

# SAR TEST REPORT

Equipment Under Test	Smartphone
Model Name	PB99200
Brand Name	HTC
Company Name	HTC Corporation
Company Address	No.23, Xinghua Rd., Taoyuan City, Taoyuan County 330, Taiwan.
Date of Receipt	2010.02.10
Date of Test(s)	2010.03.09 -11
Date of Issue	2010.03.16

Standards:

**FCC OET 65 supplement C,  
ANSI/IEEE C95.1, C95.3, IEEE 1528**

In the configuration tested, the EUT complied with the standards specified above.

## Remarks:

This report details the results of the testing carried out on one sample, 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.

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Tested by : Antony Wu Date : 2010.03.16  
Engineer

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## 1. General Information

### 1.1 Testing Laboratory

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Taipei county, Taiwan, R.O.C.	
Telephone	+886-2-2299-3279
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### 1.2 Details of Applicant

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	http://www.htc.com/tw/

### 1.3 Description of EUT

EUT Name	Smartphone
Model Name	PB99200
Brand Name	HTC
IMEI Code	Original solution : 357841030034561 Second solution : 357841030038230
FCC ID	NM8PB99200
Mode of Operation	GSM/GPRS/WCDMA/HSDPA/HSUPA /WLAN802.11b&g band

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Modulation Mode	GMSK/8PSK/16QAM/QPSK/CCK/OFDM		
Duty Cycle	GSM	GPRS (2multi-slot)	WLAN 802.11b&g
	1/8	1/4	1
Maximum RF Conducted Power (Average)	GSM 850	GSM 1900	WLAN 802.11b&g
	33dBm	29.5dBm	14.34dBm
TX Frequency Range (MHz)	GSM 850	GSM 1900	WLAN 802.11b&g
	824.2-848.8	1850.2-1909.8	2412- 2462
Channel Number (ARFCN)	GSM 850	GSM 1900	WLAN 802.11b&g
	128-251	512-810	1-11
VOIP Function	Yes		
Battery Type	3.7 V Lithium-Ion		
Antenna Type	Internal Antenna		
Definition	<b>Second solution(change Metal Button)</b>		
	<p>In addition to the Original sample shown in these Test results, model PB99200 also has an option for a camera; SAR values were checked on these options using the spot check method. We found results were same or lower than Original for GSM850/GSM1900/WLAN 802.11b/g but still within 20% of highest measured SAR.</p>		
Max. SAR Measured (1 g)	<b>Original solution</b>		
	GSM850		
	Head	Body	
	<b>0.432 mW/g</b> (At GSM 850 Left Head (Cheek Position)_ 251 channel)	<b>1.04 mW/g</b> (At GSM 850 Body_ 251 channel_repeated with Cotron headset)	

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Max. SAR Measured (1 g)	GSM1900	
	Head	Body
	<b>0.453 mW/g</b> (At GSM 1900 Right Head (Cheek Position)_ 512 channel_repeated with Memory card)	<b>0.646 mW/g</b> (At GSM 1900 Body_ 512 channel)
	WLAN 802.11 b	
	Head	Body
	<b>0.17 mW/g</b> (At WLAN 802.11b Right Head (Cheek Position)_ 6 channel)	<b>0.12 mW/g</b> (At WLAN 802.11b Body_ 6 channel_repeated with Bluetooth active)
	WLAN 802.11 g	
	Head	Body
	<b>0.065mW/g</b> (At WLAN 802.11g Right Head (15° Tilt Position)_ 6 channel)	<b>0.051 mW/g</b> (At WLAN 802.11g Body_ 6 channel)
	Second solution	
	GSM850	
	Head	Body
	<b>0.481 mW/g</b> (At GSM 850 Left Head (Cheek Position)_ 251 channel)	<b>0.991 mW/g</b> (At GSM 850 Body_ 251 channel_repeated with Cotron headset)
	GSM1900	
	Head	Body
<b>0.428 mW/g</b> (At GSM 1900 Right Head (Cheek Position)_ 512 channel_repeated with Memory card)	<b>0.532 mW/g</b> (At GSM 1900 Body_ 512 channel)	

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Max. SAR Measured (1 g)	WLAN 802.11 b	
	Head	Body
	<b>0.172 mW/g</b> (At WLAN 802.11b Right Head (Cheek Position)_ 6 channel)	<b>0.13 mW/g</b> (At WLAN 802.11b Body_ 6 channel_repeated with Bluetooth active)
	WLAN 802.11 g	
	Head	Body
	<b>0.065 mW/g</b> (At WLAN 802.11g Right Head (15° Tilt Position)_ 6 channel)	<b>0.047 mW/g</b> (At WLAN 802.11g Body_ 6 channel)

#### 1.4 Test Environment

Ambient Temperature: 22±2° C

Tissue Simulating Liquid: 22±2° C

#### 1.5 Operation description

##### General:

1. The EUT is controlled by using a Radio Communication Tester (Agilent 8960), and the communication between the EUT and the tester is established by air link.
2. Measurements are performed respectively on the lowest, middle and highest channels of the operating band(s). The EUT is set to maximum power level during all tests, and at the beginning of each test the battery is fully charged.
3. The WLAN transmitter is controlled by chip-specific software installed in this PDA phone , to make the EUT transmit at max power.
4. During the SAR testing, the DASY5 system checks power drift by comparing the e-field strength of one specific location measured at the beginning with that measured at the end of the SAR testing.
5. Testing Head SAR at lowest, middle and highest channel for all bands with LET/LEC/RET/REC conditions.

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6. Testing body-worn SAR by separating **1.5cm** between the back of the EUT and the flat phantom in GPRS mode.

**Additional configuration(Head):**

7. For highest SAR configuration in this band repeated with external Memory card inside.
8. For highest SAR configuration in this band repeated with HT Energy Battery.

**Additional configuration(Body):**

9. Testing body-worn SAR with Handset and with Bluetooth transmitter OFF by separating **1.5cm** between the front of the EUT and the flat phantom in GPRS mode.
10. For highest SAR configuration in this band repeated with external Memory card inside.
11. For highest SAR configuration in this band repeated with Bluetooth active.
12. For highest SAR configuration in this band repeated with Cotron headset.
13. For highest SAR configuration in this band repeated with Merry headset.
14. For highest SAR configuration in this band repeated with HT Energy Battery

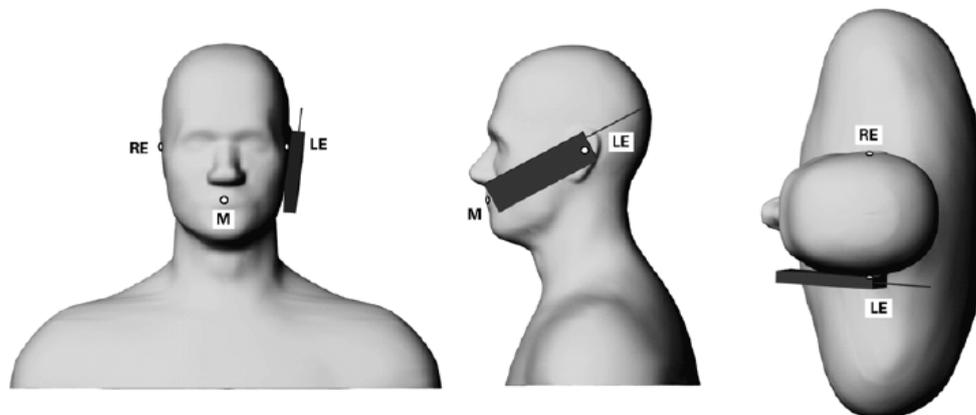
**SAR evaluation considerations for handsets with multiple transmitters:**

15. The maximum SAR value for licensed transmitter happens on GSM 850 band, Head Left side(Cheek Position) , channel 251 with Memory card. the value is **1.04W/kg(1g)**. And the max SAR value for un-licensed transmitter WLAN 802.11b happens on Head Right side(Cheek Position), channel 6 Second solution The SAR value is **0.172W/kg (1g)** . The summation of the 1g SAR is  $1.04+0.172 = 1.212$  **W/kg, which lower than the limit 1.6W/kg. No simultaneous transmission SAR evaluation is necessary.**

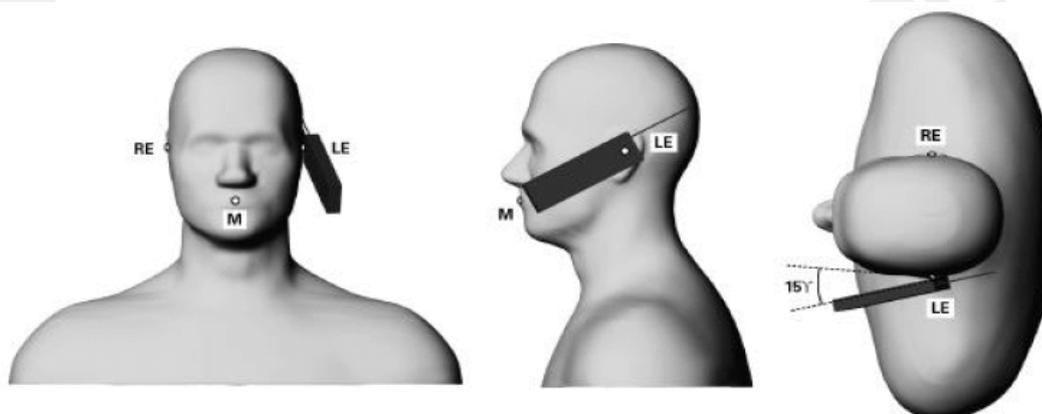
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## 1.6 Positioning Procedure



Phone position 1, "cheek" or "touch" position. The reference points for the right ear (RE), left ear (LE) and mouth (M), which define the reference plane for phone Positioning



Phone position 2, "tilted position." The reference points for the right ear (RE), left ear (LE) and mouth (M), which define the reference plane for phone positioning

**Cheek/Touch Position:**

the handset was brought toward the mouth of the head phantom by pivoting against the ear reference point until any point of the mouthpiece or keypad touched the phantom.

**Ear/Tilt Position:**

With the phone aligned in the Cheek/Touch position, the handset was tilted away from the mouth with respect to the test device reference point by 15 degrees.

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## 1.7 Evaluation Procedures

The entire evaluation of the spatial peak values is performed within the Post-processing engine (SEMCAD). The system always gives the maximum values for the 1 g and 10 g cubes. The algorithm to find the cube with highest averaged SAR is divided into the following stages:

1. The extraction of the measured data (grid and values) from the Zoom Scan.
2. The calculation of the SAR value at every measurement point based on all stored data (A/D values and measurement parameters)
3. The generation of a high-resolution mesh within the measured volume
4. The interpolation of all measured values from the measurement grid to the high-resolution grid
5. The extrapolation of the entire 3-D field distribution to the phantom surface over the distance from sensor to surface
6. The calculation of the averaged SAR within masses of 1g and 10g. The probe is calibrated at the center of the dipole sensors that is located 1 to 2.7mm away from the probe tip. During measurements, the probe stops shortly above the phantom surface, depending on the probe and the surface detecting system. Both distances are included as parameters in the probe configuration file. The software always knows exactly how far away the measured point is from the surface. As the probe cannot directly measure at the surface, the values between the deepest measured point and the surface must be extrapolated. The angle between the probe axis and the surface normal line is less than 30 degree.

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

The maximum search is automatically performed after each area scan measurement. It is based on splines in two or three dimensions. The procedure can find the maximum

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for most SAR distributions even with relatively large grid spacing. After the area scanning measurement, the probe is automatically moved to a position at the interpolated maximum. The following scan can directly use this position for reference, e.g., for a finer resolution grid or the cube evaluations. The 1g and 10g peak evaluations are only available for the predefined cube 7x7x7 scans.

The routines are verified and optimized for the grid dimensions used in these cube measurements. The measured volume of 30x30x30mm contains about 30g of tissue. The first procedure is an extrapolation (incl. Boundary correction) to get the points between the lowest measured plane and the surface. The next step uses 3D interpolation to get all points within the measured volume. In the last step, a 1g cube is placed numerically into the volume and its averaged SAR is calculated. This cube is moved around until the highest averaged SAR is found.

If the highest SAR is found at the edge of the measured volume, the system will issue a warning: higher SAR values might be found outside of the measured volume. In that case the cube measurement can be repeated, using the new interpolated maximum as the center.

## 1.8 The SAR Measurement System

A photograph of the SAR measurement System is given in Fig. a. This SAR Measurement System uses a Computer-controlled 3-D stepper motor system (SPEAG DASY 5 professional system ). A Model ES3DV3 field probe is used to determine the internal electric fields. The SAR can be obtained from the equation  $SAR = \sigma (|E_i|^2) / \rho$  where  $\sigma$  and  $\rho$  are the conductivity and mass density of the tissue-simulant.

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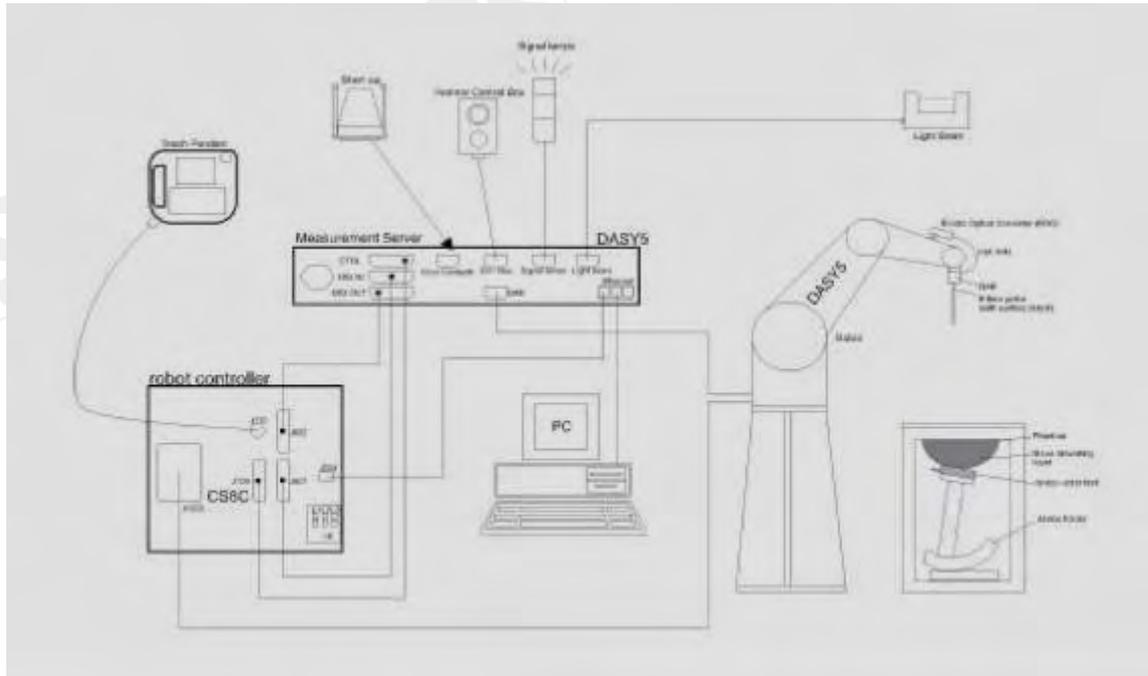


Fig.a The block diagram of SAR system

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

- A standard high precision 6-axis robot (Staubli RX family) with controller, teach pendant and software. An arm extension is for accommodating the data acquisition electronics (DAE).
- A dosimetric probe, i.e., an isotropic E-field probe optimized and calibrated for usage in tissue simulating liquid. The probe is equipped with an optical surface detector system.
- A data acquisition electronics (DAE) which performs the signal amplification, signal multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection, etc. The 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 between optical and electrical of the signals for the digital communication to the DAE and for the analog signal from the optical surface detection. The EOC is connected 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.
- A probe alignment unit which improves the (absolute) accuracy of the probe

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positioning.

- A computer operating Windows 2000 or Windows XP.
- DASY5 software.
- Remote control with teach pendant and additional circuitry for robot safety such as warning lamps, etc.
- The SAM twin phantom enabling testing left-hand and right-hand usage.
- The device holder for handheld mobile phones.
- Tissue simulating liquid mixed according to the given recipes.
- Validation dipole kits allowing to validate the proper functioning of the system.

## 1.9 System Components

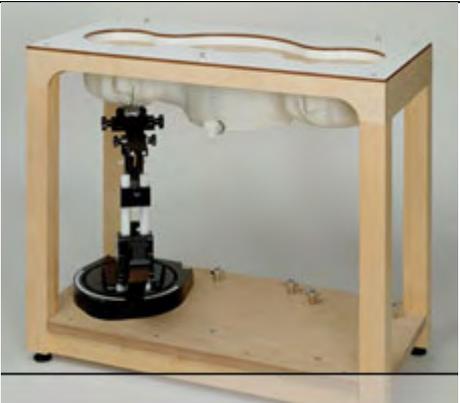
### ES3DV3 E-Field Probe

Construction:	Symmetrical design with triangular core Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., DGBE)	 <p>ES3DV3 E-Field Probe</p>
Calibration:	Basic Broad Band Calibration in air Conversion Factors (CF) for HSL850/1900/2450 Additional CF for other liquids and frequencies upon request	
Frequency:	10 MHz to > 3 GHz; Linearity: $\pm 0.6$ 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 $\mu$ W/g to > 100 mW/g; Linearity: $\pm 0.6$ dB (noise: typically < 1 $\mu$ W/g)	
Dimensions:	Overall length: 337 mm (Tip: 10 mm) Tip diameter: 4 mm (Body: 10 mm) Typical distance from probe tip to dipole centers: 2 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%.	

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## SAM PHANTOM V4.0C

Construction:	<p>The shell corresponds to the specifications of the Specific Anthropomorphic Mannequin (SAM) phantom defined in IEEE 1528-200X, CENELEC 50361 and IEC 62209.</p> <p>It enables the dosimetric evaluation of left and right hand phone usage as well as body mounted usage at the flat phantom region. A cover prevents evaporation of the liquid. Reference markings on the phantom allow the complete setup of all predefined phantom positions and measurement grids by manually teaching three points with the robot.</p>	
Shell Thickness:	2 ± 0.2 mm	
Filling Volume:	Approx. 25 liters	
Dimensions:	<p>Height: 850 mm;</p> <p>Length: 1000 mm;</p> <p>Width: 500 mm</p>	

## DEVICE HOLDER

Construction	<p>In combination with the Twin SAM Phantom V4.0/V4.0C or Twin SAM, the Mounting Device (made from POM) enables the rotation of the mounted transmitter in spherical coordinates, whereby the rotation point is the ear opening. The devices can be easily and accurately positioned according to IEC, IEEE, CENELEC, FCC or other specifications. The device holder can be locked at different phantom locations (left head, right head, flat phantom).</p>	 <p>Device Holder</p>
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### 1.10 SAR System Verification

The microwave circuit arrangement for system verification is sketched in Fig. b. The daily system accuracy verification occurs within the flat section of the SAM phantom. A SAR measurement was performed to see if the measured SAR was within +/-5% from the target SAR values. These tests were done at 850/1900/2450 MHz. The tests were conducted on the same days as the measurement of the DUT. The obtained results from the system accuracy verification are displayed in the table 1. During the tests, the ambient temperature of the laboratory was in the range 22.1°C, the relative humidity was in the range 62% and the liquid depth above the ear reference points was above 15 cm in all the cases. It is seen that the system is operating within its specification, as the results are within acceptable tolerance of the reference values.

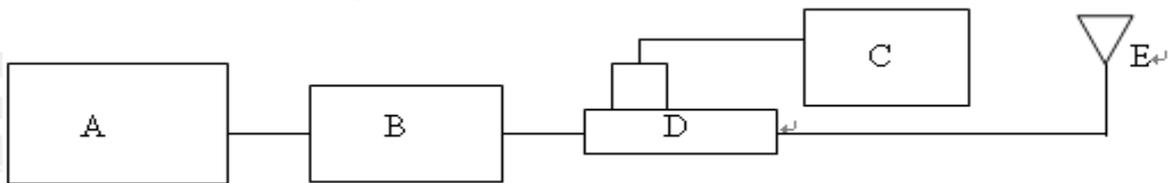
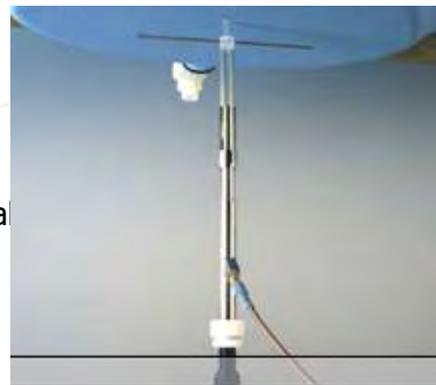


Fig.b The block diagram of SAR system verification

- A. Agilent Model 8648D Signal Generator
- B. Mini circuits Model ZHL-42 Amplifier
- C. Agilent Model U2001B Power Sensor
- D. Agilent Model 778D & 777D Dual directional coupling
- E. Reference dipole antenna



Photograph of the dipole Antenna

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Validation Kit	Frequency (MHz)	Target SAR (1g) (Pin=250mW)	Measured SAR (1g)	Measured Date
D835V2 S/N: 4d063	835 MHz (Head)	2.38 mW/g	2.27 mW/g	2010/03/09
D835V2 S/N: 4d063	835 MHz (Body)	2.55 mW/g	2.45 mW/g	2010/03/10
D1900V2 S/N: 5d027	1900 MHz (Head)	10.5 mW/g	10.3 mW/g	2010/03/09
D1900V2 S/N: 5d027	1900 MHz (Body)	10.6 mW/g	10.4 mW/g	2010/03/10
D2450V2 S/N: 727	2450 MHz (Head)	13.5 mW/g	12.9 mW/g	2010/03/11
D2450V2 S/N: 727	2450 MHz (Body)	13.2 mW/g	13.6 mW/g	2010/03/10

Table 1. System validation (follow manufacture target value)

### 1.11 Tissue Simulant Fluid for the Frequency Band

The dielectric properties for this Head-simulant fluid were measured by using the HP Model 85070D Dielectric Probe (rates frequency band 200 MHz to 20 GHz) in conjunction with HP 8753D Network Analyzer (30 KHz-6000MHz) by using a procedure detailed in Section V.

All dielectric parameters of tissue simulates were measured within 24 hours of SAR measurements. The depth of the tissue simulant in the ear reference point of the phantom was 15cm±5mm during all tests. (Appendix Fig .2)

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Frequency (MHz)	Tissue type	Measurement date/ Limits	Dielectric Parameters		
			$\rho$	$\sigma$ (S/m)	Simulated Tissue Temperature(° C)
850	Head	Measured, 2010.03.09	40.4	0.878	21.7
		Recommended Limits	38.76-42.84	0.85-0.93	20-24
850	Body	Measured, 2010.03.10	56	0.969	21.7
		Recommended Limits	51.11-56.49	0.96-1.06	20-24
1900	Head	Measured, 2010.03.09	38.2	1.46	21.7
		Recommended Limits	36.67-40.53	1.4-1.54	20-24
1900	Body	Measured, 2010.03.10	54.5	1.59	21.7
		Recommended Limits	52.16-57.65	1.48-1.64	20-24
2450	Head	Measured, 2010.03.11	38.1	1.82	21.7
		Recommended Limits	36.10-39.90	1.73-1.91	20-24
2450	Body	Measured, 2010.03.10	52.2	2.08	21.7
		Recommended Limits	51.68-57.12	1.88-2.08	20-24

Table 2. Dielectric Parameters of Tissue Simulant Fluid

The composition of the brain tissue simulating liquid for 850 &amp; 1900 &amp; 2450 band:

Ingredient	850MHz (Head)	850MHz (Body)	1900MHz (Head)	1900MHz (Body)	2450MHz (Body)
DGMBE	X	X	444.52 g	300.67 g	301.7 ml
Water	532.98 g	631.68 g	552.42 g	716.56 g	698.3 ml
Salt	18.3 g	11.72 g	3.06 g	4.0 g	X
Preventol D-7	2.4 g	1.2 g	X	X	X
Cellulose	3.2 g	X	X	X	X
Sugar	766.0 g	600 g	X	X	X
Total amount	1 L (1.0kg)	1 L (1.0kg)	1 L (1.0kg)	1 L (1.0kg)	1 L (1.0kg)

Table 3. Recipes for tissue simulating liquid

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## 1.12 Test Standards and Limits

According to FCC 47CFR §2.1093(d) The limits to be used for evaluation are based generally on criteria published by the American National Standards Institute (ANSI) for localized specific absorption rate ("SAR") in Section 4.2 of "IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz," ANSI/IEEE C95.1-1992, Copyright 1992 by the Institute of Electrical and Electronics Engineers, Inc., New York, New York 10017. These criteria for SAR evaluation are similar to those recommended by the National Council on Radiation Protection and Measurements (NCRP) in "Biological Effects and Exposure Criteria for Radio frequency Electromagnetic Fields," NCRP Report No. 86, Section 17.4.5. Copyright NCRP, 1986, Bethesda, Maryland 20814. SAR is a measure of the rate of energy absorption due to exposure to an RF transmitting source. SAR values have been related to threshold levels for potential biological hazards. The criteria to be used are specified in paragraphs (d)(1) and (d)(2) of this section and shall apply for portable devices transmitting in the frequency range from 100 kHz to 6 GHz. Portable devices that transmit at frequencies above 6 GHz are to be evaluated in terms of the MPE limits specified in § 1.1310 of this chapter.

Measurements and calculations to demonstrate compliance with MPE field strength or power density limits for devices operating above 6 GHz should be made at a minimum distance of 5 cm from the radiating source.

(1) Limits for Occupational/Controlled exposure: 0.4 W/kg as averaged over the whole-body and spatial peak SAR not exceeding 8 W/kg as averaged over any 1 gram of tissue (defined as a tissue volume in the shape of a cube). Exceptions are the hands, wrists, feet and ankles where the spatial peak SAR shall not exceed 20 W/kg, as averaged over an 10 grams of tissue (defined as a tissue volume in the shape of a cube). Occupational/Controlled limits apply when persons are exposed as a consequence of their employment provided these persons are fully aware of and exercise control over their exposure. Awareness of exposure can be accomplished by use of warning labels or by specific training or education through appropriate means, such as an RF safety program in a work environment.

(2) Limits for General Population/Uncontrolled exposure: 0.08 W/kg as averaged over the whole-body and spatial peak SAR not exceeding 1.6 W/kg as averaged over any 1 gram of tissue (defined as a tissue volume in the shape of a cube). Exceptions are the

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hands, wrists, feet and ankles where the spatial peak SAR shall not exceed 4 W/kg, as averaged over any 10 grams of tissue (defined as a tissue volume in the shape of a cube).

General Population/Uncontrolled limits apply when the general public may be exposed, or when persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or do not exercise control over their exposure.

Warning labels placed on consumer devices such as cellular telephones will not be sufficient reason to allow these devices to be evaluated subject to limits for occupational/controlled exposure in paragraph (d)(1) of this section.(Table .6)

Human Exposure	Uncontrolled Environment General Population	Controlled Environment Occupational
Spatial Peak SAR (Brain)	1.60 m W/g	8.00 m W/g
Spatial Average SAR (Whole Body)	0.08 m W/g	0.40 m W/g
Spatial Peak SAR (Hands/Feet/Ankle/Wrist)	4.00 m W/g	20.00 m W/g

Table 4. RF exposure limits

Notes:

1. Uncontrolled environments are defined as locations where there is potential exposure of individuals who have no knowledge or control of their potential exposure.
2. Controlled environments are defined as locations where there is potential exposure of individuals who have knowledge of their potential exposure and can exercise control over their exposure.

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## 2. Summary of Results

### Original solution

### GSM 850 MHZ

Right Head (Cheek Position)						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[ C]	Liquid Temp[ C]
850 MHz	128	824.2	32.9dBm	0.224	22.1	21.7
	190	836.6	33dBm	0.352	22.1	21.7
	251	848.8	33dBm	0.399	22.1	21.7
Left Head (Cheek Position)						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[ C]	Liquid Temp[ C]
850 MHz	128	824.2	32.9dBm	0.259	22.1	21.7
	190	836.6	33dBm	0.383	22.1	21.7
	251	848.8	33dBm	0.432	22.1	21.7
Right Head (15° Tilt Position)						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[ C]	Liquid Temp[ C]
850 MHz	128	824.2	32.9dBm	0.168	22.1	21.7
	190	836.6	33dBm	0.245	22.1	21.7
	251	848.8	33dBm	0.283	22.1	21.7
Left Head (15° Tilt Position)						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[ C]	Liquid Temp[ C]
850 MHz	128	824.2	32.9dBm	0.164	22.1	21.7
	190	836.6	33dBm	0.235	22.1	21.7
	251	848.8	33dBm	0.271	22.1	21.7

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<b>Body worn (testing in GPRS mode)</b>						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[ C]	Liquid Temp[ C]
850 MHz	128	824.2	32.9dBm	0.537	22.1	21.7
	190	836.6	33dBm	0.613	22.1	21.7
	251	848.8	33dBm	0.766	22.1	21.7
<b>Body worn (testing in GPRS mode)_repeated for EUT front to phantom</b>						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[ C]	Liquid Temp[ C]
850 MHz	251	824.2	33dBm	0.405	22.1	21.7
<b>Body worn (testing in GPRS mode)_repeated with Memory card</b>						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[ C]	Liquid Temp[ C]
850 MHz	251	824.2	33dBm	0.989	22.1	21.7
<b>Body worn (testing in GPRS mode)_repeated with Cotron headset</b>						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[ C]	Liquid Temp[ C]
850 MHz	251	824.2	33dBm	1.04	22.1	21.7
<b>Body worn (testing in GPRS mode)_repeated with Merry headset</b>						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[ C]	Liquid Temp[ C]
850 MHz	251	824.2	33dBm	0.843	22.1	21.7
<b>Body worn (testing in GPRS mode)_repeated with HT Enery Battery</b>						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[ C]	Liquid Temp[ C]
850 MHz	251	824.2	33dBm	0.986	22.1	21.7

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## PCS 1900 MHZ

Right Head (Cheek Position)						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[ C]	Liquid Temp[ C]
1900 MHz	512	1850.2	29.5dBm	0.442	22.1	21.7
	661	1880	29.5dBm	0.373	22.1	21.7
	810	1909.8	29.2dBm	0.292	22.1	21.7
Right Head (Cheek Position)_repeated with Memory card						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[ C]	Liquid Temp[ C]
1900 MHz	512	1850.2	29.5dBm	<b>0.453</b>	22.1	21.7
Right Head (Cheek Position)_repeated with HT Enegy Battery						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[ C]	Liquid Temp[ C]
1900 MHz	512	1850.2	29.5dBm	0.45	22.1	21.7
Left Head (Cheek Position)						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[ C]	Liquid Temp[ C]
1900 MHz	512	1850.2	29.5dBm	0.4	22.1	21.7
	661	1880	29.5dBm	0.35	22.1	21.7
	810	1909.8	29.2dBm	0.262	22.1	21.7
Right Head (15° Tilt Position)						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[ C]	Liquid Temp[ C]
1900 MHz	512	1850.2	29.5dBm	0.224	22.1	21.7
	661	1880	29.5dBm	0.196	22.1	21.7
	810	1909.8	29.2dBm	0.151	22.1	21.7
Left Head (15° Tilt Position)						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[ C]	Liquid Temp[ C]
1900 MHz	512	1850.2	29.5dBm	0.239	22.1	21.7
	661	1880	29.5dBm	0.205	22.1	21.7
	810	1909.8	29.2dBm	0.153	22.1	21.7

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Body worn (testing in GPRS mode)						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[ C]	Liquid Temp[ C]
1900 MHz	512	1850.2	27.6dBm	0.646	22.1	21.7
	661	1880	27.7dBm	0.481	22.1	21.7
	810	1909.8	27.3dBm	0.342	22.1	21.7

## WLAN802.11 b

Right Head (Cheek Position)						
Frequency MHz	Channel	Conducted Output Power (Peak)	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[ C]	Liquid Temp[ C]
2412	1	17.38dBm	14.27dBm	0.131	22.1	21.7
2437	6	17.23dBm	14.19dBm	0.17	22.1	21.7
2462	11	17.41dBm	14.34dBm	0.134	22.1	21.7

Right Head (Cheek Position)_repeated with Memory card						
Frequency MHz	Channel	Conducted Output Power (Peak)	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[ C]	Liquid Temp[ C]
2437	6	17.23dBm	14.19dBm	0.15	22.1	21.7

Right Head (Cheek Position)_repeated with Bluetooth active						
Frequency MHz	Channel	Conducted Output Power (Peak)	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[ C]	Liquid Temp[ C]
2437	6	17.23dBm	14.19dBm	0.146	22.1	21.7

Right Head (Cheek Position)_repeated with HT Eneyg Battery						
Frequency MHz	Channel	Conducted Output Power (Peak)	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[ C]	Liquid Temp[ C]
2437	6	17.23dBm	14.19dBm	0.143	22.1	21.7

Left Head (Cheek Position)						
Frequency MHz	Channel	Conducted Output Power (Peak)	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[ C]	Liquid Temp[ C]
2412	1	17.38dBm	14.27dBm	0.081	22.1	21.7
2437	6	17.23dBm	14.19dBm	0.097	22.1	21.7
2462	11	17.41dBm	14.34dBm	0.083	22.1	21.7

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<b>Right Head (15° Tilt Position)</b>						
Frequency MHz	Channel	Conducted Output Power (Peak)	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[ C]	Liquid Temp[ C]
2412	1	17.38dBm	14.27dBm	0.121	22.1	21.7
2437	6	17.23dBm	14.19dBm	0.144	22.1	21.7
2462	11	17.41dBm	14.34dBm	0.128	22.1	21.7
<b>Left Head (15° Tilt Position)</b>						
Frequency MHz	Channel	Conducted Output Power (Peak)	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[ C]	Liquid Temp[ C]
2412	1	17.38dBm	14.27dBm	0.096	22.1	21.7
2437	6	17.23dBm	14.19dBm	0.117	22.1	21.7
2462	11	17.41dBm	14.34dBm	0.099	22.1	21.7
<b>Body worn</b>						
Frequency MHz	Channel	Conducted Output Power (Peak)	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[ C]	Liquid Temp[ C]
2412	1	17.38dBm	14.27dBm	0.098	22.1	21.7
2437	6	17.23dBm	14.19dBm	0.111	22.1	21.7
2462	11	17.41dBm	14.34dBm	0.097	22.1	21.7
<b>Body worn _repeated for EUT front to phantom</b>						
Frequency MHz	Channel	Conducted Output Power (Peak)	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[ C]	Liquid Temp[ C]
2437	6	17.23dBm	14.19dBm	0.016	22.1	21.7
<b>Body worn _repeated with Memory card</b>						
Frequency MHz	Channel	Conducted Output Power (Peak)	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[ C]	Liquid Temp[ C]
2437	6	17.23dBm	14.19dBm	0.103	22.1	21.7
<b>Body worn _repeated with Bluetooth active</b>						
Frequency MHz	Channel	Conducted Output Power (Peak)	Conducted Output Power (Average)	Measured(W/kg) 10g	Amb. Temp[ C]	Liquid Temp[ C]
2437	6	17.23dBm	14.19dBm	0.12	22.1	21.7

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Body worn _repeated with Cotron headset						
Frequency MHz	Channel	Conducted Output Power (Peak)	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[ C]	Liquid Temp[ C]
2437	6	17.23dBm	14.19dBm	0.116	22.1	21.7
Body worn _repeated with Merry headset						
Frequency MHz	Channel	Conducted Output Power (Peak)	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[ C]	Liquid Temp[ C]
2437	6	17.23dBm	14.19dBm	0.106	22.1	21.7
Body worn (testing in GPRS mode)_repeated with HT Energy Battery						
Frequency MHz	Channel	Conducted Output Power (Peak)	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[ C]	Liquid Temp[ C]
2437	6	17.23dBm	14.19dBm	0.095	22.1	21.7

## WLAN 802.11 g

Right Head (Cheek Position)						
Frequency MHz	Channel	Conducted Output Power (Peak)	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[ C]	Liquid Temp[ C]
2412	1	13.05dBm	11.12dBm	0.038	22.1	21.7
2437	6	13.37dBm	11.35dBm	0.048	22.1	21.7
2462	11	13.54dBm	11.48dBm	0.042	22.1	21.7
Left Head (Cheek Position)						
Frequency MHz	Channel	Conducted Output Power (Peak)	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[ C]	Liquid Temp[ C]
2412	1	13.05dBm	11.12dBm	0.024	22.1	21.7
2437	6	13.37dBm	11.35dBm	0.034	22.1	21.7
2462	11	13.54dBm	11.48dBm	0.032	22.1	21.7

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<b>Right Head (15° Tilt Position)</b>						
Frequency MHz	Channel	Conducted Output Power (Peak)	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[ C]	Liquid Temp[ C]
2412	1	13.05dBm	11.12dBm	0.044	22.1	21.7
2437	6	13.37dBm	11.35dBm	0.065	22.1	21.7
2462	11	13.54dBm	11.48dBm	0.053	22.1	21.7
<b>Left Head (15° Tilt Position)</b>						
Frequency MHz	Channel	Conducted Output Power (Peak)	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[ C]	Liquid Temp[ C]
2412	1	13.05dBm	11.12dBm	0.035	22.1	21.7
2437	6	13.37dBm	11.35dBm	0.043	22.1	21.7
2462	11	13.54dBm	11.48dBm	0.036	22.1	21.7
<b>Body worn</b>						
Frequency MHz	Channel	Conducted Output Power (Peak)	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[ C]	Liquid Temp[ C]
2412	1	13.05dBm	11.12dBm	0.032	22.1	21.7
2437	6	13.37dBm	11.35dBm	0.051	22.1	21.7
2462	11	13.54dBm	11.48dBm	0.039	22.1	21.7

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## Second solution

### GSM 850

Right Head (Cheek Position)						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[ C]	Liquid Temp[ C]
850 MHz	128	824.2	32.9dBm	0.231	22.1	21.7
	190	836.6	33dBm	0.351	22.1	21.7
	251	848.8	33dBm	0.391	22.1	21.7
Left Head (Cheek Position)						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[ C]	Liquid Temp[ C]
850 MHz	128	824.2	32.9dBm	0.465	22.1	21.7
	190	836.6	33dBm	0.429	22.1	21.7
	251	848.8	33dBm	0.481	22.1	21.7
Right Head (15° Tilt Position)						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[ C]	Liquid Temp[ C]
850 MHz	128	824.2	32.9dBm	0.168	22.1	21.7
	190	836.6	33dBm	0.253	22.1	21.7
	251	848.8	33dBm	0.278	22.1	21.7
Left Head (15° Tilt Position)						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[ C]	Liquid Temp[ C]
850 MHz	128	824.2	32.9dBm	0.169	22.1	21.7
	190	836.6	33dBm	0.246	22.1	21.7
	251	848.8	33dBm	0.289	22.1	21.7
Body worn (testing in GPRS mode)_repeated with Cotron headset						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[ C]	Liquid Temp[ C]
850 MHz	251	824.2	33dBm	<b>0.991</b>	22.1	21.7

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## PCS 1900

Right Head (Cheek Position)_repeated with Memory card						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[ C]	Liquid Temp[ C]
1900 MHz	512	1850.2	29.5dBm	<b>0.428</b>	22.1	21.7
Body worn (testing in GPRS mode)						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[ C]	Liquid Temp[ C]
1900 MHz	512	1850.2	27.6dBm	0.532	22.1	21.7

## WLAN802.11b

Right Head (Cheek Position)						
Frequency MHz	Channel	Conducted Output Power (Peak)	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[ C]	Liquid Temp[ C]
2437	6	17.23dBm	14.19dBm	0.172	22.1	21.7
Body worn _repeated with Bluetooth active						
Frequency MHz	Channel	Conducted Output Power (Peak)	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[ C]	Liquid Temp[ C]
2437	6	17.23dBm	14.19dBm	0.13	22.1	21.7

## WLAN802.11g

Right Head (15° Tilt Position)						
Frequency MHz	Channel	Conducted Output Power (Peak)	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[ C]	Liquid Temp[ C]
2437	6	13.37dBm	11.35dBm	0.065	22.1	21.7
Body worn						
Frequency MHz	Channel	Conducted Output Power (Peak)	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[ C]	Liquid Temp[ C]
2437	6	13.37dBm	11.35dBm	0.047	22.1	21.7

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### 3. Instruments List

Manufacturer	Device	Type	Serial number	Calibrated Date	Next calibration Date
Schmid & Partner Engineering AG	Dosimetric E-Field Probe	ES3DV3	3172	May.27.2009	May.26.2010
Schmid & Partner Engineering AG	835/1900/2450MHZ System Validation Dipole	D835V2	4d063	May.25.2009	May.24.2010
		D1900V2	5d027	Apr.27.2009	Apr.26.2010
		D2450V2	727	Apr.27.2009	Apr.26.2010
Schmid & Partner Engineering AG	Data acquisition Electronics	DAE4	856	May.26.2009	May.25.2010
Schmid & Partner Engineering AG	Software	DASY 5 V5.0 Build 125	N/A	Calibration isn't necessary	Calibration isn't necessary
Schmid & Partner Engineering AG	Phantom	SAM	N/A	Calibration isn't necessary	Calibration isn't necessary
Agilent	Network Analyzer	8753D	3410A05547	Mar.31.2009	Mar.30.2010
Agilent	Dielectric Probe Kit	85070D	US01440168	Calibration isn't necessary	Calibration isn't necessary
Agilent	Dual-directional coupler	778D	50313	Aug.26.2009	Aug.25.2010
		777D	50114	Aug.26.2009	Aug.25.2010
Agilent	RF Signal Generator	8648D	3847M00432	May.25.2009	May.24.2010
Agilent	Power Sensor	U2001B	MY48100169	Apr.23.2009	Apr.22.2010
Agilent	Radio Communication Test	E5515c	GB44051912	Nov.05 .2008	Nov.04 .2010

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## 4. Measurements

Date : 2010/03/09

### RE\_Cheek\_CH128

DUT: PB99200;

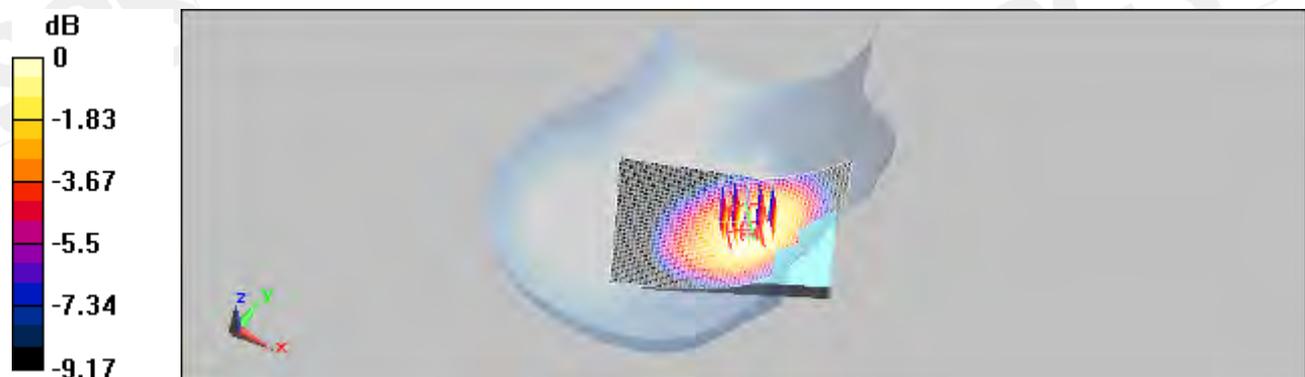
Communication System: GSM 850; Frequency: 824.2 MHz; Duty Cycle: 1:8.3  
Medium: Head 900 Medium parameters used (interpolated):  $f = 824.2$  MHz;  $\sigma = 0.87$  mho/m;  
 $\epsilon_r = 40.6$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Phantom section: Right Section

- Probe: ES3DV3 - SN3172; ConvF(5.83, 5.83, 5.83); Calibrated: 2009/5/27
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2009/5/26
- Phantom: SAM1; Type: SAM;
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

**RE Cheek/Area Scan (61x101x1):** Measurement grid: dx=15mm, dy=15mm  
Maximum value of SAR (interpolated) = 0.239 mW/g

**RE Cheek/Zoom Scan (7x7x7) (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm  
Reference Value = 7.23 V/m; Power Drift = 0.073 dB  
Peak SAR (extrapolated) = 0.287 W/kg

**SAR(1 g) = 0.224 mW/g; SAR(10 g) = 0.166 mW/g**  
Maximum value of SAR (measured) = 0.237 mW/g



0 dB = 0.237mW/g

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Date : 2010/03/09

## RE\_Cheek\_CH190

DUT: PB99200;

Communication System: GSM 850; Frequency: 836.6 MHz; Duty Cycle: 1:8.3  
Medium: Head 900 Medium parameters used:  $f = 837$  MHz;  $\sigma = 0.88$  mho/m;  $\epsilon_r = 40.4$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Phantom section: Right Section

