

SAR TEST REPORT

The following samples were submitted and identified on behalf of the client as:

Product Name	Silver Smart
Marketing Name	MOTOSMART Me
Brand Name	Motorola
Type Name	M0D4C
Model No.	XT303 (GPPD:3404)
Company Name	Motorola Mobility Inc.
Company Address	9 F., No.9, Songgao Rd., Taipei 110, Taiwan, R.O.C.
Standards	OET 65 supplement C, IEEE / ANSI C95.1 , C95.3, IEEE 1528
FCC ID	IHDT56NX1
Date of Receipt	Jun. 08, 2012
Date of Test(s)	Jun. 13, 2012 ~ Jun. 18, 2012
Date of Issue	Jun. 19, 2012

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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Signed for on the behalf of SGS

Engineer



Chris Tsung

Date: Jun. 19, 2012

Supervisor



Kelly Tsai

Date: Jun. 19, 2012

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Version

Report Number	Revision	Date	Memo
EN/2012/60002	00	2012/06/19	Initial creation of test report.

This test report contains a reference to the previous version test report that it replaces.

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1. General Information

1.1 Testing Laboratory

SGS Taiwan Ltd. Electronics & Communication Laboratory	
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Taipei county, Taiwan, R.O.C.	
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Fax	+886-2-2298-0488
Internet	http://www.tw.sgs.com/
Testing Location	1F, No.8, Alley 15, Lane 120, Sec .1, NeiHu Road NeiHu District Taipei City 114, Taiwan

1.2 Details of Applicant

Company Name	Motorola Mobility Inc.
Company Address	9 F., No.9, Songgao Rd., Taipei 110, Taiwan, R.O.C.
Contact Person	Charlene Tsai
Telephone	+886-2-8726-2815
Fax	+886-2-8788-3008
E-mail	xwfv76@motorola.com

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1.3 Description of EUT

Product Name	Silver Smart		
Marketing Name	MOTOSMART Me		
Brand Name	Motorola		
Type Name	M0D4C		
Model No.	XT303 (GPPD:3404)		
IMEI Code	352214050044123		
FCC ID	IHDT56NX1		
Mode of Operation	☒ GSM ☒ GPRS ☒ WCDMA ☒ HSDPA ☒ HSUPA ☒ WLAN802.11 b/g/n(☒ 20M) band		
Definition	Production unit		
Duty Cycle	GSM	1/8.3	
	GPRS	1/4.1	
	WCDMA	1	
	WLAN 802.11 b/g/n(20M)	1	
TX Frequency Range (MHz)	GSM850	824.2	848.8
	GSM1900	1850.2	1909.8
	WCDMA Band II	1852.4	1907.6
	WCDMA Band V	826.4	846.6
	WLAN 802.11 b/g/n (20M)	2412	2462
Channel Number (ARFCN)	GSM850	128	251
	GSM1900	512	810
	WCDMA Band II	9262	9538
	WCDMA Band V	4132	4233
	WLAN 802.11 b/g/ n(20M)	1	11

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Max. SAR Measured(1 g) (Unit: mW/g)	Head	GSM850	1.1	☐ Left ☒ Cheek 251 Channel	☒ Right ☐ Tilt
		GSM1900	1.16	☒ Left ☒ Cheek 810 Channel	☐ Right ☐ Tilt
		WCDMA Band II	1.47	☒ Left ☒ Cheek 9538 Channel	☐ Right ☐ Tilt
		WCDMA Band V	0.88	☐ Left ☒ Cheek 4233 Channel	☒ Right ☐ Tilt
		WLAN802.11 b	0.32	☐ Left ☒ Cheek 11 Channel	☒ Right ☐ Tilt
Max. SAR Measured(1 g) (Unit: mW/g)	Hotspot mode	GSM850	1.42	☐ Front ☐ Bottom ☐ Left 128 Channel	☒ Back ☐ Right
		GSM1900	1.09	☐ Front ☐ Bottom ☐ Left 810 Channel	☒ Back ☐ Right
		WCDMA Band II	0.93	☐ Front ☐ Bottom ☐ Left 9538 Channel	☒ Back ☐ Right
		WCDMA Band V	1.29	☐ Front ☐ Bottom ☐ Left 4183/4233 Channel	☒ Back ☐ Right
		WLAN802.11 b	0.11	☒ Front ☐ Top ☐ Left 11 Channel	☐ Back ☐ Right

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#. GSM/GPRS conducted power table:

EUT mode	Frequency (MHz)	CH	Burst average power	Source-based time average power
			Avg.(dBm)	Avg.(dBm)
GSM 850	824.2	128	33.10	24.07
	836.6	190	33.10	24.07
	848.8	251	33.20	24.17
The division factor compared to the number of TX time slot				
Division factor			1 TX time slot	
			-9.03	

Burst average power				
EUT mode	Frequency (MHz)	CH	1Dn1UP	1Dn2UP
			Avg. (dBm)	Avg. (dBm)
GPRS 850	824.2	128	33.06	31.57
	836.6	190	33.14	30.49
	848.8	251	33.14	29.40
The division factor compared to the number of TX time slot				
			1 TX time slot	2 TX time slot
Division factor			-9.03	-6.02
Source-based time average power				
EUT mode	Frequency (MHz)	CH	1Dn1UP	1Dn2UP
			Avg. (dBm)	Avg. (dBm)
GPRS 850	824.2	128	24.03	25.55
	836.6	190	24.11	24.47
	848.8	251	24.11	23.38

EUT mode	Frequency (MHz)	CH	Burst average power	Source-based time average power
			Avg.(dBm)	Avg.(dBm)
GSM 1900	1850.2	512	29.80	20.77
	1880	661	29.80	20.77
	1909.8	810	29.90	20.87
The division factor compared to the number of TX time slot				
Division factor			1 TX time slot	
			-9.03	

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EUT mode	Frequency (MHz)	CH	Burst average power	
			1Dn1UP	1Dn2UP
			Avg.	Avg.
GPRS 1900	1850.2	512	29.80	28.60
	1880	661	30.00	28.70
	1909.8	810	29.90	28.80
Source-based time average power				
GPRS 1900	1850.2	512	20.77	22.58
	1880	661	20.97	22.68
	1909.8	810	20.87	22.78
The division factor compared to the number of TX time slot				
Division factor		1 TX time slot		2 TX time slot
		-9.03		-6.02

#. WCDMA Band II & V / HSDPA / HSUPA conducted power table:

Band	Channel	Rel99 AV(dBm)
WCDMA Band II	9262	22.57
	9400	22.55
	9538	22.60
WCDMA Band V	4132	23.57
	4183	23.52
	4233	23.48

Band	Channel	HSDPA mode AV(dBm)				HSDPA mode AV(dBm)				
		1	2	3	4	1	2	3	4	5
WCDMA Band II	9262	22.74	22.45	22.26	22.33	22.49	20.54	21.55	20.67	22.38
	9400	22.44	22.41	21.99	22	22.53	20.6	21.55	20.65	22.39
	9538	22.46	22.45	21.93	22.05	22.54	20.58	21.62	20.62	22.45
WCDMA Band V	4132	23.36	23.5	22.9	22.95	23.53	21.59	22.57	21.64	23.39
	4183	23.38	23.41	22.9	22.94	23.45	21.53	22.51	21.59	23.28
	4233	23.6	23.35	23.11	23.17	23.4	21.44	22.48	21.52	23.29

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#. WLAN802.11 b/g/n (20M) conducted power table:

WLAN802.11 b		Average Power Output (dBm)			
CH	Frequency (MHz)	Data Rate (Mbps)			
		1	2	5.5	11
1	2412	16.07	15.95	15.88	15.78
6	2437	16.34	16.22	16.18	16.1
11	2462	16.01	15.92	15.88	15.8

WLAN802.11 g		Average Power Output (dBm)							
CH	Frequency (MHz)	Data Rate (Mbps)							
		6	9	12	18	24	36	48	54
1	2412	13.5	13.44	13.37	13.33	13.28	13.22	13.11	13.02
6	2437	13.1	13.01	12.88	12.82	12.76	12.71	12.64	12.55
11	2462	12.34	11.95	11.9	11.81	11.77	11.67	11.55	11.51

WLAN802.11 n (20M)		Average Power Output (dBm)							
CH	Frequency (MHz)	Data Rate (Mbps)							
		6.5	13	19.5	26	39	52	58.5	65
1	2412	12.10	12.02	11.89	11.80	11.75	11.71	11.62	11.55
6	2437	12.61	12.55	12.51	12.42	12.38	12.31	12.22	12.12
11	2462	12.30	12.24	12.20	12.12	12.05	12.00	11.93	11.85

#. Bluetooth conducted power table:

Channel	Peak Power (dBm)	
	BDR	EDR
2402	6.81	6.39
2441	6.99	6.48
2480	7.23	6.7

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1.4 Test Environment

Ambient Temperature : $22 \pm 2^{\circ} \text{C}$

Tissue Simulating Liquid: $22 \pm 2^{\circ} \text{C}$

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1.5 Operation Description

General:

1. The EUT is controlled by using a Radio Communication Tester (Agilent E5515C), 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. 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.
4. Testing Head SAR at lowest, middle and highest channel for all bands with LET/LEC/RET/REC conditions.
5. Testing body-worn SAR by separating **10mm**.

#. The SAR testing for portable devices with wireless router capability is referred as test guidance of **KDB 941225 D06** (SAR Evaluation Procedures for Portable Devices with Wireless Router Capabilities).

#. The following procedures are applicable when the overall device length and width are $\geq 9 \text{ cm} \times 5 \text{ cm}$ respectively. A test separation of 10 mm is required. SAR must be measured for all sides and surfaces with a transmitting antenna located within 25 mm from that surface or edge, for the data modes, wireless technologies and frequency bands supporting hotspot mode.

Test configurations:

- (1) Front side
- (2) Back side
- (3) Top side. (WWAN antenna to edge distance $> 25\text{mm}$ _No SAR)
- (4) Bottom side. (WLAN antenna to edge distance $> 25\text{mm}$ _No SAR)
- (5) Right side. (WLAN antenna to edge distance $> 25\text{mm}$ _No SAR)
- (6) Left side.

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SAR evaluation considerations for handsets with multiple transmitters:

6. When the maximum transmitter and antenna output power are $\leq 60/f(\text{GHz})$ (mW) SAR evaluation is typically not required for FCC or TCB approval
(BT power=7.23dBm)
7. According to **KDB248227**-SAR is not required for 802.11 g/HT20/HT40 channels when the maximum average output power is less than 1/4 dB higher than that measured on the corresponding 802.11b channels.
8. Using **KDB941225 D01** to exclude SAR test requirements for HSPA modes due to the maximum average output power of HSPA active is less than 1/4 dB higher than that measured without HSPA using 12.2kbps RMC
9. For Head (LEC), The highest 1-g SAR for WLAN is 0.18 W/kg and the highest 1-g SAR for WWAN is 1.47 W/kg. The sum of 1-g for simultaneous transmitting WLAN and WWAN antenna pair is $0.18 + 1.47 = 1.65$ W/kg. , **which higher than the limit 1.6W/kg**. By the way, the peak distance (hotspot to hotspot) for WLAN and WWAN antenna is 7.90 cm , we calculate the peak location separation ratio of simultaneous transmitting antenna pair , the value is **0.21** with less than 0.3. **NO simultaneous transmission SAR evaluation is necessary.**

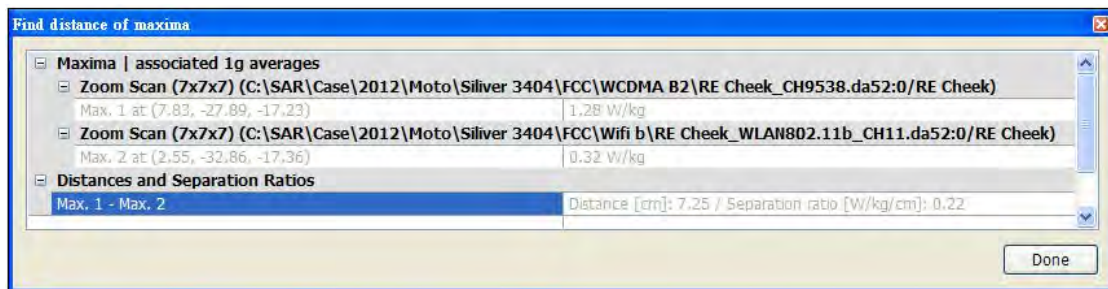
Find distance of maxima	
Maxima associated 1g averages	
Zoom Scan (7x7x7) (C:\SAR\Case\2012\Moto\Silver 3404\FCC\WCDMA B2\LE Cheek_CH9538.da52:0\LE Cheek)	
Max. 1 at (6.83, 25.24, -17.34)	1.47 W/kg
Zoom Scan (7x7x7) (C:\SAR\Case\2012\Moto\Silver 3404\FCC\Wifi b\LE Cheek_WLAN802.11b_CH6.da52:0\LE Cheek)	
Max. 2 at (1.52, 31.09, -17.26)	0.18 W/kg
Distances and Separation Ratios	
Max. 1 - Max. 2	Distance [cm]: 7.90 / Separation ratio [W/kg/cm]: 0.21

10. For Head (REC), The highest 1-g SAR for WLAN is 0.32 W/kg and the highest 1-g SAR for WWAN is 1.28 W/kg. The sum of 1-g for simultaneous transmitting WLAN and WWAN antenna pair is $0.32 + 1.28 = 1.60$ W/kg. , **which higher than the limit 1.6W/kg**. By the way, the peak distance (hotspot to hotspot) for WLAN and WWAN antenna is 7.25 cm , we calculate the peak location separation ratio of simultaneous transmitting antenna pair , the value is **0.22** with less than 0.3. **NO simultaneous transmission SAR evaluation is necessary.**

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11. For Body, The highest 1-g SAR for WLAN is 0.11 W/kg and the highest 1-g SAR for WWAN is 1.42W/kg. The sum of 1-g for simultaneous transmitting WLAN and WWAN antenna pair is $0.11 + 1.42 = 1.53$ W/kg.
12. According KDB941225 D03 and KDB941225 D04 to exclude SAR test requirements for EDGE modes due to the source-based time-averaged output power for edge mode is lower than that in the GPRS mode.

Additional configuration(Head):

13. For highest SAR configuration in this band repeated with external Memory card inside.

Additional configuration(Body):

14. For highest SAR configuration in this band repeated with external Memory card inside.
15. For highest SAR configuration in this band repeated with Headset.

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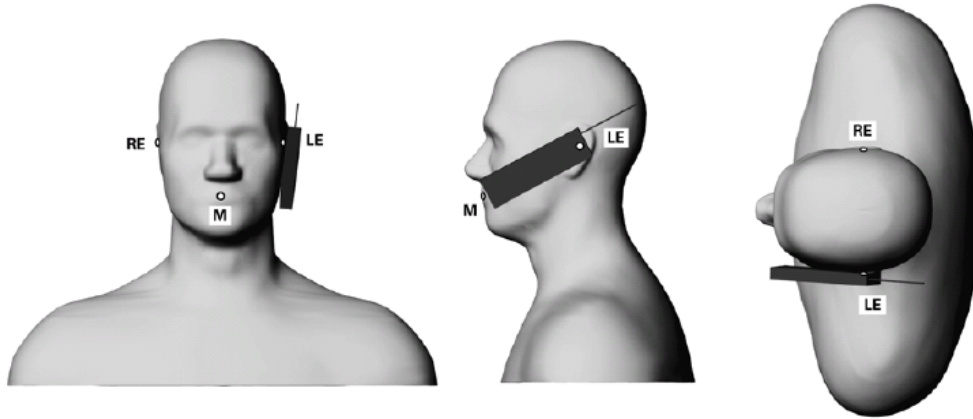
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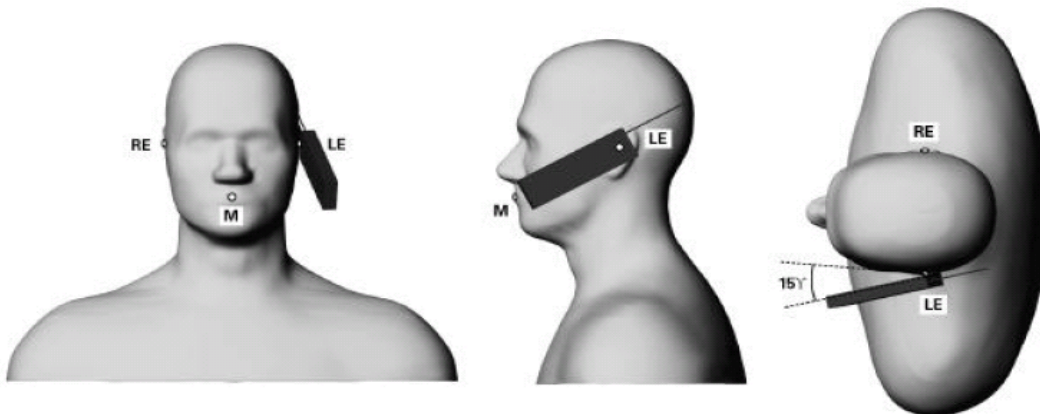
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1.6 Positioning Procedure



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

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

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1.8 Probe Calibration Procedures

For the calibration of E-field probes in lossy liquids, an electric field with an accurately known field strength must be produced within the measured liquid. For standardization purposes it would be desirable if all measurements which are necessary to assess the correct field strength would be traceable to standardized measurement procedures. In the following two different calibration techniques are summarized:

1.8.1 Transfer Calibration with Temperature Probes

In lossy liquids the specific absorption rate (SAR) is related both to the electric field (E) and the temperature gradient ($\delta T / \delta t$) in the liquid.

$$SAR = \frac{\sigma}{\rho} |E|^2 = c \frac{\delta T}{\delta t}$$

whereby σ is the conductivity, ρ the density and c the heat capacity of the liquid.

Hence, the electric field in lossy liquid can be measured indirectly by measuring the temperature gradient in the liquid. Non-disturbing temperature probes (optical probes or thermistor probes with resistive lines) with high spatial resolution ($<1-2$ mm) and fast reaction time (<1 s) are available and can be easily calibrated with high precision [1]. The setup and the exciting source have no influence on the calibration; only the relative positioning uncertainties of the standard temperature probe and the E-field probe to be calibrated must be considered. However, several problems limit the available accuracy of probe calibrations with temperature probes:

- The temperature gradient is not directly measurable but must be evaluated from temperature measurements at different time steps. Special precaution is necessary to avoid measurement errors caused by temperature gradients due to energy equalizing effects or convection currents in the liquid. Such effects cannot be completely avoided, as the measured field itself destroys the thermal equilibrium in the liquid.

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With a careful setup these errors can be kept small.

- The measured volume around the temperature probe is not well defined. It is difficult to calculate the energy transfer from a surrounding gradient temperature field into the probe. These effects must be considered, since temperature probes are calibrated in liquid with homogeneous temperatures. There is no traceable standard for temperature rise measurements.
- The calibration depends on the assessment of the specific density, the heat capacity and the conductivity of the medium. While the specific density and heat capacity can be measured accurately with standardized procedures ($\sim 2\%$ for c ; much better for ρ), there is no standard for the measurement of the conductivity. Depending on the method and liquid, the error can well exceed $\pm 5\%$.
- Temperature rise measurements are not very sensitive and therefore are often performed at a higher power level than the E-field measurements. The nonlinearities in the system (e.g., power measurements, different components, etc.) must be considered.

Considering these problems, the possible accuracy of the calibration of E-field probes with temperature gradient measurements in a carefully designed setup is about $\pm 10\%$ (RSS) [2]. Recently, a setup which is a combination of the waveguide techniques and the thermal measurements was presented in [3]. The estimated uncertainty of the setup is $\pm 5\%$ (RSS) when the same liquid is used for the calibration and for actual measurements and $\pm 7-9\%$ (RSS) when not, which is in good agreement with the estimates given in [2].

1.8.2 Calibration with Analytical Fields

In this method a technical setup is used in which the field can be calculated analytically from measurements of other physical magnitudes (e.g., input power). This corresponds to the standard field method for probe calibration in air; however, there is no standard defined for fields in lossy liquids.

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When using calculated fields in lossy liquids for probe calibration, several points must be considered in the assessment of the uncertainty:

- The setup must enable accurate determination of the incident power.
- The accuracy of the calculated field strength will depend on the assessment of the dielectric parameters of the liquid.
- Due to the small wavelength in liquids with high permittivity, even small setups might be above the resonant cutoff frequencies. The field distribution in the setup must be carefully checked for conformity with the theoretical field distribution.

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- [1] N. Kuster, Q. Balzano, and J.C. Lin, Eds., *Mobile Communications Safety*, Chapman & Hall, London, 1997.
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1.9 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 EX3DV4 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 σ and ρ are the conductivity and mass density of the tissue-simulant.

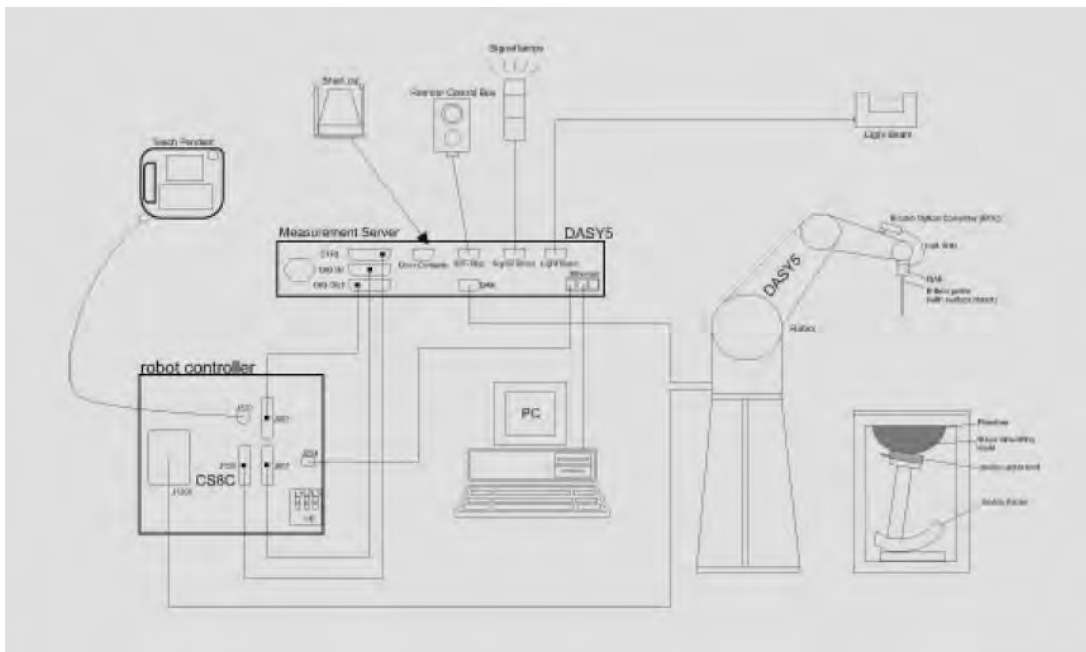


Fig.a The block diagram of SAR system

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.

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- 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 positioning.
- A computer operating 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.

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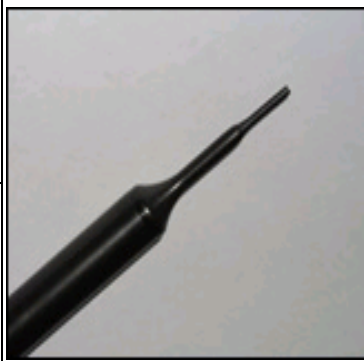
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1.10 System Components

EX3DV4 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)	 EX3DV4 E-Field Probe
Calibration	Basic Broad Band Calibration in air Conversion Factors (CF) for HSL835/1900/2450MHz Additional CF for other liquids and frequencies upon request	
Frequency	10 MHz to > 6 GHz; Linearity: ± 0.6 dB (30 MHz to 4 GHz)	
Directivity	± 0.3 dB in HSL (rotation around probe axis) ± 0.5 dB in tissue material (rotation normal to probe axis)	
Dynamic Range	10 µW/g to > 100 mW/g; Linearity: ± 0.2 dB (noise: typically < 1 µW/g)	
Dimensions	Overall length: 337 mm (Tip: 20 mm) Tip diameter: 2.5 mm (Body: 12 mm) Typical distance from probe tip to dipole centers: 1 mm	
Application	High precision dosimetric measurements in any exposure scenario (e.g., very strong gradient fields). Only probe which enables compliance testing for frequencies up to 6 GHz with precision of better 30%.	

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SAM PHANTOM V4.0C

Construction:	The shell corresponds to the specifications of the Specific Anthropomorphic Mannequin (SAM) phantom defined in IEEE 1528-200X, CENELEC 50361 and IEC 62209. It enables the dosimetric evaluation of left and right hand phone usage as well as body mounted usage at the flat phantom region. A cover prevents evaporation of the liquid. Reference markings on the phantom allow the complete setup of all predefined phantom positions and measurement grids by manually teaching three points with the robot.	
Shell Thickness:	2 ± 0.2 mm	
Filling Volume:	Approx. 25 liters	
Dimensions:	Height: 810 mm; Length: 1000 mm; Width: 500 mm	

DEVICE HOLDER

Construction	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).	 Device Holder
--------------	--	--

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1.11 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 $\pm 5\%$ from the target SAR values.

These tests were done at 835/1900/2450 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.

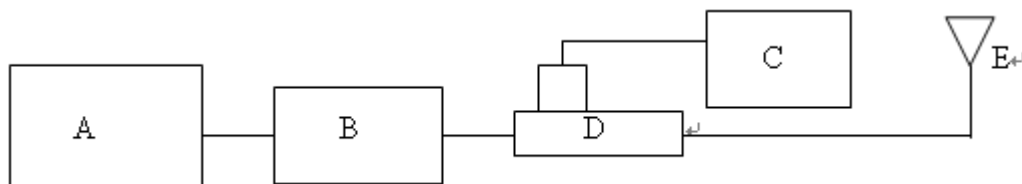
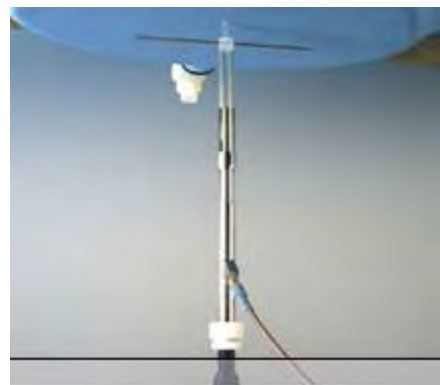


Fig.b The block diagram of system verification

- A. Signal Generator
- B. Amplifier
- C. Power Meter
- D. Dual directional Coupling
- E. Reference dipole antenna



Photograph of the dipole Antenna

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Validation Kit	S/N	Frequency (MHz)		Target SAR (1g) (Pin=250mW) (mW/g)	Measured SAR (1g)(mW/g)	Measured Date
D835V2	4d063	835	Head	2.36	2.47	Jun. 13, 2012
			Body	2.46	2.48	
D1900V2	5d027	1900	Head	9.43	9.43	Jun. 14, 2012
			Body	10	10.2	
D2450V2	727	2450	Head	12.8	13.4	Jun. 18, 2012
			Body	12.7	13.3	

Table 1. System validation (follow manufacture target value)

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1.12 Tissue Simulant Fluid for the Frequency Band

The dielectric properties for this Head-simulant fluid were measured by using the Agilent Model 85070D Dielectric Probe (rates frequency band 200 MHz to 20 GHz) in conjunction with HP E5071C/8753D Network Analyzer (30 KHz-6000MHz).

All dielectric parameters of tissue simulates were measured within 24 hours of SAR measurements. The depth of the tissue □imulant iin the flat section of the phantom was 15cm±5mm during all tests. (Appendix Fig .2)

Frequency (MHz)	Tissue type	Dielectric Parameters	Recommended Limits	Measured	Measurement date
835	Head	ρ	38.57-42.63	41.299	Jun. 13, 2012
		σ (S/m)	0.85-0.93	0.891	
		Test CH (L)_GSM	38.57-42.63	41.438	
			0.85-0.93	0.883	
		Test CH (M)_GSM	38.57-42.63	41.276	
			0.85-0.93	0.893	
		Test CH (H)_GSM	38.57-42.63	41.129	
			0.85-0.93	0.903	
		Test CH (L)_WCDMA	38.57-42.63	41.409	
			0.85-0.93	0.884	
		Test CH (M)_ WCDMA	38.57-42.63	41.276	
			0.85-0.93	0.893	
		Test CH (H)_ WCDMA	38.57-42.63	41.152	
			0.85-0.93	0.901	
		Simulated Tissue Temp.(°C)	20-24	21.7	

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835	Body	P	51.59-57.02	53.741	Jun. 13, 2012
		σ (S/m)	0.95-1.05	1.03	
		Test CH (L)_GSM	51.59-57.02	53.837	
			0.95-1.05	1.02	
		Test CH (M)_GSM	51.59-57.02	53.718	
			0.95-1.05	1.032	
		Test CH (H)_GSM	51.59-57.02	53.536	
			0.95-1.05	1.041	
		Test CH (L)_WCDMA	51.59-57.02	53.817	
			0.95-1.05	1.022	
		Test CH (M)_ WCDMA	51.59-57.02	53.718	
			0.95-1.05	1.032	
		Test CH (H)_ WCDMA	51.59-57.02	53.566	
			0.95-1.05	1.039	
		Simulated Tissue Temp.(°C)	20-24	21.7	
1900	Head	ρ	38.76-42.84	40.222	Jun. 14, 2012
		σ (S/m)	1.30-1.44	1.4	
		Test CH (L)_GSM	38.76-42.84	40.508	
			1.30-1.44	1.342	
		Test CH (M)_GSM	38.76-42.84	40.211	
			1.30-1.44	1.368	
		Test CH (H)_GSM	38.76-42.84	40.294	
			1.30-1.44	1.415	
		Test CH (L)_WCDMA	38.76-42.84	40.483	
			1.30-1.44	1.342	
		Test CH (M)_ WCDMA	38.76-42.84	40.211	
			1.30-1.44	1.368	
		Test CH (H)_ WCDMA	38.76-42.84	40.278	
			1.30-1.44	1.413	
		Simulated Tissue Temp.(°C)	20-24	21.7	

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1900	Body	ρ	50.64-55.97	51.059	Jun. 14, 2012
		σ (S/m)	1.43-1.59	1.532	
		Test CH (L)_GSM	50.64-55.97	51.208	
			1.43-1.59	1.442	
		Test CH (M)_GSM	50.64-55.97	50.811	
			1.43-1.59	1.486	
		Test CH (H)_GSM	50.64-55.97	51.235	
			1.43-1.59	1.551	
		Test CH (L)_WCDMA	50.64-55.97	51.152	
			1.43-1.59	1.443	
		Test CH (M)_WCDMA	50.64-55.97	50.811	
			1.43-1.59	1.486	
2450	Head	Test CH (H)_WCDMA	50.64-55.97	51.204	Jun. 18, 2012
			1.43-1.59	1.548	
		Simulated Tissue Temp.(°C)	20-24	21.7	
		ρ	37.62-41.58	39.267	
		σ (S/m)	1.72-1.90	1.822	
		Test CH (L)_WLAN	37.62-41.58	39.475	
			1.72-1.90	1.79	
		Test CH (M)_WLAN	37.62-41.58	39.357	
			1.72-1.90	1.81	
		Test CH (H)_WLAN	37.62-41.58	39.183	
			1.72-1.90	1.837	
		Simulated Tissue Temp.(°C)	20-24	21.7	

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2450	Body	ρ	49.78-55.02	50.192	Jun. 18, 2012
		σ (S/m)	1.88-2.08	2.033	
		Test CH (L)_WLAN	49.78-55.02	50.413	
			1.88-2.08	1.966	
		Test CH (M)_WLAN	49.78-55.02	50.264	
			1.88-2.08	2.004	
		Test CH (H)_WLAN	49.78-55.02	50.147	
			1.88-2.08	2.057	
Simulated Tissue Temp.(°C)		20-24	21.7		

Table 2. Dielectric Parameters of Tissue Simulant Fluid

The composition of the tissue simulating liquid:

Frequency (MHz)	Mode	Ingredient						Total amount
		DGMBE	Water	Salt	Preventol D-7	Cellulose	Sugar	
850	Head	—	532.98 g	18.3 g	2.4 g	3.2 g	766.0 g	1.0L(Kg)
	Body	—	631.68 g	11.72 g	1.2 g	X	600.0 g	1.0L(Kg)
1900	Head	444.52 g	552.42 g	3.06 g	—	—	—	1.0L(Kg)
	Body	300.67 g	716.56 g	4.0 g	—	—	—	1.0L(Kg)
2450	Head	550ml	450ml	—	—	—	—	1.0L(Kg)
	Body	301.7ml	698.3ml	—	—	—	—	1.0L(Kg)

Table 3. Recipes for tissue simulating liquid (Unit: g)

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1.13 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

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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 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

GSM 850 MHz

Band	Mode	EUT Position	Test Configuration	Averaged SAR over 1g / 10g (W/kg)			SAR Limit 1g (W/kg)
				CH 128	CH 190	CH 251	
				824.20 MHz	836.60 MHz	848.80 MHz	
GSM 850	GSM	Right	Cheek	0.869 / 0.644	0.91 / 0.676	1.1 / 0.813	1.6
			Tilt	—	0.598 / 0.443	—	1.6
		Left	Cheek	0.804 / 0.577	0.93 / 0.67	0.924 / 0.649	1.6
			Tilt	—	0.544 / 0.398	—	1.6
	GPRS	Hotspot mode	Front	0.916 / 0.66	0.974 / 0.708	0.86 / 0.62	1.6
			Back	1.42 / 0.996	1.28 / 0.901	1.03 / 0.736	1.6
			-with Memory card	1.32 / 0.944	—	—	1.6
			-with Bluetooth	1.41 / 1.02	—	—	1.6
			-with Headset	0.943 / 0.612	—	—	1.6
			Bottom	—	0.083 / 0.051	—	1.6
			Right	—	0.762 / 0.535	—	1.6
			Left	—	0.632 / 0.43	—	1.6

- # According KDB941225 D03 and KDB941225 D04 to exclude SAR test requirements for EDGE modes due to the source-based time-averaged output power for edge mode is lower than that in the GPRS mode.
- # According to KDB447498 the 1-g SAR for the highest output channel is less than 0.8 W/kg, where the transmission band corresponding to all channels is ≤ 100 MHz, testing for the other channels is not required.

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GSM 1900 MHz

Band	Mode	EUT Position	Test Configuration	Averaged SAR over 1g / 10g (W/kg)			SAR Limit 1g (W/kg)
				CH 512	CH 661	CH 810	
				1850.20 MHz	1800.00 MHz	1909.80 MHz	
GSM 1900	GSM	Right	Cheek	0.95 / 0.569	0.958 / 0.574	1.03 / 0.61	1.6
			Tilt	—	0.265 / 0.161	—	1.6
		Left	Cheek	1.01 / 0.561	1.13 / 0.625	1.16 / 0.639	1.6
			Tilt	—	0.22 / 0.143	—	1.6
	GPRS	Hotspot	Front	—	0.76 / 0.456	—	1.6
			Back	0.939 / 0.552	0.985 / 0.583	1.09 / 0.65	1.6
			Bottom	—	0.782 / 0.43	—	1.6
			Right	—	0.209 / 0.125	—	1.6
			Left	—	0.391 / 0.22	—	1.6

- # KDB941225 D03 and KDB941225 D04 to exclude SAR test requirements for EDGE modes due to the source-based time-averaged output power for edge mode is lower than that in the GPRS mode.
- # According to KDB447498 the 1-g SAR for the highest output channel is less than 0.8 W/kg, where the transmission band corresponding to all channels is ≤ 100 MHz, testing for the other channels is not required.

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WCDMA Band II

Band	Mode	EUT Position	Test Configuration	Averaged SAR over 1g / 10g (W/kg)			SAR Limit 1g (W/kg)
				CH 9262	CH 9400	CH 9538	
				1852.40 MHz	1880.00 MHz	1907.60 MHz	
WCDMA Band II	R99	Right	Cheek	1.21 / 0.725	1.25 / 0.745	1.28 / 0.754	1.6
			Tilt	—	0.319 / 0.193	—	1.6
		Left	Cheek	1.3 / 0.715	1.39 / 0.765	1.47 / 0.798	1.6
			- with Memory card	—	—	1.38 / 0.759	1.6
			Tilt	—	0.263 / 0.171	—	1.6
	Hotspot mode		Front	—	0.79 / 0.463	—	1.6
			Back	0.813 / 0.477	0.81 / 0.441	0.93 / 0.54	1.6
			Bottom	—	0.519 / 0.282	—	1.6
			Right	—	0.18 / 0.108	—	1.6
			Left	—	0.341 / 0.19	—	1.6

- # Using KDB941225 D01 to exclude SAR test requirements for HSPA modes due to the maximum average output power of HSPA active is less than 1/4 dB higher than that measured without HSPA using 12.2kbps RMC
- # According to KDB447498 the 1-g SAR for the highest output channel is less than 0.8 W/kg, where the transmission band corresponding to all channels is ≤ 100 MHz, testing for the other channels is not required.

