

SAR TEST REPORT

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

Product Name	3G/2G Smart phone
Model Name	XT760
Brand Name	Motorola
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	IHDT56NF4
Date of Receipt	Feb. 22, 2012
Date of Test(s)	Mar. 21 ~ Mar. 25, 2012
Date of Issue	Apr. 19, 2012

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

Remarks:

This report details the results of the testing carried out on one sample, the results contained in this test report do not relate to other samples of the same product. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

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Signed for on the behalf of SGS

Supervisor



Ricky Huang

Date Apr. 19, 2012

Supervisor



Nick Hsu

Date Apr. 19, 2012

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Version

Report Number	Revision	Date	Memo
ES/2012/20007	00	2012/03/30	Initial creation of test report.
ES/2012/20007	01	2012/04/18	Added WLAN conducted power
ES/2012/20007	02	2012/04/19	Added Remark " The equipment does not support WCDMA Band II & Band V function " in page 5.

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

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Taipei county, Taiwan, R.O.C.	
Telephone	+886-2-2299-3279
Fax	+886-2-2298-0488
Internet	http://www.tw.sgs.com/

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	Kevin Lu
TEL	+886-2-8726-2815
Fax	+886-2-8788-3008

1.3 Description of EUT

Product Name	3G/2G Smart phone		
Model Name	XT760		
Brand Name	Motorola		
IMEI Code	350050500009692		
FCC ID	IHDT56NF4		
Mode of Operation	☒ GSM ☒ GPRS ☒ EDGE ☒ WLAN802.11 b/g/n(☒ 20M) band		
Definition	Production unit		
Duty Cycle	GSM	1/8.3	
	GPRS	1/2	
	WLAN 802.11 b/g/n(20M)	1	
	Bluetooth	1	
TX Frequency Range (MHz)	GSM850	824.2	848.8
	GSM1900	1850.2	1909.8
	WLAN 802.11 b/g/n(20M)	2412	2462
	Bluetooth	2402	2480

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Channel Number (ARFCN)	GSM850		128	—	251
	GSM1900		512	—	810
	WLAN 802.11 b/g/n(20M)		1	—	11
	Bluetooth		0	—	78
VOIP Function	☐ YES ☒ NO				
Max. SAR Measured(1 g) (Unit: mW/g)	Head	GSM850	0.424	☐ Left ☒ Cheek	☒ Right ☐ Tilt 251 Channel
		GSM1900	0.491	☐ Left ☒ Cheek	☒ Right ☐ Tilt 512 Channel
		WLAN802.11 b	0.118	☐ Left ☒ Cheek	☒ Right ☐ Tilt 6 Channel -with Bluetooth
		Bluetooth	0.00374	☒ Left ☒ Cheek	☐ Right ☐ Tilt 39 Channel
	Hotspot mode	GSM850	1.33	☐ Front ☐ Bottom ☐ Left	☒ Back ☐ Right 251 Channel -with Memory card
		GSM1900	1.21	☐ Front ☐ Bottom ☐ Left	☒ Back ☐ Right 512 Channel
		WLAN802.11 b	0.247	☐ Front ☐ Top ☐ Left	☒ Back ☐ Right 6 Channel
		Bluetooth	0.016	☐ Front ☐ Top ☐ Left	☒ Back ☐ Right 39 Channel

#. The equipment does not support WCDMA Band II & Band V function.

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#. GSM/GPRS conducted power table:

EUT mode	Frequency (MHz)	CH	Burst average power	Source-based time average power
			Avg.(dBm)	Avg.(dBm)
GSM 850	824.2	128	33.00	23.97
	836.6	190	33.00	23.97
	848.8	251	33.00	23.97
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	1Dn3UP	1Dn4UP
			Avg. (dBm)	Avg. (dBm)	Avg. (dBm)	Avg. (dBm)
GPRS 850	824.2	128	32.90	31.80	29.50	28.40
	836.6	190	33.00	31.80	29.70	28.50
	848.8	251	33.00	31.90	30.00	28.70
Source-based time average power						
GPRS 850	824.2	128	23.87	25.78	25.24	25.39
	836.6	190	23.97	25.78	25.44	25.49
	848.8	251	23.97	25.88	25.74	25.69
The division factor compared to the number of TX time slot						
Division factor			1 TX time slot	2 TX time slot	3 TX time slot	4 TX time slot
			-9.03	-6.02	-4.26	-3.01

Burst average power						
EUT mode	Frequency (MHz)	CH	1Dn1UP	1Dn2UP	1Dn3UP	1Dn4UP
			Avg.(dBm)	Avg.(dBm)	Avg.(dBm)	Avg.(dBm)
EDGE 850	824.2	128	27.80	27.80	26.40	24.90
	836.6	190	27.70	27.70	26.30	24.70
	848.8	251	27.60	27.60	26.10	24.60
Source-based time average power						
EDGE 850	824.2	128	18.77	21.78	22.14	21.89
	836.6	190	18.67	21.68	22.04	21.69
	848.8	251	18.57	21.58	21.84	21.59
The division factor compared to the number of TX time slot						
Division factor			1 TX time slot	2 TX time slot	3 TX time slot	4 TX time slot
			-9.03	-6.02	-4.26	-3.01

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EUT mode	Frequency (MHz)	CH	Burst average power	Source-based time average power
			Avg.(dBm)	Avg.(dBm)
GSM 1900	1850.2	512	30.10	21.07
	1880	661	30.10	21.07
	1909.8	810	30.00	20.97
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	1Dn3UP	1Dn4UP
			Avg. (dBm)	Avg. (dBm)	Avg. (dBm)	Avg. (dBm)
GPRS 1900	1850.2	512	29.90	28.40	26.50	25.30
	1880	661	30.10	28.50	26.70	25.50
	1909.8	810	30.20	28.70	26.90	25.60
Source-based time average power						
GPRS 1900	1850.2	512	20.87	22.38	22.24	22.29
	1880	661	21.07	22.48	22.44	22.49
	1909.8	810	21.17	22.68	22.64	22.59
The division factor compared to the number of TX time slot						
Division factor			1 TX time slot	2 TX time slot	3 TX time slot	4 TX time slot
			-9.03	-6.02	-4.26	-3.01

Burst average power						
EUT mode	Frequency (MHz)	CH	1Dn1UP	1Dn2UP	1Dn3UP	1Dn4UP
			Avg. (dBm)	Avg. (dBm)	Avg. (dBm)	Avg. (dBm)
EDGE 1900	1850.2	512	26.50	26.40	25.00	23.60
	1880	661	26.30	26.30	24.70	23.40
	1909.8	810	25.80	25.80	24.00	22.90
Source-based time average power						
EDGE 1900	1850.2	512	17.47	20.38	20.74	20.59
	1880	661	17.27	20.28	20.44	20.39
	1909.8	810	16.77	19.78	19.74	19.89
The division factor compared to the number of TX time slot						
Division factor			1 TX time slot	2 TX time slot	3 TX time slot	4 TX time slot
			-9.03	-6.02	-4.26	-3.01

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

		Peak power	Average power
WLAN 802.11 b	2412	18.52	15.88
	2437	18.47	15.98
	2462	18.11	15.48
WLAN 802.11 g	2412	15.71	12.26
	2437	15.62	12.11
	2462	15.15	11.62
WLAN 802.11 n(20M)	2412	13.63	10.20
	2437	13.65	10.14
	2462	12.99	9.51

#. Bluetooth conducted power table:

Channel	Peak Power	
	BDR	EDR
2402	6.72	-4.58
2441	6.56	-4.78
2480	6.00	-5.37

1.4 Test Environment

Ambient Temperature : 22±2° C

Tissue Simulating Liquid: 22±2° C

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1.5 Operation description

General:

1. The EUT is controlled by using a Radio Communication Tester (R&S CMU200), 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.

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Test configurations:

- (1) Front side
- (2) Back side
- (3) Top side.(WWAN antenna to edge distance >25mm_No SAR)
- (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
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 0.118 W/kg and the highest 1-g SAR for WWAN is 0.491W/kg. The sum of 1-g for simultaneous transmitting WLAN and WWAN antenna pair is $0.118+0.491 = 0.609$ W/kg.
10. For Body, The highest 1-g SAR for WLAN is 0.247 W/kg and the highest 1-g SAR for WWAN is 1.33W/kg. The sum of 1-g for simultaneous transmitting WLAN and WWAN antenna pair is $0.247+1.33 = 1.577$ W/kg.

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11. Both Head & Body, **which lower than the limit 1.6W/kg**. According to **KDB648474/KDB447498** Simultaneous SAR evaluation is not required.
12. According KDB941225 D03 and KDB941225 D04 to exclude SAR test requirements for EDGE modes due to the source-based time-averaged output power for edge mode is lower than that in the GPRS mode.

Additional configuration(Head):

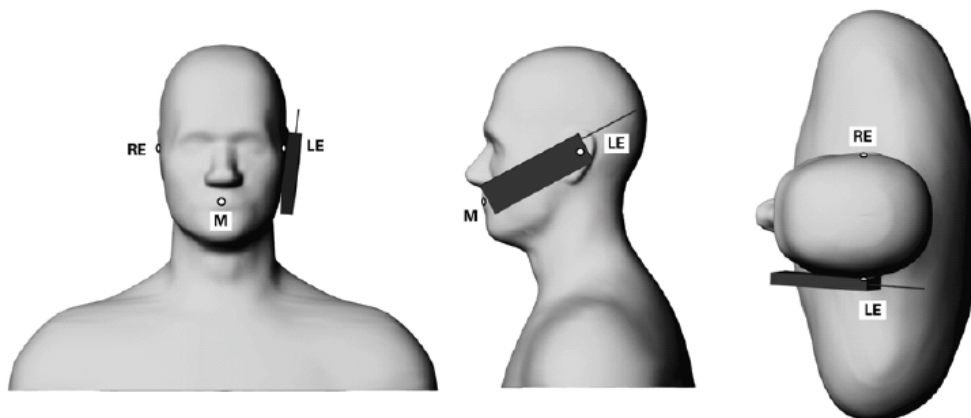
13. For highest SAR configuration in this band repeated with external Memory card inside.

Additional configuration(Body):

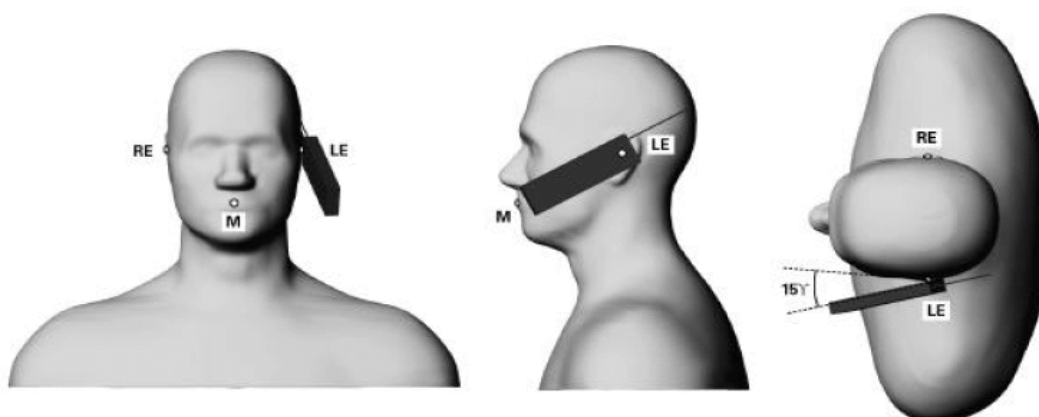
14. For highest SAR configuration in this band repeated with external Memory card inside.
15. For highest SAR configuration in this band repeated with Headset.

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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.

1.8 The SAR Measurement System

A photograph of the SAR measurement System is given in Fig. a. This SAR Measurement System uses a Computer-controlled 3-D stepper motor system (SPEAG DASY 5 professional system). A Model 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.

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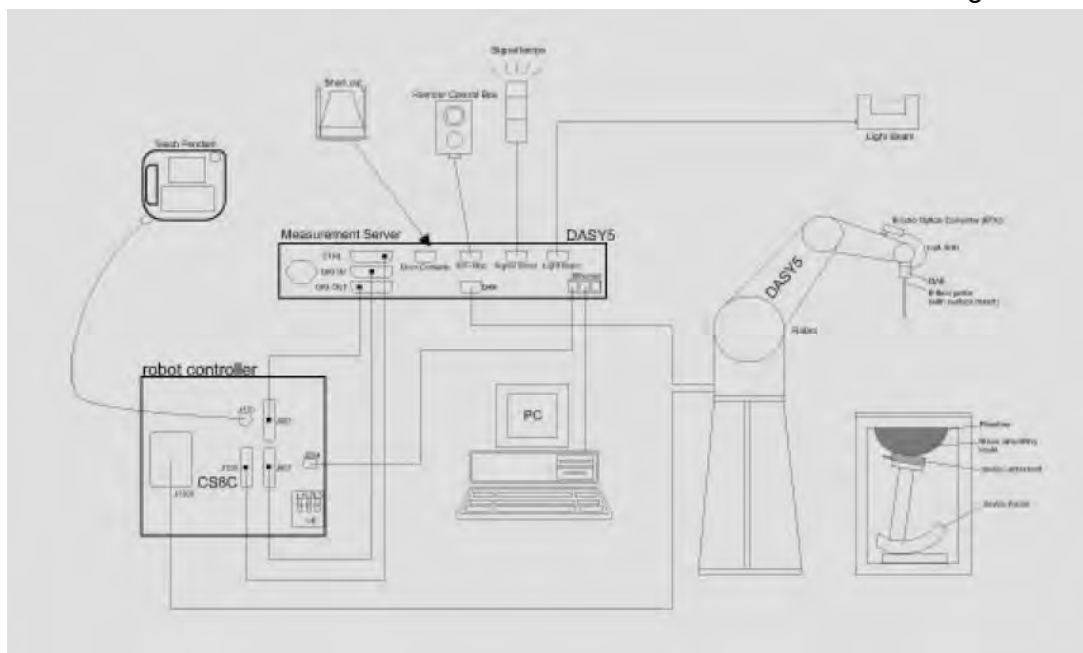


Fig.a The block diagram of SAR system

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

- A standard high precision 6-axis robot (Staubli RX family) with controller, teach pendant and software. An arm extension is for accommodating the data acquisition electronics (DAE).
- A dosimetric probe, i.e., an isotropic E-field probe optimized and calibrated for usage in tissue simulating liquid. The probe is equipped with an optical surface detector system.
- A data acquisition electronics (DAE) which performs the signal amplification, signal multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection, etc. The unit is battery powered with standard or rechargeable batteries. The signal is optically transmitted to the EOC.
- The Electro-optical converter (EOC) performs the conversion between optical and electrical of the signals for the digital communication to the DAE and for the analog signal from the optical surface detection. The EOC is connected to the measurement server.
- The function of the measurement server is to perform the time critical tasks such as

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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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1.9 System Components

EX3DV4 E-Field Probe

Construction	Symmetrical design with triangular core Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., DGBE)	 EX3DV4 E-Field Probe
Calibration	Basic Broad Band Calibration in air Conversion Factors (CF) for HSL835/1900/2450MHz Additional CF for other liquids and frequencies upon request	
Frequency	10 MHz to > 6 GHz; Linearity: ± 0.2 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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1.10 SAR System Verification

The microwave circuit arrangement for system verification is sketched in Fig. b. The daily system accuracy verification occurs within the flat section of the SAM phantom. A SAR measurement was performed to see if the measured SAR was within $\pm 5\%$ 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.

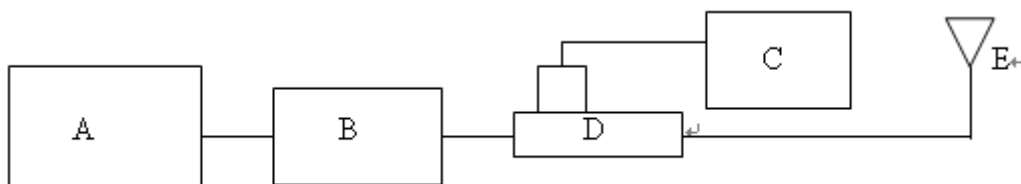
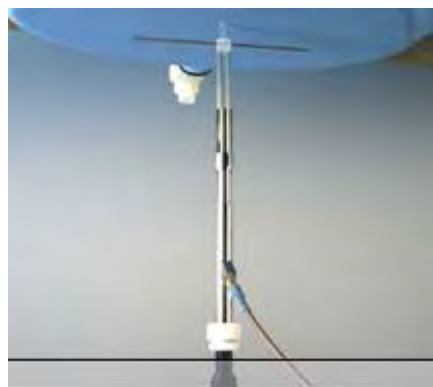


Fig.b The block diagram of system verification

- 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	2.31	2.36	Mar. 21, 2012
			Body	2.43	2.53	Mar. 21, 2012
D1900V2	5d027	1900	Head	10.1	10.3	Mar. 21, 2012
			Body	9.93	9.66	Mar. 21, 2012
D2450V2	727	2450	Head	13.7	14.2	Mar. 25, 2012
			Body	12.7	13.3	Mar. 25, 2012

Table 1. System validation (follow manufacture target value)

1.11 Tissue Simulant Fluid for the Frequency Band

The dielectric properties for this Head-simulant fluid were measured by using the Agilent Model 85070D Dielectric Probe (rates frequency band 200 MHz to 20 GHz) in conjunction with 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
835	Head	ρ	Verification		38.38-42.42	40.886	Mar. 21, 2012
			GSM 850	CH (L)		41.031	
				CH (M)		40.859	
				CH (H)		40.706	
		σ (S/m)	Verification		0.84-0.92	0.886	
			GSM 850	CH (L)		0.874	
				CH (M)		0.888	
				CH (H)		0.902	
		Simulated Tissue Temp.(°C)			20-24	21.7	

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850	Body	ρ	Verification		51.21-56.60	53.169	Mar. 21, 2012
			GSM 850	CH (L)		53.276	
				CH (M)		53.148	
				CH (H)		53.029	
		σ (S/m)	Verification		0.95-1.05	0.991	
			GSM 850	CH (L)		0.979	
				CH (M)		0.993	
				CH (H)		1.006	
Simulated Tissue Temp.(°C)				20-24	21.7		

1900	Head	ρ	Verification		36.96-40.85	38.982	Mar. 21, 2012
			GSM 1900	CH (L)		39.081	
				CH (M)		39.082	
				CH (H)		38.905	
		σ (S/m)	Verification		1.34-1.48	1.451	
			GSM 1900	CH (L)		1.432	
				CH (M)		1.44	
				CH (H)		1.465	
	Simulated Tissue Temp.(°C)				20-24	21. 7	
	Body	ρ	Verification		48.55-53.66	49.324	Mar. 21, 2012
			GSM 1900	CH (L)		49.501	
				CH (M)		49.397	
				CH (H)		49.294	
		σ (S/m)	Verification		1.44-1.60	1.578	
GSM 1900			CH (L)	1.528			
			CH (M)	1.557			
			CH (H)	1.589			
Simulated Tissue Temp.(°C)				20-24	21.7		

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2450	Head	ρ	Verification		36.77-40.64	37.777	Mar. 25, 2012
			WLAN b	CH (L)		37.932	
				CH (M)		37.832	
				CH (H)		37.725	
			Bluetooth	CH (L)		37.961	
				CH (M)		37.817	
				CH (H)		37.663	
		σ (S/m)	Verification		1.63-1.81	1.794	
			WLAN b	CH (L)		1.756	
				CH (M)		1.78	
				CH (H)		1.80	
			Bluetooth	CH (L)		1.747	
				CH (M)		1.784	
				CH (H)		1.8	
		Simulated Tissue Temp.(°C)				20-24	
	Body	ρ	Verification		48.07-53.13	51.46	Mar. 25, 2012
			WLAN b	CH (L)		51.56	
				CH (M)		51.493	
				CH (H)		51.425	
			Bluetooth	CH (L)		51.592	
				CH (M)		51.484	
				CH (H)		51.37	
		σ (S/m)	Verification		1.81-2.01	2.001	
			WLAN b	CH (L)		1.953	
				CH (M)		1.985	
				CH (H)		2.0	
			Bluetooth	CH (L)		1.94	
CH (M)				1.99			
CH (H)				2.006			
Simulated Tissue Temp.(°C)				20-24	21.7		

Table 2. Dielectric Parameters of Tissue Simulant Fluid

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The composition of the brain tissue simulating liquid:

Frequency (MHz)	Mode	Ingredient						Total amount
		DGMBE	Water	Salt	Preventol D-7	Cellulose	Sugar	
850	Head	—	532.63	18.29	2.40	3.20	765.49	1.0L(Kg)
	Body	—	633.91	11.76	1.20	—	602.12	1.0L(Kg)
1900	Head	445.08	554.12	0.80	—	—	—	1.0L(Kg)
	Body	300.03	697.94	2.03	—	—	—	1.0L(Kg)
2450	Head	450.00	550.00	—	—	—	—	1.0L(Kg)
	Body	313.65	686.35	—	—	—	—	1.0L(Kg)

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

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1.12 Test Standards and Limits

According to FCC 47CFR §2.1093(d) The limits to be used for evaluation are based generally on criteria published by the American National Standards Institute (ANSI) for localized specific absorption rate ("SAR") in Section 4.2 of "IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz," ANSI/IEEE C95.1–1992, Copyright 1992 by the Institute of Electrical and Electronics Engineers, Inc., New York, New York 10017.

These criteria for SAR evaluation are similar to those recommended by the National Council on Radiation Protection and Measurements (NCRP) in "Biological Effects and Exposure Criteria for Radio frequency Electromagnetic Fields," NCRP Report No. 86, Section 17.4.5. Copyright NCRP, 1986, Bethesda, Maryland 20814. SAR is a measure of the rate of energy absorption due to exposure to an RF transmitting source. SAR values have been related to threshold levels for potential biological hazards. The criteria to be used are specified in paragraphs (d)(1) and (d)(2) of this section and shall apply for portable devices transmitting in the frequency range from 100 kHz to 6 GHz. Portable devices that transmit at frequencies above 6 GHz are to be evaluated in terms of the MPE limits specified in § 1.1310 of this chapter.

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

(1)Limits for Occupational/Controlled exposure: 0.4 W/kg as averaged over the whole-body and spatial peak SAR not exceeding 8 W/kg as averaged over any 1 gram of tissue (defined as a tissue volume in the shape of a cube). Exceptions are the hands, wrists, feet and ankles where the spatial peak SAR shall not exceed 20 W/kg, as averaged over an 10 grams of tissue (defined as a tissue volume in the shape of a cube).