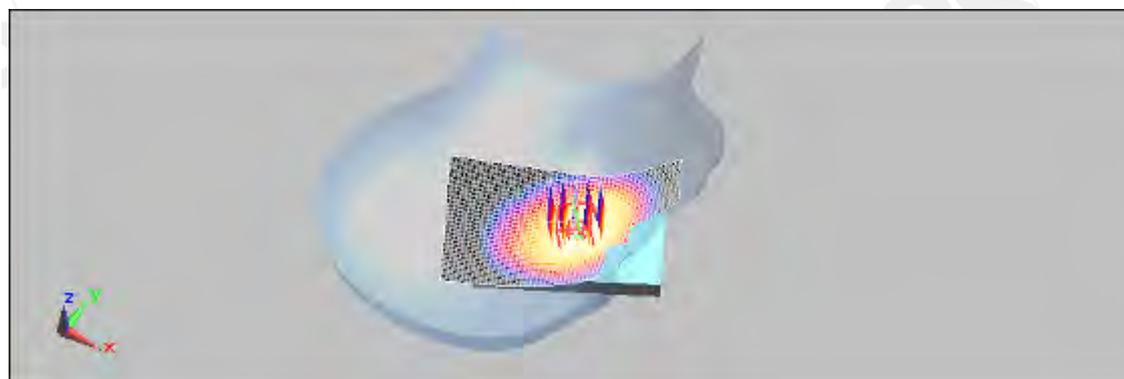
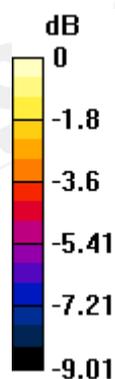
DASY5 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(5.83, 5.83, 5.83); Calibrated: 2009/5/27
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2009/5/26
- Phantom: SAM1; Type: SAM;
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

**RE Cheek/Area Scan (61x101x1):** Measurement grid: dx=15mm, dy=15mm  
Maximum value of SAR (interpolated) = 0.373 mW/g

**RE Cheek/Zoom Scan (7x7x7) (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm  
Reference Value = 9.06 V/m; Power Drift = -0.132 dB  
Peak SAR (extrapolated) = 0.451 W/kg

**SAR(1 g) = 0.352 mW/g; SAR(10 g) = 0.259 mW/g**  
Maximum value of SAR (measured) = 0.371 mW/g



0 dB = 0.371mW/g

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Date : 2010/03/09

## RE\_Cheek\_CH251

DUT: PB99200;

Communication System: GSM 850; Frequency: 848.8 MHz; Duty Cycle: 1:8.3  
Medium: Head 900 Medium parameters used:  $f = 849$  MHz;  $\sigma = 0.894$  mho/m;  $\epsilon_r = 40.2$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Phantom section: Right Section

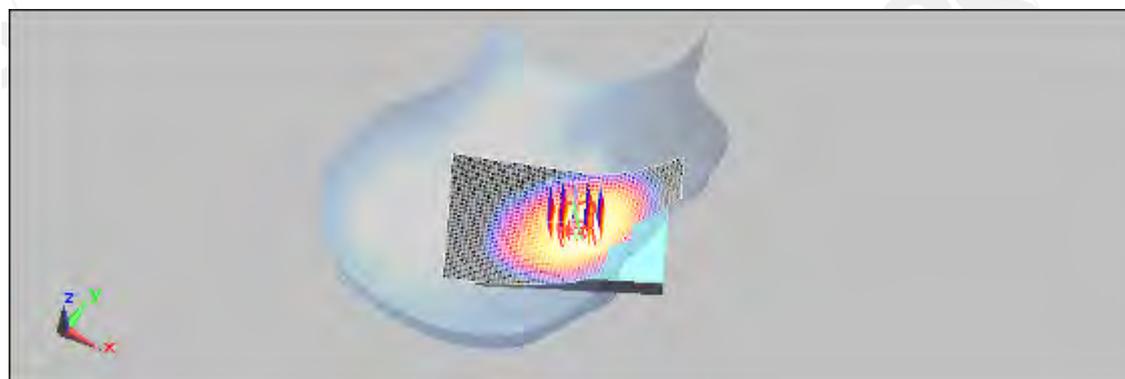
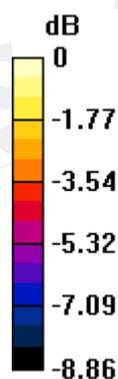
DASY5 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(5.83, 5.83, 5.83); Calibrated: 2009/5/27
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2009/5/26
- Phantom: SAM1; Type: SAM;
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

**RE Cheek/Area Scan (61x101x1):** Measurement grid: dx=15mm, dy=15mm  
Maximum value of SAR (interpolated) = 0.428 mW/g

**RE Cheek/Zoom Scan (7x7x7) (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm  
Reference Value = 9.75 V/m; Power Drift = -0.145 dB  
Peak SAR (extrapolated) = 0.510 W/kg

**SAR(1 g) = 0.399 mW/g; SAR(10 g) = 0.274 mW/g**  
Maximum value of SAR (measured) = 0.420 mW/g



0 dB = 0.420mW/g

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Date : 2010/03/09

## LE\_Cheek\_CH128

DUT: PB99200;

Communication System: GSM 850; Frequency: 824.2 MHz; Duty Cycle: 1:8.3  
Medium: Head 900 Medium parameters used (interpolated):  $f = 824.2 \text{ MHz}$ ;  $\sigma = 0.87 \text{ mho/m}$ ;  
 $\epsilon_r = 40.6$ ;  $\rho = 1000 \text{ kg/m}^3$   
Phantom section: Left Section

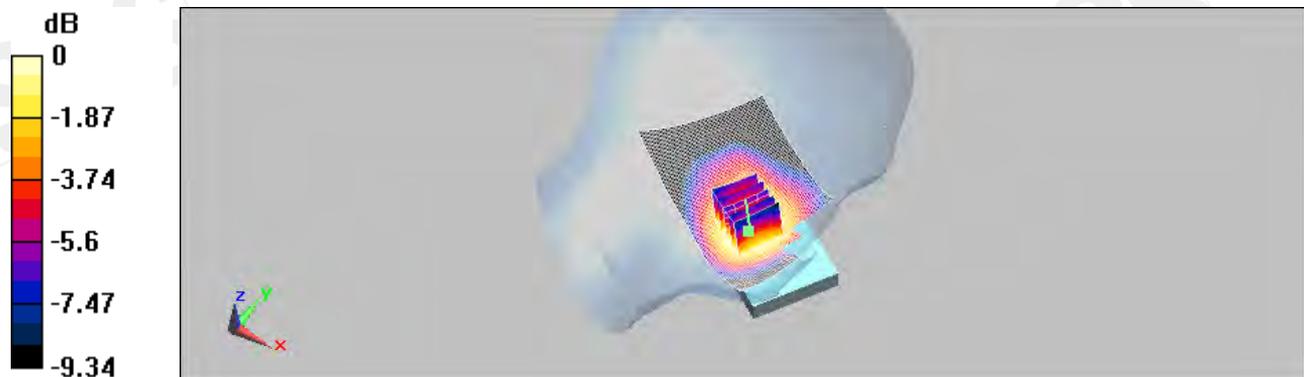
DASY5 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(5.83, 5.83, 5.83); Calibrated: 2009/5/27
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2009/5/26
- Phantom: SAM1; Type: SAM;
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

**LE Cheek/Area Scan (61x101x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$   
Maximum value of SAR (interpolated) = 0.281 mW/g

**LE Cheek/Zoom Scan (7x7x7) (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  
 $dy=8\text{mm}$ ,  $dz=5\text{mm}$   
Reference Value = 8.09 V/m; Power Drift = -0.057 dB  
Peak SAR (extrapolated) = 0.330 W/kg

**SAR(1 g) = 0.259 mW/g; SAR(10 g) = 0.194 mW/g**  
Maximum value of SAR (measured) = 0.271 mW/g



0 dB = 0.271mW/g

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Date : 2010/03/09

## LE\_Cheek\_CH190

DUT: PB99200;

Communication System: GSM 850; Frequency: 836.6 MHz; Duty Cycle: 1:8.3  
Medium: Head 900 Medium parameters used:  $f = 837$  MHz;  $\sigma = 0.88$  mho/m;  $\epsilon_r = 40.4$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Phantom section: Left Section

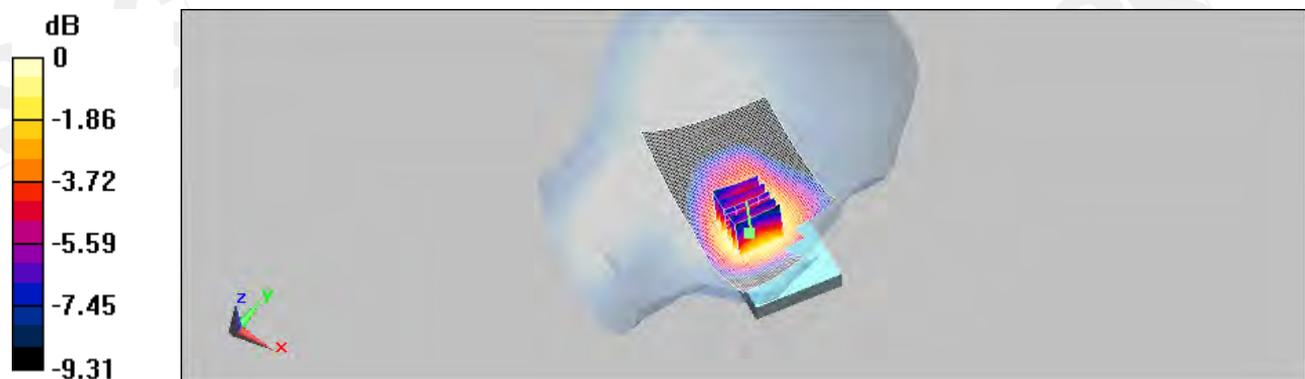
DASY5 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(5.83, 5.83, 5.83); Calibrated: 2009/5/27
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2009/5/26
- Phantom: SAM1; Type: SAM;
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

**LE Cheek/Area Scan (61x101x1):** Measurement grid: dx=15mm, dy=15mm  
Maximum value of SAR (interpolated) = 0.404 mW/g

**LE Cheek/Zoom Scan (7x7x7) (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm  
Reference Value = 9.56 V/m; Power Drift = 0.019 dB  
Peak SAR (extrapolated) = 0.483 W/kg

**SAR(1 g) = 0.383 mW/g; SAR(10 g) = 0.271 mW/g**  
Maximum value of SAR (measured) = 0.403 mW/g



0 dB = 0.403mW/g

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Date : 2010/03/09

## LE\_Cheek\_CH251

DUT: PB99200;

Communication System: GSM 850; Frequency: 848.8 MHz; Duty Cycle: 1:8.3  
Medium: Head 900 Medium parameters used:  $f = 849$  MHz;  $\sigma = 0.894$  mho/m;  $\epsilon_r = 40.2$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Phantom section: Left Section

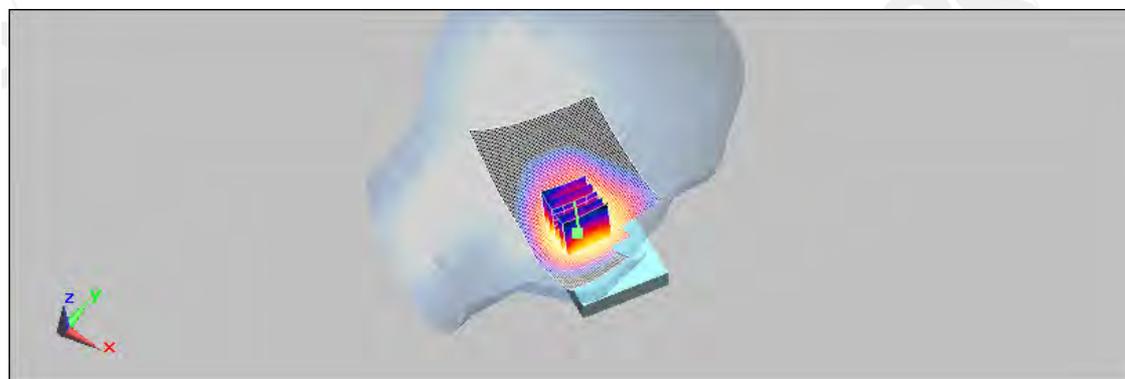
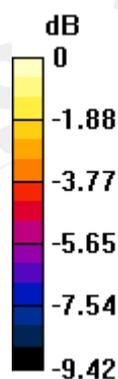
DASY5 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(5.83, 5.83, 5.83); Calibrated: 2009/5/27
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2009/5/26
- Phantom: SAM1; Type: SAM;
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

**LE Cheek/Area Scan (61x101x1):** Measurement grid: dx=15mm, dy=15mm  
Maximum value of SAR (interpolated) = 0.459 mW/g

**LE Cheek/Zoom Scan (7x7x7) (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm  
Reference Value = 9.52 V/m; Power Drift = -0.132 dB  
Peak SAR (extrapolated) = 0.607 W/kg

**SAR(1 g) = 0.432 mW/g; SAR(10 g) = 0.275 mW/g**  
Maximum value of SAR (measured) = 0.473 mW/g



0 dB = 0.473mW/g

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Date : 2010/03/09

## RE\_Tilt\_CH128

DUT: PB99200;

Communication System: GSM 850; Frequency: 824.2 MHz; Duty Cycle: 1:8.3  
Medium: Head 900 Medium parameters used (interpolated):  $f = 824.2 \text{ MHz}$ ;  $\sigma = 0.87 \text{ mho/m}$ ;  
 $\epsilon_r = 40.6$ ;  $\rho = 1000 \text{ kg/m}^3$   
Phantom section: Right Section

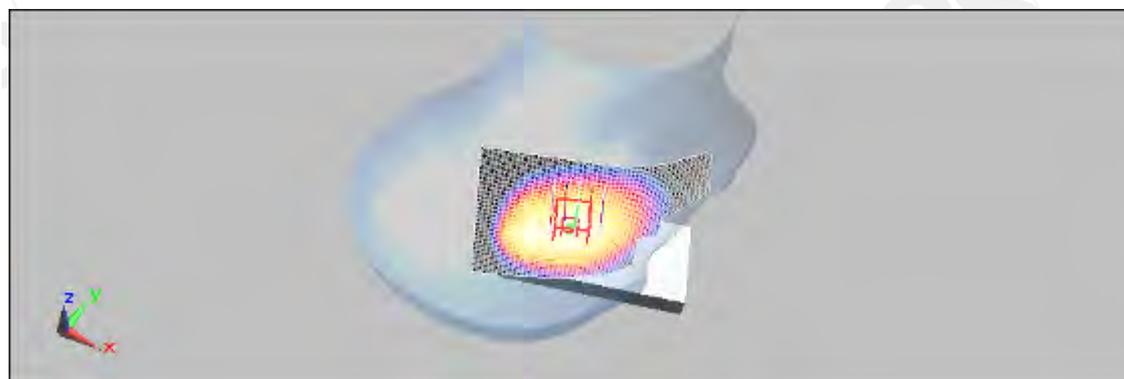
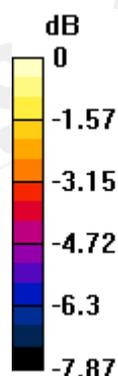
DASY5 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(5.83, 5.83, 5.83); Calibrated: 2009/5/27
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2009/5/26
- Phantom: SAM1; Type: SAM;
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

**RE Tilt/Area Scan (61x101x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$   
Maximum value of SAR (interpolated) = 0.177 mW/g

**RE Tilt/Zoom Scan (7x7x7) (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  
 $dy=8\text{mm}$ ,  $dz=5\text{mm}$   
Reference Value = 13.2 V/m; Power Drift = -0.096 dB  
Peak SAR (extrapolated) = 0.208 W/kg

**SAR(1 g) = 0.168 mW/g; SAR(10 g) = 0.129 mW/g**  
Maximum value of SAR (measured) = 0.176 mW/g



0 dB = 0.176mW/g

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Date : 2010/03/09

## RE\_Tilt\_CH190

DUT: PB99200;

Communication System: GSM 850; Frequency: 836.6 MHz; Duty Cycle: 1:8.3  
Medium: Head 900 Medium parameters used:  $f = 837$  MHz;  $\sigma = 0.88$  mho/m;  $\epsilon_r = 40.4$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Phantom section: Right Section

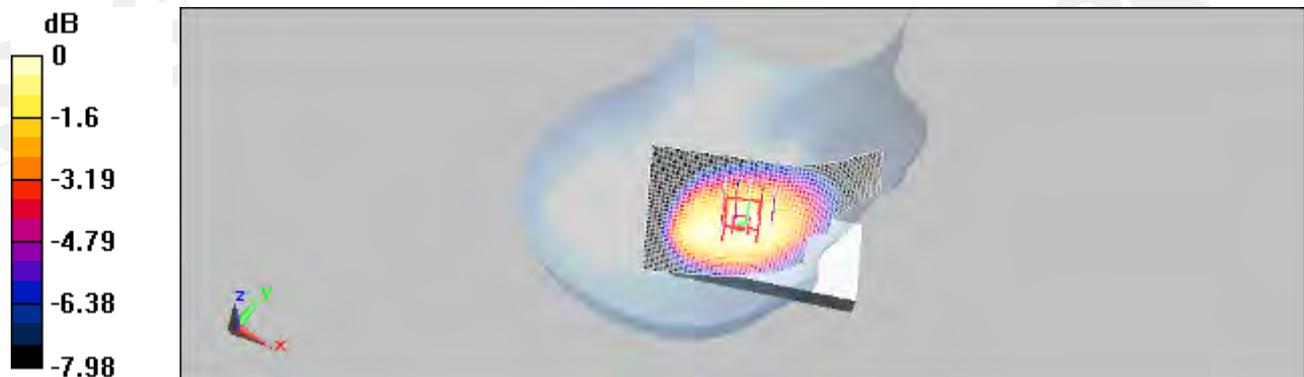
DASY5 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(5.83, 5.83, 5.83); Calibrated: 2009/5/27
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2009/5/26
- Phantom: SAM1; Type: SAM;
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

**RE Tilt/Area Scan (61x101x1):** Measurement grid: dx=15mm, dy=15mm  
Maximum value of SAR (interpolated) = 0.258 mW/g

**RE Tilt/Zoom Scan (7x7x7) (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm  
Reference Value = 15.6 V/m; Power Drift = -0.011 dB  
Peak SAR (extrapolated) = 0.303 W/kg

**SAR(1 g) = 0.245 mW/g; SAR(10 g) = 0.188 mW/g**  
Maximum value of SAR (measured) = 0.257 mW/g



0 dB = 0.257mW/g

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Date : 2010/03/09

## RE\_Tilt\_CH251

DUT: PB99200;

Communication System: GSM 850; Frequency: 848.8 MHz; Duty Cycle: 1:8.3  
Medium: Head 900 Medium parameters used:  $f = 849$  MHz;  $\sigma = 0.894$  mho/m;  $\epsilon_r = 40.2$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Phantom section: Right Section

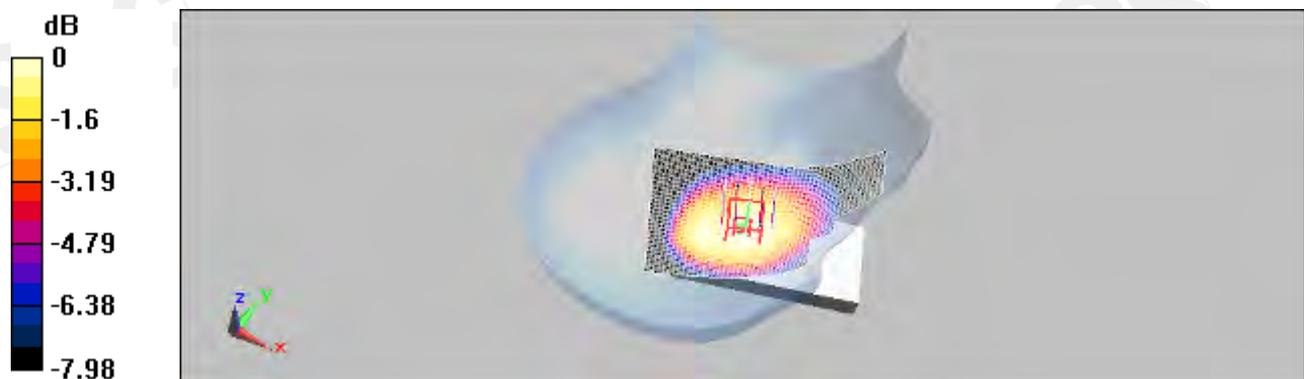
DASY5 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(5.83, 5.83, 5.83); Calibrated: 2009/5/27
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2009/5/26
- Phantom: SAM1; Type: SAM;
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

**RE Tilt/Area Scan (61x101x1):** Measurement grid: dx=15mm, dy=15mm  
Maximum value of SAR (interpolated) = 0.297 mW/g

**RE Tilt/Zoom Scan (7x7x7) (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm  
Reference Value = 16.5 V/m; Power Drift = 0.060 dB  
Peak SAR (extrapolated) = 0.352 W/kg

**SAR(1 g) = 0.283 mW/g; SAR(10 g) = 0.216 mW/g**  
Maximum value of SAR (measured) = 0.298 mW/g



0 dB = 0.298mW/g

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Date : 2010/03/09

## LE\_Tilt\_CH128

DUT: PB99200;

Communication System: GSM 850; Frequency: 824.2 MHz; Duty Cycle: 1:8.3  
Medium: Head 900 Medium parameters used (interpolated):  $f = 824.2 \text{ MHz}$ ;  $\sigma = 0.87 \text{ mho/m}$ ;  
 $\epsilon_r = 40.6$ ;  $\rho = 1000 \text{ kg/m}^3$   
Phantom section: Left Section

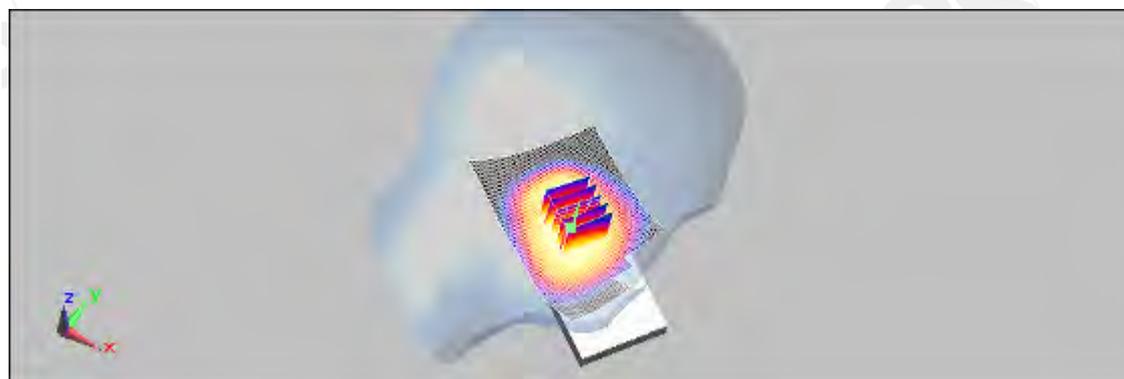
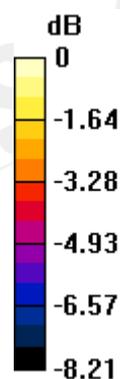
DASY5 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(5.83, 5.83, 5.83); Calibrated: 2009/5/27
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2009/5/26
- Phantom: SAM1; Type: SAM;
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

**LE Tilt/Area Scan (61x101x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$   
Maximum value of SAR (interpolated) = 0.173 mW/g

**LE Tilt/Zoom Scan (7x7x7) (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  
 $dy=8\text{mm}$ ,  $dz=5\text{mm}$   
Reference Value = 12.7 V/m; Power Drift = 0.018 dB  
Peak SAR (extrapolated) = 0.203 W/kg

**SAR(1 g) = 0.164 mW/g; SAR(10 g) = 0.127 mW/g**  
Maximum value of SAR (measured) = 0.171 mW/g



0 dB = 0.171mW/g

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Date : 2010/03/09

## LE\_Tilt\_CH190

DUT: PB99200;

Communication System: GSM 850; Frequency: 836.6 MHz; Duty Cycle: 1:8.3  
Medium: Head 900 Medium parameters used:  $f = 837$  MHz;  $\sigma = 0.88$  mho/m;  $\epsilon_r = 40.4$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Phantom section: Left Section

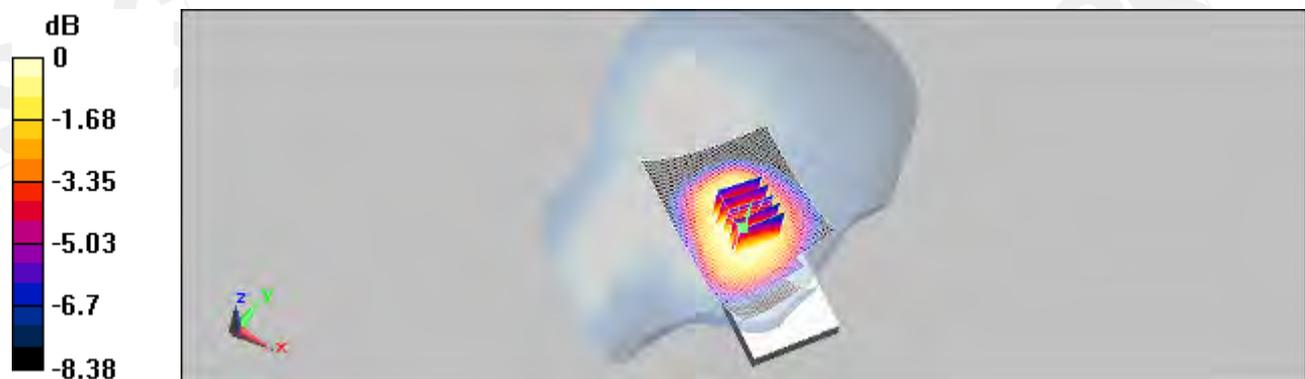
DASY5 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(5.83, 5.83, 5.83); Calibrated: 2009/5/27
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2009/5/26
- Phantom: SAM1; Type: SAM;
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

**LE Tilt/Area Scan (61x101x1):** Measurement grid: dx=15mm, dy=15mm  
Maximum value of SAR (interpolated) = 0.249 mW/g

**LE Tilt/Zoom Scan (7x7x7) (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm  
Reference Value = 14.9 V/m; Power Drift = -0.016 dB  
Peak SAR (extrapolated) = 0.291 W/kg

**SAR(1 g) = 0.235 mW/g; SAR(10 g) = 0.180 mW/g**  
Maximum value of SAR (measured) = 0.245 mW/g



0 dB = 0.245mW/g

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Date : 2010/03/09

## LE\_Tilt\_CH251

DUT: PB99200;

Communication System: GSM 850; Frequency: 848.8 MHz; Duty Cycle: 1:8.3  
Medium: Head 900 Medium parameters used:  $f = 849$  MHz;  $\sigma = 0.894$  mho/m;  $\epsilon_r = 40.2$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Phantom section: Left Section

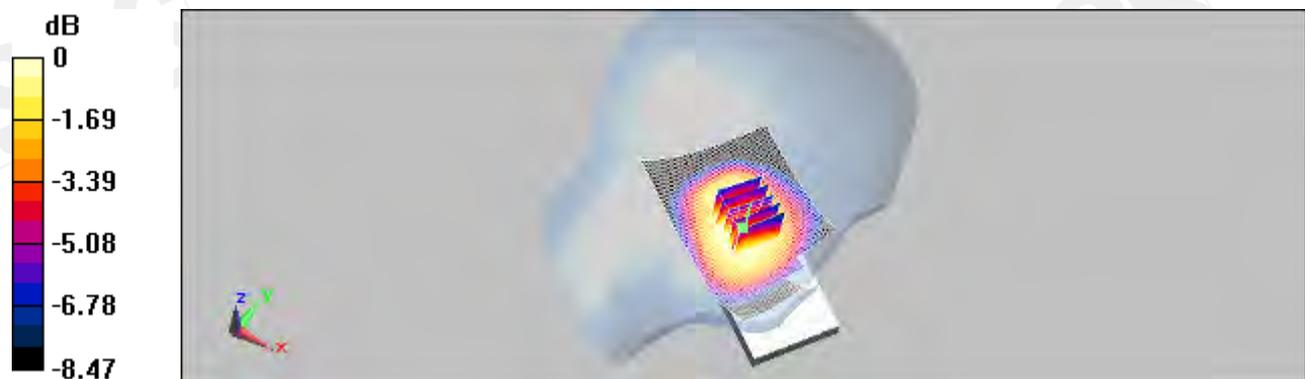
DASY5 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(5.83, 5.83, 5.83); Calibrated: 2009/5/27
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2009/5/26
- Phantom: SAM1; Type: SAM;
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

**LE Tilt/Area Scan (61x101x1):** Measurement grid: dx=15mm, dy=15mm  
Maximum value of SAR (interpolated) = 0.285 mW/g

**LE Tilt/Zoom Scan (7x7x7) (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm  
Reference Value = 15.7 V/m; Power Drift = 0.081 dB  
Peak SAR (extrapolated) = 0.338 W/kg

**SAR(1 g) = 0.271 mW/g; SAR(10 g) = 0.207 mW/g**  
Maximum value of SAR (measured) = 0.283 mW/g



0 dB = 0.283mW/g

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Date : 2010/03/10

## BODY\_CH128

DUT: PB99200;

Communication System: GSM 850; Frequency: 824.2 MHz; Duty Cycle: 1:2  
Medium: Body 900 Medium parameters used (interpolated):  $f = 824.2 \text{ MHz}$ ;  $\sigma = 0.964 \text{ mho/m}$ ;  $\epsilon_r = 56.1$ ;  $\rho = 1000 \text{ kg/m}^3$   
Phantom section: Flat Section

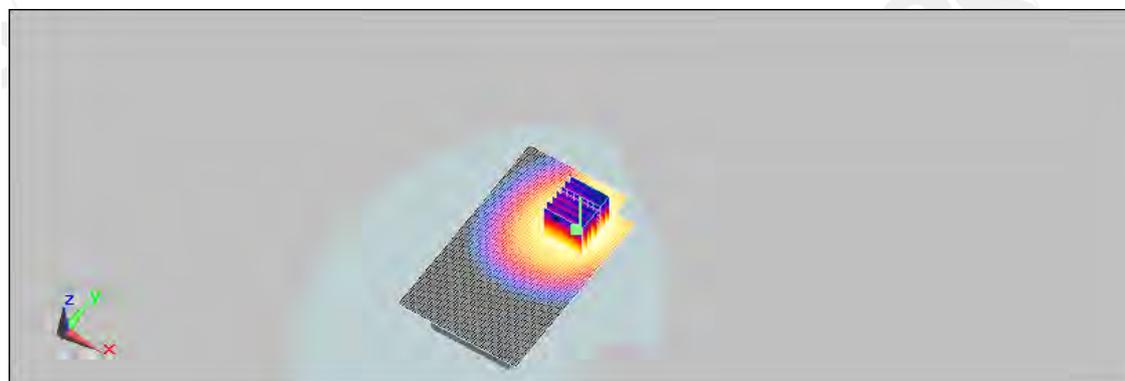
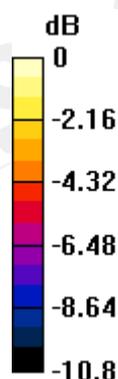
DASY5 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(5.81, 5.81, 5.81); Calibrated: 2009/5/27
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2009/5/26
- Phantom: SAM1; Type: SAM;
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

**Body/Area Scan (61x101x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$   
Maximum value of SAR (interpolated) = 0.581 mW/g

**Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0:** Measurement grid:  $dx=5\text{mm}$ ,  $dy=5\text{mm}$ ,  $dz=5\text{mm}$   
Reference Value = 5.06 V/m; Power Drift = -0.122 dB  
Peak SAR (extrapolated) = 0.753 W/kg

**SAR(1 g) = 0.537 mW/g; SAR(10 g) = 0.375 mW/g**  
Maximum value of SAR (measured) = 0.568 mW/g



0 dB = 0.568mW/g

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Date : 2010/03/10

## BODY\_CH190

DUT: PB99200;

Communication System: GSM 850; Frequency: 836.6 MHz; Duty Cycle: 1:2  
Medium: Body 900 Medium parameters used:  $f = 837 \text{ MHz}$ ;  $\sigma = 0.969 \text{ mho/m}$ ;  $\epsilon_r = 56$ ;  $\rho = 1000 \text{ kg/m}^3$   
Phantom section: Flat Section

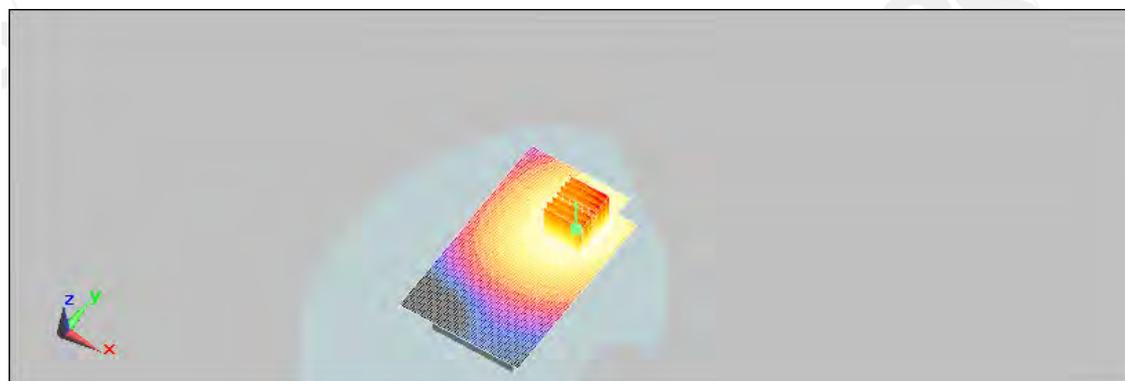
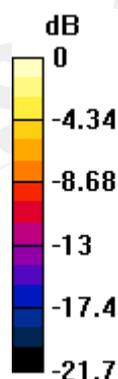
DASY5 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(5.81, 5.81, 5.81); Calibrated: 2009/5/27
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2009/5/26
- Phantom: SAM1; Type: SAM;
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

**Body/Area Scan (61x101x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$   
Maximum value of SAR (interpolated) = 0.634 mW/g

**Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0:** Measurement grid:  $dx=5\text{mm}$ ,  $dy=5\text{mm}$ ,  $dz=5\text{mm}$   
Reference Value = 5.58 V/m; Power Drift = 0.082 dB  
Peak SAR (extrapolated) = 1.41 W/kg

**SAR(1 g) = 0.613 mW/g; SAR(10 g) = 0.426 mW/g**  
Maximum value of SAR (measured) = 0.647 mW/g



0 dB = 0.647mW/g

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Date : 2010/03/10

## BODY\_CH251

DUT: PB99200;

Communication System: GSM 850; Frequency: 848.8 MHz; Duty Cycle: 1:2  
Medium: Body 900 Medium parameters used:  $f = 849$  MHz;  $\sigma = 0.975$  mho/m;  $\epsilon_r = 55.9$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Phantom section: Flat Section

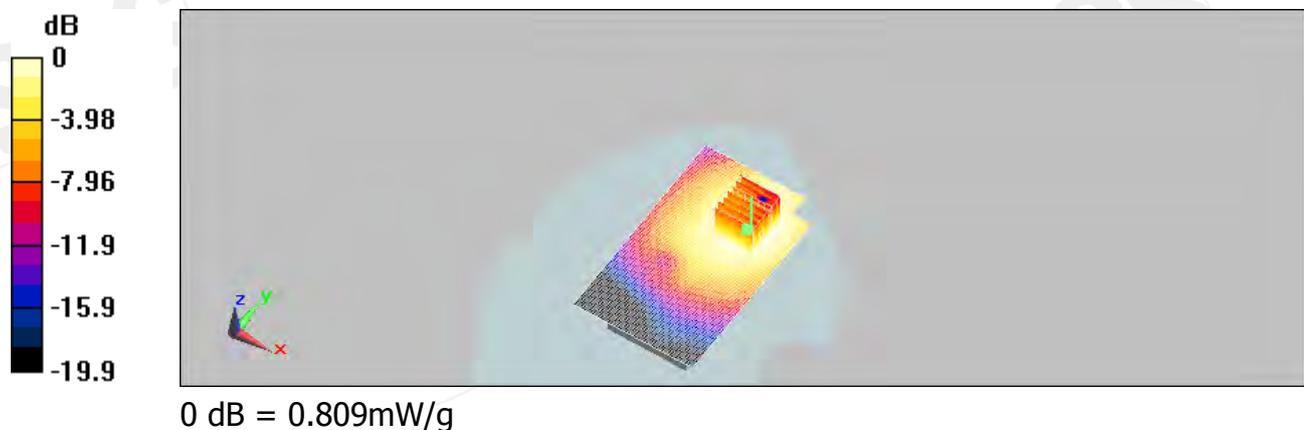
DASY5 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(5.81, 5.81, 5.81); Calibrated: 2009/5/27
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2009/5/26
- Phantom: SAM1; Type: SAM;
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

**Body/Area Scan (61x101x1):** Measurement grid: dx=15mm, dy=15mm  
Maximum value of SAR (interpolated) = 0.806 mW/g

**Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm  
Reference Value = 6.82 V/m; Power Drift = 0.101 dB  
Peak SAR (extrapolated) = 1.06 W/kg

**SAR(1 g) = 0.766 mW/g; SAR(10 g) = 0.543 mW/g**  
Maximum value of SAR (measured) = 0.809 mW/g



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Date : 2010/03/10

## BODY\_CH251\_repeated for EUT front to phantom

DUT: PB99200;

Communication System: GSM 850; Frequency: 848.8 MHz; Duty Cycle: 1:2  
Medium: Body 900 Medium parameters used:  $f = 849$  MHz;  $\sigma = 0.975$  mho/m;  $\epsilon_r = 55.9$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Phantom section: Flat Section

DASY5 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(5.81, 5.81, 5.81); Calibrated: 2009/5/27
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2009/5/26
- Phantom: SAM1; Type: SAM;
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

**Body/Area Scan (61x101x1):** Measurement grid: dx=15mm, dy=15mm  
Maximum value of SAR (interpolated) = 0.432 mW/g

**Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm  
Reference Value = 11.3 V/m; Power Drift = 0.067 dB  
Peak SAR (extrapolated) = 0.519 W/kg

**SAR(1 g) = 0.405 mW/g; SAR(10 g) = 0.298 mW/g**  
Maximum value of SAR (measured) = 0.430 mW/g



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Date : 2010/03/10

## BODY\_CH251\_repeated with Memory card

DUT: PB99200;

Communication System: GSM 850; Frequency: 848.8 MHz; Duty Cycle: 1:2  
Medium: Body 900 Medium parameters used:  $f = 849$  MHz;  $\sigma = 0.975$  mho/m;  $\epsilon_r = 55.9$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Phantom section: Flat Section

- Probe: ES3DV3 - SN3172; ConvF(5.81, 5.81, 5.81); Calibrated: 2009/5/27
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2009/5/26
- Phantom: SAM1; Type: SAM;
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

**Body/Area Scan (61x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 1.04 mW/g

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

Reference Value = 17.8 V/m; Power Drift = -0.080 dB

Peak SAR (extrapolated) = 1.33 W/kg

**SAR(1 g) = 0.989 mW/g; SAR(10 g) = 0.711 mW/g**

Maximum value of SAR (measured) = 1.04 mW/g

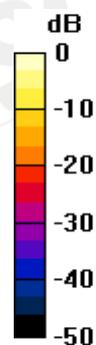
**Body/Zoom Scan (7x7x7) (7x7x7)/Cube 1:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 17.8 V/m; Power Drift = -0.080 dB

Peak SAR (extrapolated) = 1.29 W/kg

**SAR(1 g) = 0.863 mW/g; SAR(10 g) = 0.581 mW/g**

Maximum value of SAR (measured) = 0.986 mW/g



0 dB = 0.986mW/g

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Date : 2010/03/10

## BODY\_CH251\_repeated with Cotron headset

DUT: PB99200;

Communication System: GSM 850; Frequency: 848.8 MHz; Duty Cycle: 1:2  
Medium: Body 900 Medium parameters used:  $f = 849 \text{ MHz}$ ;  $\sigma = 0.975 \text{ mho/m}$ ;  $\epsilon_r = 55.9$ ;  $\rho = 1000 \text{ kg/m}^3$   
Phantom section: Flat Section

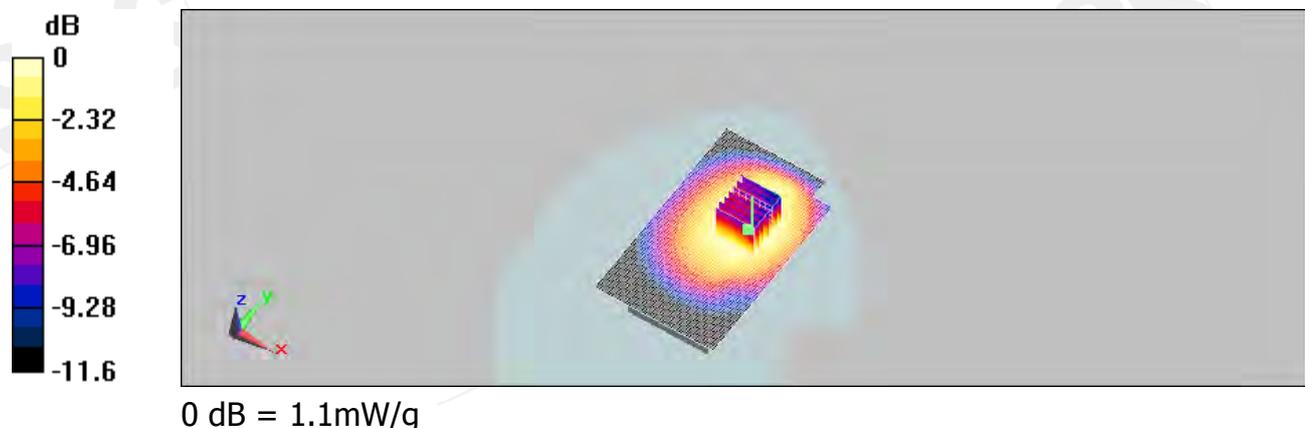
DASY5 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(5.81, 5.81, 5.81); Calibrated: 2009/5/27
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2009/5/26
- Phantom: SAM1; Type: SAM;
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

**Body/Area Scan (61x101x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$   
Maximum value of SAR (interpolated) = 1.09 mW/g

**Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0:** Measurement grid:  $dx=5\text{mm}$ ,  $dy=5\text{mm}$ ,  $dz=5\text{mm}$   
Reference Value = 16 V/m; Power Drift = 0.025 dB  
Peak SAR (extrapolated) = 1.46 W/kg

**SAR(1 g) = 1.04 mW/g; SAR(10 g) = 0.715 mW/g**  
Maximum value of SAR (measured) = 1.1 mW/g



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Date : 2010/03/10

## BODY\_CH251\_repeated with Merry headset

DUT: PB99200;

Communication System: GSM 850; Frequency: 848.8 MHz; Duty Cycle: 1:2  
Medium: Body 900 Medium parameters used:  $f = 849 \text{ MHz}$ ;  $\sigma = 0.975 \text{ mho/m}$ ;  $\epsilon_r = 55.9$ ;  $\rho = 1000 \text{ kg/m}^3$   
Phantom section: Flat Section

- Probe: ES3DV3 - SN3172; ConvF(5.81, 5.81, 5.81); Calibrated: 2009/5/27
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2009/5/26
- Phantom: SAM1; Type: SAM;
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

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

Maximum value of SAR (interpolated) = 0.893 mW/g

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

Reference Value = 12.4 V/m; Power Drift = 0.11 dB

Peak SAR (extrapolated) = 1.12 W/kg

**SAR(1 g) = 0.843 mW/g; SAR(10 g) = 0.595 mW/g**

Maximum value of SAR (measured) = 0.897 mW/g

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

Reference Value = 12.4 V/m; Power Drift = 0.11 dB

Peak SAR (extrapolated) = 2 W/kg

**SAR(1 g) = 0.853 mW/g; SAR(10 g) = 0.478 mW/g**

Maximum value of SAR (measured) = 0.879 mW/g



0 dB = 0.879mW/g

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Date : 2010/03/10

## BODY\_CH251\_repeated with HT Energy Battery

DUT: PB99200;

Communication System: GSM 850; Frequency: 848.8 MHz; Duty Cycle: 1:2  
Medium: Body 900 Medium parameters used:  $f = 849$  MHz;  $\sigma = 0.975$  mho/m;  $\epsilon_r = 55.9$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Phantom section: Flat Section

- Probe: ES3DV3 - SN3172; ConvF(5.81, 5.81, 5.81); Calibrated: 2009/5/27
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2009/5/26
- Phantom: SAM1; Type: SAM;
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

