

SAR TEST REPORT

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

Product Name	ARGON MINI
Marketing Name	MOTOSMART
Brand Name	Motorola
Type Name	MOD11
Model No.	XT389 (GPPD:3345_VodaFone)
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	IHDT56NN7
Date of Receipt	Jul. 02, 2012
Date of Test(s)	Jul. 04, 2012 ~ Jul. 05, 2012
Date of Issue	Jul. 13, 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: Jul. 13, 2012

Supervisor



Kelly Tsai

Date: Jul. 13, 2012

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Version

Report Number	Revision	Date	Memo
EN/2012/70002	00	2012/07/13	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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Internet	http://www.tw.sgs.com/
Test 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

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1.3 Description of EUT

Product Name	ARGON MINI		
Marketing Name	MOTOSMART		
Brand Name	Motorola		
Type Name	M0D11		
Model No.	XT389 (GPPD:3345_VodaFone)		
IMEI Code	359500040024933		
FCC ID	IHDT56NN7		
Mode of Operation	☒ GSM ☒ GPRS ☒ WLAN802.11 b/g/n(☒ 20M) band		
Definition	Production unit		
Duty Cycle	GSM	1/8.3	
	GPRS	1/4.1	
	WLAN 802.11 b/g/n(20M)	1	
TX Frequency Range (MHz)	GSM850	824.2	848.8
	GSM1900	1850.2	1909.8
	WLAN 802.11 b/g/n (20M)	2412	2462
Channel Number (ARFCN)	GSM850	128	251
	GSM1900	512	810
	WLAN 802.11 b/g/ n(20M)	1	11

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Max. SAR Measured(1 g) (Unit: W/kg)	Head	GSM850	0.49	☒ Left ☐ Right ☒ Cheek ☐ Tilt 251 Channel
		GSM1900	0.43	☒ Left ☐ Right ☒ Cheek ☐ Tilt 810 Channel
		WLAN802.11 b	0.375	☐ Left ☒ Right ☒ Cheek ☐ Tilt 11 Channel
	Hotspot mode	GSM850	1.27	☐ Front ☒ Back ☐ Bottom ☐ Right ☐ Left 251 Channel
		GSM1900	0.57	☐ Front ☒ Back ☐ Bottom ☐ Right ☐ Left 512 Channel
		WLAN802.11 b	0.157	☐ Front ☒ Back ☐ Top ☐ Right ☐ Left 6 Channel - with headset

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#. GSM/GPRS conducted power table:

EUT mode	Frequency (MHz)	CH	Burst average power		Source-based time average power	
			Peak(dBm)	Avg.(dBm)	Peak(dBm)	Avg.(dBm)
GSM 850	824.2	128	32.90	32.80	23.87	23.77
	836.6	190	32.90	32.80	23.87	23.77
	848.8	251	32.90	32.80	23.87	23.77
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	
			Peak (dBm)	Avg. (dBm)	Peak (dBm)	Avg. (dBm)
GPRS 850	824.2	128	32.90	32.80	32.50	32.30
	836.6	190	32.90	32.80	32.10	32.00
	848.8	251	32.90	32.80	32.10	32.00
Source-based time average power						
GPRS 850	824.2	128	23.87	23.77	26.48	26.28
	836.6	190	23.87	23.77	26.08	25.98
	848.8	251	23.87	23.77	26.08	25.98
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	

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EUT mode	Frequency (MHz)	CH	Burst average power		Source-based time average power	
			Peak(dBm)	Avg.(dBm)	Peak(dBm)	Avg.(dBm)
GSM 1900	1850.2	512	30.20	30.00	21.17	20.97
	1880	661	30.30	30.20	21.27	21.17
	1909.8	810	30.20	30.00	21.17	20.97
The division factor compared to the number of TX time slot						
Division factor			1 TX time slot			
			-9.03			

Burst average power						
			1Dn1UP		1Dn2UP	
EUT mode	Frequency (MHz)	CH	Peak (dBm)	Avg. (dBm)	Peak (dBm)	Avg. (dBm)
GPRS 1900	1850.2	512	30.10	30.00	29.30	29.10
	1880	661	30.30	30.20	29.50	29.30
	1909.8	810	30.20	30.00	29.40	29.30
Source-based time average power						
GPRS 1900	1850.2	512	21.07	20.97	23.28	23.08
	1880	661	21.27	21.17	23.48	23.28
	1909.8	810	21.17	20.97	23.38	23.28
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	

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

WLAN 802.11 b		Average Power Output (dBm)			
CH	Frequency (MHz)	Data Rate (Mbps)			
		1	2	5.5	11
1	2412	18.82	18.79	18.72	18.68
6	2437	17.95	17.88	17.85	17.81
11	2462	18.15	18.08	18.05	18.01

WLAN 802.11 g		Average Power Output (dBm)							
CH	Frequency (MHz)	Data Rate (Mbps)							
		6	9	12	18	24	36	48	54
1	2412	10.20	10.18	10.16	10.15	10.16	10.14	10.11	10.13
6	2437	14.30	14.27	14.24	14.22	14.20	14.21	14.18	14.20
11	2462	13.69	13.65	13.62	13.59	13.57	13.55	13.54	13.58

WLAN 802.11 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	9.25	9.24	9.21	9.22	9.18	9.16	9.14	9.11
6	2437	11.85	11.53	11.50	11.48	11.46	11.43	11.40	11.41
11	2462	11.48	11.46	11.43	11.42	11.43	11.41	11.38	11.37

#. Bluetooth conducted power table:

CH	Peak Power (dBm)	
	BDR	EDR
2402	7.09	6.47
2441	7.31	6.63
2480	7.78	7.10

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1.4 Test Environment

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

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

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)

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- (4) Bottom side. (WLAN antenna to edge distance >25mm_No SAR)
- (5) Right side.
- (6) Left side.

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=7.78dBm)
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, The highest 1-g SAR for WLAN is 0.375 W/kg and the highest 1-g SAR for WWAN is 0.49W/kg. The sum of 1-g for simultaneous transmitting WLAN and WWAN antenna pair is $0.375+0.49 = 0.865$ W/kg.
10. For Body, The highest 1-g SAR for WLAN is 0.157 W/kg and the highest 1-g SAR for WWAN is 1.27W/kg. The sum of 1-g for simultaneous transmitting WLAN and WWAN antenna pair is $0.157+1.27 = 1.427$ W/kg.
11. Both Head & Body, **which lower than the limit 1.6W/kg**. According to **KDB648474/KDB447498** Simultaneous SAR evaluation is not required.
12. WLAN / WWAN – Antenna separation > 5cm, Sum of SAR is less than 1.6W/kg, hence no simultaneous SAR is needed.
13. 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):

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

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Additional configuration (Body):

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

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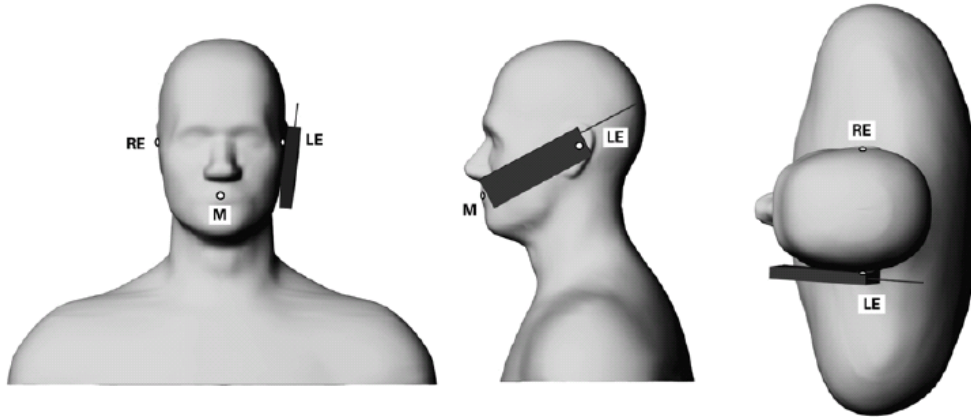
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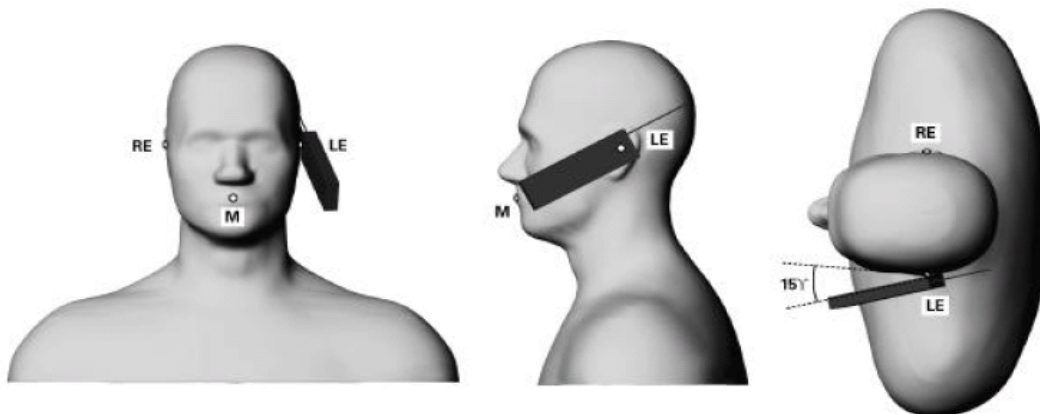
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1.6 Positioning Procedure



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

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avoided, as the measured field itself destroys the thermal equilibrium in the liquid. 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].

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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.

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.
- [2] K. Meier, M. Burkhardt, T. Schmid, and N. Kuster, "Broadband calibration of E-field probes in lossy media", *IEEE Transactions on Microwave Theory and Techniques*, vol. 44, no. 10, pp. 1954-1962, Oct. 1996.
- [3] K. Jokela, P. Hyysalo, and L. Puranen, "Calibration of specific absorption rate (SAR) probes in waveguide at 900 MHz", *IEEE Transactions on Instrumentation and Measurements*, vol. 47, no. 2, pp. 432-438, Apr. 1998.

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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.

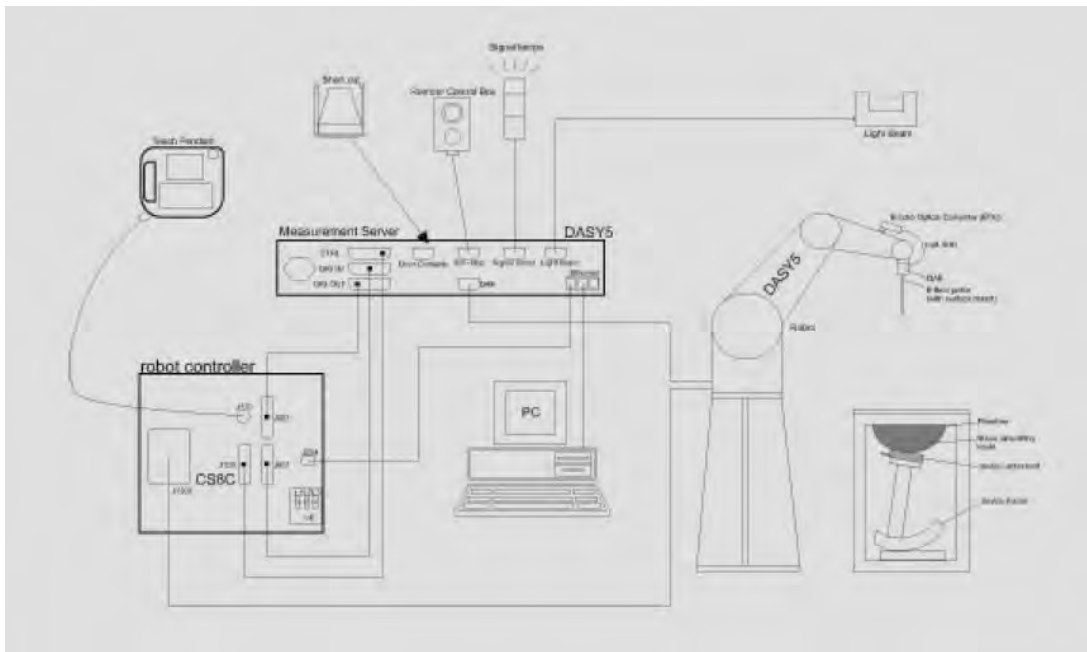


Fig.a The block diagram of SAR system

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

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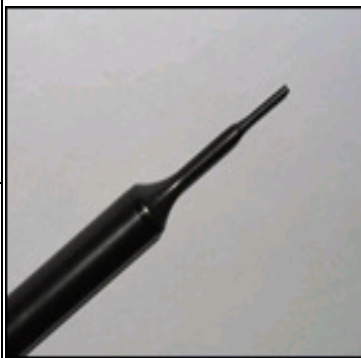
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1.10 System Components

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)	
Calibration	Basic Broad Band Calibration in air Conversion Factors (CF) for HSL835/1900/2450MHz Additional CF for other liquids and frequencies upon request	
EX3DV4 E-Field Probe		
Frequency	10 MHz to > 6 GHz; Linearity: ± 0.2 dB (30 MHz to 6 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 μ W/g to > 100 mW/g; Linearity: ± 0.2 dB (noise: typically < 1 μ W/g)	
Dimensions	Overall length: 330 mm (Tip: 20 mm) Tip diameter: 2.5 mm (Body: 12 mm) Typical distance from probe tip to dipole centers: 1 mm	
Application	High precision dosimetric measurements in any exposure scenario (e.g., very strong gradient fields). Only probe which enables compliance testing for frequencies up to 6 GHz with precision of better 30%.	

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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: 251 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.

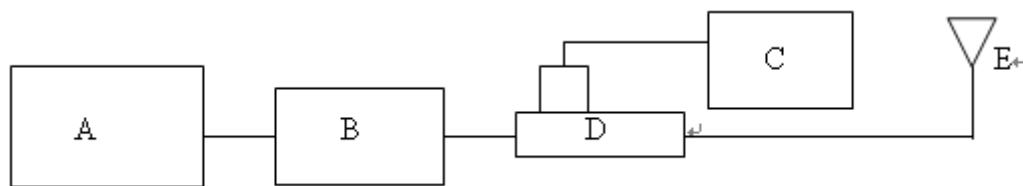


Fig. b The block diagram of system verification

- 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	2.31	Jul. 04, 2012
			Body	2.46	2.38	
D1900V2	5d027	1900	Head	9.43	9.44	
			Body	10	10.2	
D2450V2	727	2450	Head	12.8	12.5	Jul. 05, 2012
			Body	12.7	12.2	

Table 1. System validation (follow manufacture target values)

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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 85070E Dielectric Probe (rates frequency band 200 MHz to 20 GHz) in conjunction with HP E5071C Network Analyzer (30 KHz-6000MHz).

All dielectric parameters of tissue simulates were measured within 24 hours of SAR measurements. The depth of the tissue simulant in 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
850	Head	ρ	Verification		38.57-42.63	41.026	Jul. 04, 2012
			GSM 850	CH (L)		41.166	
				CH (M)		41.004	
				CH (H)		40.862	
		σ (S/m)	Verification		0.85-0.93	0.884	
			GSM 850	CH (L)		0.876	
				CH (M)		0.886	
				CH (H)		0.896	
		Simulated Tissue Temp.(°C)			20-24	21.7	
	Body	ρ	Verification		51.59-57.02	53.747	
			GPRS 850	CH (L)		53.842	
				CH (M)		53.722	
				CH (H)		53.535	
		σ (S/m)	Verification		0.95-1.05	1.029	
			GPRS 850	CH (L)		1.019	
				CH (M)		1.03	
				CH (H)		1.039	
		Simulated Tissue Temp.(°C)			20-24	21.7	

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1900	Head	ρ	Verification		38.76-42.84	41.093	Jul. 04, 2012
			GSM 1900	CH (L)		41.489	
				CH (M)		41.123	
				CH (H)		41.148	
		σ (S/m)	Verification		1.30-1.44	1.392	
			GSM 1900	CH (L)		1.332	
				CH (M)		1.359	
				CH (H)		1.407	
	Simulated Tissue Temp.(°C)				20-24	21. 7	
	Body	ρ	Verification		50.64-55.97	52.682	Jul. 04, 2012
			GPRS 1900	CH (L)		52.882	
				CH (M)		52.756	
				CH (H)		52.632	
		σ (S/m)	Verification		1.43-1.59	1.509	
GPRS 1900			CH (L)	1.454			
			CH (M)	1.483			
			CH (H)	1.52			
Simulated Tissue Temp.(°C)				20-24	21.7		

2450	Head	ρ	Verification		37.62-41.58	39.271	Jul. 05, 2012
			WLAN b	CH (L)		39.479	
				CH (M)		39.36	
				CH (H)		39.188	
		σ (S/m)	Verification		1.72-1.90	1.82	
			WLAN b	CH (L)		1.787	
				CH (M)		1.807	
				CH (H)		1.835	
Simulated Tissue Temp.(°C)				20-24	21.7		

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2450	Body	ρ	Verification		49.78-55.02	50.687	Jul. 05, 2012
			WLAN b	CH (L)		50.688	
				CH (M)		50.686	
				CH (H)		50.651	
		σ (S/m)	Verification		1.88-2.08	1.963	
			WLAN b	CH (L)		1.903	
				CH (M)		1.945	
				CH (H)		1.977	
		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	—	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	
GSM850	GSM	Right	Cheek	—	0.431 / 0.328	—	1.6
			Tilt	—	0.322 / 0.221	—	1.6
		Left	Cheek	0.382 / 0.292	0.479 / 0.363	0.49 / 0.37	1.6
			- with Memory card	—	—	0.476 / 0.36	1.6
			Tilt	—	0.303 / 0.208	—	1.6
	GPRS	Hotspot mode	Front	—	0.673 / 0.507	—	1.6
			Back	0.908 / 0.649	1.11 / 0.788	1.27 / 0.903	1.6
			- with Memory card	—	—	1.17 / 0.849	1.6
			- with Headset	—	—	1.01 / 0.707	1.6
			Bottom	—	0.088 / 0.05	—	1.6
			Right	—	0.635 / 0.437	—	1.6
			Left	—	0.532 / 0.36	—	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	—	0.27 / 0.167	—	1.6
			Tilt	—	0.178 / 0.096	—	1.6
		Left	Cheek	0.403 / 0.223	0.421 / 0.233	0.43 / 0.242	1.6
			Tilt	—	0.174 / 0.096	—	1.6
	GPRS	Hotspot	Front	—	0.492 / 0.282	—	1.6
			Back	0.57 / 0.318	0.541 / 0.305	0.554 / 0.308	1.6
			Bottom	—	0.508 / 0.279	—	1.6
			Right	—	0.142 / 0.076	—	1.6
			Left	—	0.142 / 0.08	—	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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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	0.278 / 0.132	0.267 / 0.126	0.375 / 0.177	1.6
		- with Memory card	—	—	0.349 / 0.166	1.6
		- with Bluetooth	—	—	0.352 / 0.167	1.6
		Tilt	—	0.168 / 0.076	—	1.6
	Left	Cheek	—	0.228 / 0.121	—	1.6
		Tilt	—	0.164 / 0.085	—	1.6
	Hotspot	Front	—	0.067 / 0.038	—	1.6
		Back	0.113 / 0.055	0.147 / 0.073	0.134 / 0.067	1.6
		- with Memory card	—	0.132 / 0.066	—	1.6
		- with Bluetooth	—	0.121 / 0.06	—	1.6
		- with Headset	—	0.157 / 0.079	—	1.6
		Top	—	0.071 / 0.038	—	1.6
		Right	—	0.032 / 0.015	—	1.6
		Left	—	0.119 / 0.057	—	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	3848	Jun.04,2012	Jun.03,2013
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	1336	Jun.05,2012	Jun.04,2013
Software	Schmid & Partner Engineering AG	Dasy 5 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	Agilent	85070E	MY44300554	Calibration not required	Calibration not required
Dual-directional coupler	Agilent	777D 778D	50114 MY48220468	Aug.18,2011 Mar.30,2012	Aug.17,2012 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: 2012/7/4

RE Cheek_CH190

Communication System: GSM; Frequency: 836.6 MHz

Medium parameters used: $f = 837 \text{ MHz}$; $\sigma = 0.886 \text{ mho/m}$; $\epsilon_r = 41.004$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Right Section

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

DASY Configuration:

- Probe: EX3DV4 - SN3848; ConvF(8.9, 8.9, 8.9); Calibrated: 2012/6/4;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2012/6/5
- Phantom: SAM with CRP; Type: SAM; Serial: 1712
- DASY52 52.8.1(838); SEMCAD X 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) = 0.495 mW/g

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

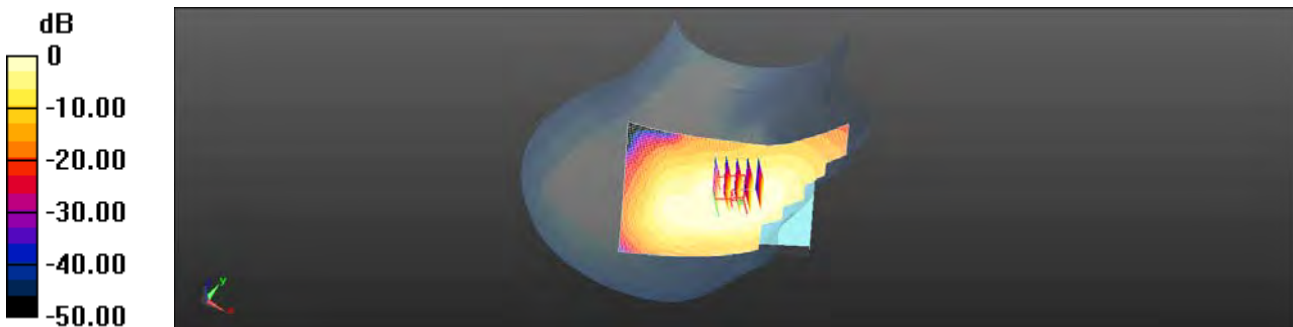
Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 15.001 V/m; Power Drift = 0.13 dB