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WCDMA Band V

Band	Mode	EUT Position	Test Configuration	Averaged SAR over 1g / 10g (W/kg)			SAR Limit 1g (W/kg)
				CH 4132	CH 4183	CH 4233	
				826.40 MHz	836.60 MHz	846.60 MHz	
WCDMA Band V	R99	Right	Cheek	0.581 / 0.429	0.74 / 0.546	0.88 / 0.645	1.6
			Tilt	—	0.413 / 0.305	—	1.6
		Left	Cheek	—	0.617 / 0.44	—	1.6
			Tilt	—	0.366 / 0.27	—	1.6
	Hotspot mode		Front	0.668 / 0.481	0.976 / 0.704	0.987 / 0.712	1.6
			Back	0.992 / 0.69	1.29 / 0.894	1.29 / 0.892	1.6
			Bottom	—	0.096 / 0.056	—	1.6
			Right	—	0.761 / 0.525	—	1.6
			Left	—	0.553 / 0.375	—	1.6

- # Using KDB941225 D01 to exclude SAR test requirements for HSPA modes due to the maximum average output power of HSPA active is less than 1/4 dB higher than that measured without HSPA using 12.2kbps RMC
- # According to KDB447498 the 1-g SAR for the highest output channel is less than 0.8 W/kg, where the transmission band corresponding to all channels is ≤ 100 MHz, testing for the other channels is not required.

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WLAN802.11 b

Band	EUT Position	Test Configuration	Averaged SAR over 1g / 10g (W/kg)			SAR Limit 1g (W/kg)
			CH 1	CH 6	CH 11	
			2412 MHz	2437 MHz	2462 MHz	
WLAN 802.11 b	Right	Cheek	0.211 / 0.097	0.292 / 0.138	0.32 / 0.145	1.6
		- with Memory card	—	—	0.303 / 0.142	1.6
		- with Bluetooth	—	—	0.308 / 0.141	1.6
		Tilt	—	0.184 / 0.09	—	1.6
	Left	Cheek	—	0.185 / 0.101	—	1.6
		Tilt	—	0.154 / 0.078	—	1.6
	Hotspot	Front	0.062 / 0.035	0.082 / 0.047	0.112 / 0.064	1.6
		- with Memory card	—	—	0.098 / 0.055	1.6
		- with Bluetooth	—	—	0.109 / 0.062	1.6
		- with Headset	—	—	0.11 / 0.064	1.6
		Back	—	0.069 / 0.037	—	1.6
		Top	—	0.064 / 0.034	—	1.6
		Left	—	0.063 / 0.03	—	1.6

- # Using KDB248227-SAR is not required for 802.11 g/HT20 channels when the maximum average output power is less than 1/4 dB higher than that measured on the corresponding 802.11b channels.
- # According to KDB447498 the 1-g SAR for the highest output channel is less than 0.8 W/kg, where the transmission band corresponding to all channels is ≤ 100 MHz, testing for the other channels is not required.

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3. Instruments List

Device	Manufacturer	Type	Serial number	Date of last calibration	Date of last calibration
Dosimetric E-Field Probe	Schmid & Partner Engineering AG	EX3DV4	3770	Apr.27.2012	Apr.26.2013
835/1900/2450 MHz System Validation Dipole	Schmid & Partner Engineering AG	D835V2 D1900V2 D2450V2	4d063 5d027 727	May 25.2012 Apr.26.2012 Apr.25.2012	May 24.2013 Apr.25.2013 Apr.24.2013
Data acquisition Electronics	Schmid & Partner Engineering AG	DAE4	856	May 30.2012	May 29.2013
Software	Schmid & Partner Engineering AG	Dasy 52 V52.8.1	N/A	Calibration not required	Calibration not required
Phantom	Schmid & Partner Engineering AG	SAM	N/A	Calibration not required	Calibration not required
Network Analyzer	HP	E5071C	MY46108212	Mar.26.2012	Mar.25.2013
Dielectric Probe Kit	HP	85070E	MY44300554	Calibration not required	Calibration not required
Dual-directional coupler	Agilent	772D 778D	MY46151242 MY48220468	Jul.07.2011 Mar.30.2012	Jul.06.2012 Mar.29.2013
RF Signal Generator	Agilent	N5181A	MY50141235	Jan.06.2012	Jan.05.2013
Power meter	Agilent	E4417A	MY51410006	Oct.24.2011	Oct.23.2013
Radio Communication Test	Agilent	E5515C	GB44051912	Jul.26.2010	Jul.25.2012

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4. Measurements

Date: 6/13/2012

RE Cheek_CH128

Communication System: GSM; Frequency: 824.2 MHz

Medium parameters used: $f = 824.2 \text{ MHz}$; $\sigma = 0.883 \text{ mho/m}$; $\epsilon_r = 41.438$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Right Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(9.62, 9.62, 9.62); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/30/2012
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/RE Cheek/Area Scan (71x111x1): Measurement grid:

 $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 1.00 mW/g

Configuration/RE Cheek/Zoom Scan (7x7x7) (7x7x7)/Cube 0:

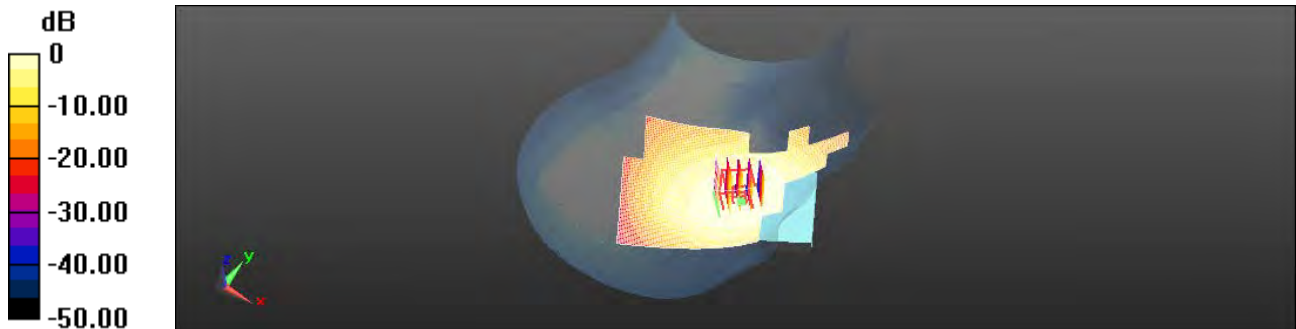
Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 14.915 V/m; Power Drift = 0.06 dB

Peak SAR (extrapolated) = 1.110 mW/g

SAR(1 g) = 0.869 mW/g; SAR(10 g) = 0.644 mW/g

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



0 dB = 1.00 mW/g = 0.00 dB mW/g

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Date: 6/13/2012

RE Cheek_CH190

Communication System: GSM; Frequency: 836.6 MHz

Medium parameters used: $f = 837$ MHz; $\sigma = 0.893$ mho/m; $\epsilon_r = 41.276$; $\rho = 1000$ kg/m³

Phantom section: Right Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(9.62, 9.62, 9.62); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/30/2012
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/RE Cheek/Area Scan (71x111x1): Measurement grid:

$dx=15$ mm, $dy=15$ mm

Maximum value of SAR (interpolated) = 1.06 mW/g

Configuration/RE Cheek/Zoom Scan (7x7x7) (7x7x7)/Cube 0:

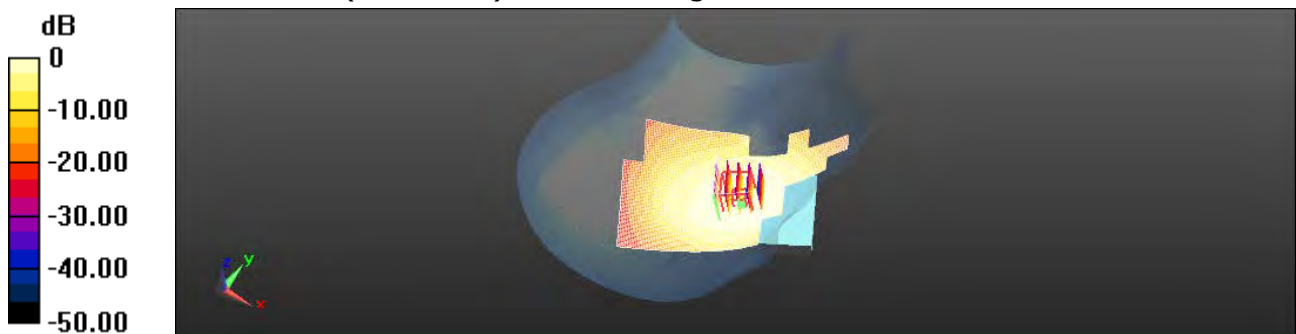
Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 15.352 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 1.164 mW/g

SAR(1 g) = 0.910 mW/g; SAR(10 g) = 0.676 mW/g

Maximum value of SAR (measured) = 1.05 mW/g



0 dB = 1.06 mW/g = 0.49 dB mW/g

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Date: 6/13/2012

RE Cheek_CH251

Communication System: GSM; Frequency: 848.8 MHz

Medium parameters used: $f = 849$ MHz; $\sigma = 0.903$ mho/m; $\epsilon_r = 41.129$; $\rho = 1000$ kg/m³

Phantom section: Right Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(9.62, 9.62, 9.62); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/30/2012
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/RE Cheek/Area Scan (71x111x1): Measurement grid:

$dx=15$ mm, $dy=15$ mm

Maximum value of SAR (interpolated) = 1.27 mW/g

Configuration/RE Cheek/Zoom Scan (7x7x7) (7x7x7)/Cube 0:

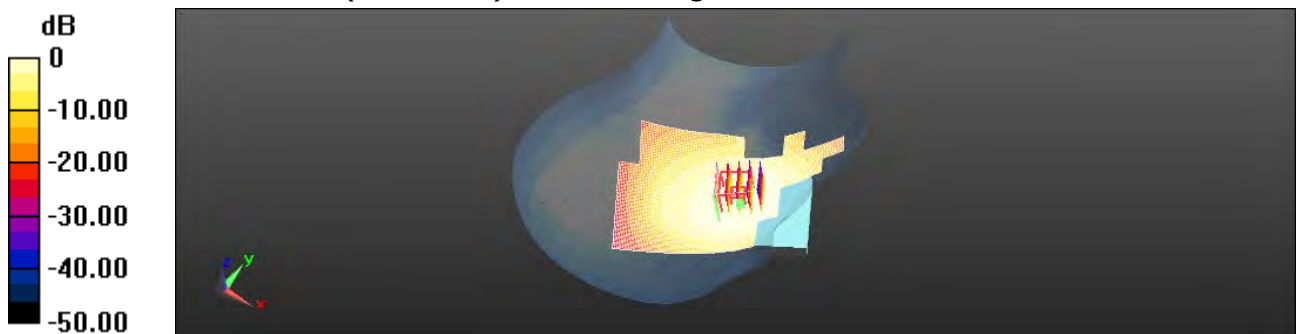
Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 16.050 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 1.384 mW/g

SAR(1 g) = 1.1 mW/g; SAR(10 g) = 0.813 mW/g

Maximum value of SAR (measured) = 1.26 mW/g



0 dB = 1.27 mW/g = 2.05 dB mW/g

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RE Tilt_CH190

Communication System: GSM; Frequency: 836.6 MHz

Medium parameters used: $f = 837 \text{ MHz}$; $\sigma = 0.893 \text{ mho/m}$; $\epsilon_r = 41.276$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Right Section

Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(9.62, 9.62, 9.62); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/30/2012
- Phantom: SAM2; Type: SAM
- Measurement SW: DASYS2, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/RE Cheek/Area Scan (71x111x1): Measurement grid:

$dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.715 mW/g

Configuration/RE Cheek/Zoom Scan (7x7x7) (7x7x7)/Cube 0:

Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 21.105 V/m; Power Drift = -0.06 dB

Peak SAR (extrapolated) = 0.773 mW/g

SAR(1 g) = 0.598 mW/g; SAR(10 g) = 0.443 mW/g

Maximum value of SAR (measured) = 0.697 mW/g

Configuration/RE Cheek/Zoom Scan (7x7x7) (7x7x7)/Cube 1:

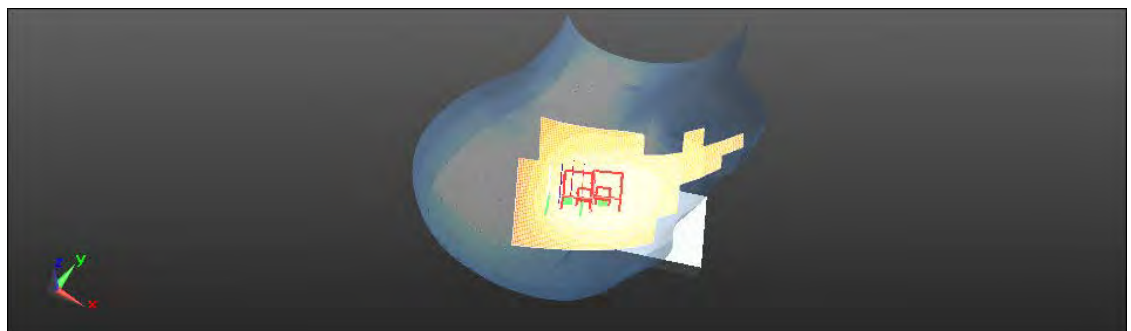
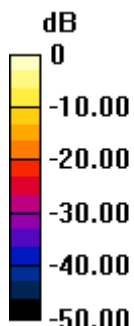
Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 21.105 V/m; Power Drift = -0.06 dB

Peak SAR (extrapolated) = 0.734 mW/g

SAR(1 g) = 0.524 mW/g; SAR(10 g) = 0.347 mW/g

Maximum value of SAR (measured) = 0.657 mW/g



0 dB = 0.715 mW/g = -2.91 dB mW/g

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LE Cheek_CH128

Communication System: GSM; Frequency: 824.2 MHz

Medium parameters used: $f = 824.2 \text{ MHz}$; $\sigma = 0.883 \text{ mho/m}$; $\epsilon_r = 41.438$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(9.62, 9.62, 9.62); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/30/2012
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/LE Cheek/Area Scan (71x111x1): Measurement grid:

$dx=15\text{mm}$, $dy=15\text{mm}$

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

Configuration/LE Cheek/Zoom Scan (7x7x7) (7x7x7)/Cube 0:

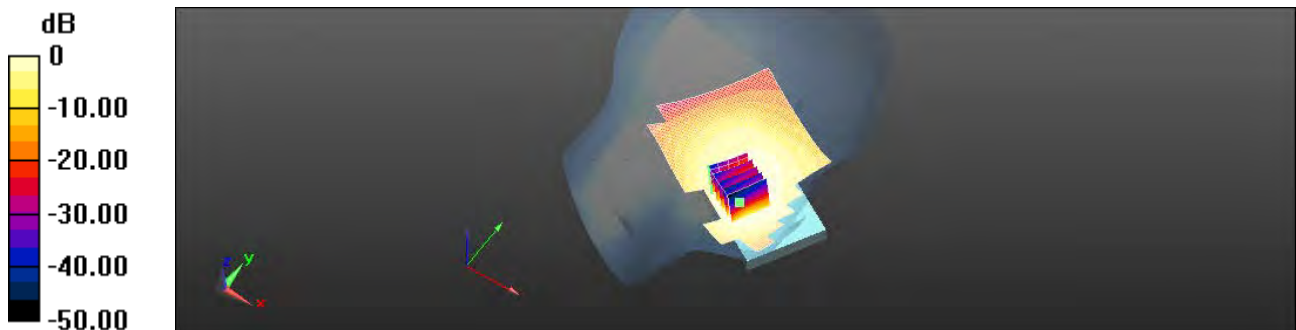
Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 13.841 V/m; Power Drift = -0.14 dB

Peak SAR (extrapolated) = 1.164 mW/g

SAR(1 g) = 0.804 mW/g; SAR(10 g) = 0.577 mW/g

Maximum value of SAR (measured) = 0.979 mW/g



0 dB = 1.01 mW/g = 0.11 dB mW/g

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Member of SGS Group

Date: 6/13/2012

LE Cheek_CH190

Communication System: GSM; Frequency: 836.6 MHz

Medium parameters used: $f = 837$ MHz; $\sigma = 0.893$ mho/m; $\epsilon_r = 41.276$; $\rho = 1000$ kg/m³

Phantom section: Left Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(9.62, 9.62, 9.62); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/30/2012
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/LE Cheek/Area Scan (71x111x1): Measurement grid:

$dx=15$ mm, $dy=15$ mm

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

Configuration/LE Cheek/Zoom Scan (7x7x7) (7x7x7)/Cube 0:

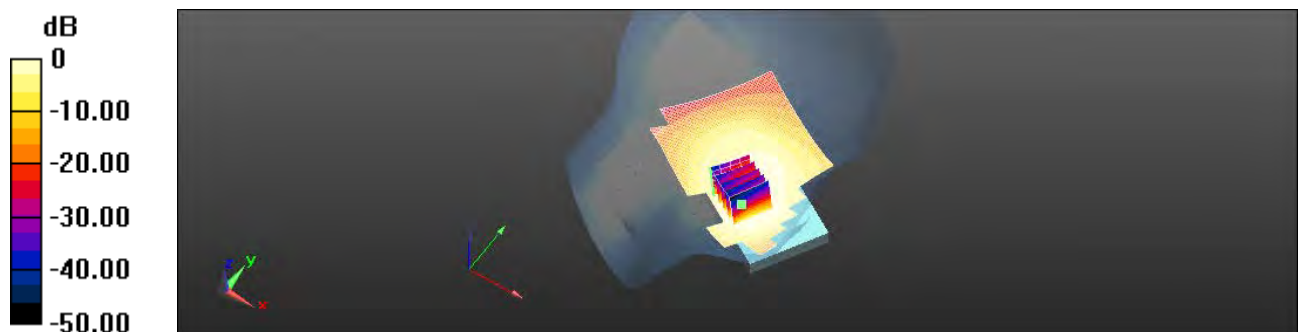
Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 15.060 V/m; Power Drift = -0.11 dB

Peak SAR (extrapolated) = 1.359 mW/g

SAR(1 g) = 0.930 mW/g; SAR(10 g) = 0.670 mW/g

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



0 dB = 1.17 mW/g = 1.37 dB mW/g

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Date: 6/13/2012

LE Cheek_CH251

Communication System: GSM; Frequency: 848.8 MHz

Medium parameters used: $f = 849$ MHz; $\sigma = 0.903$ mho/m; $\epsilon_r = 41.129$; $\rho = 1000$ kg/m³

Phantom section: Left Section

Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(9.62, 9.62, 9.62); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/30/2012
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/LE Cheek/Area Scan (71x111x1): Measurement grid:

$dx=15$ mm, $dy=15$ mm

Maximum value of SAR (interpolated) = 1.15 mW/g

Configuration/LE Cheek/Zoom Scan (7x7x7) (7x7x7)/Cube 0:

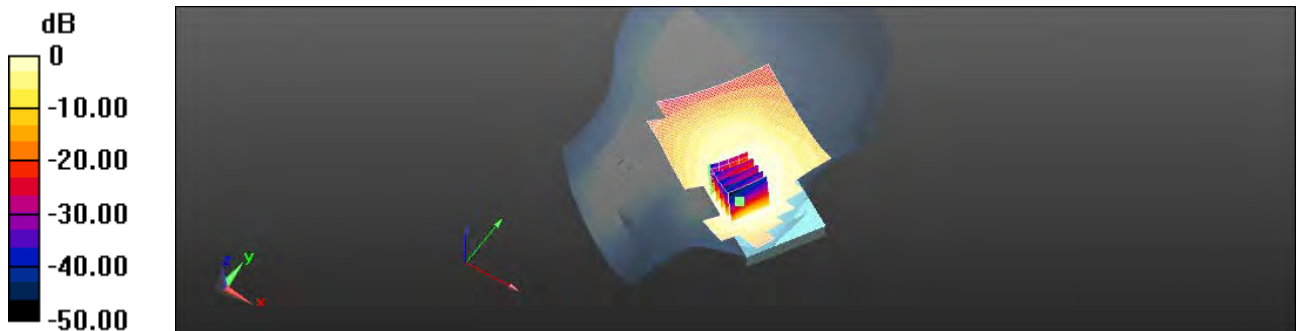
Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 14.635 V/m; Power Drift = -0.03 dB

Peak SAR (extrapolated) = 1.353 mW/g

SAR(1 g) = 0.924 mW/g; SAR(10 g) = 0.649 mW/g

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



0 dB = 1.15 mW/g = 1.20 dB mW/g

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Date: 6/13/2012

LE Tilt_CH190

Communication System: GSM; Frequency: 836.6 MHz

Medium parameters used: $f = 837$ MHz; $\sigma = 0.893$ mho/m; $\epsilon_r = 41.276$; $\rho = 1000$ kg/m³

Phantom section: Left Section

Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(9.62, 9.62, 9.62); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/30/2012
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/LE Cheek/Area Scan (71x111x1): Measurement grid:

$dx=15$ mm, $dy=15$ mm

Maximum value of SAR (interpolated) = 0.642 mW/g

Configuration/LE Cheek/Zoom Scan (7x7x7) (7x7x7)/Cube 0:

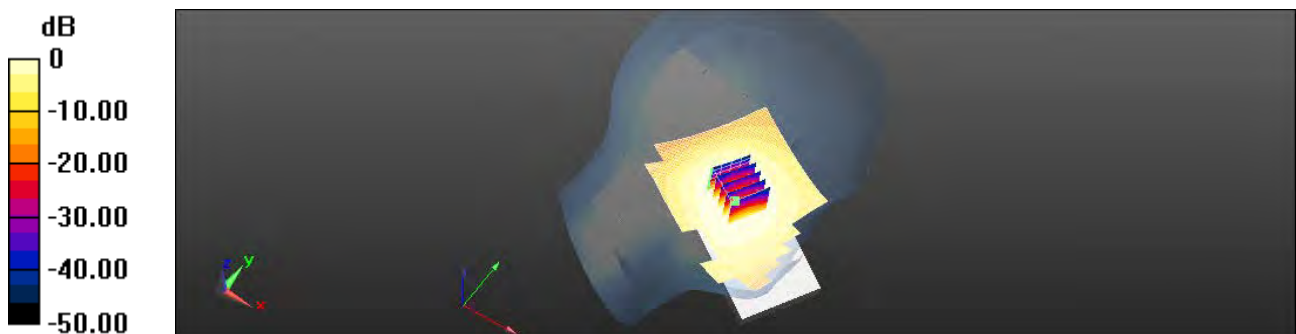
Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 20.805 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 0.717 mW/g

SAR(1 g) = 0.544 mW/g; SAR(10 g) = 0.398 mW/g

Maximum value of SAR (measured) = 0.641 mW/g



0 dB = 0.642 mW/g = -3.86 dB mW/g

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Date: 6/13/2012

Hotspot_Front side_CH128

Communication System: GPRS(Class 10); Frequency: 824.2 MHz

Medium parameters used: $f = 824.2$ MHz; $\sigma = 1.02$ mho/m; $\epsilon_r = 53.837$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(9.6, 9.6, 9.6); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/30/2012
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/Body/Area Scan (71x101x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 1.09 mW/g

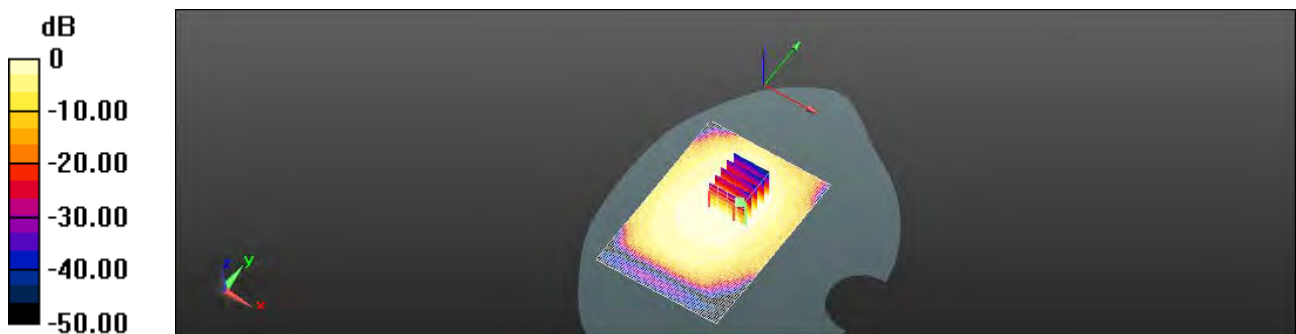
Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 21.911 V/m; Power Drift = -0.16 dB

Peak SAR (extrapolated) = 1.297 mW/g

SAR(1 g) = 0.916 mW/g; SAR(10 g) = 0.660 mW/g

Maximum value of SAR (measured) = 1.13 mW/g



0 dB = 1.09 mW/g = 0.71 dB mW/g

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Date: 6/13/2012

Hotspot_Front side_CH190

Communication System: GPRS(Class 10); Frequency: 836.6 MHz

Medium parameters used: $f = 837$ MHz; $\sigma = 1.032$ mho/m; $\epsilon_r = 53.718$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(9.6, 9.6, 9.6); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/30/2012
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/Body/Area Scan (71x101x1): Measurement grid: dx=15mm, dy=15mm

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

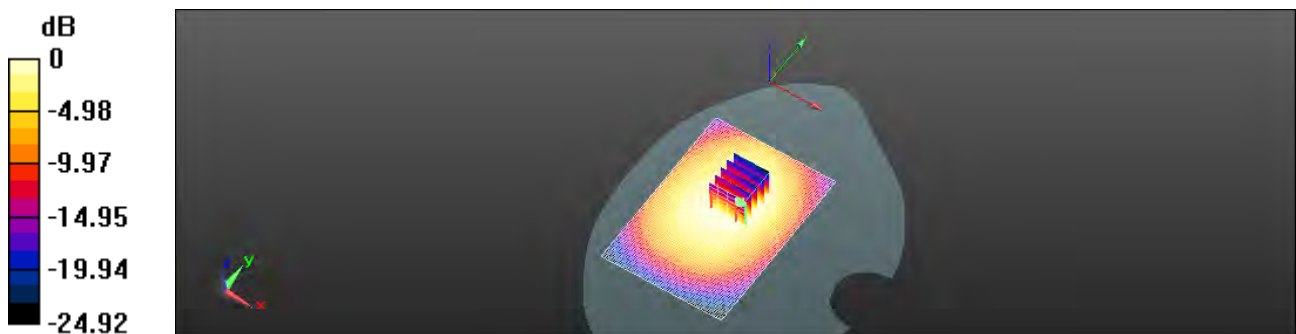
Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 22.101 V/m; Power Drift = -0.11 dB

Peak SAR (extrapolated) = 1.364 mW/g

SAR(1 g) = 0.974 mW/g; SAR(10 g) = 0.708 mW/g

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



0 dB = 1.14 mW/g = 1.14 dB mW/g

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Date: 6/13/2012

Hotspot_Front side_CH251

Communication System: GPRS(Class 10); Frequency: 848.8 MHz

Medium parameters used: $f = 849$ MHz; $\sigma = 1.041$ mho/m; $\epsilon_r = 53.536$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(9.6, 9.6, 9.6); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/30/2012
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/Body/Area Scan (71x101x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 1.06 mW/g

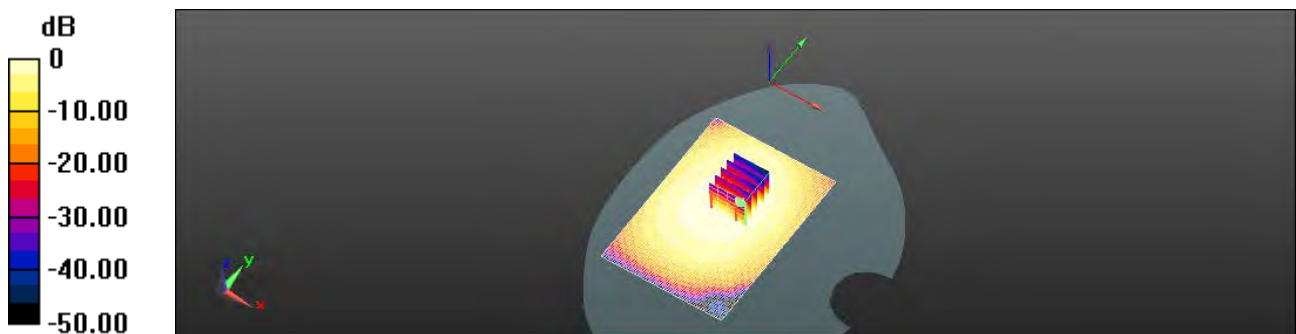
Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 20.553 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 1.147 mW/g

SAR(1 g) = 0.860 mW/g; SAR(10 g) = 0.620 mW/g

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



0 dB = 1.06 mW/g = 0.47 dB mW/g

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Date: 6/13/2012

Hotspot_Back side_CH128

Communication System: GPRS(Class 10); Frequency: 824.2 MHz

Medium parameters used: $f = 824.2$ MHz; $\sigma = 1.02$ mho/m; $\epsilon_r = 53.837$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(9.6, 9.6, 9.6); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/30/2012
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/Body/Area Scan (71x101x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 1.77 mW/g

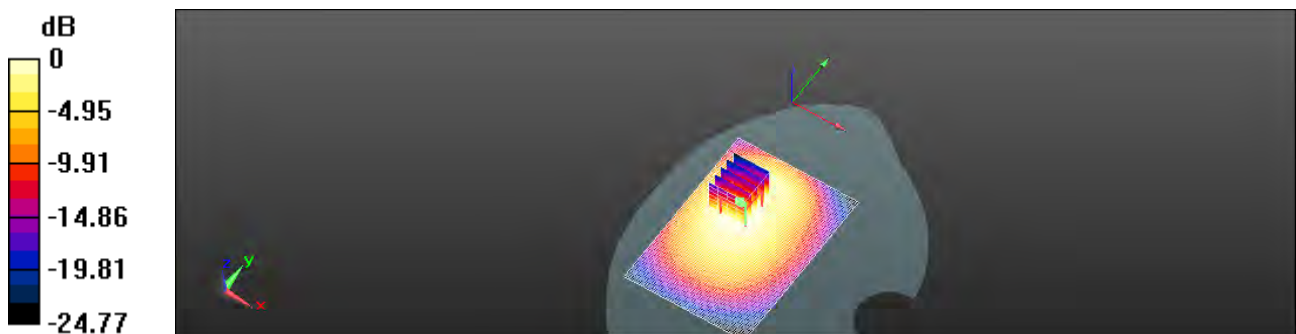
Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 19.066 V/m; Power Drift = 0.19 dB

Peak SAR (extrapolated) = 2.006 mW/g

SAR(1 g) = 1.42 mW/g; SAR(10 g) = 0.996 mW/g

Maximum value of SAR (measured) = 1.73 mW/g



0 dB = 1.77 mW/g = 4.94 dB mW/g

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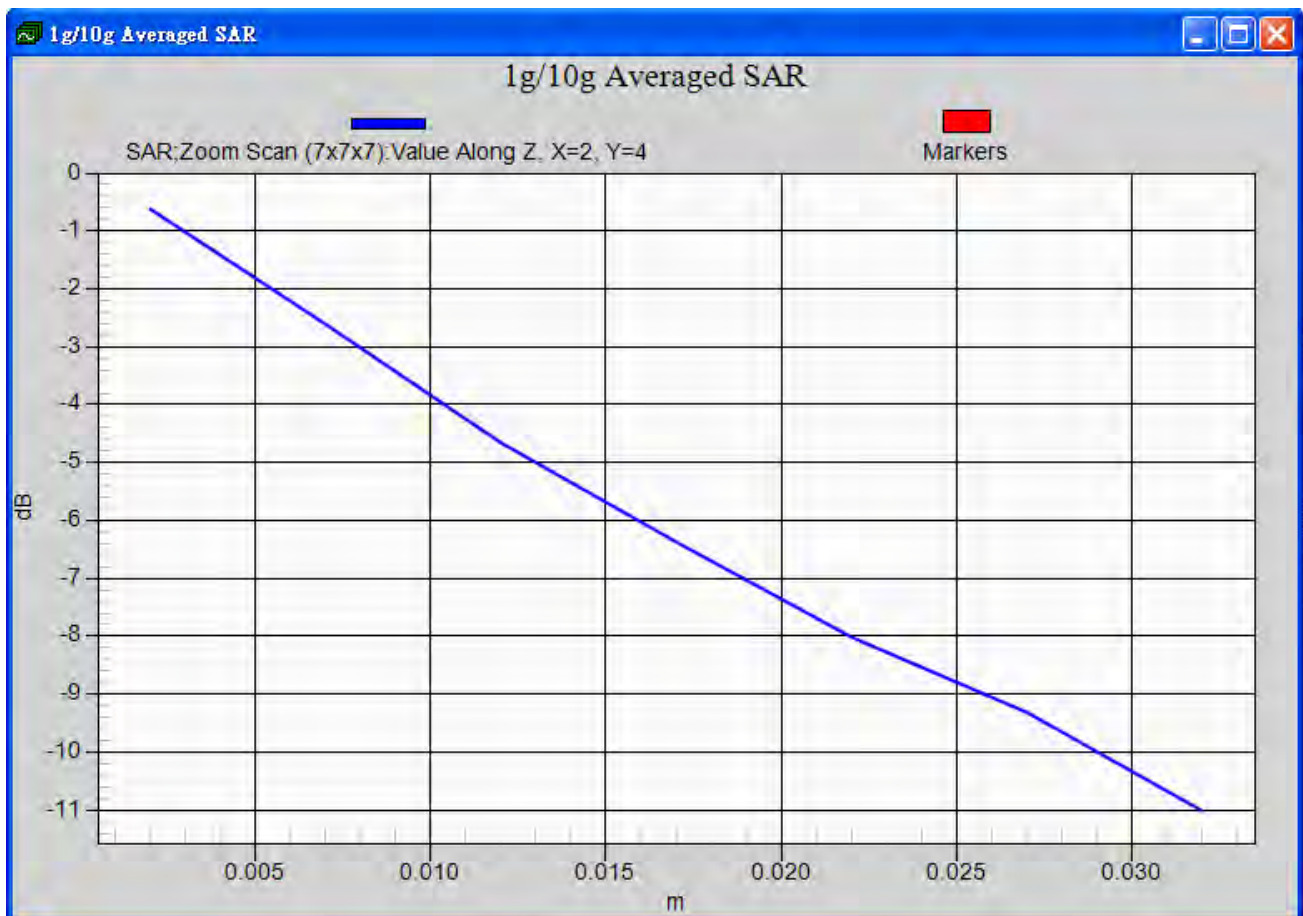
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Date: 6/13/2012

Hotspot_Back side_CH190

Communication System: GPRS(Class 10); Frequency: 836.6 MHz

Medium parameters used: $f = 837$ MHz; $\sigma = 1.032$ mho/m; $\epsilon_r = 53.718$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(9.6, 9.6, 9.6); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/30/2012
- Phantom: SAM2; Type: SAM
- Measurement SW: DASYS2, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/Body/Area Scan (71x101x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 1.61 mW/g

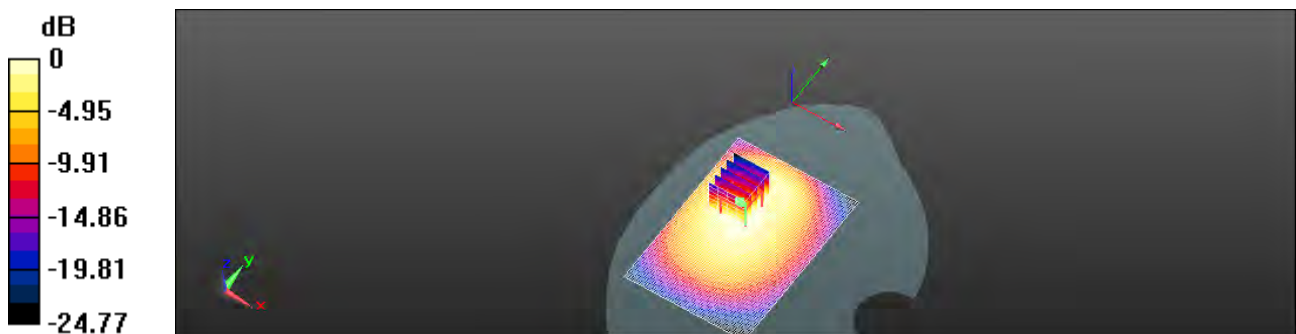
Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 19.192 V/m; Power Drift = -0.10 dB