**Body/Area Scan (61x101x1):** Measurement grid: dx=15mm, dy=15mm

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

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

Reference Value = 17.1 V/m; Power Drift = -0.163 dB

Peak SAR (extrapolated) = 1.31 W/kg

**SAR(1 g) = 0.986 mW/g; SAR(10 g) = 0.710 mW/g**

Maximum value of SAR (measured) = 1.04 mW/g

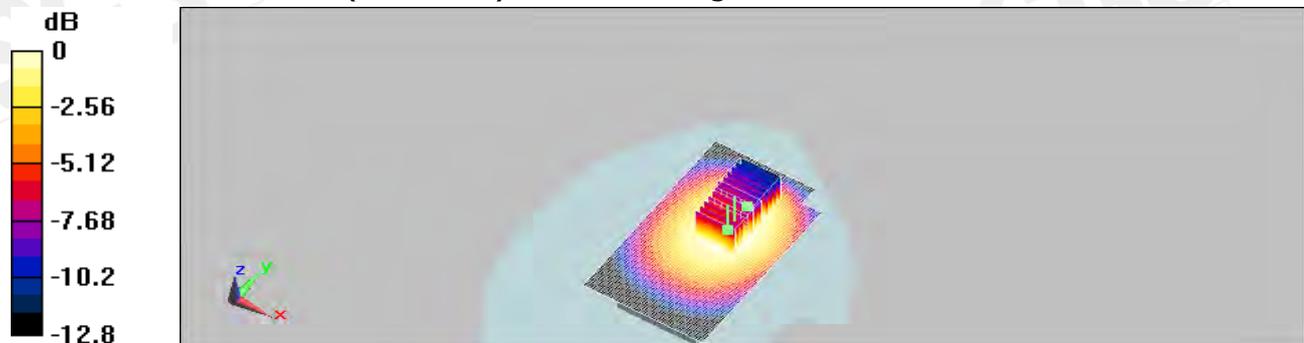
**Body/Zoom Scan (7x7x7) (7x7x7)/Cube 1:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 17.1 V/m; Power Drift = -0.163 dB

Peak SAR (extrapolated) = 1.29 W/kg

**SAR(1 g) = 0.870 mW/g; SAR(10 g) = 0.582 mW/g**

Maximum value of SAR (measured) = 0.991 mW/g



0 dB = 0.991mW/g

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Date : 2010/03/09

## RE\_Cheek\_CH512

DUT: PB99200;

Communication System: GSM 1900; Frequency: 1850.2 MHz; Duty Cycle: 1:8.3  
Medium: Head 1900 Medium parameters used (interpolated):  $f = 1850.2$  MHz;  $\sigma = 1.41$  mho/m;  $\epsilon_r = 39.4$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Phantom section: Right Section

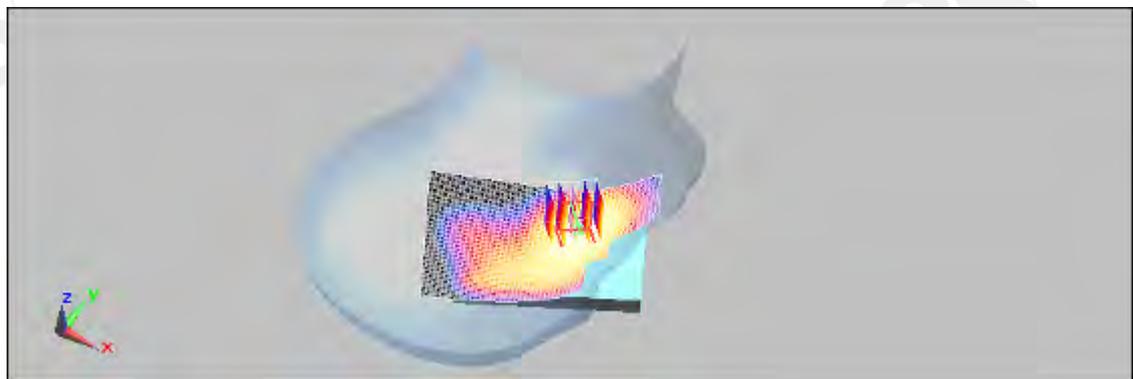
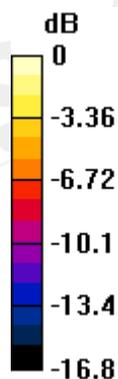
DASY5 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(4.86, 4.86, 4.86); Calibrated: 2009/5/27
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2009/5/26
- Phantom: SAM1; Type: SAM;
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

**RE Cheek/Area Scan (61x101x1):** Measurement grid: dx=15mm, dy=15mm  
Maximum value of SAR (interpolated) = 0.492 mW/g

**RE Cheek/Zoom Scan (7x7x7) (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm  
Reference Value = 7.31 V/m; Power Drift = 0.139 dB  
Peak SAR (extrapolated) = 0.680 W/kg

**SAR(1 g) = 0.442 mW/g; SAR(10 g) = 0.277 mW/g**  
Maximum value of SAR (measured) = 0.479 mW/g



0 dB = 0.479mW/g

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Date : 2010/03/09

## RE\_Cheek\_CH661

DUT: PB99200;

Communication System: GSM 1900; Frequency: 1880 MHz; Duty Cycle: 1:8.3  
Medium: Head 1900 Medium parameters used:  $f = 1880$  MHz;  $\sigma = 1.44$  mho/m;  $\epsilon_r = 39.3$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Phantom section: Right Section

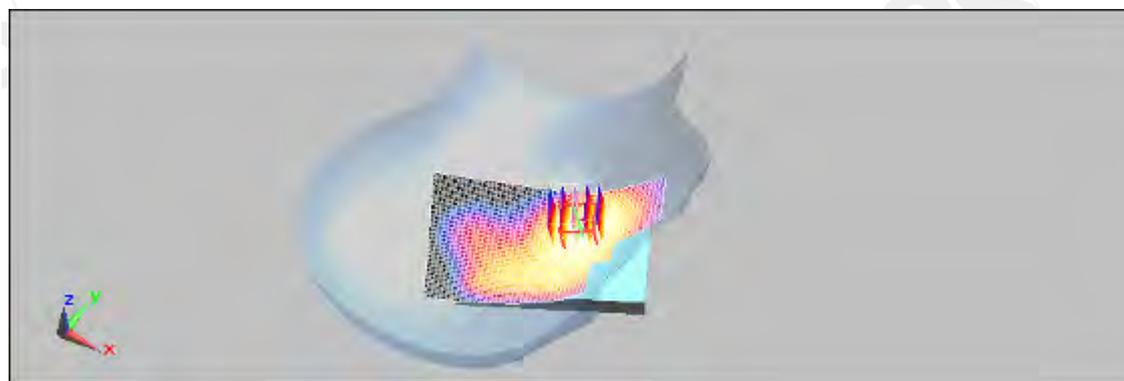
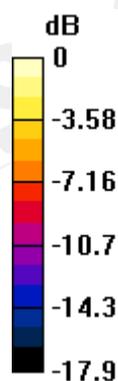
DASY5 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(4.86, 4.86, 4.86); Calibrated: 2009/5/27
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2009/5/26
- Phantom: SAM1; Type: SAM;
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

**RE Cheek/Area Scan (61x101x1):** Measurement grid: dx=15mm, dy=15mm  
Maximum value of SAR (interpolated) = 0.407 mW/g

**RE Cheek/Zoom Scan (7x7x7) (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm  
Reference Value = 6.51 V/m; Power Drift = 0.050 dB  
Peak SAR (extrapolated) = 0.584 W/kg

**SAR(1 g) = 0.373 mW/g; SAR(10 g) = 0.232 mW/g**  
Maximum value of SAR (measured) = 0.405 mW/g



0 dB = 0.405mW/g

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Date : 2010/03/09

## RE\_Cheek\_CH810

DUT: PB99200;

Communication System: GSM 1900; Frequency: 1909.8 MHz; Duty Cycle: 1:8.3  
Medium: Head 1900 Medium parameters used:  $f = 1910$  MHz;  $\sigma = 1.47$  mho/m;  $\epsilon_r = 39.3$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Phantom section: Right Section

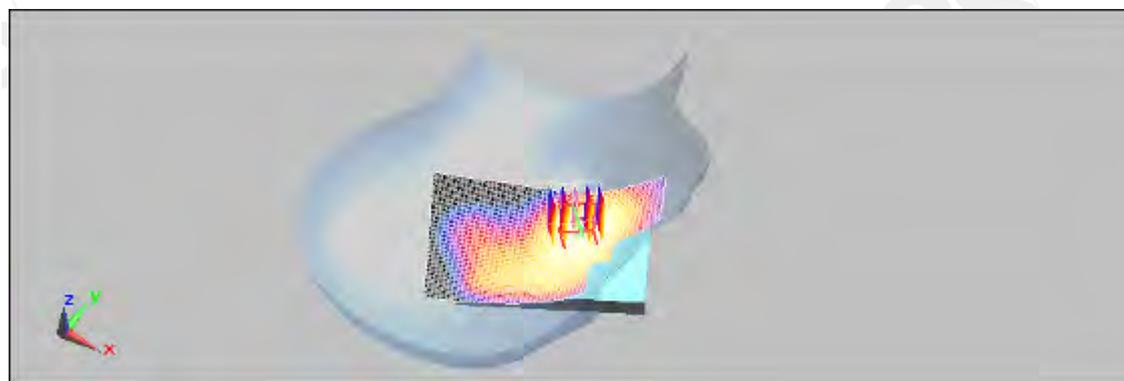
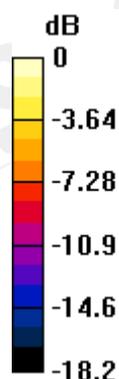
DASY5 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(4.86, 4.86, 4.86); Calibrated: 2009/5/27
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2009/5/26
- Phantom: SAM1; Type: SAM;
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

**RE Cheek/Area Scan (61x101x1):** Measurement grid: dx=15mm, dy=15mm  
Maximum value of SAR (interpolated) = 0.323 mW/g

**RE Cheek/Zoom Scan (7x7x7) (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm  
Reference Value = 5.75 V/m; Power Drift = 0.182 dB  
Peak SAR (extrapolated) = 0.462 W/kg

**SAR(1 g) = 0.292 mW/g; SAR(10 g) = 0.182 mW/g**  
Maximum value of SAR (measured) = 0.316 mW/g



0 dB = 0.316mW/g

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Date : 2010/03/09

## RE\_Cheek\_CH512\_repeated with Memory card

DUT: PB99200;

Communication System: GSM 1900; Frequency: 1850.2 MHz; Duty Cycle: 1:8.3  
Medium: Head 1900 Medium parameters used (interpolated):  $f = 1850.2$  MHz;  $\sigma = 1.41$  mho/m;  $\epsilon_r = 39.4$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Phantom section: Right Section

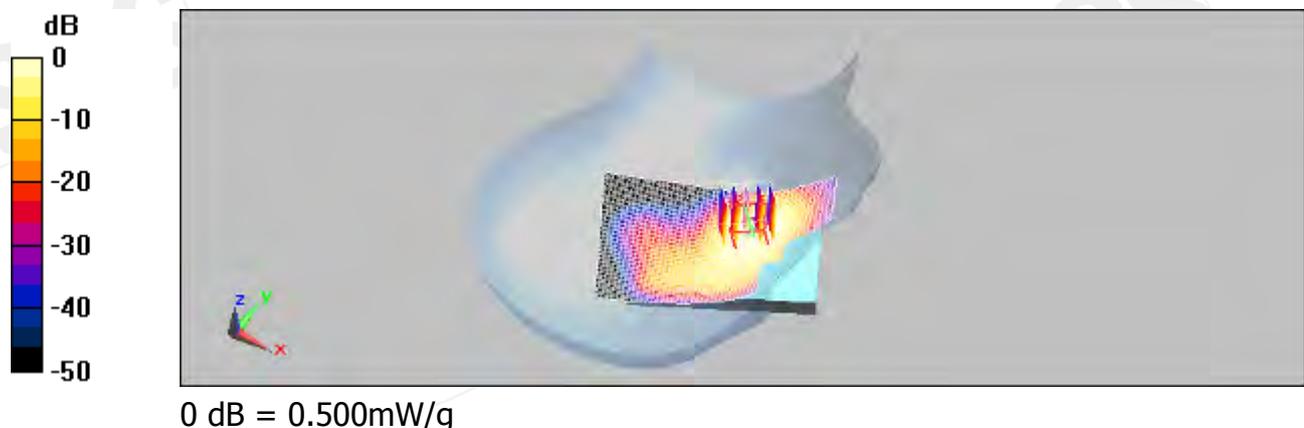
DASY5 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(4.86, 4.86, 4.86); Calibrated: 2009/5/27
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2009/5/26
- Phantom: SAM1; Type: SAM;
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

**RE Cheek/Area Scan (61x101x1):** Measurement grid: dx=15mm, dy=15mm  
Maximum value of SAR (interpolated) = 0.500 mW/g

**RE Cheek/Zoom Scan (7x7x7) (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm  
Reference Value = 7.37 V/m; Power Drift = 0.144 dB  
Peak SAR (extrapolated) = 0.704 W/kg

**SAR(1 g) = 0.453 mW/g; SAR(10 g) = 0.279 mW/g**  
Maximum value of SAR (measured) = 0.495 mW/g



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Date : 2010/03/09

## RE\_Cheek\_CH512\_repeated with HT Energy battery

DUT: PB99200;

Communication System: GSM 1900; Frequency: 1850.2 MHz; Duty Cycle: 1:8.3  
Medium: Head 1900 Medium parameters used (interpolated):  $f = 1850.2$  MHz;  $\sigma = 1.41$  mho/m;  $\epsilon_r = 39.4$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Phantom section: Right Section

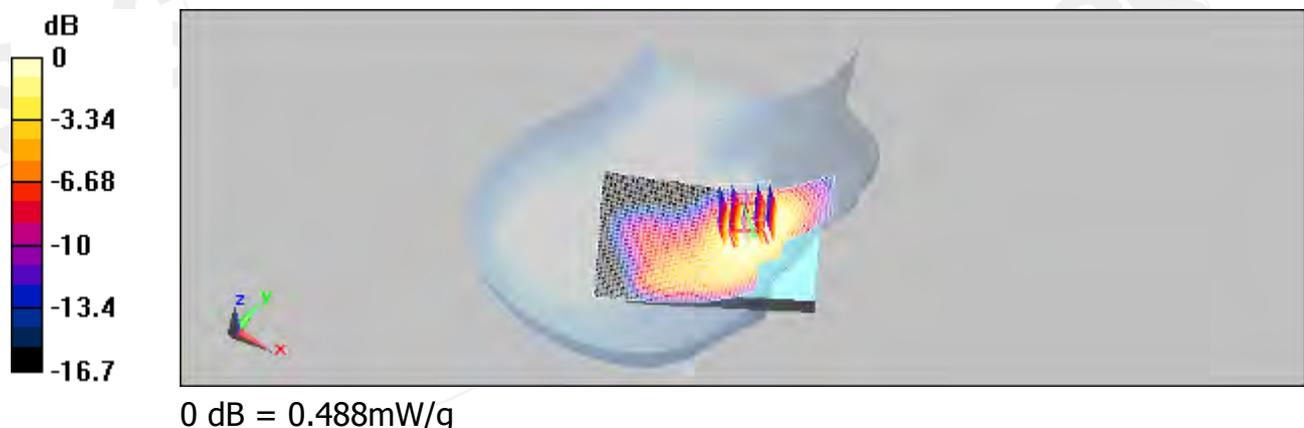
DASY5 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(4.86, 4.86, 4.86); Calibrated: 2009/5/27
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2009/5/26
- Phantom: SAM1; Type: SAM;
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

**RE Cheek/Area Scan (61x101x1):** Measurement grid: dx=15mm, dy=15mm  
Maximum value of SAR (interpolated) = 0.497 mW/g

**RE Cheek/Zoom Scan (7x7x7) (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm  
Reference Value = 7.87 V/m; Power Drift = -0.199 dB  
Peak SAR (extrapolated) = 0.708 W/kg

**SAR(1 g) = 0.450 mW/g; SAR(10 g) = 0.277 mW/g**  
Maximum value of SAR (measured) = 0.488 mW/g



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Date : 2010/03/09

## LE\_Cheek\_CH512

DUT: PB99200;

Communication System: GSM 1900; Frequency: 1850.2 MHz; Duty Cycle: 1:8.3  
Medium: Head 1900 Medium parameters used (interpolated):  $f = 1850.2$  MHz;  $\sigma = 1.41$  mho/m;  $\epsilon_r = 39.4$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Phantom section: Left Section

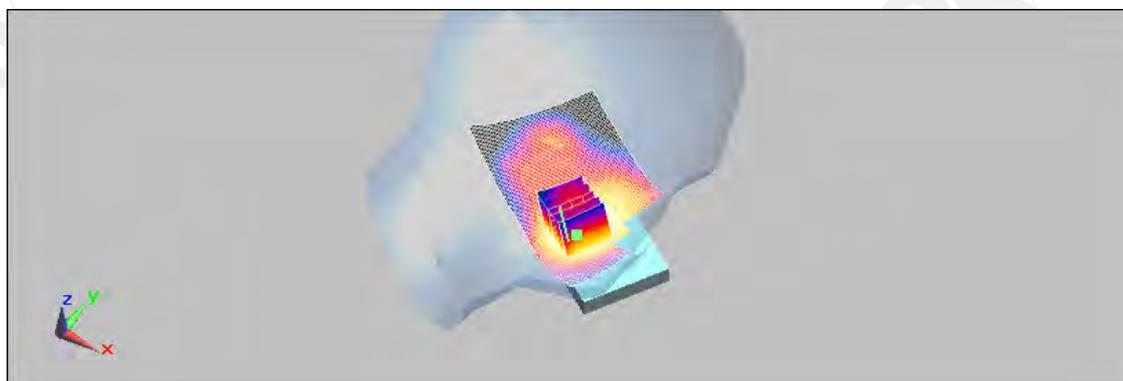
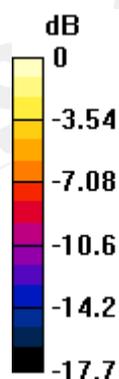
DASY5 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(4.86, 4.86, 4.86); Calibrated: 2009/5/27
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2009/5/26
- Phantom: SAM1; Type: SAM;
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

**LE Tilt/Area Scan (61x101x1):** Measurement grid: dx=15mm, dy=15mm  
Maximum value of SAR (interpolated) = 0.430 mW/g

**LE Tilt/Zoom Scan (7x7x7) (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm  
Reference Value = 8.45 V/m; Power Drift = -0.199 dB  
Peak SAR (extrapolated) = 0.591 W/kg

**SAR(1 g) = 0.400 mW/g; SAR(10 g) = 0.255 mW/g**  
Maximum value of SAR (measured) = 0.432 mW/g



0 dB = 0.432mW/g

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Date : 2010/03/09

## LE\_Cheek\_CH661

DUT: PB99200;

Communication System: GSM 1900; Frequency: 1880 MHz; Duty Cycle: 1:8.3  
Medium: Head 1900 Medium parameters used:  $f = 1880$  MHz;  $\sigma = 1.44$  mho/m;  $\epsilon_r = 39.3$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Phantom section: Left Section

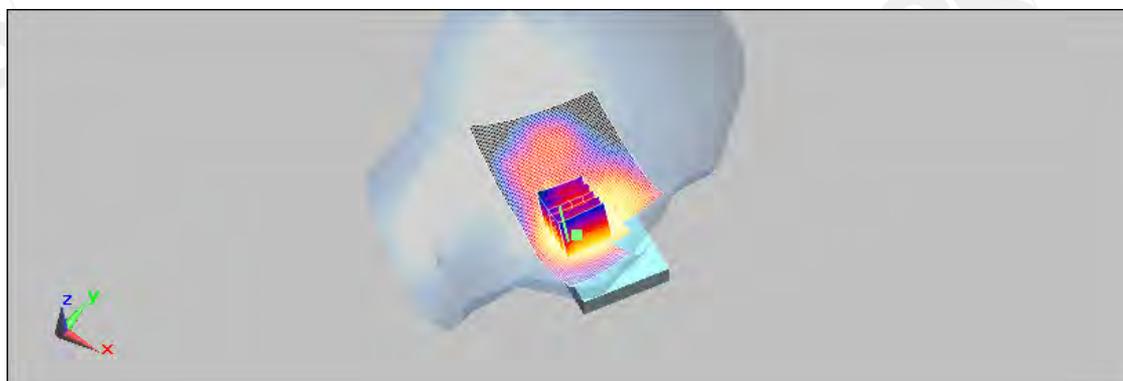
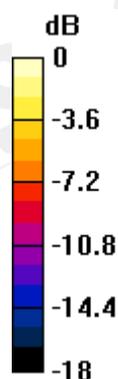
DASY5 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(4.86, 4.86, 4.86); Calibrated: 2009/5/27
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2009/5/26
- Phantom: SAM1; Type: SAM;
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

**LE Tilt/Area Scan (61x101x1):** Measurement grid: dx=15mm, dy=15mm  
Maximum value of SAR (interpolated) = 0.386 mW/g

**LE Tilt/Zoom Scan (7x7x7) (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm  
Reference Value = 7.3 V/m; Power Drift = 0.065 dB  
Peak SAR (extrapolated) = 0.517 W/kg

**SAR(1 g) = 0.350 mW/g; SAR(10 g) = 0.222 mW/g**  
Maximum value of SAR (measured) = 0.374 mW/g



0 dB = 0.374mW/g

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Date : 2010/03/09

## LE\_Cheek\_CH810

DUT: PB99200;

Communication System: GSM 1900; Frequency: 1909.8 MHz; Duty Cycle: 1:8.3  
Medium: Head 1900 Medium parameters used:  $f = 1910$  MHz;  $\sigma = 1.47$  mho/m;  $\epsilon_r = 39.3$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Phantom section: Left Section

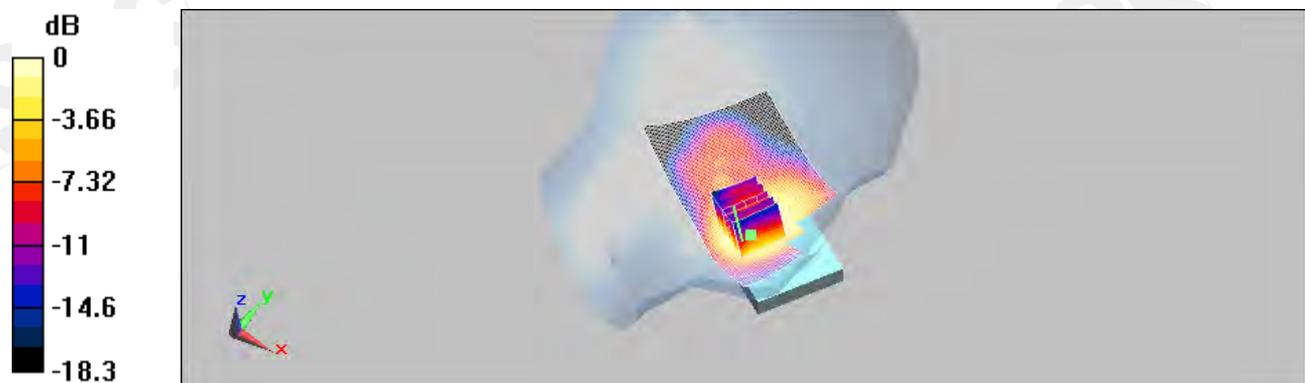
DASY5 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(4.86, 4.86, 4.86); Calibrated: 2009/5/27
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2009/5/26
- Phantom: SAM1; Type: SAM;
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

**LE Tilt/Area Scan (61x101x1):** Measurement grid: dx=15mm, dy=15mm  
Maximum value of SAR (interpolated) = 0.292 mW/g

**LE Tilt/Zoom Scan (7x7x7) (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm  
Reference Value = 6.28 V/m; Power Drift = -0.038 dB  
Peak SAR (extrapolated) = 0.392 W/kg

**SAR(1 g) = 0.262 mW/g; SAR(10 g) = 0.164 mW/g**  
Maximum value of SAR (measured) = 0.279 mW/g



0 dB = 0.279mW/g

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Date : 2010/03/09

## RE\_Tilt\_CH512

DUT: PB99200;

Communication System: GSM 1900; Frequency: 1850.2 MHz; Duty Cycle: 1:8.3  
Medium: Head 1900 Medium parameters used (interpolated):  $f = 1850.2$  MHz;  $\sigma = 1.41$  mho/m;  $\epsilon_r = 39.4$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Phantom section: Right Section

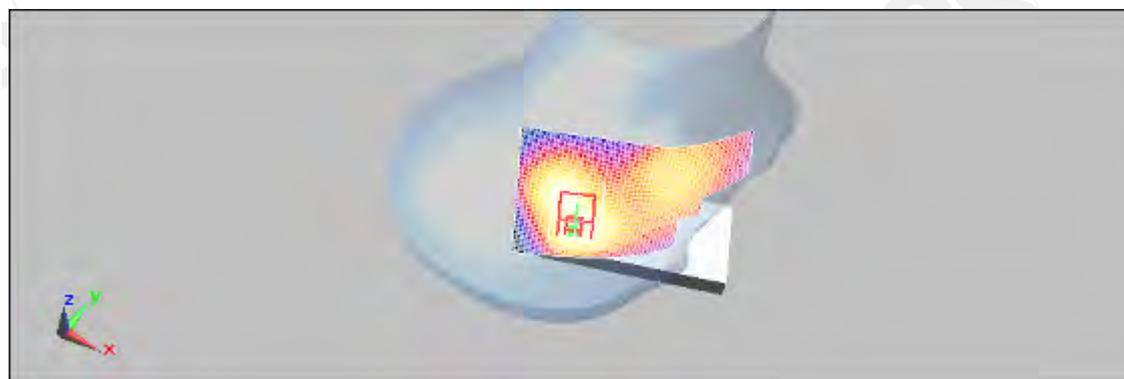
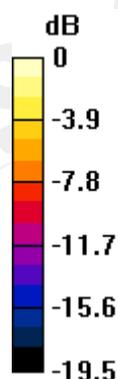
DASY5 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(4.86, 4.86, 4.86); Calibrated: 2009/5/27
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2009/5/26
- Phantom: SAM1; Type: SAM;
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

**RE Tilt/Area Scan (61x101x1):** Measurement grid: dx=15mm, dy=15mm  
Maximum value of SAR (interpolated) = 0.291 mW/g

**RE Tilt/Zoom Scan (7x7x7) (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm  
Reference Value = 13.3 V/m; Power Drift = -0.060 dB  
Peak SAR (extrapolated) = 0.365 W/kg

**SAR(1 g) = 0.224 mW/g; SAR(10 g) = 0.139 mW/g**  
Maximum value of SAR (measured) = 0.241 mW/g



0 dB = 0.241mW/g

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Date : 2010/03/09

## RE\_Tilt\_CH661

DUT: PB99200;

Communication System: GSM 1900; Frequency: 1880 MHz; Duty Cycle: 1:8.3  
Medium: Head 1900 Medium parameters used:  $f = 1880$  MHz;  $\sigma = 1.44$  mho/m;  $\epsilon_r = 39.3$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Phantom section: Right Section

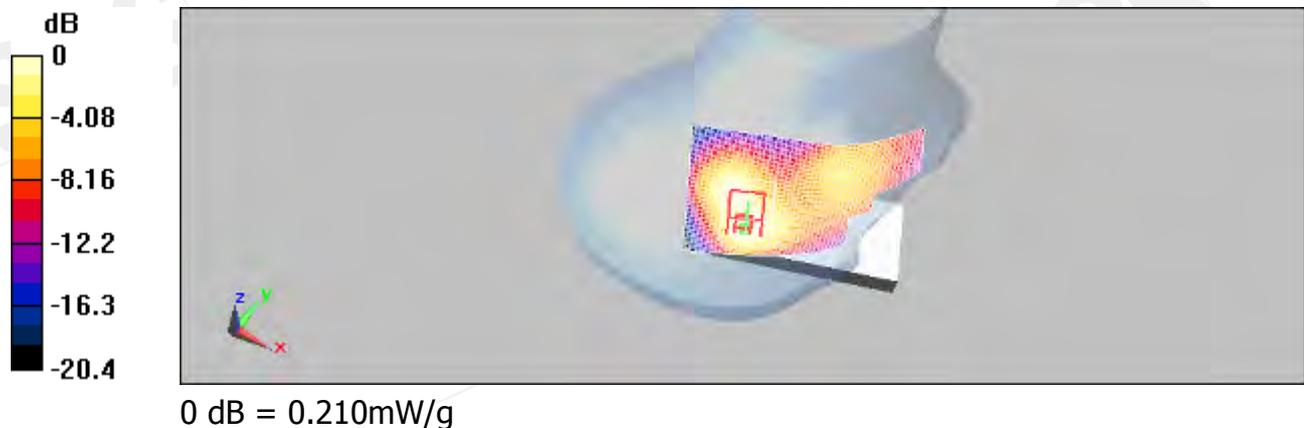
DASY5 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(4.86, 4.86, 4.86); Calibrated: 2009/5/27
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2009/5/26
- Phantom: SAM1; Type: SAM;
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

**RE Tilt/Area Scan (61x101x1):** Measurement grid: dx=15mm, dy=15mm  
Maximum value of SAR (interpolated) = 0.250 mW/g

**RE Tilt/Zoom Scan (7x7x7) (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm  
Reference Value = 12.3 V/m; Power Drift = 0.048 dB  
Peak SAR (extrapolated) = 0.326 W/kg

**SAR(1 g) = 0.196 mW/g; SAR(10 g) = 0.121 mW/g**  
Maximum value of SAR (measured) = 0.210 mW/g



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Date : 2010/03/09

## RE\_Tilt\_CH810

DUT: PB99200;

Communication System: GSM 1900; Frequency: 1909.8 MHz; Duty Cycle: 1:8.3  
Medium: Head 1900 Medium parameters used:  $f = 1910$  MHz;  $\sigma = 1.47$  mho/m;  $\epsilon_r = 39.3$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Phantom section: Right Section

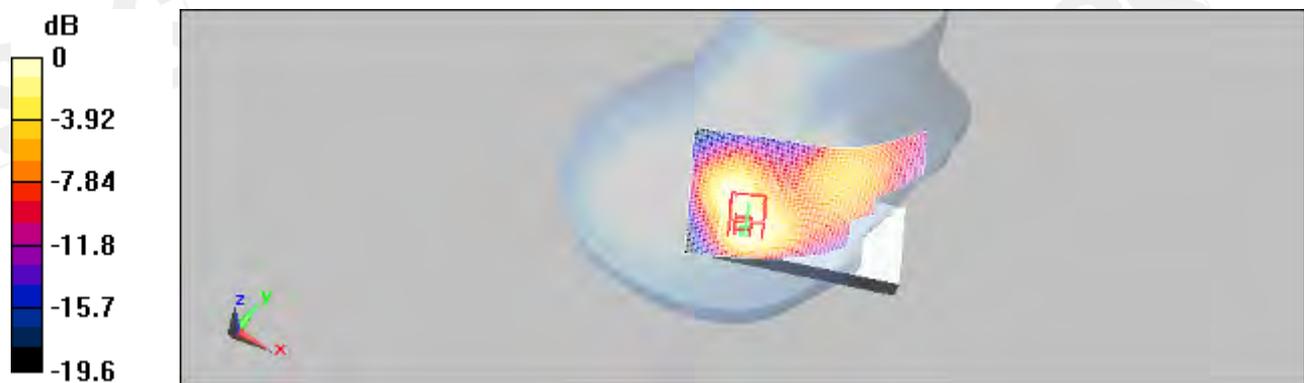
DASY5 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(4.86, 4.86, 4.86); Calibrated: 2009/5/27
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2009/5/26
- Phantom: SAM1; Type: SAM;
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

**RE Tilt/Area Scan (61x101x1):** Measurement grid: dx=15mm, dy=15mm  
Maximum value of SAR (interpolated) = 0.193 mW/g

**RE Tilt/Zoom Scan (7x7x7) (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm  
Reference Value = 10.6 V/m; Power Drift = 0.068 dB  
Peak SAR (extrapolated) = 0.254 W/kg

**SAR(1 g) = 0.151 mW/g; SAR(10 g) = 0.092 mW/g**  
Maximum value of SAR (measured) = 0.160 mW/g



0 dB = 0.160mW/g

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Date : 2010/03/09

## LE\_Tilt\_CH512

DUT: PB99200;

Communication System: GSM 1900; Frequency: 1850.2 MHz; Duty Cycle: 1:8.3  
Medium: Head 1900 Medium parameters used (interpolated):  $f = 1850.2$  MHz;  $\sigma = 1.41$  mho/m;  $\epsilon_r = 39.4$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Phantom section: Left Section

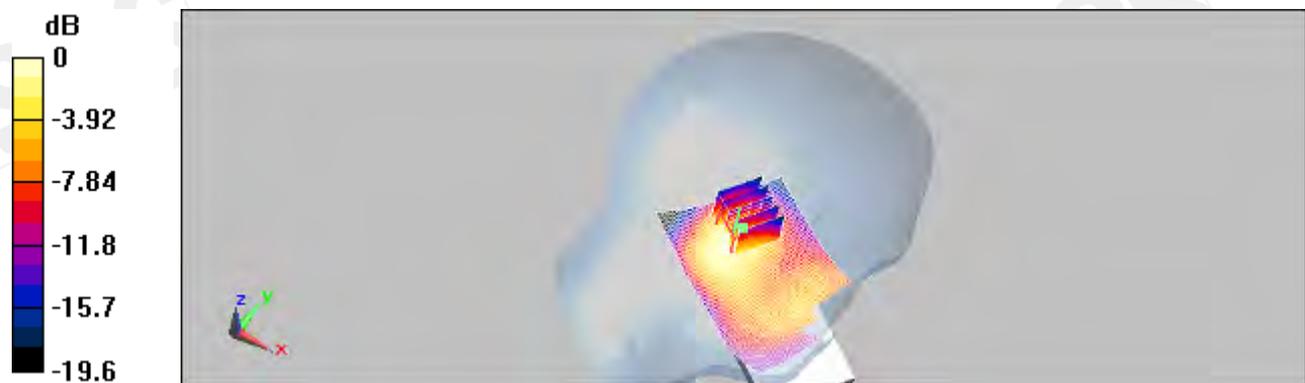
DASY5 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(4.86, 4.86, 4.86); Calibrated: 2009/5/27
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2009/5/26
- Phantom: SAM1; Type: SAM;
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

**LE Tilt/Area Scan (61x101x1):** Measurement grid: dx=15mm, dy=15mm  
Maximum value of SAR (interpolated) = 0.254 mW/g

**LE Tilt/Zoom Scan (7x7x7) (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm  
Reference Value = 13.9 V/m; Power Drift = 0.026 dB  
Peak SAR (extrapolated) = 0.401 W/kg

**SAR(1 g) = 0.239 mW/g; SAR(10 g) = 0.134 mW/g**  
Maximum value of SAR (measured) = 0.261 mW/g



0 dB = 0.261mW/g

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Date : 2010/03/09

## LE\_Tilt\_CH661

DUT: PB99200;

Communication System: GSM 1900; Frequency: 1880 MHz; Duty Cycle: 1:8.3  
Medium: Head 1900 Medium parameters used:  $f = 1880$  MHz;  $\sigma = 1.44$  mho/m;  $\epsilon_r = 39.3$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Phantom section: Left Section

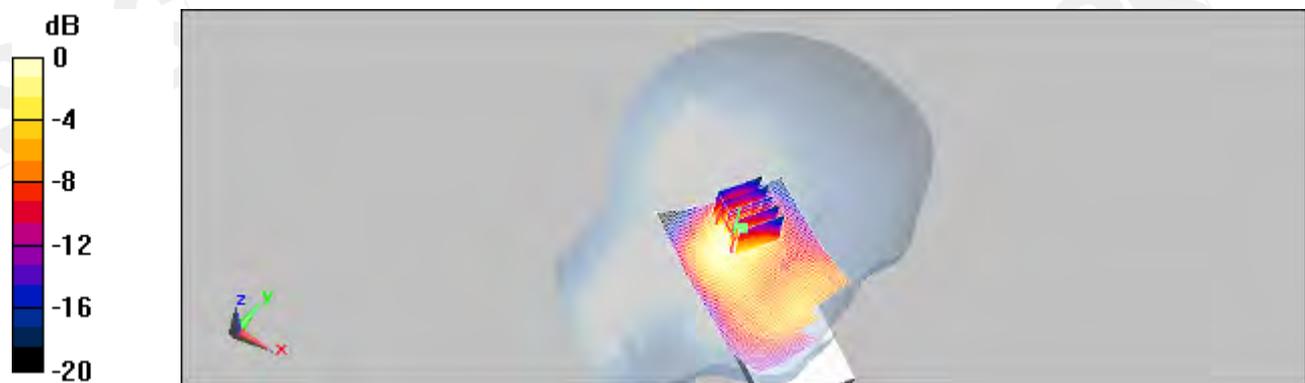
DASY5 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(4.86, 4.86, 4.86); Calibrated: 2009/5/27
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2009/5/26
- Phantom: SAM1; Type: SAM;
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

**LE Tilt/Area Scan (61x101x1):** Measurement grid: dx=15mm, dy=15mm  
Maximum value of SAR (interpolated) = 0.222 mW/g

**LE Tilt/Zoom Scan (7x7x7) (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm  
Reference Value = 12.8 V/m; Power Drift = 0.019 dB  
Peak SAR (extrapolated) = 0.344 W/kg

**SAR(1 g) = 0.205 mW/g; SAR(10 g) = 0.115 mW/g**  
Maximum value of SAR (measured) = 0.225 mW/g



0 dB = 0.225mW/g

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Date : 2010/03/09

## LE\_Tilt\_CH810

DUT: PB99200;

Communication System: GSM 1900; Frequency: 1909.8 MHz; Duty Cycle: 1:8.3  
Medium: Head 1900 Medium parameters used:  $f = 1910$  MHz;  $\sigma = 1.47$  mho/m;  $\epsilon_r = 39.3$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Phantom section: Left Section

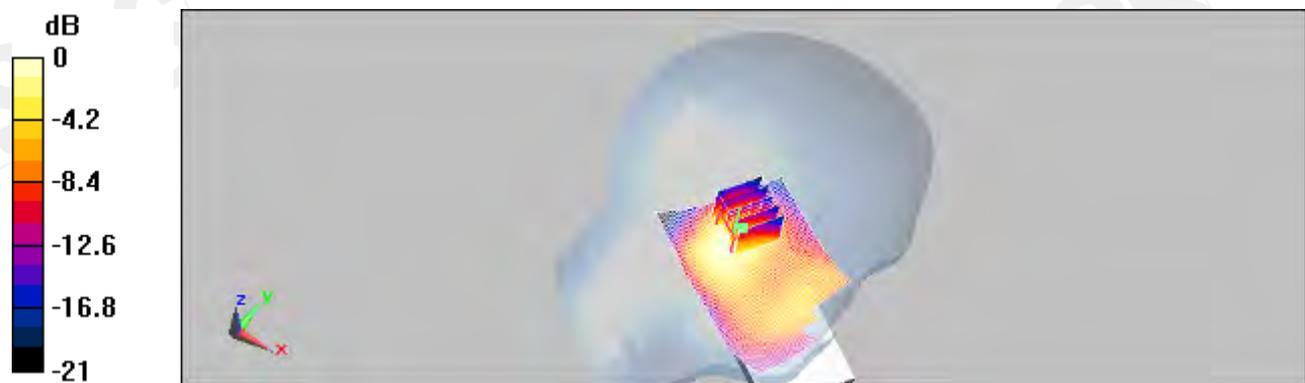
DASY5 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(4.86, 4.86, 4.86); Calibrated: 2009/5/27
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2009/5/26
- Phantom: SAM1; Type: SAM;
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

**LE Tilt/Area Scan (61x101x1):** Measurement grid: dx=15mm, dy=15mm  
Maximum value of SAR (interpolated) = 0.164 mW/g

**LE Tilt/Zoom Scan (7x7x7) (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm  
Reference Value = 11 V/m; Power Drift = -0.016 dB  
Peak SAR (extrapolated) = 0.259 W/kg

**SAR(1 g) = 0.153 mW/g; SAR(10 g) = 0.085 mW/g**  
Maximum value of SAR (measured) = 0.168 mW/g



0 dB = 0.168mW/g

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Date : 2010/03/10

## BODY\_CH512

DUT: PB99200;

Communication System: GSM 1900; Frequency: 1850.2 MHz; Duty Cycle: 1:2  
Medium: Body 1900 Medium parameters used (interpolated):  $f = 1850.2$  MHz;  $\sigma = 1.52$  mho/m;  $\epsilon_r = 55.4$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Phantom section: Flat Section

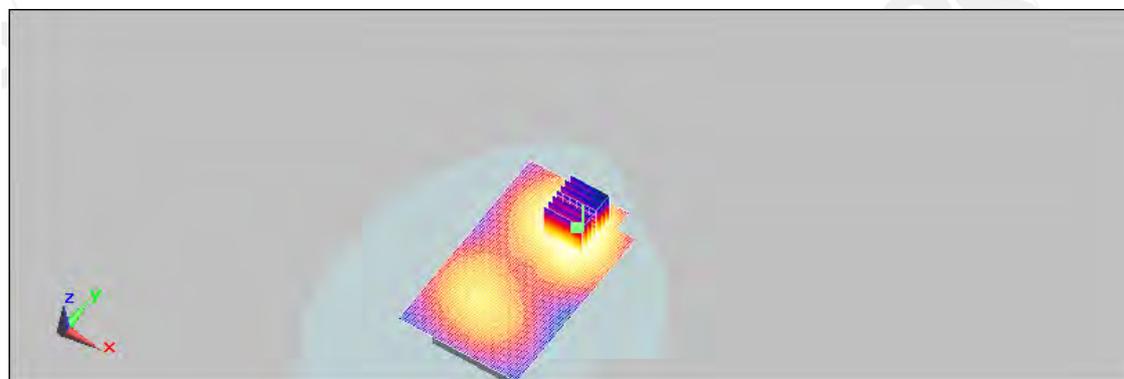
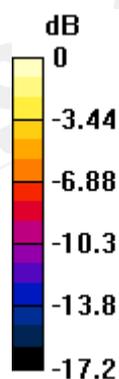
DASY5 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(4.54, 4.54, 4.54); Calibrated: 2009/5/27
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2009/5/26
- Phantom: SAM1; Type: SAM;
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

**Body/Area Scan (61x101x1):** Measurement grid: dx=15mm, dy=15mm  
Maximum value of SAR (interpolated) = 0.724 mW/g

**Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm  
Reference Value = 13.6 V/m; Power Drift = 0.129 dB  
Peak SAR (extrapolated) = 0.980 W/kg

**SAR(1 g) = 0.646 mW/g; SAR(10 g) = 0.393 mW/g**  
Maximum value of SAR (measured) = 0.672 mW/g



0 dB = 0.672mW/g

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Date : 2010/03/10

## BODY\_CH661

DUT: PB99200;

Communication System: GSM 1900; Frequency: 1880 MHz; Duty Cycle: 1:2  
Medium: Body 1900 Medium parameters used:  $f = 1880$  MHz;  $\sigma = 1.56$  mho/m;  $\epsilon_r = 54.8$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Phantom section: Flat Section

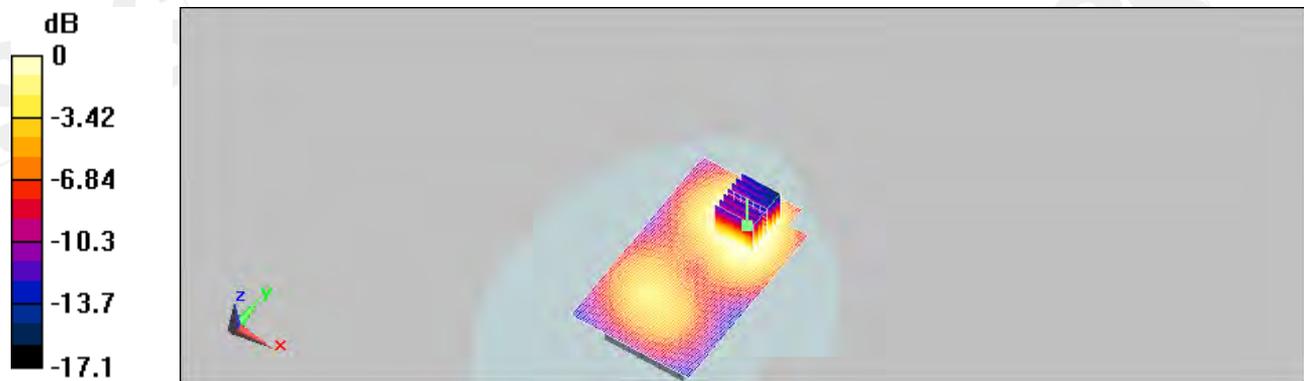
DASY5 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(4.54, 4.54, 4.54); Calibrated: 2009/5/27
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2009/5/26
- Phantom: SAM1; Type: SAM;
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

