SAR TEST REPORT

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

Equipment Under Test	Smart Phone
Model Name	V04B
Brand Name	Dell
Company Name	Dell Inc.
Company Address	One Dell Way, Round Rock, TX 78682
Standards	FCC OET 65 supplement C,IEEE /ANSI C95.1 , C95.3, IEEE 1528
FCC ID	E2KV04B001
Date of Receipt	Oct. 20, 2011
Date of Test(s)	Oct. 27, 2011 ~ Nov. 3, 2011
Date of Issue	Dec. 19, 2011

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.

This report may only be reproduced and distributed in full. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards. Any mention of SGS Taiwan Electronic & Communication Laboratory or testing done by SGS Taiwan Electronic & Communication Laboratory in connection with distribution or use of the product described in this report must be approved by SGS Taiwan Electronic & Communication Laboratory in writing.

Signed for on the behalf of SGS

Engineer	**Supervisor**
Chris Tsung	Kelly Tsai
Chris Tsung	**Kelly Tsai**
Date : Dec. 19, 2011	**Date :** Dec. 19, 2011

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Version

Report Number	Revision	Date	Memo
EN/2011/A0005	01	2011/11/18	Initial creation of test report.
EN/2011/A0005	02	2011/12/02	1st modification
EN/2011/A0005	03	2011/12/16	2nd modification
EN/2011/A0005	04	2011/12/16	3rd modification
EN/2011/A0005	05	2011/12/19	4th modification

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

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SGS Taiwan Ltd. 台灣檢驗科技股份有限公司 | No. 134, Wu Kung Rd., Wuku Industrial Zone, Taipei County, Taiwan. / 台北縣五股工業區五工路136之1號
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1. General Information

1.1 Testing Laboratory

SGS Taiwan Ltd. Electronics & Communication Laboratory	
134, Wu Kung Road, Wuku industrial zone	
Taipei county, Taiwan, R.O.C.	
Telephone	+886-2-2299-3279
Fax	+886-2-2298-0488
Internet	http://www.tw.sgs.com/
Testing Location	1F,No.8, Alley 15, Lane 120, Sec .1, NeiHu Road NeiHu District Taipei City 114, Taiwan

1.2 Details of Applicant

Company Name	Dell Inc.
Company Address	One Dell Way, Round Rock, TX 78682
Contact Person	Ron Tosch
TEL	512 724-5937
Fax	N/A
E-mail	Ron_Tosch@Dell.com

1.3 Description of EUT

EUT Name	Smart Phone			
Model Name	V04B			
IMEI Code	358862040005420			
FCC ID	E2KV04B001			
Mode of Operation	☒GSM ☒GPRS ☒EDGE ☒WCDMA ☒HSDPA ☒HSUPA ☒WLAN802.11 a/b/g/n (☒H20 ☐H40) band			
Definition	Production unit			
Duty Cycle	GSM	1/8.3		
	GPRS	1/2		
	EDGE	1/2		
	WCDMA	1		
	WLAN 802.11 a/b/g/n(H20)	1		
TX Frequency Range	GSM850	824.20	—	848.80
	GSM1900	1850.20	—	1909.80

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(MHz)	WCDMA Band Ⅳ		1712.40	—	1752.60
	WLAN 802.11 b/g/n(H20)		2412	—	2462
	WiFi a 5.2G		5180	—	5320
	WiFi n 5.2G		5180	—	5320
	WiFi a 5.8G		5745	—	5825
	WiFi n 5.8G(20M)		5745	—	5825
Channel Number (ARFCN)	GSM850		128	—	251
	GSM1900		512	—	810
	WCDMA Band Ⅳ		1312	—	1513
	WLAN 802.11 b/g/n(H20)		1	—	11
	WiFi a 5.2G		36	—	64
	WiFi n 5.2G		36	—	64
	WiFi a 5.8G		149	—	165
	WiFi n 5.8G(20M)		149	—	165
VOIP Function	☒YES ☐NO				
Max. SAR Measured(1 g) (Unit: mW/g)	Head	GSM850	0.407	☒Left ☐Right ☒Cheek ☐Tilt 251 Channel	
		GSM1900	0.309	☒Left ☐Right ☒Cheek ☐Tilt 810 Channel	
		WCDMA Band Ⅳ	**0.79**	☐Left ☒Right ☒Cheek ☐Tilt 1513 Channel	
		WLAN 802.11 b	0.258	☐Left ☒Right ☐Cheek ☒Tilt 11 Channel	
		WLAN 802.11 g	0.398	☐Left ☒Right ☐Cheek ☒Tilt 6 Channel	
		WLAN 802.11 n(H20)	0.231	☐Left ☒Right ☐Cheek ☒Tilt 6 Channel	

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		WiFi a 5.2G	0.224	☒Left ☐Right ☒Cheek ☐Tilt 64 Channel
		WiFi n 5.2G	0.053	☐Left ☒Right ☐Cheek ☒Tilt 64 Channel
		WiFi a 5.8G	0.194	☒Left ☐Right ☐Cheek ☒Tilt 165 Channel
		WiFi n 5.8G(20M)	0.195	☐Left ☒Right ☐Cheek ☒Tilt 165 Channel
	Hotspot mode	GSM850	1.03	☐Left ☐Right ☐Front ☒Back ☐Bottom 190 Channel
		GSM1900	0.563	☐Left ☐Right ☐Front ☒Back ☐Bottom 661 Channel
		WCDMA Band Ⅳ	**1.28**	☐Left ☐Right ☐Front ☒Back ☐Bottom 1312 Channel - with Headset
		WLAN 802.11 b	0.116	☐Left ☐Right ☐Front ☒Back ☐Bottom 2437 Channel
		WLAN 802.11 g	0.223	☐Left ☐Right ☐Front ☒Back ☐Bottom 6 Channel
		WLAN 802.11 n(H20)	0.147	☐Left ☐Right ☐Front ☒Back ☐Bottom 6 Channel

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		WiFi a 5.2G	0.037	☐Left ☐Right ☐Front ☒Back ☐Bottom 64 Channel
		WiFi n 5.2G	0.038	☐Left ☐Right ☐Front ☒Back ☐Bottom 64 Channel
		WiFi a 5.8G	0.130	☐Left ☐Right ☐Front ☒Back ☐Bottom 149 Channel
		WiFi n 5.8G(20M)	0.165	☐Left ☐Right ☐Front ☒Back ☐Bottom 149 Channel

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#. GSM/GPRS/EDGE conducted power table:

EUT mode	Frequency (MHz)	CH	Burst average power		Source-based time average power	
			Peak(dBm)	Avg.(dBm)	Peak(dBm)	Avg.(dBm)
GSM 850	824.2	128	32.80	32.70	23.77	23.67
	836.6	190	32.80	32.70	23.77	23.67
	848.8	251	32.70	32.60	23.67	23.57
The division factor compared to the number of TX time slot						
Division factor			1 TX time slot			
			-9.03			

Burst average power										
			1Dn1UP		1Dn2UP		1Dn3UP		1Dn4UP	
EUT mode	Frequency (MHz)	CH	Peak (dBm)	Avg. (dBm)	Peak (dBm)	Avg. (dBm)	Peak (dBm)	Avg. (dBm)	Peak (dBm)	Avg. (dBm)
GPRS 850	824.2	128	32.90	32.80	30.50	30.40	28.70	28.60	27.40	27.30
	836.6	190	33.00	32.90	30.90	30.80	28.70	28.60	27.30	27.20
	848.8	251	32.80	32.60	30.40	30.30	28.80	28.70	27.50	27.40
Source-based time average powe										
GPRS 850	824.2	128	23.87	23.77	24.48	**24.38**	24.44	24.34	24.39	24.29
	836.6	190	23.97	23.87	24.88	**24.78**	24.44	24.34	24.29	24.19
	848.8	251	23.77	23.57	24.38	**24.28**	24.54	24.44	24.49	24.39
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										
			1Dn1UP		1Dn2UP		1Dn3UP		1Dn4UP	
EUT mode	Frequency (MHz)	CH	Peak (dBm)	Avg. (dBm)	Peak (dBm)	Avg. (dBm)	Peak (dBm)	Avg. (dBm)	Peak (dBm)	Avg. (dBm)
EGPRS 850	824.2	128	29.60	26.40	28.20	25.00	26.00	22.90	24.80	21.70
	836.6	190	29.60	26.40	28.30	25.10	26.00	22.90	24.90	21.70
	848.8	251	29.60	26.40	28.20	25.00	26.00	22.80	24.80	21.60
Source-based time average powe										
EGPRS 850	824.2	128	20.57	17.37	22.18	18.98	21.74	18.64	21.79	18.69
	836.6	190	20.57	17.37	22.28	19.08	21.74	18.64	21.89	18.69
	848.8	251	20.57	17.37	22.18	18.98	21.74	18.54	21.79	18.59
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	
			Peak(dBm)	Avg.(dBm)	Peak(dBm)	Avg.(dBm)
GSM 1900	1850.2	512	29.00	28.90	19.97	19.87
	1880	661	29.00	28.90	19.97	19.87
	1909.8	810	28.90	28.80	19.87	19.77
The division factor compared to the number of TX time slot						
Division factor			1 TX time slot			
			-9.03			

Burst average power										
			1Dn1UP		1Dn2UP		1Dn3UP		1Dn4UP	
EUT mode	Frequency (MHz)	CH	Peak (dBm)	Avg. (dBm)	Peak (dBm)	Avg. (dBm)	Peak (dBm)	Avg. (dBm)	Peak (dBm)	Avg. (dBm)
GPRS 1900	1850.2	512	28.90	28.70	27.30	27.20	25.00	24.90	24.00	23.90
	1880	661	28.90	28.80	27.30	27.20	25.10	25.00	23.90	23.80
	1909.8	810	28.80	28.70	27.10	27.00	25.10	25.00	23.80	23.70
Source-based time average powe										
GPRS 1900	1850.2	512	19.87	19.67	21.28	**21.18**	20.74	20.64	20.99	20.89
	1880	661	19.87	19.77	21.28	**21.18**	20.84	20.74	20.89	20.79
	1909.8	810	19.77	19.67	21.08	**20.98**	20.84	20.74	20.79	20.69
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										
			1Dn1UP		1Dn2UP		1Dn3UP		1Dn4UP	
EUT mode	Frequency (MHz)	CH	Peak (dBm)	Avg. (dBm)	Peak (dBm)	Avg. (dBm)	Peak (dBm)	Avg. (dBm)	Peak (dBm)	Avg. (dBm)
EGPRS 1900	1850.2	512	28.00	24.80	27.40	24.20	25.10	21.90	24.00	21.00
	1880	661	28.40	25.20	27.50	24.30	25.30	22.10	24.20	21.10
	1909.8	810	28.20	25.00	27.40	27.20	25.20	22.00	24.10	21.00
Source-based time average powe										
EGPRS 1900	1850.2	512	18.97	15.77	21.38	18.18	20.84	17.64	20.99	17.99
	1880	661	19.37	16.17	21.48	18.28	21.04	17.84	21.19	18.09
	1909.8	810	19.17	15.97	21.38	21.18	20.94	17.74	21.09	17.99
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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#. WCDMA Band Ⅳ HSDPA/HSUPA conducted power table:

		Rel99	HSDPA				HSUPA				
		Rel99	1	2	3	4	1	2	3	4	5
WCDMA Band Ⅳ	9262	23.00	22.71	22.88	22.23	22.30	22.92	20.97	21.98	21.10	22.81
	9400	22.86	22.96	22.72	22.51	22.52	22.84	20.91	21.86	20.96	22.70
	9538	22.83	22.67	22.68	22.14	22.26	22.77	20.81	21.85	20.85	22.68

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#. WLAN802.11 a/b/g/n(H20) conducted power table:

Band	Channel	Peak power	Average power
WLAN 802.11 b	2412	17.33	14.67
	2437	17.01	14.49
	2462	16.99	14.52
WLAN 802.11 g	2412	14.77	11.55
	2437	20.08	16.83
	2462	16.42	13.37
WLAN 802.11 n (20M)	2412	13.21	9.8
	2437	18.27	14.91
	2462	15.18	11.65
WLAN 802.11 a	5180	16.11	12.63
	5220	16.07	12.72
	5240	15.95	12.41
WLAN 802.11 a	5260	17.53	14.22
	5300	17.82	14.47
	5320	17.87	14.47
WLAN 802.11 a	5745	17.2	13.57
	5785	16.84	13.31
	5825	16.16	12.62
WLAN 802.11 n (20M)	5180	16.22	12.73
	5220	16.25	12.61
	5240	15.96	12.59
WLAN 802.11 n (20M)	5260	17.8	14.3
	5300	17.93	14.33
	5320	17.89	14.45
WLAN 802.11 n (20M)	5745	17.15	13.91
	5785	16.78	13.47
	5825	16.23	12.76

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#. Bluetooth conducted power table:

Band	Channel	Peak power
BDR	2402	-0.30
	2441	0.91
	2480	1.26
EDR	2402	-0.08
	2441	0.92
	2480	1.50

1.4 Test Environment

Ambient Temperature : 22±2° C
Tissue Simulating Liquid: 22±2° C

1.5 Operation description

General:

1. The EUT is controlled by using a Radio Communication Tester (Agilent 8960), and the communication between the EUT and the tester is established by air link.
2. Measurements are performed respectively on the lowest, middle and highest channels of the operating band(s). The EUT is set to maximum power level during all tests, and at the beginning of each test the batt˙ery 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. The testing device support mobile hotspot function (WWAN and Wi-Fi g), the separation distance is **10mm** due to its dimension of testing device (119 mmx 60 mm) is bigger than 9 x 5 cm refered as test guidance of KDB941225D06. **(No need to perform SAR testing with Body worn accessory (15mm separation distance) due to the hotspot mode (10mm separation distance) is**

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conservative than Body worn accessory mode.)

Body SAR Test configurations:

Hotspot mode (WWAN and Wi-Fi g)

(1) Front side

(2) Back side

(3) Top side. (WWAN antenna to user distance >25mm_No need SAR)

(4) Bottom side. (WLAN antenna to user distance >25mm_No need SAR)

(5) Right side. (WLAN antenna to user distance >25mm_No need SAR)

(6) Left side.

No support hotspot function (Wi-Fi b/a/n), testing body-worn SAR by separating **10mm** between the backof the EUT and the flat phantom.

SAR evaluation considerations for handsets with multiple transmitters:

6. When the maximum transmitter and antenna output power are ≦ 60/f(GHz) (mW) SAR evaluation is typically not required for FCC or TCB approval (BT power=1.50 dBm)
7. According to 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.
8. **Body (Hotsopt mode):**

   The highest 1-g SAR for WLAN is 0.223 W/kg (Hotspot mode_back side), the highest 1-g SAR for WWAN is 1.28W/kg (Hotspot mode_back side). The sum of 1-g for simultaneous transmitting **WLAN and WWAN antenna pair** is 0.223+1.28 = 1.503 W/kg < 1.6 W/kg.According to KDB648474/ KDB447498 /KDB248227 Simultaneous SAR evaluation is not required.

   Head:

   The highest 1-g SAR for WLAN is 0.398 W/kg and the highest 1-g SAR for WWAN is 0.79W/kg. The sum of 1-g for simultaneous transmitting **WLAN and WWAN antenna pai**r is 0.398+0.79= 1.188 W/kg < 1.6 W/kg. According to KDB648474/ KDB447498 /KDB248227 Simultaneous SAR evaluation is not required.

Additional configuration(Head):

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

Additional configuration(Body):

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

13. For highest SAR configuration in this band repeated with Headset.

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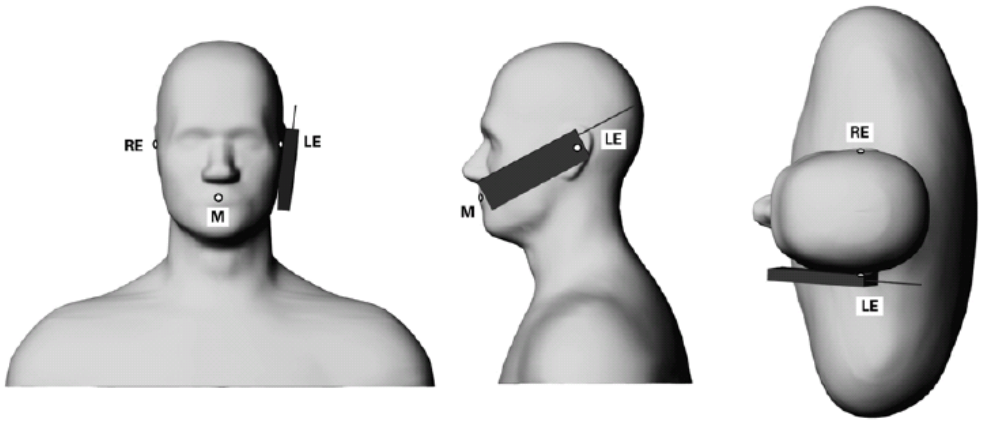
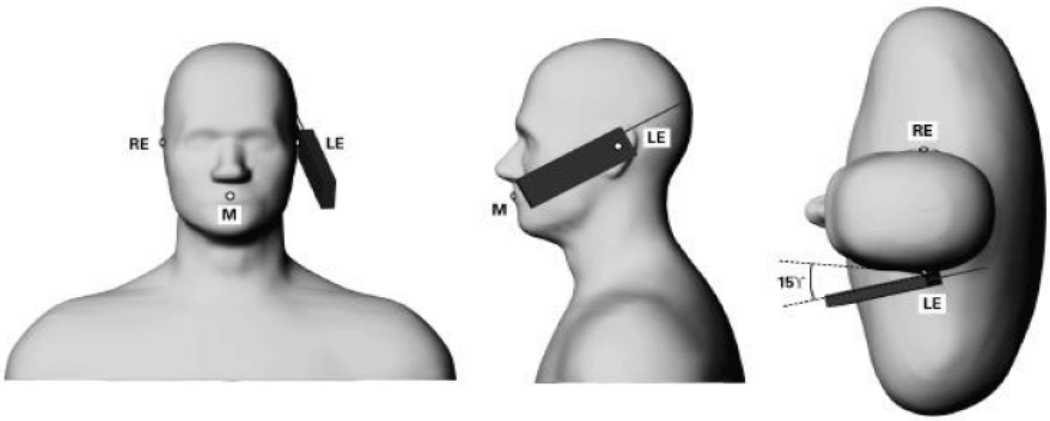
1.6 Positioning Procedure



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 the 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= σ ($|Ei|^2$)/ ρ where σ and ρ are the conductivity and mass density of the tissue-simulant.

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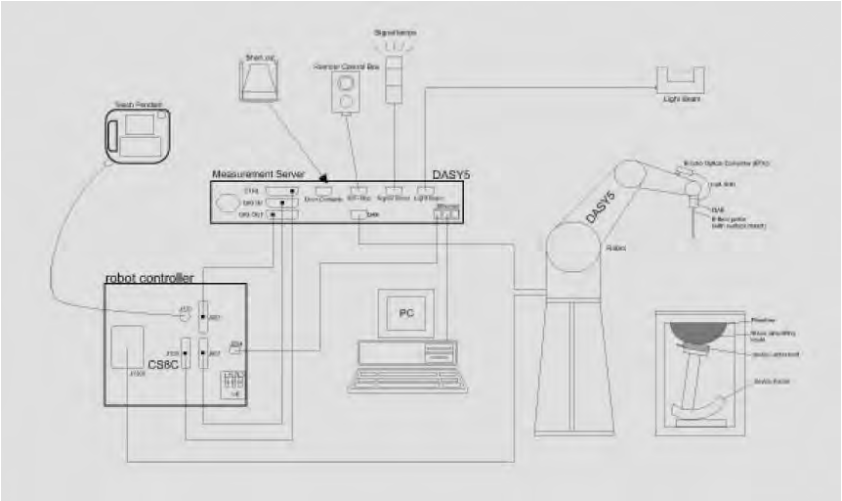

Fig.a The block diagram of SAR system

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 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.

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

1.9 System Components

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 HSL835/1750/1900/2450/5200/5800MHz 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 µW/g to > 100 mW/g; Linearity: ± 0.2 dB (noise: typically < 1 µW/g)	
Dimensions	Overall length: 330 mm (Tip: 20 mm) Tip diameter: 2.5 mm (Body: 12 mm) Typical distance from probe tip to dipole centers: 1 mm	
Application	High precision dosimetric measurements in any exposure scenario (e.g., very strong gradient fields). Only probe which enables compliance testing for frequencies up to 6 GHz with precision of better 30%.	

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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 +/- 5% from the target SAR values.

These tests were done at 835/1750/1900/2450/5200/5800 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.

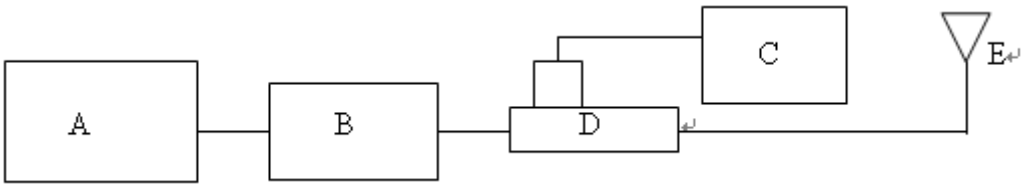
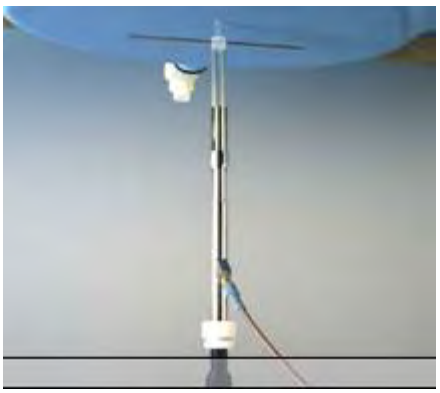


Fig.b The block diagram of system verification

A. Agilent Model 8648D Signal Generator
B. Mini circuits Model ZHL-42 Amplifier
C. Agilent Model U2001B Power Sensor
D. Agilent Model 777D/778D 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	2.28	Oct. 27, 2011
			Body	2.43	2.43	Oct. 27, 2011
D1750V2	1008	1750	Head	8.89	9.17	Oct. 28, 2011
			Body	9.04	9.16	Oct. 28, 2011
D1900V2	5d027	1900	Head	10.1	9.71	Oct. 27, 2011
			Body	9.93	9.5	Oct. 27, 2011
D2450V2	727	2450	Head	13.7	13.2	Nov. 1, 2011
			Body	12.7	12.8	Nov. 1, 2011
D5GHzV2	1040	5200	Head	8.13	8.4	Nov. 3, 2011
	1023		Body	7.81	7.83	Nov. 3, 2011
D5GHzV2	1040	5800	Head	7.93	7.91	Nov. 3, 2011
	1023		Body	7.44	7.13	Nov. 3, 2011

Table 1. System validation (follow manufacture target value)

1.11 Tissue Simulant Fluid for the Frequency Band

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

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

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Frequency (MHz)	Tissue type	Dielectric Parameters	Recommended Limits	Measured	Measurement date
835	Head	ρ	38.38-42.42	41.855	Oct. 27, 2011
		σ (S/m)	0.84-0.92	0.868	
		Tissue Temp.(° C)	20-24	21.7	
	Body	ρ	51.21-56.60	52.416	Oct. 27, 2011
		σ (S/m)	0.95-1.05	0.983	
		Tissue Temp.(° C)	20-24	21.7	
1750	Head	ρ	37.43-41.37	41.121	Oct. 28, 2011
		σ (S/m)	1.27-1.41	1.392	
		Tissue Temp.(° C)	20-24	21.7	
	Body	ρ	49.69-54.92	54.867	Oct. 28, 2011
		σ (S/m)	1.37-1.51	1.475	
		Tissue Temp.(° C)	20-24	21.7	
1900	Head	ρ	36.96-40.85	40.557	Oct. 27, 2011
		σ (S/m)	1.34-1.48	1.424	
		Tissue Temp.(° C)	20-24	21.7	
	Body	ρ	48.55-53.66	50.18	Oct. 27, 2011
		σ (S/m)	1.44-1.60	1.575	
		Tissue Temp.(° C)	20-24	21.7	
2450	Head	ρ	36.77-40.64	37.556	Nov. 1, 2011
		σ (S/m)	1.63-1.81	1.797	
		Tissue Temp.(° C)	20-24	21.7	
	Body	ρ	48.07-53.13	50.025	Nov. 1, 2011
		σ (S/m)	1.81-2.01	1.921	
		Tissue Temp.(° C)	20-24	21.7	
5200	Head	ρ	34.01-37.59	35.457	Nov. 3, 2011
		σ (S/m)	4.275-4.73	4.582	
		Tissue Temp.(° C)	20-24	21.7	
	Body	ρ	44.84-49.56	48.322	Nov. 3, 2011
		σ (S/m)	5.13-5.67	5.328	

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Frequency (MHz)	Tissue type	Dielectric Parameters	Recommended Limits	Measured	Measurement date
		Tissue Temp.(° C)	20-24	21.7	
5800	Head	ρ	33.06-36.54	34.056	Nov. 3, 2011
		σ (S/m)	4.83-5.33	5.29	
		Tissue Temp.(° C)	20-24	21.7	
	Body	ρ	43.8-48.41	46.35	Nov. 3, 2011
		σ (S/m)	5.87-6.49	6.177	
		Tissue Temp.(° C)	20-24	21.7	

Table 2. Dielectric Parameters of Tissue Simulant Fluid

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)
1750	Head	444.52	552.42	3.06	—	—	—	1.0L(Kg)
	Body	294.42	701.66	3.92	—	—	—	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

Band	Mode	EUT Position	Test Configuration	Averaged SAR over 1g (W/kg)			SAR Limit 1g (W/kg)
				CH 128 824.20 MHz	CH 190 836.60 MHz	CH 251 848.80 MHz	
GSM850	GSM	Right	Cheek	—	0.374	—	1.6
			Tilt	—	0.258	—	1.6
		Left	Cheek	0.363	0.402	0.407	1.6
			Tilt	—	0.240	—	1.6
	GPRS class 10	Hotspot mode	Front	—	0.621	—	1.6
			Back	0.985	1.03	0.996	1.6
			Top	—	—	—	1.6
			Bottom	—	0.143	—	1.6
			Right	—	0.404	—	1.6
			Left	—	0.506	—	1.6
	GPRS Class 8		Back	—	0.754	—	1.6
	GPRS Class 12		Back	—	0.947	—	1.6

Accroding to section 6.3.1 and 6.3.1.2 of KDB941225 D03 to exclude SAR test requirements for EDGE modes due to the source-based time-averaged output power (page 7's conducted power table) 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

Band	Mode	EUT Position	Test Configuration	Averaged SAR over 1g (W/kg)			SAR Limit 1g (W/kg)
				CH 512	CH 661	CH 810	
				1850.20 MHz	1800.00 MHz	1909.80 MHz	
PCS 1900	GSM	Right	Cheek	—	0.273	—	1.6
			Tilt	—	0.157	—	1.6
		Left	Cheek	0.233	0.285	0.309	1.6
			Tilt	—	0.153	—	1.6
	GPRS class 10	Hotspot mode	Front	—	0.523	—	1.6
			Back	—	0.563	—	1.6
			Top	—	—	—	1.6
			Bottom	—	0.327	—	1.6
			Right	—	0.158	—	1.6
			Left	—	0.105	—	1.6
	GPRS Class 8		Back	—	0.438	—	1.6
	GPRS Class 12		Back	—	0.469	—	1.6

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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WCDMA Band Ⅳ

Band	Mode	EUT Position	Test Configuration	Averaged SAR over 1g (W/kg)			SAR Limit 1g (W/kg)
				CH 1312	CH 1412	CH 1513	
				1712.40 MHz	1732.60 MHz	1752.60 MHz	
WCDMA BAND II	R99	Right	Cheek	0.693	0.605	0.79	1.6
			Cheek - with Memory card	—	—	0.720	1.6
			Tilt	—	0.315	—	1.6
		Left	Cheek	—	0.473	—	1.6
			Tilt	—	0.284	—	1.6
	R99	Hotspot mode	Front	—	0.756	—	1.6
			Back	1.26	1.03	1.13	1.6
			Back - with Memory card	1.17	—	—	1.6
			Back - with Headset	1.28	—	—	1.6
			Top	—	—	—	1.6
			Bottom	—	0.557	—	1.6
			Right	—	0.192	—	1.6
			Left	—	0.140	—	1.6

Using KDB941225 D01 to exclude SAR test requirements for HSPA modes due to the maximum average output power of HSPA active is less than 1/4 dB higher than that measured without HSPA using 12.2kbps RMC

According to KDB447498 the 1-g SAR for the highest output channel is less than 0.8 W/kg, where the transmission band corresponding to all channels is ≤ 100 MHz, testing for the other channels is not required.

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WLAN802.11 b

Band	Mode	EUT Position	Test Configuration	Averaged SAR over 1g (W/kg)			SAR Limit 1g (W/kg)
				CH 1 2412 MHz	CH 6 2437 MHz	CH 11 2462 MHz	
WLAN 802.11 b	Head	Right	Cheek	—	0.233	—	1.6
			Tilt	0.238	0.252	0.258	1.6
		Left	Cheek	—	0.157	—	1.6
			Tilt	—	0.185	—	1.6
	Hotspot mode		Back	—	0.116	—	1.6

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 g

Band	Mode	EUT Position	Test Configuration	Averaged SAR over 1g (W/kg)			SAR Limit 1g (W/kg)
				CH 1 2412 MHz	CH 6 2437 MHz	CH 11 2462 MHz	
WLAN 802.11 g	Head	Right	Cheek	—	0.365	—	1.6
			Tilt	0.097	0.398	0.182	1.6
			Tilt - with Memory card	—	0.369	—	1.6
		Left	Cheek	—	0.242	—	1.6
			Tilt	—	0.285	—	1.6
	Hotspot mode		Front	—	0.101	—	1.6
			Back	—	0.185	—	1.6
			Back - with Memory card	—	0.219	—	1.6
			Back - with headset	—	0.223	—	1.6
			Top	—	0.110	—	1.6
			Bottom	—	—	—	1.6
			Right	—	—	—	1.6
			Left	—	0.061	—	1.6

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 n (20M)

Band	Mode	EUT Position	Test Configuration	Averaged SAR over 1g (W/kg)			SAR Limit 1g (W/kg)
				CH 1 2412 MHz	CH 6 2437 MHz	CH 11 2462 MHz	
WLAN 802.11 n (20M)	Head	Right	Cheek	—	0.217	—	1.6
			Tilt	0.069	0.231	0.147	1.6
		Left	Cheek	—	0.149	—	1.6
			Tilt	—	0.169	—	1.6
	Hotspot mode		Back	—	0.147	—	1.6

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 a 5.2G

Band	Mode	EUT Position	Test Configuration	Averaged SAR over 1g (W/kg)				SAR Limit 1g (W/kg)
				CH 36 5180 MHz	CH 48 5240 MHz	CH 52 5260 MHz	CH 64 5320 MHz	
WLAN 802.11 a 5.2G	Head	Right	Cheek	—	—	—	0.055	1.6
			Tilt	—	—	—	0.067	1.6
		Left	Cheek	0.045	0.035	0.054	0.224	1.6
			Tilt	—	—	—	0.049	1.6
	Hotspot mode		Back	—	—	—	0.037	1.6

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 n (20m) 5.2G

Band	Mode	EUT Position	Test Configuration	Averaged SAR over 1g (W/kg)				SAR Limit 1g (W/kg)
				CH 36 5180 MHz	CH 48 5240 MHz	CH 52 5260 MHz	CH 64 5320 MHz	
WLAN 802.11 n (20m) 5.2G	Head	Right	Cheek	—	—	—	0.051	1.6
			Tilt	0.050	0.027	0.049	0.053	1.6
		Left	Cheek	—	—	—	0.045	1.6
			Tilt	—	—	—	0.042	1.6
	Hotspot mode		Back	—	—	—	0.038	1.6

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 a 5.8G

Band	Mode	EUT Position	Test Configuration	Averaged SAR over 1g (W/kg)			SAR Limit 1g (W/kg)
				CH 149 5745 MHz	CH 157 5785 MHz	CH 165 5825 MHz	
WLAN 802.11 n 5.8G	Head	Right	Cheek	0.090	—	—	1.6
			Tilt	0.130	—	—	1.6
		Left	Cheek	0.110	—	—	1.6
			Tilt	0.139	0.154	0.194	1.6
	Hotspot mode		Back	0.130	—	—	1.6

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 n (20m) 5.8G

Band	Mode	EUT Position	Test Configuration	Averaged SAR over 1g (W/kg)			SAR Limit 1g (W/kg)
				CH 149 5745 MHz	CH 157 5785 MHz	CH 165 5825 MHz	
WLAN 802.11 n (20m) 5.8G	Head	Right	Cheek	0.106	—	—	1.6
			Tilt	0.133	0.168	0.195	1.6
		Left	Cheek	0.113	—	—	1.6
			Tilt	0.113	—	—	1.6
	Hotspot mode		Back	0.165	—	—	1.6

According to KDB447498 the 1-g SAR for the highest output channel is less than 0.8 W/kg, where the transmission band corresponding to all channels is ≤ 100 MHz, testing for the other channels is not required.

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3. Instruments List

Device	Manufacturer	Type	Serial number	Date of last calibration	Date of next calibration
Dosimetric E-Field Probe	Schmid & Partner Engineering AG	EX3DV4	3661	Jan.24.2011	Jan.23.2012
			3770	Apr.19.2011	Apr.18.2012
835/1750/1900/ 2450/5200/5800 MHz System Validation Dipole	Schmid & Partner Engineering AG	D835V2	4d063	May.25.2011	May.24.2012
		D1750V2	1008	May.24,2011	May.23,2012
		D1900V2	5d027	Apr.19.2011	Apr.18.2012
		D2450V2	727	Apr.19.2011	Apr.18.2012
		D5GHzV2	1023	Jan.19,2011	Jan.18,2012
			1040	Jun.21,2011	Jun.22,2012
Data acquisition Electronics	Schmid & Partner Engineering AG	DAE4	856	May.18.2011	May.17.2012
Software	Schmid & Partner Engineering AG	DASY 5 V52.6	N/A	Calibration not required	
Phantom	Schmid & Partner Engineering AG	SAM	N/A	Calibration not required	
Network Analyzer	HP	8753D	3410A05547	Mar.16.2011	Mar.15.2012
Dielectric Probe Kit	HP	85070D	US01440168	Calibration not required	
Dual-directional coupler	Agilent	778D	50313	Aug.19.2011	Aug.18.2012
		777D	50114	Aug.18.2011	Aug.17.2012
RF Signal Generator	Agilent	8648D	3847M00432	Jun.01.2011	May.31.2012
Power Sensor	Agilent	U2001B	MY48100169	Apr.28.2011	Apr.27.2012
Radio Communication Test	Agilent	E5515C	GB44051912	Jul.27.2010	Jul.26.2012

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4. Measurements

Date: 10/27/2011

RE Cheek_CH190

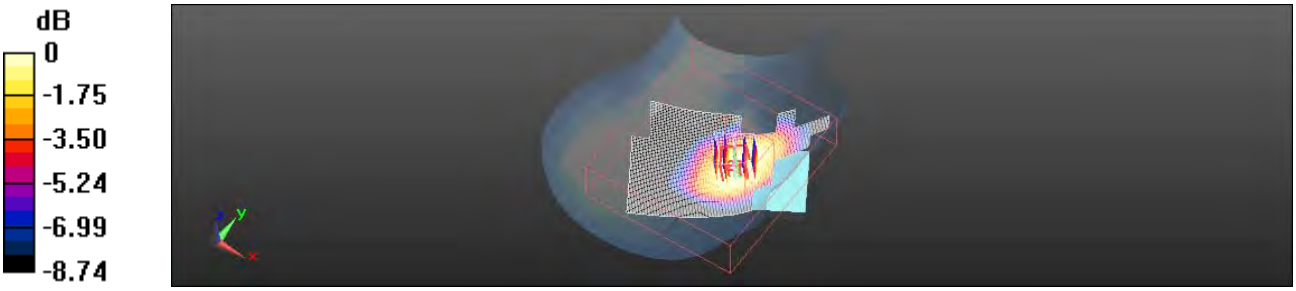
Communication System: Generic GSM; Frequency: 836.6 MHz
Medium parameters used: f = 837 MHz; σ = 0.869 mho/m; ε_r = 41.846; ρ = 1000 kg/m^3
Phantom section: Right Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(9.25, 9.25, 9.25); Calibrated: 4/19/2011
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/RE Cheek/Area Scan (71x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.431 mW/g

Configuration/RE Cheek/Zoom Scan (7x7x7) (7x7x7)/Cube 0:
Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 7.049 V/m; Power Drift = -0.06 dB
Peak SAR (extrapolated) = 0.466 W/kg

SAR(1 g) = 0.374 mW/g; SAR(10 g) = 0.279 mW/g
Maximum value of SAR (measured) = 0.425 mW/g



0 dB = 0.430mW/g

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Date: 10/27/2011

RE Tilt_CH190

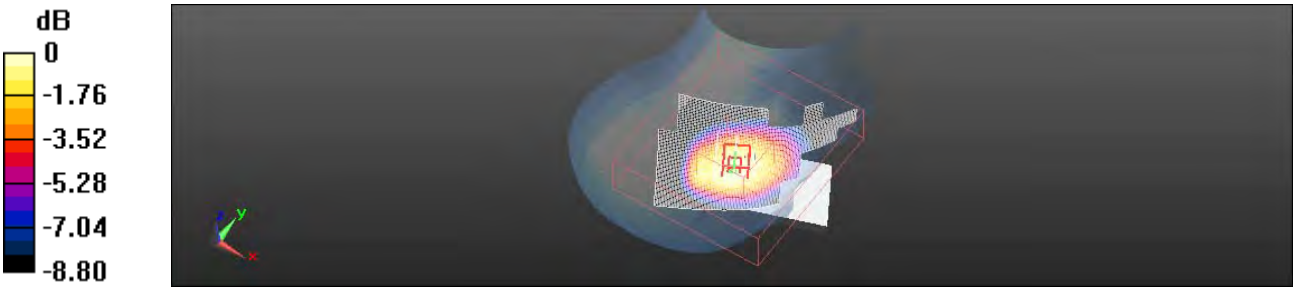
Communication System: Generic GSM; Frequency: 836.6 MHz
Medium parameters used: f = 837 MHz; σ = 0.869 mho/m; ε_r = 41.846; ρ = 1000 kg/m^3
Phantom section: Right Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(9.25, 9.25, 9.25); Calibrated: 4/19/2011
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/RE Tilt/Area Scan (71x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.304 mW/g

Configuration/RE Tilt/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 13.610 V/m; Power Drift = -0.07 dB
Peak SAR (extrapolated) = 0.327 W/kg

SAR(1 g) = 0.258 mW/g; SAR(10 g) = 0.193 mW/g
Maximum value of SAR (measured) = 0.300 mW/g



0 dB = 0.300mW/g

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LE Cheek_CH128

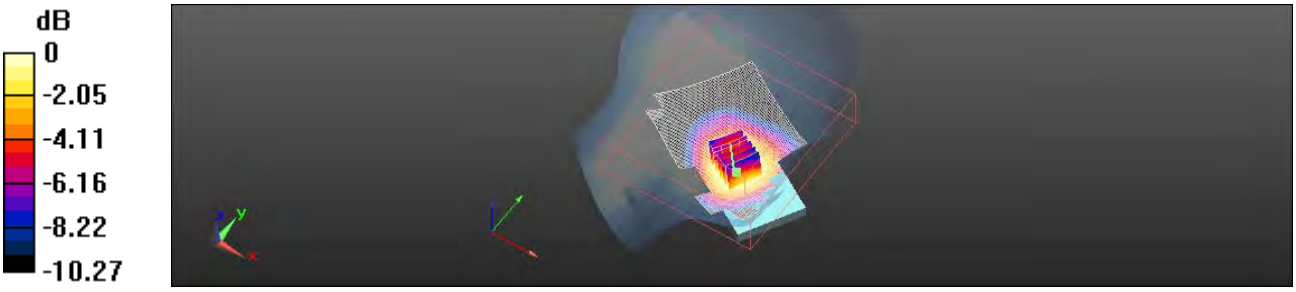
Communication System: Generic GSM; Frequency: 824.2 MHz
Medium parameters used: f = 824.2 MHz; σ = 0.86 mho/m; ε_r = 41.893; ρ = 1000 kg/m^3
Phantom section: Left Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(9.25, 9.25, 9.25); Calibrated: 4/19/2011
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/LE Cheek/Area Scan (71x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.420 mW/g

