0.286 mW/g

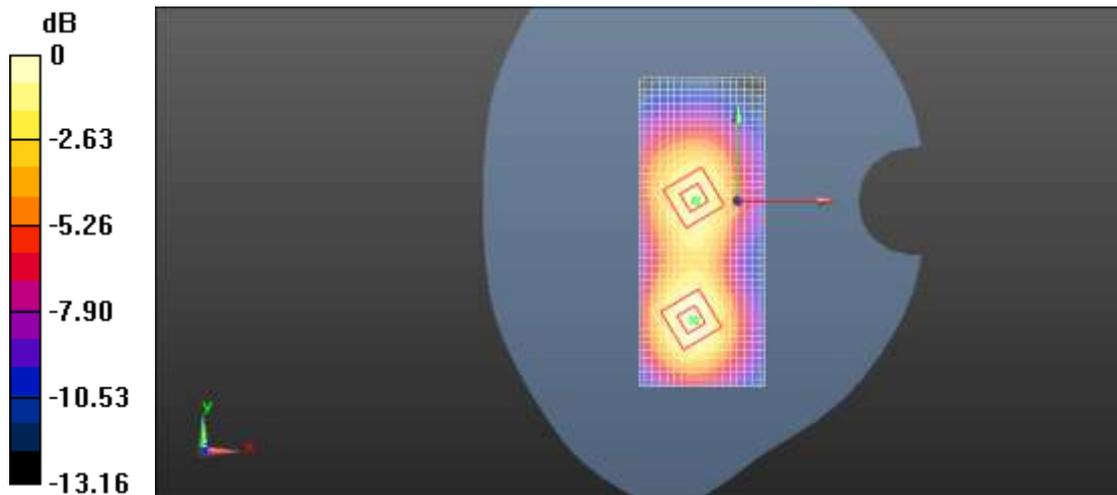
**body2/left side mid with GPRS/Zoom Scan (7x7x7)/Cube 1:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 13.039 V/m; Power Drift = -0.12 dB

Peak SAR (extrapolated) = 0.378 mW/g

**SAR(1 g) = 0.228 mW/g; SAR(10 g) = 0.134 mW/g**

Maximum value of SAR (measured) = 0.253 mW/g



0 dB = 0.291 mW/g = -10.72 dB mW/g

**GSM1900 right side mid with GPRS**

Date/Time: 7/8/2012 17:14:27

Communication System: GPRS/EGPRS(4UP); Communication System Band:

PCS1900; Frequency: 1880 MHz; Communication System PAR: 3.18 dB

Medium parameters used:  $f = 1880$  MHz;  $\sigma = 1.477$  mho/m;  $\epsilon_r = 52.425$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASYS5 (IEEE 1528/OET 65C)

DASYS5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(4.67, 4.67, 4.67); Calibrated: 27/9/2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/4/2012
- Phantom: SAM2; Type: SAM; Serial: TP-1575
- Measurement SW: DASYS52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

**body2/right side mid with GPRS/Area Scan (71x161x1):** Measurement grid:

dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.136 mW/g

**body2/right side mid with GPRS/Zoom Scan (7x7x7)/Cube 0:**

Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 7.384 V/m; Power Drift = 0.11 dB

Peak SAR (extrapolated) = 0.214 mW/g

**SAR(1 g) = 0.131 mW/g; SAR(10 g) = 0.079 mW/g**

Maximum value of SAR (measured) = 0.144 mW/g

**body2/right side mid with GPRS/Zoom Scan (7x7x7)/Cube 1:**

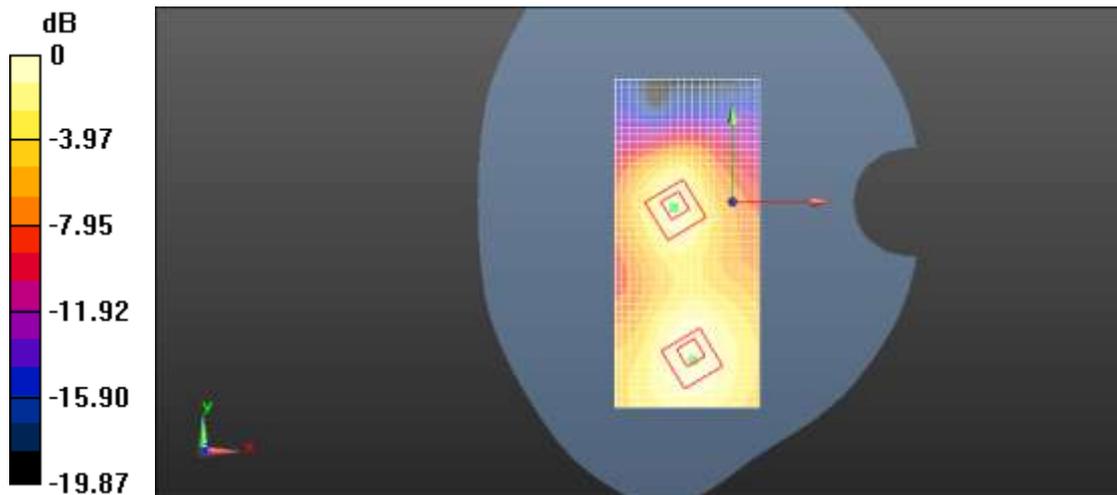
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 7.384 V/m; Power Drift = 0.11 dB

Peak SAR (extrapolated) = 0.174 mW/g

**SAR(1 g) = 0.109 mW/g; SAR(10 g) = 0.063 mW/g**

Maximum value of SAR (measured) = 0.121 mW/g



0 dB = 0.136 mW/g = -17.31 dB mW/g

**GSM1900 towards ground low with GPRS**

Date/Time: 8/8/2012 9:59:11

Communication System: GPRS/EGPRS(4UP); Communication System Band:

PCS1900; Frequency: 1850.2 MHz; Communication System PAR: 3.18 dB

Medium parameters used (interpolated):  $f = 1850.2$  MHz;  $\sigma = 1.448$  mho/m;  $\epsilon_r = 52.486$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASYS5 (IEEE 1528/OET 65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(4.67, 4.67, 4.67); Calibrated: 27/9/2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/4/2012
- Phantom: SAM2; Type: SAM; Serial: TP-1575
- Measurement SW: DASYS52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

**body/towards ground low with GPRS/Area Scan (91x151x1):**

Measurement grid: dx=10mm, dy=10mm

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

**body/towards ground low with GPRS/Zoom Scan (7x7x7)/Cube 0:**

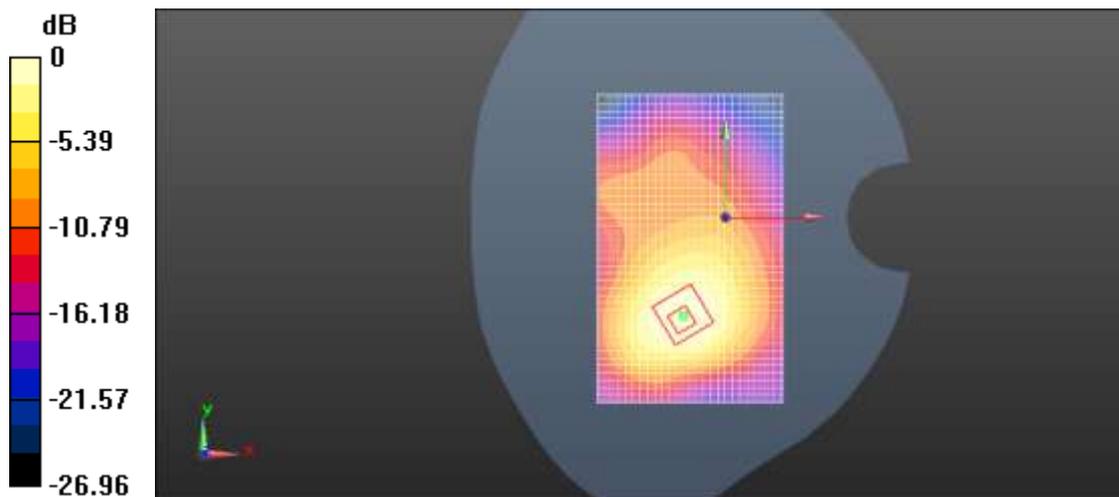
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 8.757 V/m; Power Drift = -0.03 dB

Peak SAR (extrapolated) = 1.435 mW/g

**SAR(1 g) = 0.802 mW/g; SAR(10 g) = 0.458 mW/g**

Maximum value of SAR (measured) = 0.868 mW/g



0 dB = 0.848 mW/g = -1.43 dB mW/g

**GSM1900 towards ground high with GPRS**

Date/Time: 8/8/2012 10:32:28

Communication System: GPRS/EGPRS(4UP); Communication System Band:

PCS1900; Frequency: 1909.8 MHz; Communication System PAR: 3.18 dB

Medium parameters used:  $f = 1910$  MHz;  $\sigma = 1.503$  mho/m;  $\epsilon_r = 52.325$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE 1528/OET 65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(4.67, 4.67, 4.67); Calibrated: 27/9/2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/4/2012
- Phantom: SAM2; Type: SAM; Serial: TP-1575
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

**body/towards ground high with GPRS/Area Scan (91x151x1):**

Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.429 mW/g

**body/towards ground high with GPRS/Zoom Scan (7x7x7)/Cube 0:**

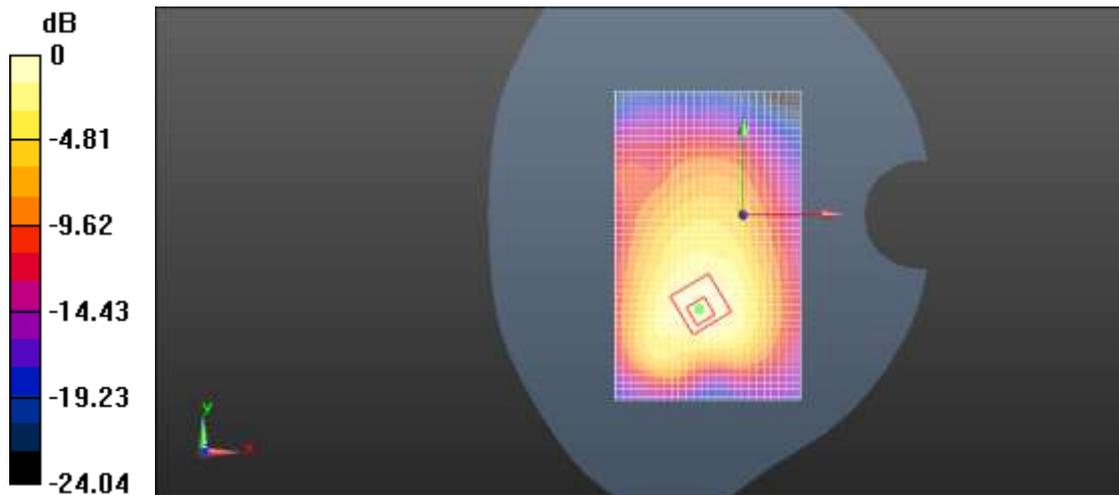
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 9.398 V/m; Power Drift = 0.13 dB

Peak SAR (extrapolated) = 0.695 mW/g

**SAR(1 g) = 0.388 mW/g; SAR(10 g) = 0.227 mW/g**

Maximum value of SAR (measured) = 0.424 mW/g



0 dB = 0.429 mW/g = -7.36 dB mW/g

**GSM1900 towards ground low with GPRS and earphone**

Date/Time: 8/8/2012 11:11:19

Communication System: GPRS/EGPRS(4UP); Communication System Band:

PCS1900; Frequency: 1850.2 MHz; Communication System PAR: 3.18 dB

Medium parameters used (interpolated):  $f = 1850.2$  MHz;  $\sigma = 1.448$  mho/m;  $\epsilon_r = 52.486$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASYS5 (IEEE 1528/OET 65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(4.67, 4.67, 4.67); Calibrated: 27/9/2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/4/2012
- Phantom: SAM2; Type: SAM; Serial: TP-1575
- Measurement SW: DASYS52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

**body/towards ground low with GPRS and earphone/Area Scan**

**(91x151x1):** Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.890 mW/g

**body/towards ground low with GPRS and earphone/Zoom Scan**

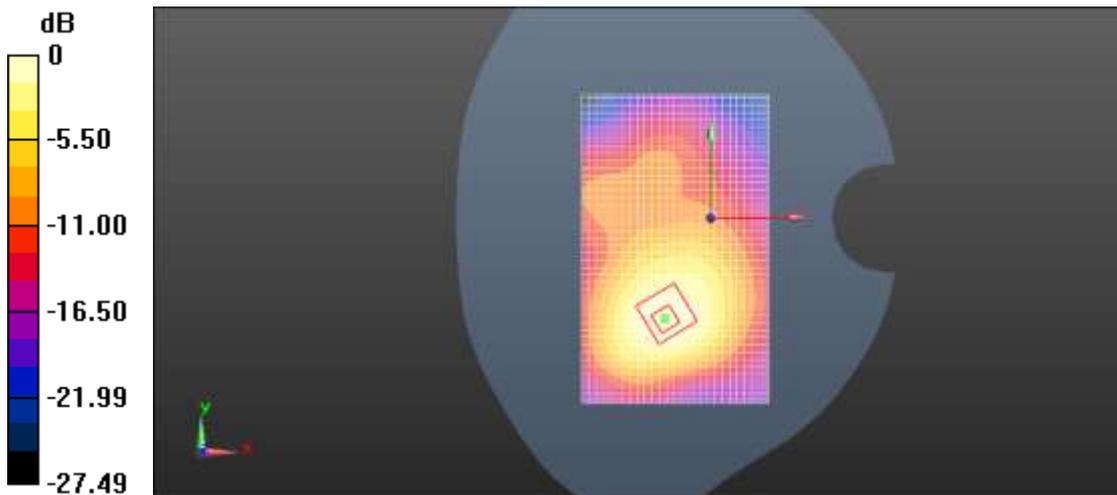
**(7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 8.191 V/m; Power Drift = 0.02 dB

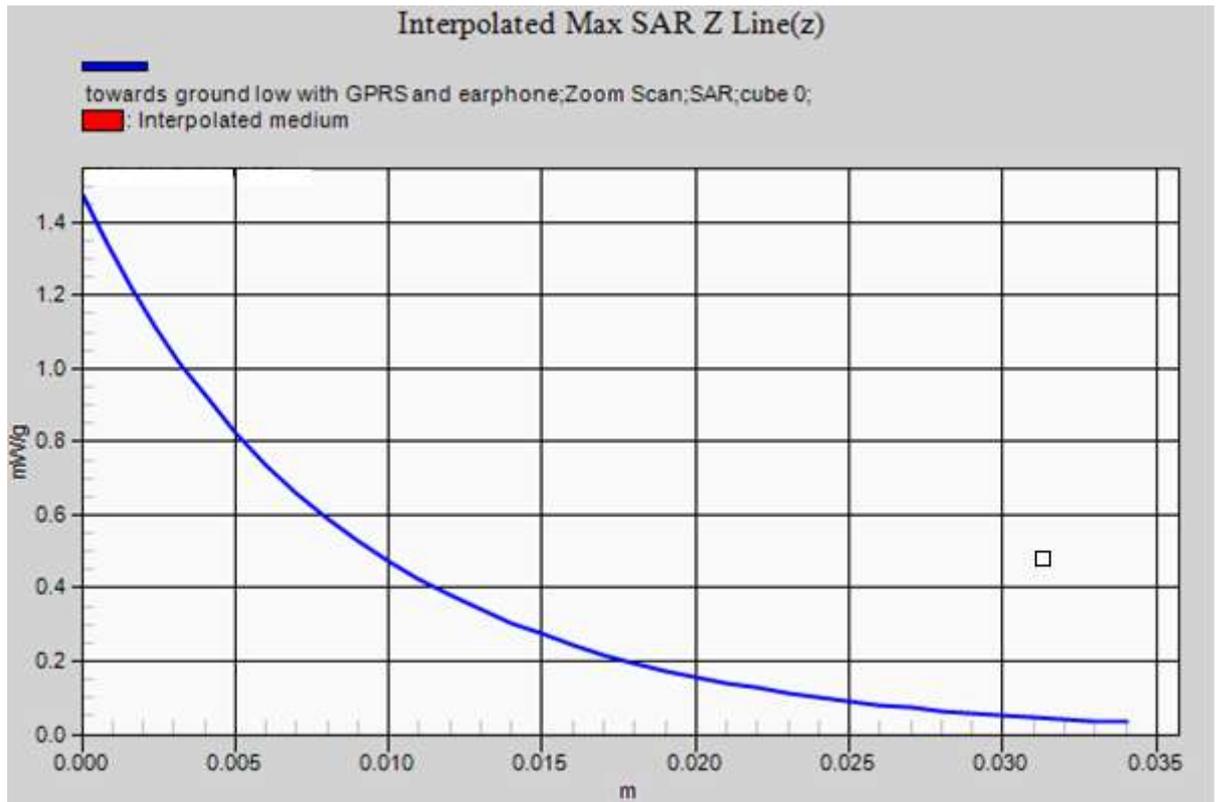
Peak SAR (extrapolated) = 1.476 mW/g

**SAR(1 g) = 0.833 mW/g; SAR(10 g) = 0.468 mW/g**

Maximum value of SAR (measured) = 0.940 mW/g



0 dB = 0.890 mW/g = -1.01 dB mW/g



**GSM1900 towards ground low with EDGE**

Date/Time: 8/8/2012 11:49:45

Communication System: GPRS/EGPRS(4UP); Communication System Band:

PCS1900; Frequency: 1850.2 MHz; Communication System PAR: 3.18 dB

Medium parameters used (interpolated):  $f = 1850.2$  MHz;  $\sigma = 1.448$  mho/m;  $\epsilon_r = 52.486$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASYS (IEEE 1528/OET 65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(4.67, 4.67, 4.67); Calibrated: 27/9/2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/4/2012
- Phantom: SAM2; Type: SAM; Serial: TP-1575
- Measurement SW: DASYS2, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

**body/towards ground low with EDGE/Area Scan (91x151x1):**

Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.772 mW/g

**body/towards ground low with EDGE/Zoom Scan (7x7x7)/Cube 0:**

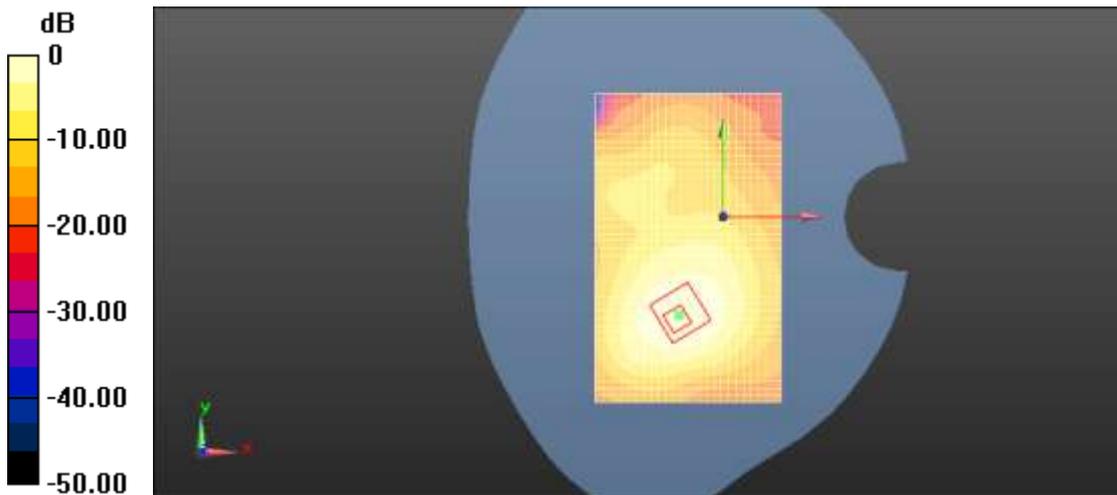
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 7.629 V/m; Power Drift = 0.05 dB

Peak SAR (extrapolated) = 1.254 mW/g

**SAR(1 g) = 0.691 mW/g; SAR(10 g) = 0.405 mW/g**

Maximum value of SAR (measured) = 0.739 mW/g



0 dB = 0.772 mW/g = -2.25 dB mW/g

**WCDMA BAND II left touch mid**

Date/Time: 26/07/2012 13:35:09

Communication System: WCDMA; Communication System Band: BAND 2;

Frequency: 1880 MHz; Communication System PAR: 0 dB

Medium parameters used:  $f = 1880$  MHz;  $\sigma = 1.364$  mho/m;  $\epsilon_r = 39.144$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Left Section

Measurement Standard: DASYS5 (IEEE 1528/OET 65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(5.09, 5.09, 5.09); Calibrated: 27/09/2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/04/2012
- Phantom: SAM 1; Type: SAM; Serial: TP:1702
- Measurement SW: DASYS52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

**left/touch mid/Area Scan (91x151x1):** Measurement grid: dx=10mm, dy=10mm

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

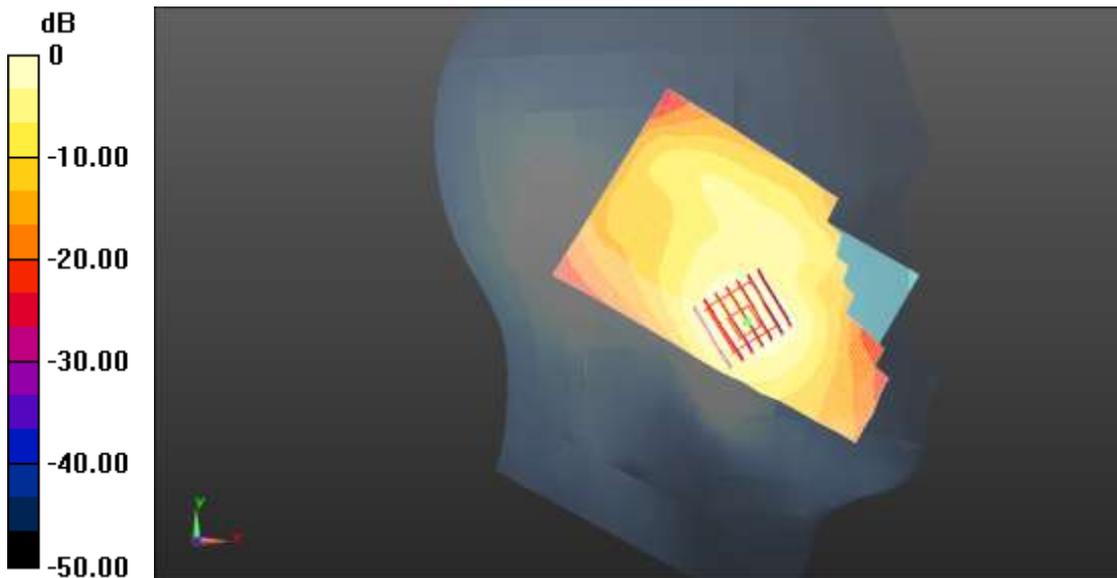
**left/touch mid/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 8.542 V/m; Power Drift = -0.13 dB

Peak SAR (extrapolated) = 1.810 mW/g

**SAR(1 g) = 1.13 mW/g; SAR(10 g) = 0.652 mW/g**

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



0 dB = 1.28 mW/g = 2.15 dB mW/g

**WCDMA BAND II left tilt mid**

Date/Time: 26/07/2012 14:13:53

Communication System: WCDMA; Communication System Band: BAND 2;

Frequency: 1880 MHz; Communication System PAR: 0 dB

Medium parameters used:  $f = 1880$  MHz;  $\sigma = 1.364$  mho/m;  $\epsilon_r = 39.144$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Left Section

Measurement Standard: DASYS5 (IEEE 1528/OET 65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(5.09, 5.09, 5.09); Calibrated: 27/09/2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/04/2012
- Phantom: SAM 1; Type: SAM; Serial: TP:1702
- Measurement SW: DASYS52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

**left/tilt mid/Area Scan (91x151x1):** Measurement grid: dx=10mm, dy=10mm  
Maximum value of SAR (interpolated) = 0.221 mW/g**left/tilt mid/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 10.737 V/m; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 0.317 mW/g

**SAR(1 g) = 0.201 mW/g; SAR(10 g) = 0.123 mW/g**

Maximum value of SAR (measured) = 0.220 mW/g

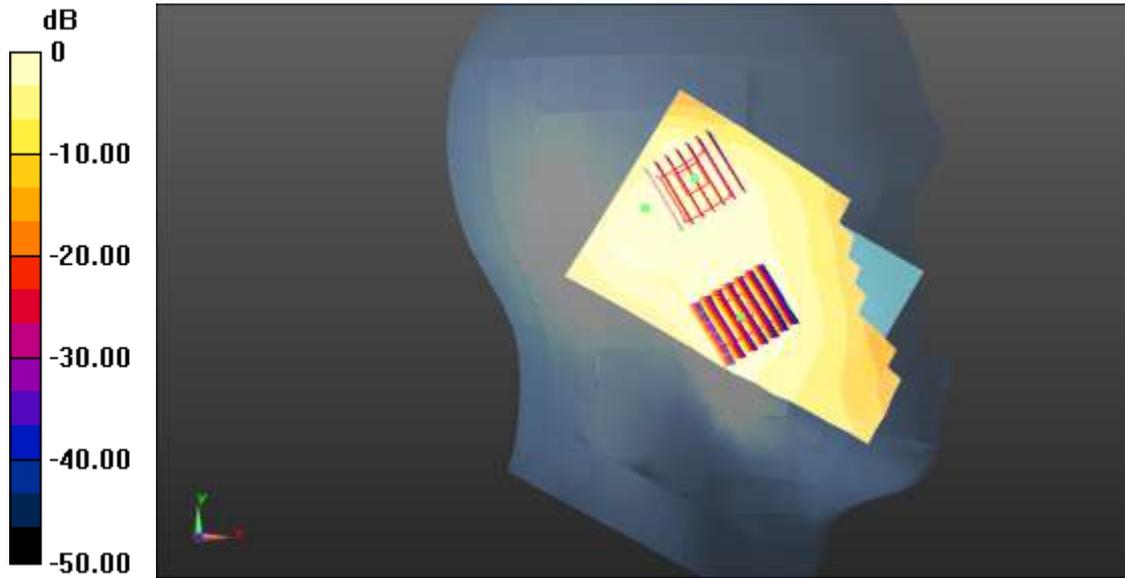
**left/tilt - mid/Zoom Scan (7x7x7)/Cube 1:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 10.737 V/m; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 0.299 mW/g

**SAR(1 g) = 0.196 mW/g; SAR(10 g) = 0.124 mW/g**

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



0 dB = 0.221 mW/g = -13.10 dB mW/g

**WCDMA BAND II right touch mid**

Date/Time: 26/07/2012 16:31:25

Communication System: WCDMA; Communication System Band: BAND 2;

Frequency: 1880 MHz; Communication System PAR: 0 dB

Medium parameters used:  $f = 1880$  MHz;  $\sigma = 1.364$  mho/m;  $\epsilon_r = 39.144$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Right Section

Measurement Standard: DASYS5 (IEEE 1528/OET 65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(5.09, 5.09, 5.09); Calibrated: 27/09/2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/04/2012
- Phantom: SAM 1; Type: SAM; Serial: TP:1702
- Measurement SW: DASYS5, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

**right/touch mid/Area Scan (91x151x1):** Measurement grid: dx=10mm, dy=10mm

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

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

Reference Value = 7.423 V/m; Power Drift = 0.07 dB

Peak SAR (extrapolated) = 0.693 mW/g

**SAR(1 g) = 0.471 mW/g; SAR(10 g) = 0.303 mW/g**

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

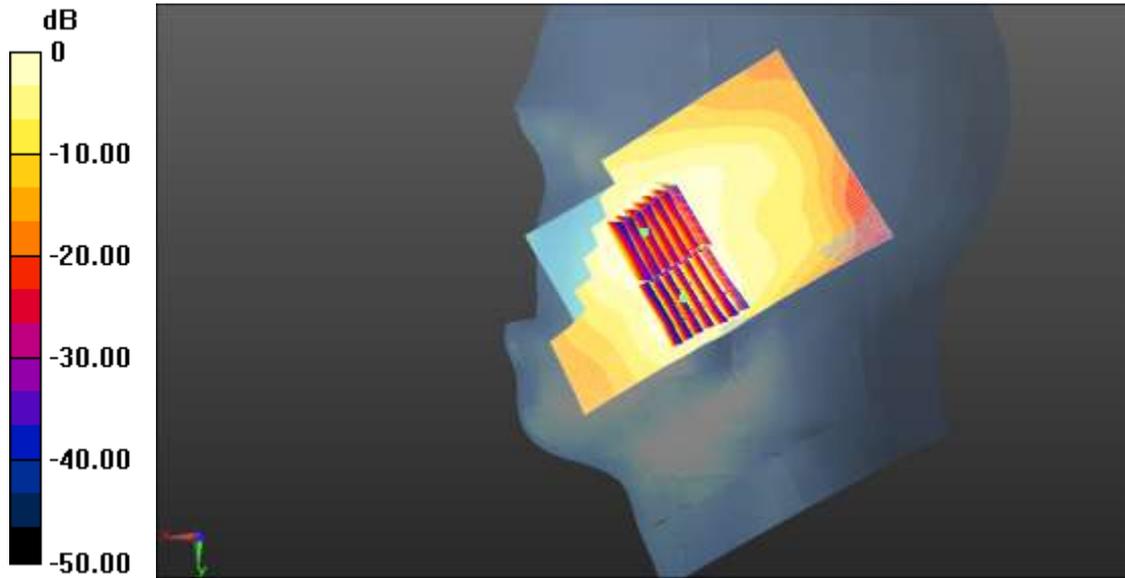
**right/touch mid/Zoom Scan (7x7x7)/Cube 1:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 7.423 V/m; Power Drift = 0.07 dB

Peak SAR (extrapolated) = 0.683 mW/g

**SAR(1 g) = 0.440 mW/g; SAR(10 g) = 0.284 mW/g**

Maximum value of SAR (measured) = 0.469 mW/g



0 dB = 0.508 mW/g = -5.89 dB mW/g

**WCDMA BAND II right tilt mid**

Date/Time: 26/07/2012 17:48:02

Communication System: WCDMA; Communication System Band: BAND 2;

Frequency: 1880 MHz; Communication System PAR: 0 dB

Medium parameters used:  $f = 1880$  MHz;  $\sigma = 1.364$  mho/m;  $\epsilon_r = 39.144$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Right Section

Measurement Standard: DASYS5 (IEEE 1528/OET 65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(5.09, 5.09, 5.09); Calibrated: 27/09/2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/04/2012
- Phantom: SAM 1; Type: SAM; Serial: TP:1702
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

**right/tilt mid/Area Scan (91x151x1):** Measurement grid: dx=10mm, dy=10mm  
 Maximum value of SAR (interpolated) = 0.216 mW/g

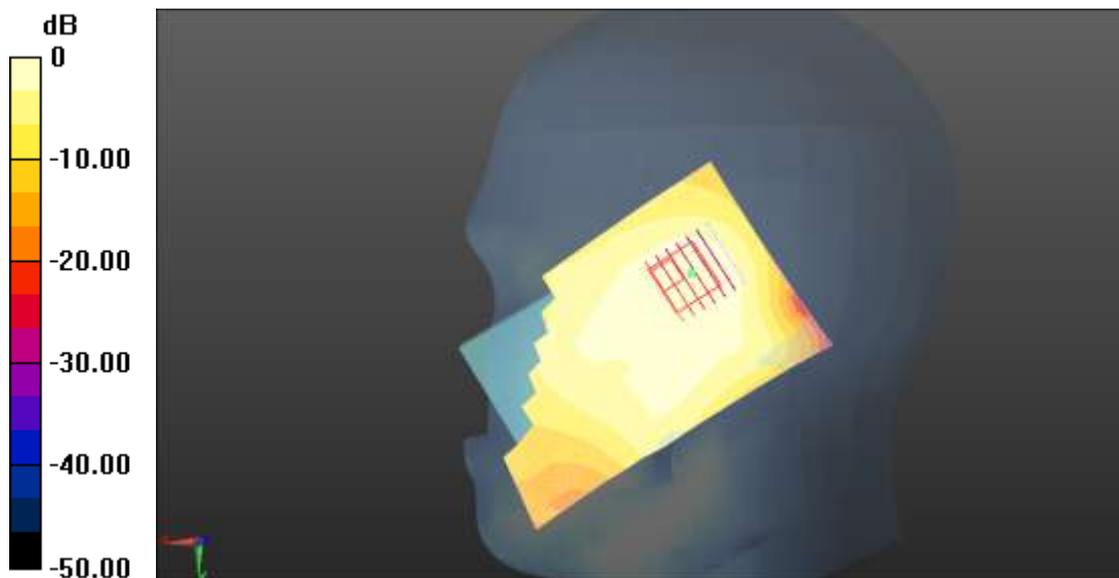
**right/tilt mid/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 11.287 V/m; Power Drift = -0.16 dB

Peak SAR (extrapolated) = 0.344 mW/g

**SAR(1 g) = 0.168 mW/g; SAR(10 g) = 0.091 mW/g**

Maximum value of SAR (measured) = 0.226 mW/g



0 dB = 0.216 mW/g = -13.31 dB mW/g

**WCDMA BAND II left touch low**

Date/Time: 26/07/2012 15:08:48

Communication System: WCDMA; Communication System Band: BAND 2;

Frequency: 1852.4 MHz; Communication System PAR: 0 dB

Medium parameters used (interpolated):  $f = 1852.4$  MHz;  $\sigma = 1.341$  mho/m;  $\epsilon_r = 39.247$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Left Section

Measurement Standard: DASY5 (IEEE 1528/OET 65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(5.09, 5.09, 5.09); Calibrated: 27/09/2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/04/2012
- Phantom: SAM 1; Type: SAM; Serial: TP:1702
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

**left/touch low/Area Scan (91x151x1):** Measurement grid: dx=10mm, dy=10mm  
 Maximum value of SAR (interpolated) = 1.30 mW/g

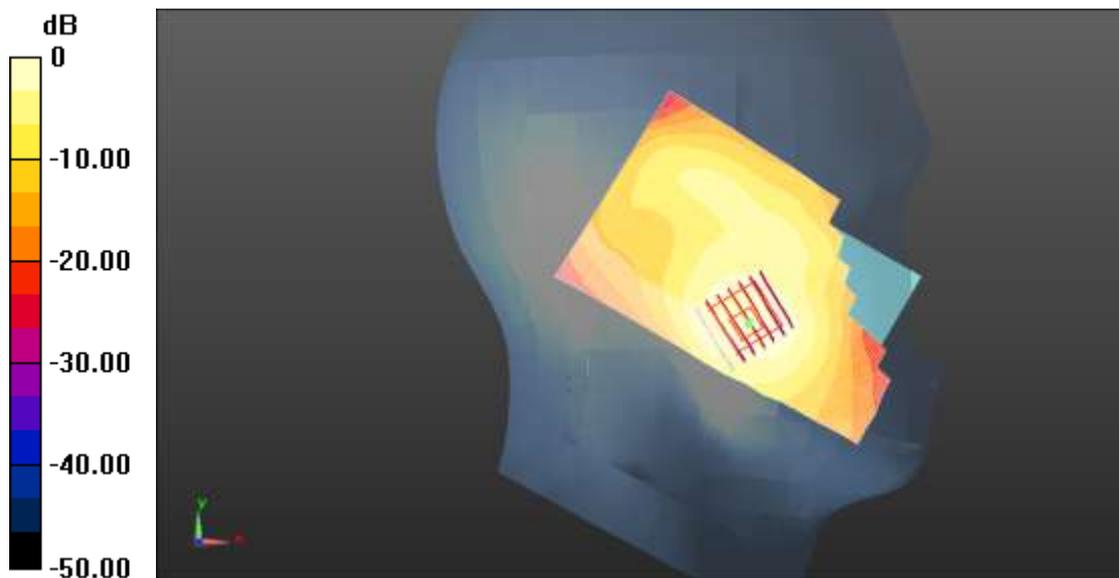
**left/touch low/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 10.369 V/m; Power Drift = 0.11 dB