**Body/Area Scan (61x101x1):** Measurement grid: dx=15mm, dy=15mm  
Maximum value of SAR (interpolated) = 0.521 mW/g

**Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm  
Reference Value = 10.7 V/m; Power Drift = -0.158 dB  
Peak SAR (extrapolated) = 0.805 W/kg

**SAR(1 g) = 0.481 mW/g; SAR(10 g) = 0.28 mW/g**  
Maximum value of SAR (measured) = 0.523 mW/g



0 dB = 0.523mW/g

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Date : 2010/03/10

## BODY\_CH810

DUT: PB99200;

Communication System: GSM 1900; Frequency: 1909.8 MHz; Duty Cycle: 1:2  
Medium: Body 1900 Medium parameters used:  $f = 1910$  MHz;  $\sigma = 1.6$  mho/m;  $\epsilon_r = 54.4$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Phantom section: Flat Section

DASY5 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(4.54, 4.54, 4.54); Calibrated: 2009/5/27
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2009/5/26
- Phantom: SAM1; Type: SAM;
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

**Body/Area Scan (61x101x1):** Measurement grid: dx=15mm, dy=15mm  
Maximum value of SAR (interpolated) = 0.385 mW/g

**Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm  
Reference Value = 10.4V/m; Power Drift = 0.104 dB  
Peak SAR (extrapolated) = 0.704 W/kg

**SAR(1 g) = 0.342 mW/g; SAR(10 g) = 0.213 mW/g**  
Maximum value of SAR (measured) = 0.413 mW/g



0 dB = 0.413mW/g

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Date : 2010/03/11

## RE\_Cheek\_WLAN 802.11b\_CH1

DUT: PB99200;

Communication System: Wireless LAN; Frequency: 2412 MHz; Duty Cycle: 1:1  
Medium: Head 2450 Medium parameters used:  $f = 2412$  MHz;  $\sigma = 1.77$  mho/m;  $\epsilon_r = 38.2$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Phantom section: Right Section

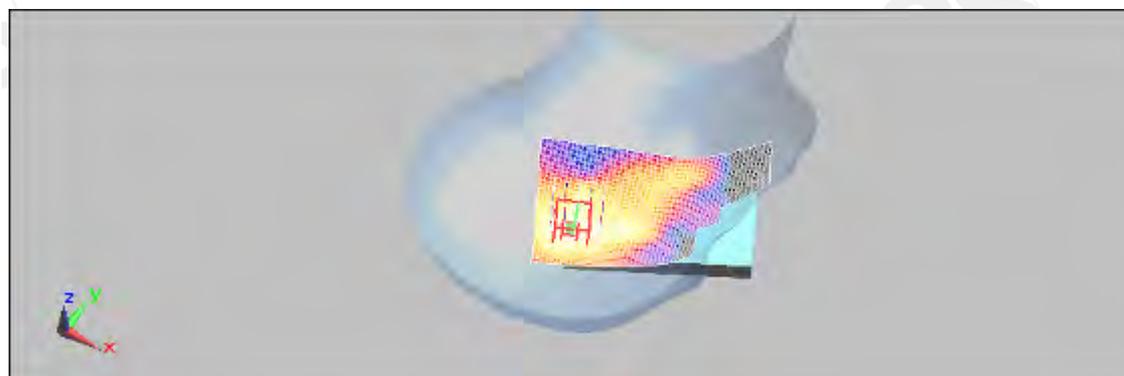
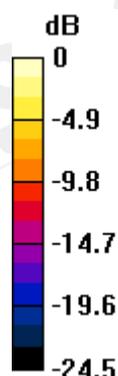
DASY5 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(4.33, 4.33, 4.33); Calibrated: 2009/5/27
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2009/5/26
- Phantom: SAM1; Type: SAM;
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

**RE Cheek/Area Scan (61x101x1):** Measurement grid: dx=15mm, dy=15mm  
Maximum value of SAR (interpolated) = 0.133 mW/g

**RE Cheek/Zoom Scan (7x7x7) (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm  
Reference Value = 6.72 V/m; Power Drift = 0.030 dB  
Peak SAR (extrapolated) = 0.309 W/kg

**SAR(1 g) = 0.131 mW/g; SAR(10 g) = 0.063 mW/g**  
Maximum value of SAR (measured) = 0.136 mW/g



0 dB = 0.136mW/g

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Date : 2010/03/11

## RE\_Cheek\_WLAN 802.11b\_CH6

DUT: PB99200;

Communication System: Wireless LAN; Frequency: 2437 MHz; Duty Cycle: 1:1  
Medium: Head 2450 Medium parameters used:  $f = 2437$  MHz;  $\sigma = 1.8$  mho/m;  $\epsilon_r = 38.2$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Phantom section: Right Section

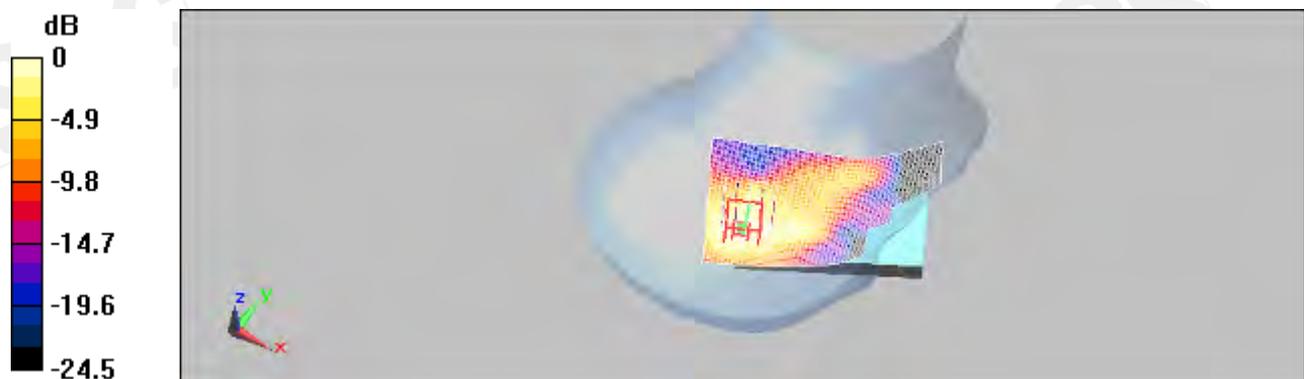
DASY5 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(4.33, 4.33, 4.33); Calibrated: 2009/5/27
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2009/5/26
- Phantom: SAM1; Type: SAM;
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

**RE Cheek/Area Scan (61x101x1):** Measurement grid: dx=15mm, dy=15mm  
Maximum value of SAR (interpolated) = 0.176 mW/g

**RE Cheek/Zoom Scan (7x7x7) (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm  
Reference Value = 7.24 V/m; Power Drift = 0.133 dB  
Peak SAR (extrapolated) = 0.368 W/kg

**SAR(1 g) = 0.170 mW/g; SAR(10 g) = 0.085 mW/g**  
Maximum value of SAR (measured) = 0.186 mW/g



0 dB = 0.186mW/g

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Date : 2010/03/11

## RE\_Cheek\_WLAN 802.11b\_CH11

DUT: PB99200;

Communication System: Wireless LAN; Frequency: 2462 MHz; Duty Cycle: 1:1  
Medium: Head 2450 Medium parameters used:  $f = 2462 \text{ MHz}$ ;  $\sigma = 1.84 \text{ mho/m}$ ;  $\epsilon_r = 38.1$ ;  $\rho = 1000 \text{ kg/m}^3$   
Phantom section: Right Section

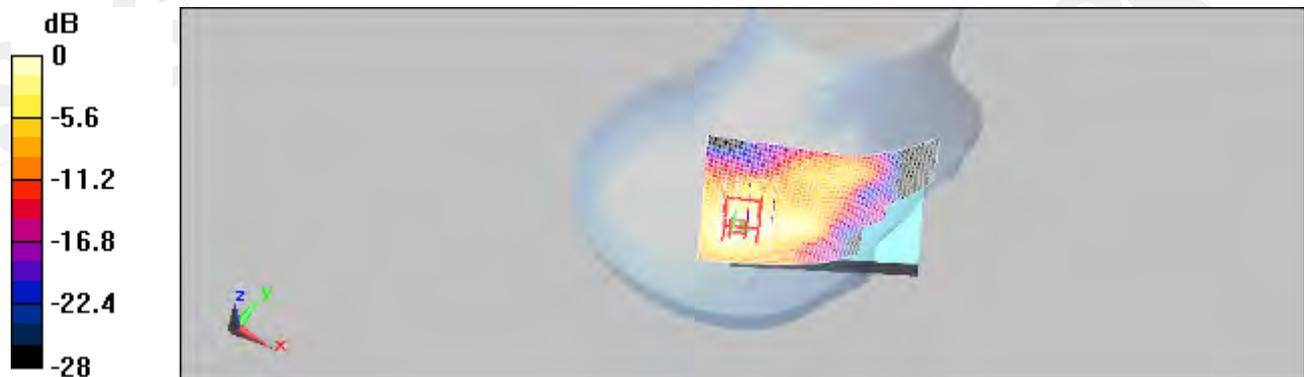
DASY5 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(4.33, 4.33, 4.33); Calibrated: 2009/5/27
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2009/5/26
- Phantom: SAM1; Type: SAM;
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

**RE Cheek/Area Scan (61x101x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$   
Maximum value of SAR (interpolated) = 0.152 mW/g

**RE Cheek/Zoom Scan (7x7x7) (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$   
Reference Value = 6.34 V/m; Power Drift = -0.172 dB  
Peak SAR (extrapolated) = 0.310 W/kg

**SAR(1 g) = 0.134 mW/g; SAR(10 g) = 0.065 mW/g**  
Maximum value of SAR (measured) = 0.144 mW/g



0 dB = 0.144mW/g

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Date : 2010/03/11

## RE\_Cheek\_WLAN 802.11b\_CH6 repeated with Memory card

DUT: PB99200;

Communication System: Wireless LAN; Frequency: 2437 MHz; Duty Cycle: 1:1  
Medium: Head 2450 Medium parameters used:  $f = 2437 \text{ MHz}$ ;  $\sigma = 1.8 \text{ mho/m}$ ;  $\epsilon_r = 38.2$ ;  $\rho = 1000 \text{ kg/m}^3$   
Phantom section: Right Section

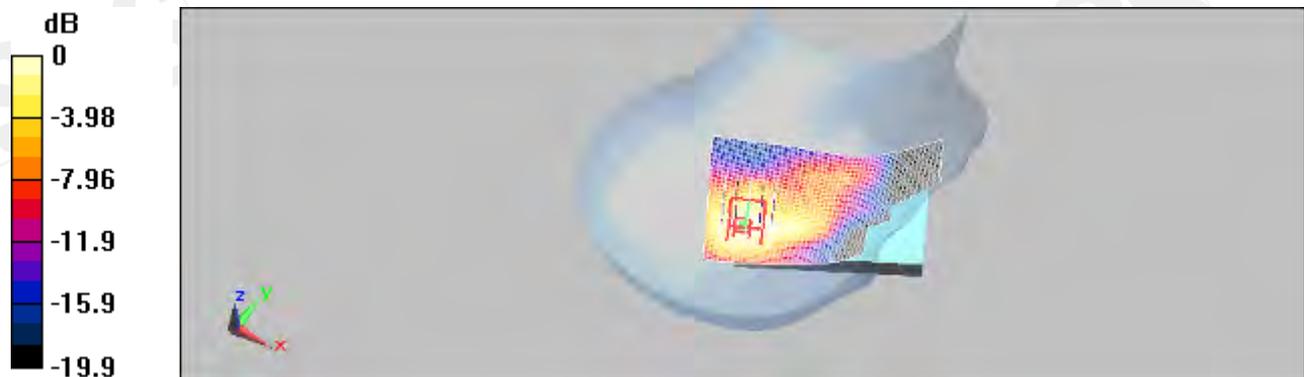
DASY5 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(4.33, 4.33, 4.33); Calibrated: 2009/5/27
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2009/5/26
- Phantom: SAM1; Type: SAM;
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

**RE Cheek/Area Scan (61x101x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$   
Maximum value of SAR (interpolated) = 0.156 mW/g

**RE Cheek/Zoom Scan (7x7x7) (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$   
Reference Value = 6.91 V/m; Power Drift = 0.118 dB  
Peak SAR (extrapolated) = 0.333 W/kg

**SAR(1 g) = 0.150 mW/g; SAR(10 g) = 0.076 mW/g**  
Maximum value of SAR (measured) = 0.158 mW/g



0 dB = 0.158mW/g

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Date : 2010/03/11

## RE\_Cheek\_WLAN 802.11b\_CH6 repeated with Bluetooth active

DUT: PB99200;

Communication System: Wireless LAN; Frequency: 2437 MHz; Duty Cycle: 1:1  
Medium: Head 2450 Medium parameters used:  $f = 2437 \text{ MHz}$ ;  $\sigma = 1.8 \text{ mho/m}$ ;  $\epsilon_r = 38.2$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Right Section

DASY5 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(4.33, 4.33, 4.33); Calibrated: 2009/5/27
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2009/5/26
- Phantom: SAM1; Type: SAM;
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

**RE Cheek/Area Scan (61x101x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$   
Maximum value of SAR (interpolated) = 0.149 mW/g

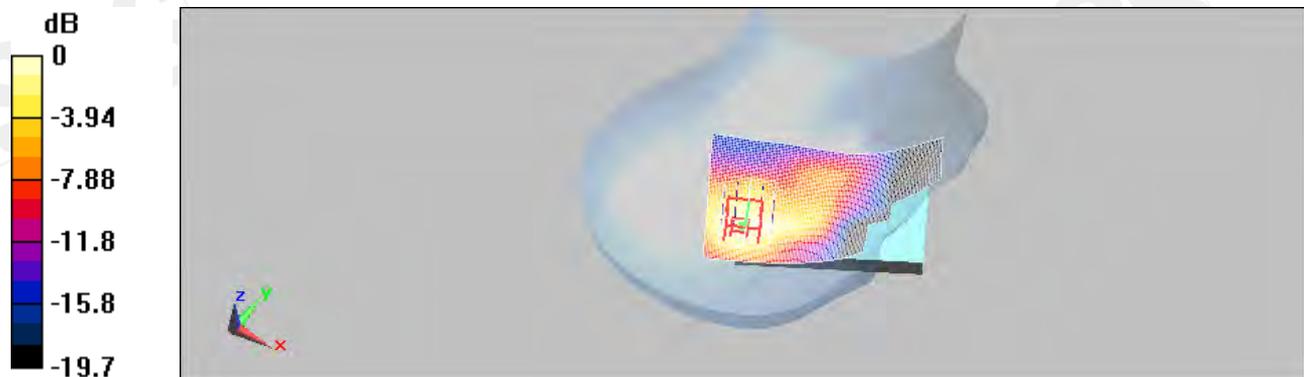
**RE Cheek/Zoom Scan (7x7x7) (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 6.89 V/m; Power Drift = 0.179 dB

Peak SAR (extrapolated) = 0.328 W/kg

**SAR(1 g) = 0.146 mW/g; SAR(10 g) = 0.073 mW/g**

Maximum value of SAR (measured) = 0.153 mW/g



0 dB = 0.153mW/g

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Date : 2010/03/11

## RE\_Cheek\_WLAN 802.11b\_CH6 repeated with HT Energy Battery

DUT: PB99200;

Communication System: Wireless LAN; Frequency: 2437 MHz; Duty Cycle: 1:1  
Medium: Head 2450 Medium parameters used:  $f = 2437$  MHz;  $\sigma = 1.8$  mho/m;  $\epsilon_r = 38.2$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Phantom section: Right Section

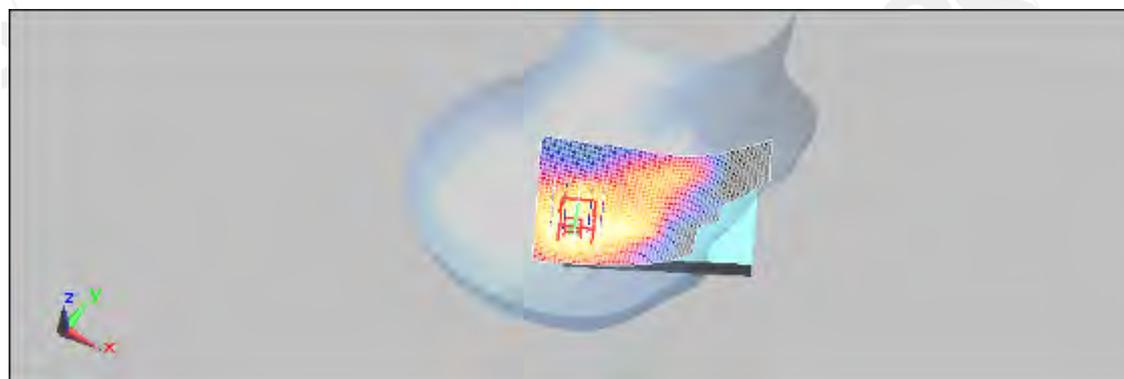
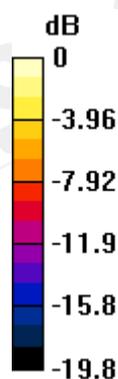
DASY5 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(4.33, 4.33, 4.33); Calibrated: 2009/5/27
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2009/5/26
- Phantom: SAM1; Type: SAM;
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

**RE Cheek/Area Scan (61x101x1):** Measurement grid: dx=15mm, dy=15mm  
Maximum value of SAR (interpolated) = 0.144 mW/g

**RE Cheek/Zoom Scan (7x7x7) (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm  
Reference Value = 6.88 V/m; Power Drift = 0.142 dB  
Peak SAR (extrapolated) = 0.312 W/kg

**SAR(1 g) = 0.143 mW/g; SAR(10 g) = 0.071 mW/g**  
Maximum value of SAR (measured) = 0.158 mW/g



0 dB = 0.158mW/g

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Date : 2010/03/11

## LE\_Cheek\_WLAN 802.11b\_CH1

DUT: PB99200;

Communication System: Wireless LAN; Frequency: 2412 MHz; Duty Cycle: 1:1  
Medium: Head 2450 Medium parameters used:  $f = 2412$  MHz;  $\sigma = 1.77$  mho/m;  $\epsilon_r = 38.2$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Phantom section: Left Section

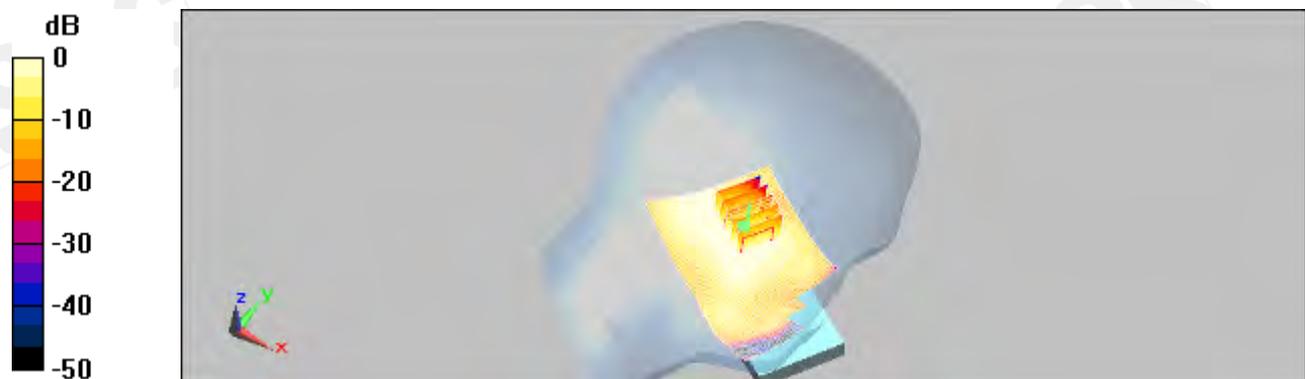
DASY5 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(4.33, 4.33, 4.33); Calibrated: 2009/5/27
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2009/5/26
- Phantom: SAM1; Type: SAM;
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

**LE Cheek/Area Scan (61x101x1):** Measurement grid: dx=15mm, dy=15mm  
Maximum value of SAR (interpolated) = 0.105 mW/g

**LE Cheek/Zoom Scan (7x7x7) (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm  
Reference Value = 6.08 V/m; Power Drift = 0.161 dB  
Peak SAR (extrapolated) = 0.162 W/kg

**SAR(1 g) = 0.081 mW/g; SAR(10 g) = 0.043 mW/g**  
Maximum value of SAR (measured) = 0.082 mW/g



0 dB = 0.082mW/g

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Date : 2010/03/11

## LE\_Cheek\_WLAN 802.11b\_CH6

DUT: PB99200;

Communication System: Wireless LAN; Frequency: 2437 MHz; Duty Cycle: 1:1  
Medium: Head 2450 Medium parameters used:  $f = 2437$  MHz;  $\sigma = 1.8$  mho/m;  $\epsilon_r = 38.2$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Phantom section: Left Section

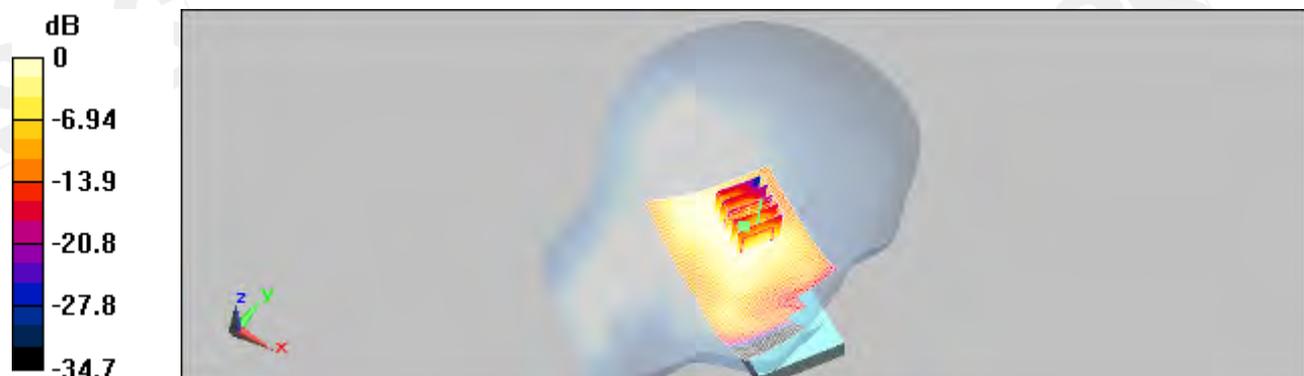
DASY5 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(4.33, 4.33, 4.33); Calibrated: 2009/5/27
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2009/5/26
- Phantom: SAM1; Type: SAM;
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

**LE Cheek/Area Scan (61x101x1):** Measurement grid: dx=15mm, dy=15mm  
Maximum value of SAR (interpolated) = 0.126 mW/g

**LE Cheek/Zoom Scan (7x7x7) (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm  
Reference Value = 6.82 V/m; Power Drift = 0.158 dB  
Peak SAR (extrapolated) = 0.209 W/kg

**SAR(1 g) = 0.097 mW/g; SAR(10 g) = 0.051 mW/g**  
Maximum value of SAR (measured) = 0.098 mW/g



0 dB = 0.098mW/g

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Date : 2010/03/11

## LE\_Cheek\_WLAN 802.11b\_CH11

DUT: PB99200;

Communication System: Wireless LAN; Frequency: 2462 MHz; Duty Cycle: 1:1  
Medium: Head 2450 Medium parameters used:  $f = 2462 \text{ MHz}$ ;  $\sigma = 1.84 \text{ mho/m}$ ;  $\epsilon_r = 38.1$ ;  $\rho = 1000 \text{ kg/m}^3$   
Phantom section: Left Section

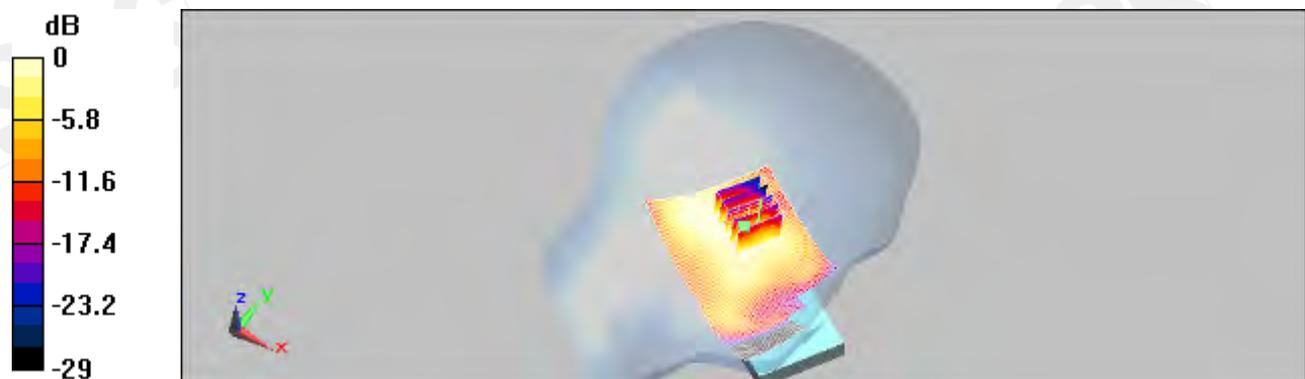
DASY5 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(4.33, 4.33, 4.33); Calibrated: 2009/5/27
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2009/5/26
- Phantom: SAM1; Type: SAM;
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

**LE Cheek/Area Scan (61x101x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$   
Maximum value of SAR (interpolated) = 0.105 mW/g

**LE Cheek/Zoom Scan (7x7x7) (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$   
Reference Value = 6.15 V/m; Power Drift = 0.156 dB  
Peak SAR (extrapolated) = 0.176 W/kg

**SAR(1 g) = 0.083 mW/g; SAR(10 g) = 0.043 mW/g**  
Maximum value of SAR (measured) = 0.087 mW/g



0 dB = 0.087mW/g

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Date : 2010/03/11

## RE\_Tilt\_WLAN 802.11b\_CH1

DUT: PB99200;

Communication System: Wireless LAN; Frequency: 2412 MHz; Duty Cycle: 1:1  
Medium: Head 2450 Medium parameters used:  $f = 2412$  MHz;  $\sigma = 1.77$  mho/m;  $\epsilon_r = 38.2$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Phantom section: Right Section

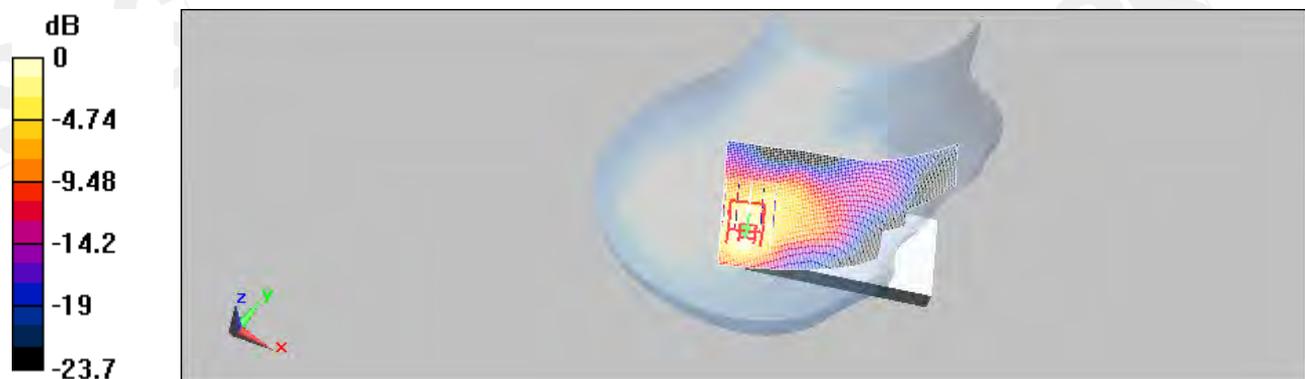
DASY5 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(4.33, 4.33, 4.33); Calibrated: 2009/5/27
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2009/5/26
- Phantom: SAM1; Type: SAM;
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

**RE Tilt/Area Scan (61x101x1):** Measurement grid: dx=15mm, dy=15mm  
Maximum value of SAR (interpolated) = 0.123 mW/g

**RE Tilt/Zoom Scan (7x7x7) (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm  
Reference Value = 6.05 V/m; Power Drift = 0.000234 dB  
Peak SAR (extrapolated) = 0.283 W/kg

**SAR(1 g) = 0.121 mW/g; SAR(10 g) = 0.058 mW/g**  
Maximum value of SAR (measured) = 0.133 mW/g



0 dB = 0.133mW/g

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Date : 2010/03/11

## RE\_Tilt\_WLAN 802.11b\_CH6

DUT: PB99200;

Communication System: Wireless LAN; Frequency: 2437 MHz; Duty Cycle: 1:1  
Medium: Head 2450 Medium parameters used:  $f = 2437$  MHz;  $\sigma = 1.8$  mho/m;  $\epsilon_r = 38.2$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Phantom section: Right Section

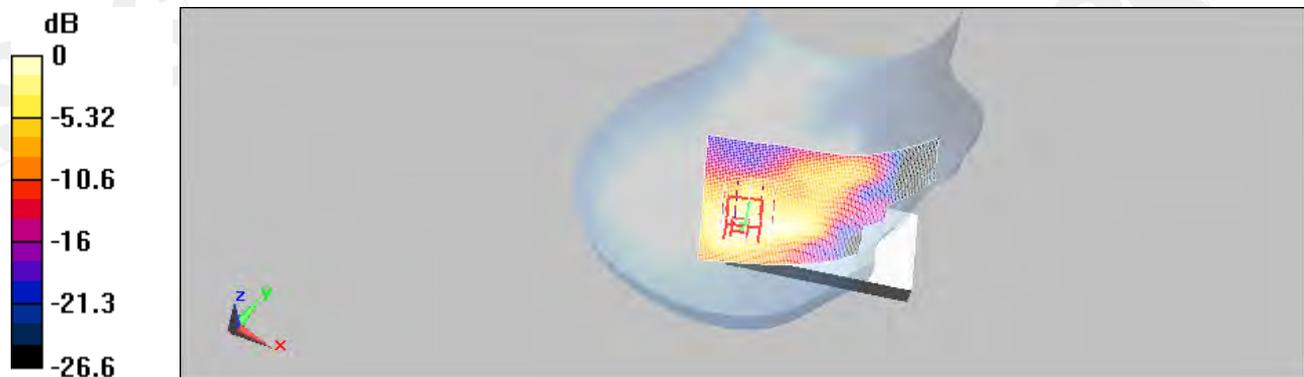
DASY5 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(4.33, 4.33, 4.33); Calibrated: 2009/5/27
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2009/5/26
- Phantom: SAM1; Type: SAM;
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

**RE Tilt/Area Scan (61x101x1):** Measurement grid: dx=15mm, dy=15mm  
Maximum value of SAR (interpolated) = 0.158 mW/g

**RE Tilt/Zoom Scan (7x7x7) (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm  
Reference Value = 6.7 V/m; Power Drift = 0.175 dB  
Peak SAR (extrapolated) = 0.325 W/kg

**SAR(1 g) = 0.144 mW/g; SAR(10 g) = 0.071 mW/g**  
Maximum value of SAR (measured) = 0.156 mW/g



0 dB = 0.156mW/g

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Date : 2010/03/11

## RE\_Tilt\_WLAN 802.11b\_CH11

DUT: PB99200;

Communication System: Wireless LAN; Frequency: 2462 MHz; Duty Cycle: 1:1  
Medium: Head 2450 Medium parameters used:  $f = 2462 \text{ MHz}$ ;  $\sigma = 1.84 \text{ mho/m}$ ;  $\epsilon_r = 38.1$ ;  $\rho = 1000 \text{ kg/m}^3$   
Phantom section: Right Section

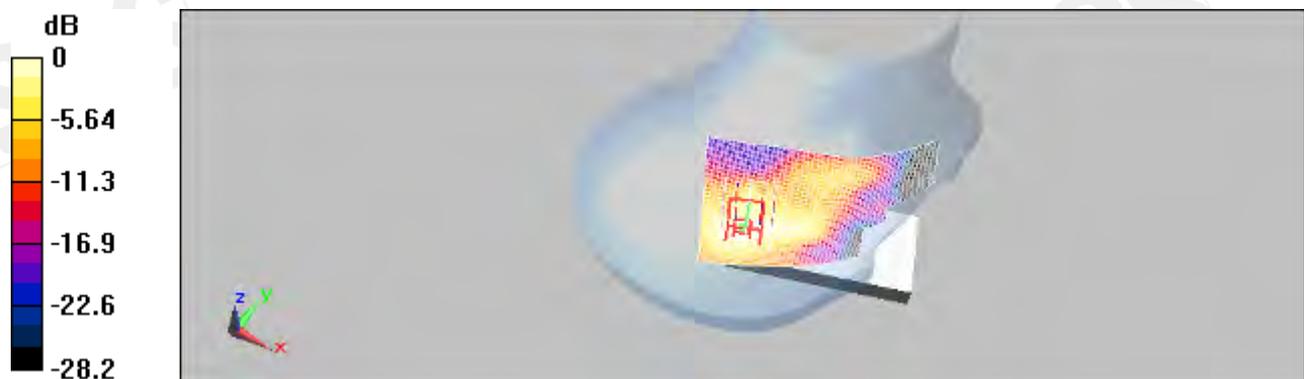
DASY5 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(4.33, 4.33, 4.33); Calibrated: 2009/5/27
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2009/5/26
- Phantom: SAM1; Type: SAM;
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

**RE Tilt/Area Scan (61x101x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$   
Maximum value of SAR (interpolated) = 0.142 mW/g

**RE Tilt/Zoom Scan (7x7x7) (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$   
Reference Value = 6.08 V/m; Power Drift = 0.111 dB  
Peak SAR (extrapolated) = 0.286 W/kg

**SAR(1 g) = 0.128 mW/g; SAR(10 g) = 0.062 mW/g**  
Maximum value of SAR (measured) = 0.142 mW/g



0 dB = 0.142mW/g

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Date : 2010/03/11

## LE\_Tilt\_WLAN 802.11b\_CH1

DUT: PB99200;

Communication System: Wireless LAN; Frequency: 2412 MHz; Duty Cycle: 1:1  
Medium: Head 2450 Medium parameters used:  $f = 2412$  MHz;  $\sigma = 1.77$  mho/m;  $\epsilon_r = 38.2$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Phantom section: Left Section

DASY5 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(4.33, 4.33, 4.33); Calibrated: 2009/5/27
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2009/5/26
- Phantom: SAM1; Type: SAM;
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

**LE Tilt/Area Scan (61x101x1):** Measurement grid: dx=15mm, dy=15mm  
Maximum value of SAR (interpolated) = 0.105 mW/g

**LE Tilt/Zoom Scan (7x7x7) (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm  
Reference Value = 6.81 V/m; Power Drift = 0.142 dB  
Peak SAR (extrapolated) = 0.188 W/kg

**SAR(1 g) = 0.096 mW/g; SAR(10 g) = 0.050 mW/g**  
Maximum value of SAR (measured) = 0.101 mW/g



0 dB = 0.101mW/g

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Date : 2010/03/11

## LE\_Tilt\_WLAN 802.11b\_CH6

DUT: PB99200;

Communication System: Wireless LAN; Frequency: 2437 MHz; Duty Cycle: 1:1  
Medium: Head 2450 Medium parameters used:  $f = 2437$  MHz;  $\sigma = 1.8$  mho/m;  $\epsilon_r = 38.2$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Phantom section: Left Section

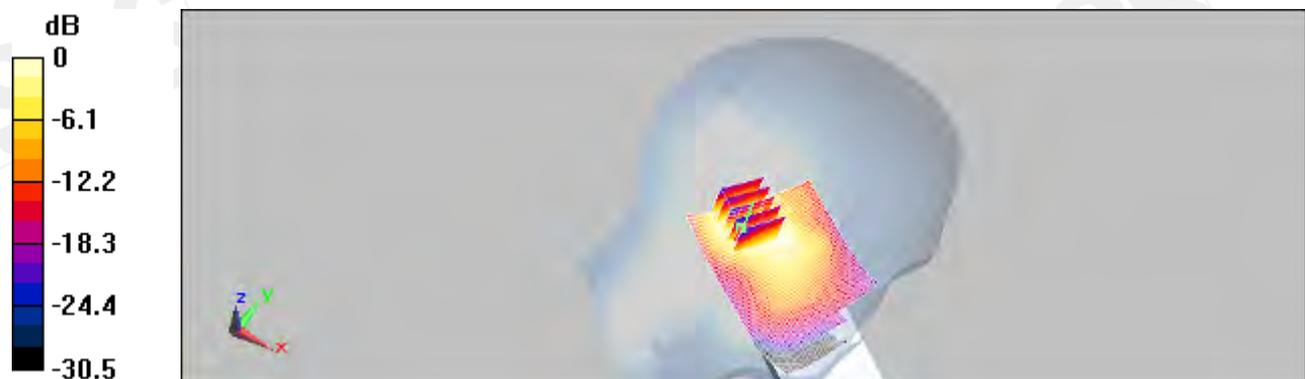
DASY5 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(4.33, 4.33, 4.33); Calibrated: 2009/5/27
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2009/5/26
- Phantom: SAM1; Type: SAM;
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

**LE Tilt/Area Scan (61x101x1):** Measurement grid: dx=15mm, dy=15mm  
Maximum value of SAR (interpolated) = 0.128 mW/g

**LE Tilt/Zoom Scan (7x7x7) (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm  
Reference Value = 7.26 V/m; Power Drift = 0.184 dB  
Peak SAR (extrapolated) = 0.228 W/kg

**SAR(1 g) = 0.117 mW/g; SAR(10 g) = 0.060 mW/g**  
Maximum value of SAR (measured) = 0.124 mW/g



0 dB = 0.124mW/g

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Date : 2010/03/11

## LE\_Tilt\_WLAN 802.11b\_CH11

DUT: PB99200;

Communication System: Wireless LAN; Frequency: 2462 MHz; Duty Cycle: 1:1  
Medium: Head 2450 Medium parameters used:  $f = 2462$  MHz;  $\sigma = 1.84$  mho/m;  $\epsilon_r = 38.1$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Phantom section: Left Section

DASY5 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(4.33, 4.33, 4.33); Calibrated: 2009/5/27
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2009/5/26
- Phantom: SAM1; Type: SAM;
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

**LE Tilt/Area Scan (61x101x1):** Measurement grid: dx=15mm, dy=15mm  
Maximum value of SAR (interpolated) = 0.110 mW/g

**LE Tilt/Zoom Scan (7x7x7) (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm  
Reference Value = 6.38 V/m; Power Drift = 0.144 dB  
Peak SAR (extrapolated) = 0.200 W/kg

**SAR(1 g) = 0.099 mW/g; SAR(10 g) = 0.050 mW/g**  
Maximum value of SAR (measured) = 0.104 mW/g



0 dB = 0.104mW/g

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Date : 2010/03/10

## BODY\_WLAN802.11b\_CH1

DUT: PB99200;

Communication System: Wireless LAN; Frequency: 2412 MHz; Duty Cycle: 1:1  
Medium: Body 2450 Medium parameters used:  $f = 2412 \text{ MHz}$ ;  $\sigma = 2.03 \text{ mho/m}$ ;  $\epsilon_r = 52.1$ ;  $\rho = 1000 \text{ kg/m}^3$   
Phantom section: Flat Section

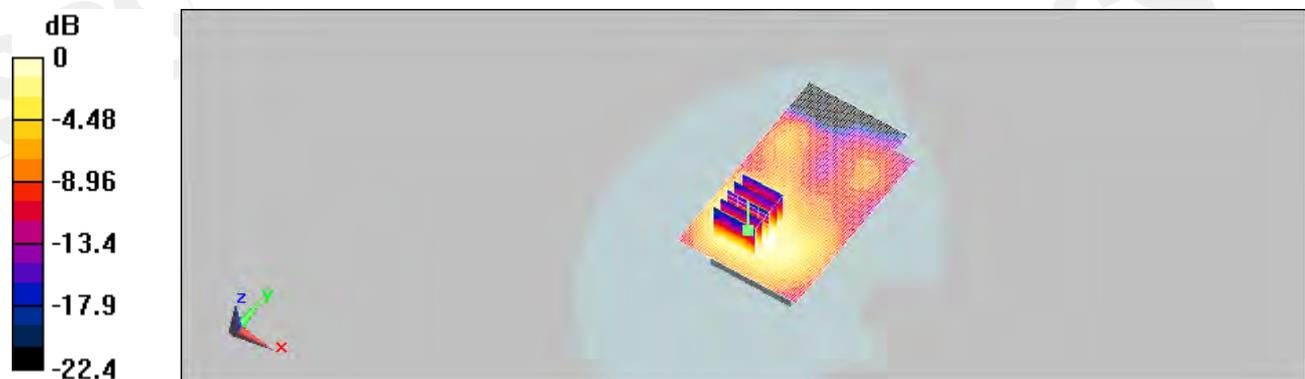
DASY5 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(4.02, 4.02, 4.02); Calibrated: 2009/5/27
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2009/5/26
- Phantom: SAM1; Type: SAM;
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

**Body/Area Scan (61x101x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$   
Maximum value of SAR (interpolated) = 0.105 mW/g

**Body/Zoom Scan (7x7x7) (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$   
Reference Value = 6.45 V/m; Power Drift = 0.121 dB  
Peak SAR (extrapolated) = 0.118 W/kg

**SAR(1 g) = 0.098 mW/g; SAR(10 g) = 0.055 mW/g**  
Maximum value of SAR (measured) = 0.105 mW/g



0 dB = 0.105mW/g

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Date : 2010/03/10

## BODY\_WLAN802.11b\_CH6

DUT: PB99200;

Communication System: Wireless LAN; Frequency: 2437 MHz; Duty Cycle: 1:1  
Medium: Body 2450 Medium parameters used:  $f = 2437 \text{ MHz}$ ;  $\sigma = 2.06 \text{ mho/m}$ ;  $\epsilon_r = 52.2$ ;  $\rho = 1000 \text{ kg/m}^3$   
Phantom section: Flat Section

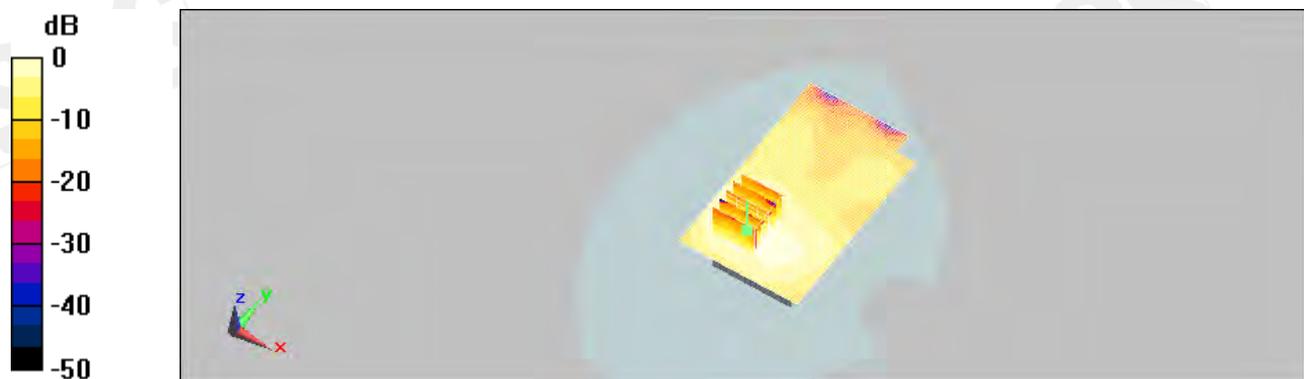
DASY5 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(4.02, 4.02, 4.02); Calibrated: 2009/5/27
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2009/5/26
- Phantom: SAM1; Type: SAM;
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

**Body/Area Scan (61x101x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$   
Maximum value of SAR (interpolated) = 0.123 mW/g

**Body/Zoom Scan (7x7x7) (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$   
Reference Value = 7.07 V/m; Power Drift = 0.106 dB  
Peak SAR (extrapolated) = 0.144 W/kg

**SAR(1 g) = 0.111 mW/g; SAR(10 g) = 0.062 mW/g**  
Maximum value of SAR (measured) = 0.123 mW/g



0 dB = 0.123mW/g

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Date : 2010/03/10

## BODY\_WLAN802.11b\_CH11

DUT: PB99200;

Communication System: Wireless LAN; Frequency: 2462 MHz; Duty Cycle: 1:1  
Medium: Body 2450 Medium parameters used:  $f = 2462 \text{ MHz}$ ;  $\sigma = 2.08 \text{ mho/m}$ ;  $\epsilon_r = 52.1$ ;  $\rho = 1000 \text{ kg/m}^3$   
Phantom section: Flat Section