Occupational/Controlled limits apply when persons are exposed as a consequence of their employment provided these persons are fully aware of and exercise control over their exposure. Awareness of exposure can be accomplished by use of warning labels or by specific training or education through appropriate means, such as an RF safety

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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

Unit: (W/kg)

Band	Mode	EUT Position	Test Config.	Averaged SAR over 1g			SAR Limit 1g	Averaged SAR over 10g		
				CH 128	CH 190	CH 251		CH 128	CH 190	CH 251
				824.2 MHz	836.6 MHz	848.8 MHz		824.2 MHz	836.6 MHz	848.8 MHz
GSM 850	GSM	Right	Cheek	0.302	0.352	0.424	1.6	0.230	0.267	0.321
			Tilt	—	0.234	—		—	0.177	—
		Left	Cheek	—	0.296	—		—	0.224	—
			Tilt	—	0.243	—		—	0.184	—
	GPRS	Hotspot	Front	—	0.617	—		—	0.467	—
			Back	0.979	1.11	1.3		0.705	0.796	0.936
			-with Headset	—	—	1.1		—	—	0.776
			-with Memory card	—	—	1.33		—	—	0.958
			Bottom	—	0.149	—		—	0.088	—
			Right	—	0.675	—		—	0.470	—
			Left	—	0.412	—		—	0.283	—

Using 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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PCS 1900 MHz

Unit: (W/kg)

Band	Mode	EUT Position	Test Config.	Averaged SAR over 1g			SAR Limit 1g	Averaged SAR over 10g		
				CH	CH	CH		CH	CH	CH
				512	661	810		512	661	810
				1850.20 MHz	1800.00 MHz	1909.80 MHz		1850.20 MHz	1800.00 MHz	1909.80 MHz
PCS 1900	GSM	Right	Cheek	0.491	0.470	0.386	1.6	0.305	0.289	0.235
			-with Memory card	0.487	—	—		0.301	—	—
			Tilt	—	0.234	—		—	0.139	—
		Left	Cheek	—	0.435	—		—	0.266	—
			Tilt	—	0.242	—		—	0.147	—
			Front	—	0.682	—		—	0.425	—
	GPRS	Hotspot	Back	1.21	1.09	0.964		0.664	0.593	0.502
			Bottom	—	0.592	—		—	0.322	—
			Right	—	0.175	—		—	0.102	—
			Left	—	0.267	—		—	0.158	—

- # Using 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

Unit: (W/kg)

Band	EUT Position	Test Config.	Averaged SAR over 1g			SAR Limit 1g	Averaged SAR over 10g		
			CH 1	CH 6	CH 11		CH 1	CH 6	CH 11
			2412 MHz	2437 MHz	2462 MHz		2412 MHz	2437 MHz	2462 MHz
WLAN 802.11 b	Right	Cheek	0.089	0.115	0.111	1.6	0.042	0.055	0.053
		-with Bluetooth	—	0.118	—		—	0.056	—
		-with Memory card	—	0.104	—		—	0.049	—
		Tilt	—	0.052	—		—	0.026	—
	Left	Cheek	—	0.072	—		—	0.038	—
		Tilt	—	0.074	—		—	0.037	—
	Hotspot mode	Front	—	0.038	—		—	0.020	—
		Back	0.211	0.247	0.205		0.104	0.123	0.103
		-with Headset	—	0.244	—		—	0.122	—
		-with Bluetooth	—	0.246	—		—	0.126	—
		-with Memory card	—	0.245	—		—	0.142	—
		Right	—	0.129	—		—	0.067	—

- # 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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Bluetooth

Unit: (W/kg)

Band	EUT Position	Test Config.	Averaged SAR over 1g			SAR Limit 1g	Averaged SAR over 10g		
			CH 0	CH 39	CH 78		CH 0	CH 39	CH 78
			2402 MHz	2441 MHz	2480 MHz		2402 MHz	2441 MHz	2480 MHz
Bluetooth	Right	Cheek	0.00191			1.6	0.000439		
		Tilt	0.000575				0.000105		
	Left	Cheek	0.00203	0.00374	0.00275		0.000484	0.00119	0.00109
		Tilt	0.00168				0.000364		
	Body	Front	0.00384				0.00199		
		Back	0.010	0.016	0.011		0.00392	0.00651	0.0042
		Right	0.00607				0.00258		

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

Manufacturer	Device	Type	Serial number	Date of last calibration	Date of next calibration
Schmid & Partner Engineering AG	Dosimetric E-Field Probe	EX3DV4	3831	Jan.04.2012	Jan.03.2013
Schmid & Partner Engineering AG	835/1900/2450 MHz System Validation Dipole	D835V2	4d063	May.25.2011	May.24.2012
		D1900V2	5d027	Apr.19.2011	Apr.18.2012
		D2450V2	727	Apr.19.2011	Apr.18.2012
Schmid & Partner Engineering AG	Data acquisition Electronics	DAE4	1260	Aug.22.2011	Aug.21.2012
Schmid & Partner Engineering AG	Software	DASY 4 V4.7	N/A	Calibration not required	
Schmid & Partner Engineering AG	Phantom	SAM	N/A	Calibration not required	
HP	Network Analyzer	E5071C	MY46108212	Mar.21.2011	Mar.20.2012
Agilent	Dielectric Probe Kit	85070D	US01440168	Calibration not required	
Agilent	Dual-directional coupler	772D	MY46151242	Jul.07.2011	Jul.06.2012
		778D	MY48220468	May.29.2011	May.28.2012
Agilent	RF Signal Generator	N5181A	MY50141235	Jan.06.2012	Jan.05.2013
Agilent	USB Power Sensor(Meter)	U2001B	MY48100169	Apr.30.2011	Apr.29.2012
R&S	Radio Communication Test	CMU200	113505	May.31.2011	May.30.2013

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4. Measurements

Date: 2012/3/21

Re Cheek_CH128

Communication System: GSM; Communication System Band: GSM850; Frequency: 824.2 MHz;

Medium parameters used (interpolated): $f = 824.2$ MHz; $\sigma = 0.874$ mho/m; $\epsilon_r = 41.031$; $\rho = 1000$ kg/m³

Phantom section: Right Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3831; ConvF(8.82, 8.82, 8.82); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2011/8/22
- Phantom: Head; Type: SAM;
- DASY52 52.8.0(692); SEMCAD X 14.6.4(4989)

Configuration/Head/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.347 mW/g

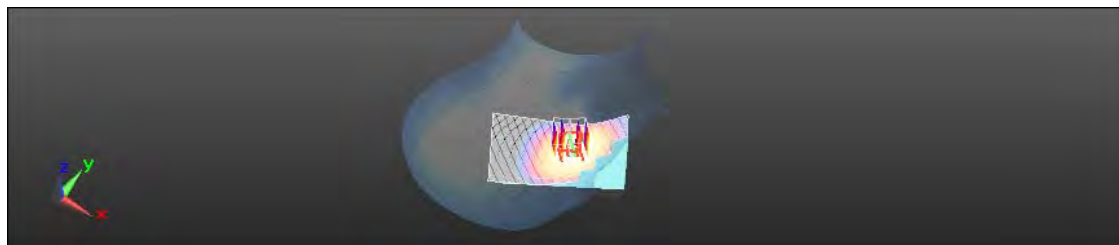
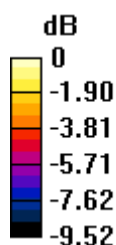
Configuration/Head/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 5.139 V/m; Power Drift = 0.10 dB

Peak SAR (extrapolated) = 0.3710

SAR(1 g) = 0.302 mW/g; SAR(10 g) = 0.230 mW/g

Maximum value of SAR (measured) = 0.342 mW/g



0 dB = 0.340mW/g = -9.37 dB mW/g

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Date: 2012/3/21

Re Cheek_CH190

Communication System: GSM; Communication System Band: GSM850; Frequency: 836.6 MHz;

Medium parameters used: $f = 837$ MHz; $\sigma = 0.888$ mho/m; $\epsilon_r = 40.859$; $\rho = 1000$ kg/m³

Phantom section: Right Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3831; ConvF(8.82, 8.82, 8.82); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2011/8/22
- Phantom: Head; Type: SAM;
- DASY52 52.8.0(692); SEMCAD X 14.6.4(4989)

Configuration/Head/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.418 mW/g

Configuration/Head/Zoom Scan (5x5x7)/Cube 0: Measurement grid:

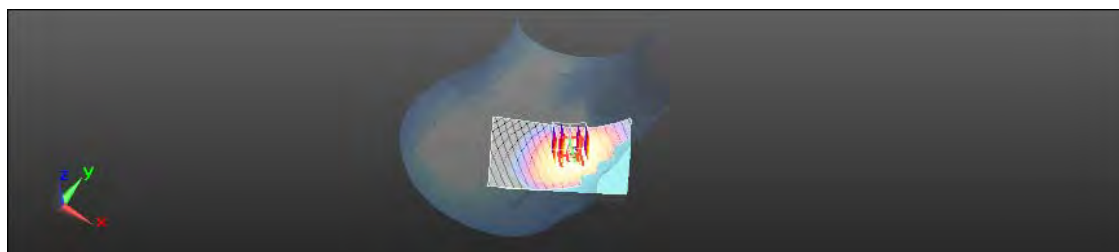
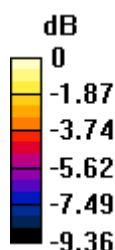
dx=8mm, dy=8mm, dz=5mm

Reference Value = 6.631 V/m; Power Drift = -0.05 dB

Peak SAR (extrapolated) = 0.4350

SAR(1 g) = 0.352 mW/g; SAR(10 g) = 0.267 mW/g

Maximum value of SAR (measured) = 0.400 mW/g



0 dB = 0.400mW/g = -7.96 dB mW/g

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Date: 2012/3/21

Re Cheek_CH251

Communication System: GSM; Communication System Band: GSM850; Frequency: 848.8 MHz;

Medium parameters used: $f = 849$ MHz; $\sigma = 0.902$ mho/m; $\epsilon_r = 40.706$; $\rho = 1000$ kg/m³

Phantom section: Right Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3831; ConvF(8.82, 8.82, 8.82); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2011/8/22
- Phantom: Head; Type: SAM;
- DASY52 52.8.0(692); SEMCAD X 14.6.4(4989)

Configuration/Head/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.493 mW/g

Configuration/Head/Zoom Scan (5x5x7)/Cube 0: Measurement grid:

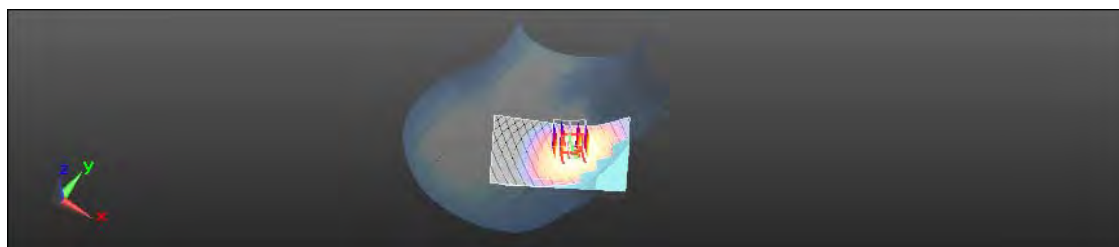
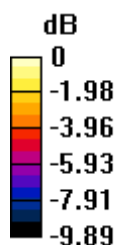
dx=8mm, dy=8mm, dz=5mm

Reference Value = 5.970 V/m; Power Drift = 0.11 dB

Peak SAR (extrapolated) = 0.5310

SAR(1 g) = 0.424 mW/g; SAR(10 g) = 0.321 mW/g

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



0 dB = 0.480mW/g = -6.38 dB mW/g

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Date: 2012/3/21

Re Tilt_CH190

Communication System: GSM; Communication System Band: GSM850; Frequency: 836.6 MHz;

Medium parameters used: $f = 837$ MHz; $\sigma = 0.888$ mho/m; $\epsilon_r = 40.859$; $\rho = 1000$ kg/m³

Phantom section: Right Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3831; ConvF(8.82, 8.82, 8.82); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2011/8/22
- Phantom: Head; Type: SAM;
- DASY52 52.8.0(692); SEMCAD X 14.6.4(4989)

Configuration/Head/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.263 mW/g

Configuration/Head/Zoom Scan (5x5x7)/Cube 0: Measurement grid:

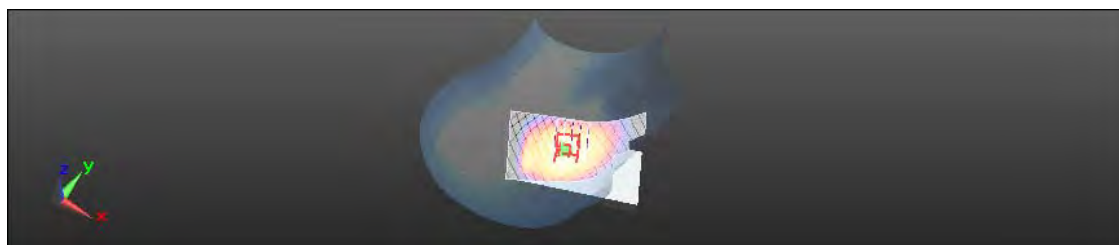
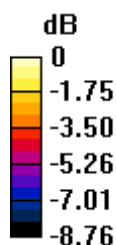
dx=8mm, dy=8mm, dz=5mm

Reference Value = 11.405 V/m; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 0.2960

SAR(1 g) = 0.234 mW/g; SAR(10 g) = 0.177 mW/g

Maximum value of SAR (measured) = 0.269 mW/g



0 dB = 0.270mW/g = -11.37 dB mW/g

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Date: 2012/3/21

Le Cheek_CH190

Communication System: GSM; Communication System Band: GSM850; Frequency: 836.6 MHz;

Medium parameters used: $f = 837$ MHz; $\sigma = 0.888$ mho/m; $\epsilon_r = 40.859$; $\rho = 1000$ kg/m³

Phantom section: Left Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3831; ConvF(8.82, 8.82, 8.82); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2011/8/22
- Phantom: Head; Type: SAM;
- DASY52 52.8.0(692); SEMCAD X 14.6.4(4989)

Configuration/Head/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.329 mW/g

Configuration/Head/Zoom Scan (5x5x7)/Cube 0: Measurement grid:

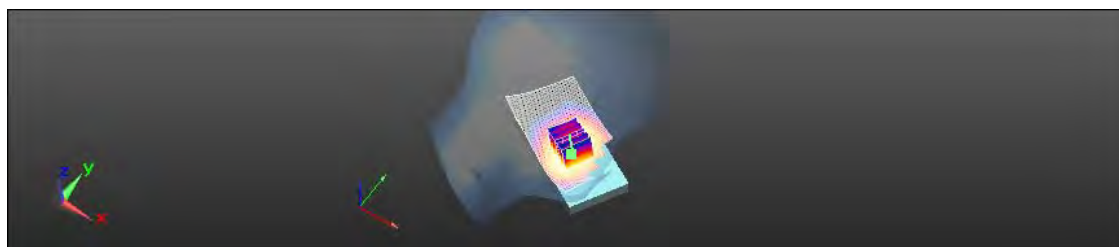
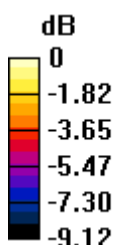
dx=8mm, dy=8mm, dz=5mm

Reference Value = 5.484 V/m; Power Drift = 0.12 dB

Peak SAR (extrapolated) = 0.3680

SAR(1 g) = 0.296 mW/g; SAR(10 g) = 0.224 mW/g

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



0 dB = 0.340mW/g = -9.37 dB mW/g

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Date: 2012/3/21

Le Tilt_CH190

Communication System: GSM; Communication System Band: GSM850; Frequency: 836.6 MHz;

Medium parameters used: $f = 837$ MHz; $\sigma = 0.888$ mho/m; $\epsilon_r = 40.859$; $\rho = 1000$ kg/m³

Phantom section: Left Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3831; ConvF(8.82, 8.82, 8.82); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2011/8/22
- Phantom: Head; Type: SAM;
- DASY52 52.8.0(692); SEMCAD X 14.6.4(4989)

Configuration/Head/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.272 mW/g

Configuration/Head/Zoom Scan (5x5x7)/Cube 0: Measurement grid:

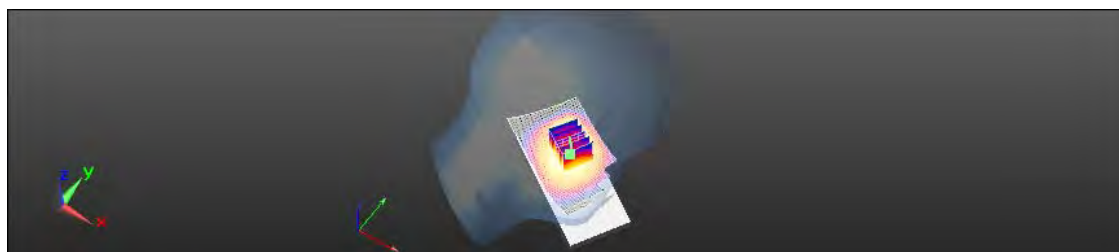
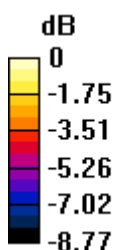
dx=8mm, dy=8mm, dz=5mm

Reference Value = 11.214 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 0.3070

SAR(1 g) = 0.243 mW/g; SAR(10 g) = 0.184 mW/g

Maximum value of SAR (measured) = 0.276 mW/g



0 dB = 0.280mW/g = -11.06 dB mW/g

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Date: 2012/3/21

Hotspot mode_GPRS 850_Front side_CH190

Communication System: GPRS-10; Communication System Band: GPRS850; Frequency: 836.6 MHz;

Medium parameters used: $f = 837$ MHz; $\sigma = 0.993$ mho/m; $\epsilon_r = 53.148$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3831; ConvF(9.02, 9.02, 9.02); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2011/8/22
- Phantom: Body; Type: QDOVA002AA; Serial: TP:xxxx
- DASY52 52.8.0(692); SEMCAD X 14.6.4(4989)

Configuration/Head/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.719 mW/g

Configuration/Head/Zoom Scan (5x5x7)/Cube 0: Measurement grid:

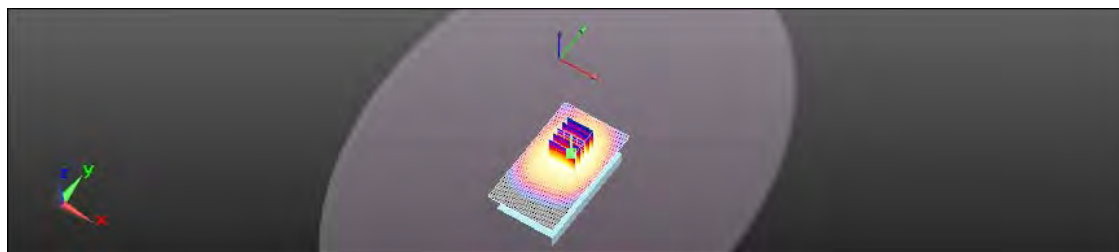
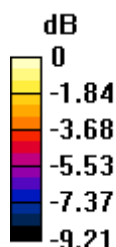
dx=8mm, dy=8mm, dz=5mm

Reference Value = 26.205 V/m; Power Drift = -0.16 dB

Peak SAR (extrapolated) = 0.7730

SAR(1 g) = 0.617 mW/g; SAR(10 g) = 0.467 mW/g

Maximum value of SAR (measured) = 0.708 mW/g



0 dB = 0.710mW/g = -2.97 dB mW/g

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Date: 2012/3/21

Hotspot mode_GPRS 850_Back side_CH128

Communication System: GPRS-10; Communication System Band: GPRS850; Frequency: 824.2 MHz;

Medium parameters used (interpolated): $f = 824.2$ MHz; $\sigma = 0.979$ mho/m; $\epsilon_r = 53.276$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3831; ConvF(9.02, 9.02, 9.02); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2011/8/22
- Phantom: Body; Type: QDOVA002AA; Serial: TP:xxxx
- DASY52 52.8.0(692); SEMCAD X 14.6.4(4989)

Configuration/Head/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 1.195 mW/g

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

Reference Value = 28.950 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 1.3870

SAR(1 g) = 0.909 mW/g; SAR(10 g) = 0.574 mW/g

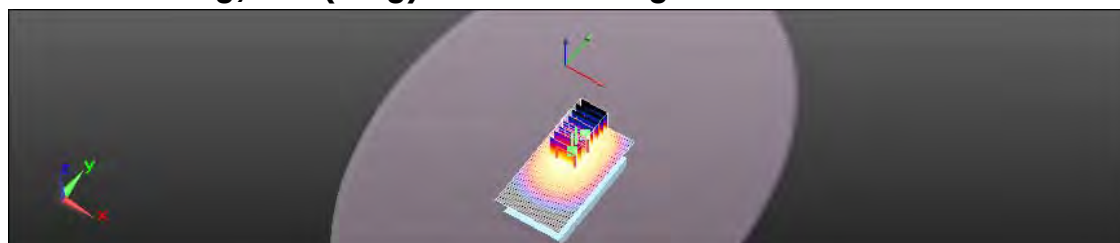
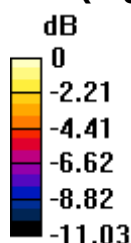
Maximum value of SAR (measured) = 1.171 mW/g

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

Reference Value = 28.950 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 1.3620

SAR(1 g) = 0.979 mW/g; SAR(10 g) = 0.705 mW/g



0 dB = 1.170mW/g = 1.36 dB mW/g

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Date: 2012/3/21

Hotspot mode_GPRS 850_Back side_CH190

Communication System: GPRS-10; Communication System Band: GPRS850; Frequency: 836.6 MHz;

Medium parameters used: $f = 837$ MHz; $\sigma = 0.993$ mho/m; $\epsilon_r = 53.148$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3831; ConvF(9.02, 9.02, 9.02); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2011/8/22
- Phantom: Body; Type: QDOVA002AA; Serial: TP:xxxx
- DASY52 52.8.0(692); SEMCAD X 14.6.4(4989)

Configuration/Head/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 1.326 mW/g

Configuration/Head/Zoom Scan (5x5x7)/Cube 0: Measurement grid:

dx=8mm, dy=8mm, dz=5mm

Reference Value = 30.804 V/m; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 1.5270

SAR(1 g) = 1.11 mW/g; SAR(10 g) = 0.796 mW/g

Maximum value of SAR (measured) = 1.334 mW/g

Configuration/Head/Zoom Scan (5x5x7)/Cube 1: Measurement grid:

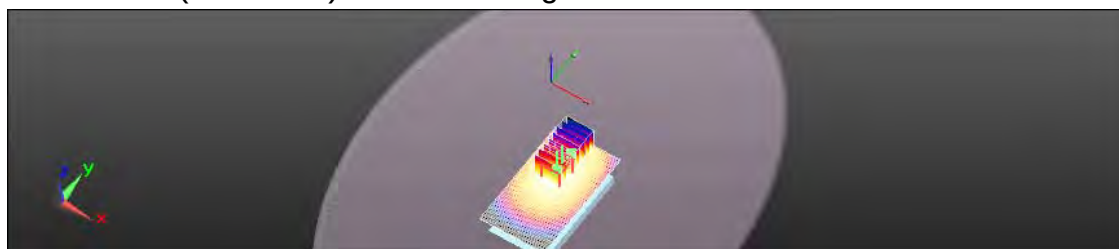
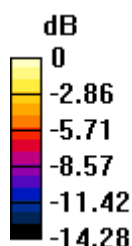
dx=8mm, dy=8mm, dz=5mm

Reference Value = 30.804 V/m; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 1.5480

SAR(1 g) = 1.01 mW/g; SAR(10 g) = 0.634 mW/g

Maximum value of SAR (measured) = 1.308 mW/g



0 dB = 1.310mW/g = 2.35 dB mW/g

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Hotspot mode_GPRS 850_Back side_CH251

Communication System: GPRS-10; Communication System Band: GPRS850; Frequency: 848.8 MHz;

Medium parameters used: $f = 849$ MHz; $\sigma = 1.006$ mho/m; $\epsilon_r = 53.029$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3831; ConvF(9.02, 9.02, 9.02); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2011/8/22
- Phantom: Body; Type: QDOVA002AA; Serial: TP:xxxx
- DASY52 52.8.0(692); SEMCAD X 14.6.4(4989)

Configuration/Head/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 1.557 mW/g

Configuration/Head/Zoom Scan (5x5x7)/Cube 0: Measurement grid:

dx=8mm, dy=8mm, dz=5mm

Reference Value = 33.355 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 1.7890

SAR(1 g) = 1.3 mW/g; SAR(10 g) = 0.936 mW/g

Maximum value of SAR (measured) = 1.567 mW/g

Configuration/Head/Zoom Scan (5x5x7)/Cube 1: Measurement grid:

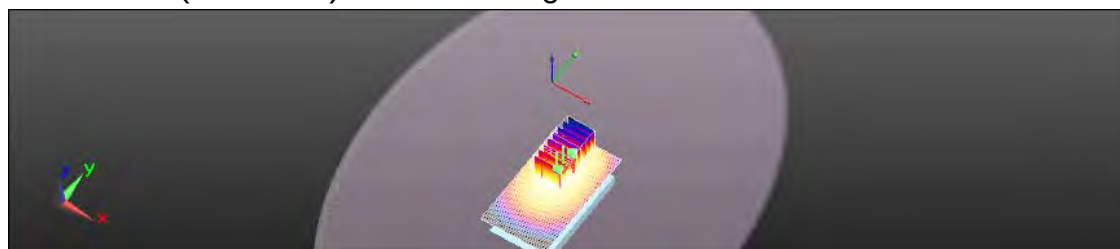
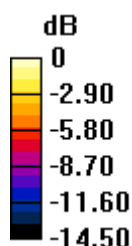
dx=8mm, dy=8mm, dz=5mm