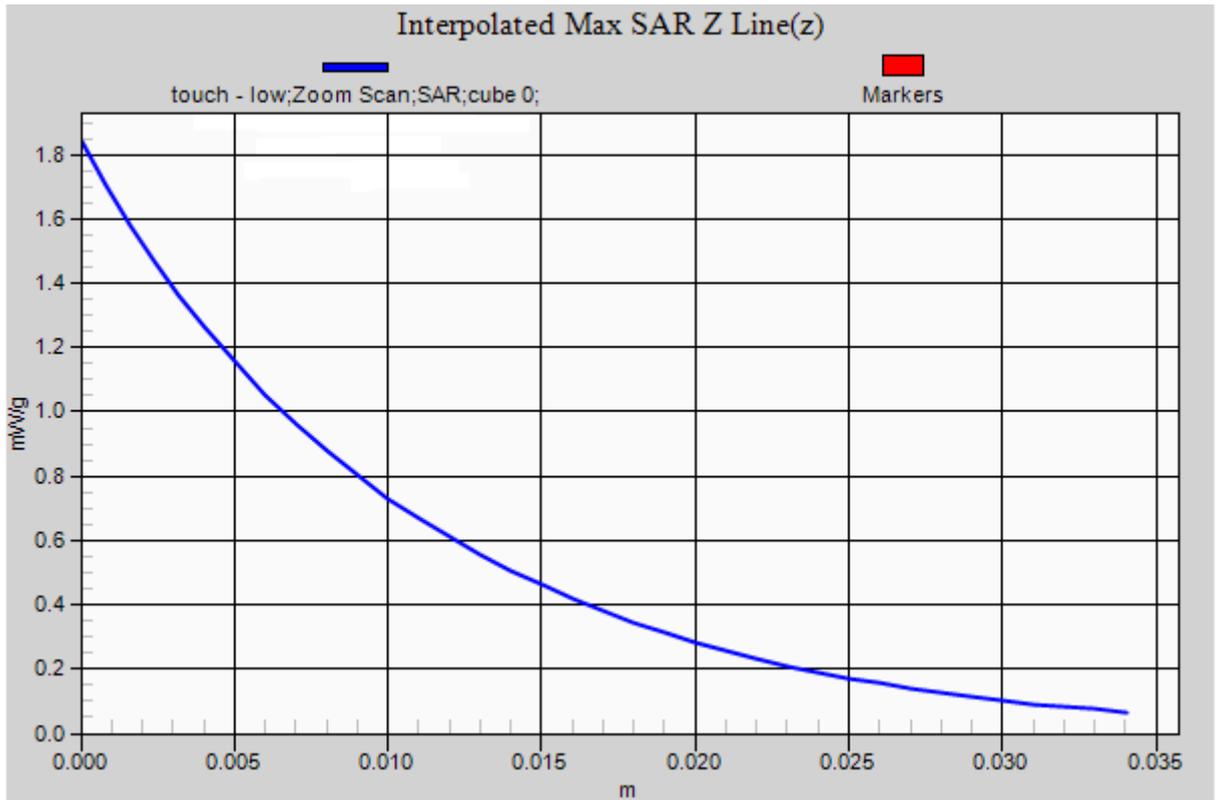
Peak SAR (extrapolated) = 1.839 mW/g

**SAR(1 g) = 1.16 mW/g; SAR(10 g) = 0.678 mW/g**

Maximum value of SAR (measured) = 1.27 mW/g



0 dB = 1.30 mW/g = 2.30 dB mW/g



**WCDMA BAND II left touch high**

Date/Time: 26/07/2012 15:55:34

Communication System: WCDMA; Communication System Band: BAND 2;

Frequency: 1907.6 MHz; Communication System PAR: 0 dB

Medium parameters used:  $f = 1908$  MHz;  $\sigma = 1.391$  mho/m;  $\epsilon_r = 39.019$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Left Section

Measurement Standard: DASYS5 (IEEE 1528/OET 65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(5.09, 5.09, 5.09); Calibrated: 27/09/2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/04/2012
- Phantom: SAM 1; Type: SAM; Serial: TP:1702
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

**left/touch high/Area Scan (91x151x1):** Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.933 mW/g

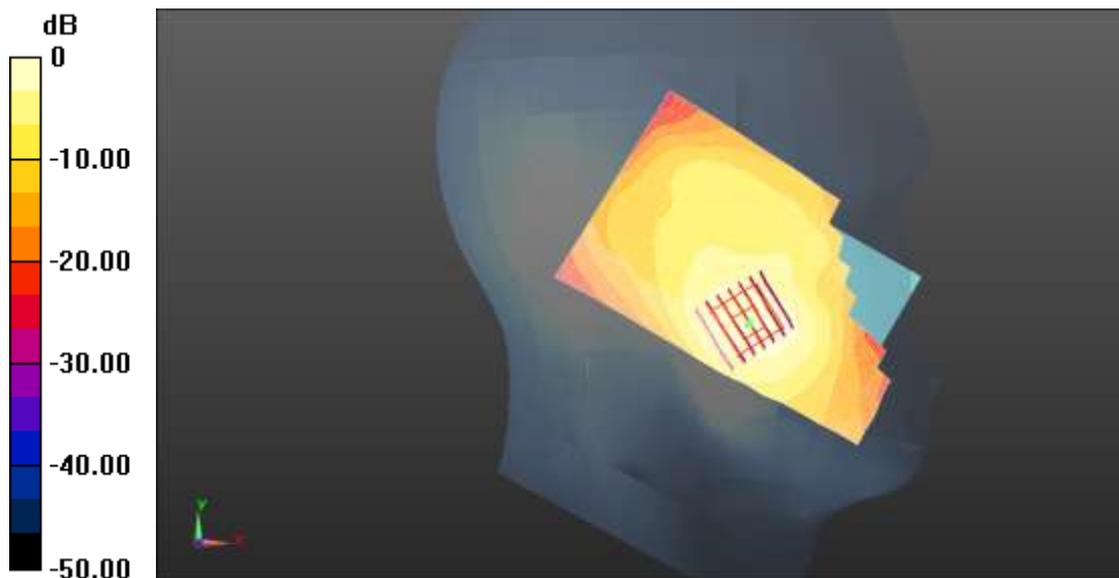
**left/touch high/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 7.790 V/m; Power Drift = -0.12 dB

Peak SAR (extrapolated) = 1.341 mW/g

**SAR(1 g) = 0.819 mW/g; SAR(10 g) = 0.466 mW/g**

Maximum value of SAR (measured) = 0.907 mW/g



0 dB = 0.933 mW/g = -0.60 dB mW/g

**WCDMA BAND II towards phantom mid**

Date/Time: 8/8/2012 13:16:37

Communication System: WCDMA; Communication System Band: BAND 2;

Frequency: 1880 MHz; Communication System PAR: 0 dB

Medium parameters used:  $f = 1880$  MHz;  $\sigma = 1.477$  mho/m;  $\epsilon_r = 52.425$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE 1528/OET 65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(4.67, 4.67, 4.67); Calibrated: 27/9/2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/4/2012
- Phantom: SAM2; Type: SAM; Serial: TP-1575
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

**body/towards phantom mid/Area Scan (91x151x1):** Measurement grid:

$dx=10$ mm,  $dy=10$ mm

Maximum value of SAR (interpolated) = 0.726 mW/g

**body/towards phantom mid/Zoom Scan (7x7x7)/Cube 0:** Measurement grid:

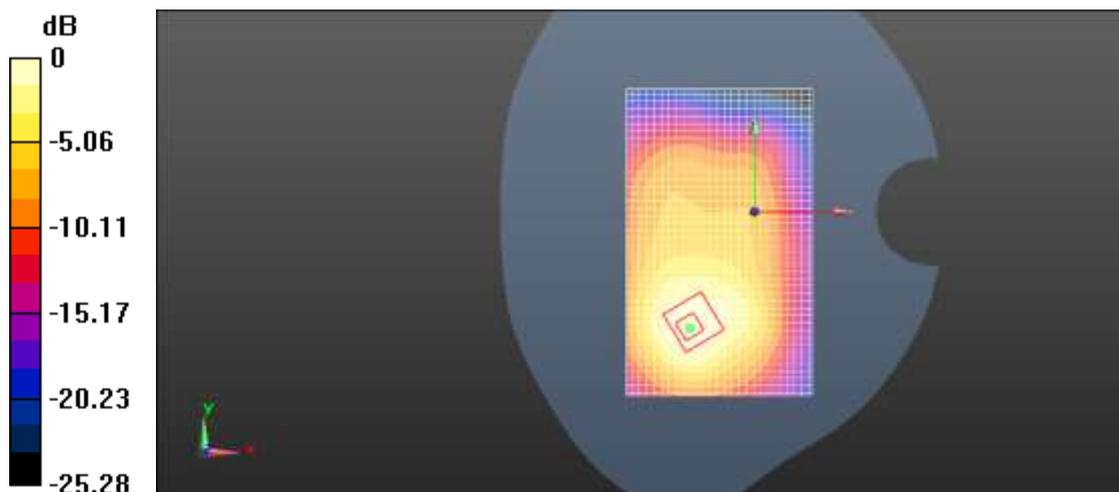
$dx=5$ mm,  $dy=5$ mm,  $dz=5$ mm

Reference Value = 10.320 V/m; Power Drift = 0.08 dB

Peak SAR (extrapolated) = 1.078 mW/g

**SAR(1 g) = 0.656 mW/g; SAR(10 g) = 0.389 mW/g**

Maximum value of SAR (measured) = 0.714 mW/g



$0 \text{ dB} = 0.726 \text{ mW/g} = -2.78 \text{ dB mW/g}$

**WCDMA BAND II towards ground mid**

Date/Time: 8/8/2012 13:50:45

Communication System: WCDMA; Communication System Band: BAND 2;

Frequency: 1880 MHz; Communication System PAR: 0 dB

Medium parameters used:  $f = 1880$  MHz;  $\sigma = 1.477$  mho/m;  $\epsilon_r = 52.425$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASYS5 (IEEE 1528/OET 65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(4.67, 4.67, 4.67); Calibrated: 27/9/2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/4/2012
- Phantom: SAM2; Type: SAM; Serial: TP-1575
- Measurement SW: DASYS52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

**body/towards ground mid/Area Scan (91x151x1):** Measurement grid:

$dx=10$ mm,  $dy=10$ mm

Maximum value of SAR (interpolated) = 0.879 mW/g

**body/towards ground mid/Zoom Scan (7x7x7)/Cube 0:** Measurement grid:

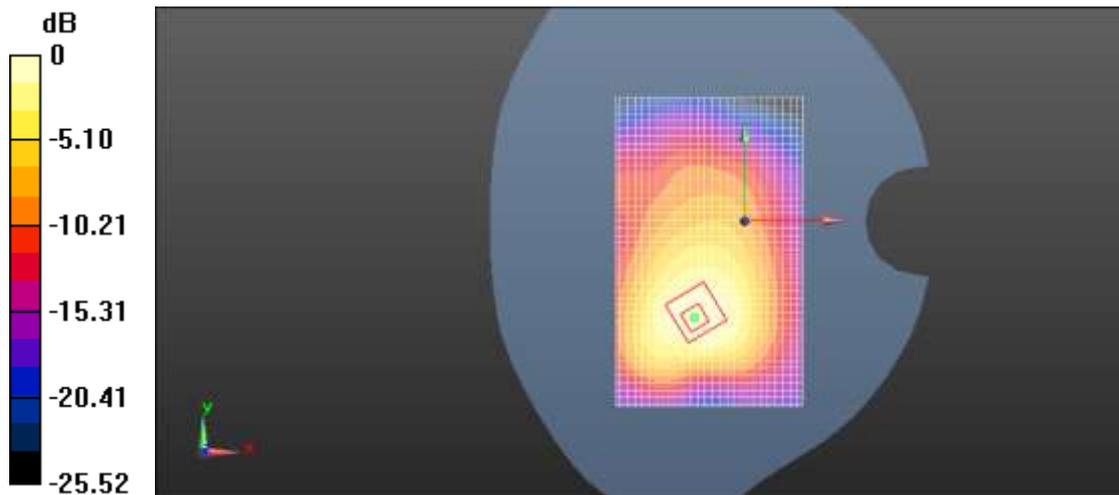
$dx=5$ mm,  $dy=5$ mm,  $dz=5$ mm

Reference Value = 11.421 V/m; Power Drift = 0.00 dB

Peak SAR (extrapolated) = 1.337 mW/g

**SAR(1 g) = 0.797 mW/g; SAR(10 g) = 0.464 mW/g**

Maximum value of SAR (measured) = 0.878 mW/g



$0 \text{ dB} = 0.879 \text{ mW/g} = -1.12 \text{ dB mW/g}$

**WCDMA BAND II front mid**

Date/Time: 8/8/2012 16:14:29

Communication System: WCDMA; Communication System Band: BAND 2;

Frequency: 1880 MHz; Communication System PAR: 0 dB

Medium parameters used:  $f = 1880$  MHz;  $\sigma = 1.477$  mho/m;  $\epsilon_r = 52.425$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASYS5 (IEEE 1528/OET 65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(4.67, 4.67, 4.67); Calibrated: 27/9/2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/4/2012
- Phantom: SAM2; Type: SAM; Serial: TP-1575
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

**body/ towards front mid/Area Scan (61x91x1):** Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.262 mW/g

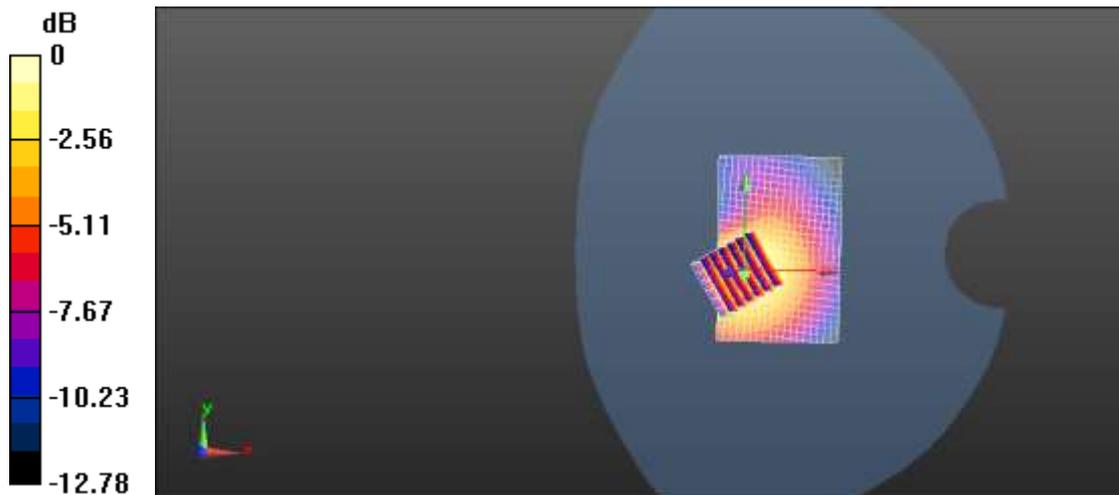
**body/ towards front mid/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 9.211 V/m; Power Drift = 0.14 dB

Peak SAR (extrapolated) = 0.386 mW/g

**SAR(1 g) = 0.239 mW/g; SAR(10 g) = 0.142 mW/g**

Maximum value of SAR (measured) = 0.261 mW/g



0 dB = 0.262 mW/g = -11.63 dB mW/g

**WCDMA BAND II left side mid**

Date/Time: 8/8/2012 14:27:08

Communication System: WCDMA; Communication System Band: BAND 2;

Frequency: 1880 MHz; Communication System PAR: 0 dB

Medium parameters used:  $f = 1880$  MHz;  $\sigma = 1.477$  mho/m;  $\epsilon_r = 52.425$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASYS5 (IEEE 1528/OET 65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(4.67, 4.67, 4.67); Calibrated: 27/9/2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/4/2012
- Phantom: SAM2; Type: SAM; Serial: TP-1575
- Measurement SW: DASYS52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

**body2/left side mid/Area Scan (61x151x1):** Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.235 mW/g

**body2/left side mid/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 10.232 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 0.372 mW/g

**SAR(1 g) = 0.215 mW/g; SAR(10 g) = 0.122 mW/g**

Maximum value of SAR (measured) = 0.238 mW/g

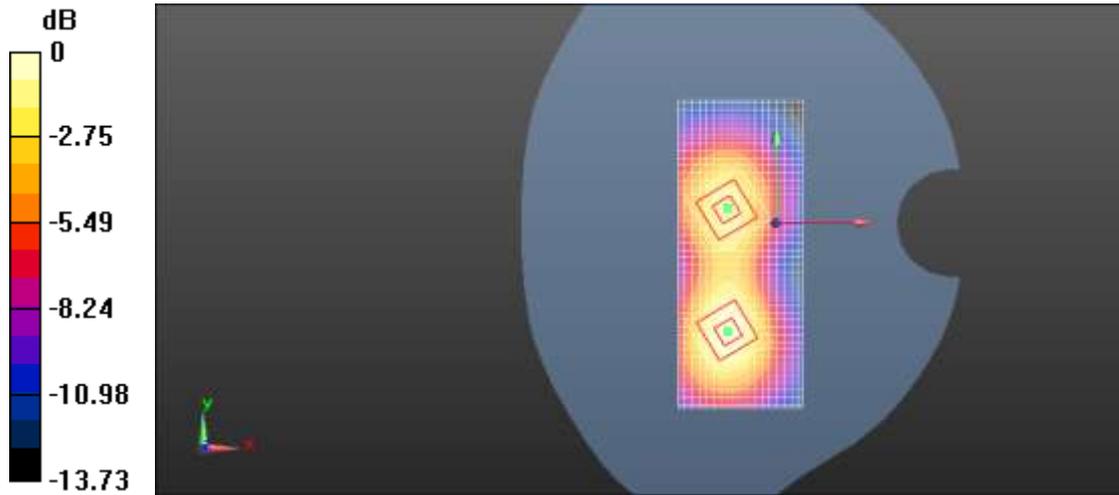
**body2/left side mid/Zoom Scan (7x7x7)/Cube 1:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 10.232 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 0.277 mW/g

**SAR(1 g) = 0.169 mW/g; SAR(10 g) = 0.100 mW/g**

Maximum value of SAR (measured) = 0.184 mW/g



0 dB = 0.235 mW/g = -12.57 dB mW/g

**WCDMA BAND II right side mid**

Date/Time: 8/8/2012 15:10:08

Communication System: WCDMA; Communication System Band: BAND 2;

Frequency: 1880 MHz; Communication System PAR: 0 dB

Medium parameters used:  $f = 1880$  MHz;  $\sigma = 1.477$  mho/m;  $\epsilon_r = 52.425$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASYS5 (IEEE 1528/OET 65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(4.67, 4.67, 4.67); Calibrated: 27/9/2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/4/2012
- Phantom: SAM2; Type: SAM; Serial: TP-1575
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

**body2/right side mid/Area Scan (61x151x1):** Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.164 mW/g

**body2/right side mid/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 7.668 V/m; Power Drift = 0.12 dB

Peak SAR (extrapolated) = 0.245 mW/g

**SAR(1 g) = 0.152 mW/g; SAR(10 g) = 0.093 mW/g**

Maximum value of SAR (measured) = 0.164 mW/g

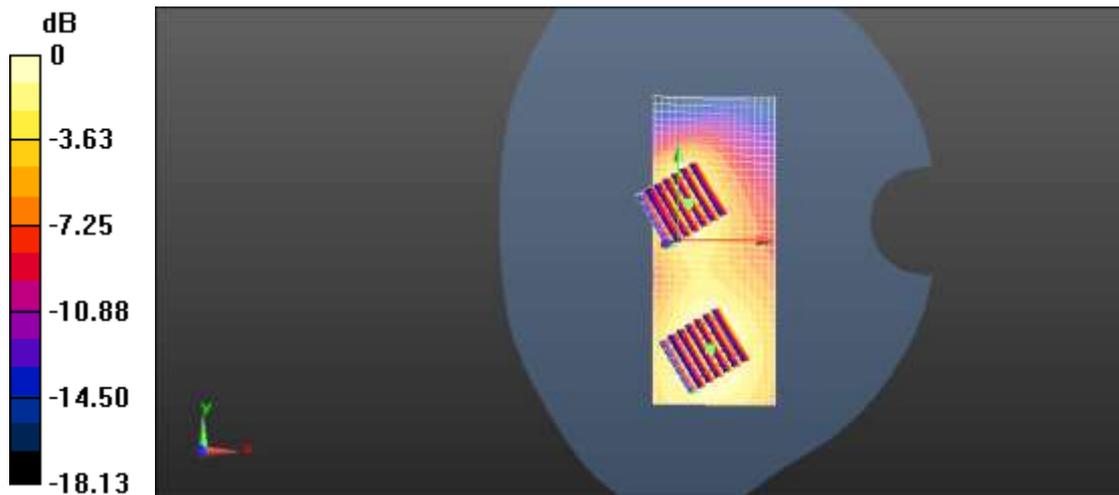
**body2/right side mid/Zoom Scan (7x7x7)/Cube 1:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 7.668 V/m; Power Drift = 0.12 dB

Peak SAR (extrapolated) = 0.220 mW/g

**SAR(1 g) = 0.136 mW/g; SAR(10 g) = 0.080 mW/g**

Maximum value of SAR (measured) = 0.146 mW/g



0 dB = 0.164 mW/g = -15.72 dB mW/g

**WCDMA BAND II towards ground low**

Date/Time: 8/8/2012 16:41:51

Communication System: WCDMA; Communication System Band: BAND 2;

Frequency: 1852.4 MHz; Communication System PAR: 0 dB

Medium parameters used (interpolated):  $f = 1852.4$  MHz;  $\sigma = 1.451$  mho/m;  $\epsilon_r = 52.481$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE 1528/OET 65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(4.67, 4.67, 4.67); Calibrated: 27/9/2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/4/2012
- Phantom: SAM2; Type: SAM; Serial: TP-1575
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

**body/towards ground low/Area Scan (91x151x1):** Measurement grid:

$dx=10$ mm,  $dy=10$ mm

Maximum value of SAR (interpolated) = 0.997 mW/g

**body/towards ground low/Zoom Scan (7x7x7)/Cube 0:** Measurement grid:

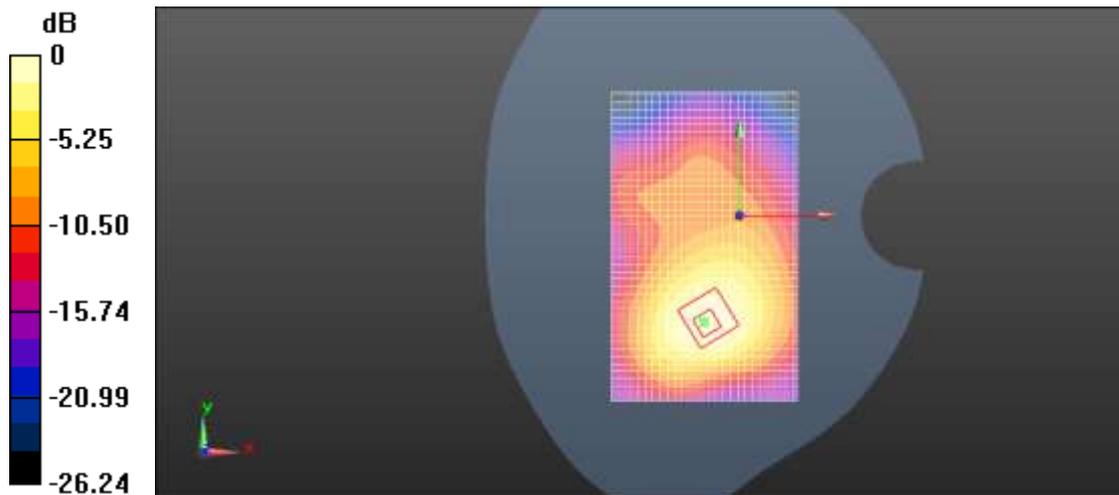
$dx=5$ mm,  $dy=5$ mm,  $dz=5$ mm

Reference Value = 8.680 V/m; Power Drift = 0.05 dB

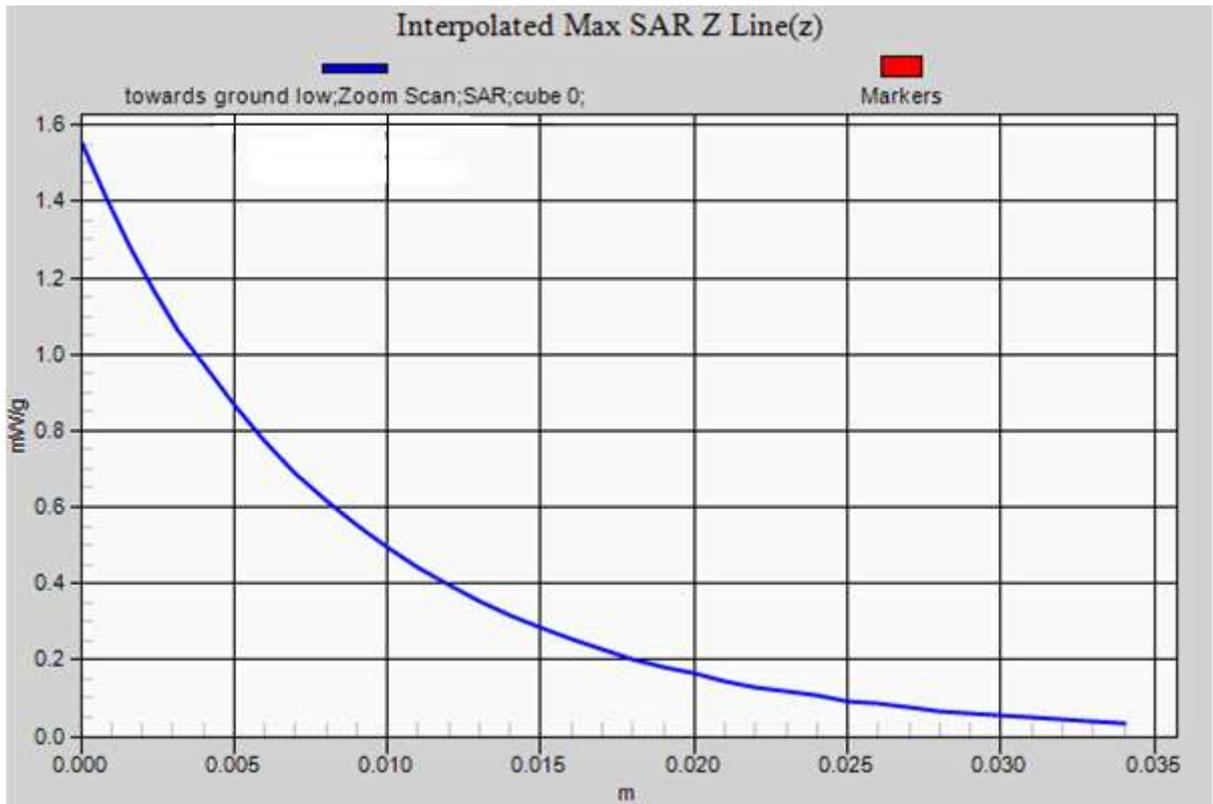
Peak SAR (extrapolated) = 1.552 mW/g

**SAR(1 g) = 0.908 mW/g; SAR(10 g) = 0.521 mW/g**

Maximum value of SAR (measured) = 1.00 mW/g



0 dB = 0.997 mW/g = -0.02 dB mW/g



**WCDMA BAND II towards ground high**

Date/Time: 8/8/2012 17:18:52

Communication System: WCDMA; Communication System Band: BAND 2;

Frequency: 1907.6 MHz; Communication System PAR: 0 dB

Medium parameters used:  $f = 1908$  MHz;  $\sigma = 1.502$  mho/m;  $\epsilon_r = 52.332$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASYS5 (IEEE 1528/OET 65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(4.67, 4.67, 4.67); Calibrated: 27/9/2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/4/2012
- Phantom: SAM2; Type: SAM; Serial: TP-1575
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

**body/towards ground high/Area Scan (91x151x1):** Measurement grid:

dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.611 mW/g

**body/towards ground high/Zoom Scan (7x7x7)/Cube 0:** Measurement grid:

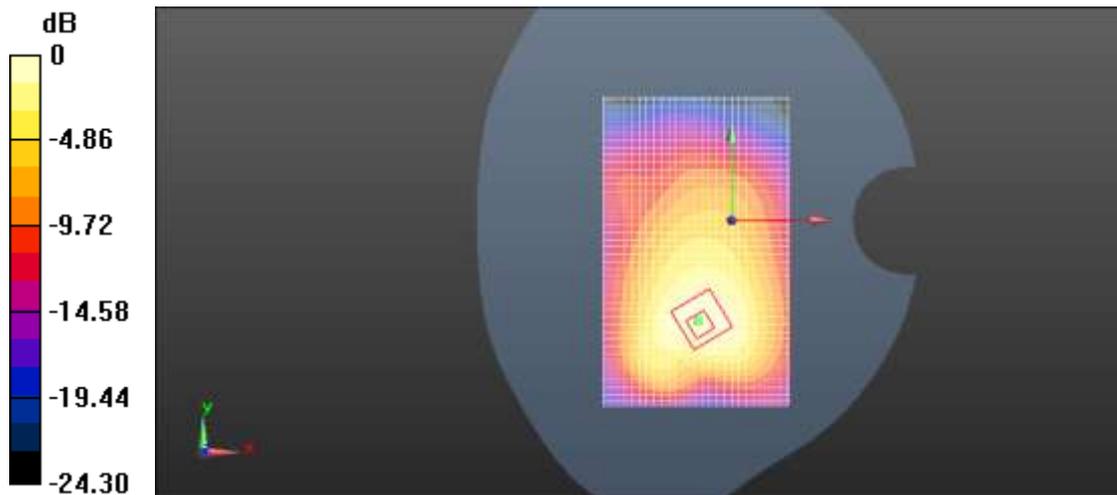
dx=5mm, dy=5mm, dz=5mm

Reference Value = 10.472 V/m; Power Drift = -0.16 dB

Peak SAR (extrapolated) = 1.006 mW/g

**SAR(1 g) = 0.590 mW/g; SAR(10 g) = 0.344 mW/g**

Maximum value of SAR (measured) = 0.642 mW/g



0 dB = 0.611 mW/g = -4.28 dB mW/g

**WCDMA BAND II towards ground low with earphone**

Date/Time: 9/8/2012 9:17:56

Communication System: WCDMA; Communication System Band: BAND 2;

Frequency: 1852.4 MHz; Communication System PAR: 0 dB

Medium parameters used (interpolated):  $f = 1852.4$  MHz;  $\sigma = 1.451$  mho/m;  $\epsilon_r = 52.481$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASYS5 (IEEE 1528/OET 65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(4.67, 4.67, 4.67); Calibrated: 27/9/2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/4/2012
- Phantom: SAM2; Type: SAM; Serial: TP-1575
- Measurement SW: DASYS52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

**body/towards ground low with earphone/Area Scan (91x151x1):**

Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.972 mW/g

**body/towards ground low with earphone/Zoom Scan (7x7x7)/Cube 0:**

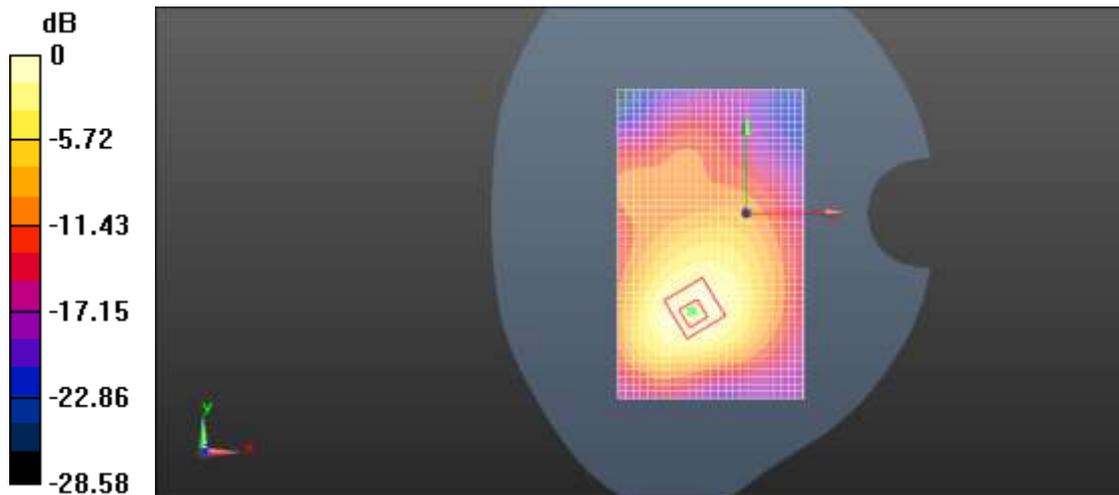
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 9.167 V/m; Power Drift = 0.14 dB

Peak SAR (extrapolated) = 1.518 mW/g

**SAR(1 g) = 0.886 mW/g; SAR(10 g) = 0.506 mW/g**

Maximum value of SAR (measured) = 0.978 mW/g



$0 \text{ dB} = 0.972 \text{ mW/g} = -0.25 \text{ dB mW/g}$

**WCDMA BAND II towards ground low with HSDPA**

Date/Time: 9/8/2012 10:45:04

Communication System: WCDMA; Communication System Band: BAND 2;

Frequency: 1852.4 MHz; Communication System PAR: 0 dB

Medium parameters used (interpolated):  $f = 1852.4$  MHz;  $\sigma = 1.451$  mho/m;  $\epsilon_r = 52.481$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE 1528/OET 65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(4.67, 4.67, 4.67); Calibrated: 27/9/2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/4/2012
- Phantom: SAM2; Type: SAM; Serial: TP-1575
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

**body/towards ground low with HSDPA/Area Scan (91x151x1):**

Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.466 mW/g

**body/towards ground low with HSDPA/Zoom Scan (7x7x7)/Cube 0:**

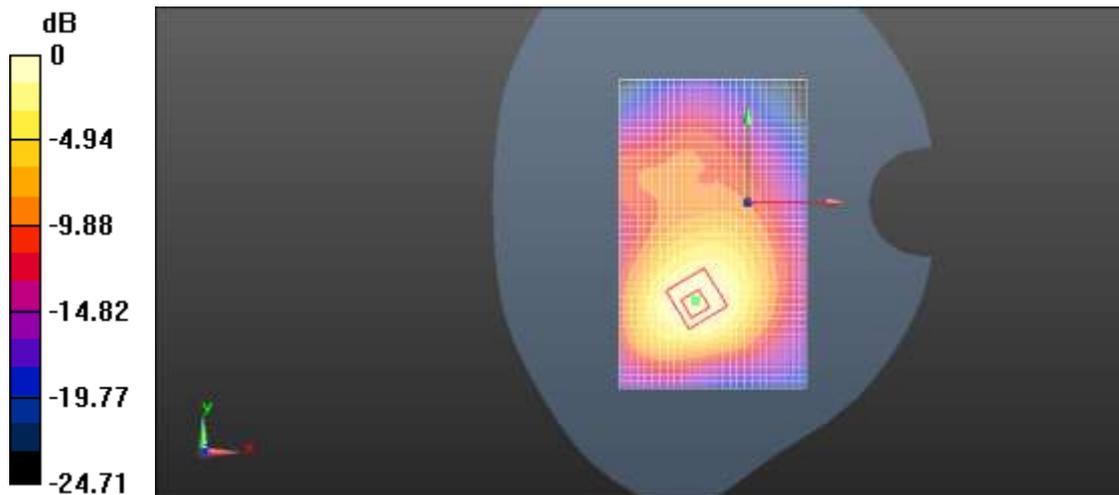
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 6.498 V/m; Power Drift = -0.03 dB

Peak SAR (extrapolated) = 0.717 mW/g

**SAR(1 g) = 0.423 mW/g; SAR(10 g) = 0.242 mW/g**

Maximum value of SAR (measured) = 0.465 mW/g



0 dB = 0.466 mW/g = -6.63 dB mW/g

**WCDMA BAND II towards ground low with HSUPA**

Date/Time: 9/8/2012 10:13:12

Communication System: WCDMA; Communication System Band: BAND 2;

Frequency: 1852.4 MHz; Communication System PAR: 0 dB

Medium parameters used (interpolated):  $f = 1852.4$  MHz;  $\sigma = 1.451$  mho/m;  $\epsilon_r = 52.481$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASYS5 (IEEE 1528/OET 65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(4.67, 4.67, 4.67); Calibrated: 27/9/2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/4/2012
- Phantom: SAM2; Type: SAM; Serial: TP-1575
- Measurement SW: DASYS52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