Peak SAR (extrapolated) = 1.707 mW/g

SAR(1 g) = 1.28 mW/g; SAR(10 g) = 0.901 mW/g

Maximum value of SAR (measured) = 1.51 mW/g



0 dB = 1.61 mW/g = 4.12 dB mW/g

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Date: 6/13/2012

Hotspot_Back side_CH251

Communication System: GPRS(Class 10); Frequency: 848.8 MHz

Medium parameters used: $f = 849$ MHz; $\sigma = 1.041$ mho/m; $\epsilon_r = 53.536$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(9.6, 9.6, 9.6); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/30/2012
- Phantom: SAM2; Type: SAM
- Measurement SW: DASYS2, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/Body/Area Scan (71x101x1): Measurement grid: dx=15mm, dy=15mm

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

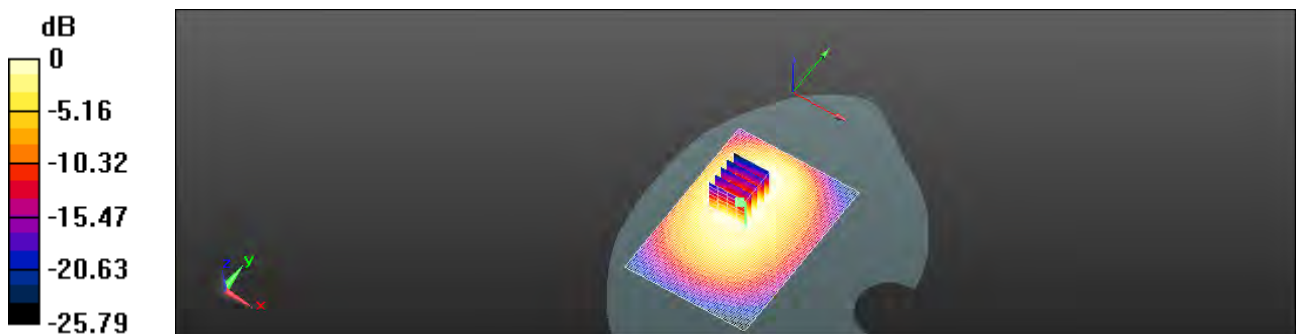
Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 17.465 V/m; Power Drift = -0.15 dB

Peak SAR (extrapolated) = 1.444 mW/g

SAR(1 g) = 1.03 mW/g; SAR(10 g) = 0.736 mW/g

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



0 dB = 1.23 mW/g = 1.80 dB mW/g

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Hotspot_Back side_CH128_repeated with external Memory card inside

Communication System: GPRS(Class 10); Frequency: 824.2 MHz

Medium parameters used: $f = 824.2 \text{ MHz}$; $\sigma = 1.02 \text{ mho/m}$; $\epsilon_r = 53.837$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(9.6, 9.6, 9.6); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/30/2012
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/Body/Area Scan (71x101x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 1.55 mW/g

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

Reference Value = 19.135 V/m; Power Drift = 0.12 dB

Peak SAR (extrapolated) = 1.846 mW/g

SAR(1 g) = 1.32 mW/g; SAR(10 g) = 0.944 mW/g

Maximum value of SAR (measured) = 1.58 mW/g

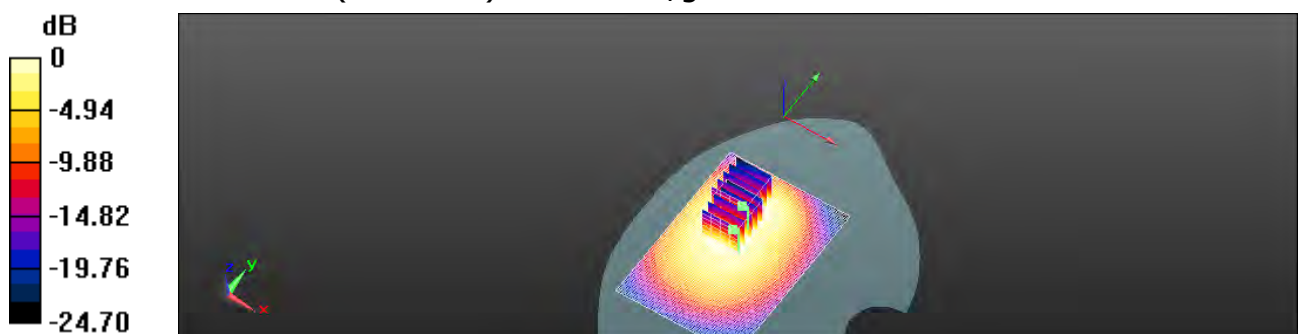
Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 1: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 19.135 V/m; Power Drift = 0.12 dB

Peak SAR (extrapolated) = 1.836 mW/g

SAR(1 g) = 1.24 mW/g; SAR(10 g) = 0.796 mW/g

Maximum value of SAR (measured) = 1.61 mW/g



$$0 \text{ dB} = 1.55 \text{ mW/g} = 3.81 \text{ dB mW/g}$$

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Hotspot_Back side_CH128_repeated with Bluetooth active

Communication System: GPRS(Class 10); Frequency: 824.2 MHz

Medium parameters used: $f = 824.2 \text{ MHz}$; $\sigma = 1.02 \text{ mho/m}$; $\epsilon_r = 53.837$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(9.6, 9.6, 9.6); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/30/2012
- Phantom: SAM2; Type: SAM
- Measurement SW: DASYS2, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/Body/Area Scan (71x101x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 1.75 mW/g

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

Reference Value = 19.721 V/m; Power Drift = 0.09 dB

Peak SAR (extrapolated) = 2.021 mW/g

SAR(1 g) = 1.41 mW/g; SAR(10 g) = 1.02 mW/g

Maximum value of SAR (measured) = 1.70 mW/g

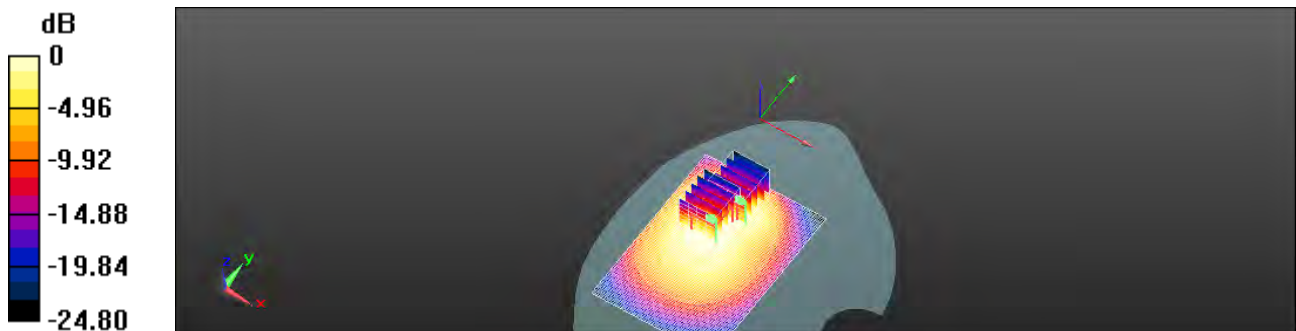
Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 1: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 19.721 V/m; Power Drift = 0.09 dB

Peak SAR (extrapolated) = 2.032 mW/g

SAR(1 g) = 1.21 mW/g; SAR(10 g) = 0.728 mW/g

Maximum value of SAR (measured) = 1.59 mW/g



0 dB = 1.75 mW/g = 4.86 dB mW/g

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Date: 6/13/2012

Hotspot_Back side_CH128_repeated with headset

Communication System: GPRS(Class 10); Frequency: 824.2 MHz

Medium parameters used: $f = 824.2 \text{ MHz}$; $\sigma = 1.02 \text{ mho/m}$; $\epsilon_r = 53.837$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(9.6, 9.6, 9.6); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/30/2012
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/Body/Area Scan (71x101x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

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

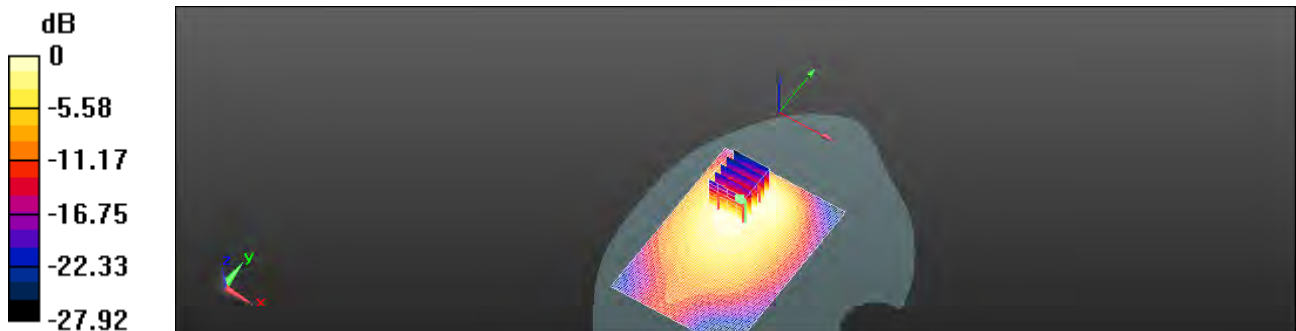
Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 14.638 V/m; Power Drift = -0.14 dB

Peak SAR (extrapolated) = 1.562 mW/g

SAR(1 g) = 0.943 mW/g; SAR(10 g) = 0.612 mW/g

Maximum value of SAR (measured) = 1.27 mW/g



0 dB = 1.28 mW/g = 2.13 dB mW/g

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Date: 6/13/2012

Hotspot_Bottom side_CH190

Communication System: GPRS(Class 10); Frequency: 836.6 MHz

Medium parameters used: $f = 837$ MHz; $\sigma = 1.032$ mho/m; $\epsilon_r = 53.718$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(9.6, 9.6, 9.6); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/30/2012
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

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

Maximum value of SAR (interpolated) = 0.115 mW/g

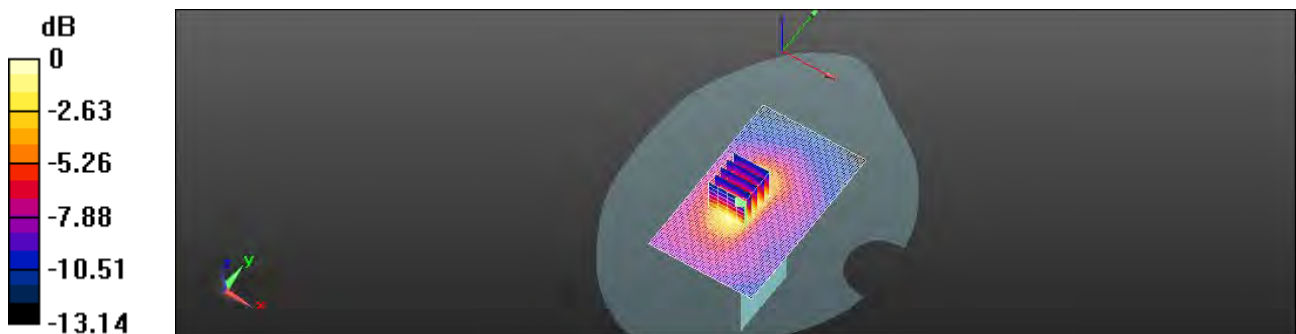
Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 6.304 V/m; Power Drift = 0.10 dB

Peak SAR (extrapolated) = 0.132 mW/g

SAR(1 g) = 0.083 mW/g; SAR(10 g) = 0.051 mW/g

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



0 dB = 0.115 mW/g = -18.76 dB mW/g

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Member of SGS Group

Date: 6/13/2012

Hotspot_Right side_CH190

Communication System: GPRS(Class 10); Frequency: 836.6 MHz

Medium parameters used: $f = 837$ MHz; $\sigma = 1.032$ mho/m; $\epsilon_r = 53.718$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(9.6, 9.6, 9.6); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/30/2012
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/Body/Area Scan (61x111x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.941 mW/g

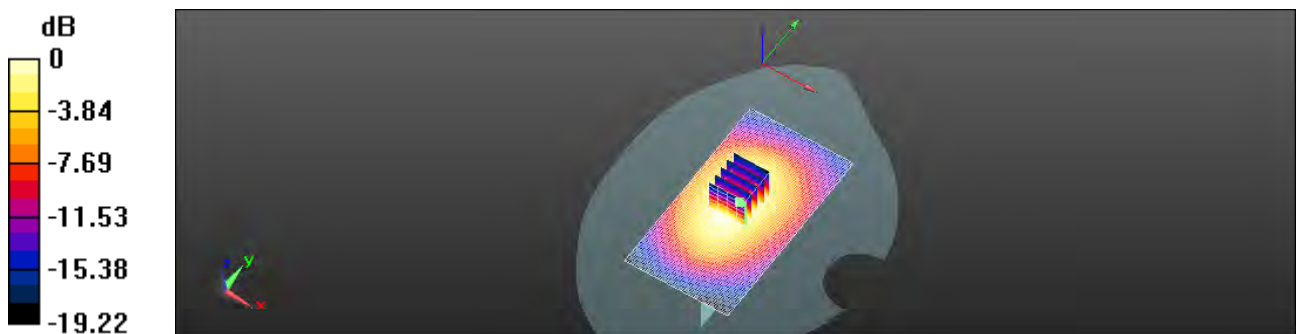
Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 27.513 V/m; Power Drift = -0.03 dB

Peak SAR (extrapolated) = 1.092 mW/g

SAR(1 g) = 0.762 mW/g; SAR(10 g) = 0.535 mW/g

Maximum value of SAR (measured) = 0.952 mW/g



0 dB = 0.941 mW/g = -0.53 dB mW/g

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Date: 6/13/2012

Hotspot_Left side_CH190

Communication System: GPRS(Class 10); Frequency: 836.6 MHz

Medium parameters used: $f = 837$ MHz; $\sigma = 1.032$ mho/m; $\epsilon_r = 53.718$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(9.6, 9.6, 9.6); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/30/2012
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/Body/Area Scan (61x111x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.768 mW/g

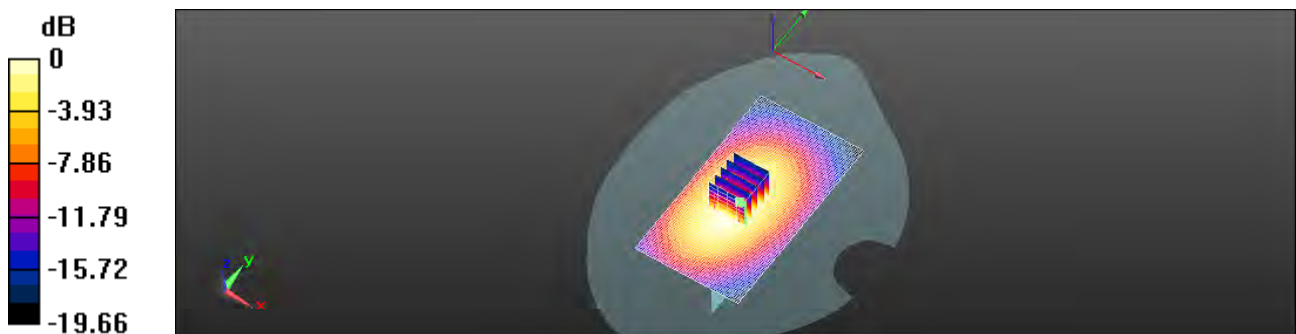
Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 25.563 V/m; Power Drift = -0.16 dB

Peak SAR (extrapolated) = 0.900 mW/g

SAR(1 g) = 0.632 mW/g; SAR(10 g) = 0.430 mW/g

Maximum value of SAR (measured) = 0.802 mW/g



0 dB = 0.768 mW/g = -2.29 dB mW/g

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Date: 6/14/2012

RE Cheek_CH512

Communication System: GSM; Frequency: 1850.2 MHz

Medium parameters used: $f = 1850.2$ MHz; $\sigma = 1.342$ mho/m; $\epsilon_r = 40.508$; $\rho = 1000$ kg/m³

Phantom section: Right Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(8.35, 8.35, 8.35); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/30/2012
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/RE Cheek/Area Scan (71x111x1): Measurement grid:

$dx=15$ mm, $dy=15$ mm

Maximum value of SAR (interpolated) = 1.31 mW/g

Configuration/RE Cheek/Zoom Scan (7x7x7) (7x7x7)/Cube 0:

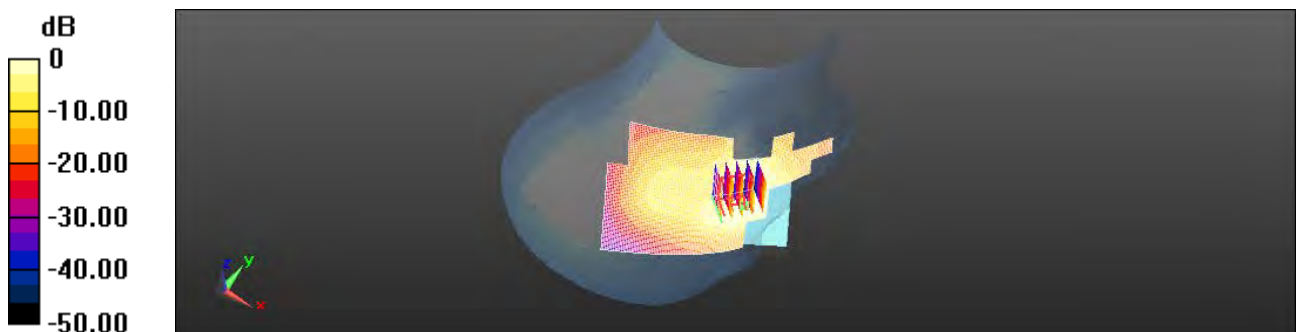
Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 10.483 V/m; Power Drift = -0.08 dB

Peak SAR (extrapolated) = 1.469 mW/g

SAR(1 g) = 0.950 mW/g; SAR(10 g) = 0.569 mW/g

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



0 dB = 1.31 mW/g = 2.36 dB mW/g

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Date: 6/14/2012

RE Cheek_CH661

Communication System: GSM; Frequency: 1880 MHz

Medium parameters used: $f = 1880 \text{ MHz}$; $\sigma = 1.368 \text{ mho/m}$; $\epsilon_r = 40.211$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Right Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(8.35, 8.35, 8.35); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/30/2012
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/RE Cheek/Area Scan (71x111x1): Measurement grid:

$dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 1.29 mW/g

Configuration/RE Cheek/Zoom Scan (7x7x7) (7x7x7)/Cube 0:

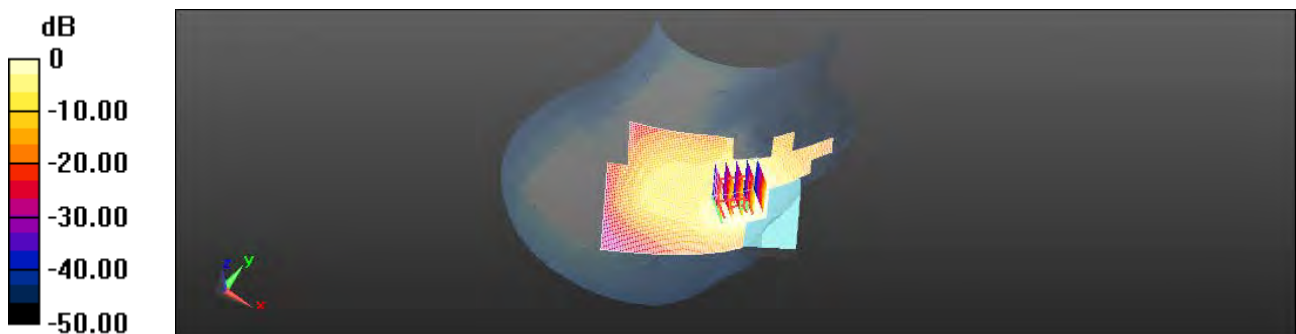
Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 11.111 V/m; Power Drift = 0.15 dB

Peak SAR (extrapolated) = 1.494 mW/g

SAR(1 g) = 0.958 mW/g; SAR(10 g) = 0.574 mW/g

Maximum value of SAR (measured) = 1.20 mW/g



0 dB = 1.29 mW/g = 2.18 dB mW/g

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Date: 6/14/2012

RE Cheek_CH810

Communication System: GSM; Frequency: 1909.8 MHz

Medium parameters used: $f = 1910$ MHz; $\sigma = 1.415$ mho/m; $\epsilon_r = 40.294$; $\rho = 1000$ kg/m³

Phantom section: Right Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(8.35, 8.35, 8.35); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/30/2012
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/RE Cheek/Area Scan (71x111x1): Measurement grid:

$dx=15$ mm, $dy=15$ mm

Maximum value of SAR (interpolated) = 1.43 mW/g

Configuration/RE Cheek/Zoom Scan (7x7x7) (7x7x7)/Cube 0:

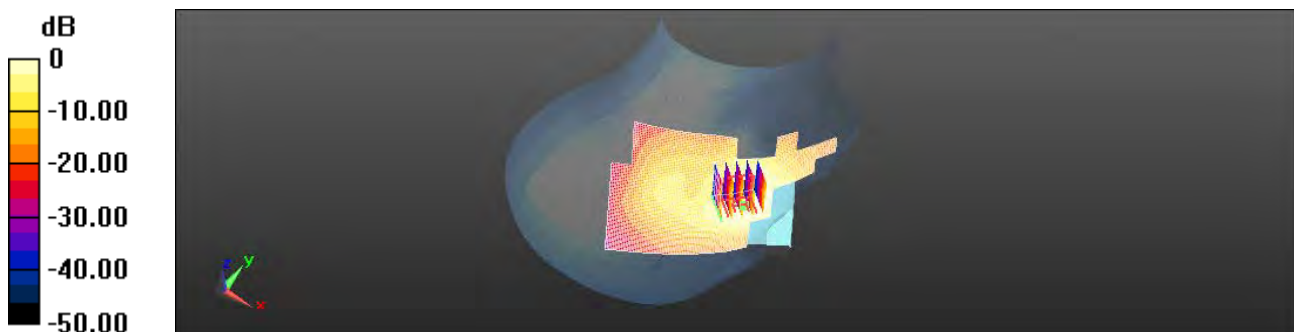
Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 9.001 V/m; Power Drift = -0.00 dB

Peak SAR (extrapolated) = 1.613 mW/g

SAR(1 g) = 1.03 mW/g; SAR(10 g) = 0.610 mW/g

Maximum value of SAR (measured) = 1.31 mW/g



0 dB = 1.43 mW/g = 3.09 dB mW/g

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RE Tilt_CH661

Communication System: GSM; Frequency: 1880 MHz

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.368$ mho/m; $\epsilon_r = 40.211$; $\rho = 1000$ kg/m³

Phantom section: Right Section

Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(8.35, 8.35, 8.35); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/30/2012
- Phantom: SAM2; Type: SAM
- Measurement SW: DASYS2, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/RE Tilt/Area Scan (71x111x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.370 mW/g

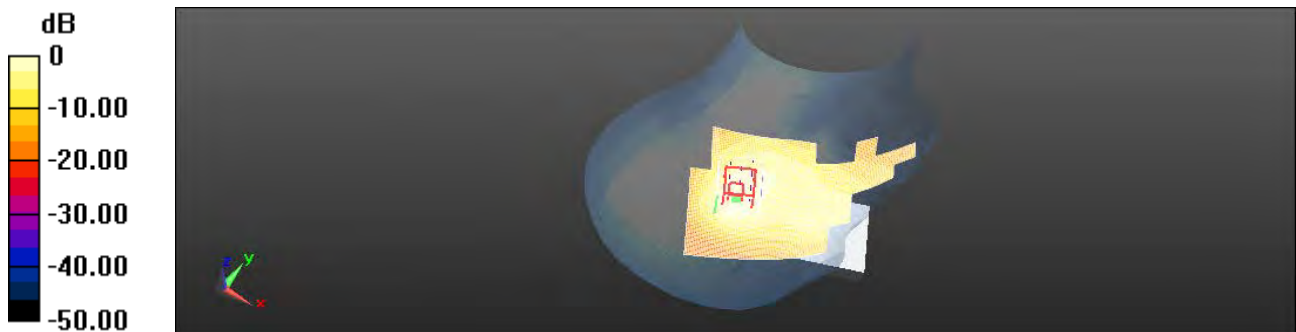
Configuration/RE Tilt/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 15.034 V/m; Power Drift = -0.08 dB

Peak SAR (extrapolated) = 0.399 mW/g

SAR(1 g) = 0.265 mW/g; SAR(10 g) = 0.161 mW/g

Maximum value of SAR (measured) = 0.330 mW/g



0 dB = 0.370 mW/g = -8.63 dB mW/g

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Date: 6/14/2012

LE Cheek_CH512

Communication System: GSM; Frequency: 1850.2 MHz

Medium parameters used: $f = 1850.2 \text{ MHz}$; $\sigma = 1.342 \text{ mho/m}$; $\epsilon_r = 40.508$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(8.35, 8.35, 8.35); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/30/2012
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/LE Cheek/Area Scan (71x111x1): Measurement grid:

$dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 1.30 mW/g

Configuration/LE Cheek/Zoom Scan (7x7x7) (7x7x7)/Cube 0:

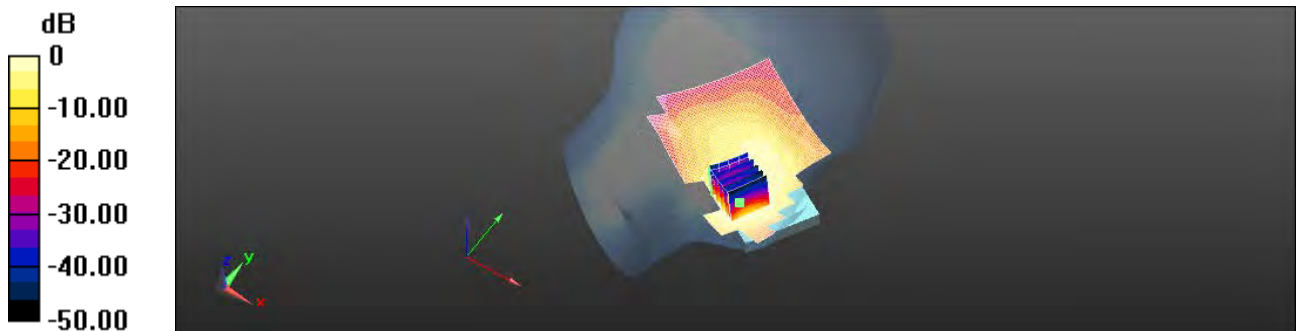
Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 8.312 V/m; Power Drift = 0.07 dB

Peak SAR (extrapolated) = 1.694 mW/g

SAR(1 g) = 1.01 mW/g; SAR(10 g) = 0.561 mW/g

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



0 dB = 1.30 mW/g = 2.29 dB mW/g

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Date: 6/14/2012

LE Cheek_CH661

Communication System: GSM; Frequency: 1880 MHz

Medium parameters used: $f = 1880 \text{ MHz}$; $\sigma = 1.368 \text{ mho/m}$; $\epsilon_r = 40.211$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(8.35, 8.35, 8.35); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/30/2012
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/LE Cheek/Area Scan (71x111x1): Measurement grid:

$dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 1.54 mW/g

Configuration/LE Cheek/Zoom Scan (7x7x7) (7x7x7)/Cube 0:

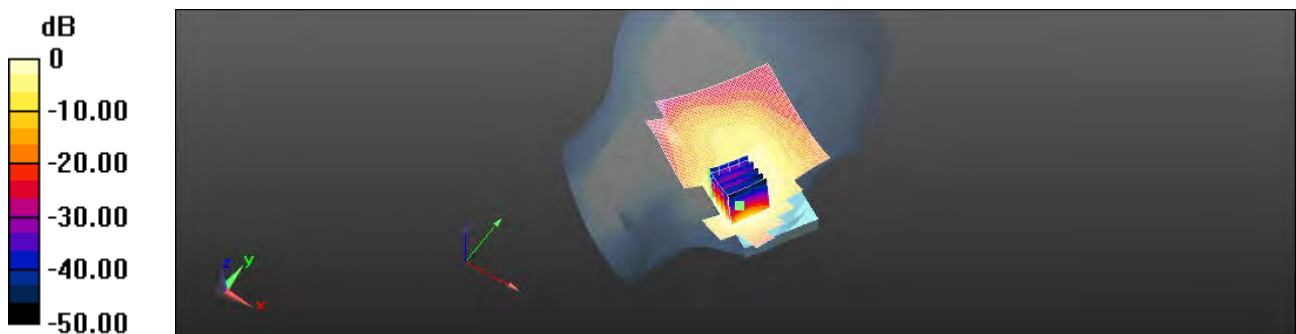
Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 10.356 V/m; Power Drift = -0.16 dB

Peak SAR (extrapolated) = 1.919 mW/g

SAR(1 g) = 1.13 mW/g; SAR(10 g) = 0.625 mW/g

Maximum value of SAR (measured) = 1.45 mW/g



0 dB = 1.54 mW/g = 3.73 dB mW/g

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Date: 6/14/2012

LE Cheek_CH810

Communication System: GSM; Frequency: 1909.8 MHz

Medium parameters used: $f = 1910$ MHz; $\sigma = 1.415$ mho/m; $\epsilon_r = 40.294$; $\rho = 1000$ kg/m³

Phantom section: Left Section

Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(8.35, 8.35, 8.35); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/30/2012
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/LE Cheek/Area Scan (71x111x1): Measurement grid:

$dx=15$ mm, $dy=15$ mm

Maximum value of SAR (interpolated) = 1.47 mW/g

Configuration/LE Cheek/Zoom Scan (7x7x7) (7x7x7)/Cube 0:

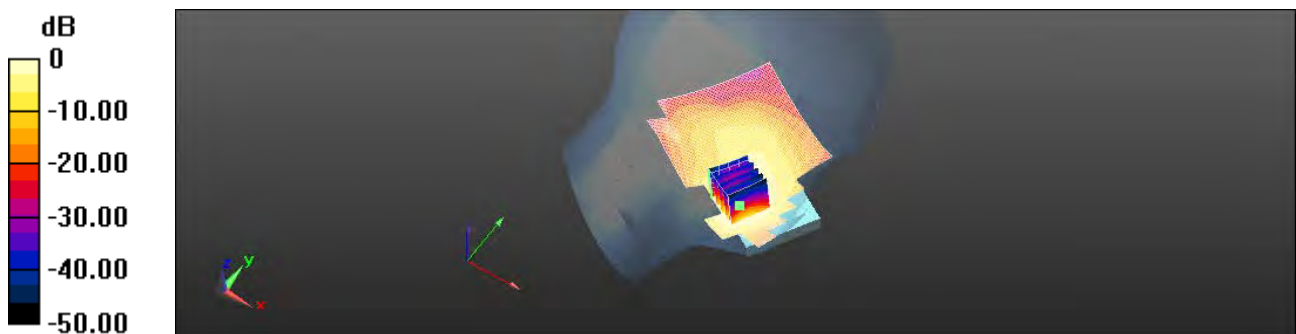
Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 9.072 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 1.972 mW/g

SAR(1 g) = 1.16 mW/g; SAR(10 g) = 0.639 mW/g

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



0 dB = 1.47 mW/g = 3.35 dB mW/g

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Date: 6/14/2012

LE Tilt_CH661

Communication System: GSM; Frequency: 1880 MHz

Medium parameters used: $f = 1880 \text{ MHz}$; $\sigma = 1.368 \text{ mho/m}$; $\epsilon_r = 40.211$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(8.35, 8.35, 8.35); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/30/2012
- Phantom: SAM2; Type: SAM
- Measurement SW: DASYS2, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/LE Tilt/Area Scan (71x111x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.300 mW/g

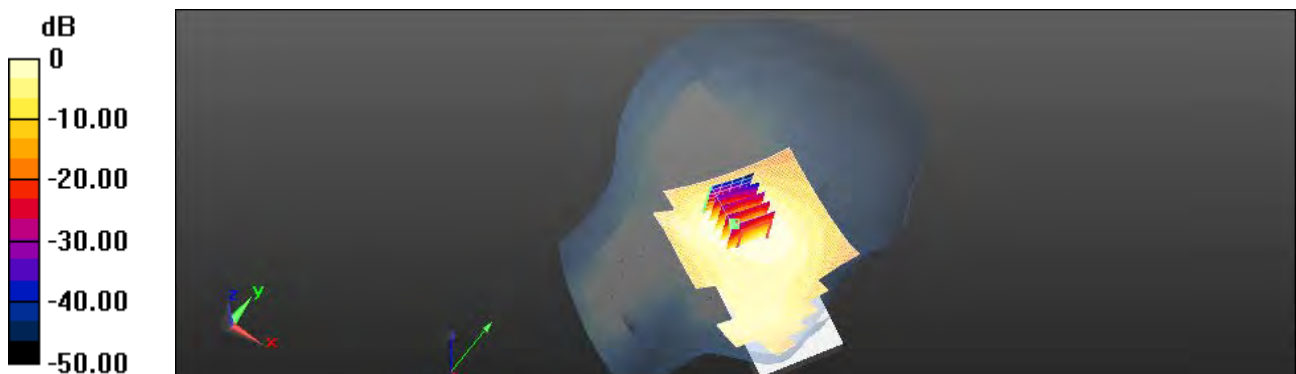
Configuration/LE Tilt/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 13.357 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 0.328 mW/g

SAR(1 g) = 0.220 mW/g; SAR(10 g) = 0.143 mW/g

Maximum value of SAR (measured) = 0.277 mW/g



0 dB = 0.300 mW/g = -10.45 dB mW/g

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Date: 6/14/2012

Hotspot_Front side_CH661

Communication System: GPRS(Class 10); Frequency: 1880 MHz

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.486$ mho/m; $\epsilon_r = 50.811$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.53, 7.53, 7.53); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/30/2012
- Phantom: SAM2; Type: SAM
- Measurement SW: DASYS2, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/Body/Area Scan (71x101x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 1.06 mW/g

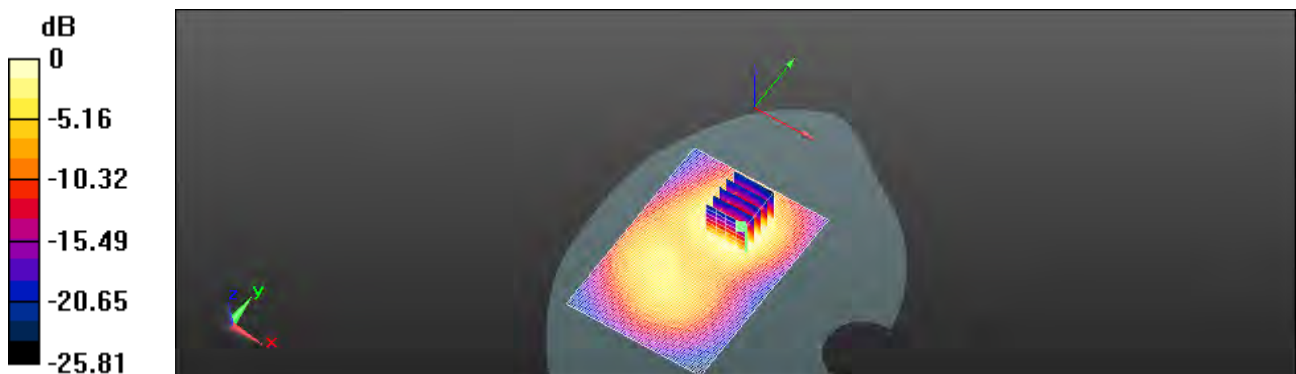
Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 8.263 V/m; Power Drift = 0.07 dB

Peak SAR (extrapolated) = 1.205 mW/g

SAR(1 g) = 0.760 mW/g; SAR(10 g) = 0.456 mW/g

Maximum value of SAR (measured) = 1.00 mW/g



0 dB = 1.06 mW/g = 0.47 dB mW/g

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Date: 6/14/2012

Hotspot_Back side_CH512

Communication System: GPRS(Class 10); Frequency: 1850.2 MHz

Medium parameters used: $f = 1850.2$ MHz; $\sigma = 1.442$ mho/m; $\epsilon_r = 51.208$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.53, 7.53, 7.53); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/30/2012
- Phantom: SAM2; Type: SAM
- Measurement SW: DASYS2, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/Body/Area Scan (71x101x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 1.29 mW/g