Reference Value = 33.355 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 1.7850

SAR(1 g) = 1.16 mW/g; SAR(10 g) = 0.728 mW/g

Maximum value of SAR (measured) = 1.520 mW/g



0 dB = 1.520mW/g = 3.64 dB mW/g

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Date: 2012/3/21

Hotspot mode_GPRS 850_Back side_CH251_repeated with headset

Communication System: GPRS-10; Communication System Band: GPRS850; Frequency: 848.8 MHz;

Medium parameters used: $f = 849$ MHz; $\sigma = 1.006$ mho/m; $\epsilon_r = 53.029$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3831; ConvF(9.02, 9.02, 9.02); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2011/8/22
- Phantom: Body; Type: QDOVA002AA; Serial: TP:xxxx
- DASY52 52.8.0(692); SEMCAD X 14.6.4(4989)

Configuration/Head/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 1.529 mW/g

Configuration/Head/Zoom Scan (5x5x7)/Cube 0: Measurement grid:

dx=8mm, dy=8mm, dz=5mm

Reference Value = 29.005 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 1.8180

SAR(1 g) = 1.08 mW/g; SAR(10 g) = 0.684 mW/g

Maximum value of SAR (measured) = 1.447 mW/g

Configuration/Head/Zoom Scan (5x5x7)/Cube 1: Measurement grid:

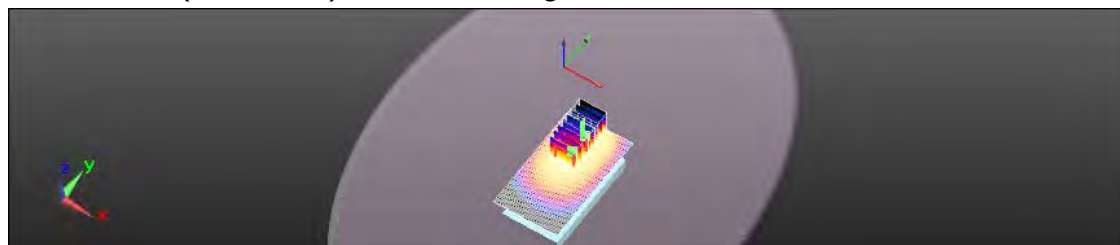
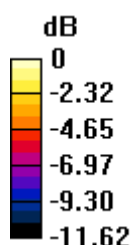
dx=8mm, dy=8mm, dz=5mm

Reference Value = 29.005 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 1.7410

SAR(1 g) = 1.1 mW/g; SAR(10 g) = 0.776 mW/g

Maximum value of SAR (measured) = 1.374 mW/g



0 dB = 1.370mW/g = 2.73 dB mW/g

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Hotspot mode_GPRS 850_Back side_CH251_repeated with memory card

Communication System: GPRS-10; Communication System Band: GPRS850; Frequency: 848.8 MHz;

Medium parameters used: $f = 849$ MHz; $\sigma = 1.006$ mho/m; $\epsilon_r = 53.029$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3831; ConvF(9.02, 9.02, 9.02); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2011/8/22
- Phantom: Body; Type: QDOVA002AA; Serial: TP:xxxx
- DASY52 52.8.0(692); SEMCAD X 14.6.4(4989)

Configuration/Head/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 1.602 mW/g

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

Reference Value = 33.525 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 1.8200

SAR(1 g) = 1.33 mW/g; SAR(10 g) = 0.958 mW/g

Maximum value of SAR (measured) = 1.610 mW/g

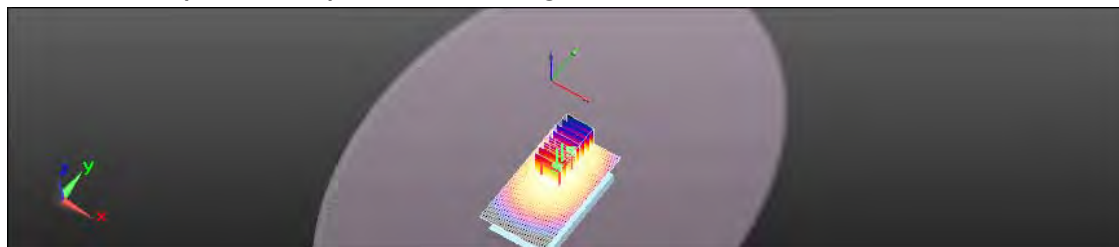
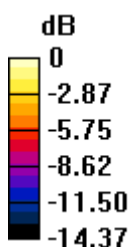
Configuration/Head/Zoom Scan (5x5x7)/Cube 1: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 33.525 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 1.8720

SAR(1 g) = 1.21 mW/g; SAR(10 g) = 0.762 mW/g

Maximum value of SAR (measured) = 1.571 mW/g



0 dB = 1.570mW/g = 3.92 dB mW/g

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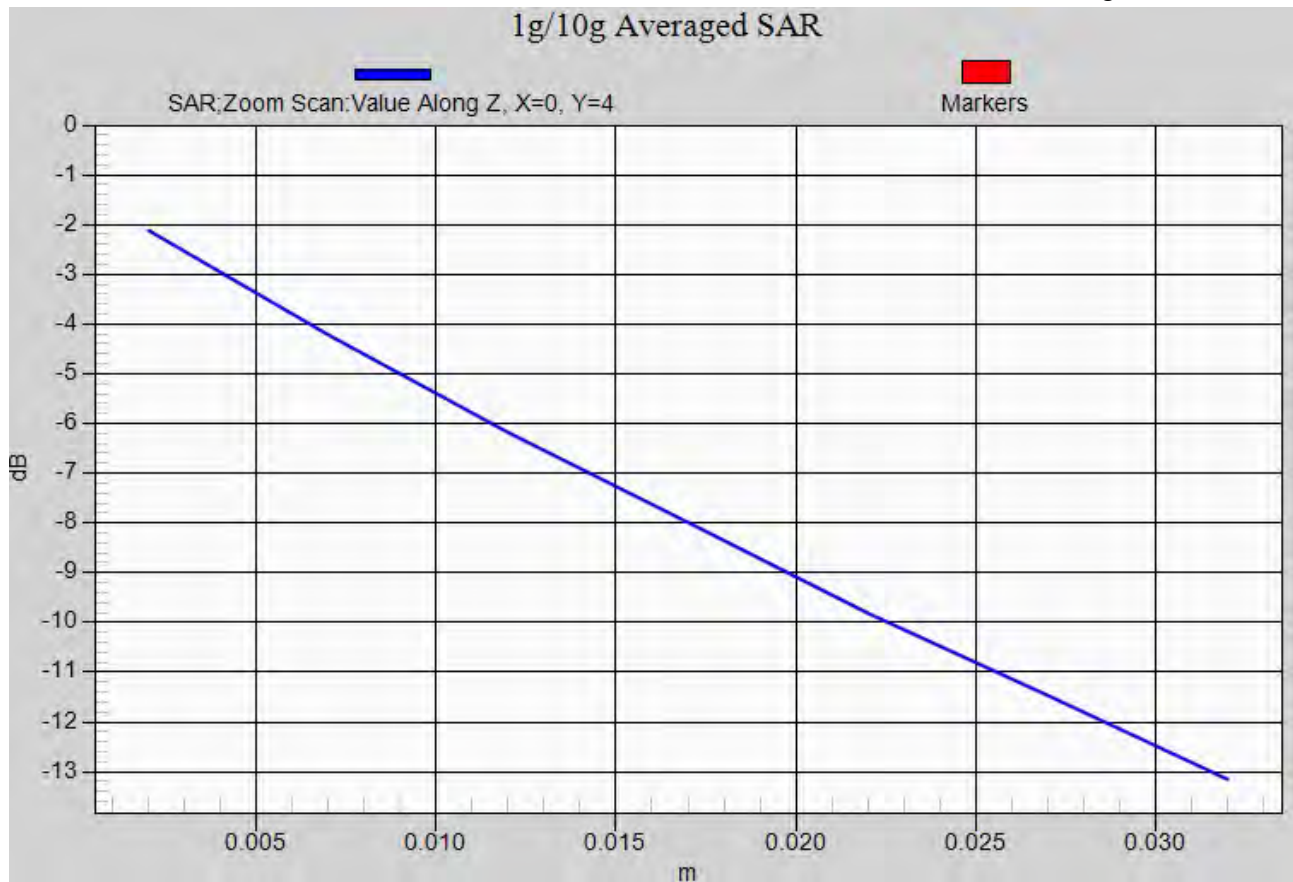
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Hotspot mode_GPRS 850_Bottom side_CH190

Communication System: GPRS-10; Communication System Band: GPRS850; Frequency: 836.6 MHz;

Medium parameters used: $f = 837$ MHz; $\sigma = 0.993$ mho/m; $\epsilon_r = 53.148$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3831; ConvF(9.02, 9.02, 9.02); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2011/8/22
- Phantom: Body; Type: QDOVA002AA; Serial: TP:xxxx
- DASY52 52.8.0(692); SEMCAD X 14.6.4(4989)

Configuration/Body/Area Scan (71x51x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.213 mW/g

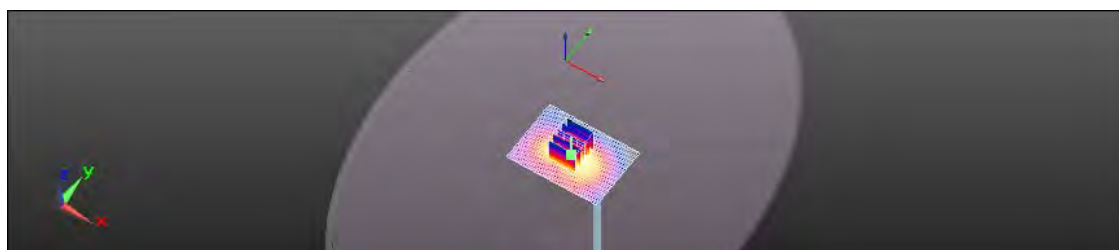
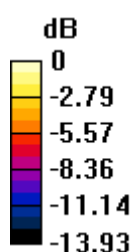
Configuration/Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 8.407 V/m; Power Drift = -0.03 dB

Peak SAR (extrapolated) = 0.2480

SAR(1 g) = 0.149 mW/g; SAR(10 g) = 0.088 mW/g

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



0 dB = 0.200mW/g = -13.98 dB mW/g

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Hotspot mode_GPRS 850_Right side_CH190

Communication System: GPRS-10; Communication System Band: GPRS850; Frequency: 836.6 MHz;

Medium parameters used: $f = 837$ MHz; $\sigma = 0.993$ mho/m; $\epsilon_r = 53.148$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3831; ConvF(9.02, 9.02, 9.02); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2011/8/22
- Phantom: Body; Type: QDOVA002AA; Serial: TP:xxxx
- DASY52 52.8.0(692); SEMCAD X 14.6.4(4989)

Configuration/Head/Area Scan (41x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.826 mW/g

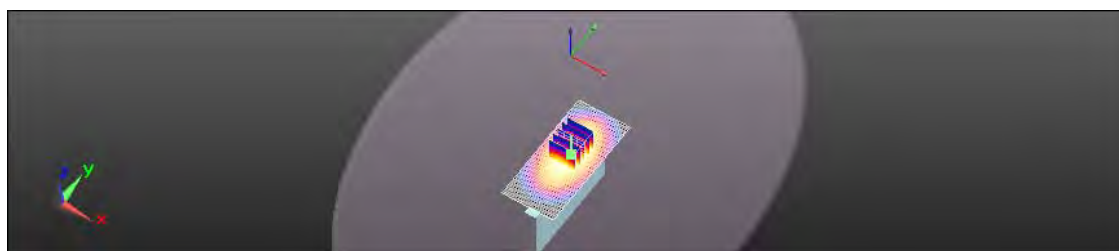
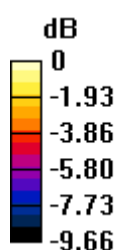
Configuration/Head/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 26.253 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 0.9510

SAR(1 g) = 0.675 mW/g; SAR(10 g) = 0.470 mW/g

Maximum value of SAR (measured) = 0.829 mW/g



0 dB = 0.830mW/g = -1.62 dB mW/g

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Date: 2012/3/21

Hotspot mode_GPRS 850_Left side_CH190

Communication System: GPRS-10; Communication System Band: GPRS850; Frequency: 836.6 MHz;

Medium parameters used: $f = 837 \text{ MHz}$; $\sigma = 0.993 \text{ mho/m}$; $\epsilon_r = 53.148$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3831; ConvF(9.02, 9.02, 9.02); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2011/8/22
- Phantom: Body; Type: QDOVA002AA; Serial: TP:xxxx
- DASY52 52.8.0(692); SEMCAD X 14.6.4(4989)

Configuration/Head/Area Scan (41x91x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.507 mW/g

Configuration/Head/Zoom Scan (5x5x7)/Cube 0: Measurement grid:

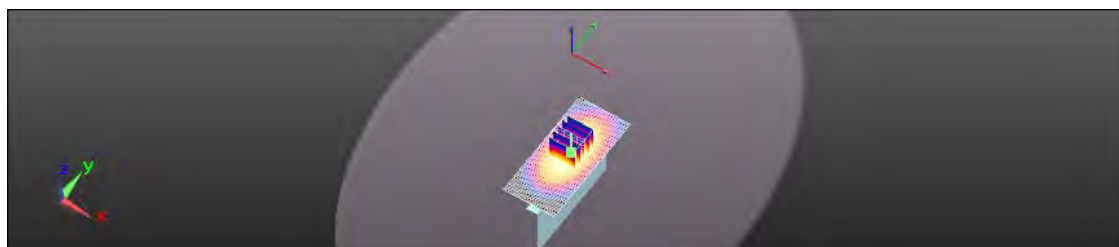
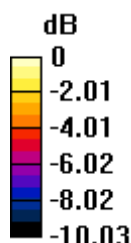
$dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 20.406 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 0.5890

SAR(1 g) = 0.412 mW/g; SAR(10 g) = 0.283 mW/g

Maximum value of SAR (measured) = 0.510 mW/g



0 dB = 0.510mW/g = -5.85 dB mW/g

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Date: 2012/3/21

Re Cheek_CH512

Communication System: GSM; Communication System Band: GSM1900; Frequency: 1850.2 MHz;

Medium parameters used (interpolated): $f = 1850.2$ MHz; $\sigma = 1.432$ mho/m; $\epsilon_r = 39.081$; $\rho = 1000$ kg/m³

Phantom section: Right Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3831; ConvF(7.76, 7.76, 7.76); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2011/8/22
- Phantom: Head; Type: SAM;
- DASY52 52.8.0(692); SEMCAD X 14.6.4(4989)

Configuration/Head/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm

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

Configuration/Head/Zoom Scan (5x5x7)/Cube 0: Measurement grid:

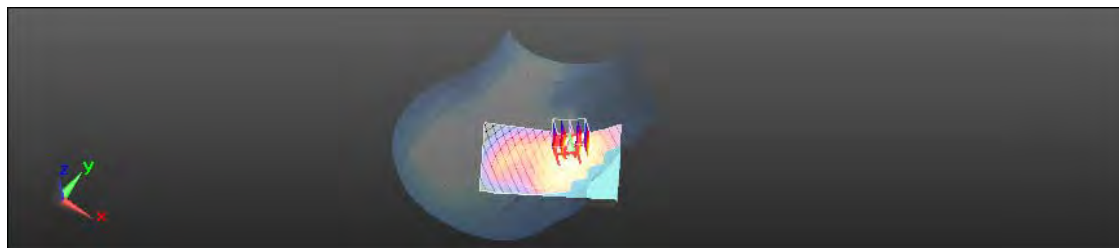
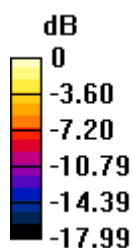
dx=8mm, dy=8mm, dz=5mm

Reference Value = 8.366 V/m; Power Drift = 0.16 dB

Peak SAR (extrapolated) = 0.7480

SAR(1 g) = 0.491 mW/g; SAR(10 g) = 0.305 mW/g

Maximum value of SAR (measured) = 0.625 mW/g



0 dB = 0.630mW/g = -4.01 dB mW/g

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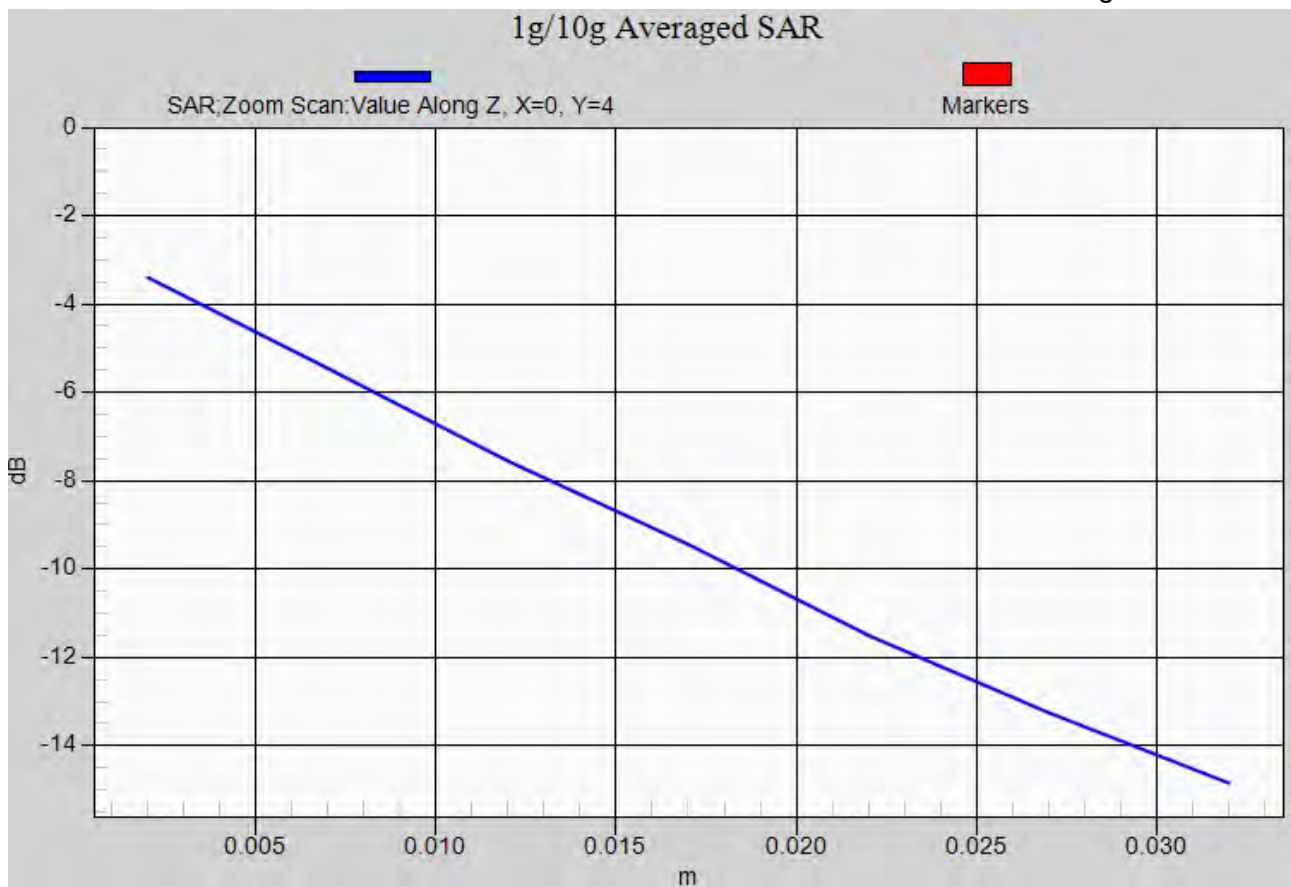
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Re Cheek_CH661

Communication System: GSM; Communication System Band: GSM1900; Frequency: 1880 MHz;

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.44$ mho/m; $\epsilon_r = 39.082$; $\rho = 1000$ kg/m³

Phantom section: Right Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3831; ConvF(7.76, 7.76, 7.76); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2011/8/22
- Phantom: Head; Type: SAM;
- DASY52 52.8.0(692); SEMCAD X 14.6.4(4989)

Configuration/Head/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.654 mW/g

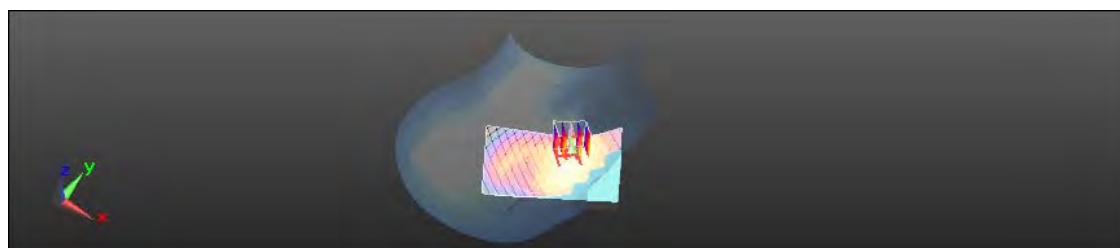
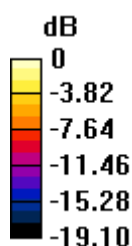
Configuration/Head/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 8.223 V/m; Power Drift = -0.12 dB

Peak SAR (extrapolated) = 0.7200

SAR(1 g) = 0.470 mW/g; SAR(10 g) = 0.289 mW/g

Maximum value of SAR (measured) = 0.598 mW/g



0 dB = 0.600mW/g = -4.44 dB mW/g

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Date: 2012/3/21

Re Cheek_CH810

Communication System: GSM; Communication System Band: GSM1900; Frequency: 1909.8 MHz;

Medium parameters used: $f = 1910$ MHz; $\sigma = 1.465$ mho/m; $\epsilon_r = 38.905$; $\rho = 1000$ kg/m³

Phantom section: Right Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3831; ConvF(7.76, 7.76, 7.76); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2011/8/22
- Phantom: Head; Type: SAM;
- DASY52 52.8.0(692); SEMCAD X 14.6.4(4989)

Configuration/Head/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.540 mW/g

Configuration/Head/Zoom Scan (5x5x7)/Cube 0: Measurement grid:

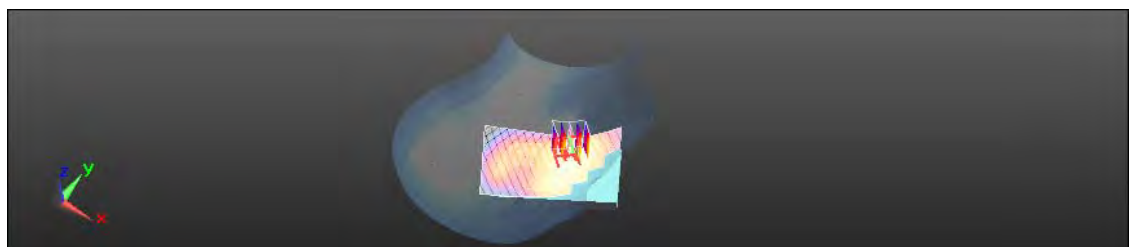
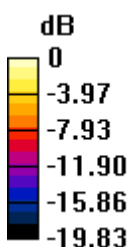
dx=8mm, dy=8mm, dz=5mm

Reference Value = 7.970 V/m; Power Drift = 0.06 dB

Peak SAR (extrapolated) = 0.5990

SAR(1 g) = 0.386 mW/g; SAR(10 g) = 0.235 mW/g

Maximum value of SAR (measured) = 0.490 mW/g



0 dB = 0.490mW/g = -6.20 dB mW/g

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Date: 2012/3/21

Re Cheek_CH512_repeated with memory card

Communication System: GSM; Communication System Band: GSM1900; Frequency: 1850.2 MHz;

Medium parameters used (interpolated): $f = 1850.2$ MHz; $\sigma = 1.432$ mho/m; $\epsilon_r = 39.081$; $\rho = 1000$ kg/m³