**body/towards ground low with HSUPA/Area Scan (91x151x1):**

Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.463 mW/g

**body/towards ground low with HSUPA/Zoom Scan (7x7x7)/Cube 0:**

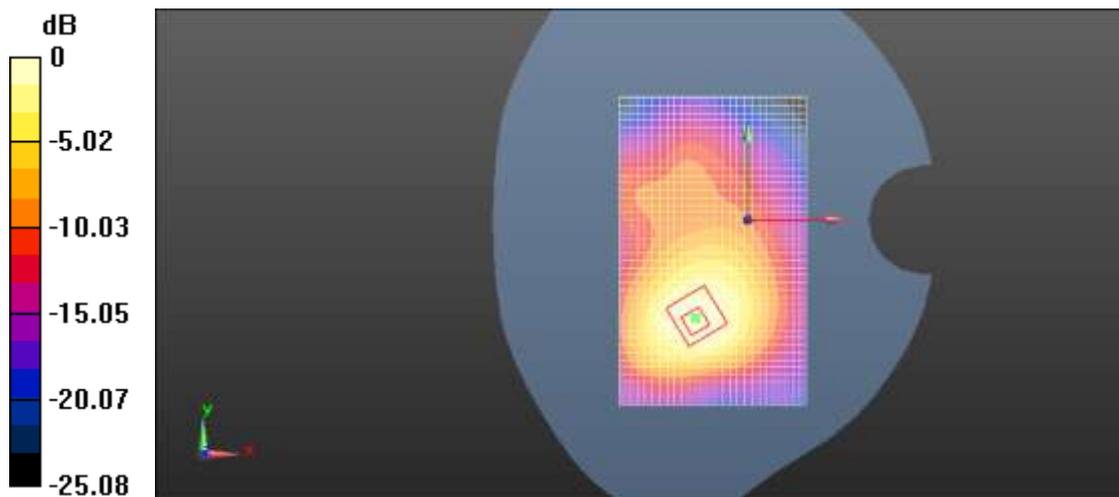
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 6.485 V/m; Power Drift = 0.00 dB

Peak SAR (extrapolated) = 0.716 mW/g

**SAR(1 g) = 0.420 mW/g; SAR(10 g) = 0.240 mW/g**

Maximum value of SAR (measured) = 0.462 mW/g



0 dB = 0.463 mW/g = -6.68 dB mW/g

**WCDMA BAND V left touch mid**

Date/Time: 02/08/2012 13:09:17

Communication System: WCDMA; Communication System Band: BAND 5;

Frequency: 836.6 MHz; Communication System PAR: 0 dB

Medium parameters used:  $f = 837$  MHz;  $\sigma = 0.914$  mho/m;  $\epsilon_r = 43.026$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Left Section

Measurement Standard: DASYS5 (IEEE 1528/OET 65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(6.18, 6.18, 6.18); Calibrated: 27/09/2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/04/2012
- Phantom: SAM 1; Type: SAM; Serial: TP:1702
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

**left/touch mid/Area Scan (91x151x1):** Measurement grid: dx=10mm, dy=10mm

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

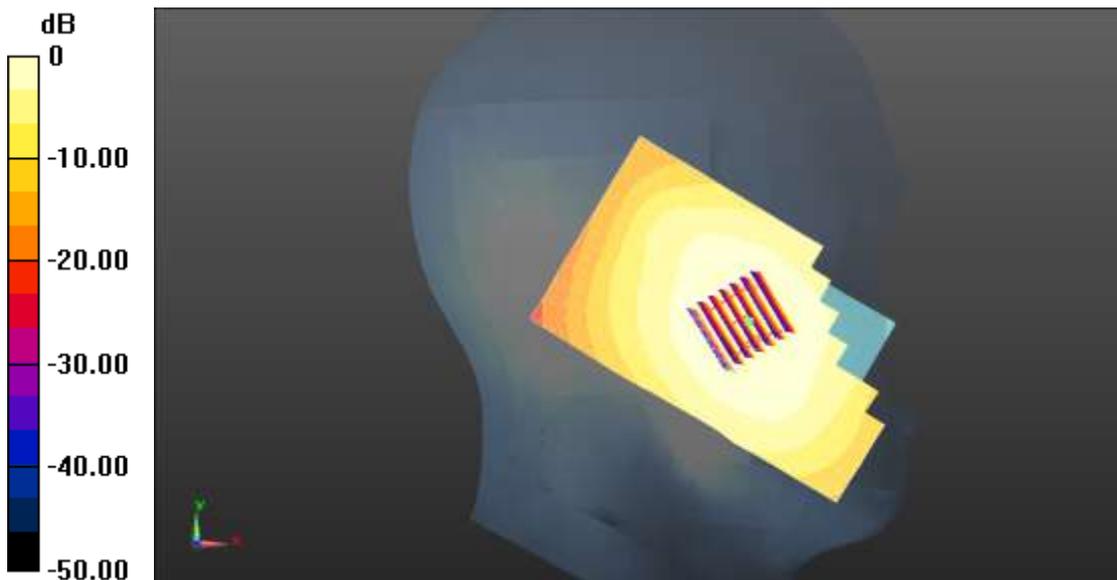
**left/touch mid/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 8.872 V/m; Power Drift = -0.08 dB

Peak SAR (extrapolated) = 0.641 mW/g

**SAR(1 g) = 0.484 mW/g; SAR(10 g) = 0.364 mW/g**

Maximum value of SAR (measured) = 0.510 mW/g



0 dB = 0.509 mW/g = -5.87 dB mW/g

**WCDMA BAND V left tilt mid**

Date/Time: 02/08/2012 13:39:31

Communication System: WCDMA; Communication System Band: BAND 5;

Frequency: 836.6 MHz; Communication System PAR: 0 dB

Medium parameters used:  $f = 837$  MHz;  $\sigma = 0.914$  mho/m;  $\epsilon_r = 43.026$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Left Section

Measurement Standard: DASYS5 (IEEE 1528/OET 65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(6.18, 6.18, 6.18); Calibrated: 27/09/2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/04/2012
- Phantom: SAM 1; Type: SAM; Serial: TP:1702
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

**left/tilt mid/Area Scan (91x151x1):** Measurement grid: dx=10mm, dy=10mm  
 Maximum value of SAR (interpolated) = 0.345 mW/g

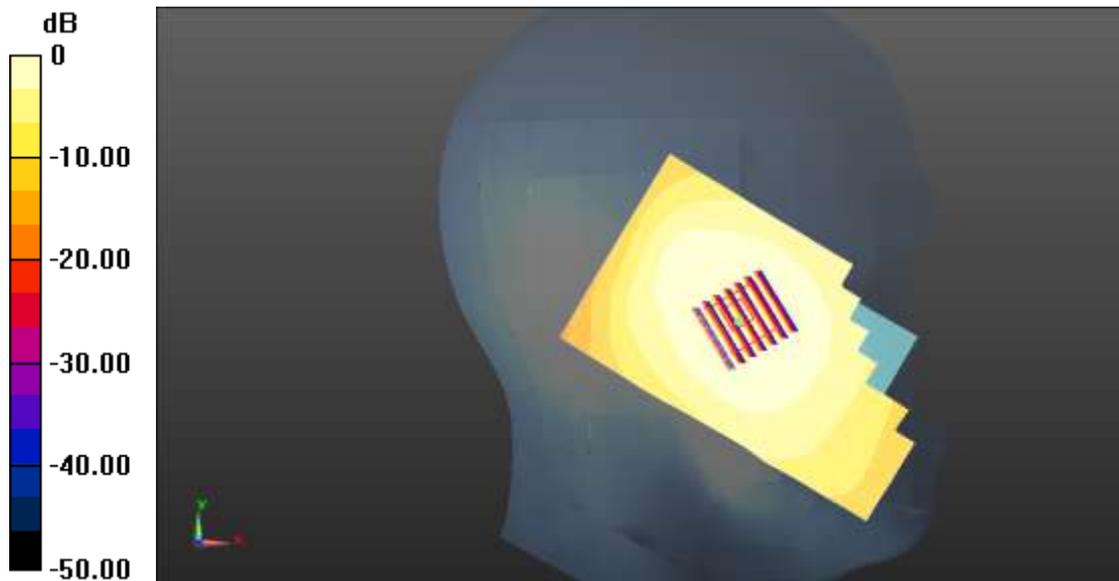
**left/tilt mid/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 13.275 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 0.421 mW/g

**SAR(1 g) = 0.331 mW/g; SAR(10 g) = 0.250 mW/g**

Maximum value of SAR (measured) = 0.349 mW/g



0 dB = 0.345 mW/g = -9.26 dB mW/g

**WCDMA BAND V right touch mid**

Date/Time: 06/08/2012 17:53:53

Communication System: WCDMA; Communication System Band: BAND 5;

Frequency: 836.6 MHz; Communication System PAR: 0 dB

Medium parameters used:  $f = 837$  MHz;  $\sigma = 0.914$  mho/m;  $\epsilon_r = 43.026$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Right Section

Measurement Standard: DASYS5 (IEEE 1528/OET 65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(6.18, 6.18, 6.18); Calibrated: 27/09/2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/04/2012
- Phantom: SAM 1; Type: SAM; Serial: TP:1702
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

**right/touch mid/Area Scan (91x151x1):** Measurement grid: dx=10mm, dy=10mm

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

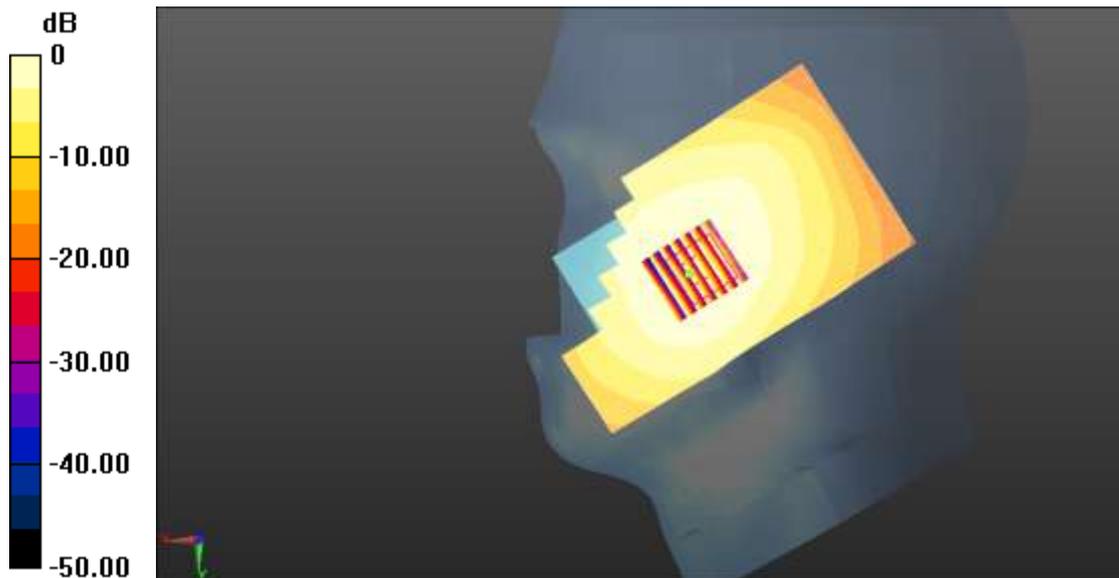
**right/touch mid/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 9.003 V/m; Power Drift = -0.13 dB

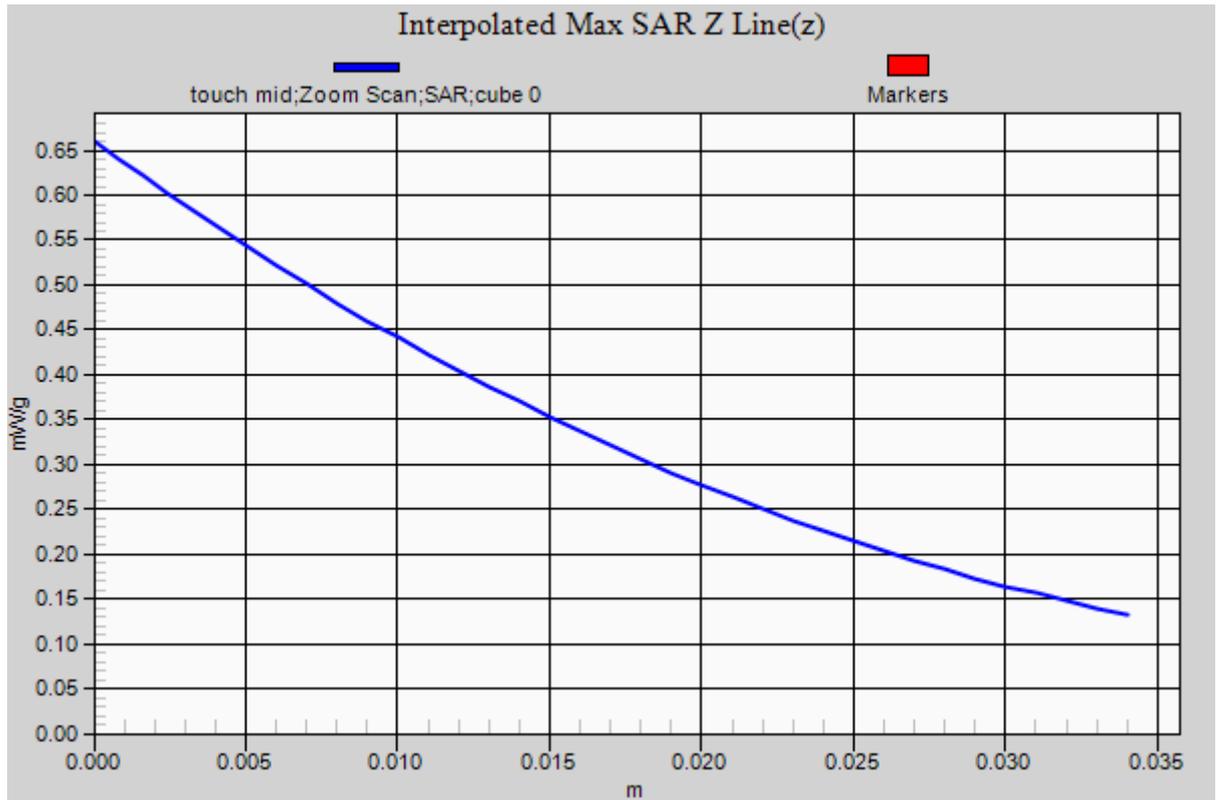
Peak SAR (extrapolated) = 0.660 mW/g

**SAR(1 g) = 0.544 mW/g; SAR(10 g) = 0.419 mW/g**

Maximum value of SAR (measured) = 0.569 mW/g



0 dB = 0.583 mW/g = -4.68 dB mW/g



**WCDMA BAND V right tilt mid**

Date/Time: 02/08/2012 14:50:49

Communication System: WCDMA; Communication System Band: BAND 5;

Frequency: 836.6 MHz; Communication System PAR: 0 dB

Medium parameters used:  $f = 837$  MHz;  $\sigma = 0.914$  mho/m;  $\epsilon_r = 43.026$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Right Section

Measurement Standard: DASYS5 (IEEE 1528/OET 65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(6.18, 6.18, 6.18); Calibrated: 27/09/2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/04/2012
- Phantom: SAM 1; Type: SAM; Serial: TP:1702
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

**right/tilt mid/Area Scan (91x151x1):** Measurement grid: dx=10mm, dy=10mm  
 Maximum value of SAR (interpolated) = 0.422 mW/g

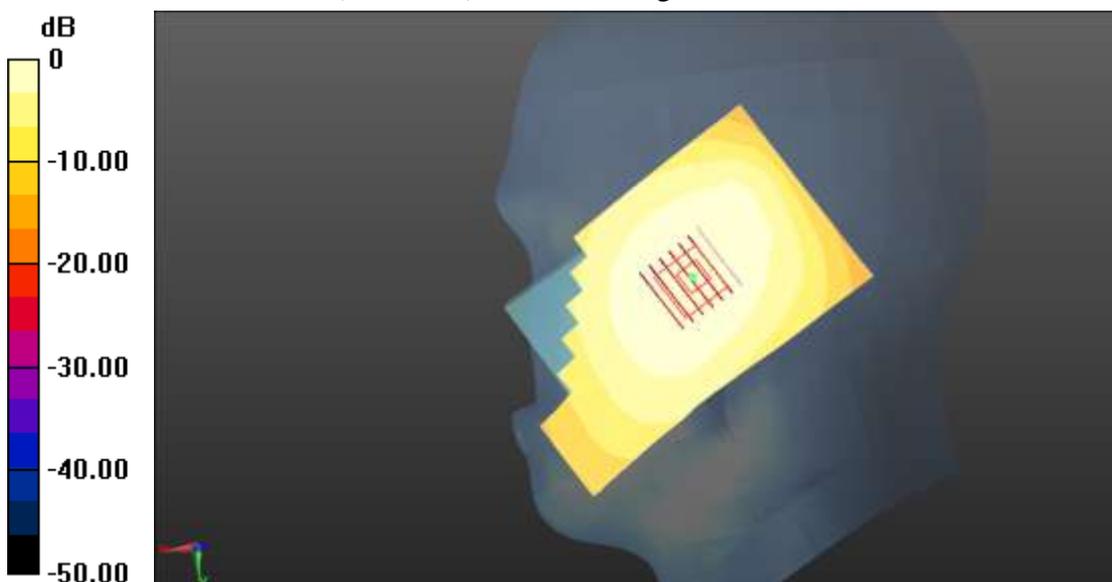
**right/tilt mid/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 15.033 V/m; Power Drift = -0.03 dB

Peak SAR (extrapolated) = 0.517 mW/g

**SAR(1 g) = 0.405 mW/g; SAR(10 g) = 0.307 mW/g**

Maximum value of SAR (measured) = 0.425 mW/g



0 dB = 0.422 mW/g = -7.50 dB mW/g

**WCDMA BAND V right touch low**

Date/Time: 02/08/2012 15:27:06

Communication System: WCDMA; Communication System Band: BAND 5;

Frequency: 826.4 MHz; Communication System PAR: 0 dB

Medium parameters used (interpolated):  $f = 826.4$  MHz;  $\sigma = 0.903$  mho/m;  $\epsilon_r = 43.191$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Right Section

Measurement Standard: DASYS5 (IEEE 1528/OET 65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(6.18, 6.18, 6.18); Calibrated: 27/09/2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/04/2012
- Phantom: SAM 1; Type: SAM; Serial: TP:1702
- Measurement SW: DASYS52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

**right/touch low/Area Scan (91x151x1):** Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.503 mW/g

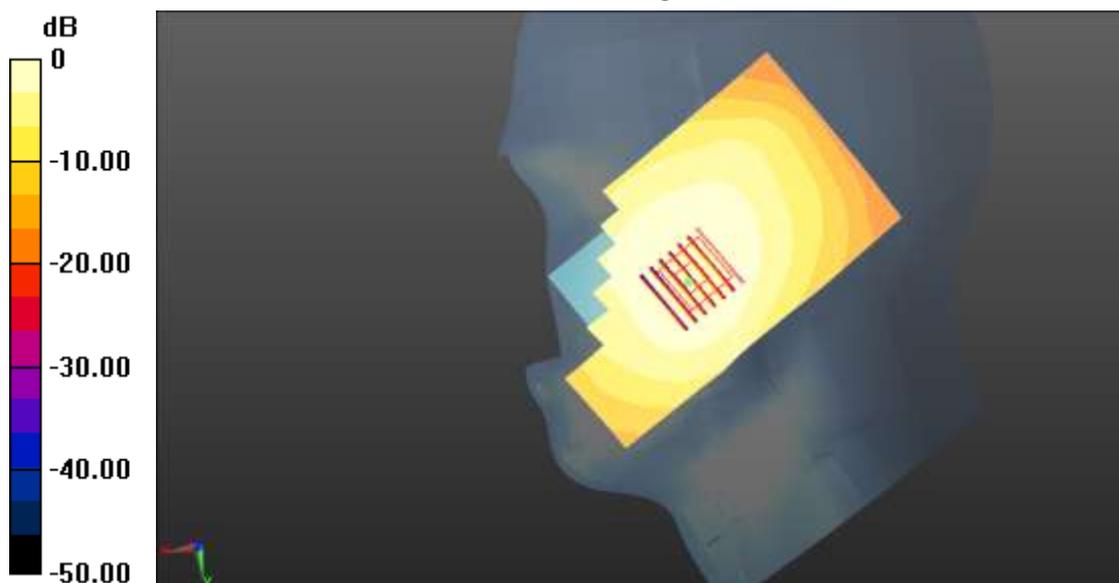
**right/touch low/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 8.643 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 0.585 mW/g

**SAR(1 g) = 0.475 mW/g; SAR(10 g) = 0.359 mW/g**

Maximum value of SAR (measured) = 0.499 mW/g



0 dB = 0.503 mW/g = -5.97 dB mW/g

**WCDMA BAND V right touch high**

Date/Time: 02/08/2012 15:59:10

Communication System: WCDMA; Communication System Band: BAND 5;

Frequency: 846.6 MHz; Communication System PAR: 0 dB

Medium parameters used:  $f = 847$  MHz;  $\sigma = 0.923$  mho/m;  $\epsilon_r = 42.875$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Right Section

Measurement Standard: DASYS5 (IEEE 1528/OET 65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(6.18, 6.18, 6.18); Calibrated: 27/09/2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/04/2012
- Phantom: SAM 1; Type: SAM; Serial: TP:1702
- Measurement SW: DASYS52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

**right/touch high/Area Scan (91x151x1):** Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.471 mW/g

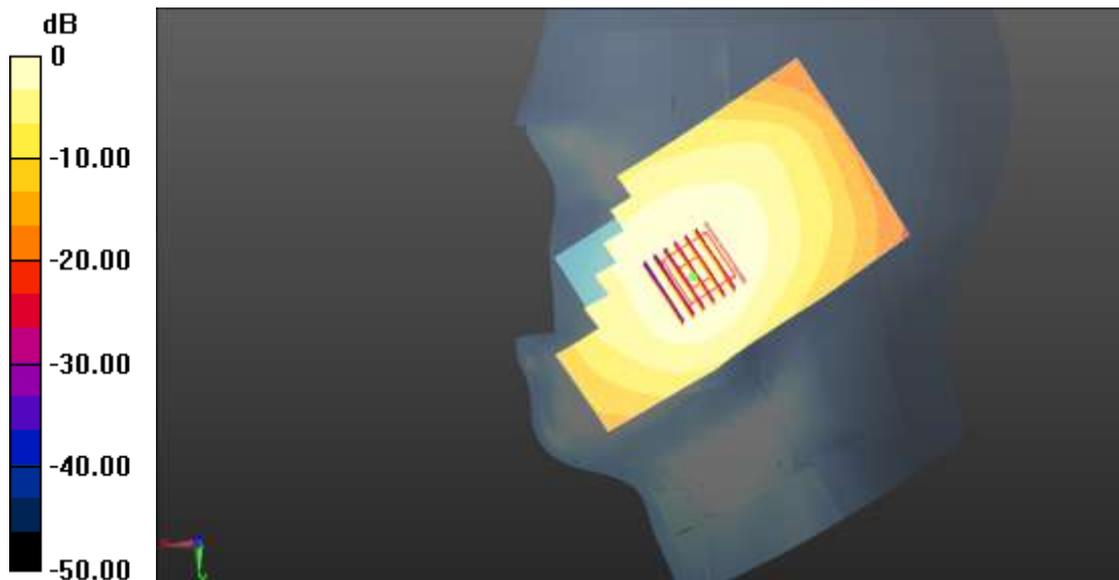
**right/touch high/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 8.103 V/m; Power Drift = 0.15 dB

Peak SAR (extrapolated) = 0.557 mW/g

**SAR(1 g) = 0.447 mW/g; SAR(10 g) = 0.336 mW/g**

Maximum value of SAR (measured) = 0.471 mW/g



0 dB = 0.471 mW/g = -6.54 dB mW/g

**WCDMA BAND V towards phantom mid**

Date/Time: 06/08/2012 13:20:50

Communication System: WCDMA; Communication System Band: BAND 5;

Frequency: 836.6 MHz; Communication System PAR: 0 dB

Medium parameters used:  $f = 837$  MHz;  $\sigma = 0.951$  mho/m;  $\epsilon_r = 54.241$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASYS5 (IEEE 1528/OET 65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(6.19, 6.19, 6.19); Calibrated: 27/09/2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/04/2012
- Phantom: ELI v4.0; Type: ELI4; Serial: TP:1086
- Measurement SW: DASYS52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

**body/Towards phantom mid/Area Scan (91x151x1):** Measurement grid:

$dx=10$ mm,  $dy=10$ mm

Maximum value of SAR (interpolated) = 0.494 mW/g

**body/Towards phantom mid/Zoom Scan (7x7x7)/Cube 0:** Measurement

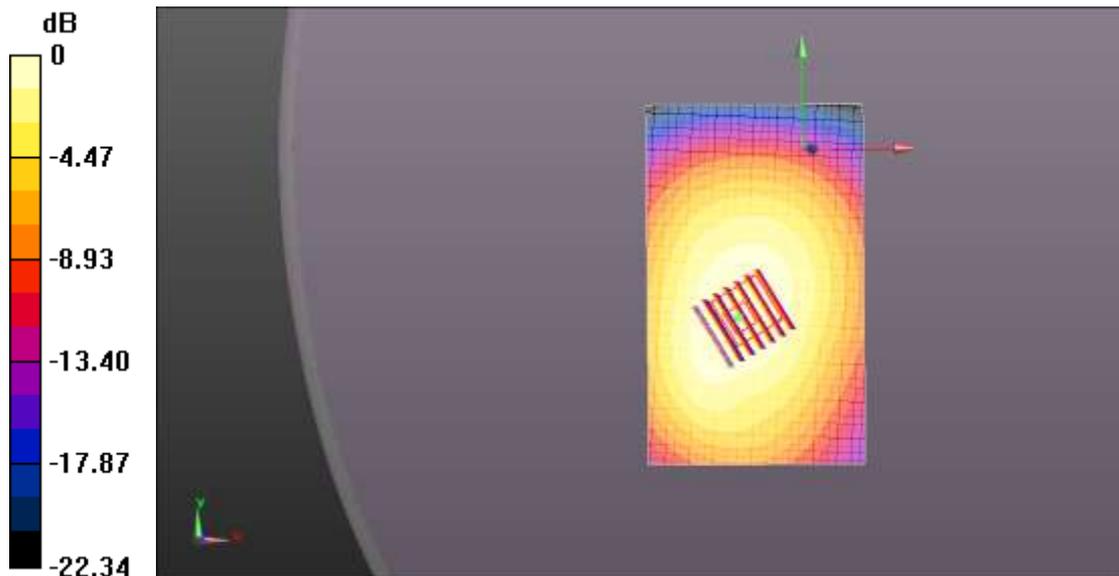
grid:  $dx=5$ mm,  $dy=5$ mm,  $dz=5$ mm

Reference Value = 7.580 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 0.624 mW/g

**SAR(1 g) = 0.471 mW/g; SAR(10 g) = 0.347 mW/g**

Maximum value of SAR (measured) = 0.496 mW/g



0 dB = 0.494 mW/g = -6.12 dB mW/g

**WCDMA BAND V towards ground mid**

Date/Time: 06/08/2012 13:58:59

Communication System: WCDMA; Communication System Band: BAND 5;

Frequency: 836.6 MHz; Communication System PAR: 0 dB

Medium parameters used:  $f = 837$  MHz;  $\sigma = 0.951$  mho/m;  $\epsilon_r = 54.241$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASYS5 (IEEE 1528/OET 65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(6.19, 6.19, 6.19); Calibrated: 27/09/2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/04/2012
- Phantom: ELI v4.0; Type: ELI4; Serial: TP:1086
- Measurement SW: DASYS52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

**body/Towards ground mid/Area Scan (91x151x1):** Measurement grid:

dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.926 mW/g

**body/Towards ground mid/Zoom Scan (7x7x7)/Cube 0:** Measurement grid:

dx=5mm, dy=5mm, dz=5mm

Reference Value = 11.414 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 1.173 mW/g

**SAR(1 g) = 0.875 mW/g; SAR(10 g) = 0.633 mW/g**

Maximum value of SAR (measured) = 0.925 mW/g

**body/Towards ground mid/Zoom Scan (7x7x7)/Cube 1:** Measurement grid:

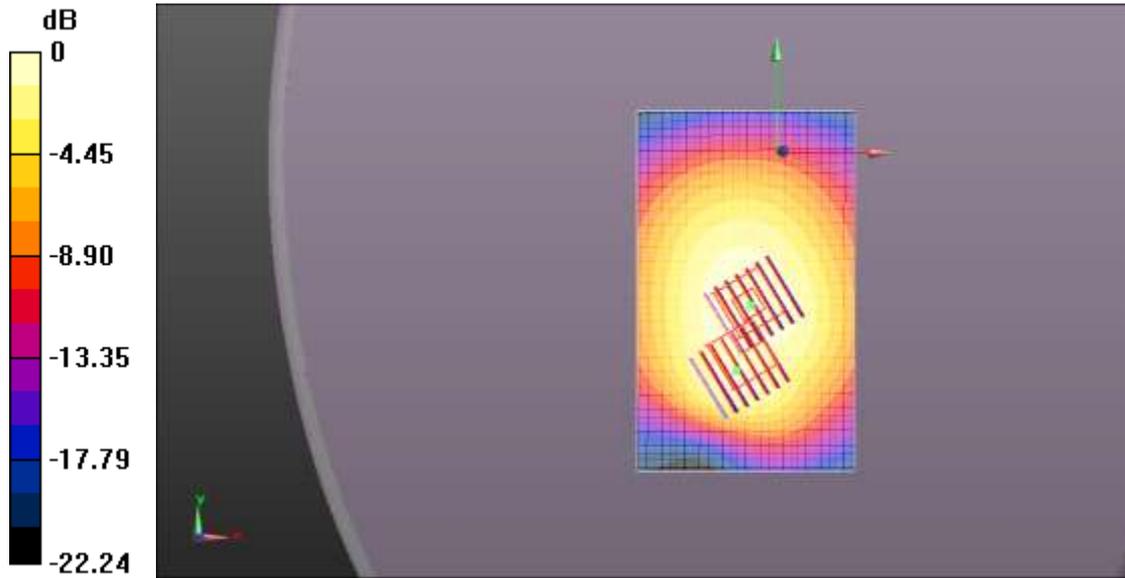
dx=5mm, dy=5mm, dz=5mm

Reference Value = 11.414 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 1.152 mW/g

**SAR(1 g) = 0.781 mW/g; SAR(10 g) = 0.534 mW/g**

Maximum value of SAR (measured) = 0.901 mW/g



0 dB = 0.926 mW/g = -0.67 dB mW/g

**WCDMA BAND V front mid**

Date/Time: 07/08/2012 10:03:25

Communication System: WCDMA; Communication System Band: BAND 5;

Frequency: 836.6 MHz; Communication System PAR: 0 dB

Medium parameters used:  $f = 837$  MHz;  $\sigma = 0.951$  mho/m;  $\epsilon_r = 54.241$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASYS (IEEE 1528/OET 65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(6.19, 6.19, 6.19); Calibrated: 27/09/2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/04/2012
- Phantom: ELI v4.0; Type: ELI4; Serial: TP:1086
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

**body/ front mid/Area Scan (61x91x1):** Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.130 mW/g

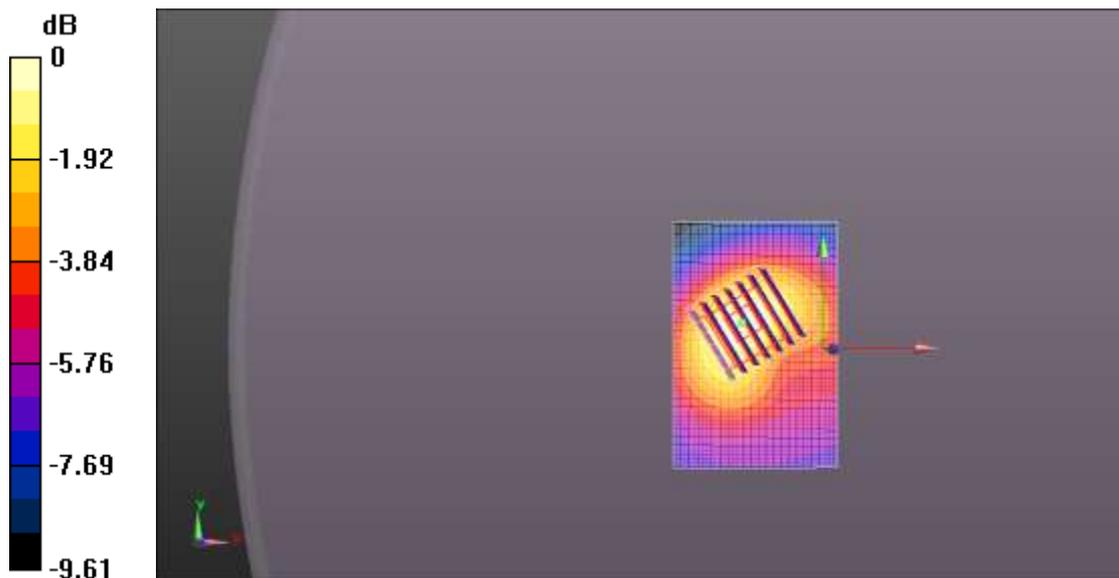
**body/ front mid/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 9.219 V/m; Power Drift = 0.10 dB

Peak SAR (extrapolated) = 0.199 mW/g

**SAR(1 g) = 0.119 mW/g; SAR(10 g) = 0.072 mW/g**

Maximum value of SAR (measured) = 0.131 mW/g



0 dB = 0.130 mW/g = -17.73 dB mW/g

**WCDMA BAND V left side mid**

Date/Time: 06/08/2012 16:48:04

Communication System: WCDMA; Communication System Band: BAND 5;

Frequency: 836.6 MHz; Communication System PAR: 0 dB

Medium parameters used:  $f = 837$  MHz;  $\sigma = 0.951$  mho/m;  $\epsilon_r = 54.241$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASYS5 (IEEE 1528/OET 65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(6.19, 6.19, 6.19); Calibrated: 27/09/2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/04/2012
- Phantom: ELI v4.0; Type: ELI4; Serial: TP:1086
- Measurement SW: DASYS52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

**body2/left side mid/Area Scan (61x151x1):** Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.453 mW/g

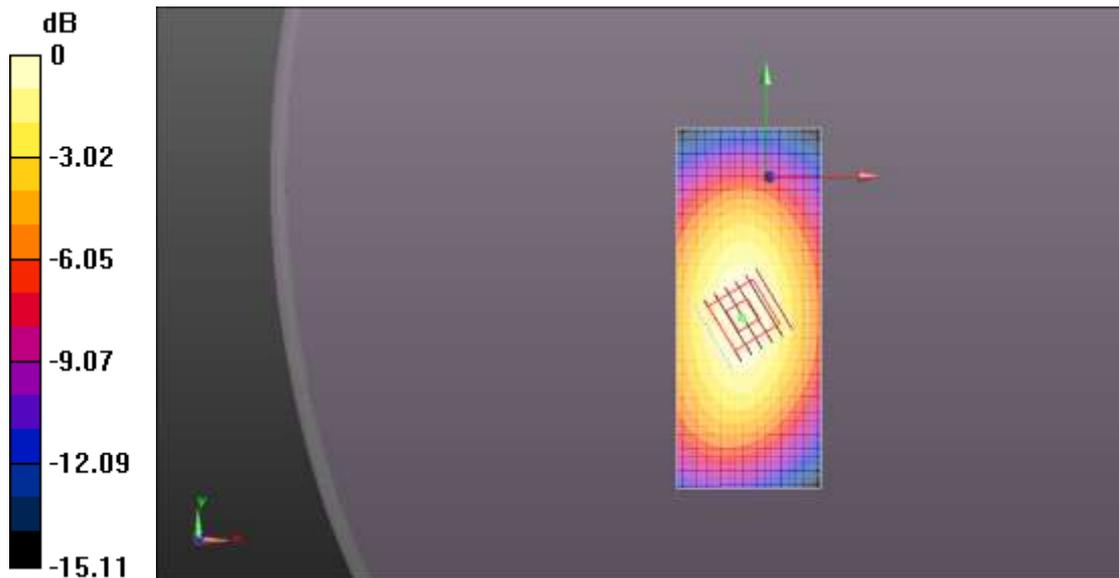
**body2/left side mid/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 9.427 V/m; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 0.616 mW/g

**SAR(1 g) = 0.425 mW/g; SAR(10 g) = 0.288 mW/g**

Maximum value of SAR (measured) = 0.456 mW/g



0 dB = 0.453 mW/g = -6.88 dB mW/g

**WCDMA BAND V right side mid**

Date/Time: 07/08/2012 09:30:30

Communication System: WCDMA; Communication System Band: BAND 5;