Configuration/LE Cheek/Zoom Scan (7x7x7) (7x7x7)/Cube 0:
Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 7.992 V/m; Power Drift = -0.08 dB
Peak SAR (extrapolated) = 0.451 W/kg

SAR(1 g) = 0.363 mW/g; SAR(10 g) = 0.275 mW/g
Maximum value of SAR (measured) = 0.409 mW/g



0 dB = 0.410mW/g

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Date: 10/27/2011

LE Cheek_CH190

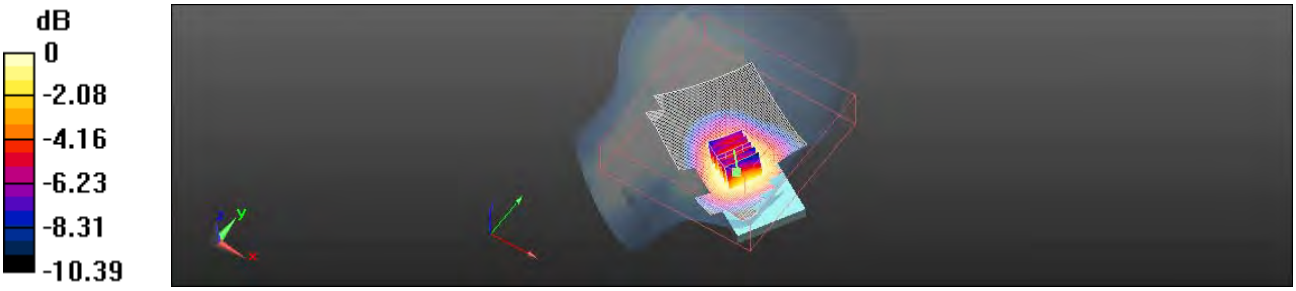
Communication System: Generic GSM; Frequency: 836.6 MHz
Medium parameters used: f = 837 MHz; σ = 0.869 mho/m; ε_r = 41.846; ρ = 1000 kg/m^3
Phantom section: Left Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(9.25, 9.25, 9.25); Calibrated: 4/19/2011
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/LE Cheek/Area Scan (71x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.467 mW/g

Configuration/LE Cheek/Zoom Scan (7x7x7) (7x7x7)/Cube 0:
Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 8.365 V/m; Power Drift = -0.16 dB
Peak SAR (extrapolated) = 0.502 W/kg

SAR(1 g) = 0.402 mW/g; SAR(10 g) = 0.303 mW/g
Maximum value of SAR (measured) = 0.456 mW/g



0 dB = 0.460mW/g

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Date: 10/27/2011

LE Cheek_CH251

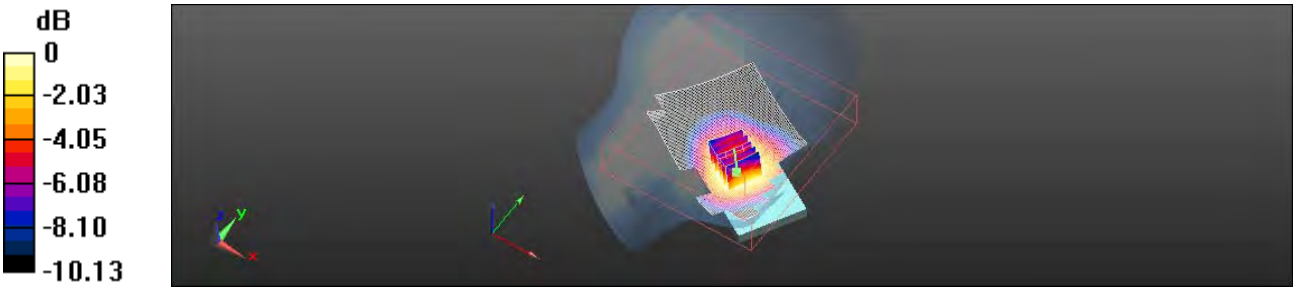
Communication System: Generic GSM; Frequency: 848.6 MHz
Medium parameters used: f = 849 MHz; σ = 0.879 mho/m; ε_r = 41.77; ρ = 1000 kg/m^3
Phantom section: Left Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(9.25, 9.25, 9.25); Calibrated: 4/19/2011
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/LE Cheek/Area Scan (71x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.476 mW/g

Configuration/LE Cheek/Zoom Scan (7x7x7) (7x7x7)/Cube 0:
Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 8.088 V/m; Power Drift = -0.05 dB
Peak SAR (extrapolated) = 0.510 W/kg

SAR(1 g) = 0.407 mW/g; SAR(10 g) = 0.307 mW/g
Maximum value of SAR (measured) = 0.462 mW/g



0 dB = 0.460mW/g

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Date: 10/27/2011

LE Tilt_CH190

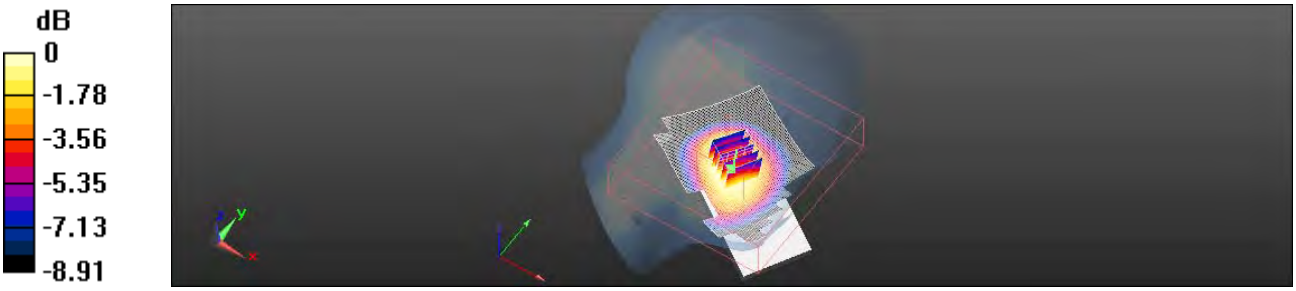
Communication System: Generic GSM; Frequency: 836.6 MHz
Medium parameters used: f = 837 MHz; σ = 0.869 mho/m; ε_r = 41.846; ρ = 1000 kg/m^3
Phantom section: Left Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(9.25, 9.25, 9.25); Calibrated: 4/19/2011
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/LE Tilt/Area Scan (71x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.280 mW/g

Configuration/LE Tilt/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 13.965 V/m; Power Drift = -0.08 dB
Peak SAR (extrapolated) = 0.304 W/kg

SAR(1 g) = 0.240 mW/g; SAR(10 g) = 0.180 mW/g
Maximum value of SAR (measured) = 0.278 mW/g



0 dB = 0.280mW/g

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Date: 10/27/2011

Hotspot mode_Front side_CH190

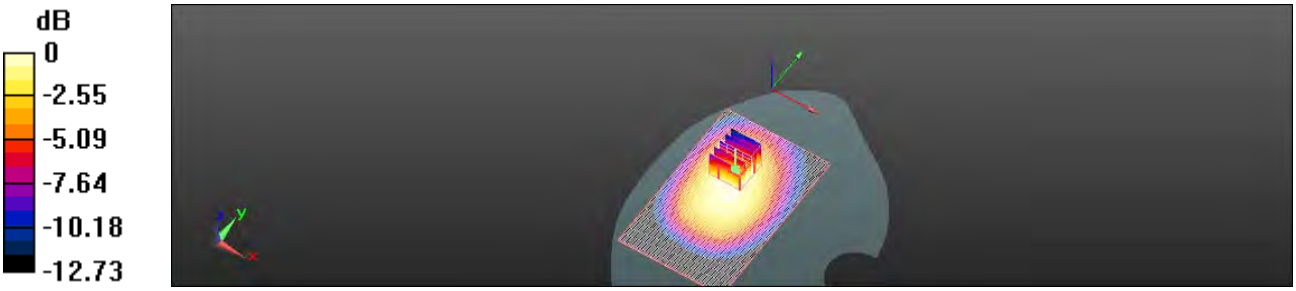
Communication System: GPRS(Class 10); Frequency: 836.6 MHz
Medium parameters used: f = 837 MHz; σ = 0.985 mho/m; ε_r = 52.396; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(9.3, 9.3, 9.3); Calibrated: 4/19/2011
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/Body/Area Scan (71x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.761 mW/g

Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 16.535 V/m; Power Drift = -0.19 dB
Peak SAR (extrapolated) = 0.830 W/kg

SAR(1 g) = 0.621 mW/g; SAR(10 g) = 0.456 mW/g
Maximum value of SAR (measured) = 0.736 mW/g



0 dB = 0.740mW/g

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Date: 10/27/2011

Hotspot mode_Back side_CH128

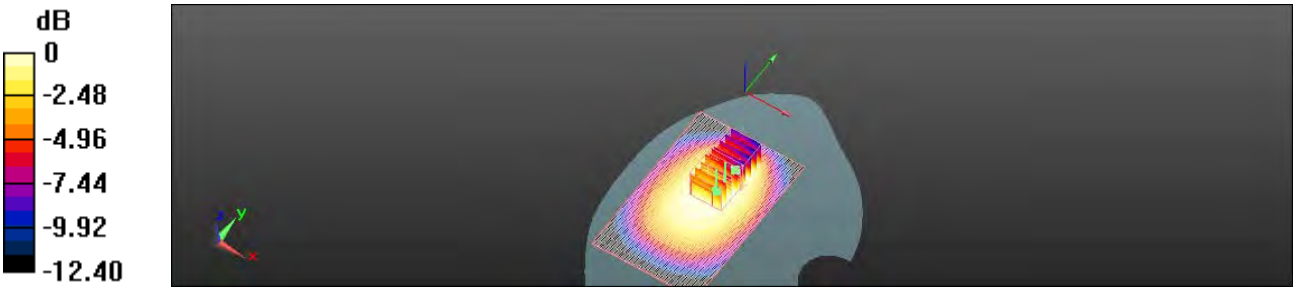
Communication System: GPRS(Class 10); Frequency: 824.2 MHz
Medium parameters used: f = 824.2 MHz; σ = 0.972 mho/m; ε_r = 52.51; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(9.3, 9.3, 9.3); Calibrated: 4/19/2011
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/Body/Area Scan (71x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.140 mW/g

Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 21.848 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 1.290 W/kg
SAR(1 g) = 0.985 mW/g; SAR(10 g) = 0.720 mW/g
Maximum value of SAR (measured) = 1.040 mW/g

Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 1: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 21.142 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 1.305 W/kg
SAR(1 g) = 0.831 mW/g; SAR(10 g) = 0.475 mW/g
Maximum value of SAR (measured) = 1.013 mW/g



0 dB = 1.040mW/g

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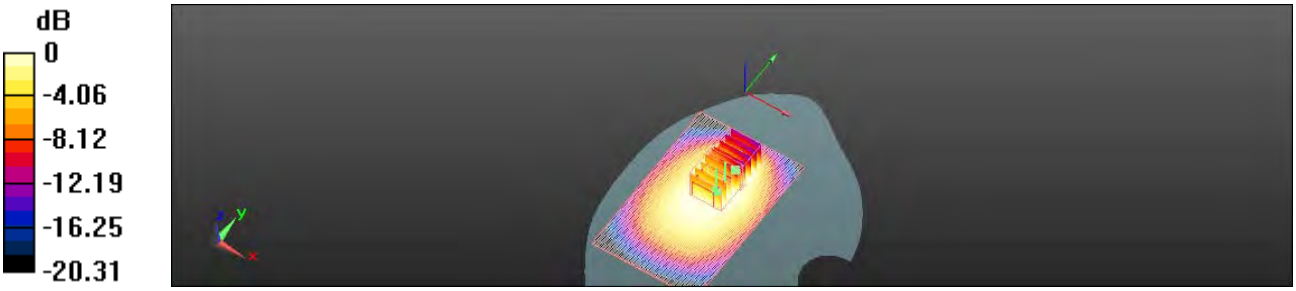
Hotspot mode_Back side_CH190

Communication System: GPRS(Class 10); Frequency: 836.6 MHz
Medium parameters used: f = 837 MHz; σ = 0.985 mho/m; ε_r = 52.396; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(9.3, 9.3, 9.3); Calibrated: 4/19/2011
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/Body/Area Scan (71x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.200 mW/g
Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 22.180 V/m; Power Drift = -0.10 dB
Peak SAR (extrapolated) = 1.329 W/kg
SAR(1 g) = 1.03 mW/g; SAR(10 g) = 0.751 mW/g
Maximum value of SAR (measured) = 1.202 mW/g
Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 1: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 22.180 V/m; Power Drift = -0.10 dB
Peak SAR (extrapolated) = 1.323 W/kg
SAR(1 g) = 0.823 mW/g; SAR(10 g) = 0.483 mW/g
Maximum value of SAR (measured) = 1.089 mW/g



0 dB = 1.090mW/g

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Date: 10/27/2011

Hotspot mode_Back side_CH251

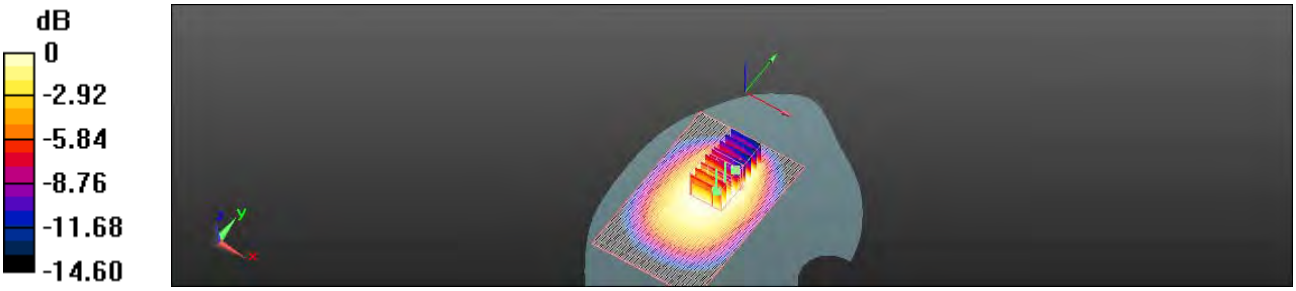
Communication System: GPRS(Class 10); Frequency: 848.8 MHz
Medium parameters used: f = 849 MHz; σ = 0.997 mho/m; ε_r = 52.271; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(9.3, 9.3, 9.3); Calibrated: 4/19/2011
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/Body/Area Scan (71x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.165 mW/g

Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 21.621 V/m; Power Drift = -0.10 dB
Peak SAR (extrapolated) = 1.302 W/kg
SAR(1 g) = 0.996 mW/g; SAR(10 g) = 0.728 mW/g
Maximum value of SAR (measured) = 1.163 mW/g

Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 1: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 21.621 V/m; Power Drift = -0.10 dB
Peak SAR (extrapolated) = 1.333 W/kg
SAR(1 g) = 0.760 mW/g; SAR(10 g) = 0.505 mW/g
Maximum value of SAR (measured) = 1.057 mW/g



0 dB = 1.060mW/g

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Date: 10/27/2011

Hotspot mode_Bottom side_CH190

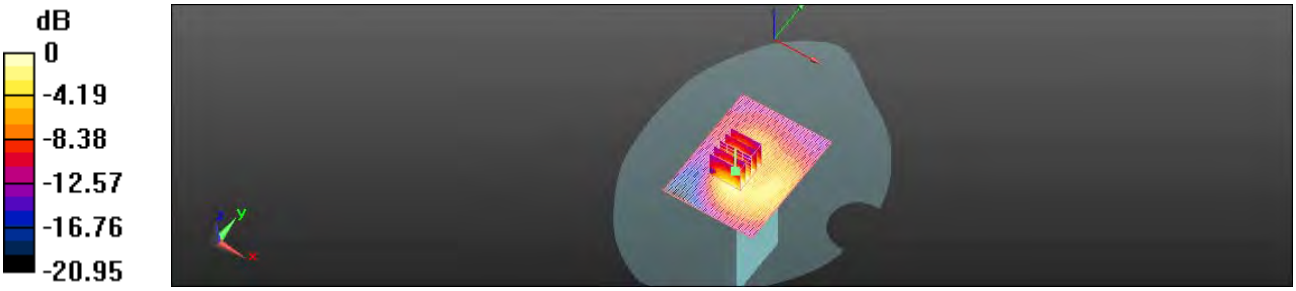
Communication System: GPRS(Class 10); Frequency: 836.6 MHz
Medium parameters used: f = 837 MHz; σ = 0.985 mho/m; ε_r = 52.396; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(9.3, 9.3, 9.3); Calibrated: 4/19/2011
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/Body/Area Scan (61x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.188 mW/g

Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 6.529 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 0.251 W/kg

SAR(1 g) = 0.143 mW/g; SAR(10 g) = 0.079 mW/g
Maximum value of SAR (measured) = 0.200 mW/g



0 dB = 0.200mW/g

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Date: 10/27/2011

Hotspot mode_Right side_CH190

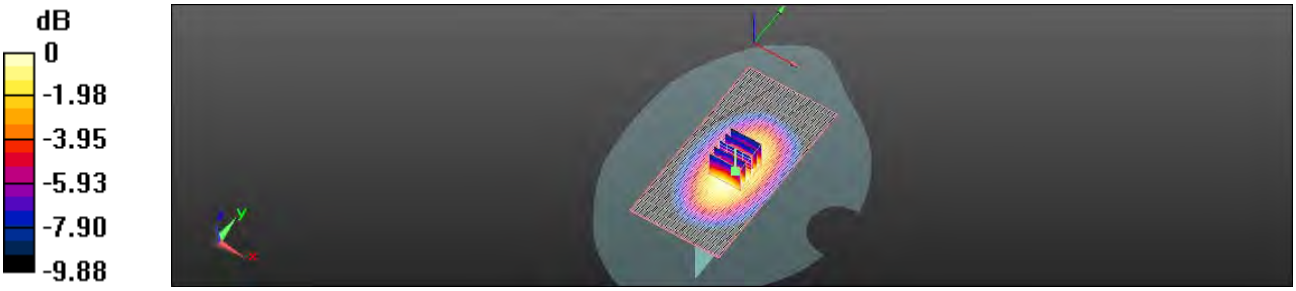
Communication System: GPRS(Class 10); Frequency: 836.6 MHz
Medium parameters used: f = 837 MHz; σ = 0.985 mho/m; ε_r = 52.396; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(9.3, 9.3, 9.3); Calibrated: 4/19/2011
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/Body/Area Scan (61x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.493 mW/g

Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 22.661 V/m; Power Drift = -0.09 dB
Peak SAR (extrapolated) = 0.564 W/kg

SAR(1 g) = 0.404 mW/g; SAR(10 g) = 0.281 mW/g
Maximum value of SAR (measured) = 0.493 mW/g



0 dB = 0.490mW/g

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Date: 10/27/2011

Hotspot mode_Left side_CH190

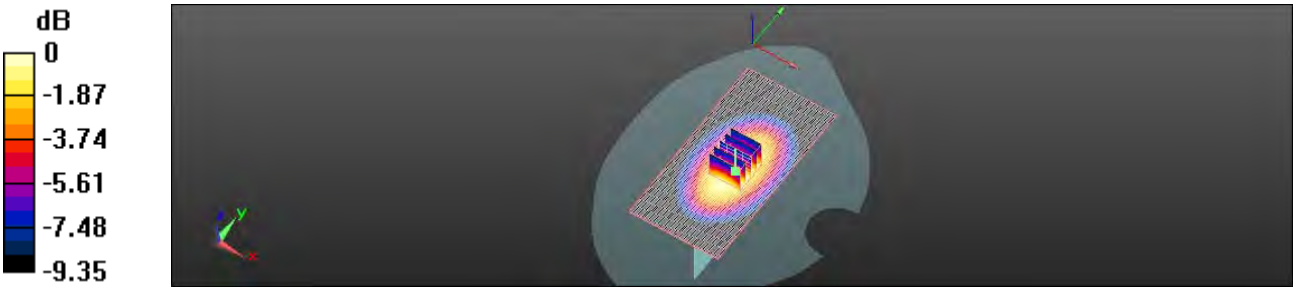
Communication System: GPRS(Class 10); Frequency: 836.6 MHz
Medium parameters used: f = 837 MHz; σ = 0.985 mho/m; ε_r = 52.396; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(9.3, 9.3, 9.3); Calibrated: 4/19/2011
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/Body/Area Scan (61x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.611 mW/g

Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 24.668 V/m; Power Drift = 0.0074 dB
Peak SAR (extrapolated) = 0.704 W/kg

SAR(1 g) = 0.506 mW/g; SAR(10 g) = 0.353 mW/g
Maximum value of SAR (measured) = 0.617 mW/g



0 dB = 0.620mW/g

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Date: 10/27/2011

Hotspot mode_Back side_CH190_repeated with GPRS Class 8 mode

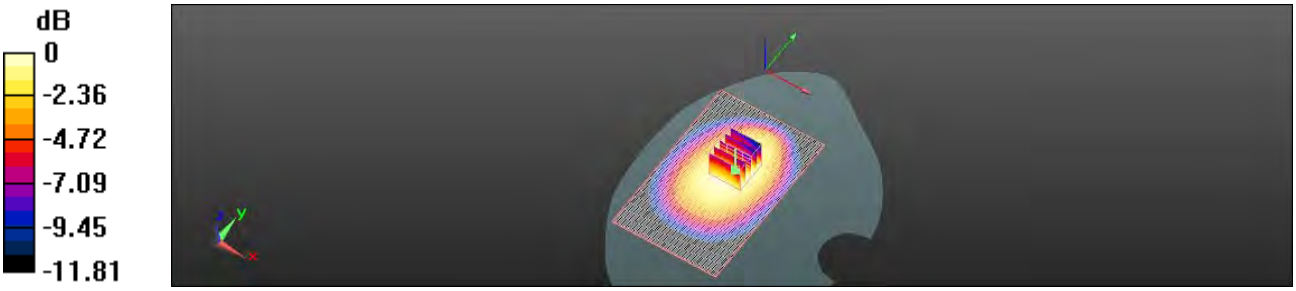
Communication System: GPRS(Class 8); Frequency: 836.6 MHz
Medium parameters used: f = 837 MHz; σ = 0.985 mho/m; ε_r = 52.396; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(9.3, 9.3, 9.3); Calibrated: 4/19/2011
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/Body/Area Scan (71x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.880 mW/g

Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 19.214 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 0.971 W/kg

SAR(1 g) = 0.754 mW/g; SAR(10 g) = 0.557 mW/g
Maximum value of SAR (measured) = 0.878 mW/g



0 dB = 0.880mW/g

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Date: 10/27/2011

Hotspot mode_Back side_CH190_repeated with GPRS Class 12 mode

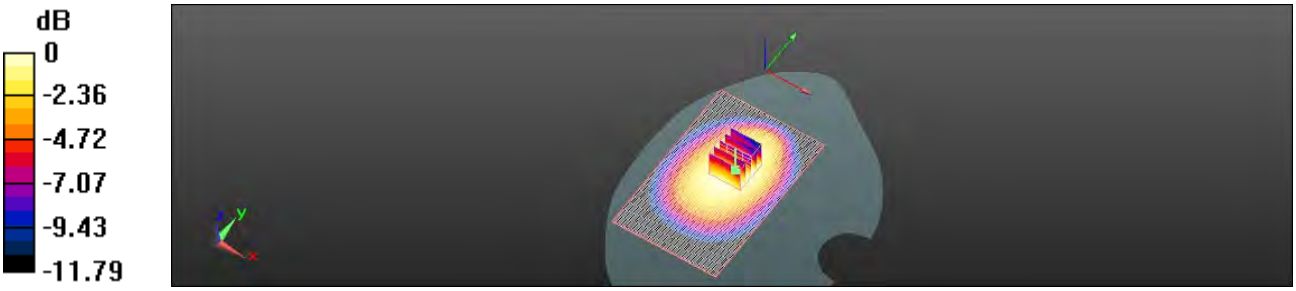
Communication System: GPRS(Class 12); Frequency: 836.6 MHz
Medium parameters used: f = 837 MHz; σ = 0.985 mho/m; ε_r = 52.396; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(9.3, 9.3, 9.3); Calibrated: 4/19/2011
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/Body/Area Scan (71x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.134 mW/g

Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 22.293 V/m; Power Drift = -0.10 dB
Peak SAR (extrapolated) = 1.225 W/kg

SAR(1 g) = 0.947 mW/g; SAR(10 g) = 0.693 mW/g
Maximum value of SAR (measured) = 1.097 mW/g



0 dB = 1.100mW/g

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Date: 10/27/2011

RE Cheek_CH661

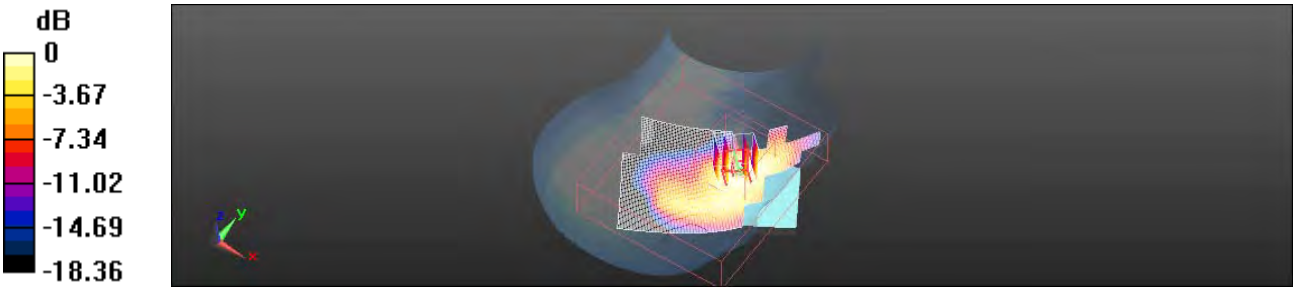
Communication System: Generic GSM; Frequency: 1880 MHz
Medium parameters used: f = 1880 MHz; σ = 1.404 mho/m; ε_r = 40.678; ρ = 1000 kg/m^3
Phantom section: Right Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.78, 7.78, 7.78); Calibrated: 4/19/2011
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/RE Cheek/Area Scan (71x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.361 mW/g

Configuration/RE Cheek/Zoom Scan (7x7x7) (7x7x7)/Cube 0:
Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 6.284 V/m; Power Drift = 0.10 dB
Peak SAR (extrapolated) = 0.421 W/kg

SAR(1 g) = 0.273 mW/g; SAR(10 g) = 0.171 mW/g
Maximum value of SAR (measured) = 0.352 mW/g



0 dB = 0.350mW/g

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Date: 10/27/2011

RE Tilt_CH661

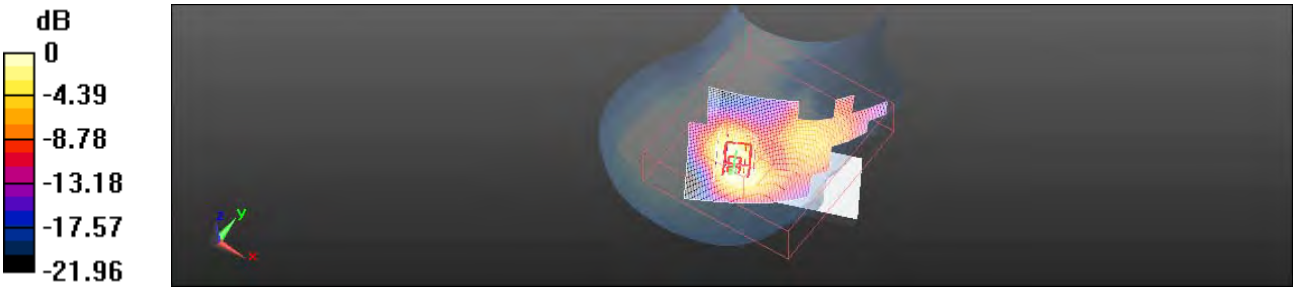
Communication System: Generic GSM; Frequency: 1880 MHz
Medium parameters used: f = 1880 MHz; σ = 1.404 mho/m; ε_r = 40.678; ρ = 1000 kg/m^3
Phantom section: Right Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.78, 7.78, 7.78); Calibrated: 4/19/2011
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/RE Tilt/Area Scan (71x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.266 mW/g

Configuration/RE Tilt/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 11.137 V/m; Power Drift = -0.14 dB
Peak SAR (extrapolated) = 0.237 W/kg

SAR(1 g) = 0.157 mW/g; SAR(10 g) = 0.095 mW/g
Maximum value of SAR (measured) = 0.196 mW/g



0 dB = 0.200mW/g

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LE Cheek_CH512

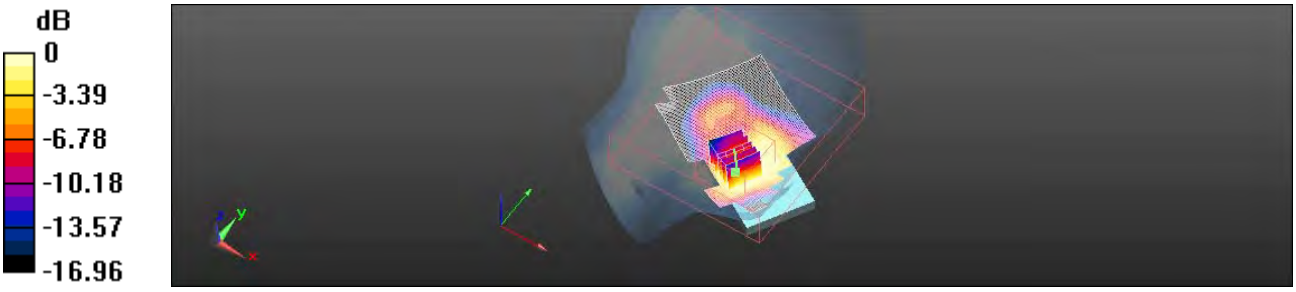
Communication System: Generic GSM; Frequency: 1850.2 MHz
Medium parameters used: f = 1850.2 MHz; σ = 1.375 mho/m; ε_r = 40.769; ρ = 1000 kg/m^3
Phantom section: Left Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.78, 7.78, 7.78); Calibrated: 4/19/2011
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/LE Cheek/Area Scan (71x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.313 mW/g

Configuration/LE Cheek/Zoom Scan (7x7x7) (7x7x7)/Cube 0:
Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 7.079 V/m; Power Drift = -0.07 dB
Peak SAR (extrapolated) = 0.342 W/kg

SAR(1 g) = 0.233 mW/g; SAR(10 g) = 0.150 mW/g
Maximum value of SAR (measured) = 0.282 mW/g



0 dB = 0.280mW/g

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Date: 10/27/2011

LE Cheek_CH661

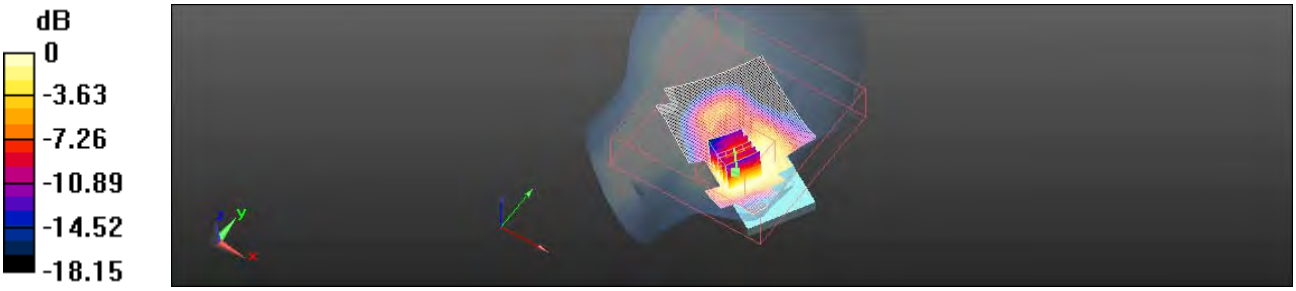
Communication System: Generic GSM; Frequency: 1880 MHz
Medium parameters used: f = 1880 MHz; σ = 1.404 mho/m; ε_r = 40.678; ρ = 1000 kg/m^3
Phantom section: Left Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.78, 7.78, 7.78); Calibrated: 4/19/2011
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/LE Cheek/Area Scan (71x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.388 mW/g

Configuration/LE Cheek/Zoom Scan (7x7x7) (7x7x7)/Cube 0:
Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 7.680 V/m; Power Drift = -0.11 dB
Peak SAR (extrapolated) = 0.422 W/kg

SAR(1 g) = 0.285 mW/g; SAR(10 g) = 0.182 mW/g
Maximum value of SAR (measured) = 0.342 mW/g



0 dB = 0.340mW/g

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Date: 10/27/2011

LE Cheek_CH810

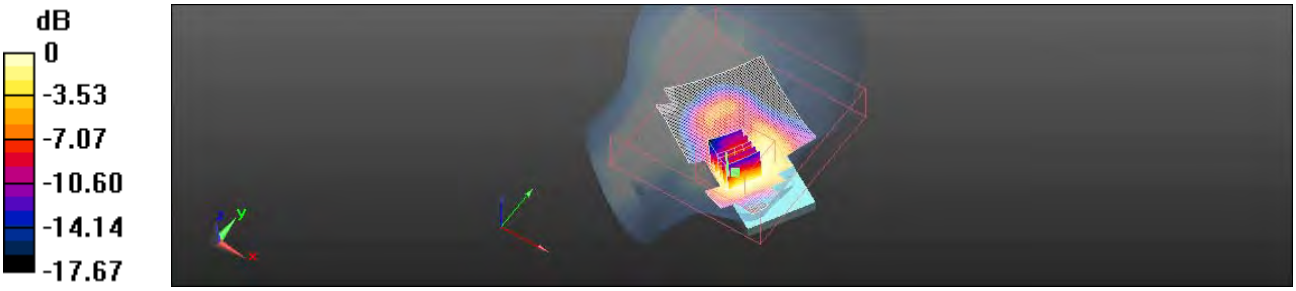
Communication System: Generic GSM; Frequency: 1909.8 MHz
Medium parameters used: f = 1910 MHz; σ = 1.434 mho/m; ε_r = 40.49; ρ = 1000 kg/m^3
Phantom section: Left Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.78, 7.78, 7.78); Calibrated: 4/19/2011
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/LE Cheek/Area Scan (71x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.424 mW/g

Configuration/LE Cheek/Zoom Scan (7x7x7) (7x7x7)/Cube 0:
Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 8.006 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 0.469 W/kg

SAR(1 g) = 0.309 mW/g; SAR(10 g) = 0.193 mW/g
Maximum value of SAR (measured) = 0.371 mW/g



0 dB = 0.370mW/g

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Date: 10/27/2011

LE Tilt_CH661

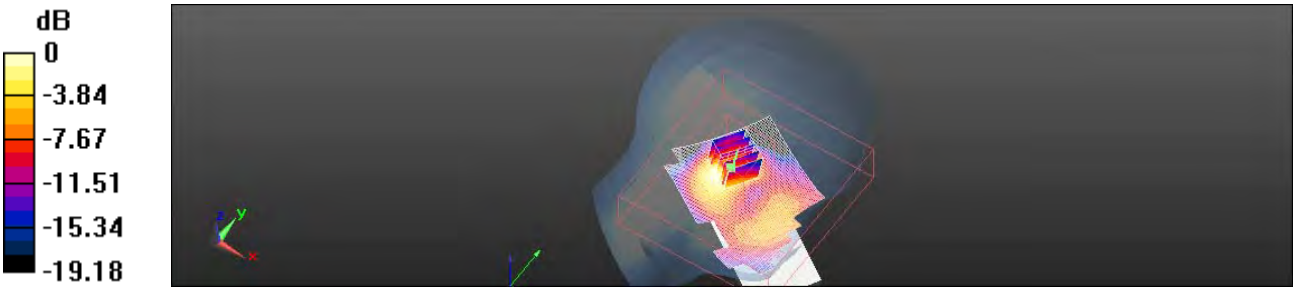
Communication System: Generic GSM; Frequency: 1880 MHz
Medium parameters used: f = 1880 MHz; σ = 1.404 mho/m; ε_r = 40.678; ρ = 1000 kg/m^3
Phantom section: Left Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.78, 7.78, 7.78); Calibrated: 4/19/2011
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/LE Tilt/Area Scan (71x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.216 mW/g

Configuration/LE Tilt/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 12.325 V/m; Power Drift = -0.06 dB
Peak SAR (extrapolated) = 0.252 W/kg

SAR(1 g) = 0.153 mW/g; SAR(10 g) = 0.087 mW/g
Maximum value of SAR (measured) = 0.201 mW/g



0 dB = 0.200mW/g

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Date: 10/27/2011

Hotspot mode_Front side_CH661

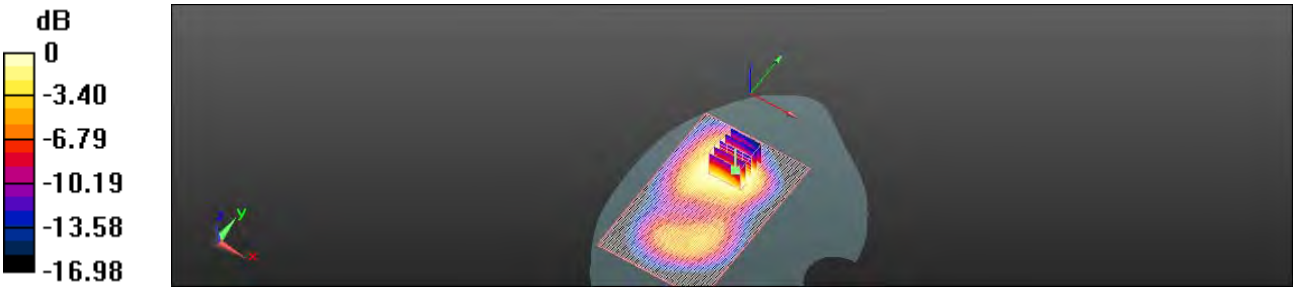
Communication System: GPRS(Class 10); Frequency: 1880 MHz
Medium parameters used: f = 1880 MHz; σ = 1.55 mho/m; ε_r = 49.925; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.51, 7.51, 7.51); Calibrated: 4/19/2011
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/Body/Area Scan (71x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.696 mW/g

Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 7.676 V/m; Power Drift = 0.15 dB
Peak SAR (extrapolated) = 0.833 W/kg

SAR(1 g) = 0.523 mW/g; SAR(10 g) = 0.325 mW/g
Maximum value of SAR (measured) = 0.681 mW/g



0 dB = 0.680mW/g

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Date: 10/27/2011

Hotspot mode_Back side_CH661

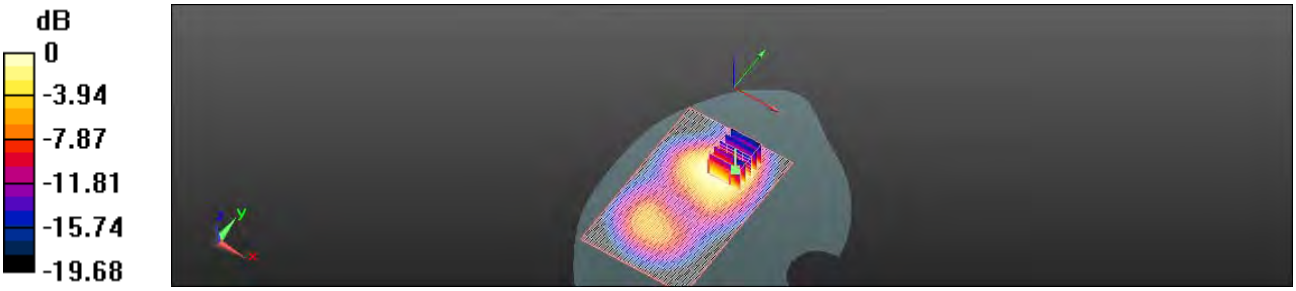
Communication System: GPRS(Class 10); Frequency: 1880 MHz
Medium parameters used: f = 1880 MHz; σ = 1.55 mho/m; ε_r = 49.925; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.51, 7.51, 7.51); Calibrated: 4/19/2011
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/Body/Area Scan (71x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.838 mW/g

Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 6.609 V/m; Power Drift = 0.00059 dB
Peak SAR (extrapolated) = 1.022 W/kg

SAR(1 g) = 0.563 mW/g; SAR(10 g) = 0.329 mW/g
Maximum value of SAR (measured) = 0.795 mW/g