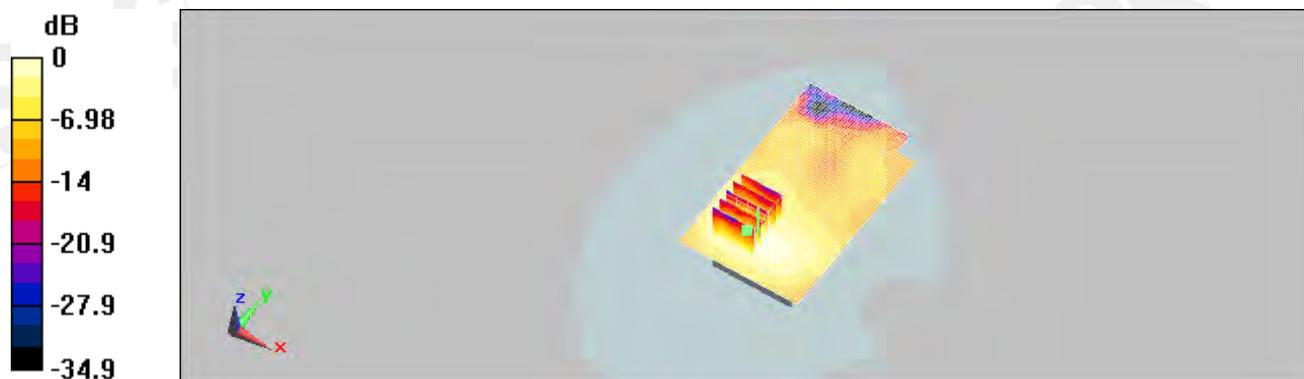
DASY5 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(4.02, 4.02, 4.02); Calibrated: 2009/5/27
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2009/5/26
- Phantom: SAM1; Type: SAM;
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

**Body/Area Scan (61x101x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$   
Maximum value of SAR (interpolated) = 0.105 mW/g

**Body/Zoom Scan (7x7x7) (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$   
Reference Value = 6.45 V/m; Power Drift = -0.153 dB  
Peak SAR (extrapolated) = 0.126 W/kg

**SAR(1 g) = 0.097 mW/g; SAR(10 g) = 0.054 mW/g**  
Maximum value of SAR (measured) = 0.104 mW/g



0 dB = 0.104mW/g

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Date : 2010/03/10

**BODY\_WLAN802.11b\_CH6 repeated the EUT front of phantom**

**DUT: PB99200;**

Communication System: Wireless LAN; Frequency: 2437 MHz; Duty Cycle: 1:1  
Medium: Body 2450 Medium parameters used:  $f = 2437 \text{ MHz}$ ;  $\sigma = 2.06 \text{ mho/m}$ ;  $\epsilon_r = 52.2$ ;  $\rho = 1000 \text{ kg/m}^3$   
Phantom section: Flat Section

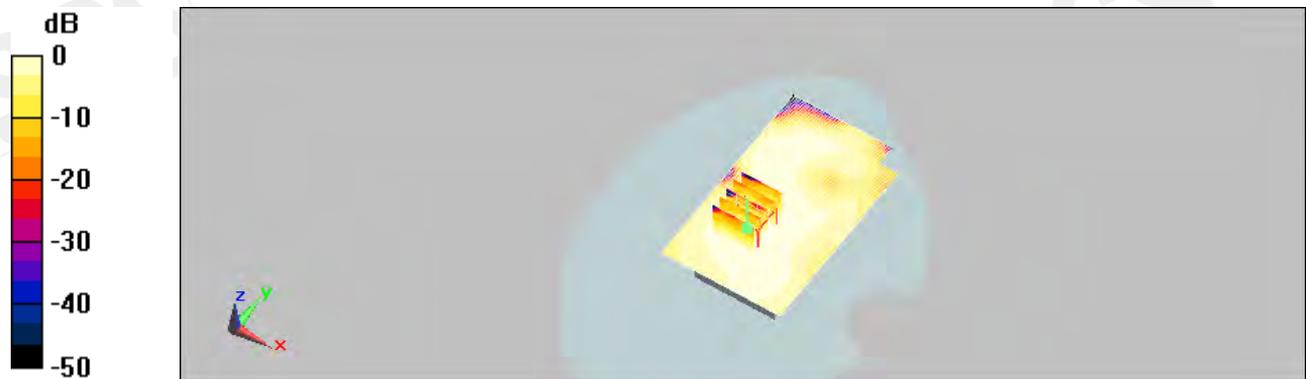
DASY5 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(4.02, 4.02, 4.02); Calibrated: 2009/5/27
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2009/5/26
- Phantom: SAM1; Type: SAM;
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

**Body/Area Scan (61x101x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$   
Maximum value of SAR (interpolated) = 0.018 mW/g

**Body/Zoom Scan (7x7x7) (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$   
Reference Value = 2.29 V/m; Power Drift = 0.166dB  
Peak SAR (extrapolated) = 0.028 W/kg

**SAR(1 g) = 0.016 mW/g; SAR(10 g) = 0.00969 mW/g**  
Maximum value of SAR (measured) = 0.018 mW/g



0 dB = 0.018mW/g

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Date : 2010/03/10

## BODY\_WLAN802.11b\_CH6 repeated with Memory card

DUT: PB99200;

Communication System: Wireless LAN; Frequency: 2437 MHz; Duty Cycle: 1:1  
Medium: Body 2450 Medium parameters used:  $f = 2437 \text{ MHz}$ ;  $\sigma = 2.06 \text{ mho/m}$ ;  $\epsilon_r = 52.2$ ;  $\rho = 1000 \text{ kg/m}^3$   
Phantom section: Flat Section

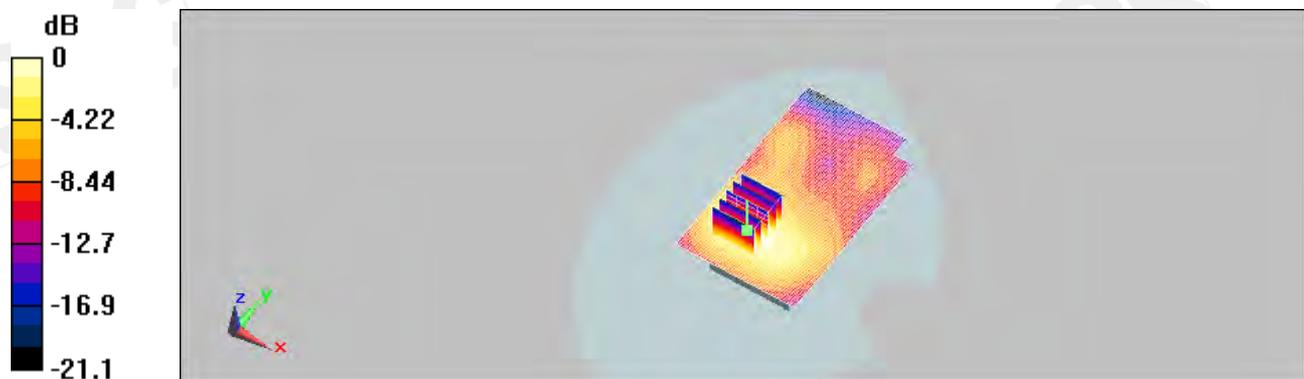
DASY5 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(4.02, 4.02, 4.02); Calibrated: 2009/5/27
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2009/5/26
- Phantom: SAM1; Type: SAM;
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

**Body/Area Scan (61x101x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$   
Maximum value of SAR (interpolated) = 0.110 mW/g

**Body/Zoom Scan (7x7x7) (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$   
Reference Value = 6.58 V/m; Power Drift = 0.167 dB  
Peak SAR (extrapolated) = 0.187 W/kg

**SAR(1 g) = 0.103 mW/g; SAR(10 g) = 0.057 mW/g**  
Maximum value of SAR (measured) = 0.111 mW/g



0 dB = 0.111mW/g

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Date : 2010/03/10

## BODY\_WLAN802.11b\_CH6 repeated with Bluetooth active

DUT: PB99200;

Communication System: Wireless LAN; Frequency: 2437 MHz; Duty Cycle: 1:1  
Medium: Body 2450 Medium parameters used:  $f = 2437$  MHz;  $\sigma = 2.06$  mho/m;  $\epsilon_r = 52.2$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Phantom section: Flat Section

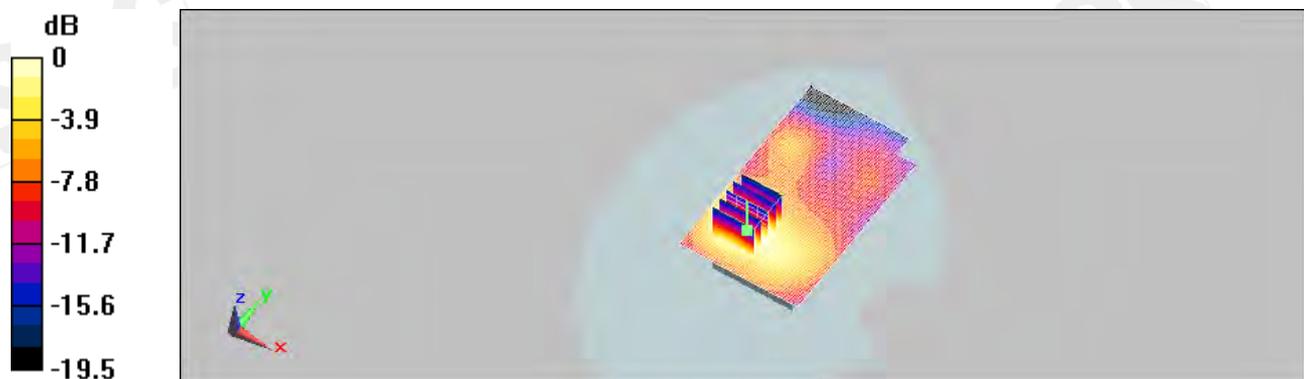
DASY5 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(4.02, 4.02, 4.02); Calibrated: 2009/5/27
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2009/5/26
- Phantom: SAM1; Type: SAM;
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

**Body/Area Scan (61x101x1):** Measurement grid: dx=15mm, dy=15mm  
Maximum value of SAR (interpolated) = 0.133 mW/g

**Body/Zoom Scan (7x7x7) (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm  
Reference Value = 7 V/m; Power Drift = 0.037 dB  
Peak SAR (extrapolated) = 0.220 W/kg

**SAR(1 g) = 0.120 mW/g; SAR(10 g) = 0.067 mW/g**  
Maximum value of SAR (measured) = 0.129 mW/g



0 dB = 0.129mW/g

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Date : 2010/03/10

## BODY\_WLAN802.11b\_CH6 repeated with Cotron headset

DUT: PB99200;

Communication System: Wireless LAN; Frequency: 2437 MHz; Duty Cycle: 1:1  
Medium: Body 2450 Medium parameters used:  $f = 2437 \text{ MHz}$ ;  $\sigma = 2.06 \text{ mho/m}$ ;  $\epsilon_r = 52.2$ ;  $\rho = 1000 \text{ kg/m}^3$   
Phantom section: Flat Section

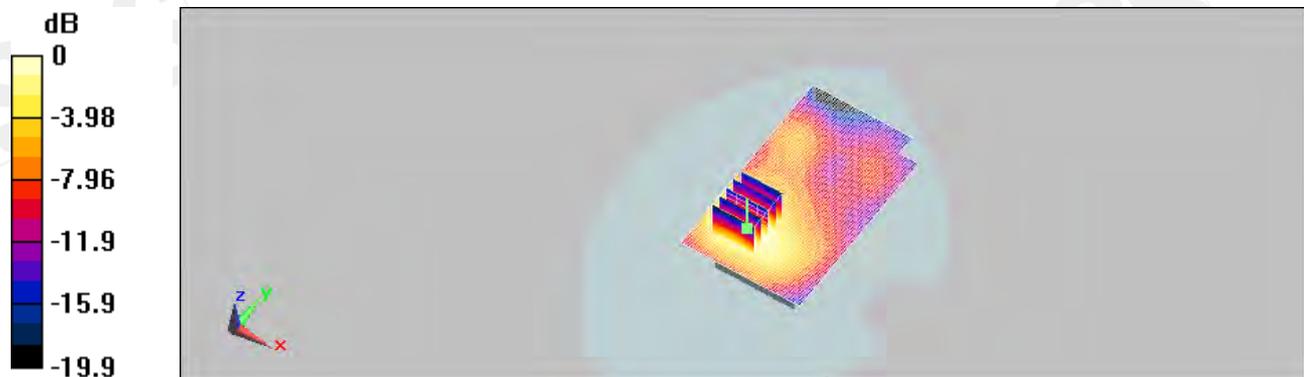
DASY5 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(4.02, 4.02, 4.02); Calibrated: 2009/5/27
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2009/5/26
- Phantom: SAM1; Type: SAM;
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

**Body/Area Scan (61x101x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$   
Maximum value of SAR (interpolated) = 0.128 mW/g

**Body/Zoom Scan (7x7x7) (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$   
Reference Value = 6.67 V/m; Power Drift = 0.045 dB  
Peak SAR (extrapolated) = 0.212 W/kg

**SAR(1 g) = 0.116 mW/g; SAR(10 g) = 0.065 mW/g**  
Maximum value of SAR (measured) = 0.125 mW/g



0 dB = 0.125mW/g

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Date : 2010/03/10

## BODY\_WLAN802.11b\_CH6 repeated with Merry headset

DUT: PB99200;

Communication System: Wireless LAN; Frequency: 2437 MHz; Duty Cycle: 1:1  
Medium: Body 2450 Medium parameters used:  $f = 2437$  MHz;  $\sigma = 2.06$  mho/m;  $\epsilon_r = 52.2$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Phantom section: Flat Section

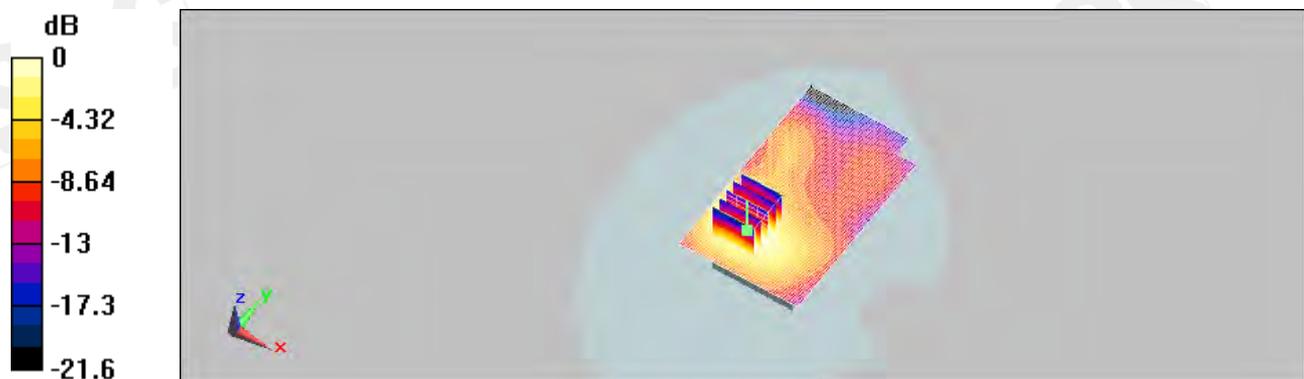
DASY5 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(4.02, 4.02, 4.02); Calibrated: 2009/5/27
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2009/5/26
- Phantom: SAM1; Type: SAM;
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

**Body/Area Scan (61x101x1):** Measurement grid: dx=15mm, dy=15mm  
Maximum value of SAR (interpolated) = 0.117 mW/g

**Body/Zoom Scan (7x7x7) (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm  
Reference Value = 6.44 V/m; Power Drift = 0.171 dB  
Peak SAR (extrapolated) = 0.193 W/kg

**SAR(1 g) = 0.106 mW/g; SAR(10 g) = 0.059 mW/g**  
Maximum value of SAR (measured) = 0.115 mW/g



0 dB = 0.115mW/g

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Date : 2010/03/10

## BODY\_WLAN802.11b\_CH6 repeated with HT Energy Battery

DUT: PB99200;

Communication System: Wireless LAN; Frequency: 2437 MHz; Duty Cycle: 1:1  
Medium: Body 2450 Medium parameters used:  $f = 2437 \text{ MHz}$ ;  $\sigma = 2.06 \text{ mho/m}$ ;  $\epsilon_r = 52.2$ ;  $\rho = 1000 \text{ kg/m}^3$   
Phantom section: Flat Section

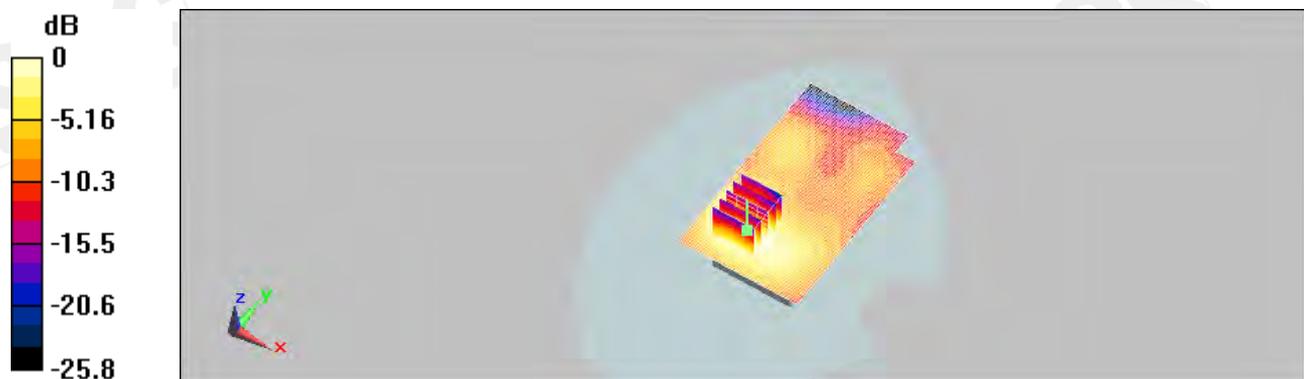
DASY5 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(4.02, 4.02, 4.02); Calibrated: 2009/5/27
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2009/5/26
- Phantom: SAM1; Type: SAM;
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

**Body/Area Scan (61x101x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$   
Maximum value of SAR (interpolated) = 0.100 mW/g

**Body/Zoom Scan (7x7x7) (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$   
Reference Value = 6.03 V/m; Power Drift = 0.125 dB  
Peak SAR (extrapolated) = 0.177 W/kg

**SAR(1 g) = 0.095 mW/g; SAR(10 g) = 0.052 mW/g**  
Maximum value of SAR (measured) = 0.102 mW/g



0 dB = 0.102mW/g

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Date : 2010/03/11

## RE\_Cheek\_WLAN802.11g\_CH1

DUT: PB99200;

Communication System: Wireless LAN; Frequency: 2412 MHz; Duty Cycle: 1:1  
Medium: Head 2450 Medium parameters used:  $f = 2412$  MHz;  $\sigma = 1.77$  mho/m;  $\epsilon_r = 38.2$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Phantom section: Right Section

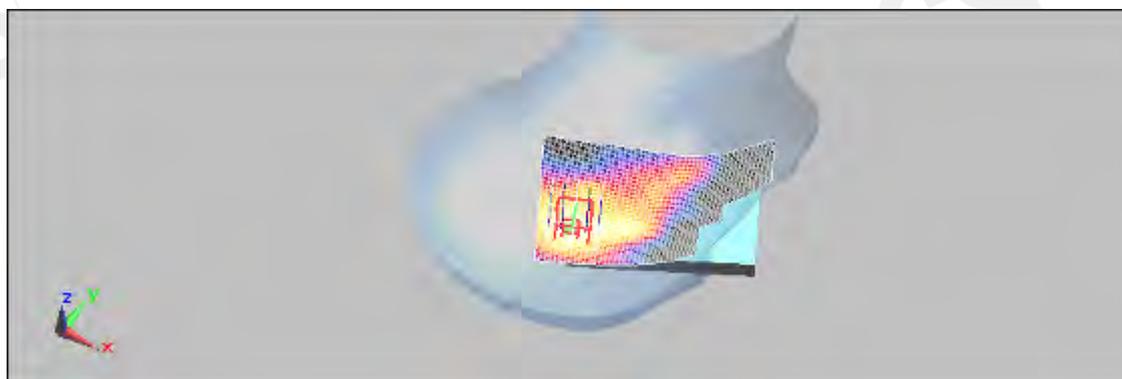
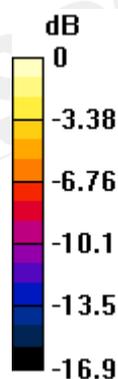
DASY5 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(4.33, 4.33, 4.33); Calibrated: 2009/5/27
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2009/5/26
- Phantom: SAM1; Type: SAM;
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

**RE Cheek/Area Scan (61x101x1):** Measurement grid: dx=15mm, dy=15mm  
Maximum value of SAR (interpolated) = 0.043 mW/g

**RE Cheek/Zoom Scan (7x7x7) (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm  
Reference Value = 3.24 V/m; Power Drift = 0.033 dB  
Peak SAR (extrapolated) = 0.087 W/kg

**SAR(1 g) = 0.038 mW/g; SAR(10 g) = 0.019 mW/g**  
Maximum value of SAR (measured) = 0.042 mW/g



0 dB = 0.042mW/g

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Date : 2010/03/11

## RE\_Cheek\_WLAN802.11g\_CH6

DUT: PB99200;

Communication System: Wireless LAN; Frequency: 2437 MHz; Duty Cycle: 1:1  
Medium: Head 2450 Medium parameters used:  $f = 2437 \text{ MHz}$ ;  $\sigma = 1.8 \text{ mho/m}$ ;  $\epsilon_r = 38.2$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Right Section

DASY5 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(4.33, 4.33, 4.33); Calibrated: 2009/5/27
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2009/5/26
- Phantom: SAM1; Type: SAM;
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

**RE Cheek/Area Scan (61x101x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$   
Maximum value of SAR (interpolated) = 0.052 mW/g

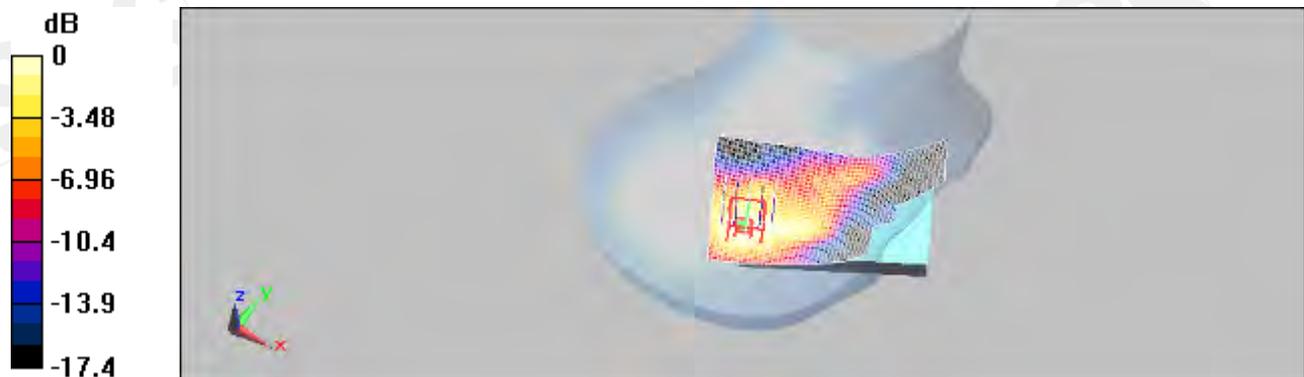
**RE Cheek/Zoom Scan (7x7x7) (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 3.99 V/m; Power Drift = 0.147 dB

Peak SAR (extrapolated) = 0.110 W/kg

**SAR(1 g) = 0.048 mW/g; SAR(10 g) = 0.024 mW/g**

Maximum value of SAR (measured) = 0.050 mW/g



0 dB = 0.050mW/g

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Date : 2010/03/11

## RE\_Cheek\_WLAN802.11g\_CH11

DUT: PB99200;

Communication System: Wireless LAN; Frequency: 2462 MHz; Duty Cycle: 1:1  
Medium: Head 2450 Medium parameters used:  $f = 2462$  MHz;  $\sigma = 1.84$  mho/m;  $\epsilon_r = 38.1$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Phantom section: Right Section

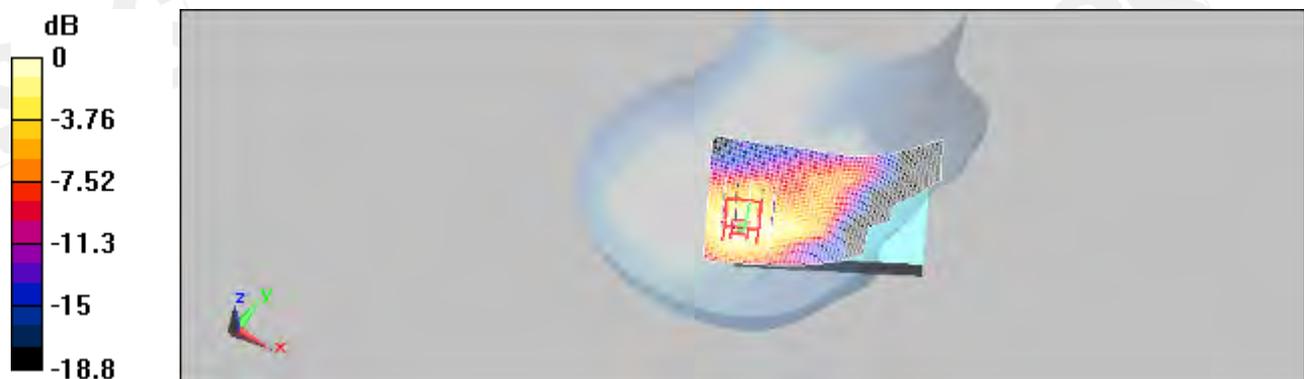
DASY5 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(4.33, 4.33, 4.33); Calibrated: 2009/5/27
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2009/5/26
- Phantom: SAM1; Type: SAM;
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

**RE Cheek/Area Scan (61x101x1):** Measurement grid: dx=15mm, dy=15mm  
Maximum value of SAR (interpolated) = 0.043 mW/g

**RE Cheek/Zoom Scan (7x7x7) (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm  
Reference Value = 3.75 V/m; Power Drift = 0.123 dB  
Peak SAR (extrapolated) = 0.097 W/kg

**SAR(1 g) = 0.042 mW/g; SAR(10 g) = 0.020 mW/g**  
Maximum value of SAR (measured) = 0.044 mW/g



0 dB = 0.044mW/g

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Date : 2010/03/11

## LE\_Cheek\_WLAN802.11g\_CH1

DUT: PB99200;

Communication System: Wireless LAN; Frequency: 2412 MHz; Duty Cycle: 1:1  
Medium: Head 2450 Medium parameters used:  $f = 2412$  MHz;  $\sigma = 1.77$  mho/m;  $\epsilon_r = 38.2$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Phantom section: Left Section

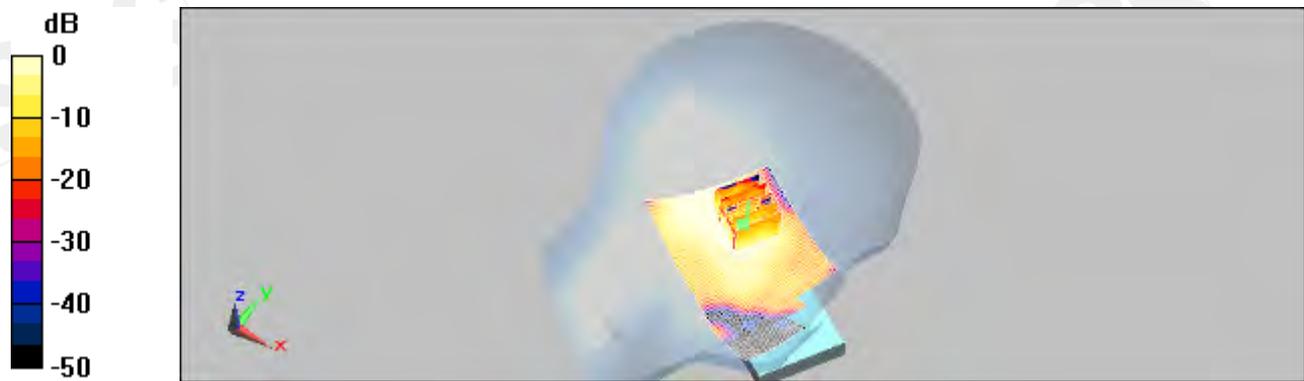
DASY5 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(4.33, 4.33, 4.33); Calibrated: 2009/5/27
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2009/5/26
- Phantom: SAM1; Type: SAM;
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

**LE Cheek/Area Scan (61x101x1):** Measurement grid: dx=15mm, dy=15mm  
Maximum value of SAR (interpolated) = 0.032 mW/g

**LE Cheek/Zoom Scan (7x7x7) (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm  
Reference Value = 3.64 V/m; Power Drift = 0.171 dB  
Peak SAR (extrapolated) = 0.048 W/kg

**SAR(1 g) = 0.024 mW/g; SAR(10 g) = 0.013 mW/g**  
Maximum value of SAR (measured) = 0.027 mW/g



0 dB = 0.027mW/g

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Date : 2010/03/11

## LE\_Cheek\_WLAN802.11g\_CH6

DUT: PB99200;

Communication System: Wireless LAN; Frequency: 2437 MHz; Duty Cycle: 1:1  
Medium: Head 2450 Medium parameters used:  $f = 2437$  MHz;  $\sigma = 1.8$  mho/m;  $\epsilon_r = 38.2$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Phantom section: Left Section

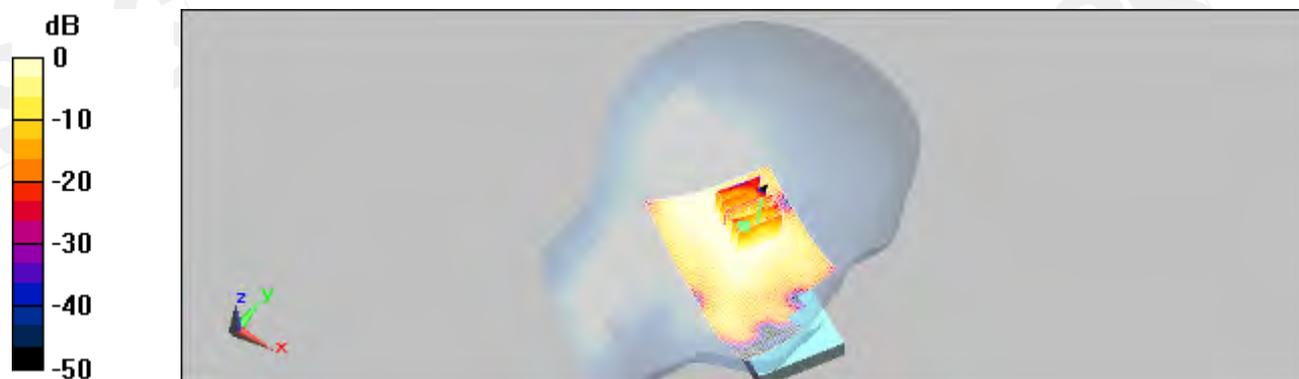
DASY5 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(4.33, 4.33, 4.33); Calibrated: 2009/5/27
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2009/5/26
- Phantom: SAM1; Type: SAM;
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

**LE Cheek/Area Scan (61x101x1):** Measurement grid: dx=15mm, dy=15mm  
Maximum value of SAR (interpolated) = 0.044 mW/g

**LE Cheek/Zoom Scan (7x7x7) (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm  
Reference Value = 3.99 V/m; Power Drift = 0.125 dB  
Peak SAR (extrapolated) = 0.075 W/kg

**SAR(1 g) = 0.034 mW/g; SAR(10 g) = 0.018 mW/g**  
Maximum value of SAR (measured) = 0.035 mW/g



0 dB = 0.035mW/g

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Date : 2010/03/11

## LE\_Cheek\_WLAN802.11g\_CH11

DUT: PB99200;

Communication System: Wireless LAN; Frequency: 2462 MHz; Duty Cycle: 1:1  
Medium: Head 2450 Medium parameters used:  $f = 2462$  MHz;  $\sigma = 1.84$  mho/m;  $\epsilon_r = 38.1$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Phantom section: Left Section

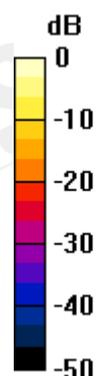
DASY5 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(4.33, 4.33, 4.33); Calibrated: 2009/5/27
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2009/5/26
- Phantom: SAM1; Type: SAM;
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

**LE Cheek/Area Scan (61x101x1):** Measurement grid: dx=15mm, dy=15mm  
Maximum value of SAR (interpolated) = 0.037 mW/g

**LE Cheek/Zoom Scan (7x7x7) (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm  
Reference Value = 3.87 V/m; Power Drift = 0.106 dB  
Peak SAR (extrapolated) = 0.064 W/kg

**SAR(1 g) = 0.032 mW/g; SAR(10 g) = 0.016 mW/g**  
Maximum value of SAR (measured) = 0.032 mW/g



0 dB = 0.032mW/g

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Date : 2010/03/11

## RE\_Tilt\_WLAN802.11g\_CH1

DUT: PB99200;

Communication System: Wireless LAN; Frequency: 2412 MHz; Duty Cycle: 1:1  
Medium: Head 2450 Medium parameters used:  $f = 2412$  MHz;  $\sigma = 1.77$  mho/m;  $\epsilon_r = 38.2$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Phantom section: Right Section

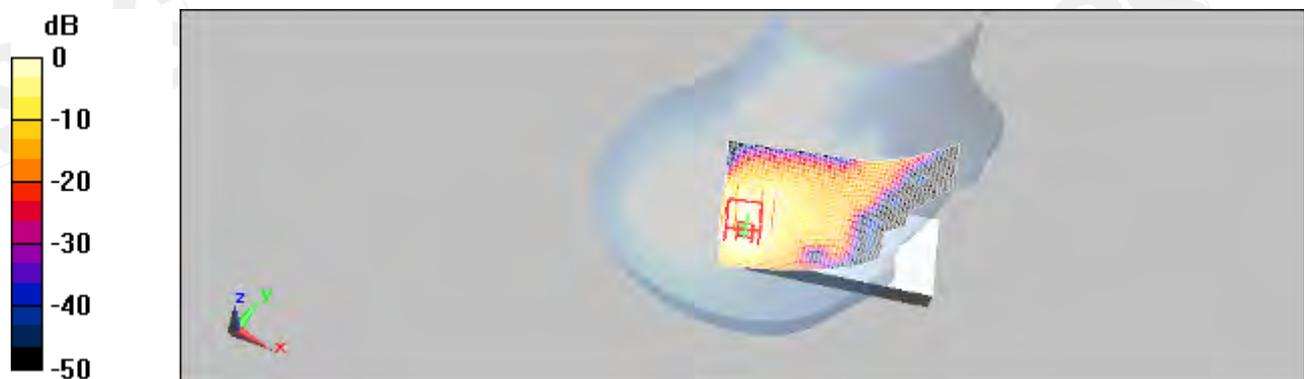
DASY5 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(4.33, 4.33, 4.33); Calibrated: 2009/5/27
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2009/5/26
- Phantom: SAM1; Type: SAM;
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

**RE Tilt/Area Scan (61x101x1):** Measurement grid: dx=15mm, dy=15mm  
Maximum value of SAR (interpolated) = 0.045 mW/g

**RE Tilt/Zoom Scan (7x7x7) (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm  
Reference Value = 3.46 V/m; Power Drift = 0.041 dB  
Peak SAR (extrapolated) = 0.104 W/kg

**SAR(1 g) = 0.044 mW/g; SAR(10 g) = 0.021 mW/g**  
Maximum value of SAR (measured) = 0.049 mW/g



0 dB = 0.049mW/g

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Date : 2010/03/11

## RE\_Tilt\_WLAN802.11g\_CH6

DUT: PB99200;

Communication System: Wireless LAN; Frequency: 2437 MHz; Duty Cycle: 1:1  
Medium: Head 2450 Medium parameters used:  $f = 2437 \text{ MHz}$ ;  $\sigma = 1.8 \text{ mho/m}$ ;  $\epsilon_r = 38.2$ ;  $\rho = 1000 \text{ kg/m}^3$   
Phantom section: Right Section

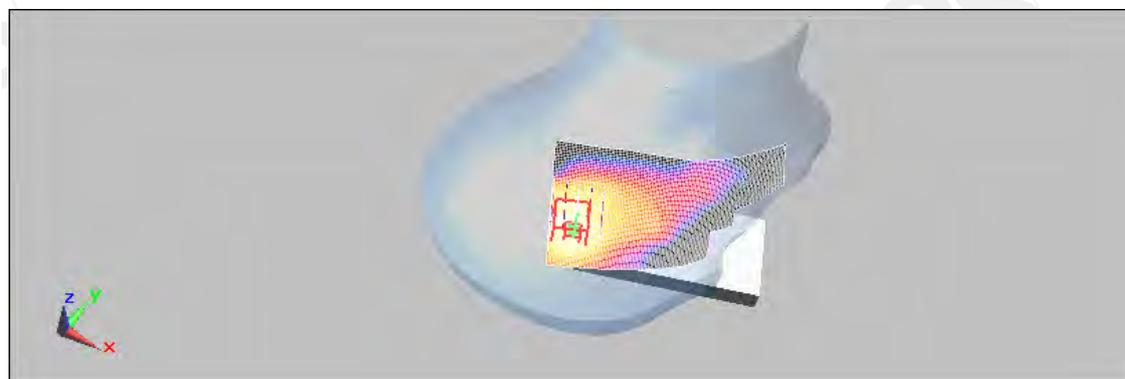
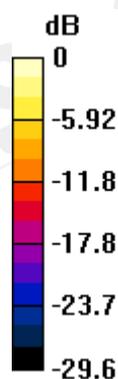
DASY5 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(4.33, 4.33, 4.33); Calibrated: 2009/5/27
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2009/5/26
- Phantom: SAM1; Type: SAM;
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

**RE Tilt/Area Scan (61x101x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$   
Maximum value of SAR (interpolated) = 0.068 mW/g

**RE Tilt/Zoom Scan (7x7x7) (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$   
Reference Value = 4.43 V/m; Power Drift = 0.003 dB  
Peak SAR (extrapolated) = 0.126 W/kg

**SAR(1 g) = 0.065 mW/g; SAR(10 g) = 0.031 mW/g**  
Maximum value of SAR (measured) = 0.073 mW/g



0 dB = 0.073mW/g

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Date : 2010/03/11

## RE\_Tilt\_WLAN802.11g\_CH11

DUT: PB99200;

Communication System: Wireless LAN; Frequency: 2462 MHz; Duty Cycle: 1:1  
Medium: Head 2450 Medium parameters used:  $f = 2462$  MHz;  $\sigma = 1.84$  mho/m;  $\epsilon_r = 38.1$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Phantom section: Right Section

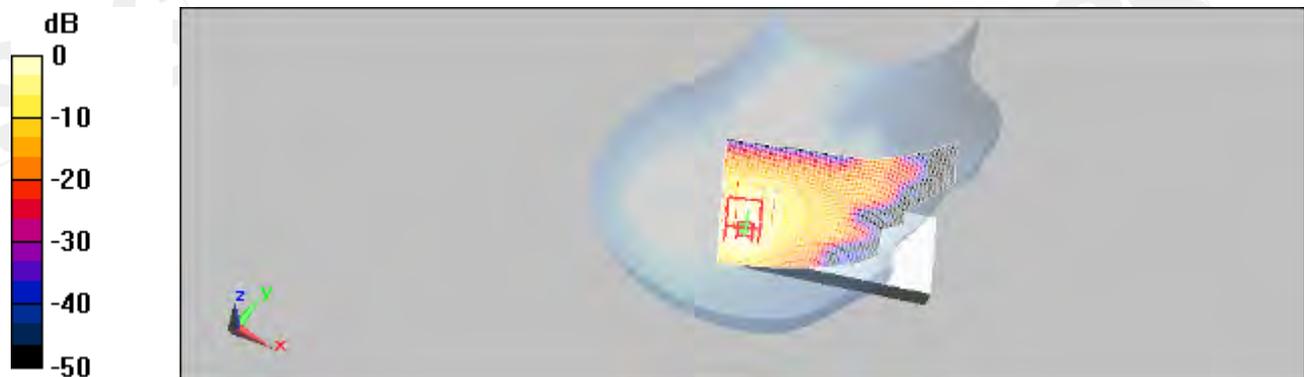
DASY5 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(4.33, 4.33, 4.33); Calibrated: 2009/5/27
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2009/5/26
- Phantom: SAM1; Type: SAM;
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

**RE Tilt/Area Scan (61x101x1):** Measurement grid: dx=15mm, dy=15mm  
Maximum value of SAR (interpolated) = 0.051 mW/g

**RE Tilt/Zoom Scan (7x7x7) (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm  
Reference Value = 3.75 V/m; Power Drift = 0.122 dB  
Peak SAR (extrapolated) = 0.127 W/kg

**SAR(1 g) = 0.053 mW/g; SAR(10 g) = 0.025 mW/g**  
Maximum value of SAR (measured) = 0.060 mW/g



0 dB = 0.060mW/g

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Date : 2010/03/11

## LE\_Tilt\_WLAN802.11g\_CH1

DUT: PB99200;

Communication System: Wireless LAN; Frequency: 2412 MHz; Duty Cycle: 1:1  
Medium: Head 2450 Medium parameters used:  $f = 2412$  MHz;  $\sigma = 1.77$  mho/m;  $\epsilon_r = 38.2$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Phantom section: Left Section

DASY5 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(4.33, 4.33, 4.33); Calibrated: 2009/5/27
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2009/5/26
- Phantom: SAM1; Type: SAM;
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

**LE Tilt/Area Scan (61x101x1):** Measurement grid: dx=15mm, dy=15mm  
Maximum value of SAR (interpolated) = 0.040 mW/g

**LE Tilt/Zoom Scan (7x7x7) (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm  
Reference Value = 4.04 V/m; Power Drift = 0.176 dB  
Peak SAR (extrapolated) = 0.068 W/kg

**SAR(1 g) = 0.035 mW/g; SAR(10 g) = 0.018 mW/g**  
Maximum value of SAR (measured) = 0.038 mW/g



0 dB = 0.038mW/g

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Date : 2010/03/11

## LE\_Tilt\_WLAN802.11g\_CH6

DUT: PB99200;

Communication System: Wireless LAN; Frequency: 2437 MHz; Duty Cycle: 1:1  
Medium: Head 2450 Medium parameters used:  $f = 2437$  MHz;  $\sigma = 1.8$  mho/m;  $\epsilon_r = 38.2$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Phantom section: Left Section

DASY5 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(4.33, 4.33, 4.33); Calibrated: 2009/5/27
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2009/5/26
- Phantom: SAM1; Type: SAM;
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

**LE Tilt/Area Scan (61x101x1):** Measurement grid: dx=15mm, dy=15mm  
Maximum value of SAR (interpolated) = 0.048 mW/g

**LE Tilt/Zoom Scan (7x7x7) (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm  
Reference Value = 4.49 V/m; Power Drift = 0.154 dB  
Peak SAR (extrapolated) = 0.086 W/kg

**SAR(1 g) = 0.043 mW/g; SAR(10 g) = 0.022 mW/g**  
Maximum value of SAR (measured) = 0.046 mW/g



0 dB = 0.046mW/g

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Date : 2010/03/11

## LE\_Tilt\_WLAN802.11g\_CH11

DUT: PB99200;

Communication System: Wireless LAN; Frequency: 2462 MHz; Duty Cycle: 1:1  
Medium: Head 2450 Medium parameters used:  $f = 2462$  MHz;  $\sigma = 1.84$  mho/m;  $\epsilon_r = 38.1$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Phantom section: Left Section

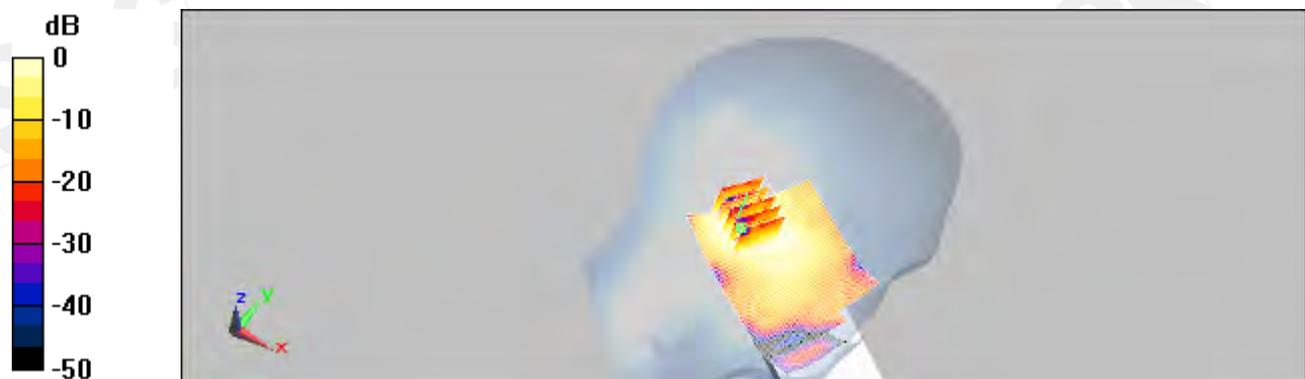
DASY5 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(4.33, 4.33, 4.33); Calibrated: 2009/5/27
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2009/5/26
- Phantom: SAM1; Type: SAM;
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