Frequency: 836.6 MHz; Communication System PAR: 0 dB

Medium parameters used:  $f = 837$  MHz;  $\sigma = 0.951$  mho/m;  $\epsilon_r = 54.241$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE 1528/OET 65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(6.19, 6.19, 6.19); Calibrated: 27/09/2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/04/2012
- Phantom: ELI v4.0; Type: ELI4; Serial: TP:1086
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

**body2/right side mid/Area Scan (61x151x1):** Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.517 mW/g

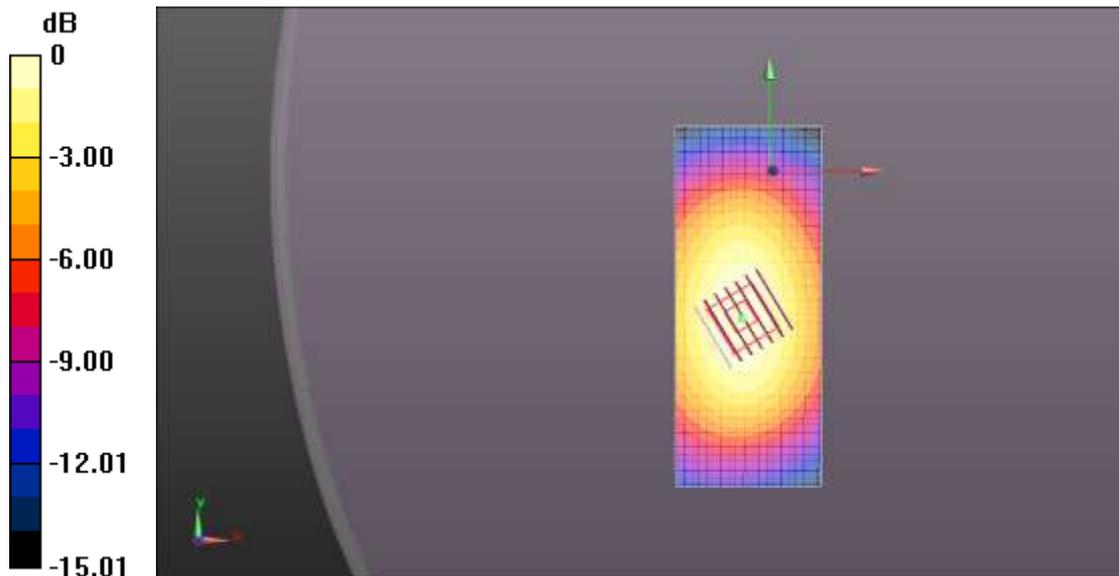
**body2/right side mid/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 9.831 V/m; Power Drift = -0.08 dB

Peak SAR (extrapolated) = 0.684 mW/g

**SAR(1 g) = 0.484 mW/g; SAR(10 g) = 0.336 mW/g**

Maximum value of SAR (measured) = 0.516 mW/g



0 dB = 0.517 mW/g = -5.73 dB mW/g

**WCDMA BAND V towards ground low**

Date/Time: 06/08/2012 14:48:01

Communication System: WCDMA; Communication System Band: BAND 5;

Frequency: 826.4 MHz; Communication System PAR: 0 dB

Medium parameters used (interpolated):  $f = 826.4$  MHz;  $\sigma = 0.936$  mho/m;  $\epsilon_r = 54.3$ ;  
 $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASYS5 (IEEE 1528/OET 65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(6.19, 6.19, 6.19); Calibrated: 27/09/2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/04/2012
- Phantom: ELI v4.0; Type: ELI4; Serial: TP:1086
- Measurement SW: DASYS52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

**body/Towards ground low/Area Scan (91x151x1):** Measurement grid:

dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.950 mW/g

**body/Towards ground low/Zoom Scan (7x7x7)/Cube 0:** Measurement grid:

dx=5mm, dy=5mm, dz=5mm

Reference Value = 10.682 V/m; Power Drift = -0.00 dB

Peak SAR (extrapolated) = 1.198 mW/g

**SAR(1 g) = 0.895 mW/g; SAR(10 g) = 0.648 mW/g**

Maximum value of SAR (measured) = 0.946 mW/g

**body/Towards ground low/Zoom Scan (7x7x7)/Cube 1:** Measurement grid:

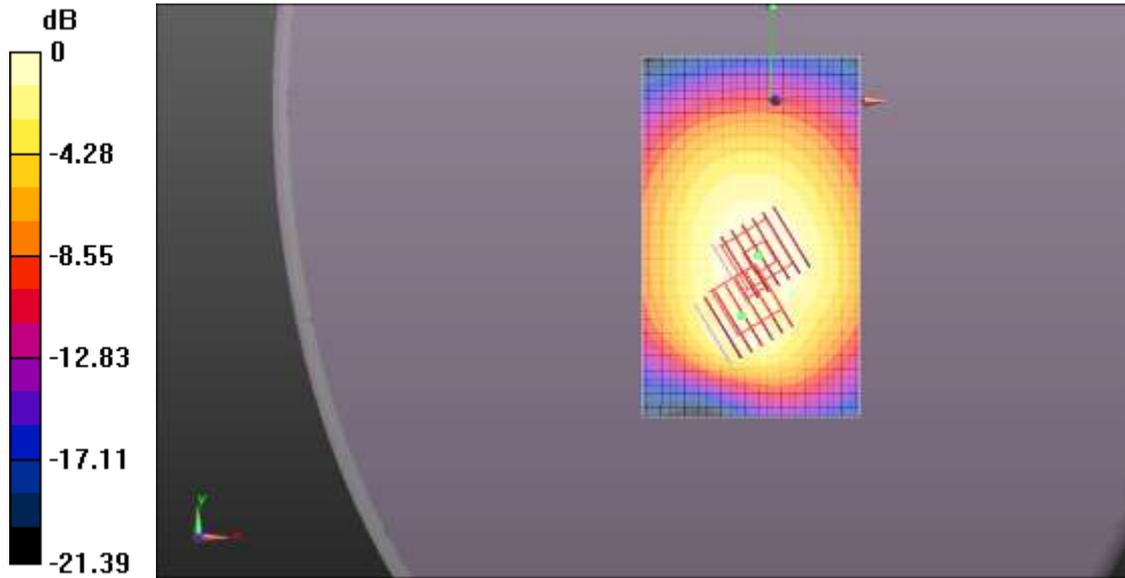
dx=5mm, dy=5mm, dz=5mm

Reference Value = 10.682 V/m; Power Drift = -0.00 dB

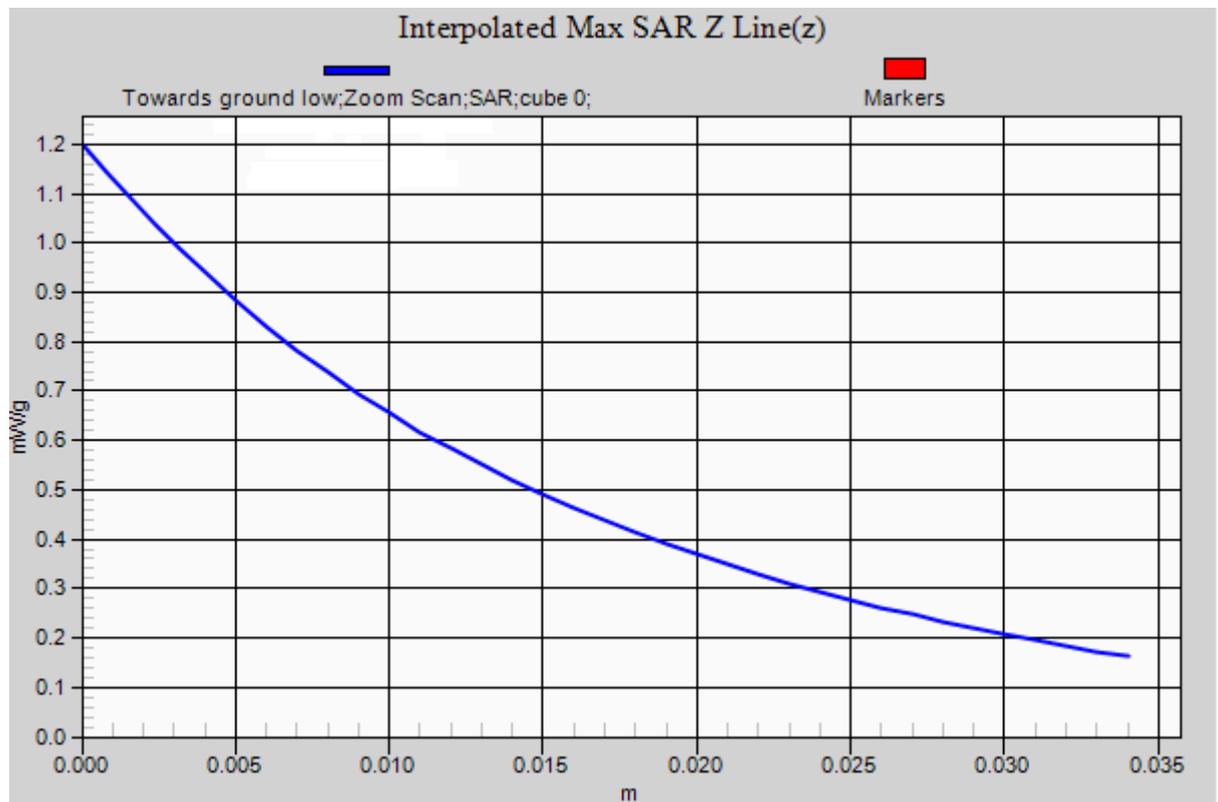
Peak SAR (extrapolated) = 1.189 mW/g

**SAR(1 g) = 0.828 mW/g; SAR(10 g) = 0.565 mW/g**

Maximum value of SAR (measured) = 0.936 mW/g



0 dB = 0.950 mW/g = -0.45 dB mW/g



**WCDMA BAND V towards ground high**

Date/Time: 06/08/2012 15:33:07

Communication System: WCDMA; Communication System Band: BAND 5;

Frequency: 846.6 MHz; Communication System PAR: 0 dB

Medium parameters used:  $f = 847$  MHz;  $\sigma = 0.965$  mho/m;  $\epsilon_r = 54.169$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASYS5 (IEEE 1528/OET 65C)

DASYS5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(6.19, 6.19, 6.19); Calibrated: 27/09/2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/04/2012
- Phantom: ELI v4.0; Type: ELI4; Serial: TP:1086
- Measurement SW: DASYS52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

**body/Towards ground high/Area Scan (91x151x1):** Measurement grid:

dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.789 mW/g

**body/Towards ground high/Zoom Scan (7x7x7)/Cube 0:** Measurement grid:

dx=5mm, dy=5mm, dz=5mm

Reference Value = 9.709 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 1.006 mW/g

**SAR(1 g) = 0.747 mW/g; SAR(10 g) = 0.538 mW/g**

Maximum value of SAR (measured) = 0.792 mW/g

**body/Towards ground high/Zoom Scan (7x7x7)/Cube 1:** Measurement grid:

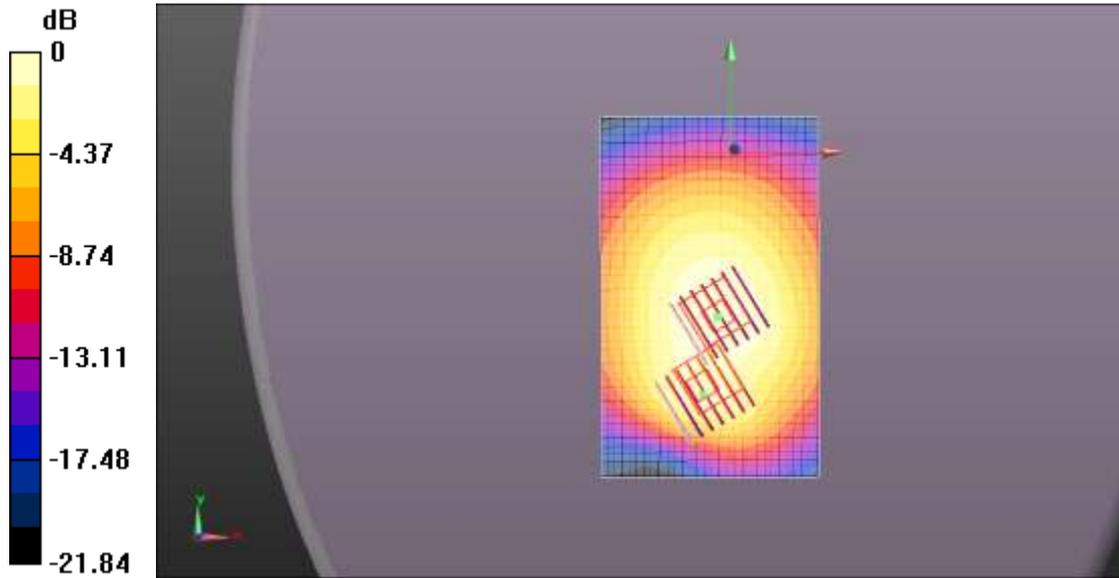
dx=5mm, dy=5mm, dz=5mm

Reference Value = 9.709 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 0.975 mW/g

**SAR(1 g) = 0.621 mW/g; SAR(10 g) = 0.424 mW/g**

Maximum value of SAR (measured) = 0.708 mW/g



0 dB = 0.789 mW/g = -2.05 dB mW/g

**WCDMA BAND V towards ground low with earphone**

Date/Time: 07/08/2012 10:32:15

Communication System: WCDMA; Communication System Band: BAND 5;

Frequency: 826.4 MHz; Communication System PAR: 0 dB

Medium parameters used (interpolated):  $f = 826.4$  MHz;  $\sigma = 0.936$  mho/m;  $\epsilon_r = 54.3$ ;  
 $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASYS5 (IEEE 1528/OET 65C)

DASYS5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(6.19, 6.19, 6.19); Calibrated: 27/09/2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/04/2012
- Phantom: ELI v4.0; Type: ELI4; Serial: TP:1086
- Measurement SW: DASYS52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

**body/Towards ground low with earphone/Area Scan (91x151x1):**

Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.798 mW/g

**body/Towards ground low with earphone/Zoom Scan (7x7x7)/Cube 0:**

Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 12.808 V/m; Power Drift = -0.13 dB

Peak SAR (extrapolated) = 1.208 mW/g

**SAR(1 g) = 0.715 mW/g; SAR(10 g) = 0.453 mW/g**

Maximum value of SAR (measured) = 0.783 mW/g

**body/Towards ground low with earphone/Zoom Scan (7x7x7)/Cube 1:**

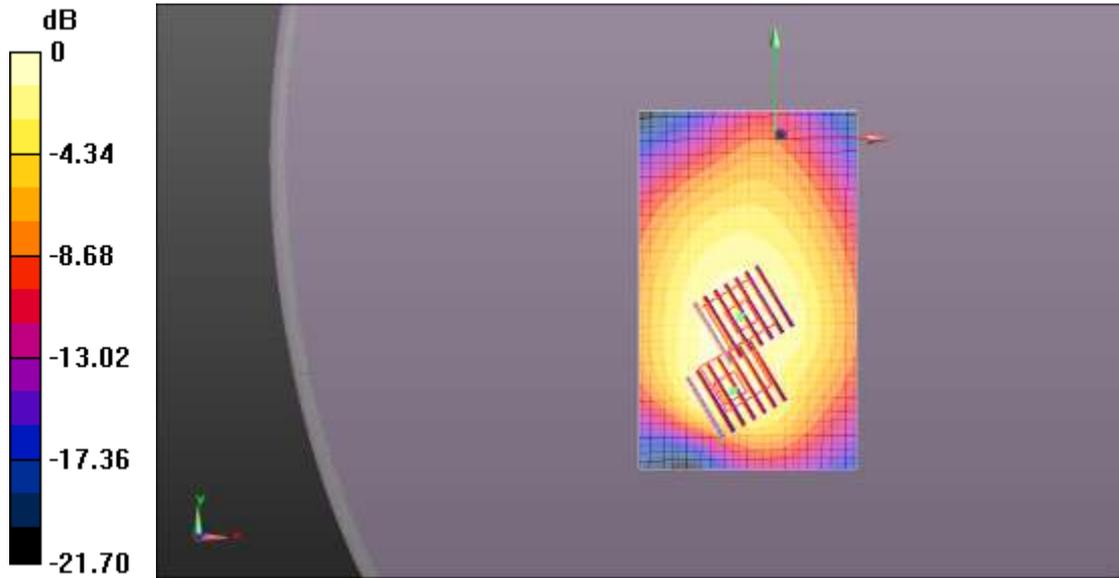
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 12.808 V/m; Power Drift = -0.13 dB

Peak SAR (extrapolated) = 0.918 mW/g

**SAR(1 g) = 0.684 mW/g; SAR(10 g) = 0.496 mW/g**

Maximum value of SAR (measured) = 0.723 mW/g



0 dB = 0.798 mW/g = -1.96 dB mW/g

**WCDMA BAND V towards ground low with HSDPA**

Date/Time: 07/08/2012 12:07:49

Communication System: WCDMA; Communication System Band: BAND 5;

Frequency: 826.4 MHz; Communication System PAR: 0 dB

Medium parameters used (interpolated):  $f = 826.4$  MHz;  $\sigma = 0.936$  mho/m;  $\epsilon_r = 54.3$ ;  
 $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASYS (IEEE 1528/OET 65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(6.19, 6.19, 6.19); Calibrated: 27/09/2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/04/2012
- Phantom: ELI v4.0; Type: ELI4; Serial: TP:1086
- Measurement SW: DASYS2, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

**body/Towards ground low with HSDPA/Area Scan (91x151x1):**

Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.423 mW/g

**body/Towards ground low with HSDPA/Zoom Scan (7x7x7)/Cube 0:**

Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 6.658 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 0.535 mW/g

**SAR(1 g) = 0.400 mW/g; SAR(10 g) = 0.290 mW/g**

Maximum value of SAR (measured) = 0.422 mW/g

**body/Towards ground low with HSDPA/Zoom Scan (7x7x7)/Cube 1:**

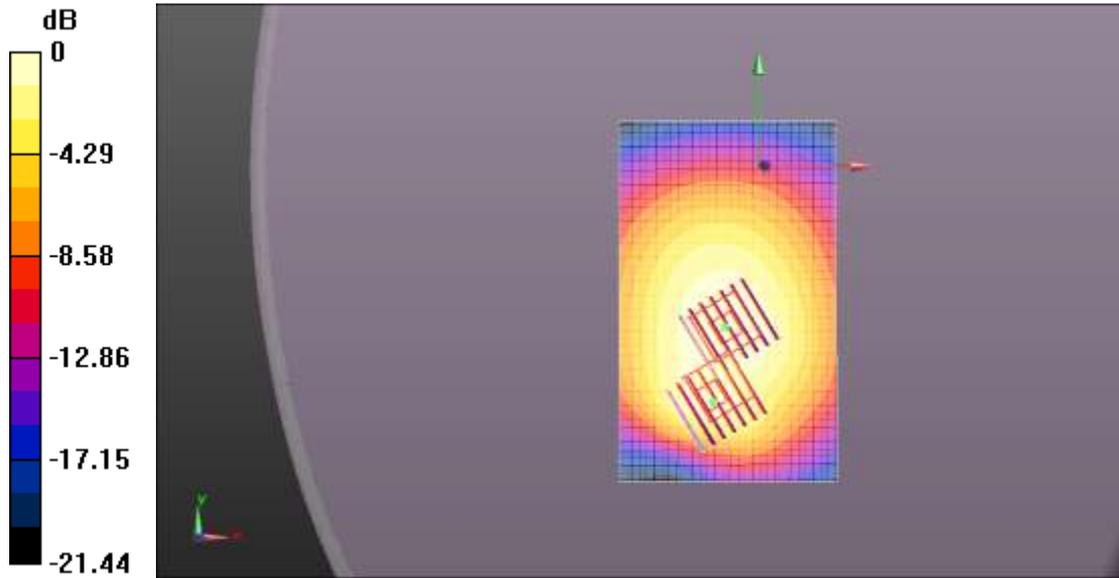
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 6.658 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 0.590 mW/g

**SAR(1 g) = 0.364 mW/g; SAR(10 g) = 0.244 mW/g**

Maximum value of SAR (measured) = 0.394 mW/g



0 dB = 0.423 mW/g = -7.48 dB mW/g

**WCDMA BAND V towards ground low with HSUPA**

Date/Time: 07/08/2012 11:22:15

Communication System: WCDMA; Communication System Band: BAND 5;

Frequency: 826.4 MHz; Communication System PAR: 0 dB

Medium parameters used (interpolated):  $f = 826.4$  MHz;  $\sigma = 0.936$  mho/m;  $\epsilon_r = 54.3$ ;  
 $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASYS5 (IEEE 1528/OET 65C)

DASYS5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(6.19, 6.19, 6.19); Calibrated: 27/09/2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/04/2012
- Phantom: ELI v4.0; Type: ELI4; Serial: TP:1086
- Measurement SW: DASYS52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

**body/Towards ground low with HSUPA/Area Scan (91x151x1):**

Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.420 mW/g

**body/Towards ground low with HSUPA/Zoom Scan (7x7x7)/Cube 0:**

Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 6.583 V/m; Power Drift = 0.06 dB

Peak SAR (extrapolated) = 0.535 mW/g

**SAR(1 g) = 0.397 mW/g; SAR(10 g) = 0.288 mW/g**

Maximum value of SAR (measured) = 0.420 mW/g

**body/Towards ground low with HSUPA/Zoom Scan (7x7x7)/Cube 1:**

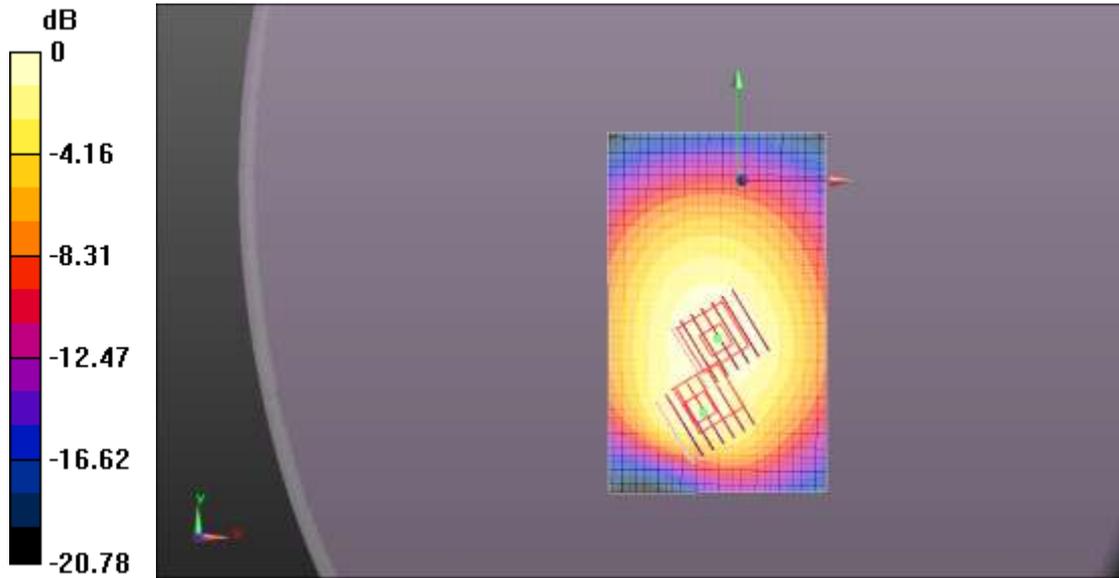
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 6.583 V/m; Power Drift = 0.06 dB

Peak SAR (extrapolated) = 0.583 mW/g

**SAR(1 g) = 0.361 mW/g; SAR(10 g) = 0.243 mW/g**

Maximum value of SAR (measured) = 0.390 mW/g



0 dB = 0.420 mW/g = -7.53 dB mW/g

**802.11b Data Rate: 1 Mbps left touch mid**

Date/Time: 27/7/2012 12:06:35

Communication System: 802.11b/g/n 2.45GHz; Communication System Band: 2400-2483.5; Frequency: 2437 MHz; Communication System PAR: 1.872 dB

Medium parameters used:  $f = 2437$  MHz;  $\sigma = 1.776$  mho/m;  $\epsilon_r = 37.832$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Left Section

Measurement Standard: DASYS5 (IEEE 1528/OET 65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3297; ConvF(4.59, 4.59, 4.59); Calibrated: 10/4/2012;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/4/2012
- Phantom: SAM2; Type: SAM; Serial: TP-1575
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

**left/touch mid/Area Scan (101x161x1):** Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.107 mW/g

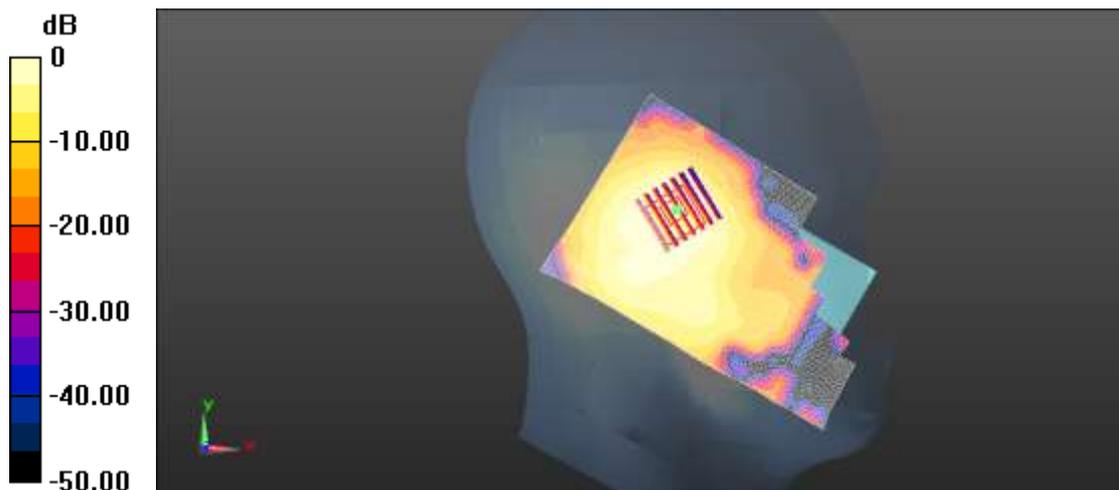
**left/touch mid/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 6.891 V/m; Power Drift = 0.23 dB

Peak SAR (extrapolated) = 0.171 mW/g

**SAR(1 g) = 0.093 mW/g; SAR(10 g) = 0.050 mW/g**

Maximum value of SAR (measured) = 0.104 mW/g



0 dB = 0.107 mW/g = -19.42 dB mW/g

**802.11b Data Rate: 1 Mbps left tilt mid**

Date/Time: 27/7/2012 12:39:11

Communication System: 802.11b/g/n 2.45GHz; Communication System Band:

2400-2483.5; Frequency: 2437 MHz; Communication System PAR: 1.872 dB

Medium parameters used:  $f = 2437$  MHz;  $\sigma = 1.776$  mho/m;  $\epsilon_r = 37.832$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Left Section

Measurement Standard: DASYS5 (IEEE 1528/OET 65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3297; ConvF(4.59, 4.59, 4.59); Calibrated: 10/4/2012;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/4/2012
- Phantom: SAM2; Type: SAM; Serial: TP-1575
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

**left/tilt mid/Area Scan (101x161x1):** Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.0753 mW/g

**left/tilt mid/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm,

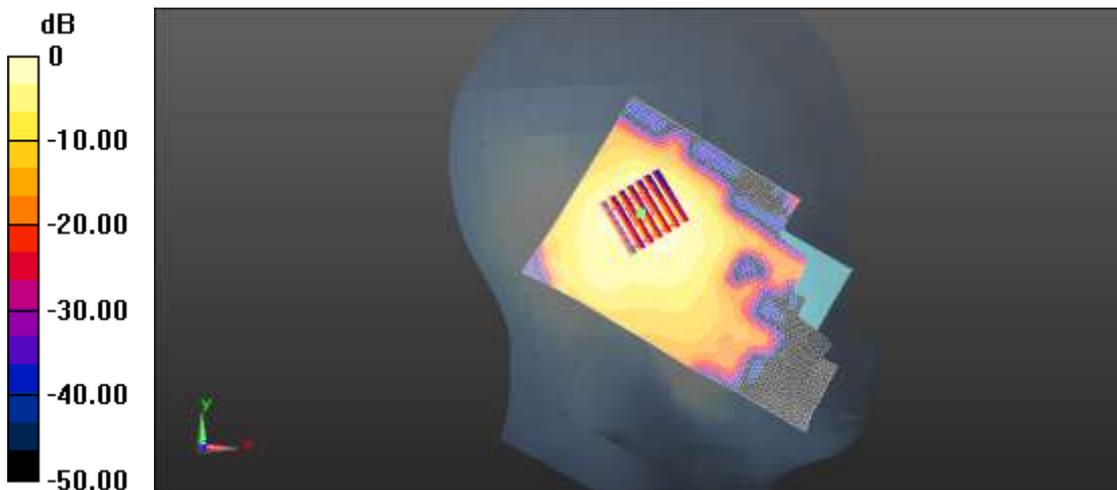
dy=5mm, dz=5mm

Reference Value = 6.561 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 0.128 mW/g

**SAR(1 g) = 0.066 mW/g; SAR(10 g) = 0.034 mW/g**

Maximum value of SAR (measured) = 0.0727 mW/g



0 dB = 0.0753 mW/g = -22.46 dB mW/g

**802.11b Data Rate: 1 Mbps right touch mid**

Date/Time: 27/7/2012 13:12:15

Communication System: 802.11b/g/n 2.45GHz; Communication System Band:

2400-2483.5; Frequency: 2437 MHz; Communication System PAR: 1.872 dB

Medium parameters used:  $f = 2437$  MHz;  $\sigma = 1.776$  mho/m;  $\epsilon_r = 37.832$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Right Section

Measurement Standard: DASYS5 (IEEE 1528/OET 65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3297; ConvF(4.59, 4.59, 4.59); Calibrated: 10/4/2012;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/4/2012
- Phantom: SAM2; Type: SAM; Serial: TP-1575
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

**right/touch mid/Area Scan (101x161x1):** Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.177 mW/g

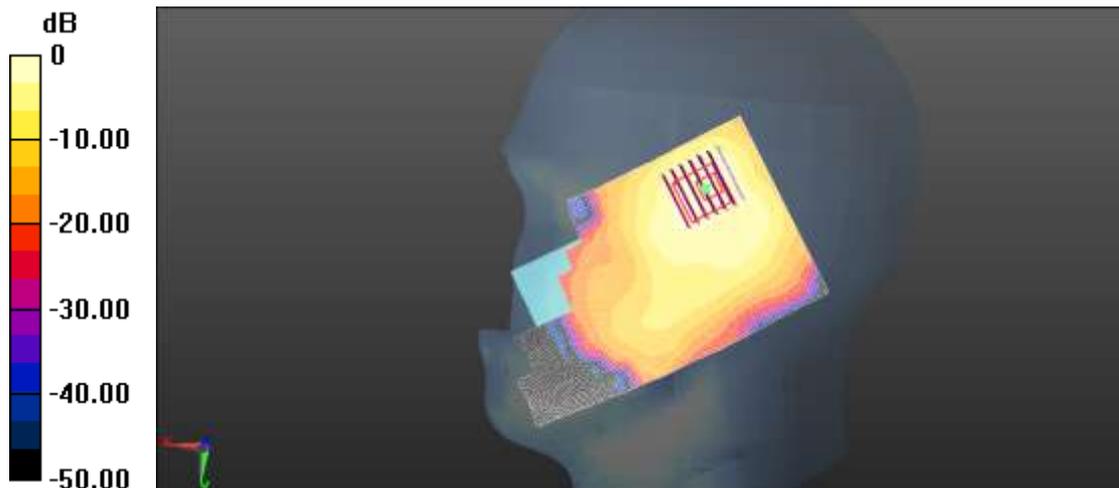
**right/touch mid/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 5.621 V/m; Power Drift = 0.46 dB

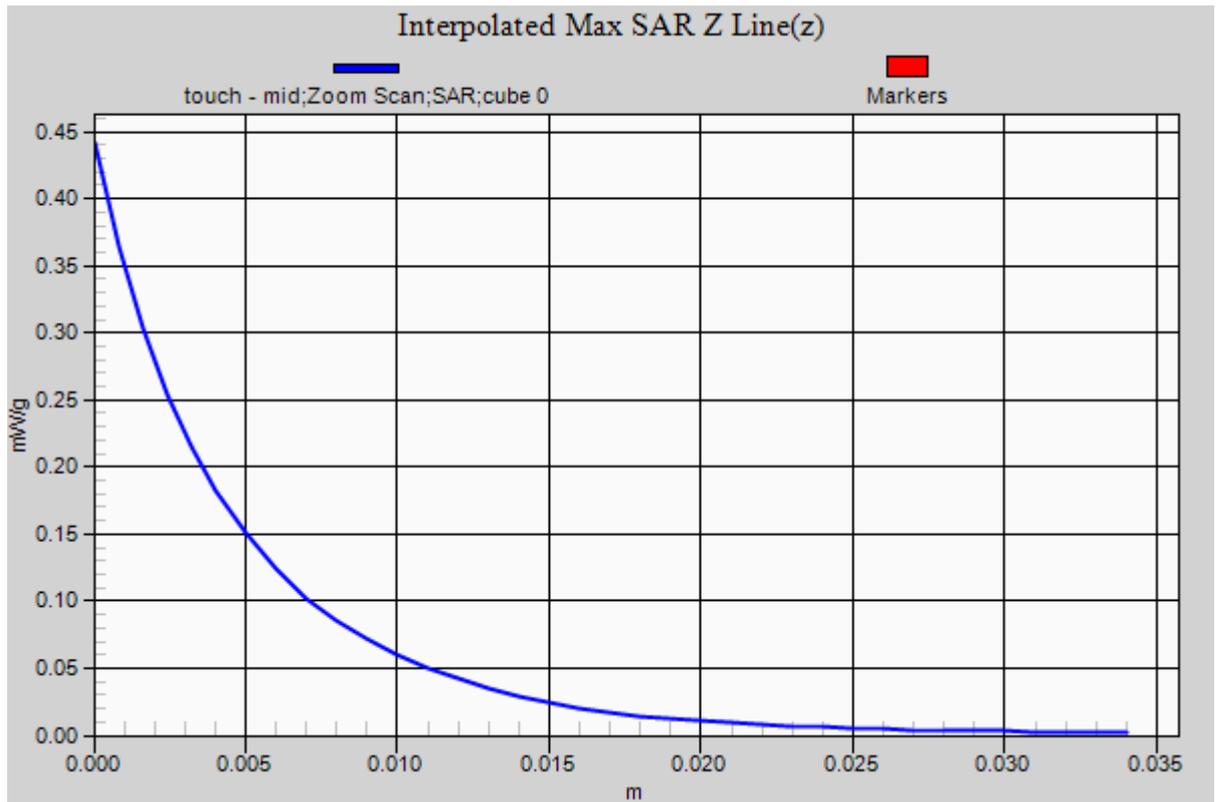
Peak SAR (extrapolated) = 0.441 mW/g

**SAR(1 g) = 0.164 mW/g; SAR(10 g) = 0.071 mW/g**

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



0 dB = 0.177 mW/g = -15.05 dB mW/g



**802.11b Data Rate: 1 Mbps right tilt mid**

Date/Time: 27/7/2012 13:46:52

Communication System: 802.11b/g/n 2.45GHz; Communication System Band: 2400-2483.5; Frequency: 2437 MHz; Communication System PAR: 1.872 dB

Medium parameters used:  $f = 2437$  MHz;  $\sigma = 1.776$  mho/m;  $\epsilon_r = 37.832$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Right Section

Measurement Standard: DASYS (IEEE 1528/OET 65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3297; ConvF(4.59, 4.59, 4.59); Calibrated: 10/4/2012;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/4/2012
- Phantom: SAM2; Type: SAM; Serial: TP-1575
- Measurement SW: DASYS2, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