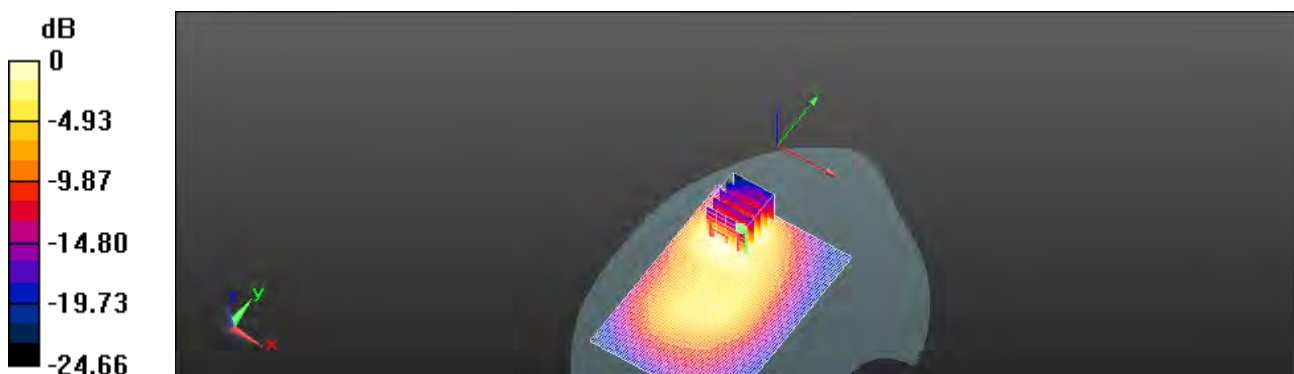
Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 10.661 V/m; Power Drift = 0.17 dB

Peak SAR (extrapolated) = 1.571 mW/g

SAR(1 g) = 0.939 mW/g; SAR(10 g) = 0.552 mW/g

Maximum value of SAR (measured) = 1.25 mW/g



0 dB = 1.29 mW/g = 2.23 dB mW/g

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Date: 6/14/2012

Hotspot_Back side_CH661

Communication System: GPRS(Class 10); Frequency: 1880 MHz

Medium parameters used: $f = 1880 \text{ MHz}$; $\sigma = 1.486 \text{ mho/m}$; $\epsilon_r = 50.811$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.53, 7.53, 7.53); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/30/2012
- Phantom: SAM2; Type: SAM
- Measurement SW: DASYS2, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/Body/Area Scan (71x101x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 1.39 mW/g

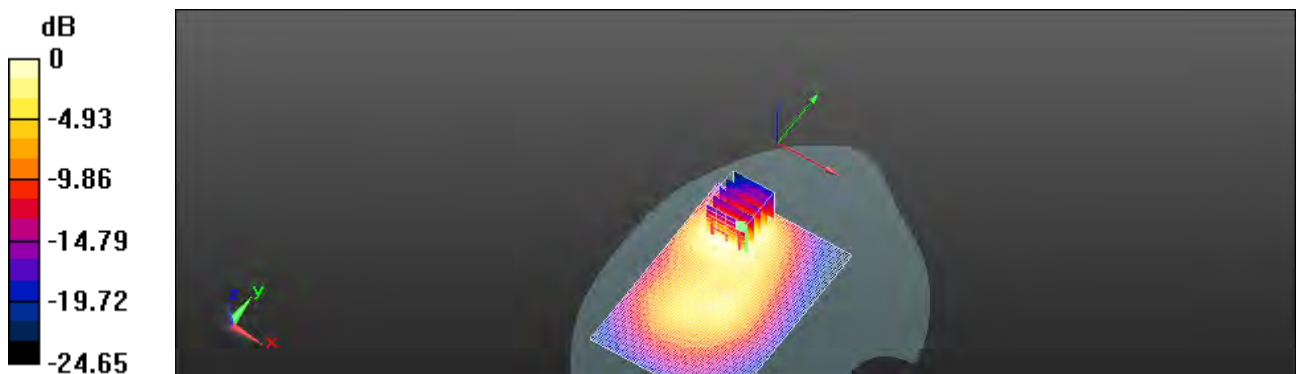
Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 11.411 V/m; Power Drift = -0.18 dB

Peak SAR (extrapolated) = 1.769 mW/g

SAR(1 g) = 0.985 mW/g; SAR(10 g) = 0.583 mW/g

Maximum value of SAR (measured) = 1.35 mW/g



0 dB = 1.39 mW/g = 2.85 dB mW/g

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Date: 6/14/2012

Hotspot_Back side_CH810

Communication System: GPRS(Class 10); Frequency: 1909.8 MHz

Medium parameters used: $f = 1910$ MHz; $\sigma = 1.551$ mho/m; $\epsilon_r = 51.235$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.53, 7.53, 7.53); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/30/2012
- Phantom: SAM2; Type: SAM
- Measurement SW: DASYS2, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/Body/Area Scan (71x101x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 1.57 mW/g

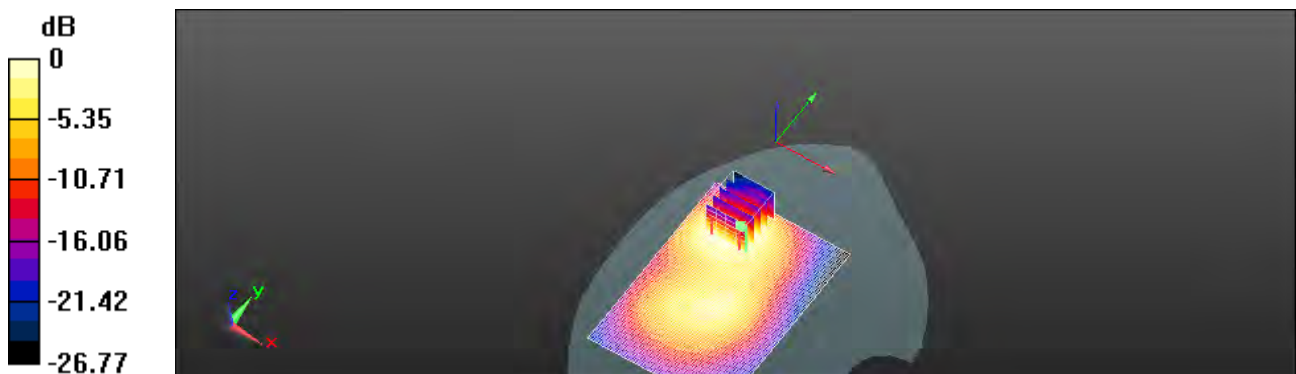
Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 11.666 V/m; Power Drift = 0.16 dB

Peak SAR (extrapolated) = 1.811 mW/g

SAR(1 g) = 1.09 mW/g; SAR(10 g) = 0.650 mW/g

Maximum value of SAR (measured) = 1.49 mW/g



0 dB = 1.57 mW/g = 3.93 dB mW/g

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Date: 6/14/2012

Hotspot_Bottom side_CH661

Communication System: GPRS(Class 10); Frequency: 1880 MHz

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.486$ mho/m; $\epsilon_r = 50.811$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.53, 7.53, 7.53); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/30/2012
- Phantom: SAM2; Type: SAM
- Measurement SW: DASYS2, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

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

Maximum value of SAR (interpolated) = 0.978 mW/g

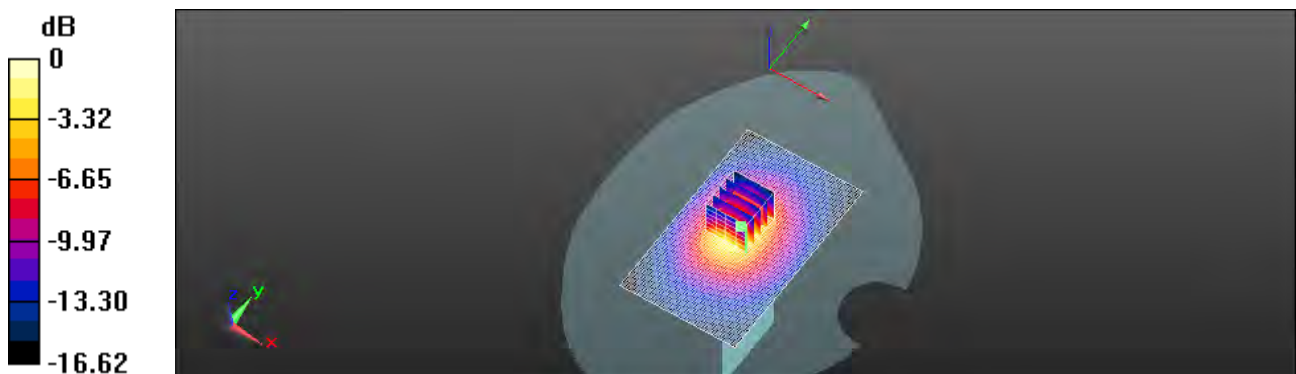
Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 19.419 V/m; Power Drift = -0.12 dB

Peak SAR (extrapolated) = 1.295 mW/g

SAR(1 g) = 0.782 mW/g; SAR(10 g) = 0.430 mW/g

Maximum value of SAR (measured) = 1.05 mW/g



0 dB = 0.978 mW/g = -0.19 dB mW/g

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Date: 6/14/2012

Hotspot_Right side_CH661

Communication System: GPRS(Class 10); Frequency: 1880 MHz

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.486$ mho/m; $\epsilon_r = 50.811$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.53, 7.53, 7.53); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/30/2012
- Phantom: SAM2; Type: SAM
- Measurement SW: DASYS2, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/Body/Area Scan (61x111x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.275 mW/g

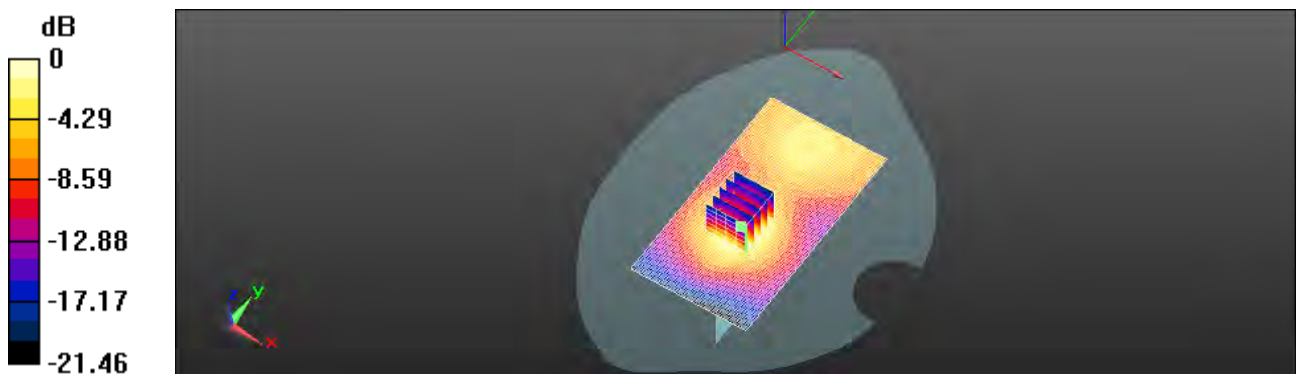
Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 10.934 V/m; Power Drift = -0.09 dB

Peak SAR (extrapolated) = 0.334 mW/g

SAR(1 g) = 0.209 mW/g; SAR(10 g) = 0.125 mW/g

Maximum value of SAR (measured) = 0.277 mW/g



0 dB = 0.275 mW/g = -11.21 dB mW/g

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Member of SGS Group

Date: 6/14/2012

Hotspot_Left side_CH661

Communication System: GPRS(Class 10); Frequency: 1880 MHz

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.486$ mho/m; $\epsilon_r = 50.811$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.53, 7.53, 7.53); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/30/2012
- Phantom: SAM2; Type: SAM
- Measurement SW: DASYS2, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/Body/Area Scan (61x111x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.524 mW/g

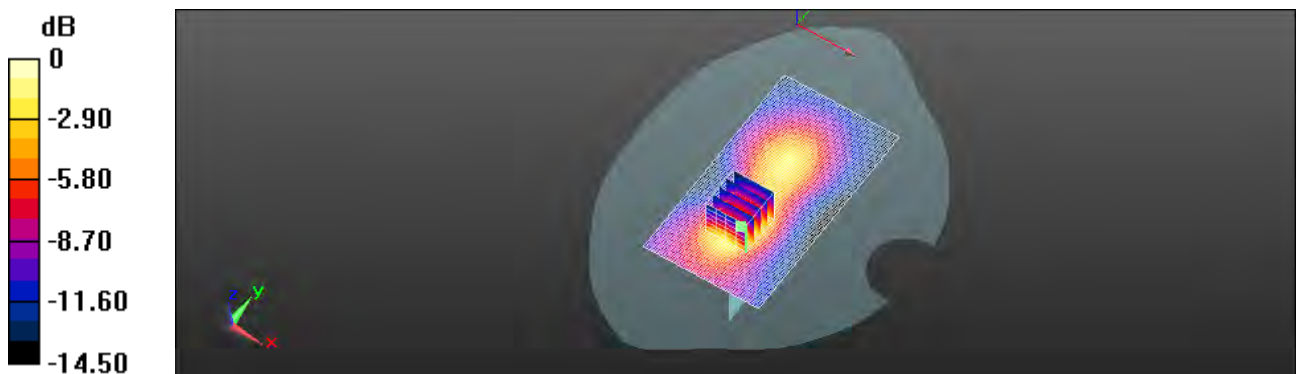
Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 11.448 V/m; Power Drift = 0.10 dB

Peak SAR (extrapolated) = 0.640 mW/g

SAR(1 g) = 0.391 mW/g; SAR(10 g) = 0.220 mW/g

Maximum value of SAR (measured) = 0.513 mW/g



0 dB = 0.524 mW/g = -5.62 dB mW/g

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Date: 6/14/2012

RE Cheek_CH9262

Communication System: WCDMA; Frequency: 1852.4 MHz

Medium parameters used: $f = 1852.4$ MHz; $\sigma = 1.342$ mho/m; $\epsilon_r = 40.483$; $\rho = 1000$ kg/m³

Phantom section: Right Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(8.35, 8.35, 8.35); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/30/2012
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/RE Cheek/Area Scan (71x111x1): Measurement grid:

$dx=15$ mm, $dy=15$ mm

Maximum value of SAR (interpolated) = 1.66 mW/g

Configuration/RE Cheek/Zoom Scan (7x7x7) (7x7x7)/Cube 0:

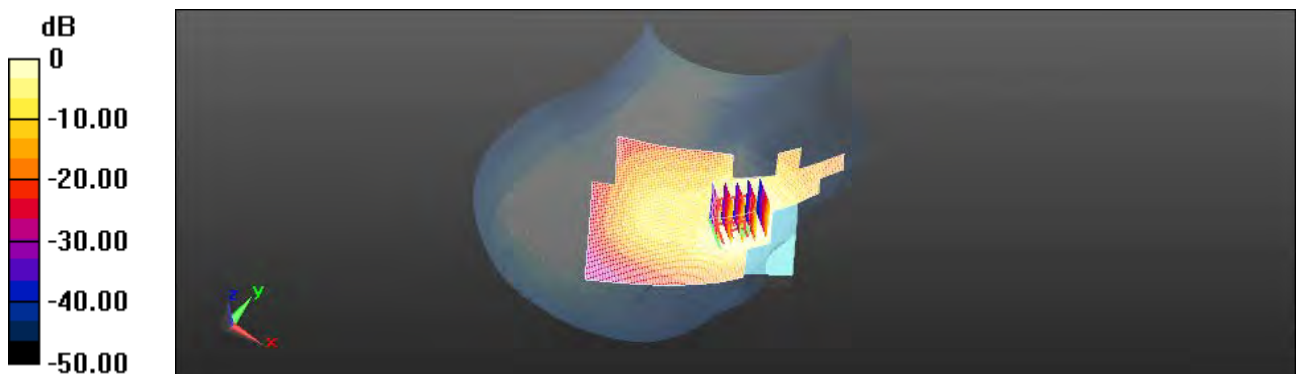
Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 11.552 V/m; Power Drift = -0.03 dB

Peak SAR (extrapolated) = 1.892 mW/g

SAR(1 g) = 1.21 mW/g; SAR(10 g) = 0.725 mW/g

Maximum value of SAR (measured) = 1.53 mW/g



0 dB = 1.66 mW/g = 4.40 dB mW/g

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Date: 6/14/2012

RE Cheek_CH9400

Communication System: WCDMA; Frequency: 1880 MHz

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.368$ mho/m; $\epsilon_r = 40.211$; $\rho = 1000$ kg/m³

Phantom section: Right Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(8.35, 8.35, 8.35); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/30/2012
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/RE Cheek/Area Scan (71x111x1): Measurement grid:

$dx=15$ mm, $dy=15$ mm

Maximum value of SAR (interpolated) = 1.72 mW/g

Configuration/RE Cheek/Zoom Scan (7x7x7) (7x7x7)/Cube 0:

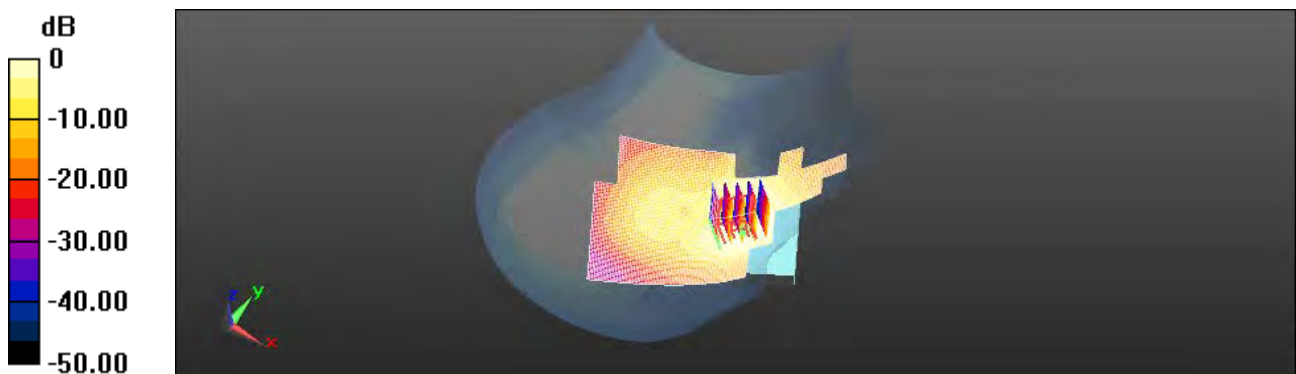
Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 12.116 V/m; Power Drift = -0.07 dB

Peak SAR (extrapolated) = 1.967 mW/g

SAR(1 g) = 1.25 mW/g; SAR(10 g) = 0.745 mW/g

Maximum value of SAR (measured) = 1.59 mW/g



0 dB = 1.72 mW/g = 4.71 dB mW/g

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Date: 6/14/2012

RE Cheek_CH9538

Communication System: WCDMA; Frequency: 1907.6 MHz

Medium parameters used: $f = 1908$ MHz; $\sigma = 1.413$ mho/m; $\epsilon_r = 40.278$; $\rho = 1000$ kg/m³

Phantom section: Right Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(8.35, 8.35, 8.35); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/30/2012
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/RE Cheek/Area Scan (71x111x1): Measurement grid:

$dx=15$ mm, $dy=15$ mm

Maximum value of SAR (interpolated) = 1.76 mW/g

Configuration/RE Cheek/Zoom Scan (7x7x7) (7x7x7)/Cube 0:

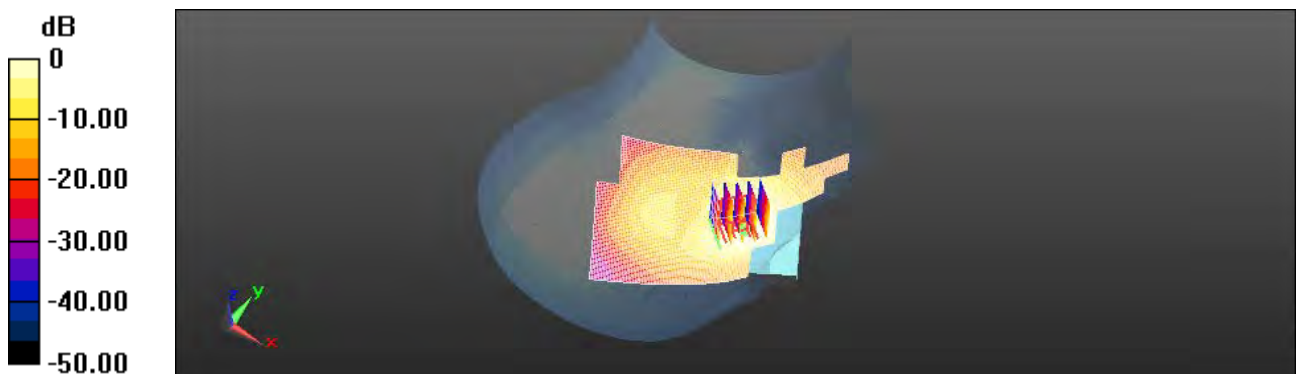
Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 10.779 V/m; Power Drift = 0.06 dB

Peak SAR (extrapolated) = 2.016 mW/g

SAR(1 g) = 1.28 mW/g; SAR(10 g) = 0.754 mW/g

Maximum value of SAR (measured) = 1.61 mW/g



0 dB = 1.76 mW/g = 4.91 dB mW/g

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RE Tilt_CH9400

Communication System: WCDMA; Frequency: 1880 MHz

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.368$ mho/m; $\epsilon_r = 40.211$; $\rho = 1000$ kg/m³

Phantom section: Right Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(8.35, 8.35, 8.35); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/30/2012
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/RE Tilt/Area Scan (71x111x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.446 mW/g

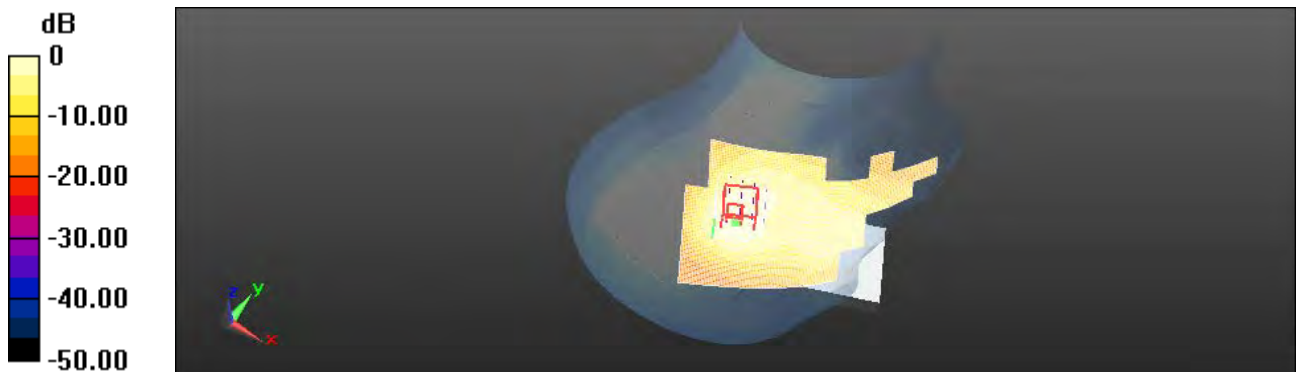
Configuration/RE Tilt/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 16.778 V/m; Power Drift = -0.05 dB

Peak SAR (extrapolated) = 0.485 mW/g

SAR(1 g) = 0.319 mW/g; SAR(10 g) = 0.193 mW/g

Maximum value of SAR (measured) = 0.395 mW/g



0 dB = 0.446 mW/g = -7.01 dB mW/g

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Member of SGS Group

Date: 6/14/2012

LE Cheek_CH9262

Communication System: WCDMA; Frequency: 1852.4 MHz

Medium parameters used: $f = 1852.4$ MHz; $\sigma = 1.342$ mho/m; $\epsilon_r = 40.483$; $\rho = 1000$ kg/m³

Phantom section: Left Section

Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(8.35, 8.35, 8.35); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/30/2012
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/LE Cheek/Area Scan (71x111x1): Measurement grid:

$dx=15$ mm, $dy=15$ mm

Maximum value of SAR (interpolated) = 1.78 mW/g

Configuration/LE Cheek/Zoom Scan (7x7x7) (7x7x7)/Cube 0:

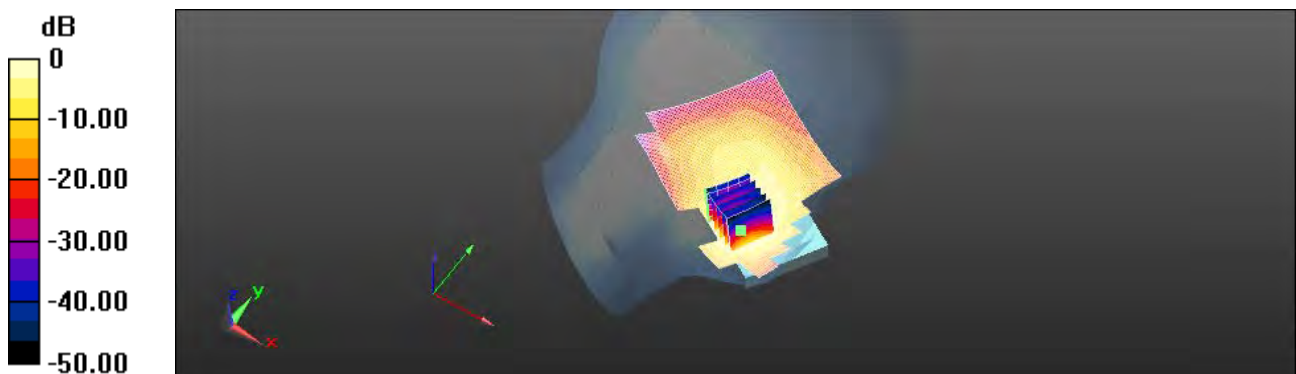
Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 10.239 V/m; Power Drift = -0.19 dB

Peak SAR (extrapolated) = 2.180 mW/g

SAR(1 g) = 1.3 mW/g; SAR(10 g) = 0.715 mW/g

Maximum value of SAR (measured) = 1.65 mW/g



0 dB = 1.78 mW/g = 5.00 dB mW/g

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Date: 6/14/2012

LE Cheek_CH9400

Communication System: WCDMA; Frequency: 1880 MHz

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.368$ mho/m; $\epsilon_r = 40.211$; $\rho = 1000$ kg/m³

Phantom section: Left Section

Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(8.35, 8.35, 8.35); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/30/2012
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/LE Cheek/Area Scan (71x111x1): Measurement grid:

$dx=15$ mm, $dy=15$ mm

Maximum value of SAR (interpolated) = 1.73 mW/g

Configuration/LE Cheek/Zoom Scan (7x7x7) (7x7x7)/Cube 0:

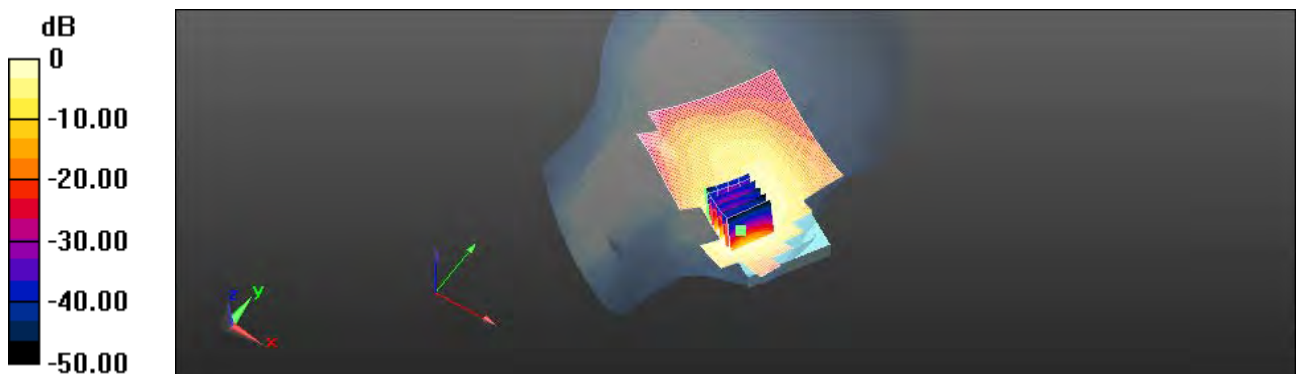
Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 10.251 V/m; Power Drift = 0.00 dB

Peak SAR (extrapolated) = 2.359 mW/g

SAR(1 g) = 1.39 mW/g; SAR(10 g) = 0.765 mW/g

Maximum value of SAR (measured) = 1.81 mW/g



0 dB = 1.73 mW/g = 4.78 dB mW/g

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Date: 6/14/2012

LE Cheek_CH9538

Communication System: WCDMA; Frequency: 1907.6 MHz

Medium parameters used: $f = 1908$ MHz; $\sigma = 1.413$ mho/m; $\epsilon_r = 40.278$; $\rho = 1000$ kg/m³

Phantom section: Left Section

Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(8.35, 8.35, 8.35); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/30/2012
- Phantom: SAM2; Type: SAM
- Measurement SW: DASYS2, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/LE Cheek/Area Scan (71x111x1): Measurement grid:

$dx=15$ mm, $dy=15$ mm

Maximum value of SAR (interpolated) = 1.95 mW/g

Configuration/LE Cheek/Zoom Scan (7x7x7) (7x7x7)/Cube 0:

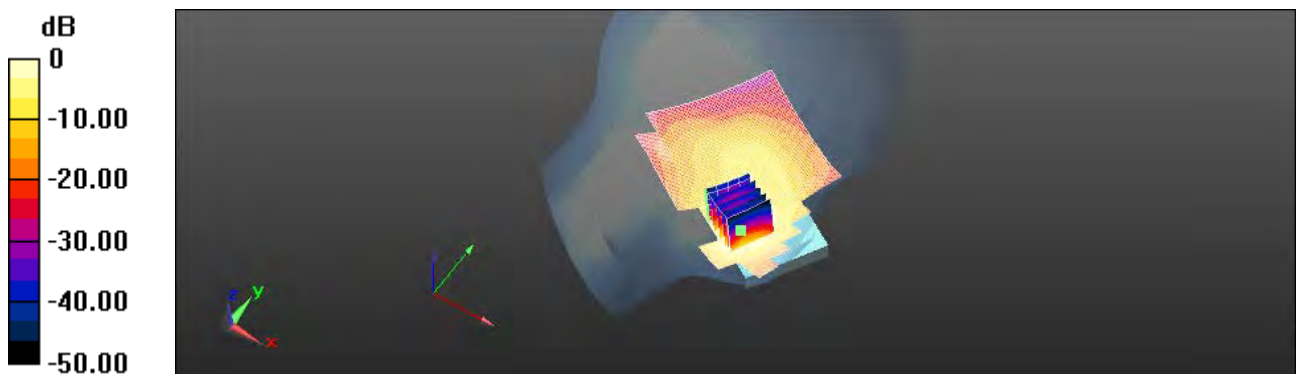
Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 9.730 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 2.498 mW/g

SAR(1 g) = 1.47 mW/g; SAR(10 g) = 0.798 mW/g

Maximum value of SAR (measured) = 1.89 mW/g



0 dB = 1.95 mW/g = 5.80 dB mW/g

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Date: 6/14/2012

LE Cheek_CH9538_repeated with external Memory card inside

Communication System: WCDMA; Frequency: 1907.6 MHz

Medium parameters used: $f = 1908$ MHz; $\sigma = 1.413$ mho/m; $\epsilon_r = 40.278$; $\rho = 1000$ kg/m³

Phantom section: Left Section

Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(8.35, 8.35, 8.35); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/30/2012
- Phantom: SAM2; Type: SAM
- Measurement SW: DASYS2, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/LE Cheek/Area Scan (71x111x1): Measurement grid:

dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 1.81 mW/g

Configuration/LE Cheek/Zoom Scan (7x7x7) (7x7x7)/Cube 0:

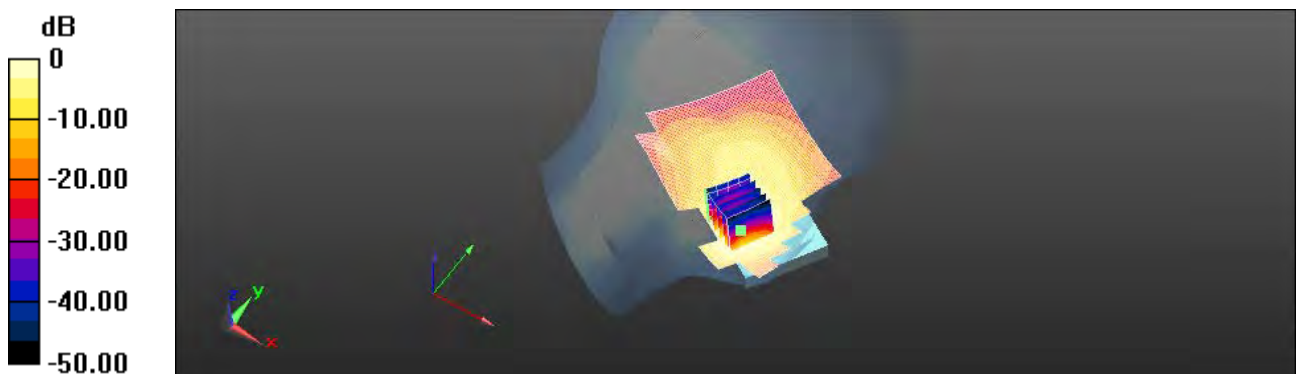
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 9.629 V/m; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 2.338 mW/g

SAR(1 g) = 1.38 mW/g; SAR(10 g) = 0.759 mW/g

Maximum value of SAR (measured) = 1.80 mW/g



0 dB = 1.81 mW/g = 5.15 dB mW/g

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Date: 6/14/2012

LE Tilt_CH9400

Communication System: WCDMA; Frequency: 1880 MHz

Medium parameters used: $f = 1880 \text{ MHz}$; $\sigma = 1.368 \text{ mho/m}$; $\epsilon_r = 40.211$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(8.35, 8.35, 8.35); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/30/2012
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/LE Tilt/Area Scan (71x111x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.359 mW/g

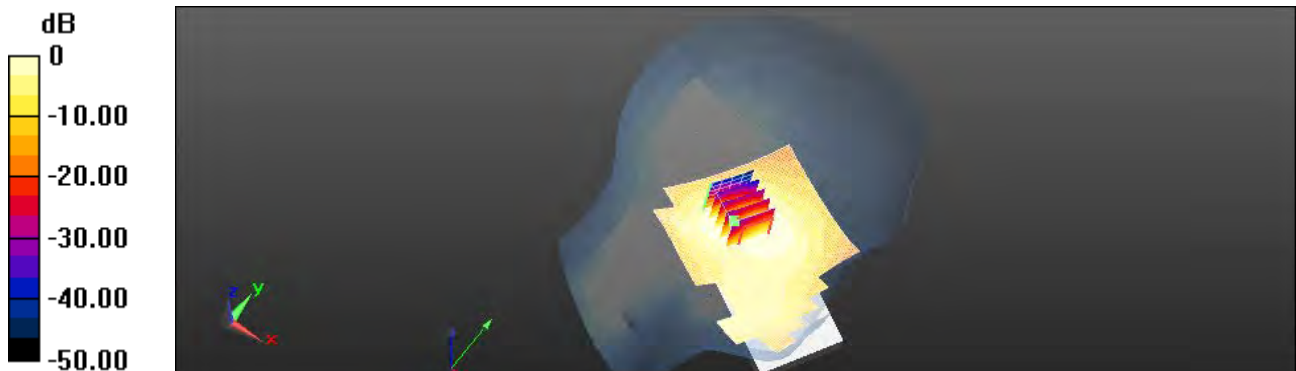
Configuration/LE Tilt/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 14.919 V/m; Power Drift = -0.03 dB

Peak SAR (extrapolated) = 0.392 mW/g

SAR(1 g) = 0.263 mW/g; SAR(10 g) = 0.171 mW/g

Maximum value of SAR (measured) = 0.333 mW/g



0 dB = 0.359 mW/g = -8.89 dB mW/g

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Date: 6/14/2012

Hotspot_Front side_CH9400

Communication System: GPRS(Class 10); Frequency: 1880 MHz

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.486$ mho/m; $\epsilon_r = 50.811$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.53, 7.53, 7.53); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/30/2012
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/Body/Area Scan (71x101x1): Measurement grid: dx=15mm, dy=15mm