**LE Tilt/Area Scan (61x101x1):** Measurement grid: dx=15mm, dy=15mm  
Maximum value of SAR (interpolated) = 0.041 mW/g

**LE Tilt/Zoom Scan (7x7x7) (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm  
Reference Value = 4.15 V/m; Power Drift = 0.167 dB  
Peak SAR (extrapolated) = 0.072 W/kg

**SAR(1 g) = 0.036 mW/g; SAR(10 g) = 0.018 mW/g**  
Maximum value of SAR (measured) = 0.040 mW/g



0 dB = 0.040mW/g

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Date : 2010/03/10

## BODY\_WLAN802.11g\_CH1

DUT: PB99200;

Communication System: Wireless LAN; Frequency: 2412 MHz; Duty Cycle: 1:1  
Medium: Body 2450 Medium parameters used:  $f = 2412 \text{ MHz}$ ;  $\sigma = 2.03 \text{ mho/m}$ ;  $\epsilon_r = 52.1$ ;  $\rho = 1000 \text{ kg/m}^3$   
Phantom section: Flat Section

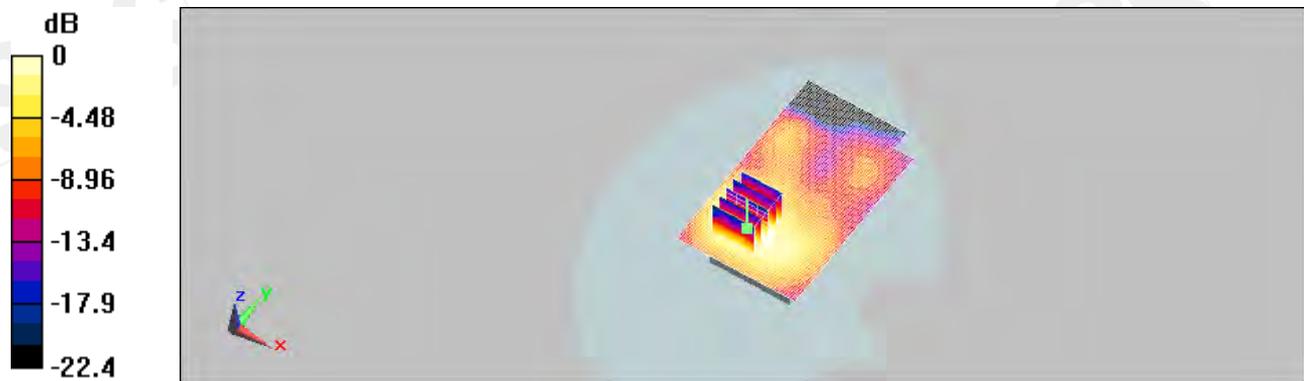
DASY5 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(4.02, 4.02, 4.02); Calibrated: 2009/5/27
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2009/5/26
- Phantom: SAM1; Type: SAM;
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

**Body/Area Scan (61x101x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$   
Maximum value of SAR (interpolated) = 0.036 mW/g

**Body/Zoom Scan (7x7x7) (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$   
Reference Value = 3.79 V/m; Power Drift = 0.101 dB  
Peak SAR (extrapolated) = 0.058 W/kg

**SAR(1 g) = 0.032 mW/g; SAR(10 g) = 0.018 mW/g**  
Maximum value of SAR (measured) = 0.035 mW/g



0 dB = 0.035mW/g

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Date : 2010/03/10

## BODY\_WLAN802.11g\_CH6

DUT: PB99200;

Communication System: Wireless LAN; Frequency: 2437 MHz; Duty Cycle: 1:1  
Medium: Body 2450 Medium parameters used:  $f = 2437$  MHz;  $\sigma = 2.06$  mho/m;  $\epsilon_r = 52.2$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Phantom section: Flat Section

DASY5 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(4.02, 4.02, 4.02); Calibrated: 2009/5/27
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2009/5/26
- Phantom: SAM1; Type: SAM;
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

**Body/Area Scan (61x101x1):** Measurement grid: dx=15mm, dy=15mm  
Maximum value of SAR (interpolated) = 0.056 mW/g

**Body/Zoom Scan (7x7x7) (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm  
Reference Value = 4.5 V/m; Power Drift = 0.006 dB  
Peak SAR (extrapolated) = 0.084 W/kg

**SAR(1 g) = 0.051 mW/g; SAR(10 g) = 0.028 mW/g**  
Maximum value of SAR (measured) = 0.063 mW/g



0 dB = 0.063mW/g

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Date/Time: 2010/3/10

## BODY\_WLAN802.11g\_CH11

DUT: PB99200;

Communication System: Wireless LAN; Frequency: 2462 MHz; Duty Cycle: 1:1  
Medium: Body 2450 Medium parameters used:  $f = 2462 \text{ MHz}$ ;  $\sigma = 2.08 \text{ mho/m}$ ;  $\epsilon_r = 52.1$ ;  $\rho = 1000 \text{ kg/m}^3$   
Phantom section: Flat Section

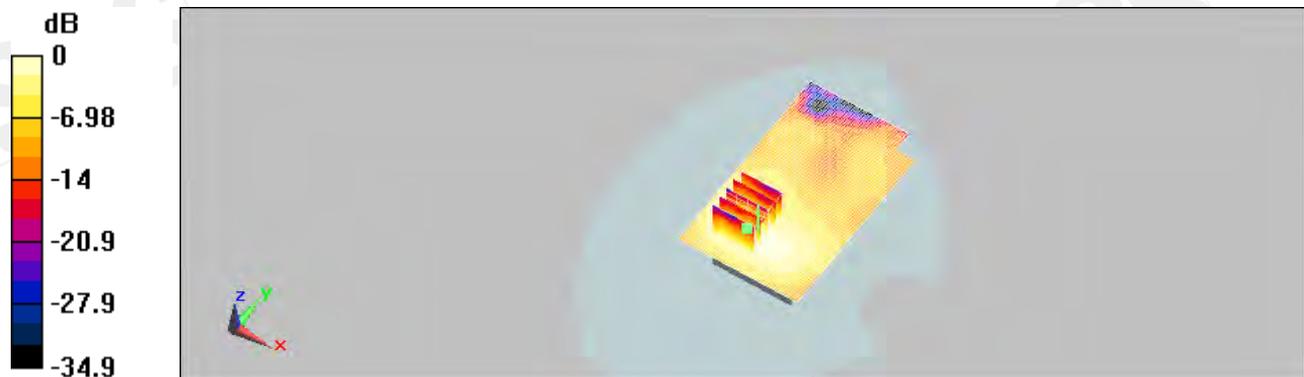
DASY5 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(4.02, 4.02, 4.02); Calibrated: 2009/5/27
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2009/5/26
- Phantom: SAM1; Type: SAM;
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

**Body/Area Scan (61x101x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$   
Maximum value of SAR (interpolated) = 0.041 mW/g

**Body/Zoom Scan (7x7x7) (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$   
Reference Value = 4.22 V/m; Power Drift = -0.013 dB  
Peak SAR (extrapolated) = 0.076 W/kg

**SAR(1 g) = 0.039 mW/g; SAR(10 g) = 0.022 mW/g**  
Maximum value of SAR (measured) = 0.041 mW/g



0 dB = 0.041mW/g

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Date : 2010/03/09

## RE\_Cheek\_CH128\_Second solution

DUT: PB99200;

Communication System: GSM 850; Frequency: 824.2 MHz; Duty Cycle: 1:8.3  
Medium: Head 900 Medium parameters used (interpolated):  $f = 824.2$  MHz;  $\sigma = 0.87$  mho/m;  
 $\epsilon_r = 40.6$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Phantom section: Right Section

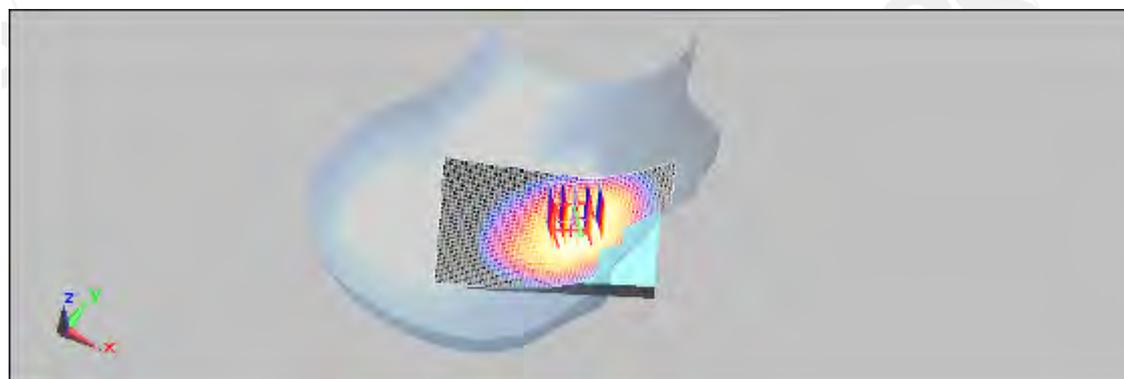
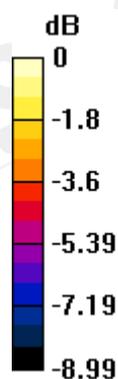
DASY5 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(5.83, 5.83, 5.83); Calibrated: 2009/5/27
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2009/5/26
- Phantom: SAM1; Type: SAM;
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

**RE Cheek/Area Scan (61x101x1):** Measurement grid: dx=15mm, dy=15mm  
Maximum value of SAR (interpolated) = 0.249 mW/g

**RE Cheek/Zoom Scan (7x7x7) (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm  
Reference Value = 7.29 V/m; Power Drift = 0.020 dB  
Peak SAR (extrapolated) = 0.303 W/kg

**SAR(1 g) = 0.231 mW/g; SAR(10 g) = 0.171 mW/g**  
Maximum value of SAR (measured) = 0.243 mW/g



0 dB = 0.243mW/g

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Date : 2010/03/09

## RE\_Cheek\_CH190\_Second solution

DUT: PB99200;

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

Medium: Head 900 Medium parameters used:  $f = 837$  MHz;  $\sigma = 0.88$  mho/m;  $\epsilon_r = 40.4$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Right Section

DASY5 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(5.83, 5.83, 5.83); Calibrated: 2009/5/27
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2009/5/26
- Phantom: SAM1; Type: SAM;
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

**RE Cheek/Area Scan (61x101x1):** Measurement grid: dx=15mm, dy=15mm  
Maximum value of SAR (interpolated) = 0.379 mW/g

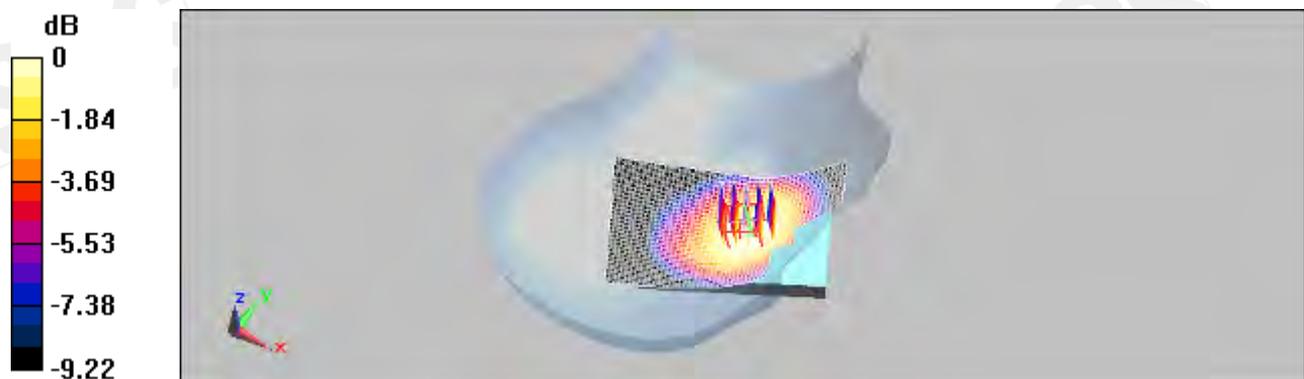
**RE Cheek/Zoom Scan (7x7x7) (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 8.76 V/m; Power Drift = 0.141 dB

Peak SAR (extrapolated) = 0.463 W/kg

**SAR(1 g) = 0.351 mW/g; SAR(10 g) = 0.259 mW/g**

Maximum value of SAR (measured) = 0.372 mW/g



0 dB = 0.372mW/g

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Date : 2010/03/09

## RE\_Cheek\_CH251\_Second solution

DUT: PB99200;

Communication System: GSM 850; Frequency: 848.8 MHz; Duty Cycle: 1:8.3  
Medium: Head 900 Medium parameters used:  $f = 849$  MHz;  $\sigma = 0.894$  mho/m;  $\epsilon_r = 40.2$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Phantom section: Right Section

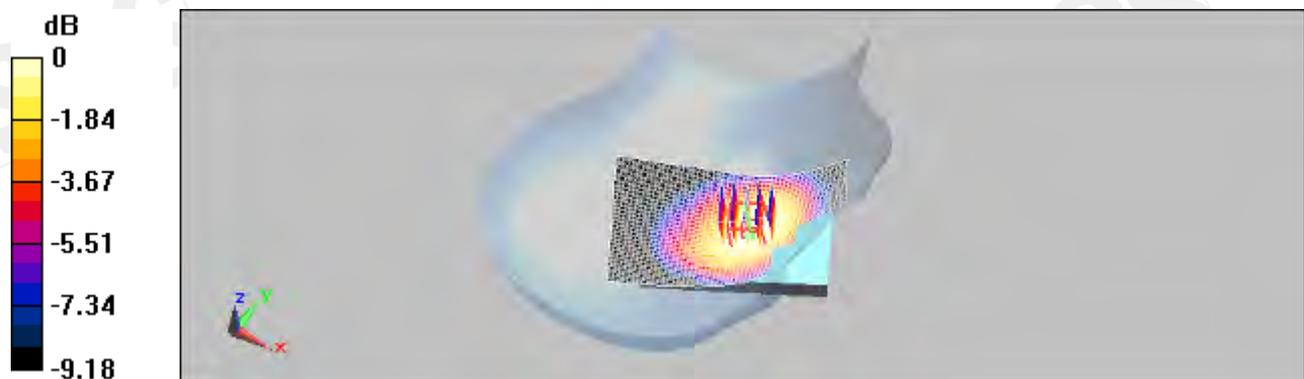
DASY5 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(5.83, 5.83, 5.83); Calibrated: 2009/5/27
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2009/5/26
- Phantom: SAM1; Type: SAM;
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

**RE Cheek/Area Scan (61x101x1):** Measurement grid: dx=15mm, dy=15mm  
Maximum value of SAR (interpolated) = 0.409 mW/g

**RE Cheek/Zoom Scan (7x7x7) (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm  
Reference Value = 9 V/m; Power Drift = 0.147 dB  
Peak SAR (extrapolated) = 0.513 W/kg

**SAR(1 g) = 0.391 mW/g; SAR(10 g) = 0.286 mW/g**  
Maximum value of SAR (measured) = 0.415 mW/g



0 dB = 0.415mW/g

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Date : 2010/03/09

## LE\_Cheek\_CH128\_Second solution

DUT: PB99200;

Communication System: GSM 850; Frequency: 824.2 MHz; Duty Cycle: 1:8.3  
Medium: Head 900 Medium parameters used (interpolated):  $f = 824.2$  MHz;  $\sigma = 0.87$  mho/m;  
 $\epsilon_r = 40.6$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Phantom section: Left Section

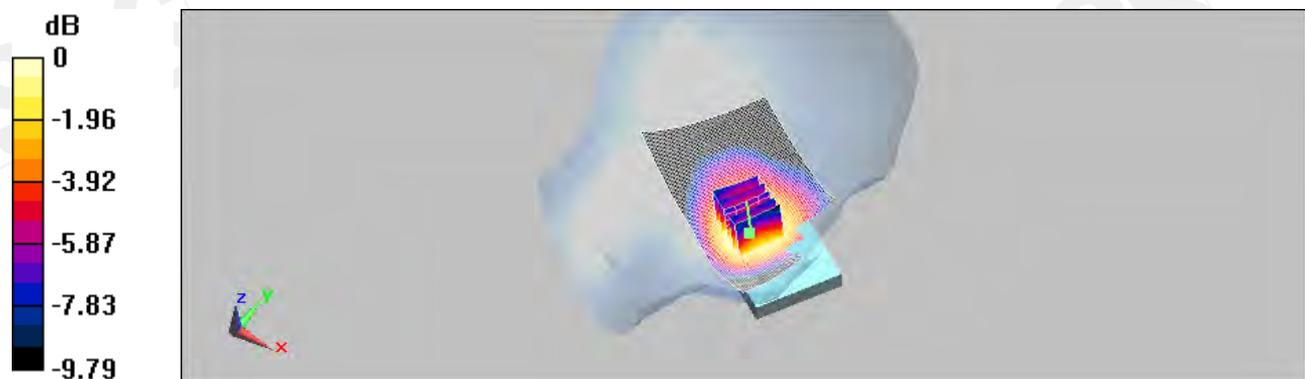
DASY5 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(5.83, 5.83, 5.83); Calibrated: 2009/5/27
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2009/5/26
- Phantom: SAM1; Type: SAM;
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

**LE Cheek/Area Scan (61x101x1):** Measurement grid: dx=15mm, dy=15mm  
Maximum value of SAR (interpolated) = 0.503 mW/g

**LE Cheek/Zoom Scan (7x7x7) (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm  
Reference Value = 10 V/m; Power Drift = -0.060 dB  
Peak SAR (extrapolated) = 0.614 W/kg

**SAR(1 g) = 0.465 mW/g; SAR(10 g) = 0.340 mW/g**  
Maximum value of SAR (measured) = 0.489 mW/g



0 dB = 0.489mW/g

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Date : 2010/03/09

## LE\_Cheek\_CH190\_Second solution

DUT: PB99200;

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

Medium: Head 900 Medium parameters used:  $f = 837$  MHz;  $\sigma = 0.88$  mho/m;  $\epsilon_r = 40.4$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Left Section

DASY5 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(5.83, 5.83, 5.83); Calibrated: 2009/5/27
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2009/5/26
- Phantom: SAM1; Type: SAM;
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

**LE Cheek/Area Scan (61x101x1):** Measurement grid: dx=15mm, dy=15mm  
Maximum value of SAR (interpolated) = 0.466 mW/g

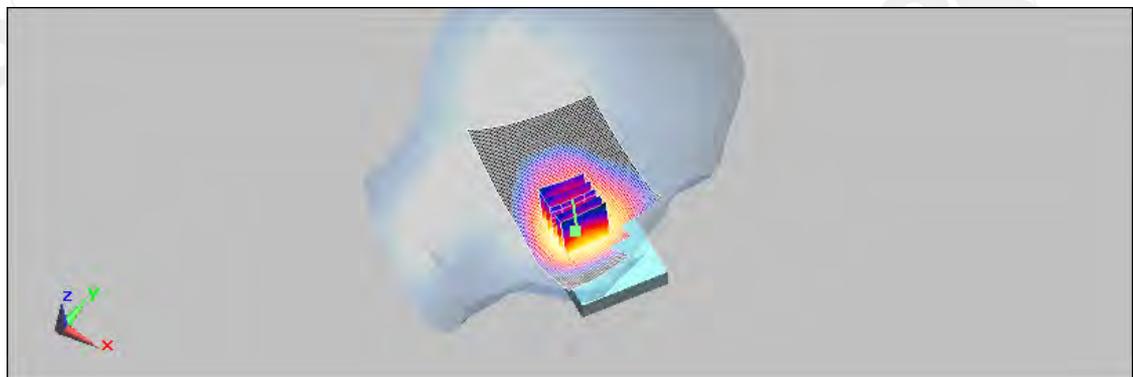
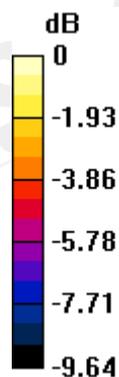
**LE Cheek/Zoom Scan (7x7x7) (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 9.77 V/m; Power Drift = -0.095 dB

Peak SAR (extrapolated) = 0.560 W/kg

**SAR(1 g) = 0.429 mW/g; SAR(10 g) = 0.315 mW/g**

Maximum value of SAR (measured) = 0.453 mW/g



0 dB = 0.453mW/g

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Date : 2010/03/09

## LE\_Cheek\_CH251\_Second solution

DUT: PB99200;

Communication System: GSM 850; Frequency: 848.8 MHz; Duty Cycle: 1:8.3  
Medium: Head 900 Medium parameters used:  $f = 849$  MHz;  $\sigma = 0.894$  mho/m;  $\epsilon_r = 40.2$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Phantom section: Left Section

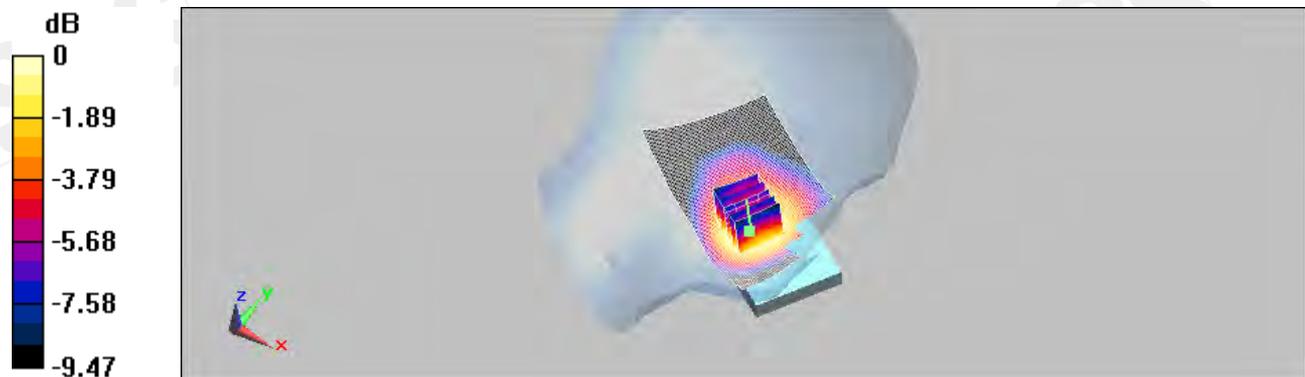
DASY5 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(5.83, 5.83, 5.83); Calibrated: 2009/5/27
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2009/5/26
- Phantom: SAM1; Type: SAM;
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

**LE Cheek/Area Scan (61x101x1):** Measurement grid: dx=15mm, dy=15mm  
Maximum value of SAR (interpolated) = 0.516 mW/g

**LE Cheek/Zoom Scan (7x7x7) (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm  
Reference Value = 9.86 V/m; Power Drift = -0.108 dB  
Peak SAR (extrapolated) = 0.611 W/kg

**SAR(1 g) = 0.481 mW/g; SAR(10 g) = 0.351 mW/g**  
Maximum value of SAR (measured) = 0.484 mW/g



0 dB = 0.484mW/g

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Date : 2010/03/09

## RE\_Tilt\_CH128\_Second solution

DUT: PB99200;

Communication System: GSM 850; Frequency: 824.2 MHz; Duty Cycle: 1:8.3  
Medium: Head 900 Medium parameters used (interpolated):  $f = 824.2 \text{ MHz}$ ;  $\sigma = 0.87 \text{ mho/m}$ ;  
 $\epsilon_r = 40.6$ ;  $\rho = 1000 \text{ kg/m}^3$   
Phantom section: Right Section

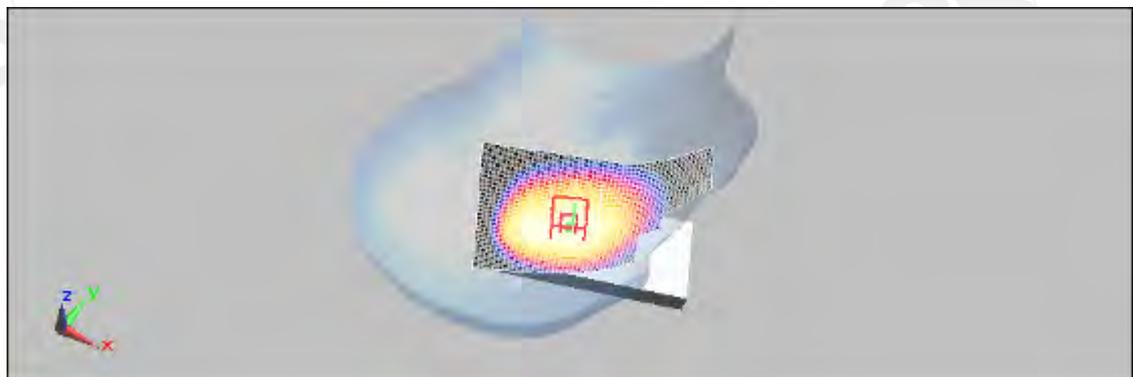
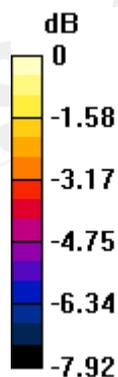
DASY5 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(5.83, 5.83, 5.83); Calibrated: 2009/5/27
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2009/5/26
- Phantom: SAM1; Type: SAM;
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

**RE Tilt/Area Scan (61x101x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$   
Maximum value of SAR (interpolated) = 0.178 mW/g

**RE Tilt/Zoom Scan (7x7x7) (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  
 $dy=8\text{mm}$ ,  $dz=5\text{mm}$   
Reference Value = 13.8 V/m; Power Drift = 0.012 dB  
Peak SAR (extrapolated) = 0.209 W/kg

**SAR(1 g) = 0.168 mW/g; SAR(10 g) = 0.130 mW/g**  
Maximum value of SAR (measured) = 0.176 mW/g



0 dB = 0.176mW/g

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Date : 2010/03/09

## RE\_Tilt\_CH190\_Second solution

DUT: PB99200;

Communication System: GSM 850; Frequency: 836.6 MHz; Duty Cycle: 1:8.3  
Medium: Head 900 Medium parameters used:  $f = 837$  MHz;  $\sigma = 0.88$  mho/m;  $\epsilon_r = 40.4$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Phantom section: Right Section

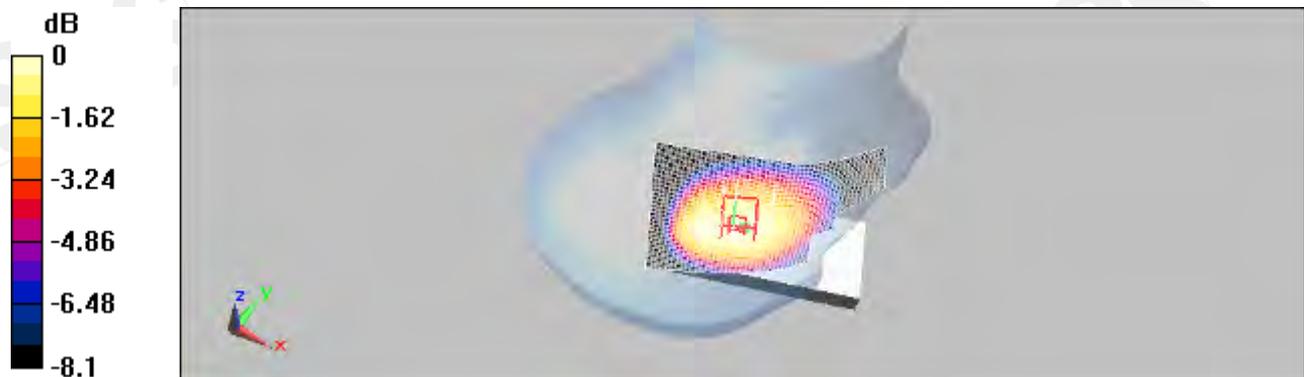
DASY5 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(5.83, 5.83, 5.83); Calibrated: 2009/5/27
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2009/5/26
- Phantom: SAM1; Type: SAM;
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

**RE Tilt/Area Scan (61x101x1):** Measurement grid: dx=15mm, dy=15mm  
Maximum value of SAR (interpolated) = 0.256 mW/g

**RE Tilt/Zoom Scan (7x7x7) (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm  
Reference Value = 16.5 V/m; Power Drift = 0.198 dB  
Peak SAR (extrapolated) = 0.315 W/kg

**SAR(1 g) = 0.253 mW/g; SAR(10 g) = 0.193 mW/g**  
Maximum value of SAR (measured) = 0.264 mW/g



0 dB = 0.264mW/g

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Date : 2010/03/09

## RE\_Tilt\_CH251\_Second solution

DUT: PB99200;

Communication System: GSM 850; Frequency: 848.8 MHz; Duty Cycle: 1:8.3  
Medium: Head 900 Medium parameters used:  $f = 849$  MHz;  $\sigma = 0.894$  mho/m;  $\epsilon_r = 40.2$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Phantom section: Right Section

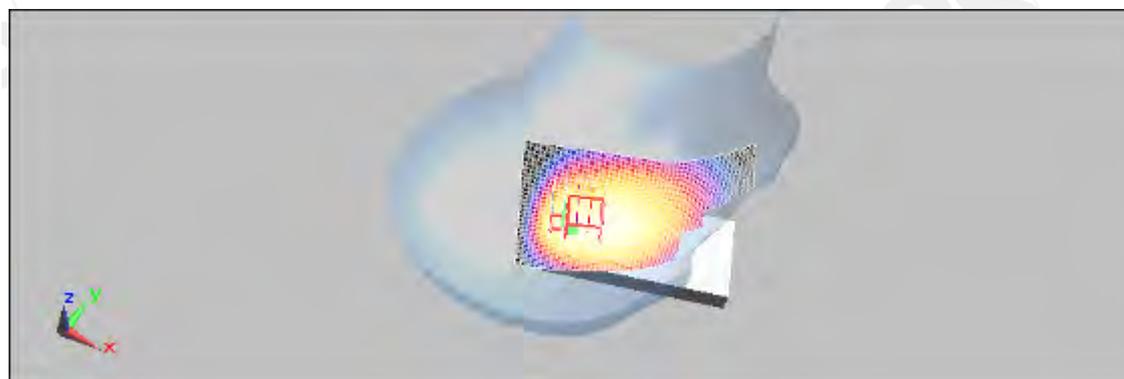
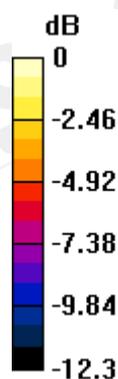
DASY5 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(5.83, 5.83, 5.83); Calibrated: 2009/5/27
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2009/5/26
- Phantom: SAM1; Type: SAM;
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

**RE Tilt/Area Scan (61x101x1):** Measurement grid: dx=15mm, dy=15mm  
Maximum value of SAR (interpolated) = 0.295 mW/g

**RE Tilt/Zoom Scan (7x7x7) (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm  
Reference Value = 17.9 V/m; Power Drift = 0.013 dB  
Peak SAR (extrapolated) = 0.545 W/kg

**SAR(1 g) = 0.278 mW/g; SAR(10 g) = 0.196 mW/g**  
Maximum value of SAR (measured) = 0.297 mW/g



0 dB = 0.297mW/g

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Date : 2010/03/09

## LE\_Tilt\_CH128\_Second solution

DUT: PB99200;

Communication System: GSM 850; Frequency: 824.2 MHz; Duty Cycle: 1:8.3  
Medium: Head 900 Medium parameters used (interpolated):  $f = 824.2 \text{ MHz}$ ;  $\sigma = 0.87 \text{ mho/m}$ ;  
 $\epsilon_r = 40.6$ ;  $\rho = 1000 \text{ kg/m}^3$   
Phantom section: Left Section

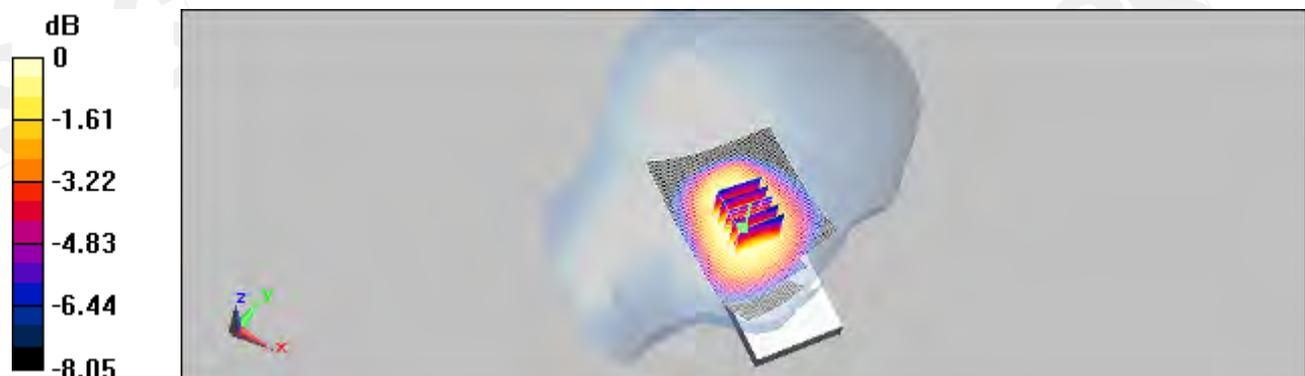
DASY5 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(5.83, 5.83, 5.83); Calibrated: 2009/5/27
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2009/5/26
- Phantom: SAM1; Type: SAM;
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

**LE Tilt/Area Scan (61x101x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$   
Maximum value of SAR (interpolated) = 0.179 mW/g

**LE Tilt/Zoom Scan (7x7x7) (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  
 $dy=8\text{mm}$ ,  $dz=5\text{mm}$   
Reference Value = 13.7 V/m; Power Drift = -0.00651 dB  
Peak SAR (extrapolated) = 0.212 W/kg

**SAR(1 g) = 0.169 mW/g; SAR(10 g) = 0.129 mW/g**  
Maximum value of SAR (measured) = 0.177 mW/g



0 dB = 0.177mW/g

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Date : 2010/03/09

## LE\_Tilt\_CH190\_Second solution

DUT: PB99200;

Communication System: GSM 850; Frequency: 836.6 MHz; Duty Cycle: 1:8.3  
Medium: Head 900 Medium parameters used:  $f = 837$  MHz;  $\sigma = 0.88$  mho/m;  $\epsilon_r = 40.4$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Phantom section: Left Section

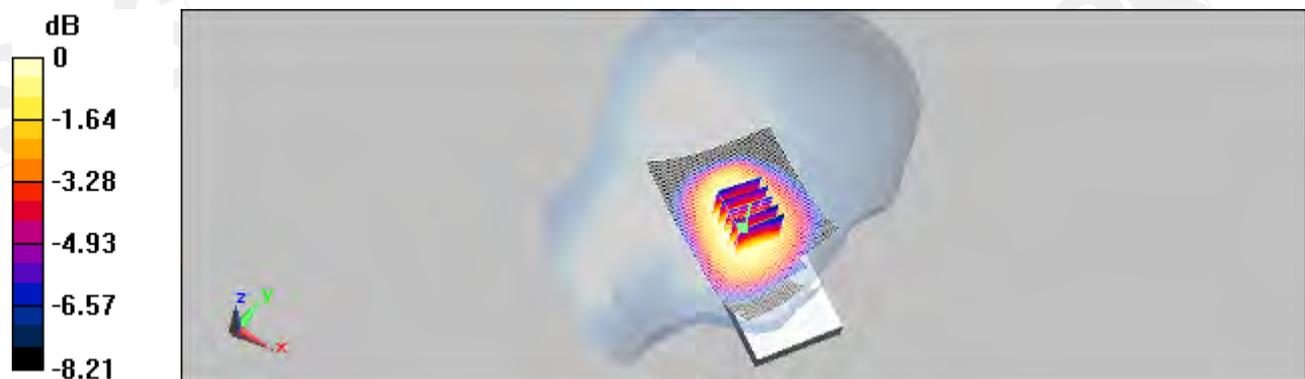
DASY5 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(5.83, 5.83, 5.83); Calibrated: 2009/5/27
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2009/5/26
- Phantom: SAM1; Type: SAM;
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

**LE Tilt/Area Scan (61x101x1):** Measurement grid: dx=15mm, dy=15mm  
Maximum value of SAR (interpolated) = 0.260 mW/g

**LE Tilt/Zoom Scan (7x7x7) (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm  
Reference Value = 16.5 V/m; Power Drift = 0.00781 dB  
Peak SAR (extrapolated) = 0.308 W/kg

**SAR(1 g) = 0.246 mW/g; SAR(10 g) = 0.188 mW/g**  
Maximum value of SAR (measured) = 0.256 mW/g



0 dB = 0.256mW/g

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Date : 2010/03/09

## LE\_Tilt\_CH251\_Second solution

DUT: PB99200;

Communication System: GSM 850; Frequency: 848.8 MHz; Duty Cycle: 1:8.3  
Medium: Head 900 Medium parameters used:  $f = 849$  MHz;  $\sigma = 0.894$  mho/m;  $\epsilon_r = 40.2$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Phantom section: Left Section

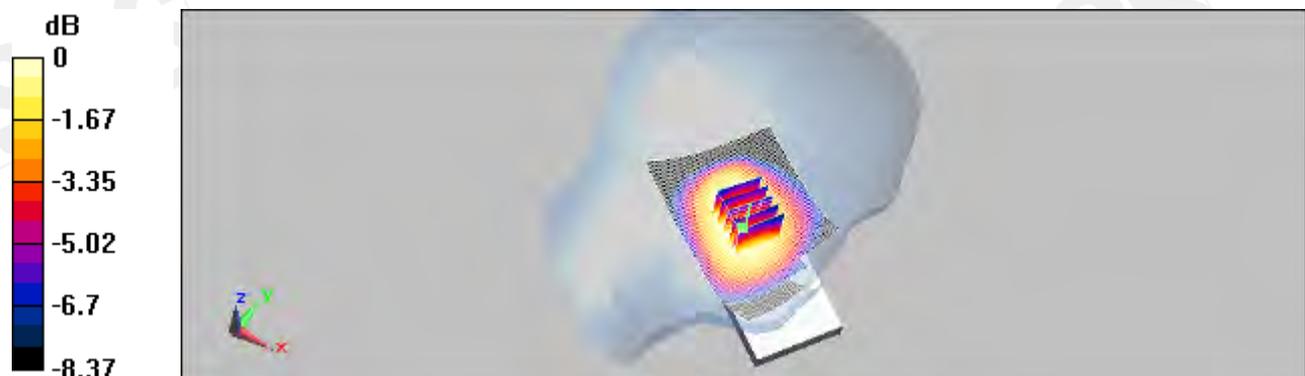
DASY5 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(5.83, 5.83, 5.83); Calibrated: 2009/5/27
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2009/5/26
- Phantom: SAM1; Type: SAM;
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

**LE Tilt/Area Scan (61x101x1):** Measurement grid: dx=15mm, dy=15mm  
Maximum value of SAR (interpolated) = 0.302 mW/g

**LE Tilt/Zoom Scan (7x7x7) (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm  
Reference Value = 17.5 V/m; Power Drift = 0.071 dB  
Peak SAR (extrapolated) = 0.369 W/kg

**SAR(1 g) = 0.289 mW/g; SAR(10 g) = 0.219 mW/g**  
Maximum value of SAR (measured) = 0.302 mW/g



0 dB = 0.302mW/g

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Date : 2010/03/10

## BODY\_CH251 repeated with Cotron headset\_Second solution

DUT: PB99200;

Communication System: GSM 850; Frequency: 848.8 MHz; Duty Cycle: 1:2  
Medium: Body 900 Medium parameters used:  $f = 849 \text{ MHz}$ ;  $\sigma = 0.975 \text{ mho/m}$ ;  $\epsilon_r = 55.9$ ;  $\rho = 1000 \text{ kg/m}^3$   
Phantom section: Flat Section

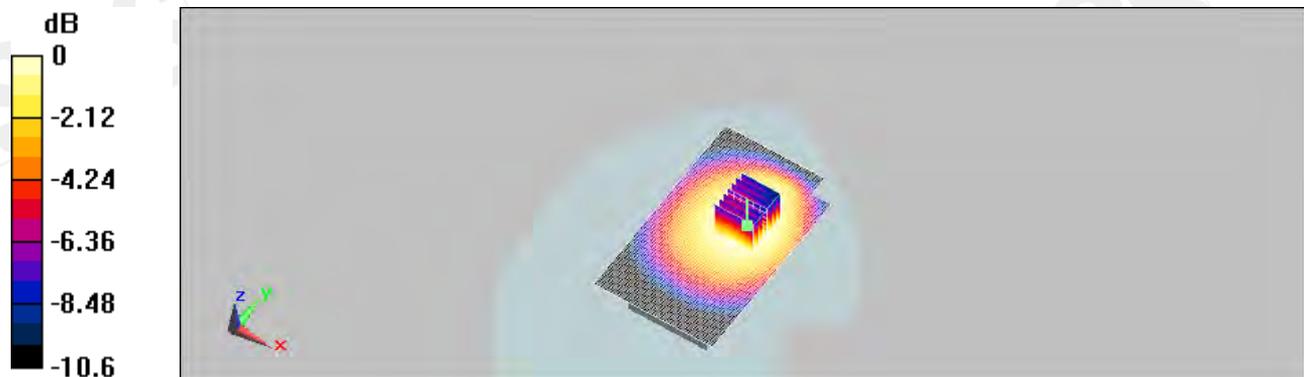
DASY5 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(5.81, 5.81, 5.81); Calibrated: 2009/5/27
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2009/5/26
- Phantom: SAM1; Type: SAM;
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

**Body/Area Scan (61x101x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$   
Maximum value of SAR (interpolated) = 1.06 mW/g

**Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0:** Measurement grid:  $dx=5\text{mm}$ ,  $dy=5\text{mm}$ ,  $dz=5\text{mm}$   
Reference Value = 17.8 V/m; Power Drift = -0.150 dB  
Peak SAR (extrapolated) = 1.32 W/kg

**SAR(1 g) = 0.991 mW/g; SAR(10 g) = 0.713 mW/g**  
Maximum value of SAR (measured) = 1.05 mW/g



0 dB = 1.05mW/g

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Date : 2010/03/09

## RE\_Cheek\_CH512 repeated with Memory card\_ Second solution

DUT: PB99200;

Communication System: GSM 1900; Frequency: 1850.2 MHz; Duty Cycle: 1:8.3  
Medium: Head 1900 Medium parameters used (interpolated):  $f = 1850.2 \text{ MHz}$ ;  $\sigma = 1.41 \text{ mho/m}$ ;  $\epsilon_r = 39.4$ ;  $\rho = 1000 \text{ kg/m}^3$   
Phantom section: Right Section

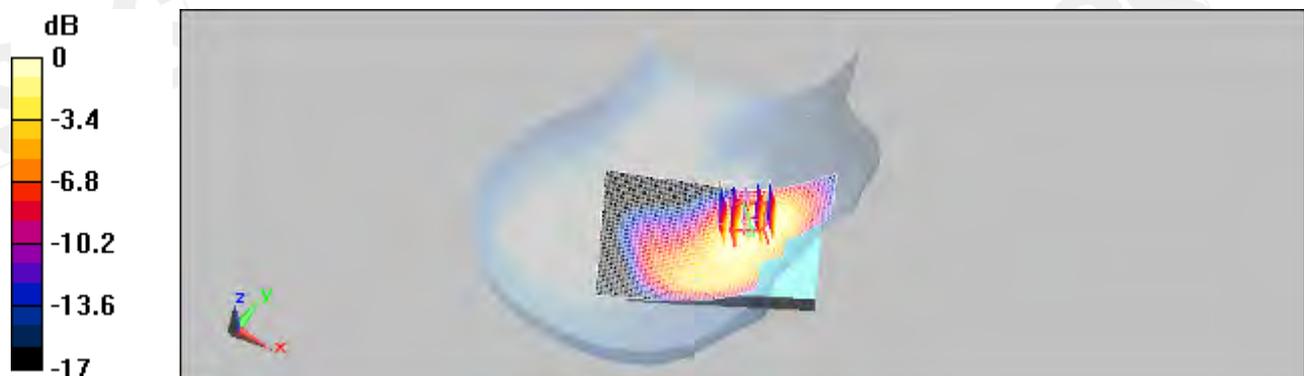
DASY5 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(4.86, 4.86, 4.86); Calibrated: 2009/5/27
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2009/5/26
- Phantom: SAM1; Type: SAM;
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

**RE Cheek/Area Scan (61x101x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$   
Maximum value of SAR (interpolated) = 0.468 mW/g