**right/tilt mid/Area Scan (101x161x1):** Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.0797 mW/g

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

Reference Value = 5.248 V/m; Power Drift = 0.10 dB

Peak SAR (extrapolated) = 0.150 mW/g

**SAR(1 g) = 0.058 mW/g; SAR(10 g) = 0.025 mW/g**

Maximum value of SAR (measured) = 0.0655 mW/g

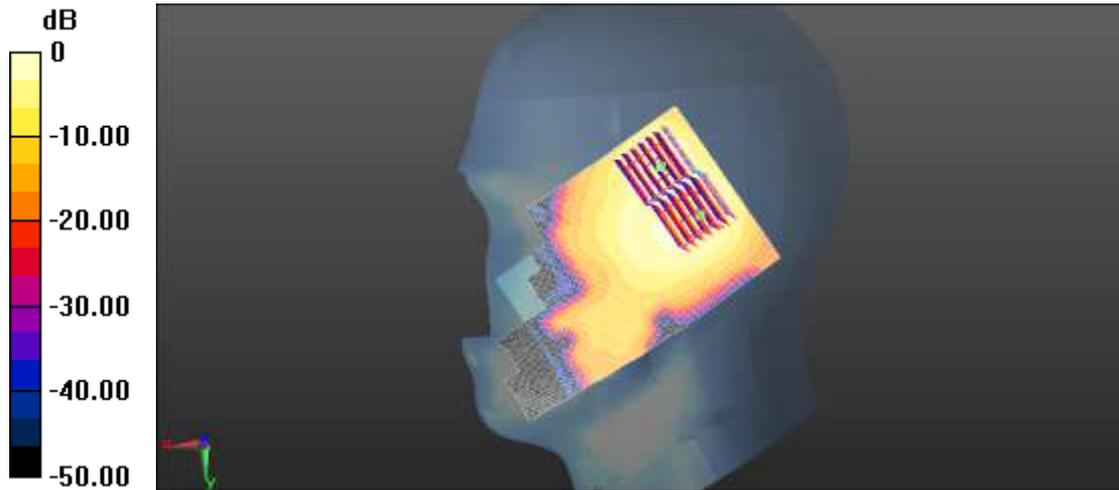
**right/tilt mid/Zoom Scan (7x7x7)/Cube 1:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 5.248 V/m; Power Drift = 0.10 dB

Peak SAR (extrapolated) = 0.101 mW/g

**SAR(1 g) = 0.051 mW/g; SAR(10 g) = 0.027 mW/g**

Maximum value of SAR (measured) = 0.0552 mW/g



0 dB = 0.0797 mW/g = -21.97 dB mW/g

**802.11b Data Rate: 1 Mbps right touch low**

Date/Time: 27/7/2012 14:57:22

Communication System: 802.11b/g/n 2.45GHz; Communication System Band: 2400-2483.5; Frequency: 2412 MHz; Communication System PAR: 1.872 dB  
 Medium parameters used:  $f = 2412$  MHz;  $\sigma = 1.74$  mho/m;  $\epsilon_r = 37.907$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Right Section

Measurement Standard: DASYS5 (IEEE 1528/OET 65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3297; ConvF(4.59, 4.59, 4.59); Calibrated: 10/4/2012;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/4/2012
- Phantom: SAM2; Type: SAM; Serial: TP-1575
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

**right/touch low/Area Scan (101x161x1):** Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.127 mW/g

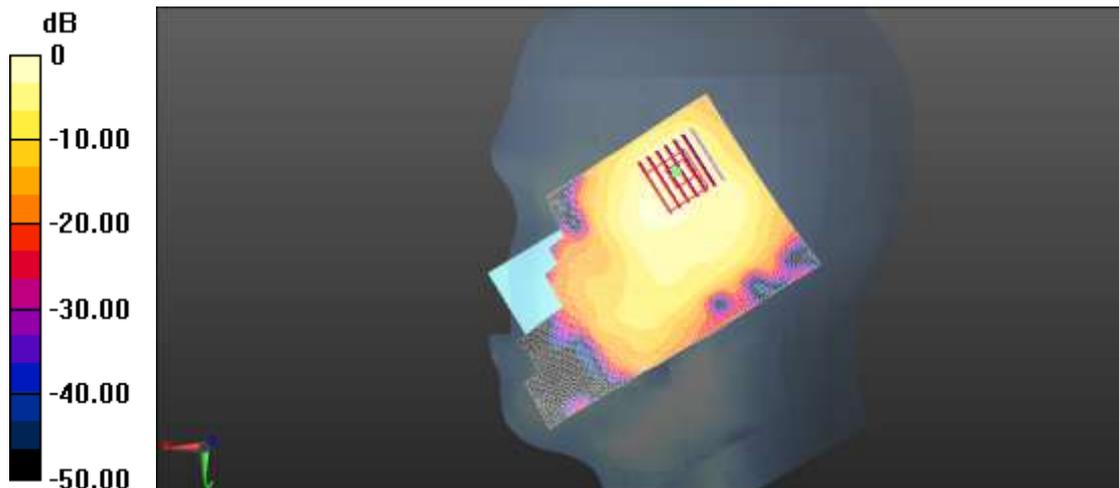
**right/touch low/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 5.203 V/m; Power Drift = 0.29 dB

Peak SAR (extrapolated) = 0.295 mW/g

**SAR(1 g) = 0.115 mW/g; SAR(10 g) = 0.052 mW/g**

Maximum value of SAR (measured) = 0.131 mW/g



0 dB = 0.127 mW/g = -17.90 dB mW/g

**802.11b Data Rate: 1 Mbps right touch high**

Date/Time: 27/7/2012 15:31:40

Communication System: 802.11b/g/n 2.45GHz; Communication System Band:

2400-2483.5; Frequency: 2462 MHz; Communication System PAR: 1.872 dB

Medium parameters used:  $f = 2462$  MHz;  $\sigma = 1.789$  mho/m;  $\epsilon_r = 37.883$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Right Section

Measurement Standard: DASY5 (IEEE 1528/OET 65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3297; ConvF(4.59, 4.59, 4.59); Calibrated: 10/4/2012;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/4/2012
- Phantom: SAM2; Type: SAM; Serial: TP-1575
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

**right/touch high/Area Scan (101x161x1):** Measurement grid: dx=10mm, dy=10mm

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

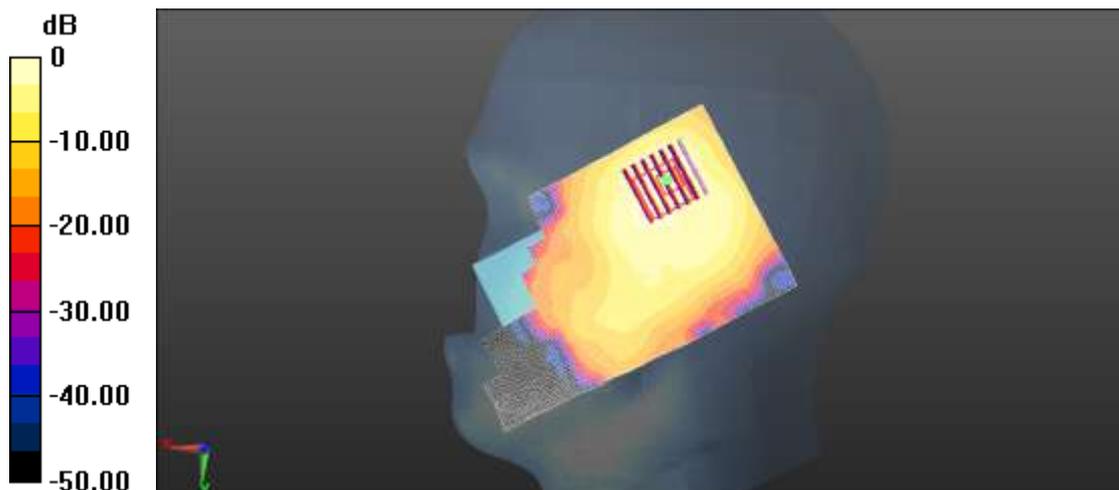
**right/touch high/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 6.083 V/m; Power Drift = 0.00 dB

Peak SAR (extrapolated) = 0.382 mW/g

**SAR(1 g) = 0.148 mW/g; SAR(10 g) = 0.066 mW/g**

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



0 dB = 0.163 mW/g = -15.76 dB mW/g

**802.11g Data Rate: 6 Mbps right touch mid**

Date/Time: 27/7/2012 16:12:33

Communication System: 802.11b/g/n 2.45GHz; Communication System Band: 2400-2483.5; Frequency: 2437 MHz; Communication System PAR: 1.872 dB

Medium parameters used:  $f = 2437$  MHz;  $\sigma = 1.776$  mho/m;  $\epsilon_r = 37.832$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Right Section

Measurement Standard: DASYS5 (IEEE 1528/OET 65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3297; ConvF(4.59, 4.59, 4.59); Calibrated: 10/4/2012;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/4/2012
- Phantom: SAM2; Type: SAM; Serial: TP-1575
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

**right/touch mid with g/Area Scan (101x161x1):** Measurement grid:

$dx=10$ mm,  $dy=10$ mm

Maximum value of SAR (interpolated) = 0.0934 mW/g

**right/touch mid with g/Zoom Scan (7x7x7)/Cube 0:** Measurement grid:

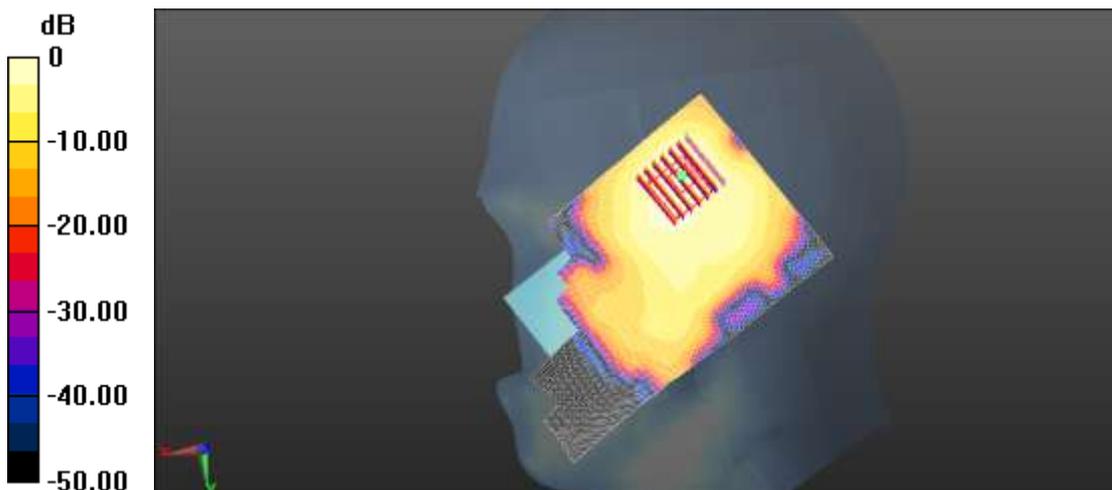
$dx=5$ mm,  $dy=5$ mm,  $dz=5$ mm

Reference Value = 4.503 V/m; Power Drift = 0.28 dB

Peak SAR (extrapolated) = 0.230 mW/g

**SAR(1 g) = 0.087 mW/g; SAR(10 g) = 0.039 mW/g**

Maximum value of SAR (measured) = 0.0992 mW/g



0 dB = 0.0934 mW/g = -20.59 dB mW/g

**802.11n (20MHz) Data Rate: 6.5 Mbps right touch mid**

Date/Time: 27/7/2012 16:46:33

Communication System: 802.11b/g/n 2.45GHz; Communication System Band:

2400-2483.5; Frequency: 2437 MHz; Communication System PAR: 1.872 dB

Medium parameters used:  $f = 2437$  MHz;  $\sigma = 1.776$  mho/m;  $\epsilon_r = 37.832$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Right Section

Measurement Standard: DASY5 (IEEE 1528/OET 65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3297; ConvF(4.59, 4.59, 4.59); Calibrated: 10/4/2012;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/4/2012
- Phantom: SAM2; Type: SAM; Serial: TP-1575
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

**right/touch mid with n/Area Scan (101x161x1):** Measurement grid:

$dx=10$ mm,  $dy=10$ mm

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

**right/touch mid with n/Zoom Scan (7x7x7)/Cube 0:** Measurement grid:

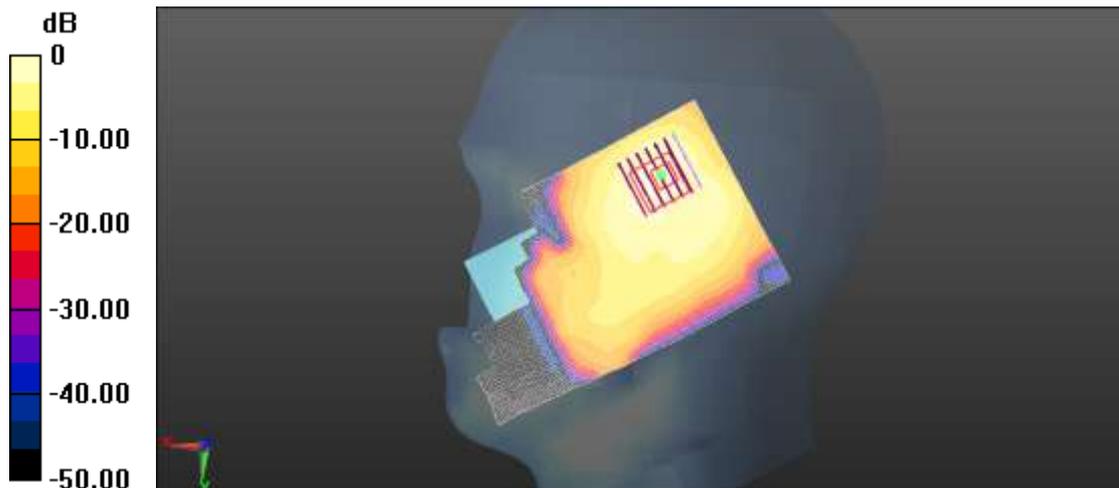
$dx=5$ mm,  $dy=5$ mm,  $dz=5$ mm

Reference Value = 4.770 V/m; Power Drift = 0.33 dB

Peak SAR (extrapolated) = 0.256 mW/g

**SAR(1 g) = 0.097 mW/g; SAR(10 g) = 0.043 mW/g**

Maximum value of SAR (measured) = 0.109 mW/g



0 dB = 0.105 mW/g = -19.54 dB mW/g

**802.11n (40MHz) Data Rate: 13.5 Mbps right touch mid**

Date/Time: 27/7/2012 17:22:11

Communication System: 802.11b/g/n 2.45GHz; Communication System Band:

2400-2483.5; Frequency: 2437 MHz; Communication System PAR: 1.872 dB

Medium parameters used:  $f = 2437$  MHz;  $\sigma = 1.776$  mho/m;  $\epsilon_r = 37.832$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Right Section

Measurement Standard: DASYS5 (IEEE 1528/OET 65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3297; ConvF(4.59, 4.59, 4.59); Calibrated: 10/4/2012;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/4/2012
- Phantom: SAM2; Type: SAM; Serial: TP-1575
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

**right/touch mid with n 40Mhz/Area Scan (101x161x1):** Measurement grid:

$dx=10$ mm,  $dy=10$ mm

Maximum value of SAR (interpolated) = 0.0567 mW/g

**right/touch mid with n 40Mhz/Zoom Scan (7x7x7)/Cube 0:** Measurement

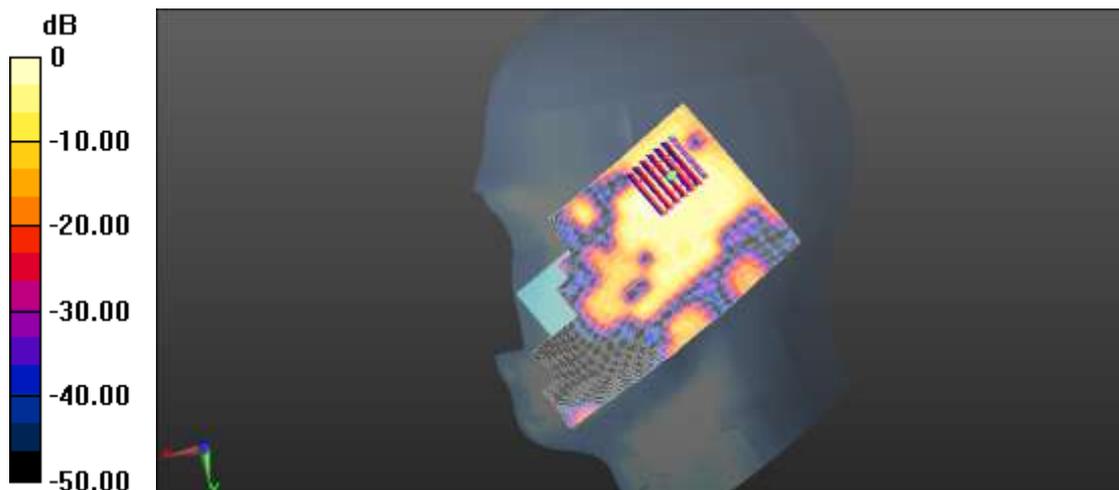
grid:  $dx=5$ mm,  $dy=5$ mm,  $dz=5$ mm

Reference Value = 3.442 V/m; Power Drift = 0.25 dB

Peak SAR (extrapolated) = 0.075 mW/g

**SAR(1 g) = 0.044 mW/g; SAR(10 g) = 0.018 mW/g**

Maximum value of SAR (measured) = 0.0541 mW/g



0 dB = 0.0567 mW/g = -24.93 dB mW/g

**802.11b Data Rate: 1 Mbps towards phantom mid**

Date/Time: 30/7/2012 10:28:41

Communication System: 802.11b/g/n 2.45GHz; Communication System Band:

2400-2483.5; Frequency: 2437 MHz; Communication System PAR: 1.872 dB

Medium parameters used:  $f = 2437$  MHz;  $\sigma = 1.936$  mho/m;  $\epsilon_r = 52.113$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASYS5 (IEEE 1528/OET 65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3297; ConvF(4.34, 4.34, 4.34); Calibrated: 10/4/2012;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/4/2012
- Phantom: SAM2; Type: SAM; Serial: TP-1575
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

**body/towards phantom mid/Area Scan (91x151x1):** Measurement grid:

$dx=10$ mm,  $dy=10$ mm

Maximum value of SAR (interpolated) = 0.0320 mW/g

**body/towards phantom mid/Zoom Scan (7x7x7)/Cube 0:** Measurement grid:

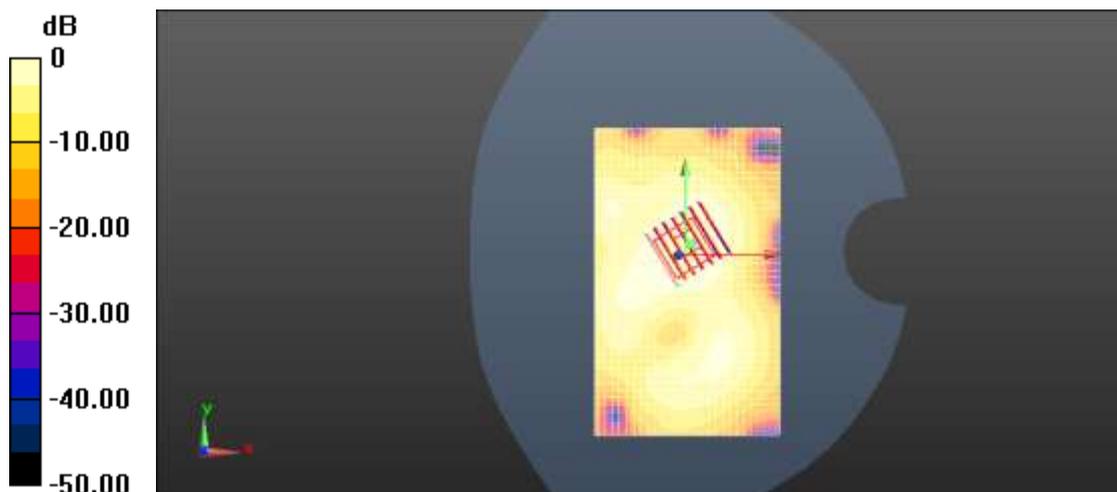
$dx=5$ mm,  $dy=5$ mm,  $dz=5$ mm

Reference Value = 4.216 V/m; Power Drift = 0.44 dB

Peak SAR (extrapolated) = 0.055 mW/g

**SAR(1 g) = 0.030 mW/g; SAR(10 g) = 0.017 mW/g**

Maximum value of SAR (measured) = 0.0325 mW/g



0 dB = 0.0320 mW/g = -29.90 dB mW/g

**802.11b Data Rate: 1 Mbps towards ground mid**

Date/Time: 30/7/2012 11:03:50

Communication System: 802.11b/g/n 2.45GHz; Communication System Band: 2400-2483.5; Frequency: 2437 MHz; Communication System PAR: 1.872 dB

Medium parameters used:  $f = 2437$  MHz;  $\sigma = 1.936$  mho/m;  $\epsilon_r = 52.113$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASYS5 (IEEE 1528/OET 65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3297; ConvF(4.34, 4.34, 4.34); Calibrated: 10/4/2012;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/4/2012
- Phantom: SAM2; Type: SAM; Serial: TP-1575
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

**body/towards ground mid/Area Scan (91x151x1):** Measurement grid:

dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.0424 mW/g

**body/towards ground mid/Zoom Scan (7x7x7)/Cube 0:** Measurement grid:

dx=5mm, dy=5mm, dz=5mm

Reference Value = 4.560 V/m; Power Drift = 0.37 dB

Peak SAR (extrapolated) = 0.073 mW/g

**SAR(1 g) = 0.039 mW/g; SAR(10 g) = 0.023 mW/g**

Maximum value of SAR (measured) = 0.0423 mW/g

**body/towards ground mid/Zoom Scan (7x7x7)/Cube 1:** Measurement grid:

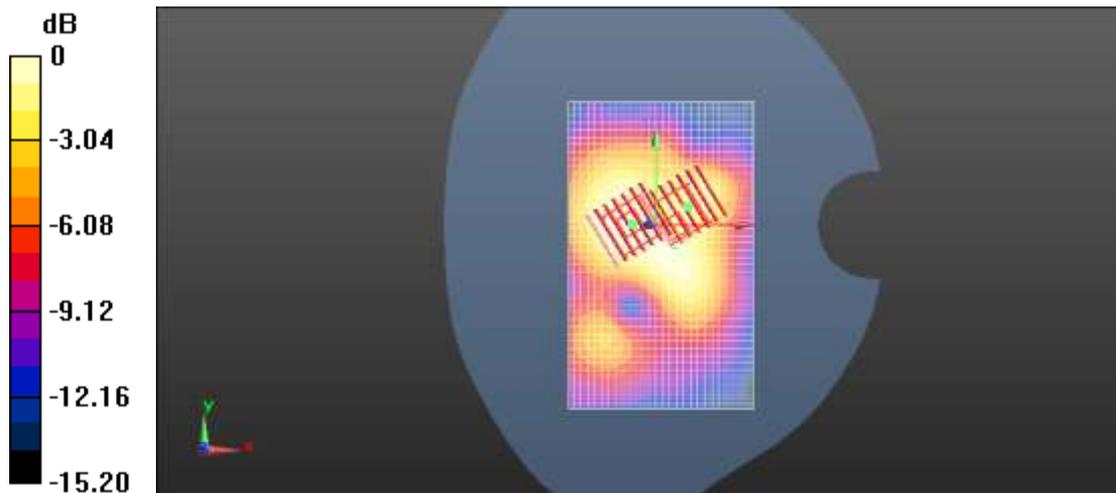
dx=5mm, dy=5mm, dz=5mm

Reference Value = 4.560 V/m; Power Drift = 0.37 dB

Peak SAR (extrapolated) = 0.063 mW/g

**SAR(1 g) = 0.032 mW/g; SAR(10 g) = 0.018 mW/g**

Maximum value of SAR (measured) = 0.0369 mW/g



0 dB = 0.0424 mW/g = -27.45 dB mW/g

**802.11b Data Rate: 1 Mbps back mid**

Date/Time: 30/7/2012 13:16:52

Communication System: 802.11b/g/n 2.45GHz; Communication System Band:

2400-2483.5; Frequency: 2437 MHz; Communication System PAR: 1.872 dB

Medium parameters used:  $f = 2437$  MHz;  $\sigma = 1.936$  mho/m;  $\epsilon_r = 52.113$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE 1528/OET 65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3297; ConvF(4.34, 4.34, 4.34); Calibrated: 10/4/2012;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/4/2012
- Phantom: SAM2; Type: SAM; Serial: TP-1575
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

**body/towards back mid/Area Scan (61x91x1):** Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.0197 mW/g

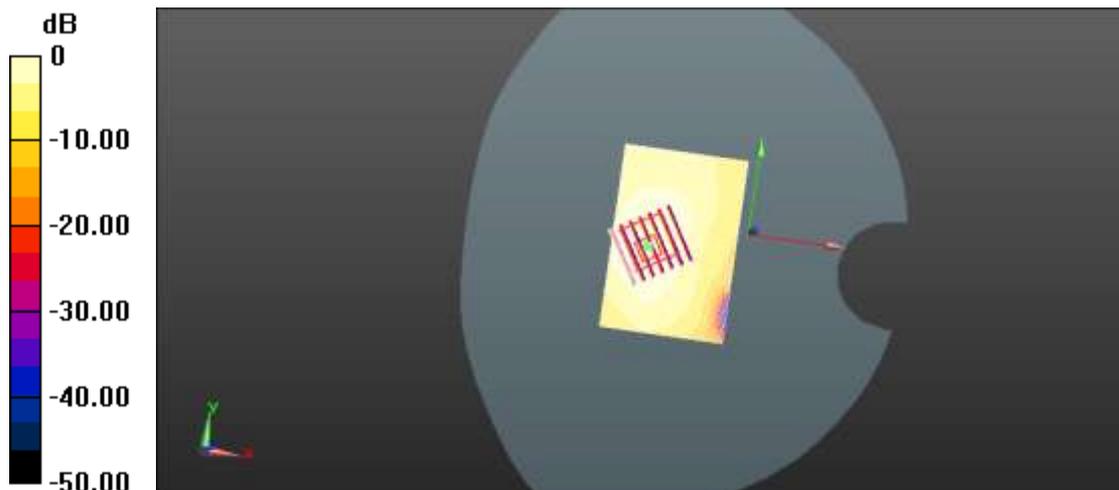
**body/towards back mid/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 2.402 V/m; Power Drift = 0.32 dB

Peak SAR (extrapolated) = 0.038 mW/g

**SAR(1 g) = 0.019 mW/g; SAR(10 g) = 0.010 mW/g**

Maximum value of SAR (measured) = 0.0212 mW/g



0 dB = 0.0197 mW/g = -34.13 dB mW/g

**802.11b Data Rate: 1 Mbps left side mid**

Date/Time: 30/7/2012 11:51:10

Communication System: 802.11b/g/n 2.45GHz; Communication System Band: 2400-2483.5; Frequency: 2437 MHz; Communication System PAR: 1.872 dB

Medium parameters used:  $f = 2437$  MHz;  $\sigma = 1.936$  mho/m;  $\epsilon_r = 52.113$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASYS5 (IEEE 1528/OET 65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3297; ConvF(4.34, 4.34, 4.34); Calibrated: 10/4/2012;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/4/2012
- Phantom: SAM2; Type: SAM; Serial: TP-1575
- Measurement SW: DASYS52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

**body2/left side mid/Area Scan (61x151x1):** Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.0464 mW/g

**body2/left side mid/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 3.690 V/m; Power Drift = 0.43 dB

Peak SAR (extrapolated) = 0.081 mW/g

**SAR(1 g) = 0.040 mW/g; SAR(10 g) = 0.019 mW/g**

Maximum value of SAR (measured) = 0.0454 mW/g

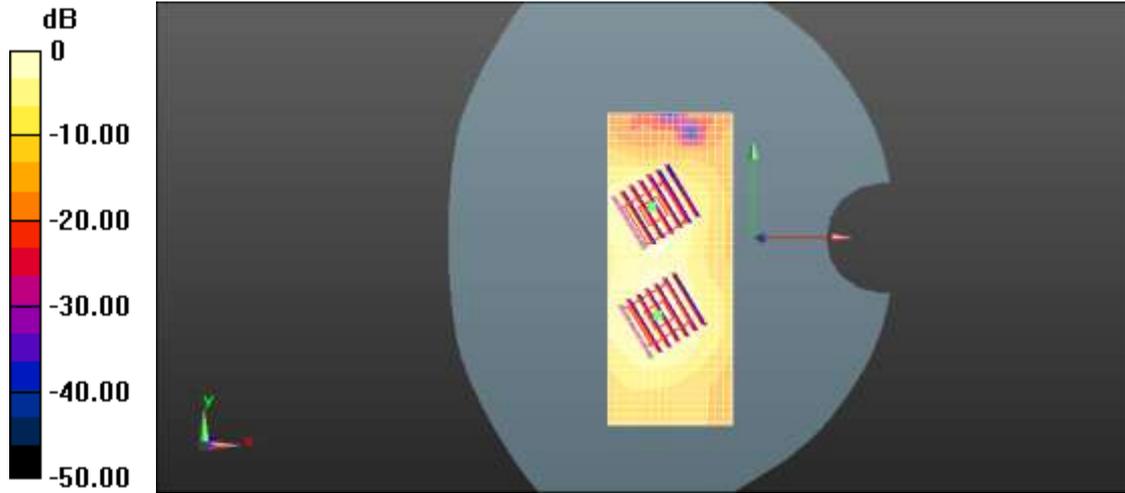
**body2/left side mid/Zoom Scan (7x7x7)/Cube 1:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 3.690 V/m; Power Drift = 0.43 dB

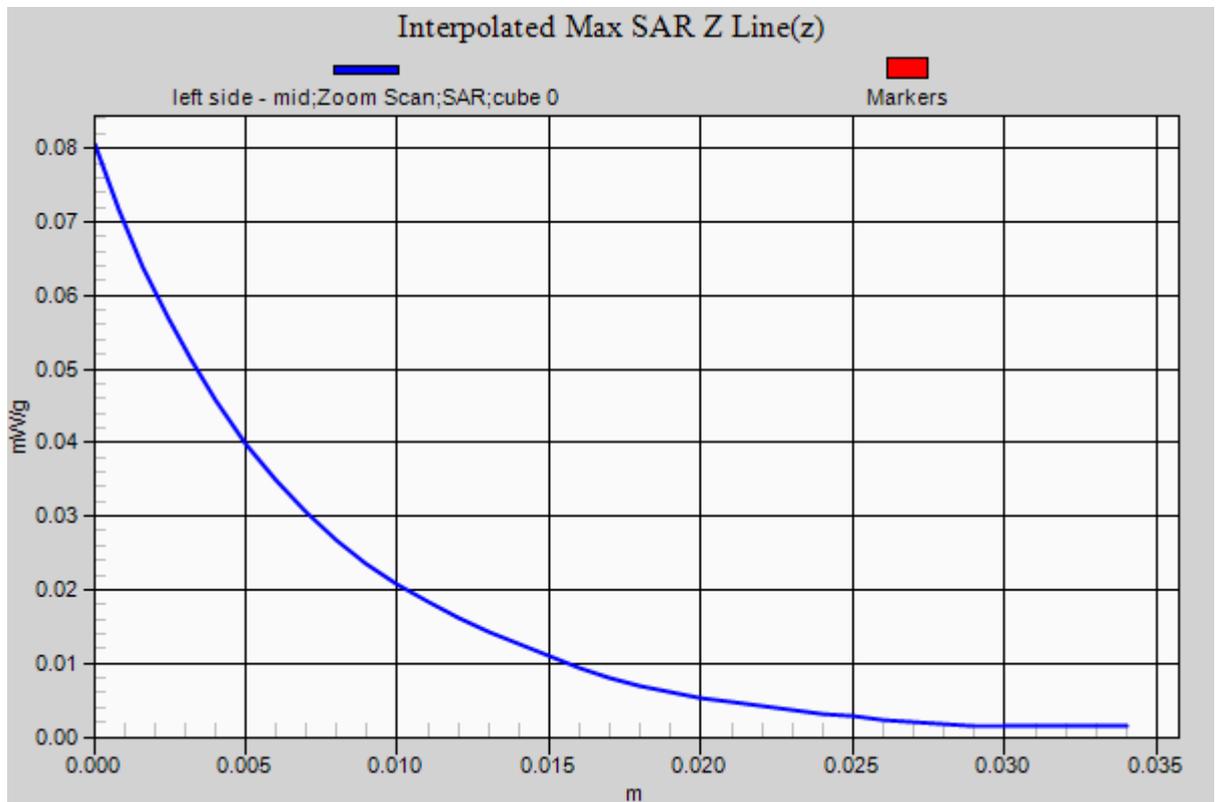
Peak SAR (extrapolated) = 0.061 mW/g

**SAR(1 g) = 0.033 mW/g; SAR(10 g) = 0.018 mW/g**

Maximum value of SAR (measured) = 0.0369 mW/g



0 dB = 0.0464 mW/g = -26.68 dB mW/g



**802.11b Data Rate: 1 Mbps right side mid**

Date/Time: 30/7/2012 12:33:59

Communication System: 802.11b/g/n 2.45GHz; Communication System Band: 2400-2483.5; Frequency: 2437 MHz; Communication System PAR: 1.872 dB

Medium parameters used:  $f = 2437$  MHz;  $\sigma = 1.936$  mho/m;  $\epsilon_r = 52.113$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASYS5 (IEEE 1528/OET 65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3297; ConvF(4.34, 4.34, 4.34); Calibrated: 10/4/2012;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/4/2012
- Phantom: SAM2; Type: SAM; Serial: TP-1575
- Measurement SW: DASYS52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

**body2/right side mid/Area Scan (61x151x1):** Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.0132 mW/g

**body2/right side mid/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 2.144 V/m; Power Drift = 0.52 dB

Peak SAR (extrapolated) = 0.026 mW/g

**SAR(1 g) = 0.013 mW/g; SAR(10 g) = 0.00748 mW/g**

Maximum value of SAR (measured) = 0.0143 mW/g

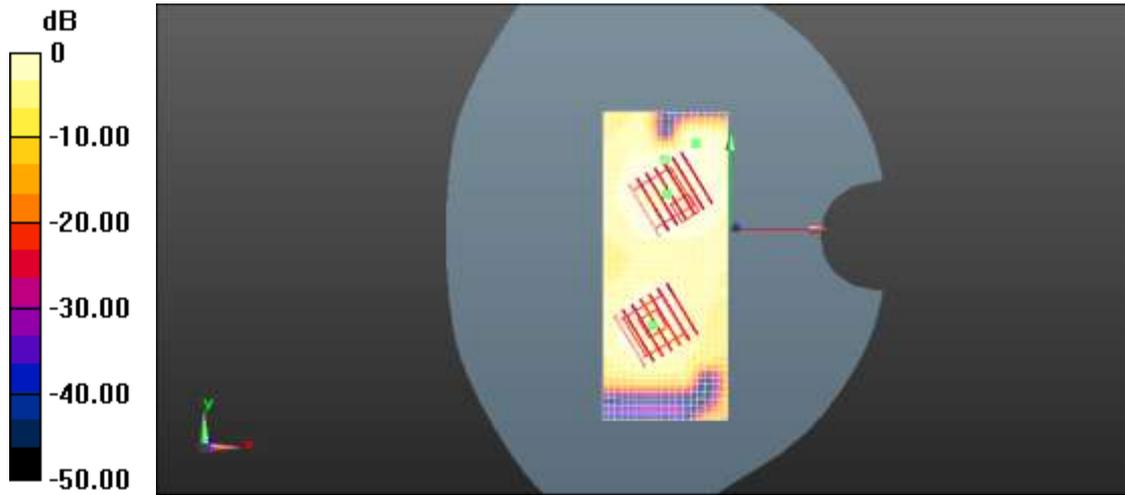
**body2/right side mid/Zoom Scan (7x7x7)/Cube 1:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 2.144 V/m; Power Drift = 0.52 dB

Peak SAR (extrapolated) = 0.063 mW/g

**SAR(1 g) = 0.013 mW/g; SAR(10 g) = 0.00716 mW/g**

Maximum value of SAR (measured) = 0.0139 mW/g



0 dB = 0.0132 mW/g = -37.59 dB mW/g

**802.11b Data Rate: 1 Mbps left side low**

Date/Time: 30/7/2012 13:57:09

Communication System: 802.11b/g/n 2.45GHz; Communication System Band: 2400-2483.5; Frequency: 2412 MHz; Communication System PAR: 1.872 dB

Medium parameters used:  $f = 2412$  MHz;  $\sigma = 1.952$  mho/m;  $\epsilon_r = 52.334$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASYS5 (IEEE 1528/OET 65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3297; ConvF(4.34, 4.34, 4.34); Calibrated: 10/4/2012;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/4/2012
- Phantom: SAM2; Type: SAM; Serial: TP-1575
- Measurement SW: DASYS52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