0 dB = 0.800mW/g

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Date: 10/27/2011

Hotspot mode_Bottom side_CH661

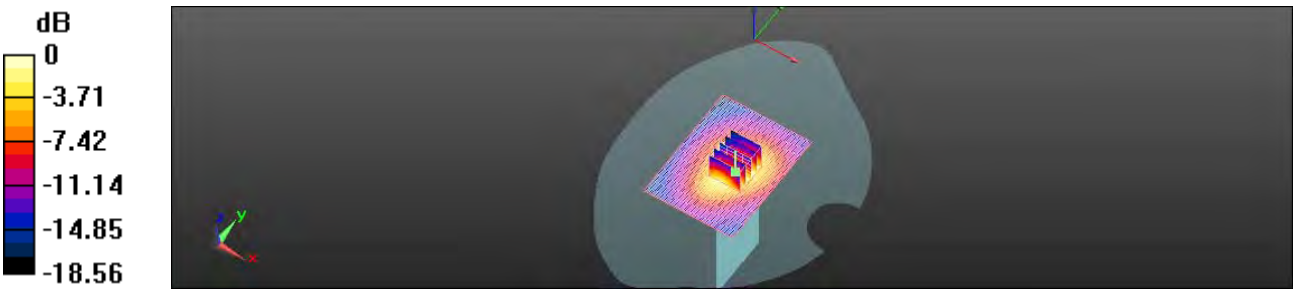
Communication System: GPRS(Class 10); Frequency: 1880 MHz
Medium parameters used: f = 1880 MHz; σ = 1.55 mho/m; ε_r = 49.925; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.51, 7.51, 7.51); Calibrated: 4/19/2011
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/Body/Area Scan (61x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.381 mW/g

Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 16.873 V/m; Power Drift = 0.0022 dB
Peak SAR (extrapolated) = 0.554 W/kg

SAR(1 g) = 0.327 mW/g; SAR(10 g) = 0.177 mW/g
Maximum value of SAR (measured) = 0.449 mW/g



0 dB = 0.450mW/g

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Date: 10/27/2011

Hotspot mode_Right side_CH661

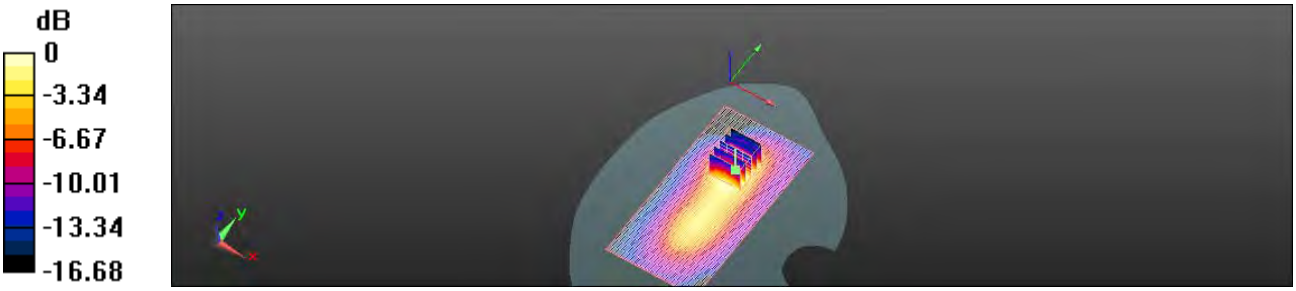
Communication System: GPRS(Class 10); Frequency: 1880 MHz
Medium parameters used: f = 1880 MHz; σ = 1.55 mho/m; ε_r = 49.925; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.51, 7.51, 7.51); Calibrated: 4/19/2011
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/Body/Area Scan (61x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.222 mW/g

Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 8.389 V/m; Power Drift = -0.14 dB
Peak SAR (extrapolated) = 0.275 W/kg

SAR(1 g) = 0.158 mW/g; SAR(10 g) = 0.089 mW/g
Maximum value of SAR (measured) = 0.218 mW/g



0 dB = 0.220mW/g

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Date: 10/27/2011

Hotspot mode_Left side_CH661

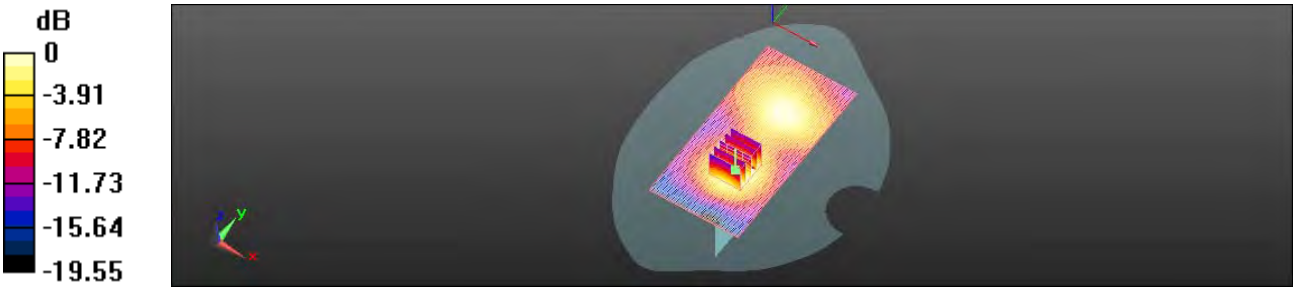
Communication System: GPRS(Class 10); Frequency: 1880 MHz
Medium parameters used: f = 1880 MHz; σ = 1.55 mho/m; ε_r = 49.925; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.51, 7.51, 7.51); Calibrated: 4/19/2011
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/Body/Area Scan (61x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.145 mW/g

Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 6.875 V/m; Power Drift = -0.16 dB
Peak SAR (extrapolated) = 0.175 W/kg

SAR(1 g) = 0.105 mW/g; SAR(10 g) = 0.058 mW/g
Maximum value of SAR (measured) = 0.140 mW/g



0 dB = 0.140mW/g

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Date: 10/27/2011

Hotspot mode_Back side_CH661_repeated with GPRS Class 8 mode

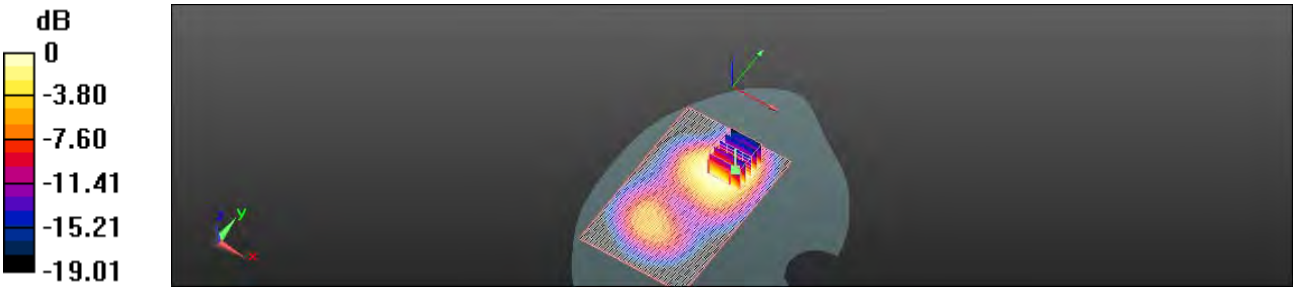
Communication System: GPRS(Class 8); Frequency: 1880 MHz
Medium parameters used: f = 1880 MHz; σ = 1.55 mho/m; ε_r = 49.925; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.51, 7.51, 7.51); Calibrated: 4/19/2011
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/Body/Area Scan (71x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.670 mW/g

Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.606 V/m; Power Drift = 0.08 dB
Peak SAR (extrapolated) = 0.763 W/kg

SAR(1 g) = 0.438 mW/g; SAR(10 g) = 0.258 mW/g
Maximum value of SAR (measured) = 0.592 mW/g



0 dB = 0.590mW/g

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Date: 10/27/2011

Hotspot mode_Back side_CH661_repeated with GPRS Class 12 mode

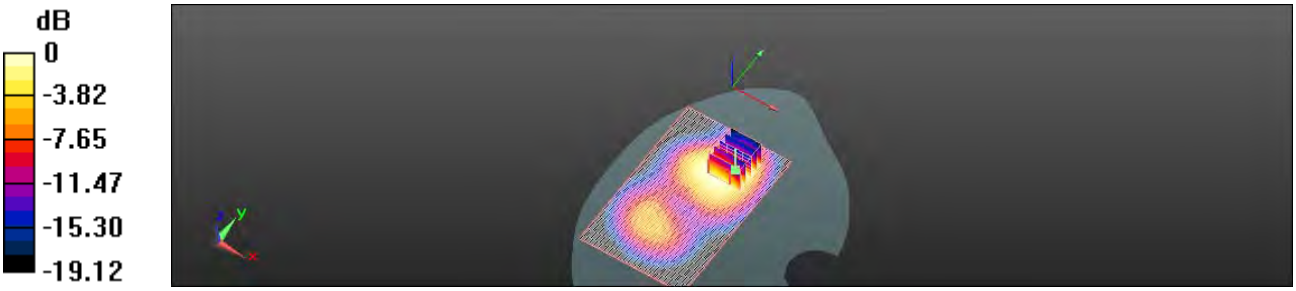
Communication System: GPRS(Class 12); Frequency: 1880 MHz
Medium parameters used: f = 1880 MHz; σ = 1.55 mho/m; ε_r = 49.925; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.51, 7.51, 7.51); Calibrated: 4/19/2011
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/Body/Area Scan (71x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.762 mW/g

Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 6.106 V/m; Power Drift = -0.12 dB
Peak SAR (extrapolated) = 0.827 W/kg

SAR(1 g) = 0.469 mW/g; SAR(10 g) = 0.276 mW/g
Maximum value of SAR (measured) = 0.641 mW/g



0 dB = 0.640mW/g

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Date: 10/28/2011

RE Cheek_CH1312

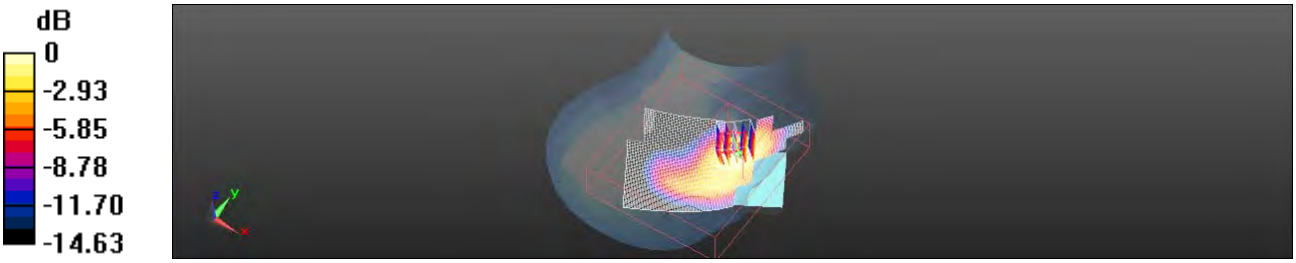
Communication System: WCDMA; Frequency: 1712.4 MHz
Medium parameters used: f = 1712.4 MHz; σ = 1.348 mho/m; ε_r = 41.375; ρ = 1000 kg/m^3
Phantom section: Right Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.97, 7.97, 7.97); Calibrated: 4/19/2011
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/RE Cheek/Area Scan (71x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.863 mW/g

Configuration/RE Cheek/Zoom Scan (7x7x7) (7x7x7)/Cube 0:
Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 10.035 V/m; Power Drift = 0.17 dB
Peak SAR (extrapolated) = 1.086 W/kg

SAR(1 g) = 0.693 mW/g; SAR(10 g) = 0.429 mW/g
Maximum value of SAR (measured) = 0.881 mW/g



0 dB = 0.880mW/g

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Date: 10/28/2011

RE Cheek_CH1412

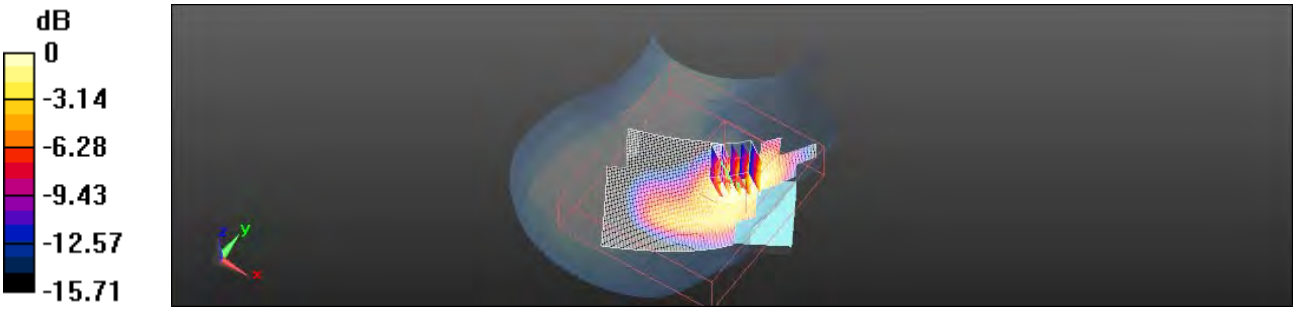
Communication System: WCDMA; Frequency: 1732.4 MHz
Medium parameters used: f = 1732.4 MHz; σ = 1.372 mho/m; ε_r = 41.236; ρ = 1000 kg/m^3
Phantom section: Right Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.97, 7.97, 7.97); Calibrated: 4/19/2011
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/RE Cheek/Area Scan (71x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.793 mW/g

Configuration/RE Cheek/Zoom Scan (7x7x7) (7x7x7)/Cube 0:
Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 9.720 V/m; Power Drift = 0.13 dB
Peak SAR (extrapolated) = 0.939 W/kg

SAR(1 g) = 0.605 mW/g; SAR(10 g) = 0.376 mW/g
Maximum value of SAR (measured) = 0.772 mW/g



0 dB = 0.770mW/g

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Date: 10/28/2011

RE Cheek_CH1513

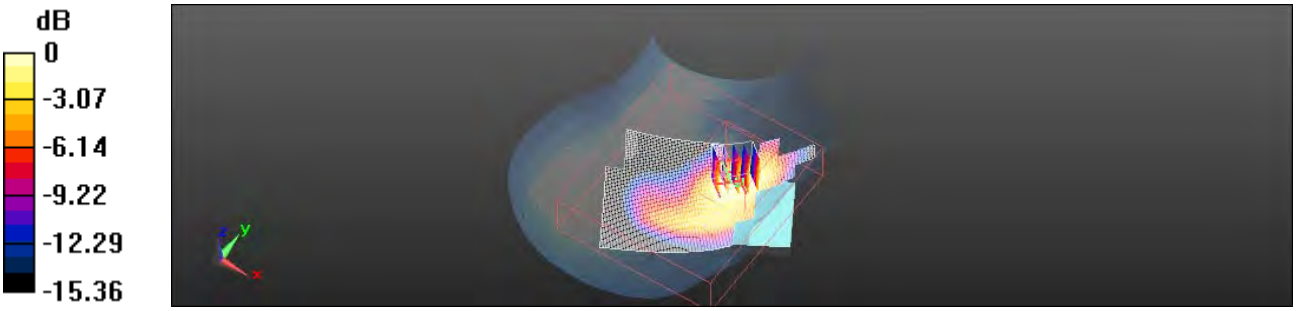
Communication System: WCDMA; Frequency: 1752.6 MHz
Medium parameters used: f = 1753 MHz; σ = 1.395 mho/m; ε_r = 41.099; ρ = 1000 kg/m^3
Phantom section: Right Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.97, 7.97, 7.97); Calibrated: 4/19/2011
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/RE Cheek/Area Scan (71x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.047 mW/g

Configuration/RE Cheek/Zoom Scan (7x7x7) (7x7x7)/Cube 0:
Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 10.771 V/m; Power Drift = 0.10 dB
Peak SAR (extrapolated) = 1.233 W/kg

SAR(1 g) = 0.79 mW/g; SAR(10 g) = 0.485 mW/g
Maximum value of SAR (measured) = 1.024 mW/g



0 dB = 1.020mW/g

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Date: 10/28/2011

RE Cheek_CH1513_repeated with Memory card

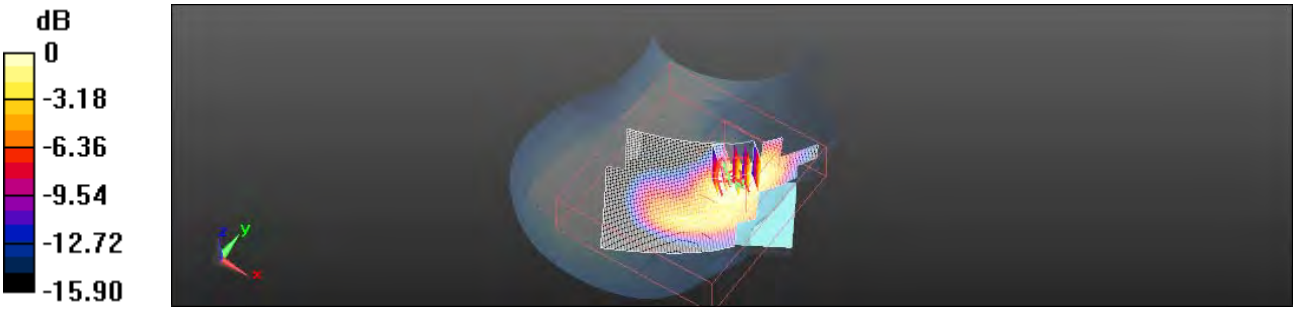
Communication System: WCDMA; Frequency: 1752.6 MHz
Medium parameters used: f = 1753 MHz; σ = 1.395 mho/m; ε_r = 41.099; ρ = 1000 kg/m^3
Phantom section: Right Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.97, 7.97, 7.97); Calibrated: 4/19/2011
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/RE Cheek/Area Scan (71x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.984 mW/g

Configuration/RE Cheek/Zoom Scan (7x7x7) (7x7x7)/Cube 0:
Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 10.418 V/m; Power Drift = 0.07 dB
Peak SAR (extrapolated) = 0.919 W/kg

SAR(1 g) = 0.720 mW/g; SAR(10 g) = 0.442 mW/g
Maximum value of SAR (measured) = 0.758 mW/g



0 dB = 0.760mW/g

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Date: 10/28/2011

RE Tilt_CH1412

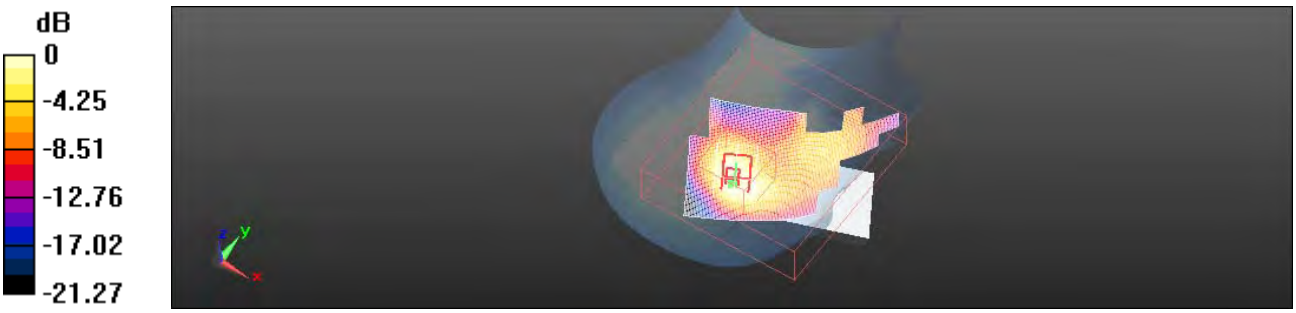
Communication System: WCDMA; Frequency: 1732.4 MHz
Medium parameters used: f = 1732.4 MHz; σ = 1.372 mho/m; ε_r = 41.236; ρ = 1000 kg/m^3
Phantom section: Right Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.97, 7.97, 7.97); Calibrated: 4/19/2011
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/RE Tilt/Area Scan (71x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.490 mW/g

Configuration/RE Tilt/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 16.604 V/m; Power Drift = 0.08 dB
Peak SAR (extrapolated) = 0.481 W/kg

SAR(1 g) = 0.315 mW/g; SAR(10 g) = 0.196 mW/g
Maximum value of SAR (measured) = 0.392 mW/g



0 dB = 0.390mW/g

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Date: 10/28/2011

LE Cheek_CH1412

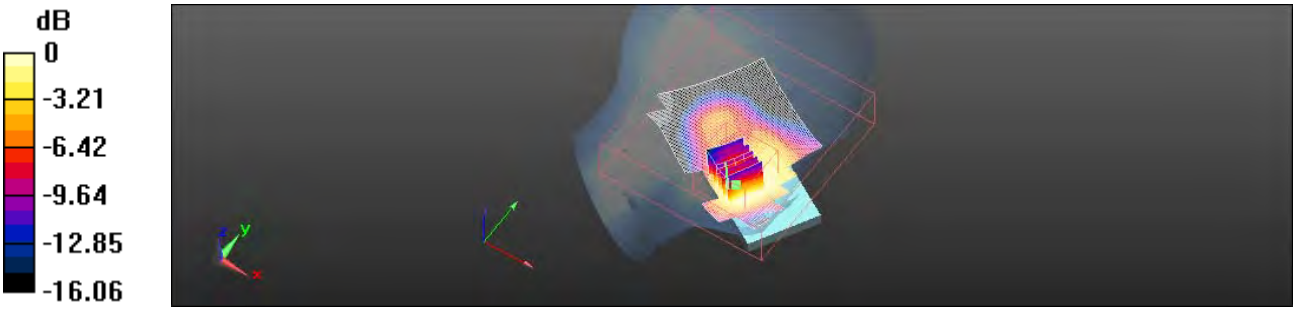
Communication System: WCDMA; Frequency: 1732.4 MHz
Medium parameters used: f = 1732.4 MHz; σ = 1.372 mho/m; ε_r = 41.236; ρ = 1000 kg/m^3
Phantom section: Left Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.97, 7.97, 7.97); Calibrated: 4/19/2011
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/LE Cheek/Area Scan (71x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.610 mW/g

Configuration/LE Cheek/Zoom Scan (7x7x7) (7x7x7)/Cube 0:
Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 10.932 V/m; Power Drift = -0.14 dB
Peak SAR (extrapolated) = 0.700 W/kg

SAR(1 g) = 0.473 mW/g; SAR(10 g) = 0.306 mW/g
Maximum value of SAR (measured) = 0.574 mW/g



0 dB = 0.570mW/g

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Date: 10/28/2011

LE Tilt_CH1412

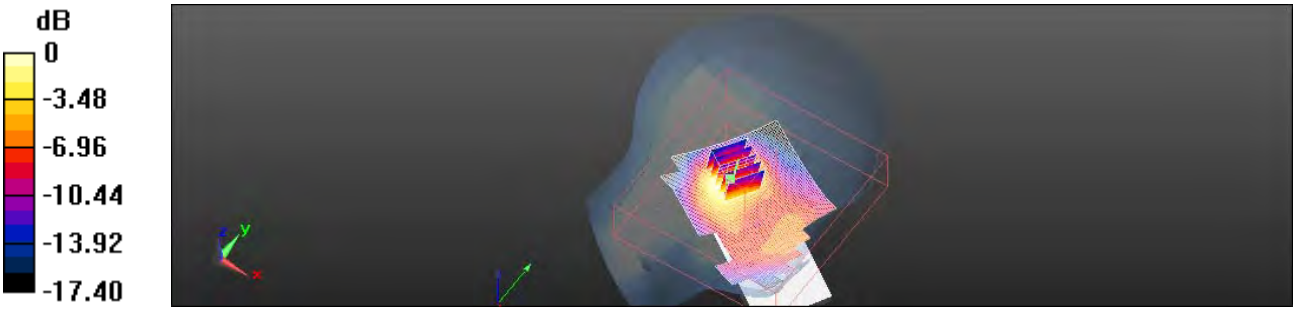
Communication System: WCDMA; Frequency: 1732.4 MHz
Medium parameters used: f = 1732.4 MHz; σ = 1.372 mho/m; ε_r = 41.236; ρ = 1000 kg/m^3
Phantom section: Left Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.97, 7.97, 7.97); Calibrated: 4/19/2011
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/LE Tilt/Area Scan (71x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.398 mW/g

Configuration/LE Tilt/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 16.756 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 0.453 W/kg

SAR(1 g) = 0.284 mW/g; SAR(10 g) = 0.168 mW/g
Maximum value of SAR (measured) = 0.370 mW/g



0 dB = 0.370mW/g

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Date: 10/28/2011

Hotspot mode_Front side_CH1412

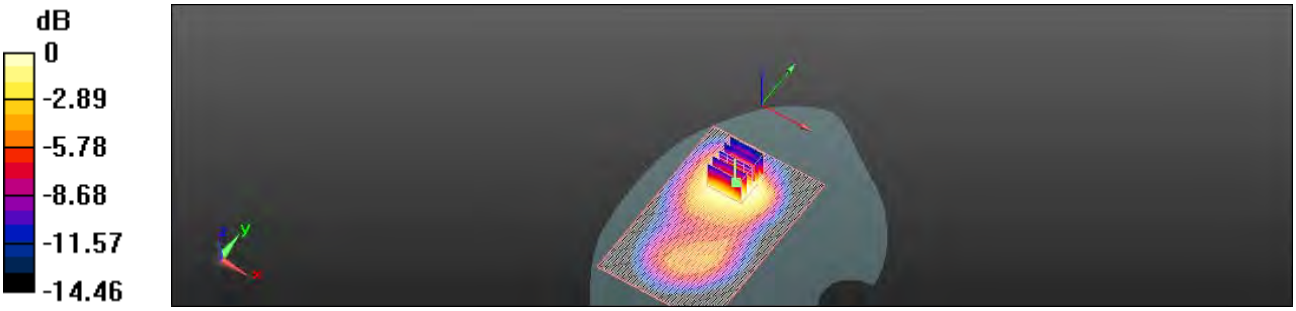
Communication System: WCDMA; Frequency: 1732.4 MHz
Medium parameters used: f = 1732.4 MHz; σ = 1.461 mho/m; ε_r = 54.826; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.84, 7.84, 7.84); Calibrated: 4/19/2011
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/Body/Area Scan (71x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.989 mW/g

Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 9.232 V/m; Power Drift = 0.18 dB
Peak SAR (extrapolated) = 1.111 W/kg

SAR(1 g) = 0.756 mW/g; SAR(10 g) = 0.495 mW/g
Maximum value of SAR (measured) = 0.943 mW/g



0 dB = 0.940mW/g

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Date: 10/28/2011

Hotspot mode_Back side_CH1312

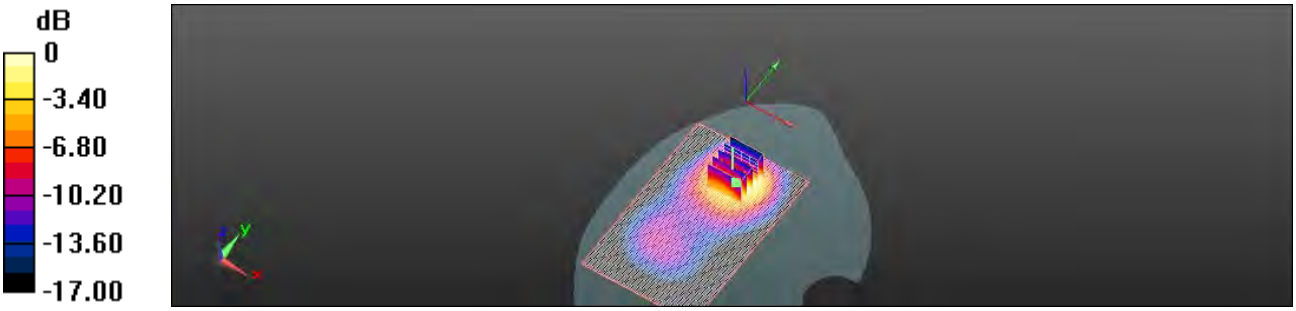
Communication System: WCDMA; Frequency: 1712.4 MHz
Medium parameters used: f = 1712.4 MHz; σ = 1.431 mho/m; ε_r = 54.835; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.84, 7.84, 7.84); Calibrated: 4/19/2011
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/Body/Area Scan (71x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.700 mW/g

Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.387 V/m; Power Drift = 0.19 dB
Peak SAR (extrapolated) = 2.285 W/kg

SAR(1 g) = 1.26 mW/g; SAR(10 g) = 0.710 mW/g
Maximum value of SAR (measured) = 1.696 mW/g



0 dB = 1.700mW/g

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Date: 10/28/2011

Hotspot mode_Back side_CH1412

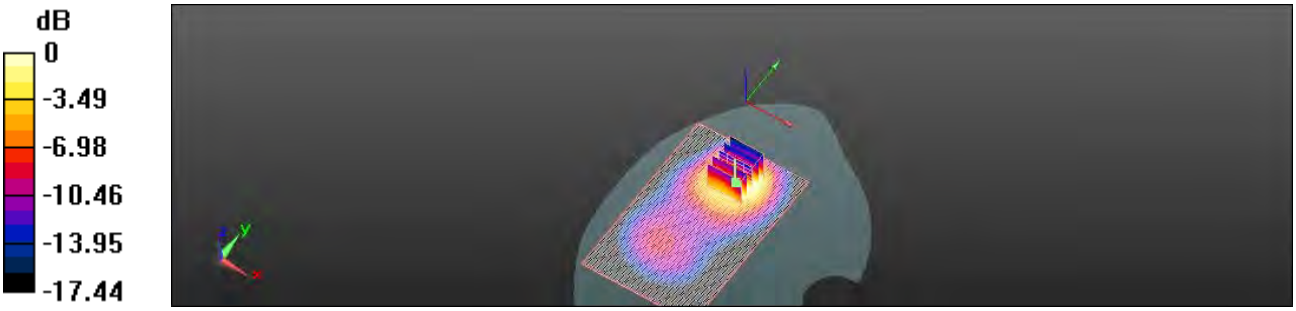
Communication System: WCDMA; Frequency: 1732.4 MHz
Medium parameters used: f = 1732.4 MHz; σ = 1.461 mho/m; ε_r = 54.826; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.84, 7.84, 7.84); Calibrated: 4/19/2011
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/Body/Area Scan (71x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.396 mW/g

Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.376 V/m; Power Drift = 0.08 dB
Peak SAR (extrapolated) = 1.768 W/kg

SAR(1 g) = 1.03 mW/g; SAR(10 g) = 0.598 mW/g
Maximum value of SAR (measured) = 1.380 mW/g



0 dB = 1.380mW/g

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Date: 10/28/2011

Hotspot mode_Back side_CH1513

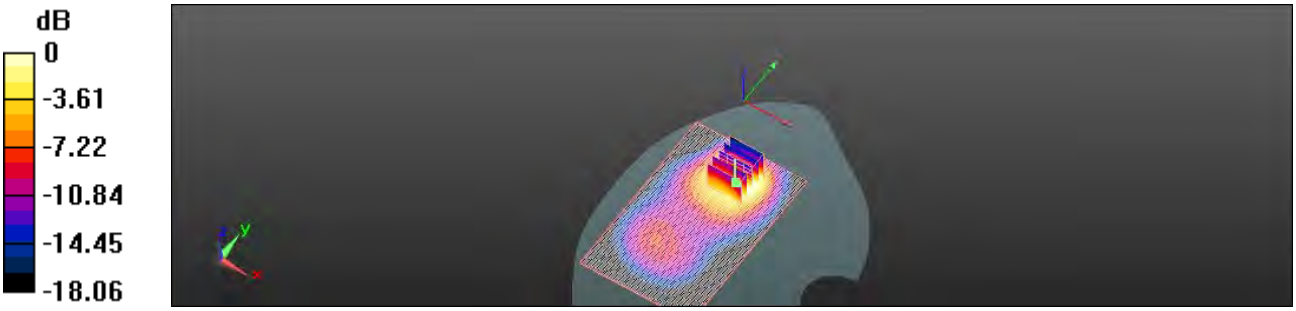
Communication System: WCDMA; Frequency: 1752.6 MHz
Medium parameters used: f = 1753 MHz; σ = 1.476 mho/m; ε_r = 54.866; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.84, 7.84, 7.84); Calibrated: 4/19/2011
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/Body/Area Scan (71x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.610 mW/g

Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 6.035 V/m; Power Drift = -0.18 dB
Peak SAR (extrapolated) = 1.905 W/kg

SAR(1 g) = 1.13 mW/g; SAR(10 g) = 0.665 mW/g
Maximum value of SAR (measured) = 1.545 mW/g



0 dB = 1.550mW/g

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Date: 10/28/2011

Hotspot mode_Back side_CH1312_repeated with Memory card

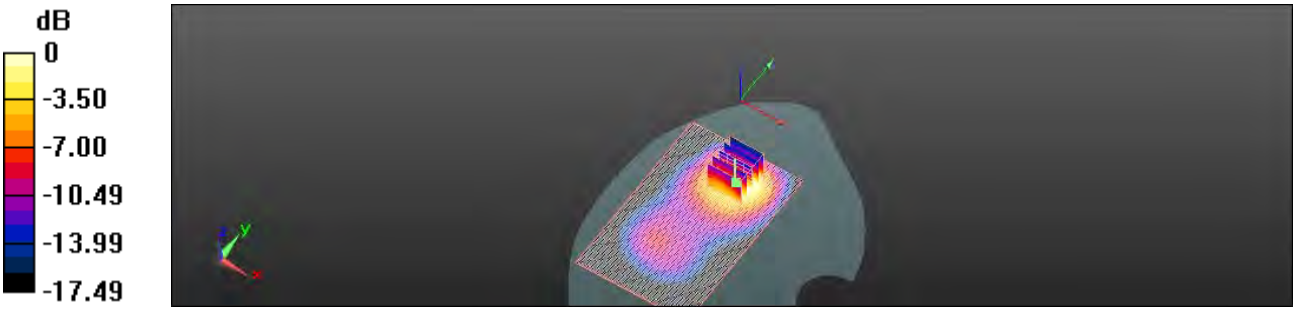
Communication System: WCDMA; Frequency: 1712.4 MHz
Medium parameters used: f = 1712.4 MHz; σ = 1.431 mho/m; ε_r = 54.835; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.84, 7.84, 7.84); Calibrated: 4/19/2011
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/Body/Area Scan (71x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.627 mW/g

Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 6.499 V/m; Power Drift = 0.08 dB
Peak SAR (extrapolated) = 2.070 W/kg

SAR(1 g) = 1.17 mW/g; SAR(10 g) = 0.666 mW/g
Maximum value of SAR (measured) = 1.582 mW/g



0 dB = 1.580mW/g

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Date: 10/28/2011

Hotspot mode_Back side_CH1312_repeated with headset

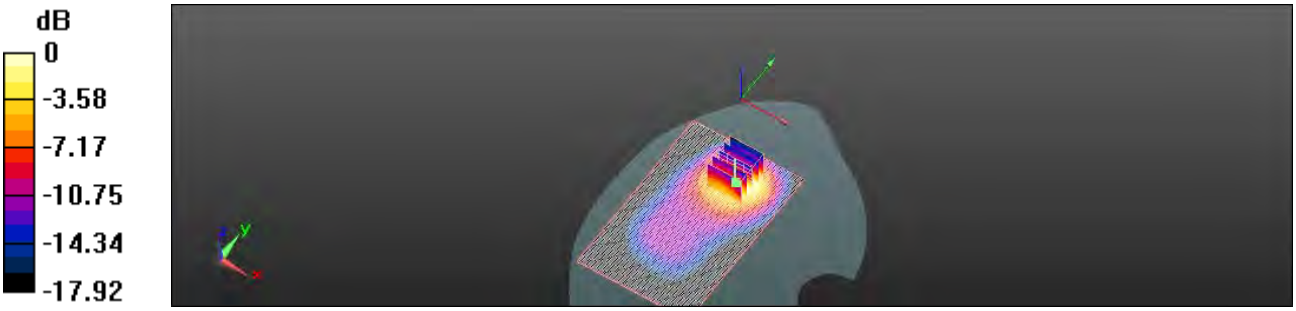
Communication System: WCDMA; Frequency: 1712.4 MHz
Medium parameters used: f = 1712.4 MHz; σ = 1.431 mho/m; ε_r = 54.835; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.84, 7.84, 7.84); Calibrated: 4/19/2011
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/Body/Area Scan (71x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.844 mW/g

Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 6.171 V/m; Power Drift = 0.17 dB
Peak SAR (extrapolated) = 2.378 W/kg

SAR(1 g) = 1.28 mW/g; SAR(10 g) = 0.711 mW/g
Maximum value of SAR (measured) = 1.768 mW/g



0 dB = 1.770mW/g

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Date: 10/28/2011

Hotspot mode_Bottom side_CH1412

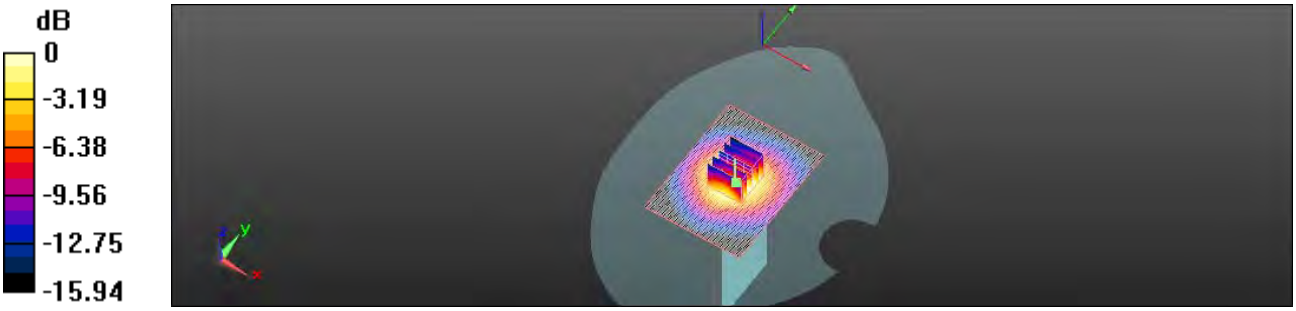
Communication System: WCDMA; Frequency: 1732.4 MHz
Medium parameters used: f = 1732.4 MHz; σ = 1.461 mho/m; ε_r = 54.826; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.84, 7.84, 7.84); Calibrated: 4/19/2011
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/Body/Area Scan (61x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.694 mW/g

Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 21.358 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 0.850 W/kg

SAR(1 g) = 0.557 mW/g; SAR(10 g) = 0.329 mW/g
Maximum value of SAR (measured) = 0.687 mW/g



0 dB = 0.690mW/g

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Date: 10/28/2011

Hotspot mode_Right side_CH1412

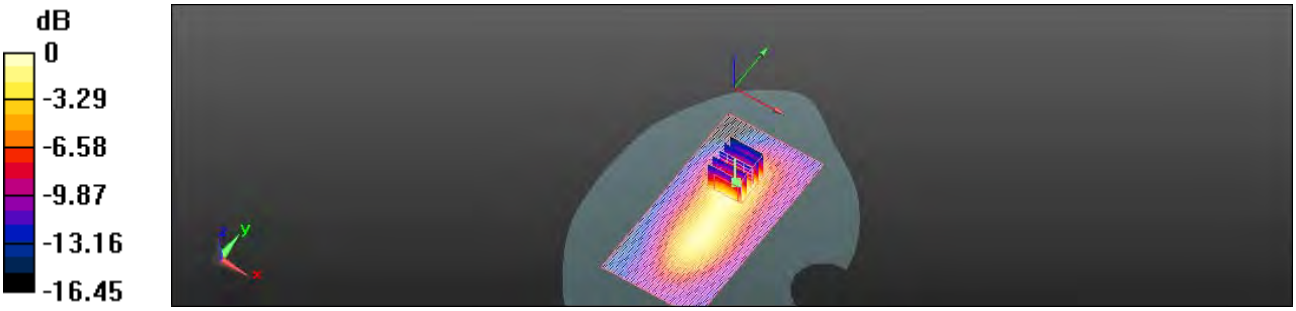
Communication System: WCDMA; Frequency: 1732.4 MHz
Medium parameters used: f = 1732.4 MHz; σ = 1.461 mho/m; ε_r = 54.826; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.84, 7.84, 7.84); Calibrated: 4/19/2011
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/Body/Area Scan (61x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.265 mW/g

Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 10.480 V/m; Power Drift = -0.16 dB
Peak SAR (extrapolated) = 0.319 W/kg

SAR(1 g) = 0.192 mW/g; SAR(10 g) = 0.112 mW/g
Maximum value of SAR (measured) = 0.258 mW/g