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

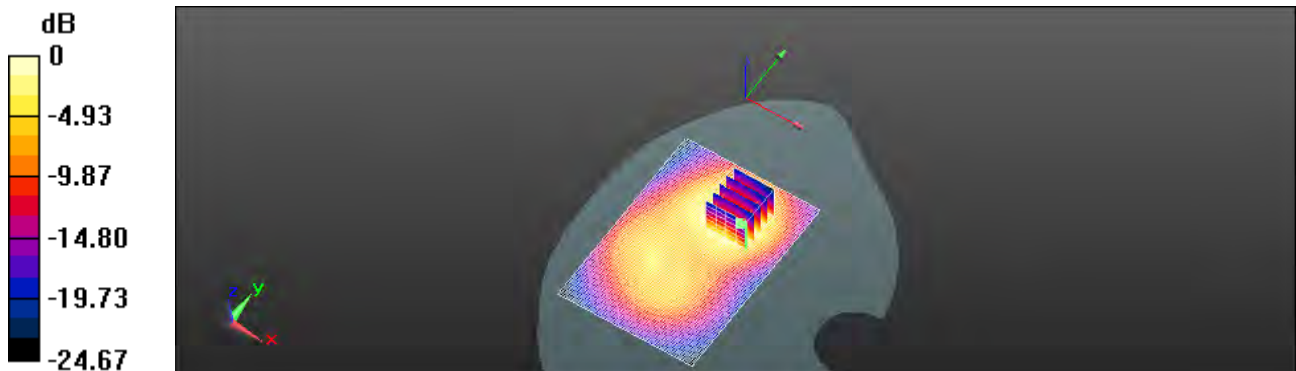
Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 8.831 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 1.317 mW/g

SAR(1 g) = 0.790 mW/g; SAR(10 g) = 0.463 mW/g

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



0 dB = 1.07 mW/g = 0.59 dB mW/g

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Date: 6/14/2012

Hotspot_Back side_CH9262

Communication System: WCDMA; Frequency: 1852.4 MHz

Medium parameters used: $f = 1852.4 \text{ MHz}$; $\sigma = 1.443 \text{ mho/m}$; $\epsilon_r = 51.152$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.53, 7.53, 7.53); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/30/2012
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/Body/Area Scan (71x101x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

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

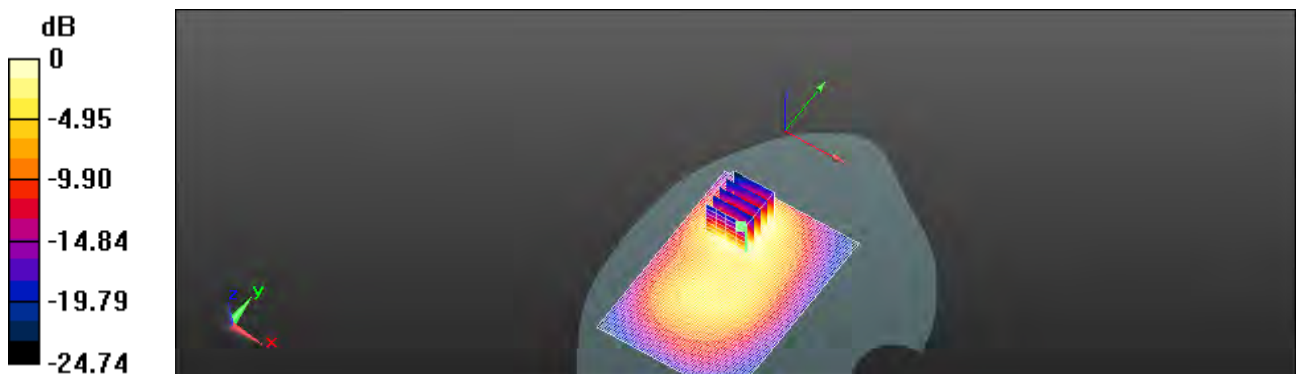
Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 11.983 V/m; Power Drift = -0.00 dB

Peak SAR (extrapolated) = 1.376 mW/g

SAR(1 g) = 0.813 mW/g; SAR(10 g) = 0.477 mW/g

Maximum value of SAR (measured) = 1.09 mW/g



0 dB = 1.17 mW/g = 1.37 dB mW/g

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Date: 6/14/2012

Hotspot_Back side_CH9400

Communication System: WCDMA; Frequency: 1880 MHz

Medium parameters used: $f = 1880 \text{ MHz}$; $\sigma = 1.486 \text{ mho/m}$; $\epsilon_r = 50.811$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.53, 7.53, 7.53); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/30/2012
- Phantom: SAM2; Type: SAM
- Measurement SW: DASYS2, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/Body/Area Scan (71x101x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 1.58 mW/g

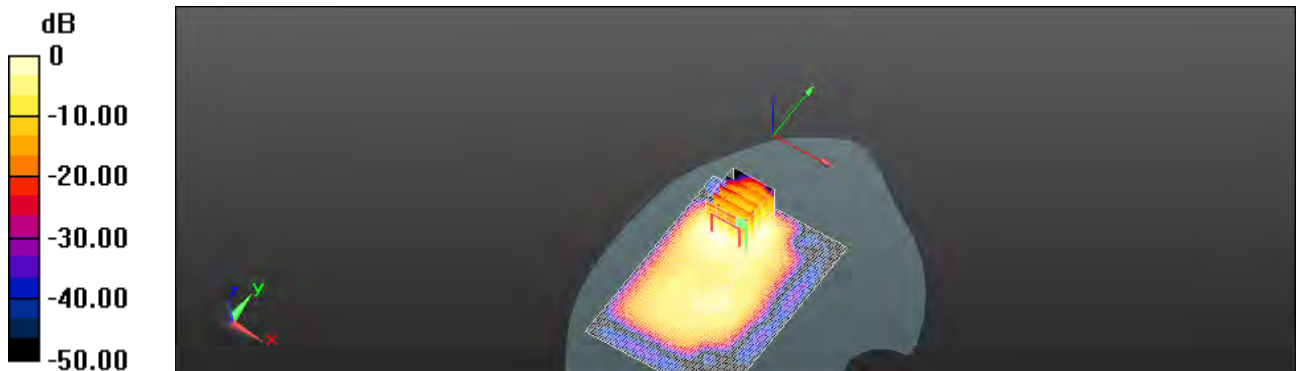
Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 11.387 V/m; Power Drift = -0.19 dB

Peak SAR (extrapolated) = 1.665 mW/g

SAR(1 g) = 0.810 mW/g; SAR(10 g) = 0.441 mW/g

Maximum value of SAR (measured) = 1.22 mW/g



0 dB = 1.58 mW/g = 3.99 dB mW/g

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Date: 6/14/2012

Hotspot_Back side_CH9538

Communication System: WCDMA; Frequency: 1907.6 MHz

Medium parameters used: $f = 1908$ MHz; $\sigma = 1.548$ mho/m; $\epsilon_r = 51.204$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.53, 7.53, 7.53); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/30/2012
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/Body/Area Scan (71x101x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 1.32 mW/g

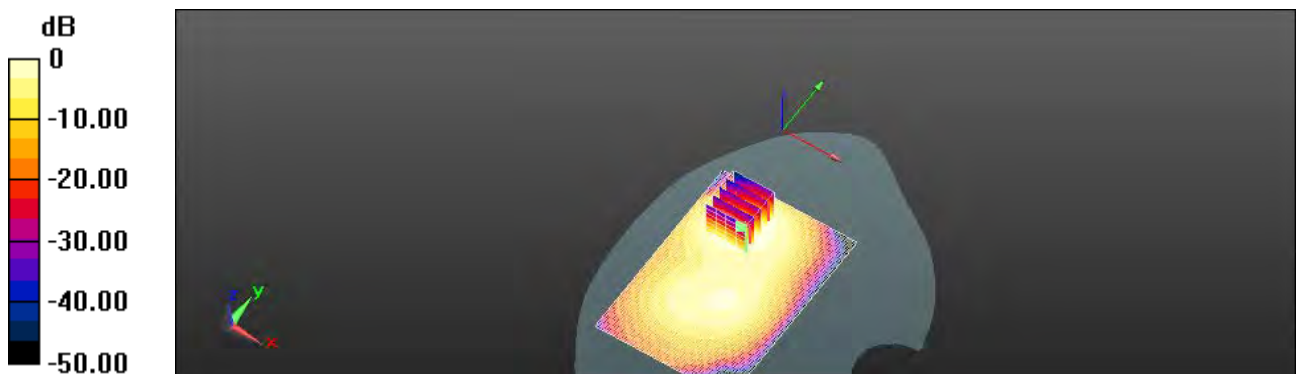
Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 12.061 V/m; Power Drift = 0.15 dB

Peak SAR (extrapolated) = 1.585 mW/g

SAR(1 g) = 0.93 mW/g; SAR(10 g) = 0.540 mW/g

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



0 dB = 1.32 mW/g = 2.39 dB mW/g

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Date: 6/14/2012

Hotspot_Bottom side_CH9400

Communication System: WCDMA; Frequency: 1880 MHz

Medium parameters used: $f = 1880 \text{ MHz}$; $\sigma = 1.486 \text{ mho/m}$; $\epsilon_r = 50.811$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.53, 7.53, 7.53); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/30/2012
- Phantom: SAM2; Type: SAM
- Measurement SW: DASYS2, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

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

Maximum value of SAR (interpolated) = 0.666 mW/g

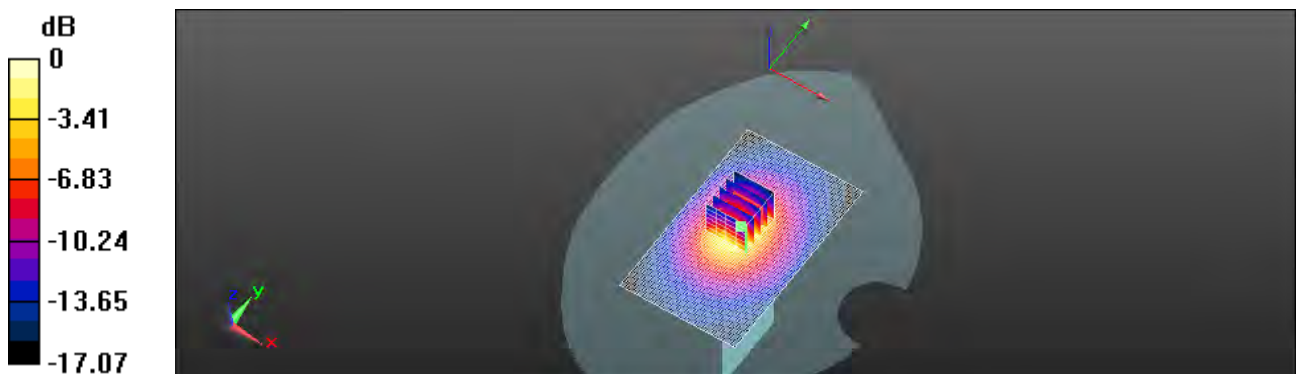
Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 15.584 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 0.867 mW/g

SAR(1 g) = 0.519 mW/g; SAR(10 g) = 0.282 mW/g

Maximum value of SAR (measured) = 0.709 mW/g



0 dB = 0.666 mW/g = -3.53 dB mW/g

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Date: 6/14/2012

Hotspot_Right side_CH9400

Communication System: GPRS(Class 10); Frequency: 1880 MHz

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.486$ mho/m; $\epsilon_r = 50.811$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.53, 7.53, 7.53); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/30/2012
- Phantom: SAM2; Type: SAM
- Measurement SW: DASYS2, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/Body/Area Scan (61x111x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.242 mW/g

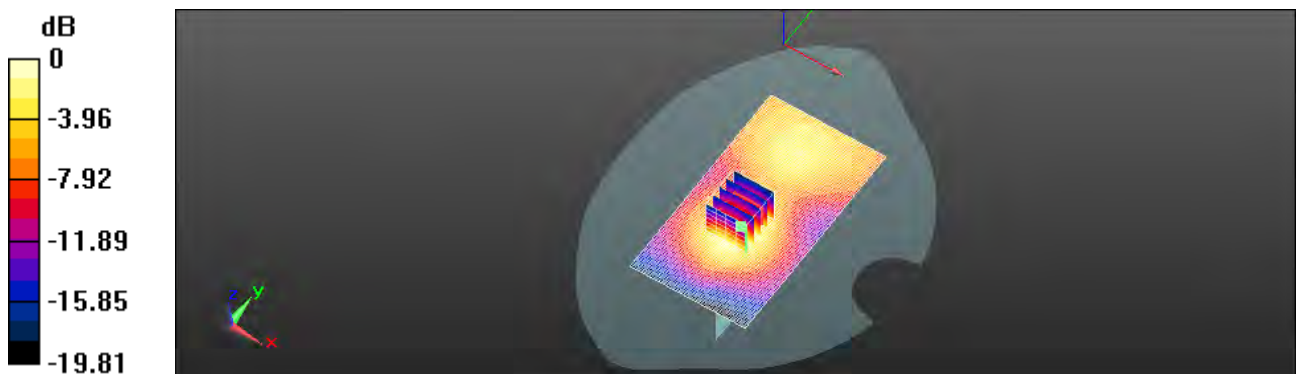
Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 10.085 V/m; Power Drift = -0.08 dB

Peak SAR (extrapolated) = 0.283 mW/g

SAR(1 g) = 0.180 mW/g; SAR(10 g) = 0.108 mW/g

Maximum value of SAR (measured) = 0.235 mW/g



0 dB = 0.242 mW/g = -12.31 dB mW/g

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Date: 6/14/2012

Hotspot_Left side_CH9400

Communication System: GPRS(Class 10); Frequency: 1880 MHz

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.486$ mho/m; $\epsilon_r = 50.811$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.53, 7.53, 7.53); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/30/2012
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/Body/Area Scan (61x111x1): Measurement grid: dx=15mm, dy=15mm

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

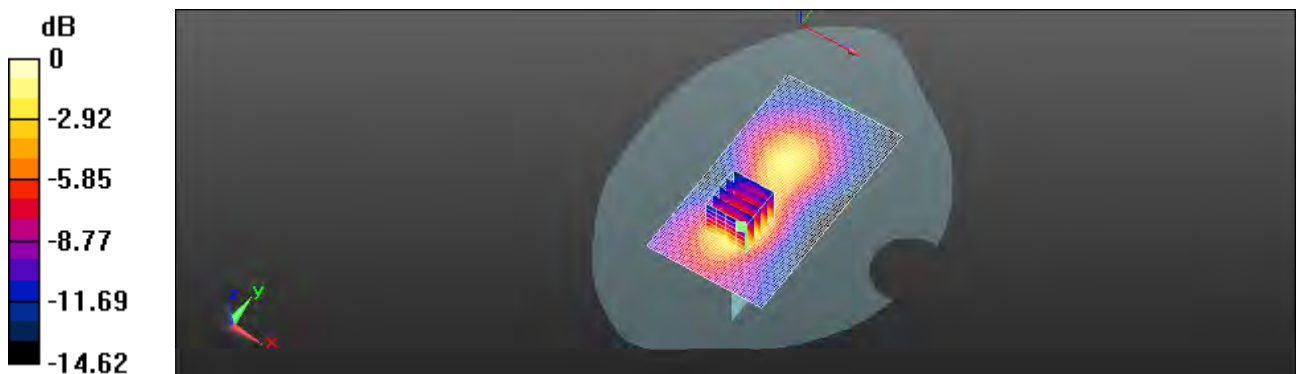
Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 10.642 V/m; Power Drift = -0.03 dB

Peak SAR (extrapolated) = 0.567 mW/g

SAR(1 g) = 0.341 mW/g; SAR(10 g) = 0.190 mW/g

Maximum value of SAR (measured) = 0.458 mW/g



0 dB = 0.470 mW/g = -6.55 dB mW/g

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Date: 6/13/2012

RE Cheek_CH4132

Communication System: WCDMA; Frequency: 826.4 MHz

Medium parameters used: $f = 826.4$ MHz; $\sigma = 0.884$ mho/m; $\epsilon_r = 41.409$; $\rho = 1000$ kg/m³

Phantom section: Right Section

Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(9.62, 9.62, 9.62); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/30/2012
- Phantom: SAM2; Type: SAM
- Measurement SW: DASYS2, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/RE Cheek/Area Scan (71x111x1): Measurement grid:

$dx=15$ mm, $dy=15$ mm

Maximum value of SAR (interpolated) = 0.668 mW/g

Configuration/RE Cheek/Zoom Scan (7x7x7) (7x7x7)/Cube 0:

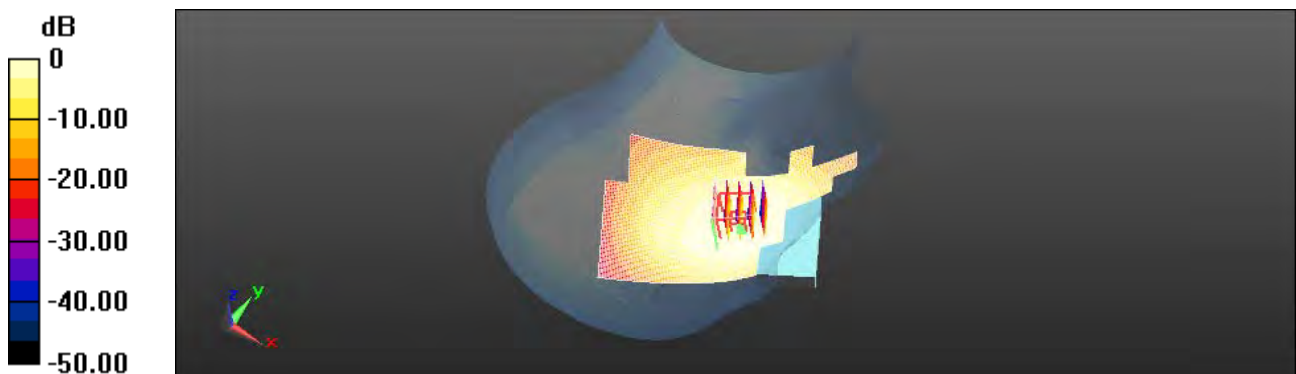
Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 11.590 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 0.749 mW/g

SAR(1 g) = 0.581 mW/g; SAR(10 g) = 0.429 mW/g

Maximum value of SAR (measured) = 0.674 mW/g



0 dB = 0.668 mW/g = -3.50 dB mW/g

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Date: 6/13/2012

RE Cheek_CH4183

Communication System: WCDMA; Frequency: 836.6 MHz

Medium parameters used: $f = 837$ MHz; $\sigma = 0.893$ mho/m; $\epsilon_r = 41.276$; $\rho = 1000$ kg/m³

Phantom section: Right Section

Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(9.62, 9.62, 9.62); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/30/2012
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/RE Cheek/Area Scan (71x111x1): Measurement grid:

$dx=15$ mm, $dy=15$ mm

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

Configuration/RE Cheek/Zoom Scan (7x7x7) (7x7x7)/Cube 0:

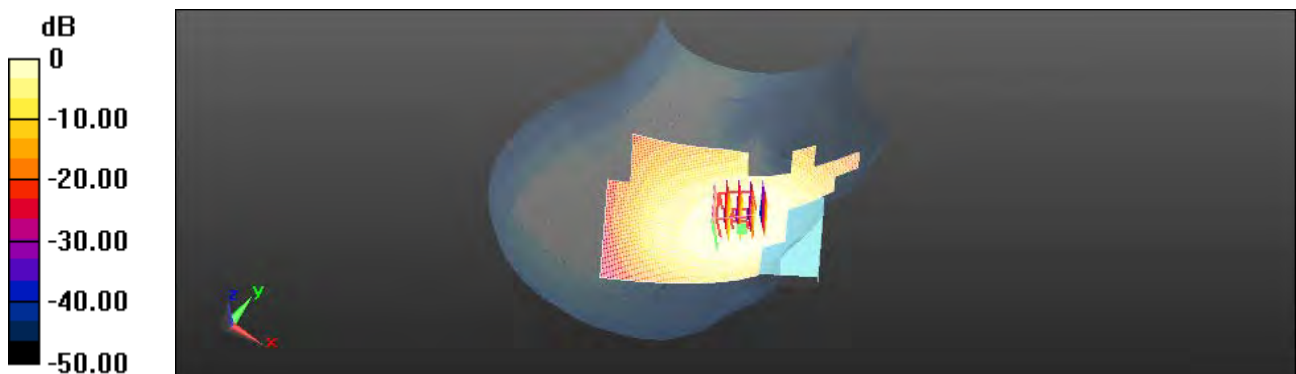
Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 13.561 V/m; Power Drift = 0.11dB

Peak SAR (extrapolated) = 0.942 mW/g

SAR(1 g) = 0.740 mW/g; SAR(10 g) = 0.546 mW/g

Maximum value of SAR (measured) = 0.849 mW/g



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

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Date: 6/13/2012

RE Cheek_CH4233

Communication System: WCDMA; Frequency: 846.6 MHz

Medium parameters used: $f = 847$ MHz; $\sigma = 0.901$ mho/m; $\epsilon_r = 41.152$; $\rho = 1000$ kg/m³

Phantom section: Right Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(9.62, 9.62, 9.62); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/30/2012
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/RE Cheek/Area Scan (71x111x1): Measurement grid:

$dx=15$ mm, $dy=15$ mm

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

Configuration/RE Cheek/Zoom Scan (7x7x7) (7x7x7)/Cube 0:

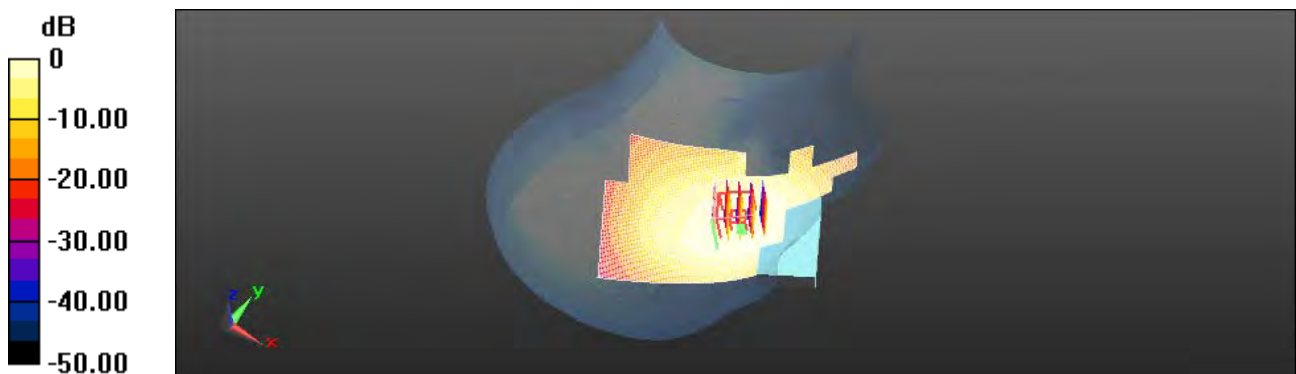
Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 14.291 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 1.131 mW/g

SAR(1 g) = 0.88 mW/g; SAR(10 g) = 0.645 mW/g

Maximum value of SAR (measured) = 1.02 mW/g



0 dB = 1.01 mW/g = 0.12 dB mW/g

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Date: 6/13/2012

RE Tilt_CH4183

Communication System: WCDMA; Frequency: 836.6 MHz

Medium parameters used: $f = 837$ MHz; $\sigma = 0.893$ mho/m; $\epsilon_r = 41.276$; $\rho = 1000$ kg/m³

Phantom section: Right Section

Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(9.62, 9.62, 9.62); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/30/2012
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/RE Tilt/Area Scan (71x111x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.494 mW/g

Configuration/RE Tilt/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 17.938 V/m; Power Drift = -0.00 dB

Peak SAR (extrapolated) = 0.538 mW/g

SAR(1 g) = 0.413 mW/g; SAR(10 g) = 0.305 mW/g

Maximum value of SAR (measured) = 0.479 mW/g



0 dB = 0.494 mW/g = -6.13 dB mW/g

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Date: 6/13/2012

LE Cheek_CH4183

Communication System: WCDMA; Frequency: 836.6 MHz

Medium parameters used: $f = 837$ MHz; $\sigma = 0.893$ mho/m; $\epsilon_r = 41.276$; $\rho = 1000$ kg/m³

Phantom section: Left Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(9.62, 9.62, 9.62); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/30/2012
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/LE Cheek/Area Scan (71x111x1): Measurement grid:

$dx=15$ mm, $dy=15$ mm

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

Configuration/LE Cheek/Zoom Scan (7x7x7) (7x7x7)/Cube 0:

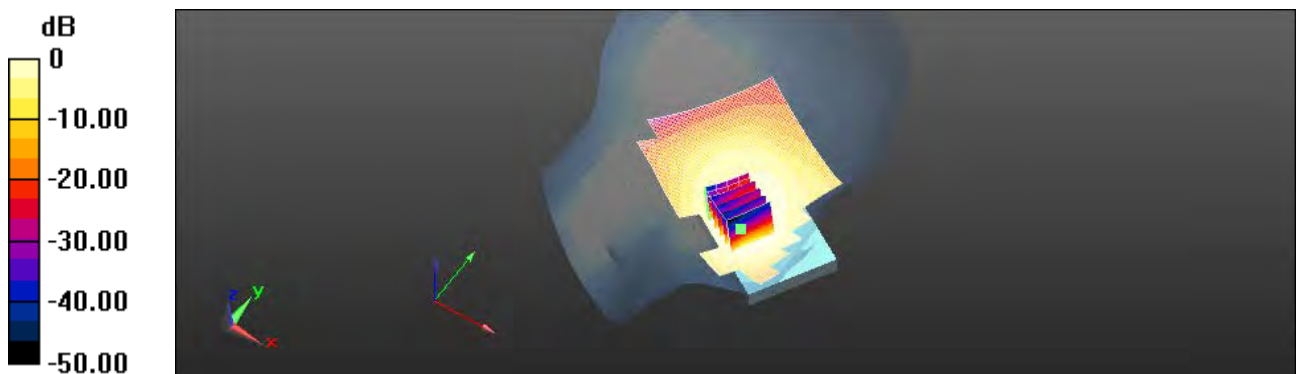
Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 11.289 V/m; Power Drift = -0.00 dB

Peak SAR (extrapolated) = 0.912 mW/g

SAR(1 g) = 0.617 mW/g; SAR(10 g) = 0.440 mW/g

Maximum value of SAR (measured) = 0.751 mW/g



0 dB = 0.779 mW/g = -2.17 dB mW/g

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Date: 6/13/2012

LE Tilt_CH4183

Communication System: WCDMA; Frequency: 836.6 MHz

Medium parameters used: $f = 837$ MHz; $\sigma = 0.893$ mho/m; $\epsilon_r = 41.276$; $\rho = 1000$ kg/m³

Phantom section: Left Section

Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(9.62, 9.62, 9.62); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/30/2012
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/LE Cheek/Area Scan (71x111x1): Measurement grid:

$dx=15$ mm, $dy=15$ mm

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

Configuration/LE Cheek/Zoom Scan (7x7x7) (7x7x7)/Cube 0:

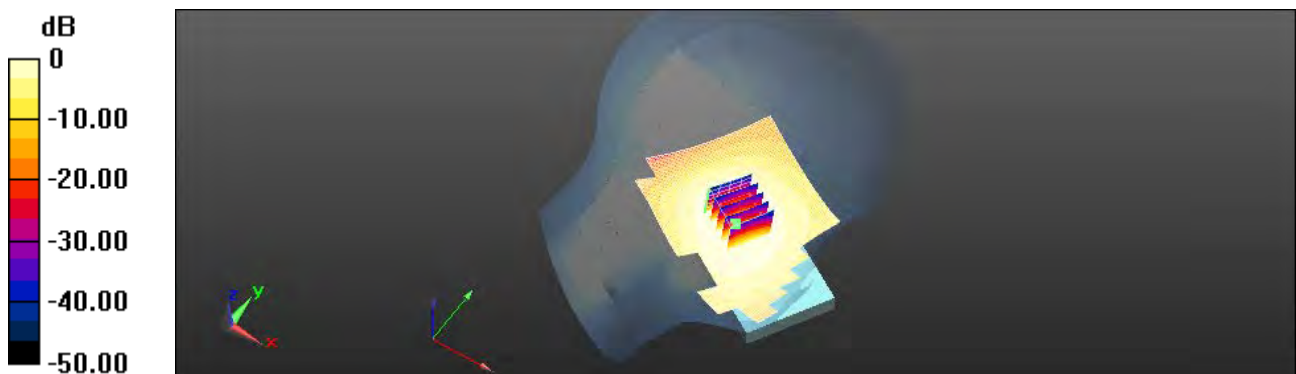
Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 16.183 V/m; Power Drift = 0.06 dB

Peak SAR (extrapolated) = 0.478 mW/g

SAR(1 g) = 0.366 mW/g; SAR(10 g) = 0.270 mW/g

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



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

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Date: 6/13/2012

Hotspot_Front side_CH4132

Communication System: WCDMA; Frequency: 826.4 MHz

Medium parameters used: $f = 826.4 \text{ MHz}$; $\sigma = 1.022 \text{ mho/m}$; $\epsilon_r = 53.817$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(9.6, 9.6, 9.6); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/30/2012
- Phantom: SAM2; Type: SAM
- Measurement SW: DASYS2, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/Body/Area Scan (71x101x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.801 mW/g

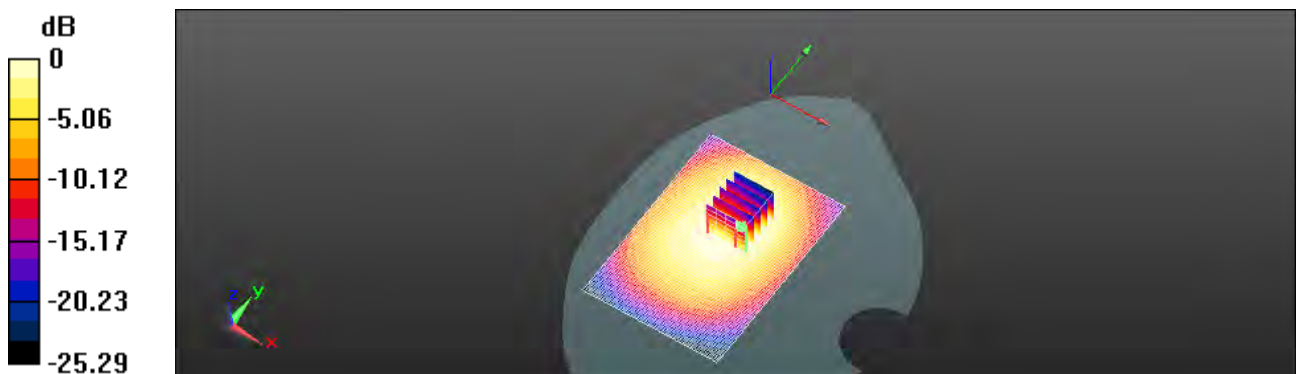
Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 18.045 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 0.898 mW/g

SAR(1 g) = 0.668 mW/g; SAR(10 g) = 0.481 mW/g

Maximum value of SAR (measured) = 0.787 mW/g



0 dB = 0.801 mW/g = -1.93 dB mW/g

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Date: 6/13/2012

Hotspot_Front side_CH4183

Communication System: WCDMA; Frequency: 836.6 MHz

Medium parameters used: $f = 837$ MHz; $\sigma = 1.032$ mho/m; $\epsilon_r = 53.718$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(9.6, 9.6, 9.6); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/30/2012
- Phantom: SAM2; Type: SAM
- Measurement SW: DASYS2, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/Body/Area Scan (71x101x1): Measurement grid: dx=15mm, dy=15mm

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

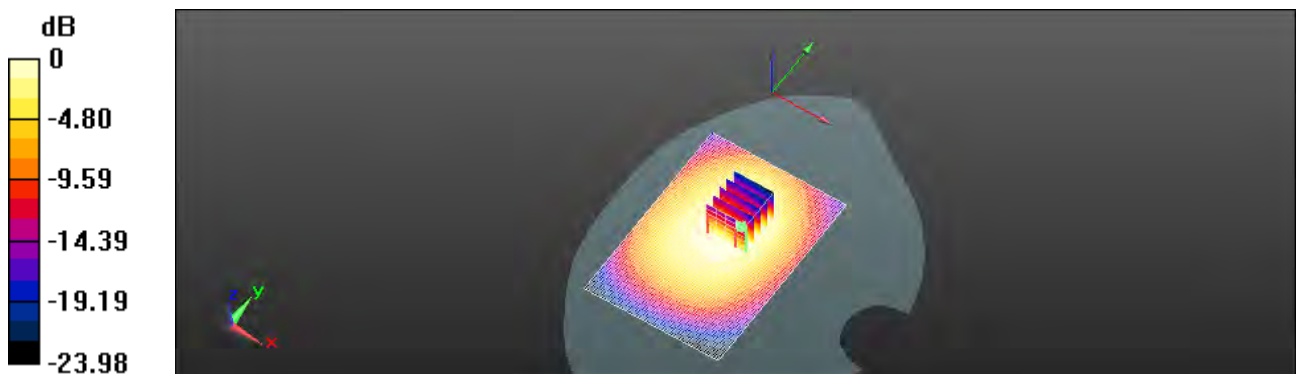
Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 21.955 V/m; Power Drift = 0.00 dB

Peak SAR (extrapolated) = 1.307 mW/g

SAR(1 g) = 0.976 mW/g; SAR(10 g) = 0.704 mW/g

Maximum value of SAR (measured) = 1.15 mW/g



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

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Date: 6/13/2012

Hotspot_Front side_CH4233

Communication System: WCDMA; Frequency: 846.6 MHz

Medium parameters used: $f = 847$ MHz; $\sigma = 1.039$ mho/m; $\epsilon_r = 53.566$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(9.6, 9.6, 9.6); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/30/2012
- Phantom: SAM2; Type: SAM
- Measurement SW: DASYS2, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/Body/Area Scan (71x101x1): Measurement grid: dx=15mm, dy=15mm

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

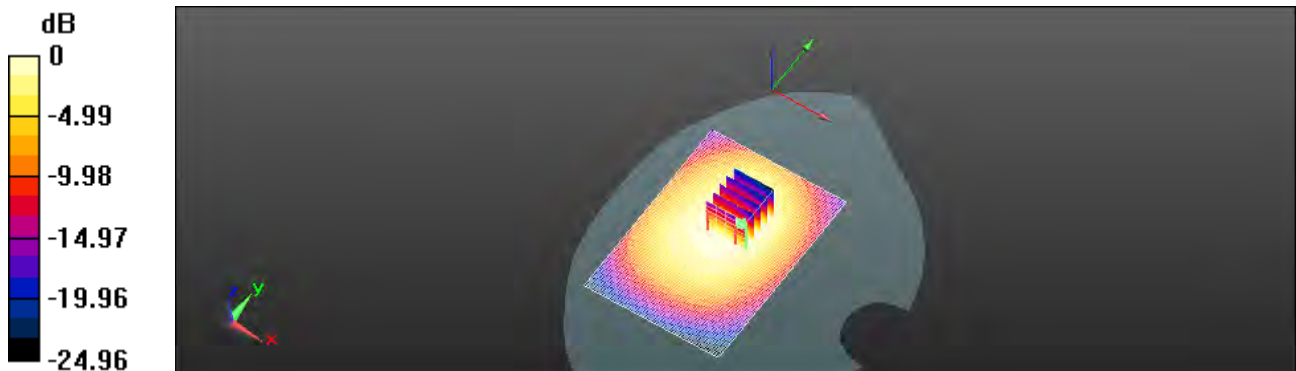
Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 22.039 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 1.320 mW/g

SAR(1 g) = 0.987 mW/g; SAR(10 g) = 0.712 mW/g

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



0 dB = 1.18 mW/g = 1.41 dB mW/g

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Date: 6/13/2012

Hotspot_Back side_CH4132

Communication System: WCDMA; Frequency: 826.4 MHz

Medium parameters used: $f = 826.4$ MHz; $\sigma = 1.022$ mho/m; $\epsilon_r = 53.817$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(9.6, 9.6, 9.6); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/30/2012
- Phantom: SAM2; Type: SAM
- Measurement SW: DASYS2, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/Body/Area Scan (71x101x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 1.20 mW/g

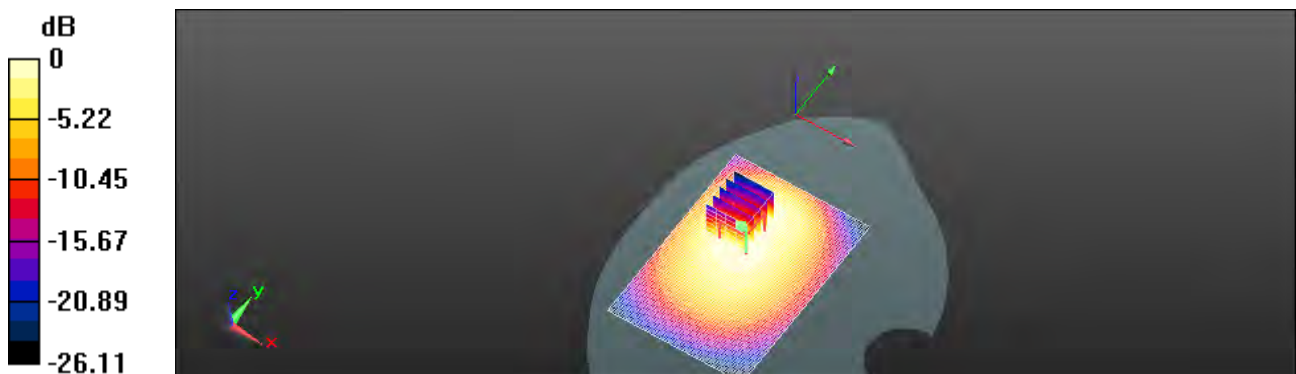
Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 19.067 V/m; Power Drift = -0.10 dB