**body2/left side low/Area Scan (61x151x1):** Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.0284 mW/g

**body2/left side low/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 2.201 V/m; Power Drift = 0.68 dB

Peak SAR (extrapolated) = 0.045 mW/g

**SAR(1 g) = 0.024 mW/g; SAR(10 g) = 0.012 mW/g**

Maximum value of SAR (measured) = 0.0277 mW/g

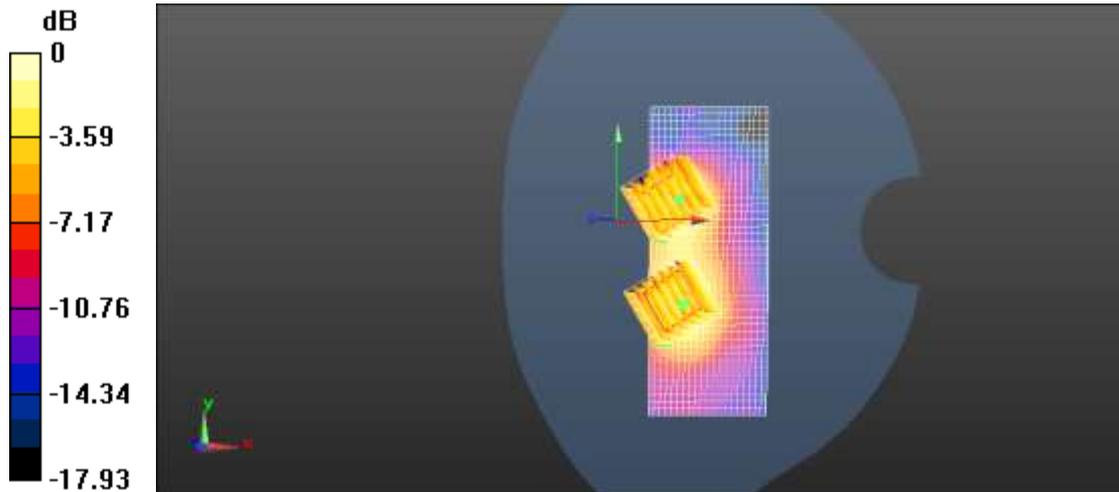
**body2/left side low/Zoom Scan (7x7x7)/Cube 1:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 2.201 V/m; Power Drift = 0.68 dB

Peak SAR (extrapolated) = 0.040 mW/g

**SAR(1 g) = 0.022 mW/g; SAR(10 g) = 0.012 mW/g**

Maximum value of SAR (measured) = 0.0244 mW/g



0 dB = 0.0284 mW/g = -30.94 dB mW/g

**802.11b Data Rate: 1 Mbps left side high**

Date/Time: 30/7/2012 14:42:00

Communication System: 802.11b/g/n 2.45GHz; Communication System Band: 2400-2483.5; Frequency: 2462 MHz; Communication System PAR: 1.872 dB

Medium parameters used:  $f = 2462$  MHz;  $\sigma = 1.931$  mho/m;  $\epsilon_r = 52.214$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASYS5 (IEEE 1528/OET 65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3297; ConvF(4.34, 4.34, 4.34); Calibrated: 10/4/2012;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/4/2012
- Phantom: SAM2; Type: SAM; Serial: TP-1575
- Measurement SW: DASYS52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

**body2/left side high/Area Scan (61x151x1):** Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.0426 mW/g

**body2/left side high/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 3.419 V/m; Power Drift = 0.56 dB

Peak SAR (extrapolated) = 0.076 mW/g

**SAR(1 g) = 0.039 mW/g; SAR(10 g) = 0.020 mW/g**

Maximum value of SAR (measured) = 0.0431 mW/g

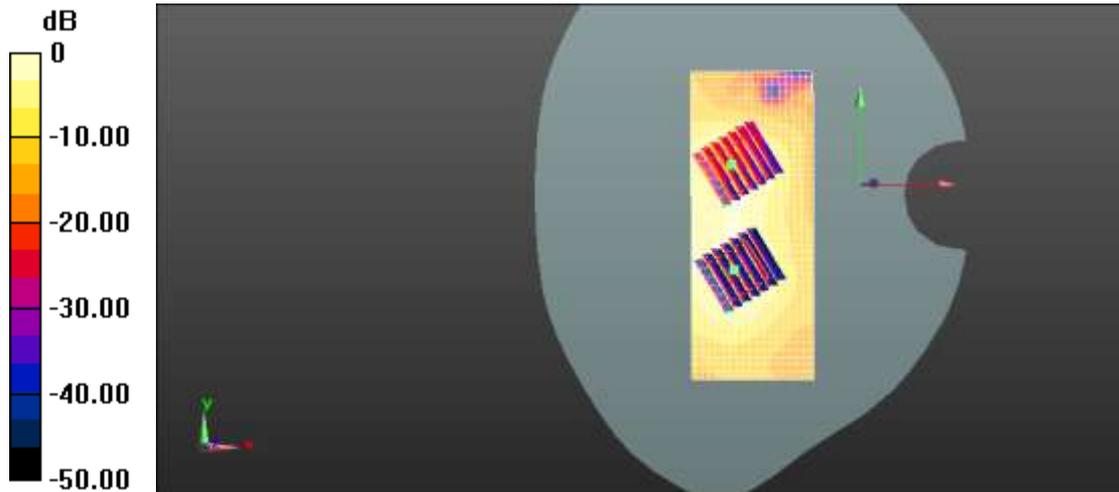
**body2/left side high/Zoom Scan (7x7x7)/Cube 1:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 3.419 V/m; Power Drift = 0.56 dB

Peak SAR (extrapolated) = 0.062 mW/g

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

Maximum value of SAR (measured) = 0.0377 mW/g



0 dB = 0.0426 mW/g = -27.41 dB mW/g

**802.11g Data Rate: 6.5 Mbps left side mid**

Date/Time: 30/7/2012 15:28:09

Communication System: 802.11b/g/n 2.45GHz; Communication System Band: 2400-2483.5; Frequency: 2437 MHz; Communication System PAR: 1.872 dB

Medium parameters used:  $f = 2437$  MHz;  $\sigma = 1.936$  mho/m;  $\epsilon_r = 52.113$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE 1528/OET 65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3297; ConvF(4.34, 4.34, 4.34); Calibrated: 10/4/2012;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/4/2012
- Phantom: SAM2; Type: SAM; Serial: TP-1575
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

**body2/left side mid with g/Area Scan (61x151x1):** Measurement grid:

dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.0189 mW/g

**body2/left side mid with g/Zoom Scan (7x7x7)/Cube 0:** Measurement grid:

dx=5mm, dy=5mm, dz=5mm

Reference Value = 2.374 V/m; Power Drift = -0.06 dB

Peak SAR (extrapolated) = 0.034 mW/g

**SAR(1 g) = 0.018 mW/g; SAR(10 g) = 0.00918 mW/g**

Maximum value of SAR (measured) = 0.0205 mW/g

**body2/left side mid with g/Zoom Scan (7x7x7)/Cube 1:** Measurement grid:

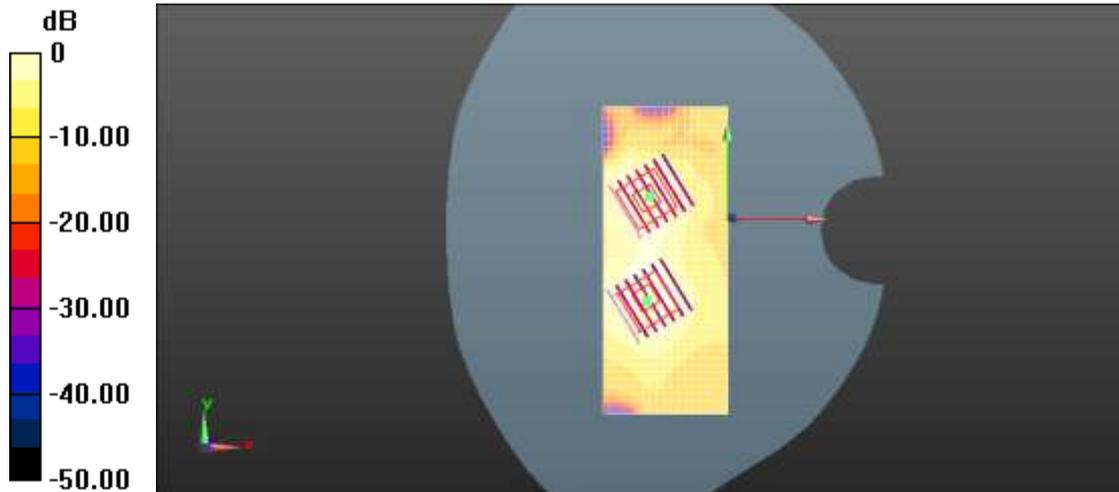
dx=5mm, dy=5mm, dz=5mm

Reference Value = 2.374 V/m; Power Drift = -0.06 dB

Peak SAR (extrapolated) = 0.031 mW/g

**SAR(1 g) = 0.016 mW/g; SAR(10 g) = 0.00883 mW/g**

Maximum value of SAR (measured) = 0.0181 mW/g



0 dB = 0.0189 mW/g = -34.46 dB mW/g

**802.11n (20MHz) Data Rate: 1 Mbps left side mid**

Date/Time: 30/7/2012 16:10:06

Communication System: 802.11b/g/n 2.45GHz; Communication System Band: 2400-2483.5; Frequency: 2437 MHz; Communication System PAR: 1.872 dB

Medium parameters used:  $f = 2437$  MHz;  $\sigma = 1.936$  mho/m;  $\epsilon_r = 52.113$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASYS5 (IEEE 1528/OET 65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3297; ConvF(4.34, 4.34, 4.34); Calibrated: 10/4/2012;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/4/2012
- Phantom: SAM2; Type: SAM; Serial: TP-1575
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

**body2/left side mid with n/Area Scan (61x151x1):** Measurement grid:

dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.0223 mW/g

**body2/left side mid with n/Zoom Scan (7x7x7)/Cube 0:** Measurement grid:

dx=5mm, dy=5mm, dz=5mm

Reference Value = 2.411 V/m; Power Drift = 0.38 dB

Peak SAR (extrapolated) = 0.038 mW/g

**SAR(1 g) = 0.020 mW/g; SAR(10 g) = 0.010 mW/g**

Maximum value of SAR (measured) = 0.0216 mW/g

**body2/left side mid with n/Zoom Scan (7x7x7)/Cube 1:** Measurement grid:

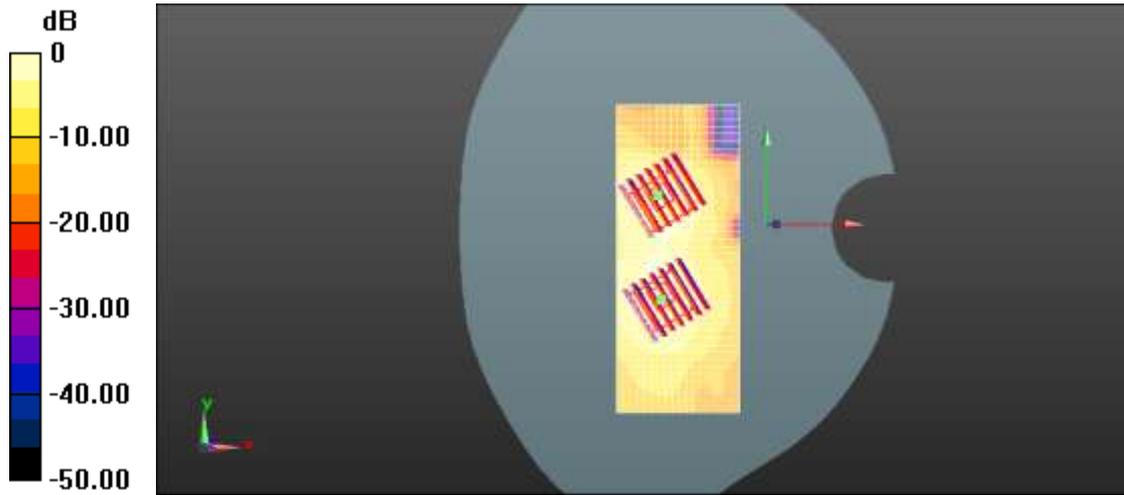
dx=5mm, dy=5mm, dz=5mm

Reference Value = 2.411 V/m; Power Drift = 0.38 dB

Peak SAR (extrapolated) = 0.031 mW/g

**SAR(1 g) = 0.016 mW/g; SAR(10 g) = 0.00898 mW/g**

Maximum value of SAR (measured) = 0.0180 mW/g



0 dB = 0.0223 mW/g = -33.03 dB mW/g

**802.11n (40MHz) Data Rate: 13.5 Mbps left side mid**

Date/Time: 30/7/2012 16:51:07

Communication System: 802.11b/g/n 2.45GHz; Communication System Band: 2400-2483.5; Frequency: 2437 MHz; Communication System PAR: 1.872 dB

Medium parameters used:  $f = 2437$  MHz;  $\sigma = 1.936$  mho/m;  $\epsilon_r = 52.113$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASYS5 (IEEE 1528/OET 65C)

DASYS5 Configuration:

- Probe: ES3DV3 - SN3297; ConvF(4.34, 4.34, 4.34); Calibrated: 10/4/2012;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/4/2012
- Phantom: SAM2; Type: SAM; Serial: TP-1575
- Measurement SW: DASYS5, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

**body2/left side mid wit n 40Mhz/Area Scan (61x151x1):** Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.0142 mW/g

**body2/left side mid wit n 40Mhz/Zoom Scan (7x7x7)/Cube 0:**

Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 1.932 V/m; Power Drift = 0.43 dB

Peak SAR (extrapolated) = 0.027 mW/g

**SAR(1 g) = 0.012 mW/g; SAR(10 g) = 0.00591 mW/g**

Maximum value of SAR (measured) = 0.0143 mW/g

**body2/left side mid wit n 40Mhz/Zoom Scan (7x7x7)/Cube 1:**

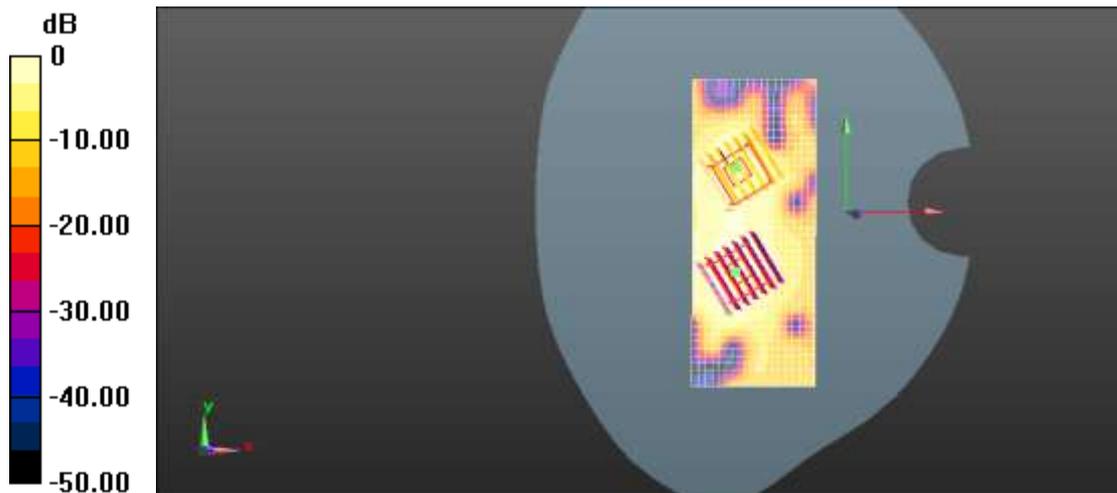
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 1.932 V/m; Power Drift = 0.43 dB

Peak SAR (extrapolated) = 0.021 mW/g

**SAR(1 g) = 0.011 mW/g; SAR(10 g) = 0.00612 mW/g**

Maximum value of SAR (measured) = 0.0117 mW/g



0 dB = 0.0142 mW/g = -36.96 dB mW/g

## ANNEX C: Calibration Certificate

### Annex C.1 Probe Calibration Certificate

Calibration Laboratory of  
Schmid & Partner  
Engineering AG  
Zeughausstrasse 43, 8004 Zurich, Switzerland



S Schweizerischer Kalibrierdienst  
S Service suisse d'étalonnage  
S Servizio svizzero di taratura  
S Swiss Calibration Service

Accredited by the Swiss Accreditation Service (SAS)  
The Swiss Accreditation Service is one of the signatories to the EA  
Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: SCS 108

Client ZTE Shanghai (Auden)

Certificate No: ES3-3241\_Sep11

### CALIBRATION CERTIFICATE

Object: ES3DV3 - SN:3241

Calibration procedure(s): QA CAL-01.v8, QA CAL-23.v4, QA CAL-25.v4  
Calibration procedure for dosimetric E-field probes

Calibration date: September 27, 2011

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).  
The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID	Cal Date (Certificate No.)	Scheduled Calibration
Power meter E4419B	GB41293874	31-Mar-11 (No. 217-01372)	Apr-12
Power sensor E4412A	MY41498087	31-Mar-11 (No. 217-01372)	Apr-12
Reference 3 dB Attenuator	SN: S5054 (3c)	29-Mar-11 (No. 217-01369)	Apr-12
Reference 20 dB Attenuator	SN: S5086 (20b)	29-Mar-11 (No. 217-01367)	Apr-12
Reference 30 dB Attenuator	SN: S5129 (30b)	29-Mar-11 (No. 217-01370)	Apr-12
Reference Probe ES3DV2	SN: 3013	29-Dec-10 (No. ES3-3013_Dec10)	Dec-11
DAE#	SN: 654	3-May-11 (No. DAE4-654_May11)	May-12
Secondary Standards	ID	Check Date (in house)	Scheduled Check
RF generator HP 8648C	US3642U01700	4-Aug-99 (in house check Oct-09)	In house check: Oct-11
Network Analyzer HP 8753E	US37390585	18-Oct-01 (in house check Oct-10)	In house check: Oct-11

Calibrated by:	Name Claudio Leubler	Function Laboratory Technician	Signature 
Approved by:	Name Katja Pokovic	Function Technical Manager	Signature 

Issued: September 28, 2011

This calibration certificate shall not be reproduced except in full without written approval of the laboratory.

**Calibration Laboratory of  
Schmid & Partner  
Engineering AG**  
Zeughausstrasse 43, 8004 Zurich, Switzerland



S Schweizerischer Kalibrierdienst  
C Service suisse d'étalonnage  
S Servizio svizzero di taratura  
S Swiss Calibration Service

Accredited by the Swiss Accreditation Service (SAS)

Accreditation No.: SCS 108

The Swiss Accreditation Service is one of the signatories to the EA Multilateral Agreement for the recognition of calibration certificates

**Glossary:**

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

**Calibration is Performed According to the Following Standards:**

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

**Methods Applied and Interpretation of Parameters:**

- **NORM<sub>x,y,z</sub>**: Assessed for E-field polarization  $\theta = 0$  ( $f \leq 900$  MHz in TEM-cell;  $f > 1800$  MHz: R22 waveguide). NORM<sub>x,y,z</sub> are only intermediate values, i.e., the uncertainties of NORM<sub>x,y,z</sub> does not affect the E<sup>2</sup>-field uncertainty inside TSL (see below *ConvF*).
- **NORM(f)<sub>x,y,z</sub> = NORM<sub>x,y,z</sub> \* frequency\_response** (see Frequency Response Chart). This linearization is implemented in DASY4 software versions later than 4.2. The uncertainty of the frequency response is included in the stated uncertainty of *ConvF*.
- **DCP<sub>x,y,z</sub>**: DCP are numerical linearization parameters assessed based on the data of power sweep with CW signal (no uncertainty required). DCP does not depend on frequency nor media.
- **PAR**: PAR is the Peak to Average Ratio that is not calibrated but determined based on the signal characteristics
- **A<sub>x,y,z</sub>; B<sub>x,y,z</sub>; C<sub>x,y,z</sub>; VR<sub>x,y,z</sub>; A, B, C** are numerical linearization parameters assessed based on the data of power sweep for specific modulation signal. The parameters do not depend on frequency nor media. VR is the maximum calibration range expressed in RMS voltage across the diode.
- **ConvF and Boundary Effect Parameters**: Assessed in flat phantom using E-field (or Temperature Transfer Standard for  $f \leq 800$  MHz) and inside waveguide using analytical field distributions based on power measurements for  $f > 800$  MHz. The same setups are used for assessment of the parameters applied for boundary compensation (alpha, depth) of which typical uncertainty values are given. These parameters are used in DASY4 software to improve probe accuracy close to the boundary. The sensitivity in TSL corresponds to NORM<sub>x,y,z</sub> \* ConvF whereby the uncertainty corresponds to that given for ConvF. A frequency dependent ConvF is used in DASY version 4.4 and higher which allows extending the validity from  $\pm 50$  MHz to  $\pm 100$  MHz.
- **Spherical isotropy (3D deviation from isotropy)**: in a field of low gradients realized using a flat phantom exposed by a patch antenna.
- **Sensor Offset**: The sensor offset corresponds to the offset of virtual measurement center from the probe tip (on probe axis). No tolerance required.

# Probe ES3DV3

## SN:3241

Manufactured: May 5, 2009  
Calibrated: September 27, 2011

Calibrated for DASY/EASY Systems  
(Note: non-compatible with DASY2 system!)

## DASY/EASY - Parameters of Probe: ES3DV3 - SN:3241

### Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm ( $\mu\text{V}/(\text{V}/\text{m})^2$ ) <sup>a</sup>	1.18	0.87	1.05	$\pm 10.1 \%$
DCP ( $\text{mV}$ ) <sup>b</sup>	101.3	104.7	100.8	

### Modulation Calibration Parameters

UID	Communication System Name	PAR		A dB	B dB	C dB	VR mV	Unc <sup>E</sup> (k=2)
10000	CW	0.00	X	0.00	0.00	1.00	146.9	$\pm 3.0 \%$
			Y	0.00	0.00	1.00	123.7	
			Z	0.00	0.00	1.00	140.3	

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

<sup>a</sup> The uncertainties of NormX,Y,Z do not affect the  $E^2$ -field uncertainty inside TSL (see Pages 5 and 6).

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

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

## DASY/EASY - Parameters of Probe: ES3DV3 - SN:3241

### Calibration Parameter Determined in Head Tissue Simulating Media

f (MHz) <sup>C</sup>	Relative Permittivity <sup>F</sup>	Conductivity (S/m) <sup>F</sup>	ConvF X	ConvF Y	ConvF Z	Alpha	Depth (mm)	Unct. (k=2)
835	41.5	0.90	6.18	6.18	6.18	0.80	1.00	± 12.0 %
900	41.5	0.97	6.07	6.07	6.07	0.80	1.00	± 12.0 %
1750	40.1	1.37	5.32	5.32	5.32	0.80	1.25	± 12.0 %
1810	40.0	1.40	5.15	5.15	5.15	0.80	1.26	± 12.0 %
1900	40.0	1.40	5.09	5.09	5.09	0.80	1.25	± 12.0 %
2000	40.0	1.40	5.07	5.07	5.07	0.80	1.22	± 12.0 %
2450	39.2	1.80	4.45	4.45	4.45	0.74	1.30	± 12.0 %

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

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

## DASY/EASY - Parameters of Probe: ES3DV3- SN:3241

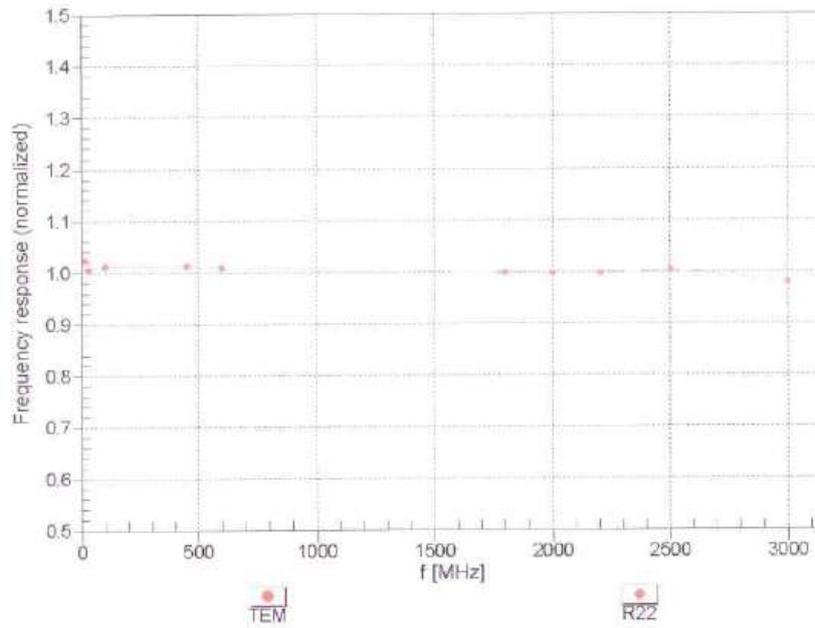
### Calibration Parameter Determined in Body Tissue Simulating Media

f (MHz) <sup>c</sup>	Relative Permittivity <sup>f</sup>	Conductivity (S/m) <sup>f</sup>	ConvF X	ConvF Y	ConvF Z	Alpha	Depth (mm)	Unct. (k=2)
835	55.2	0.97	6.19	6.19	6.19	0.80	1.00	± 12.0 %
900	55.0	1.05	6.12	6.12	6.12	0.80	1.00	± 12.0 %
1750	53.4	1.49	4.85	4.85	4.85	0.80	1.32	± 12.0 %
1810	53.3	1.52	4.78	4.78	4.78	0.80	1.29	± 12.0 %
1900	53.3	1.52	4.67	4.67	4.67	0.80	1.32	± 12.0 %
2000	53.3	1.52	4.76	4.76	4.76	0.75	1.35	± 12.0 %
2450	52.7	1.95	4.29	4.29	4.29	0.80	1.20	± 12.0 %

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

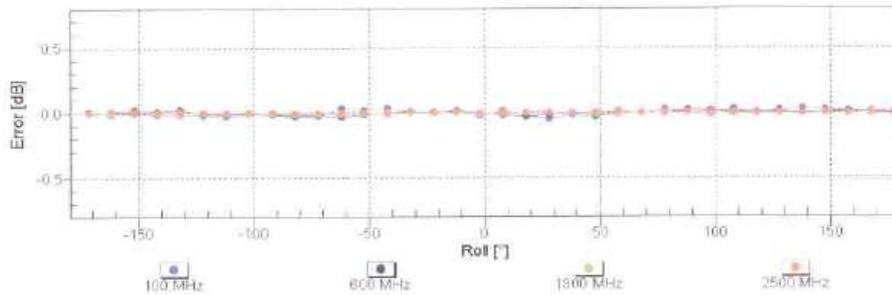
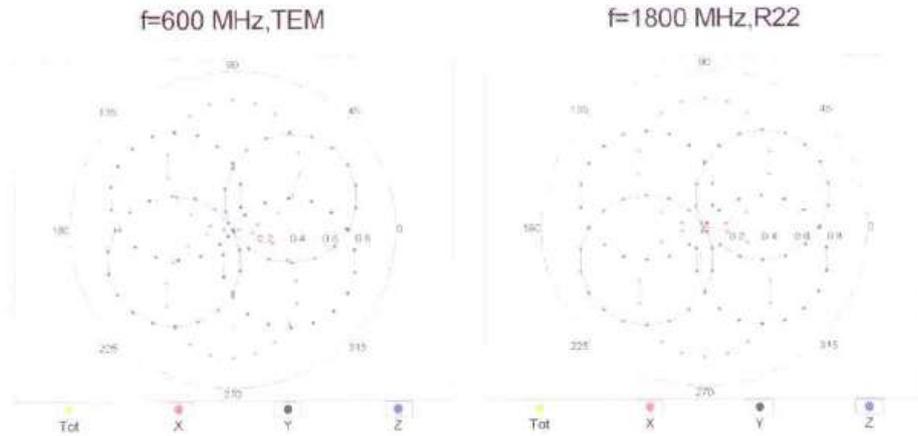
<sup>f</sup> At frequencies below 3 GHz, the validity of tissue parameters ( $\epsilon$  and  $\sigma$ ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters ( $\epsilon$  and  $\sigma$ ) is restricted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

### Frequency Response of E-Field (TEM-Cell: ifi110 EXX, Waveguide: R22)



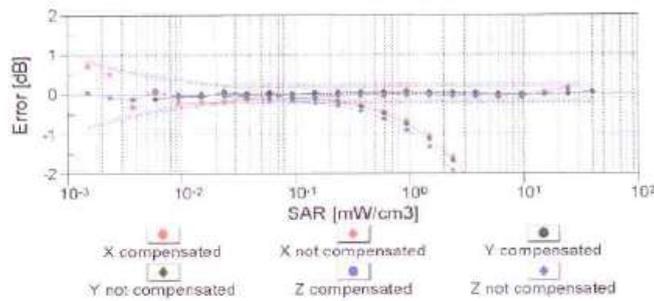
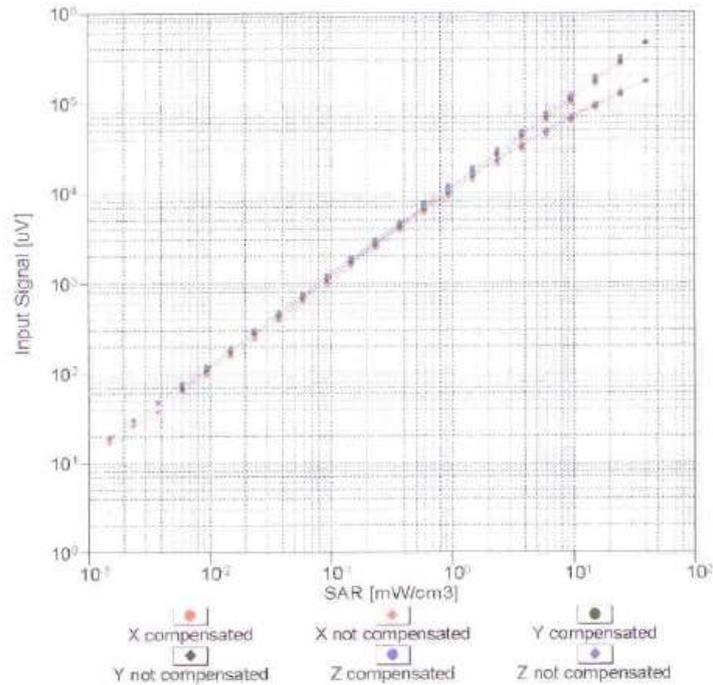
Uncertainty of Frequency Response of E-field:  $\pm 6.3\%$  (k=2)

Receiving Pattern ( $\phi$ ),  $\vartheta = 0^\circ$



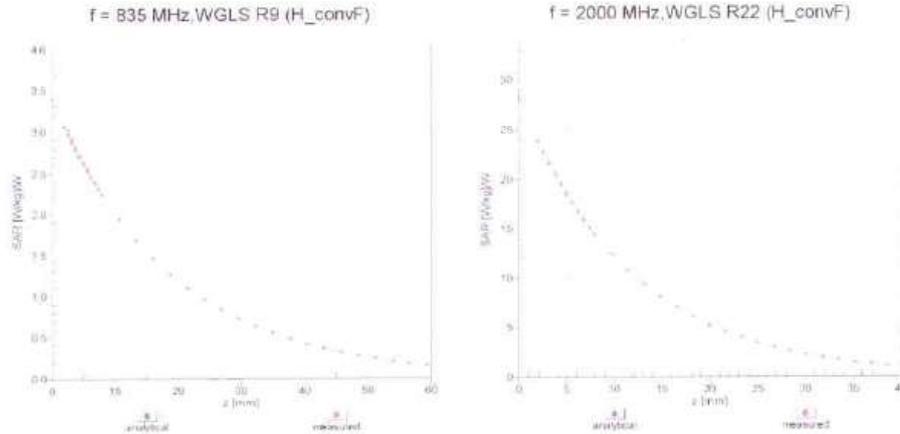
Uncertainty of Axial Isotropy Assessment:  $\pm 0.5\%$  ( $k=2$ )

### Dynamic Range f(SAR<sub>head</sub>) (TEM cell , f = 900 MHz)



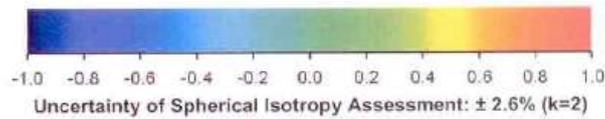
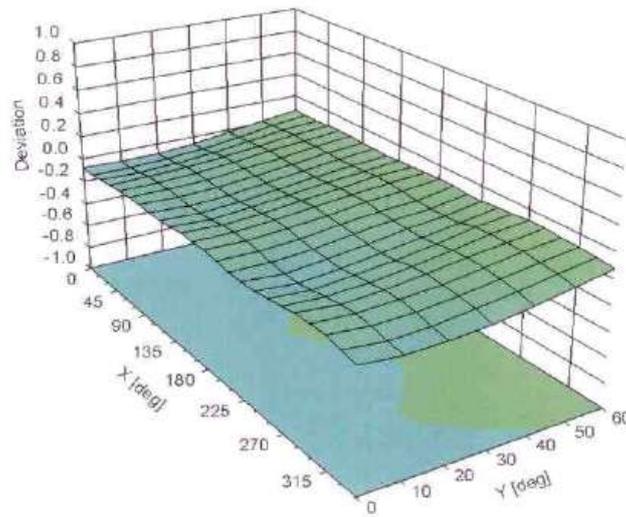
Uncertainty of Linearity Assessment: ± 0.6% (k=2)

### Conversion Factor Assessment



### Deviation from Isotropy in Liquid

Error ( $\phi, \theta$ ),  $f = 900 \text{ MHz}$



Uncertainty of Spherical Isotropy Assessment:  $\pm 2.6\%$  ( $k=2$ )

## DASY/EASY - Parameters of Probe: ES3DV3 - SN:3241

### Other Probe Parameters

Sensor Arrangement	Triangular
Connector Angle (°)	Not applicable
Mechanical Surface Detection Mode	enabled
Optical Surface Detection Mode	disabled
Probe Overall Length	337 mm
Probe Body Diameter	10 mm
Tip Length	10 mm
Tip Diameter	4 mm
Probe Tip to Sensor X Calibration Point	2 mm
Probe Tip to Sensor Y Calibration Point	2 mm
Probe Tip to Sensor Z Calibration Point	2 mm
Recommended Measurement Distance from Surface	3 mm

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Accreditation No.: **SCS 108**

Client **Tejet (Auden)**

Certificate No: **ES3-3297\_Apr12**

## CALIBRATION CERTIFICATE

Object **ES3DV3 - SN:3297**

Calibration procedure(s) **QA CAL-01.v8, QA CAL-23.v4, QA CAL-25.v4  
Calibration procedure for dosimetric E-field probes**

Calibration date: **April 10, 2012**

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).  
The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID	Cal Date (Certificate No.)	Scheduled Calibration
Power meter E4419B	GB41293874	29-Mar-12 (No. 217-01508)	Apr-13
Power sensor E4412A	MY41498087	29-Mar-12 (No. 217-01508)	Apr-13
Reference 3 dB Attenuator	SN: S5054 (3c)	27-Mar-12 (No. 217-01531)	Apr-13
Reference 20 dB Attenuator	SN: S5086 (20b)	27-Mar-12 (No. 217-01529)	Apr-13
Reference 30 dB Attenuator	SN: S5129 (30b)	27-Mar-12 (No. 217-01532)	Apr-13
Reference Probe ES3DV2	SN: 3013	29-Dec-11 (No. ES3-3013_Dec11)	Dec-12
DAE4	SN: 654	3-May-11 (No. DAE4-654_May11)	May-12
Secondary Standards	ID	Check Date (in house)	Scheduled Check
RF generator HP 8648C	US3642U01700	4-Aug-99 (in house check Apr-11)	In house check: Apr-13
Network Analyzer HP 6753E	US37390595	18-Oct-01 (in house check Oct-11)	In house check: Oct-12

Calibrated by:	Name <b>Jeton Kastrati</b>	Function <b>Laboratory Technician</b>	Signature 
Approved by:	Name <b>Katja Pokovic</b>	Function <b>Technical Manager</b>	Signature 

Issued: April 10, 2012

This calibration certificate shall not be reproduced except in full without written approval of the laboratory.