0 dB = 0.260mW/g

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Date: 10/28/2011

Hotspot mode_Left side_CH1412

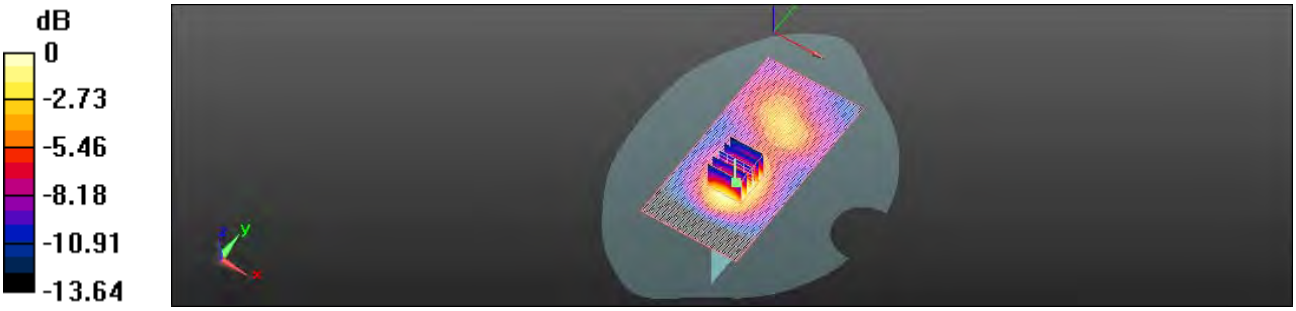
Communication System: WCDMA; Frequency: 1732.4 MHz
Medium parameters used: f = 1732.4 MHz; σ = 1.461 mho/m; ε_r = 54.826; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.84, 7.84, 7.84); Calibrated: 4/19/2011
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/Body/Area Scan (61x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.181 mW/g

Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 8.734 V/m; Power Drift = 0.13 dB
Peak SAR (extrapolated) = 0.215 W/kg

SAR(1 g) = 0.140 mW/g; SAR(10 g) = 0.086 mW/g
Maximum value of SAR (measured) = 0.178 mW/g



0 dB = 0.180mW/g

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Date: 11/01/2011

RE Cheek_WLAN802.11b_CH6

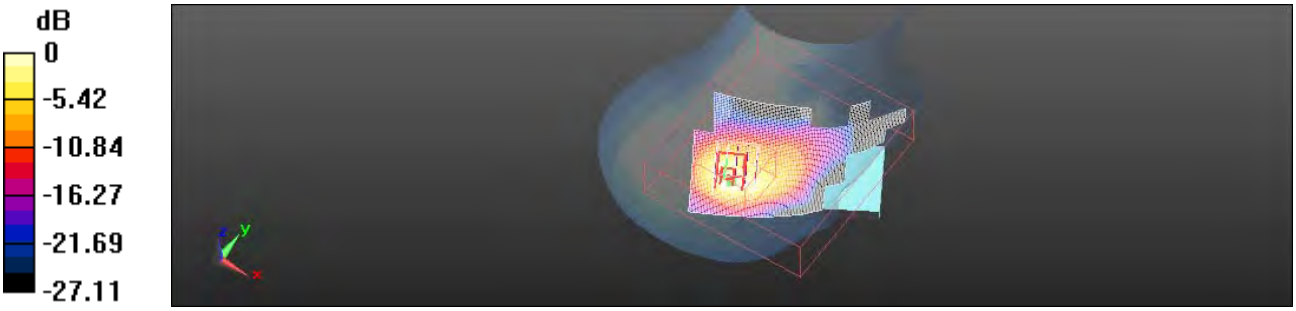
Communication System: WLAN802.11 b & g & n(20M)(40M); Frequency: 2437 MHz
Medium parameters used: f = 2437 MHz; σ = 1.782 mho/m; ε_r = 37.589; ρ = 1000 kg/m^3
Phantom section: Right Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(6.99, 6.99, 6.99); Calibrated: 4/19/2011
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/RE Cheek/Area Scan (71x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.378 mW/g

Configuration/RE Cheek/Zoom Scan (7x7x7) (7x7x7)/Cube 0:
Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 9.908 V/m; Power Drift = 0.19 dB
Peak SAR (extrapolated) = 0.536 W/kg

SAR(1 g) = 0.233 mW/g; SAR(10 g) = 0.109 mW/g
Maximum value of SAR (measured) = 0.371 mW/g



0 dB = 0.370mW/g

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Date: 11/01/2011

RE Tilt_WLAN802.11b_CH1

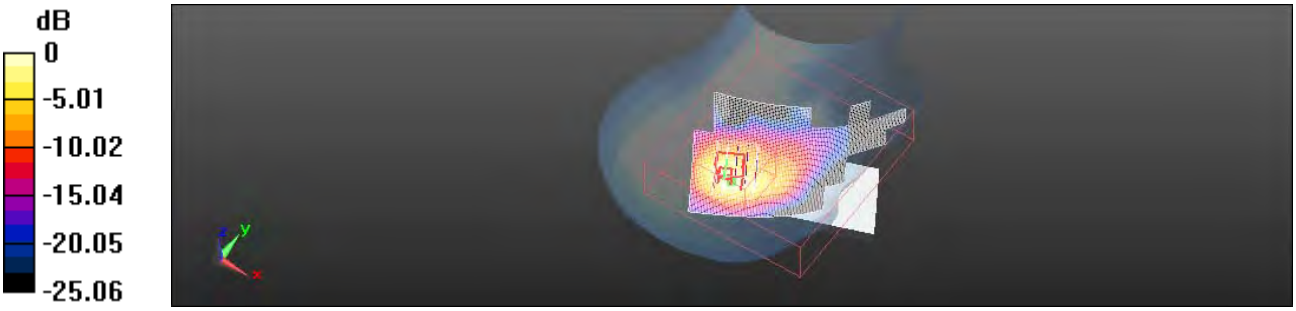
Communication System: WLAN802.11 b & g & n(20M)(40M); Frequency: 2412 MHz
Medium parameters used: f = 2412 MHz; σ = 1.752 mho/m; ε_r = 37.657; ρ = 1000 kg/m^3
Phantom section: Right Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(6.99, 6.99, 6.99); Calibrated: 4/19/2011
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/RE Tilt/Area Scan (71x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.379 mW/g

Configuration/RE Tilt/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 10.399 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 0.552 W/kg

SAR(1 g) = 0.238 mW/g; SAR(10 g) = 0.110 mW/g
Maximum value of SAR (measured) = 0.390 mW/g



0 dB = 0.390mW/g

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Date: 11/01/2011

RE Tilt_WLAN802.11b_CH6

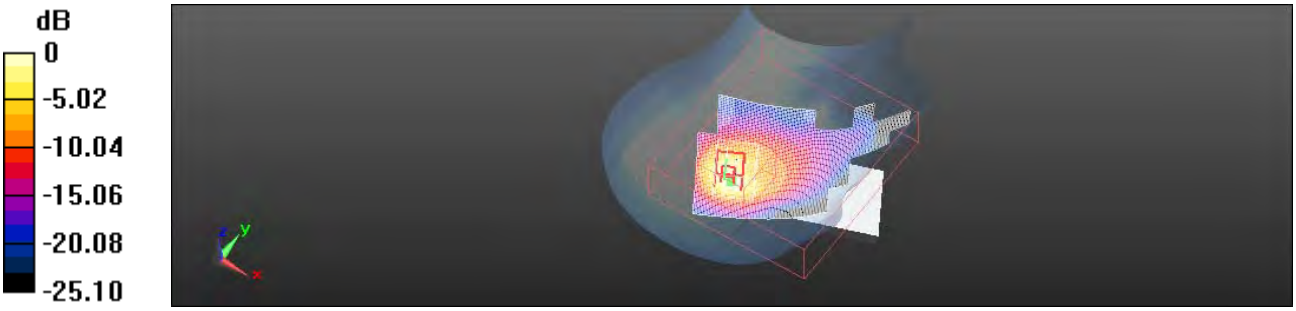
Communication System: WLAN802.11 b & g & n(20M)(40M); Frequency: 2437 MHz
Medium parameters used: f = 2437 MHz; σ = 1.782 mho/m; ε_r = 37.589; ρ = 1000 kg/m^3
Phantom section: Right Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(6.99, 6.99, 6.99); Calibrated: 4/19/2011
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/RE Tilt/Area Scan (71x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.349 mW/g

Configuration/RE Tilt/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 10.412 V/m; Power Drift = 0.12 dB
Peak SAR (extrapolated) = 0.576 W/kg

SAR(1 g) = 0.252 mW/g; SAR(10 g) = 0.111 mW/g
Maximum value of SAR (measured) = 0.362 mW/g



0 dB = 0.360mW/g

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Date: 11/01/2011

RE Tilt_WLAN802.11b_CH11

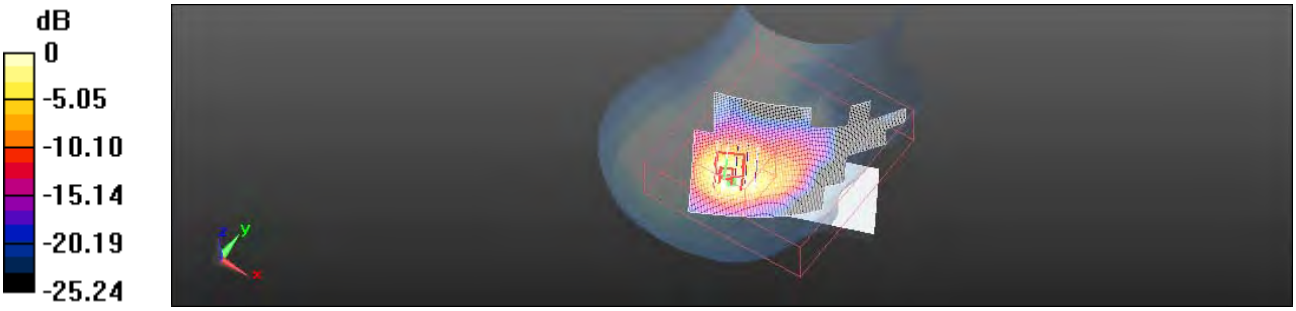
Communication System: WLAN802.11 b & g & n(20M)(40M); Frequency: 2462 MHz
Medium parameters used: f = 2462 MHz; σ = 1.811 mho/m; ε_r = 37.526; ρ = 1000 kg/m^3
Phantom section: Right Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(6.99, 6.99, 6.99); Calibrated: 4/19/2011
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/RE Tilt/Area Scan (71x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.421 mW/g

Configuration/RE Tilt/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 10.595 V/m; Power Drift = -0.13 dB
Peak SAR (extrapolated) = 0.608 W/kg

SAR(1 g) = 0.258 mW/g; SAR(10 g) = 0.118 mW/g
Maximum value of SAR (measured) = 0.424 mW/g



0 dB = 0.420mW/g

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Date: 11/01/2011

LE Cheek_WLAN802.11b_CH6

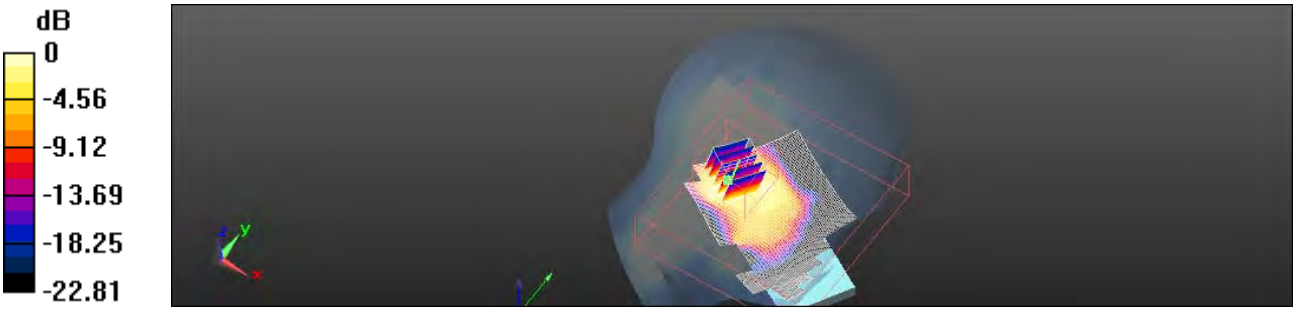
Communication System: WLAN802.11 b & g & n(20M)(40M); Frequency: 2437 MHz
Medium parameters used: f = 2437 MHz; σ = 1.782 mho/m; ε_r = 37.589; ρ = 1000 kg/m^3
Phantom section: Left Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(6.99, 6.99, 6.99); Calibrated: 4/19/2011
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/LE Cheek/Area Scan (71x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.220 mW/g

Configuration/LE Cheek/Zoom Scan (7x7x7) (7x7x7)/Cube 0:
Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 8.423 V/m; Power Drift = 0.17 dB
Peak SAR (extrapolated) = 0.335 W/kg

SAR(1 g) = 0.157 mW/g; SAR(10 g) = 0.076 mW/g
Maximum value of SAR (measured) = 0.244 mW/g



0 dB = 0.240mW/g

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Date: 11/01/2011

LE Tilt_WLAN802.11b_CH6

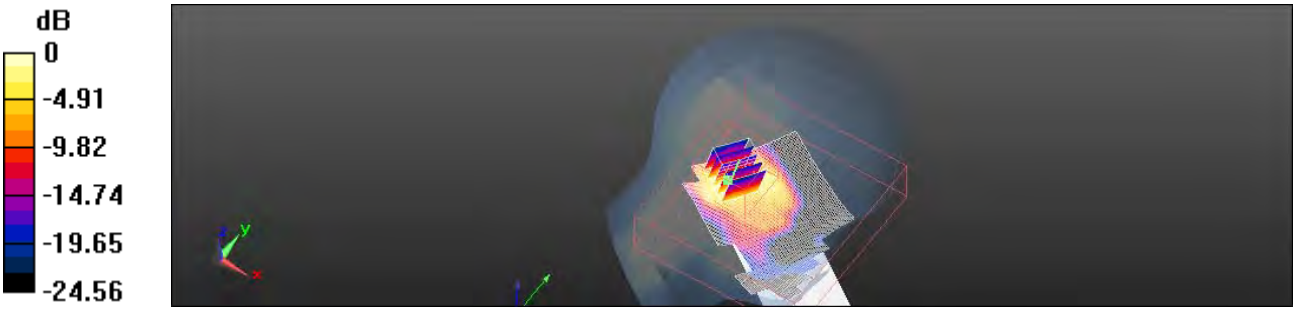
Communication System: WLAN802.11 b & g & n(20M)(40M); Frequency: 2437 MHz
Medium parameters used: f = 2437 MHz; σ = 1.782 mho/m; ε_r = 37.589; ρ = 1000 kg/m^3
Phantom section: Left Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(6.99, 6.99, 6.99); Calibrated: 4/19/2011
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/LE Tilt/Area Scan (71x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.256 mW/g

Configuration/LE Tilt/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 8.555 V/m; Power Drift = 0.09 dB
Peak SAR (extrapolated) = 0.394 W/kg

SAR(1 g) = 0.185 mW/g; SAR(10 g) = 0.086 mW/g
Maximum value of SAR (measured) = 0.286 mW/g



0 dB = 0.290mW/g

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Date: 11/01/2011

Hotspot mode_Back side_WLAN802.11b_CH6

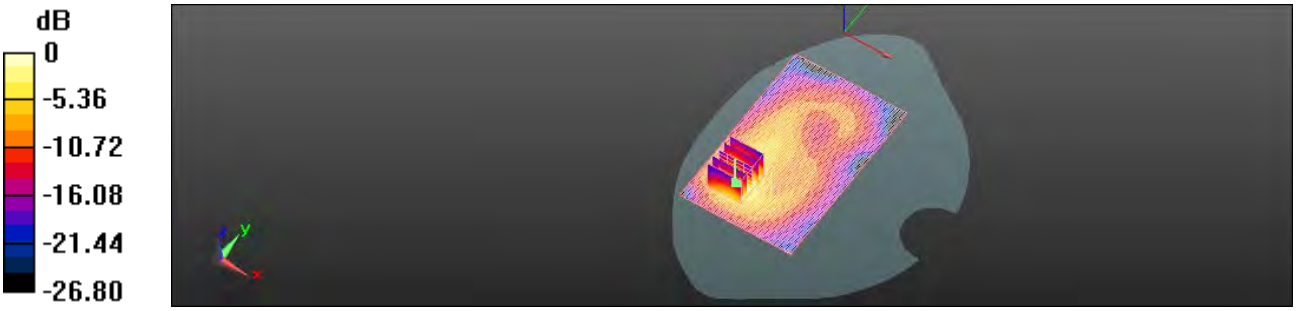
Communication System: WLAN802.11 b & g & n(20M)(40M); Frequency: 2437 MHz
Medium parameters used: f = 2437 MHz; σ = 1.908 mho/m; ε_r = 50.062; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(6.96, 6.96, 6.96); Calibrated: 4/19/2011
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/Body/Area Scan (71x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.171 mW/g

Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 2.300 V/m; Power Drift = 0.05 dB
Peak SAR (extrapolated) = 0.235 W/kg

SAR(1 g) = 0.116 mW/g; SAR(10 g) = 0.057 mW/g
Maximum value of SAR (measured) = 0.166 mW/g



0 dB = 0.170mW/g

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Date: 11/01/2011

RE Cheek_WLAN802.11g_CH6

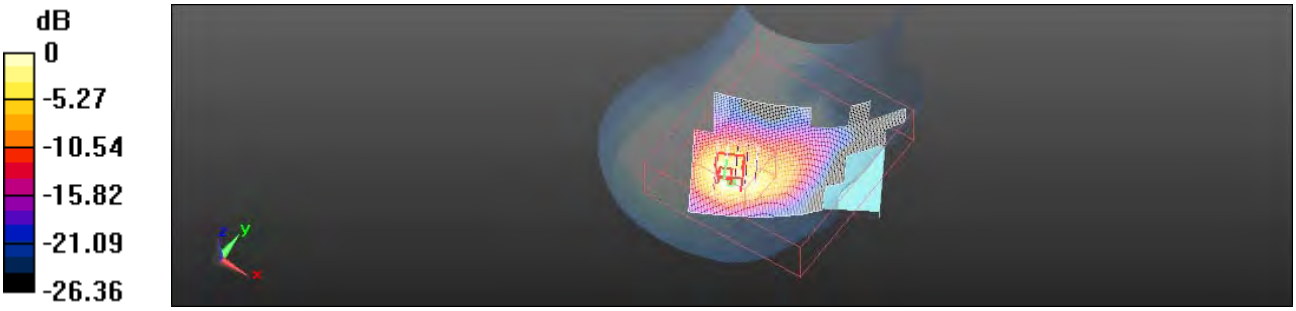
Communication System: WLAN802.11 b & g & n(20M)(40M); Frequency: 2437 MHz
Medium parameters used: f = 2437 MHz; σ = 1.782 mho/m; ε_r = 37.589; ρ = 1000 kg/m^3
Phantom section: Right Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(6.99, 6.99, 6.99); Calibrated: 4/19/2011
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/RE Cheek/Area Scan (71x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.594 mW/g

Configuration/RE Cheek/Zoom Scan (7x7x7) (7x7x7)/Cube 0:
Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 12.325 V/m; Power Drift = 0.05 dB
Peak SAR (extrapolated) = 0.859 W/kg

SAR(1 g) = 0.365 mW/g; SAR(10 g) = 0.168 mW/g
Maximum value of SAR (measured) = 0.600 mW/g



0 dB = 0.600mW/g

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Date: 11/01/2011

RE Tilt_WLAN802.11g_CH1

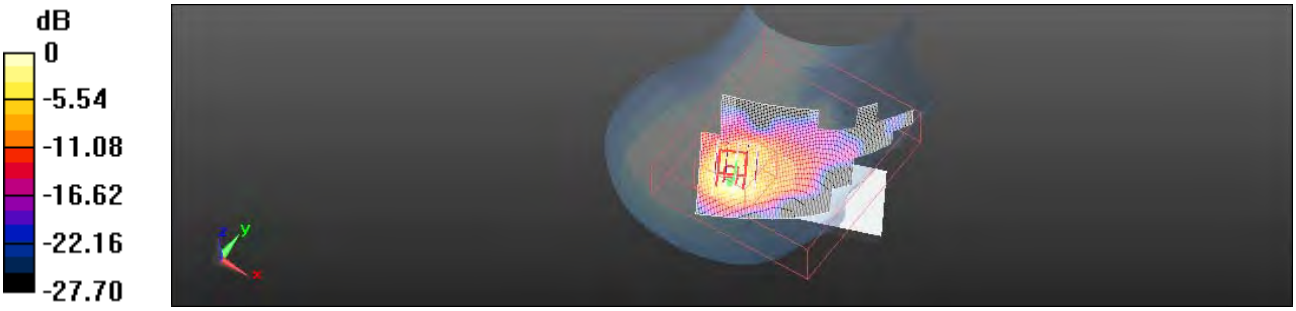
Communication System: WLAN802.11 b & g & n(20M)(40M); Frequency: 2412 MHz
Medium parameters used: f = 2412 MHz; σ = 1.752 mho/m; ε_r = 37.657; ρ = 1000 kg/m^3
Phantom section: Right Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(6.99, 6.99, 6.99); Calibrated: 4/19/2011
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/RE Tilt/Area Scan (71x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.132 mW/g

Configuration/RE Tilt/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.830 V/m; Power Drift = 0.12 dB
Peak SAR (extrapolated) = 0.223 W/kg

SAR(1 g) = 0.097 mW/g; SAR(10 g) = 0.042 mW/g
Maximum value of SAR (measured) = 0.150 mW/g



0 dB = 0.150mW/g

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Date: 11/01/2011

RE Tilt_WLAN802.11g_CH6

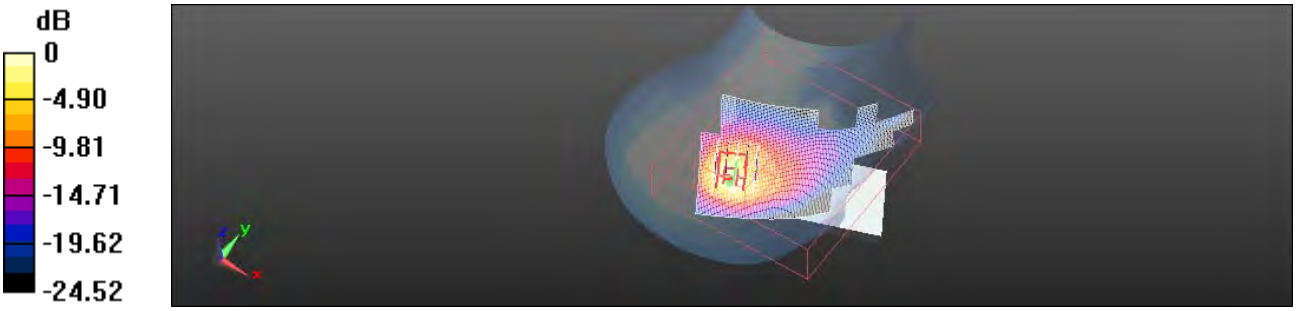
Communication System: WLAN802.11 b & g & n(20M)(40M); Frequency: 2437 MHz
Medium parameters used: f = 2437 MHz; σ = 1.782 mho/m; ε_r = 37.589; ρ = 1000 kg/m^3
Phantom section: Right Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(6.99, 6.99, 6.99); Calibrated: 4/19/2011
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/RE Tilt/Area Scan (71x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.556 mW/g

Configuration/RE Tilt/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 11.960 V/m; Power Drift = 0.11 dB
Peak SAR (extrapolated) = 0.925 W/kg

SAR(1 g) = 0.398 mW/g; SAR(10 g) = 0.172 mW/g
Maximum value of SAR (measured) = 0.620 mW/g



0 dB = 0.620mW/g

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Date: 11/01/2011

RE Tilt_WLAN802.11g_CH11

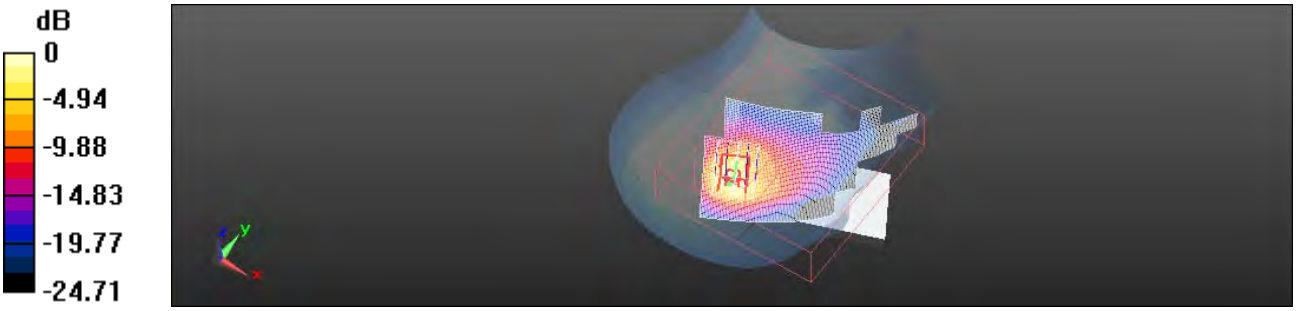
Communication System: WLAN802.11 b & g & n(20M)(40M); Frequency: 2462 MHz
Medium parameters used: f = 2462 MHz; σ = 1.811 mho/m; ε_r = 37.526; ρ = 1000 kg/m^3
Phantom section: Right Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(6.99, 6.99, 6.99); Calibrated: 4/19/2011
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/RE Tilt/Area Scan (71x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.238 mW/g

Configuration/RE Tilt/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 7.912 V/m; Power Drift = -0.08 dB
Peak SAR (extrapolated) = 0.429 W/kg

SAR(1 g) = 0.182 mW/g; SAR(10 g) = 0.078 mW/g
Maximum value of SAR (measured) = 0.298 mW/g



0 dB = 0.300mW/g

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Date: 11/01/2011

RE Tilt_WLAN802.11g_CH6_repeated with Memory card

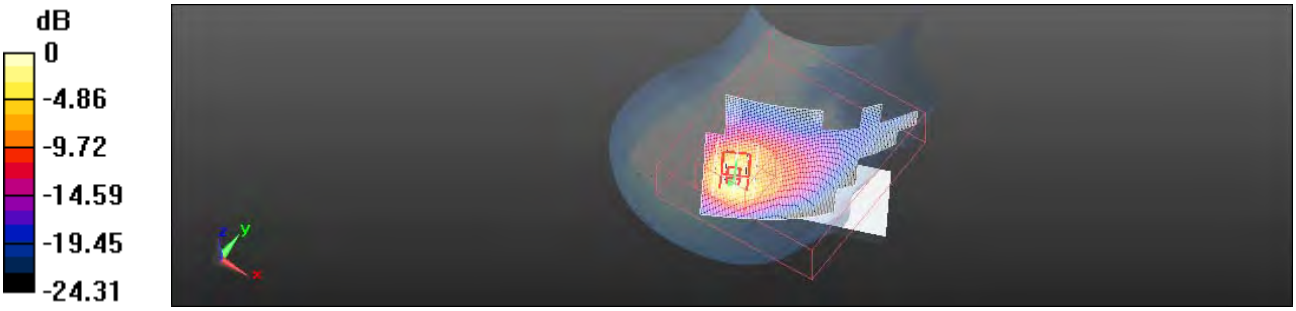
Communication System: WLAN802.11 b & g & n(20M)(40M); Frequency: 2437 MHz
Medium parameters used: f = 2437 MHz; σ = 1.782 mho/m; ε_r = 37.589; ρ = 1000 kg/m^3
Phantom section: Right Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(6.99, 6.99, 6.99); Calibrated: 4/19/2011
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/RE Tilt/Area Scan (71x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.519 mW/g

Configuration/RE Tilt/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 11.174 V/m; Power Drift = 0.19 dB
Peak SAR (extrapolated) = 0.870 W/kg

SAR(1 g) = 0.369 mW/g; SAR(10 g) = 0.161 mW/g
Maximum value of SAR (measured) = 0.605 mW/g



0 dB = 0.600mW/g

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Date: 11/01/2011

LE Cheek_WLAN802.11g_CH6

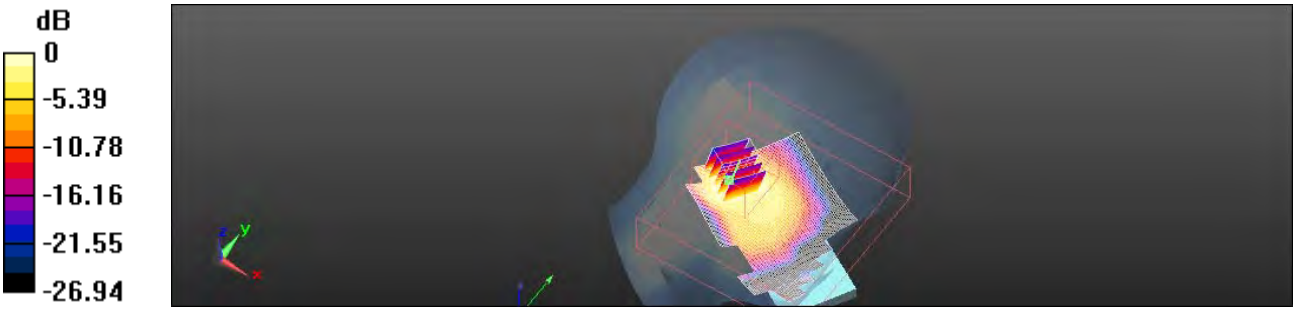
Communication System: WLAN802.11 b & g & n(20M)(40M); Frequency: 2437 MHz
Medium parameters used: f = 2437 MHz; σ = 1.782 mho/m; ε_r = 37.589; ρ = 1000 kg/m^3
Phantom section: Left Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(6.99, 6.99, 6.99); Calibrated: 4/19/2011
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/LE Cheek/Area Scan (71x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.346 mW/g

Configuration/LE Cheek/Zoom Scan (7x7x7) (7x7x7)/Cube 0:
Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 9.843 V/m; Power Drift = 0.16 dB
Peak SAR (extrapolated) = 0.511 W/kg

SAR(1 g) = 0.242 mW/g; SAR(10 g) = 0.117 mW/g
Maximum value of SAR (measured) = 0.369 mW/g



0 dB = 0.370mW/g

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Date: 11/01/2011

LE Tilt_WLAN802.11g_CH6

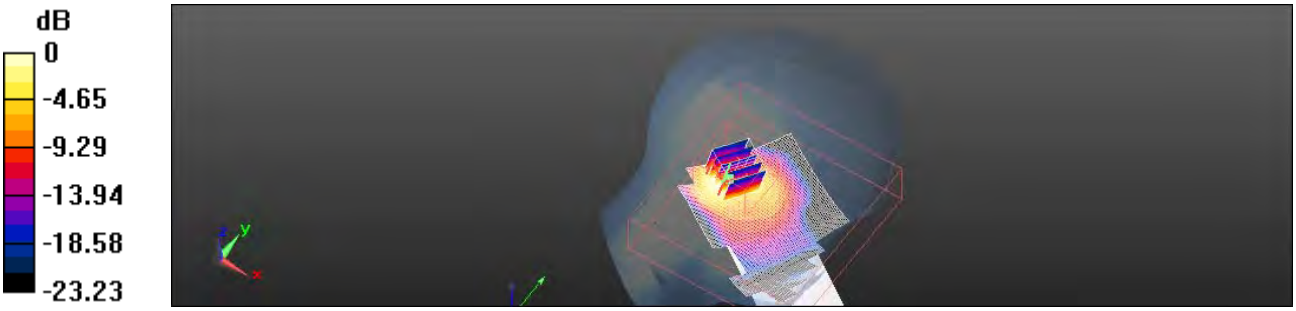
Communication System: WLAN802.11 b & g & n(20M)(40M); Frequency: 2437 MHz
Medium parameters used: f = 2437 MHz; σ = 1.782 mho/m; ε_r = 37.589; ρ = 1000 kg/m^3
Phantom section: Left Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(6.99, 6.99, 6.99); Calibrated: 4/19/2011
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/LE Tilt/Area Scan (71x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.403 mW/g

Configuration/LE Tilt/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 9.943 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 0.613 W/kg

SAR(1 g) = 0.285 mW/g; SAR(10 g) = 0.133 mW/g
Maximum value of SAR (measured) = 0.438 mW/g



0 dB = 0.440mW/g

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Date: 11/01/2011

Hotspot mode_Front side_WLAN802.11g_CH6

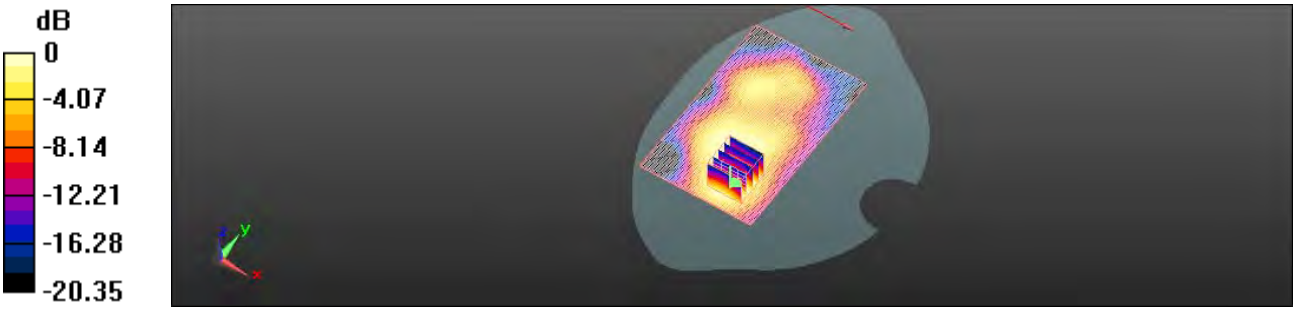
Communication System: WLAN802.11 b & g & n(20M)(40M); Frequency: 2437 MHz
Medium parameters used: f = 2437 MHz; σ = 1.908 mho/m; ε_r = 50.062; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(6.96, 6.96, 6.96); Calibrated: 4/19/2011
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/Body/Area Scan (71x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.146 mW/g

Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.351 V/m; Power Drift = 0.11 dB
Peak SAR (extrapolated) = 0.199 W/kg

SAR(1 g) = 0.101 mW/g; SAR(10 g) = 0.053 mW/g
Maximum value of SAR (measured) = 0.143 mW/g



0 dB = 0.140mW/g

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Date: 11/01/2011

Hotspot mode_Back side_WLAN802.11g_CH6

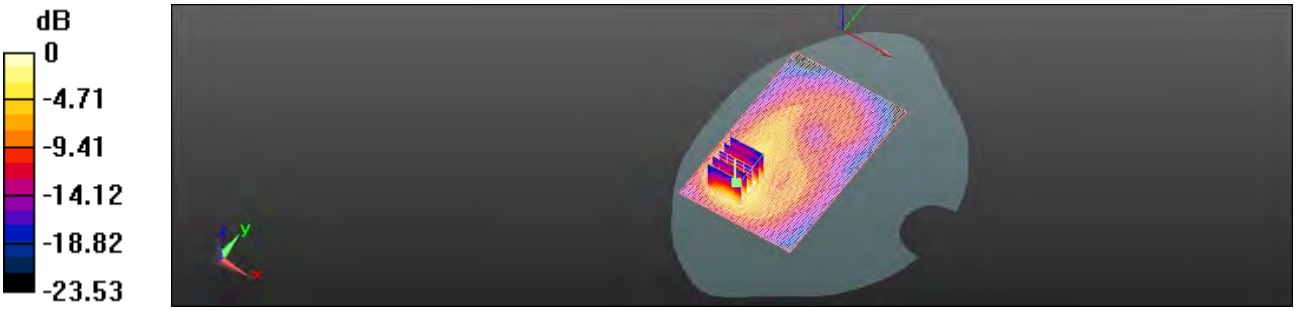
Communication System: WLAN802.11 b & g & n(20M)(40M); Frequency: 2437 MHz
Medium parameters used: f = 2437 MHz; σ = 1.908 mho/m; ε_r = 50.062; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(6.96, 6.96, 6.96); Calibrated: 4/19/2011
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/Body/Area Scan (71x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.277 mW/g

Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 3.095 V/m; Power Drift = -0.15 dB
Peak SAR (extrapolated) = 0.372 W/kg

SAR(1 g) = 0.185 mW/g; SAR(10 g) = 0.092 mW/g
Maximum value of SAR (measured) = 0.265 mW/g



0 dB = 0.270mW/g

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Date: 11/01/2011

Hotspot mode_Back side_WLAN802.11g_CH6_repeated with Memory card

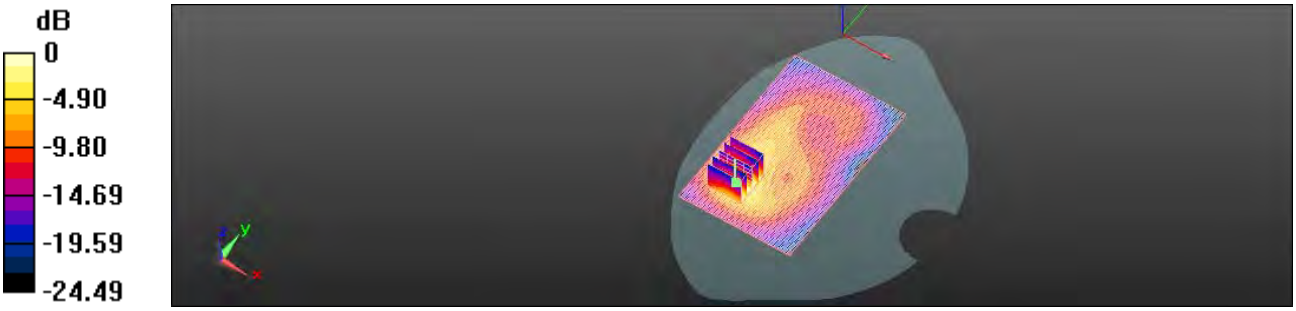
Communication System: WLAN802.11 b & g & n(20M)(40M); Frequency: 2437 MHz
Medium parameters used: f = 2437 MHz; σ = 1.908 mho/m; ε_r = 50.062; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(6.96, 6.96, 6.96); Calibrated: 4/19/2011
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/Body/Area Scan (71x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.321 mW/g

Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 3.207 V/m; Power Drift = 0.05 dB
Peak SAR (extrapolated) = 0.461 W/kg

SAR(1 g) = 0.219 mW/g; SAR(10 g) = 0.106 mW/g
Maximum value of SAR (measured) = 0.333 mW/g



0 dB = 0.330mW/g

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Date: 11/01/2011

Hotspot mode_Back side_WLAN802.11g_CH6_repeated with headset

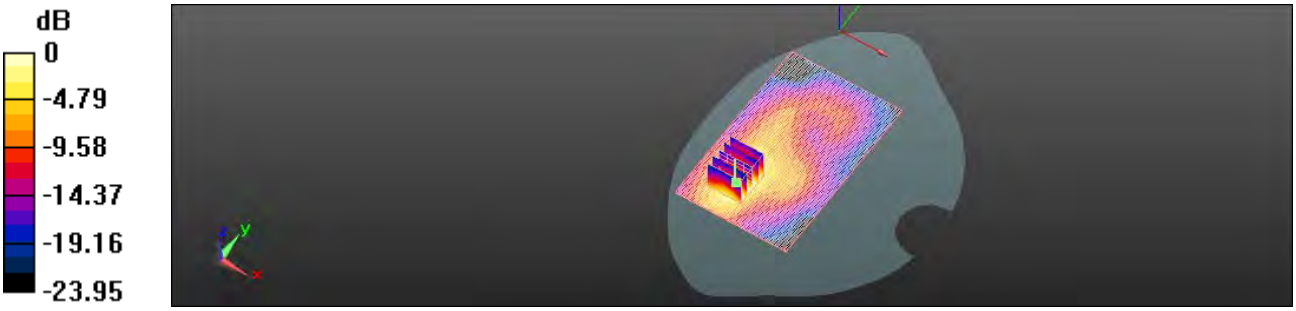
Communication System: WLAN802.11 b & g & n(20M)(40M); Frequency: 2437 MHz
Medium parameters used: f = 2437 MHz; σ = 1.908 mho/m; ε_r = 50.062; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(6.96, 6.96, 6.96); Calibrated: 4/19/2011
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/Body/Area Scan (71x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.320 mW/g

Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 2.985 V/m; Power Drift = 0.18 dB
Peak SAR (extrapolated) = 0.463 W/kg