Peak SAR (extrapolated) = 0.527 mW/g

SAR(1 g) = 0.431 mW/g; SAR(10 g) = 0.328 mW/g

Maximum value of SAR (measured) = 0.489 mW/g



0 dB = 0.495 mW/g = -6.10 dB mW/g

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Date: 2012/7/4

RE Tilt_CH190

Communication System: GSM; Frequency: 836.6 MHz

Medium parameters used: $f = 837 \text{ MHz}$; $\sigma = 0.886 \text{ mho/m}$; $\epsilon_r = 41.004$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Right Section

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

DASY Configuration:

- Probe: EX3DV4 - SN3848; ConvF(8.9, 8.9, 8.9); Calibrated: 2012/6/4;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2012/6/5
- Phantom: SAM with CRP; Type: SAM; Serial: 1712
- DASY52 52.8.1(838); SEMCAD X 14.6.5(6469)

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

Maximum value of SAR (interpolated) = 0.460 mW/g

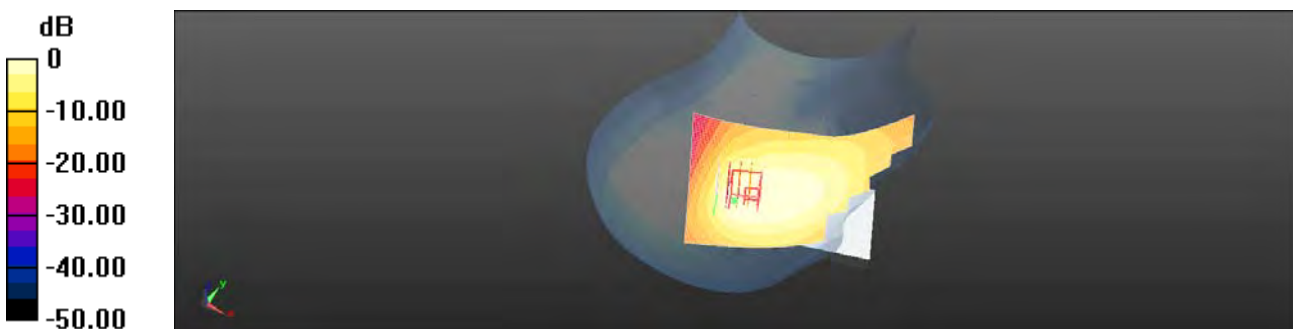
Configuration/RE Tilt/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 18.287 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 0.496 mW/g

SAR(1 g) = 0.322 mW/g; SAR(10 g) = 0.221 mW/g

Maximum value of SAR (measured) = 0.387 mW/g



0 dB = 0.460 mW/g = -6.74 dB mW/g

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Date: 2012/7/4

LE Cheek_CH128

Communication System: GSM; Frequency: 824.2 MHz

Medium parameters used: $f = 824.2 \text{ MHz}$; $\sigma = 0.876 \text{ mho/m}$; $\epsilon_r = 41.166$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

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

DASY Configuration:

- Probe: EX3DV4 - SN3848; ConvF(8.9, 8.9, 8.9); Calibrated: 2012/6/4;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2012/6/5
- Phantom: SAM with CRP; Type: SAM; Serial: 1712
- DASYS 52.8.1(838); SEMCAD X 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) = 0.441 mW/g

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

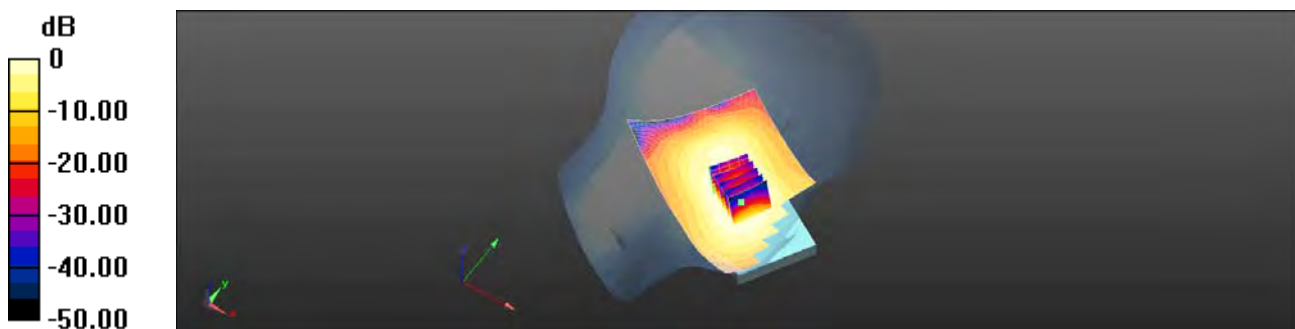
Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 13.775 V/m; Power Drift = 0.05 dB

Peak SAR (extrapolated) = 0.458 mW/g

SAR(1 g) = 0.382 mW/g; SAR(10 g) = 0.292 mW/g

Maximum value of SAR (measured) = 0.431 mW/g



0 dB = 0.441 mW/g = -7.12 dB mW/g

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Member of SGS Group

Date: 2012/7/4

LE Cheek_CH190

Communication System: GSM; Frequency: 836.6 MHz

Medium parameters used: $f = 837 \text{ MHz}$; $\sigma = 0.886 \text{ mho/m}$; $\epsilon_r = 41.004$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

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

DASY Configuration:

- Probe: EX3DV4 - SN3848; ConvF(8.9, 8.9, 8.9); Calibrated: 2012/6/4;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2012/6/5
- Phantom: SAM with CRP; Type: SAM; Serial: 1712
- DASYS 52.8.1(838); SEMCAD X 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) = 0.551 mW/g

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

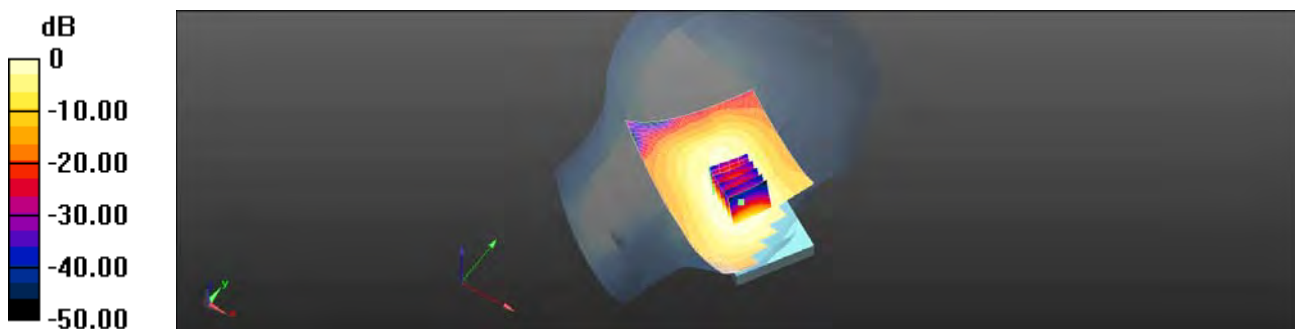
Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 15.005 V/m; Power Drift = 0.15 dB

Peak SAR (extrapolated) = 0.577 mW/g

SAR(1 g) = 0.479 mW/g; SAR(10 g) = 0.363 mW/g

Maximum value of SAR (measured) = 0.542 mW/g



0 dB = 0.551 mW/g = -5.18 dB mW/g

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Date: 2012/7/4

LE Cheek_CH251

Communication System: GSM; Frequency: 848.8 MHz

Medium parameters used: $f = 849 \text{ MHz}$; $\sigma = 0.896 \text{ mho/m}$; $\epsilon_r = 40.862$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

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

DASY Configuration:

- Probe: EX3DV4 - SN3848; ConvF(8.9, 8.9, 8.9); Calibrated: 2012/6/4;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2012/6/5
- Phantom: SAM with CRP; Type: SAM; Serial: 1712
- DASY52 52.8.1(838); SEMCAD X 14.6.5(6469)

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

dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.567 mW/g

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

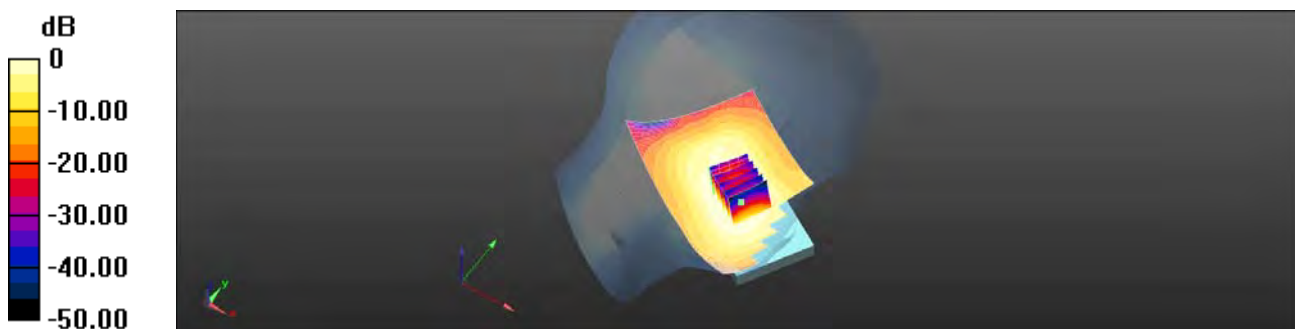
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 14.871 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 0.599 mW/g

SAR(1 g) = 0.49 mW/g; SAR(10 g) = 0.370 mW/g

Maximum value of SAR (measured) = 0.560 mW/g



0 dB = 0.567 mW/g = -4.93 dB mW/g

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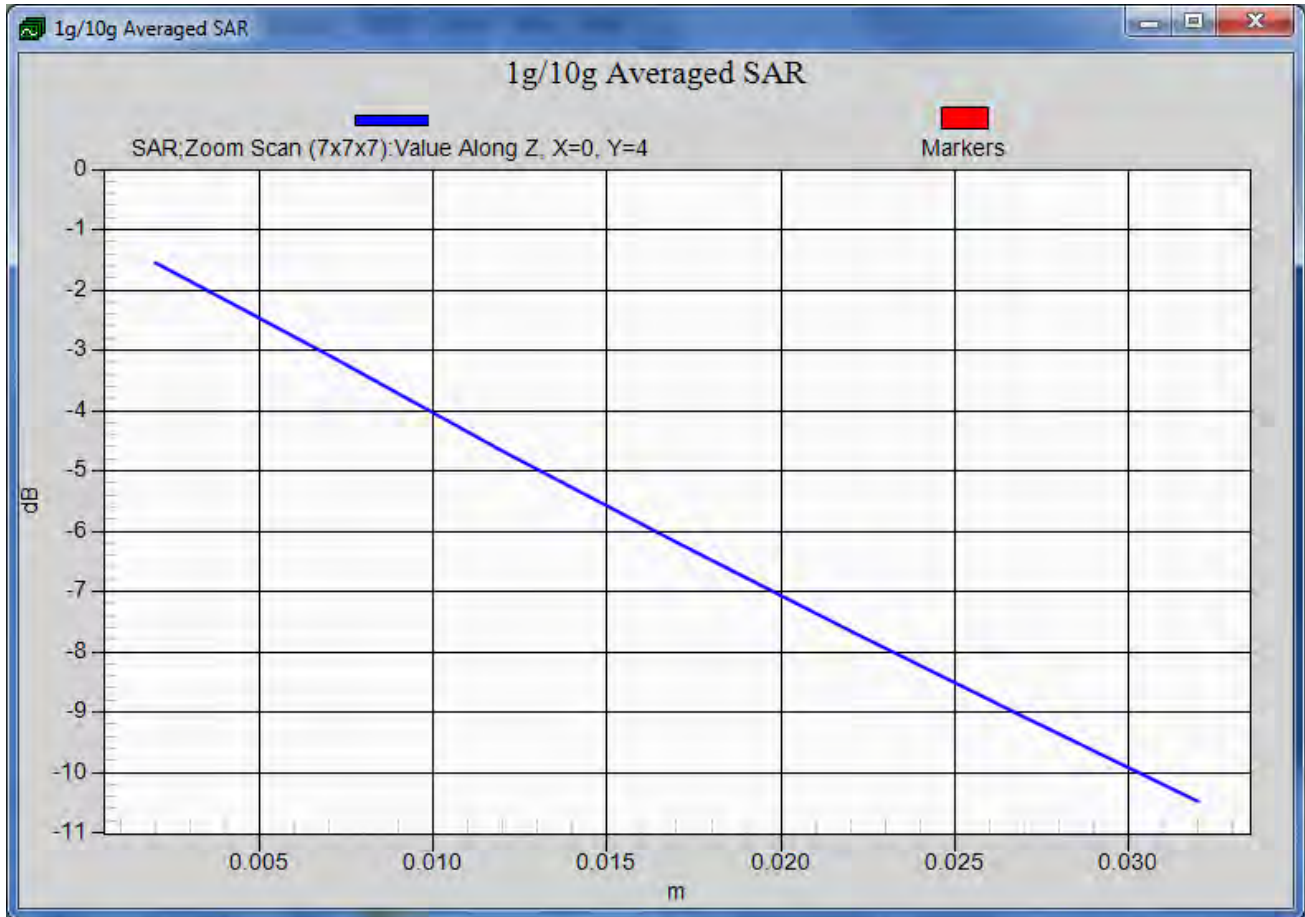
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Date: 2012/7/4

LE Cheek_CH251_repeated with external Memory card inside

Communication System: GSM; Frequency: 848.8 MHz

Medium parameters used: $f = 849 \text{ MHz}$; $\sigma = 0.896 \text{ mho/m}$; $\epsilon_r = 40.862$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

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

DASY Configuration:

- Probe: EX3DV4 - SN3848; ConvF(8.9, 8.9, 8.9); Calibrated: 2012/6/4;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2012/6/5
- Phantom: SAM with CRP; Type: SAM; Serial: 1712
- DASY52 52.8.1(838); SEMCAD X 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) = 0.555 mW/g

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

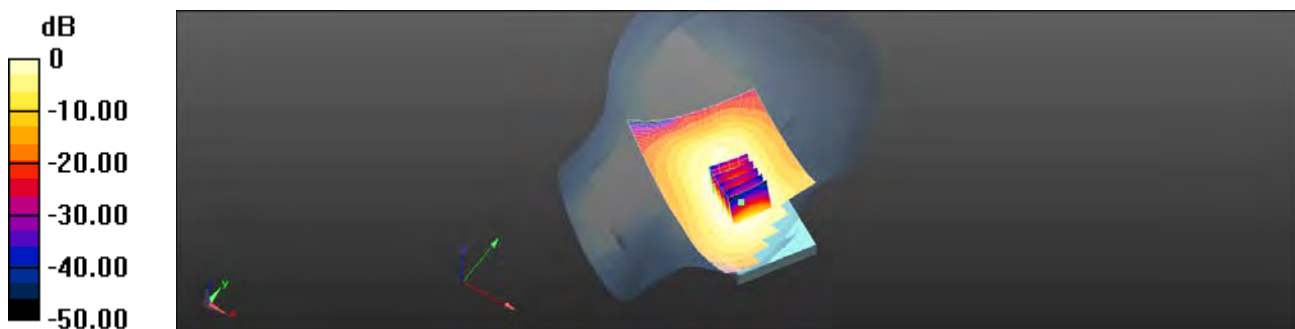
Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 14.700 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 0.578 mW/g

SAR(1 g) = 0.476 mW/g; SAR(10 g) = 0.360 mW/g

Maximum value of SAR (measured) = 0.541 mW/g



0 dB = 0.555 mW/g = -5.12 dB mW/g

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www.tw.sgs.com

Member of SGS Group

Date: 2012/7/4

LE Tilt_CH190

Communication System: GSM; Frequency: 836.6 MHz

Medium parameters used: $f = 837 \text{ MHz}$; $\sigma = 0.886 \text{ mho/m}$; $\epsilon_r = 41.004$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

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

DASY Configuration:

- Probe: EX3DV4 - SN3848; ConvF(8.9, 8.9, 8.9); Calibrated: 2012/6/4;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2012/6/5
- Phantom: SAM with CRP; Type: SAM; Serial: 1712
- DASY52 52.8.1(838); SEMCAD X 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) = 0.407 mW/g

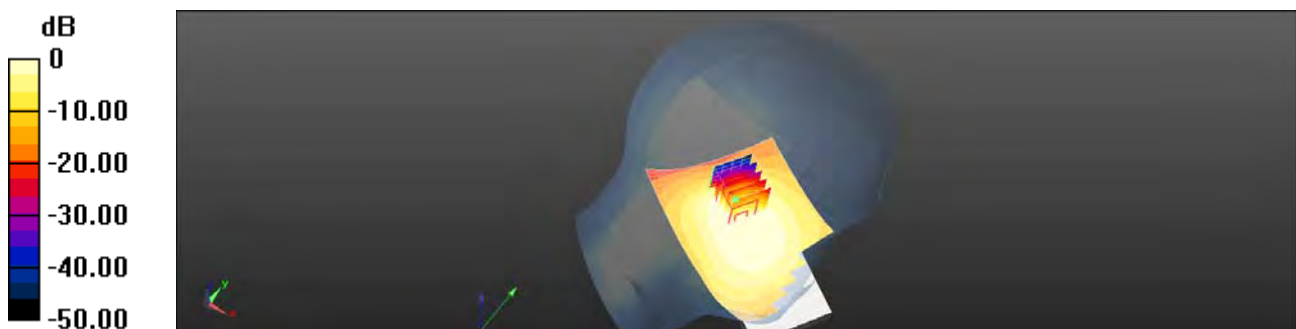
Configuration/LE Tilt/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 18.414 V/m; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 0.397 mW/g

SAR(1 g) = 0.303 mW/g; SAR(10 g) = 0.208 mW/g

Maximum value of SAR (measured) = 0.364 mW/g



0 dB = 0.407 mW/g = -7.82 dB mW/g

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Date: 2012/7/4

Hotspot_Front side_CH190

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

Medium parameters used: $f = 837$ MHz; $\sigma = 1.03$ mho/m; $\epsilon_r = 53.722$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

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

DASY Configuration:

- Probe: EX3DV4 - SN3848; ConvF(9.11, 9.11, 9.11); Calibrated: 2012/6/4;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2012/6/5
- Phantom: SAM with CRP; Type: SAM; Serial: 1712
- DASY52 52.8.1(838); SEMCAD X 14.6.5(6469)

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

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

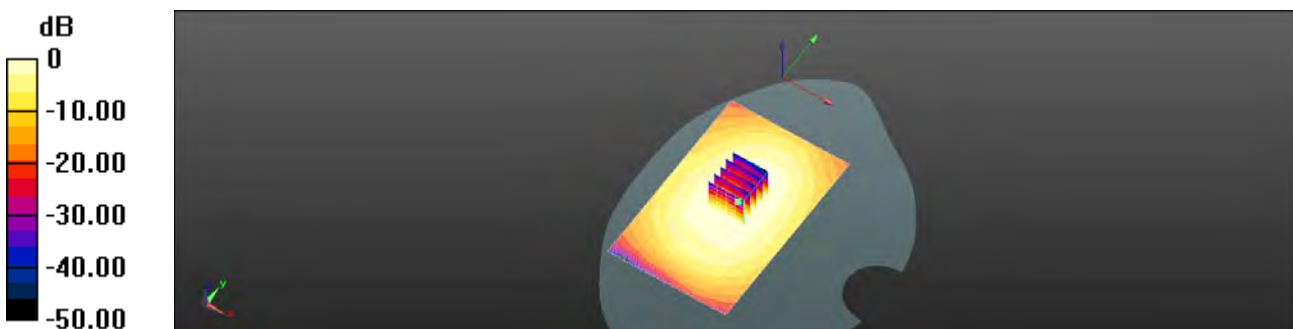
Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 18.360 V/m; Power Drift = -0.09 dB

Peak SAR (extrapolated) = 0.887 mW/g

SAR(1 g) = 0.673 mW/g; SAR(10 g) = 0.507 mW/g

Maximum value of SAR (measured) = 0.789 mW/g



0 dB = 0.787 mW/g = -2.08 dB mW/g

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Date: 2012/7/4

Hotspot_Back side_CH128

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

Medium parameters used: $f = 824.2$ MHz; $\sigma = 1.019$ mho/m; $\epsilon_r = 53.842$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

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

DASY Configuration:

- Probe: EX3DV4 - SN3848; ConvF(9.11, 9.11, 9.11); Calibrated: 2012/6/4;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2012/6/5
- Phantom: SAM with CRP; Type: SAM; Serial: 1712
- DASY52 52.8.1(838); SEMCAD X 14.6.5(6469)

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

Maximum value of SAR (interpolated) = 1.10 mW/g

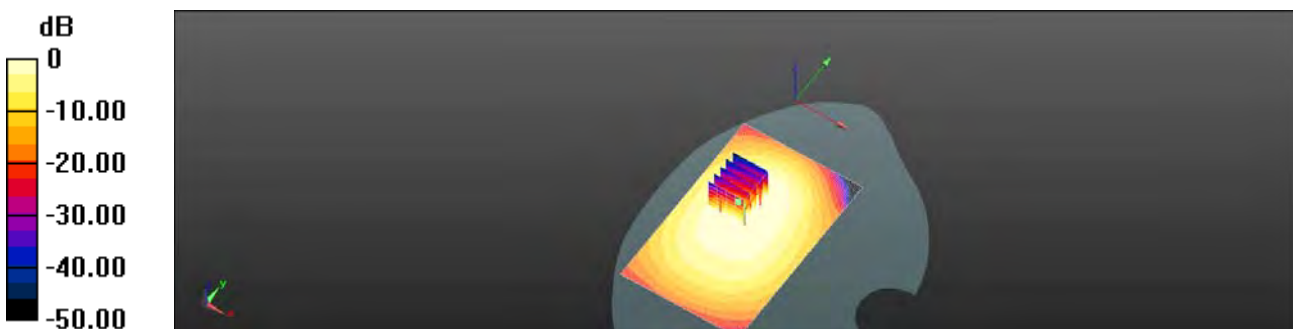
Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 17.929 V/m; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 1.270 mW/g

SAR(1 g) = 0.908 mW/g; SAR(10 g) = 0.649 mW/g

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



0 dB = 1.10 mW/g = 0.79 dB mW/g

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Date: 2012/7/4

Hotspot_Back side_CH190

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

Medium parameters used: $f = 837$ MHz; $\sigma = 1.03$ mho/m; $\epsilon_r = 53.722$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