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Accreditation No.: SCS 108

**Glossary:**

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

**Calibration is Performed According to the Following Standards:**

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

**Methods Applied and Interpretation of Parameters:**

- **NORM<sub>x,y,z</sub>**: Assessed for E-field polarization  $\vartheta = 0$  ( $f \leq 900$  MHz in TEM-cell;  $f > 1800$  MHz: R22 waveguide). NORM<sub>x,y,z</sub> are only intermediate values, i.e., the uncertainties of NORM<sub>x,y,z</sub> does not affect the E<sup>2</sup>-field uncertainty inside TSL (see below ConvF).
- **NORM(f)<sub>x,y,z</sub> = NORM<sub>x,y,z</sub> \* frequency\_response** (see Frequency Response Chart). This linearization is implemented in DASY4 software versions later than 4.2. The uncertainty of the frequency response is included in the stated uncertainty of ConvF.
- **DCP<sub>x,y,z</sub>**: DCP are numerical linearization parameters assessed based on the data of power sweep with CW signal (no uncertainty required). DCP does not depend on frequency nor media.
- **PAR**: PAR is the Peak to Average Ratio that is not calibrated but determined based on the signal characteristics
- **A<sub>x,y,z</sub>; B<sub>x,y,z</sub>; C<sub>x,y,z</sub>; VR<sub>x,y,z</sub>**: A, B, C are numerical linearization parameters assessed based on the data of power sweep for specific modulation signal. The parameters do not depend on frequency nor media. VR is the maximum calibration range expressed in RMS voltage across the diode.
- **ConvF and Boundary Effect Parameters**: Assessed in flat phantom using E-field (or Temperature Transfer Standard for  $f \leq 800$  MHz) and inside waveguide using analytical field distributions based on power measurements for  $f > 800$  MHz. The same setups are used for assessment of the parameters applied for boundary compensation (alpha, depth) of which typical uncertainty values are given. These parameters are used in DASY4 software to improve probe accuracy close to the boundary. The sensitivity in TSL corresponds to NORM<sub>x,y,z</sub> \* ConvF whereby the uncertainty corresponds to that given for ConvF. A frequency dependent ConvF is used in DASY version 4.4 and higher which allows extending the validity from  $\pm 50$  MHz to  $\pm 100$  MHz.
- **Spherical isotropy (3D deviation from isotropy)**: in a field of low gradients realized using a flat phantom exposed by a patch antenna.
- **Sensor Offset**: The sensor offset corresponds to the offset of virtual measurement center from the probe tip (on probe axis). No tolerance required.

# Probe ES3DV3

## SN:3297

Manufactured: July 6, 2010  
Calibrated: April 10, 2012

Calibrated for DASY/EASY Systems  
(Note: non-compatible with DASY2 system!)

## DASY/EASY - Parameters of Probe: ES3DV3 - SN:3297

### Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm $(\mu V/(V/m)^2)^A$	1.16	1.08	1.16	$\pm 10.1\%$
DCP (mV) <sup>B</sup>	103.8	109.8	104.8	

### Modulation Calibration Parameters

UID	Communication System Name	PAR		A dB	B dB	C dB	VR mV	Unc <sup>C</sup> (k=2)
10000	CW	0.00	X	0.00	0.00	1.00	109.5	$\pm 2.7\%$
			Y	0.00	0.00	1.00	107.5	
			Z	0.00	0.00	1.00	111.6	

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

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

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

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

## DASY/EASY - Parameters of Probe: ES3DV3 - SN:3297

### Calibration Parameter Determined in Head Tissue Simulating Media

f (MHz) <sup>C</sup>	Relative Permittivity <sup>F</sup>	Conductivity (S/m) <sup>F</sup>	ConvF X	ConvF Y	ConvF Z	Alpha	Depth (mm)	Unct. (k=2)
750	41.9	0.89	6.62	6.62	6.62	0.80	1.12	± 12.0 %
835	41.5	0.90	6.36	6.36	6.36	0.31	1.83	± 12.0 %
900	41.5	0.97	6.24	6.24	6.24	0.35	1.75	± 12.0 %
1750	40.1	1.37	5.73	5.73	5.73	0.80	1.18	± 12.0 %
1950	40.0	1.40	5.10	5.10	5.10	0.80	1.22	± 12.0 %
2450	39.2	1.80	4.59	4.59	4.59	0.80	1.25	± 12.0 %

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

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

## DASY/EASY - Parameters of Probe: ES3DV3 - SN:3297

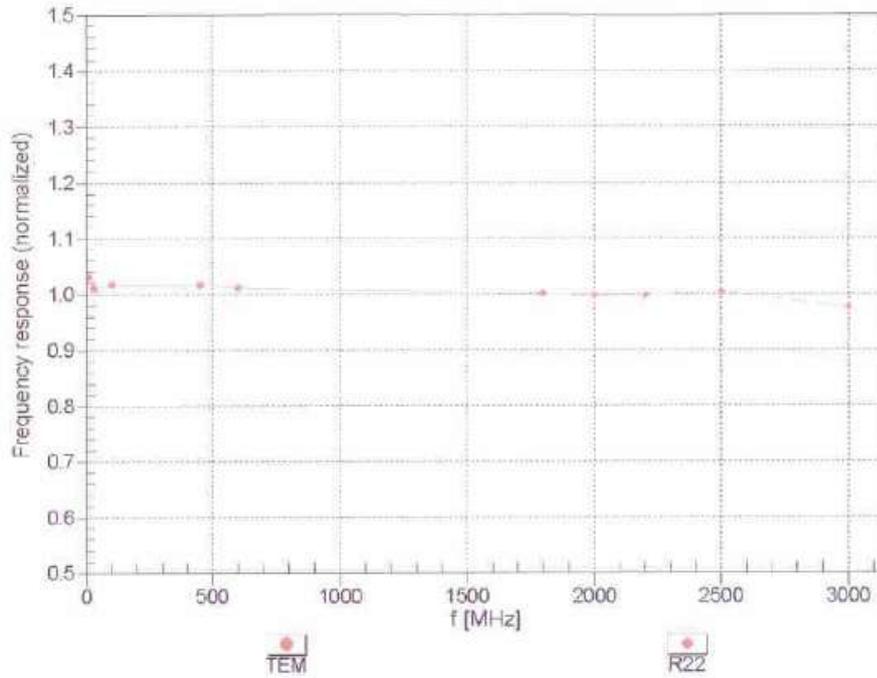
### Calibration Parameter Determined in Body Tissue Simulating Media

f (MHz) <sup>C</sup>	Relative Permittivity <sup>F</sup>	Conductivity (S/m) <sup>F</sup>	ConvF X	ConvF Y	ConvF Z	Alpha	Depth (mm)	Unct. (k=2)
750	55.5	0.96	6.33	6.33	6.33	0.25	2.18	± 12.0 %
835	55.2	0.97	6.24	6.24	6.24	0.52	1.48	± 12.0 %
900	55.0	1.05	6.21	6.21	6.21	0.57	1.39	± 12.0 %
1750	53.4	1.49	5.02	5.02	5.02	0.47	1.71	± 12.0 %
1950	53.3	1.52	4.88	4.88	4.88	0.71	1.37	± 12.0 %
2450	52.7	1.95	4.34	4.34	4.34	0.80	1.03	± 12.0 %

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

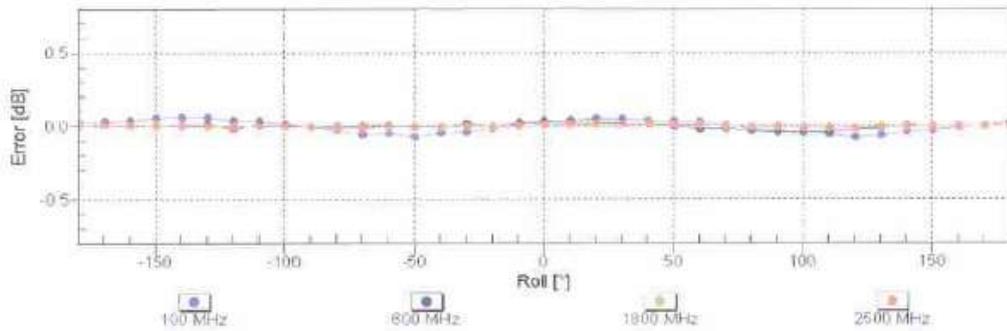
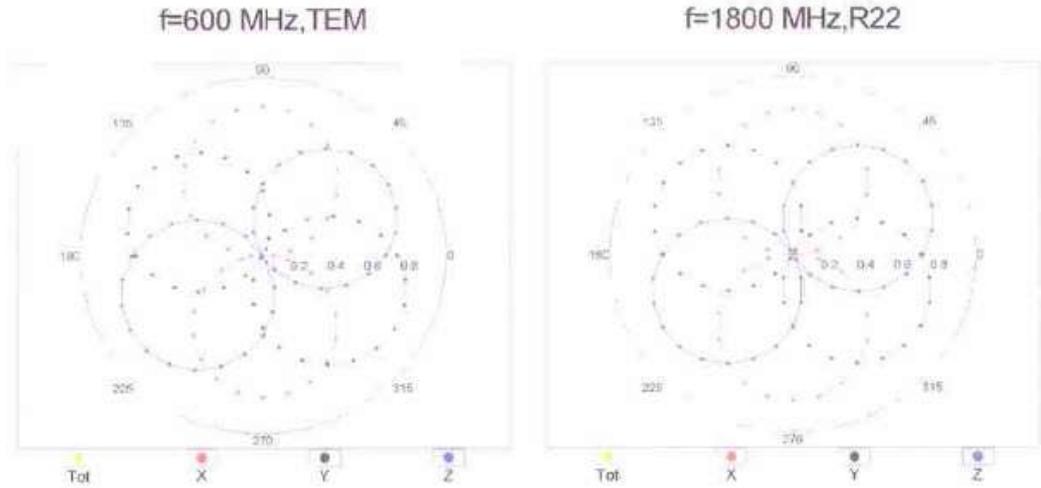
<sup>F</sup> At frequencies below 3 GHz, the validity of tissue parameters ( $\epsilon$  and  $\sigma$ ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters ( $\epsilon$  and  $\sigma$ ) is restricted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

### Frequency Response of E-Field (TEM-Cell: ifi110 EXX, Waveguide: R22)



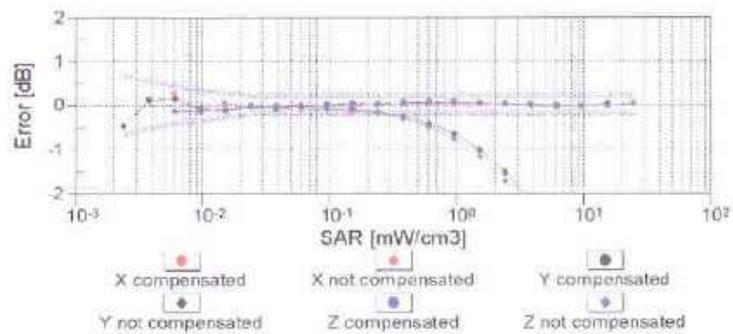
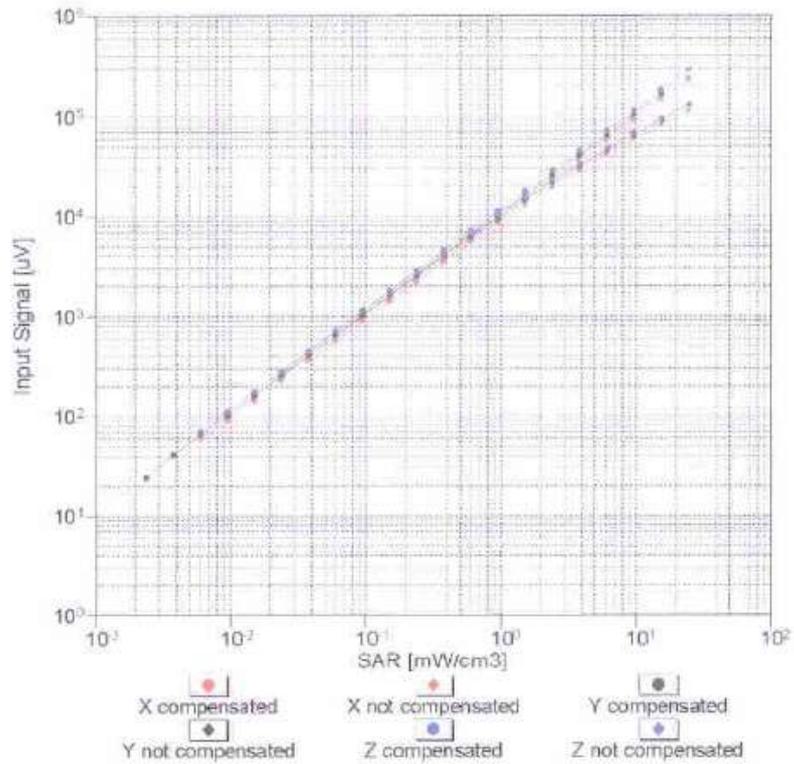
Uncertainty of Frequency Response of E-field:  $\pm 6.3\%$  (k=2)

Receiving Pattern ( $\phi$ ),  $\vartheta = 0^\circ$



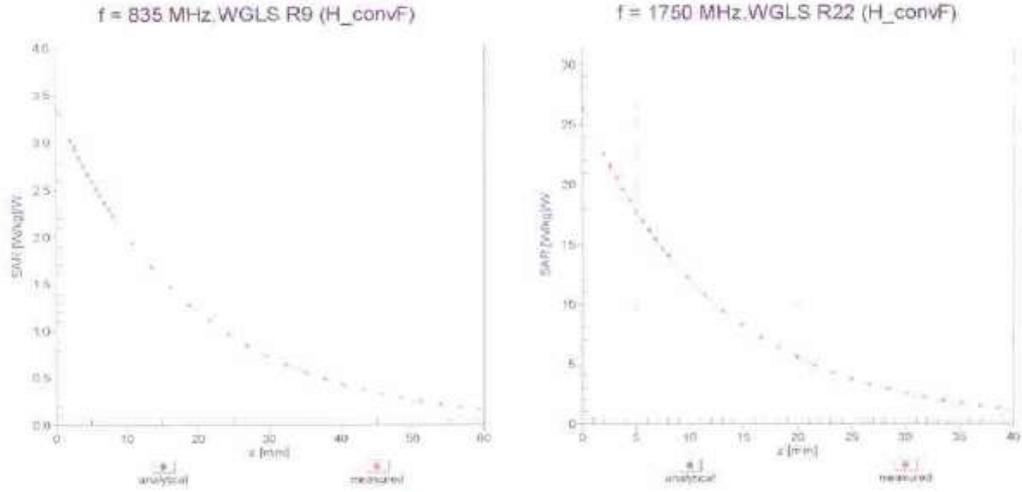
Uncertainty of Axial Isotropy Assessment:  $\pm 0.5\%$  (k=2)

### Dynamic Range f(SAR<sub>head</sub>) (TEM cell , f = 900 MHz)

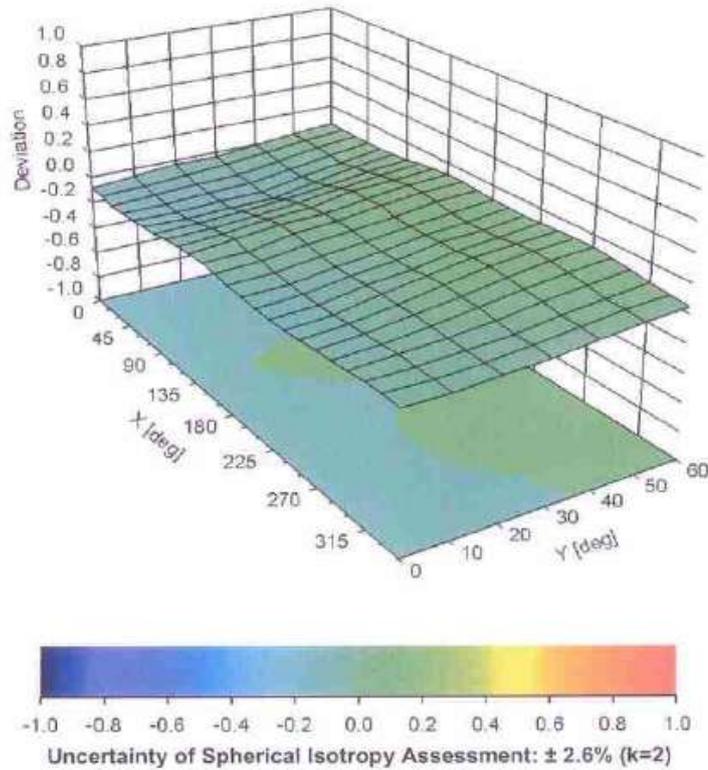


Uncertainty of Linearity Assessment: ± 0.6% (k=2)

### Conversion Factor Assessment



### Deviation from Isotropy in Liquid Error ( $\phi, \theta$ ), $f = 900 \text{ MHz}$



**DASY/EASY - Parameters of Probe: ES3DV3 - SN:3297****Other Probe Parameters**

Sensor Arrangement	Triangular
Connector Angle (°)	Not applicable
Mechanical Surface Detection Mode	enabled
Optical Surface Detection Mode	disabled
Probe Overall Length	337 mm
Probe Body Diameter	10 mm
Tip Length	10 mm
Tip Diameter	4 mm
Probe Tip to Sensor X Calibration Point	2 mm
Probe Tip to Sensor Y Calibration Point	2 mm
Probe Tip to Sensor Z Calibration Point	2 mm
Recommended Measurement Distance from Surface	3 mm

**Annex C.2 DAE4 Calibration Certificate**

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Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 108**

Client **Tejet (Auden)**

Certificate No: **DAE4-1327\_Apr12**

CALIBRATION CERTIFICATE																			
Object	DAE4 - SD 000 D04 BJ - SN: 1327																		
Calibration procedure(s)	QA CAL-06.v24 Calibration procedure for the data acquisition electronics (DAE)																		
Calibration date:	April 11, 2012																		
<p>This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI). The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.</p> <p>All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity &lt; 70%.</p> <p>Calibration Equipment used (M&amp;TE critical for calibration)</p> <table border="1"> <thead> <tr> <th>Primary Standards</th> <th>ID #</th> <th>Cal Date (Certificate No.)</th> <th>Scheduled Calibration</th> </tr> </thead> <tbody> <tr> <td>Keithley Multimeter Type 2001</td> <td>SN: 0810278</td> <td>28-Sep-11 (No:11450)</td> <td>Sep-12</td> </tr> <tr> <th>Secondary Standards</th> <th>ID #</th> <th>Check Date (in house)</th> <th>Scheduled Check</th> </tr> <tr> <td>Calibrator Box V2.1</td> <td>SE UWS 053 AA 1001</td> <td>05-Jan-12 (in house check)</td> <td>In house check: Jan-13</td> </tr> </tbody> </table>				Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration	Keithley Multimeter Type 2001	SN: 0810278	28-Sep-11 (No:11450)	Sep-12	Secondary Standards	ID #	Check Date (in house)	Scheduled Check	Calibrator Box V2.1	SE UWS 053 AA 1001	05-Jan-12 (in house check)	In house check: Jan-13
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Calibrator Box V2.1	SE UWS 053 AA 1001	05-Jan-12 (in house check)	In house check: Jan-13																
Calibrated by:	Name Andrea Guntli	Function Technician	Signature 																
Approved by:	Fin Bomholt	R&D Director																	
			Issued: April 11, 2012																
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Accreditation No.: SCS 108

### Glossary

DAE data acquisition electronics  
Connector angle information used in DASY system to align probe sensor X to the robot coordinate system.

### Methods Applied and Interpretation of Parameters

- *DC Voltage Measurement:* Calibration Factor assessed for use in DASY system by comparison with a calibrated instrument traceable to national standards. The figure given corresponds to the full scale range of the voltmeter in the respective range.
- *Connector angle:* The angle of the connector is assessed measuring the angle mechanically by a tool inserted. Uncertainty is not required.
- The following parameters as documented in the Appendix contain technical information as a result from the performance test and require no uncertainty.
  - *DC Voltage Measurement Linearity:* Verification of the Linearity at +10% and -10% of the nominal calibration voltage. Influence of offset voltage is included in this measurement.
  - *Common mode sensitivity:* Influence of a positive or negative common mode voltage on the differential measurement.
  - *Channel separation:* Influence of a voltage on the neighbor channels not subject to an input voltage.
  - *AD Converter Values with inputs shorted:* Values on the internal AD converter corresponding to zero input voltage
  - *Input Offset Measurement:* Output voltage and statistical results over a large number of zero voltage measurements.
  - *Input Offset Current:* Typical value for information; Maximum channel input offset current, not considering the input resistance.
  - *Input resistance:* Typical value for information; DAE input resistance at the connector, during internal auto-zeroing and during measurement.
  - *Low Battery Alarm Voltage:* Typical value for information. Below this voltage, a battery alarm signal is generated.
  - *Power consumption:* Typical value for information. Supply currents in various operating modes.

**DC Voltage Measurement**

A/D - Converter Resolution nominal

High Range: 1LSB = 6.1 $\mu$ V, full range = -100...+300 mV  
 Low Range: 1LSB = 61nV, full range = -1.....+3mV

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

Calibration Factors	X	Y	Z
High Range	404.849 $\pm$ 0.1% (k=2)	404.696 $\pm$ 0.1% (k=2)	404.897 $\pm$ 0.1% (k=2)
Low Range	3.99410 $\pm$ 0.7% (k=2)	3.99326 $\pm$ 0.7% (k=2)	3.99970 $\pm$ 0.7% (k=2)

**Connector Angle**

Connector Angle to be used in DASY system	186.5 <sup>o</sup> $\pm$ 1 <sup>o</sup>
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Appendix

1. DC Voltage Linearity

High Range	Reading ( $\mu\text{V}$ )	Difference ( $\mu\text{V}$ )	Error (%)
Channel X + Input	199996.73	2.35	0.00
Channel X + Input	20001.32	1.56	0.01
Channel X - Input	-19998.20	2.53	-0.01
Channel Y + Input	199998.58	3.98	0.00
Channel Y + Input	19997.38	-2.07	-0.01
Channel Y - Input	-20001.91	-0.93	0.00
Channel Z + Input	199993.82	-0.25	-0.00
Channel Z + Input	19998.97	-0.56	-0.00
Channel Z - Input	-20001.68	-0.52	0.00

Low Range	Reading ( $\mu\text{V}$ )	Difference ( $\mu\text{V}$ )	Error (%)
Channel X + Input	2001.53	1.29	0.06
Channel X + Input	199.90	-0.79	-0.39
Channel X - Input	-199.12	-0.00	0.00
Channel Y + Input	2002.17	2.03	0.10
Channel Y + Input	201.07	0.47	0.23
Channel Y - Input	-200.44	-1.22	0.61
Channel Z + Input	2000.26	0.05	0.00
Channel Z + Input	199.53	-1.09	-0.54
Channel Z - Input	-199.89	-0.77	0.39

2. Common mode sensitivity

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

	Common mode Input Voltage (mV)	High Range Average Reading ( $\mu\text{V}$ )	Low Range Average Reading ( $\mu\text{V}$ )
Channel X	200	-1.44	-3.17
	- 200	5.42	3.57
Channel Y	200	14.80	14.53
	- 200	-16.24	-16.38
Channel Z	200	-10.48	-10.35
	- 200	8.13	7.97

3. Channel separation

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

	Input Voltage (mV)	Channel X ( $\mu\text{V}$ )	Channel Y ( $\mu\text{V}$ )	Channel Z ( $\mu\text{V}$ )
Channel X	200	-	-4.80	-1.45
Channel Y	200	8.78	-	-3.61
Channel Z	200	9.48	8.95	-

**4. AD-Converter Values with inputs shorted**

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

	High Range (LSB)	Low Range (LSB)
Channel X	16013	15974
Channel Y	16276	15957
Channel Z	15628	16228

**5. Input Offset Measurement**

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

Input 10MΩ

	Average (μV)	min. Offset (μV)	max. Offset (μV)	Std. Deviation (μV)
Channel X	0.76	-0.80	2.17	0.57
Channel Y	1.11	-0.19	2.66	0.57
Channel Z	-0.96	-2.45	0.94	0.71

**6. Input Offset Current**

Nominal input circuitry offset current on all channels: <25fA

**7. Input Resistance** (Typical values for information)

	Zeroing (kOhm)	Measuring (MOhm)
Channel X	200	200
Channel Y	200	200
Channel Z	200	200

**8. Low Battery Alarm Voltage** (Typical values for information)

Typical values	Alarm Level (VDC)
Supply (+ Vcc)	+7.9
Supply (- Vcc)	-7.6

**9. Power Consumption** (Typical values for information)

Typical values	Switched off (mA)	Stand by (mA)	Transmitting (mA)
Supply (+ Vcc)	+0.01	+6	+14
Supply (- Vcc)	-0.01	-8	-9

**Annex C.3 D835V2 Calibration Certificate**

**Calibration Laboratory of  
Schmid & Partner  
Engineering AG**  
Zeughausstrasse 43, 8004 Zurich, Switzerland



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Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 108**

Client **Auden**

Certificate No: **D835V2-4d092\_Jun12**

**CALIBRATION CERTIFICATE**

Object: **D835V2 - SN: 4d092**

Calibration procedure(s): **QA CAL-05.v8  
Calibration procedure for dipole validation kits above 700 MHz**

Calibration date: **June 22, 2012**

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).  
The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter EPM-442A	GB37480704	05-Oct-11 (No. 217-01451)	Oct-12
Power sensor HP 8481A	US37292783	05-Oct-11 (No. 217-01451)	Oct-12
Reference 20 dB Attenuator	SN: 5058 (20k)	27-Mar-12 (No. 217-01530)	Apr-13
Type-N mismatch combination	SN: 5047.2 / 06327	27-Mar-12 (No. 217-01530)	Apr-13
Reference Probe ES3DV3	SN: 3205	30-Dec-11 (No. ES3-3205_Dec11)	Dec-12
DAE4	SN: 901	05-Jul-11 (No. DAE4-901_Jul11)	Jul-12
Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power sensor HP 8481A	MY41092317	18-Oct-02 (in house check Oct-11)	In house check: Oct-13
RF generator R&S SMT-06	100005	04-Aug-99 (in house check Oct-11)	In house check: Oct-13
Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (in house check Oct-11)	In house check: Oct-12

	<b>Name</b>	<b>Function</b>	<b>Signature</b>
Calibrated by:	<b>Dimce Iliev</b>	Laboratory Technician	
Approved by:	<b>Kađa Poković</b>	Technical Manager	

Issued: June 22, 2012

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Calibration Laboratory of  
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Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: SCS 108

#### Glossary:

TSL	tissue simulating liquid
ConvF	sensitivity in TSL / NORM x,y,z
N/A	not applicable or not measured

#### Calibration is Performed According to the Following Standards:

- IEEE Std 1528-2003, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", December 2003
- IEC 62209-1, "Procedure to measure the Specific Absorption Rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)", February 2005
- Federal Communications Commission Office of Engineering & Technology (FCC OET), "Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields; Additional Information for Evaluating Compliance of Mobile and Portable Devices with FCC Limits for Human Exposure to Radiofrequency Emissions", Supplement C (Edition 01-01) to Bulletin 65

#### Additional Documentation:

- DASY4/5 System Handbook

#### Methods Applied and Interpretation of Parameters:

- Measurement Conditions:* Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- Antenna Parameters with TSL:* The dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- Feed Point Impedance and Return Loss:* These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- Electrical Delay:* One-way delay between the SMA connector and the antenna feed point. No uncertainty required.
- SAR measured:* SAR measured at the stated antenna input power.
- SAR normalized:* SAR as measured, normalized to an input power of 1 W at the antenna connector.
- SAR for nominal TSL parameters:* The measured TSL parameters are used to calculate the nominal SAR result.

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

### Measurement Conditions

DASY system configuration, as far as not given on page 1.

DASY Version	DASY5	V52.8.1
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	15 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	835 MHz $\pm$ 1 MHz	

### Head TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	41.5	0.90 mho/m
Measured Head TSL parameters	(22.0 $\pm$ 0.2) °C	41.1 $\pm$ 6 %	0.89 mho/m $\pm$ 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

### SAR result with Head TSL

SAR averaged over 1 cm <sup>3</sup> (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	2.34 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	9.42 mW / g $\pm$ 17.0 % (k=2)

SAR averaged over 10 cm <sup>3</sup> (10 g) of Head TSL	condition	
SAR measured	250 mW input power	1.53 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	6.15 mW / g $\pm$ 16.5 % (k=2)

### Body TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	55.2	0.97 mho/m
Measured Body TSL parameters	(22.0 $\pm$ 0.2) °C	53.6 $\pm$ 6 %	1.00 mho/m $\pm$ 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

### SAR result with Body TSL

SAR averaged over 1 cm <sup>3</sup> (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	2.50 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	9.71 mW / g $\pm$ 17.0 % (k=2)

SAR averaged over 10 cm <sup>3</sup> (10 g) of Body TSL	condition	
SAR measured	250 mW input power	1.64 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	6.41 mW / g $\pm$ 16.5 % (k=2)

**Appendix**

**Antenna Parameters with Head TSL**

Impedance, transformed to feed point	52.7 $\Omega$ - 0.7 j $\Omega$
Return Loss	- 31.2 dB

**Antenna Parameters with Body TSL**

Impedance, transformed to feed point	48.5 $\Omega$ - 2.3 j $\Omega$
Return Loss	- 31.3 dB

**General Antenna Parameters and Design**

Electrical Delay (one direction)	1.390 ns
----------------------------------	----------

After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.

No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

**Additional EUT Data**

Manufactured by	SPEAG
Manufactured on	September 15, 2009

**DASY5 Validation Report for Head TSL**

Date: 22.06.2012

Test Laboratory: SPEAG, Zurich, Switzerland

**DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN: 4d092**

Communication System: CW; Frequency: 835 MHz

Medium parameters used:  $f = 835 \text{ MHz}$ ;  $\sigma = 0.89 \text{ mho/m}$ ;  $\epsilon_r = 41.1$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(6.07, 6.07, 6.07); Calibrated: 30.12.2011;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn901; Calibrated: 05.06.2012
- Phantom: Flat Phantom 4.9L; Type: QD000P49AA; Serial: 1001
- DASY52 52.8.1(838); SEMCAD X 14.6.5(6469)

**Dipole Calibration for Head Tissue/Pin=250 mW, d=15mm 2/Zoom Scan (7x7x7)/Cube 0:**

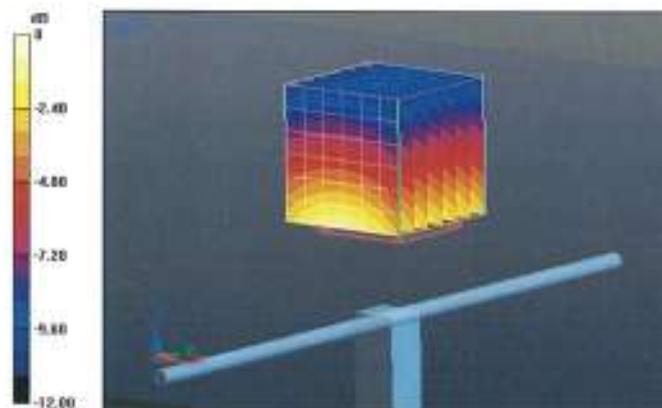
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 57.038 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 3.489 mW/g

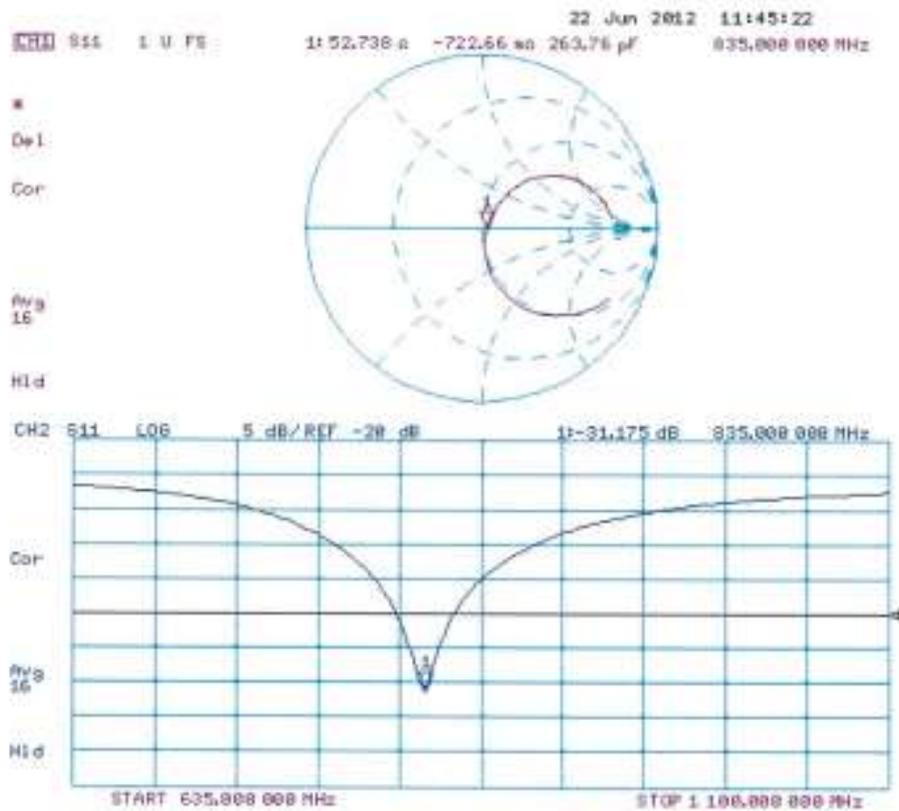
**SAR(1 g) = 2.34 mW/g; SAR(10 g) = 1.53 mW/g**

Maximum value of SAR (measured) = 2.74 mW/g



0 dB = 2.74 mW/g = 8.76 dB mW/g

Impedance Measurement Plot for Head TSL



**DASY5 Validation Report for Body TSL**

Date: 22.06.2012

Test Laboratory: SPEAG, Zurich, Switzerland

**DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN: 4d092**

Communication System: CW; Frequency: 835 MHz

Medium parameters used:  $f = 835$  MHz;  $\sigma = 1$  mho/m;  $\epsilon_r = 53.6$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(6.02, 6.02, 6.02); Calibrated: 30.12.2011;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn901; Calibrated: 05.06.2012
- Phantom: Flat Phantom 4.9L; Type: QD000P49AA; Serial: 1001
- DASY52 52.8.1(838); SEMCAD X 14.6.5(6469)

**Dipole Calibration for Body Tissue/Pin=250 mW, d=15mm/Zoom Scan (7x7x7)/Cube 0:**

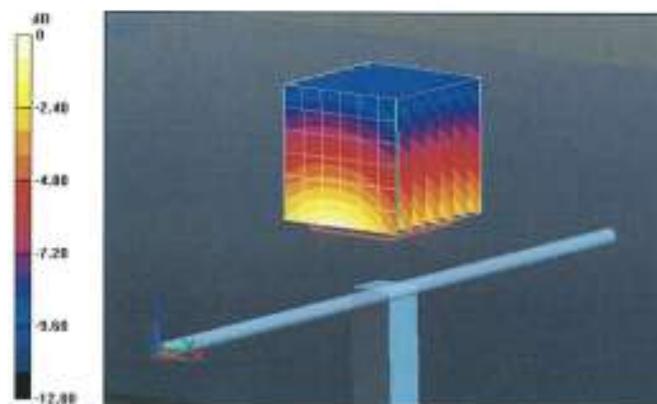
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 55.426 V/m; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 3.668 mW/g

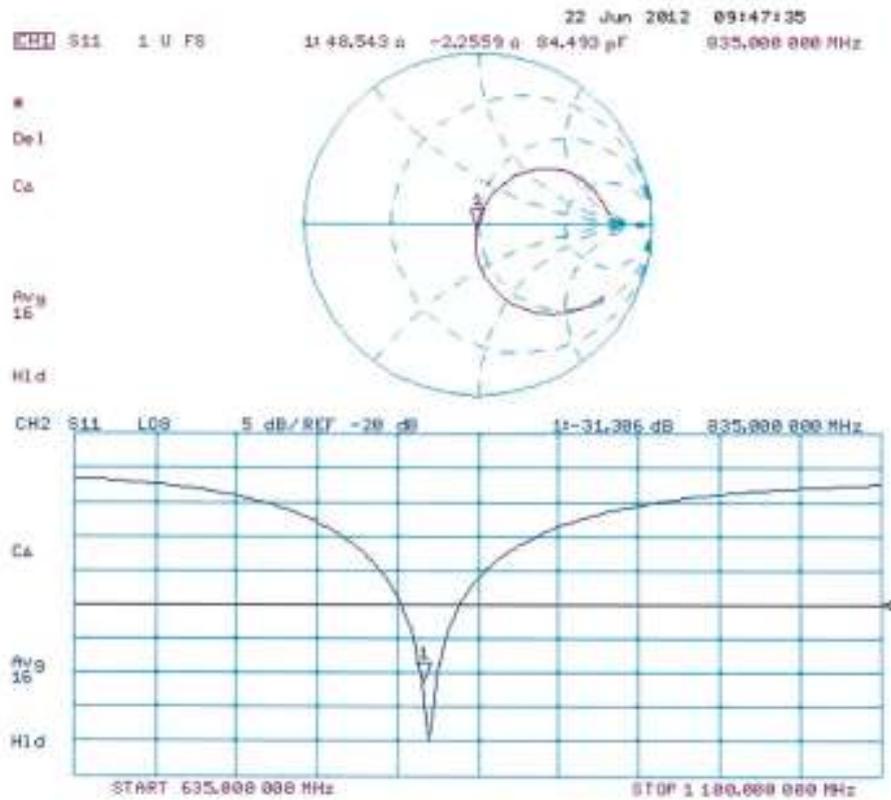
SAR(1 g) = 2.5 mW/g; SAR(10 g) = 1.64 mW/g

Maximum value of SAR (measured) = 2.87 mW/g



0 dB = 2.87 mW/g = 9.16 dB mW/g

Impedance Measurement Plot for Body TSL



**Annex C.4 D1900V2 Calibration Certificate**

Calibration Laboratory of  
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Accreditation No.: SCS 108

Client **Tejet (Auden)**

Certificate No: **D1900V2-5d155\_Apr12**

**CALIBRATION CERTIFICATE**

Object: **D1900V2 - SN: 5d155**

Calibration procedure(s): **QA CAL-05.v8  
Calibration procedure for dipole validation kits above 700 MHz**

Calibration date: **April 03, 2012**

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).  
The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter EPM-42A	GB37480704	05-Oct-11 (No. 217-01451)	Oct-12
Power sensor HP 8481A	US37290785	05-Oct-11 (No. 217-01451)	Oct-12
Reference 20 dB Attenuator	SN: 5058 (20K)	27-Mar-12 (No. 217-01500)	Apr-13
Type-N mismatch combination	SN: 5047.2 / 06327	27-Mar-12 (No. 217-01533)	Apr-13
Reference Probe ES320V3	SN: 3206	30-Dec-11 (No. ES3-3206_Dec11)	Dec-12
DAE4	SN: 601	04-Jul-11 (No. DAE4-601_Jul11)	Jul-12
Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power sensor HP 8481A	MY41002317	19-Oct-02 (in house check Oct-11)	In house check: Oct-12
RF generator R&S SMT-06	100005	04-Aug-99 (in house check Oct-11)	In house check: Oct-12
Network Analyzer HP 8753E	US37390586-54266	18-Oct-01 (in house check Oct-11)	In house check: Oct-12

Calibrated by: **Jeton Kostrat** (Name)      **Laboratory Technician** (Function)      *[Signature]* (Signature)

Approved by: **Katja Pokovic** (Name)      **Technical Manager** (Function)      *[Signature]* (Signature)

Issued: April 12, 2012

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Accreditation No.: SCS 108

**Glossary:**

TSL tissue simulating liquid  
ConvF sensitivity in TSL / NORM x,y,z  
N/A not applicable or not measured

**Calibration is Performed According to the Following Standards:**

- a) IEEE Std 1528-2003, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", December 2003
- b) IEC 62209-1, "Procedure to measure the Specific Absorption Rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)", February 2005
- c) Federal Communications Commission Office of Engineering & Technology (FCC OET), "Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields; Additional Information for Evaluating Compliance of Mobile and Portable Devices with FCC Limits for Human Exposure to Radiofrequency Emissions", Supplement C (Edition 01-01) to Bulletin 65

**Additional Documentation:**

- d) DASY4/5 System Handbook

**Methods Applied and Interpretation of Parameters:**

- *Measurement Conditions:* Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- *Antenna Parameters with TSL:* The dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- *Feed Point Impedance and Return Loss:* These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- *Electrical Delay:* One-way delay between the SMA connector and the antenna feed point. No uncertainty required.
- *SAR measured:* SAR measured at the stated antenna input power.
- *SAR normalized:* SAR as measured, normalized to an input power of 1 W at the antenna connector.
- *SAR for nominal TSL parameters:* The measured TSL parameters are used to calculate the nominal SAR result.