**RE Cheek/Zoom Scan (7x7x7) (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$   
Reference Value = 6.43 V/m; Power Drift = -0.116 dB  
Peak SAR (extrapolated) = 0.663 W/kg

**SAR(1 g) = 0.428 mW/g; SAR(10 g) = 0.261 mW/g**  
Maximum value of SAR (measured) = 0.471 mW/g



0 dB = 0.471mW/g

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Date : 2010/03/10

## BODY\_CH512\_Second solution

DUT: PB99200;

Communication System: GSM 1900; Frequency: 1850.2 MHz; Duty Cycle: 1:2  
Medium: Body 1900 Medium parameters used (interpolated):  $f = 1850.2 \text{ MHz}$ ;  $\sigma = 1.52 \text{ mho/m}$ ;  $\epsilon_r = 55.4$ ;  $\rho = 1000 \text{ kg/m}^3$   
Phantom section: Flat Section

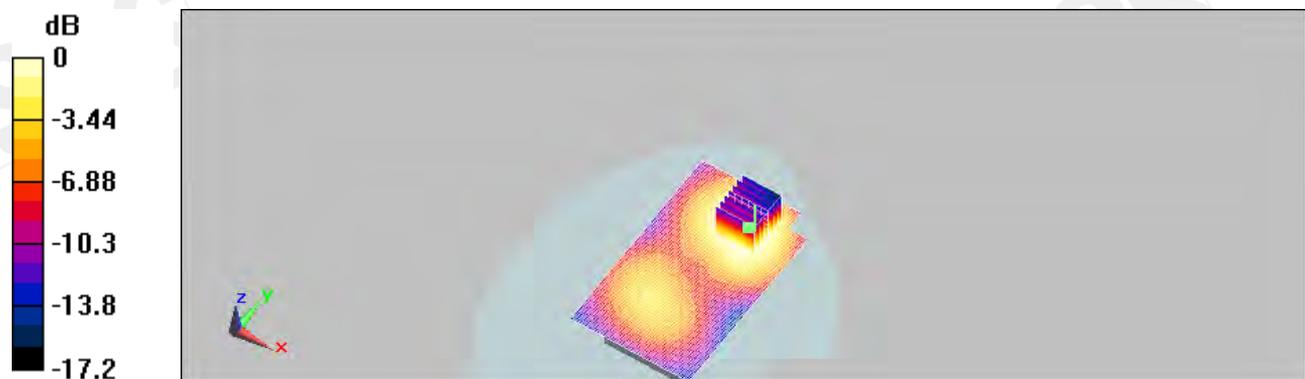
DASY5 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(4.54, 4.54, 4.54); Calibrated: 2009/5/27
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2009/5/26
- Phantom: SAM1; Type: SAM;
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

**Body/Area Scan (61x101x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$   
Maximum value of SAR (interpolated) = 0.597 mW/g

**Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0:** Measurement grid:  $dx=5\text{mm}$ ,  $dy=5\text{mm}$ ,  $dz=5\text{mm}$   
Reference Value = 13.1 V/m; Power Drift = 0.079 dB  
Peak SAR (extrapolated) = 0.880 W/kg

**SAR(1 g) = 0.532 mW/g; SAR(10 g) = 0.333 mW/g**  
Maximum value of SAR (measured) = 0.572 mW/g



0 dB = 0.572mW/g

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Date : 2010/03/11

## RE\_Cheek\_WLAN802.11b\_CH6\_Second solution

DUT: PB99200;

Communication System: Wireless LAN; Frequency: 2437 MHz; Duty Cycle: 1:1  
Medium: Head 2450 Medium parameters used:  $f = 2437$  MHz;  $\sigma = 1.8$  mho/m;  $\epsilon_r = 38.2$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Phantom section: Right Section

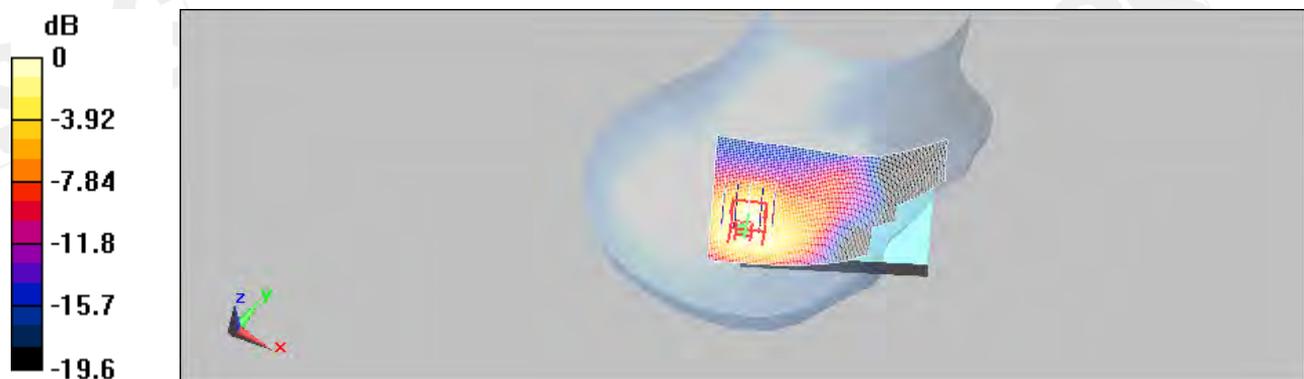
DASY5 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(4.33, 4.33, 4.33); Calibrated: 2009/5/27
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2009/5/26
- Phantom: SAM1; Type: SAM;
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

**RE Cheek/Area Scan (61x101x1):** Measurement grid: dx=15mm, dy=15mm  
Maximum value of SAR (interpolated) = 0.166 mW/g

**RE Cheek/Zoom Scan (7x7x7) (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm  
Reference Value = 8.04 V/m; Power Drift = 0.187 dB  
Peak SAR (extrapolated) = 0.376 W/kg

**SAR(1 g) = 0.172 mW/g; SAR(10 g) = 0.088 mW/g**  
Maximum value of SAR (measured) = 0.189 mW/g



0 dB = 0.189mW/g

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Date : 2010/03/10

## BODY\_WLAN802.11b\_CH6 repeated with Bluetooth active\_Second solution

DUT: PB99200;

Communication System: Wireless LAN; Frequency: 2437 MHz; Duty Cycle: 1:1  
Medium: Body 2450 Medium parameters used:  $f = 2437 \text{ MHz}$ ;  $\sigma = 2.06 \text{ mho/m}$ ;  $\epsilon_r = 52.2$ ;  $\rho = 1000 \text{ kg/m}^3$   
Phantom section: Flat Section

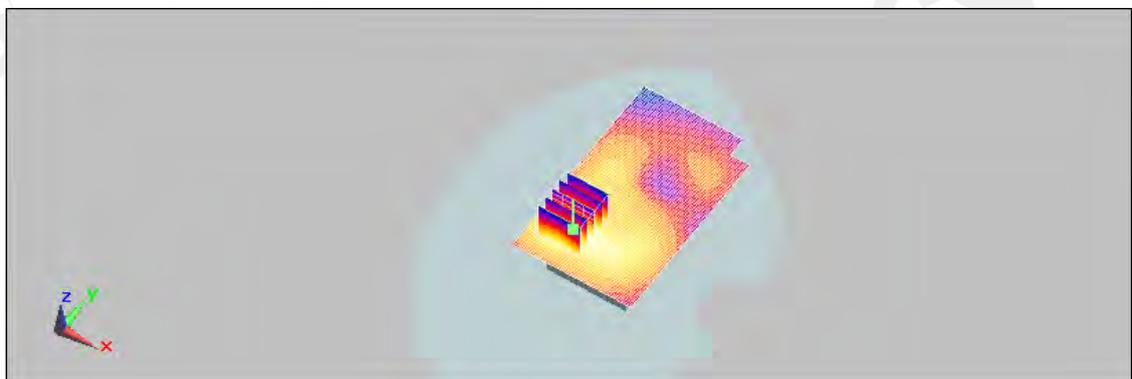
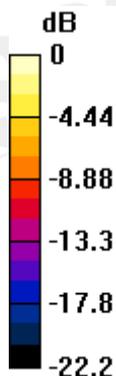
DASY5 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(4.02, 4.02, 4.02); Calibrated: 2009/5/27
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2009/5/26
- Phantom: SAM1; Type: SAM;
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

**Body/Area Scan (61x101x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$   
Maximum value of SAR (interpolated) = 0.137 mW/g

**Body/Zoom Scan (7x7x7) (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$   
Reference Value = 6.31 V/m; Power Drift = 0.101 dB  
Peak SAR (extrapolated) = 0.238 W/kg

**SAR(1 g) = 0.130 mW/g; SAR(10 g) = 0.072 mW/g**  
Maximum value of SAR (measured) = 0.140 mW/g



0 dB = 0.140mW/g

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Date : 2010/03/11

## RE\_Tilt\_WLAN802.11g\_CH6\_Second solution

DUT: PB99200;

Communication System: Wireless LAN; Frequency: 2437 MHz; Duty Cycle: 1:1  
Medium: Head 2450 Medium parameters used:  $f = 2437 \text{ MHz}$ ;  $\sigma = 1.8 \text{ mho/m}$ ;  $\epsilon_r = 38.2$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Right Section

DASY5 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(4.33, 4.33, 4.33); Calibrated: 2009/5/27
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2009/5/26
- Phantom: SAM1; Type: SAM;
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

**RE Tilt/Area Scan (61x101x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$   
Maximum value of SAR (interpolated) = 0.070 mW/g

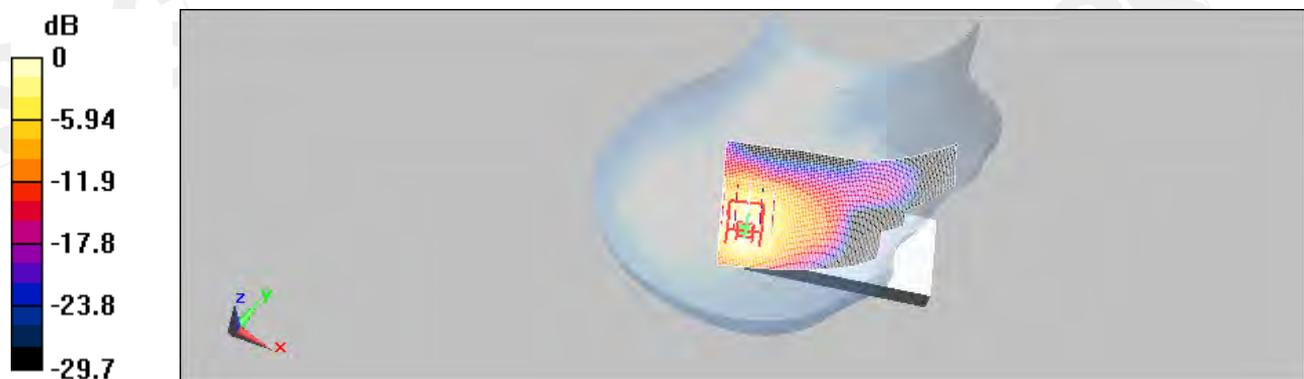
**RE Tilt/Zoom Scan (7x7x7) (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 4.96 V/m; Power Drift = -0.127 dB

Peak SAR (extrapolated) = 0.154 W/kg

**SAR(1 g) = 0.065 mW/g; SAR(10 g) = 0.030 mW/g**

Maximum value of SAR (measured) = 0.073 mW/g



0 dB = 0.073mW/g

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Date : 2010/03/10

## BODY\_WLAN802.11g\_CH6\_Second solution

DUT: PB99200;

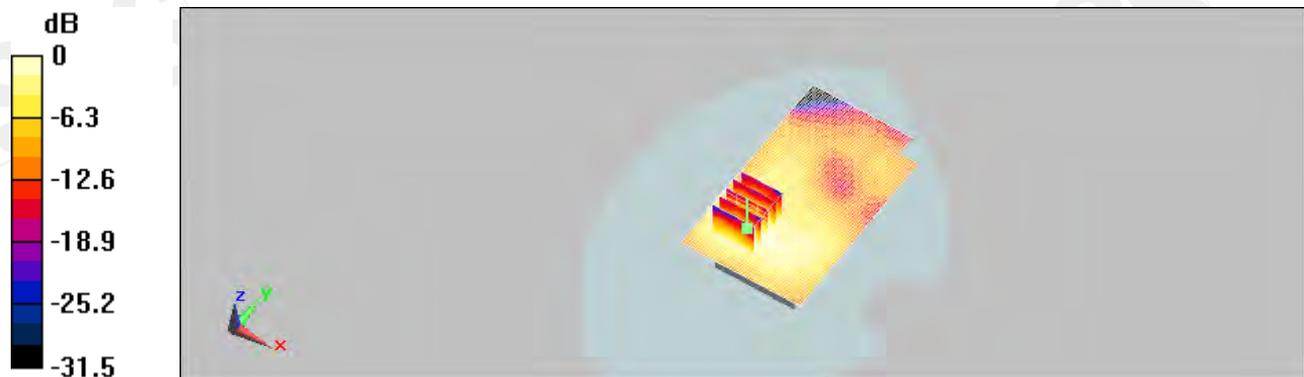
Communication System: Wireless LAN; Frequency: 2437 MHz; Duty Cycle: 1:1  
Medium: Body 2450 Medium parameters used:  $f = 2437 \text{ MHz}$ ;  $\sigma = 2.06 \text{ mho/m}$ ;  $\epsilon_r = 52.2$ ;  $\rho = 1000 \text{ kg/m}^3$   
Phantom section: Flat Section

DASY5 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(4.02, 4.02, 4.02); Calibrated: 2009/5/27
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2009/5/26
- Phantom: SAM1; Type: SAM;
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

**Body/Area Scan (61x101x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$   
Maximum value of SAR (interpolated) = 0.052 mW/g

**Body/Zoom Scan (7x7x7) (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$   
Reference Value = 4.54 V/m; Power Drift = -0.190 dB  
Peak SAR (extrapolated) = 0.085 W/kg  
**SAR(1 g) = 0.047 mW/g; SAR(10 g) = 0.026 mW/g**  
Maximum value of SAR (measured) = 0.052 mW/g



0 dB = 0.052mW/g

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## 5. System Verification

Date : 2010/03/09

**DUT: Dipole 835 MHz;**

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

Medium: HSL900 Medium parameters used:  $f = 835 \text{ MHz}$ ;  $\sigma = 0.878 \text{ mho/m}$ ;  $\epsilon_r = 40.4$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY5 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(5.83, 5.83, 5.83); Calibrated: 2009/5/27
- Sensor-Surface: 3.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2009/5/26
- Phantom: SAM2; Type: SAM;
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

**d=15mm, Pin=250mW, dist=3.4mm** : Measurement grid: dx=15mm, dy=15mm  
Maximum value of SAR (interpolated) = 2.59 mW/g

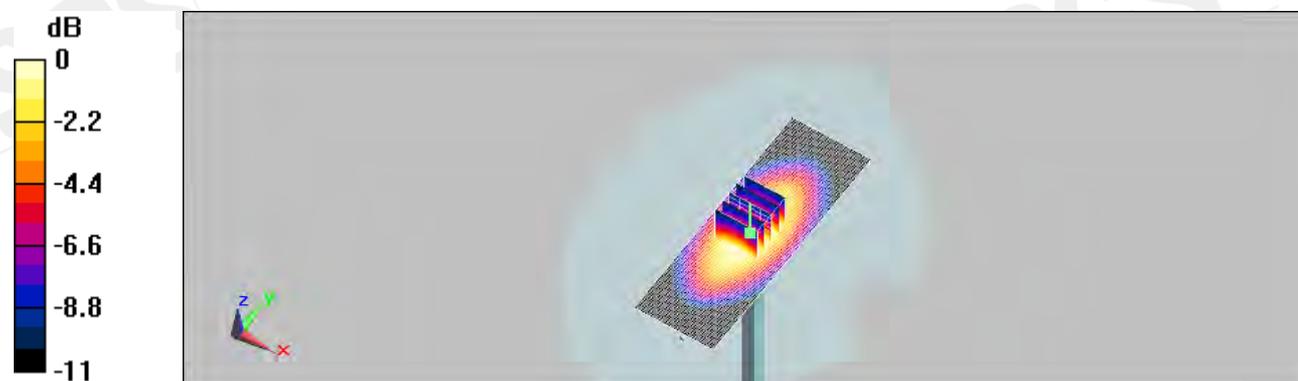
**d=15mm, Pin=250mW, dist=3.4mm** : Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 55.2 V/m; Power Drift = 0.00645 dB

Peak SAR (extrapolated) = 3.47 W/kg

**SAR(1 g) = 2.27 mW/g; SAR(10 g) = 1.47 mW/g**

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



0 dB = 2.57mW/g

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Date : 2010/03/10

**DUT: Dipole 835 MHz;**

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

Medium: BODY900 Medium parameters used:  $f = 835 \text{ MHz}$ ;  $\sigma = 0.969 \text{ mho/m}$ ;  $\epsilon_r = 56$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

**DASY5 Configuration:**

- Probe: ES3DV3 - SN3172; ConvF(5.81, 5.81, 5.81); Calibrated: 2009/5/27
- Sensor-Surface: 3.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2009/5/26
- Phantom: SAM1; Type: SAM;
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

**d=15mm, Pin=250mW, dist=3.4mm** : Measurement grid: dx=15mm, dy=15mm  
Maximum value of SAR (interpolated) = 2.72 mW/g

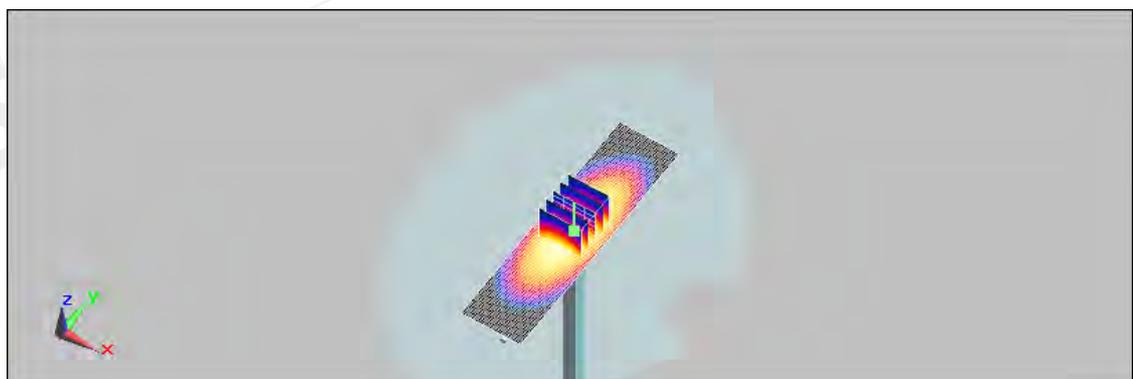
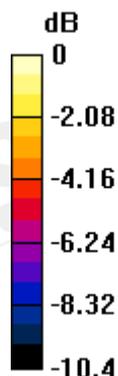
**d=15mm, Pin=250mW, dist=3.4mm** : Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 54.7 V/m; Power Drift = -0.052 dB

Peak SAR (extrapolated) = 3.66 W/kg

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

Maximum value of SAR (measured) = 2.78 mW/g



0 dB = 2.78mW/g

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Date : 2010/03/09

## DUT: Dipole 1900 MHz;

Communication System: CW; Frequency: 1900 MHz; Duty Cycle: 1:1  
Medium: HSL1900 Medium parameters used:  $f = 1900$  MHz;  $\sigma = 1.46$  mho/m;  $\epsilon_r = 38.2$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Phantom section: Flat Section

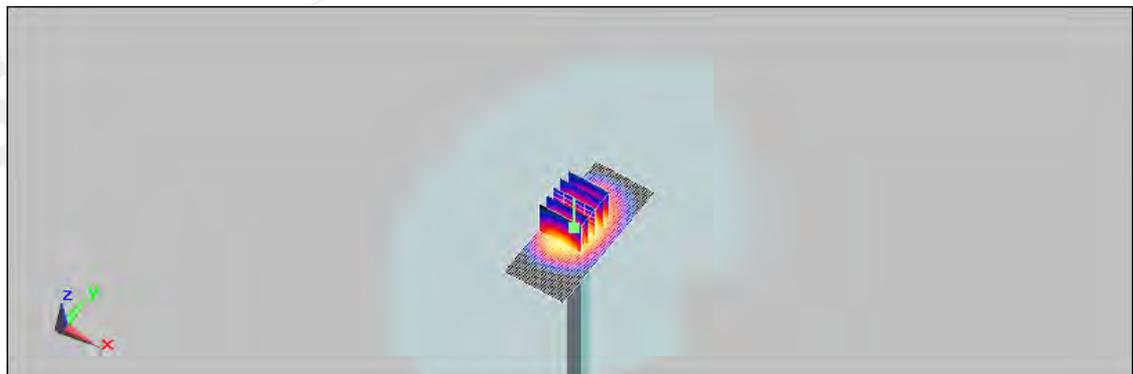
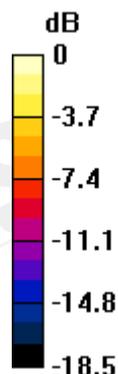
## DASY5 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(4.97, 4.97, 4.97); Calibrated: 2009/5/27
- Sensor-Surface: 3.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2009/5/26
- Phantom: SAM1; Type: SAM;
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

**d=10mm, Pin=250mW, dist=3.4mm** : Measurement grid: dx=15mm, dy=15mm  
Maximum value of SAR (interpolated) = 13.3 mW/g

**d=10mm, Pin=250mW, dist=3.4mm** : Measurement grid: dx=8mm, dy=8mm, dz=5mm  
Reference Value = 95.2 V/m; Power Drift = -0.015 dB  
Peak SAR (extrapolated) = 19.2 W/kg

**SAR(1 g) = 10.3 mW/g; SAR(10 g) = 5.41 mW/g**  
Maximum value of SAR (measured) = 12.6 mW/g



0 dB = 12.6mW/g

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Date : 2010/03/10

## DUT: Dipole 1900 MHz;

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

Medium: BODY1900 Medium parameters used:  $f = 1900 \text{ MHz}$ ;  $\sigma = 1.59 \text{ mho/m}$ ;  $\epsilon_r = 54.5$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

## DASY5 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(4.54, 4.54, 4.54); Calibrated: 2009/5/27
- Sensor-Surface: 3.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2009/5/26
- Phantom: SAM1; Type: SAM;
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

**d=10mm, Pin=250mW, dist=3.4mm** : Measurement grid: dx=15mm, dy=15mm  
Maximum value of SAR (interpolated) = 14.1 mW/g

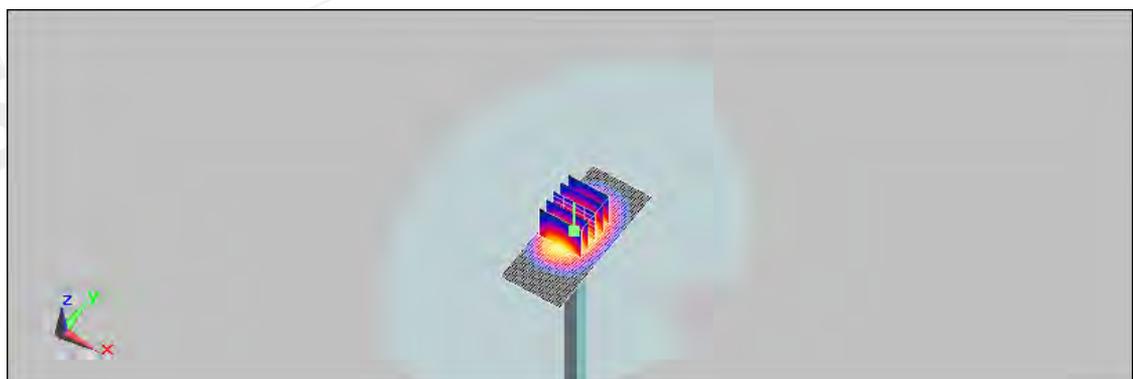
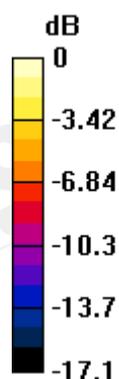
**d=10mm, Pin=250mW, dist=3.4mm** : Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 95.8 V/m; Power Drift = 0.035 dB

Peak SAR (extrapolated) = 19.6 W/kg

**SAR(1 g) = 10.4 mW/g; SAR(10 g) = 5.86 mW/g**

Maximum value of SAR (measured) = 13.7 mW/g



0 dB = 13.7mW/g

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Date : 2010/03/11

**DUT: Dipole 2450 MHz;**

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

Medium: HSL2450 Medium parameters used:  $f = 2450 \text{ MHz}$ ;  $\sigma = 1.82 \text{ mho/m}$ ;  $\epsilon_r = 38.1$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

**DASY5 Configuration:**

- Probe: ES3DV3 - SN3172; ConvF(4.33, 4.33, 4.33); Calibrated: 2009/5/27
- Sensor-Surface: 3.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2009/5/26
- Phantom: SAM1; Type: SAM;
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

**d=10mm, Pin=250mW, dist=3.4mm** : Measurement grid: dx=15mm, dy=15mm  
Maximum value of SAR (interpolated) = 17.2 mW/g

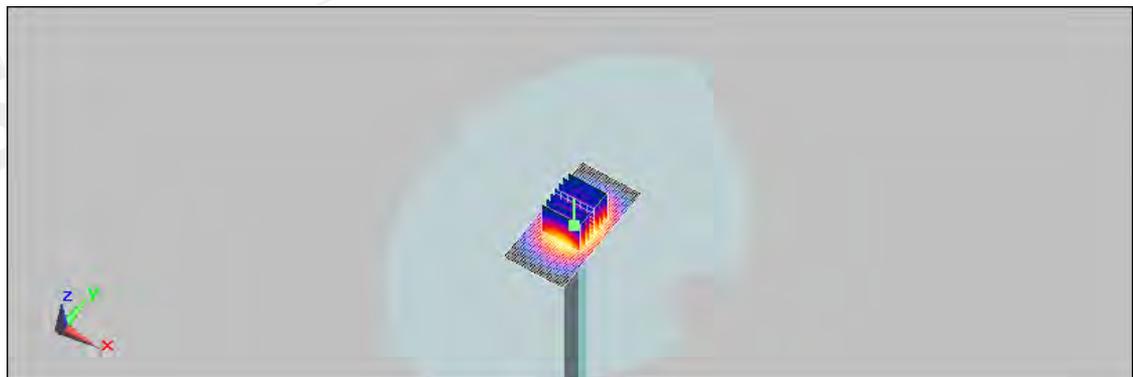
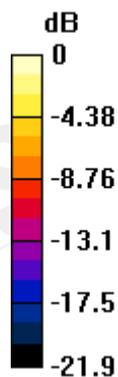
**d=10mm, Pin=250mW, dist=3.4mm** : Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 97.2 V/m; Power Drift = -0.00322 dB

Peak SAR (extrapolated) = 27.6 W/kg

**SAR(1 g) = 12.9 mW/g; SAR(10 g) = 5.9 mW/g**

Maximum value of SAR (measured) = 16 mW/g



0 dB = 16mW/g

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Date : 2010/03/10

**DUT: Dipole 2450 MHz;**

Communication System: CW; Frequency: 2450 MHz; Duty Cycle: 1:1  
Medium: Body 2450 Medium parameters used:  $f = 2450 \text{ MHz}$ ;  $\sigma = 2.08 \text{ mho/m}$ ;  $\epsilon_r = 52.2$ ;  $\rho = 1000 \text{ kg/m}^3$   
Phantom section: Flat Section

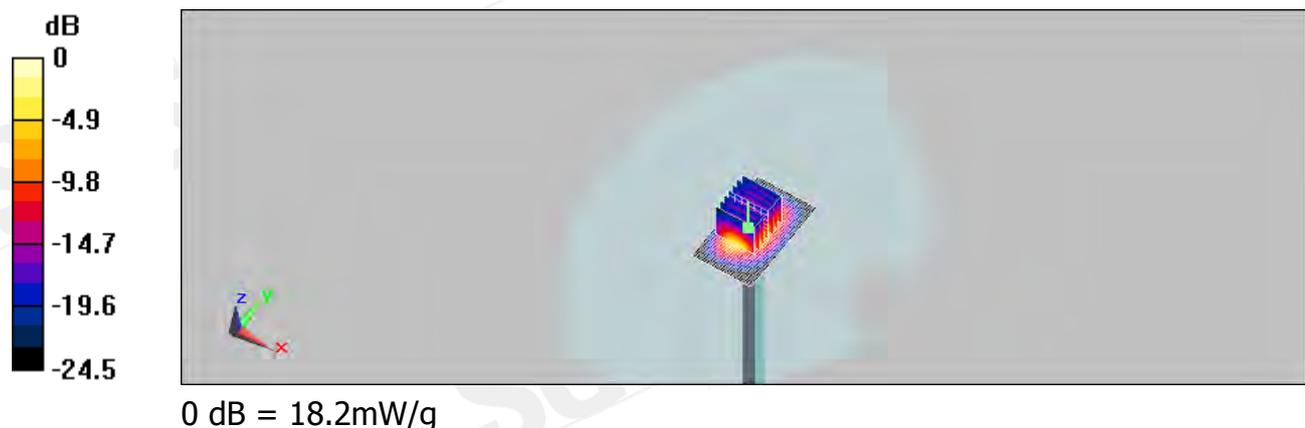
**DASY5 Configuration:**

- Probe: ES3DV3 - SN3172; ConvF(4.02, 4.02, 4.02); Calibrated: 2009/5/27
- Sensor-Surface: 3.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 2009/5/26
- Phantom: SAM1; Type: SAM;
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

**d=10mm, Pin=250mW, dist=3.4mm** : Measurement grid: dx=15mm, dy=15mm  
Maximum value of SAR (interpolated) = 19.9 mW/g

**d=10mm, Pin=250mW, dist=3.4mm** : Measurement grid: dx=5mm, dy=5mm, dz=5mm  
Reference Value = 95.6 V/m; Power Drift = -0.011 dB  
Peak SAR (extrapolated) = 37.5 W/kg

**SAR(1 g) = 13.6 mW/g; SAR(10 g) = 6.27 mW/g**  
Maximum value of SAR (measured) = 18.2 mW/g



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## 6. DAE & Probe Calibration certificate

**Calibration Laboratory of**  
Schmid & Partner  
Engineering AG  
Zeughausstrasse 43, 8004 Zurich, Switzerland



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C Service suisse d'étalonnage  
S Servizio svizzero di taratura  
S Swiss Calibration Service

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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 **SGS (Auden)**

Certificate No: DAE4-856\_May09

### CALIBRATION CERTIFICATE

Object: DAE4 - SD 000 D04 BJ - SN: 856

Calibration procedure(s): QA CAL-06.v12  
Calibration procedure for the data acquisition electronics (DAE)

Calibration date: May 26, 2009

Condition of the calibrated item: In Tolerance

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
Fluke Process Calibrator Type 702	SN: 6295803	30-Sep-08 (No: 7673)	Sep-09
Keithley Multimeter Type 2001	SN: 0810278	30-Sep-08 (No: 7670)	Sep-09
Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Calibrator Box V1.1	SE UMS 006 AB 1004	06-Jun-08 (in house check)	In house check: Jun-09

	Name	Function	Signature
Calibrated by:	Dominique Steffen	Technician	
Approved by:	Fin Bomholt	R&D Director	

Issued: May 26, 2009

This calibration certificate shall not be reproduced except in full without written approval of the laboratory.

Certificate No: DAE4-856\_May09

Page 1 of 5

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Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 108**

Client **SGS (Auden)**

Certificate No: **ES3-3172\_May09**

## CALIBRATION CERTIFICATE

Object: **ES3DV3 - SN:3172**

Calibration procedure(s): **QA CAL-01.v6 and QA CAL-23.v3  
Calibration procedure for dosimetric E-field probes**

Calibration date: **May 27, 2009**

Condition of the calibrated item: **In Tolerance**

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	1-Apr-09 (No. 217-01030)	Apr-10
Power sensor E4412A	MY41495277	1-Apr-09 (No. 217-01030)	Apr-10
Power sensor E4412A	MY41498087	1-Apr-09 (No. 217-01030)	Apr-10
Reference 3 dB Attenuator	SN: S5054 (3c)	31-Mar-09 (No. 217-01026)	Mar-10
Reference 20 dB Attenuator	SN: S5086 (20b)	31-Mar-09 (No. 217-01028)	Mar-10
Reference 30 dB Attenuator	SN: S5129 (30b)	31-Mar-09 (No. 217-01027)	Mar-10
Reference Probe ES3DV2	SN: 3013	2-Jan-09 (No. ES3-3013_Jan09)	Jan-10
DAE4	SN: 660	9-Sep-08 (No. DAE4-660_Sep08)	Sep-09

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
RF generator HP 8648C	US3642U01700	4-Aug-99 (in house check Oct-07)	In house check: Oct-09
Network Analyzer HP 8753E	US37390585	18-Oct-01 (in house check Oct-08)	In house check: Oct-09

	Name	Function	Signature
Calibrated by:	Jeton Kastrati	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: May 27, 2009

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Certificate No: ES3-3172\_May09

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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
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:

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

### Methods Applied and Interpretation of Parameters:

- NORM<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 effect 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 (no uncertainty required). DCP does not depend on frequency nor media.
- 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.

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ES3DV3 SN:3172

May 27, 2009

# Probe ES3DV3

## SN:3172

Manufactured:	January 23, 2008
Last calibrated:	June 23, 2008
Recalibrated:	May 27, 2009

Calibrated for DASY Systems

(Note: non-compatible with DASY2 system!)

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ES3DV3 SN:3172

May 27, 2009

## DASY - Parameters of Probe: ES3DV3 SN:3172

### Sensitivity in Free Space<sup>A</sup>

### Diode Compression<sup>B</sup>

NormX	1.41 ± 10.1%	$\mu\text{V}/(\text{V}/\text{m})^2$	DCP X	94 mV
NormY	1.17 ± 10.1%	$\mu\text{V}/(\text{V}/\text{m})^2$	DCP Y	93 mV
NormZ	0.96 ± 10.1%	$\mu\text{V}/(\text{V}/\text{m})^2$	DCP Z	94 mV

### Sensitivity in Tissue Simulating Liquid (Conversion Factors)

Please see Page 8.

### Boundary Effect

TSL                    900 MHz    Typical SAR gradient: 5 % per mm

		3.0 mm	4.0 mm
Sensor Center to Phantom Surface Distance			
SAR <sub>be</sub> [%]	Without Correction Algorithm	9.6	5.4
SAR <sub>be</sub> [%]	With Correction Algorithm	0.9	0.7

TSL                    1810 MHz    Typical SAR gradient: 10 % per mm

		3.0 mm	4.0 mm
Sensor Center to Phantom Surface Distance			
SAR <sub>be</sub> [%]	Without Correction Algorithm	9.2	5.4
SAR <sub>be</sub> [%]	With Correction Algorithm	0.7	0.4

### Sensor Offset

Probe Tip to Sensor Center                    2.0 mm

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 Page 8).

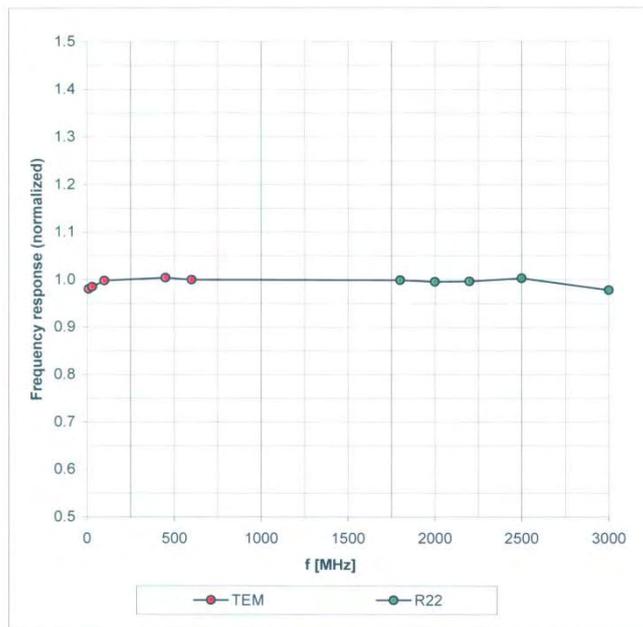
<sup>B</sup> Numerical linearization parameter: uncertainty not required.

ES3DV3 SN:3172

May 27, 2009

## Frequency Response of E-Field

(TEM-Cell:ifi110 EXX, Waveguide: R22)



Uncertainty of Frequency Response of E-field:  $\pm 6.3\%$  (k=2)

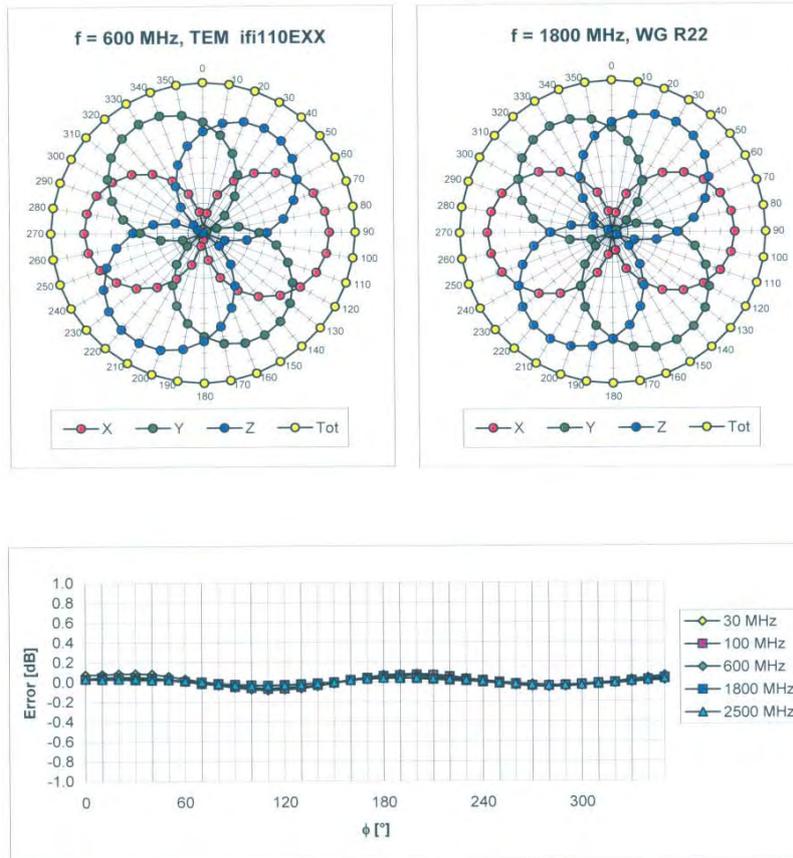
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ES3DV3 SN:3172

May 27, 2009

## Receiving Pattern ( $\phi$ ), $\vartheta = 0^\circ$



Uncertainty of Axial Isotropy Assessment:  $\pm 0.5\%$  (k=2)

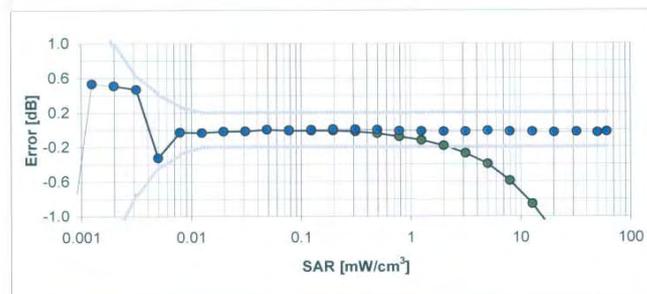
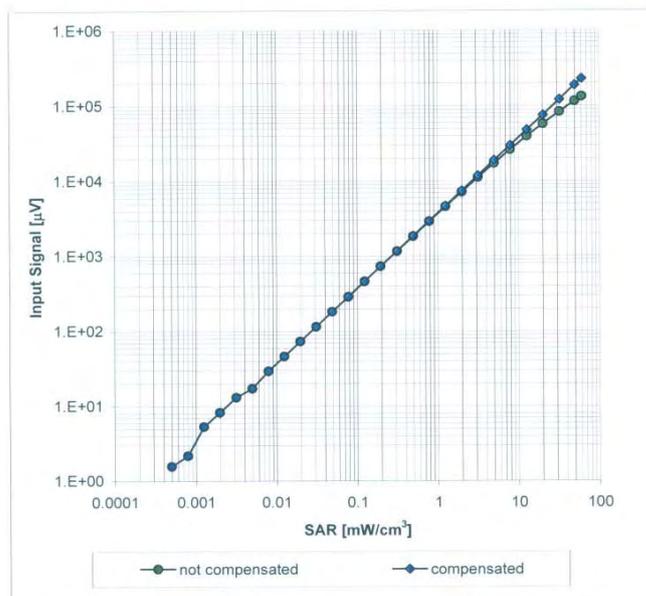
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ES3DV3 SN:3172

May 27, 2009

## Dynamic Range $f(SAR_{head})$ (Waveguide R22, $f = 1800$ MHz)



Uncertainty of Linearity Assessment:  $\pm 0.6\%$  ( $k=2$ )

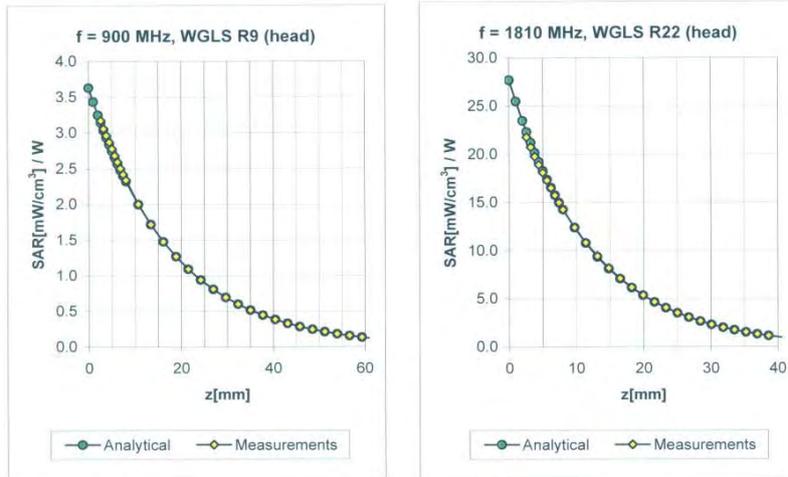
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ES3DV3 SN:3172

May 27, 2009

## Conversion Factor Assessment



f [MHz]	Validity [MHz] <sup>c</sup>	TSL	Permittivity	Conductivity	Alpha	Depth	ConvF Uncertainty
835	± 50 / ± 100	Head	41.5 ± 5%	0.90 ± 5%	0.86	1.08	5.83 ± 11.0% (k=2)
900	± 50 / ± 100	Head	41.5 ± 5%	0.97 ± 5%	0.87	1.08	5.65 ± 11.0% (k=2)
1750	± 50 / ± 100	Head	40.1 ± 5%	1.37 ± 5%	0.35	1.81	4.99 ± 11.0% (k=2)
1810	± 50 / ± 100	Head	40.0 ± 5%	1.40 ± 5%	0.38	1.73	4.86 ± 11.0% (k=2)
1950	± 50 / ± 100	Head	40.0 ± 5%	1.40 ± 5%	0.48	1.51	4.71 ± 11.0% (k=2)
2450	± 50 / ± 100	Head	39.2 ± 5%	1.80 ± 5%	0.41	1.78	4.33 ± 11.0% (k=2)
835	± 50 / ± 100	Body	55.2 ± 5%	0.97 ± 5%	0.78	1.15	5.81 ± 11.0% (k=2)
900	± 50 / ± 100	Body	55.0 ± 5%	1.05 ± 5%	0.78	1.15	5.67 ± 11.0% (k=2)
1750	± 50 / ± 100	Body	53.4 ± 5%	1.49 ± 5%	0.45	1.75	4.69 ± 11.0% (k=2)
1810	± 50 / ± 100	Body	53.3 ± 5%	1.52 ± 5%	0.33	2.23	4.54 ± 11.0% (k=2)
1950	± 50 / ± 100	Body	53.3 ± 5%	1.52 ± 5%	0.27	2.99	4.53 ± 11.0% (k=2)
2450	± 50 / ± 100	Body	52.7 ± 5%	1.95 ± 5%	0.40	1.40	4.02 ± 11.0% (k=2)

<sup>c</sup> The validity of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2). The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.