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

DASY Configuration:

- Probe: EX3DV4 - SN3848; ConvF(9.11, 9.11, 9.11); Calibrated: 2012/6/4;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2012/6/5
- Phantom: SAM with CRP; Type: SAM; Serial: 1712
- DASY52 52.8.1(838); SEMCAD X 14.6.5(6469)

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

Maximum value of SAR (interpolated) = 1.33 mW/g

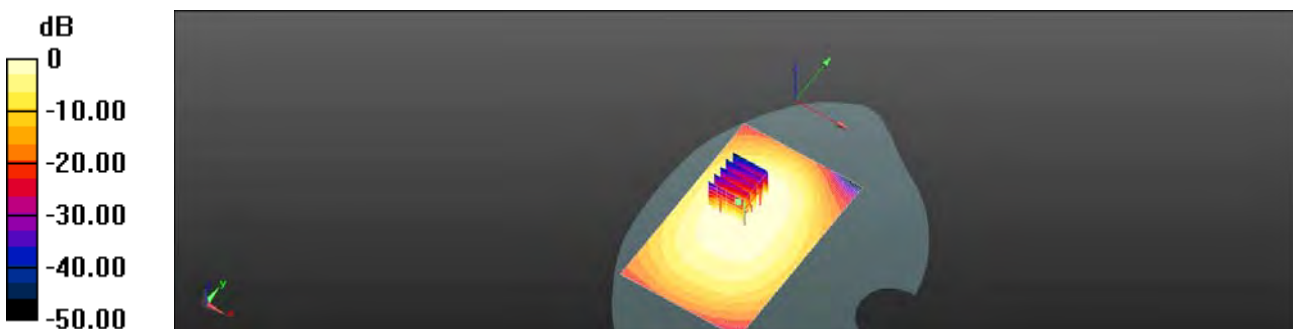
Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 19.952 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 1.538 mW/g

SAR(1 g) = 1.11 mW/g; SAR(10 g) = 0.788 mW/g

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



0 dB = 1.33 mW/g = 2.47 dB mW/g

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Date: 2012/7/4

Hotspot_Back side_CH251

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

Medium parameters used: $f = 849 \text{ MHz}$; $\sigma = 1.039 \text{ mho/m}$; $\epsilon_r = 53.535$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

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

DASY Configuration:

- Probe: EX3DV4 - SN3848; ConvF(9.11, 9.11, 9.11); Calibrated: 2012/6/4;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2012/6/5
- Phantom: SAM with CRP; Type: SAM; Serial: 1712
- DASY52 52.8.1(838); SEMCAD X 14.6.5(6469)

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

Maximum value of SAR (interpolated) = 1.52 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 = 21.256 V/m; Power Drift = 0.05 dB

Peak SAR (extrapolated) = 1.764 mW/g

SAR(1 g) = 1.27 mW/g; SAR(10 g) = 0.903 mW/g

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

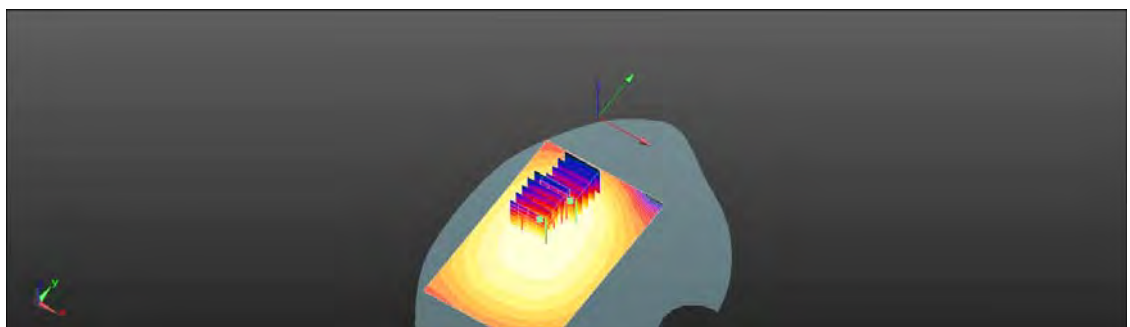
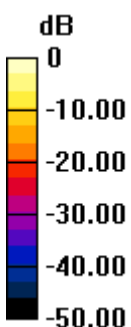
Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 1: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 21.256 V/m; Power Drift = 0.05 dB

Peak SAR (extrapolated) = 1.713 mW/g

SAR(1 g) = 1.03 mW/g; SAR(10 g) = 0.600 mW/g

Maximum value of SAR (measured) = 1.41 mW/g



0 dB = 1.52 mW/g = 3.61 dB mW/g

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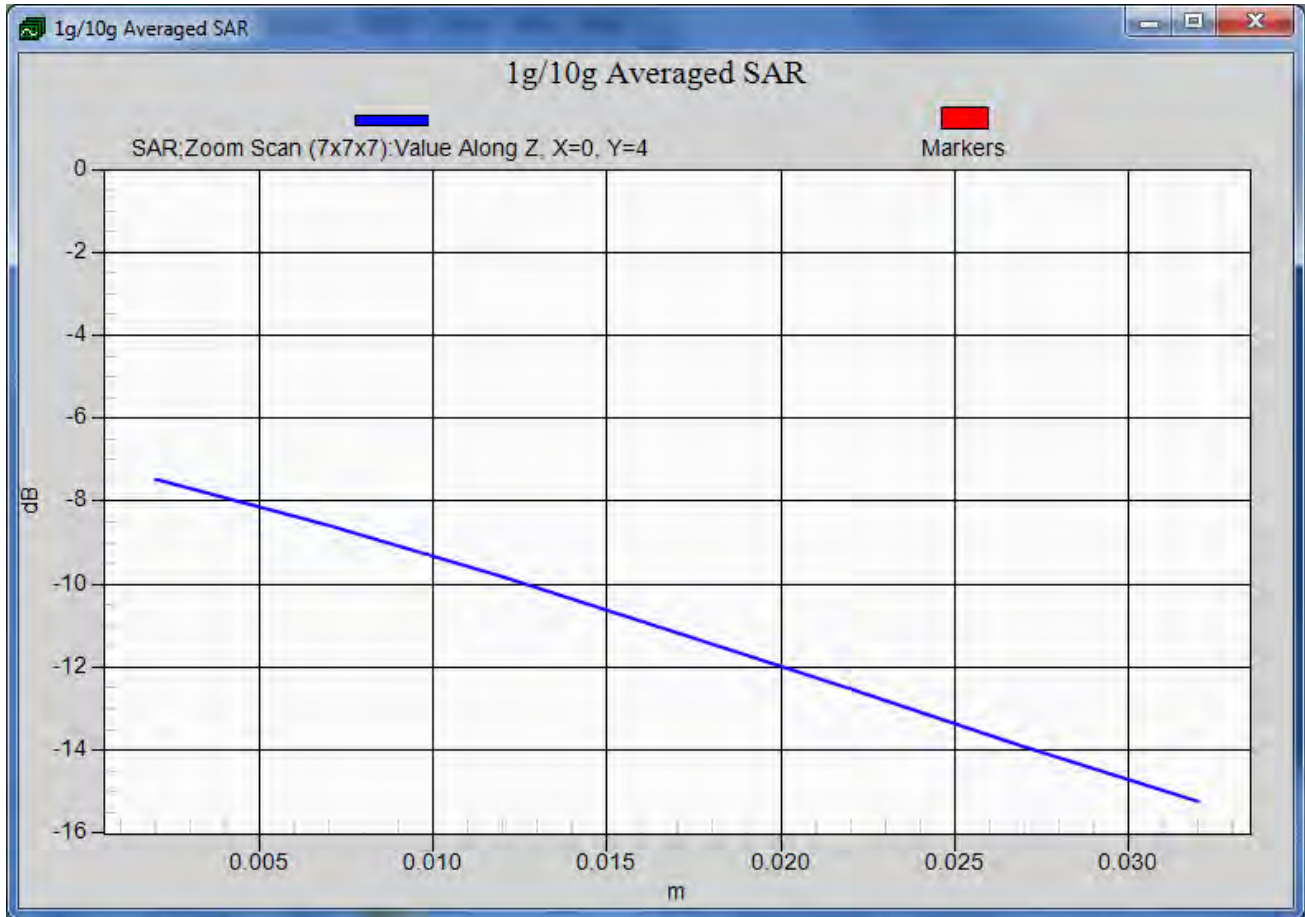
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Date: 2012/7/4

Hotspot_Back side_CH251_repeated with external Memory card inside

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

Medium parameters used: $f = 849 \text{ MHz}$; $\sigma = 1.039 \text{ mho/m}$; $\epsilon_r = 53.535$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

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

DASY Configuration:

- Probe: EX3DV4 - SN3848; ConvF(9.11, 9.11, 9.11); Calibrated: 2012/6/4;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2012/6/5
- Phantom: SAM with CRP; Type: SAM; Serial: 1712
- DASY52 52.8.1(838); SEMCAD X 14.6.5(6469)

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

Maximum value of SAR (interpolated) = 1.42 mW/g

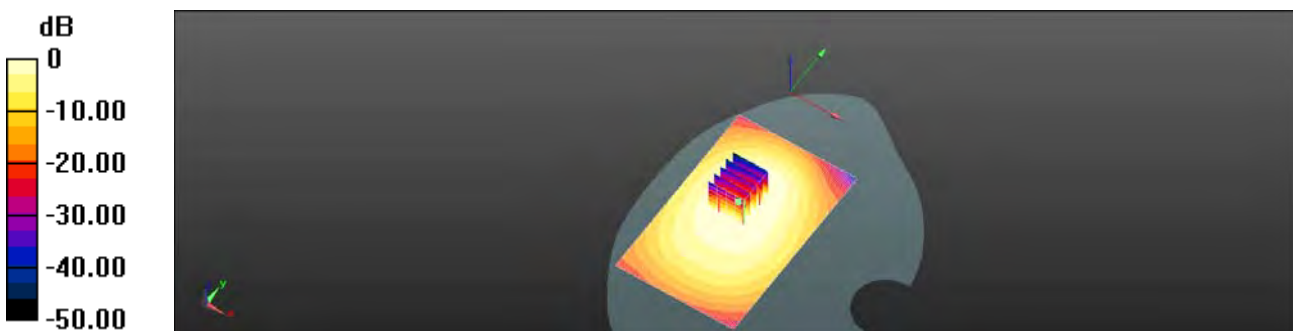
Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 21.197 V/m; Power Drift = 0.19 dB

Peak SAR (extrapolated) = 1.660 mW/g

SAR(1 g) = 1.17 mW/g; SAR(10 g) = 0.849 mW/g

Maximum value of SAR (measured) = 1.44 mW/g



0 dB = 1.42 mW/g = 3.02 dB mW/g

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Date: 2012/7/4

Hotspot_Back side_CH251_repeated with headset

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

Medium parameters used: $f = 849 \text{ MHz}$; $\sigma = 1.039 \text{ mho/m}$; $\epsilon_r = 53.535$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

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

DASY Configuration:

- Probe: EX3DV4 - SN3848; ConvF(9.11, 9.11, 9.11); Calibrated: 2012/6/4;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2012/6/5
- Phantom: SAM with CRP; Type: SAM; Serial: 1712
- DASY52 52.8.1(838); SEMCAD X 14.6.5(6469)

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

Maximum value of SAR (interpolated) = 1.21 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 = 19.193 V/m; Power Drift = 0.05 dB

Peak SAR (extrapolated) = 1.471 mW/g

SAR(1 g) = 1.01 mW/g; SAR(10 g) = 0.707 mW/g

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

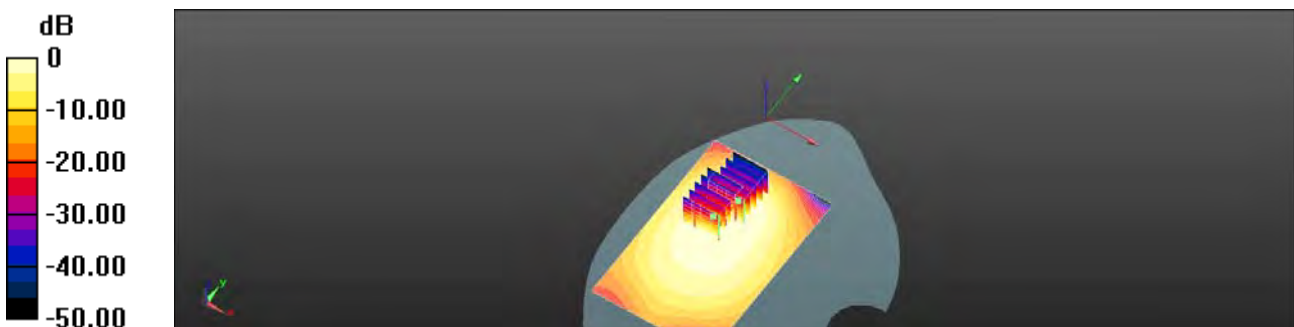
Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 1: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 19.193 V/m; Power Drift = 0.05 dB

Peak SAR (extrapolated) = 1.485 mW/g

SAR(1 g) = 0.903 mW/g; SAR(10 g) = 0.534 mW/g

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



0 dB = 1.21 mW/g = 1.65 dB mW/g

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Date: 2012/7/4

Hotspot_Bottom side_CH190

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

Medium parameters used: $f = 837$ MHz; $\sigma = 1.03$ mho/m; $\epsilon_r = 53.722$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

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

DASY Configuration:

- Probe: EX3DV4 - SN3848; ConvF(9.11, 9.11, 9.11); Calibrated: 2012/6/4;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2012/6/5
- Phantom: SAM with CRP; Type: SAM; Serial: 1712
- DASY52 52.8.1(838); SEMCAD X 14.6.5(6469)

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

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

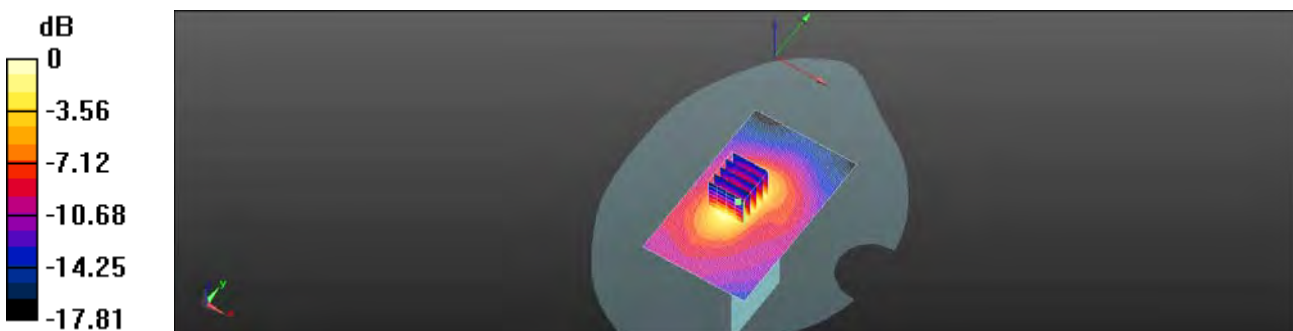
Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 6.997 V/m; Power Drift = -0.17 dB

Peak SAR (extrapolated) = 0.163 mW/g

SAR(1 g) = 0.088 mW/g; SAR(10 g) = 0.050 mW/g

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



0 dB = 0.120 mW/g = -18.40 dB mW/g

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Date: 2012/7/4

Hotspot_Right side_CH190

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

Medium parameters used: $f = 837$ MHz; $\sigma = 1.03$ mho/m; $\epsilon_r = 53.722$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

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

DASY Configuration:

- Probe: EX3DV4 - SN3848; ConvF(9.11, 9.11, 9.11); Calibrated: 2012/6/4;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2012/6/5
- Phantom: SAM with CRP; Type: SAM; Serial: 1712
- DASY52 52.8.1(838); SEMCAD X 14.6.5(6469)

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

Maximum value of SAR (interpolated) = 0.799 mW/g

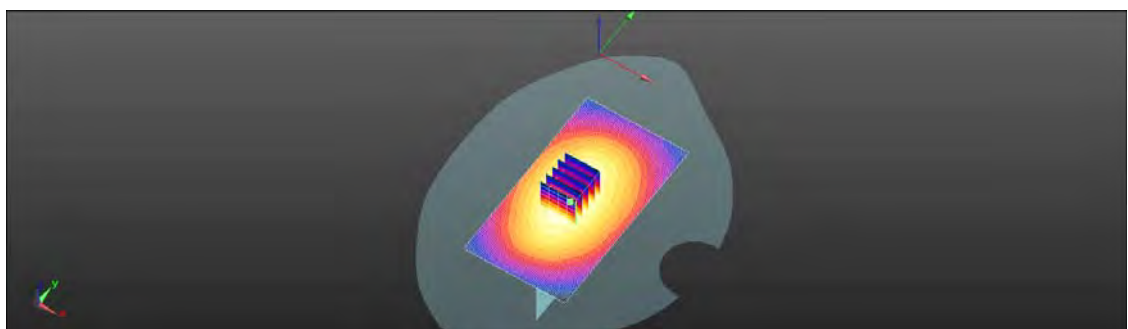
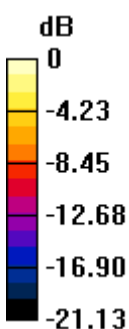
Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 26.702 V/m; Power Drift = -0.17 dB

Peak SAR (extrapolated) = 0.917 mW/g

SAR(1 g) = 0.635 mW/g; SAR(10 g) = 0.437 mW/g

Maximum value of SAR (measured) = 0.790 mW/g



0 dB = 0.799 mW/g = -1.95 dB mW/g

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Date: 2012/7/4

Hotspot_Left side_CH190

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

Medium parameters used: $f = 837$ MHz; $\sigma = 1.03$ mho/m; $\epsilon_r = 53.722$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

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

DASY Configuration:

- Probe: EX3DV4 - SN3848; ConvF(9.11, 9.11, 9.11); Calibrated: 2012/6/4;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2012/6/5
- Phantom: SAM with CRP; Type: SAM; Serial: 1712
- DASY52 52.8.1(838); SEMCAD X 14.6.5(6469)

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

Maximum value of SAR (interpolated) = 0.671 mW/g

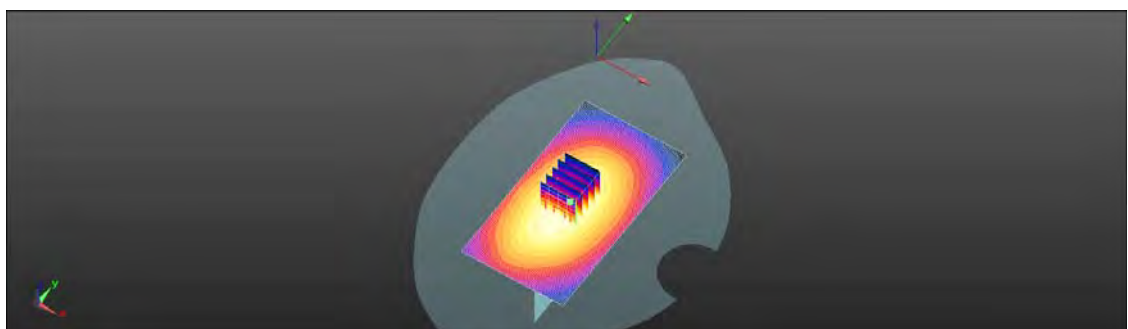
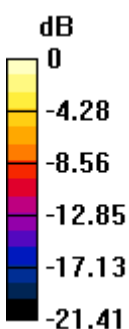
Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 24.242 V/m; Power Drift = 0.14 dB

Peak SAR (extrapolated) = 0.848 mW/g

SAR(1 g) = 0.532 mW/g; SAR(10 g) = 0.360 mW/g

Maximum value of SAR (measured) = 0.681 mW/g



0 dB = 0.671 mW/g = -3.47 dB mW/g

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Date: 2012/7/4

RE Cheek_CH661

Communication System: GSM; Frequency: 1880 MHz

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.359$ mho/m; $\epsilon_r = 41.123$; $\rho = 1000$ kg/m³

Phantom section: Right Section

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

DASY Configuration:

- Probe: EX3DV4 - SN3848; ConvF(7.55, 7.55, 7.55); Calibrated: 2012/6/4;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2012/6/5
- Phantom: SAM with CRP; Type: SAM; Serial: 1712
- DASY52 52.8.1(838); SEMCAD X 14.6.5(6469)

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

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

Maximum value of SAR (interpolated) = 0.371 mW/g

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

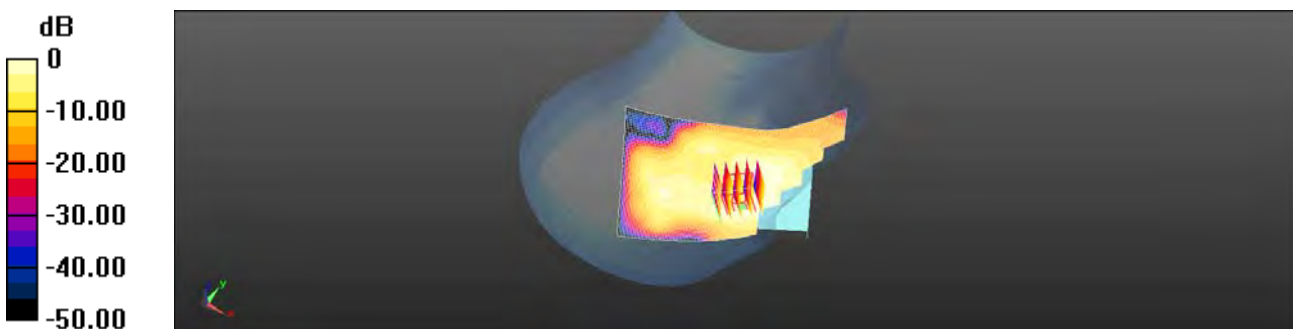
Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 8.155 V/m; Power Drift = 0.14 dB