Phantom section: Right Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3831; ConvF(7.76, 7.76, 7.76); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2011/8/22
- Phantom: Head; Type: SAM;
- DASY52 52.8.0(692); SEMCAD X 14.6.4(4989)

Configuration/Head/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.662 mW/g

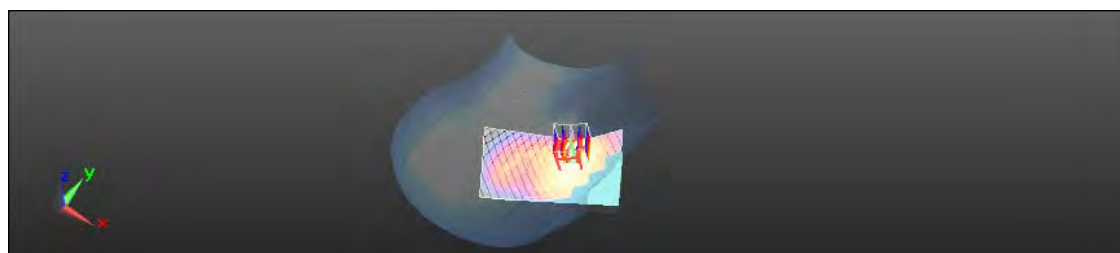
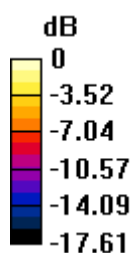
Configuration/Head/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 8.515 V/m; Power Drift = -0.12 dB

Peak SAR (extrapolated) = 0.7430

SAR(1 g) = 0.487 mW/g; SAR(10 g) = 0.301 mW/g

Maximum value of SAR (measured) = 0.625 mW/g



0 dB = 0.620mW/g = -4.15 dB mW/g

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Date: 2012/3/21

Re Tilt_CH661

Communication System: GSM; Communication System Band: GSM1900; Frequency: 1880 MHz;

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.44$ mho/m; $\epsilon_r = 39.082$; $\rho = 1000$ kg/m³

Phantom section: Right Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3831; ConvF(7.76, 7.76, 7.76); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2011/8/22
- Phantom: Head; Type: SAM;
- DASY52 52.8.0(692); SEMCAD X 14.6.4(4989)

Configuration/Head/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.341 mW/g

Configuration/Head/Zoom Scan (5x5x7)/Cube 0: Measurement grid:

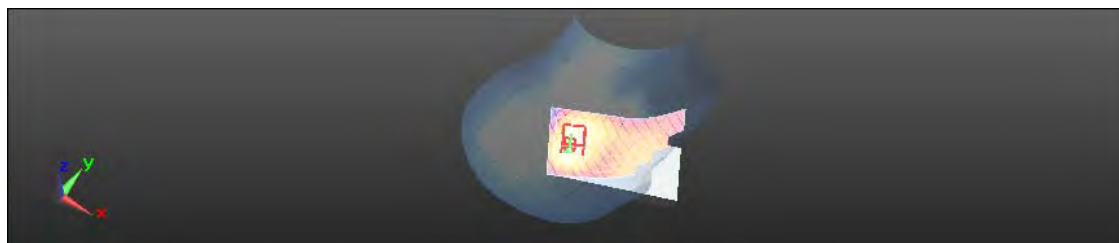
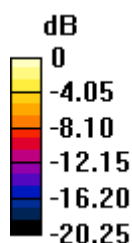
dx=8mm, dy=8mm, dz=5mm

Reference Value = 13.142 V/m; Power Drift = 0.0028 dB

Peak SAR (extrapolated) = 0.3810

SAR(1 g) = 0.234 mW/g; SAR(10 g) = 0.139 mW/g

Maximum value of SAR (measured) = 0.313 mW/g



0 dB = 0.310mW/g = -10.17 dB mW/g

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Date: 2012/3/21

Le Cheek_CH661

Communication System: GSM; Communication System Band: GSM1900; Frequency: 1880 MHz;

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.44$ mho/m; $\epsilon_r = 39.082$; $\rho = 1000$ kg/m³

Phantom section: Left Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3831; ConvF(7.76, 7.76, 7.76); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2011/8/22
- Phantom: Head; Type: SAM;
- DASY52 52.8.0(692); SEMCAD X 14.6.4(4989)

Configuration/Head/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.590 mW/g

Configuration/Head/Zoom Scan (5x5x7)/Cube 0: Measurement grid:

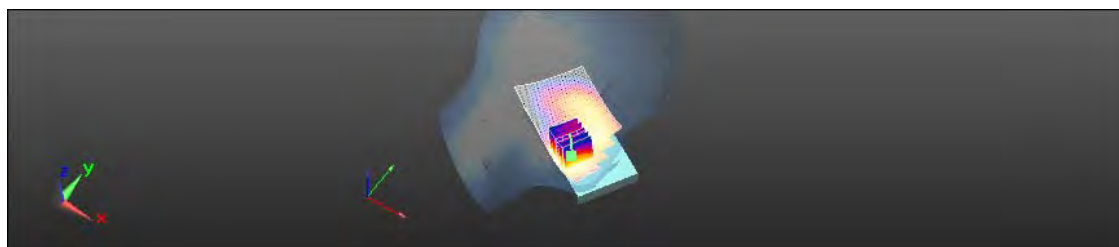
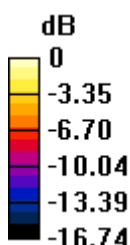
dx=8mm, dy=8mm, dz=5mm

Reference Value = 6.864 V/m; Power Drift = 0.15 dB

Peak SAR (extrapolated) = 0.6940

SAR(1 g) = 0.435 mW/g; SAR(10 g) = 0.266 mW/g

Maximum value of SAR (measured) = 0.552 mW/g



0 dB = 0.550mW/g = -5.19 dB mW/g

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Date: 2012/3/21

Le Tilt_CH661

Communication System: GSM; Communication System Band: GSM1900; Frequency: 1880 MHz;

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.44$ mho/m; $\epsilon_r = 39.082$; $\rho = 1000$ kg/m³

Phantom section: Left Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3831; ConvF(7.76, 7.76, 7.76); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2011/8/22
- Phantom: Head; Type: SAM;
- DASY52 52.8.0(692); SEMCAD X 14.6.4(4989)

Configuration/Head/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.328 mW/g

Configuration/Head/Zoom Scan (5x5x7)/Cube 0: Measurement grid:

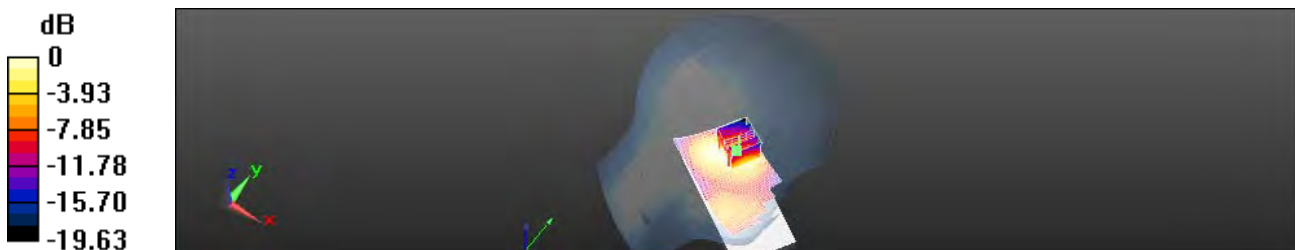
dx=8mm, dy=8mm, dz=5mm

Reference Value = 11.250 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 0.3670

SAR(1 g) = 0.242 mW/g; SAR(10 g) = 0.147 mW/g

Maximum value of SAR (measured) = 0.308 mW/g



0 dB = 0.310mW/g = -10.17 dB mW/g

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Date: 2012/3/21

Hotspot mode_GPRS 1900_Front side_CH661

Communication System: GPRS-10; Communication System Band: GPRS1900; Frequency: 1880 MHz;

Medium parameters used: $f = 1880 \text{ MHz}$; $\sigma = 1.557 \text{ mho/m}$; $\epsilon_r = 49.397$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3831; ConvF(7.25, 7.25, 7.25); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2011/8/22
- Phantom: Body; Type: QDOVA002AA; Serial: TP:xxxx
- DASY52 52.8.0(692); SEMCAD X 14.6.4(4989)

Configuration/Head/Area Scan (51x91x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.958 mW/g

Configuration/Head/Zoom Scan (5x5x7)/Cube 0: Measurement grid:

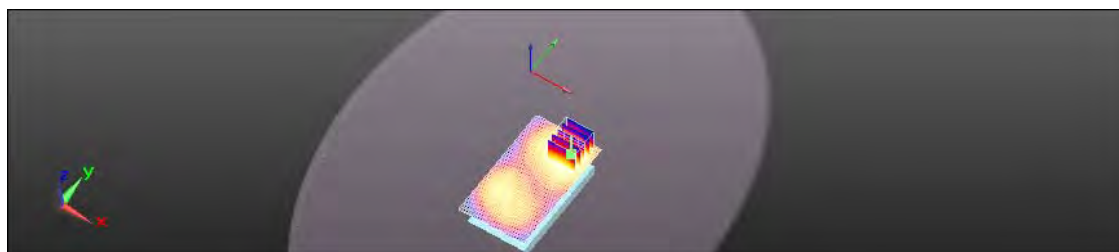
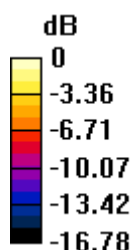
$dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 9.655 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 1.1030

SAR(1 g) = 0.682 mW/g; SAR(10 g) = 0.425 mW/g

Maximum value of SAR (measured) = 0.891 mW/g



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

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www.sgs.com.tw

Date: 2012/3/21

Hotspot mode_GPRS 1900_Back side_CH512

Communication System: GPRS-10; Communication System Band: GPRS1900; Frequency: 1850.2 MHz;

Medium parameters used (interpolated): $f = 1850.2$ MHz; $\sigma = 1.528$ mho/m; $\epsilon_r = 49.501$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3831; ConvF(7.25, 7.25, 7.25); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2011/8/22
- Phantom: Body; Type: QDOVA002AA; Serial: TP:xxxx
- DASY52 52.8.0(692); SEMCAD X 14.6.4(4989)

Configuration/Head/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 1.602 mW/g

Configuration/Head/Zoom Scan (5x5x7)/Cube 0: Measurement grid:

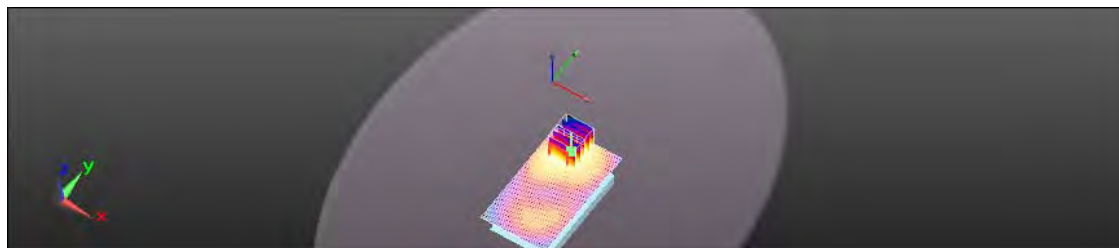
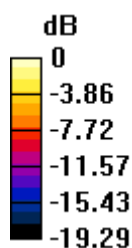
dx=8mm, dy=8mm, dz=5mm

Reference Value = 9.689 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 2.2240

SAR(1 g) = 1.21 mW/g; SAR(10 g) = 0.664 mW/g

Maximum value of SAR (measured) = 1.650 mW/g



0 dB = 1.650mW/g = 4.35 dB mW/g

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Date: 2012/3/21

Hotspot mode_GPRS 1900_Back side_CH661

Communication System: GPRS-10; Communication System Band: GPRS1900; Frequency: 1880 MHz;

Medium parameters used: $f = 1880 \text{ MHz}$; $\sigma = 1.557 \text{ mho/m}$; $\epsilon_r = 49.397$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3831; ConvF(7.25, 7.25, 7.25); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2011/8/22
- Phantom: Body; Type: QDOVA002AA; Serial: TP:xxxx
- DASY52 52.8.0(692); SEMCAD X 14.6.4(4989)

Configuration/Head/Area Scan (51x91x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 1.428 mW/g

Configuration/Head/Zoom Scan (5x5x7)/Cube 0: Measurement grid:

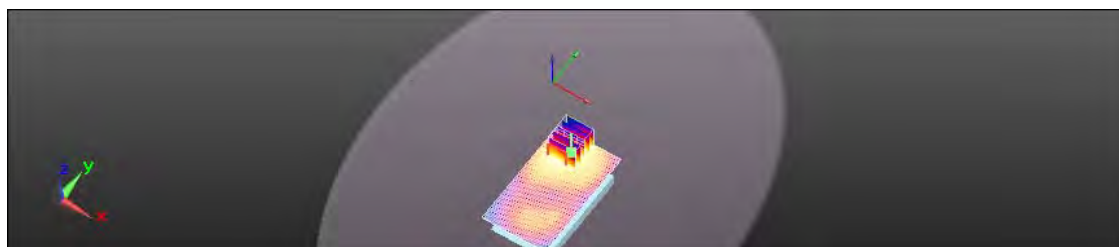
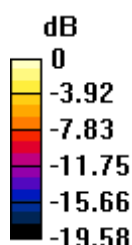
$dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 10.096 V/m; Power Drift = 0.11 dB

Peak SAR (extrapolated) = 2.0550

SAR(1 g) = 1.09 mW/g; SAR(10 g) = 0.593 mW/g

Maximum value of SAR (measured) = 1.489 mW/g



0 dB = 1.490mW/g = 3.46 dB mW/g

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Date: 2012/3/21

Hotspot mode_GPRS 1900_Back side_CH810

Communication System: GPRS-10; Communication System Band: GPRS1900; Frequency: 1909.8 MHz;

Medium parameters used: $f = 1910$ MHz; $\sigma = 1.589$ mho/m; $\epsilon_r = 49.294$; $\rho = 1000$ kg/m³
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3831; ConvF(7.25, 7.25, 7.25); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2011/8/22
- Phantom: Body; Type: QDOVA002AA; Serial: TP:xxxx
- DASY52 52.8.0(692); SEMCAD X 14.6.4(4989)

Configuration/Head/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 1.235 mW/g

Configuration/Head/Zoom Scan (5x5x7)/Cube 0: Measurement grid:

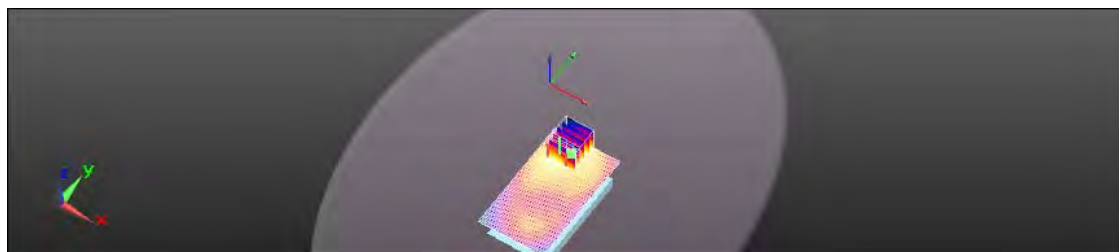
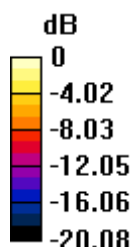
dx=8mm, dy=8mm, dz=5mm

Reference Value = 9.935 V/m; Power Drift = 0.0054 dB

Peak SAR (extrapolated) = 1.8770

SAR(1 g) = 0.964 mW/g; SAR(10 g) = 0.502 mW/g

Maximum value of SAR (measured) = 1.372 mW/g



0 dB = 1.370mW/g = 2.73 dB mW/g

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Date: 2012/3/21

Hotspot mode_GPRS 1900_Bottom side_CH661

Communication System: GPRS-10; Communication System Band: GPRS1900; Frequency: 1880 MHz;

Medium parameters used: $f = 1880 \text{ MHz}$; $\sigma = 1.557 \text{ mho/m}$; $\epsilon_r = 49.397$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3831; ConvF(7.25, 7.25, 7.25); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2011/8/22
- Phantom: Body; Type: QDOVA002AA; Serial: TP:xxxx
- DASY52 52.8.0(692); SEMCAD X 14.6.4(4989)

Configuration/Body/Area Scan (71x51x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.835 mW/g

Configuration/Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid:

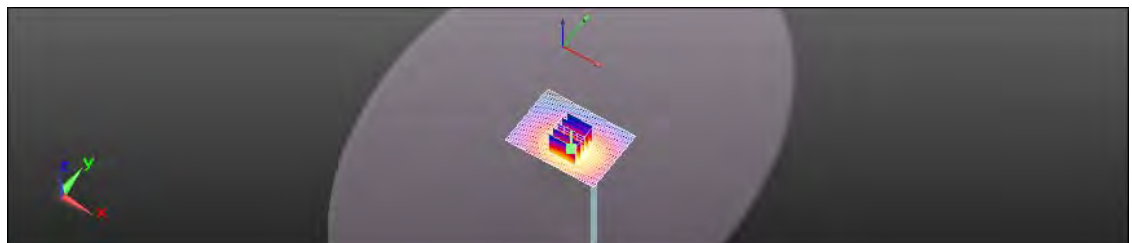
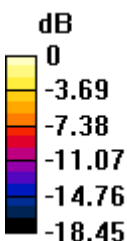
$dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 17.882 V/m ; Power Drift = -0.03 dB

Peak SAR (extrapolated) = 1.0270

SAR(1 g) = 0.592 mW/g ; SAR(10 g) = 0.322 mW/g

Maximum value of SAR (measured) = 0.824 mW/g



$0 \text{ dB} = 0.820 \text{ mW/g} = -1.72 \text{ dB mW/g}$

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www.sgs.com.tw

Date: 2012/3/21

Hotspot mode_GPRS 1900_Right side_CH661

Communication System: GPRS-10; Communication System Band: GPRS1900; Frequency: 1880 MHz;

Medium parameters used: $f = 1880 \text{ MHz}$; $\sigma = 1.557 \text{ mho/m}$; $\epsilon_r = 49.397$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3831; ConvF(7.25, 7.25, 7.25); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2011/8/22
- Phantom: Body; Type: QDOVA002AA; Serial: TP:xxxx
- DASY52 52.8.0(692); SEMCAD X 14.6.4(4989)

Configuration/Head/Area Scan (41x91x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

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

Configuration/Head/Zoom Scan (5x5x7)/Cube 0: Measurement grid:

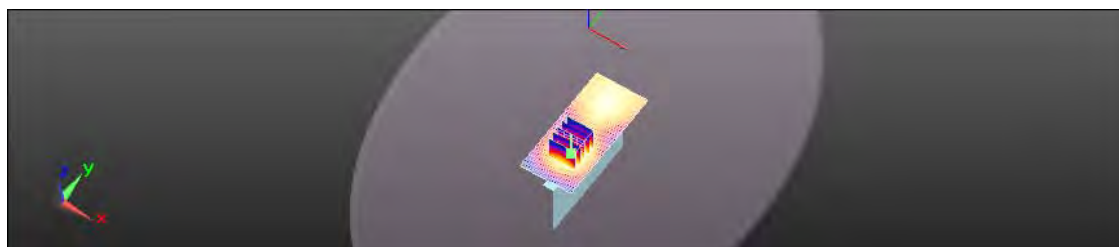
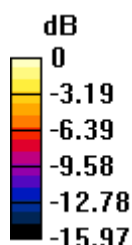
$dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 6.900 V/m; Power Drift = 0.05 dB

Peak SAR (extrapolated) = 0.2850

SAR(1 g) = 0.175 mW/g; SAR(10 g) = 0.102 mW/g

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



0 dB = 0.230mW/g = -12.77 dB mW/g

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Date: 2012/3/21

Hotspot mode_GPRS 1900_Left side_CH661

Communication System: GPRS-10; Communication System Band: GPRS1900; Frequency: 1880 MHz;

Medium parameters used: $f = 1880 \text{ MHz}$; $\sigma = 1.557 \text{ mho/m}$; $\epsilon_r = 49.397$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3831; ConvF(7.25, 7.25, 7.25); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2011/8/22
- Phantom: Body; Type: QDOVA002AA; Serial: TP:xxxx
- DASY52 52.8.0(692); SEMCAD X 14.6.4(4989)

Configuration/Head/Area Scan (41x91x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.365 mW/g

Configuration/Head/Zoom Scan (5x5x7)/Cube 0: Measurement grid:

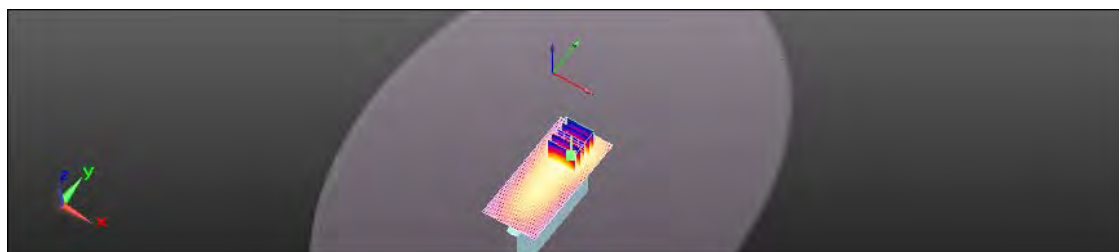
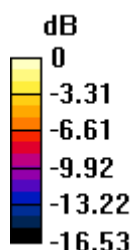
$dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 10.412 V/m; Power Drift = 0.0097 dB

Peak SAR (extrapolated) = 0.4400

SAR(1 g) = 0.267 mW/g; SAR(10 g) = 0.158 mW/g

Maximum value of SAR (measured) = 0.358 mW/g



0 dB = 0.360mW/g = -8.87 dB mW/g

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Date: 2012/3/25

Re Cheek_WLAN802.11 b_CH1

Communication System: WLAN(2.45G); Communication System Band: WLAN802.11 b_FCC;
Frequency: 2412 MHz;

Medium parameters used: $f = 2412$ MHz; $\sigma = 1.756$ mho/m; $\epsilon_r = 37.932$; $\rho = 1000$ kg/m³

Phantom section: Right Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3831; ConvF(6.84, 6.84, 6.84); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2011/8/22
- Phantom: Head; Type: SAM;
- DASY52 52.8.0(692); SEMCAD X 14.6.4(4989)

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

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

Configuration/Head/Zoom Scan (5x5x7)/Cube 0: Measurement grid:

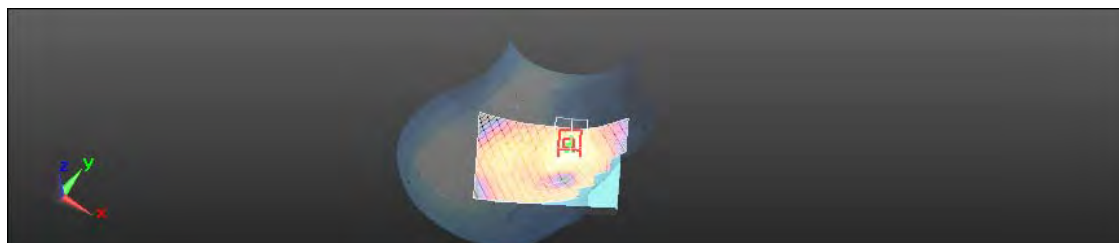
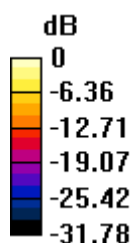
dx=8mm, dy=8mm, dz=5mm

Reference Value = 3.065 V/m; Power Drift = 0.15 dB

Peak SAR (extrapolated) = 0.1850

SAR(1 g) = 0.089 mW/g; SAR(10 g) = 0.042 mW/g

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



0 dB = 0.140mW/g = -17.08 dB mW/g

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www.sgs.com.tw

Date: 2012/3/25

Re Cheek_WLAN802.11 b_CH6

Communication System: WLAN(2.45G); Communication System Band: WLAN802.11 b_FCC;
Frequency: 2437 MHz;

Medium parameters used: $f = 2437$ MHz; $\sigma = 1.78$ mho/m; $\epsilon_r = 37.832$; $\rho = 1000$ kg/m³