Peak SAR (extrapolated) = 1.388 mW/g

SAR(1 g) = 0.992 mW/g; SAR(10 g) = 0.690 mW/g

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



0 dB = 1.20 mW/g = 1.59 dB mW/g

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Date: 6/13/2012

Hotspot_Back side_CH4183

Communication System: WCDMA; Frequency: 836.6 MHz

Medium parameters used: $f = 837$ MHz; $\sigma = 1.032$ mho/m; $\epsilon_r = 53.718$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(9.6, 9.6, 9.6); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/30/2012
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/Body/Area Scan (71x101x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 1.52 mW/g

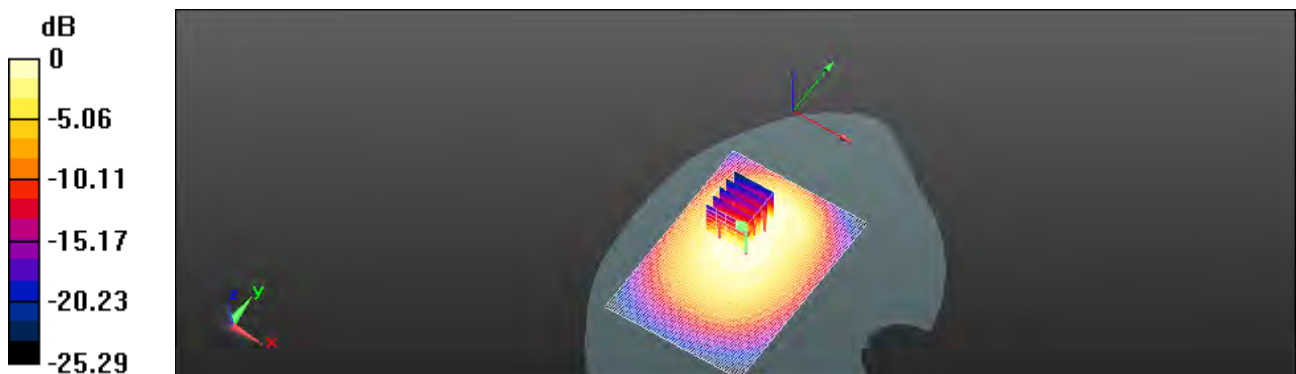
Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 22.653 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 1.802 mW/g

SAR(1 g) = 1.29 mW/g; SAR(10 g) = 0.894 mW/g

Maximum value of SAR (measured) = 1.54 mW/g



0 dB = 1.52 mW/g = 3.64 dB mW/g

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Hotspot_Back side_CH4233

Communication System: WCDMA; Frequency: 846.6 MHz

Medium parameters used: $f = 847$ MHz; $\sigma = 1.039$ mho/m; $\epsilon_r = 53.566$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(9.6, 9.6, 9.6); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/30/2012
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/Body/Area Scan (71x101x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 1.52 mW/g

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

Reference Value = 21.304 V/m; Power Drift = -0.06 dB

Peak SAR (extrapolated) = 1.763 mW/g

SAR(1 g) = 1.29 mW/g; SAR(10 g) = 0.892 mW/g

Maximum value of SAR (measured) = 1.53 mW/g

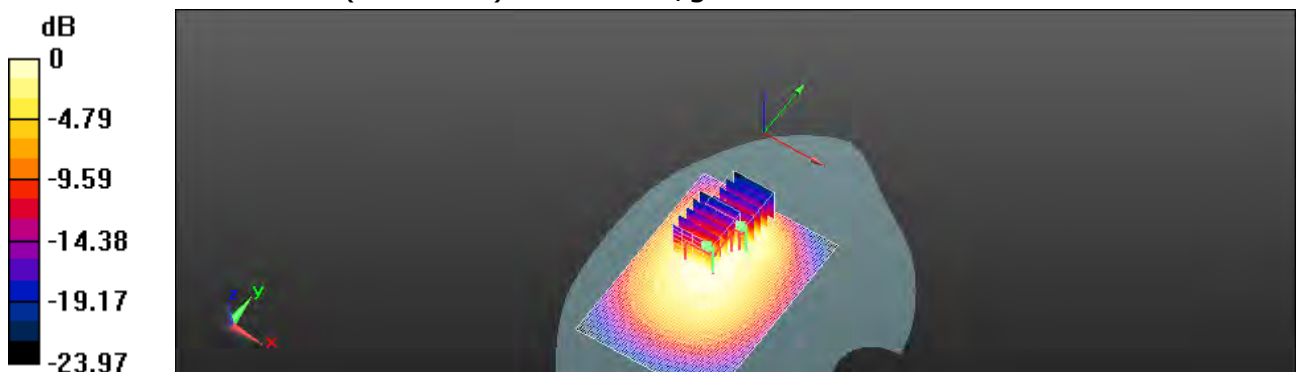
Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 21.304 V/m; Power Drift = -0.06 dB

Peak SAR (extrapolated) = 1.651 mW/g

SAR(1 g) = 1.01 mW/g; SAR(10 g) = 0.617 mW/g

Maximum value of SAR (measured) = 1.37 mW/g



0 dB = 1.52 mW/g = 3.66 dB mW/g

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Date: 6/13/2012

Hotspot_Bottom side_CH4183

Communication System: WCDMA; Frequency: 836.6 MHz

Medium parameters used: $f = 837$ MHz; $\sigma = 1.032$ mho/m; $\epsilon_r = 53.718$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(9.6, 9.6, 9.6); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/30/2012
- Phantom: SAM2; Type: SAM
- Measurement SW: DASYS2, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

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

Maximum value of SAR (interpolated) = 0.131 mW/g

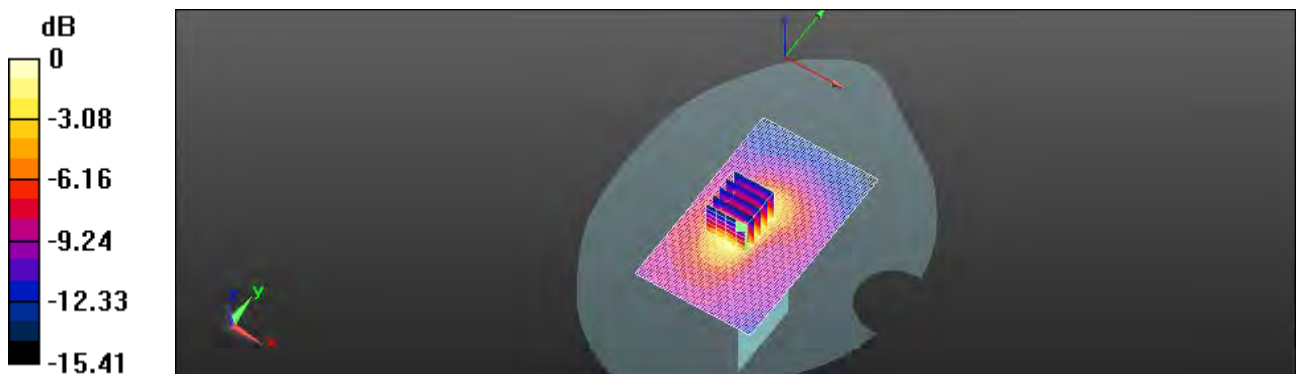
Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 7.635 V/m; Power Drift = 0.07 dB

Peak SAR (extrapolated) = 0.157 mW/g

SAR(1 g) = 0.096 mW/g; SAR(10 g) = 0.056 mW/g

Maximum value of SAR (measured) = 0.126 mW/g



0 dB = 0.131 mW/g = -17.68 dB mW/g

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Date: 6/13/2012

Hotspot_Right side_CH4183

Communication System: WCDMA; Frequency: 836.6 MHz

Medium parameters used: $f = 837$ MHz; $\sigma = 1.032$ mho/m; $\epsilon_r = 53.718$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(9.6, 9.6, 9.6); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/30/2012
- Phantom: SAM2; Type: SAM
- Measurement SW: DASYS2, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/Body/Area Scan (61x111x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.946 mW/g

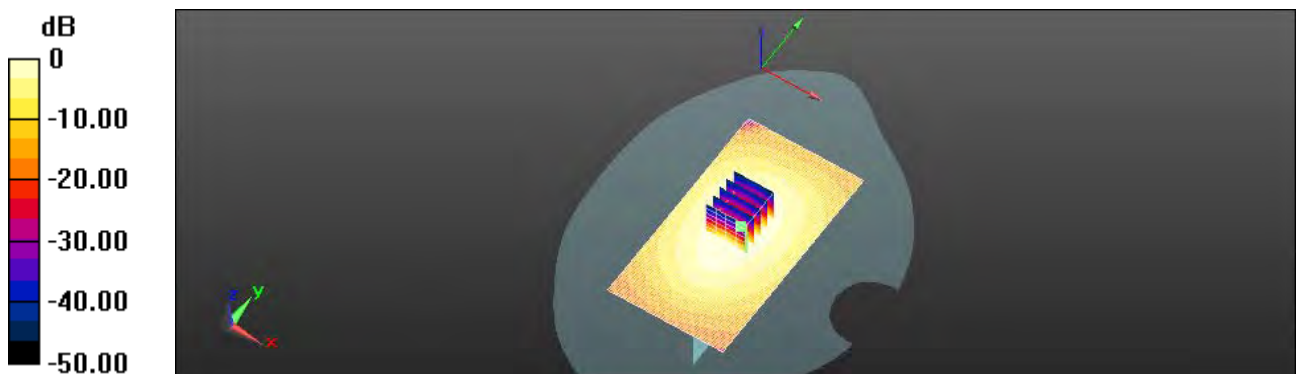
Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 29.376 V/m; Power Drift = -0.06 dB

Peak SAR (extrapolated) = 1.071 mW/g

SAR(1 g) = 0.761 mW/g; SAR(10 g) = 0.525 mW/g

Maximum value of SAR (measured) = 0.931 mW/g



0 dB = 0.946 mW/g = -0.49 dB mW/g

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Date: 6/13/2012

Hotspot_Left side_CH4183

Communication System: WCDMA; Frequency: 836.6 MHz

Medium parameters used: $f = 837$ MHz; $\sigma = 1.032$ mho/m; $\epsilon_r = 53.718$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(9.6, 9.6, 9.6); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/30/2012
- Phantom: SAM2; Type: SAM
- Measurement SW: DASYS2, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/Body/Area Scan (61x111x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.687 mW/g

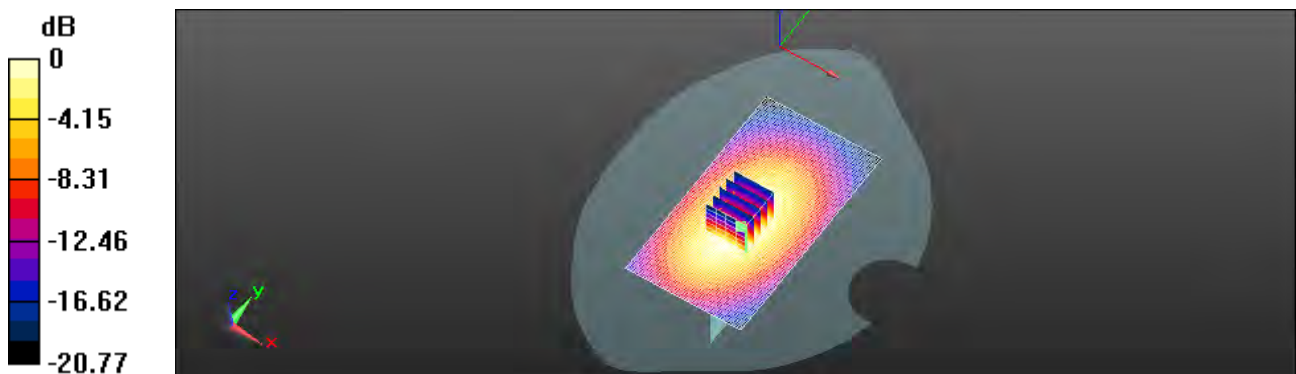
Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 24.878 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 0.790 mW/g

SAR(1 g) = 0.553 mW/g; SAR(10 g) = 0.375 mW/g

Maximum value of SAR (measured) = 0.683 mW/g



0 dB = 0.687 mW/g = -3.26 dB mW/g

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Date: 6/18/2012

RE Cheek_WLAN802.11b_CH1

Communication System: WLAN802.11 b & g & n(20M)(40M); Frequency: 2412 MHz

Medium parameters used: $f = 2412$ MHz; $\sigma = 1.79$ mho/m; $\epsilon_r = 39.475$; $\rho = 1000$ kg/m³

Phantom section: Right Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.17, 7.17, 7.17); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/30/2012
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/RE Cheek/Area Scan (71x111x1): Measurement grid:

$dx=15$ mm, $dy=15$ mm

Maximum value of SAR (interpolated) = 0.318 mW/g

Configuration/RE Cheek/Zoom Scan (7x7x7) (7x7x7)/Cube 0:

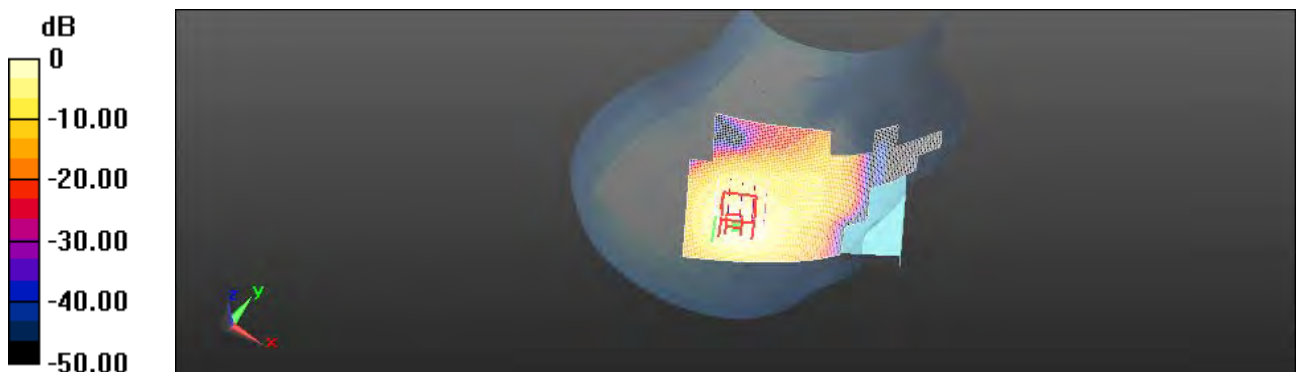
Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 9.545 V/m; Power Drift = 0.07 dB

Peak SAR (extrapolated) = 0.498 mW/g

SAR(1 g) = 0.211 mW/g; SAR(10 g) = 0.097 mW/g

Maximum value of SAR (measured) = 0.307 mW/g



0 dB = 0.318 mW/g = -9.96 dB mW/g

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Member of SGS Group

Date: 6/18/2012

RE Cheek_WLAN802.11b_CH6

Communication System: WLAN802.11 b & g & n(20M)(40M); Frequency: 2437 MHz

Medium parameters used: $f = 2437 \text{ MHz}$; $\sigma = 1.81 \text{ mho/m}$; $\epsilon_r = 39.357$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Right Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.17, 7.17, 7.17); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/30/2012
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/RE Cheek/Area Scan (71x111x1): Measurement grid:

$dx=15\text{mm}$, $dy=15\text{mm}$

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

Configuration/RE Cheek/Zoom Scan (7x7x7) (7x7x7)/Cube 0:

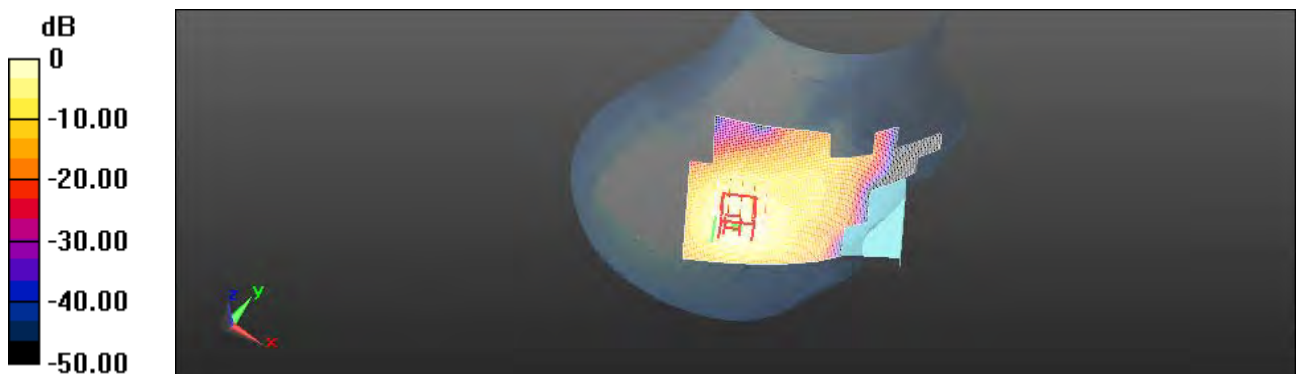
Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 11.831 V/m; Power Drift = 0.13 dB

Peak SAR (extrapolated) = 0.685 mW/g

SAR(1 g) = 0.292 mW/g; SAR(10 g) = 0.138 mW/g

Maximum value of SAR (measured) = 0.431 mW/g



0 dB = 0.469 mW/g = -6.58 dB mW/g

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Date: 6/18/2012

RE Cheek_WLAN802.11b_CH11

Communication System: WLAN802.11 b & g & n(20M)(40M); Frequency: 2462 MHz

Medium parameters used: $f = 2462 \text{ MHz}$; $\sigma = 1.837 \text{ mho/m}$; $\epsilon_r = 39.183$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Right Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.17, 7.17, 7.17); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/30/2012
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/RE Cheek/Area Scan (71x111x1): Measurement grid:

$dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.514 mW/g

Configuration/RE Cheek/Zoom Scan (7x7x7) (7x7x7)/Cube 0:

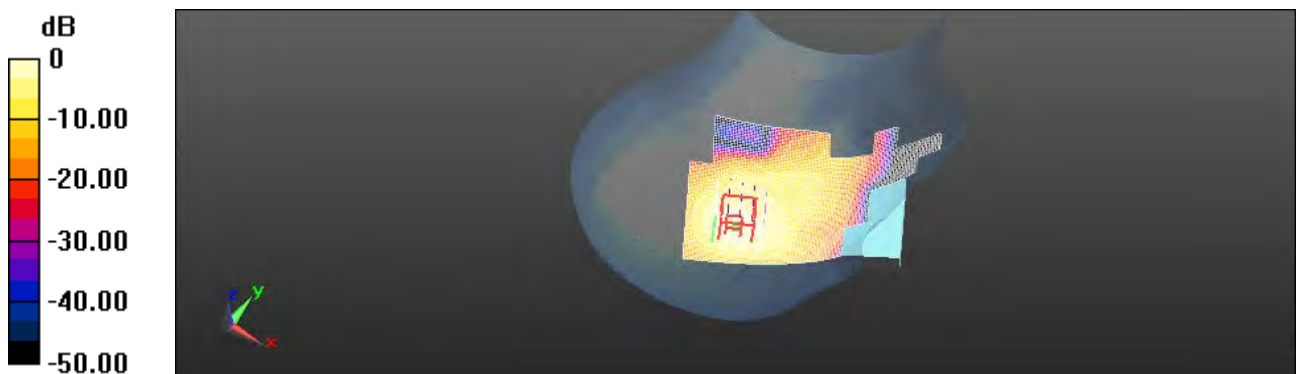
Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 11.541 V/m; Power Drift = 0.13 dB

Peak SAR (extrapolated) = 0.755 mW/g

SAR(1 g) = 0.32 mW/g; SAR(10 g) = 0.145 mW/g

Maximum value of SAR (measured) = 0.449 mW/g



0 dB = 0.514 mW/g = -5.78 dB mW/g

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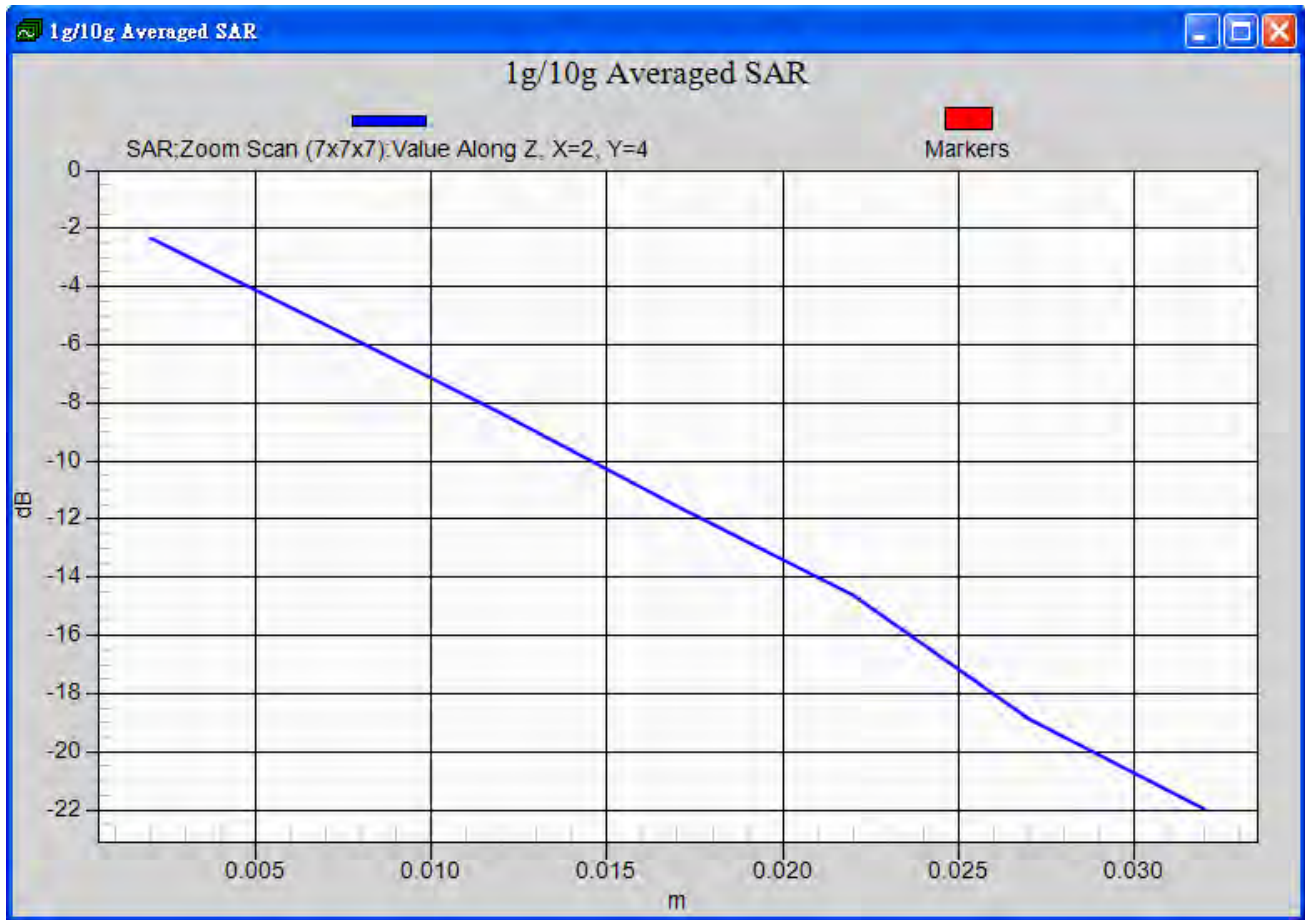
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Date: 6/18/2012

RE Cheek_WLAN802.11b_CH11_repeated with external Memory card inside

Communication System: WLAN802.11 b & g & n(20M)(40M); Frequency: 2462 MHz

Medium parameters used: $f = 2462 \text{ MHz}$; $\sigma = 1.837 \text{ mho/m}$; $\epsilon_r = 39.183$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Right Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.17, 7.17, 7.17); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/30/2012
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/RE Cheek/Area Scan (71x111x1): Measurement grid:

$dx=15\text{mm}$, $dy=15\text{mm}$

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

Configuration/RE Cheek/Zoom Scan (7x7x7) (7x7x7)/Cube 0:

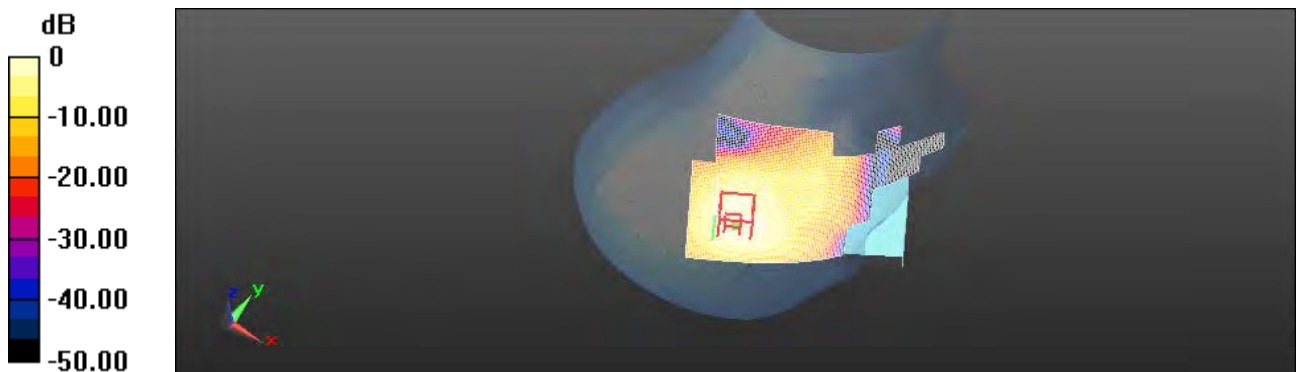
Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 12.339 V/m; Power Drift = -0.14 dB

Peak SAR (extrapolated) = 0.724 mW/g

SAR(1 g) = 0.303 mW/g; SAR(10 g) = 0.142 mW/g

Maximum value of SAR (measured) = 0.449 mW/g



0 dB = 0.492 mW/g = -6.16 dB mW/g

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Date: 6/18/2012

RE Cheek_WLAN802.11b_CH11_repeated with Bluetooth active

Communication System: WLAN802.11 b & g & n(20M)(40M); Frequency: 2462 MHz

Medium parameters used: $f = 2462 \text{ MHz}$; $\sigma = 1.837 \text{ mho/m}$; $\epsilon_r = 39.183$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Right Section

Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.17, 7.17, 7.17); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/30/2012
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/RE Cheek/Area Scan (71x111x1): Measurement grid:

$dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.527 mW/g

Configuration/RE Cheek/Zoom Scan (7x7x7) (7x7x7)/Cube 0:

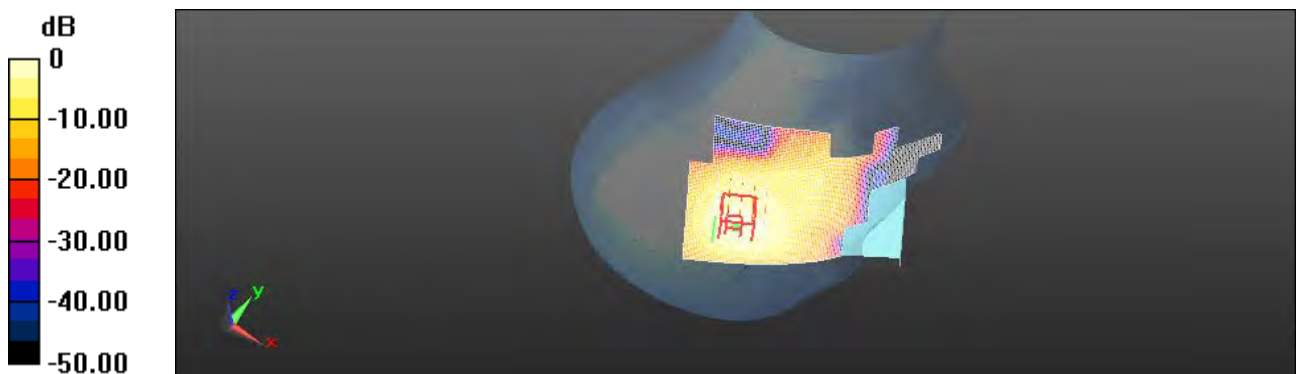
Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 11.743 V/m; Power Drift = 0.05 dB

Peak SAR (extrapolated) = 0.730 mW/g

SAR(1 g) = 0.308 mW/g; SAR(10 g) = 0.141 mW/g

Maximum value of SAR (measured) = 0.440 mW/g



0 dB = 0.527 mW/g = -5.57 dB mW/g

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RE Tilt_WLAN802.11b_CH6

Communication System: WLAN802.11 b & g & n(20M)(40M); Frequency: 2437 MHz

Medium parameters used: $f = 2437 \text{ MHz}$; $\sigma = 1.81 \text{ mho/m}$; $\epsilon_r = 39.357$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Right Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.17, 7.17, 7.17); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/30/2012
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/RE Cheek/Area Scan (71x111x1): Measurement grid:

$dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.296 mW/g

Configuration/RE Cheek/Zoom Scan (7x7x7) (7x7x7)/Cube 0:

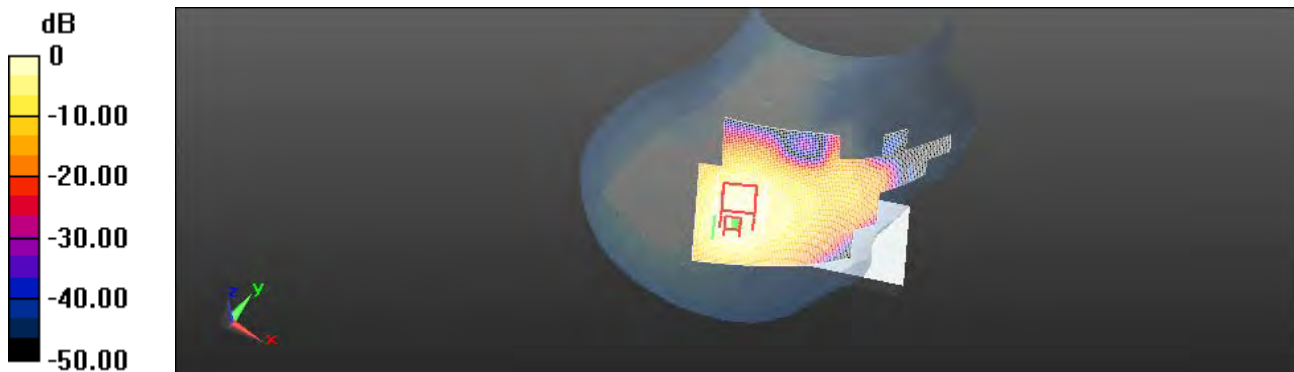
Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 11.627 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 0.441 mW/g

SAR(1 g) = 0.184 mW/g; SAR(10 g) = 0.090 mW/g

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



0 dB = 0.296 mW/g = -10.57 dB mW/g

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Date: 6/18/2012

LE Cheek_WLAN802.11b_CH6

Communication System: WLAN802.11 b & g & n(20M)(40M); Frequency: 2437 MHz

Medium parameters used: $f = 2437 \text{ MHz}$; $\sigma = 1.81 \text{ mho/m}$; $\epsilon_r = 39.357$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.17, 7.17, 7.17); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/30/2012
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/LE Cheek/Area Scan (71x111x1): Measurement grid:

$dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.276 mW/g

Configuration/LE Cheek/Zoom Scan (7x7x7) (7x7x7)/Cube 0:

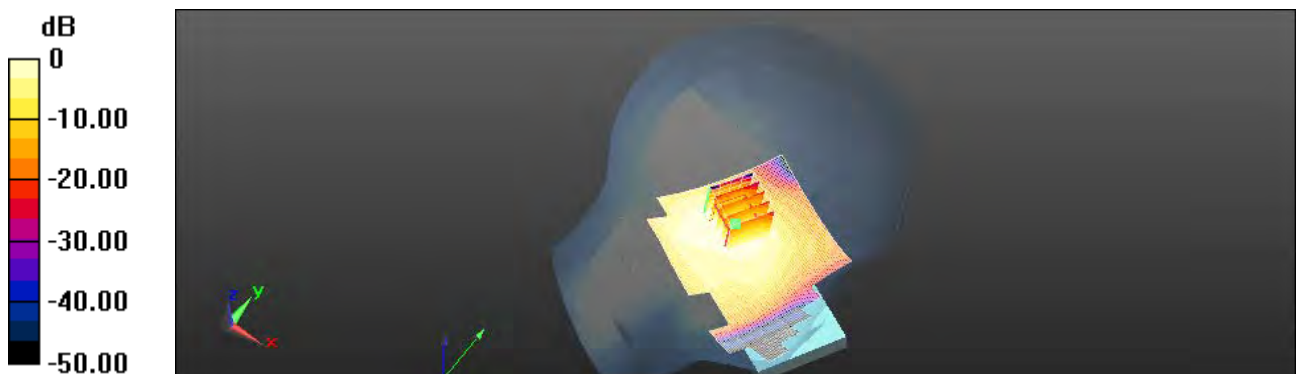
Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 12.146 V/m; Power Drift = 0.07 dB

Peak SAR (extrapolated) = 0.350 mW/g

SAR(1 g) = 0.185 mW/g; SAR(10 g) = 0.101 mW/g

Maximum value of SAR (measured) = 0.258 mW/g



0 dB = 0.276 mW/g = -11.19 dB mW/g

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Date: 6/18/2012

LE Tilt_WLAN802.11b_CH6

Communication System: WLAN802.11 b & g & n(20M)(40M); Frequency: 2437 MHz

Medium parameters used: $f = 2437 \text{ MHz}$; $\sigma = 1.81 \text{ mho/m}$; $\epsilon_r = 39.357$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.17, 7.17, 7.17); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/30/2012
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/LE Cheek/Area Scan (71x111x1): Measurement grid:

$dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.240 mW/g

Configuration/LE Cheek/Zoom Scan (7x7x7) (7x7x7)/Cube 0:

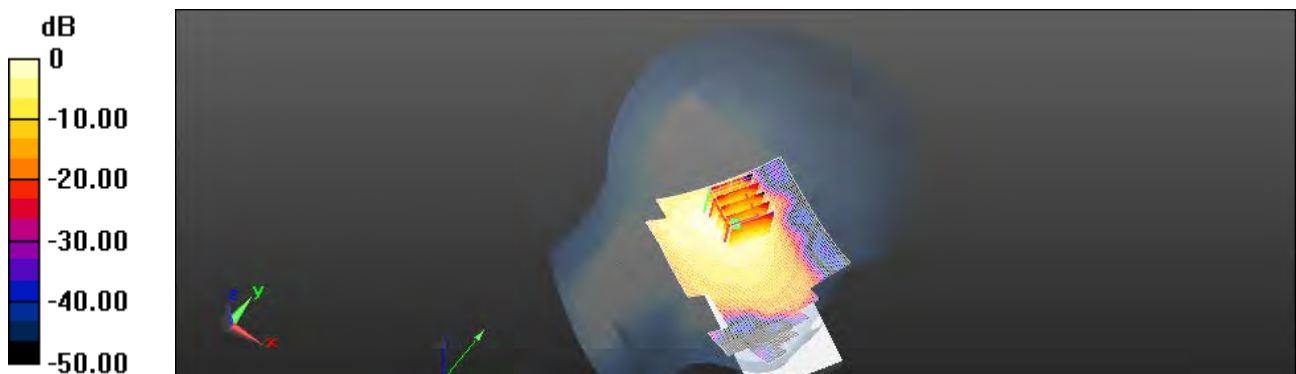
Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 11.505 V/m; Power Drift = -0.18dB

Peak SAR (extrapolated) = 0.302 mW/g

SAR(1 g) = 0.154 mW/g; SAR(10 g) = 0.078 mW/g

Maximum value of SAR (measured) = 0.216 mW/g



0 dB = 0.240 mW/g = -12.39 dB mW/g

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Date: 6/18/2012

Hotspot_Front side_WLAN802.11b_CH1

Communication System: WLAN802.11 b & g & n(20M)(40M); Frequency: 2412 MHz

Medium parameters used: $f = 2412 \text{ MHz}$; $\sigma = 1.966 \text{ mho/m}$; $\epsilon_r = 50.413$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.15, 7.15, 7.15); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/30/2012
- Phantom: SAM2; Type: SAM
- Measurement SW: DASYS2, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/Body/Area Scan (71x101x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.0872 mW/g