SAR(1 g) = 0.223 mW/g; SAR(10 g) = 0.107 mW/g
Maximum value of SAR (measured) = 0.324 mW/g



0 dB = 0.320mW/g

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Date: 11/01/2011

Hotspot mode_Top side_WLAN802.11g_CH6

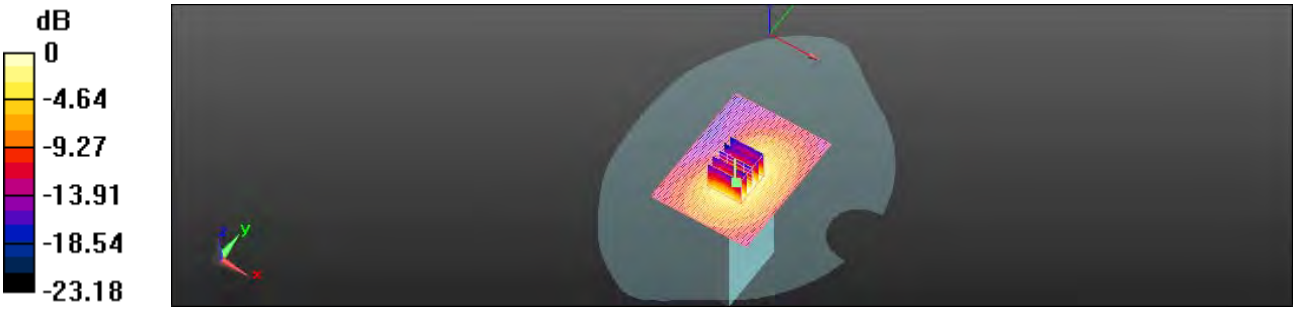
Communication System: WLAN802.11 b & g & n(20M)(40M); Frequency: 2437 MHz
Medium parameters used: f = 2437 MHz; σ = 1.908 mho/m; ε_r = 50.062; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(6.96, 6.96, 6.96); Calibrated: 4/19/2011
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/Body/Area Scan (61x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.162 mW/g

Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 7.422 V/m; Power Drift = 0.16 dB
Peak SAR (extrapolated) = 0.218 W/kg

SAR(1 g) = 0.110 mW/g; SAR(10 g) = 0.056 mW/g
Maximum value of SAR (measured) = 0.162 mW/g



0 dB = 0.160mW/g

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Date: 11/01/2011

Hotspot mode_Left side_WLAN802.11g_CH6

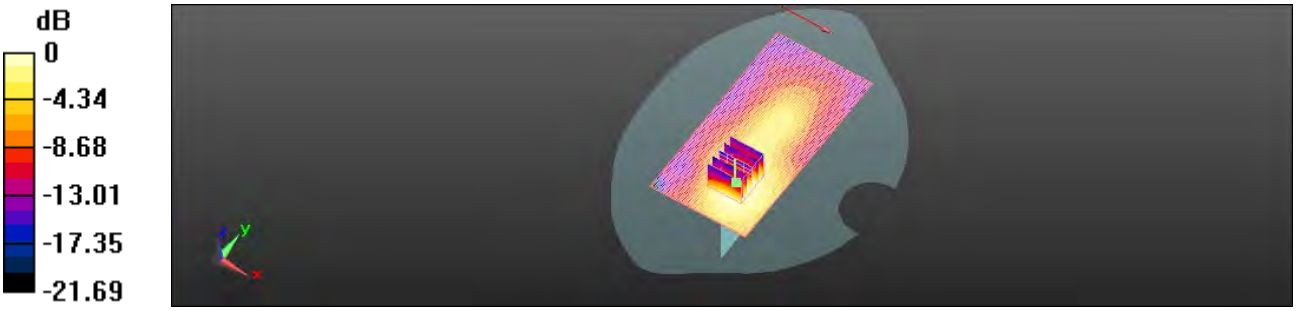
Communication System: WLAN802.11 b & g & n(20M)(40M); Frequency: 2437 MHz
Medium parameters used: f = 2437 MHz; σ = 1.908 mho/m; ε_r = 50.062; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(6.96, 6.96, 6.96); Calibrated: 4/19/2011
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/Body/Area Scan (61x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.084 mW/g

Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.600 V/m; Power Drift = -0.05 dB
Peak SAR (extrapolated) = 0.115 W/kg

SAR(1 g) = 0.061 mW/g; SAR(10 g) = 0.034 mW/g
Maximum value of SAR (measured) = 0.085 mW/g



0 dB = 0.080mW/g

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Date: 11/01/2011

RE Cheek_WLAN802.11n(20M)_CH6

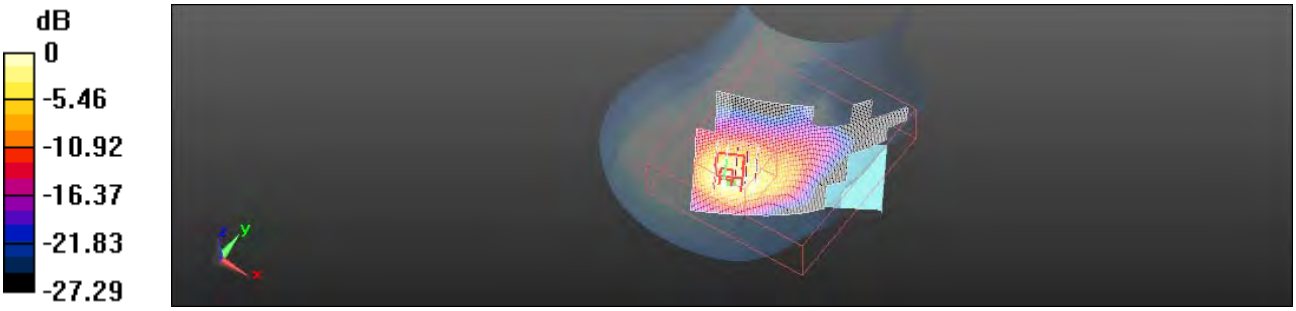
Communication System: WLAN802.11 b & g & n(20M)(40M); Frequency: 2437 MHz
Medium parameters used: f = 2437 MHz; σ = 1.782 mho/m; ε_r = 37.589; ρ = 1000 kg/m^3
Phantom section: Right Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(6.99, 6.99, 6.99); Calibrated: 4/19/2011
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/RE Cheek/Area Scan (71x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.350 mW/g

Configuration/RE Cheek/Zoom Scan (7x7x7) (7x7x7)/Cube 0:
Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 9.270 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 0.518 W/kg

SAR(1 g) = 0.217 mW/g; SAR(10 g) = 0.100 mW/g
Maximum value of SAR (measured) = 0.359 mW/g



0 dB = 0.360mW/g

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Date: 11/01/2011

RE Tilt_WLAN802.11n(20M)_CH1

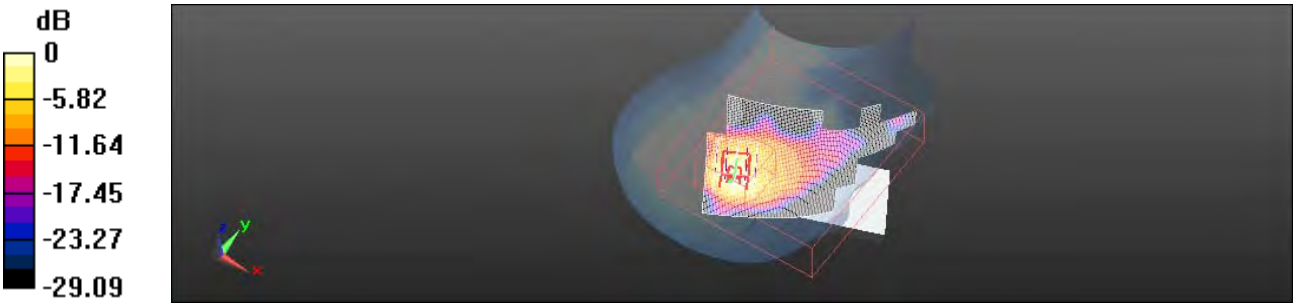
Communication System: WLAN802.11 b & g & n(20M)(40M); Frequency: 2412 MHz
Medium parameters used: f = 2412 MHz; σ = 1.752 mho/m; ε_r = 37.657; ρ = 1000 kg/m^3
Phantom section: Right Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(6.99, 6.99, 6.99); Calibrated: 4/19/2011
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/RE Tilt/Area Scan (71x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.100 mW/g

Configuration/RE Tilt/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.131 V/m; Power Drift = 0.10 dB
Peak SAR (extrapolated) = 0.161 W/kg

SAR(1 g) = 0.069 mW/g; SAR(10 g) = 0.030 mW/g
Maximum value of SAR (measured) = 0.114 mW/g



0 dB = 0.110mW/g

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Date: 11/01/2011

RE Tilt_WLAN802.11n(20M)_CH6

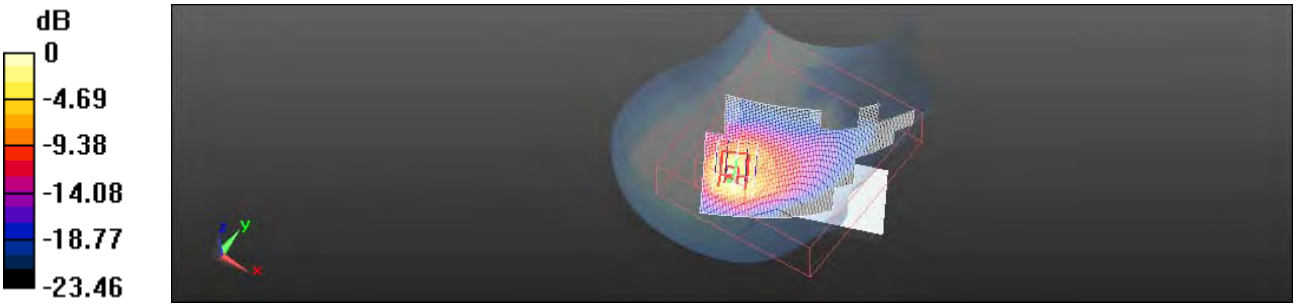
Communication System: WLAN802.11 b & g & n(20M)(40M); Frequency: 2437 MHz
Medium parameters used: f = 2437 MHz; σ = 1.782 mho/m; ε_r = 37.589; ρ = 1000 kg/m^3
Phantom section: Right Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(6.99, 6.99, 6.99); Calibrated: 4/19/2011
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/RE Tilt/Area Scan (71x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.307 mW/g

Configuration/RE Tilt/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 8.805 V/m; Power Drift = 0.11 dB
Peak SAR (extrapolated) = 0.544 W/kg

SAR(1 g) = 0.231 mW/g; SAR(10 g) = 0.100 mW/g
Maximum value of SAR (measured) = 0.374 mW/g



0 dB = 0.370mW/g

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Date: 11/01/2011

RE Tilt_WLAN802.11n(20M)_CH11

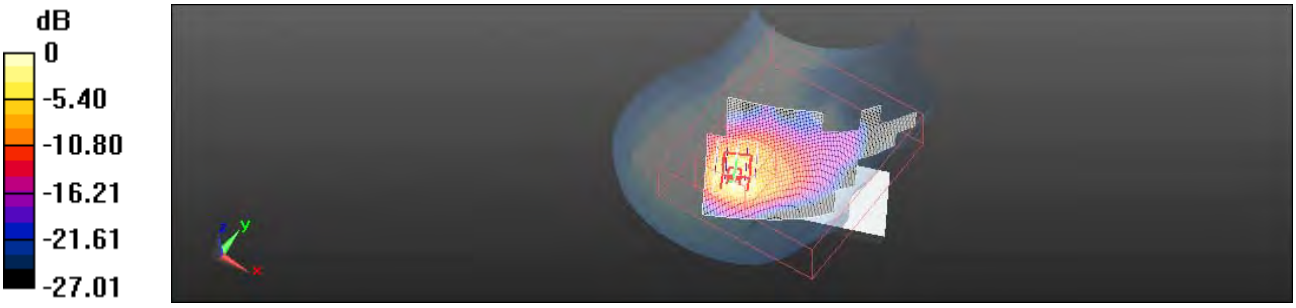
Communication System: WLAN802.11 b & g & n(20M)(40M); Frequency: 2462 MHz
Medium parameters used: f = 2462 MHz; σ = 1.811 mho/m; ε_r = 37.526; ρ = 1000 kg/m^3
Phantom section: Right Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(6.99, 6.99, 6.99); Calibrated: 4/19/2011
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/RE Tilt/Area Scan (71x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.197 mW/g

Configuration/RE Tilt/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 7.158 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 0.351 W/kg

SAR(1 g) = 0.147 mW/g; SAR(10 g) = 0.064 mW/g
Maximum value of SAR (measured) = 0.242 mW/g



0 dB = 0.240mW/g

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Date: 11/01/2011

LE Cheek_WLAN802.11n(20M)_CH6

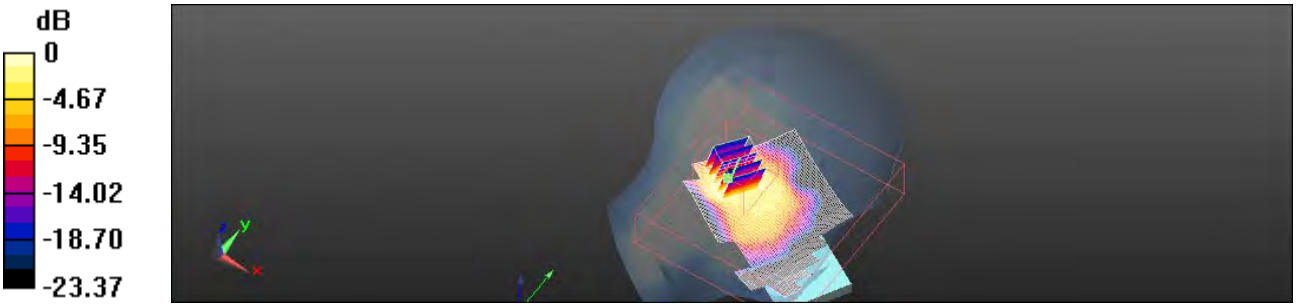
Communication System: WLAN802.11 b & g & n(20M)(40M); Frequency: 2437 MHz
Medium parameters used: f = 2437 MHz; σ = 1.782 mho/m; ε_r = 37.589; ρ = 1000 kg/m^3
Phantom section: Left Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(6.99, 6.99, 6.99); Calibrated: 4/19/2011
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/LE Cheek/Area Scan (71x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.207 mW/g

Configuration/LE Cheek/Zoom Scan (7x7x7) (7x7x7)/Cube 0:
Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 8.116 V/m; Power Drift = 0.16 dB
Peak SAR (extrapolated) = 0.322 W/kg

SAR(1 g) = 0.149 mW/g; SAR(10 g) = 0.071 mW/g
Maximum value of SAR (measured) = 0.232 mW/g



0 dB = 0.230mW/g

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Date: 11/01/2011

LE Tilt_WLAN802.11n(20M)_CH6

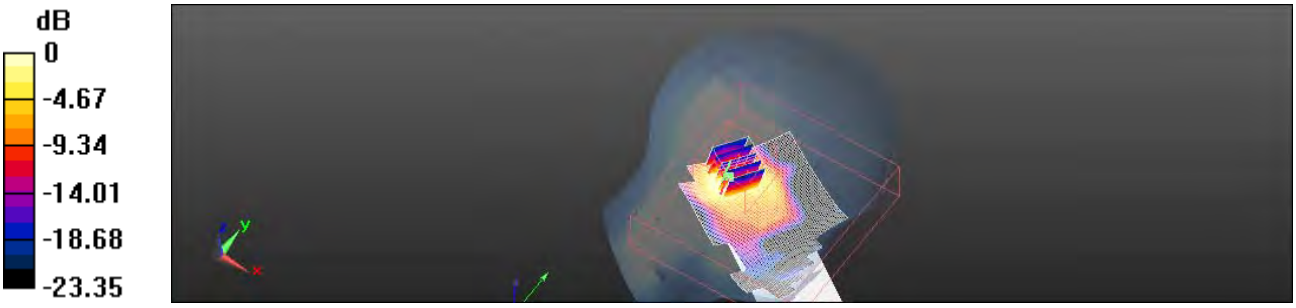
Communication System: WLAN802.11 b & g & n(20M)(40M); Frequency: 2437 MHz
Medium parameters used: f = 2437 MHz; σ = 1.782 mho/m; ε_r = 37.589; ρ = 1000 kg/m^3
Phantom section: Left Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(6.99, 6.99, 6.99); Calibrated: 4/19/2011
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/LE Tilt/Area Scan (71x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.239 mW/g

Configuration/LE Tilt/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 8.280 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 0.368 W/kg

SAR(1 g) = 0.169 mW/g; SAR(10 g) = 0.079 mW/g
Maximum value of SAR (measured) = 0.253 mW/g



0 dB = 0.250mW/g

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Date: 11/01/2011

Hotspot mode_Back side_WLAN802.11n(20M)_CH6

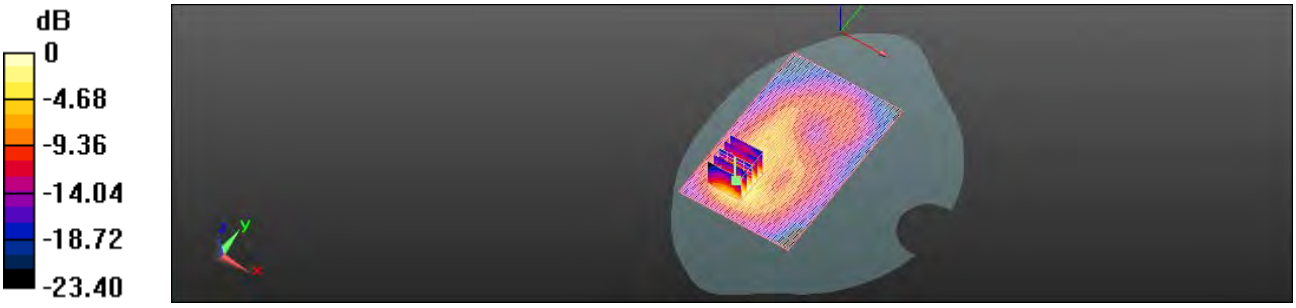
Communication System: WLAN802.11 b & g & n(20M)(40M); Frequency: 2437 MHz
Medium parameters used: f = 2437 MHz; σ = 1.908 mho/m; ε_r = 50.062; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(6.96, 6.96, 6.96); Calibrated: 4/19/2011
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/Body/Area Scan (71x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.214 mW/g

Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 2.638 V/m; Power Drift = 0.09 dB
Peak SAR (extrapolated) = 0.301 W/kg

SAR(1 g) = 0.147 mW/g; SAR(10 g) = 0.071 mW/g
Maximum value of SAR (measured) = 0.210 mW/g



0 dB = 0.210mW/g

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Date: 11/03/2011

RE Cheek_WLAN802.11a_5.2G_CH64

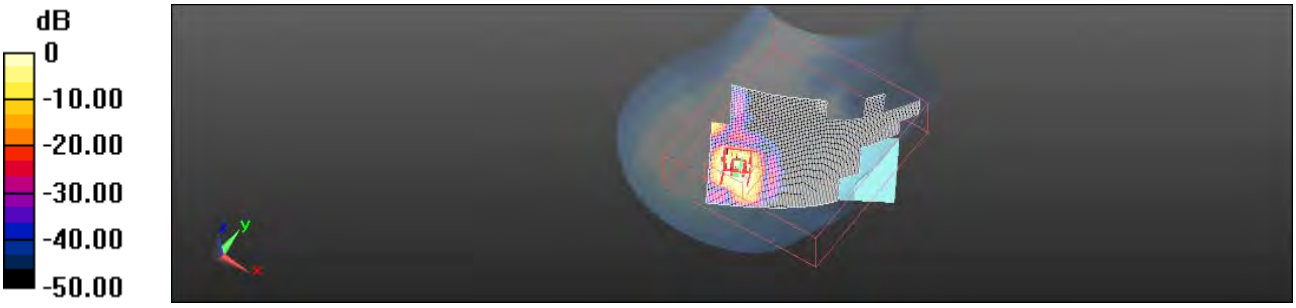
Communication System: WLAN 802.11n/a(5G) FCC; Frequency: 5320 MHz
Medium parameters used: f = 5320 MHz; σ = 4.738 mho/m; εr = 35.181; ρ = 1000 kg/m^3
Phantom section: Right Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3661; ConvF(4.59, 4.59, 4.59); Calibrated: 1/24/2011
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/RE Cheek/Area Scan (71x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.079 mW/g

Configuration/RE Cheek/Zoom Scan (7x7x7) (7x7x9)/Cube 0:
Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 2.517 V/m; Power Drift = 0.19 dB
Peak SAR (extrapolated) = 0.193 W/kg

SAR(1 g) = 0.055 mW/g; SAR(10 g) = 0.014 mW/g
Maximum value of SAR (measured) = 0.116 mW/g



0 dB = 0.120mW/g

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Date: 11/03/2011

RE Tilt_WLAN802.11a_5.2G_CH64

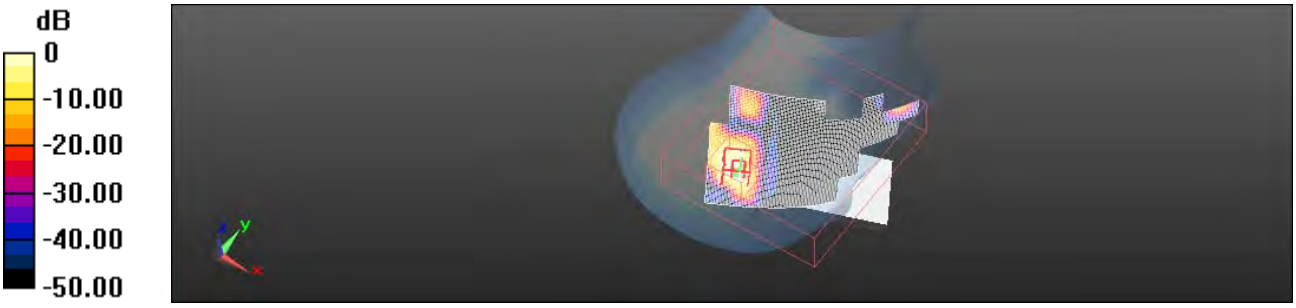
Communication System: WLAN 802.11n/a(5G) FCC; Frequency: 5320 MHz
Medium parameters used: f = 5320 MHz; σ = 4.738 mho/m; εr = 35.181; ρ = 1000 kg/m^3
Phantom section: Right Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3661; ConvF(4.59, 4.59, 4.59); Calibrated: 1/24/2011
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/RE Tilt/Area Scan (71x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.191 mW/g

Configuration/RE Tilt/Zoom Scan (7x7x7) (7x7x9)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 2.523 V/m; Power Drift = -0.15 dB
Peak SAR (extrapolated) = 0.672 W/kg

SAR(1 g) = 0.067 mW/g; SAR(10 g) = 0.019 mW/g
Maximum value of SAR (measured) = 0.134 mW/g



0 dB = 0.130mW/g

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Date: 11/03/2011

LE Cheek_WLAN802.11a_5.2G_CH36

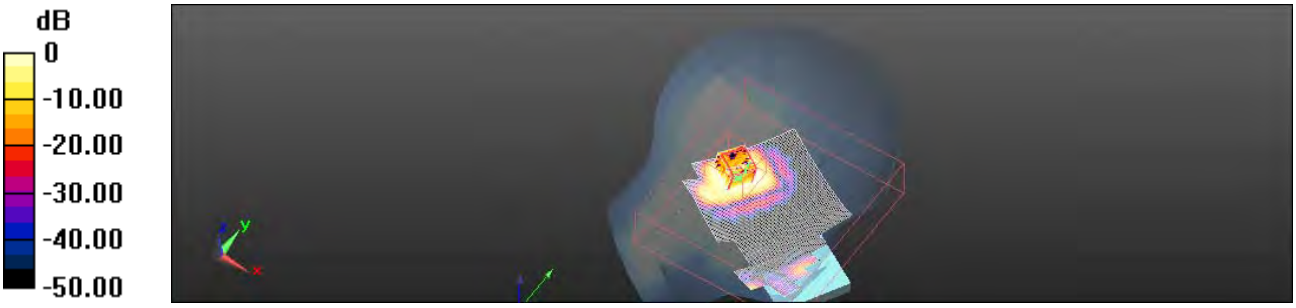
Communication System: WLAN 802.11n/a(5G) FCC; Frequency: 5180 MHz
Medium parameters used: f = 5180 MHz; σ = 4.558 mho/m; εr = 35.539; ρ = 1000 kg/m^3
Phantom section: Left Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3661; ConvF(4.88, 4.88, 4.88); Calibrated: 1/24/2011
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/LE Cheek/Area Scan (71x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.065 mW/g

Configuration/LE Cheek/Zoom Scan (7x7x7) (7x7x9)/Cube 0:
Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 3.598 V/m; Power Drift = 0.08 dB
Peak SAR (extrapolated) = 0.154 W/kg

SAR(1 g) = 0.045 mW/g; SAR(10 g) = 0.015 mW/g
Maximum value of SAR (measured) = 0.084 mW/g



0 dB = 0.080mW/g

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Date: 11/03/2011

LE Cheek_WLAN802.11a_5.2G_CH48

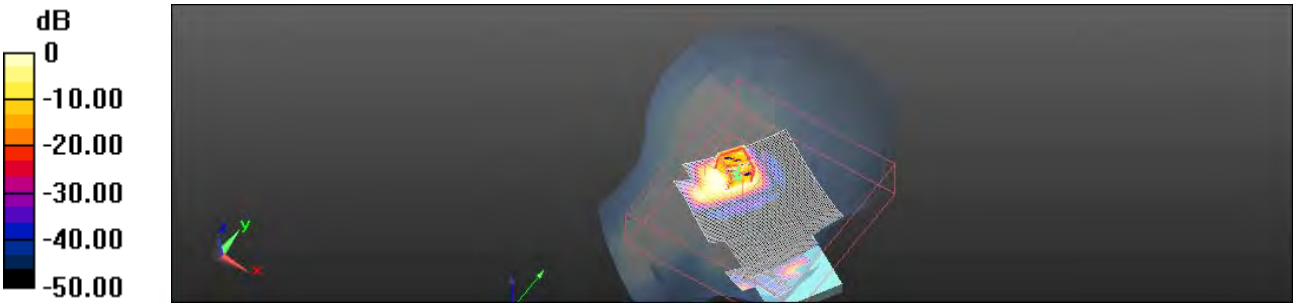
Communication System: WLAN 802.11n/a(5G) FCC; Frequency: 5240 MHz
Medium parameters used: f = 5240 MHz; σ = 4.628 mho/m; εr = 35.158; ρ = 1000 kg/m^3
Phantom section: Left Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3661; ConvF(4.88, 4.88, 4.88); Calibrated: 1/24/2011
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/LE Cheek/Area Scan (71x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.178 mW/g

Configuration/LE Cheek/Zoom Scan (7x7x7) (7x7x9)/Cube 0:
Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 3.000 V/m; Power Drift = 0.15 dB
Peak SAR (extrapolated) = 0.134 W/kg

SAR(1 g) = 0.035 mW/g; SAR(10 g) = 0.013 mW/g
Maximum value of SAR (measured) = 0.072 mW/g



0 dB = 0.070mW/g

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Date: 11/03/2011

LE Cheek_WLAN802.11a_5.2G_CH52

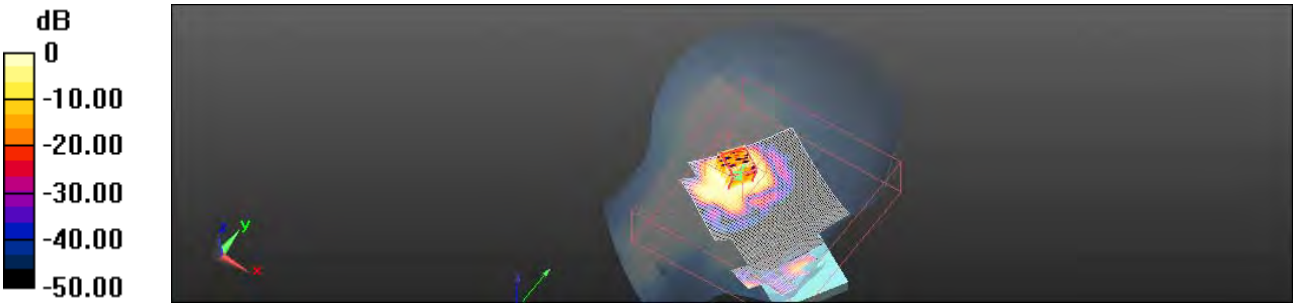
Communication System: WLAN 802.11n/a(5G) FCC; Frequency: 5260 MHz
Medium parameters used: f = 5260 MHz; σ = 4.665 mho/m; εr = 35.128; ρ = 1000 kg/m^3
Phantom section: Left Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3661; ConvF(4.59, 4.59, 4.59); Calibrated: 1/24/2011
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/LE Cheek/Area Scan (71x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.091 mW/g

Configuration/LE Cheek/Zoom Scan (7x7x7) (7x7x9)/Cube 0:
Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 3.784 V/m; Power Drift = 0.15 dB
Peak SAR (extrapolated) = 0.187 W/kg

SAR(1 g) = 0.054 mW/g; SAR(10 g) = 0.019 mW/g
Maximum value of SAR (measured) = 0.113 mW/g



0 dB = 0.110mW/g

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Date: 11/03/2011

LE Cheek_WLAN802.11a_5.2G_CH64

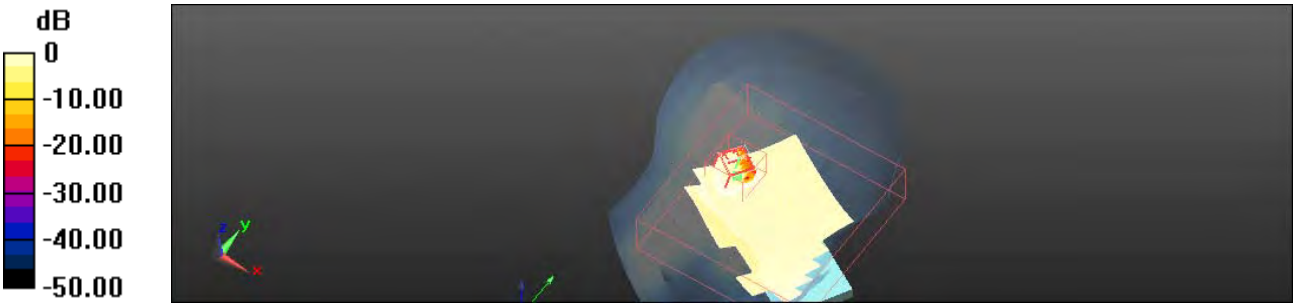
Communication System: WLAN 802.11n/a(5G) FCC; Frequency: 5320 MHz
Medium parameters used: f = 5320 MHz; σ = 4.738 mho/m; εr = 35.181; ρ = 1000 kg/m^3
Phantom section: Left Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3661; ConvF(4.59, 4.59, 4.59); Calibrated: 1/24/2011
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/LE Cheek/Area Scan (71x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.191 mW/g

Configuration/LE Cheek/Zoom Scan (7x7x7) (7x7x9)/Cube 0:
Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 2.060 V/m; Power Drift = -0.17 dB
Peak SAR (extrapolated) = 0.523 W/kg

SAR(1 g) = 0.224 mW/g; SAR(10 g) = 0.134 mW/g
Maximum value of SAR (measured) = 0.283 mW/g



0 dB = 0.280mW/g

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Date: 11/03/2011

LE Tilt_WLAN802.11a_5.2G_CH64

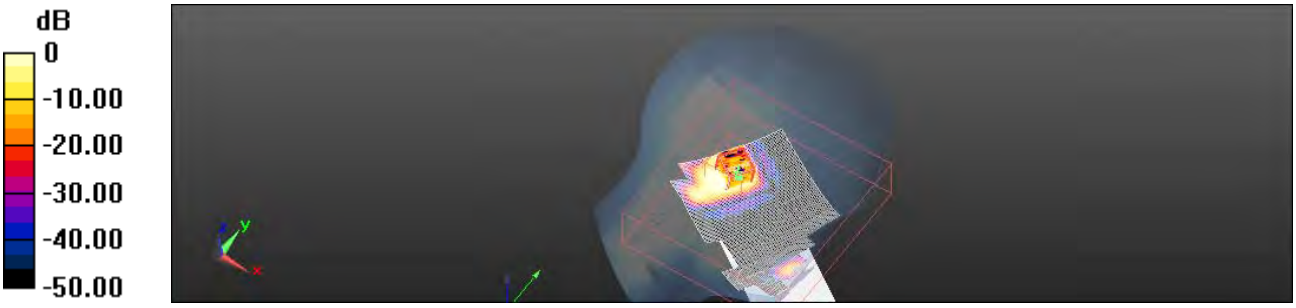
Communication System: WLAN 802.11n/a(5G) FCC; Frequency: 5320 MHz
Medium parameters used: f = 5320 MHz; σ = 4.738 mho/m; εr = 35.181; ρ = 1000 kg/m^3
Phantom section: Left Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3661; ConvF(4.59, 4.59, 4.59); Calibrated: 1/24/2011
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/LE Cheek/Area Scan (71x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.207 mW/g

Configuration/LE Cheek/Zoom Scan (7x7x7) (7x7x9)/Cube 0:
Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 3.859 V/m; Power Drift = 0.18 dB
Peak SAR (extrapolated) = 0.174 W/kg

SAR(1 g) = 0.049 mW/g; SAR(10 g) = 0.018 mW/g
Maximum value of SAR (measured) = 0.100 mW/g



0 dB = 0.100mW/g

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Date: 11/03/2011

Hotspot mode_Back side_WLAN802.11a_5.2G_CH64

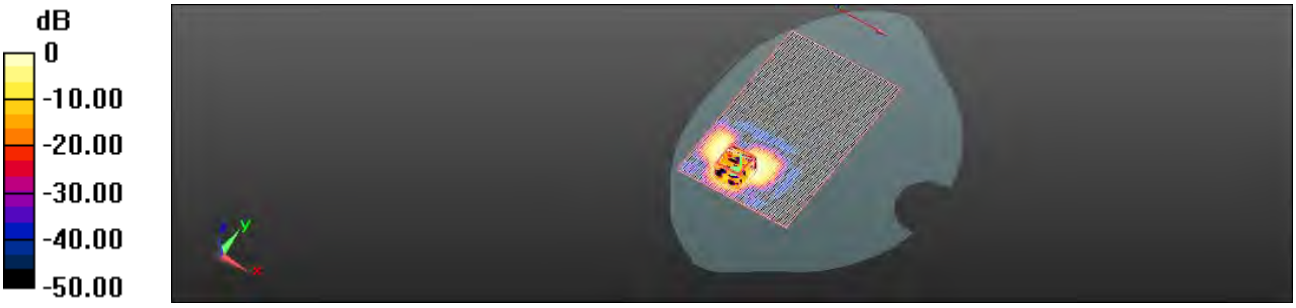
Communication System: WLAN 802.11n/a(5G) FCC; Frequency: 5320 MHz
Medium parameters used: f = 5320 MHz; σ = 5.499 mho/m; ε_r = 47.747; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(4.12, 4.12, 4.12); Calibrated: 4/19/2011
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/Body/Area Scan (71x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.137 mW/g

Configuration/Body/Zoom Scan (7x7x7) (7x7x9)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 0.489 V/m; Power Drift = -0.12 dB
Peak SAR (extrapolated) = 0.127 W/kg

SAR(1 g) = 0.037 mW/g; SAR(10 g) = 0.011 mW/g
Maximum value of SAR (measured) = 0.080 mW/g



0 dB = 0.080mW/g

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Date: 11/03/2011

RE Cheek_WLAN802.11n(20M)5.2G_CH64

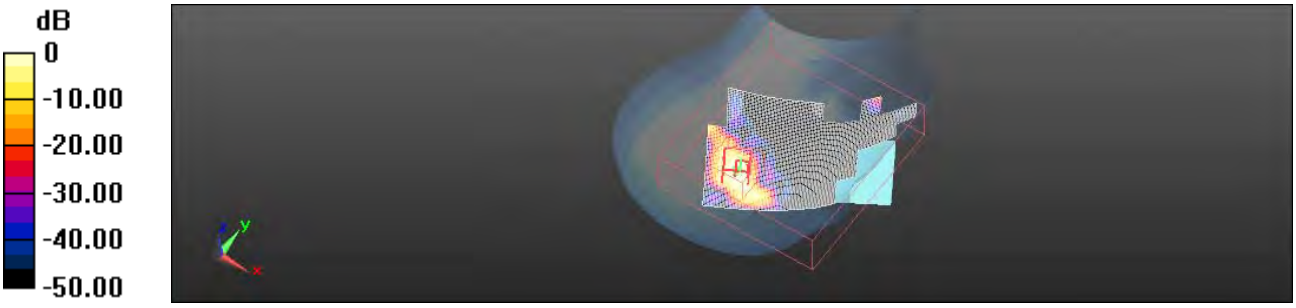
Communication System: WLAN 802.11n/a(5G) FCC; Frequency: 5320 MHz
Medium parameters used: f = 5320 MHz; σ = 4.738 mho/m; εr = 35.181; ρ = 1000 kg/m^3
Phantom section: Right Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3661; ConvF(4.59, 4.59, 4.59); Calibrated: 1/24/2011
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/RE Cheek/Area Scan (71x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.216 mW/g

Configuration/RE Cheek/Zoom Scan (7x7x7) (7x7x9)/Cube 0:
Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 2.808 V/m; Power Drift = 0.09 dB
Peak SAR (extrapolated) = 0.176 W/kg

SAR(1 g) = 0.051 mW/g; SAR(10 g) = 0.015 mW/g
Maximum value of SAR (measured) = 0.101 mW/g



0 dB = 0.100mW/g

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Date: 11/03/2011

RE Tilt_WLAN802.11n(20M)5.2G_CH36

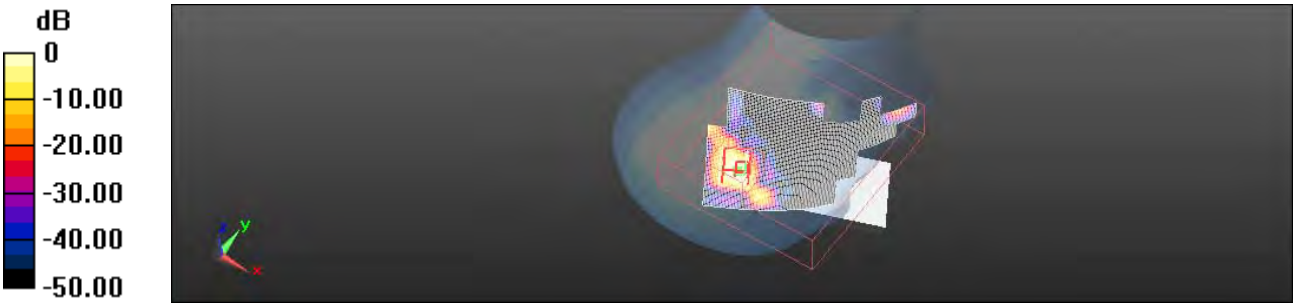
Communication System: WLAN 802.11n/a(5G) FCC; Frequency: 5180 MHz
Medium parameters used: f = 5180 MHz; σ = 4.558 mho/m; εr = 35.539; ρ = 1000 kg/m^3
Phantom section: Right Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3661; ConvF(4.88, 4.88, 4.88); Calibrated: 1/24/2011
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/RE Tilt/Area Scan (71x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.252 mW/g

Configuration/RE Tilt/Zoom Scan (7x7x7) (7x7x9)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 3.215 V/m; Power Drift = 0.09 dB
Peak SAR (extrapolated) = 0.170 W/kg

SAR(1 g) = 0.050 mW/g; SAR(10 g) = 0.016 mW/g
Maximum value of SAR (measured) = 0.095 mW/g