Peak SAR (extrapolated) = 0.408 mW/g

SAR(1 g) = 0.270 mW/g; SAR(10 g) = 0.167 mW/g

Maximum value of SAR (measured) = 0.340 mW/g



0 dB = 0.371 mW/g = -8.60 dB mW/g

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Date: 2012/7/4

RE Tilt_CH661

Communication System: GSM; Frequency: 1880 MHz

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.359$ mho/m; $\epsilon_r = 41.123$; $\rho = 1000$ kg/m³

Phantom section: Right Section

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

DASY Configuration:

- Probe: EX3DV4 - SN3848; ConvF(7.55, 7.55, 7.55); Calibrated: 2012/6/4;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2012/6/5
- Phantom: SAM with CRP; Type: SAM; Serial: 1712
- DASY52 52.8.1(838); SEMCAD X 14.6.5(6469)

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

Maximum value of SAR (interpolated) = 0.260 mW/g

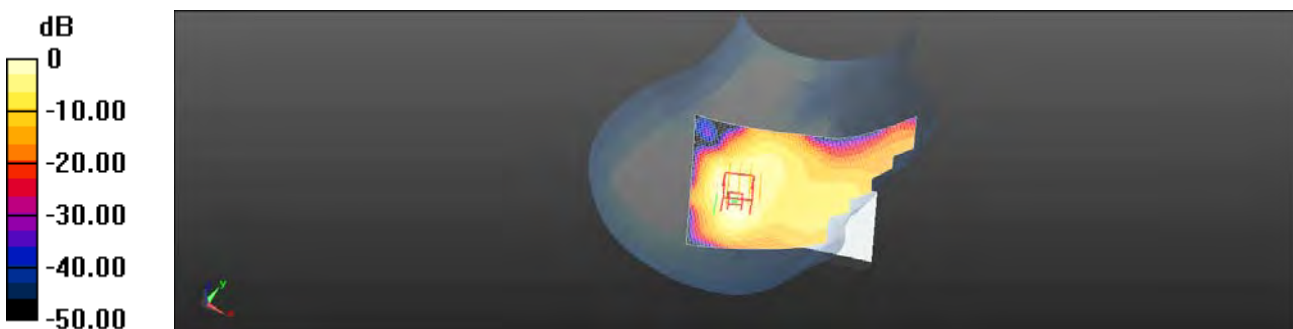
Configuration/RE Tilt/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 11.319 V/m; Power Drift = 0.07 dB

Peak SAR (extrapolated) = 0.312 mW/g

SAR(1 g) = 0.178 mW/g; SAR(10 g) = 0.096 mW/g

Maximum value of SAR (measured) = 0.241 mW/g



0 dB = 0.260 mW/g = -11.71 dB mW/g

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Date: 2012/7/4

LE Cheek_CH512

Communication System: GSM; Frequency: 1850.2 MHz

Medium parameters used: $f = 1850.2 \text{ MHz}$; $\sigma = 1.332 \text{ mho/m}$; $\epsilon_r = 41.489$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

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

DASY Configuration:

- Probe: EX3DV4 - SN3848; ConvF(7.55, 7.55, 7.55); Calibrated: 2012/6/4;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2012/6/5
- Phantom: SAM with CRP; Type: SAM; Serial: 1712
- DASYS 52.8.1(838); SEMCAD X 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) = 0.568 mW/g

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

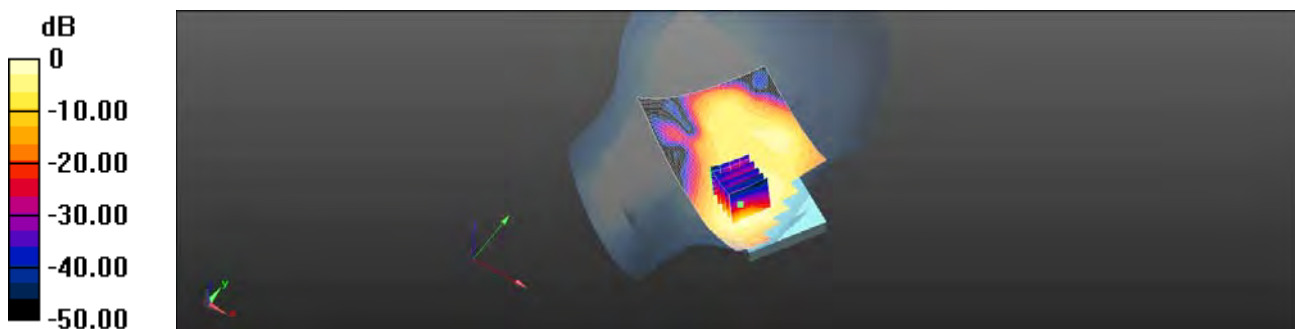
Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 9.117 V/m; Power Drift = 0.13 dB

Peak SAR (extrapolated) = 0.683 mW/g

SAR(1 g) = 0.403 mW/g; SAR(10 g) = 0.223 mW/g

Maximum value of SAR (measured) = 0.547 mW/g



0 dB = 0.568 mW/g = -4.91 dB mW/g

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Date: 2012/7/4

LE Cheek_CH661

Communication System: GSM; Frequency: 1880 MHz

Medium parameters used: $f = 1880 \text{ MHz}$; $\sigma = 1.359 \text{ mho/m}$; $\epsilon_r = 41.123$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

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

DASY Configuration:

- Probe: EX3DV4 - SN3848; ConvF(7.55, 7.55, 7.55); Calibrated: 2012/6/4;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2012/6/5
- Phantom: SAM with CRP; Type: SAM; Serial: 1712
- DASY52 52.8.1(838); SEMCAD X 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) = 0.593 mW/g

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

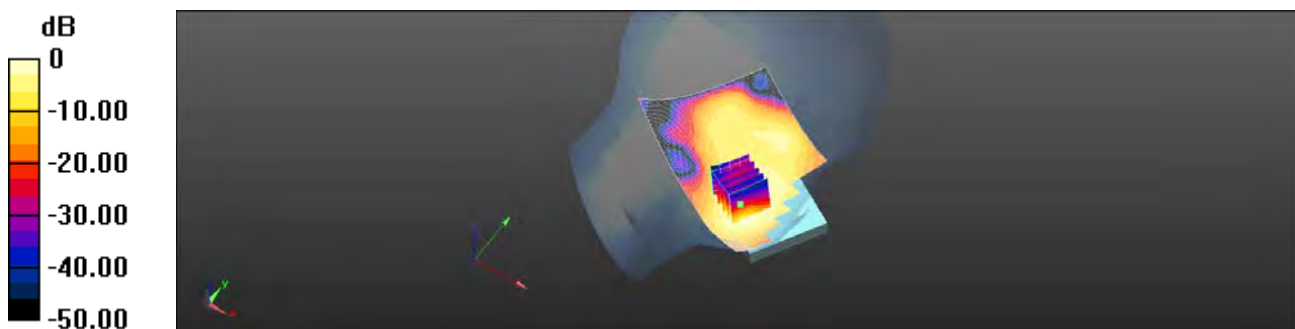
Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 9.034 V/m; Power Drift = 0.11 dB

Peak SAR (extrapolated) = 0.708 mW/g

SAR(1 g) = 0.421 mW/g; SAR(10 g) = 0.233 mW/g

Maximum value of SAR (measured) = 0.565 mW/g



0 dB = 0.593 mW/g = -4.53 dB mW/g

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Date: 2012/7/4

LE Cheek_CH810

Communication System: GSM; Frequency: 1909.8 MHz

Medium parameters used: $f = 1910$ MHz; $\sigma = 1.407$ mho/m; $\epsilon_r = 41.148$; $\rho = 1000$ kg/m³

Phantom section: Left Section

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

DASY Configuration:

- Probe: EX3DV4 - SN3848; ConvF(7.55, 7.55, 7.55); Calibrated: 2012/6/4;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2012/6/5
- Phantom: SAM with CRP; Type: SAM; Serial: 1712
- DASY52 52.8.1(838); SEMCAD X 14.6.5(6469)

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

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

Maximum value of SAR (interpolated) = 0.623 mW/g

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

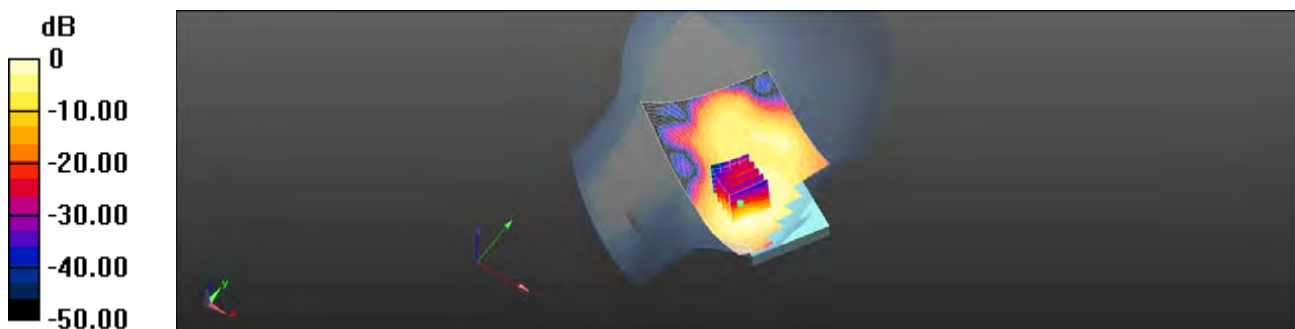
Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 9.182 V/m; Power Drift = 0.12 dB

Peak SAR (extrapolated) = 0.714 mW/g

SAR(1 g) = 0.43 mW/g; SAR(10 g) = 0.242 mW/g

Maximum value of SAR (measured) = 0.578 mW/g



0 dB = 0.623 mW/g = -4.11 dB mW/g

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Date: 2012/7/4

LE Tilt_CH661

Communication System: GSM; Frequency: 1880 MHz

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.359$ mho/m; $\epsilon_r = 41.123$; $\rho = 1000$ kg/m³

Phantom section: Left Section

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

DASY Configuration:

- Probe: EX3DV4 - SN3848; ConvF(7.55, 7.55, 7.55); Calibrated: 2012/6/4;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2012/6/5
- Phantom: SAM with CRP; Type: SAM; Serial: 1712
- DASY52 52.8.1(838); SEMCAD X 14.6.5(6469)

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

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

Maximum value of SAR (interpolated) = 0.259 mW/g

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

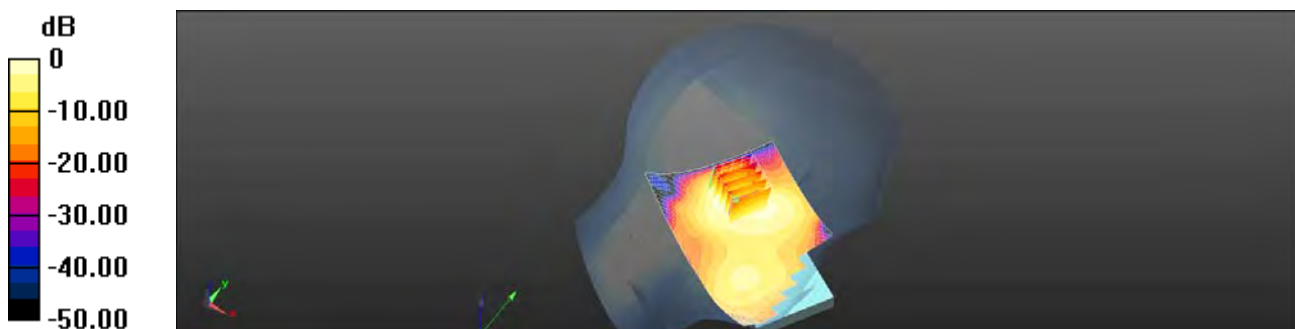
Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 13.705 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 0.342 mW/g

SAR(1 g) = 0.174 mW/g; SAR(10 g) = 0.096 mW/g

Maximum value of SAR (measured) = 0.259 mW/g



0 dB = 0.259 mW/g = -11.74 dB mW/g

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Date: 2012/7/4

Hotspot_Front side_CH661

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

Medium parameters used: $f = 1880 \text{ MHz}$; $\sigma = 1.483 \text{ mho/m}$; $\epsilon_r = 52.756$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

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

DASY Configuration:

- Probe: EX3DV4 - SN3848; ConvF(7.28, 7.28, 7.28); Calibrated: 2012/6/4;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2012/6/5
- Phantom: SAM with CRP; Type: SAM; Serial: 1712
- DASY52 52.8.1(838); SEMCAD X 14.6.5(6469)

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

Maximum value of SAR (interpolated) = 0.686 mW/g

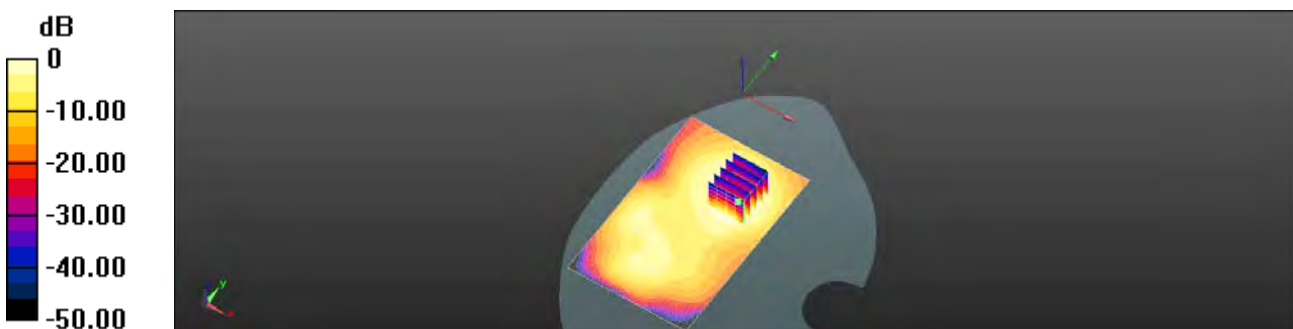
Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 5.610 V/m; Power Drift = 0.19 dB

Peak SAR (extrapolated) = 0.867 mW/g

SAR(1 g) = 0.492 mW/g; SAR(10 g) = 0.282 mW/g

Maximum value of SAR (measured) = 0.663 mW/g



0 dB = 0.686 mW/g = -3.27 dB mW/g

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Date: 2012/7/4

Hotspot_Back side_CH512

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

Medium parameters used: $f = 1850.2 \text{ MHz}$; $\sigma = 1.454 \text{ mho/m}$; $\epsilon_r = 52.882$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

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

DASY Configuration:

- Probe: EX3DV4 - SN3848; ConvF(7.28, 7.28, 7.28); Calibrated: 2012/6/4;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2012/6/5
- Phantom: SAM with CRP; Type: SAM; Serial: 1712
- DASY52 52.8.1(838); SEMCAD X 14.6.5(6469)

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

Maximum value of SAR (interpolated) = 0.793 mW/g

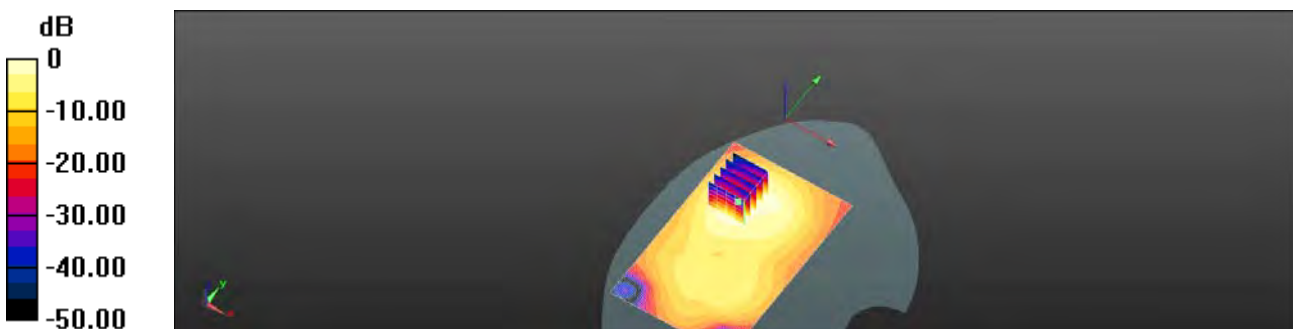
Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 6.481 V/m; Power Drift = 0.14 dB

Peak SAR (extrapolated) = 0.990 mW/g

SAR(1 g) = 0.57 mW/g; SAR(10 g) = 0.318 mW/g

Maximum value of SAR (measured) = 0.806 mW/g



0 dB = 0.793 mW/g = -2.01 dB mW/g

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Date: 2012/7/4

Hotspot_Back side_CH661

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

Medium parameters used: $f = 1880 \text{ MHz}$; $\sigma = 1.483 \text{ mho/m}$; $\epsilon_r = 52.756$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

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

DASY Configuration:

- Probe: EX3DV4 - SN3848; ConvF(7.28, 7.28, 7.28); Calibrated: 2012/6/4;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2012/6/5
- Phantom: SAM with CRP; Type: SAM; Serial: 1712
- DASY52 52.8.1(838); SEMCAD X 14.6.5(6469)

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

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

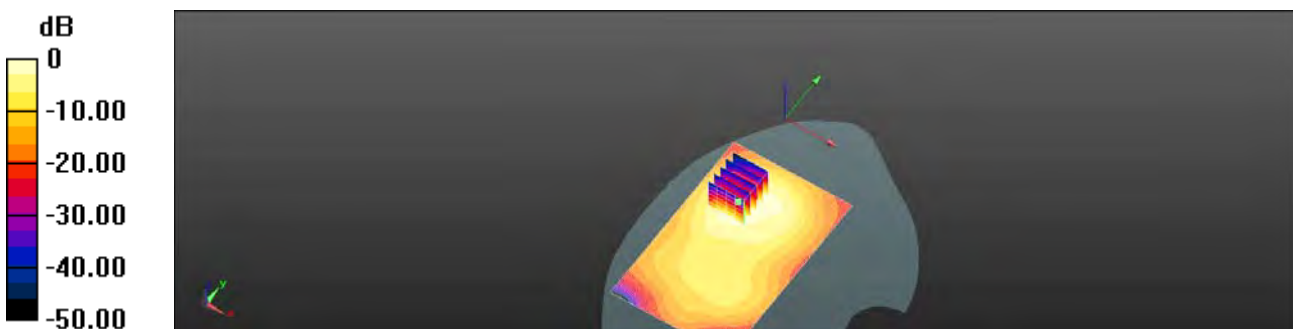
Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 5.479 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 0.978 mW/g

SAR(1 g) = 0.541 mW/g; SAR(10 g) = 0.305 mW/g

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



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

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Date: 2012/7/4

Hotspot_Back side_CH810

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

Medium parameters used: $f = 1909.93 \text{ MHz}$; $\sigma = 1.52 \text{ mho/m}$; $\epsilon_r = 52.632$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

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

DASY Configuration:

- Probe: EX3DV4 - SN3848; ConvF(7.28, 7.28, 7.28); Calibrated: 2012/6/4;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2012/6/5
- Phantom: SAM with CRP; Type: SAM; Serial: 1712
- DASY52 52.8.1(838); SEMCAD X 14.6.5(6469)

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

Maximum value of SAR (interpolated) = 0.789 mW/g

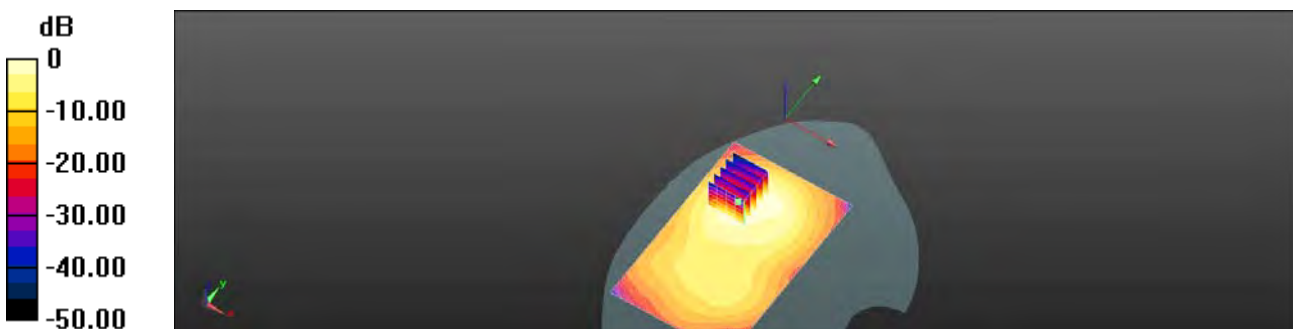
Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 5.593 V/m; Power Drift = 0.18 dB

Peak SAR (extrapolated) = 0.988 mW/g

SAR(1 g) = 0.554 mW/g; SAR(10 g) = 0.308 mW/g

Maximum value of SAR (measured) = 0.788 mW/g



0 dB = 0.789 mW/g = -2.06 dB mW/g

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Date: 2012/7/4

Hotspot_Bottom side_CH661

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

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.483$ mho/m; $\epsilon_r = 52.756$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

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

DASY Configuration:

- Probe: EX3DV4 - SN3848; ConvF(7.28, 7.28, 7.28); Calibrated: 2012/6/4;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2012/6/5
- Phantom: SAM with CRP; Type: SAM; Serial: 1712
- DASY52 52.8.1(838); SEMCAD X 14.6.5(6469)

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

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

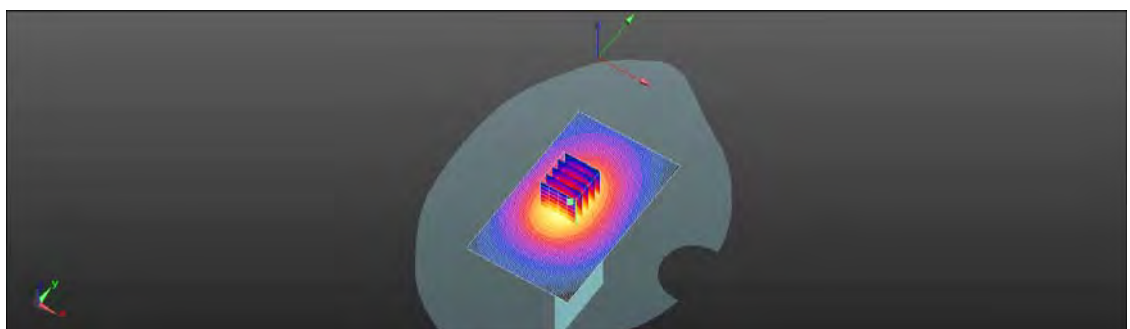
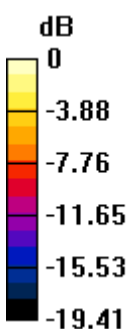
Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 16.342 V/m; Power Drift = 0.11 dB