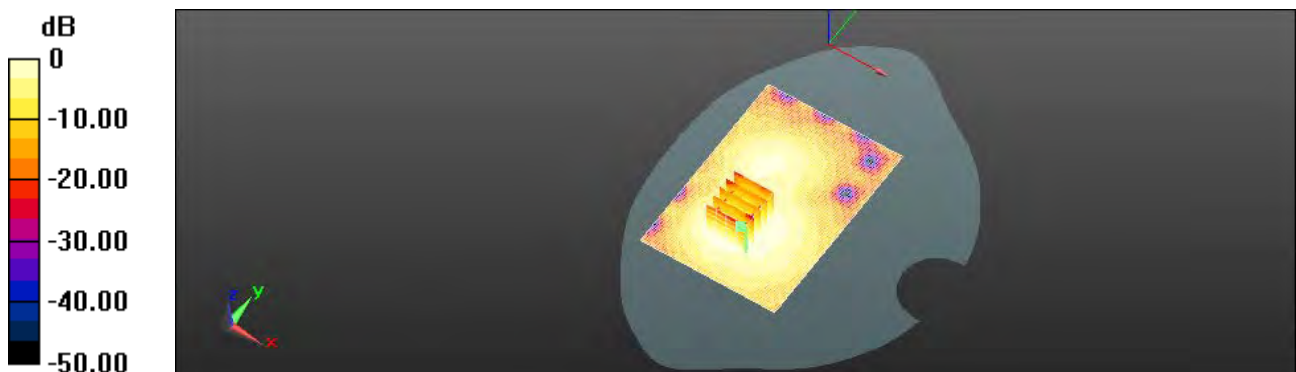
Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 2.786 V/m; Power Drift = -0.16dB

Peak SAR (extrapolated) = 0.115 mW/g

SAR(1 g) = 0.062 mW/g; SAR(10 g) = 0.035 mW/g

Maximum value of SAR (measured) = 0.0856 mW/g



0 dB = 0.0872 mW/g = -21.19 dB mW/g

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Date: 6/18/2012

Hotspot_Front side_WLAN802.11b_CH6

Communication System: WLAN802.11 b & g & n(20M)(40M); Frequency: 2437 MHz

Medium parameters used: $f = 2437 \text{ MHz}$; $\sigma = 2.004 \text{ mho/m}$; $\epsilon_r = 50.264$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.15, 7.15, 7.15); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/30/2012
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/Body/Area Scan (71x101x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.117 mW/g

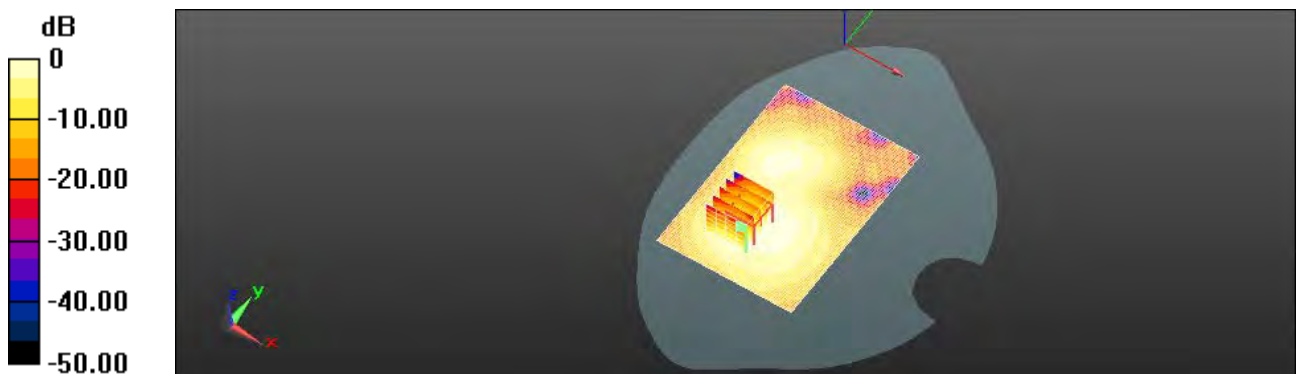
Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 2.814 V/m; Power Drift = -0.15 dB

Peak SAR (extrapolated) = 0.148 mW/g

SAR(1 g) = 0.082 mW/g; SAR(10 g) = 0.047 mW/g

Maximum value of SAR (measured) = 0.112 mW/g



0 dB = 0.117 mW/g = -18.64 dB mW/g

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Member of SGS Group

Date: 6/18/2012

Hotspot_Front side_WLAN802.11b_CH11

Communication System: WLAN802.11 b & g & n(20M)(40M); Frequency: 2462 MHz

Medium parameters used: $f = 2462 \text{ MHz}$; $\sigma = 2.057 \text{ mho/m}$; $\epsilon_r = 50.147$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.15, 7.15, 7.15); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/30/2012
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/Body/Area Scan (71x101x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.162 mW/g

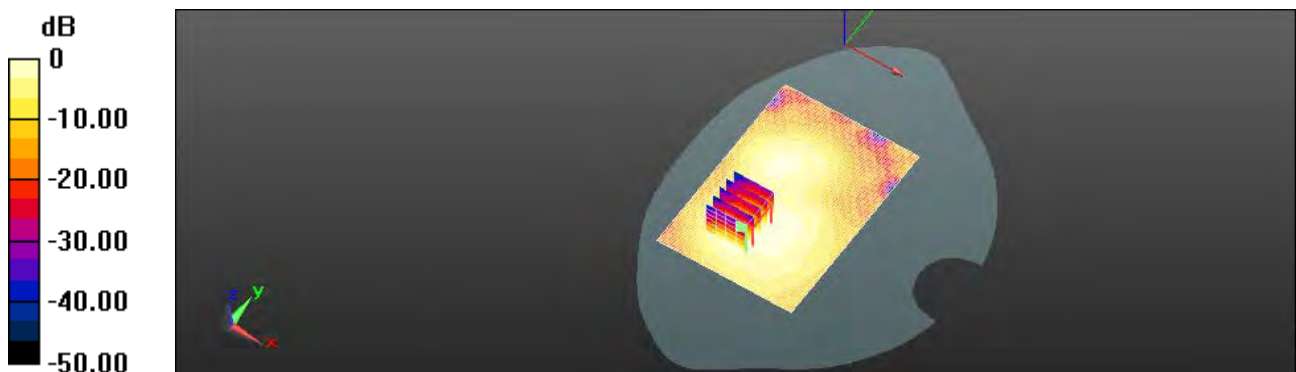
Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 3.576 V/m; Power Drift = -0.10dB

Peak SAR (extrapolated) = 0.201 mW/g

SAR(1 g) = 0.112 mW/g; SAR(10 g) = 0.064 mW/g

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



0 dB = 0.162 mW/g = -15.81 dB mW/g

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Member of SGS Group

Date: 6/18/2012

Hotspot_Front side_WLAN802.11b_CH11_repeated with external Memory card inside

Communication System: WLAN802.11 b & g & n(20M)(40M); Frequency: 2462 MHz

Medium parameters used: $f = 2462 \text{ MHz}$; $\sigma = 2.057 \text{ mho/m}$; $\epsilon_r = 50.147$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.15, 7.15, 7.15); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/30/2012
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/Body/Area Scan (71x101x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

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

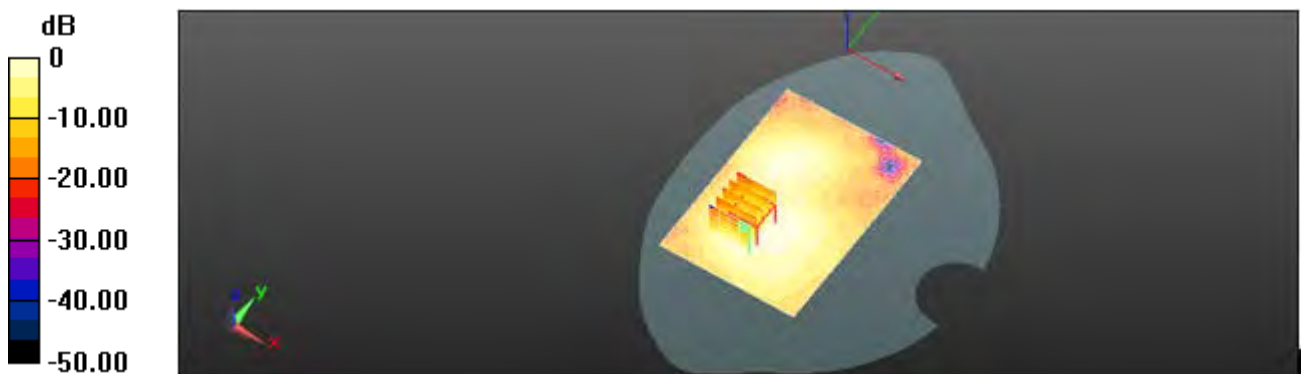
Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 3.668 V/m; Power Drift = -0.17dB

Peak SAR (extrapolated) = 0.178 mW/g

SAR(1 g) = 0.098 mW/g; SAR(10 g) = 0.055 mW/g

Maximum value of SAR (measured) = 0.134 mW/g



0 dB = 0.144 mW/g = -16.86 dB mW/g

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Member of SGS Group

Date: 6/18/2012

Hotspot_Front side_WLAN802.11b_CH11_repeated with Bluetooth active

Communication System: WLAN802.11 b & g & n(20M)(40M); Frequency: 2462 MHz

Medium parameters used: $f = 2462 \text{ MHz}$; $\sigma = 2.057 \text{ mho/m}$; $\epsilon_r = 50.147$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.15, 7.15, 7.15); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/30/2012
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/Body/Area Scan (71x101x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.158 mW/g

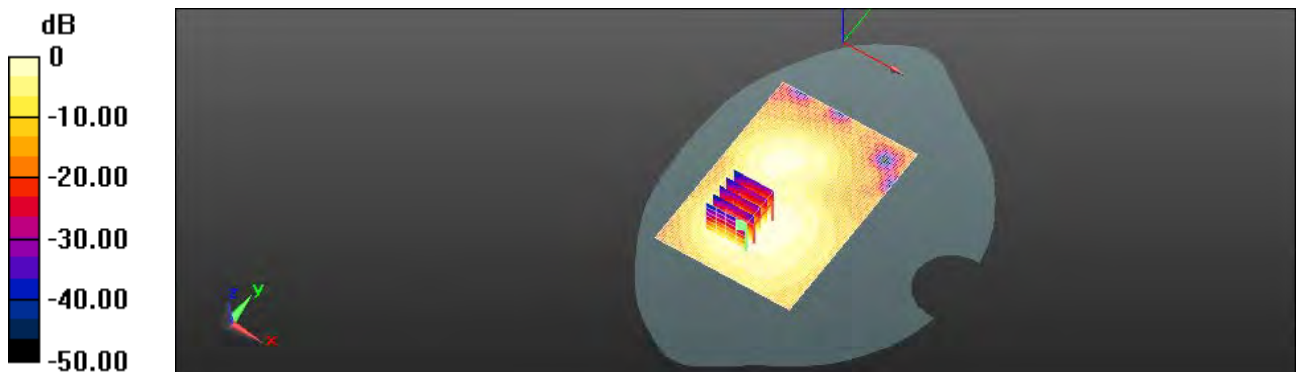
Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 3.668 V/m; Power Drift = -0.05 dB

Peak SAR (extrapolated) = 0.199 mW/g

SAR(1 g) = 0.109 mW/g; SAR(10 g) = 0.062 mW/g

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



0 dB = 0.158 mW/g = -16.04 dB mW/g

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Date: 6/18/2012

Hotspot_Front side_WLAN802.11b_CH11_repeated with headset

Communication System: WLAN802.11 b & g & n(20M)(40M); Frequency: 2462 MHz

Medium parameters used: $f = 2462 \text{ MHz}$; $\sigma = 2.057 \text{ mho/m}$; $\epsilon_r = 50.147$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.15, 7.15, 7.15); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/30/2012
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/Body/Area Scan (71x101x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.157 mW/g

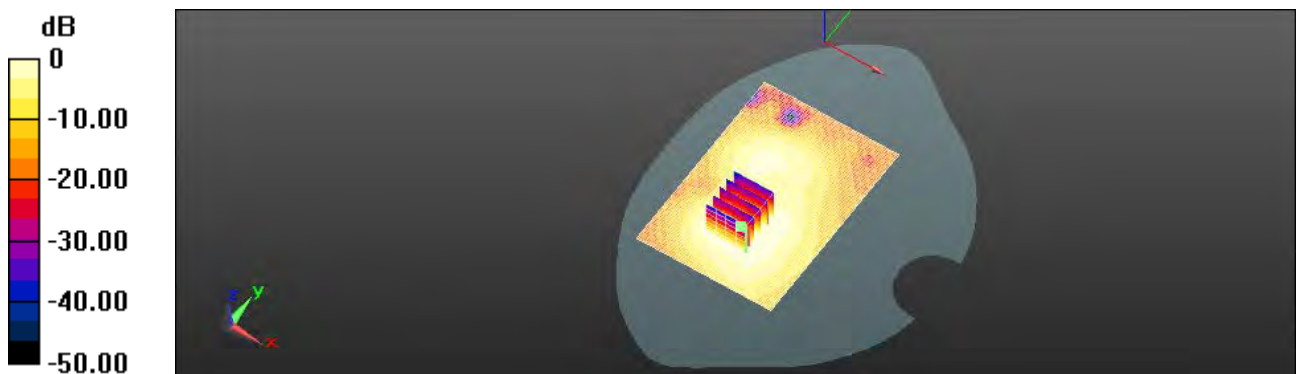
Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 4.418 V/m; Power Drift = -0.05 dB

Peak SAR (extrapolated) = 0.198 mW/g

SAR(1 g) = 0.110 mW/g; SAR(10 g) = 0.064 mW/g

Maximum value of SAR (measured) = 0.152 mW/g



0 dB = 0.157 mW/g = -16.06 dB mW/g

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Date: 6/18/2012

Hotspot_Back side_WLAN802.11b_CH6

Communication System: WLAN802.11 b & g & n(20M)(40M); Frequency: 2437 MHz

Medium parameters used: $f = 2437 \text{ MHz}$; $\sigma = 2.004 \text{ mho/m}$; $\epsilon_r = 50.264$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.15, 7.15, 7.15); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/30/2012
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/Body/Area Scan (71x101x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.101 mW/g

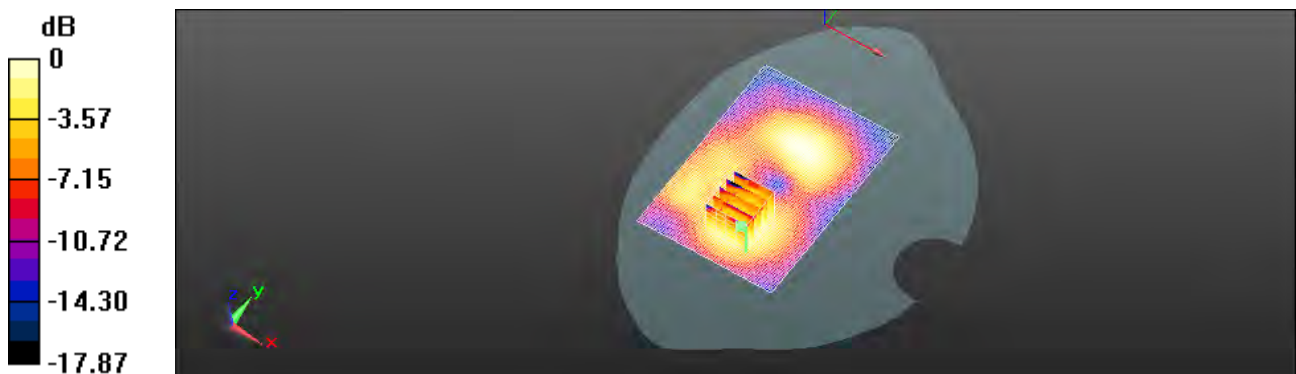
Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 2.778 V/m; Power Drift = -0.15dB

Peak SAR (extrapolated) = 0.129 mW/g

SAR(1 g) = 0.069 mW/g; SAR(10 g) = 0.037 mW/g

Maximum value of SAR (measured) = 0.0949 mW/g



0 dB = 0.101 mW/g = -19.94 dB mW/g

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Date: 6/18/2012

Hotspot_Top side_WLAN802.11b_CH6

Communication System: WLAN802.11 b & g & n(20M)(40M); Frequency: 2437 MHz

Medium parameters used: $f = 2437 \text{ MHz}$; $\sigma = 2.004 \text{ mho/m}$; $\epsilon_r = 50.264$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.15, 7.15, 7.15); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/30/2012
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

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

Maximum value of SAR (interpolated) = 0.0914 mW/g

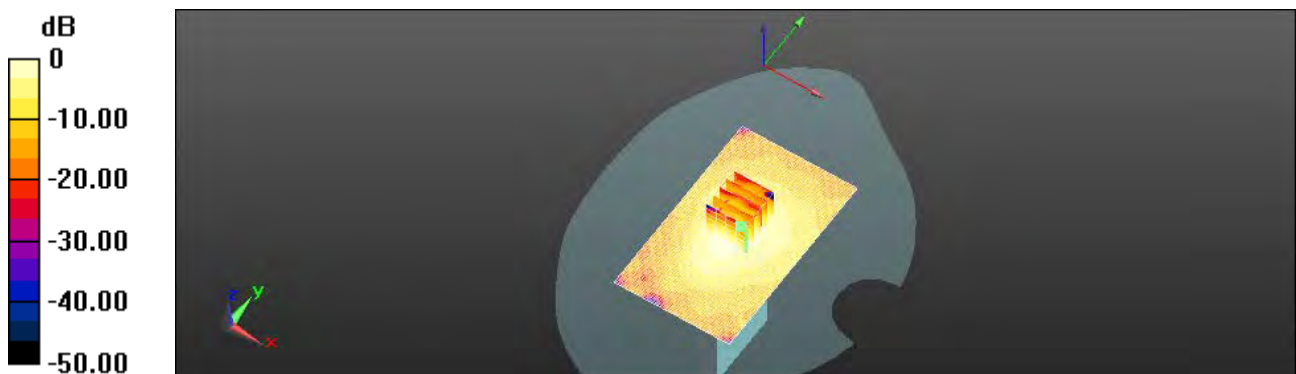
Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 6.023 V/m; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 0.127 mW/g

SAR(1 g) = 0.064 mW/g; SAR(10 g) = 0.034 mW/g

Maximum value of SAR (measured) = 0.0925 mW/g



0 dB = 0.0914 mW/g = -20.78 dB mW/g

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Date: 6/18/2012

Hotspot_Left side_WLAN802.11b_CH6

Communication System: WLAN802.11 b & g & n(20M)(40M); Frequency: 2437 MHz

Medium parameters used: $f = 2437 \text{ MHz}$; $\sigma = 2.004 \text{ mho/m}$; $\epsilon_r = 50.264$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.15, 7.15, 7.15); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/30/2012
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/Body/Area Scan (61x111x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.0931 mW/g

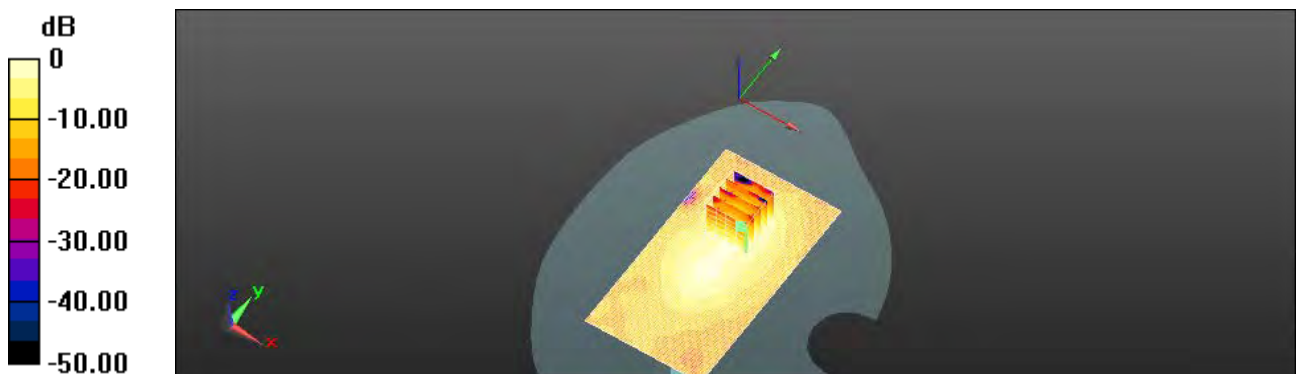
Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 4.841 V/m; Power Drift = -0.07 dB

Peak SAR (extrapolated) = 0.132 mW/g

SAR(1 g) = 0.063 mW/g; SAR(10 g) = 0.030 mW/g

Maximum value of SAR (measured) = 0.0943 mW/g



0 dB = 0.0931 mW/g = -20.62 dB mW/g

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5. System Verification

Date: 6/13/2012

DUT: Dipole 835 MHz; (Head)

Communication System: CW; Frequency: 835 MHz

Medium parameters used: $f = 835 \text{ MHz}$; $\sigma = 0.891 \text{ mho/m}$; $\epsilon_r = 41.299$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(9.62, 9.62, 9.62); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics:DAE4 Sn856; Calibrated: 5/30/2012
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration /d=15mm, Pin=250mW, dist=2mm: Measurement grid:

dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 4.09 mW/g

Configuration /d=15mm, Pin=250mW, dist=2mm: Measurement grid:

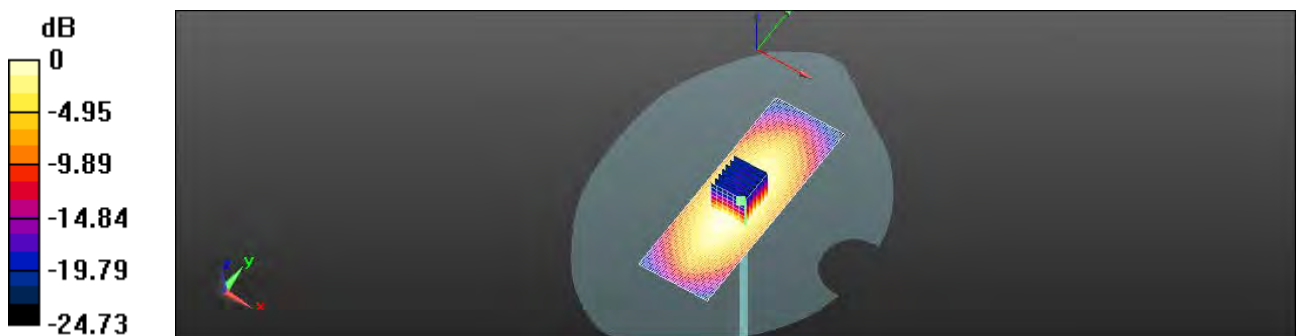
dx=5mm, dy=5mm, dz=5mm

Reference Value = 68.589 V/m; Power Drift = 0.10 dB

Peak SAR (extrapolated) = 5.006 mW/g

SAR(1 g) = 2.47mW/g; SAR(10 g) = 1.61mW/g

Maximum value of SAR (measured) = 4.12 mW/g



0 dB = 4.09 mW/g = 12.24 dB mW/g

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Date: 6/13/2012

DUT: Dipole 835 MHz; (Body)

Communication System: CW; Frequency: 835 MHz

Medium parameters used: $f = 835 \text{ MHz}$; $\sigma = 1.03 \text{ mho/m}$; $\epsilon_r = 53.741$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(9.6, 9.6, 9.6); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/30/2012
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration /d=15mm, Pin=250mW, dist=2mm: Measurement grid:

dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 3.10 mW/g

Configuration /d=15mm, Pin=250mW, dist=2mm: Measurement grid:

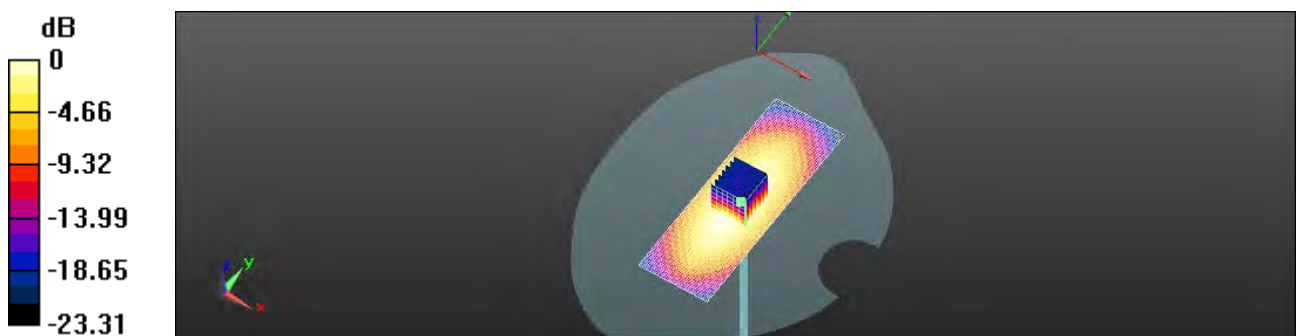
dx=5mm, dy=5mm, dz=5mm

Reference Value = 56.077 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 3.635 mW/g

SAR(1 g) = 2.48 mW/g; SAR(10 g) = 1.63 mW/g

Maximum value of SAR (measured) = 3.12 mW/g



0 dB = 3.10 mW/g = 9.84 dB mW/g

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Date: 6/14/2012

DUT: Dipole 1900 MHz; (Head)

Communication System: CW; Frequency: 1900 MHz

Medium parameters used: $f = 1900 \text{ MHz}$; $\sigma = 1.4 \text{ mho/m}$; $\epsilon_r = 40.222$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(8.35, 8.35, 8.35); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/30/2012
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration /d=10mm, Pin=250mW, dist=2mm: Measurement grid:

dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 13.5 mW/g

Configuration /d=10mm, Pin=250mW, dist=2mm: Measurement grid:

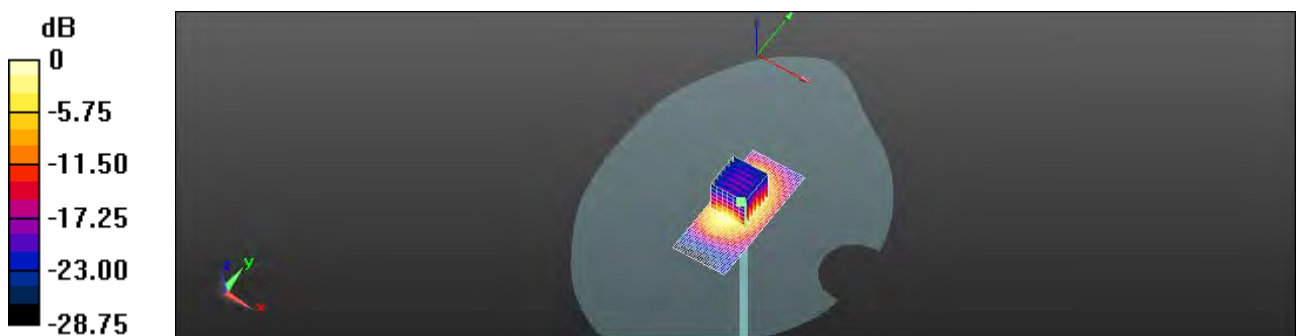
dx=5mm, dy=5mm, dz=5mm

Reference Value = 95.106 V/m; Power Drift = -0.17 dB

Peak SAR (extrapolated) = 16.847 mW/g

SAR(1 g) = 9.43 mW/g; SAR(10 g) = 4.94 mW/g

Maximum value of SAR (measured) = 13.3 mW/g



0 dB = 13.5 mW/g = 22.58 dB mW/g

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Date: 6/14/2012

DUT: Dipole 1900 MHz; (Body)

Communication System: CW; Frequency: 1900 MHz

Medium parameters used: $f = 1900 \text{ MHz}$; $\sigma = 1.532 \text{ mho/m}$; $\epsilon_r = 51.059$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.53, 7.53, 7.53); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/30/2012
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration /d=10mm, Pin=250mW, dist=2mm: Measurement grid:

dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 15.2 mW/g

Configuration /d=10mm, Pin=250mW, dist=2mm /Zoom Scan:

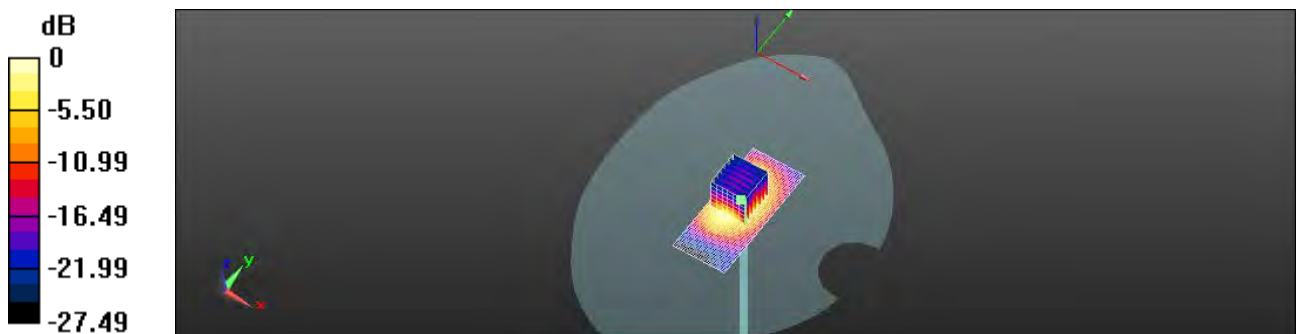
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 99.069 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 18.194 mW/g

SAR(1 g) = 10.2 mW/g; SAR(10 g) = 5.35 mW/g

Maximum value of SAR (measured) = 14.5 mW/g



0 dB = 15.2 mW/g = 23.62 dB mW/g

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Date: 6/18/2012

DUT: Dipole 2450 MHz; (Head)

Communication System: CW; Frequency: 2450 MHz

Medium parameters used: $f = 2450 \text{ MHz}$; $\sigma = 1.822 \text{ mho/m}$; $\epsilon_r = 39.267$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.17, 7.17, 7.17); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/30/2012
- Phantom: SAM2; Type: SAM
- Measurement SW: DASYS2, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration /d=10mm, Pin=250mW, dist=2mm: Measurement grid:

dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 21.6 mW/g

Configuration /d=10mm, Pin=250mW, dist=2mm: Measurement grid:

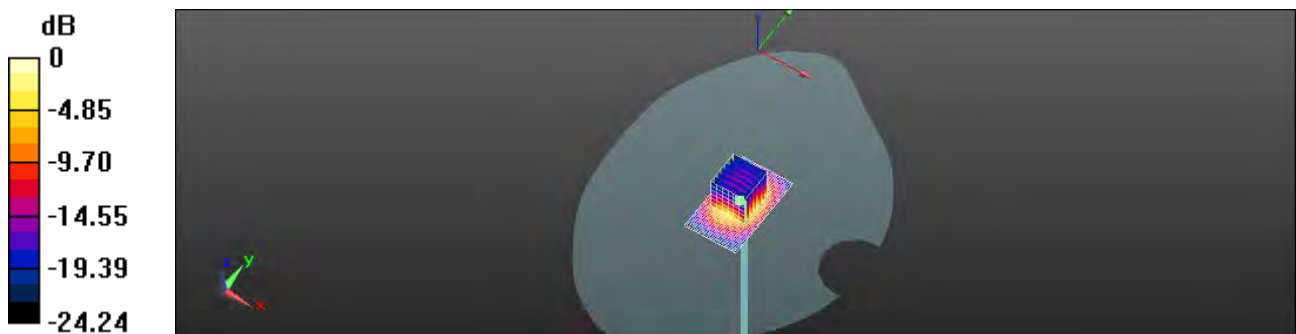
dx=5mm, dy=5mm, dz=5mm

Reference Value = 106.7 V/m; Power Drift = -0.10 dB

Peak SAR (extrapolated) = 28.157 mW/g

SAR(1 g) = 13.4 mW/g; SAR(10 g) = 6.22 mW/g

Maximum value of SAR (measured) = 20.6 mW/g



0 dB = 21.6 mW/g = 26.67 dB mW/g

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Date: 6/18/2012

DUT: Dipole 2450 MHz; (Body)

Communication System: CW; Frequency: 2450 MHz

Medium parameters used: $f = 2450 \text{ MHz}$; $\sigma = 2.033 \text{ mho/m}$; $\epsilon_r = 50.192$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.15, 7.15, 7.15); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/30/2012
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration /d=10mm, Pin=250mW, dist=2mm: Measurement grid:

dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 21.7 mW/g

Configuration /d=10mm, Pin=250mW, dist=2mm Measurement grid:

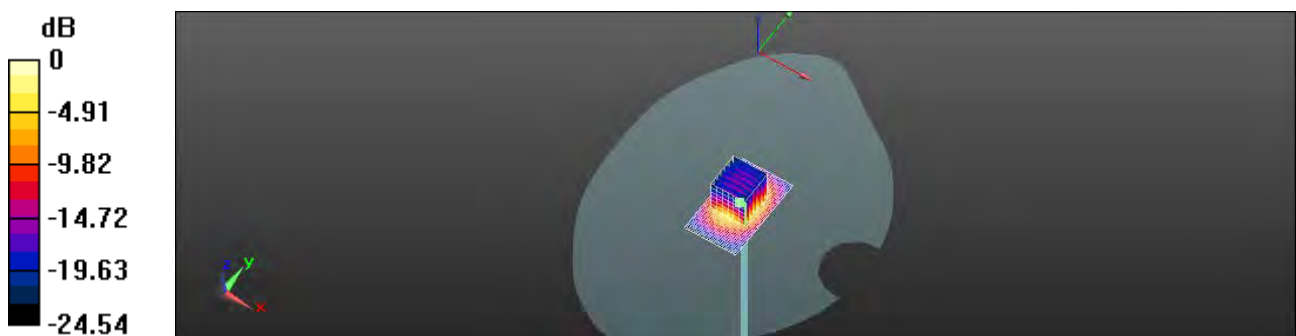
dx=5mm, dy=5mm, dz=5mm

Reference Value = 100.5 V/m; Power Drift = -0.05 dB

Peak SAR (extrapolated) = 28.011 mW/g

SAR(1 g) = 13.3mW/g; SAR(10 g) = 6.15 mW/g

Maximum value of SAR (measured) = 20.2 mW/g



0 dB = 21.7 mW/g = 26.72 dB mW/g

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6. DAE & Probe Calibration Certificate

Calibration Laboratory of
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Engineering AG
Zeughausstrasse 43, 8004 Zurich, Switzerland



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

Accredited by the Swiss Accreditation Service (SAS)

The Swiss Accreditation Service is one of the signatories to the EA
Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: SCS 108

Client **SGS-TW (Auden)**

Certificate No: **DAE4-856_May12**

CALIBRATION CERTIFICATE

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

Calibration procedure(s) **QA CAL-06.v24
Calibration procedure for the data acquisition electronics (DAE)**

Calibration date: **May 30, 2012**

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

All calibrations have been conducted in the closed laboratory facility: environment temperature $(22 \pm 3)^{\circ}\text{C}$ and humidity $< 70\%$.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Keithley Multimeter Type 2001	SN: 0810278	28-Sep-11 (No:11450)	Sep-12
Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Calibrator Box V2.1	SE UWS 053 AA 1001	05-Jan-12 (in house check)	In house check: Jan-13

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

Issued: May 30, 2012

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

Certificate No: DAE4-856_May12

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 Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 108**

Client **SGS-TW (Auden)**

Certificate No: **EX3-3770_Apr12**

CALIBRATION CERTIFICATE

Object **EX3DV4 - SN:3770**

Calibration procedure(s) **QA CAL-01.v8, QA CAL-14.v3, QA CAL-23.v4, QA CAL-25.v4**
 Calibration procedure for dosimetric E-field probes

Calibration date: **April 27, 2012**

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID	Cal Date (Certificate No.)	Scheduled Calibration
Power meter E4419B	GB41293874	29-Mar-12 (No. 217-01508)	Apr-13
Power sensor E4412A	MY41498087	29-Mar-12 (No. 217-01508)	Apr-13
Reference 3 dB Attenuator	SN: S5054 (3c)	27-Mar-12 (No. 217-01531)	Apr-13
Reference 20 dB Attenuator	SN: S5086 (20b)	27-Mar-12 (No. 217-01529)	Apr-13
Reference 30 dB Attenuator	SN: S5129 (30b)	27-Mar-12 (No. 217-01532)	Apr-13
Reference Probe ES3DV2	SN: 3013	29-Dec-11 (No. ES3-3013_Dec11)	Dec-12
DAE4	SN: 660	10-Jan-12 (No. DAE4-660_Jan12)	Jan-13
Secondary Standards	ID	Check Date (in house)	Scheduled Check
RF generator HP 8648C	US3642U01700	4-Aug-99 (in house check Apr-11)	In house check: Apr-13
Network Analyzer HP 8753E	US37390585	18-Oct-01 (in house check Oct-11)	In house check: Oct-12

	Name	Function	Signature
Calibrated by:	Jeton Kastrati	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	
This calibration certificate shall not be reproduced except in full without written approval of the laboratory.			Issued: April 28, 2012

Certificate No: EX3-3770_Apr12

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 Zeughausstrasse 43, 8004 Zurich, Switzerland



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Glossary:

TSL	tissue simulating liquid
NORM _{x,y,z}	sensitivity in free space
ConvF	sensitivity in TSL / NORM _{x,y,z}
DCP	diode compression point
CF	crest factor (1/duty_cycle) of the RF signal
A, B, C	modulation dependent linearization parameters
Polarization φ	φ rotation around probe axis
Polarization ϑ	ϑ rotation around an axis that is in the plane normal to probe axis (at measurement center), i.e., $\vartheta = 0$ 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_{x,y,z}**: Assessed for E-field polarization $\vartheta = 0$ ($f \leq 900$ MHz in TEM-cell; $f > 1800$ MHz: R22 waveguide). NORM_{x,y,z} are only intermediate values, i.e., the uncertainties of NORM_{x,y,z} does not affect the E²-field uncertainty inside TSL (see below ConvF).
- NORM(f)_{x,y,z}** = NORM_{x,y,z} * frequency_response (see Frequency Response Chart). This linearization is implemented in DASY4 software versions later than 4.2. The uncertainty of the frequency response is included in the stated uncertainty of ConvF.
- DCP_{x,y,z}**: DCP are numerical linearization parameters assessed based on the data of power sweep with CW signal (no uncertainty required). DCP does not depend on frequency nor media.
- PAR**: PAR is the Peak to Average Ratio that is not calibrated but determined based on the signal characteristics
- A_{x,y,z}; B_{x,y,z}; C_{x,y,z}; VR_{x,y,z}**: A, B, C are numerical linearization parameters assessed based on the data of power sweep for specific modulation signal. The parameters do not depend on frequency nor media. VR is the maximum calibration range expressed in RMS voltage across the diode.
- ConvF and Boundary Effect Parameters**: Assessed in flat phantom using E-field (or Temperature Transfer Standard for $f \leq 800$ MHz) and inside waveguide using analytical field distributions based on power measurements for $f > 800$ MHz. The same setups are used for assessment of the parameters applied for boundary compensation (alpha, depth) of which typical uncertainty values are given. These parameters are used in DASY4 software to improve probe accuracy close to the boundary. The sensitivity in TSL corresponds to NORM_{x,y,z} * ConvF whereby the uncertainty corresponds to that given for ConvF. A frequency dependent ConvF is used in DASY version 4.4 and higher which allows extending the validity from ± 50 MHz to ± 100 MHz.
- Spherical isotropy (3D deviation from isotropy)**: in a field of low gradients realized using a flat phantom exposed by a patch antenna.
- Sensor Offset**: The sensor offset corresponds to the offset of virtual measurement center from the probe tip (on probe axis). No tolerance required.