Phantom section: Right Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3831; ConvF(6.84, 6.84, 6.84); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2011/8/22
- Phantom: Head; Type: SAM;
- DASY52 52.8.0(692); SEMCAD X 14.6.4(4989)

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

Maximum value of SAR (interpolated) = 0.168 mW/g

Configuration/Head/Zoom Scan (5x5x7)/Cube 0: Measurement grid:

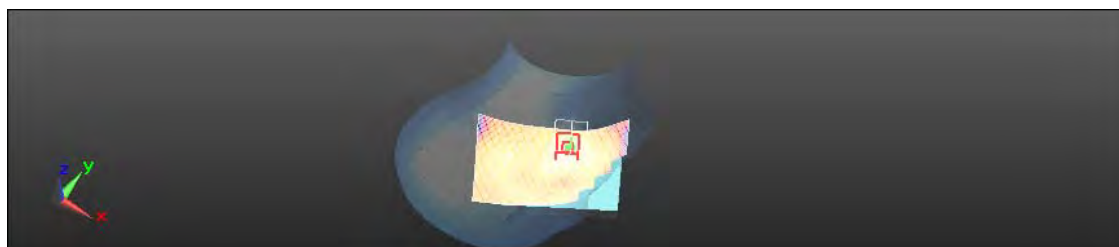
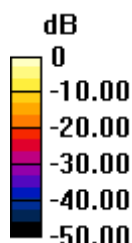
dx=8mm, dy=8mm, dz=5mm

Reference Value = 3.525 V/m; Power Drift = -0.18 dB

Peak SAR (extrapolated) = 0.2400

SAR(1 g) = 0.115 mW/g; SAR(10 g) = 0.055 mW/g

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



0 dB = 0.170mW/g = -15.39 dB mW/g

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Date: 2012/3/25

Re Cheek_WLAN802.11 b_CH11

Communication System: WLAN(2.45G); Communication System Band: WLAN802.11 b_FCC;
Frequency: 2462 MHz;

Medium parameters used: $f = 2462 \text{ MHz}$; $\sigma = 1.80 \text{ mho/m}$; $\epsilon_r = 37.725$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Right Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3831; ConvF(6.84, 6.84, 6.84); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2011/8/22
- Phantom: Head; Type: SAM;
- DASY52 52.8.0(692); SEMCAD X 14.6.4(4989)

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

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

Configuration/Head/Zoom Scan (5x5x7)/Cube 0: Measurement grid:

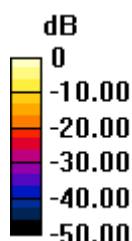
$dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 3.215 V/m ; Power Drift = -0.14 dB

Peak SAR (extrapolated) = 0.2290

SAR(1 g) = 0.111 mW/g ; SAR(10 g) = 0.053 mW/g

Maximum value of SAR (measured) = 0.169 mW/g



$0 \text{ dB} = 0.170\text{mW/g} = -15.39 \text{ dB mW/g}$

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Date: 2012/3/25

Re Cheek_WLAN802.11 b_CH6_repeated with Bluetooth active

Communication System: WLAN(2.45G); Communication System Band: WLAN802.11 b_FCC;
Frequency: 2437 MHz;

Medium parameters used: $f = 2437 \text{ MHz}$; $\sigma = 1.78 \text{ mho/m}$; $\epsilon_r = 37.832$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Right Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3831; ConvF(6.84, 6.84, 6.84); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2011/8/22
- Phantom: Head; Type: SAM;
- DASY52 52.8.0(692); SEMCAD X 14.6.4(4989)

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

Maximum value of SAR (interpolated) = 0.175 mW/g

Configuration/Head/Zoom Scan (5x5x7)/Cube 0: Measurement grid:

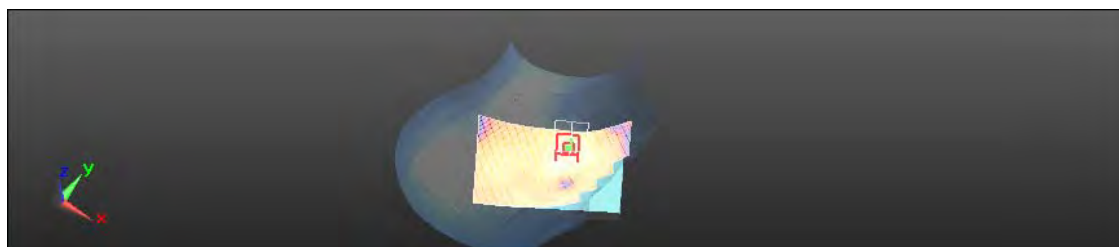
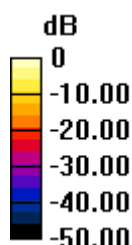
$dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 3.493 V/m ; Power Drift = 0.07 dB

Peak SAR (extrapolated) = 0.2430

SAR(1 g) = 0.118 mW/g ; SAR(10 g) = 0.056 mW/g

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



$0 \text{ dB} = 0.180 \text{ mW/g} = -14.89 \text{ dB mW/g}$

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Date: 2012/3/25

Re Cheek_WLAN802.11 b_CH6_repeated with memory card

Communication System: WLAN(2.45G); Communication System Band: WLAN802.11 b_FCC;
Frequency: 2437 MHz;

Medium parameters used: $f = 2437$ MHz; $\sigma = 1.78$ mho/m; $\epsilon_r = 37.832$; $\rho = 1000$ kg/m³

Phantom section: Right Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3831; ConvF(6.84, 6.84, 6.84); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2011/8/22
- Phantom: Head; Type: SAM;
- DASY52 52.8.0(692); SEMCAD X 14.6.4(4989)

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

Maximum value of SAR (interpolated) = 0.162 mW/g

Configuration/Head/Zoom Scan (5x5x7)/Cube 0: Measurement grid:

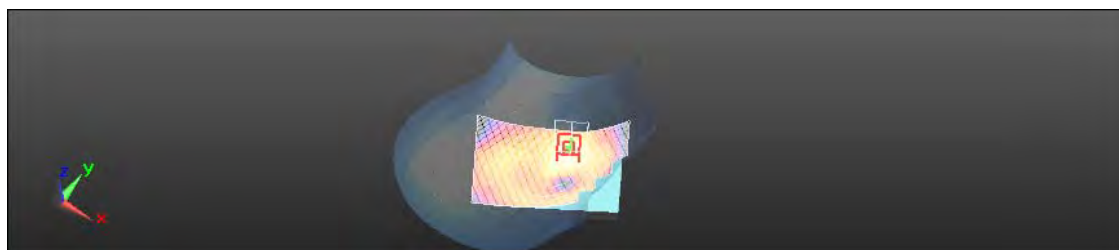
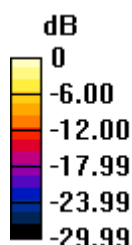
dx=8mm, dy=8mm, dz=5mm

Reference Value = 3.418 V/m; Power Drift = -0.14 dB

Peak SAR (extrapolated) = 0.2120

SAR(1 g) = 0.104 mW/g; SAR(10 g) = 0.049 mW/g

Maximum value of SAR (measured) = 0.155 mW/g



0 dB = 0.160mW/g = -15.92 dB mW/g

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Date: 2012/3/25

Re Tilt_WLAN802.11 b_CH6

Communication System: WLAN(2.45G); Communication System Band: WLAN802.11 b_FCC;
Frequency: 2437 MHz;

Medium parameters used: $f = 2437 \text{ MHz}$; $\sigma = 1.78 \text{ mho/m}$; $\epsilon_r = 37.832$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Right Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3831; ConvF(6.84, 6.84, 6.84); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2011/8/22
- Phantom: Head; Type: SAM;
- DASY52 52.8.0(692); SEMCAD X 14.6.4(4989)

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

Maximum value of SAR (interpolated) = 0.072 mW/g

Configuration/Head/Zoom Scan (5x5x7)/Cube 0: Measurement grid:

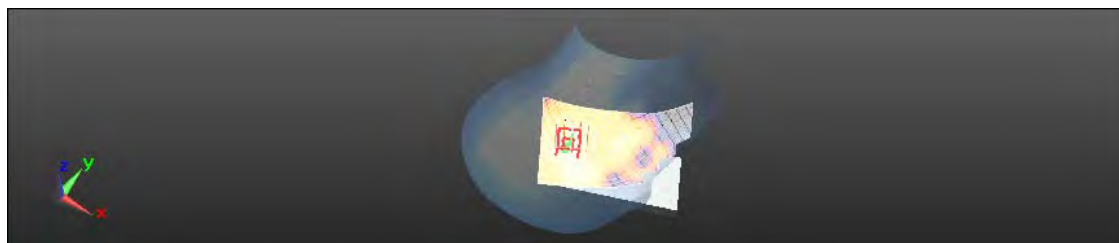
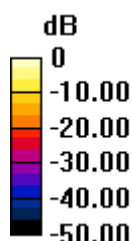
$dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 5.101 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 0.0980

SAR(1 g) = 0.052 mW/g; SAR(10 g) = 0.026 mW/g

Maximum value of SAR (measured) = 0.075 mW/g



0 dB = 0.080mW/g = -21.94 dB mW/g

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Date: 2012/3/25

Le Cheek_WLAN802.11 b_CH6

Communication System: WLAN(2.45G); Communication System Band: WLAN802.11 b_FCC;
Frequency: 2437 MHz;

Medium parameters used: $f = 2437 \text{ MHz}$; $\sigma = 1.78 \text{ mho/m}$; $\epsilon_r = 37.832$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3831; ConvF(6.84, 6.84, 6.84); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2011/8/22
- Phantom: Head; Type: SAM;
- DASY52 52.8.0(692); SEMCAD X 14.6.4(4989)

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

Maximum value of SAR (interpolated) = 0.112 mW/g

Configuration/Head/Zoom Scan (5x5x7)/Cube 0: Measurement grid:

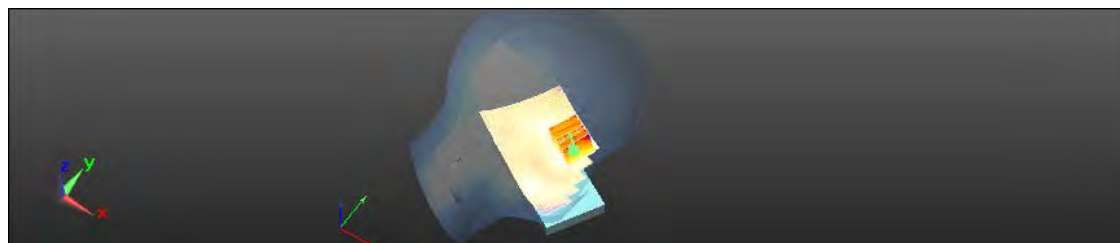
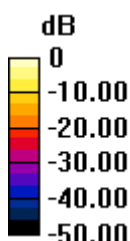
$dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 3.535 V/m ; Power Drift = -0.10 dB

Peak SAR (extrapolated) = 0.1440

SAR(1 g) = 0.072 mW/g ; SAR(10 g) = 0.038 mW/g

Maximum value of SAR (measured) = 0.107 mW/g



$0 \text{ dB} = 0.110\text{mW/g} = -19.17 \text{ dB mW/g}$

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Date: 2012/3/25

Le Tilt_WLAN802.11 b_CH6

Communication System: WLAN(2.45G); Communication System Band: WLAN802.11 b_FCC;
Frequency: 2437 MHz;

Medium parameters used: $f = 2437 \text{ MHz}$; $\sigma = 1.78 \text{ mho/m}$; $\epsilon_r = 37.832$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3831; ConvF(6.84, 6.84, 6.84); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2011/8/22
- Phantom: Head; Type: SAM;
- DASY52 52.8.0(692); SEMCAD X 14.6.4(4989)

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

Maximum value of SAR (interpolated) = 0.114 mW/g

Configuration/Head/Zoom Scan (5x5x7)/Cube 0: Measurement grid:

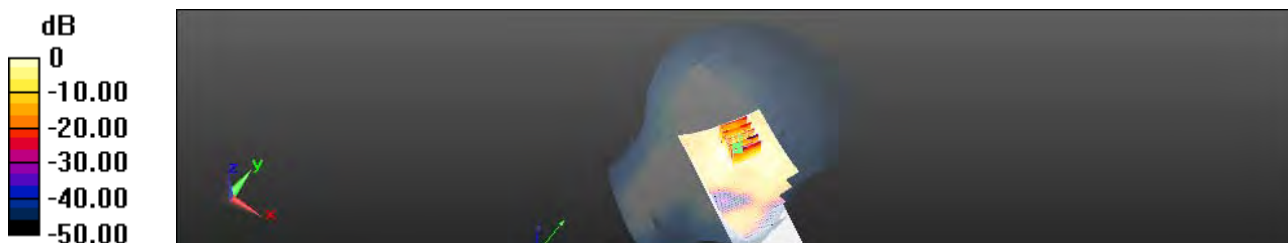
$dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 5.961 V/m; Power Drift = -0.16 dB

Peak SAR (extrapolated) = 0.1380

SAR(1 g) = 0.074 mW/g; SAR(10 g) = 0.037 mW/g

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



0 dB = 0.100mW/g = -20.00 dB mW/g

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Date: 2012/3/25

Hotspot mode_WLAN802.11 b_Front side_CH6

Communication System: WLAN(2.45G); Communication System Band: WLAN802.11 b_FCC;
Frequency: 2437 MHz;

Medium parameters used: $f = 2437$ MHz; $\sigma = 1.985$ mho/m; $\epsilon_r = 51.493$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3831; ConvF(6.82, 6.82, 6.82); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2011/8/22
- Phantom: Body; Type: QDOVA002AA; Serial: TP:xxxx
- DASY52 52.8.0(692); SEMCAD X 14.6.4(4989)

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

Maximum value of SAR (interpolated) = 0.064 mW/g

Configuration/Head/Zoom Scan (5x5x7)/Cube 0: Measurement grid:

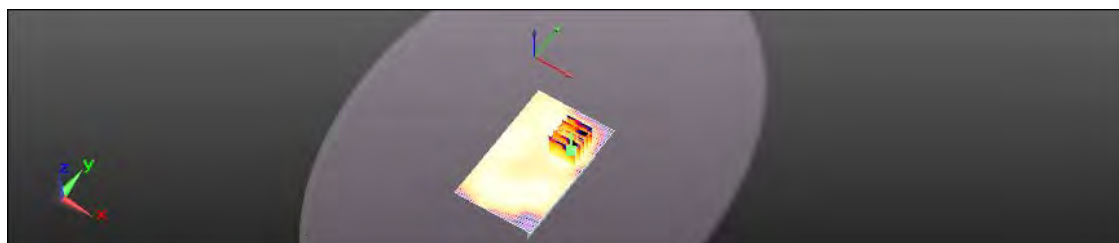
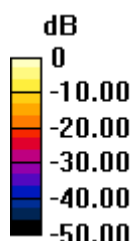
dx=8mm, dy=8mm, dz=5mm

Reference Value = 1.603 V/m; Power Drift = 0.07 dB

Peak SAR (extrapolated) = 0.0740

SAR(1 g) = 0.038 mW/g; SAR(10 g) = 0.020 mW/g

Maximum value of SAR (measured) = 0.054 mW/g



0 dB = 0.050mW/g = -26.02 dB mW/g

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Date: 2012/3/25

Hotspot mode_WLAN802.11 b_Back side_CH1

Communication System: WLAN(2.45G); Communication System Band: WLAN802.11 b_FCC;
Frequency: 2412 MHz;

Medium parameters used: $f = 2412 \text{ MHz}$; $\sigma = 1.953 \text{ mho/m}$; $\epsilon_r = 51.56$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3831; ConvF(6.82, 6.82, 6.82); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2011/8/22
- Phantom: Body; Type: QDOVA002AA; Serial: TP:xxxx
- DASY52 52.8.0(692); SEMCAD X 14.6.4(4989)

Configuration/Head/Area Scan (51x91x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.344 mW/g

Configuration/Head/Zoom Scan (5x5x7)/Cube 0: Measurement grid:

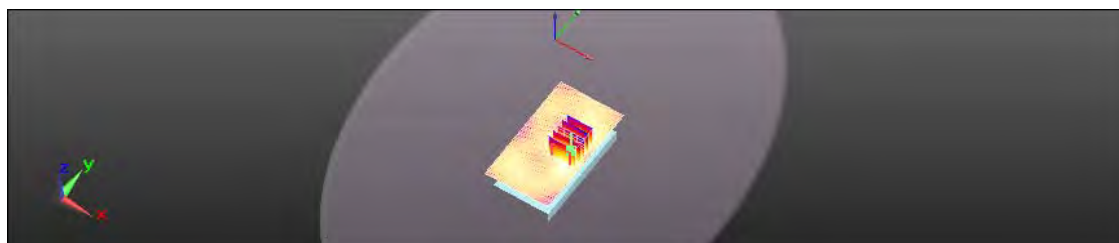
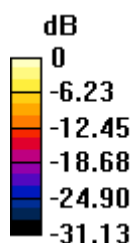
$dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 7.785 V/m; Power Drift = -0.07 dB

Peak SAR (extrapolated) = 0.4400

SAR(1 g) = 0.211 mW/g; SAR(10 g) = 0.104 mW/g

Maximum value of SAR (measured) = 0.324 mW/g



0 dB = 0.320mW/g = -9.90 dB mW/g

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Date: 2012/3/25

Hotspot mode_WLAN802.11 b_Back side_CH6

Communication System: WLAN(2.45G); Communication System Band: WLAN802.11 b_FCC;
Frequency: 2437 MHz;

Medium parameters used: $f = 2437 \text{ MHz}$; $\sigma = 1.985 \text{ mho/m}$; $\epsilon_r = 51.493$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3831; ConvF(6.82, 6.82, 6.82); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2011/8/22
- Phantom: Body; Type: QDOVA002AA; Serial: TP:xxxx
- DASY52 52.8.0(692); SEMCAD X 14.6.4(4989)

Configuration/Head/Area Scan (51x91x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.391 mW/g

Configuration/Head/Zoom Scan (5x5x7)/Cube 0: Measurement grid:

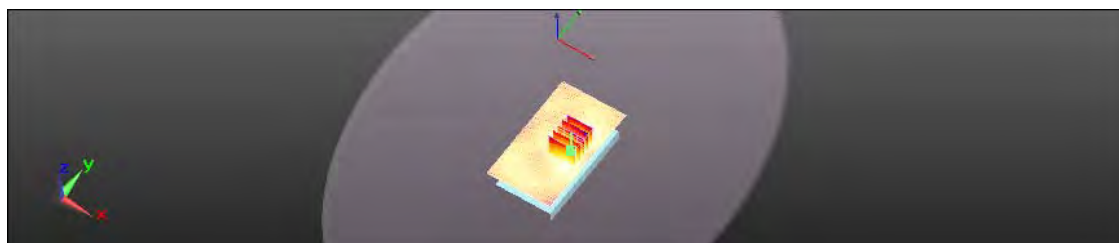
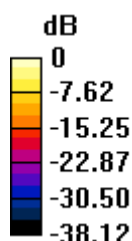
$dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 8.714 V/m; Power Drift = -0.07 dB

Peak SAR (extrapolated) = 0.5050

SAR(1 g) = 0.247 mW/g; SAR(10 g) = 0.123 mW/g

Maximum value of SAR (measured) = 0.373 mW/g



0 dB = 0.370mW/g = -8.64 dB mW/g

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Date: 2012/3/25

Hotspot mode_WLAN802.11 b_Back side_CH11

Communication System: WLAN(2.45G); Communication System Band: WLAN802.11 b_FCC;
Frequency: 2462 MHz;

Medium parameters used: $f = 2462 \text{ MHz}$; $\sigma = 2 \text{ mho/m}$; $\epsilon_r = 51.425$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3831; ConvF(6.82, 6.82, 6.82); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2011/8/22
- Phantom: Body; Type: QDOVA002AA; Serial: TP:xxxx
- DASY52 52.8.0(692); SEMCAD X 14.6.4(4989)

Configuration/Head/Area Scan (51x91x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.328 mW/g

Configuration/Head/Zoom Scan (5x5x7)/Cube 0: Measurement grid:

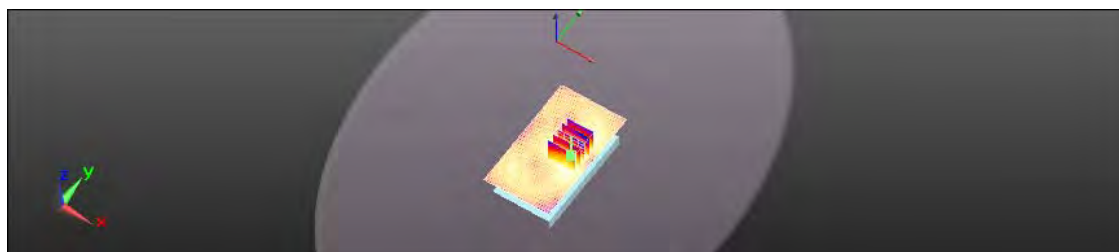
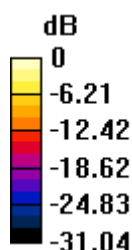
$dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 8.149 V/m; Power Drift = -0.10 dB

Peak SAR (extrapolated) = 0.4220

SAR(1 g) = 0.205 mW/g; SAR(10 g) = 0.103 mW/g

Maximum value of SAR (measured) = 0.311 mW/g



0 dB = 0.310mW/g = -10.17 dB mW/g

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Date: 2012/3/25

Hotspot mode_WLAN802.11 b_Back side_CH6_repeated with headset

Communication System: WLAN(2.45G); Communication System Band: WLAN802.11 b_FCC;
Frequency: 2437 MHz;

Medium parameters used: $f = 2437 \text{ MHz}$; $\sigma = 1.985 \text{ mho/m}$; $\epsilon_r = 51.493$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3831; ConvF(6.82, 6.82, 6.82); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2011/8/22
- Phantom: Body; Type: QDOVA002AA; Serial: TP:xxxx
- DASY52 52.8.0(692); SEMCAD X 14.6.4(4989)

Configuration/Head/Area Scan (51x91x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.369 mW/g

Configuration/Head/Zoom Scan (5x5x7)/Cube 0: Measurement grid:

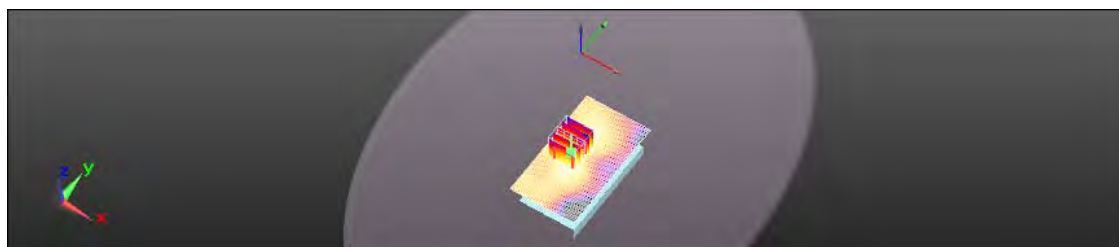
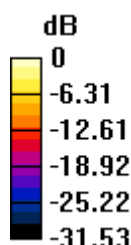
$dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 7.975 V/m; Power Drift = 0.19 dB

Peak SAR (extrapolated) = 0.4960

SAR(1 g) = 0.244 mW/g; SAR(10 g) = 0.122 mW/g

Maximum value of SAR (measured) = 0.354 mW/g



0 dB = 0.350mW/g = -9.12 dB mW/g

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Date: 2012/3/25

Hotspot mode_WLAN802.11 b_Back side_CH6_repeated with Bluetooth active

Communication System: WLAN(2.45G); Communication System Band: WLAN802.11 b_FCC;
Frequency: 2437 MHz;

Medium parameters used: $f = 2437 \text{ MHz}$; $\sigma = 1.985 \text{ mho/m}$; $\epsilon_r = 51.493$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3831; ConvF(6.82, 6.82, 6.82); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2011/8/22
- Phantom: Body; Type: QDOVA002AA; Serial: TP:xxxx
- DASY52 52.8.0(692); SEMCAD X 14.6.4(4989)