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

**Measurement Conditions**

DASY system configuration, as far as not given on page 1.

DASY Version	DASY5	V52.8.0
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	$\Delta x, \Delta y, \Delta z = 5$ mm	
Frequency	1900 MHz $\pm$ 1 MHz	

**Head TSL parameters**

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	40.0	1.40 mho/m
Measured Head TSL parameters	(22.0 $\pm$ 0.2) °C	40.8 $\pm$ 6 %	1.37 mho/m $\pm$ 6 %
Head TSL temperature change during test	< 0.5 °C	---	---

**SAR result with Head TSL**

SAR averaged over 1 cm <sup>3</sup> (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	9.65 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	39.3 mW / g $\pm$ 17.0 % (k=2)

SAR averaged over 10 cm <sup>3</sup> (10 g) of Head TSL	condition	
SAR measured	250 mW input power	5.09 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	20.6 mW / g $\pm$ 16.5 % (k=2)

**Body TSL parameters**

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	53.3	1.52 mho/m
Measured Body TSL parameters	(22.0 $\pm$ 0.2) °C	53.3 $\pm$ 6 %	1.51 mho/m $\pm$ 6 %
Body TSL temperature change during test	< 0.5 °C	---	---

**SAR result with Body TSL**

SAR averaged over 1 cm <sup>3</sup> (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	10.0 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	40.2 mW / g $\pm$ 17.0 % (k=2)

SAR averaged over 10 cm <sup>3</sup> (10 g) of Body TSL	condition	
SAR measured	250 mW input power	5.30 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	21.3 mW / g $\pm$ 16.5 % (k=2)

**Appendix**

**Antenna Parameters with Head TSL**

Impedance, transformed to feed point	52.3 $\Omega$ + 5.4 $j\Omega$
Return Loss	- 24.8 dB

**Antenna Parameters with Body TSL**

Impedance, transformed to feed point	48.7 $\Omega$ + 6.0 $j\Omega$
Return Loss	- 24.2 dB

**General Antenna Parameters and Design**

Electrical Delay (one direction)	1.202 ns
----------------------------------	----------

After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.

No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

**Additional EUT Data**

Manufactured by	SPEAG
Manufactured on	December 20, 2011

**DASY5 Validation Report for Head TSL**

Date: 03.04.2012

Test Laboratory: SPEAG, Zurich, Switzerland

**DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN: 5d155**

Communication System: CW; Frequency: 1900 MHz

Medium parameters used:  $f = 1900$  MHz;  $\sigma = 1.37$  mho/m;  $\epsilon_r = 40.8$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(5.01, 5.01, 5.01); Calibrated: 30.12.2011
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 04.07.2011
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- DASY52 52.8.0(692); SEMCAD X 14.6.4(4989)

**Dipole Calibration for Head Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:**

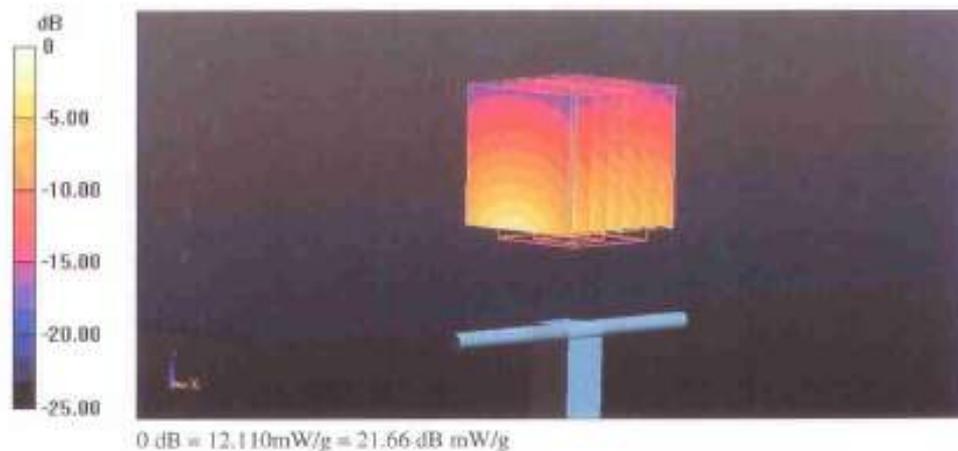
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 97.442 V/m; Power Drift = 0.04 dB

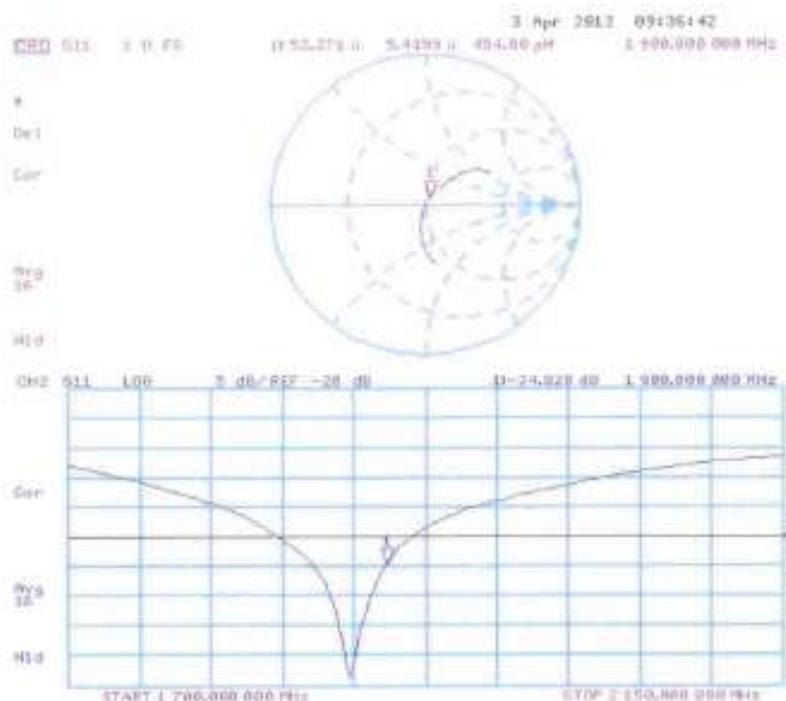
Peak SAR (extrapolated) = 17.1390

**SAR(1 g) = 9.65 mW/g; SAR(10 g) = 5.09 mW/g**

Maximum value of SAR (measured) = 12.105 mW/g



Impedance Measurement Plot for Head TSL



**DASY5 Validation Report for Body TSL**

Date: 03.04.2012

Test Laboratory: SPEAG, Zurich, Switzerland

**DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN: 5d155**

Communication System: CW; Frequency: 1900 MHz

Medium parameters used:  $f = 1900$  MHz;  $\sigma = 1.51$  mho/m;  $\epsilon_r = 53.3$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(4.62, 4.62, 4.62); Calibrated: 30.12.2011
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 04.07.2011
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; Serial: 1002
- DASY52 52.8.0(692); SEMCAD X 14.6.4(4989)

**Dipole Calibration for Body Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:**

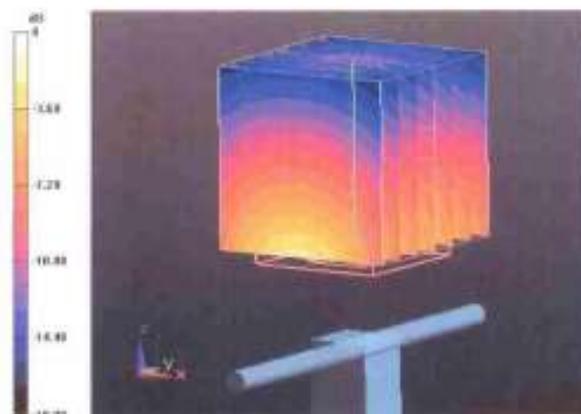
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 95.405 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 17.4140

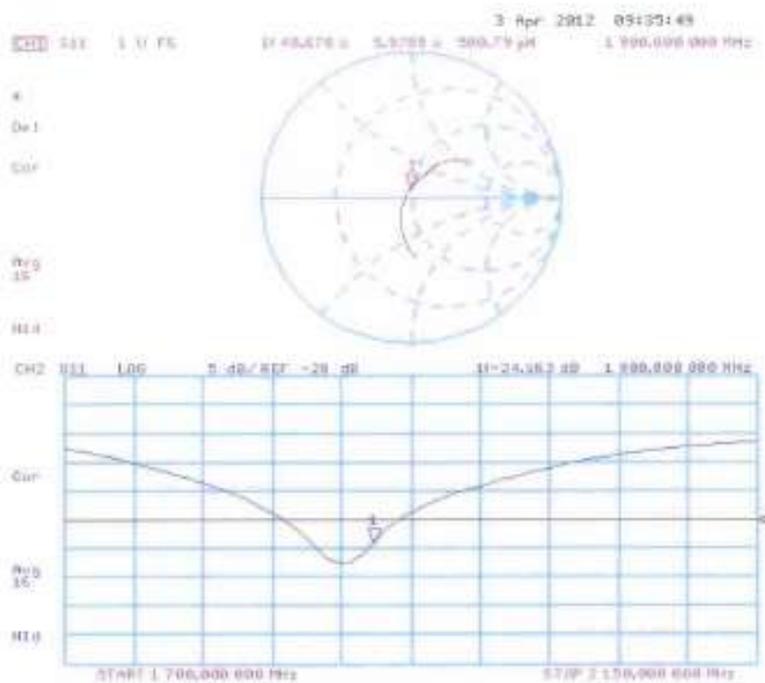
SAR(1 g) = 10 mW/g; SAR(10 g) = 5.3 mW/g

Maximum value of SAR (measured) = 12.631 mW/g



0 dB = 12.630mW/g = 22.03 dB mW/g

Impedance Measurement Plot for Body TSL



**Annex C.5 D2450V2 Calibration Certificate**

**Calibration Laboratory of  
Schmid & Partner  
Engineering AG**  
Zeughausstrasse 43, 8004 Zurich, Switzerland



**S** Schweizerischer Kalibrierdienst  
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**S** Swiss Calibration Service

Accredited by the Swiss Accreditation Service (SAS)  
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Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 108**

Client: **Auden**

Certificate No.: **D2450V2-869\_Jun12**

CALIBRATION CERTIFICATE																																															
Object	D2450V2 - SN: 869																																														
Calibration procedure(s)	QA CAL-05.v8 Calibration procedure for dipole validation kits above 700 MHz																																														
Calibration date:	June 15, 2012																																														
<p>This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI). The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.</p> <p>All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity &lt; 70%.</p> <p>Calibration Equipment used (M&amp;TE critical for calibration)</p> <table border="1"> <thead> <tr> <th>Primary Standards</th> <th>ID #</th> <th>Cal Date (Certificate No.)</th> <th>Scheduled Calibration</th> </tr> </thead> <tbody> <tr> <td>Power meter EPM-442A</td> <td>GB37480704</td> <td>05-Oct-11 (No. 217-01451)</td> <td>Oct-12</td> </tr> <tr> <td>Power sensor HP 8481A</td> <td>US37292703</td> <td>05-Oct-11 (No. 217-01451)</td> <td>Oct-12</td> </tr> <tr> <td>Reference 20 dB Attenuator</td> <td>SN: 5058 (20A)</td> <td>27-Mar-12 (No. 217-01530)</td> <td>Apr-13</td> </tr> <tr> <td>Type-N mismatch combination</td> <td>SN: 5047.2 / 06327</td> <td>27-Mar-12 (No. 217-01533)</td> <td>Apr-13</td> </tr> <tr> <td>Reference Probe ES30V3</td> <td>SN: 3205</td> <td>30-Dec-11 (No. ES3-3205_Dec11)</td> <td>Dec-12</td> </tr> <tr> <td>DAE4</td> <td>SN: 601</td> <td>04-Jul-11 (No. DAE4-601_Jul11)</td> <td>Jul-12</td> </tr> </tbody> </table> <table border="1"> <thead> <tr> <th>Secondary Standards</th> <th>ID #</th> <th>Check Date (in house)</th> <th>Scheduled Check</th> </tr> </thead> <tbody> <tr> <td>Power sensor HP 8481A</td> <td>MY41092317</td> <td>18-Oct-02 (in house check Oct-11)</td> <td>In house check: Oct-12</td> </tr> <tr> <td>RF generator R&amp;S SMT-06</td> <td>I00005</td> <td>04-Aug-99 (in house check Oct-11)</td> <td>In house check: Oct-12</td> </tr> <tr> <td>Network Analyzer HP 8753E</td> <td>US37390585 S4206</td> <td>18-Oct-01 (in house check Oct-11)</td> <td>In house check: Oct-12</td> </tr> </tbody> </table>				Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration	Power meter EPM-442A	GB37480704	05-Oct-11 (No. 217-01451)	Oct-12	Power sensor HP 8481A	US37292703	05-Oct-11 (No. 217-01451)	Oct-12	Reference 20 dB Attenuator	SN: 5058 (20A)	27-Mar-12 (No. 217-01530)	Apr-13	Type-N mismatch combination	SN: 5047.2 / 06327	27-Mar-12 (No. 217-01533)	Apr-13	Reference Probe ES30V3	SN: 3205	30-Dec-11 (No. ES3-3205_Dec11)	Dec-12	DAE4	SN: 601	04-Jul-11 (No. DAE4-601_Jul11)	Jul-12	Secondary Standards	ID #	Check Date (in house)	Scheduled Check	Power sensor HP 8481A	MY41092317	18-Oct-02 (in house check Oct-11)	In house check: Oct-12	RF generator R&S SMT-06	I00005	04-Aug-99 (in house check Oct-11)	In house check: Oct-12	Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (in house check Oct-11)	In house check: Oct-12
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Approved by:	Name Katja Pokovic	Function Technical Manager	Signature 																																												
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This calibration certificate shall not be reproduced except in full without written approval of the laboratory.																																															

Calibration Laboratory of  
Schmid & Partner  
Engineering AG  
Zeughausstrasse 43, 8004 Zurich, Switzerland



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Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: SCS 108

#### Glossary:

TSL	tissue simulating liquid
ConvF	sensitivity in TSL / NORM x,y,z
N/A	not applicable or not measured

#### Calibration is Performed According to the Following Standards:

- IEEE Std 1528-2003, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", December 2003
- IEC 62209-1, "Procedure to measure the Specific Absorption Rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)", February 2005
- Federal Communications Commission Office of Engineering & Technology (FCC OET), "Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields; Additional Information for Evaluating Compliance of Mobile and Portable Devices with FCC Limits for Human Exposure to Radiofrequency Emissions", Supplement C (Edition 01-01) to Bulletin 65

#### Additional Documentation:

- DASY4/5 System Handbook

#### Methods Applied and Interpretation of Parameters:

- Measurement Conditions:** Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- Antenna Parameters with TSL:** The dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- Feed Point Impedance and Return Loss:** These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- Electrical Delay:** One-way delay between the SMA connector and the antenna feed point. No uncertainty required.
- SAR measured:** SAR measured at the stated antenna input power.
- SAR normalized:** SAR as measured, normalized to an input power of 1 W at the antenna connector.
- SAR for nominal TSL parameters:** The measured TSL parameters are used to calculate the nominal SAR result.

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

**Measurement Conditions**

DASY system configuration, as far as not given on page 1.

DASY Version	DASY5	V52.8.1
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	2450 MHz $\pm$ 1 MHz	

**Head TSL parameters**

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	39.2	1.80 mho/m
Measured Head TSL parameters	(22.0 $\pm$ 0.2) °C	38.9 $\pm$ 6 %	1.86 mho/m $\pm$ 6 %
Head TSL temperature change during test	< 0.5 °C	---	---

**SAR result with Head TSL**

SAR averaged over 1 cm <sup>3</sup> (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	13.8 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	54.3 mW / g $\pm$ 17.0 % (k=2)

SAR averaged over 10 cm <sup>3</sup> (10 g) of Head TSL	condition	
SAR measured	250 mW input power	6.41 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	25.4 mW / g $\pm$ 16.5 % (k=2)

**Body TSL parameters**

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	52.7	1.95 mho/m
Measured Body TSL parameters	(22.0 $\pm$ 0.2) °C	51.6 $\pm$ 6 %	2.01 mho/m $\pm$ 6 %
Body TSL temperature change during test	< 0.5 °C	---	---

**SAR result with Body TSL**

SAR averaged over 1 cm <sup>3</sup> (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	13.0 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	51.0 mW / g $\pm$ 17.0 % (k=2)

SAR averaged over 10 cm <sup>3</sup> (10 g) of Body TSL	condition	
SAR measured	250 mW input power	6.06 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	24.0 mW / g $\pm$ 16.5 % (k=2)

**Appendix**

**Antenna Parameters with Head TSL**

Impedance, transformed to feed point	53.0 $\Omega$ + 6.0 $j\Omega$
Return Loss	- 23.7 dB

**Antenna Parameters with Body TSL**

Impedance, transformed to feed point	50.0 $\Omega$ + 6.4 $j\Omega$
Return Loss	- 23.6 dB

**General Antenna Parameters and Design**

Electrical Delay (one direction)	1.159 ns
----------------------------------	----------

After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.

No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

**Additional EUT Data**

Manufactured by	SPEAG
Manufactured on	August 18, 2010

**DASY5 Validation Report for Head TSL**

Date: 15.06.2012

Test Laboratory: SPEAG, Zurich, Switzerland

**DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN: 869**

Communication System: CW; Frequency: 2450 MHz

Medium parameters used:  $f = 2450$  MHz;  $\sigma = 1.86$  mho/m;  $\epsilon_r = 38.9$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(4.45, 4.45, 4.45); Calibrated: 30.12.2011;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 04.07.2011
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- DASY52 52.8.1(838); SEMCAD X 14.6.5(6469)

**Dipole Calibration for Head Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:**

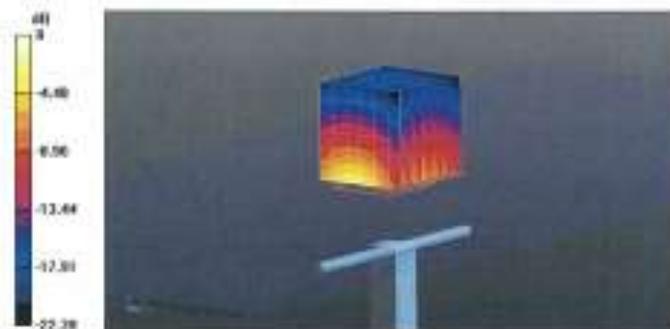
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 99.524 V/m; Power Drift = 0.08 dB

Peak SAR (extrapolated) = 28.407 mW/g

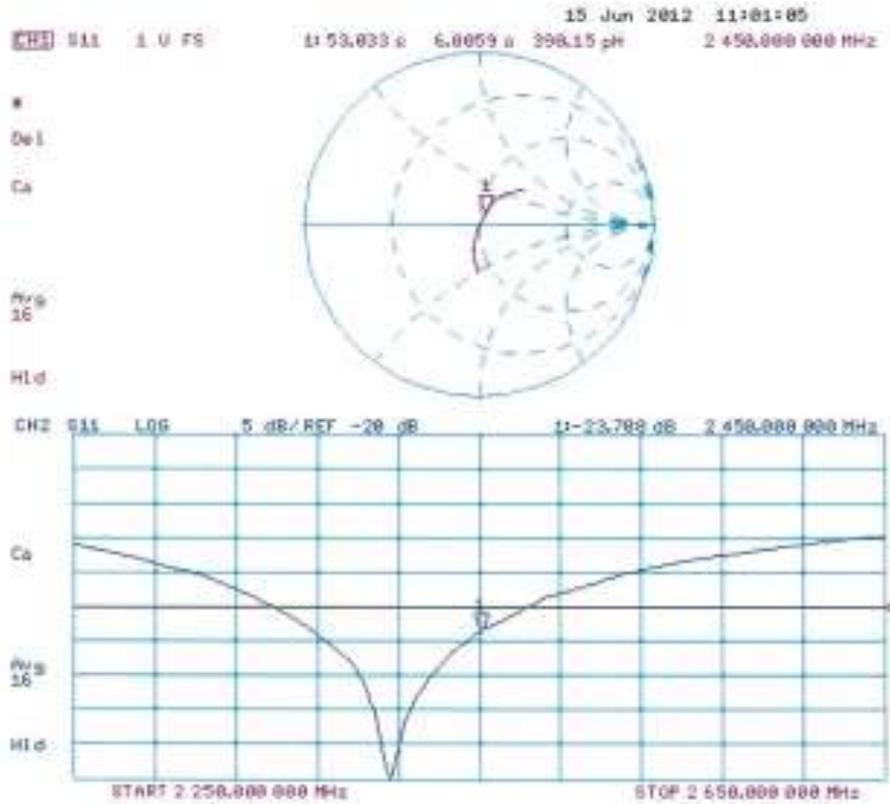
**SAR(1 g) = 13.8 mW/g; SAR(10 g) = 6.41 mW/g**

Maximum value of SAR (measured) = 17.5 mW/g



0 dB = 17.5 mW/g = 24.86 dB mW/g

Impedance Measurement Plot for Head TSL



**DASY5 Validation Report for Body TSL**

Date: 14.06.2012

Test Laboratory: SPEAG, Zurich, Switzerland

**DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN: 869**

Communication System: CW; Frequency: 2450 MHz

Medium parameters used:  $f = 2450$  MHz;  $\sigma = 2.01$  mho/m;  $\epsilon_r = 51.6$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(4.26, 4.26, 4.26); Calibrated: 30.12.2011;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 04.07.2011
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; Serial: 1002
- DASY52 52.8.1(838); SEMCAD X 14.6.5(6469)

**Dipole Calibration for Body Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:**

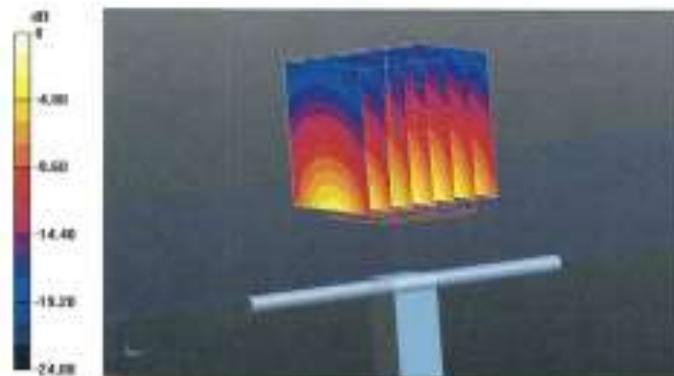
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 95,289 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 26.649 mW/g

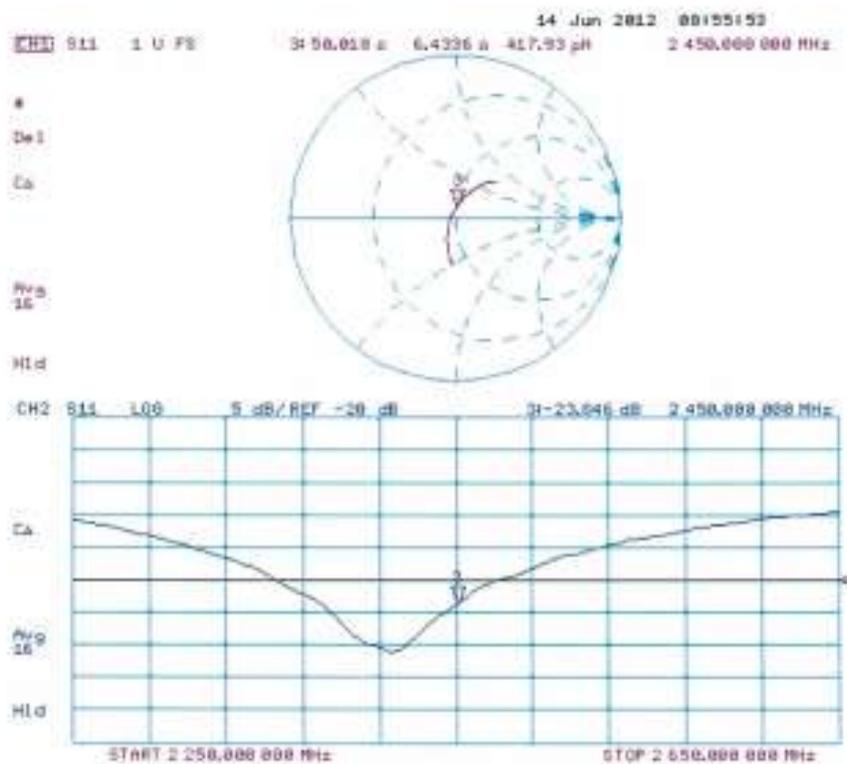
**SAR(1 g) = 13 mW/g; SAR(10 g) = 6.06 mW/g**

Maximum value of SAR (measured) = 17.0 mW/g



0 dB = 17.0 mW/g = 24.61 dB mW/g

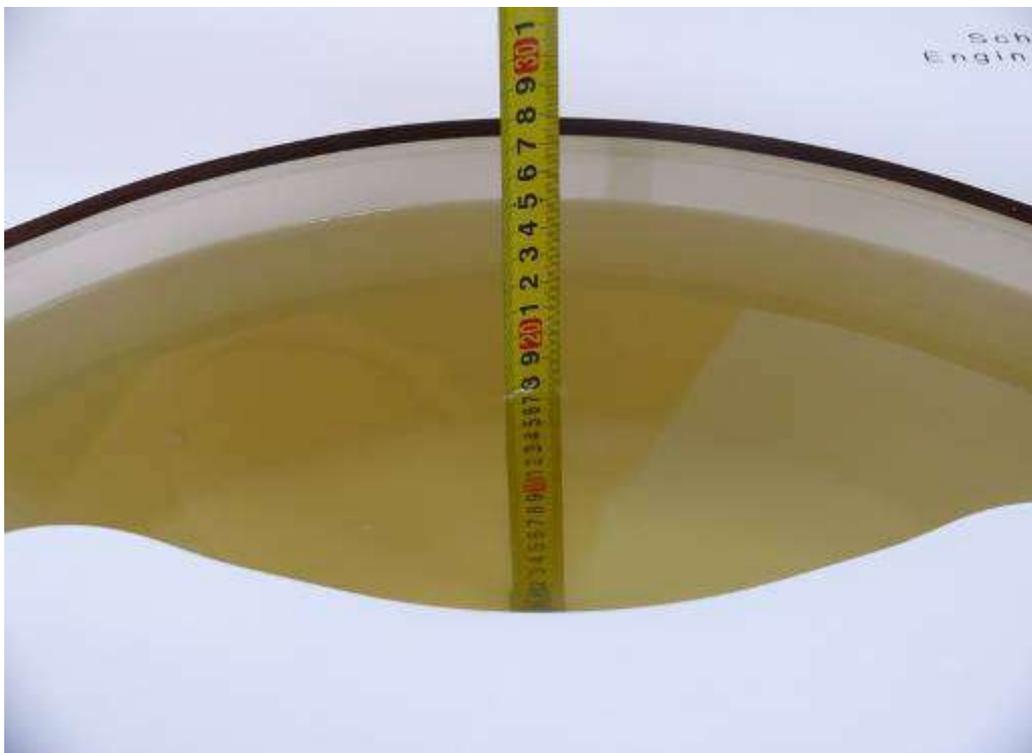
Impedance Measurement Plot for Body TSL



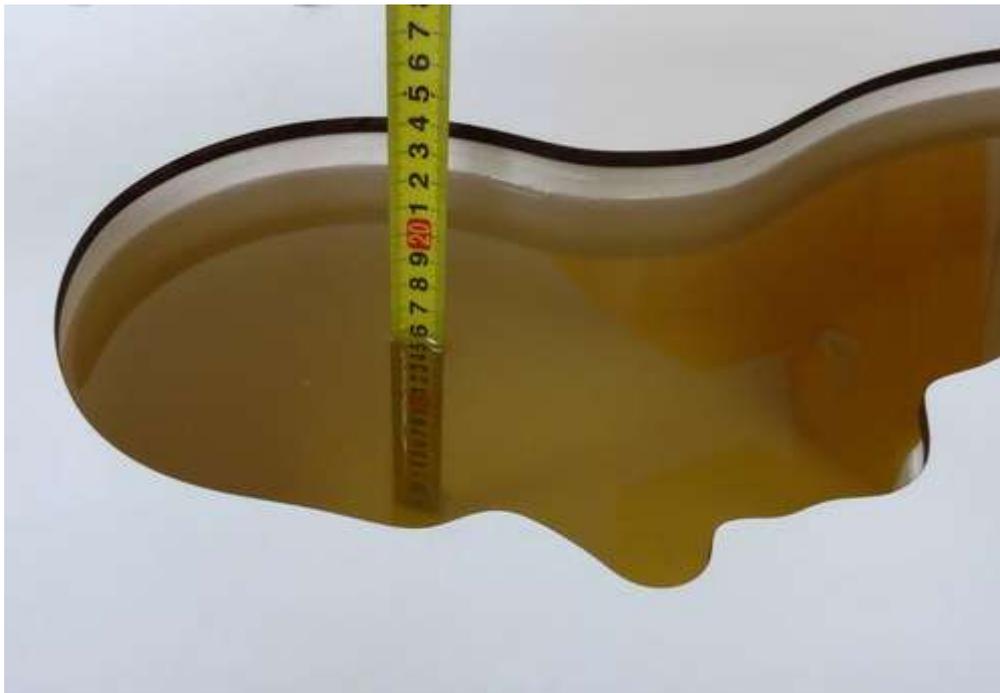
**ANNEX D: Test Layout**



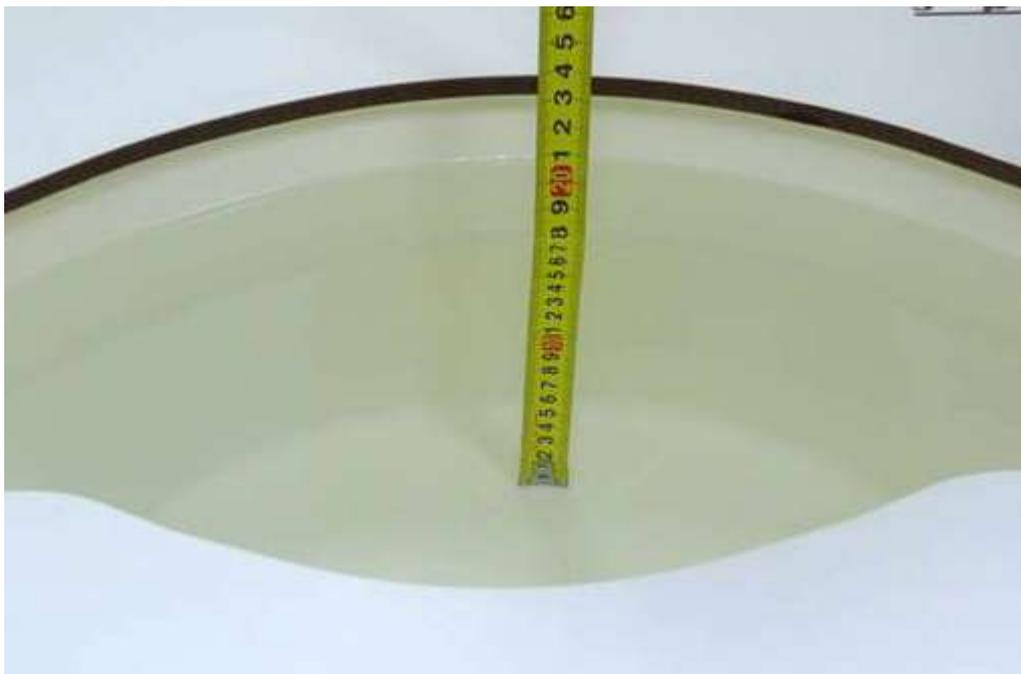
Picture D.1: Specific Absorption Rate Test Layout



Picture D.2: Liquid depth in the flat Phantom (835MHz) (17.5cm deep)



Picture D.3: Liquid depth in the head Phantom (835MHz) (16cm deep)



Picture D.4: Liquid depth in the flat Phantom (1900 MHz) (16cm deep)



Picture D.5: liquid depth in the head Phantom (1900 MHz) (15.2cm deep)



Picture D.6: Liquid depth in the flat Phantom (2450 MHz) (18.6cm deep)



Picture D.7: liquid depth in the head Phantom (2450 MHz) (15.2cm deep)

-----END OF REPORT-----