0 dB = 0.090mW/g

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Date: 11/03/2011

RE Tilt_WLAN802.11n(20M)5.2G_CH48

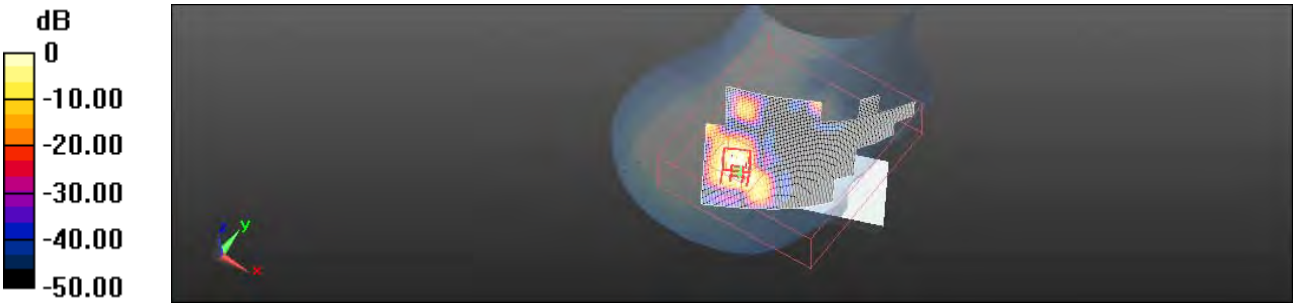
Communication System: WLAN 802.11n/a(5G) FCC; Frequency: 5240 MHz
Medium parameters used: f = 5240 MHz; σ = 4.628 mho/m; εr = 35.158; ρ = 1000 kg/m^3
Phantom section: Right Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3661; ConvF(4.88, 4.88, 4.88); Calibrated: 1/24/2011
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/RE Tilt/Area Scan (71x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.136 mW/g

Configuration/RE Tilt/Zoom Scan (7x7x7) (7x7x9)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 2.789 V/m; Power Drift = -0.10 dB
Peak SAR (extrapolated) = 0.101 W/kg

SAR(1 g) = 0.027 mW/g; SAR(10 g) = 0.00826 mW/g
Maximum value of SAR (measured) = 0.060 mW/g



0 dB = 0.060mW/g

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Date: 11/03/2011

RE Tilt_WLAN802.11n(20M)5.2G_CH52

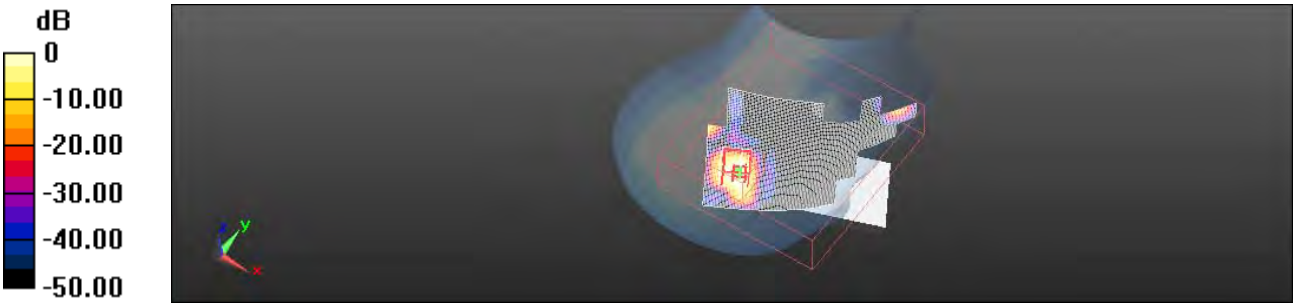
Communication System: WLAN 802.11n/a(5G) FCC; Frequency: 5260 MHz
Medium parameters used: f = 5260 MHz; σ = 5.393 mho/m; εr = 35.128; ρ = 1000 kg/m^3
Phantom section: Right Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3661; ConvF(4.59, 4.59, 4.59); Calibrated: 1/24/2011
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/RE Tilt/Area Scan (71x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.267 mW/g

Configuration/RE Tilt/Zoom Scan (7x7x7) (7x7x9)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 2.950 V/m; Power Drift = 0.07 dB
Peak SAR (extrapolated) = 0.166 W/kg

SAR(1 g) = 0.049 mW/g; SAR(10 g) = 0.015 mW/g
Maximum value of SAR (measured) = 0.099 mW/g



0 dB = 0.100mW/g

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Date: 11/03/2011

RE Tilt_WLAN802.11n(20M)5.2G_CH64

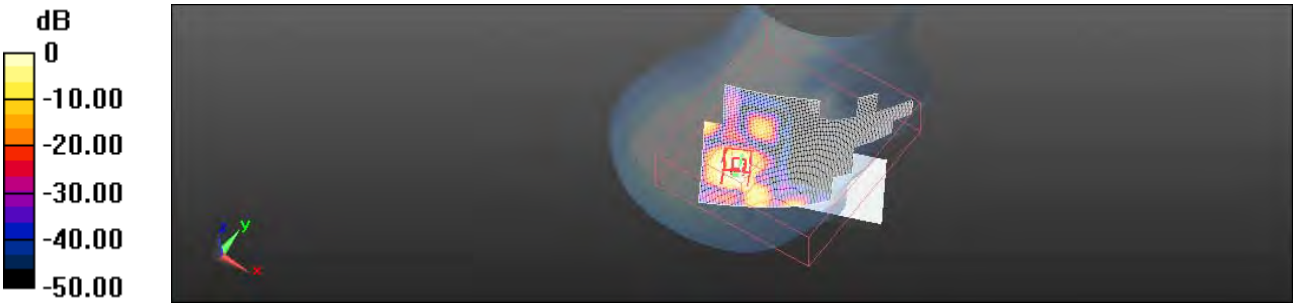
Communication System: WLAN 802.11n/a(5G) FCC; Frequency: 5320 MHz
Medium parameters used: f = 5320 MHz; σ = 4.738 mho/m; εr = 35.181; ρ = 1000 kg/m^3
Phantom section: Right Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3661; ConvF(4.59, 4.59, 4.59); Calibrated: 1/24/2011
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/RE Tilt/Area Scan (71x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.106 mW/g

Configuration/RE Tilt/Zoom Scan (7x7x7) (7x7x9)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 3.330 V/m; Power Drift = 0.17 dB
Peak SAR (extrapolated) = 0.173 W/kg

SAR(1 g) = 0.053 mW/g; SAR(10 g) = 0.016 mW/g
Maximum value of SAR (measured) = 0.104 mW/g



0 dB = 0.100mW/g

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Date: 11/03/2011

LE Cheek_WLAN802.11n(20M)_5.2G_CH64

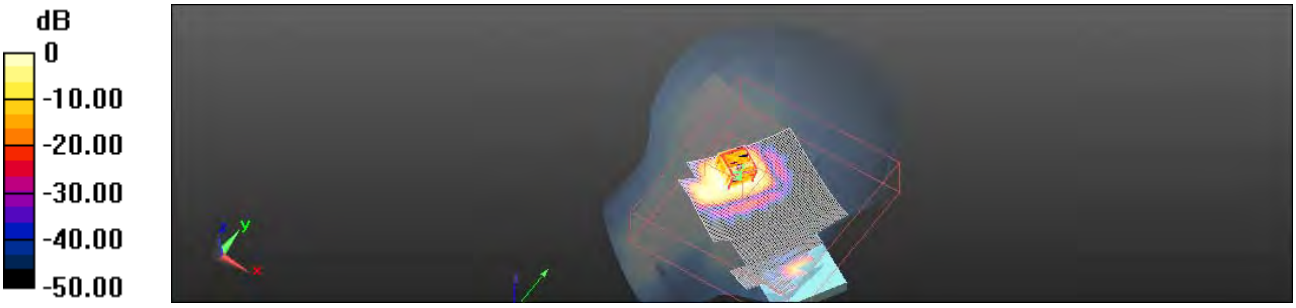
Communication System: WLAN 802.11n/a(5G) FCC; Frequency: 5320 MHz
Medium parameters used: f = 5320 MHz; σ = 4.738 mho/m; εr = 35.181; ρ = 1000 kg/m^3
Phantom section: Left Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3661; ConvF(4.59, 4.59, 4.59); Calibrated: 1/24/2011
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/LE Cheek/Area Scan (71x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.079 mW/g

Configuration/LE Cheek/Zoom Scan (7x7x7) (7x7x9)/Cube 0:
Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 3.494 V/m; Power Drift = 0.0097 dB
Peak SAR (extrapolated) = 0.156 W/kg

SAR(1 g) = 0.045 mW/g; SAR(10 g) = 0.017 mW/g
Maximum value of SAR (measured) = 0.089 mW/g



0 dB = 0.090mW/g

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Date: 11/03/2011

LE Tilt_WLAN802.11n(20M)_5.2G_CH64

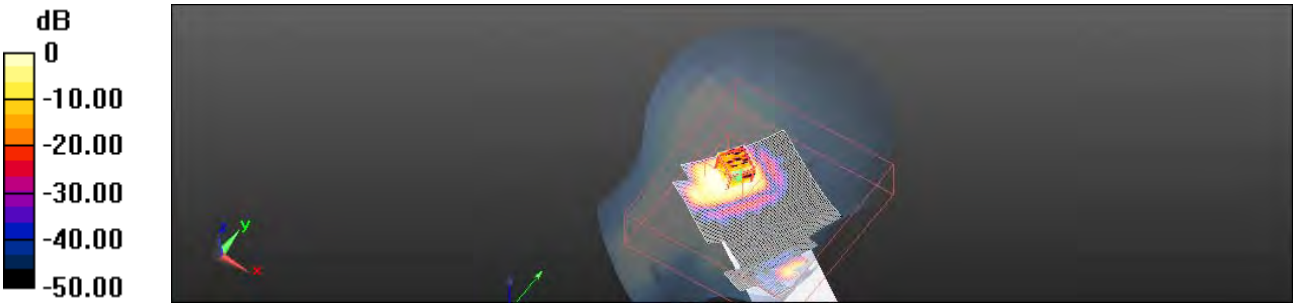
Communication System: WLAN 802.11n/a(5G) FCC; Frequency: 5320 MHz
Medium parameters used: f = 5320 MHz; σ = 4.738 mho/m; εr = 35.181; ρ = 1000 kg/m^3
Phantom section: Left Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3661; ConvF(4.59, 4.59, 4.59); Calibrated: 1/24/2011
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/LE Tilt/Area Scan (71x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.077 mW/g

Configuration/LE Tilt/Zoom Scan (7x7x7) (7x7x9)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 3.626 V/m; Power Drift = 0.17 dB
Peak SAR (extrapolated) = 0.140 W/kg

SAR(1 g) = 0.042 mW/g; SAR(10 g) = 0.016 mW/g
Maximum value of SAR (measured) = 0.082 mW/g



0 dB = 0.080mW/g

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Date: 11/03/2011

Hotspot mode_Back side_WLAN802.11n(20M)5.2G_CH64

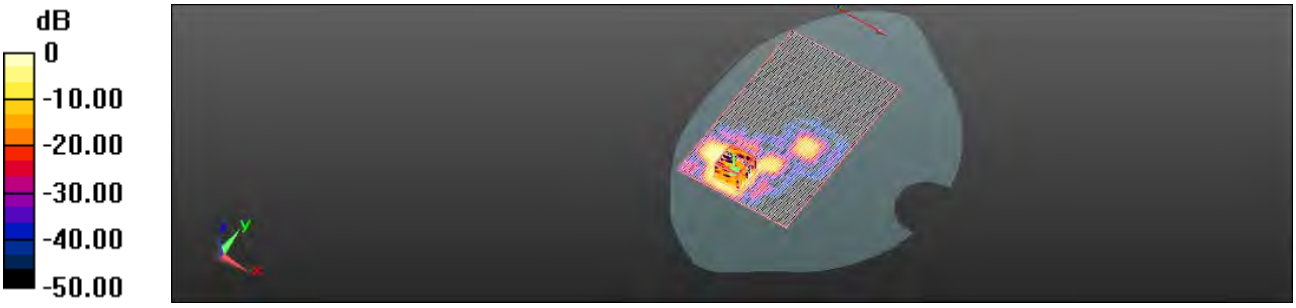
Communication System: WLAN 802.11n/a(5G) FCC; Frequency: 5320 MHz
Medium parameters used: f = 5320 MHz; σ = 5.499 mho/m; ε_r = 47.747; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(4.12, 4.12, 4.12); Calibrated: 4/19/2011
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/Body/Area Scan (71x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.073 mW/g

Configuration/Body/Zoom Scan (7x7x7) (7x7x9)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 0.379 V/m; Power Drift = -0.13 dB
Peak SAR (extrapolated) = 0.137 W/kg

SAR(1 g) = 0.038 mW/g; SAR(10 g) = 0.012 mW/g
Maximum value of SAR (measured) = 0.084 mW/g



0 dB = 0.080mW/g

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Date: 11/03/2011

RE Cheek_WLAN802.11a_5.8G_CH149

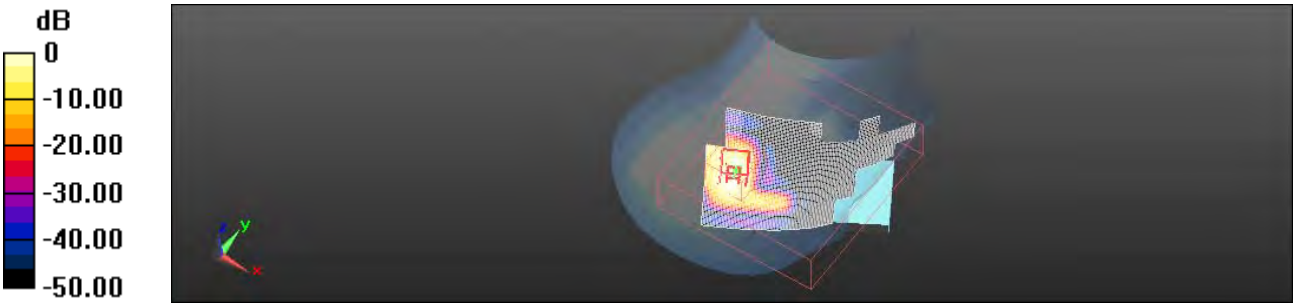
Communication System: WLAN 802.11n/a(5G) FCC; Frequency: 5745 MHz
Medium parameters used: f = 5745 MHz; σ = 5.183 mho/m; ε_r = 34.088; ρ = 1000 kg/m^3
Phantom section: Right Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3661; ConvF(4.15, 4.15, 4.15); Calibrated: 1/24/2011
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/RE Cheek/Area Scan (71x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.219 mW/g

Configuration/RE Cheek/Zoom Scan (7x7x7) (7x7x9)/Cube 0:
Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 3.445 V/m; Power Drift = 0.12 dB
Peak SAR (extrapolated) = 0.348 W/kg

SAR(1 g) = 0.090 mW/g; SAR(10 g) = 0.030 mW/g
Maximum value of SAR (measured) = 0.192 mW/g



0 dB = 0.190mW/g

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Date: 11/03/2011

RE Tilt_WLAN802.11a_5.8G_CH149

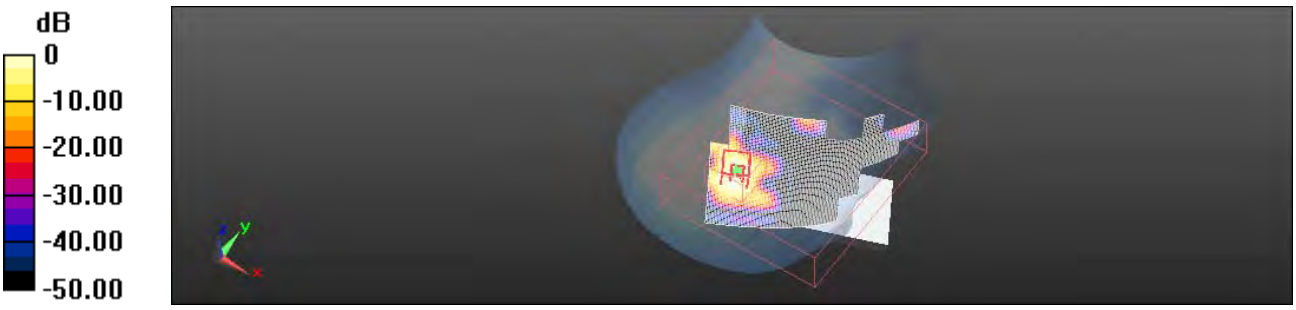
Communication System: WLAN 802.11n/a(5G) FCC; Frequency: 5745 MHz
Medium parameters used: f = 5745 MHz; σ = 5.183 mho/m; εr = 34.088; ρ = 1000 kg/m^3
Phantom section: Right Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3661; ConvF(4.15, 4.15, 4.15); Calibrated: 1/24/2011
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/RE Tilt/Area Scan (71x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.313 mW/g

Configuration/RE Tilt/Zoom Scan (7x7x7) (7x7x9)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 4.491 V/m; Power Drift = -0.15 dB
Peak SAR (extrapolated) = 0.539 W/kg

SAR(1 g) = 0.130 mW/g; SAR(10 g) = 0.039 mW/g
Maximum value of SAR (measured) = 0.265 mW/g



0 dB = 0.260mW/g

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Date: 11/03/2011

LE Cheek_WLAN802.11a_5.8G_CH149

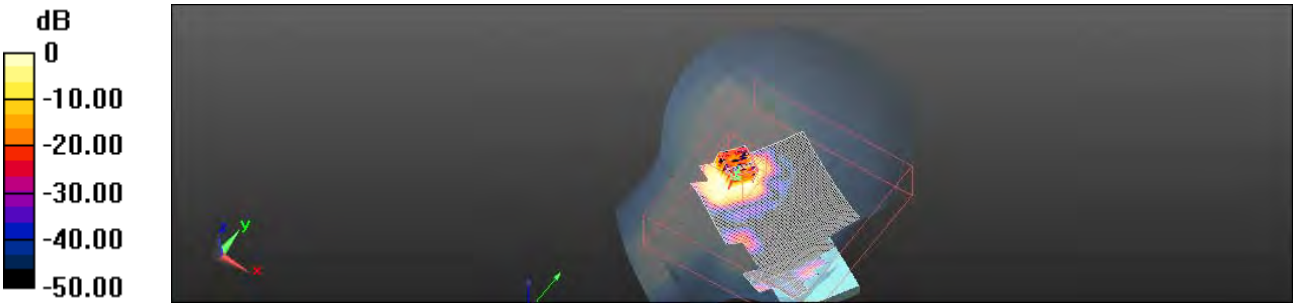
Communication System: WLAN 802.11n/a(5G) FCC; Frequency: 5745 MHz
Medium parameters used: f = 5745 MHz; σ = 5.183 mho/m; εr = 34.088; ρ = 1000 kg/m^3
Phantom section: Left Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3661; ConvF(4.15, 4.15, 4.15); Calibrated: 1/24/2011
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/LE Cheek/Area Scan (71x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.273 mW/g

Configuration/LE Cheek/Zoom Scan (7x7x7) (7x7x9)/Cube 0:
Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 3.333 V/m; Power Drift = 0.12 dB
Peak SAR (extrapolated) = 0.405 W/kg

SAR(1 g) = 0.110 mW/g; SAR(10 g) = 0.036 mW/g
Maximum value of SAR (measured) = 0.216 mW/g



0 dB = 0.220mW/g

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Date: 11/03/2011

LE Tilt_WLAN802.11a_5.8G_CH149

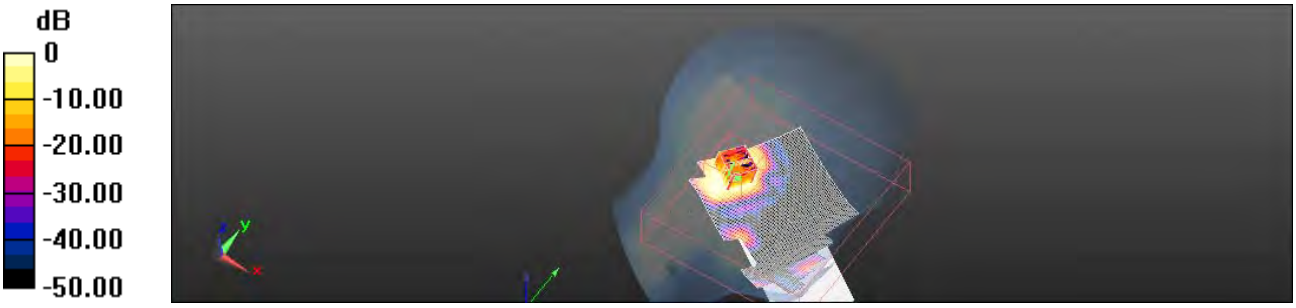
Communication System: WLAN 802.11n/a(5G) FCC; Frequency: 5745 MHz
Medium parameters used: f = 5745 MHz; σ = 5.183 mho/m; εr = 34.088; ρ = 1000 kg/m^3
Phantom section: Left Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3661; ConvF(4.15, 4.15, 4.15); Calibrated: 1/24/2011
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/LE Tilt/Area Scan (71x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.349 mW/g

Configuration/LE Tilt/Zoom Scan (7x7x7) (7x7x9)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 4.585 V/m; Power Drift = 0.18 dB
Peak SAR (extrapolated) = 0.494 W/kg

SAR(1 g) = 0.139 mW/g; SAR(10 g) = 0.050 mW/g
Maximum value of SAR (measured) = 0.261 mW/g



0 dB = 0.260mW/g

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Date: 11/03/2011

LE Tilt_WLAN802.11a_5.8G_CH157

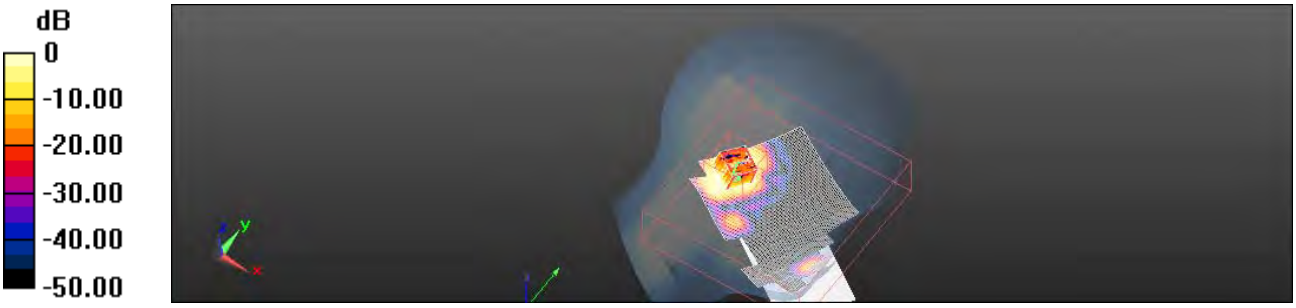
Communication System: WLAN 802.11n/a(5G) FCC; Frequency: 5785 MHz
Medium parameters used: f = 5785 MHz; σ = 5.261 mho/m; εr = 34.048; ρ = 1000 kg/m^3
Phantom section: Left Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3661; ConvF(4.15, 4.15, 4.15); Calibrated: 1/24/2011
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/LE Tilt/Area Scan (71x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.396 mW/g

Configuration/LE Tilt/Zoom Scan (7x7x7) (7x7x9)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 4.953 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 0.536 W/kg

SAR(1 g) = 0.154 mW/g; SAR(10 g) = 0.052 mW/g
Maximum value of SAR (measured) = 0.311 mW/g



0 dB = 0.310mW/g

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Date: 11/03/2011

LE Tilt_WLAN802.11a_5.8G_CH165

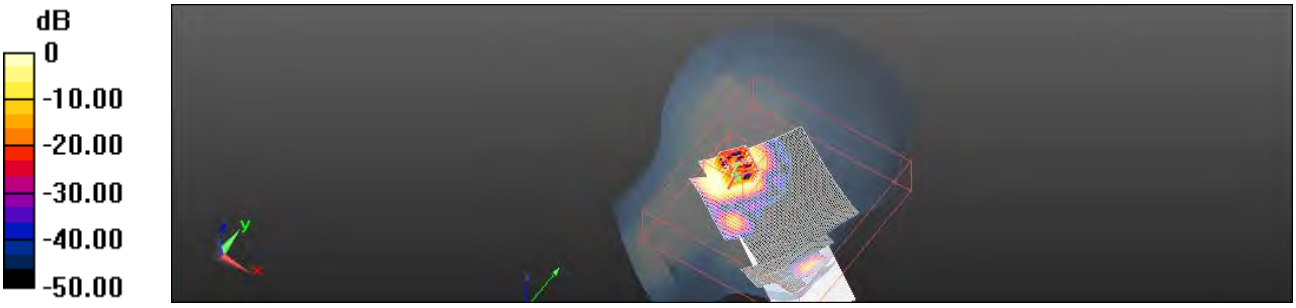
Communication System: WLAN 802.11n/a(5G) FCC; Frequency: 5825 MHz
Medium parameters used: f = 5825 MHz; σ = 5.298 mho/m; ε_r = 33.948; ρ = 1000 kg/m^3
Phantom section: Left Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3661; ConvF(4.15, 4.15, 4.15); Calibrated: 1/24/2011
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/LE Tilt/Area Scan (71x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.436 mW/g

Configuration/LE Tilt/Zoom Scan (7x7x7) (7x7x9)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 5.077 V/m; Power Drift = 0.10 dB
Peak SAR (extrapolated) = 0.727 W/kg

SAR(1 g) = 0.194 mW/g; SAR(10 g) = 0.067 mW/g
Maximum value of SAR (measured) = 0.384 mW/g



0 dB = 0.380mW/g

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Date: 11/03/2011

Hotspot mode_Back side_WLAN802.11a_5.8G_CH149

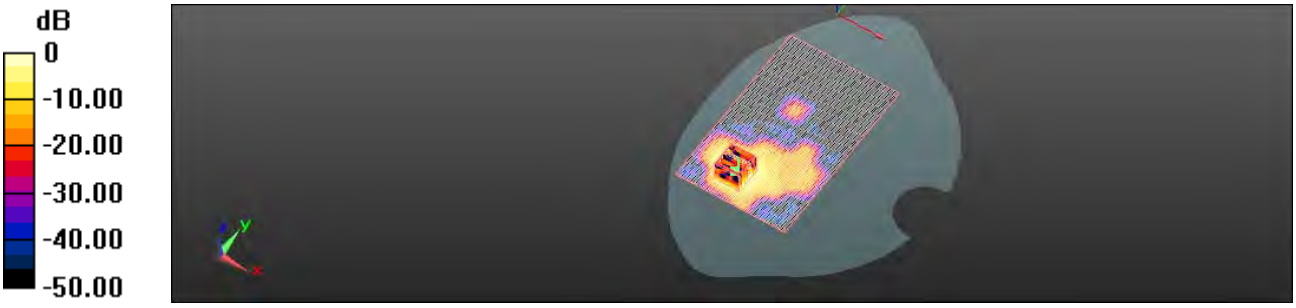
Communication System: WLAN 802.11n/a(5G) FCC; Frequency: 5745 MHz
Medium parameters used: f = 5745 MHz; σ = 6.076 mho/m; ε_r = 46.427; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(3.8, 3.8, 3.8); Calibrated: 4/19/2011
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/Body/Area Scan (71x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.299 mW/g

Configuration/Body/Zoom Scan (7x7x7) (7x7x9)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 0.722 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 1.067 W/kg

SAR(1 g) = 0.130 mW/g; SAR(10 g) = 0.039 mW/g
Maximum value of SAR (measured) = 0.283 mW/g



0 dB = 0.280mW/g

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Date: 11/03/2011

RE Cheek_WLAN802.11n(20M)5.8G_CH149

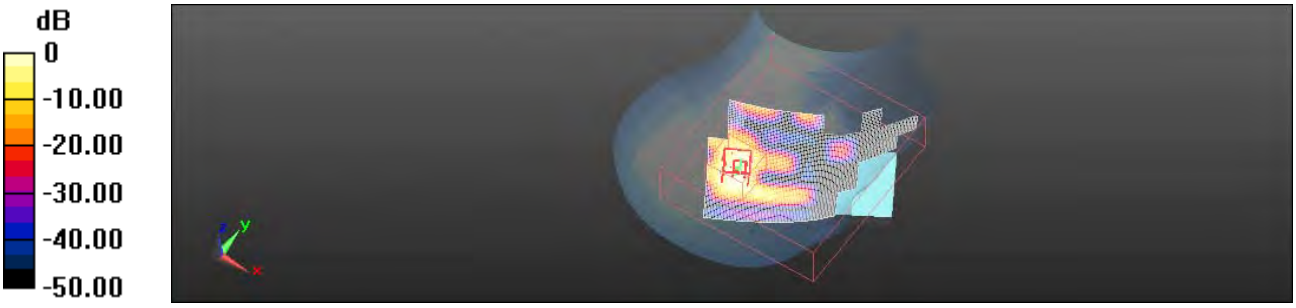
Communication System: WLAN 802.11n/a(5G) FCC; Frequency: 5745 MHz
Medium parameters used: f = 5745 MHz; σ = 5.183 mho/m; εr = 34.088; ρ = 1000 kg/m^3
Phantom section: Right Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3661; ConvF(4.15, 4.15, 4.15); Calibrated: 1/24/2011
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/RE Cheek/Area Scan (71x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.289 mW/g

Configuration/RE Cheek/Zoom Scan (7x7x7) (7x7x9)/Cube 0:
Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 5.521 V/m; Power Drift = 0.18 dB
Peak SAR (extrapolated) = 0.397 W/kg

SAR(1 g) = 0.106 mW/g; SAR(10 g) = 0.033 mW/g
Maximum value of SAR (measured) = 0.224 mW/g



0 dB = 0.220mW/g

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Date: 11/03/2011

RE Tilt_WLAN802.11n(20M)5.8G_CH149

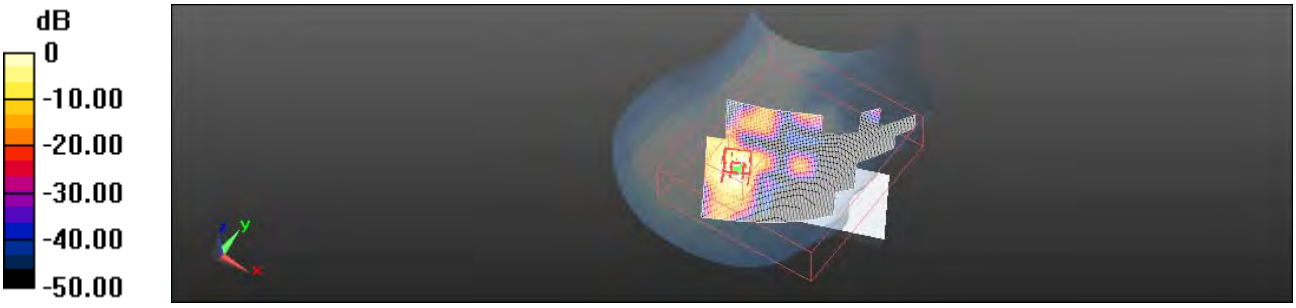
Communication System: WLAN 802.11n/a(5G) FCC; Frequency: 5745 MHz
Medium parameters used: f = 5745 MHz; σ = 5.183 mho/m; εr = 34.088; ρ = 1000 kg/m^3
Phantom section: Right Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3661; ConvF(4.15, 4.15, 4.15); Calibrated: 1/24/2011
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/RE Tilt/Area Scan (71x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.398 mW/g

Configuration/RE Tilt/Zoom Scan (7x7x7) (7x7x9)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 6.748 V/m; Power Drift = 0.16 dB
Peak SAR (extrapolated) = 0.501 W/kg

SAR(1 g) = 0.133 mW/g; SAR(10 g) = 0.041 mW/g
Maximum value of SAR (measured) = 0.282 mW/g



0 dB = 0.280mW/g

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Date: 11/03/2011

RE Tilt_WLAN802.11n(20M)5.8G_CH157

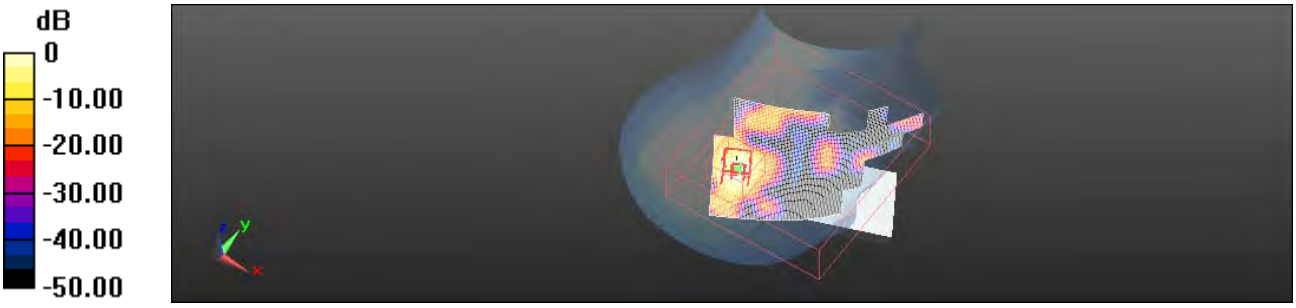
Communication System: WLAN 802.11n/a(5G) FCC; Frequency: 5785 MHz
Medium parameters used: f = 5785 MHz; σ = 5.261 mho/m; εr = 34.048; ρ = 1000 kg/m^3
Phantom section: Right Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3661; ConvF(4.15, 4.15, 4.15); Calibrated: 1/24/2011
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/RE Tilt/Area Scan (71x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.282 mW/g

Configuration/RE Tilt/Zoom Scan (7x7x7) (7x7x9)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 5.089 V/m; Power Drift = -0.18 dB
Peak SAR (extrapolated) = 0.732 W/kg

SAR(1 g) = 0.168 mW/g; SAR(10 g) = 0.049 mW/g
Maximum value of SAR (measured) = 0.376 mW/g



0 dB = 0.380mW/g

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Date: 11/03/2011

RE Tilt_WLAN802.11n(20M)5.8G_CH165

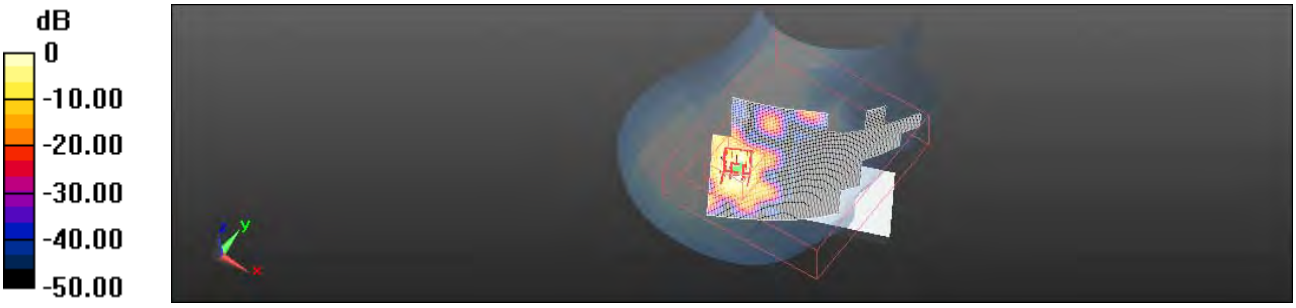
Communication System: WLAN 802.11n/a(5G) FCC; Frequency: 5825 MHz
Medium parameters used: f = 5825 MHz; σ = 5.298 mho/m; ε_r = 33.948; ρ = 1000 kg/m^3
Phantom section: Right Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3661; ConvF(4.15, 4.15, 4.15); Calibrated: 1/24/2011
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/RE Tilt/Area Scan (71x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.327 mW/g

Configuration/RE Tilt/Zoom Scan (7x7x7) (7x7x9)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 5.170 V/m; Power Drift = 0.16 dB
Peak SAR (extrapolated) = 0.814 W/kg

SAR(1 g) = 0.195 mW/g; SAR(10 g) = 0.056 mW/g
Maximum value of SAR (measured) = 0.411 mW/g



0 dB = 0.410mW/g

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Date: 11/03/2011

LE Cheek_WLAN802.11n(20M)_5.8G_CH149

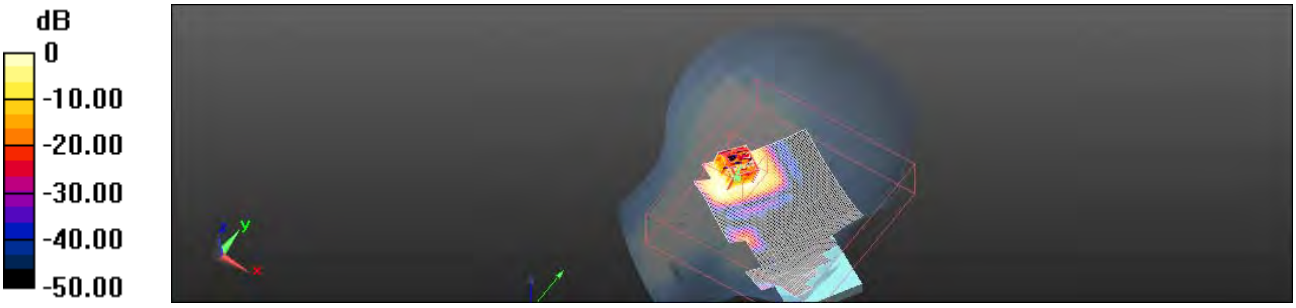
Communication System: WLAN 802.11n/a(5G) FCC; Frequency: 5745 MHz
Medium parameters used: f = 5745 MHz; σ = 5.183 mho/m; εr = 34.088; ρ = 1000 kg/m^3
Phantom section: Left Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3661; ConvF(4.15, 4.15, 4.15); Calibrated: 1/24/2011
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/LE Cheek/Area Scan (71x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.252 mW/g

Configuration/LE Cheek/Zoom Scan (7x7x7) (7x7x9)/Cube 0:
Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 3.807 V/m; Power Drift = 0.11 dB
Peak SAR (extrapolated) = 0.392 W/kg

SAR(1 g) = 0.113 mW/g; SAR(10 g) = 0.039 mW/g
Maximum value of SAR (measured) = 0.225 mW/g



0 dB = 0.220mW/g

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Date: 11/03/2011

LE Tilt_WLAN802.11n(20M)_5.8G_CH149

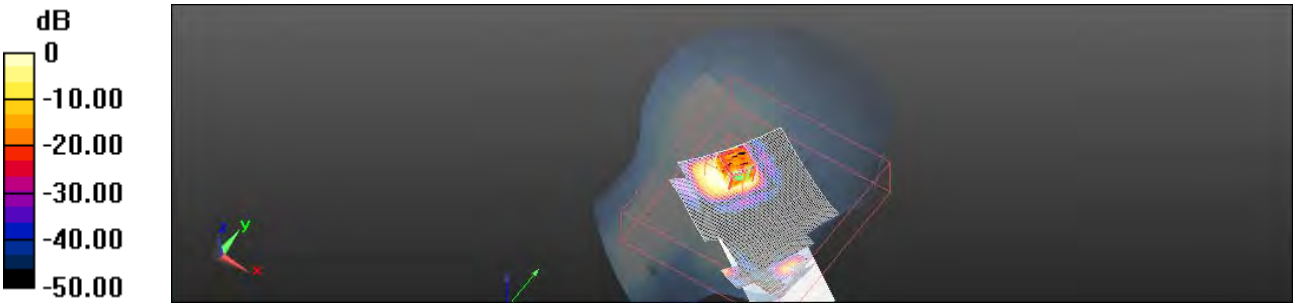
Communication System: WLAN 802.11n/a(5G) FCC; Frequency: 5745 MHz
Medium parameters used: f = 5745 MHz; σ = 5.183 mho/m; εr = 34.088; ρ = 1000 kg/m^3
Phantom section: Left Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3661; ConvF(4.15, 4.15, 4.15); Calibrated: 1/24/2011
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/LE Tilt/Area Scan (71x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.647 mW/g

Configuration/LE Tilt/Zoom Scan (7x7x7) (7x7x9)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 6.021 V/m; Power Drift = -0.08 dB
Peak SAR (extrapolated) = 0.459 W/kg

SAR(1 g) = 0.113 mW/g; SAR(10 g) = 0.039 mW/g
Maximum value of SAR (measured) = 0.225 mW/g



0 dB = 0.220mW/g

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Date: 11/03/2011

Hotspot mode_Back side_WLAN802.11n(20M)5.8G_CH149

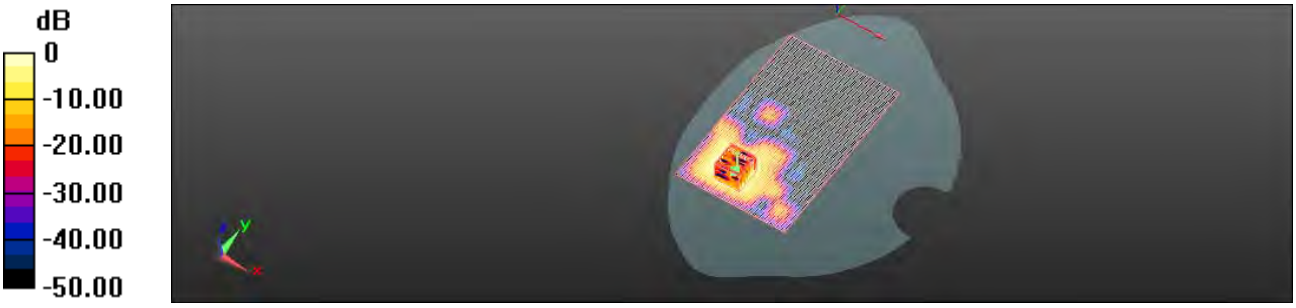
Communication System: WLAN 802.11n/a(5G) FCC; Frequency: 5745 MHz
Medium parameters used: f = 5745 MHz; σ = 6.076 mho/m; ε_r = 46.427; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(3.8, 3.8, 3.8); Calibrated: 4/19/2011
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/Body/Area Scan (71x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.226 mW/g