Configuration/Head/Area Scan (51x91x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.389 mW/g

Configuration/Head/Zoom Scan (5x5x7)/Cube 0: Measurement grid:

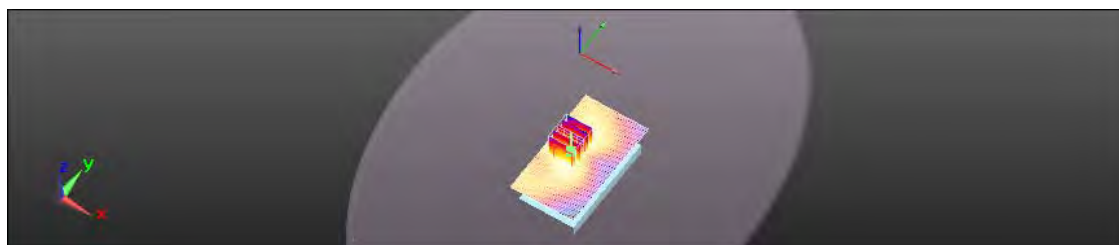
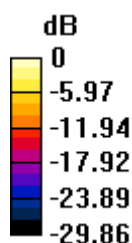
$dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 7.860 V/m; Power Drift = 0.13 dB

Peak SAR (extrapolated) = 0.5120

SAR(1 g) = 0.246 mW/g; SAR(10 g) = 0.126 mW/g

Maximum value of SAR (measured) = 0.365 mW/g



0 dB = 0.370mW/g = -8.64 dB mW/g

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Date: 2012/3/25

Hotspot mode_WLAN802.11 b_Back side_CH6_repeated with memory card

Communication System: WLAN(2.45G); Communication System Band: WLAN802.11 b_FCC;
Frequency: 2437 MHz;

Medium parameters used: $f = 2437 \text{ MHz}$; $\sigma = 1.985 \text{ mho/m}$; $\epsilon_r = 51.493$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3831; ConvF(6.82, 6.82, 6.82); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2011/8/22
- Phantom: Body; Type: QDOVA002AA; Serial: TP:xxxx
- DASY52 52.8.0(692); SEMCAD X 14.6.4(4989)

Configuration/Head/Area Scan (51x91x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.447 mW/g

Configuration/Head/Zoom Scan (5x5x7)/Cube 0: Measurement grid:

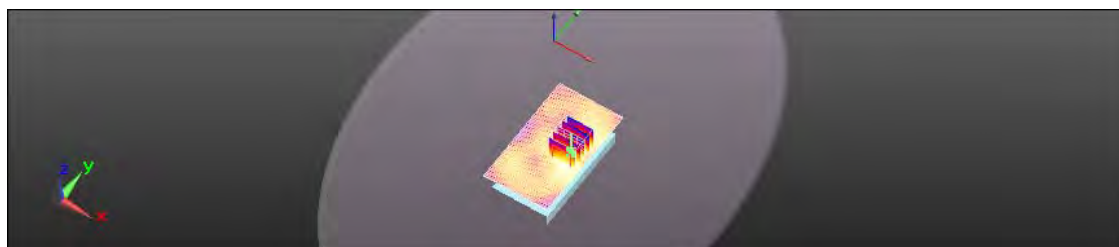
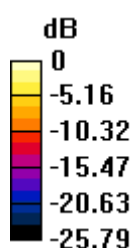
$dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 8.753 V/m; Power Drift = -0.0066 dB

Peak SAR (extrapolated) = 0.5660

SAR(1 g) = 0.245 mW/g; SAR(10 g) = 0.142 mW/g

Maximum value of SAR (measured) = 0.399 mW/g



0 dB = 0.400mW/g = -7.96 dB mW/g

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Date: 2012/3/25

Hotspot mode_WLAN802.11 b_Right side_CH6

Communication System: WLAN(2.45G); Communication System Band: WLAN802.11 b_FCC;
Frequency: 2437 MHz;

Medium parameters used: $f = 2437 \text{ MHz}$; $\sigma = 1.985 \text{ mho/m}$; $\epsilon_r = 51.493$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3831; ConvF(6.82, 6.82, 6.82); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2011/8/22
- Phantom: Body; Type: QDOVA002AA; Serial: TP:xxxx
- DASY52 52.8.0(692); SEMCAD X 14.6.4(4989)

Configuration/Head/Area Scan (41x91x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.195 mW/g

Configuration/Head/Zoom Scan (5x5x7)/Cube 0: Measurement grid:

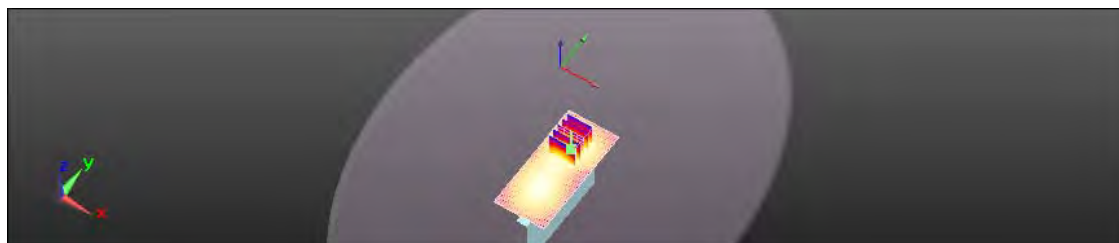
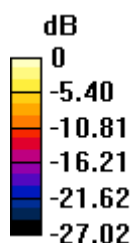
$dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 4.771 V/m; Power Drift = 0.08 dB

Peak SAR (extrapolated) = 0.2440

SAR(1 g) = 0.129 mW/g; SAR(10 g) = 0.067 mW/g

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



0 dB = 0.190mW/g = -14.42 dB mW/g

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Date: 2012/3/25

Re Cheek_Bluetooth_CH0

Communication System: Bluetooth; Communication System Band: Bluetooth; Frequency: 2402 MHz;

Medium parameters used: $f = 2402$ MHz; $\sigma = 1.747$ mho/m; $\epsilon_r = 37.961$; $\rho = 1000$ kg/m³
Phantom section: Right Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3831; ConvF(6.84, 6.84, 6.84); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2011/8/22
- Phantom: Head; Type: SAM;
- DASY52 52.8.0(692); SEMCAD X 14.6.4(4989)

Configuration/Head/Area Scan (71x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.00457 mW/g

Configuration/Head/Zoom Scan (5x5x7)/Cube 0: Measurement grid:

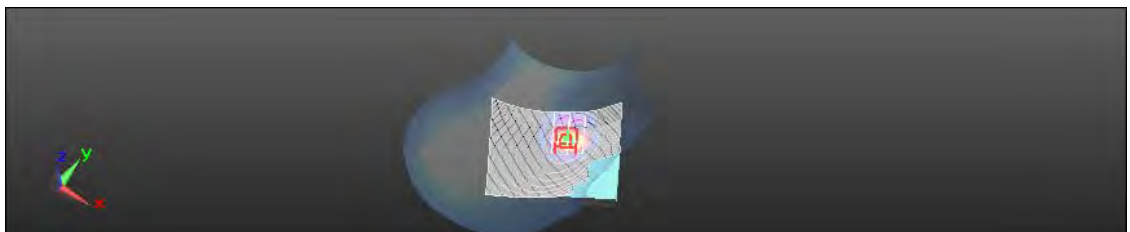
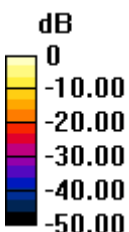
dx=8mm, dy=8mm, dz=5mm

Reference Value = 0.119 V/m; Power Drift = -0.152 dB

Peak SAR (extrapolated) = 0.008260

SAR(1 g) = 0.00191 mW/g; SAR(10 g) = 0.000439 mW/g

Maximum value of SAR (measured) = 0.00423 mW/g



0 dB = 0.0042mW/g = -47.54 dB mW/g

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Date: 2012/3/25

Re Tilt_ Bluetooth _CH0

Communication System: Bluetooth; Communication System Band: Bluetooth; Frequency: 2402 MHz;

Medium parameters used: $f = 2402 \text{ MHz}$; $\sigma = 1.747 \text{ mho/m}$; $\epsilon_r = 37.961$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Right Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3831; ConvF(6.84, 6.84, 6.84); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2011/8/22
- Phantom: Head; Type: SAM;
- DASY52 52.8.0(692); SEMCAD X 14.6.4(4989)

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

Maximum value of SAR (interpolated) = 0.00276 mW/g

Configuration/Head/Zoom Scan (5x5x7)/Cube 0: Measurement grid:

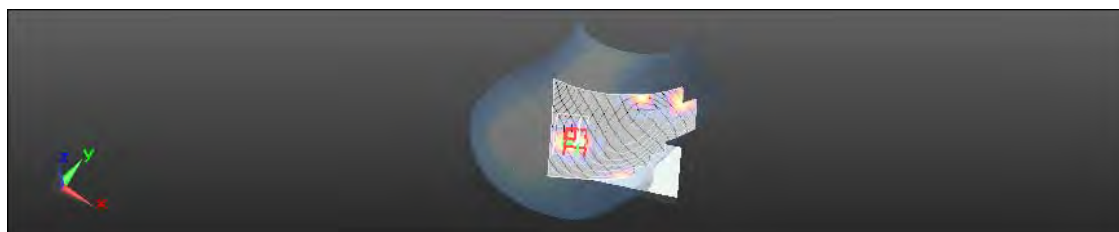
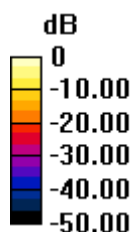
$dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 0.193 V/m; Power Drift = -0.15 dB

Peak SAR (extrapolated) = 0.006290

SAR(1 g) = 0.000575 mW/g; SAR(10 g) = 0.000105 mW/g

Maximum value of SAR (measured) = 0.00263 mW/g



0 dB = 0.0026mW/g = -51.70 dB mW/g

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Date: 2012/3/25

Le Cheek_ Bluetooth _CH0

Communication System: Bluetooth; Communication System Band: Bluetooth; Frequency: 2402 MHz;

Medium parameters used: $f = 2402$ MHz; $\sigma = 1.747$ mho/m; $\epsilon_r = 37.961$; $\rho = 1000$ kg/m³

Phantom section: Left Section

DASY5 Configuration:

- C
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2011/8/22
- Phantom: Head; Type: SAM;
- DASY52 52.8.0(692); SEMCAD X 14.6.4(4989)

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

Maximum value of SAR (interpolated) = 0.00504 mW/g

Configuration/Head/Zoom Scan (5x5x7)/Cube 0: Measurement grid:

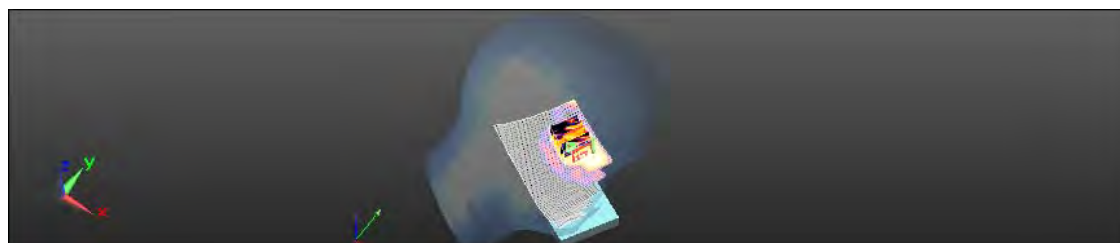
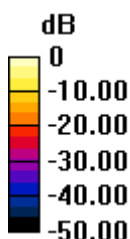
dx=8mm, dy=8mm, dz=5mm

Reference Value = 0.136 V/m; Power Drift = -0.121 dB

Peak SAR (extrapolated) = 0.005480

SAR(1 g) = 0.00203 mW/g; SAR(10 g) = 0.000484 mW/g

Maximum value of SAR (measured) = 0.00364 mW/g



0 dB = 0.0036mW/g = -48.87 dB mW/g

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Le Cheek_ Bluetooth _CH39

Communication System: Bluetooth; Communication System Band: Bluetooth; Frequency: 2441 MHz;;

Medium parameters used: $f = 2441$ MHz; $\sigma = 1.784$ mho/m; $\epsilon_r = 37.817$; $\rho = 1000$ kg/m³

Phantom section: Left Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3831; ConvF(6.84, 6.84, 6.84); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection), $z =$
- Electronics: DAE4 Sn1260; Calibrated: 2011/8/22
- Phantom: Head; Type: SAM;
- DASY52 52.8.0(692); SEMCAD X 14.4.5(3634)

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

Maximum value of SAR (interpolated) = 0.016 mW/g

Configuration/Head/Zoom Scan (5x5x7)/Cube 0: Measurement grid:

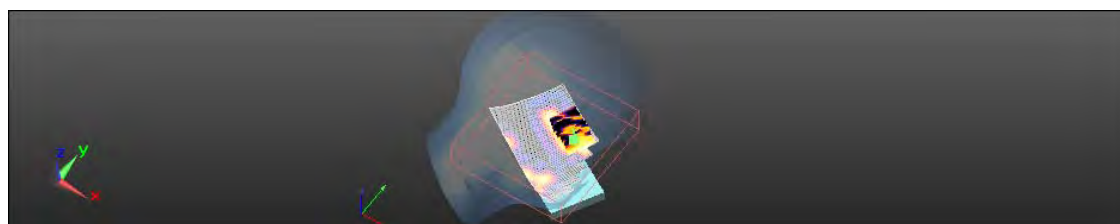
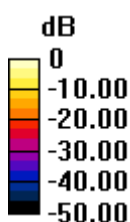
$dx=8$ mm, $dy=8$ mm, $dz=5$ mm

Reference Value = 0.170 V/m; Power Drift = -0.162 dB

Peak SAR (extrapolated) = 0.012 W/kg

SAR(1 g) = 0.00374 mW/g; SAR(10 g) = 0.00119 mW/g

Maximum value of SAR (measured) = 0.00604 mW/g



0 dB = 0.006mW/g

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Date: 2012/3/25

Le Cheek_ Bluetooth _CH78

Communication System: Bluetooth; Communication System Band: Bluetooth; Frequency: 2480 MHz; Communication System PAR: 0 dB;

Medium parameters used: $f = 2480$ MHz; $\sigma = 1.80$ mho/m; $\epsilon_r = 37.663$; $\rho = 1000$ kg/m³

Phantom section: Left Section

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

DASY5 Configuration:

- Probe: EX3DV4 - SN3831; ConvF(6.84, 6.84, 6.84); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection), $z =$
- Electronics: DAE4 Sn1260; Calibrated: 2011/8/22
- Phantom: Head; Type: SAM;
- DASY52 52.8.0(692); SEMCAD X 14.4.5(3634)

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

Maximum value of SAR (interpolated) = 0.017 mW/g

Configuration/Head/Zoom Scan (5x5x7)/Cube 0: Measurement grid:

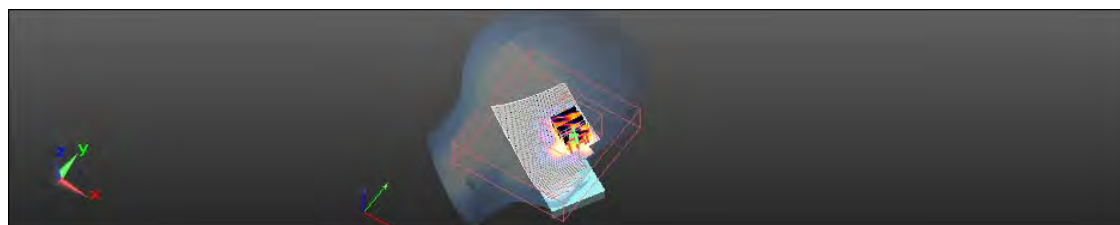
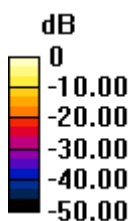
$dx=8$ mm, $dy=8$ mm, $dz=5$ mm

Reference Value = 0.151 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 0.014 W/kg

SAR(1 g) = 0.00275 mW/g; SAR(10 g) = 0.00109 mW/g

Maximum value of SAR (measured) = 0.00631 mW/g



0 dB = 0.0063mW/g

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Date: 2012/3/25

Le Tilt_ Bluetooth _CH0

Communication System: Bluetooth; Communication System Band: Bluetooth; Frequency: 2402 MHz;

Medium parameters used: $f = 2402 \text{ MHz}$; $\sigma = 1.747 \text{ mho/m}$; $\epsilon_r = 37.961$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3831; ConvF(6.84, 6.84, 6.84); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2011/8/22
- Phantom: Head; Type: SAM;
- DASY52 52.8.0(692); SEMCAD X 14.6.4(4989)

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

Maximum value of SAR (interpolated) = 0.00449 mW/g

Configuration/Head/Zoom Scan (5x5x7)/Cube 0: Measurement grid:

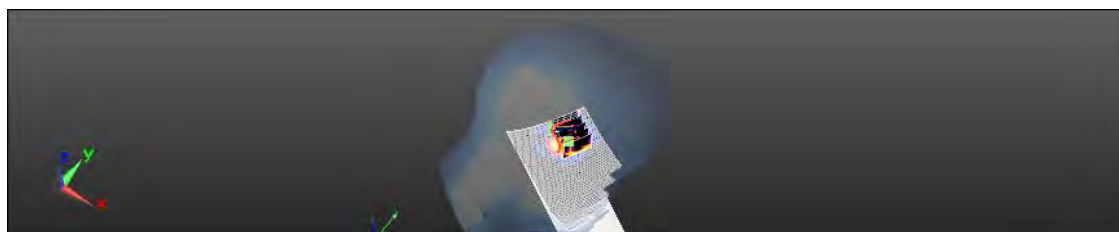
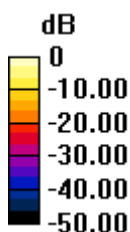
$dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 0.178 V/m; Power Drift = 0.14 dB

Peak SAR (extrapolated) = 0.009720

SAR(1 g) = 0.00168 mW/g; SAR(10 g) = 0.000364 mW/g

Maximum value of SAR (measured) = 0.00638 mW/g



0 dB = 0.0064mW/g = -43.88 dB mW/g

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Date: 2012/3/25

Body_Front side_ Bluetooth _CH0

Communication System: Bluetooth; Communication System Band: Bluetooth; Frequency: 2402 MHz;

Medium parameters used: $f = 2402 \text{ MHz}$; $\sigma = 1.94 \text{ mho/m}$; $\epsilon_r = 51.592$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3831; ConvF(6.82, 6.82, 6.82); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2011/8/22
- Phantom: Body; Type: QDOVA002AA; Serial: TP:xxxx
- DASY52 52.8.0(692); SEMCAD X 14.6.4(4989)

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

Maximum value of SAR (interpolated) = 0.00552 mW/g

Configuration/Head/Zoom Scan (5x5x7)/Cube 0: Measurement grid:

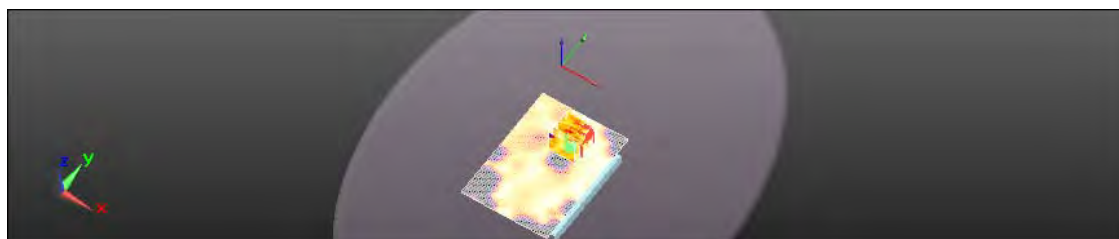
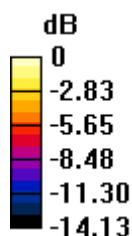
$dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 0.16 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 0.007010

SAR(1 g) = 0.00384 mW/g; SAR(10 g) = 0.00199 mW/g

Maximum value of SAR (measured) = 0.00502 mW/g



0 dB = 0.005mW/g = -46.02 dB mW/g

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Date: 2012/3/25

Body_Back side_ Bluetooth _CH0

Communication System: Bluetooth; Communication System Band: Bluetooth; Frequency: 2402 MHz;

Medium parameters used: $f = 2402 \text{ MHz}$; $\sigma = 1.94 \text{ mho/m}$; $\epsilon_r = 51.592$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3831; ConvF(6.82, 6.82, 6.82); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2011/8/22
- Phantom: Body; Type: QDOVA002AA; Serial: TP:xxxx
- DASY52 52.8.0(692); SEMCAD X 14.6.4(4989)

Configuration/Head/Area Scan (51x91x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.025 mW/g

Configuration/Head/Zoom Scan (5x5x7)/Cube 0: Measurement grid:

$dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 0.1642 V/m; Power Drift = -0.17 dB

Peak SAR (extrapolated) = 0.0190

SAR(1 g) = 0.010 mW/g; SAR(10 g) = 0.00392 mW/g

Maximum value of SAR (measured) = 0.017 mW/g



0 dB = 0.020mW/g = -33.98 dB mW/g

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Date: 2012/3/25

Body_Back side_ Bluetooth _CH39

Communication System: Bluetooth; Communication System Band: Bluetooth; Frequency: 2441 MHz;

Medium parameters used: $f = 2441 \text{ MHz}$; $\sigma = 1.99 \text{ mho/m}$; $\epsilon_r = 51.484$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3831; ConvF(6.82, 6.82, 6.82); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2011/8/22
- Phantom: Body; Type: QDOVA002AA; Serial: TP:xxxx
- DASY52 52.8.0(692); SEMCAD X 14.6.4(4989)

Configuration/Head/Area Scan (51x91x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.027 mW/g

Configuration/Head/Zoom Scan (5x5x7)/Cube 0: Measurement grid:

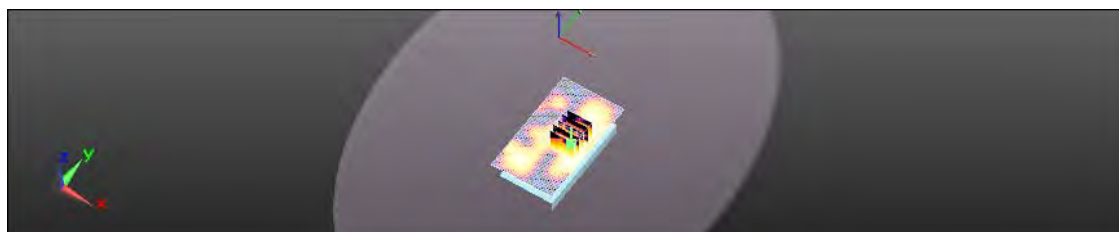
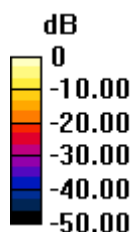
$dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 0.186 V/m; Power Drift = 0.13 dB

Peak SAR (extrapolated) = 0.0250

SAR(1 g) = 0.016 mW/g; SAR(10 g) = 0.00651 mW/g

Maximum value of SAR (measured) = 0.024 mW/g



0 dB = 0.020mW/g = -33.98 dB mW/g

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Date: 2012/3/25

Body_Back side_ Bluetooth _CH78

Communication System: Bluetooth; Communication System Band: Bluetooth; Frequency: 2480 MHz;

Medium parameters used: $f = 2480 \text{ MHz}$; $\sigma = 2.006 \text{ mho/m}$; $\epsilon_r = 51.37$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3831; ConvF(6.82, 6.82, 6.82); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2011/8/22
- Phantom: Body; Type: QDOVA002AA; Serial: TP:xxxx
- DASY52 52.8.0(692); SEMCAD X 14.6.4(4989)

Configuration/Head/Area Scan (51x91x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.028 mW/g

Configuration/Head/Zoom Scan (5x5x7)/Cube 0: Measurement grid:

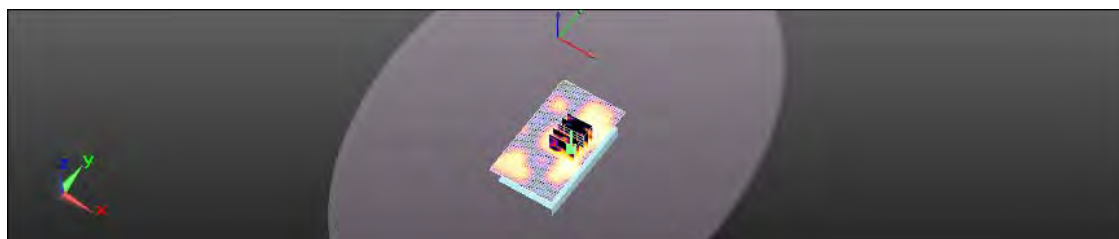
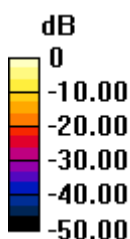
$dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 0.1769 V/m; Power Drift = 0.14 dB

Peak SAR (extrapolated) = 0.0580

SAR(1 g) = 0.011 mW/g; SAR(10 g) = 0.0042 mW/g

Maximum value of SAR (measured) = 0.017 mW/g



0 dB = 0.020mW/g = -33.98 dB mW/g

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Date: 2012/3/25

Body_Right side_ Bluetooth _CH0

Communication System: Bluetooth; Communication System Band: Bluetooth; Frequency: 2402 MHz;

Medium parameters used: $f = 2402 \text{ MHz}$; $\sigma = 1.94 \text{ mho/m}$; $\epsilon_r = 51.592$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3831; ConvF(6.82, 6.82, 6.82); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2011/8/22
- Phantom: Body; Type: QDOVA002AA; Serial: TP:xxxx
- DASY52 52.8.0(692); SEMCAD X 14.6.4(4989)

Configuration/Head/Area Scan (41x91x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.019 mW/g

Configuration/Head/Zoom Scan (5x5x7)/Cube 0: Measurement grid:

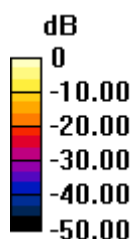
$dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 0.142 V/m; Power Drift = 0.18 dB

Peak SAR (extrapolated) = 0.0110

SAR(1 g) = 0.00607 mW/g; SAR(10 g) = 0.00258 mW/g

Maximum value of SAR (measured) = 0.00904 mW/g



0 dB = 0.009mW/g = -40.92 dB mW/g

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5. SAR System Performance Verification

Date: 2012/3/21

DUT: Dipole 835 MHz; (Head)

Communication System: CW; Communication System Band: D835 (835.0 MHz); Frequency: 835 MHz;

Medium parameters used: $f = 835$ MHz; $\sigma = 0.886$ mho/m; $\epsilon_r = 40.886$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3831; ConvF(8.82, 8.82, 8.82); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2011/8/22
- Phantom: Head; Type: SAM;
- DASY52 52.8.0(692); SEMCAD X 14.6.4(4989)

Configuration/Pin=250mW/Area Scan (41x101x1): Measurement grid:

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

Maximum value of SAR (interpolated) = 2.536 mW/g

Configuration/Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement

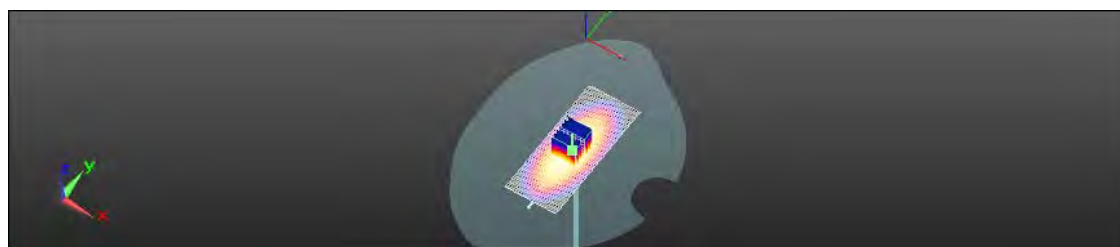
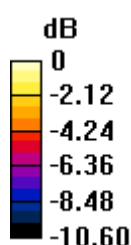
grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 53.788 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 3.5890

SAR(1 g) = 2.36 mW/g; SAR(10 g) = 1.53 mW/g

Maximum value of SAR (measured) = 2.545 mW/g



0 dB = 2.540mW/g = 8.10 dB mW/g

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Date: 2012/3/21

DUT: Dipole 835 MHz; (Body)

Communication System: CW; Communication System Band: D835 (835.0 MHz); Frequency: 835 MHz;

Medium parameters used: $f = 835 \text{ MHz}$; $\sigma = 0.991 \text{ mho/m}$; $\epsilon_r = 53.169$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3831; ConvF(9.02, 9.02, 9.02); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2011/8/22
- Phantom: Body; Type: QDOVA002AA; Serial: TP:xxxx
- DASY52 52.8.0(692); SEMCAD X 14.6.4(4989)

Configuration/Pin=250mW/Area Scan (41x101x1): Measurement grid:

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

Maximum value of SAR (interpolated) = 2.747 mW/g

Configuration/Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement

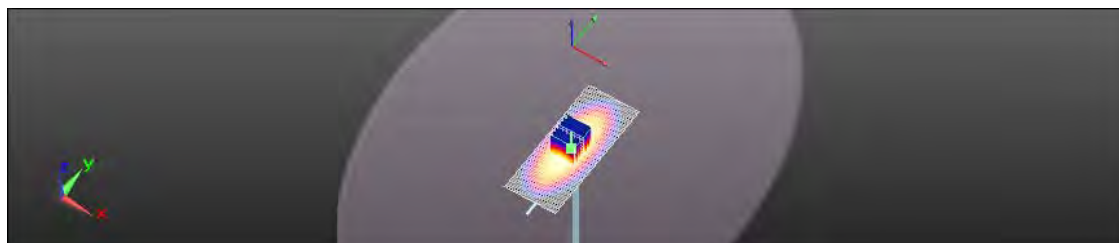
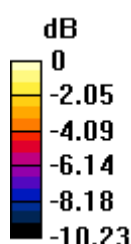
grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 52.935 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 3.8130

SAR(1 g) = 2.53 mW/g; SAR(10 g) = 1.67 mW/g

Maximum value of SAR (measured) = 2.744 mW/g



0 dB = 2.740mW/g = 8.76 dB mW/g

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Date: 2012/3/21

DUT: Dipole 1900 MHz; (Head)

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

Frequency: 1900 MHz;

Medium parameters used: $f = 1900$ MHz; $\sigma = 1.451$ mho/m; $\epsilon_r = 38.982$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3831; ConvF(7.76, 7.76, 7.76); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2011/8/22
- Phantom: Head; Type: SAM;
- DASY52 52.8.0(692); SEMCAD X 14.6.4(4989)

Configuration/Pin=250mW/Area Scan (41x71x1): Measurement grid:

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

Maximum value of SAR (interpolated) = 12.158 mW/g

Configuration/Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement

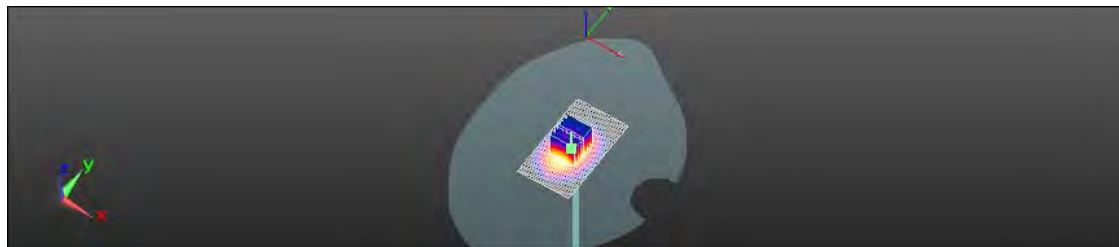
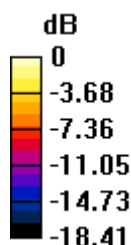
grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 89.070 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 19.7290

SAR(1 g) = 10.3 mW/g; SAR(10 g) = 5.26 mW/g

Maximum value of SAR (measured) = 11.575 mW/g



0 dB = 11.580mW/g = 21.27 dB mW/g

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Date: 2012/3/21

DUT: Dipole 1900 MHz; (Body)

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

Frequency: 1900 MHz;

Medium parameters used: $f = 1900$ MHz; $\sigma = 1.578$ mho/m; $\epsilon_r = 49.324$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3831; ConvF(7.25, 7.25, 7.25); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2011/8/22
- Phantom: Body; Type: QDOVA002AA; Serial: TP:xxxx
- DASY52 52.8.0(692); SEMCAD X 14.6.4(4989)

Configuration/Pin=250mW/Area Scan (41x61x1): Measurement grid:

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

Maximum value of SAR (interpolated) = 10.658 mW/g

Configuration/Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement

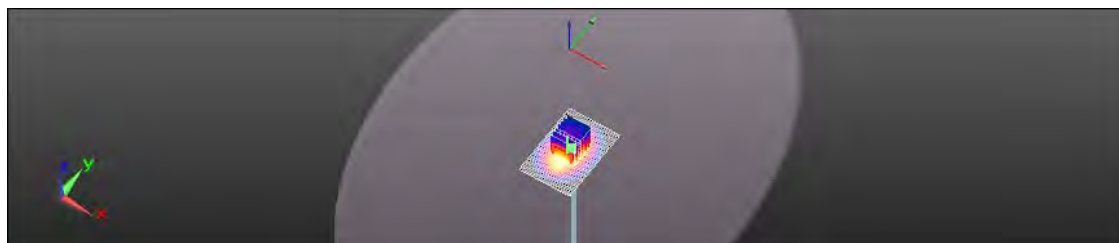
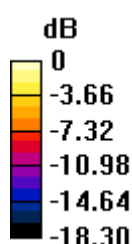
grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 82.739 V/m; Power Drift = 0.0068 dB

Peak SAR (extrapolated) = 17.1950

SAR(1 g) = 9.66 mW/g; SAR(10 g) = 5.15 mW/g

Maximum value of SAR (measured) = 10.472 mW/g



0 dB = 10.470mW/g = 20.40 dB mW/g

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Date: 2012/3/25

DUT: Dipole 2450 MHz; (Head)

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

Frequency: 2450 MHz;

Medium parameters used: $f = 2450$ MHz; $\sigma = 1.794$ mho/m; $\epsilon_r = 37.777$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3831; ConvF(6.84, 6.84, 6.84); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2011/8/22
- Phantom: Head; Type: SAM;
- DASY52 52.8.0(692); SEMCAD X 14.6.4(4989)

Configuration/Pin=250mW/Area Scan (41x61x1): Measurement grid:

dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 18.391 mW/g

Configuration/Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement

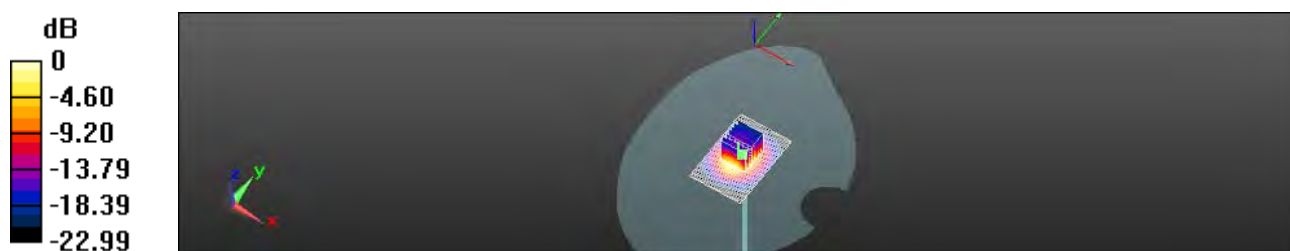
grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 93.044 V/m; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 30.2600

SAR(1 g) = 14.2 mW/g; SAR(10 g) = 6.53 mW/g

Maximum value of SAR (measured) = 17.580 mW/g



0 dB = 17.580mW/g = 24.90 dB mW/g

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Date: 2012/3/25

DUT: Dipole 2450 MHz; (Body)

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

Frequency: 2450 MHz;

Medium parameters used: $f = 2450$ MHz; $\sigma = 2.001$ mho/m; $\epsilon_r = 51.46$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3831; ConvF(6.82, 6.82, 6.82); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2011/8/22
- Phantom: Body; Type: QDOVA002AA; Serial: TP:xxxx
- DASY52 52.8.0(692); SEMCAD X 14.6.4(4989)

Configuration/Pin=250mW/Area Scan (41x61x1): Measurement grid:

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

Maximum value of SAR (interpolated) = 15.824 mW/g

Configuration/Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement

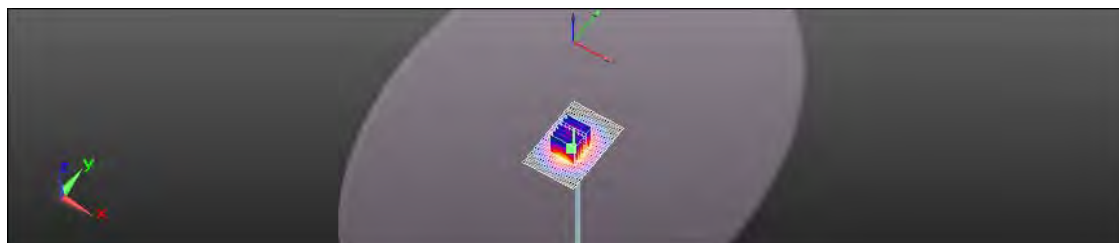
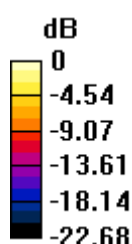
grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 87.574 V/m; Power Drift = -0.0061 dB

Peak SAR (extrapolated) = 28.1120

SAR(1 g) = 13.3 mW/g; SAR(10 g) = 6.08 mW/g

Maximum value of SAR (measured) = 16.463 mW/g



0 dB = 16.460mW/g = 24.33 dB mW/g

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6. DAE & Probe Calibration certificate

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The Swiss Accreditation Service is one of the signatories to the EA
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Accreditation No.: SCS 108

Client **SGS (Auden)**

Certificate No: **DAE4-1260_Aug11**

CALIBRATION CERTIFICATE

Object **DAE4 SD 000 D04 BJ - SN: 1260**

Calibration procedure(s) **QA CAL-06.v23
Calibration procedure for the data acquisition electronics (DAE)**

Calibration date: **August 22, 2011**

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Keithley Multimeter Type 2001	SN: 0810278	28-Sep-10 (No:10376)	Sep-11
Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Calibrator Box V1.1	SE UMS 006 AB 1004	08-Jun-11 (in house check)	In house check: Jun-12

Calibrated by:	Name	Function	Signature
	Eric Häinfeld	Technician	
Approved by:	Name	Function	Signature
	Fin Bornholt	R&D Director	

Issued: August 22, 2011

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Certificate No: DAE4-1260_Aug11

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Accreditation No.: SCS 108

Client **SGS-TW (Auden)**

Certificate No: **EX3-3831_Jan12**

CALIBRATION CERTIFICATE

Object **EX3DV4 - SN:3831**

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: **January 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 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID	Cal Date (Certificate No.)	Scheduled Calibration
Power meter E4419B	GB41293874	31-Mar-11 (No. 217-01372)	Apr-12
Power sensor E4412A	MY41498087	31-Mar-11 (No. 217-01372)	Apr-12
Reference 3 dB Attenuator	SN: S5054 (3c)	29-Mar-11 (No. 217-01369)	Apr-12
Reference 20 dB Attenuator	SN: S5086 (20b)	29-Mar-11 (No. 217-01367)	Apr-12
Reference 30 dB Attenuator	SN: S5129 (30b)	29-Mar-11 (No. 217-01370)	Apr-12
Reference Probe ES3DV2	SN: 3013	29-Dec-11 (No. ES3-3013_Dec11)	Dec-12
DAE4	SN: 654	3-May-11 (No. DAE4-654_May11)	May-12
Secondary Standards	ID	Check Date (in house)	Scheduled Check
RF generator HP 8648C	US3642U01700	4-Aug-99 (in house check Apr-11)	In house check: Apr-13
Network Analyzer HP 8753E	US37390585	18-Oct-01 (in house check Oct-11)	In house check: Oct-12

Calibrated by:	Name Jeton Kastrati	Function Laboratory Technician	Signature
Approved by:	Katja Pokovic	Technical Manager	
Issued: January 5, 2012			
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Certificate No: EX3-3831_Jan12

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張正昌

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Glossary:

TSL	tissue simulating liquid
NORM _{x,y,z}	sensitivity in free space
ConvF	sensitivity in TSL / NORM _{x,y,z}
DCP	diode compression point
CF	crest factor (1/duty_cycle) of the RF signal
A, B, C	modulation dependent linearization parameters
Polarization φ	φ rotation around probe axis
Polarization ϑ	ϑ rotation around an axis that is in the plane normal to probe axis (at measurement center), i.e., $\vartheta = 0$ is normal to probe axis

Calibration is Performed According to the Following Standards:

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

Methods Applied and Interpretation of Parameters:

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

Certificate No: EX3-3831_Jan12

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EX3DV4 – SN:3831

January 4, 2012

Probe EX3DV4

SN:3831

Manufactured: September 6, 2011
Calibrated: January 4, 2012

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

EX3DV4- SN:3831

January 4, 2012

DASY/EASY - Parameters of Probe: EX3DV4 - SN:3831

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm ($\mu\text{V}/(\text{V}/\text{m})^2$) ^A	0.44	0.41	0.43	$\pm 10.1 \%$
DCP (mV) ^B	101.7	101.4	99.5	

Modulation Calibration Parameters

UID	Communication System Name	PAR		A dB	B dB	C dB	VR mV	Unc ^E (k=2)
10000	CW	0.00	X	0.00	0.00	1.00	111.7	$\pm 3.0 \%$
			Y	0.00	0.00	1.00	96.2	
			Z	0.00	0.00	1.00	106.7	

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 E²-field uncertainty inside TSL (see Pages 5 and 6).

^B Numerical linearization parameter: uncertainty not required.

^E 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:3831

January 4, 2012

DASY/EASY - Parameters of Probe: EX3DV4 - SN:3831

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	9.32	9.32	9.32	0.44	0.84	± 12.0 %
835	41.5	0.90	8.82	8.82	8.82	0.19	1.48	± 12.0 %
900	41.5	0.97	8.71	8.71	8.71	0.22	1.38	± 12.0 %
1750	40.1	1.37	8.03	8.03	8.03	0.39	0.81	± 12.0 %
1900	40.0	1.40	7.76	7.76	7.76	0.44	0.77	± 12.0 %
2000	40.0	1.40	7.65	7.65	7.65	0.61	0.63	± 12.0 %
2300	39.5	1.67	7.44	7.44	7.44	0.41	0.83	± 12.0 %
2450	39.2	1.80	6.84	6.84	6.84	0.49	0.73	± 12.0 %
2600	39.0	1.96	6.67	6.67	6.67	0.33	0.96	± 12.0 %
5200	36.0	4.66	4.64	4.64	4.64	0.42	1.80	± 13.1 %
5300	35.9	4.76	4.37	4.37	4.37	0.44	1.80	± 13.1 %
5600	35.5	5.07	4.10	4.10	4.10	0.48	1.80	± 13.1 %
5800	35.3	5.27	4.12	4.12	4.12	0.45	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:3831

January 4, 2012

DASY/EASY - Parameters of Probe: EX3DV4 - SN:3831

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	0.23	1.25	± 12.0 %
835	55.2	0.97	9.02	9.02	9.02	0.28	1.13	± 12.0 %
900	55.0	1.05	8.93	8.93	8.93	0.25	1.28	± 12.0 %
1750	53.4	1.49	7.67	7.67	7.67	0.38	0.87	± 12.0 %
1900	53.3	1.52	7.25	7.25	7.25	0.57	0.70	± 12.0 %
2000	53.3	1.52	7.31	7.31	7.31	0.27	1.09	± 12.0 %
2300	52.9	1.81	7.26	7.26	7.26	0.71	0.66	± 12.0 %
2450	52.7	1.95	6.82	6.82	6.82	0.74	0.62	± 12.0 %
2600	52.5	2.16	6.63	6.63	6.63	0.80	0.50	± 12.0 %
5200	49.0	5.30	4.12	4.12	4.12	0.50	1.90	± 13.1 %
5300	48.9	5.42	3.92	3.92	3.92	0.50	1.90	± 13.1 %
5600	48.5	5.77	3.30	3.30	3.30	0.65	1.90	± 13.1 %
5800	48.2	6.00	3.77	3.77	3.77	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.

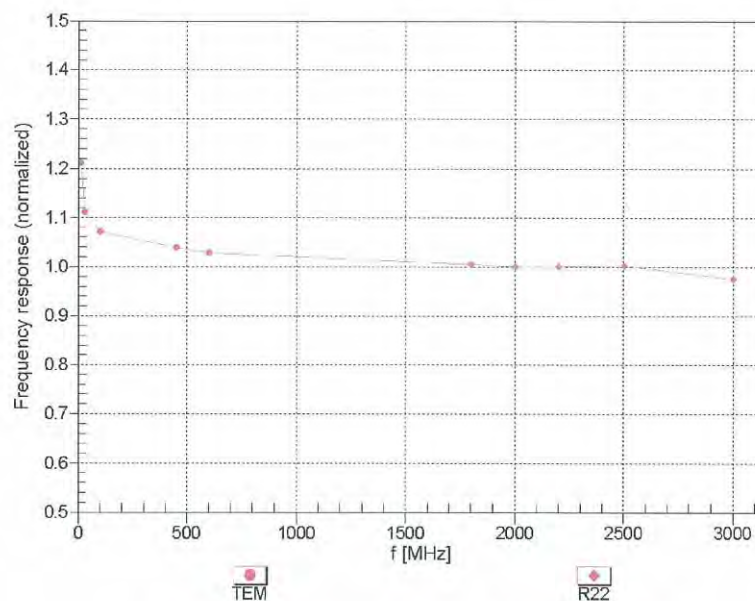
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EX3DV4-SN:3831

January 4, 2012

Frequency Response of E-Field (TEM-Cell:ifi110 EXX, Waveguide: R22)

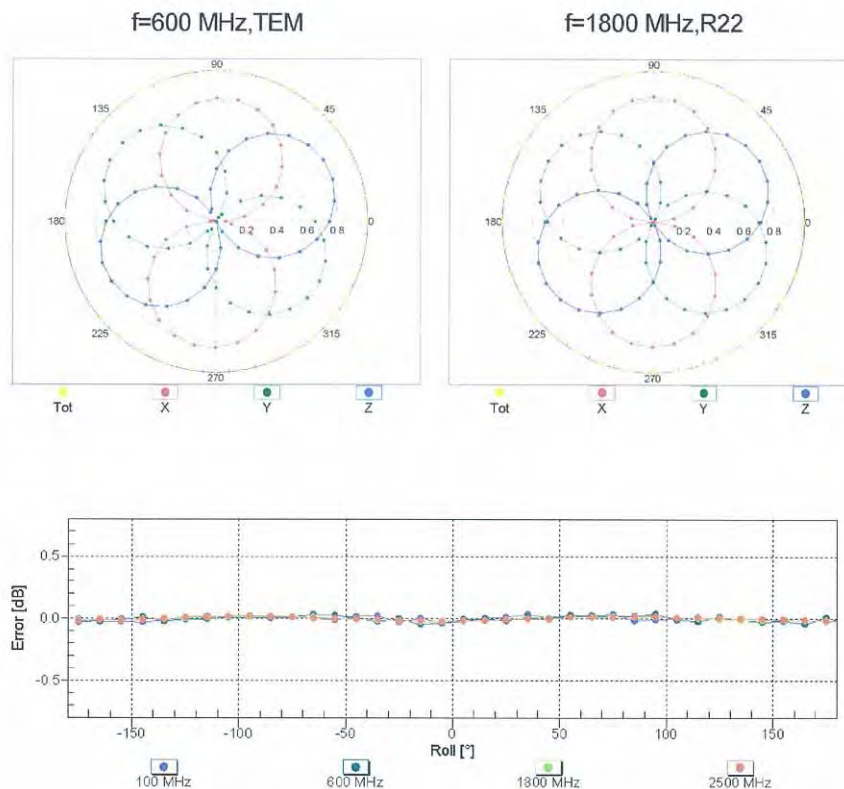


Uncertainty of Frequency Response of E-field: $\pm 6.3\%$ ($k=2$)