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EX3DV4 – SN:3770

April 27, 2012

Probe EX3DV4

SN:3770

Manufactured: July 6, 2010
Calibrated: April 27, 2012

Calibrated for DASY/EASY Systems
(Note: non-compatible with DASY2 system!)

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EX3DV4- SN:3770

April 27, 2012

DASY/EASY - Parameters of Probe: EX3DV4 - SN:3770

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm ($\mu\text{V}/(\text{V}/\text{m})^2$) ^A	0.31	0.60	0.40	$\pm 10.1 \%$
DCP (mV) ^B	99.3	99.6	105.2	

Modulation Calibration Parameters

UID	Communication System Name	PAR		A dB	B dB	C dB	VR mV	Unc ^C (k=2)
0	CW	0.00	X	0.00	0.00	1.00	124.5	$\pm 2.5 \%$
			Y	0.00	0.00	1.00	127.2	
			Z	0.00	0.00	1.00	138.4	

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

^A The uncertainties of NormX,Y,Z do not affect the E^2 -field uncertainty inside TSL (see Pages 5 and 6).

^B Numerical linearization parameter: uncertainty not required.

^C Uncertainty is determined using the max. deviation from linear response applying rectangular distribution and is expressed for the square of the field value.

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EX3DV4- SN:3770

April 27, 2012

DASY/EASY - Parameters of Probe: EX3DV4 - SN:3770

Calibration Parameter Determined in Head Tissue Simulating Media

f (MHz) ^C	Relative Permittivity ^F	Conductivity (S/m) ^F	ConvF X	ConvF Y	ConvF Z	Alpha	Depth (mm)	Unct. (k=2)
750	41.9	0.89	9.95	9.95	9.95	0.16	1.71	± 12.0 %
835	41.5	0.90	9.62	9.62	9.62	0.30	0.90	± 12.0 %
900	41.5	0.97	9.49	9.49	9.49	0.25	1.03	± 12.0 %
1750	40.1	1.37	8.62	8.62	8.62	0.60	0.65	± 12.0 %
1900	40.0	1.40	8.35	8.35	8.35	0.34	0.92	± 12.0 %
2000	40.0	1.40	8.21	8.21	8.21	0.30	0.93	± 12.0 %
2300	39.5	1.67	7.64	7.64	7.64	0.41	0.75	± 12.0 %
2450	39.2	1.80	7.17	7.17	7.17	0.28	0.99	± 12.0 %
2600	39.0	1.96	6.95	6.95	6.95	0.24	1.17	± 12.0 %
5200	36.0	4.66	5.20	5.20	5.20	0.40	1.80	± 13.1 %
5300	35.9	4.76	4.96	4.96	4.96	0.40	1.80	± 13.1 %
5600	35.5	5.07	4.29	4.29	4.29	0.55	1.80	± 13.1 %
5800	35.3	5.27	4.55	4.55	4.55	0.5	1.80	± 13.1 %

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

^F At frequencies below 3 GHz, the validity of tissue parameters (ϵ and σ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (ϵ and σ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

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EX3DV4– SN:3770

April 27, 2012

DASY/EASY - Parameters of Probe: EX3DV4 - SN:3770

Calibration Parameter Determined in Body Tissue Simulating Media

f (MHz) ^c	Relative Permittivity ^f	Conductivity (S/m) ^f	ConvF X	ConvF Y	ConvF Z	Alpha	Depth (mm)	Unct. (k=2)
750	55.5	0.96	9.66	9.66	9.66	0.19	1.50	± 12.0 %
835	55.2	0.97	9.60	9.60	9.60	0.28	1.18	± 12.0 %
900	55.0	1.05	9.48	9.48	9.48	0.41	0.91	± 12.0 %
1750	53.4	1.49	7.90	7.90	7.90	0.40	0.92	± 12.0 %
1900	53.3	1.52	7.53	7.53	7.53	0.32	0.97	± 12.0 %
2000	53.3	1.52	7.64	7.64	7.64	0.43	0.86	± 12.0 %
2300	52.9	1.81	7.31	7.31	7.31	0.44	0.87	± 12.0 %
2450	52.7	1.95	7.15	7.15	7.15	0.73	0.63	± 12.0 %
2600	52.5	2.16	6.83	6.83	6.83	0.80	0.50	± 12.0 %
5200	49.0	5.30	4.32	4.32	4.32	0.55	1.90	± 13.1 %
5300	48.9	5.42	4.08	4.08	4.08	0.60	1.90	± 13.1 %
5600	48.5	5.77	3.57	3.57	3.57	0.65	1.90	± 13.1 %
5800	48.2	6.00	4.02	4.02	4.02	0.60	1.90	± 13.1 %

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

^f At frequencies below 3 GHz, the validity of tissue parameters (ϵ and σ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (ϵ and σ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

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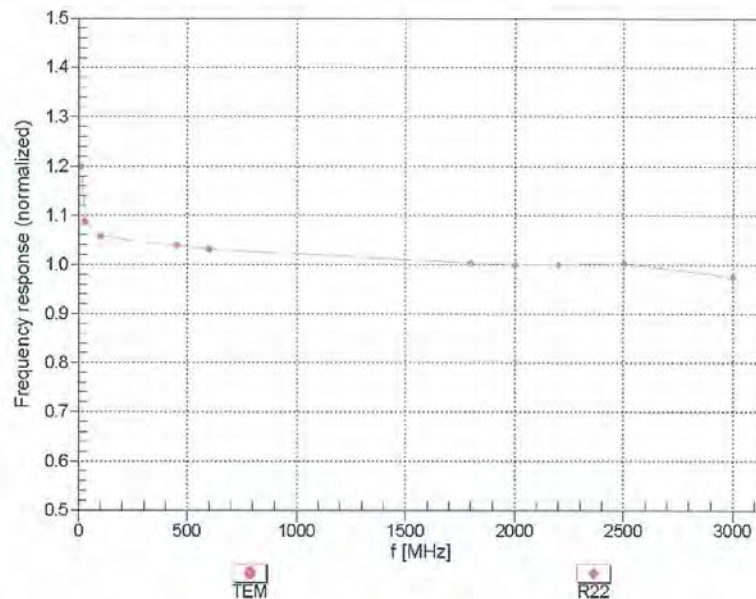
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April 27, 2012

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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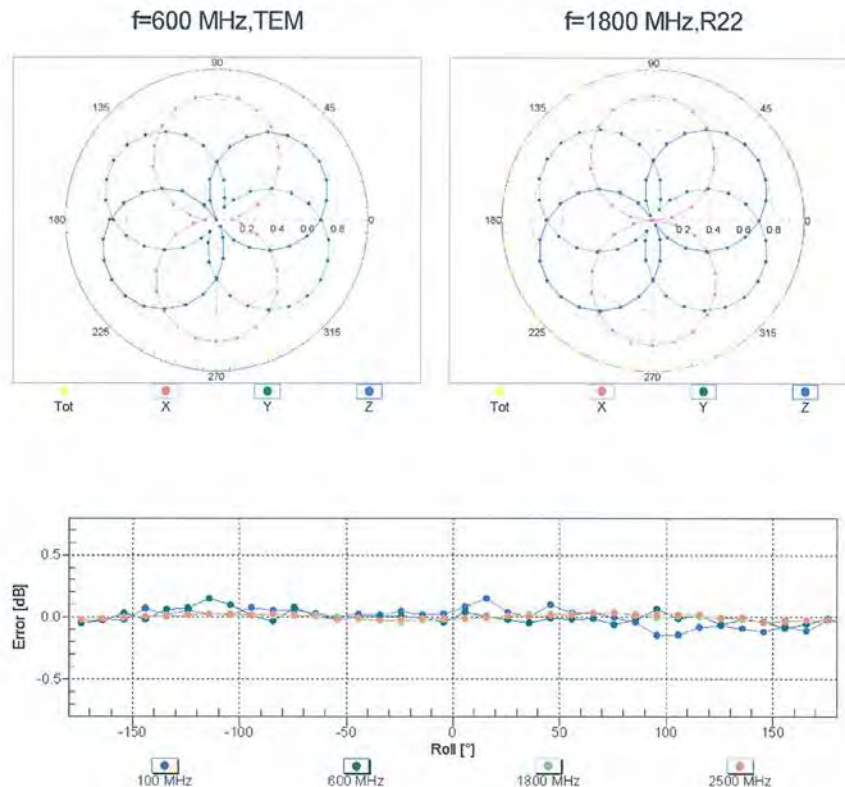
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EX3DV4- SN:3770

April 27, 2012

Receiving Pattern (ϕ), $\theta = 0^\circ$



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

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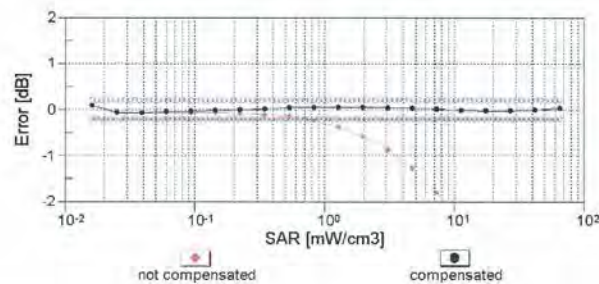
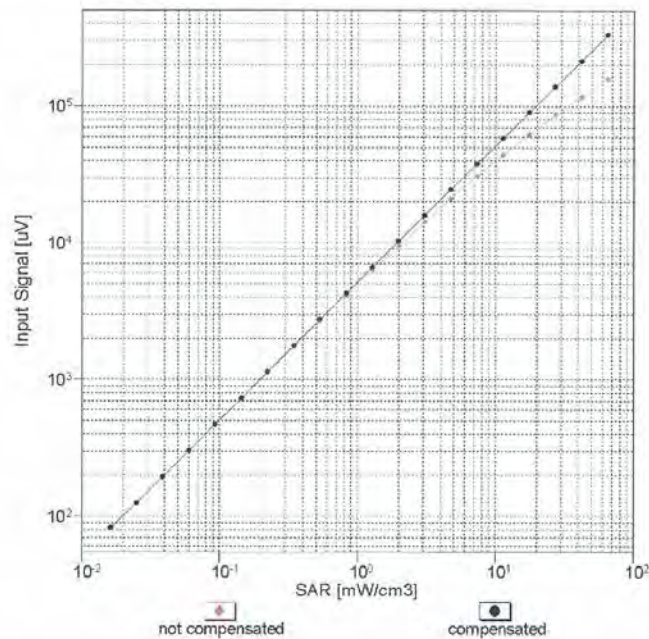
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EX3DV4- SN:3770

April 27, 2012

Dynamic Range $f(\text{SAR}_{\text{head}})$ (TEM cell, $f = 900 \text{ MHz}$)



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

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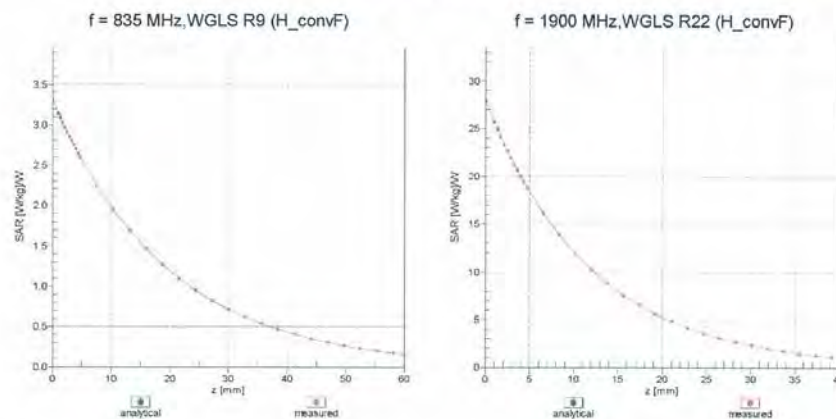
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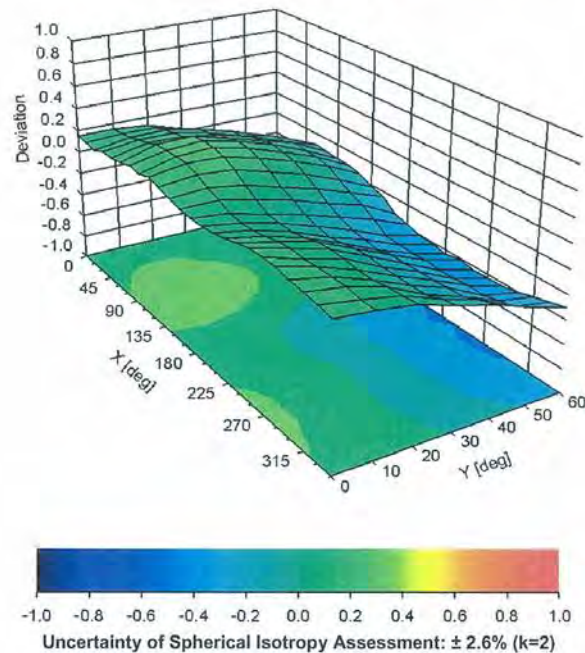
April 27, 2012

Conversion Factor Assessment



Deviation from Isotropy in Liquid

Error (ϕ , θ), f = 900 MHz



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EX3DV4- SN:3770

April 27, 2012

DASY/EASY - Parameters of Probe: EX3DV4 - SN:3770

Other Probe Parameters

Sensor Arrangement	Triangular
Connector Angle (°)	145.8
Mechanical Surface Detection Mode	enabled
Optical Surface Detection Mode	disabled
Probe Overall Length	337 mm
Probe Body Diameter	10 mm
Tip Length	9 mm
Tip Diameter	2.5 mm
Probe Tip to Sensor X Calibration Point	1 mm
Probe Tip to Sensor Y Calibration Point	1 mm
Probe Tip to Sensor Z Calibration Point	1 mm
Recommended Measurement Distance from Surface	2 mm

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7. Uncertainty Budget

Measurement Uncertainty evaluation template for DUT SAR test
IEEE 1528

A	c	D	e	f	g	h=c * f / e	i=c * g / e	k
Source of Uncertainty	Tolerance/ Uncertainty %	Probability Distributio n	Div	ci (1g)	ci (10g)	Standard uncertain ty	Standard uncertain ty	vi, or Veff
Measurement system								
Probe calibration(under 2.6Ghz)	6.00%	N	1	1	1	6.00%	6.00%	∞
Isotropy, Axial	3.50%	R	$\sqrt{3}$	1	1	2.02%	2.02%	∞
Isotropy, Hemispherical	9.60%	R	$\sqrt{3}$	1	1	5.54%	5.54%	∞
Boundary Effect	1.00%	R	$\sqrt{3}$	1	1	0.58%	0.58%	∞
Linearity	4.70%	R	$\sqrt{3}$	1	1	2.71%	2.71%	∞
Detection Limits	1.00%	R	$\sqrt{3}$	1	1	0.58%	0.58%	∞
Readout Electronics	0.30%	N	1	1	1	0.30%	0.30%	∞
Response time	0.80%	R	$\sqrt{3}$	1	1	0.46%	0.46%	∞
Integration Time	2.60%	R	$\sqrt{3}$	1	1	1.50%	1.50%	∞
Measurement drift (class A evaluation)	1.75%	R	$\sqrt{3}$	1	1	1.01%	1.01%	∞
RF ambient condition - noise	3.00%	R	$\sqrt{3}$	1	1	1.73%	1.73%	∞
RF ambient conditions - reflections	3.00%	R	$\sqrt{3}$	1	1	1.73%	1.73%	∞
Probe positioner Mechanical restrictions	0.40%	R	$\sqrt{3}$	1	1	0.23%	0.23%	∞
Probe Positioning with respect to phantom shell	2.90%	R	$\sqrt{3}$	1	1	1.67%	1.67%	∞
Post-processing	1.00%	R	$\sqrt{3}$	1	1	0.58%	0.58%	∞
Max SAR Eval	1.00%	R	$\sqrt{3}$	1	1	0.58%	0.58%	∞
Test Sample related								
Test sample positioning	2.90%	N	1	1	1	2.90%	2.90%	M-1
Device Holder Uncertainty	3.60%	N	1	1	1	3.60%	3.60%	M-1
Drift of output power	5.00%	R	$\sqrt{3}$	1	1	2.89%	2.89%	∞
Phantom and Setup								
Phantom Uncertainty	4.00%	R	$\sqrt{3}$	1	1	2.31%	2.31%	∞
Liquid conductivity(meas.) Max at 1900 band	4.60%	N	1	0.64	0.43	2.94%	1.98%	M
Liquid permittivity(meas.) Max at 835 band	2.17%	N	1	0.6	0.49	1.30%	1.06%	M
Combined standard uncertainty		RSS				11.72%	11.49%	
Expan uncertainty (95% confidence interval), K=2						23.44%	22.98%	

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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.	IT15 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 62208 Part 1
- (4) FCC OET Bulletin 65, Supplement C, Edition 01-01
- (*) The IT15 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. 8811 – QD 000 P40 C – F

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9. System Validation from Original Equipment Supplier

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



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

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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-TW (Auden)

Certificate No: D835V2-4d063_May12

CALIBRATION CERTIFICATE

Object D835V2 - SN: 4d063

Calibration procedure(s) QA CAL-05.v8
Calibration procedure for dipole validation kits above 700 MHz

Calibration date: May 25, 2012

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

All calibrations have been conducted in the closed laboratory facility: environment temperature $(22 \pm 3)^{\circ}\text{C}$ and humidity $< 70\%$.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter EPM-442A	GB37480704	05-Oct-11 (No. 217-01451)	Oct-12
Power sensor HP 8481A	US37292783	05-Oct-11 (No. 217-01451)	Oct-12
Reference 20 dB Attenuator	SN: 5058 (20k)	27-Mar-12 (No. 217-01530)	Apr-13
Type-N mismatch combination	SN: 5047.2 / 06327	27-Mar-12 (No. 217-01533)	Apr-13
Reference Probe ES3DV3	SN: 3205	30-Dec-11 (No. ES3-3205_Dec11)	Dec-12
DAE4	SN: 601	04-Jul-11 (No. DAE4-601_Jul11)	Jul-12
Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power sensor HP 8481A	MY41092317	18-Oct-02 (in house check Oct-11)	In house check: Oct-13
RF generator R&S SMT-06	100005	04-Aug-99 (in house check Oct-11)	In house check: Oct-13
Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (in house check Oct-11)	In house check: Oct-12

Calibrated by: Name Israe El-Naouq Function Laboratory Technician Signature 

Approved by: Katja Pokovic Technical Manager Signature 

Issued: May 25, 2012

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

Certificate No: D835V2-4d063_May12

Page 1 of 8

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DASY5 Validation Report for Head TSL

Date: 25.05.2012

Test Laboratory: SPEAG, Zurich, Switzerland

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

Communication System: CW; Frequency: 835 MHz

Medium parameters used: $f = 835 \text{ MHz}$; $\sigma = 0.89 \text{ mho/m}$; $\epsilon_r = 40.6$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(6.07, 6.07, 6.07); Calibrated: 30.12.2011;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 04.07.2011
- Phantom: Flat Phantom 4.9L; Type: QD000P49AA; Serial: 1001
- DASY52 52.8.1(838); SEMCAD X 14.6.5(6469)

Dipole Calibration for Head Tissue/Pin=250 mW, d=15mm 2/Zoom Scan (7x7x7)/Cube 0:

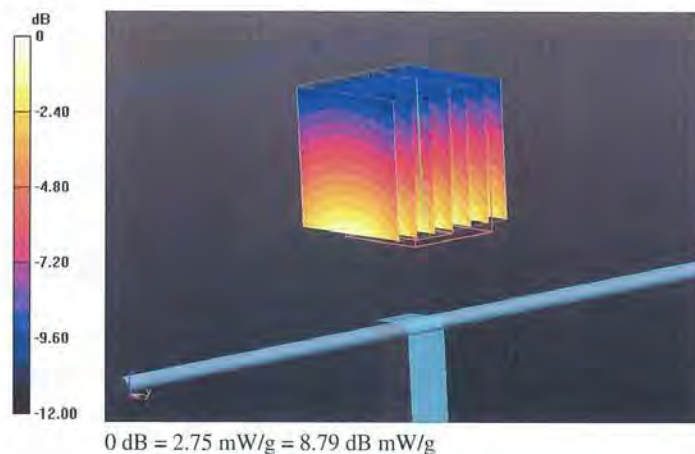
Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 57.199 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 3.481 mW/g

SAR(1 g) = 2.36 mW/g; SAR(10 g) = 1.54 mW/g

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



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DASY5 Validation Report for Body TSL

Date: 25.05.2012

Test Laboratory: SPEAG, Zurich, Switzerland

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

Communication System: CW; Frequency: 835 MHz

Medium parameters used: $f = 835 \text{ MHz}$; $\sigma = 1 \text{ mho/m}$; $\epsilon_r = 54.3$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(6.02, 6.02, 6.02); Calibrated: 30.12.2011;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 04.07.2011
- Phantom: Flat Phantom 4.9L; Type: QD000P49AA; Serial: 1001
- DASY52 52.8.1(838); SEMCAD X 14.6.5(6469)

Dipole Calibration for Body Tissue/Pin=250 mW, d=15mm/Zoom Scan (7x7x7)/Cube 0:

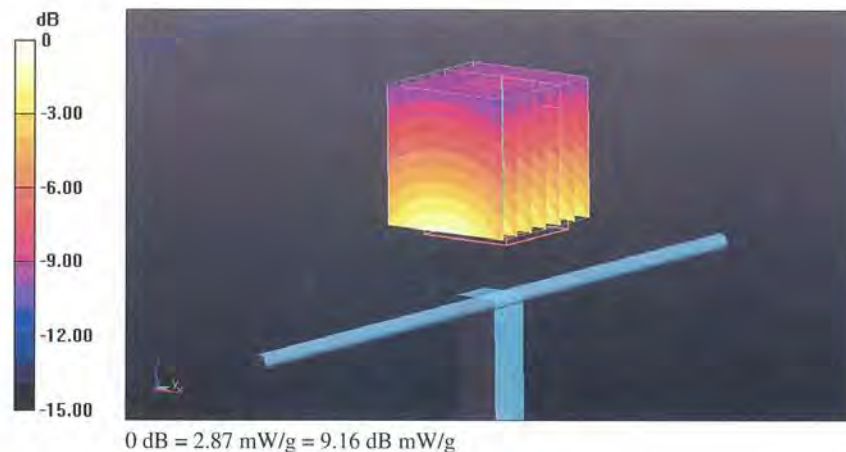
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 55.303 V/m; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 3.569 mW/g

SAR(1 g) = 2.46 mW/g; SAR(10 g) = 1.62 mW/g

Maximum value of SAR (measured) = 2.87 mW/g



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Zeughausstrasse 43, 8004 Zurich, Switzerland



S Schweizerischer Kalibrierdienst
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-TW (Auden)**

Certificate No: **D1900V2-5d027_Apr12**

CALIBRATION CERTIFICATE

Object **D1900V2 - SN: 5d027**

Calibration procedure(s) **QA CAL-05.v8**
Calibration procedure for dipole validation kits above 700 MHz

Calibration date: **April 26, 2012**

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter EPM-442A	GB37480704	05-Oct-11 (No. 217-01451)	Oct-12
Power sensor HP 8481A	US37292783	05-Oct-11 (No. 217-01451)	Oct-12
Reference 20 dB Attenuator	SN: 5058 (20k)	27-Mar-12 (No. 217-01530)	Apr-13
Type-N mismatch combination	SN: 5047.2 / 06327	27-Mar-12 (No. 217-01533)	Apr-13
Reference Probe ES3DV3	SN: 3205	30-Dec-11 (No. ES3-3205_Dec11)	Dec-12
DAE4	SN: 601	04-Jul-11 (No. DAE4-601_Jul11)	Jul-12
Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power sensor HP 8481A	MY41092317	18-Oct-02 (in house check Oct-11)	In house check: Oct-13
RF generator R&S SMT-06	100005	04-Aug-99 (in house check Oct-11)	In house check: Oct-13
Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (in house check Oct-11)	In house check: Oct-12

Calibrated by: **Name** **Function** **Signature**
Israa El-Naouq **Laboratory Technician**

Approved by: **Katja Pokovic** **Technical Manager**

Issued: April 26, 2012

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Certificate No: D1900V2-5d027_Apr12

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DASY5 Validation Report for Head TSL

Date: 26.04.2012

Test Laboratory: SPEAG, Zurich, Switzerland

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

Communication System: CW; Frequency: 1900 MHz

Medium parameters used: $f = 1900 \text{ MHz}$; $\sigma = 1.37 \text{ mho/m}$; $\epsilon_r = 40.8$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(5.01, 5.01, 5.01); Calibrated: 30.12.2011;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 04.07.2011
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- DASY52 52.8.1(838); SEMCAD X 14.6.5(6469)

Dipole Calibration for Head Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:

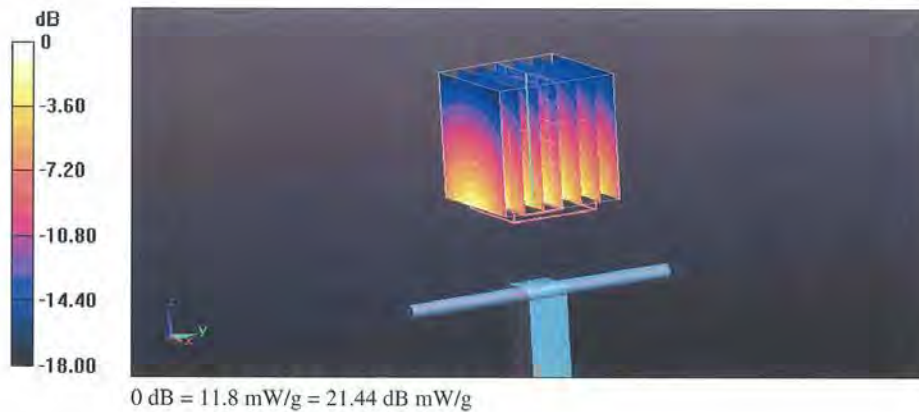
Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 96.127 V/m; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 16.890 mW/g

SAR(1 g) = 9.43 mW/g; SAR(10 g) = 4.96 mW/g

Maximum value of SAR (measured) = 11.8 mW/g



Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.

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DASY5 Validation Report for Body TSL

Date: 26.04.2012

Test Laboratory: SPEAG, Zurich, Switzerland

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

Communication System: CW; Frequency: 1900 MHz

Medium parameters used: $f = 1900 \text{ MHz}$; $\sigma = 1.51 \text{ mho/m}$; $\epsilon_r = 53.3$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(4.62, 4.62, 4.62); Calibrated: 30.12.2011;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 04.07.2011
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; Serial: 1002
- DASY52 52.8.1(838); SEMCAD X 14.6.5(6469)

Dipole Calibration for Body Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:

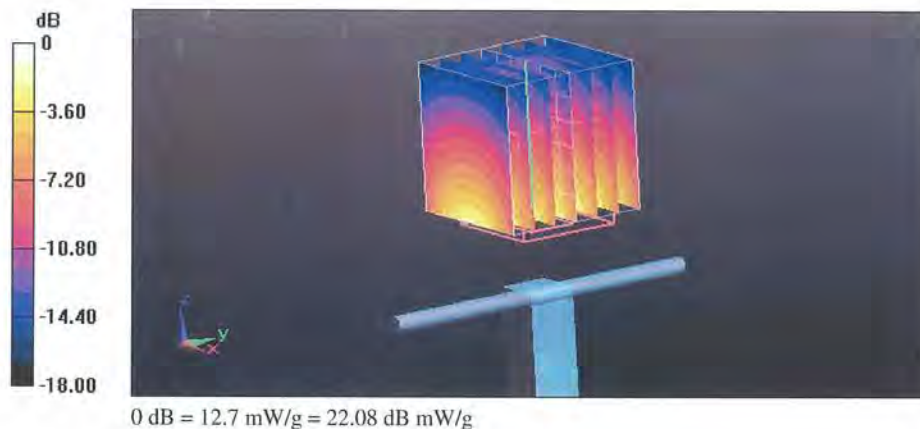
Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 95.355 V/m; Power Drift = -0.00 dB

Peak SAR (extrapolated) = 17.593 mW/g

SAR(1 g) = 10 mW/g; SAR(10 g) = 5.3 mW/g

Maximum value of SAR (measured) = 12.7 mW/g



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



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 Multilateral Agreement for the recognition of calibration certificates

Client **SGS-TW (Auden)**

Certificate No: **D2450V2-727_Apr12**

CALIBRATION CERTIFICATE

Object **D2450V2 - SN: 727**

Calibration procedure(s) **QA CAL-05.v8**
 Calibration procedure for dipole validation kits above 700 MHz

Calibration date: **April 25, 2012**

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter EPM-442A	GB37480704	05-Oct-11 (No. 217-01451)	Oct-12
Power sensor HP 8481A	US37292783	05-Oct-11 (No. 217-01451)	Oct-12
Reference 20 dB Attenuator	SN: 5058 (20k)	27-Mar-12 (No. 217-01530)	Apr-13
Type-N mismatch combination	SN: 5047.2 / 06327	27-Mar-12 (No. 217-01533)	Apr-13
Reference Probe ES3DV3	SN: 3205	30-Dec-11 (No. ES3-3205_Dec11)	Dec-12
DAE4	SN: 601	04-Jul-11 (No. DAE4-601_Jul11)	Jul-12
Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power sensor HP 8481A	MY41092317	18-Oct-02 (in house check Oct-11)	In house check: Oct-13
RF generator R&S SMT-06	100005	04-Aug-99 (in house check Oct-11)	In house check: Oct-13
Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (in house check Oct-11)	In house check: Oct-12

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

Issued: April 25, 2012

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

Certificate No: D2450V2-727_Apr12

Page 1 of 8

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DASY5 Validation Report for Head TSL

Date: 25.04.2012

Test Laboratory: SPEAG, Zurich, Switzerland

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

Communication System: CW; Frequency: 2450 MHz

Medium parameters used: $f = 2450 \text{ MHz}$; $\sigma = 1.81 \text{ mho/m}$; $\epsilon_r = 39.6$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(4.45, 4.45, 4.45); Calibrated: 30.12.2011;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 04.07.2011
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- DASY52 52.8.1(838); SEMCAD X 14.6.5(6469)

Dipole Calibration for Head Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:

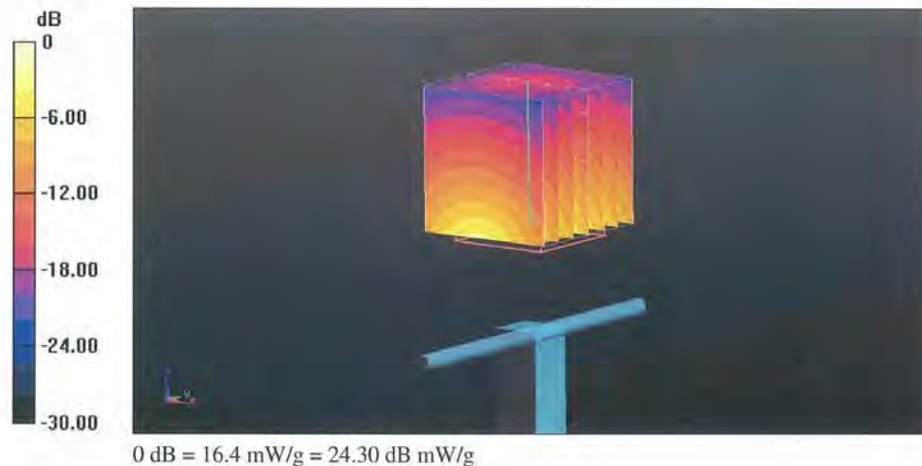
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 98.712 V/m; Power Drift = 0.05 dB

Peak SAR (extrapolated) = 26.388 mW/g

SAR(1 g) = 12.8 mW/g; SAR(10 g) = 5.95 mW/g

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



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DASY5 Validation Report for Body TSL

Date: 25.04.2012

Test Laboratory: SPEAG, Zurich, Switzerland

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

Communication System: CW; Frequency: 2450 MHz

Medium parameters used: $f = 2450 \text{ MHz}$; $\sigma = 1.98 \text{ mho/m}$; $\epsilon_r = 52.4$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(4.26, 4.26, 4.26); Calibrated: 30.12.2011;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 04.07.2011
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; Serial: 1002
- DASY52 52.8.1(838); SEMCAD X 14.6.5(6469)

Dipole Calibration for Body Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:

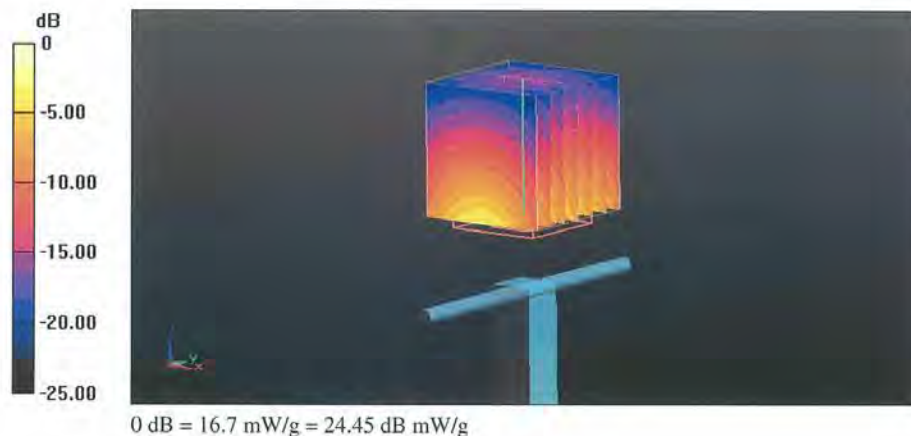
Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 95.136 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 25.811 mW/g

SAR(1 g) = 12.7 mW/g; SAR(10 g) = 5.92 mW/g

Maximum value of SAR (measured) = 16.7 mW/g



End of 1st part of report

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