Configuration/Body/Zoom Scan (7x7x7) (7x7x9)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 0.796 V/m; Power Drift = 0.16 dB
Peak SAR (extrapolated) = 0.998 W/kg

SAR(1 g) = 0.165 mW/g; SAR(10 g) = 0.042 mW/g
Maximum value of SAR (measured) = 0.350 mW/g



0 dB = 0.350mW/g

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5. System Verification

Date: 10/27/2011

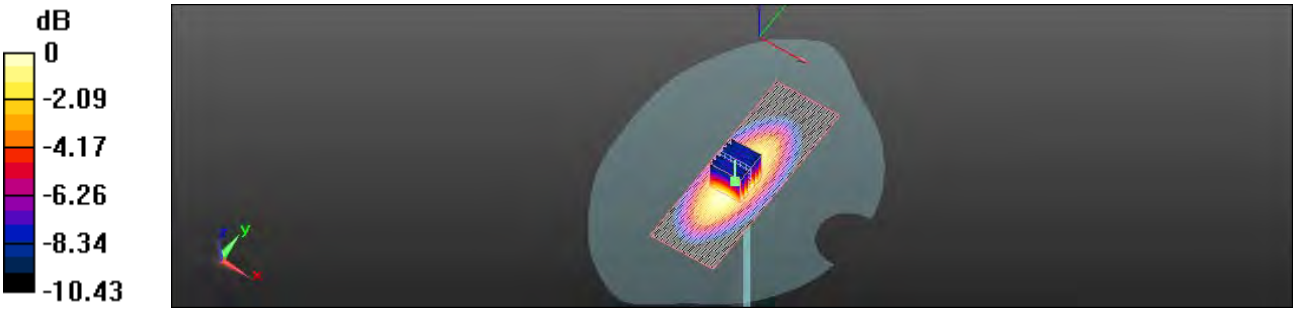
Communication System: CW; Frequency: 835 MHz
Medium parameters used: f = 835 MHz; σ = 0.868 mho/m; ε_r = 41.855; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(9.25, 9.25, 9.25); Calibrated: 4/19/2011
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/d=15mm, Pin=250mW, dist=2mm: Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 2.870 mW/g

Configuration/d=15mm, Pin=250mW, dist=2mm: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 58.271 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 3.429 W/kg

SAR(1 g) = 2.28 mW/g; SAR(10 g) = 1.5 mW/g
Maximum value of SAR (measured) = 2.905 mW/g



0 dB = 2.910mW/g

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Date: 10/27/2011

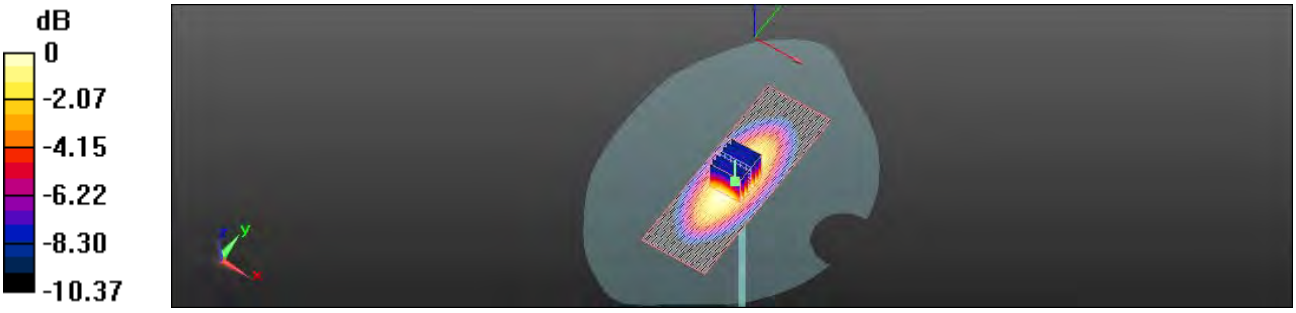
Communication System: CW; Frequency: 835 MHz
Medium parameters used: f = 835 MHz; σ = 0.983 mho/m; ε_r = 52.416; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(9.3, 9.3, 9.3); Calibrated: 4/19/2011
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/d=15mm, Pin=250mW, dist=2mm: Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 3.083 mW/g

Configuration/d=15mm, Pin=250mW, dist=2mm: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 57.322 V/m; Power Drift = -0.05 dB
Peak SAR (extrapolated) = 3.605 W/kg

SAR(1 g) = 2.43 mW/g; SAR(10 g) = 1.6 mW/g
Maximum value of SAR (measured) = 3.070 mW/g



0 dB = 3.070mW/g

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Date: 10/28/2011

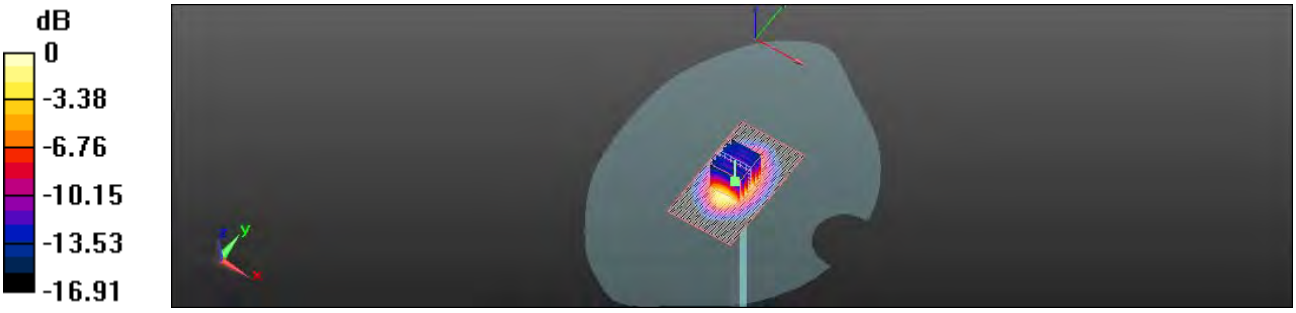
Communication System: CW; Frequency: 1750 MHz
Medium parameters used: f = 1750 MHz; σ = 1.392 mho/m; ε_r = 41.121; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.97, 7.97, 7.97); Calibrated: 4/19/2011
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/d=10mm, Pin=250mW, dist=2mm: Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 13.718 mW/g

Configuration/d=10mm, Pin=250mW, dist=2mm: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 98.221 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 16.866 W/kg

SAR(1 g) = 9.17 mW/g; SAR(10 g) = 4.83 mW/g
Maximum value of SAR (measured) = 13.107 mW/g



0 dB = 13.110mW/g

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Date: 10/28/2011

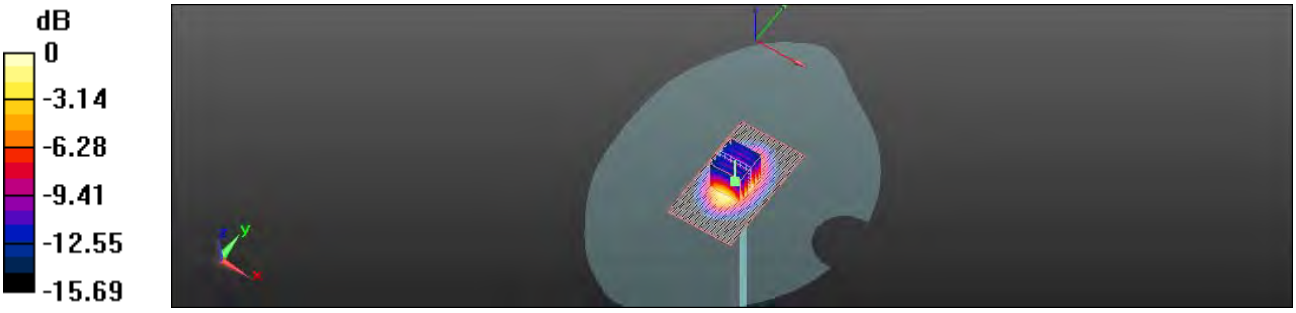
Communication System: CW; Frequency: 1750 MHz
Medium parameters used: f = 1750 MHz; σ = 1.475 mho/m; ε_r = 54.867; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.84, 7.84, 7.84); Calibrated: 4/19/2011
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/d=10mm, Pin=250mW, dist=2mm: Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 10.742 mW/g

Configuration/d=10mm, Pin=250mW, dist=2mm: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 85.433 V/m; Power Drift = 0.0081 dB
Peak SAR (extrapolated) = 15.491 W/kg

SAR(1 g) = 9.16 mW/g; SAR(10 g) = 4.84 mW/g
Maximum value of SAR (measured) = 10.054 mW/g



0 dB = 10.050mW/g

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Date: 10/27/2011

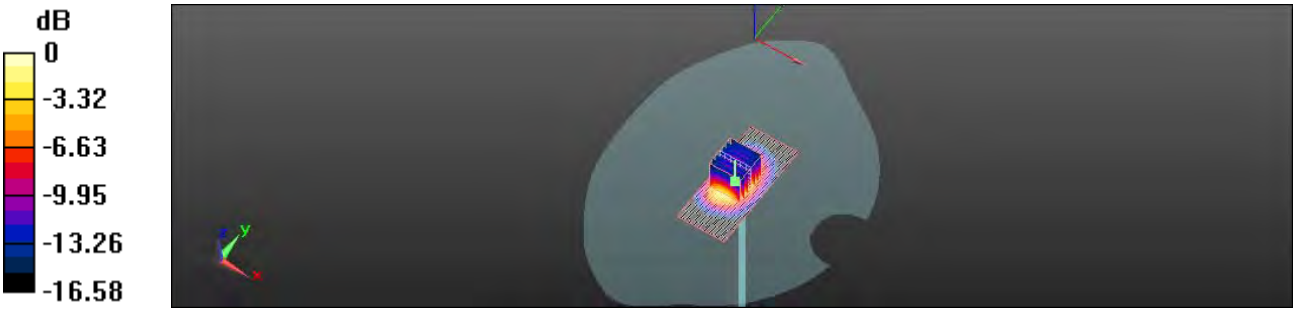
Communication System: CW; Frequency: 1900 MHz
Medium parameters used: f = 1900 MHz; σ = 1.424 mho/m; ε_r = 40.557; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.78, 7.78, 7.78); Calibrated: 4/19/2011
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/d=10mm, Pin=250mW, dist=2mm: Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 14.598 mW/g

Configuration/d=10mm, Pin=250mW, dist=2mm: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 99.750 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 17.666 W/kg

SAR(1 g) = 9.71 mW/g; SAR(10 g) = 5.11 mW/g
Maximum value of SAR (measured) = 13.834 mW/g



0 dB = 13.830mW/g

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Date: 10/27/2011

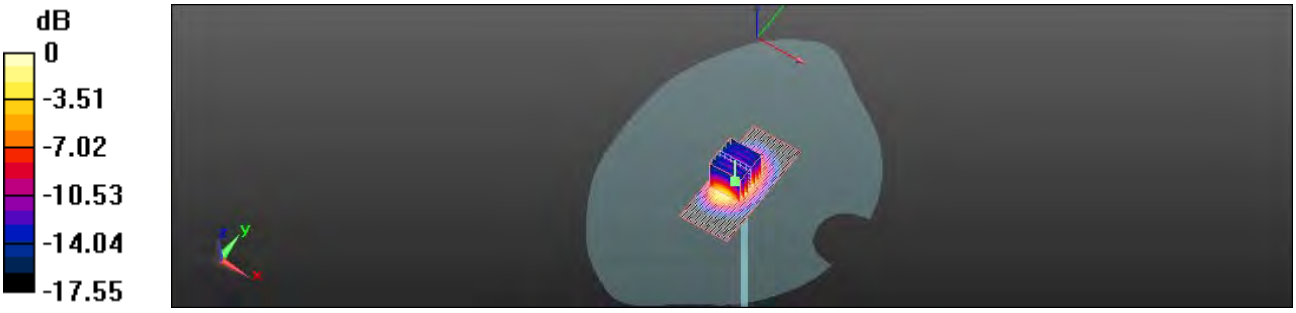
Communication System: CW; Frequency: 1900 MHz
Medium parameters used: f = 1900 MHz; σ = 1.575 mho/m; ε_r = 50.18; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.51, 7.51, 7.51); Calibrated: 4/19/2011
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/d=10mm, Pin=250mW, dist=2mm: Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 14.942 mW/g

Configuration/d=10mm, Pin=250mW, dist=2mm: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 94.822 V/m; Power Drift = -0.14 dB
Peak SAR (extrapolated) = 17.563 W/kg

SAR(1 g) = 9.5 mW/g; SAR(10 g) = 4.9 mW/g
Maximum value of SAR (measured) = 13.668 mW/g



0 dB = 13.670mW/g

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Date: 11/01/2011

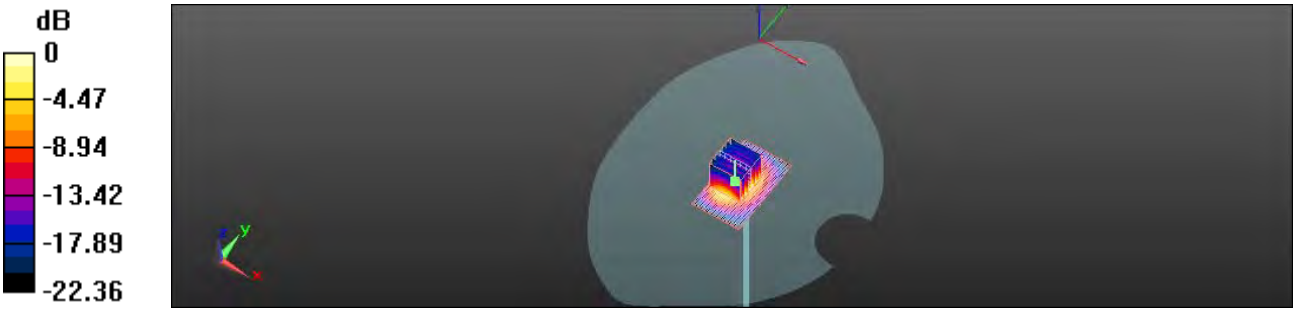
Communication System: CW; Frequency: 2450 MHz
Medium parameters used: f = 2450 MHz; σ = 1.797 mho/m; ε_r = 37.556; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(6.99, 6.99, 6.99); Calibrated: 4/19/2011
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/d=10mm, Pin=250mW, dist=2mm: Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 21.602 mW/g

Configuration/d=10mm, Pin=250mW, dist=2mm: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 105.0 V/m; Power Drift = -0.0042 dB
Peak SAR (extrapolated) = 28.206 W/kg

SAR(1 g) = 13.2 mW/g; SAR(10 g) = 6.04 mW/g
Maximum value of SAR (measured) = 20.265 mW/g



0 dB = 20.260mW/g

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Date: 11/01/2011

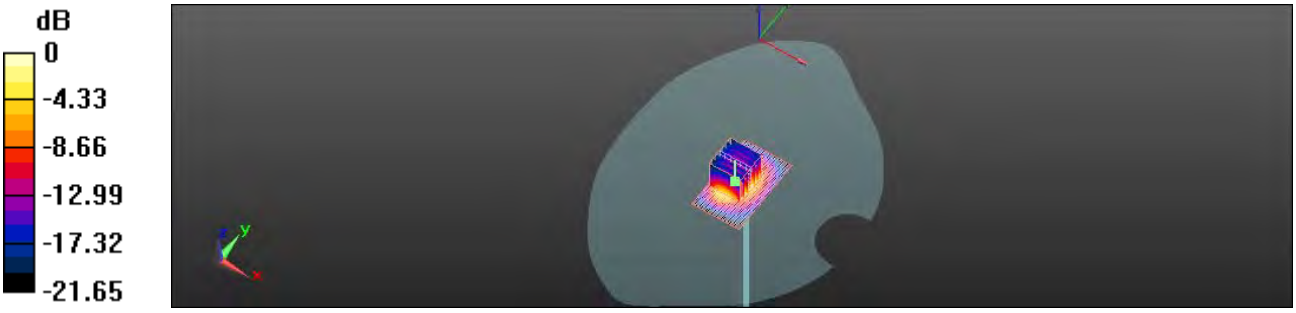
Communication System: CW; Frequency: 2450 MHz
Medium parameters used: f = 2450 MHz; σ = 1.921 mho/m; ε_r = 50.025; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(6.96, 6.96, 6.96); Calibrated: 4/19/2011
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/d=10mm, Pin=250mW, dist=2mm: Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 20.644 mW/g

Configuration/d=10mm, Pin=250mW, dist=2mm: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 100.2 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 26.642 W/kg

SAR(1 g) = 12.8 mW/g; SAR(10 g) = 5.95 mW/g
Maximum value of SAR (measured) = 19.269 mW/g



0 dB = 19.270mW/g

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Date: 11/03/2011

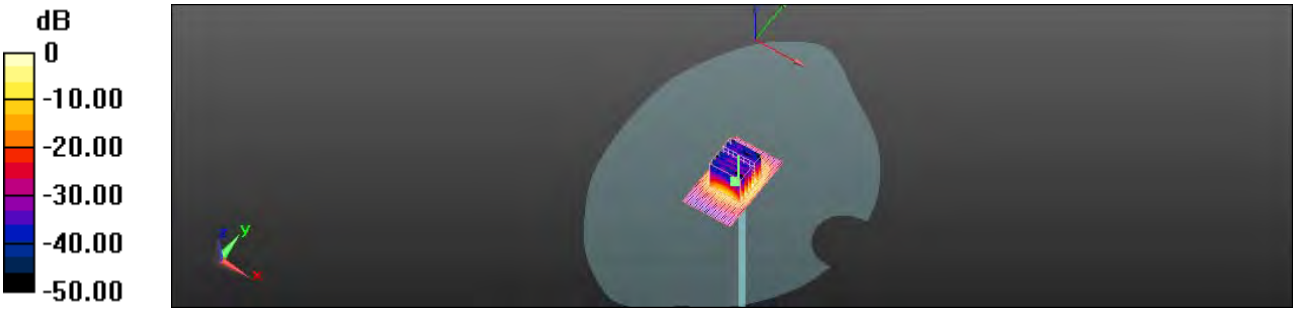
Communication System: CW; Frequency: 5200 MHz
Medium parameters used: f = 5200 MHz; σ = 4.582 mho/m; ε_r = 35.457; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- EX3DV4 - SN3661; ConvF(4.88, 4.88, 4.88); Calibrated: 1/24/2011
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/d=10mm, Pin=100mW, dist=2mm: Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 12.908 mW/g

Configuration/d=10mm, Pin=100mW, dist=2mm: Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 59.848 V/m; Power Drift = -0.16 dB
Peak SAR (extrapolated) = 32.539 W/kg

SAR(1 g) = 8.4 mW/g; SAR(10 g) = 2.41 mW/g
Maximum value of SAR (measured) = 18.010 mW/g



0 dB = 18.010mW/g

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Date: 11/03/2011

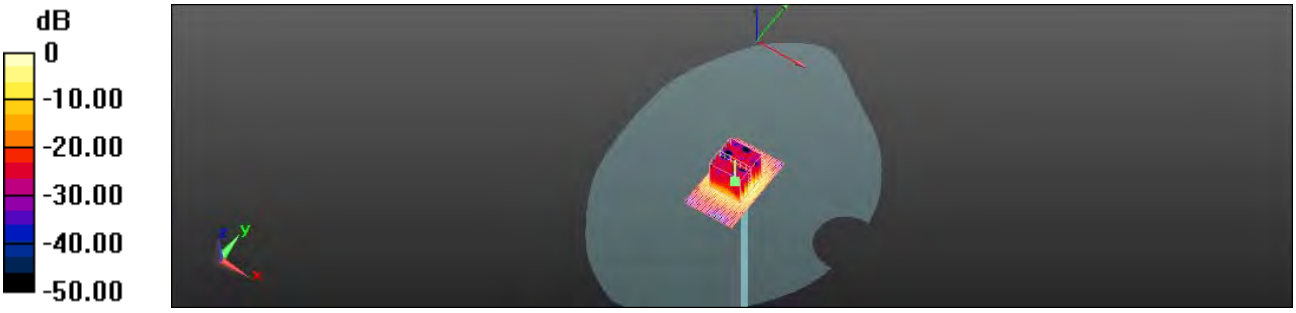
Communication System: CW; Frequency: 5200 MHz
Medium parameters used: f = 5200 MHz; σ = 5.328 mho/m; ε_r = 48.322; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(4.12, 4.12, 4.12); Calibrated: 4/19/2011
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/d=10mm, Pin=100mW, dist=2mm: Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 11.413 mW/g

Configuration/d=10mm, Pin=100mW, dist=2mm: Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 56.746 V/m; Power Drift = -0.05 dB
Peak SAR (extrapolated) = 31.272 W/kg

SAR(1 g) = 7.83 mW/g; SAR(10 g) = 0.201 mW/g
Maximum value of SAR (measured) = 9.173 mW/g



0 dB = 9.170mW/g

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Date: 11/03/2011

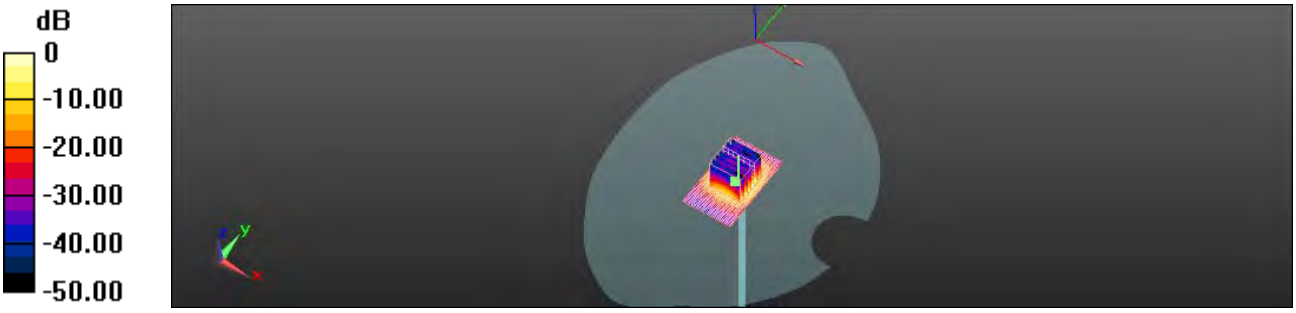
Communication System: CW; Frequency: 5800 MHz
Medium parameters used: f = 5800 MHz; σ = 5.29 mho/m; ε_r = 34.056; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3661; ConvF(4.15, 4.15, 4.15); Calibrated: 1/24/2011
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/d=10mm, Pin=100mW, dist=2mm: Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 13.568 mW/g

Configuration/d=10mm, Pin=100mW, dist=2mm: Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 62.730 V/m; Power Drift = -0.16 dB
Peak SAR (extrapolated) = 34.757 W/kg

SAR(1 g) = 7.91 mW/g; SAR(10 g) = 2.26 mW/g
Maximum value of SAR (measured) = 17.985 mW/g



0 dB = 17.980mW/g

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Date: 11/03/2011

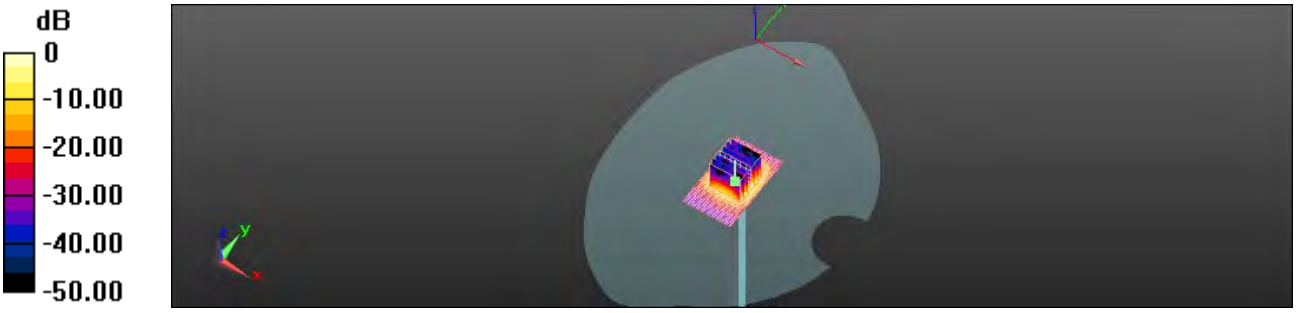
Communication System: CW; Frequency: 5800 MHz
Medium parameters used: f = 5800 MHz; σ = 6.177 mho/m; ε_r = 46.35; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(3.8, 3.8, 3.8); Calibrated: 4/19/2011
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/d=10mm, Pin=100mW, dist=2mm: Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 11.443 mW/g

Configuration/d=10mm, Pin=100mW, dist=2mm: Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 45.018 V/m; Power Drift = -0.10 dB
Peak SAR (extrapolated) = 30.374 W/kg

SAR(1 g) = 7.13 mW/g; SAR(10 g) = 2.11 mW/g
Maximum value of SAR (measured) = 8.597 mW/g



0 dB = 8.600mW/g

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6. DAE & Probe Calibration certificate

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Schmid & Partner
Engineering AG
Zeughausstrasse 43, 8004 Zurich, Switzerland

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C Service suisse d'étalonnage
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S Swiss Calibration Service

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The Swiss Accreditation Service is one of the signatories to the EA Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: SCS 108

Client **SGS-TW (Auden)**

Certificate No: DAE4-856_May11

CALIBRATION CERTIFICATE

Object	DAE4 - SD 000 D04 BJ - SN: 856
Calibration procedure(s)	QA CAL-06.v23 Calibration procedure for the data acquisition electronics (DAE)
Calibration date:	May 18, 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	07-Jun-10 (in house check)	In house check: Jun-11

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

Issued: May 18, 2011

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Certificate No: DAE4-856_May11 Page 1 of 5

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Accreditation No.: SCS 108

Client Auden

Certificate No: EX3-3661_Jan11

CALIBRATION CERTIFICATE

Object	EX3DV4 - SN:3661
Calibration procedure(s)	QA CAL-01.v7, QA CAL-14.v3, QA CAL-23.v4 and QA CAL-25.v3 Calibration procedure for dosimetric E-field probes
Calibration date:	January 24, 2011

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter E4419B	GB41293874	1-Apr-10 (No. 217-01136)	Apr-11
Power sensor E4412A	MY41495277	1-Apr-10 (No. 217-01136)	Apr-11
Power sensor E4412A	MY41498087	1-Apr-10 (No. 217-01136)	Apr-11
Reference 3 dB Attenuator	SN: S5054 (3c)	30-Mar-10 (No. 217-01159)	Mar-11
Reference 20 dB Attenuator	SN: S5086 (20b)	30-Mar-10 (No. 217-01161)	Mar-11
Reference 30 dB Attenuator	SN: S5129 (30b)	30-Mar-10 (No. 217-01160)	Mar-11
Reference Probe ES3DV2	SN: 3013	29-Dec-10 (No. ES3-3013_Dec10)	Dec-11
DAE4	SN: 660	20-Apr-10 (No. DAE4-660_Apr10)	Apr-11

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
RF generator HP 8648C	US3642U01700	4-Aug-99 (in house check Oct-09)	In house check: Oct-11
Network Analyzer HP 8753E	US37390585	18-Oct-01 (in house check Oct-10)	In house check: Oct-11

	Name	Function	Signature
Calibrated by:	Katja Pokovic	Technical Manager	
Approved by:	Fin Bomholt	R&D Director	

Issued: January 25, 2011

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Accreditation No.: SCS 108

Glossary:

TSL	tissue simulating liquid
NORMx,y,z	sensitivity in free space
ConvF	sensitivity in TSL / NORMx,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., ϑ = 0 is normal to probe axis

Calibration is Performed According to the Following Standards:

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

Methods Applied and Interpretation of Parameters:

- *NORMx,y,z:* Assessed for E-field polarization ϑ = 0 (f ≤ 900 MHz in TEM-cell; f > 1800 MHz: R22 waveguide). NORMx,y,z are only intermediate values, i.e., the uncertainties of NORMx,y,z does not effect the E^2-field uncertainty inside TSL (see below *ConvF*).
- *NORM(f)x,y,z = NORMx,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.*
- *DCPx,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.
- *Ax,y,z; Bx,y,z; Cx,y,z, VRx,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 ≤ 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 *NORMx,y,z * ConvF* whereby the uncertainty corresponds to that given for *ConvF*. A frequency dependent *ConvF* is used in DASY version 4.4 and higher which allows extending the validity from ± 50 MHz to ± 100 MHz.
- *Spherical isotropy (3D deviation from isotropy):* in a field of low gradients realized using a flat phantom exposed by a patch antenna.
- *Sensor Offset*: The sensor offset corresponds to the offset of virtual measurement center from the probe tip (on probe axis). No tolerance required.

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Probe EX3DV4

SN:3661

Manufactured:	October 20, 2008
Last calibrated:	December 30, 2009
Recalibrated:	January 24, 2011

Calibrated for DASY/EASY Systems

(Note: non-compatible with DASY2 system!)

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EX3DV4 SN:3661 January 24, 2011

DASY/EASY - Parameters of Probe: EX3DV4 SN:3661

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm ($\mu V/(V/m)^2$)[A]	0.47	0.52	0.50	± 10.1%
DCP (mV)[B]	99.7	99.0	97.2	

Modulation Calibration Parameters

UID	Communication System Name	PAR		A dB	B dBuV	C	VR mV	Unc[E] (k=2)
10000	CW	0.00	X	0.00	0.00	1.00	157.5	± 3.4 %
			Y	0.00	0.00	1.00	151.6	
			Z	0.00	0.00	1.00	156.6	

The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%.

[A] The uncertainties of NormX,Y,Z do not affect the E^2-field uncertainty inside TSL (see Pages 5 and 6).

[B] Numerical linearization parameter: uncertainty not required.

[E] Uncertainty is determined using the maximum deviation from linear response applying recatangular distribution and is expressed for the square of the field value.

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DASY/EASY - Parameters of Probe: EX3DV4 SN:3661

Calibration Parameter Determined in Head Tissue Simulating Media

f [MHz]	Validity [MHz][C]	Permittivity	Conductivity	ConvF X	ConvF Y	ConvF Z	Alpha	Depth	Unc (k=2)
750	± 50 / ± 100	41.9 ± 5%	0.89 ± 5%	9.96	9.96	9.96	0.47	0.71	± 11.0%
835	± 50 / ± 100	41.5 ± 5%	0.90 ± 5%	9.58	9.58	9.58	0.58	0.67	± 11.0%
1750	± 50 / ± 100	40.1 ± 5%	1.37 ± 5%	9.05	9.05	9.05	0.31	0.97	± 11.0%
1900	± 50 / ± 100	40.0 ± 5%	1.40 ± 5%	8.68	8.68	8.68	0.40	0.95	± 11.0%
2000	± 50 / ± 100	40.0 ± 5%	1.40 ± 5%	8.53	8.53	8.53	0.47	0.81	± 11.0%
2450	± 50 / ± 100	39.2 ± 5%	1.80 ± 5%	7.80	7.80	7.80	0.28	1.13	± 11.0%
5200	± 50 / ± 100	36.0 ± 5%	4.66 ± 5%	4.88	4.88	4.88	0.40	1.80	± 13.1%
5300	± 50 / ± 100	35.9 ± 5%	4.76 ± 5%	4.59	4.59	4.59	0.42	1.80	± 13.1%
5500	± 50 / ± 100	35.6 ± 5%	4.96 ± 5%	4.41	4.41	4.41	0.45	1.80	± 13.1%
5600	± 50 / ± 100	35.5 ± 5%	5.07 ± 5%	4.17	4.17	4.17	0.50	1.80	± 13.1%
5800	± 50 / ± 100	35.3 ± 5%	5.27 ± 5%	4.15	4.15	4.15	0.50	1.80	± 13.1%

[C] The validity of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2). The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.

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DASY/EASY - Parameters of Probe: EX3DV4 SN:3661

Calibration Parameter Determined in Body Tissue Simulating Media

f [MHz]	Validity [MHz][C]	Permittivity	Conductivity	ConvF X	ConvF Y	ConvF Z	Alpha	Depth	Unc (k=2)
750	± 50 / ± 100	55.5 ± 5%	0.96 ± 5%	9.75	9.75	9.75	0.47	0.79	± 11.0%
835	± 50 / ± 100	55.2 ± 5%	0.97 ± 5%	9.58	9.58	9.58	0.35	0.89	± 11.0%
1750	± 50 / ± 100	53.4 ± 5%	1.49 ± 5%	7.95	7.95	7.95	0.64	0.68	± 11.0%
1900	± 50 / ± 100	53.3 ± 5%	1.52 ± 5%	7.72	7.72	7.72	0.52	0.75	± 11.0%
2000	± 50 / ± 100	53.3 ± 5%	1.52 ± 5%	7.81	7.81	7.81	0.46	0.80	± 11.0%
2450	± 50 / ± 100	52.7 ± 5%	1.95 ± 5%	7.55	7.55	7.55	0.66	0.64	± 11.0%
5200	± 50 / ± 100	49.0 ± 5%	5.30 ± 5%	4.42	4.42	4.42	0.50	1.90	± 13.1%
5300	± 50 / ± 100	48.9 ± 5%	5.42 ± 5%	4.20	4.20	4.20	0.55	1.90	± 13.1%
5500	± 50 / ± 100	48.6 ± 5%	5.65 ± 5%	3.88	3.88	3.88	0.55	1.90	± 13.1%
5600	± 50 / ± 100	48.5 ± 5%	5.77 ± 5%	3.59	3.59	3.59	0.60	1.90	± 13.1%
5800	± 50 / ± 100	48.2 ± 5%	6.00 ± 5%	3.87	3.87	3.87	0.60	1.90	± 13.1%

[C] The validity of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2). The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.

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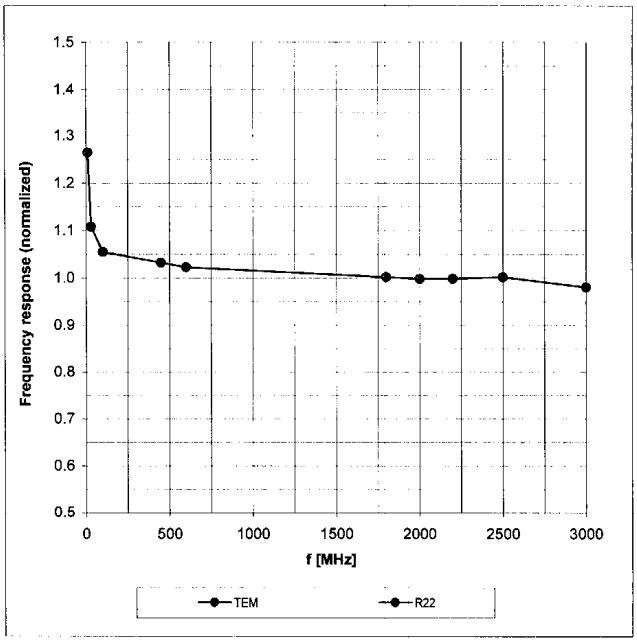
EX3DV4 SN:3661 **January 24, 2011**

Frequency Response of E-Field

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



Uncertainty of Frequency Response of E-field: ± 6.3% (k=2)

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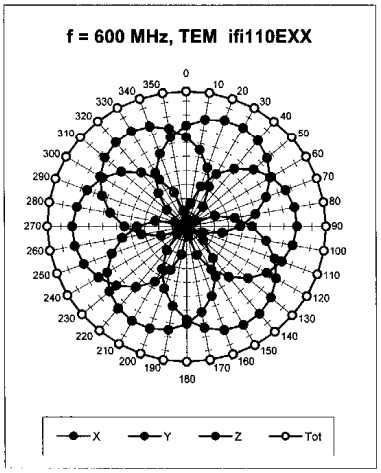
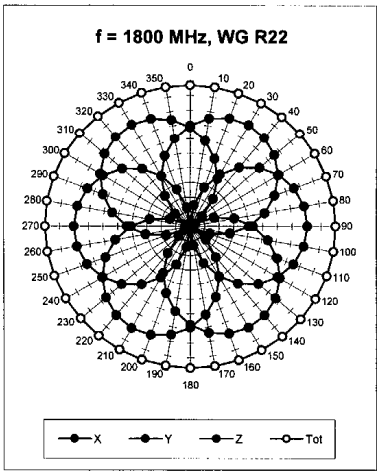
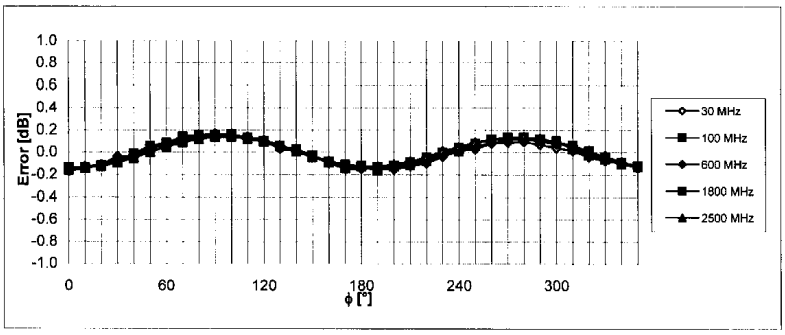
Receiving Pattern (ϕ), ϑ = 0°







Uncertainty of Axial Isotropy Assessment: ± 0.5% (k=2)

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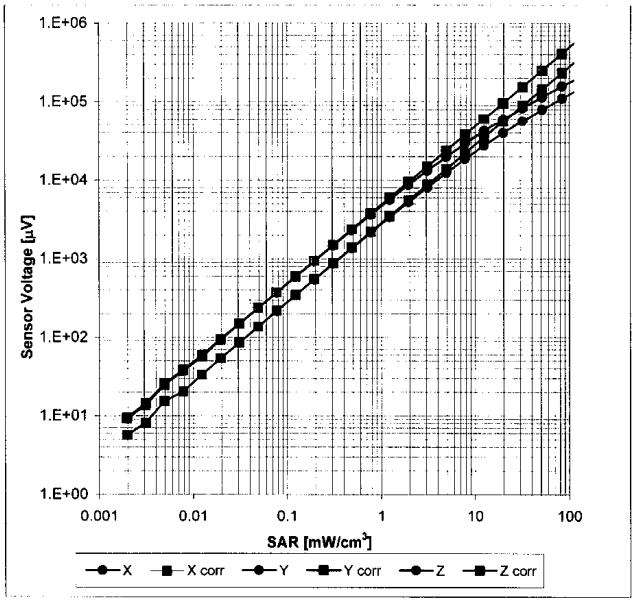
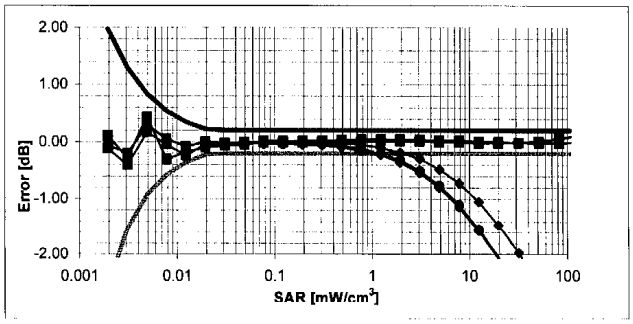
Dynamic Range f(SAR_{head})

(TEM cell, f = 900 MHz)





Uncertainty of Linearity Assessment: ± 0.6% (k=2)

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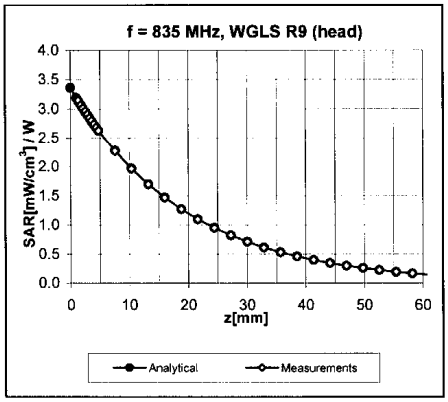
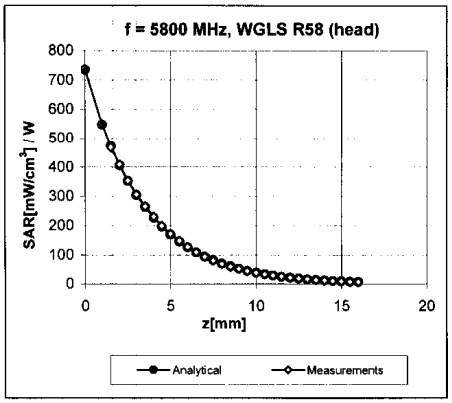
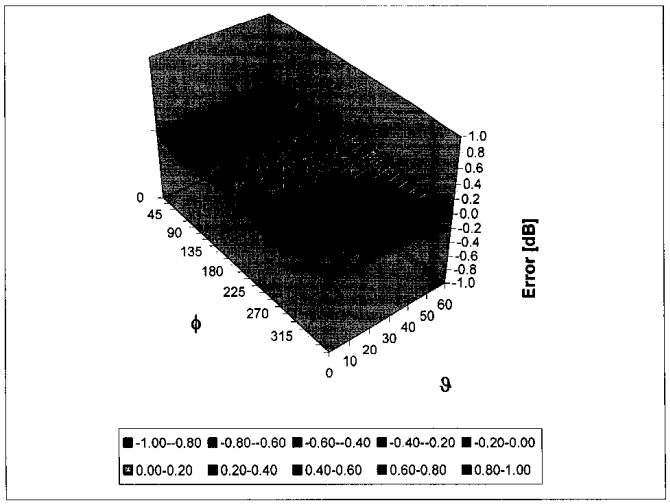
Conversion Factor Assessment





Deviation from Isotropy in HSL

Error (ϕ, ϑ), f = 900 MHz



Uncertainty of Spherical Isotropy Assessment: ± 2.6% (k=2)

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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

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S Schweizerischer Kalibrierdienst
C Service suisse d'étalonnage
S Servizio svizzero di taratura
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: **EX3-3770_Apr11**

CALIBRATION CERTIFICATE

Object	EX3DV4 - SN:3770
Calibration procedure(s)	QA CAL-01.v7, QA CAL-14.v3, QA CAL-23.v4, QA CAL-25.v3 Calibration procedure for dosimetric E-field probes
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 E4419B	GB41293874	31-Mar-11 (No. 217-01372)	Apr-12
Power sensor E4412A	MY41495277	31-Mar-11 (No. 217-01372)	Apr-12
Power sensor E4412A	MY41498087	31-Mar-11 (No. 217-01372)	Apr-12
Reference 3 dB Attenuator	SN: S5054 (3c)	29-Mar-11 (No. 217-01369)	Apr-12
Reference 20 dB Attenuator	SN: S5086 (20b)	29-Mar-11 (No. 217-01367)	Apr-12
Reference 30 dB Attenuator	SN: S5129 (30b)	29-Mar-11 (No. 217-01370)	Apr-12
Reference Probe ES3DV2	SN: 3013	29-Dec-10 (No. ES3-3013_Dec10)	Dec-11
DAE4	SN: 654	23-Apr-10 (No. DAE4-654_Apr10)	Apr-11
Secondary Standards	ID	Check Date (in house)	Scheduled Check
RF generator HP 8648C	US3642U01700	4-Aug-99 (in house check Oct-09)	In house check: Oct-11
Network Analyzer HP 8753E	US37390585	18-Oct-01 (in house check Oct-10)	In house check: Oct-11

	Name	Function	Signature
Calibrated by:	Katja Pokovic	Technical Manager	
Approved by:	Fin Bomholt	R&D Director	

Issued: April 19, 2011

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Accreditation No.: **SCS 108**

Glossary:

TSL	tissue simulating liquid
NORMx,y,z	sensitivity in free space
ConvF	sensitivity in TSL / NORMx,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., ϑ = 0 is normal to probe axis

Calibration is Performed According to the Following Standards:

a) IEEE Std 1528-2003, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", December 2003

b) IEC 62209-1, "Procedure to measure the Specific Absorption Rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)", February 2005

Methods Applied and Interpretation of Parameters:

- *NORMx,y,z:* Assessed for E-field polarization ϑ = 0 (f ≤ 900 MHz in TEM-cell; f > 1800 MHz: R22 waveguide). NORMx,y,z are only intermediate values, i.e., the uncertainties of NORMx,y,z does not affect the E^2-field uncertainty inside TSL (see below *ConvF*).
- *NORM(f)x,y,z = NORMx,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*.
- *DCPx,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
- *Ax,y,z; Bx,y,z; Cx,y,z* are numerical linearization parameters in dB assessed based on the data of power sweep for specific modulation signal. The parameters do not depend on frequency nor media.
- *VR:* VR is the validity range of the calibration related to the average diode voltage or DAE voltage in mV.
- *ConvF and Boundary Effect Parameters:* Assessed in flat phantom using E-field (or Temperature Transfer Standard for f ≤ 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 *NORMx,y,z * ConvF* whereby the uncertainty corresponds to that given for *ConvF*. A frequency dependent *ConvF* is used in DASY version 4.4 and higher which allows extending the validity from ± 50 MHz to ± 100 MHz.
- *Spherical isotropy (3D deviation from isotropy)*; in a field of low gradients realized using a flat phantom exposed by a patch antenna.
- *Sensor Offset*: The sensor offset corresponds to the offset of virtual measurement center from the probe tip (on probe axis). No tolerance required.