EX3DV4- SN:3831

January 4, 2012

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

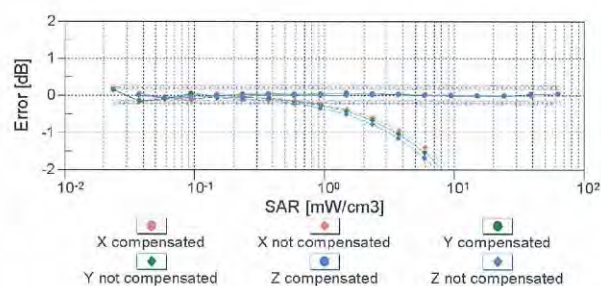
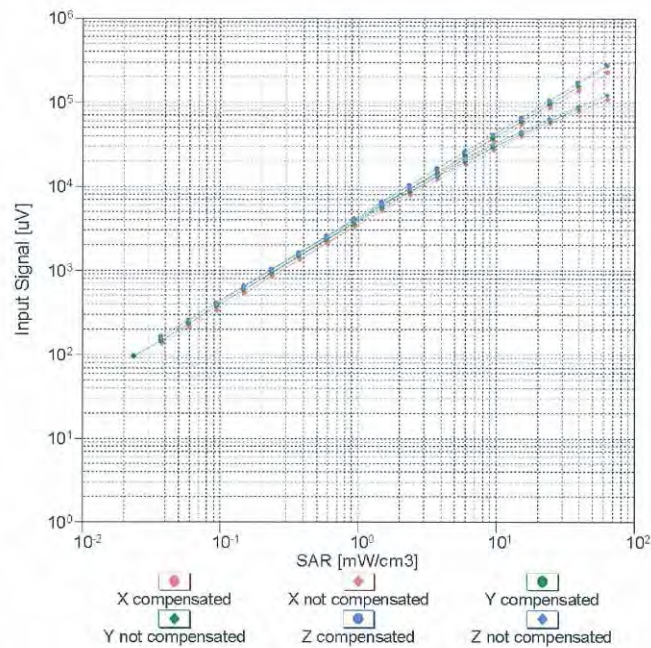


Uncertainty of Axial Isotropy Assessment: $\pm 0.5\%$ ($k=2$)

EX3DV4- SN:3831

January 4, 2012

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



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

Certificate No: EX3-3831_Jan12

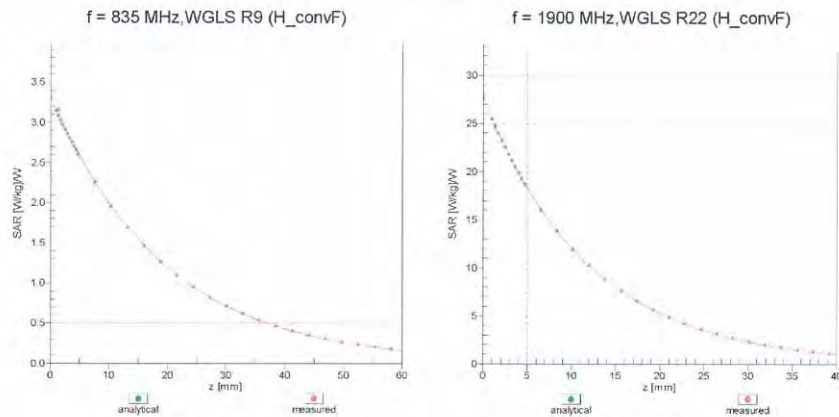
Page 9 of 11

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EX3DV4- SN:3831

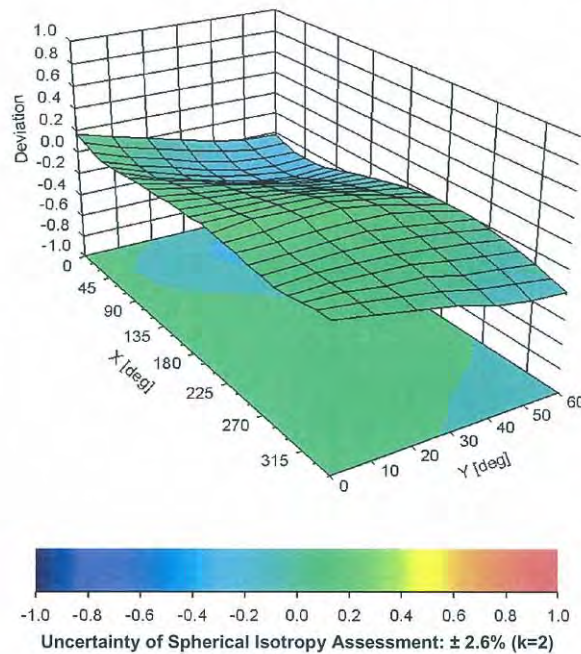
January 4, 2012

Conversion Factor Assessment



Deviation from Isotropy in Liquid

Error (ϕ , θ), $f = 900 \text{ MHz}$



EX3DV4- SN:3831

January 4, 2012

DASY/EASY - Parameters of Probe: EX3DV4 - SN:3831

Other Probe Parameters

Sensor Arrangement	Triangular
Connector Angle (°)	Not applicable
Mechanical Surface Detection Mode	enabled
Optical Surface Detection Mode	disabled
Probe Overall Length	337 mm
Probe Body Diameter	10 mm
Tip Length	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

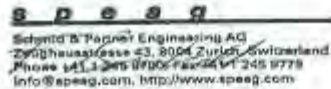
7. Uncertainty Budget

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 Distribution	Div	ci (1g)	ci (10g)	Standard uncertainty	Standard uncertainty	vi, or Veff
Measurement system								
Probe calibration (Frequency below 2GHz)	6.0%	N	1	1	1	6.0%	6.0%	∞
<i>Isotropy, Axial</i>	4.7%	R	$\sqrt{3}$	1	1	2.7%	2.7%	∞
<i>Isotropy, Hemispherical</i>	9.6%	R	$\sqrt{3}$	1	1	5.5%	5.5%	∞
Boundary Effect	1.0%	R	$\sqrt{3}$	1	1	0.6%	0.6%	∞
Linearity	4.7%	R	$\sqrt{3}$	1	1	2.7%	2.7%	∞
Detection Limits	1.0%	R	$\sqrt{3}$	1	1	0.6%	0.6%	∞
Readout Electronics	0.3%	N	1	1	1	0.3%	0.3%	∞
Response time	0.8%	R	$\sqrt{3}$	1	1	0.5%	0.5%	∞
Integration Time	2.6%	R	$\sqrt{3}$	1	1	1.5%	1.5%	∞
<i>Measurement drift (class A evaluation)</i>	1.8%	R	$\sqrt{3}$	1	1	1.0%	1.0%	∞
RF ambient condition - noise	3.0%	R	$\sqrt{3}$	1	1	1.7%	1.7%	∞
RF ambient conditions -reflections	3.0%	R	$\sqrt{3}$	1	1	1.7%	1.7%	∞
Probe positioner Mechanical restrictions	0.4%	R	$\sqrt{3}$	1	1	0.2%	0.2%	∞
Probe Positioning with respect to phantom	2.9%	R	$\sqrt{3}$	1	1	1.7%	1.7%	∞
Post-processing	1.0%	R	$\sqrt{3}$	1	1	0.6%	0.6%	∞
Max SAR Eval	1.0%	R	$\sqrt{3}$	1	1	0.6%	0.6%	∞
Test Sample related								
Test sample	2.9%	N	1	1	1	2.9%	2.9%	M-1
Device Holder Uncertainty	3.6%	N	1	1	1	3.6%	3.6%	M-1
Drift of output power	5.0%	R	$\sqrt{3}$	1	1	2.9%	2.9%	∞
Phantom and Setup								
Phantom Uncertainty	4.0%	R	$\sqrt{3}$	1	1	2.3%	2.3%	∞
Liquid conductivity(meas.) Max at 1900 band	4.6%	N	1	0.64	0.43	2.9%	2.0%	M
Liquid permittivity(meas.) Max at 835 band	2.2%	N	1	0.6	0.49	1.3%	1.1%	M
Combined standard uncertainty		RSS				11.9%	11.6%	
Expan uncertainty (95% confidence interval), K=2						23.7%	23.3%	

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8. Phantom description

Schmid & Partner Engineering AG		s p e e g	
Zeughausstrasse 43, 8004 Zurich, Switzerland Phone +41 1 245 9700, Fax +41 1 245 9779 info@speag.com, http://www.speag.com			
Certificate of Conformity / First Article Inspection			
Item	SAM Twin Phantom V4.0		
Type No.	QD 000 P40 C		
Series No.	TP-1150 and higher		
Manufacturer	SPEAG Zeughausstrasse 43 CH-8004 Zurich Switzerland		
Tests The series production process used allows the limitation to test of first articles. Complete tests were made on the pre-series Type No. QD 000 P40 AA, Serial No. TP-1001 and on the series first article Type No. QD 000 P40 BA, Serial No. TP-1006. Certain parameters have been retested using further series items (called samples) or are tested at each item.			
Test	Requirement	Details	Units tested
Dimensions	Compliant with the geometry according to the CAD model.	IT'IS CAD File (*)	First article, Samples
Material thickness of shell	Compliant with the requirements according to the standards	2mm +/- 0.2mm in flat and specific areas of head section	First article, Samples, TP-1314 ff.
Material thickness at ERP	Compliant with the requirements according to the standards	6mm +/- 0.2mm at ERP	First article, All items
Material parameters	Dielectric parameters for required frequencies	300 MHz – 6 GHz: Relative permittivity < 5, Loss tangent < 0.05	Material samples
Material resistivity	The material has been tested to be compatible with the liquids defined in the standards if handled and cleaned according to the instructions. Observe technical Note for material compatibility.	DEGMBE based simulating liquids	Pre-series, First article, Material samples
Sagging	Compliant with the requirements according to the standards. Sagging of the flat section when filled with tissue simulating liquid.	< 1% typical < 0.8% if filled with 156mm of HSL900 and without DUT below	Prototypes, Sample testing
Standards [1] CENELEC EN 50361 [2] IEEE Std 1528-2003 [3] IEC 62209 Part 1 [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		
Signature / Stamp			
Doc No. 881 - QD 000 P40 C - F		Page 1 (1)	

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9. System Validation from Original equipment supplier

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



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

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_May11

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, 2011

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter EPM-442A	GB37480704	06-Oct-10 (No. 217-01266)	Oct-11
Power sensor HP 8481A	US37292783	06-Oct-10 (No. 217-01266)	Oct-11
Reference 20 dB Attenuator	SN: S5086 (20b)	29-Mar-11 (No. 217-01367)	Apr-12
Type-N mismatch combination	SN: 5047.2 / 06327	29-Mar-11 (No. 217-01371)	Apr-12
Reference Probe ES3DV3	SN: 3205	29-Apr-11 (No. ES3-3205_Apr11)	Apr-12
DAE4	SN: 601	10-Jun-10 (No. DAE4-601_Jun10)	Jun-11
Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power sensor HP 8481A	MY41092317	18-Oct-02 (in house check Oct-09)	In house check: Oct-11
RF generator R&S SMT-06	100005	4-Aug-99 (in house check Oct-09)	In house check: Oct-11
Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (in house check Oct-10)	In house check: Oct-11

Calibrated by: Name Claudio Leubler Function Laboratory Technician Signature 

Approved by: Katja Pokovic Technical Manager Signature 

Issued: May 25, 2011

Certificate No: D835V2-4d063_May11

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DASY5 Validation Report for Head TSL

Date: 25.05.2011

Test Laboratory: SPEAG, Zurich, Switzerland

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

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

Medium: HSL900

Medium parameters used: $f = 835$ MHz; $\sigma = 0.88$ mho/m; $\epsilon_r = 40.4$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

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

DASY5 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(6.07, 6.07, 6.07); Calibrated: 29.04.2011
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 10.06.2010
- Phantom: Flat Phantom 4.9L; Type: QD000P49AA; Serial: 1001
- Measurement SW: DASY52, V52.6.2 Build (424)
- Postprocessing SW: SEMCAD X, V14.4.4 Build (2829)

Dipole Calibration for Head Tissue/Pin=250 mW, d=15mm/Cube 0:

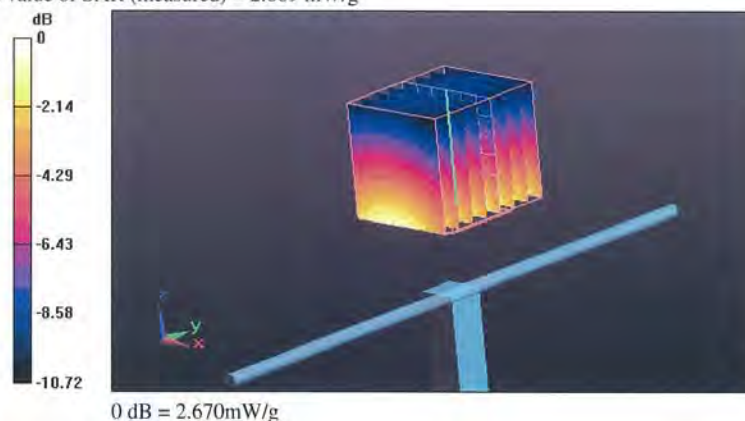
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 56.554 V/m; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 3.427 W/kg

SAR(1 g) = 2.31 mW/g; SAR(10 g) = 1.52 mW/g

Maximum value of SAR (measured) = 2.669 mW/g



DASY5 Validation Report for Body TSL

Date: 25.05.2011

Test Laboratory: SPEAG, Zurich, Switzerland

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

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

Medium: MSL900

Medium parameters used: $f = 835 \text{ MHz}$; $\sigma = 1 \text{ mho/m}$; $\epsilon_r = 53.9$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

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

DASY5 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(6.02, 6.02, 6.02); Calibrated: 29.04.2011
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 10.06.2010
- Phantom: Flat Phantom 4.9L; Type: QD000P49AA; Serial: 1001
- Measurement SW: DASY52, V52.6.2 Build (424)
- Postprocessing SW: SEMCAD X, V14.4.4 Build (2829)

Dipole Calibration for Body Tissue/Pin=250 mW, d=15mm/Cube 0:

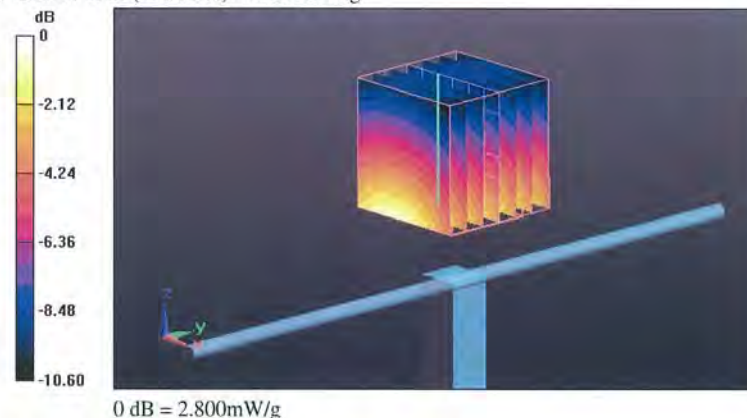
Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 54.297 V/m; Power Drift = 0.06 dB

Peak SAR (extrapolated) = 3.530 W/kg

SAR(1 g) = 2.43 mW/g; SAR(10 g) = 1.6 mW/g

Maximum value of SAR (measured) = 2.804 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_Apr11

CALIBRATION CERTIFICATE

Object **D1900V2 - SN: 5d027**

Calibration procedure(s) **QA CAL-05.v8
Calibration procedure for dipole validation kits**

Calibration date: **April 19, 2011**

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter EPM-442A	GB37480704	06-Oct-10 (No. 217-01266)	Oct-11
Power sensor HP 8481A	US37292783	06-Oct-10 (No. 217-01266)	Oct-11
Reference 20 dB Attenuator	SN: 5086 (20g)	29-Mar-11 (No. 217-01368)	Apr-12
Type-N mismatch combination	SN: 5047.2 / 06327	29-Mar-11 (No. 217-01371)	Apr-12
Reference Probe ES3DV3	SN: 3205	30-Apr-10 (No. ES3-3205_Apr10)	Apr-11
DAE4	SN: 601	10-Jun-10 (No. DAE4-601_Jun10)	Jun-11
Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power sensor HP 8481A	MY41092317	18-Oct-02 (in house check Oct-09)	In house check: Oct-11
RF generator R&S SMT-06	100005	4-Aug-99 (in house check Oct-09)	In house check: Oct-11
Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (in house check Oct-10)	In house check: Oct-11

Calibrated by: **Claudio Leubler** (Name) **Laboratory Technician** (Function)  (Signature)

Approved by: **Katja Pokovic** (Name) **Technical Manager** (Function)  (Signature)

Issued: April 19, 2011

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Certificate No: D1900V2-5d027_Apr11

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DASY5 Validation Report for Head TSL

Date/Time: 18.04.2011 15:27:22

Test Laboratory: SPEAG, Zurich, Switzerland

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

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

Medium: HSL U12 BB

Medium parameters used: $f = 1900$ MHz; $\sigma = 1.41$ mho/m; $\epsilon_r = 39$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

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

DASY5 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(5.09, 5.09, 5.09); Calibrated: 30.04.2010
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 10.06.2010
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- Measurement SW: DASY52, V52.6.2 Build (424)
- Postprocessing SW: SEMCAD X, V14.4.2 Build (2829)

Pin=250 mW, Cube 0:

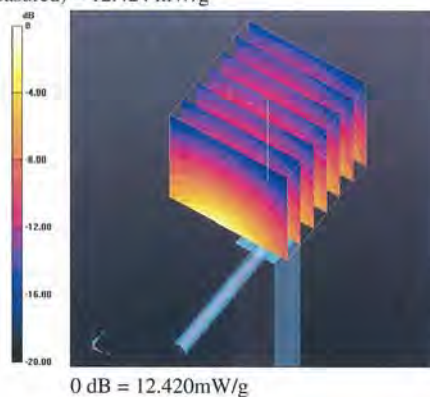
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 97.235 V/m; Power Drift = 0.05 dB

Peak SAR (extrapolated) = 18.650 W/kg

SAR(1 g) = 10.1 mW/g; SAR(10 g) = 5.26 mW/g

Maximum value of SAR (measured) = 12.424 mW/g



DASY5 Validation Report for Body TSL

Date/Time: 19.04.2011 12:53:51

Test Laboratory: SPEAG, Zurich, Switzerland

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

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

Medium: MSL U12 BB

Medium parameters used: $f = 1900 \text{ MHz}$; $\sigma = 1.52 \text{ mho/m}$; $\epsilon_r = 51.1$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

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

DASY5 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(4.59, 4.59, 4.59); Calibrated: 30.04.2010
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 10.06.2010
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; Serial: 1002
- Measurement SW: DASY52, V52.6.2 Build (424)
- Postprocessing SW: SEMCAD X, V14.4.2 Build (2829)

Pin=250 mW, Cube 0:

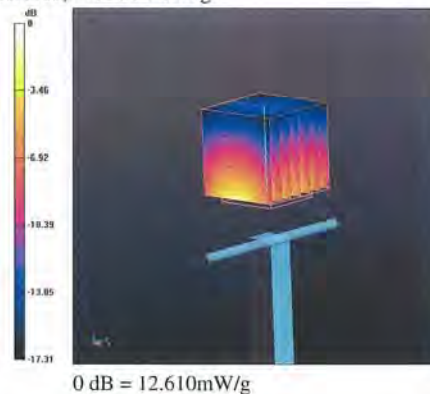
Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 96.170 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 17.156 W/kg

SAR(1 g) = 9.93 mW/g; SAR(10 g) = 5.18 mW/g

Maximum value of SAR (measured) = 12.615 mW/g



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Accreditation No.: **SCS 108**

Client **SGS TW (Auden)**

Certificate No: **D2450V2- 727_Apr11**

CALIBRATION CERTIFICATE

Object **D2450V2 - SN: 727**

Calibration procedure(s) **QA CAL-05.v8**
 Calibration procedure for dipole validation kits

Calibration date: **April 19, 2011**

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter EPM-442A	GB37480704	06-Oct-10 (No. 217-01266)	Oct-11
Power sensor HP 8481A	US37292783	06-Oct-10 (No. 217-01266)	Oct-11
Reference 20 dB Attenuator	SN: 5086 (20g)	29-Mar-11 (No. 217-01368)	Apr-12
Type-N mismatch combination	SN: 5047.2 / 06327	29-Mar-11 (No. 217-01371)	Apr-12
Reference Probe ES3DV3	SN: 3205	30-Apr-10 (No. ES3-3205_Apr10)	Apr-11
DAE4	SN: 601	10-Jun-10 (No. DAE4-601_Jun10)	Jun-11

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power sensor HP 8481A	MY41092317	18-Oct-02 (in house check Oct-09)	In house check: Oct-11
RF generator R&S SMT-06	100005	4-Aug-99 (in house check Oct-09)	In house check: Oct-11
Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (in house check Oct-10)	In house check: Oct-11

Calibrated by: **Name** **Function** **Signature**
Claudio Leubler **Laboratory Technician**

Approved by: **Katja Pokovic** **Technical Manager**

Issued: April 19, 2011

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

Certificate No: D2450V2-727_Apr11

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DASY5 Validation Report for Head TSL

Date/Time: 18.04.2011 16:55:19

Test Laboratory: SPEAG, Zurich, Switzerland

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

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

Medium: HSL U12 BB

Medium parameters used: $f = 2450 \text{ MHz}$; $\sigma = 1.74 \text{ mho/m}$; $\epsilon_r = 38.6$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

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

DASY5 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(4.53, 4.53, 4.53); Calibrated: 30.04.2010
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 10.06.2010
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- Measurement SW: DASY52, V52.6.2 Build (424)
- Postprocessing SW: SEMCAD X, V14.4.2 Build (2829)

Pin=250 mW, Cube 0:

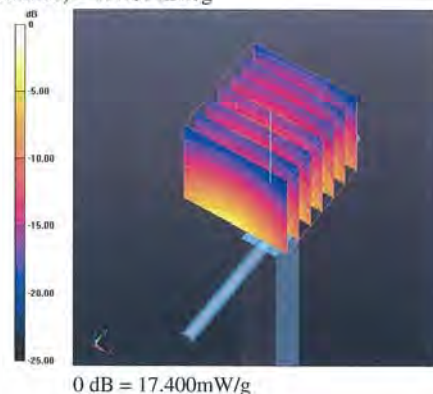
Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 103.6 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 27.919 W/kg

SAR(1 g) = 13.7 mW/g; SAR(10 g) = 6.39 mW/g

Maximum value of SAR (measured) = 17.401 mW/g



DASY5 Validation Report for Body TSL

Date/Time: 19.04.2011 14:37:11

Test Laboratory: SPEAG, Zurich, Switzerland

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

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

Medium: MSL U12 BB

Medium parameters used: $f = 2450 \text{ MHz}$; $\sigma = 1.91 \text{ mho/m}$; $\epsilon_r = 50.6$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

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

DASY5 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(4.31, 4.31, 4.31); Calibrated: 30.04.2010
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 10.06.2010
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; Serial: 1002
- Measurement SW: DASY52, V52.6.2 Build (424)
- Postprocessing SW: SEMCAD X, V14.4.2 Build (2829)

Pin=250 mW, Cube 0:

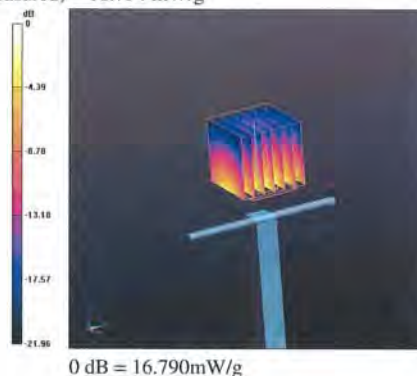
Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 96.949 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 26.888 W/kg

SAR(1 g) = 12.7 mW/g; SAR(10 g) = 5.84 mW/g

Maximum value of SAR (measured) = 16.794 mW/g



End of 1st part of report

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