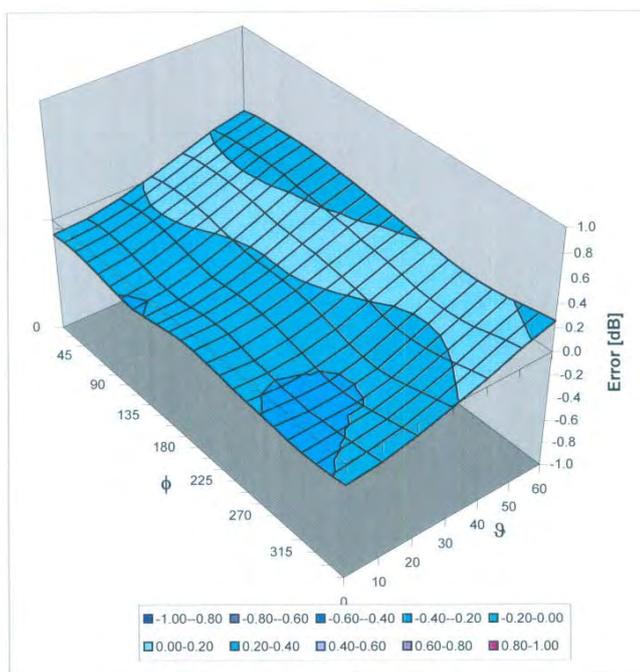
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ES3DV3 SN:3172

May 27, 2009

## Deviation from Isotropy in HSL Error ( $\phi$ , $\theta$ ), $f = 900$ MHz



Uncertainty of Spherical Isotropy Assessment:  $\pm 2.6\%$  ( $k=2$ )

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## 7. Uncertainty Analysis

**DASY5 Uncertainty Budget**  
According to IEEE 1528 [1]

Error Description	Uncertainty value	Prob. Dist.	Div.	(c <sub>1</sub> ) 1g	(c <sub>1</sub> ) 10g	Std. Unc. (1g)	Std. Unc. (10g)	(v <sub>i</sub> ) v <sub>eff</sub>
<b>Measurement System</b>								
Probe Calibration	±5.9%	N	1	1	1	±5.9%	±5.9%	∞
Axial Isotropy	±4.7%	R	√3	0.7	0.7	±1.9%	±1.9%	∞
Hemispherical Isotropy	±9.6%	R	√3	0.7	0.7	±3.9%	±3.9%	∞
Boundary Effects	±1.0%	R	√3	1	1	±0.6%	±0.6%	∞
Linearity	±4.7%	R	√3	1	1	±2.7%	±2.7%	∞
System Detection Limits	±1.0%	R	√3	1	1	±0.6%	±0.6%	∞
Readout Electronics	±0.3%	N	1	1	1	±0.3%	±0.3%	∞
Response Time	±0.8%	R	√3	1	1	±0.5%	±0.5%	∞
Integration Time	±2.6%	R	√3	1	1	±1.5%	±1.5%	∞
RF Ambient Noise	±3.0%	R	√3	1	1	±1.7%	±1.7%	∞
RF Ambient Reflections	±3.0%	R	√3	1	1	±1.7%	±1.7%	∞
Probe Positioner	±0.4%	R	√3	1	1	±0.2%	±0.2%	∞
Probe Positioning	±2.9%	R	√3	1	1	±1.7%	±1.7%	∞
Max. SAR Eval.	±1.0%	R	√3	1	1	±0.6%	±0.6%	∞
<b>Test Sample Related</b>								
Device Positioning	±2.9%	N	1	1	1	±2.9%	±2.9%	145
Device Holder	±3.6%	N	1	1	1	±3.6%	±3.6%	5
Power Drift	±5.0%	R	√3	1	1	±2.9%	±2.9%	∞
<b>Phantom and Setup</b>								
Phantom Uncertainty	±4.0%	R	√3	1	1	±2.3%	±2.3%	∞
Liquid Conductivity (target)	±5.0%	R	√3	0.64	0.43	±1.8%	±1.2%	∞
Liquid Conductivity (meas.)	±2.5%	N	1	0.64	0.43	±1.6%	±1.1%	∞
Liquid Permittivity (target)	±5.0%	R	√3	0.6	0.49	±1.7%	±1.4%	∞
Liquid Permittivity (meas.)	±2.5%	N	1	0.6	0.49	±1.5%	±1.2%	∞
Combined Std. Uncertainty						±10.9%	±10.7%	387
Expanded STD Uncertainty						±21.9%	±21.4%	

Table 19.6: Worst-Case uncertainty budget for DASY5 assessed according to IEEE 1528 [1]. The budget is valid for the frequency range 300 MHz - 3 GHz and represents a worst-case analysis. For specific tests and configurations, the uncertainty could be considerable smaller.

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## 8. Phantom description

Schmid & Partner Engineering AG

**s p e a g**

Zeughausstrasse 43, 8004 Zurich, Switzerland  
Phone +41 1 245 9700, Fax +41 1 245 9779  
info@speag.com, http://www.speag.com

### Certificate of Conformity / First Article Inspection

Item	SAM Twin Phantom V4.0
Type No	QD 000 P40 C
Series No	TP-1150 and higher
Manufacturer	SPEAG Zeughausstrasse 43 CH-8004 Zurich Switzerland

#### Tests

The series production process used allows the limitation to test of first articles. Complete tests were made on the pre-series Type No. QD 000 P40 AA, Serial No. TP-1001 and on the series first article Type No. QD 000 P40 BA, Serial No. TP-1006. Certain parameters have been retested using further series items (called samples) or are tested at each item.

Test	Requirement	Details	Units tested
Dimensions	Compliant with the geometry according to the CAD model.	IT'IS CAD File (*)	First article, Samples
Material thickness of shell	Compliant with the requirements according to the standards	2mm +/- 0.2mm in flat and specific areas of head section	First article, Samples, TP-1314 ff.
Material thickness at ERP	Compliant with the requirements according to the standards	6mm +/- 0.2mm at ERP	First article, All items
Material parameters	Dielectric parameters for required frequencies	300 MHz – 6 GHz: Relative permittivity < 5, Loss tangent < 0.05	Material samples
Material resistivity	The material has been tested to be compatible with the liquids defined in the standards if handled and cleaned according to the instructions. Observe technical Note for material compatibility.	DEGMBE based simulating liquids	Pre-series, First article, Material samples
Sagging	Compliant with the requirements according to the standards. Sagging of the flat section when filled with tissue simulating liquid.	< 1% typical < 0.8% if filled with 155mm of HSL900 and without DUT below	Prototypes, Sample testing

#### Standards

- [1] CENELEC EN 50361
- [2] IEEE Std 1528-2003
- [3] IEC 62209 Part I
- [4] FCC OET Bulletin 65, Supplement C, Edition 01-01
- (\*) The IT'IS CAD file is derived from [2] and is also within the tolerance requirements of the shapes of the other documents.

#### Conformity

Based on the sample tests above, we certify that this item is in compliance with the uncertainty requirements of SAR measurements specified in standards [1] to [4].

Date 07.07.2005

**s p e a g**

Signature / Stamp

Schmid & Partner Engineering AG  
Zeughausstrasse 43, 8004 Zurich, Switzerland  
Phone +41 1 245 9700, Fax +41 1 245 9779  
Info@speag.com, http://www.speag.com

Doc No 881 – QD 000 P40 C – F

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**Calibration Laboratory of**  
Schmid & Partner  
Engineering AG  
Zeughausstrasse 43, 8004 Zurich, Switzerland



**S** Schweizerischer Kalibrierdienst  
**S** Service suisse d'étalonnage  
**C** 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 **SGS (Auden)**

Certificate No: **D835V2-4d063\_May09**

CALIBRATION CERTIFICATE																																															
Object	D835V2 - SN: 4d063																																														
Calibration procedure(s)	QA CAL-05.v7 Calibration procedure for dipole validation kits																																														
Calibration date:	May 25, 2009																																														
Condition of the calibrated item	In Tolerance																																														
<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>08-Oct-08 (No. 217-00898)</td> <td>Oct-09</td> </tr> <tr> <td>Power sensor HP 8481A</td> <td>US37292783</td> <td>08-Oct-08 (No. 217-00898)</td> <td>Oct-09</td> </tr> <tr> <td>Reference 20 dB Attenuator</td> <td>SN: 5086 (20g)</td> <td>31-Mar-09 (No. 217-01025)</td> <td>Mar-10</td> </tr> <tr> <td>Type-N mismatch combination</td> <td>SN: 5047.2 / 06327</td> <td>31-Mar-09 (No. 217-01029)</td> <td>Mar-10</td> </tr> <tr> <td>Reference Probe ES3DV2</td> <td>SN: 3025</td> <td>30-Apr-09 (No. ES3-3025_Apr09)</td> <td>Apr-10</td> </tr> <tr> <td>DAE4</td> <td>SN: 601</td> <td>07-Mar-09 (No. DAE4-601_Mar09)</td> <td>Mar-10</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-07)</td> <td>In house check: Oct-09</td> </tr> <tr> <td>RF generator R&amp;S SMT-06</td> <td>100005</td> <td>4-Aug-99 (in house check Oct-07)</td> <td>In house check: Oct-09</td> </tr> <tr> <td>Network Analyzer HP 8753E</td> <td>US37390585 S4206</td> <td>18-Oct-01 (in house check Oct-08)</td> <td>In house check: Oct-09</td> </tr> </tbody> </table>				Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration	Power meter EPM-442A	GB37480704	08-Oct-08 (No. 217-00898)	Oct-09	Power sensor HP 8481A	US37292783	08-Oct-08 (No. 217-00898)	Oct-09	Reference 20 dB Attenuator	SN: 5086 (20g)	31-Mar-09 (No. 217-01025)	Mar-10	Type-N mismatch combination	SN: 5047.2 / 06327	31-Mar-09 (No. 217-01029)	Mar-10	Reference Probe ES3DV2	SN: 3025	30-Apr-09 (No. ES3-3025_Apr09)	Apr-10	DAE4	SN: 601	07-Mar-09 (No. DAE4-601_Mar09)	Mar-10	Secondary Standards	ID #	Check Date (in house)	Scheduled Check	Power sensor HP 8481A	MY41092317	18-Oct-02 (in house check Oct-07)	In house check: Oct-09	RF generator R&S SMT-06	100005	4-Aug-99 (in house check Oct-07)	In house check: Oct-09	Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (in house check Oct-08)	In house check: Oct-09
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Calibrated by:	Name Jeton Kastrati	Function Laboratory Technician	Signature 																																												
Approved by:	Katja Pokovic	Technical Manager																																													
			Issued: May 25, 2009																																												
This calibration certificate shall not be reproduced except in full without written approval of the laboratory.																																															

Certificate No: D835V2-4d063\_May09

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**S** Schweizerischer Kalibrierdienst  
**C** Service suisse d'étalonnage  
**S** Servizio svizzero di taratura  
**S** Swiss Calibration Service

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**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.

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### Measurement Conditions

DASY system configuration, as far as not given on page 1.

DASY Version	DASY5	V5.0
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom V4.9	
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	40.8 $\pm$ 6 %	0.89 mho/m $\pm$ 6 %
Head TSL temperature during test	(21.6 $\pm$ 0.2) °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	2.38 mW / g
SAR normalized	normalized to 1W	9.52 mW / g
SAR for nominal Head TSL parameters <sup>1</sup>	normalized to 1W	<b>9.56 mW / g <math>\pm</math> 17.0 % (k=2)</b>

SAR averaged over 10 cm <sup>3</sup> (10 g) of Head TSL	condition	
SAR measured	250 mW input power	1.56 mW / g
SAR normalized	normalized to 1W	6.24 mW / g
SAR for nominal Head TSL parameters <sup>1</sup>	normalized to 1W	<b>6.26 mW / g <math>\pm</math> 16.5 % (k=2)</b>

<sup>1</sup> Correction to nominal TSL parameters according to d), chapter "SAR Sensitivities"

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### 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 ± 0.2) °C	53.8 ± 6 %	1.01 mho/m ± 6 %
Body TSL temperature during test	(22.0 ± 0.2) °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	2.55 mW / g
SAR normalized	normalized to 1W	10.2 mW / g
SAR for nominal Body TSL parameters <sup>2</sup>	normalized to 1W	<b>9.84 mW / g ± 17.0 % (k=2)</b>

SAR averaged over 10 cm <sup>3</sup> (10 g) of Body TSL	condition	
SAR measured	250 mW input power	1.68 mW / g
SAR normalized	normalized to 1W	6.72 mW / g
SAR for nominal Body TSL parameters <sup>2</sup>	normalized to 1W	<b>6.55 mW / g ± 16.5 % (k=2)</b>

<sup>2</sup> Correction to nominal TSL parameters according to d), chapter "SAR Sensitivities"

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## Appendix

### Antenna Parameters with Head TSL

Impedance, transformed to feed point	51.9 $\Omega$ - 3.0 $j\Omega$
Return Loss	-29.2 dB

### Antenna Parameters with Body TSL

Impedance, transformed to feed point	47.7 $\Omega$ - 4.3 $j\Omega$
Return Loss	-26.0 dB

### General Antenna Parameters and Design

Electrical Delay (one direction)	1.392 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.

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	November 27, 2006

## DASY5 Validation Report for Head TSL

Date/Time: 25.05.2009 10:53:04

Test Laboratory: SPEAG, Zurich, Switzerland

**DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN:4d063**

Communication System: CW-835; Frequency: 835 MHz; Duty Cycle: 1:1  
Medium: HSL 900 MHz  
Medium parameters used:  $f = 835$  MHz;  $\sigma = 0.89$  mho/m;  $\epsilon_r = 40.7$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Phantom section: Flat Section  
Measurement Standard: DASY5 (IEEE/IEC)

### DASY5 Configuration:

- Probe: ES3DV2 - SN3025; ConvF(5.86, 5.86, 5.86); Calibrated: 30.04.2009
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 07.03.2009
- Phantom: Flat Phantom 4.9L; Type: QD000P49AA; Serial: 1001
- Measurement SW: DASY5, V5.0 Build 120; SEMCAD X Version 13.4 Build 45

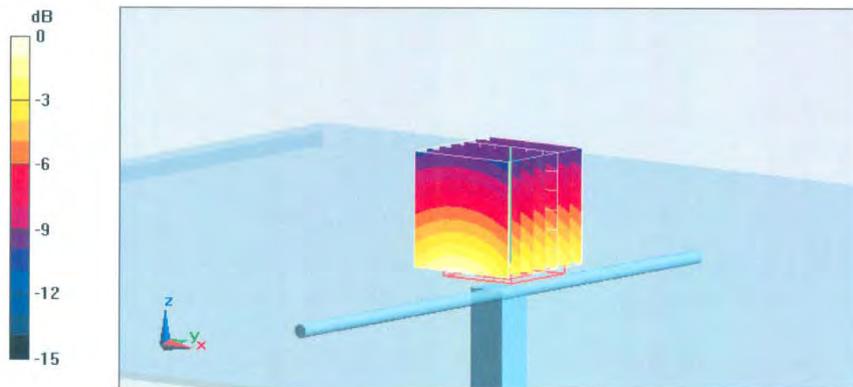
**Pin=250mW; dip=15mm/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 57 V/m; Power Drift = 0.028 dB

Peak SAR (extrapolated) = 3.54 W/kg

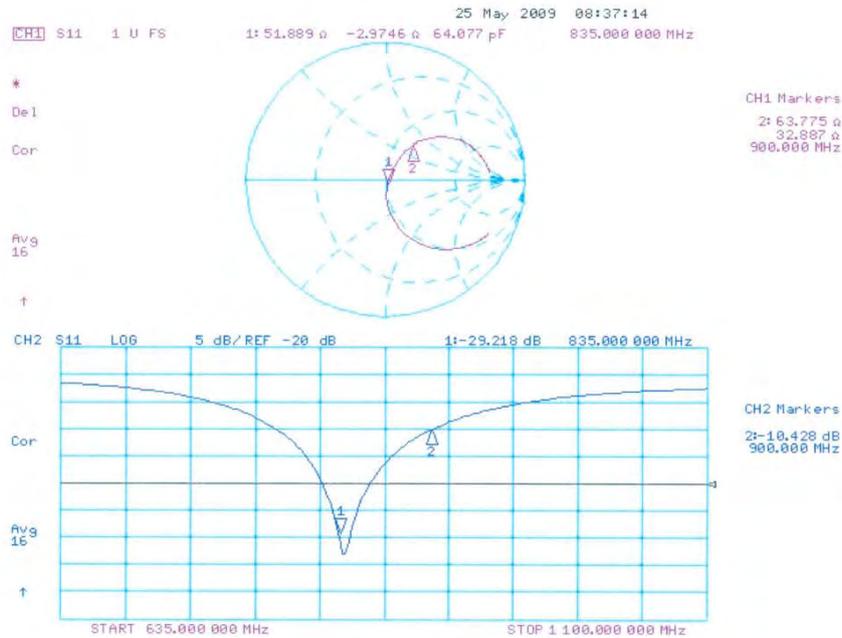
**SAR(1 g) = 2.38 mW/g; SAR(10 g) = 1.56 mW/g**

Maximum value of SAR (measured) = 2.77 mW/g



0 dB = 2.77mW/g

## Impedance Measurement Plot for Head TSL



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## DASY5 Validation Report for Body TSL

Date/Time: 25.05.2009 14:01:33

Test Laboratory: SPEAG, Zurich, Switzerland

**DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN:4d063**

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

Medium: MSL900

Medium parameters used:  $f = 835 \text{ MHz}$ ;  $\sigma = 1.01 \text{ mho/m}$ ;  $\epsilon_r = 53.8$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC)

DASY5 Configuration:

- Probe: ES3DV2 - SN3025; ConvF(5.79, 5.79, 5.79); Calibrated: 30.04.2009
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 07.03.2009
- Phantom: Flat Phantom 4.9L; Type: QD000P49AA; Serial: 1001
- Measurement SW: DASY5, V5.0 Build 120; SEMCAD X Version 13.4 Build 45

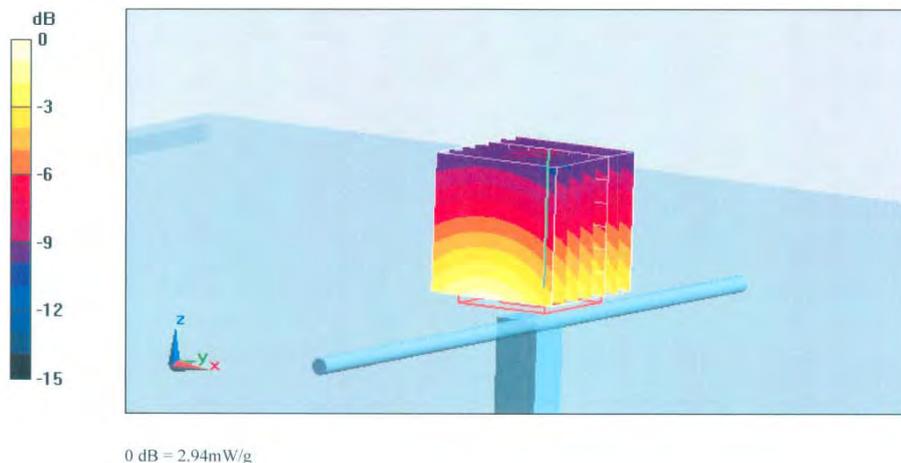
**Pin = 250mW, d = 15mm/Zoom Scan (7x7x7)/Cube 0:** Measurement grid:  $dx=5\text{mm}$ ,  $dy=5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 55.6 V/m; Power Drift = 0.024 dB

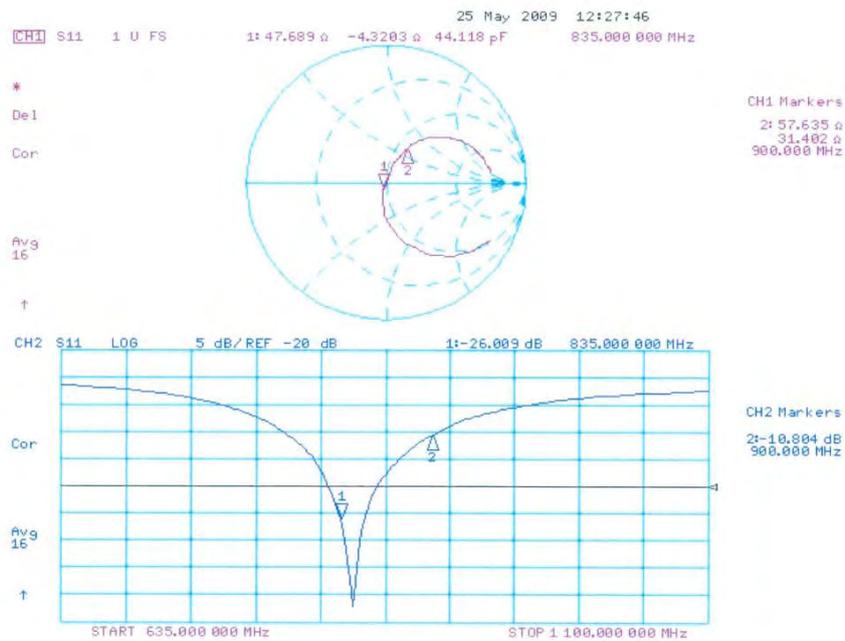
Peak SAR (extrapolated) = 3.74 W/kg

**SAR(1 g) = 2.55 mW/g; SAR(10 g) = 1.68 mW/g**

Maximum value of SAR (measured) = 2.94 mW/g



## Impedance Measurement Plot for Body TSL



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Engineering AG**  
Zeughausstrasse 43, 8004 Zurich, Switzerland



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**S** Service suisse d'étalonnage  
**C** Servizio svizzero di taratura  
**S** Swiss Calibration Service

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Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 108**

Client **SGS (Auden)**

Certificate No: **D1900V2-5d027-Apr09**

## CALIBRATION CERTIFICATE

Object: **D1900V2 - SN: 5d027**

Calibration procedure(s): **QA CAL-05.v7  
Calibration procedure for dipole validation kits**

Calibration date: **April 27, 2009**

Condition of the calibrated item: **In Tolerance**

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).  
The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Calibrated by, Certificate No.)	Scheduled Calibration
Power meter EPM-442A	GB37480704	08-Oct-08 (No. 217-00898)	Oct-09
Power sensor HP 8481A	US37292783	08-Oct-08 (No. 217-00898)	Oct-09
Reference 20 dB Attenuator	SN: 5086 (20g)	31-Mar-09 (No. 217-01025)	Mar-10
Type-N mismatch combination	SN: 5047.2 / 06327	31-Mar-09 (No. 217-01029)	Mar-10
Reference Probe ES3DV2	SN: 3025	28-Apr-08 (No. ES3-3025_Apr08)	Apr-09
DAE4	SN: 601	07-Mar-09 (No. DAE4-601_Mar09)	Mar-10
Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power sensor HP 8481A	MY41092317	18-Oct-02 (in house check Oct-07)	In house check: Oct-09
RF generator R&S SMT-06	100005	4-Aug-99 (in house check Oct-07)	In house check: Oct-09
Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (in house check Oct-08)	In house check: Oct-09

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 28, 2009

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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) CENELEC EN 50361, "Basic standard for the measurement of Specific Absorption Rate related to human exposure to electromagnetic fields from mobile phones (300 MHz - 3 GHz), July 2001
- 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.

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### Measurement Conditions

DASY system configuration, as far as not given on page 1.

DASY Version	DASY5	V5.0
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom V5.0	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 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	38.6 $\pm$ 6 %	1.47 mho/m $\pm$ 6 %
Head TSL temperature during test	(21.6 $\pm$ 0.2) °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	10.5 mW / g
SAR normalized	normalized to 1W	42.0 mW / g
SAR for nominal Head TSL parameters <sup>1</sup>	normalized to 1W	<b>40.5 mW / g <math>\pm</math> 17.0 % (k=2)</b>

SAR averaged over 10 cm <sup>3</sup> (10 g) of Head TSL	Condition	
SAR measured	250 mW input power	5.38 mW / g
SAR normalized	normalized to 1W	21.5 mW / g
SAR for nominal Head TSL parameters <sup>1</sup>	normalized to 1W	<b>21.1 mW / g <math>\pm</math> 16.5 % (k=2)</b>

<sup>1</sup> Correction to nominal TSL parameters according to d), chapter "SAR Sensitivities"

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### 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 ± 0.2) °C	54.9 ± 6 %	1.56 mho/m ± 6 %
Body TSL temperature during test	(21.3 ± 0.2) °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	10.6 mW / g
SAR normalized	normalized to 1W	42.4 mW / g
SAR for nominal Body TSL parameters <sup>2</sup>	normalized to 1W	<b>42.1 mW / g ± 17.0 % (k=2)</b>

SAR averaged over 10 cm <sup>3</sup> (10 g) of Body TSL	condition	
SAR measured	250 mW input power	5.58 mW / g
SAR normalized	normalized to 1W	22.3 mW / g
SAR for nominal Body TSL parameters <sup>2</sup>	normalized to 1W	<b>22.3 mW / g ± 16.5 % (k=2)</b>

<sup>2</sup> Correction to nominal TSL parameters according to d), chapter "SAR Sensitivities"

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## Appendix

### Antenna Parameters with Head TSL

Impedance, transformed to feed point	52.4 $\Omega$ + 5.6 j $\Omega$
Return Loss	- 24.5 dB

### Antenna Parameters with Body TSL

Impedance, transformed to feed point	46.9 $\Omega$ + 6.4 j $\Omega$
Return Loss	- 22.7 dB

### General Antenna Parameters and Design

Electrical Delay (one direction)	1.197 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.

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 17, 2002

## DASY5 Validation Report for Head TSL

Date/Time: 27.04.2009 11:54:57

Test Laboratory: SPEAG, Zurich, Switzerland

**DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN:5d027**

Communication System: CW; Frequency: 1900 MHz; Duty Cycle: 1:1  
Medium: HSL U10 BB  
Medium parameters used:  $f = 1900 \text{ MHz}$ ;  $\sigma = 1.47 \text{ mho/m}$ ;  $\epsilon_r = 38.7$ ;  $\rho = 1000 \text{ kg/m}^3$   
Phantom section: Flat Section  
Measurement Standard: DASY5 (IEEE/IEC)

### DASY5 Configuration:

- Probe: ES3DV2 - SN3025; ConvF(4.9, 4.9, 4.9); Calibrated: 28.04.2008
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 07.03.2009
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- Measurement SW: DASY5, V5.0 Build 120; SEMCAD X Version 13.4 Build 45

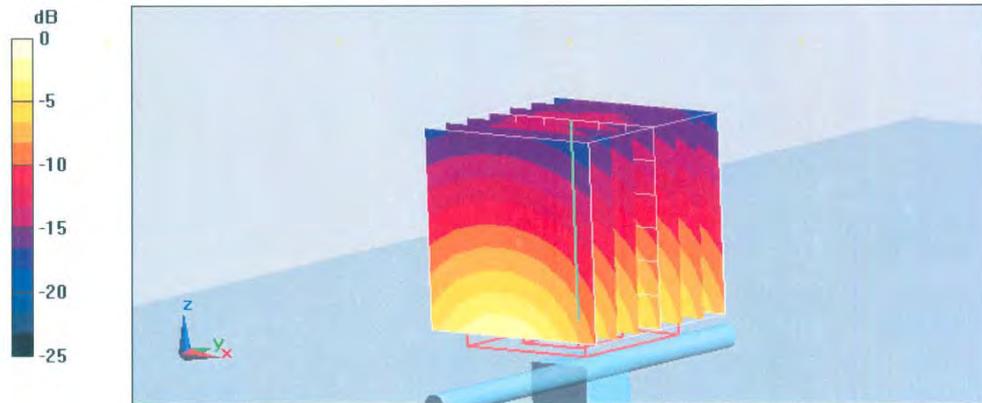
**Pin = 250 mW; dip = 10 mm /Zoom Scan (7x7x7)/Cube 0:** Measurement grid:  $dx=5\text{mm}$ ,  $dy=5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 97.1 V/m; Power Drift = 0.044 dB

Peak SAR (extrapolated) = 19.7 W/kg

**SAR(1 g) = 10.5 mW/g; SAR(10 g) = 5.38 mW/g**

Maximum value of SAR (measured) = 13 mW/g

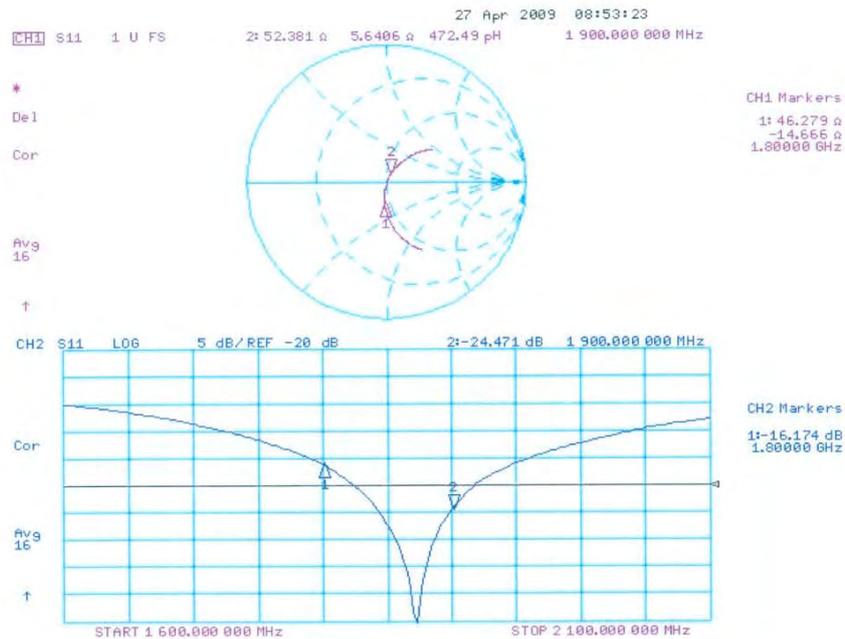


0 dB = 13mW/g

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## Impedance Measurement Plot for Head TSL



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## DASY5 Validation Report for Body TSL

Date/Time: 21.04.2009 14:59:34

Test Laboratory: SPEAG, Zurich, Switzerland

**DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN:5d027**

Communication System: CW; Frequency: 1900 MHz; Duty Cycle: 1:1  
Medium: MSL U10 BB  
Medium parameters used:  $f = 1900 \text{ MHz}$ ;  $\sigma = 1.56 \text{ mho/m}$ ;  $\epsilon_r = 55$ ;  $\rho = 1000 \text{ kg/m}^3$   
Phantom section: Flat Section  
Measurement Standard: DASY5 (IEEE/IEC)

### DASY5 Configuration:

- Probe: ES3DV2 - SN3025; ConvF(4.5, 4.5, 4.5); Calibrated: 28.04.2008
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 07.03.2009
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; Serial: 1002
- Measurement SW: DASY5, V5.0 Build 120; SEMCAD X Version 13.4 Build 45

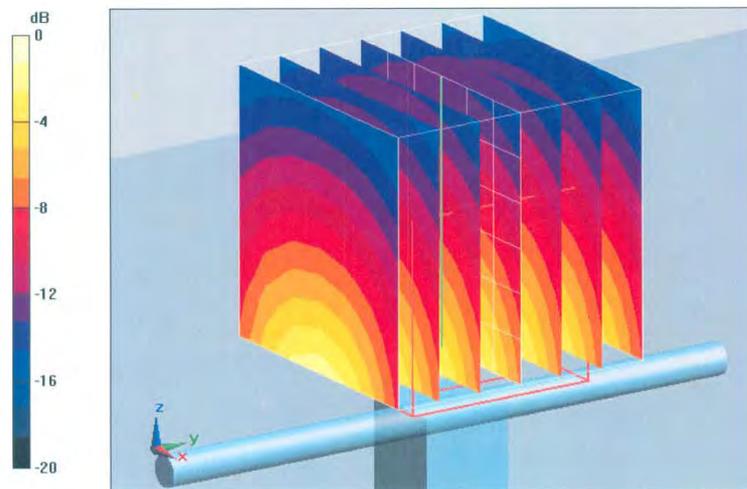
**Pin = 250 mW; dip = 10 mm/Zoom Scan (7x7x7)/Cube 0:** Measurement grid:  $dx=5\text{mm}$ ,  $dy=5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 96 V/m; Power Drift = 0.016 dB

Peak SAR (extrapolated) = 18.5 W/kg

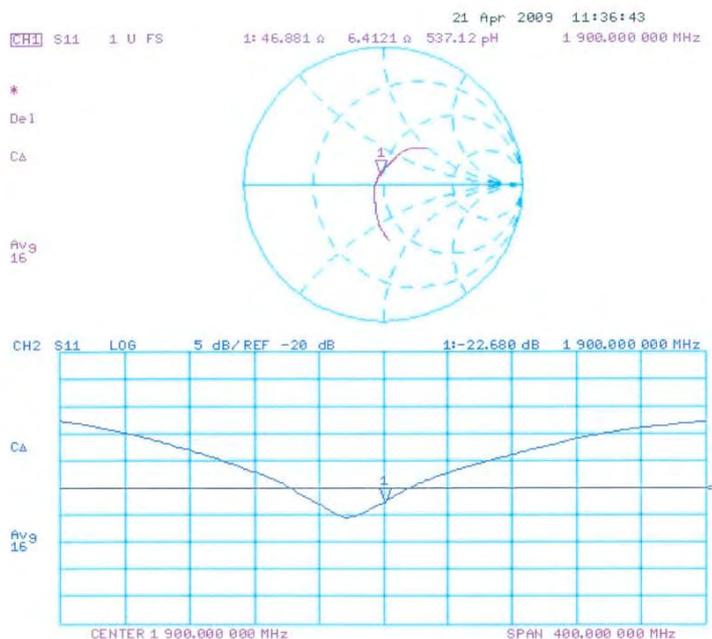
**SAR(1 g) = 10.6 mW/g; SAR(10 g) = 5.58 mW/g**

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



0 dB = 13,4mW/g

## Impedance Measurement Plot for Body TSL



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Zeughausstrasse 43, 8004 Zurich, Switzerland



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Accreditation No.: **SCS 108**

Client **SGS (Auden)**

Certificate No: **D2450V2-727\_Apr09**

## CALIBRATION CERTIFICATE

Object: **D2450V2 - SN: 727**

Calibration procedure(s): **QA CAL-05.v7  
Calibration procedure for dipole validation kits**

Calibration date: **April 27, 2009**

Condition of the calibrated item: **In Tolerance**

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).  
The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Calibrated by, Certificate No.)	Scheduled Calibration
Power meter EPM-442A	GB37480704	08-Oct-08 (No. 217-00898)	Oct-09
Power sensor HP 8481A	US37292783	08-Oct-08 (No. 217-00898)	Oct-09
Reference 20 dB Attenuator	SN: 5086 (20g)	31-Mar-09 (No. 217-01025)	Mar-10
Type-N mismatch combination	SN: 5047.2 / 06327	31-Mar-09 (No. 217-01029)	Mar-10
Reference Probe ES3DV2	SN: 3025	28-Apr-08 (No. ES3-3025_Apr08)	Apr-09
DAE4	SN: 601	07-Mar-09 (No. DAE4-601_Mar09)	Mar-10
Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power sensor HP 8481A	MY41092317	18-Oct-02 (in house check Oct-07)	In house check: Oct-09
RF generator R&S SMT-06	100005	4-Aug-99 (in house check Oct-07)	In house check: Oct-09
Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (in house check Oct-08)	In house check: Oct-09

	Name	Function	Signature
Calibrated by:	Jeton Kastrati	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: April 28, 2009

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**S** Schweizerischer Kalibrierdienst  
**C** Service suisse d'étalonnage  
**S** Servizio svizzero di taratura  
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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.

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### Measurement Conditions

DASY system configuration, as far as not given on page 1.

DASY Version	DASY5	V5.0
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom V5.0	
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	38.0 $\pm$ 6 %	1.82 mho/m $\pm$ 6 %
Head TSL temperature during test	(21.6 $\pm$ 0.2) °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	13.5 mW / g
SAR normalized	normalized to 1W	54.0 mW / g
SAR for nominal Head TSL parameters <sup>1</sup>	normalized to 1W	<b>53.3 mW / g <math>\pm</math> 17.0 % (k=2)</b>

SAR averaged over 10 cm <sup>3</sup> (10 g) of Head TSL	condition	
SAR measured	250 mW input power	6.28 mW / g
SAR normalized	normalized to 1W	25.1 mW / g
SAR for nominal Head TSL parameters <sup>1</sup>	normalized to 1W	<b>24.9 mW / g <math>\pm</math> 16.5 % (k=2)</b>

<sup>1</sup> Correction to nominal TSL parameters according to d), chapter "SAR Sensitivities"

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**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 ± 0.2) °C	54.4 ± 6 %	1.98 mho/m ± 6 %
Body TSL temperature during test	(22.0 ± 0.2) °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	13.2 mW / g
SAR normalized	normalized to 1W	52.8 mW / g
SAR for nominal Body TSL parameters <sup>2</sup>	normalized to 1W	<b>52.8 mW / g ± 17.0 % (k=2)</b>

SAR averaged over 10 cm <sup>3</sup> (10 g) of Body TSL	condition	
SAR measured	250 mW input power	6.18 mW / g
SAR normalized	normalized to 1W	24.7 mW / g
SAR for nominal Body TSL parameters <sup>2</sup>	normalized to 1W	<b>24.8 mW / g ± 16.5 % (k=2)</b>

<sup>2</sup> Correction to nominal TSL parameters according to d), chapter "SAR Sensitivities"

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## Appendix

### Antenna Parameters with Head TSL

Impedance, transformed to feed point	55.1 $\Omega$ + 1.2 j $\Omega$
Return Loss	- 26.1 dB

### Antenna Parameters with Body TSL

Impedance, transformed to feed point	49.5 $\Omega$ + 3.3 j $\Omega$
Return Loss	- 29.6 dB

### General Antenna Parameters and Design

Electrical Delay (one direction)	1.149 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.

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	January 09, 2003

## DASY5 Validation Report for Head TSL

Date/Time: 27.04.2009 13:40:04

Test Laboratory: SPEAG, Zurich, Switzerland

**DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN727**

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

Medium: HSL U10 BB

Medium parameters used:  $f = 2450$  MHz;  $\sigma = 1.82$  mho/m;  $\epsilon_r = 38$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC)

DASY5 Configuration:

- Probe: ES3DV2 - SN3025; ConvF(4.4, 4.4, 4.4); Calibrated: 28.04.2008
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 07.03.2009
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- Measurement SW: DASY5, V5.0 Build 120; SEMCAD X Version 13.4 Build 45

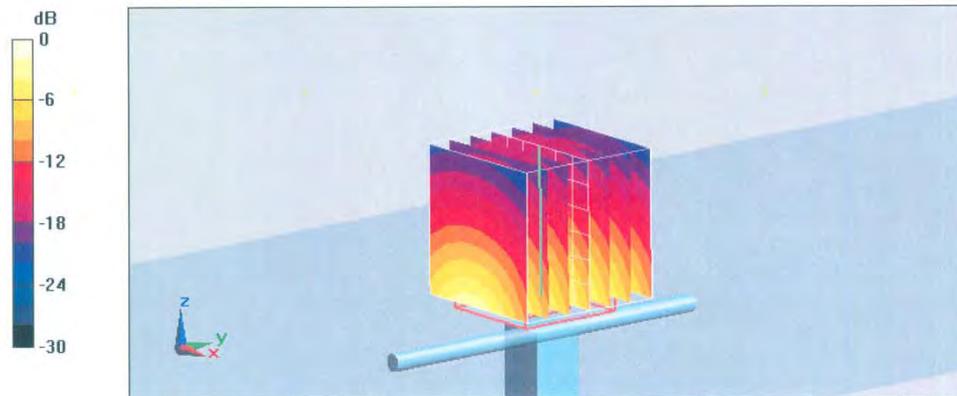
**Pin = 250 mW; d = 10 mm/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 100.3 V/m; Power Drift = 0.036 dB

Peak SAR (extrapolated) = 28.3 W/kg

**SAR(1 g) = 13.5 mW/g; SAR(10 g) = 6.28 mW/g**

Maximum value of SAR (measured) = 17.2 mW/g

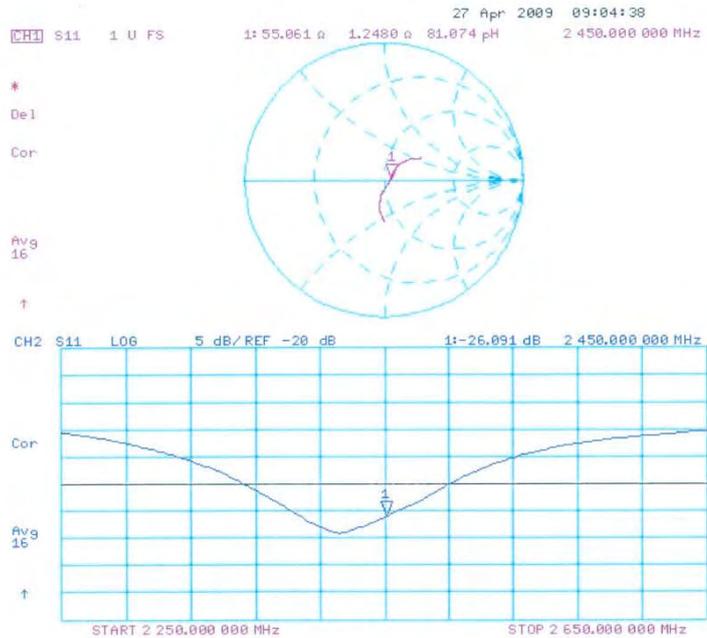


0 dB = 17.2mW/g

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## Impedance Measurement Plot for Head TSL



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## DASY5 Validation Report for Body TSL

Date/Time: 22.04.2009 13:12:14

Test Laboratory: SPEAG, Zurich, Switzerland

**DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN:727**

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

Medium: MSL U10 BB

Medium parameters used:  $f = 2450$  MHz;  $\sigma = 1.98$  mho/m;  $\epsilon_r = 54.4$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC)

DASY5 Configuration:

- Probe: ES3DV2 - SN3025; ConvF(4.07, 4.07, 4.07); Calibrated: 28.04.2008
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 07.03.2009
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; Serial: 1002
- Measurement SW: DASY5, V5.0 Build 120; SEMCAD X Version 13.4 Build 45

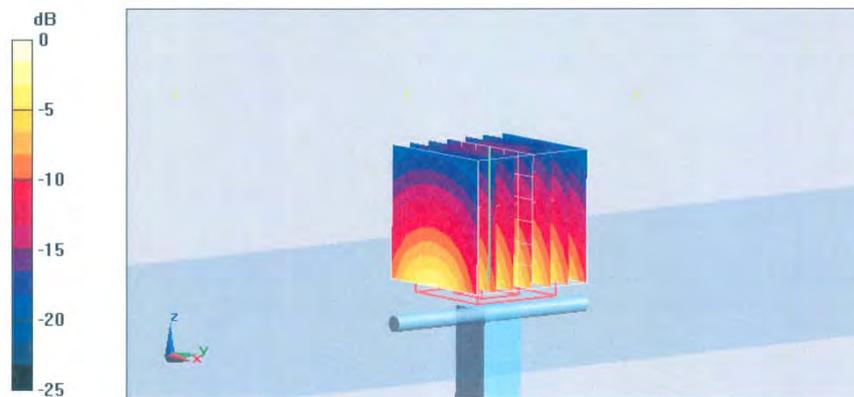
**Pin = 250 mW; d = 10 mm/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 96.9 V/m; Power Drift = 0.031 dB

Peak SAR (extrapolated) = 26.5 W/kg

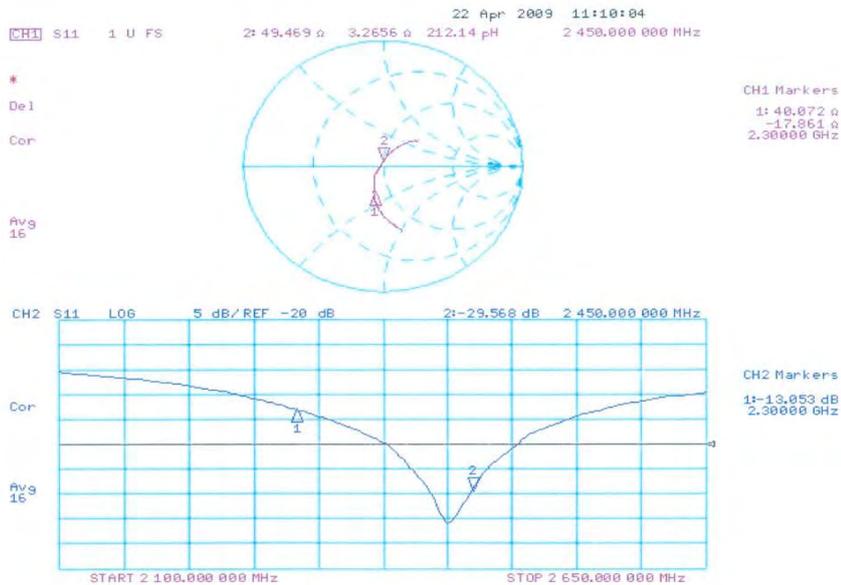
**SAR(1 g) = 13.2 mW/g; SAR(10 g) = 6.18 mW/g**

Maximum value of SAR (measured) = 17.3 mW/g



0 dB = 17.3mW/g

### Impedance Measurement Plot for Body TSL



**End of 1<sup>st</sup> part of report**

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