Peak SAR (extrapolated) = 0.851 mW/g

SAR(1 g) = 0.508 mW/g; SAR(10 g) = 0.279 mW/g

Maximum value of SAR (measured) = 0.698 mW/g



0 dB = 0.658 mW/g = -3.63 dB mW/g

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Date: 2012/7/4

Hotspot_Right side_CH661

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

Medium parameters used: $f = 1880 \text{ MHz}$; $\sigma = 1.483 \text{ mho/m}$; $\epsilon_r = 52.756$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

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

DASY Configuration:

- Probe: EX3DV4 - SN3848; ConvF(7.28, 7.28, 7.28); Calibrated: 2012/6/4;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2012/6/5
- Phantom: SAM with CRP; Type: SAM; Serial: 1712
- DASY52 52.8.1(838); SEMCAD X 14.6.5(6469)

Configuration/Body/Area Scan (61x111x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

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

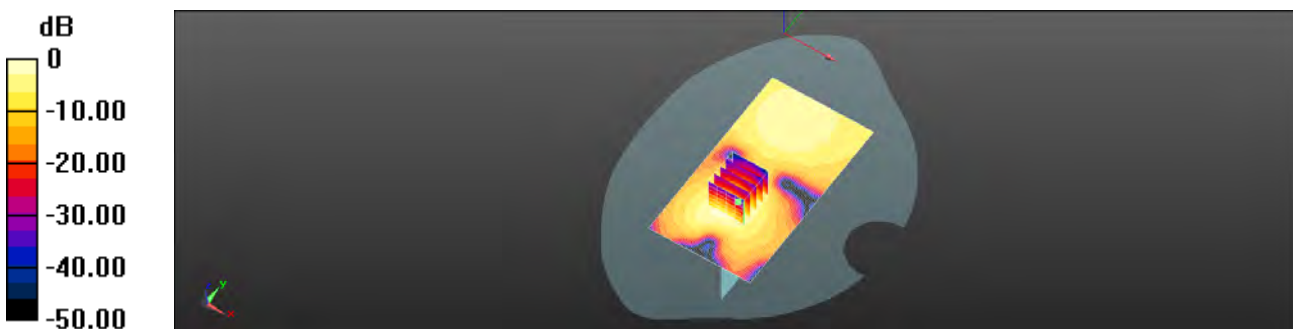
Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 4.863 V/m; Power Drift = 0.12 dB

Peak SAR (extrapolated) = 0.245 mW/g

SAR(1 g) = 0.142 mW/g; SAR(10 g) = 0.076 mW/g

Maximum value of SAR (measured) = 0.196 mW/g



0 dB = 0.204 mW/g = -13.79 dB mW/g

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Date: 2012/7/4

Hotspot_Left side_CH661

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

Medium parameters used: $f = 1880 \text{ MHz}$; $\sigma = 1.483 \text{ mho/m}$; $\epsilon_r = 52.756$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

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

DASY Configuration:

- Probe: EX3DV4 - SN3848; ConvF(7.28, 7.28, 7.28); Calibrated: 2012/6/4;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2012/6/5
- Phantom: SAM with CRP; Type: SAM; Serial: 1712
- DASY52 52.8.1(838); SEMCAD X 14.6.5(6469)

Configuration/Body/Area Scan (61x111x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.201 mW/g

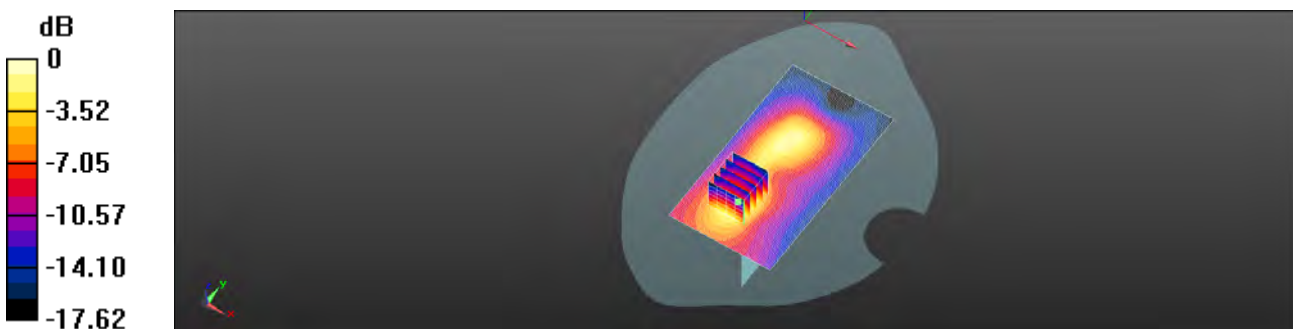
Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 4.529 V/m; Power Drift = 0.19 dB

Peak SAR (extrapolated) = 0.238 mW/g

SAR(1 g) = 0.142 mW/g; SAR(10 g) = 0.080 mW/g

Maximum value of SAR (measured) = 0.192 mW/g



0 dB = 0.201 mW/g = -13.95 dB mW/g

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Date: 2012/7/5

RE Cheek_WLAN802.11b_CH1

Communication System: WLAN802.11 b/g/n; Frequency: 2412 MHz

Medium parameters used: $f = 2412$ MHz; $\sigma = 1.787$ mho/m; $\epsilon_r = 39.479$; $\rho = 1000$ kg/m³

Phantom section: Right Section

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

DASY Configuration:

- Probe: EX3DV4 - SN3848; ConvF(6.78, 6.78, 6.78); Calibrated: 2012/6/4;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2012/6/5
- Phantom: SAM with CRP; Type: SAM; Serial: 1712
- DASY52 52.8.1(838); SEMCAD X 14.6.5(6469)

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

dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.432 mW/g

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

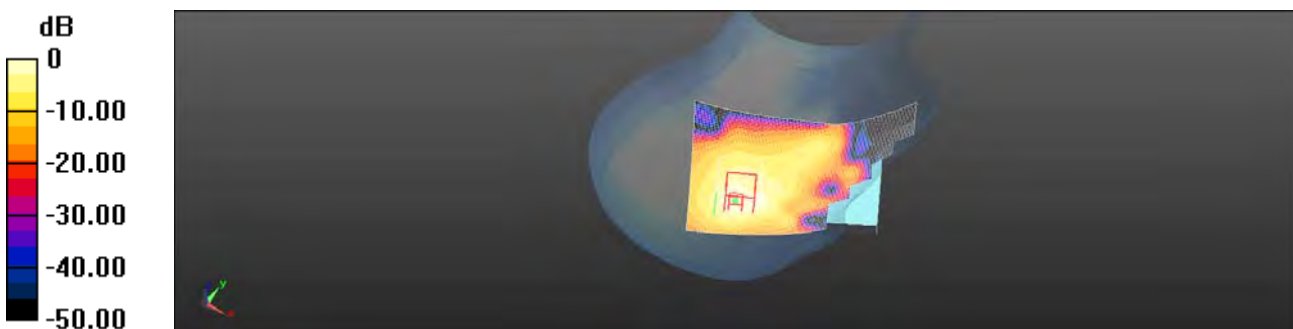
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 9.166 V/m; Power Drift = 0.18 dB

Peak SAR (extrapolated) = 0.644 mW/g

SAR(1 g) = 0.278 mW/g; SAR(10 g) = 0.132 mW/g

Maximum value of SAR (measured) = 0.441 mW/g



0 dB = 0.432 mW/g = -7.29 dB mW/g

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Date: 2012/7/5

RE Cheek_WLAN802.11b_CH6

Communication System: WLAN802.11 b/g/n; Frequency: 2437 MHz

Medium parameters used: $f = 2437 \text{ MHz}$; $\sigma = 1.807 \text{ mho/m}$; $\epsilon_r = 39.36$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Right Section

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

DASY Configuration:

- Probe: EX3DV4 - SN3848; ConvF(6.78, 6.78, 6.78); Calibrated: 2012/6/4;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2012/6/5
- Phantom: SAM with CRP; Type: SAM; Serial: 1712
- DASY52 52.8.1(838); SEMCAD X 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) = 0.435 mW/g

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

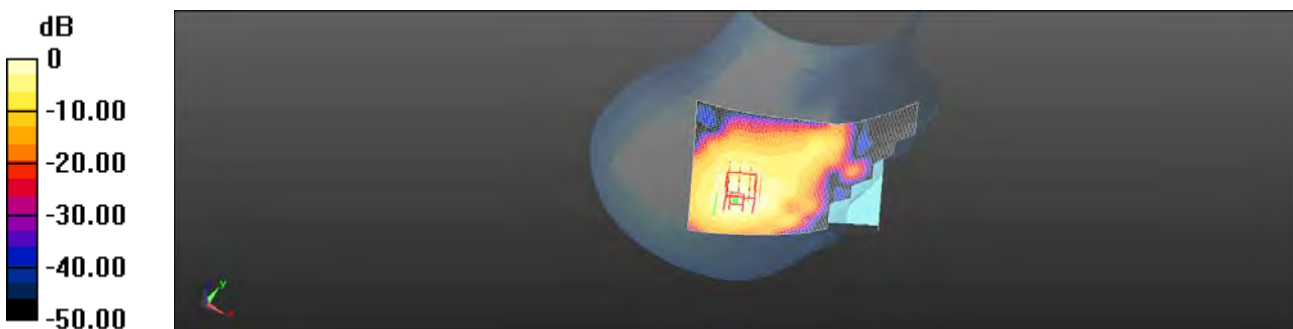
Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 10.225 V/m; Power Drift = -0.14 dB

Peak SAR (extrapolated) = 0.636 mW/g

SAR(1 g) = 0.267 mW/g; SAR(10 g) = 0.126 mW/g

Maximum value of SAR (measured) = 0.431 mW/g



0 dB = 0.435 mW/g = -7.23 dB mW/g

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Date: 2012/7/5

RE Cheek_WLAN802.11b_CH11

Communication System: WLAN802.11 b/g/n; Frequency: 2462 MHz

Medium parameters used: $f = 2462 \text{ MHz}$; $\sigma = 1.835 \text{ mho/m}$; $\epsilon_r = 39.188$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Right Section

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

DASY Configuration:

- Probe: EX3DV4 - SN3848; ConvF(6.78, 6.78, 6.78); Calibrated: 2012/6/4;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2012/6/5
- Phantom: SAM with CRP; Type: SAM; Serial: 1712
- DASY52 52.8.1(838); SEMCAD X 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) = 0.574 mW/g

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

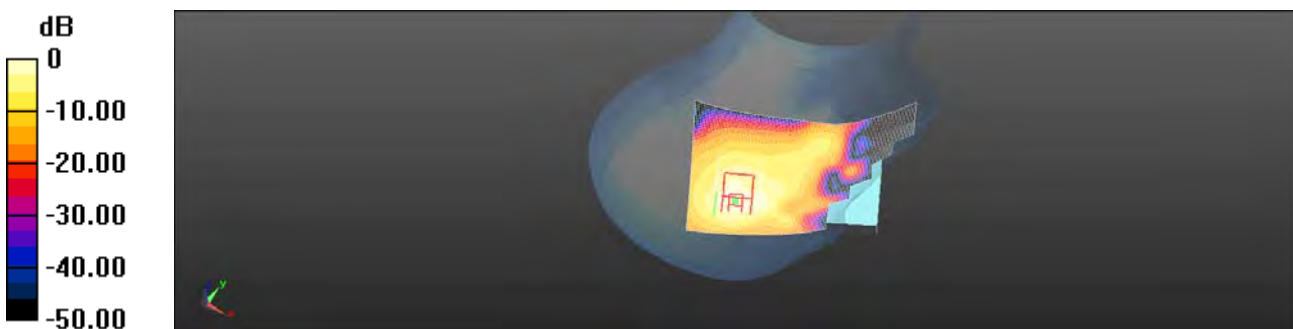
Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 11.332 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 0.876 mW/g

SAR(1 g) = 0.375 mW/g; SAR(10 g) = 0.177 mW/g

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



0 dB = 0.574 mW/g = -4.82 dB mW/g

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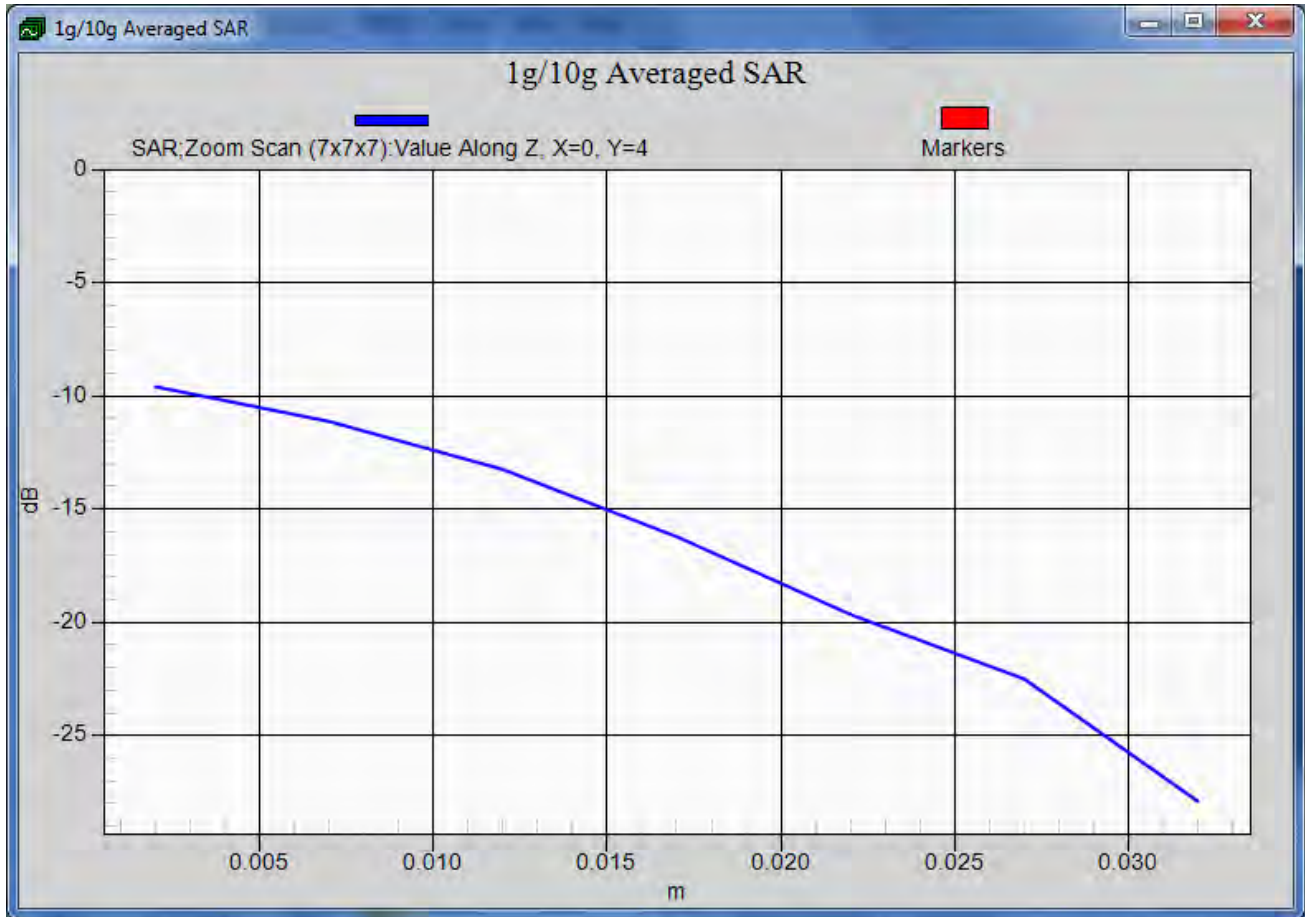
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Date: 2012/7/5

RE Cheek_WLAN802.11b_CH11_repeated with external Memory card inside

Communication System: WLAN802.11 b/g/n; Frequency: 2462 MHz

Medium parameters used: $f = 2462 \text{ MHz}$; $\sigma = 1.835 \text{ mho/m}$; $\epsilon_r = 39.188$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Right Section

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

DASY Configuration:

- Probe: EX3DV4 - SN3848; ConvF(6.78, 6.78, 6.78); Calibrated: 2012/6/4;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2012/6/5
- Phantom: SAM with CRP; Type: SAM; Serial: 1712
- DASY52 52.8.1(838); SEMCAD X 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) = 0.563 mW/g

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

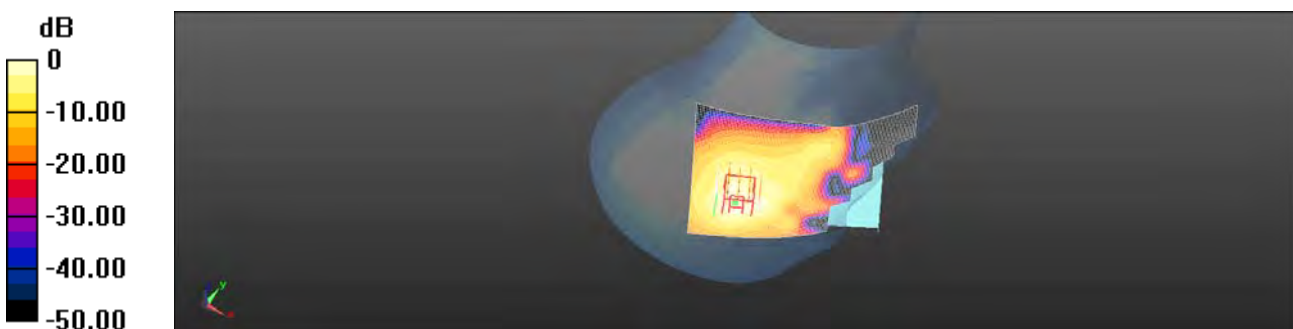
Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 11.642 V/m; Power Drift = -0.08 dB

Peak SAR (extrapolated) = 0.798 mW/g

SAR(1 g) = 0.349 mW/g; SAR(10 g) = 0.166 mW/g

Maximum value of SAR (measured) = 0.571 mW/g



0 dB = 0.563 mW/g = -4.99 dB mW/g

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Date: 2012/7/5

RE Cheek_WLAN802.11b_CH11_repeated with Bluetooth active

Communication System: WLAN802.11 b/g/n; Frequency: 2462 MHz

Medium parameters used: $f = 2462 \text{ MHz}$; $\sigma = 1.835 \text{ mho/m}$; $\epsilon_r = 39.188$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Right Section

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

DASY Configuration:

- Probe: EX3DV4 - SN3848; ConvF(6.78, 6.78, 6.78); Calibrated: 2012/6/4;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2012/6/5
- Phantom: SAM with CRP; Type: SAM; Serial: 1712
- DASY52 52.8.1(838); SEMCAD X 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) = 0.525 mW/g

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

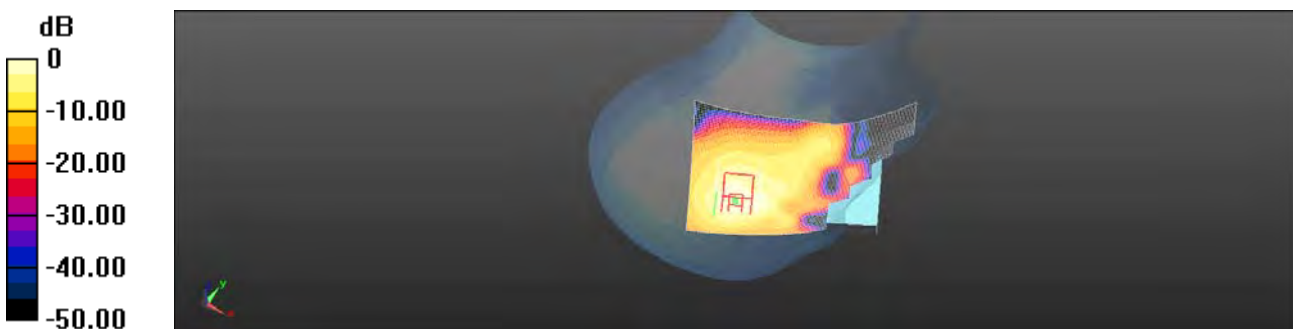
Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 10.943 V/m; Power Drift = -0.06 dB

Peak SAR (extrapolated) = 0.774 mW/g

SAR(1 g) = 0.352 mW/g; SAR(10 g) = 0.167 mW/g

Maximum value of SAR (measured) = 0.561 mW/g



0 dB = 0.525 mW/g = -5.59 dB mW/g

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Date: 2012/7/5

RE Tilt_WLAN802.11b_CH6

Communication System: WLAN802.11 b/g/n; Frequency: 2437 MHz

Medium parameters used: $f = 2437 \text{ MHz}$; $\sigma = 1.807 \text{ mho/m}$; $\epsilon_r = 39.36$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Right Section

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

DASY Configuration:

- Probe: EX3DV4 - SN3848; ConvF(6.78, 6.78, 6.78); Calibrated: 2012/6/4;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2012/6/5
- Phantom: SAM with CRP; Type: SAM; Serial: 1712
- DASY52 52.8.1(838); SEMCAD X 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) = 0.280 mW/g