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Probe EX3DV4

SN:3770

Manufactured: July 6, 2010
Calibrated: April 19, 2011

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

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DASY/EASY - Parameters of Probe: EX3DV4 - SN:3770

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm ($\mu V/(V/m)^2$)[A]	0.32	0.62	0.40	± 10.1 %
DCP (mV)[B]	106.6	98.3	102.8	

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	120.8	±2.7 %
			Y	0.00	0.00	1.00	134.3	
			Z	0.00	0.00	1.00	133.5	

The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%.

[A] The uncertainties of NormX,Y,Z do not affect the E^2-field uncertainty inside TSL (see Pages 5 and 6).
[B] Numerical linearization parameter: uncertainty not required.
[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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DASY/EASY - Parameters of Probe: EX3DV4 - SN:3770

Calibration Parameter Determined in Head Tissue Simulating Media

f (MHz) [C]	Relative Permittivity [F]	Conductivity (S/m) [F]	ConvF X	ConvF Y	ConvF Z	Alpha	Depth (mm)	Unct. (k=2)
750	41.9	0.89	9.58	9.58	9.58	0.80	0.70	± 12.0 %
835	41.5	0.90	9.25	9.25	9.25	0.80	0.67	± 12.0 %
900	41.5	0.97	9.06	9.06	9.06	0.76	0.71	± 12.0 %
1750	40.1	1.37	7.97	7.97	7.97	0.80	0.61	± 12.0 %
1900	40.0	1.40	7.78	7.78	7.78	0.71	0.62	± 12.0 %
2000	40.0	1.40	7.79	7.79	7.79	0.75	0.58	± 12.0 %
2450	39.2	1.80	6.99	6.99	6.99	0.80	0.56	± 12.0 %
2600	39.0	1.96	6.95	6.95	6.95	0.66	0.62	± 12.0 %

[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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DASY/EASY - Parameters of Probe: EX3DV4- SN:3770

Calibration Parameter Determined in Body Tissue Simulating Media

f (MHz) [C]	Relative Permittivity [F]	Conductivity (S/m) [F]	ConvF X	ConvF Y	ConvF Z	Alpha	Depth (mm)	Unct. (k=2)
750	55.5	0.96	9.42	9.42	9.42	0.73	0.72	± 12.0 %
835	55.2	0.97	9.30	9.30	9.30	0.72	0.72	± 12.0 %
900	55.0	1.05	9.12	9.12	9.12	0.73	0.75	± 12.0 %
1750	53.4	1.49	7.84	7.84	7.84	0.80	0.68	± 12.0 %
1900	53.3	1.52	7.51	7.51	7.51	0.80	0.62	± 12.0 %
2000	53.3	1.52	7.44	7.44	7.44	0.80	0.66	± 12.0 %
2450	52.7	1.95	6.96	6.96	6.96	0.80	0.50	± 12.0 %
2600	52.5	2.16	6.78	6.78	6.78	0.80	0.50	± 12.0 %
5200	49.0	5.30	4.42	4.42	4.42	0.50	1.90	± 13.1 %
5300	48.9	5.42	4.12	4.12	4.12	0.52	1.90	± 13.1 %
5600	48.5	5.77	3.54	3.54	3.54	0.60	1.90	± 13.1 %
5800	48.2	6.00	3.80	3.80	3.80	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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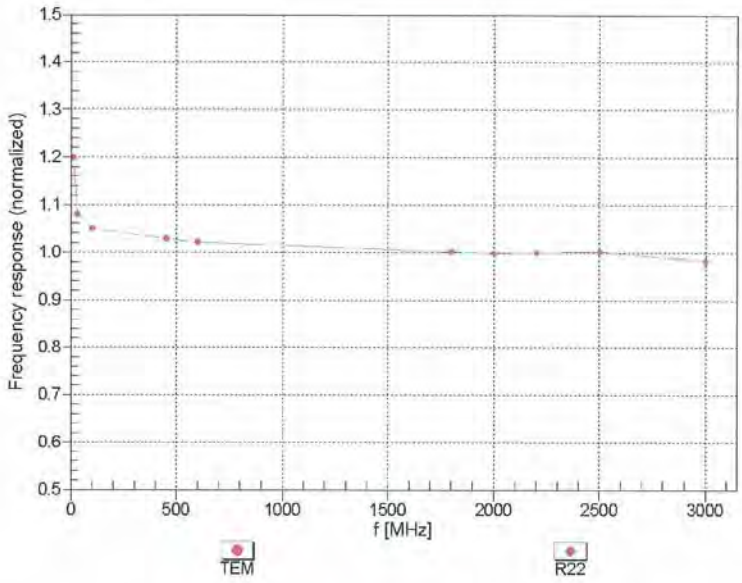
EX3DV4– SN:3770 April 19, 2011

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



Uncertainty of Frequency Response of E-field: ± 6.3% (k=2)

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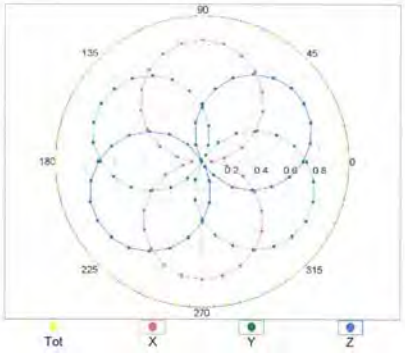
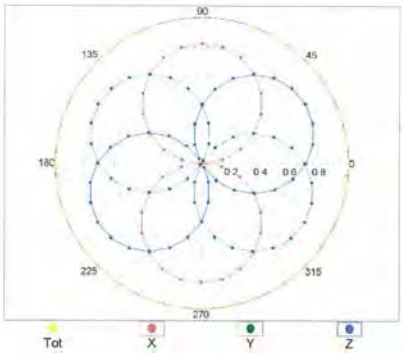
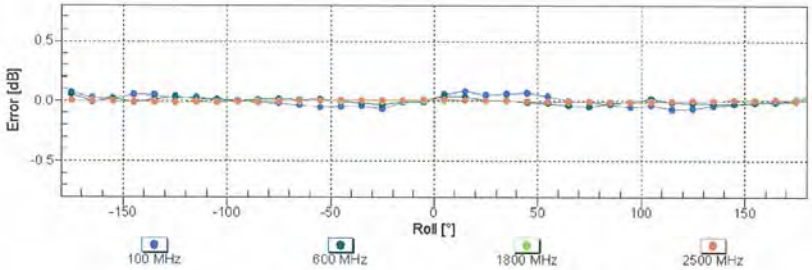
Receiving Pattern (ϕ), ϑ = 0°

f=600 MHz,TEM



f=1800 MHz,R22





Uncertainty of Axial Isotropy Assessment: ± 0.5% (k=2)

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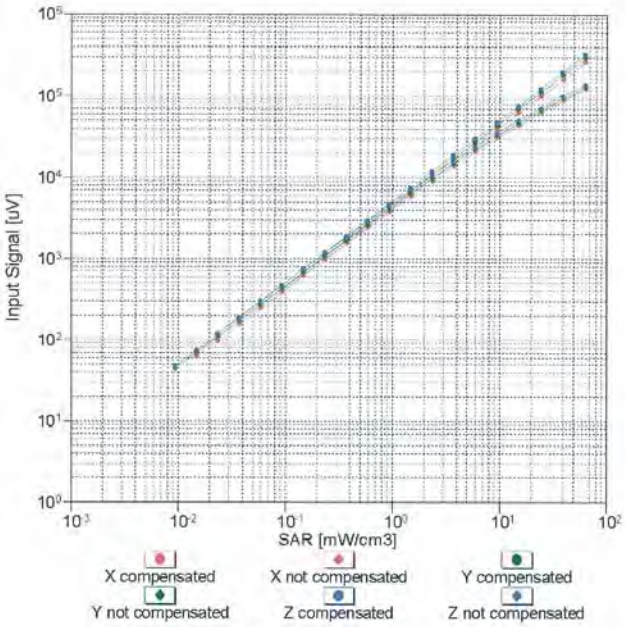
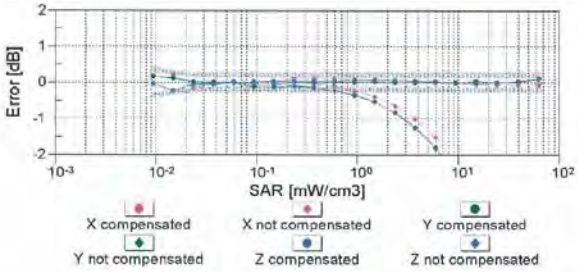
Dynamic Range f(SAR_{head})
(TEM cell , f = 900 MHz)





Uncertainty of Linearity Assessment: ± 0.6% (k=2)

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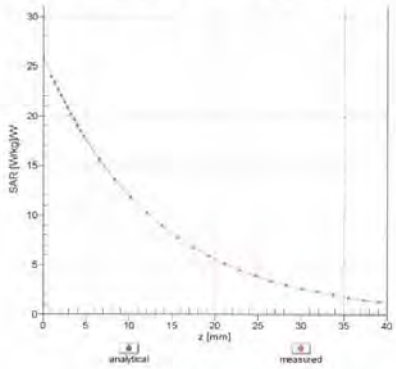
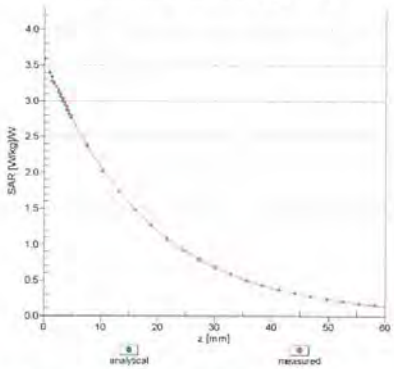
Conversion Factor Assessment

f = 1750 MHz,WGLS R22 (H_convF)

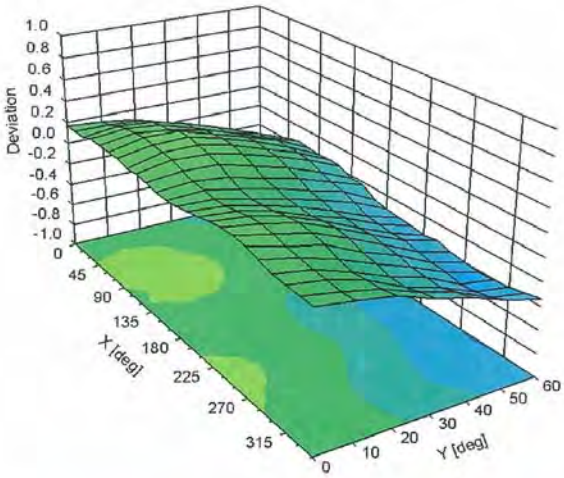


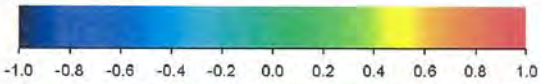
f = 900 MHz,WGLS R9 (H_convF)



Deviation from Isotropy in Liquid

Error (ϕ, ϑ), f = 900 MHz





Uncertainty of Spherical Isotropy Assessment: ± 2.6% (k=2)

Certificate No: EX3-3770_Apr11 Page 10 of 11

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DASY/EASY - Parameters of Probe: EX3DV4 - SN:3770

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

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SGS Taiwan Ltd. 台灣檢驗科技股份有限公司 | No. 134, Wu Kung Rd., Wuku Industrial Zone, Taipei County, Taiwan. / 台北縣五股工業區五工路136之1號
t (886-2) 2299-3939 f (886-2) 2299-9489 www.sgs.com.tw

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 Distributioin	Div	ci (1g)	ci (10g)	Standard uncertainty	Standard uncertainty	vi, or Veff
Measurement system								
Probe calibration (Frequency Under 3GHz)	6%	N	1	1	1	6%	6%	∞
Isotropy , Axial	4.7%	R	$\sqrt{3}$	1	1	2.7%	2.7%	∞
Isotropy, Hemispherical	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	$\sqrt{}$	1	1	1.5%	1.5%	∞

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			3					
Measurement drift (class A evaluation)	1.8%	R	√ 3	1	1	1.0%	1.0%	∞
RF ambient condition - noise	3.0%	R	√ 3	1	1	1.7%	1.7%	∞
RF ambient conditions -reflections	3.0%	R	√ 3	1	1	1.7%	1.7%	∞
Probe positioner Mechanical restrictions	0.4%	R	√ 3	1	1	0.2%	0.2%	∞
Probe Positioning with respect to phantom shell	2.9%	R	√ 3	1	1	1.7%	1.7%	∞
Post-processing	1.0%	R	√ 3	1	1	0.6%	0.6%	∞
Max SAR Eval	1.0%	R	√ 3	1	1	0.6%	0.6%	∞
Test Sample related								
Test sample positioning	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	√ 3	1	1	2.9%	2.9%	∞
Phantom and Setup								
Phantom	4.0%	R	√	1	1	2.3%	2.3%	∞

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Uncertainty			3					
Liquid conductivity(meas.) Max at 1900 band	4.6%	N	1	0.64	0.43	2.9%	2.0%	M
Liquid permitivity(meas.) Max at 835 band	2.2%	N	1	0.6	0.49	1.3%	1.1%	M
Combined standard uncertainty		RSS				11.8%	11.6%	
Expant uncertainty (95% confidence interval), K=2						23.6%	23.2%	

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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 Distributioin	Div	ci (1g)	ci (10g)	Standard uncertainty	Standard uncertainty	vi, or Veff
Measurement system								
Probe calibration(under 6Ghz)	6.55%	N	1	1	1	6.55%	6.55%	∞
Isotropy , Axial	4.70%	R	√3	1	1	2.71%	2.71%	∞
Isotropy, Hemispherical	9.60%	R	√3	1	1	5.54%	5.54%	∞
Boundary Effect	1.00%	R	√3	1	1	0.58%	0.58%	∞
Linearity	4.70%	R	√3	1	1	2.71%	2.71%	∞
Detection Limits	1.00%	R	√3	1	1	0.58%	0.58%	∞
Readout Electronics	0.30%	N	1	1	1	0.30%	0.30%	∞
Response time	0.80%	R	√3	1	1	0.46%	0.46%	∞
Integration Time	2.60%	R	√3	1	1	1.50%	1.50%	∞
Measurement drift (class A evaluation)	1.75%	R	√3	1	1	1.01%	1.01%	∞
RF ambient condition - noise	3.00%	R	√3	1	1	1.73%	1.73%	∞
RF ambient conditions -reflections	3.00%	R	√3	1	1	1.73%	1.73%	∞

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Probe positioner Mechanical restrictions	0.40%	R	√3	1	1	0.23%	0.23%	∞
Probe Positioning with respect to phantom shell	2.90%	R	√3	1	1	1.67%	1.67%	∞
Post-processing	1.00%	R	√3	1	1	0.58%	0.58%	∞
Max SAR Eval	1.00%	R	√3	1	1	0.58%	0.58%	∞
Test Sample related								
Test sample positioning	2.90%	N	1	1	1	2.90%	2.90%	M-1
Device Holder Uncertainty	3.60%	N	1	1	1	3.60%	3.60%	M-1
Drift of output power	5.00%	R	√3	1	1	2.89%	2.89%	∞
Phantom and Setup								
Phantom Uncertainty	4.00%	R	√3	1	1	2.31%	2.31%	∞
Liquid conductivity(meas.) Max at 1900 band	4.60%	N	1	0.64	0.43	2.94%	1.98%	M
Liquid permitivity(meas.) Max at 835 band	2.17%	N	1	0.6	0.49	1.30%	1.06%	M
Combined standard uncertainty		RSS				12.15%	11.92%	

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Expant uncertainty (95% confidence interval), K=2						24.29%	23.85%	

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8. Phantom description

Schmid & Partner Engineering AG

s p e a g

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

Certificate of Conformity / First Article Inspection

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

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

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

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

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

Date 07.07.2005

Signature / Stamp

s p e a g
Schmid & Partner Engineering AG
Zeughausstrasse 43, 8004 Zurich, Switzerland
Phone +41 1 245 9700, Fax +41 1 245 9779
info@speag.com, http://www.speag.com

Doc No 881 – QD 000 P40 C – F 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
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

	Name	Function	Signature
Calibrated by:	Claudio Leubler	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: May 25, 2011

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

Certificate No: D835V2-4d063_May11 Page 1 of 8

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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

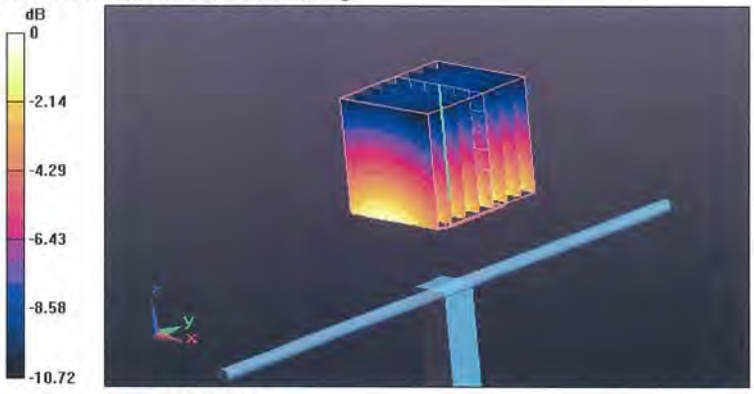
Communication System: CW; Frequency: 835 MHz; Duty Cycle: 1:1
Medium: HSL900
Medium parameters used: f = 835 MHz; σ = 0.88 mho/m; ε_r = 40.4; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

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



0 dB = 2.670mW/g

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DASY5 Validation Report for Body TSL

Date: 25.05.2011

Test Laboratory: SPEAG, Zurich, Switzerland

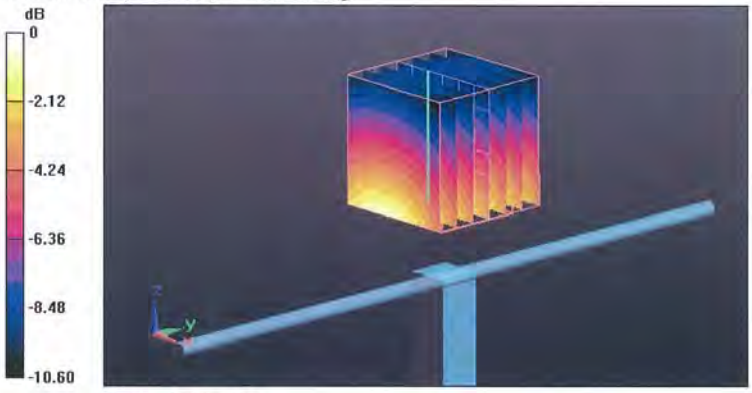
DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN: 4d063

Communication System: CW; Frequency: 835 MHz; Duty Cycle: 1:1
Medium: MSL900
Medium parameters used: f = 835 MHz; σ = 1 mho/m; ε_r = 53.9; ρ = 1000 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=5mm, dy=5mm, dz=5mm
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



0 dB = 2.800mW/g

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Accreditation No.: **SCS 108**

Client **SGS-TW (Auden)**

Certificate No: **D1750V2-1008_May11**

CALIBRATION CERTIFICATE

Object	D1750V2 - SN: 1008
Calibration procedure(s)	QA CAL-05.v8 Calibration procedure for dipole validation kits above 700 MHz
Calibration date:	May 24, 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

	Name	Function	Signature
Calibrated by:	Claudio Leubler	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: May 24, 2011

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DASY5 Validation Report for Head TSL

Date: 24.05.2011

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 1750 MHz; Type: D1750V2; Serial: D1750V2 - SN: 1008

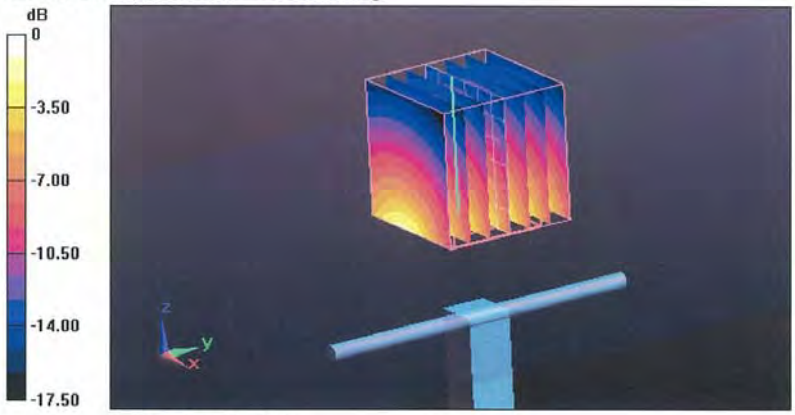
Communication System: CW; Frequency: 1750 MHz; Duty Cycle: 1:1
Medium: HSL U12 BB
Medium parameters used: f = 1750 MHz; σ = 1.34 mho/m; ε_r = 39.4; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(5.22, 5.22, 5.22); Calibrated: 29.04.2011
- 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, V14.4.4 Build (2829)

Dipole Calibration for Head Tissue/Pin=250 mW, d=10mm/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 91.240 V/m; Power Drift = 0.05 dB
Peak SAR (extrapolated) = 15.901 W/kg
SAR(1 g) = 8.89 mW/g; SAR(10 g) = 4.73 mW/g
Maximum value of SAR (measured) = 11.000 mW/g



0 dB = 11.000mW/g

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DASY5 Validation Report for Body TSL

Date: 24.05.2011

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 1750 MHz; Type: D1750V2; Serial: D1750V2 - SN: 1008

Communication System: CW; Frequency: 1750 MHz; Duty Cycle: 1:1
Medium: MSL U12 BB
Medium parameters used: f = 1750 MHz; σ = 1.44 mho/m; ε_r = 52.3; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(4.85, 4.85, 4.85); Calibrated: 29.04.2011
- 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, V14.4.4 Build (2829)

Dipole Calibration for Body Tissue/Pin=250 mW, d=10mm/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 92.611 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 15.724 W/kg
SAR(1 g) = 9.04 mW/g; SAR(10 g) = 4.82 mW/g
Maximum value of SAR (measured) = 11.315 mW/g

0 dB = 11.310mW/g

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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

	Name	Function	Signature
Calibrated by:	Claudio Leubler	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: April 19, 2011

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DASY5 Validation Report for Head TSL

Date/Time: 18.04.2011 15:27:22

Test Laboratory: SPEAG, Zurich, Switzerland

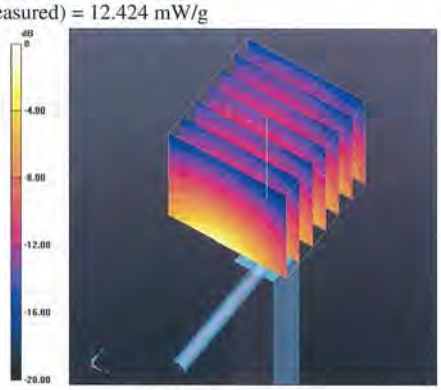
DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN:5d027

Communication System: CW; Frequency: 1900 MHz; Duty Cycle: 1:1
Medium: HSL U12 BB
Medium parameters used: f = 1900 MHz; σ = 1.41 mho/m; ε_r = 39; ρ = 1000 kg/m^3
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



0 dB = 12.420mW/g

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DASY5 Validation Report for Body TSL

Date/Time: 19.04.2011 12:53:51

Test Laboratory: SPEAG, Zurich, Switzerland

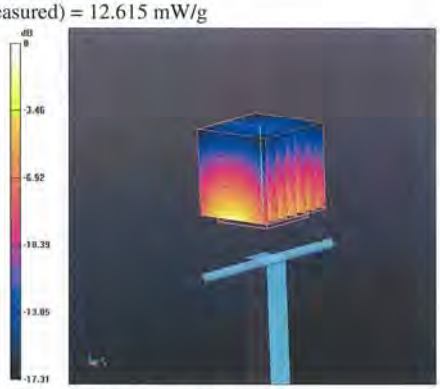
DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN:5d027

Communication System: CW; Frequency: 1900 MHz; Duty Cycle: 1:1
Medium: MSL U12 BB
Medium parameters used: f = 1900 MHz; σ = 1.52 mho/m; ε_r = 51.1; ρ = 1000 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=5mm, dy=5mm, dz=5mm
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



0 dB = 12.610mW/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

	Name	Function	Signature
Calibrated by:	Claudio Leubler	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: April 19, 2011

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DASY5 Validation Report for Head TSL

Date/Time: 18.04.2011 16:55:19

Test Laboratory: SPEAG, Zurich, Switzerland

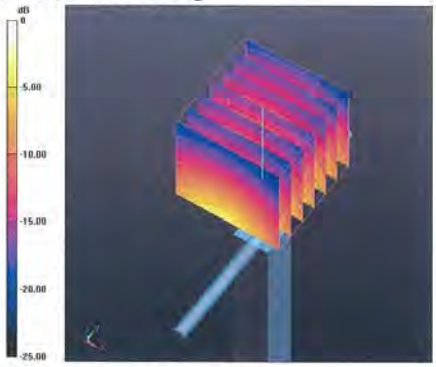
DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN:727

Communication System: CW; Frequency: 2450 MHz; Duty Cycle: 1:1
Medium: HSL U12 BB
Medium parameters used: f = 2450 MHz; σ = 1.74 mho/m; ε_r = 38.6; ρ = 1000 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=5mm, dy=5mm, dz=5mm
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



0 dB = 17.400mW/g

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DASY5 Validation Report for Body TSL

Date/Time: 19.04.2011 14:37:11

Test Laboratory: SPEAG, Zurich, Switzerland

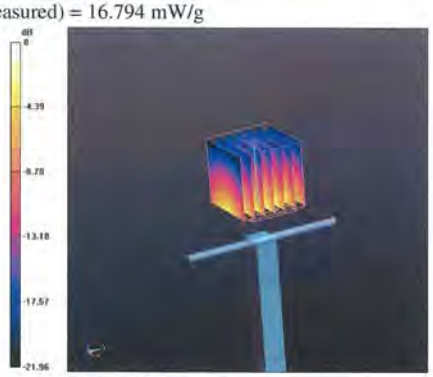
DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN:727

Communication System: CW; Frequency: 2450 MHz; Duty Cycle: 1:1
Medium: MSL U12 BB
Medium parameters used: f = 2450 MHz; σ = 1.91 mho/m; ε_r = 50.6; ρ = 1000 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=5mm, dy=5mm, dz=5mm
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



0 dB = 16.790mW/g

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Accreditation No.: SCS 108

Client **SGS-TW (Auden)**

Certificate No: D5GHzV2-1023_Jan11

CALIBRATION CERTIFICATE

Object	D5GHzV2 - SN: 1023
Calibration procedure(s)	QA CAL-22.v1 Calibration procedure for dipole validation kits between 3-6 GHz
Calibration date:	January 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)	30-Mar-10 (No. 217-01158)	Mar-11
Type-N mismatch combination	SN: 5047.2 / 06327	30-Mar-10 (No. 217-01162)	Mar-11
Reference Probe EX3DV4	SN: 3503	05-Mar-10 (No. EX3-3503_Mar10)	Mar-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

	Name	Function	Signature
Calibrated by:	Dimce Iliev	Laboratory Technician	D. Iliev
Approved by:	Katja Pokovic	Technical Manager	

Issued: January 20, 2011

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DASY5 Validation Report for Body TSL

Date/Time: 19.01.2011 12:49:54

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 5GHz; Type: D5GHz; Serial: D5GHzV2 - SN:1023

Communication System: CW; Frequency: 5200 MHz, Frequency: 5500 MHz, Frequency: 5800 MHz; Duty Cycle: 1:1
Medium: MSL 5000 MHz
Medium parameters used: f = 5200 MHz; σ = 5.4 mho/m; ε_r = 47.2; ρ = 1000 kg/m^3 ,
Medium parameters used: f = 5500 MHz; σ = 5.78 mho/m; ε_r = 46.6; ρ = 1000 kg/m^3 ,
Medium parameters used: f = 5800 MHz; σ = 6.18 mho/m; ε_r = 46.1; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3503; ConvF(4.88, 4.88, 4.88), ConvF(4.37, 4.37, 4.37), ConvF(4.57, 4.57, 4.57); Calibrated: 05.03.2010
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 10.06.2010
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; Serial: 1002
- Measurement SW: DASY52, V52.6.1 Build (408)
- Postprocessing SW: SEMCAD X, V14.4.2 Build (2595)

Pin=100mW/d=10mm, f=5200 MHz/Zoom Scan (4x4x2mm), dist=2mm (8x8x6)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 60.119 V/m; Power Drift = 0.0056 dB
Peak SAR (extrapolated) = 31.296 W/kg
SAR(1 g) = 7.81 mW/g; SAR(10 g) = 2.16 mW/g
Maximum value of SAR (measured) = 15.660 mW/g

Pin=100mW/d=10mm, f=5500 MHz/Zoom Scan (4x4x2mm), dist=2mm (8x8x6)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 60.423 V/m; Power Drift = 0.0054 dB
Peak SAR (extrapolated) = 35.162 W/kg
SAR(1 g) = 8.3 mW/g; SAR(10 g) = 2.29 mW/g
Maximum value of SAR (measured) = 16.764 mW/g

Pin=100mW/d=10mm, f=5800 MHz/Zoom Scan (4x4x2mm), dist=2mm (8x8x6)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=4mm
Reference Value = 55.250 V/m; Power Drift = 0.0063 dB
Peak SAR (extrapolated) = 35.996 W/kg
SAR(1 g) = 7.44 mW/g; SAR(10 g) = 2.03 mW/g
Maximum value of SAR (measured) = 14.991 mW/g

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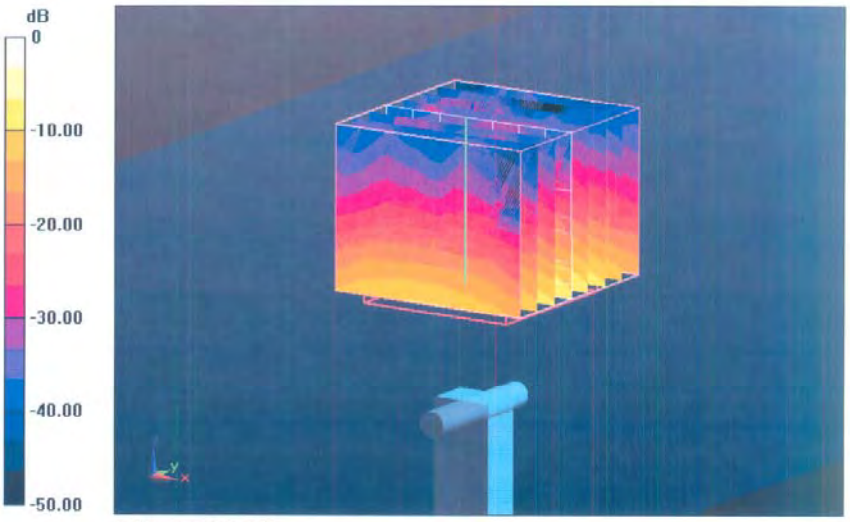

0 dB = 14.990mW/g

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Accreditation No.: SCS 108

Client [redacted]

Certificate No: D5GHz-1040_Jun11

CALIBRATION CERTIFICATE

Object	D5GHzV2 - SN: 1040
Calibration procedure(s)	QA CAL-22.v1 Calibration procedure for dipole validation kits between 3-6 GHz
Calibration date:	June 21, 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 EX3DV4	SN: 3503	04-Mar-11 (No. EX3-3503_Mar11)	Mar-12
DAE4	SN: 601	8-Jun-11 (No. DAE4-601_Jun11)	Jun-12

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

	Name	Function	Signature
Calibrated by:	Dimce Iliev	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: June 21, 2011

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Certificate No: D5GHz-1040_Jun11 Page 1 of 13

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DASY5 Validation Report for Head TSL

Date: 20.06.2011

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 5GHz; Type: D5GHz; Serial: D5GHzV2 - SN: 1040

Communication System: CW; Frequency: 5200 MHz, Frequency: 5500 MHz, Frequency: 5800 MHz
Medium: HSL 502 A
Medium parameters used: f = 5200 MHz; σ = 4.5 mho/m; ε_r = 35.8; ρ = 1000 kg/m^3 , Medium parameters used: f = 5500 MHz; σ = 4.82 mho/m; ε_r = 35.2; ρ = 1000 kg/m^3 , Medium parameters used: f = 5800 MHz; σ = 5.08 mho/m; ε_r = 34.8; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

- Probe: EX3DV4 - SN3503; ConvF(5.41, 5.41, 5.41), ConvF(4.91, 4.91, 4.91), ConvF(4.81, 4.81, 4.81); Calibrated: 04.03.2011
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 08.06.2011
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- DASY52 52.6.2(482); SEMCAD X 14.4.5(3634)

Dipole Calibration for Head Tissue/Pin=100mW, dist=10mm, f=5200 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 65.544 V/m; Power Drift = 0.07 dB
Peak SAR (extrapolated) = 30.178 W/kg
SAR(1 g) = 8.13 mW/g; SAR(10 g) = 2.32 mW/g
Maximum value of SAR (measured) = 18.566 mW/g

Dipole Calibration for Head Tissue/Pin=100mW, dist=10mm, f=5500 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 65.669 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 34.025 W/kg
SAR(1 g) = 8.59 mW/g; SAR(10 g) = 2.44 mW/g
Maximum value of SAR (measured) = 20.159 mW/g

Dipole Calibration for Head Tissue/Pin=100mW, dist=10mm, f=5800 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 61.830 V/m; Power Drift = 0.06 dB
Peak SAR (extrapolated) = 32.874 W/kg
SAR(1 g) = 7.93 mW/g; SAR(10 g) = 2.25 mW/g
Maximum value of SAR (measured) = 18.884 mW/g

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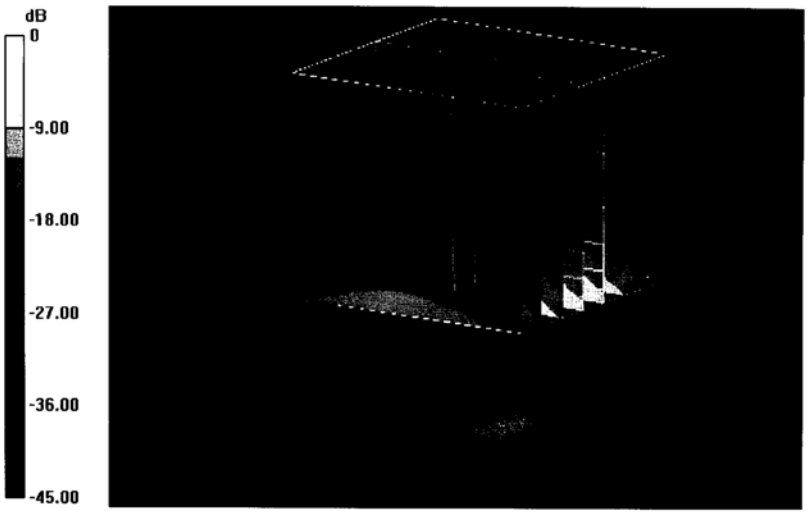

0 dB = 18.880mW/g

End of 1st part of report

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