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

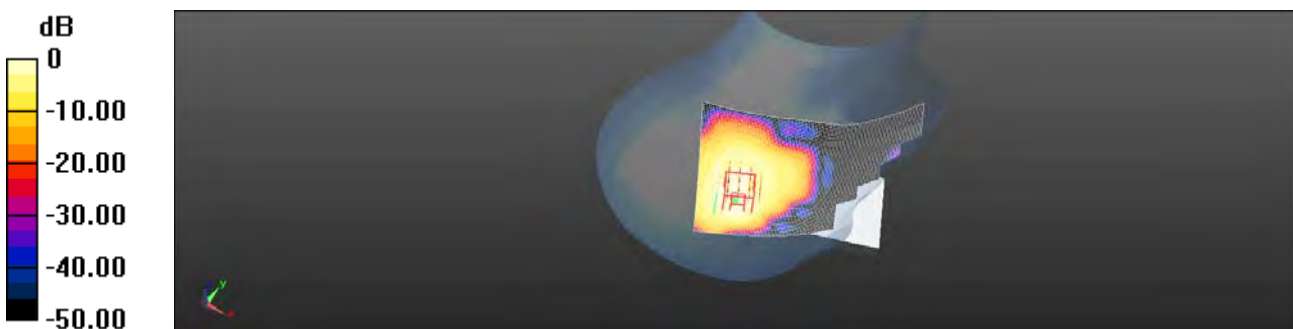
Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 9.654 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 0.383 mW/g

SAR(1 g) = 0.168 mW/g; SAR(10 g) = 0.076 mW/g

Maximum value of SAR (measured) = 0.261 mW/g



0 dB = 0.280 mW/g = -11.05 dB mW/g

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Date: 2012/7/5

LE Cheek_WLAN802.11b_CH6

Communication System: WLAN802.11 b/g/n; Frequency: 2437 MHz

Medium parameters used: $f = 2437 \text{ MHz}$; $\sigma = 1.807 \text{ mho/m}$; $\epsilon_r = 39.36$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

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

DASY Configuration:

- Probe: EX3DV4 - SN3848; ConvF(6.78, 6.78, 6.78); Calibrated: 2012/6/4;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2012/6/5
- Phantom: SAM with CRP; Type: SAM; Serial: 1712
- DASY52 52.8.1(838); SEMCAD X 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) = 0.203 mW/g

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

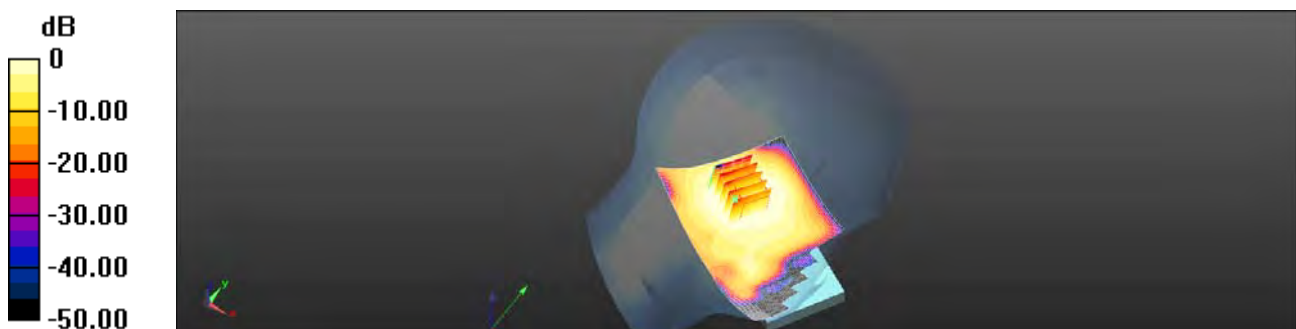
Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 10.995 V/m; Power Drift = 0.13 dB

Peak SAR (extrapolated) = 0.417 mW/g

SAR(1 g) = 0.228 mW/g; SAR(10 g) = 0.121 mW/g

Maximum value of SAR (measured) = 0.319 mW/g



0 dB = 0.203 mW/g = -13.87 dB mW/g

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Date: 2012/7/5

LE Tilt_WLAN802.11b_CH6

Communication System: WLAN802.11 b/g/n; Frequency: 2437 MHz

Medium parameters used: $f = 2437$ MHz; $\sigma = 1.807$ mho/m; $\epsilon_r = 39.36$; $\rho = 1000$ kg/m³

Phantom section: Left Section

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

DASY Configuration:

- Probe: EX3DV4 - SN3848; ConvF(6.78, 6.78, 6.78); Calibrated: 2012/6/4;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2012/6/5
- Phantom: SAM with CRP; Type: SAM; Serial: 1712
- DASY52 52.8.1(838); SEMCAD X 14.6.5(6469)

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

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

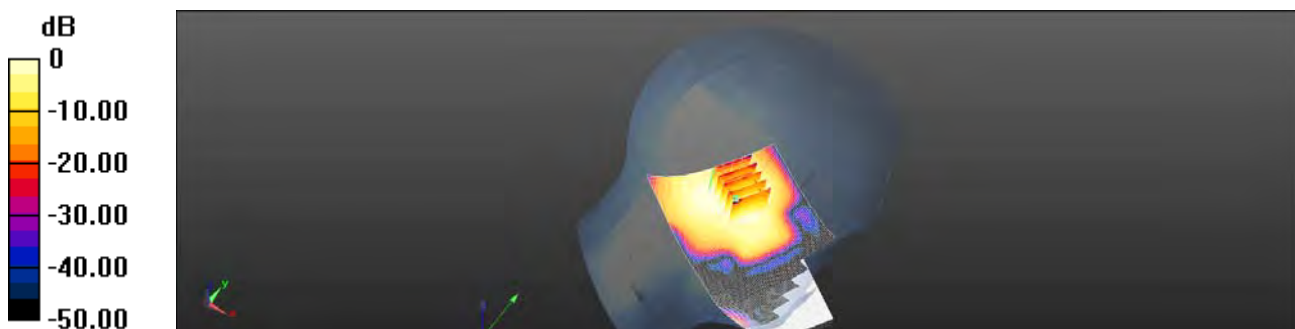
Configuration/LE Tilt/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 11.270 V/m; Power Drift = -0.15 dB

Peak SAR (extrapolated) = 0.299 mW/g

SAR(1 g) = 0.164 mW/g; SAR(10 g) = 0.085 mW/g

Maximum value of SAR (measured) = 0.223 mW/g



0 dB = 0.218 mW/g = -13.22 dB mW/g

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Date: 2012/7/5

Hotspot_Front side_WLAN802.11b_CH6

Communication System: WLAN802.11 b/g/n; Frequency: 2437 MHz

Medium parameters used: $f = 2437$ MHz; $\sigma = 1.945$ mho/m; $\epsilon_r = 50.686$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

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

DASY Configuration:

- Probe: EX3DV4 - SN3848; ConvF(6.95, 6.95, 6.95); Calibrated: 2012/6/4;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2012/6/5
- Phantom: SAM with CRP; Type: SAM; Serial: 1712
- DASY52 52.8.1(838); SEMCAD X 14.6.5(6469)

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

Maximum value of SAR (interpolated) = 0.0930 mW/g

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

Reference Value = 1.646 V/m; Power Drift = 0.17 dB

Peak SAR (extrapolated) = 0.124 mW/g

SAR(1 g) = 0.067 mW/g; SAR(10 g) = 0.038 mW/g

Maximum value of SAR (measured) = 0.0929 mW/g



0 dB = 0.0930 mW/g = -20.63 dB mW/g

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Date: 2012/7/5

Hotspot_Back side_WLAN802.11b_CH1

Communication System: WLAN802.11 b/g/n; Frequency: 2412 MHz

Medium parameters used: $f = 2412$ MHz; $\sigma = 1.903$ mho/m; $\epsilon_r = 50.688$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

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

DASY Configuration:

- Probe: EX3DV4 - SN3848; ConvF(6.95, 6.95, 6.95); Calibrated: 2012/6/4;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2012/6/5
- Phantom: SAM with CRP; Type: SAM; Serial: 1712
- DASY52 52.8.1(838); SEMCAD X 14.6.5(6469)

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

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

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

Reference Value = 3.654 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 0.229 mW/g

SAR(1 g) = 0.113 mW/g; SAR(10 g) = 0.055 mW/g

Maximum value of SAR (measured) = 0.171 mW/g



0 dB = 0.165 mW/g = -15.65 dB mW/g

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Date: 2012/7/5

Hotspot_Back side_WLAN802.11b_CH6

Communication System: WLAN802.11 b/g/n; Frequency: 2437 MHz

Medium parameters used: $f = 2437 \text{ MHz}$; $\sigma = 1.945 \text{ mho/m}$; $\epsilon_r = 50.686$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

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

DASY Configuration:

- Probe: EX3DV4 - SN3848; ConvF(6.95, 6.95, 6.95); Calibrated: 2012/6/4;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2012/6/5
- Phantom: SAM with CRP; Type: SAM; Serial: 1712
- DASY52 52.8.1(838); SEMCAD X 14.6.5(6469)

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

Maximum value of SAR (interpolated) = 0.217 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 = 4.317 V/m; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 0.321 mW/g

SAR(1 g) = 0.147 mW/g; SAR(10 g) = 0.073 mW/g

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



0 dB = 0.217 mW/g = -13.28 dB mW/g

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Date: 2012/7/5

Hotspot_Back side_WLAN802.11b_CH11

Communication System: WLAN802.11 b/g/n; Frequency: 2462 MHz

Medium parameters used: $f = 2462 \text{ MHz}$; $\sigma = 1.977 \text{ mho/m}$; $\epsilon_r = 50.651$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

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

DASY Configuration:

- Probe: EX3DV4 - SN3848; ConvF(6.95, 6.95, 6.95); Calibrated: 2012/6/4;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2012/6/5
- Phantom: SAM with CRP; Type: SAM; Serial: 1712
- DASY52 52.8.1(838); SEMCAD X 14.6.5(6469)

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

Maximum value of SAR (interpolated) = 0.197 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 = 4.037 V/m; Power Drift = 0.11 dB

Peak SAR (extrapolated) = 0.296 mW/g

SAR(1 g) = 0.134 mW/g; SAR(10 g) = 0.067 mW/g

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



0 dB = 0.197 mW/g = -14.12 dB mW/g

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Date: 2012/7/5

Hotspot_Back side_WLAN802.11b_CH6_repeated with external Memory card inside

Communication System: WLAN802.11 b/g/n; Frequency: 2437 MHz

Medium parameters used: $f = 2437 \text{ MHz}$; $\sigma = 1.945 \text{ mho/m}$; $\epsilon_r = 50.686$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

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

DASY Configuration:

- Probe: EX3DV4 - SN3848; ConvF(6.95, 6.95, 6.95); Calibrated: 2012/6/4;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2012/6/5
- Phantom: SAM with CRP; Type: SAM; Serial: 1712
- DASY52 52.8.1(838); SEMCAD X 14.6.5(6469)

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

Maximum value of SAR (interpolated) = 0.186 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 = 3.889 V/m; Power Drift = 0.17 dB

Peak SAR (extrapolated) = 0.286 mW/g

SAR(1 g) = 0.132 mW/g; SAR(10 g) = 0.066 mW/g

Maximum value of SAR (measured) = 0.201 mW/g



0 dB = 0.186 mW/g = -14.61 dB mW/g

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Date: 2012/7/5

Hotspot_Back side_WLAN802.11b_CH6_repeated with Bluetooth active

Communication System: WLAN802.11 b/g/n; Frequency: 2437 MHz

Medium parameters used: $f = 2437 \text{ MHz}$; $\sigma = 1.945 \text{ mho/m}$; $\epsilon_r = 50.686$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

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

DASY Configuration:

- Probe: EX3DV4 - SN3848; ConvF(6.95, 6.95, 6.95); Calibrated: 2012/6/4;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2012/6/5
- Phantom: SAM with CRP; Type: SAM; Serial: 1712
- DASY52 52.8.1(838); SEMCAD X 14.6.5(6469)

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

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

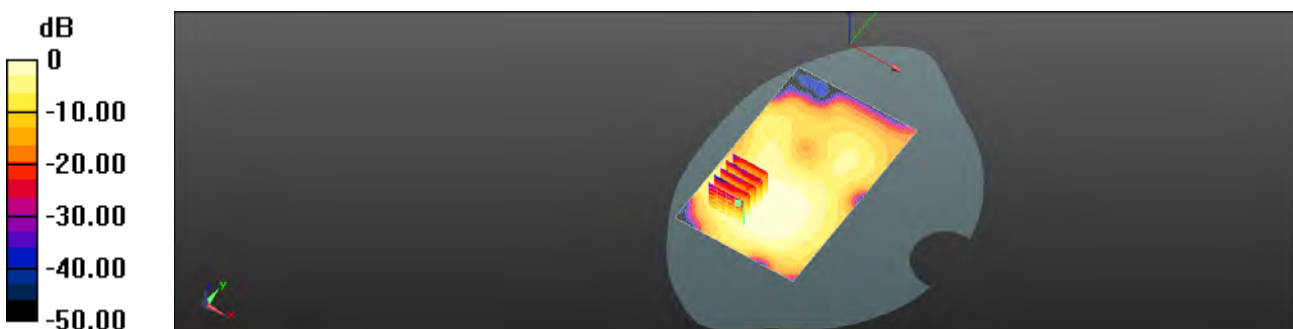
Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 3.909 V/m ; Power Drift = -0.16 dB

Peak SAR (extrapolated) = 0.265 mW/g

SAR(1 g) = 0.121 mW/g ; SAR(10 g) = 0.060 mW/g

Maximum value of SAR (measured) = 0.179 mW/g



$0 \text{ dB} = 0.170 \text{ mW/g} = -15.37 \text{ dB mW/g}$

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Date: 2012/7/5

Hotspot_Back side_WLAN802.11b_CH6_repeated with headset

Communication System: WLAN802.11 b/g/n; Frequency: 2437 MHz

Medium parameters used: $f = 2437 \text{ MHz}$; $\sigma = 1.945 \text{ mho/m}$; $\epsilon_r = 50.686$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

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

DASY Configuration:

- Probe: EX3DV4 - SN3848; ConvF(6.95, 6.95, 6.95); Calibrated: 2012/6/4;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2012/6/5
- Phantom: SAM with CRP; Type: SAM; Serial: 1712
- DASY52 52.8.1(838); SEMCAD X 14.6.5(6469)

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

Maximum value of SAR (interpolated) = 0.233 mW/g

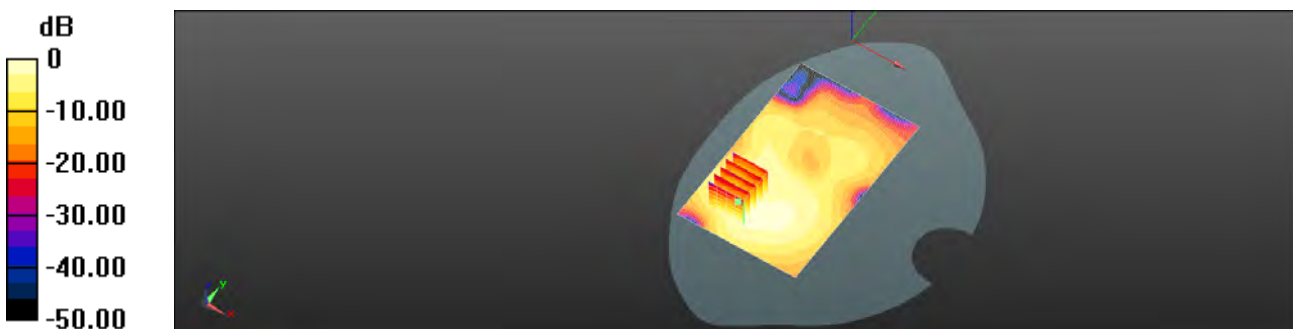
Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 3.494 V/m; Power Drift = -0.05 dB

Peak SAR (extrapolated) = 0.331 mW/g

SAR(1 g) = 0.157 mW/g; SAR(10 g) = 0.079 mW/g

Maximum value of SAR (measured) = 0.225 mW/g



0 dB = 0.233 mW/g = -12.66 dB mW/g

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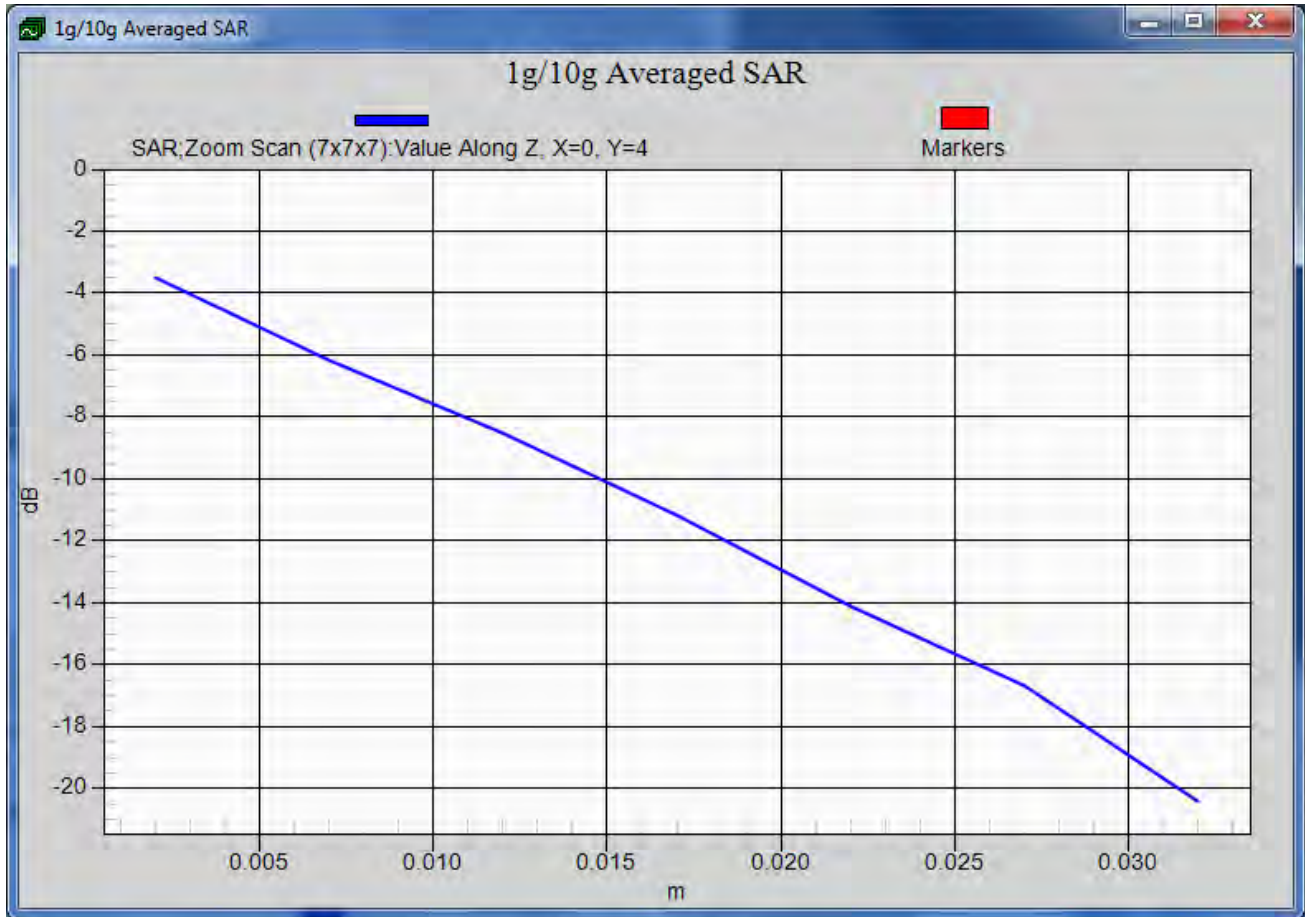
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Date: 2012/7/5

Hotspot_Top side_WLAN802.11b_CH6

Communication System: WLAN802.11 b/g/n; Frequency: 2437 MHz

Medium parameters used: $f = 2437 \text{ MHz}$; $\sigma = 1.945 \text{ mho/m}$; $\epsilon_r = 50.686$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

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

DASY Configuration:

- Probe: EX3DV4 - SN3848; ConvF(6.95, 6.95, 6.95); Calibrated: 2012/6/4;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2012/6/5
- Phantom: SAM with CRP; Type: SAM; Serial: 1712
- DASY52 52.8.1(838); SEMCAD X 14.6.5(6469)

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

Maximum value of SAR (interpolated) = 0.103 mW/g

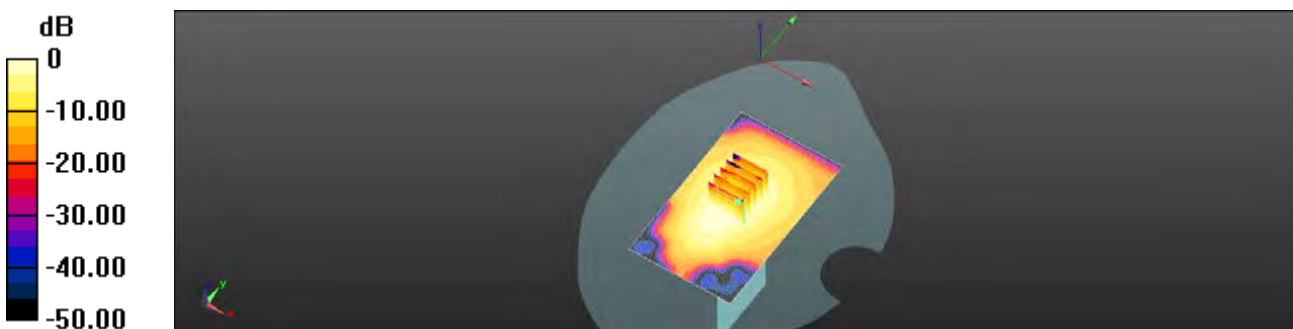
Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 6.524 V/m; Power Drift = -0.14 dB

Peak SAR (extrapolated) = 0.137 mW/g

SAR(1 g) = 0.071 mW/g; SAR(10 g) = 0.038 mW/g

Maximum value of SAR (measured) = 0.102 mW/g



0 dB = 0.103 mW/g = -19.70 dB mW/g

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Date: 2012/7/5

Hotspot_Right side_WLAN802.11b_CH6

Communication System: WLAN802.11 b/g/n; Frequency: 2437 MHz

Medium parameters used: $f = 2437 \text{ MHz}$; $\sigma = 1.945 \text{ mho/m}$; $\epsilon_r = 50.686$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

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

DASY Configuration:

- Probe: EX3DV4 - SN3848; ConvF(6.95, 6.95, 6.95); Calibrated: 2012/6/4;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2012/6/5
- Phantom: SAM with CRP; Type: SAM; Serial: 1712
- DASY52 52.8.1(838); SEMCAD X 14.6.5(6469)

Configuration/Body/Area Scan (61x111x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.0693 mW/g

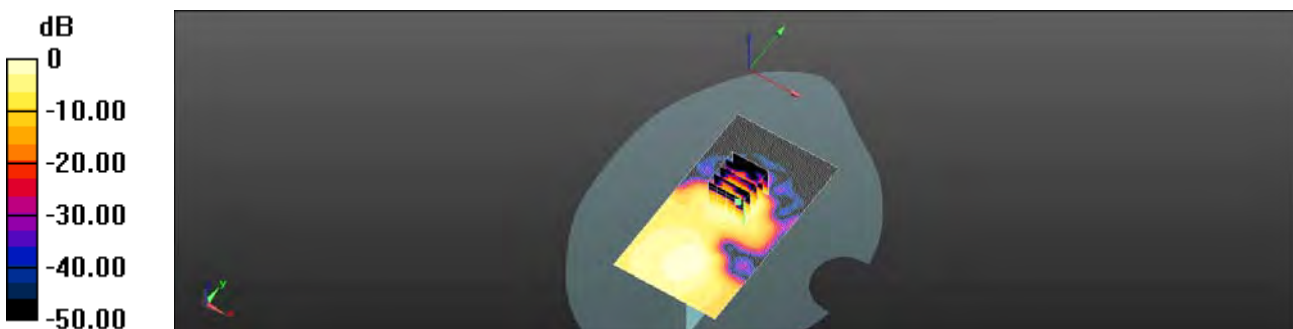
Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 3.227 V/m; Power Drift = -0.05 dB

Peak SAR (extrapolated) = 0.061 mW/g

SAR(1 g) = 0.032 mW/g; SAR(10 g) = 0.015 mW/g

Maximum value of SAR (measured) = 0.0467 mW/g



0 dB = 0.0693 mW/g = -23.18 dB mW/g

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Date: 2012/7/5

Hotspot_Left side_WLAN802.11b_CH6

Communication System: WLAN802.11 b/g/n; Frequency: 2437 MHz

Medium parameters used: $f = 2437 \text{ MHz}$; $\sigma = 1.945 \text{ mho/m}$; $\epsilon_r = 50.686$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

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

DASY Configuration:

- Probe: EX3DV4 - SN3848; ConvF(6.95, 6.95, 6.95); Calibrated: 2012/6/4;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2012/6/5
- Phantom: SAM with CRP; Type: SAM; Serial: 1712
- DASY52 52.8.1(838); SEMCAD X 14.6.5(6469)

Configuration/Body/Area Scan (61x111x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.191 mW/g

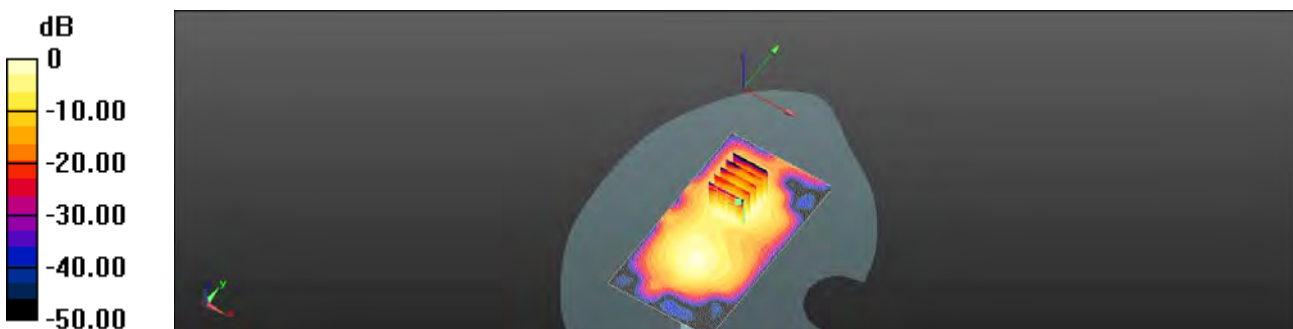
Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 2.445 V/m; Power Drift = -0.11 dB

Peak SAR (extrapolated) = 0.243 mW/g

SAR(1 g) = 0.119 mW/g; SAR(10 g) = 0.057 mW/g

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



0 dB = 0.191 mW/g = -14.36 dB mW/g

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5. System Verification

Date: 2012/7/4

Dipole_835 MHz (Head)

Communication System: CW; Frequency: 835 MHz

Medium parameters used: $f = 835 \text{ MHz}$; $\sigma = 0.884 \text{ mho/m}$; $\epsilon_r = 41.026$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

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

DASY Configuration:

- Probe: EX3DV4 - SN3848; ConvF(8.9, 8.9, 8.9); Calibrated: 2012/6/4;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2012/6/5
- Phantom: SAM with CRP; Type: SAM; Serial: 1712
- DASY52 52.8.1(838); SEMCAD X 14.6.5(6469)

Configuration / Pin=250mW, d=15mm / Area Scan (41x121x1):

Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 2.96 mW/g

Configuration / Pin=250mW, d=15mm / Zoom Scan (7x7x7)

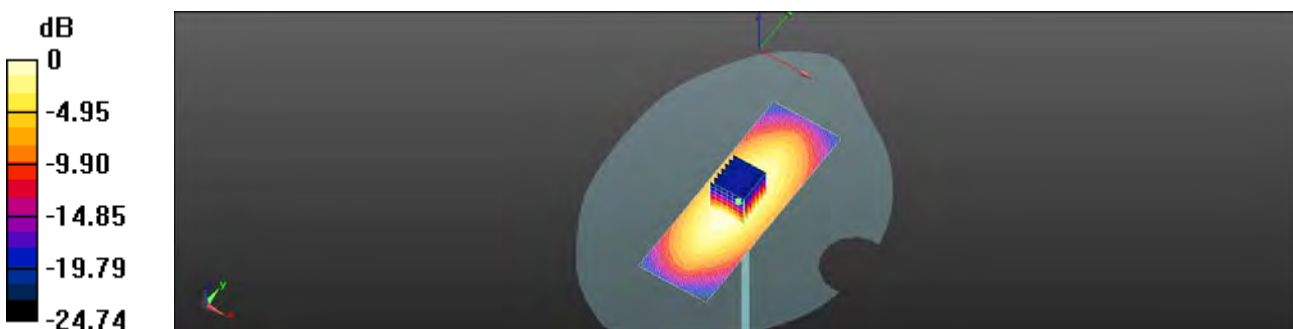
(7x7x7) / Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 59.345 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 3.520 mW/g

SAR(1 g) = 2.31 mW/g; SAR(10 g) = 1.48 mW/g

Maximum value of SAR (measured) = 2.97 mW/g



0 dB = 2.96 mW/g = 9.42 dB mW/g

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Date: 2012/7/4

Dipole_835 MHz (Body)

Communication System: CW; Frequency: 835 MHz

Medium parameters used: $f = 835 \text{ MHz}$; $\sigma = 1.029 \text{ mho/m}$; $\epsilon_r = 53.747$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

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

DASY Configuration:

- Probe: EX3DV4 - SN3848; ConvF(9.11, 9.11, 9.11); Calibrated: 2012/6/4;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2012/6/5
- Phantom: SAM with CRP; Type: SAM; Serial: 1712
- DASYS 52.8.1(838); SEMCAD X 14.6.5(6469)

Configuration/Pin=250mW, d=15mm /Area Scan (41x121x1):

Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 3.03 mW/g

Configuration/Pin=250mW, d=15mm /Zoom Scan (7x7x7)

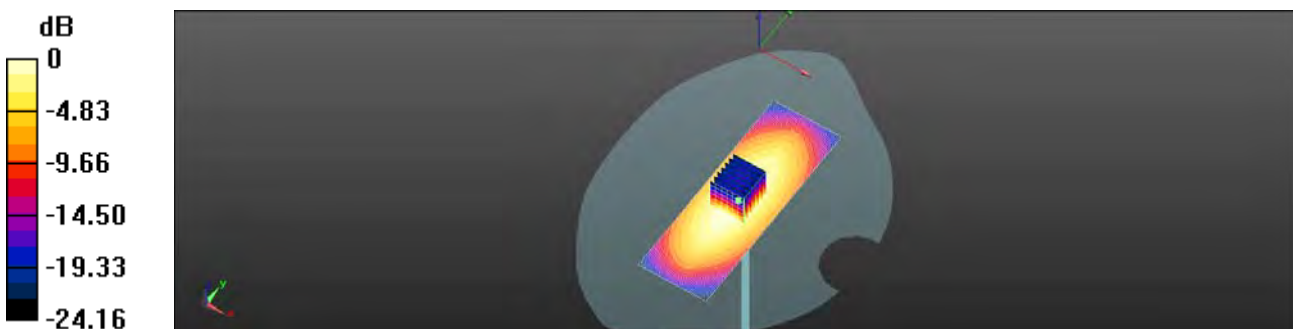
(7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 55.340 V/m; Power Drift = 0.00 dB

Peak SAR (extrapolated) = 3.589 mW/g

SAR(1 g) = 2.38 mW/g; SAR(10 g) = 1.55 mW/g

Maximum value of SAR (measured) = 3.03 mW/g



0 dB = 3.03 mW/g = 9.62 dB mW/g

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Date: 2012/7/4

Dipole_1900 MHz (Head)

Communication System: CW; Frequency: 1900 MHz

Medium parameters used: $f = 1900$ MHz; $\sigma = 1.392$ mho/m; $\epsilon_r = 41.093$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

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

DASY Configuration:

- Probe: EX3DV4 - SN3848; ConvF(7.55, 7.55, 7.55); Calibrated: 2012/6/4;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2012/6/5
- Phantom: SAM with CRP; Type: SAM; Serial: 1712
- DASY52 52.8.1(838); SEMCAD X 14.6.5(6469)

Configuration/Pin=250mW, d=10mm/Area Scan (41x61x1):

Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 13.9 mW/g

Configuration/Pin=250mW, d=10mm/Zoom Scan (7x7x7)

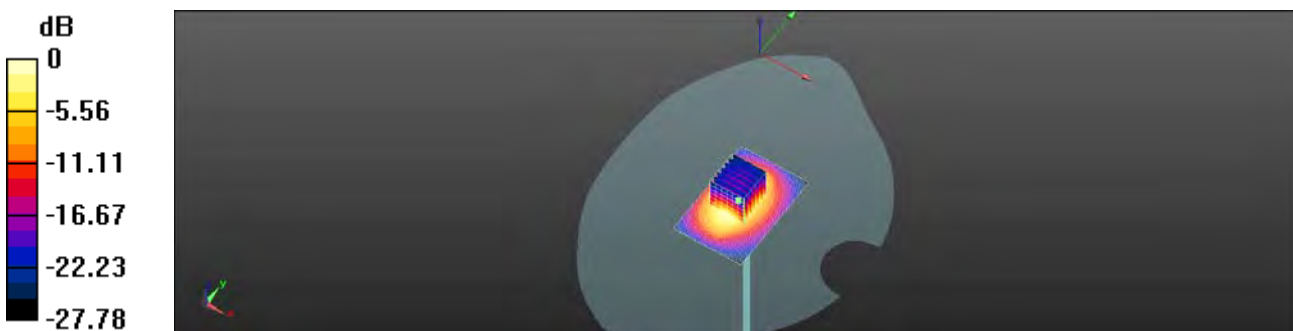
(7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 95.518 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 17.606 mW/g

SAR(1 g) = 9.44 mW/g; SAR(10 g) = 4.9 mW/g

Maximum value of SAR (measured) = 13.6 mW/g



0 dB = 13.9 mW/g = 22.86 dB mW/g

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Date: 2012/7/4

Dipole_1900 MHz (Body)

Communication System: CW; Frequency: 1900 MHz

Medium parameters used (interpolated): $f = 1900$ MHz; $\sigma = 1.509$ mho/m; $\epsilon_r = 52.682$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

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

DASY Configuration:

- Probe: EX3DV4 - SN3848; ConvF(7.28, 7.28, 7.28); Calibrated: 2012/6/4;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2012/6/5
- Phantom: SAM with CRP; Type: SAM; Serial: 1712
- DASY52 52.8.1(838); SEMCAD X 14.6.5(6469)

Configuration/d=10mm, Pin=250mW, dist=2mm/Area Scan

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

Maximum value of SAR (interpolated) = 15.1 mW/g

Configuration/d=10mm, Pin=250mW, dist=2mm/Zoom Scan (7x7x7)

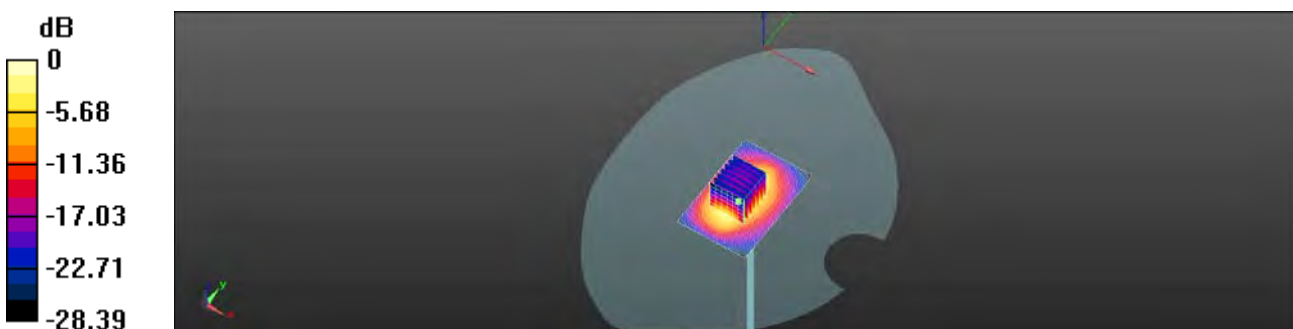
(7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 96.517 V/m; Power Drift = 0.05 dB

Peak SAR (extrapolated) = 18.621 mW/g

SAR(1 g) = 10.2 mW/g; SAR(10 g) = 5.33 mW/g

Maximum value of SAR (measured) = 14.6 mW/g



0 dB = 15.1 mW/g = 23.59 dB mW/g

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Date: 2012/7/5

Dipole_2450 MHz (Head)

Communication System: CW; Frequency: 2450 MHz

Medium parameters used: $f = 2450 \text{ MHz}$; $\sigma = 1.82 \text{ mho/m}$; $\epsilon_r = 39.271$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

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

DASY Configuration:

- Probe: EX3DV4 - SN3848; ConvF(6.78, 6.78, 6.78); Calibrated: 2012/6/4;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2012/6/5
- Phantom: SAM with CRP; Type: SAM; Serial: 1712
- DASY52 52.8.1(838); SEMCAD X 14.6.5(6469)

Configuration/Pin=250mW, d=10mm/Area Scan (41x61x1):

Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

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

Configuration/Pin=250mW, d=10mm/Zoom Scan (7x7x7)

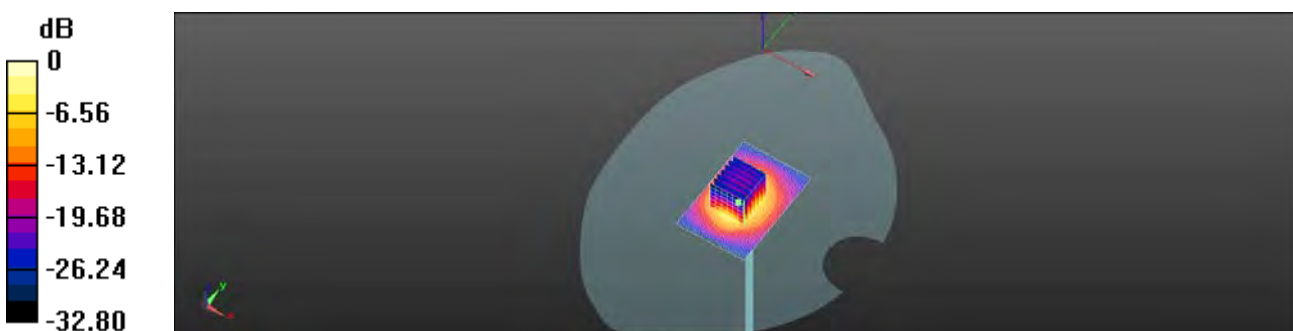
(7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 102.8 V/m ; Power Drift = -0.00 dB

Peak SAR (extrapolated) = 26.969 mW/g

SAR(1 g) = 12.5 mW/g ; SAR(10 g) = 5.71 mW/g

Maximum value of SAR (measured) = 19.2 mW/g



0 dB = 19.8 mW/g = 25.95 dB mW/g

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Date: 2012/7/5

Dipole_2450 MHz (Body)

Communication System: CW; Frequency: 2450 MHz

Medium parameters used: $f = 2450 \text{ MHz}$; $\sigma = 1.963 \text{ mho/m}$; $\epsilon_r = 50.687$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

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

DASY Configuration:

- Probe: EX3DV4 - SN3848; ConvF(6.95, 6.95, 6.95); Calibrated: 2012/6/4;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1336; Calibrated: 2012/6/5
- Phantom: SAM with CRP; Type: SAM; Serial: 1712
- DASYS 52.8.1(838); SEMCAD X 14.6.5(6469)

Configuration/Pin=250mW, d=10mm/Area Scan (41x61x1):

Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 19.4 mW/g

Configuration/Pin=250mW, d=10mm/Zoom Scan (7x7x7)

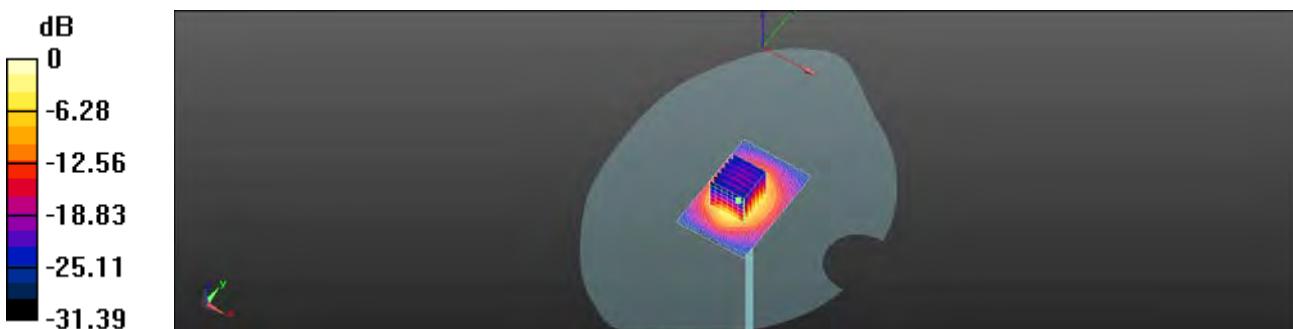
(7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 96.479 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 25.837 mW/g

SAR(1 g) = 12.2 mW/g; SAR(10 g) = 5.59 mW/g

Maximum value of SAR (measured) = 18.8 mW/g



0 dB = 19.4 mW/g = 25.76 dB mW/g

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6. DAE & Probe Calibration Certificate

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



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

Accredited by the Swiss Accreditation Service (SAS)
The Swiss Accreditation Service is one of the signatories to the EA
Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: SCS 108

Client SGS-TW (Auden)

Certificate No: DAE4-1336_Jun12

CALIBRATION CERTIFICATE

Object DAE4 - SD 000 D04 BJ - SN: 1336

Calibration procedure(s) QA CAL-06.v24
Calibration procedure for the data acquisition electronics (DAE)

Calibration date: June 05, 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: June 5, 2012

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Certificate No: DAE4-1336_Jun12

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Accreditation No.: **SCS 108**

Client **SGS-TW (Auden)**

Certificate No: **EX3-3848_Jun12**

CALIBRATION CERTIFICATE

Object **EX3DV4 - SN:3848**

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: **June 4, 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 E4419B	GB41293874	29-Mar-12 (No. 217-01508)	Apr-13
Power sensor E4412A	MY41498087	29-Mar-12 (No. 217-01508)	Apr-13
Reference 3 dB Attenuator	SN: S5054 (3c)	27-Mar-12 (No. 217-01531)	Apr-13
Reference 20 dB Attenuator	SN: S5086 (20b)	27-Mar-12 (No. 217-01529)	Apr-13
Reference 30 dB Attenuator	SN: S5129 (30b)	27-Mar-12 (No. 217-01532)	Apr-13
Reference Probe ES3DV2	SN: 3013	29-Dec-11 (No. ES3-3013_Dec11)	Dec-12
DAE4	SN: 660	10-Jan-12 (No. DAE4-660_Jan12)	Jan-13
Secondary Standards	ID	Check Date (in house)	Scheduled Check
RF generator HP 8648C	US3642U01700	4-Aug-99 (in house check Apr-11)	In house check: Apr-13
Network Analyzer HP 8753E	US37390585	18-Oct-01 (in house check Oct-11)	In house check: Oct-12

	Name	Function	Signature
Calibrated by:	Jeton Kastrati	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	
Issued: June 5, 2012			
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Certificate No: EX3-3848_Jun12

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Calibration Laboratory of
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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., $\theta = 0$ is normal to probe axis

Calibration is Performed According to the Following Standards:

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

Methods Applied and Interpretation of Parameters:

- NORM_{x,y,z}**: Assessed for E-field polarization $\theta = 0$ ($f \leq 900$ MHz in TEM-cell; $f > 1800$ MHz: R22 waveguide). NORM_{x,y,z} are only intermediate values, i.e., the uncertainties of NORM_{x,y,z} does not affect the E²-field uncertainty inside TSL (see below ConvF).
- NORM(f)_{x,y,z}** = NORM_{x,y,z} * frequency_response (see Frequency Response Chart). This linearization is implemented in DASY4 software versions later than 4.2. The uncertainty of the frequency response is included in the stated uncertainty of ConvF.
- DCP_{x,y,z}**: DCP are numerical linearization parameters assessed based on the data of power sweep with CW signal (no uncertainty required). DCP does not depend on frequency nor media.
- PAR**: PAR is the Peak to Average Ratio that is not calibrated but determined based on the signal characteristics
- A_{x,y,z}; B_{x,y,z}; C_{x,y,z}; VR_{x,y,z}**: A, B, C are numerical linearization parameters assessed based on the data of power sweep for specific modulation signal. The parameters do not depend on frequency nor media. VR is the maximum calibration range expressed in RMS voltage across the diode.
- ConvF and Boundary Effect Parameters**: Assessed in flat phantom using E-field (or Temperature Transfer Standard for $f \leq 800$ MHz) and inside waveguide using analytical field distributions based on power measurements for $f > 800$ MHz. The same setups are used for assessment of the parameters applied for boundary compensation (alpha, depth) of which typical uncertainty values are given. These parameters are used in DASY4 software to improve probe accuracy close to the boundary. The sensitivity in TSL corresponds to NORM_{x,y,z} * ConvF whereby the uncertainty corresponds to that given for ConvF. A frequency dependent ConvF is used in DASY version 4.4 and higher which allows extending the validity from ± 50 MHz to ± 100 MHz.
- Spherical isotropy (3D deviation from isotropy)**: in a field of low gradients realized using a flat phantom exposed by a patch antenna.
- Sensor Offset**: The sensor offset corresponds to the offset of virtual measurement center from the probe tip (on probe axis). No tolerance required.

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EX3DV4 – SN:3848

June 4, 2012

Probe EX3DV4

SN:3848

Manufactured: October 25, 2011
Calibrated: June 4, 2012

Calibrated for DASY/EASY Systems
(Note: non-compatible with DASY2 system!)

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EX3DV4- SN:3848

June 4, 2012

DASY/EASY - Parameters of Probe: EX3DV4 - SN:3848

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm ($\mu\text{V}/(\text{V}/\text{m})^2$) ^A	0.35	0.40	0.45	$\pm 10.1 \%$
DCP (mV) ^B	105.4	102.1	99.4	

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	177.0	$\pm 3.5 \%$
			Y	0.00	0.00	1.00	188.5	
			Z	0.00	0.00	1.00	199.4	

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:3848

June 4, 2012

DASY/EASY - Parameters of Probe: EX3DV4 - SN:3848

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	9.19	9.19	9.19	0.38	0.93	± 12.0 %
835	41.5	0.90	8.90	8.90	8.90	0.35	1.03	± 12.0 %
900	41.5	0.97	8.73	8.73	8.73	0.28	1.15	± 12.0 %
1750	40.1	1.37	7.82	7.82	7.82	0.80	0.55	± 12.0 %
1900	40.0	1.40	7.55	7.55	7.55	0.29	0.88	± 12.0 %
2000	40.0	1.40	7.54	7.54	7.54	0.41	0.74	± 12.0 %
2300	39.5	1.67	7.15	7.15	7.15	0.35	0.75	± 12.0 %
2450	39.2	1.80	6.78	6.78	6.78	0.53	0.66	± 12.0 %
2600	39.0	1.96	6.62	6.62	6.62	0.29	0.99	± 12.0 %
5200	36.0	4.66	5.24	5.24	5.24	0.30	1.80	± 13.1 %
5300	35.9	4.76	4.99	4.99	4.99	0.32	1.80	± 13.1 %
5600	35.5	5.07	4.85	4.85	4.85	0.30	1.80	± 13.1 %
5800	35.3	5.27	4.65	4.65	4.65	0.40	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:3848

June 4, 2012

DASY/EASY - Parameters of Probe: EX3DV4 - SN:3848

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	9.24	9.24	9.24	0.34	0.99	± 12.0 %
835	55.2	0.97	9.11	9.11	9.11	0.54	0.76	± 12.0 %
900	55.0	1.05	8.99	8.99	8.99	0.29	1.13	± 12.0 %
1750	53.4	1.49	7.48	7.48	7.48	0.38	0.88	± 12.0 %
1900	53.3	1.52	7.28	7.28	7.28	0.39	0.83	± 12.0 %
2000	53.3	1.52	7.42	7.42	7.42	0.28	1.01	± 12.0 %
2300	52.9	1.81	7.10	7.10	7.10	0.46	0.74	± 12.0 %
2450	52.7	1.95	6.95	6.95	6.95	0.80	0.50	± 12.0 %
2600	52.5	2.16	6.74	6.74	6.74	0.80	0.54	± 12.0 %
5200	49.0	5.30	4.40	4.40	4.40	0.50	1.90	± 13.1 %
5300	48.9	5.42	4.17	4.17	4.17	0.50	1.90	± 13.1 %
5600	48.5	5.77	3.88	3.88	3.88	0.50	1.90	± 13.1 %
5800	48.2	6.00	3.87	3.87	3.87	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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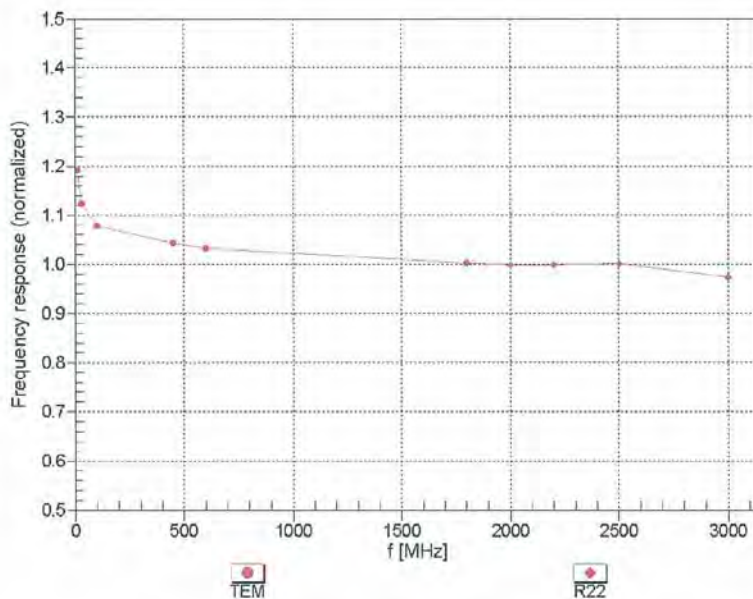
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EX3DV4-SN:3848

June 4, 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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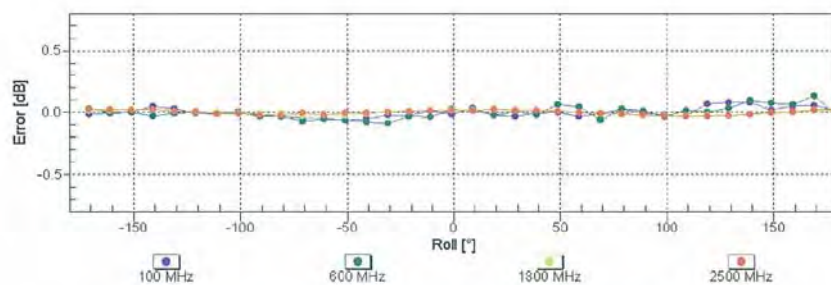
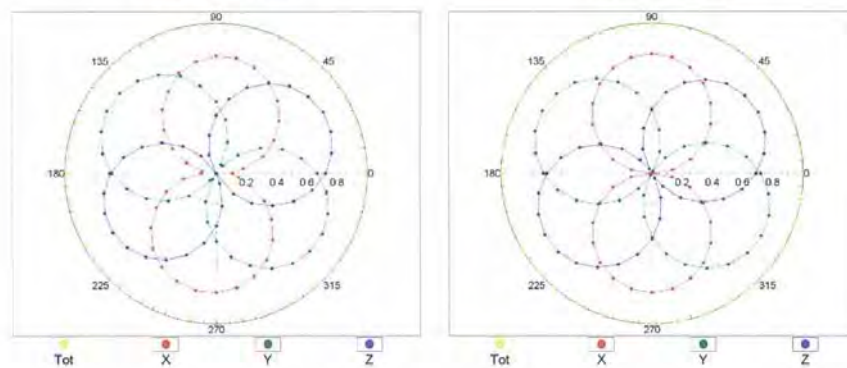
EX3DV4- SN:3848

June 4, 2012

Receiving Pattern (ϕ), $\theta = 0^\circ$

f=600 MHz,TEM

f=1800 MHz,R22



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

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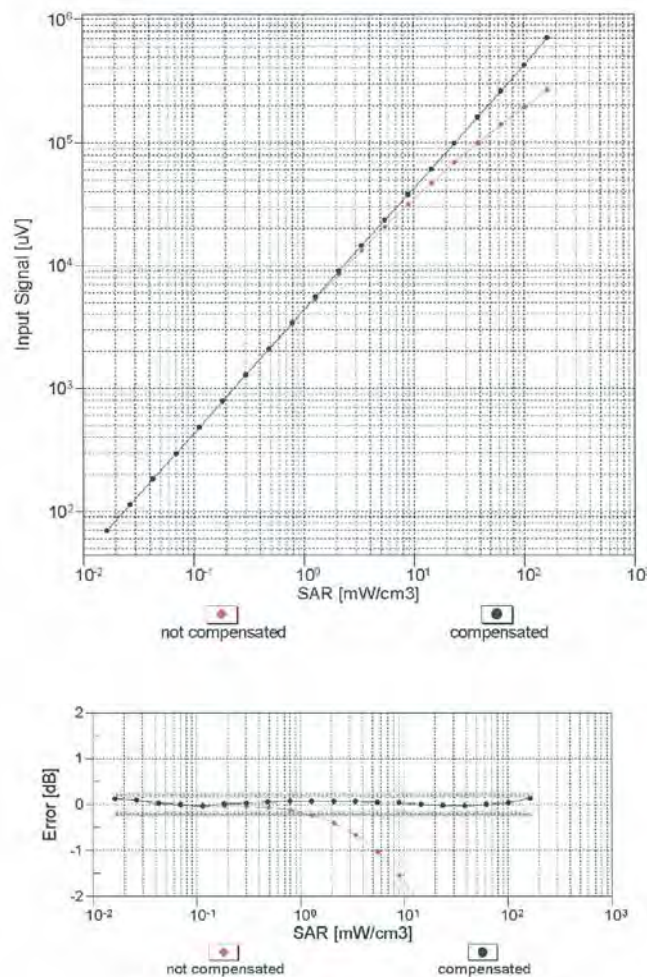
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EX3DV4- SN:3848

June 4, 2012

Dynamic Range f(SAR_{head}) (TEM cell , f = 900 MHz)



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

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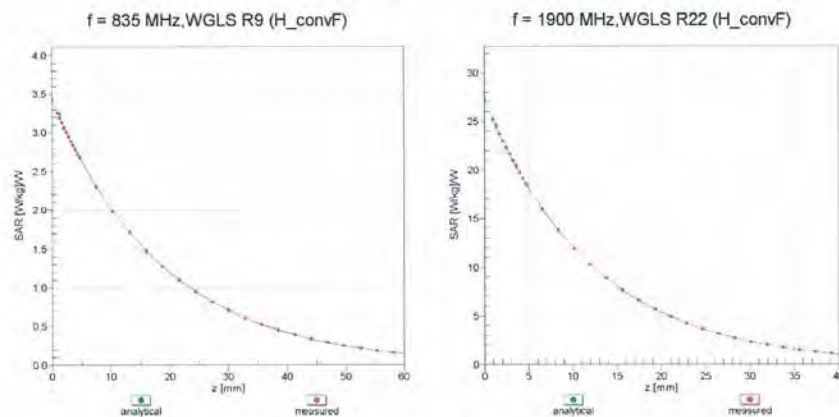
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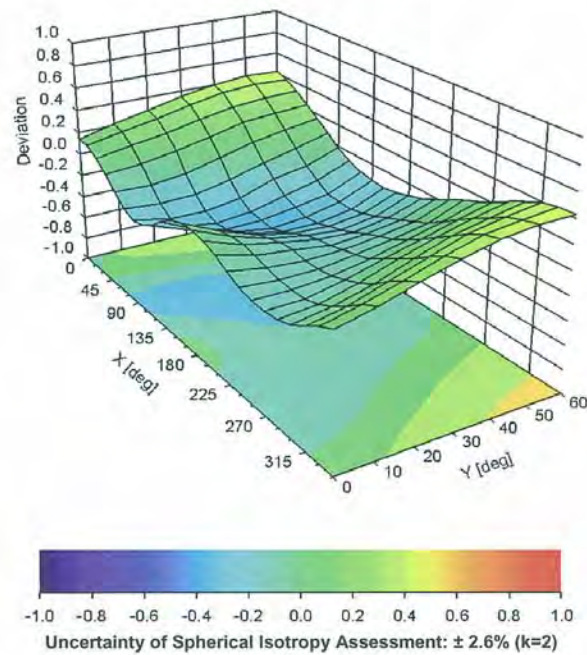
June 4, 2012

Conversion Factor Assessment



Deviation from Isotropy in Liquid

Error (ϕ , θ), $f = 900 \text{ MHz}$



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EX3DV4- SN:3848

June 4, 2012

DASY/EASY - Parameters of Probe: EX3DV4 - SN:3848

Other Probe Parameters

Sensor Arrangement	Triangular
Connector Angle (°)	59
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 uncertainty	Standard uncertain ty	vi, or Veff
Measurement system								
Probe calibration(under 2.6Ghz)	6.00%	N	1	1	1	6.00%	6.00%	∞
<i>Isotropy, Axial</i>	3.50%	R	$\sqrt{3}$	1	1	2.02%	2.02%	∞
<i>Isotropy, Hemispherical</i>	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 Zürich, 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 Zürich Switzerland

Tests

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

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

Standards

- [1] CENELEC EN 50361
- [2] IEEE Std 1528-2003
- [3] IEC 62208 Part I
- [4] FCC OET Bulletin 65, Supplement C, Edition 01-01
- (*) The IT/IS CAD file is derived from [2] and is also within the tolerance requirements of the shapes of the other documents.

Conformity

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

Date

07.07.2005

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Signature / Stamp

Schmid & Partner Engineering AG
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Phone +41 1 245 9700, Fax +41 1 245 9779
info@speag.com, http://www.speag.com

Doc No: 881 – QD 000 P40 C – F

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9. System Validation from Original Equipment Supplier

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



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

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: 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: [Signature]**

Approved by: **Name: Katja Pokovic, Function: Technical Manager, Signature: [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

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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:

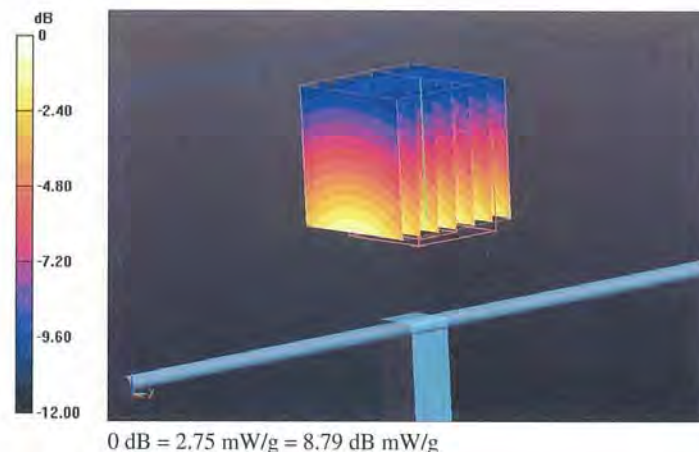
Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

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:

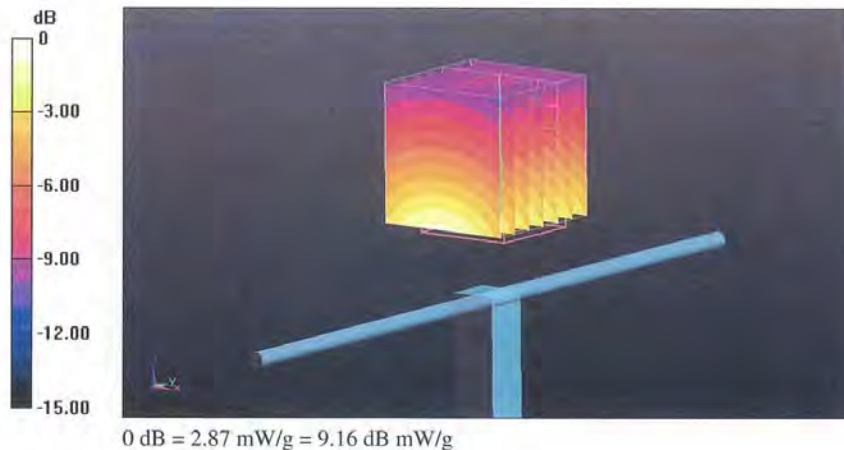
Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

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



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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 Israe El-Naouq	Function Laboratory Technician	Signature
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:

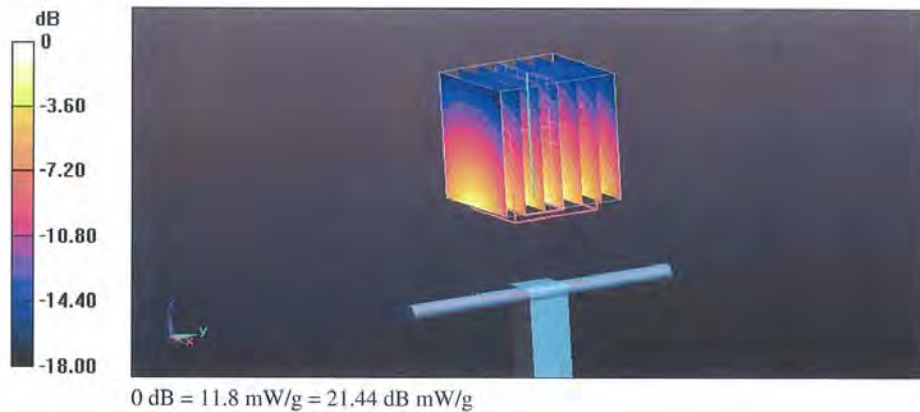
Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

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



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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:

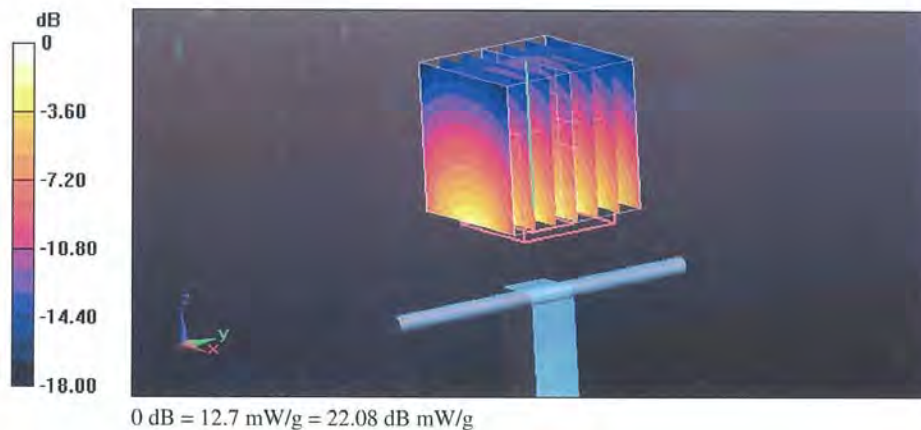
Measurement grid: dx=5mm, dy=5mm, dz=5mm

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



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: **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 $(22 \pm 3)^{\circ}\text{C}$ 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

	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: $f = 2450$ MHz; $\sigma = 1.81$ mho/m; $\epsilon_r = 39.6$; $\rho = 1000$ kg/m³

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:

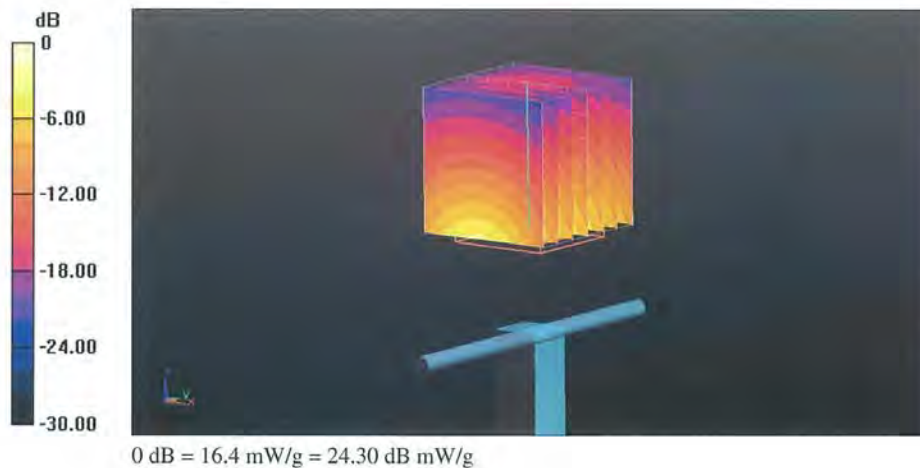
Measurement grid: dx=5mm, dy=5mm, dz=5mm

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:

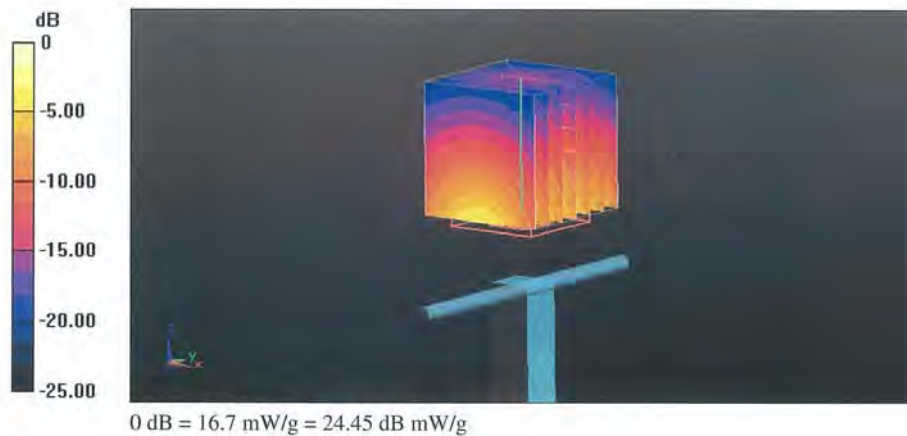
Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

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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